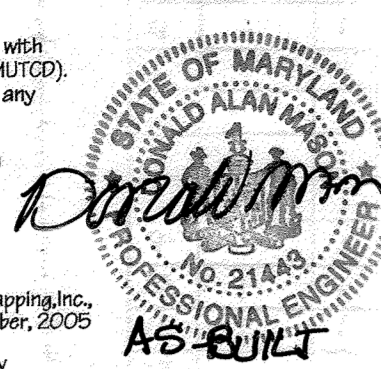


General Notes

- All construction shall be in accordance with the latest standards and specifications of Howard County plus MSHA standards and specifications if applicable.
- The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at 410-353-1800 at least five (5) working days prior to the start of work.
- The contractor shall notify "Miss Utility" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
- Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All streets and regulatory signs to be placed prior to the placement of any asphalt.
- Street light placement and the type of fixture and pole shall be in accordance with the Howard County Design Manual, Volume II (1993) and as modified by "Guidelines for Street Lighting in Residential Developments (June 1993)." A minimum 20 feet spacing shall be between the light and any tree.
- The existing on-site topography was flown by Virginia Resource Mapping, Inc. dated February 28, 2003. Supplemental field survey by DMW, Inc. October, 2005.
- The coordinates shown herein are based upon the Howard County Geospatial Control which is based upon the Maryland State Plane Coordinate System. Howard County Monument Nos. 31EA and 37DCA were used for this project.
- Project background information:
 Subdivision Name: Myrtue Property & Lot 1, Valley Anne Estates Section 2
 Total Area: 817 Acres
 Tax Map: 10
 Lot/Parcel: F.225, Lot 1 Valley Anne Estates Section 2
 Zoning: RCDEO
 Election District: 6
 Preliminary Plan Approval Date: 4/15/05
 File Numbers: WP-04-100 Approved 6/25/04, SP-04-07
 WP-04-100 (approved 6/25/04) was approved allowing the following disturbances into the environmental buffer:
 a) Section 16.116(c)(2) to allow clearing, filling or impervious paving within a floodplain for the purpose of a road crossing (impact 1) and for the purpose of a SWM outfall (impact 3);
 b) Section 16.116(a)(1) to allow grading, removal of vegetative cover, and paving within 25 feet of a wetland for the purpose of a road crossing (impact 1,2&3) and for the purpose of SWM outfall (impact 3);
 c) Section 16.116(a)(1) to allow grading, removal of vegetative cover and paving within 75 feet of a perennial stream for the purpose of a road crossing (impact 1 and 2);
 d) Section 16.116(d) to allow grading, removal of vegetative cover, and paving on steep slopes (25% and greater, over 10 vertical feet) for the purpose of a road crossing (impact 1,4,7) and for SWM storm drain (impact 3).
 The approval is subject to the following conditions:
 1. All grading disturbances associated with the proposed road crossing and SWM elements located within floodplain, stream, wetlands, their required buffers, and steep slopes are subject to obtaining all necessary Water Quality Certificates and Non-Tidal Wetlands Permits from MDE and/or the U.S. Army Corps of Engineers, if applicable.
 2. All grading and construction activities located within the 100 year floodplain, stream, wetlands, their required buffers, and steep slopes shall be minimized and in compliance with approved Grading and Sediment Control Plans and Forest, Open Space Management practices shall be used by all contractors. Stabilization shall be initiated immediately upon completion of proposed activity.
 3. The developer is required to use the least disturbing design practices in accordance with Section 16.116(c)(3), the requirements of SCD (dated 3/31/2004) and Section 16.116(c)(3) of the Subdivision and Land Development Regulations. The developer shall repair any environmental areas disturbed where grading and removal of vegetative cover has taken place in accordance with Section 16.116(c)(3). The replanting plan shall be submitted as part of the final road construction drawings.
 4. Reduce disturbances to impacts #4,7, and 8.
 5. For CDD comments dated 5/22/2004, only the SWM outfall is allowed as an environmental disturbance, not the pond itself.
 Note: Intrusions #3 grading of steep slopes, #5 grading of steep slopes, & #10 grading of steep slopes, were shown in WP-04-100 and have been eliminated.
 9. Street trees shall be planted at least 5' from any inlet structure.
 10. This project complies with the requirements of Section 16.1200 of the Howard County Code for Forest Conservation by providing approximately 17.3 acres of afforestation or reforestation to offset the proposed clearing of 61 acres. Approximately 1.2 acres of existing forest will be retained.

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. 21443 Expiration Date: 12-21-25

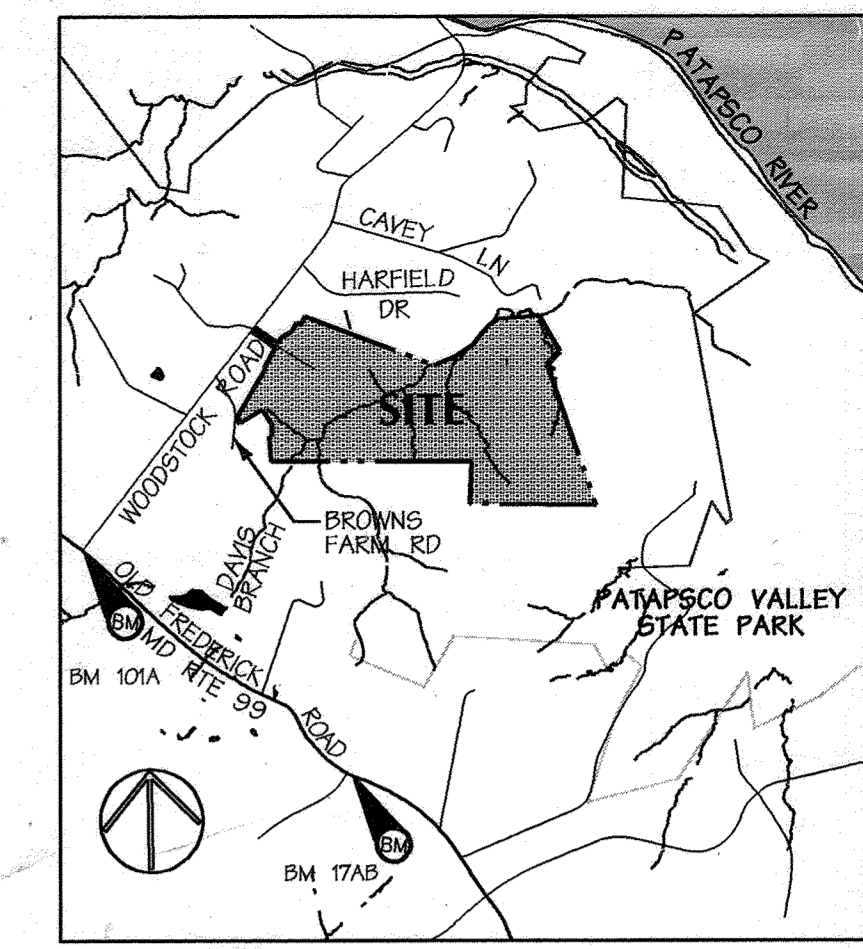


AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5/19/24

Final Plan Myrtue Property Lots 1-14, 17-33, Buildable Preservation Parcel A, Non-Buildable Preservation Parcels B-D, F-K, Non-Buildable Parcel E, and Cemetery Lot 1 Howard County, Maryland

BENCHMARK

DESIGNATION	NORTH (FT)	EAST (FT)
101A	600995.107	1345340.34
17AB	598435.240	1348615.248



Sheet Index

SHEET	DESCRIPTION
1	COVER SHEET
2	ROAD PLAN - STA 0+00 TO 1+50
3	ROAD PLAN - STA 1+50 TO 2+50
4	ROAD PLAN - STA 2+50 TO 3+40
5	ROAD PLAN - STA 3+40 TO 4+50
6	ROAD PLAN - STA 4+50 TO 6+470.51
7	ROAD PLAN - CUL-DE-SAC
8	ROAD WIDENING - WOODSTOCK ROAD
9	ROAD DETAILS
10	OFF SITE STORM DRAIN-DRAINAGE AREA MAP
11	STORM DRAIN - DRAINAGE AREA MAP
12	STORM DRAIN - DRAINAGE AREA MAP
13	STORM DRAIN - DRAINAGE AREA MAP
14	STORM DRAIN - DRAINAGE AREA MAP
15	STORM DRAIN PROFILES
16	STORM DRAIN PROFILES
17	COMPOSITE EROSION AND SEDIMENT CONTROL PLAN
18	GRADING, SEDIMENT AND EROSION CONTROL PLAN
19	GRADING, SEDIMENT AND EROSION CONTROL PLAN
20	GRADING, SEDIMENT AND EROSION CONTROL PLAN
21	GRADING, SEDIMENT AND EROSION CONTROL PLAN
22	GRADING, SEDIMENT AND EROSION CONTROL PLAN
23	GRADING, SEDIMENT AND EROSION CONTROL PLAN
24	SWM PLAN
25	SWM PLAN
26	SWM PLAN
27	SWM PLAN
28	SWM FACILITY DETAILS
29	SWM FACILITY DETAILS
30	SWM FACILITY DETAILS
31	SWM BORING LOGS AND ENHANCED FEATURE DETAILS
32	SWM BORING LOGS
33	SWM BORING LOGS
34	RET. #1 LOCATION PLAN
35	RET. #2 LOCATION PLAN
36	RETAINING WALL #1 ELEVATION VIEW
37	RETAINING WALL #1 ELEVATION VIEW
38	RETAINING WALL #2 CONSTRUCTION DETAILS
39	FOREST CONSERVATION PLAN
40	FOREST CONSERVATION PLAN
41	FOREST CONSERVATION PLAN
42	FOREST CONSERVATION PLAN
43	FOREST CONSERVATION PLAN
44	FOREST CONSERVATION PLAN
45	FOREST CONSERVATION DETAILS
46	FOREST CONSERVATION INDEX SHEET
47	FINAL LANDSCAPE PLAN
48	FINAL LANDSCAPE PLAN
49	FINAL LANDSCAPE PLAN
50	FINAL LANDSCAPE PLAN
51	MAINTENANCE OF TRAFFIC PAVEMENT MARKINGS
52	BOTTOMLESS ARCH - PLAN AND PROFILE
53	BOTTOMLESS ARCH - SECTIONS AND DETAILS
54	BOTTOMLESS ARCH - POSTING AND READING DET.
55	BOTTOMLESS ARCH - HEADQUALL PROFILES
56	BOTTOMLESS ARCH - NOTES AND SPECIFICATIONS

Site Analysis Data Chart

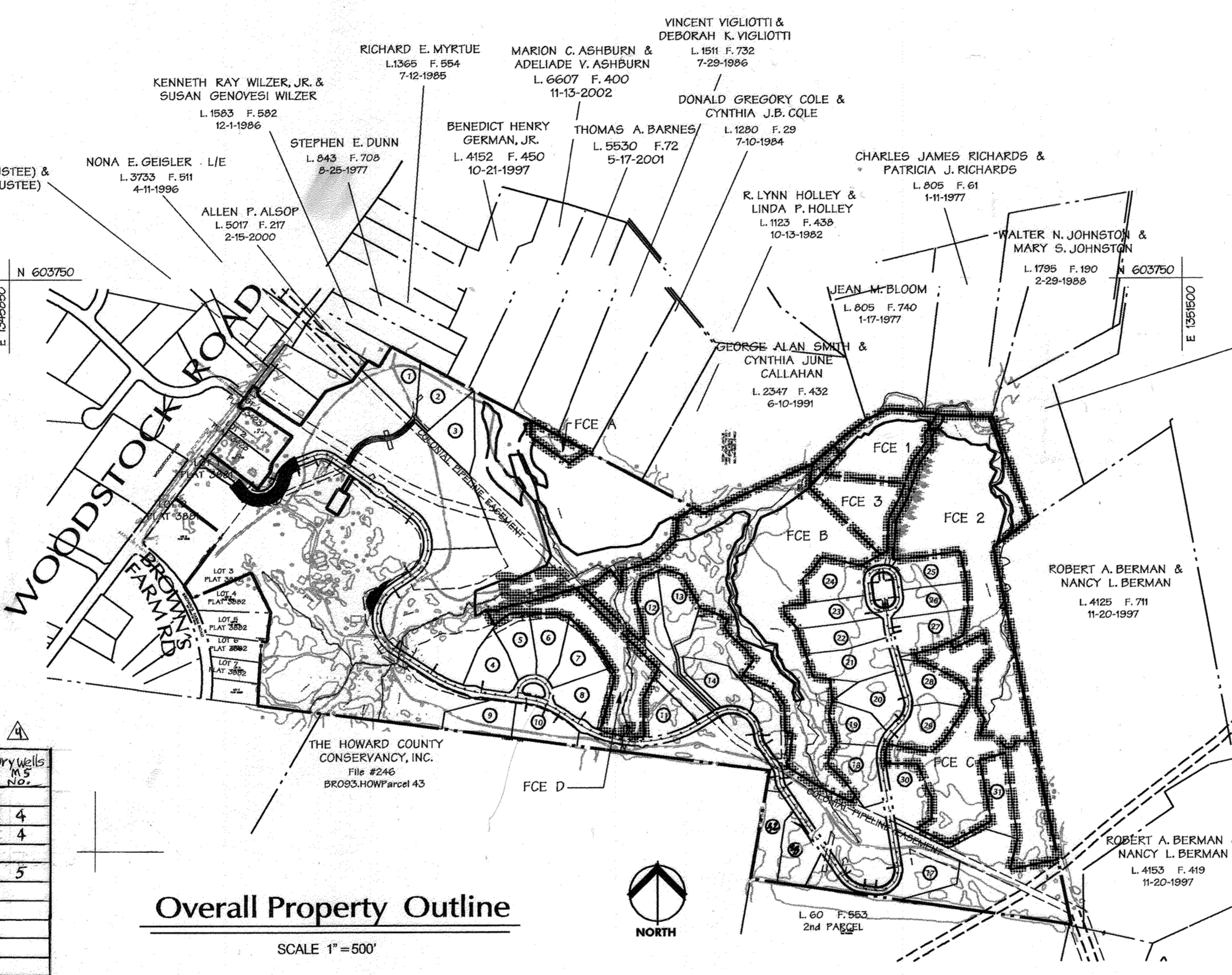
- General Site Data**
 - a. Present Zoning: RCDEO
 - b. Applicable DPZ File References: WP 04-100
 - c. Proposed Use of Site or Structure(s): 32 Single Family Homes
 - d. Proposed Water and Sewer Systems: Well and Septic
- Area Tabulation**
 - a. Gross site area: 1517.7 Acres
 - b. Approximate Area of Steep Slopes (25% or Greater): 12.5 Acres ±
 - c. Approximate Area of 100 Year Floodplain: 10.4 Acres ±
 - d. Net Site Area: 128.0 Acres ±
 - e. Area of Proposed Buildable Preservation Parcels: 21.7 Acres ±
 - f. Area of Proposed Non-Buildable Preservation Parcel: 81.3 Acres ±
 - g. Area of Proposed SFD Lots: 35.7 Acres ±
 - h. Proposed Open Space Lots: N/A
 - i. Area of Proposed Public Roads: 6.9 Acres
 - j. Area of Proposed Private Roads: N/A
 - k. Area of Proposed SWM Parcels: N/A
- Residential Unit/Lot Tabulation**
 - a. Total Number of Residential Units/Lots Allowed for Overall Project: 32
 - b. Total Number of Lots allowed per DEO/CEO: 64
 - c. Number of SFD Residential Units/Lots proposed: 31
 - d. DEO/CEO units to be acquired: 0
 - e. Number of Non-Buildable Preservation Parcels proposed: 9
 - f. Number of Buildable Preservation Parcels proposed: 1
 - g. Number of SWM Parcels proposed: N/A
 - h. Number of Open Space Lots proposed: N/A
 - i. Total Number of Lots/Parcels proposed: 41
 - j. Number of Cemetery Lots: 1 (Cemetery Lot 1)
 - k. Number of Non-buildable Parcels: 1 (Non-Buildable Parcel E)

FOR RIGHT OF WAY CHART AND MONUMENT RECOVERY SKETCHES SEE SHEET NO. 36

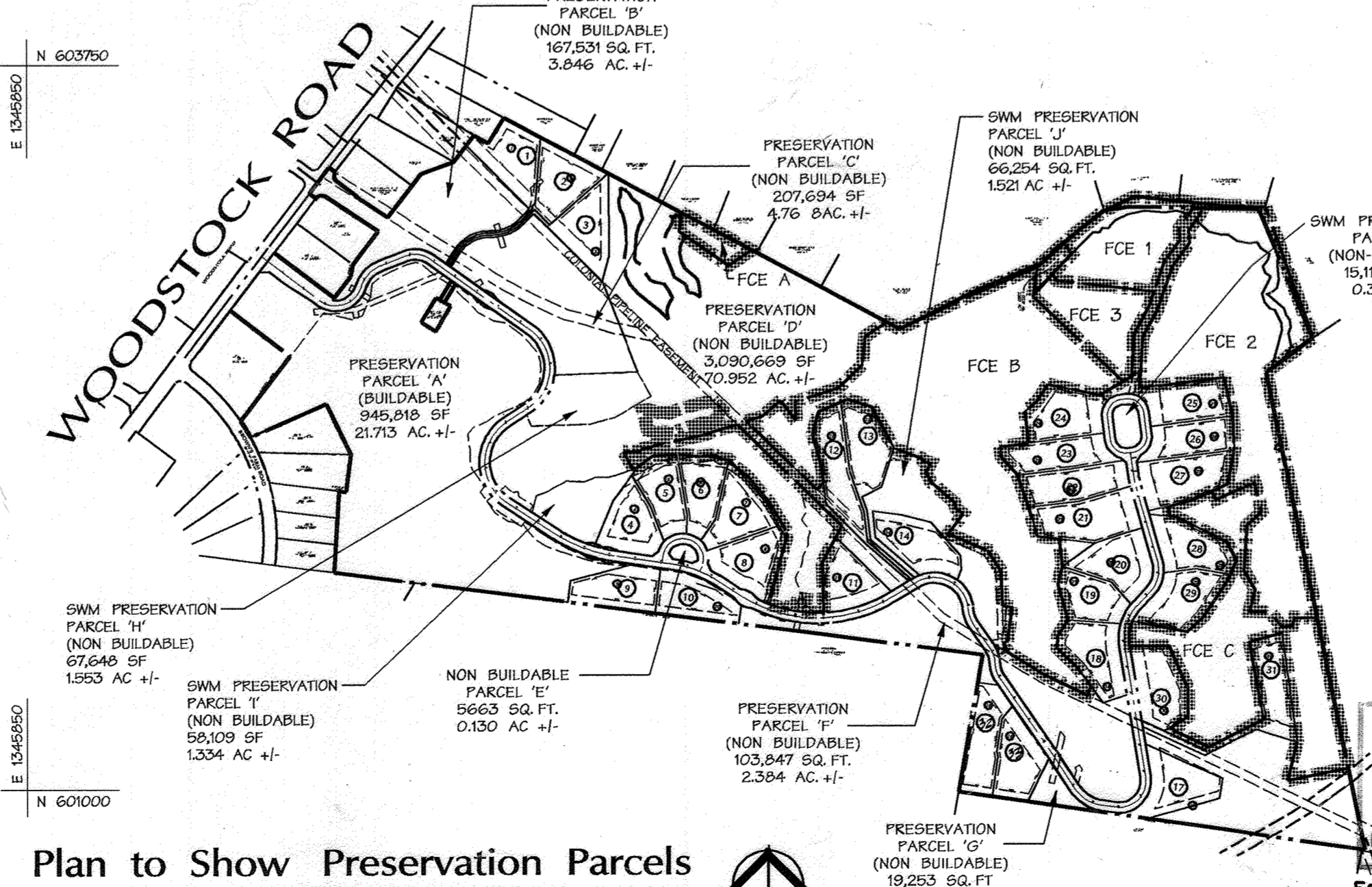
AS-BUILT NOTES:

- HORIZONTAL AND VERTICAL DATUM FOR THIS AS-BUILT IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD 83 / ADJ 07 AS PROJECTED FROM H.C.C. GEODETIC CONTROL STATIONS 101A AND 17AB.
- THE INSTRUMENTS USED IN PERFORMING THE AS-BUILTS WERE A 5" TOTAL STATION AND PRISM AND R.R.G.P.S.
- THIS AS-BUILT WAS PERFORMED BY BENCHMARK ENGINEERING, INC.
- FOR AS-BUILT RIGHT OF WAY ELEVATIONS CHART SEE SHEET NO. 35.

LOT NO.	ADDRESS	# N-2 NO.	MICRO-BIO RETENTION (NO.)
LOT 1	1731 DAVIS BRANCH RD	1	1
LOT 2	1737 DAVIS BRANCH RD	1	1
LOT 3	1743 DAVIS BRANCH RD	1	1
LOT 4	1801 DAVIS BRANCH RD	1	1
LOTS 18 07	DAVIS BRANCH RD	1	1
LOT 6	1813 DAVIS BRANCH RD	1	1
LOT 7	1819 DAVIS BRANCH RD	1	1
LOT 8	1825 DAVIS BRANCH RD	1	1
LOT 11	1841 DAVIS BRANCH RD	1	1
LOT 12	1847 DAVIS BRANCH RD	1	1
LOT 13	1853 DAVIS BRANCH RD	1	1
LOT 14	1859 DAVIS BRANCH RD	1	1
LOT 17	1904 DAVIS BRANCH RD	1	5
LOT 18	1921 DAVIS BRANCH RD	1	1
LOT 19	1927 DAVIS BRANCH RD	1	1
LOT 20	1933 DAVIS BRANCH RD	1	1
LOT 21	1939 DAVIS BRANCH RD	1	1
LOT 22	1945 DAVIS BRANCH RD	1	1
LOT 23	1951 DAVIS BRANCH RD	1	4
LOT 24	1957 DAVIS BRANCH RD	1	1
LOT 25	1957 DAVIS BRANCH RD	1	5
LOT 26	1949 DAVIS BRANCH RD	1	1
LOT 27	1942 DAVIS BRANCH RD	1	4
LOT 28	1936 DAVIS BRANCH RD	1	1
LOT 29	1930 DAVIS BRANCH RD	1	1
LOT 30	1916 DAVIS BRANCH RD	1	5
LOT 31	1910 DAVIS BRANCH RD	1	4



Overall Property Outline
 SCALE 1"=500'



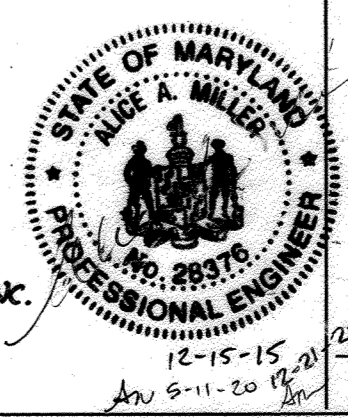
Plan to Show Preservation Parcels
 SCALE 1"=500'

Minimum Lot Size Chart

LOT #	GROSS AREA	PIPESTEM AREA	MIN. LOT AREA
1	56,016 SF	3,190 SF	51,826 SF
2	52,011 SF	3,277 SF	48,734 SF
3	52,836 SF	3,171 SF	49,667 SF
12	51,075 SF	2,952 SF	48,123 SF
13	53,320 SF	2,929 SF	50,391 SF
31	56,670 SF	3,620 SF	47,050 SF

- There will be no Howard County services provided on the flag or pipeline lots.
 - Boundary and existing easements were taken from a Boundary survey prepared by Duff, McCune - Walker, Inc. dated August 14, 2003.
 - A noise study is not required for this project.
 - Financial surety for the required landscaping in the amount of \$44,064.00 must be posted as part of the developer's agreement.
 - Financial surety for the Forest Conservation requirements in the amount of \$455,637.60 must be posted as part of the developer's agreement.
 - The Maryland Department of the Environment Tracking Number is 200662349/06-NT-3068
 - 95% compaction in fill areas to be per AASHTO T-190 standards.
 - All sign posts used for traffic control signs installed in the County Right of Way shall be mounted on a 2" galvanized steel perforated square tube (4 gauge) inserted into 21/2" galvanized steel perforated square tube sleeve (2 gauge) - 3' long. A galvanized steel pole cap shall be mounted on top of each post.
 - The septic reserve area designation shown in the legend designates a private sewerage easement of at least 10,000 SF as required by the Maryland department of the environment for individual sewerage disposal. Improvements of any nature in this area are restricted until public sewerage is available. These easements shall become null and void upon connection to a public sewerage system. The county health officer shall have the authority to grant adjustments to the public sewerage easement. Reconnection of a modified sewerage easement shall not be necessary.
 - All wells to be drilled prior to submittal of final plan for signature. It is the developer's responsibility to schedule the well drilling prior to that stipulation. It will not be considered "governmental delay" if the well drilling hold-up the Health Department signature of the record plan. If well access rate is accomplished at various locations within the site, the developer shall have the option to request relief from drilling the remaining wells prior to plat recordation.
 - There is a 100 year floodplain on this site. A Floodplain Study prepared by Duff, McCune and Walker has been submitted.
 - The Myrtue Property is listed in the Howard County Historic Sites Inventory as HO-190, "Good Fellowship". Existing structures on site will remain as shown on Preservation parcel 'A'.
 - A cemetery identified as #10-1 in the Howard County Cemetery & Gravesite Inventory exists on the property per resolution 847189A approved at the 10/27/04 planning board meeting.
 - A Design Manual Waiver Request was granted on 9/26/06 waiving the requirement a safety bench be placed between one foot and eighteen inches below the channel flow division and the 25' buffer from the toe of embankment to the top of cut to a right of way respecting regarding facility #4.
- JUSTIFICATION OF THE SUBDIVISION DESIGN**
 AS RELATED TO THE PRESERVATION PARCELS
 The Myrtue Property and Valley Anne Estates section 2, Lot 1 are a 1517 acre site zoned RC-DEO on Woodstock Road in western Howard County. There is an existing farmhouse and outbuildings on the west end of the property; however, the site has not been farmed for several years. Several stream systems include the Davis Branch, cross the site, and there are associated wetland areas. The northeast corner of the property is forested; grading has left this forest with little to no understorey. Several transmission main easements also cross the site. Woodstock Road, a county designated scenic road, provides public road frontage on the western boundary of the property. The property also has frontage on Browns Farm Road, however, this frontage is restricted from use by environmental constraints.
- A cluster subdivision of 31 single family detached lots has been designed respecting, as feasible, the environmentally sensitive areas on site. Non-buildable Preservation Parcels are proposed, and all environmentally sensitive areas will be contained on Preservation Parcels.
- The intended function and purpose of the Preservation Parcels will be:
- Limited farming activities on Preservation Parcel A & C.
 - Conservation areas associated with the Davis Branch, other streams, floodplain, wetlands and associated buffers. The majority of the forest in the northeast corner of the site will be located on Preservation Parcel D.
 - Protection of forest conservation requirements: Parcels B & D will be utilized in part for reforestation and retention.
 - Creation of a forest conservation bank, utilizing the excess reforestation areas within the subdivision and assist in screening the adjacent property: Parcel F & G.
 - Settling density. The developer intends to transfer density rights to the subdivision (except plot) to allow the density to be used at the discretion of the owner. The zoning ordinance requires that the 20-acre preservation parcel. The road alignment and easements for design purposes are shown to preserve the setting of this resource, and minimizing the extent of public road and number of residential lots within existing forest areas. Potential use are generally consistent with environmental constraints and zoning requirements.
- "Good Fellowship" (HO 190), a historic residence on Preservation Parcel A is currently occupied by the Myrtue family. Situated on a prominent knoll on the west end of the property, the structure, its surrounding outbuildings, trees and nearby cemetery will remain intact, with the exception of one storage building at the bottom of the hill, near the stream. As a 25-acre site, the Preservation Parcel E is of sufficient size to preserve the setting of this resource. Driveway access to the structure is obtained to the southwest, from Browns Farm Road. The primary facade of the structure faces Woodstock Road, and existing vegetation between the new subdivision road and the building will screen the building from view. The closest proposed lots to the north are almost 700 feet distant, and will have homes with fronts facing the historic structure, although intervening distance and vegetation will mitigate any direct view.

REVISION #5 - REMOVE IMPROVEMENTS TO LOTS 1-3, 7, 7-23
 REVISION #4 - updated SWM practices chart 9/24/07



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376 Expiration Date: 1-1-17
 FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION #1 DEC. 5, 2015
 #35 JULY 14, 2021, #5 7.7.23

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 With 2. Mall 10-23-07
 CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 Cindy Hamer 11/8/07
 CHIEF, DIVISION OF LAND DEVELOPMENT SC DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 4/2/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description
5-11-20	1	ADD ENTRANCE FEATURE
12-3-15	2	REVISE PLAN SET TO PROVIDE ESP SWM PRACTICES
7-14-21	3	REVISE LOTS 15/16 TO LOTS 32 TO 33

FINAL PLAN

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 TAX MAP 10, GRID 24, PARCEL 225

OWNER/DEVELOPER:
 SONSHANE MD, LP
 227 GRANITE RUN DR
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

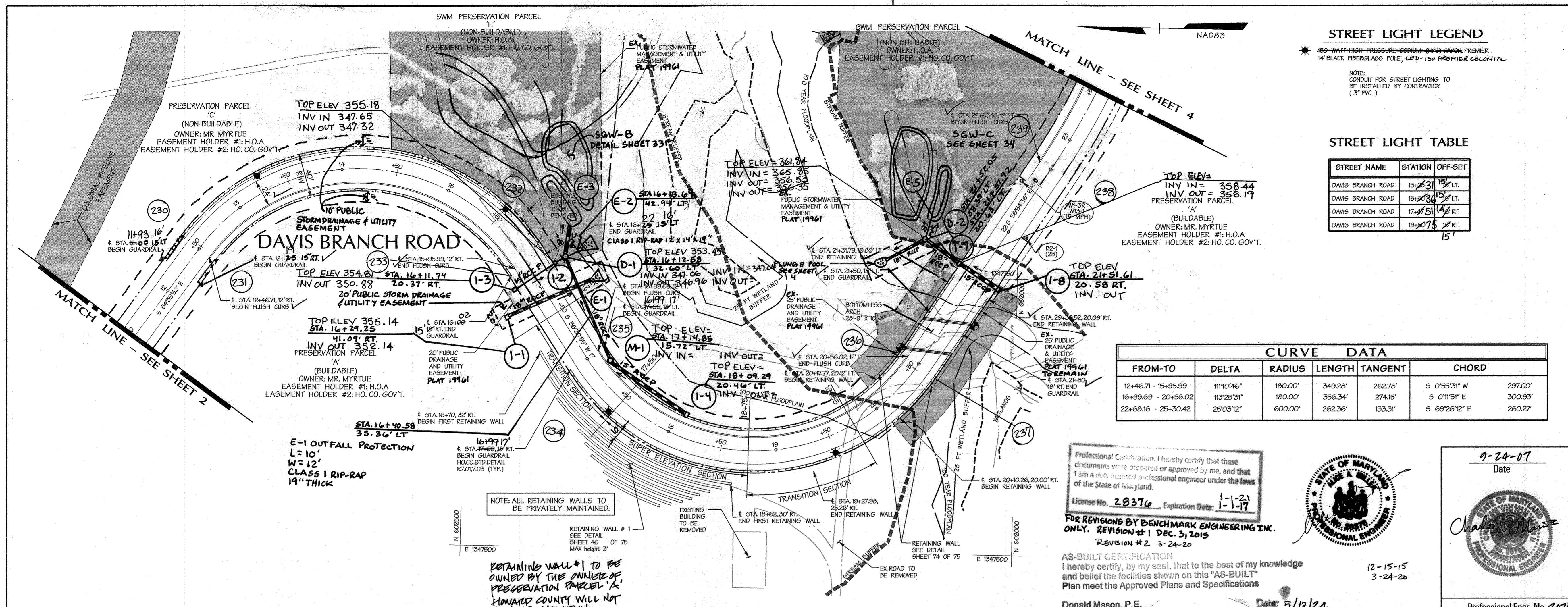
DMW
 Duff-McCune-Walker, Inc.
 3010 Street Pinesville, Avenue
 Towson, Maryland 21286
 (410) 286-3333
 Fax 286-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

TITLE
MYRTUE PROPERTY
FINAL PLAN
COVER SHEET

Des By	Scale	AS SHOWN	Proj. No.	02033.D
Drn By	GMO	Date	2/14/07	
Chk By	Approved			1 of 56

Professional Eng. No. 20784



STREET LIGHT LEGEND

30" HAWK-HIGH-PRESSURE-GORHAM-BRAND-MANUFACTURER
 1/2" BLACK FIBERGLASS POLE, LE D-150 PREMIER COLONY 1x1
 NOTE: CONDUIT FOR STREET LIGHTING TO BE INSTALLED BY CONTRACTOR (3" PVC)

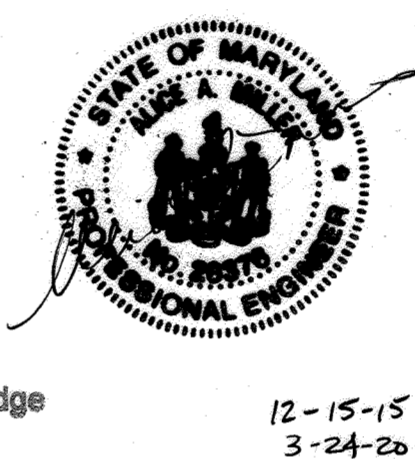
STREET LIGHT TABLE

STREET NAME	STATION	OFF-SET
DAVIS BRANCH ROAD	13+23.15	15' LT.
DAVIS BRANCH ROAD	15+00.00	15' LT.
DAVIS BRANCH ROAD	17+01.51	14' RT.
DAVIS BRANCH ROAD	19+00.75	15' RT.

CURVE DATA

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
12+46.71 - 15+96.99	111°04'	180.00'	349.28'	262.78'	5 0°55'31" W 291.00'
16+99.69 - 20+56.02	13°25'31"	180.00'	356.34'	274.15'	5 0°11'51" E 300.93'
22+68.16 - 25+30.42	28°03'12"	600.00'	262.36'	133.31'	5 69°26'12" E 260.27'

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376, Expiration Date: 1-1-17
FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION #1 DEC. 3, 2015. REVISION #2 3-24-20
 AS-BUILT CERTIFICATION: I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications.
 Donald Mason, P.E. Date: 5/13/24



9-24-07 Date
 Professional Engr. No. 20784

* REVISIONS INCLUDE STORMDRAIN, GRADING, EASEMENTS,

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 [Signature] 10-23-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
 [Signature] 11/8/09
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 11/7/09
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

3/2002 2 UPDATE OWNER STREET LIGHTS
 12-3-15 1 REVISE SWM FORESD METHODS *

MYRTUE PROPERTY
 LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 TAX MAP 10 GRID 24 PARCEL 225287

SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

OWNER/DEVELOPER
 DAVIS-BRANDLIE
 JAMES-KEEFEY-AND-CONRS.
 440-904-0000
 65-FALCON-RD-ROAP
 TIMONUM, MD-20689

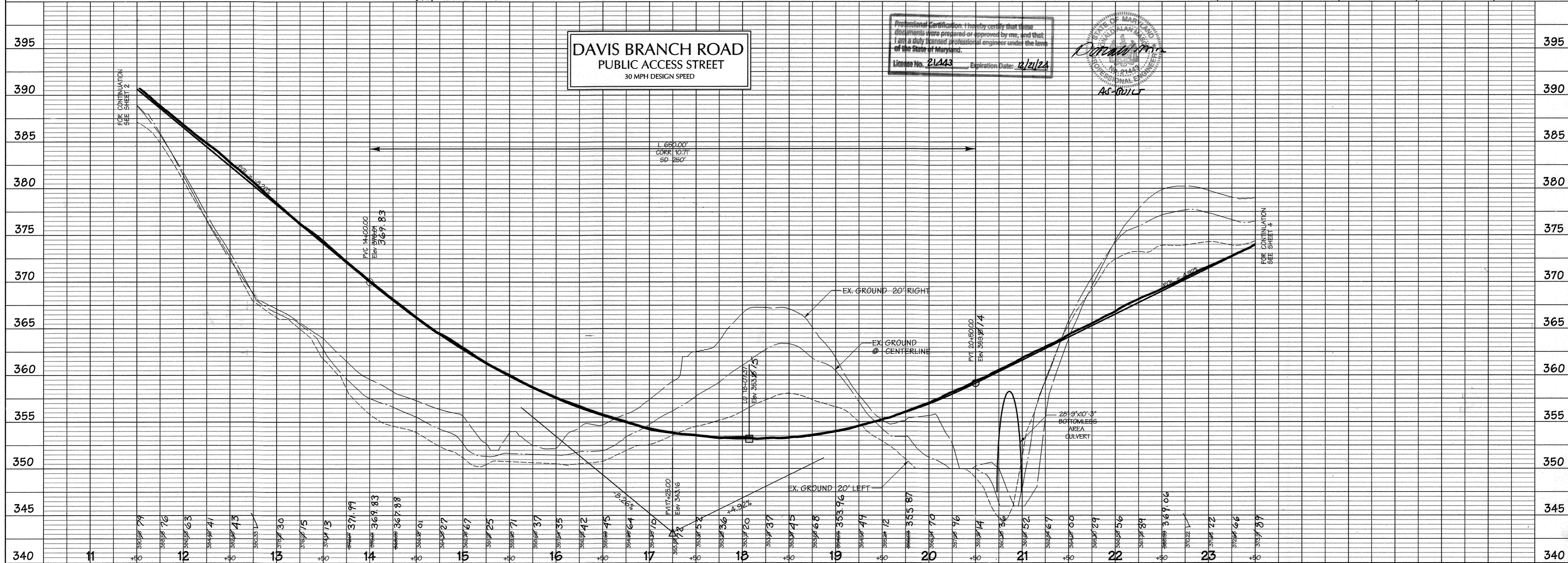
DMW
 Darl McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 286-3353
 Fax 286-4706

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

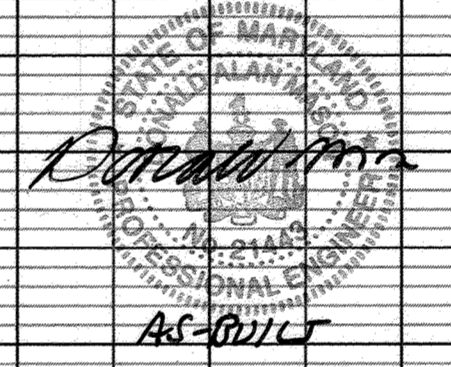
AREA
 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
FINAL ROAD PLAN AND PROFILE
 STA 11+50 TO 23+50

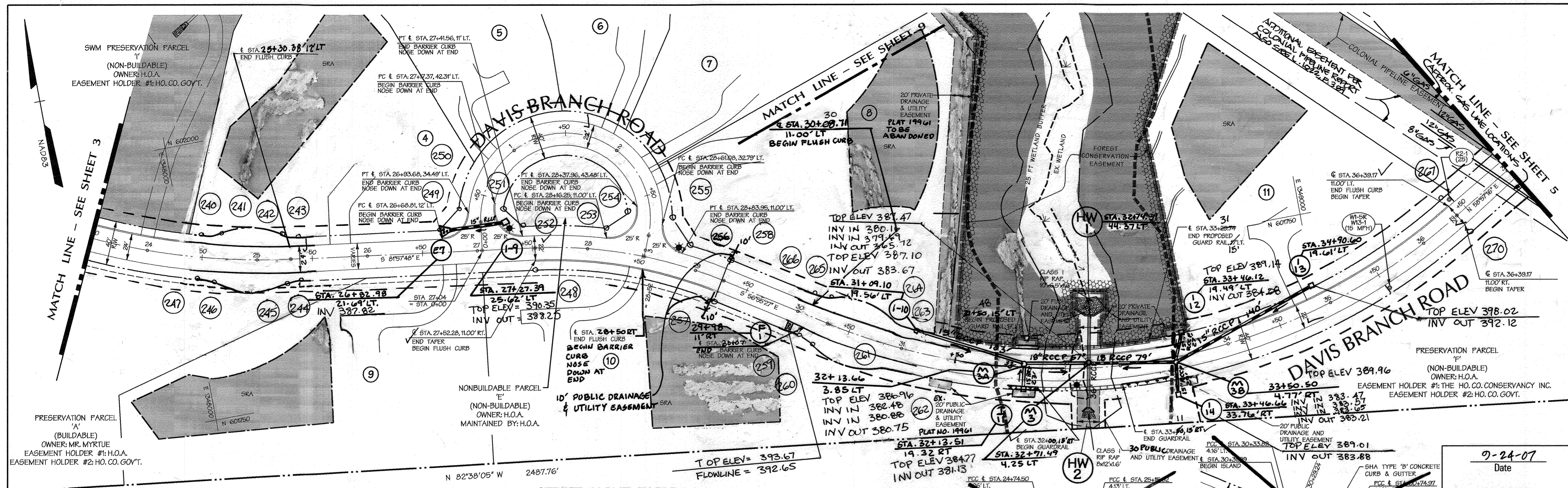
Des. By KAD Scale 1" = 50' Proj. No. 02033.D
 Dwn. By WDE Date 8/12/07
 Chk. By Approved 3 of 56



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. 21243, Expiration Date: 12/1/24
AS-BUILT



* REVISIONS INCLUDE STORM DRAINS, GRADING, EASEMENTS, REMOVAL OF 'STEED CONTROLS'.



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>Walter Z. M... 10-23-07</i>	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Andy... 11/1/07</i>	DATE
APPROVED: HOWARD COUNTY DEPT. OF ENGINEERING	
<i>John... 11/16/07</i>	DATE
3/2020	2
12-3-15	1
Date	No.
Revision Description	
REVISE PROFILES FOR GAS CROSSING, UPDATE OWNER.	
REVISE SWM FOR ESD PRACTICES *	

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
TAX MAP 10 GRID 24 PARCEL 225287

SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-4060

OWNER/DEVELOPER
DAVID MASON, P.E.
1111 MARKET STREET
LANCASTER, PA 17602
717-399-8888
6614 RADDA ROAD
LANCASTER, PA 17602
717-399-8888

DMW
Dart-MacCune-Walker, Inc.
300 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

A Team of Land Planners,
Landscape Architects,
Engineers, Surveyors &
Environmental Professionals

AREA
3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
FINAL ROAD PLAN AND PROFILE
STA 23+50 TO 37+00

Des. By KAD Scale 1" = 50' Proj. No. 02033.D
Dwn. By WDE Date 11/17/06
Chk. By Approved

Professional Engr. No. 20704

4 of 56

CURVE DATA

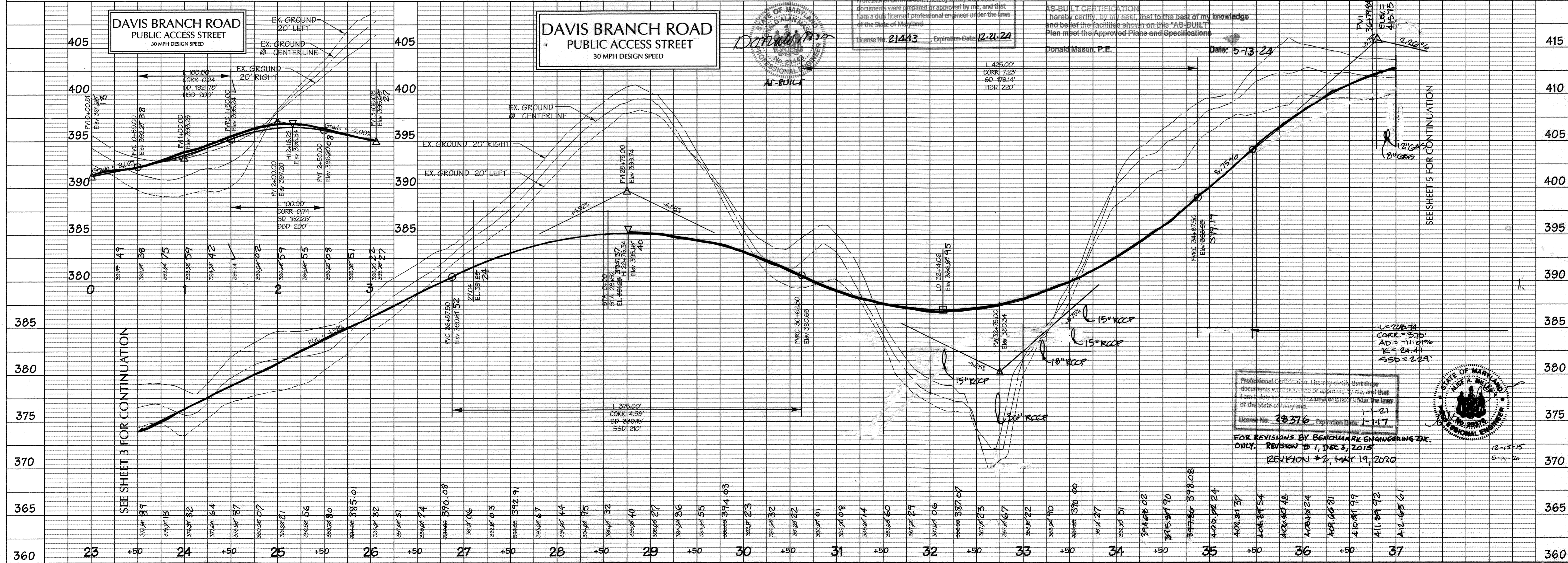
FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
22+68.16 - 25+30.32	25°03'12"	600.00'	262.36'	133.31'	260.27'
27+52.28 - 29+27.09	25°02'21"	400.00'	174.81'	88.82'	173.42'
30+29.24 - 36+39.17	64°07'17"	545.00'	609.93'	341.36'	578.59'
0+25.69 - 2+86.41	194°18'43"	76.88'	260.72'	-1.00'	152.56'

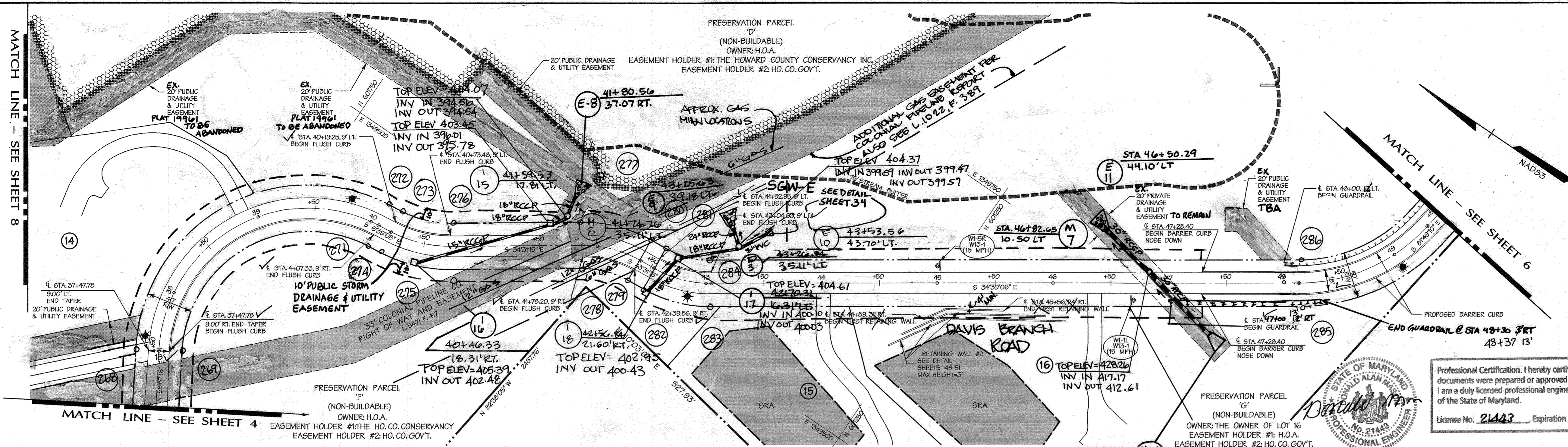
STREET LIGHT TABLE

STREET NAME	STATION	OFF-SET
DAVIS BRANCH ROAD	24+00	15 FT.
DAVIS BRANCH ROAD	27+50	15 FT.
DAVIS BRANCH ROAD	28+80	16 FT.
DAVIS BRANCH ROAD	30+00	15 FT.
DAVIS BRANCH ROAD	32+60	15 FT.

STREET LIGHT LEGEND

160-WATT HIGH-PRESSURE SODIUM (HPS)
VARIOR PREMIER 1' BLACK FIBERGLASS
POLE, LED-180 PREMIER COLUMN
NOTE:
CONDUIT FOR STREET LIGHTING TO BE
INSTALLED BY CONTRACTOR
(3" PVC) 18" TO 24" BELOW SURFACE





* REVISIONS INCLUDE STORM DRAIN, GRADING, EASEMENTS.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
With R. M... 10-27-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cathy H... 11/1/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Michael P... 11/2/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

3-2020 2 Revised Plan Profile for gas crossings, updated owner.
 12-3-15 1 REVISED SWM TO ESD PRACTICES *

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 TAX MAP 10 GRID 24 PARCEL 225287

SAUSHEIM MD, LP
 227 GARDNER RUN DR
 SUITE 100
 LANCASTER, PA
 717-464-7060

DMW
 Daft-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4706

AREA
 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE FINAL ROAD PLAN AND PROFILE

STA 37+00 TO 47+50

Des. By KAD Scale 1" = 50'
 Dm. By WDE Date 8/12/07 Proj. No. 02033.D
 Chk. By Approved 5 of 56

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376, Expiration Date: 1-1-17



FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION # 1, DEC. 3, 2015
 REVISION # 2, MAY 19, 2020

NOTE: ALL RETAINING WALLS TO BE PRIVATELY MAINTAINED.

RETAINING WALL #2 TO BE OWNED BY THE OWNER OF LOT 16. HOWARD COUNTY WILL NOT OWN OR MAINTAIN.

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5-13-24

STREET LIGHT TABLE

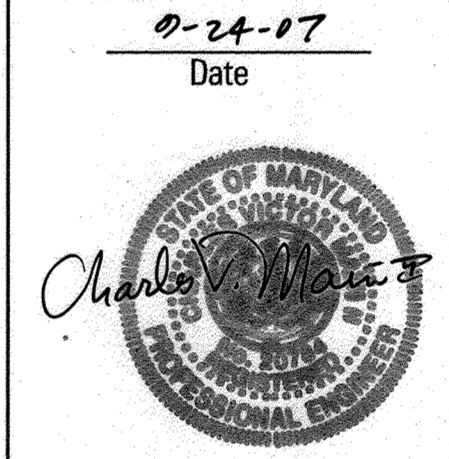
STREET NAME	STATION	OFF-SET
DAVIS BRANCH ROAD	37+50	11'
DAVIS BRANCH ROAD	39+88	11'
DAVIS BRANCH ROAD	42+54	12'
DAVIS BRANCH ROAD	48+84	12'

STREET LIGHT LEGEND

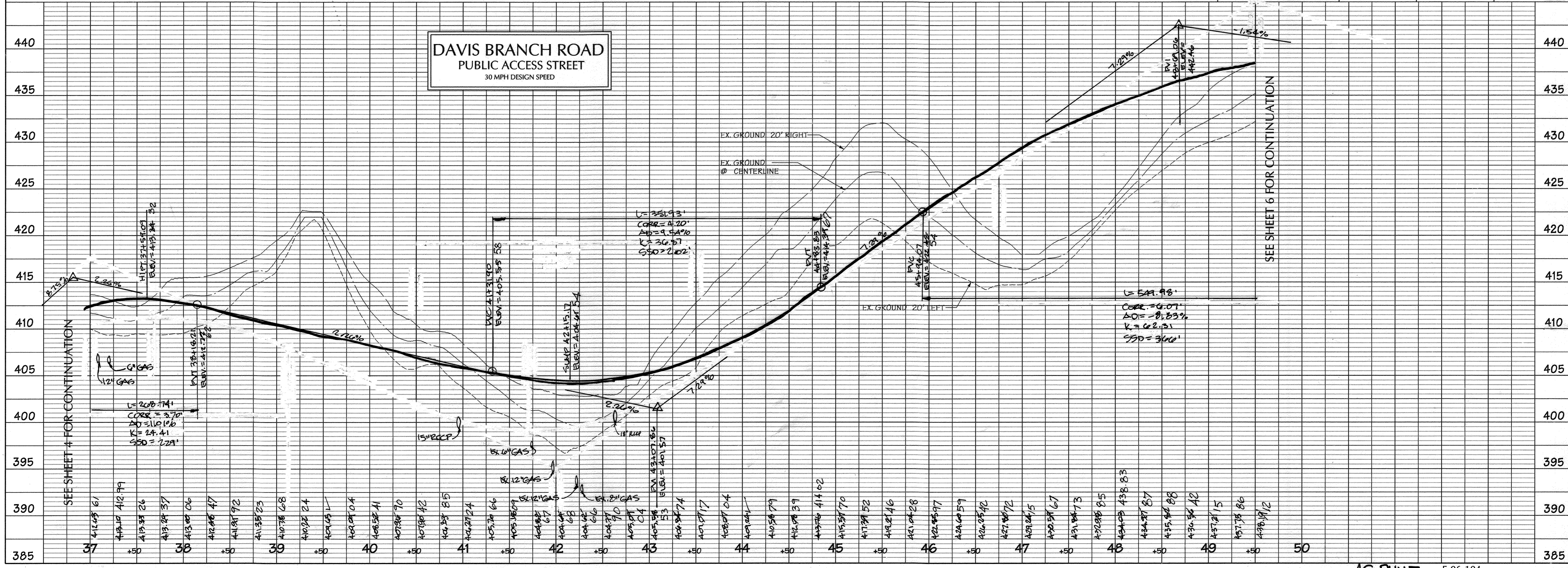
150 WATT HIGH PRESSURE SODIUM (HPS) VAPOR, PREMIER
 1" BLACK FIBERGLASS POLE, LED-150 PREMIER COLONIAL
 NOTE: CONDUIT FOR STREET LIGHTING TO BE INSTALLED BY CONTRACTOR (3" PVC)

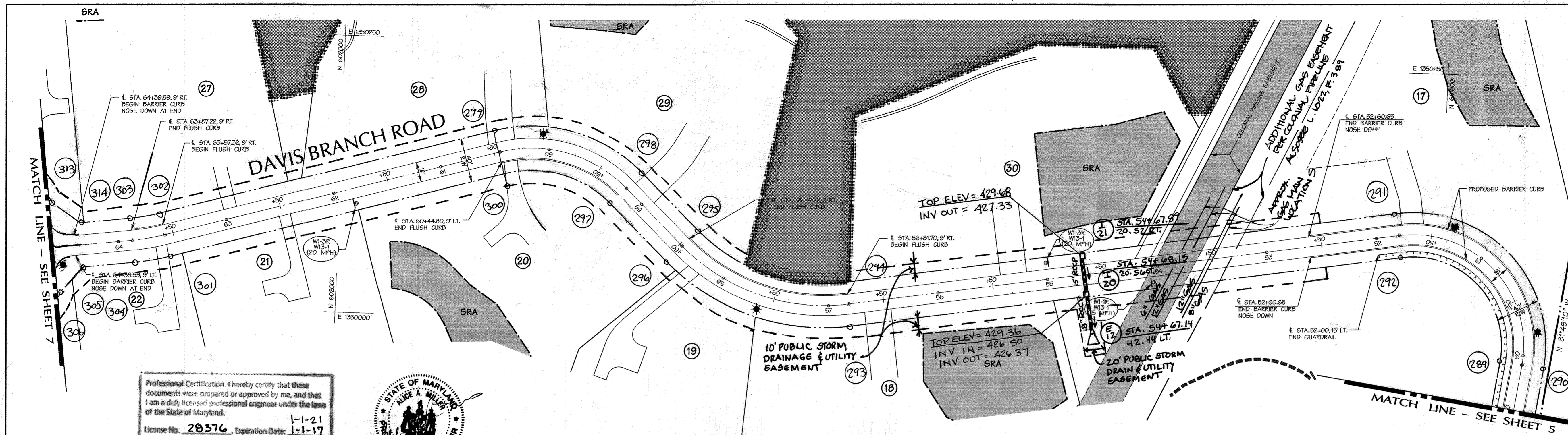
CURVE DATA

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
37+48.78 - 40+07.33	114°23'36"	130.00'	289.55'	201.69'	S 63°50'56" E 218.54'
40+19.25 - 40+73.48	27°52'06"	111.50'	54.23'	27.66'	S 20°38'11" E 53.70'
41+87.20 - 42+39.56	30°00'00"	307.00'	52.26'	26.79'	S 19°31'15" E 51.76'
42+52.96 - 43+05.28	29°58'52"	100.00'	52.33'	26.78'	S 19°30'40" E 51.73'
48+12.57 - 49+37.42	48°32'55"	150.00'	127.10'	67.65'	S 57°32'42" E 123.33'



Professional Engr. No. 20784





* REVISIONS INCLUDE STORM DRAIN, GRADING, EASEMENTS.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Willa Z. Wall 10-23-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Chad Harts 11/5/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Michael J. ... 4/7/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

3-2020 2 Revised plan profile for gas crossings, updated owner
 12-3-15 1 REVISED SWM FOR ESD PRACTICES *

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A,
 NON-BUILDABLE PRESERVATION PARCELS B-D, F-K,
 NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 TAX MAP 10 GRID 24 PARCEL 225287

SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

OWNER/DEVELOPER
 BARRY BRADSHAW
 JAMES KEELTY PROJ. COORD.
 601-908-6622
 601-908-6622
 TAMMARA MD 22099

DMW
 Dar-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4706

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

AREA
 3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
FINAL ROAD PLAN AND PROFILE
 STA 47+50 TO 64+70.51

Des. By KAD Scale 1" = 50' Proj. No. 02033.D
 Dwn. By WDE Date 11/17/06
 Chk. By Approved 6 of 56

Professional Engr. No. 20784

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376, Expiration Date: 1-1-21 / 1-1-17



FOR REVISIONS BY BENCHMARK ENGINEERING, INC. ONLY. REVISION # 1, DEC. 3, 2015
 REVISION # 2, MAY 19, 2020

STREET LIGHT LEGEND
 * 1/2" WALL ANGLE PRESURE SODIUM (HPS) VAPOR PREMIER
 1/4" BLACK FIBERGLASS POLE, LED-150 PREMIER, COLONIAL
 NOTE:
 CONDUIT FOR STREET LIGHTING TO BE INSTALLED BY CONTRACTOR (3" PVC)

STREET LIGHT TABLE

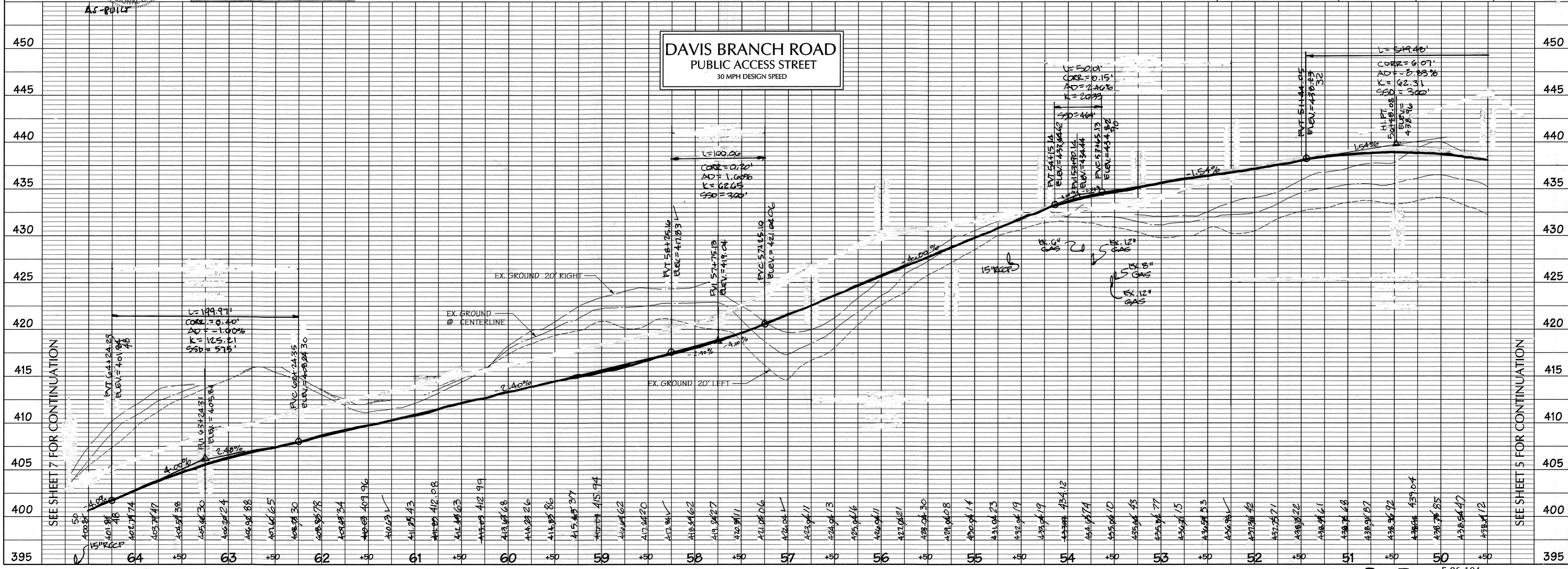
STREET NAME	STATION	OFF-SET
DAVIS BRANCH ROAD	50+20	12' YES.
DAVIS BRANCH ROAD	57+00	12' YES.
DAVIS BRANCH ROAD	60+00	12' YES.
DAVIS BRANCH ROAD	51+25	12' YES.

CURVE DATA

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
49+91.54 - 51+76.81	107°17'47"	100.00'	187.21'	125.88'	N 44°31'57" E 161.08'
56+01.70 - 58+47.72	52°50'42"	180.00'	166.02'	89.44'	N 17°18'24" E 160.20'
59+19.92 - 60+44.80	59°37'25"	120.00'	124.88'	68.76'	N 13°55'03" E 119.32'
63+57.32 - 63+87.22	8°33'55"	200.00'	29.30'	14.98'	N 11°36'42" W 29.87'

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. 21443, Expiration Date: 12-21-24

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5/13/24



Professional Certification I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376 Expiration Date: 1-1-21 / 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION # 1, DEC. 3, 2015
 REVISION # 2, MAY 19, 2020



* REVISIONS INCLUDE STORM DRAINS, GRADING, EASEMENTS.

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William J. Mohr 10-23-07
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Harshbarger 11/5/09
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Mark D. ... 11/7/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description
3-2020	2	UPDATED PLAN+PROFILE FOR GAS LINES, UPDATED OWNER.
12-3-15	1	REVISE SWM TO ESD PRACTICES *

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 TAX MAP 10 GRID 24 PARCEL 225287

SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

OWNER/DEVELOPER
DAVE BRANTZ
 410-296-3333
 410-296-3333
 410-296-3333

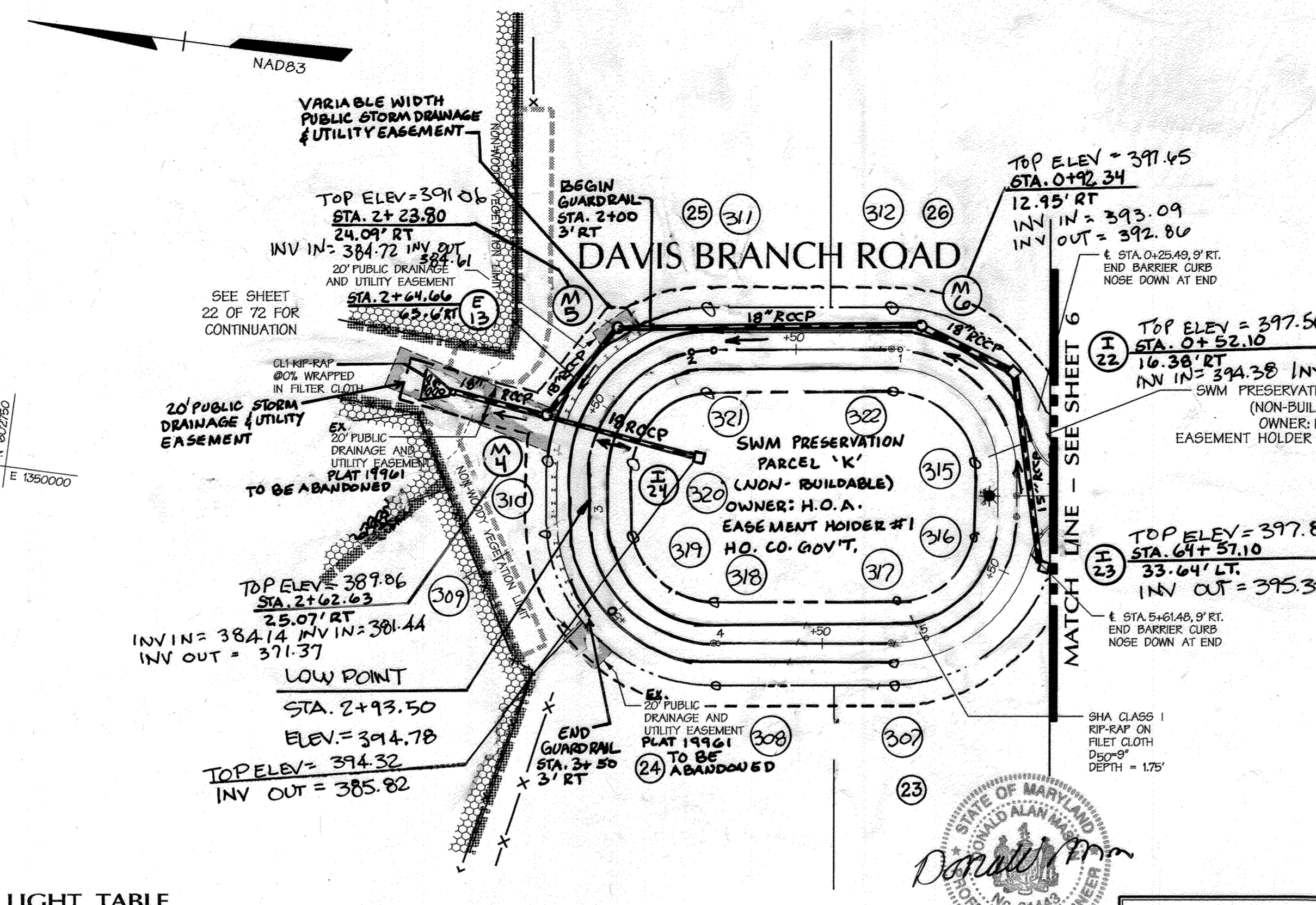
DMW
 Doherty-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

9-24-07
 Date

Charles A. Miller

Professional Engr. No. 20784



STREET LIGHT LEGEND

150-WATT HIGH-PRESSURE SODIUM (HPS) VAPOR PREMIER
 14" BLACK FIBERGLASS POLE, LED-150 PREMIER CROWNAL

NOTE:
 CONDUIT FOR STREET LIGHTING TO BE INSTALLED BY CONTRACTOR (3" PVC)

STREET LIGHT TABLE

STREET NAME	STATION	OFF-SET
DAVIS BRANCH ROAD	0+00V	5' LT

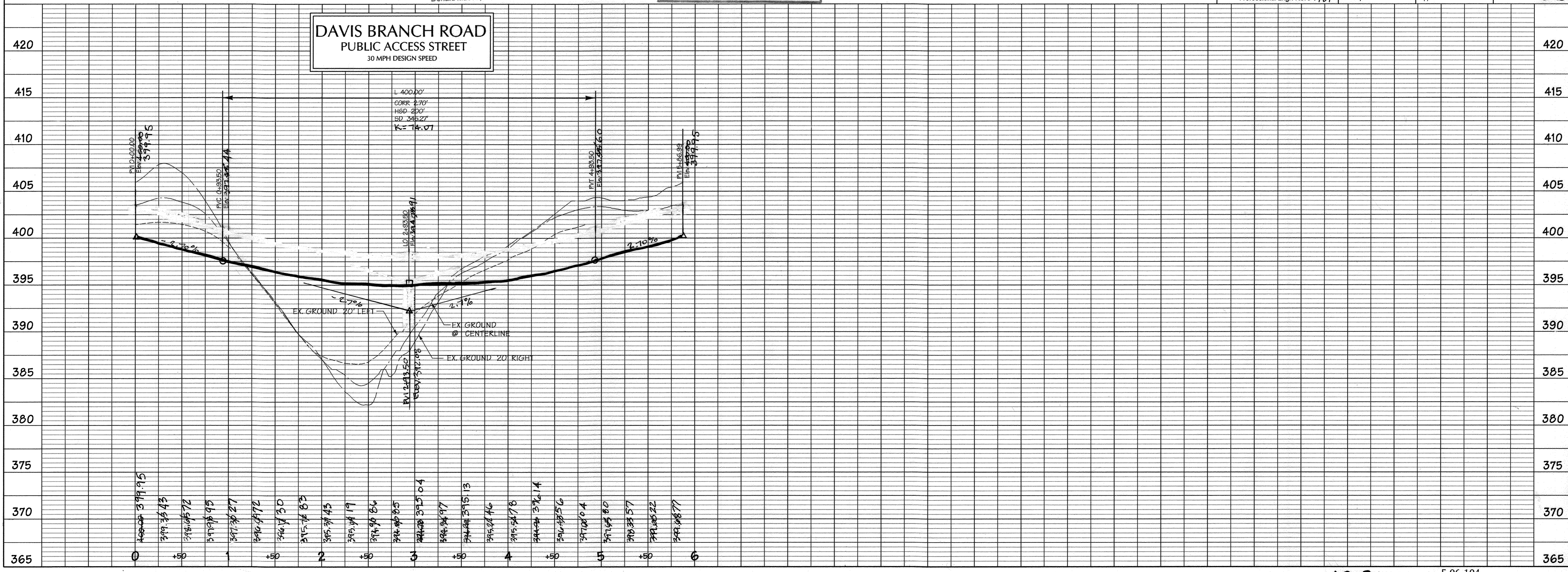
AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.
 Date: 5-13-24

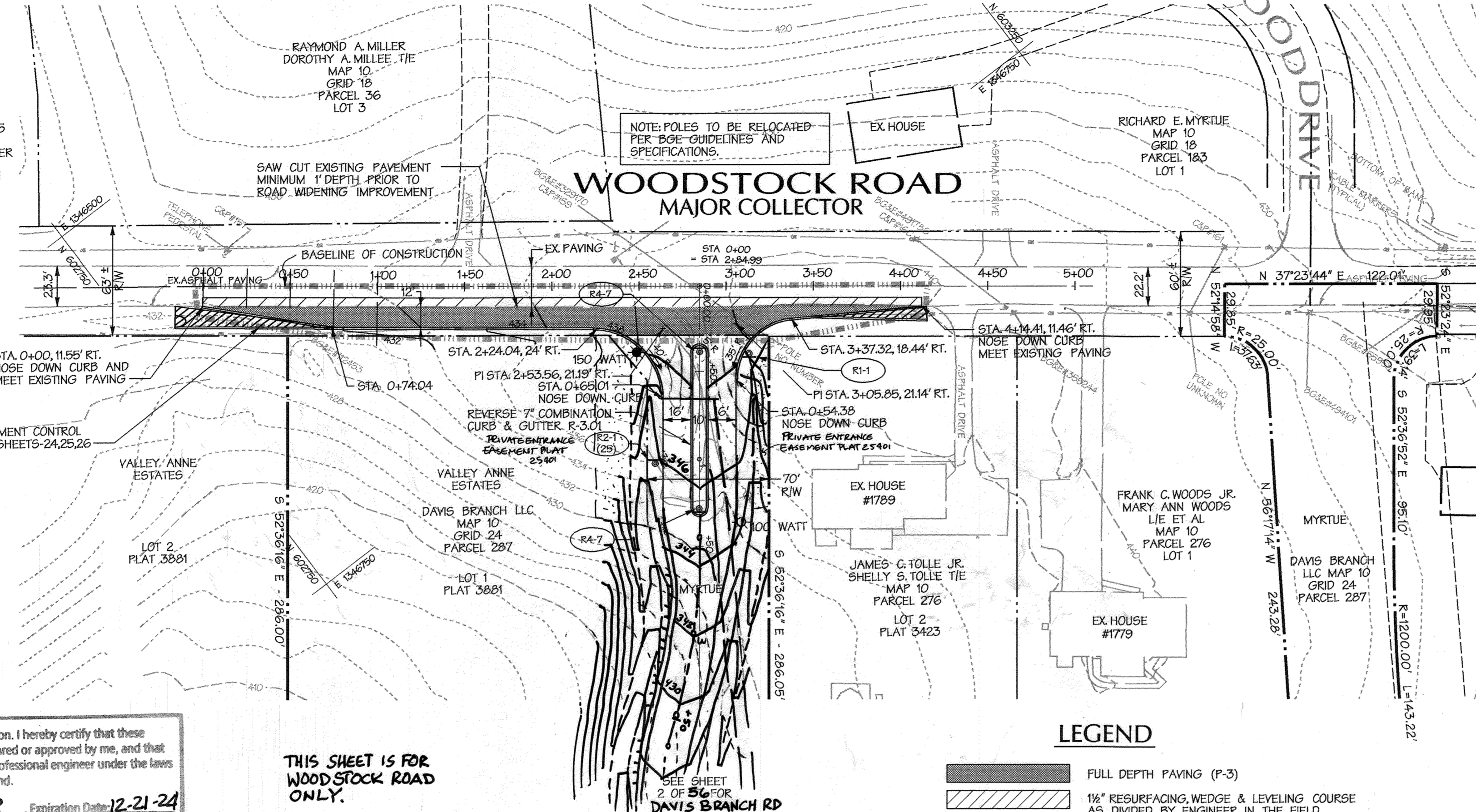
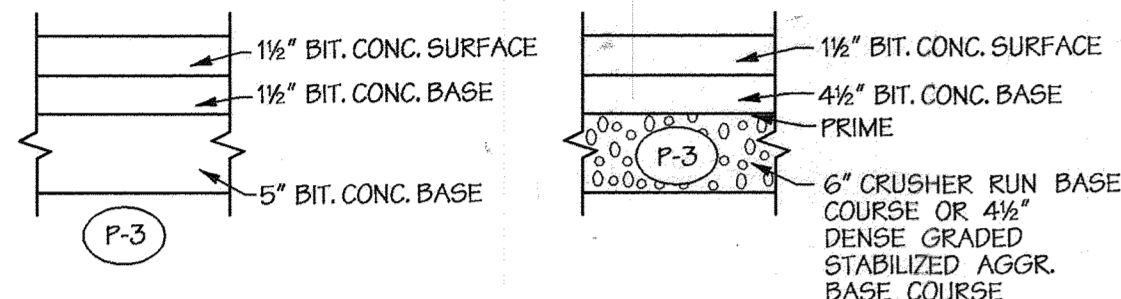
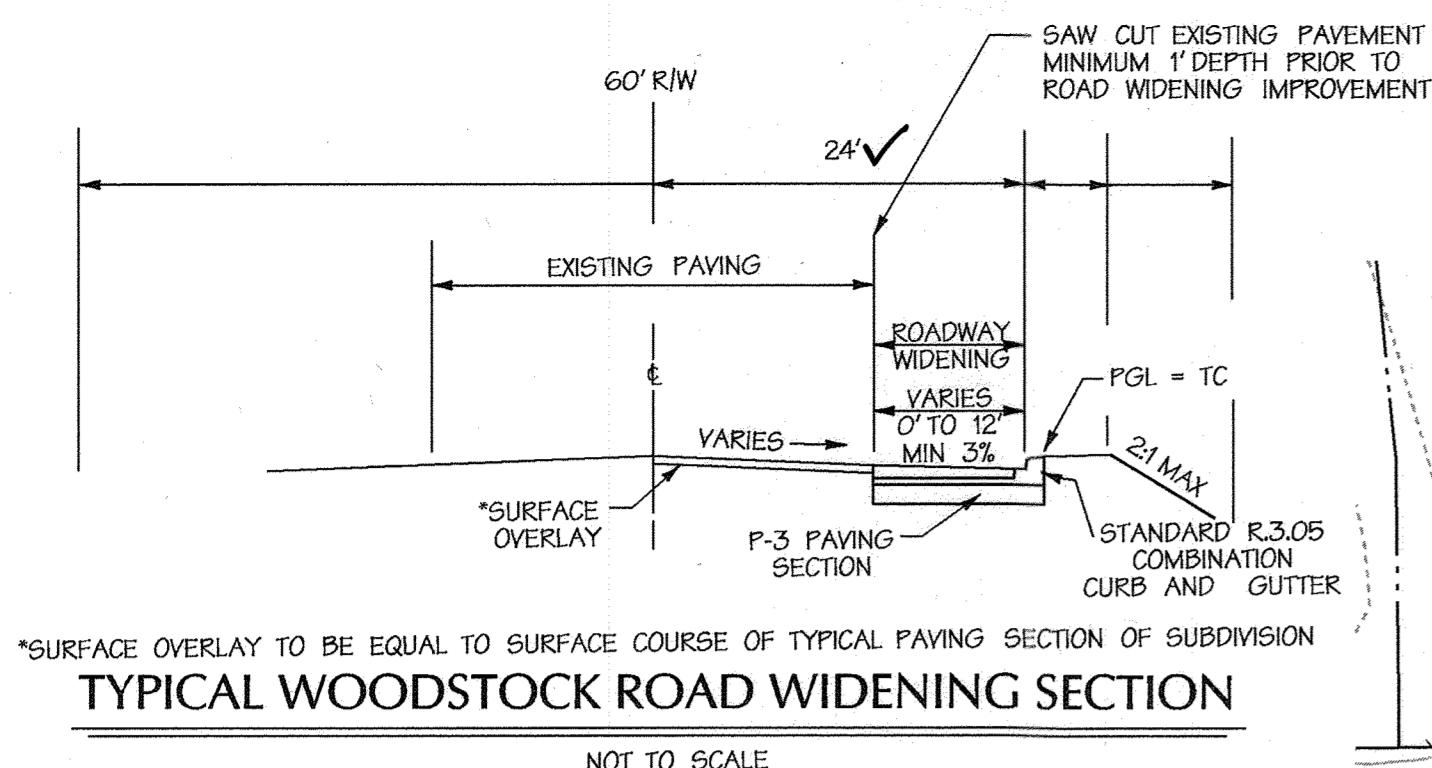
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-21-24

CURVE DATA

FROM-TO	DELTA	RADIUS	LENGTH	TANGENT	CHORD
0+10.00 - 1+04.25	90°00'00"	60.00'	94.25'	60.00'	N 37°40'15" E 84.85'
1+09.25 - 2+03.50	90°00'00"	60.00'	94.25'	60.00'	N 52°19'45" W 84.85'
3+03.50 - 3+97.74	90°00'00"	60.00'	94.25'	60.00'	S 37°40'15" W 84.85'
4+02.74 - 5+76.99	90°00'00"	60.00'	94.25'	60.00'	S 52°19'45" E 84.85'



m:\020303\Final Plans\020303.R6 Mon Sep 17 13:54:24 2007



Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 28376, Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING, INC. ONLY. REVISION #1 DEC 3, 2015 #2 3/24/2020



9-24-07 Date
Professional Engr. No. 20784

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
W. Z. Wall, CHIEF, BUREAU OF HIGHWAYS, 10-23-07 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Hunter, CHIEF, DIVISION OF LAND DEVELOPMENT, 11/5/07 DATE
M. J. ... CHIEF, DEVELOPMENT ENGINEERING DIVISION, 11/2/07 DATE

3/2020	2	Revise for owner update
12-3-15	1	REVISE TO REFLECT REVISIONS TO DAVIS BRANCH RD.
Date	No.	Revision Description

MYRTUE PROPERTY
LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, E, & CEMETERY LOT 1
TAX MAP 10 GRID 24 PARCEL 226287
OWNER/DEVELOPER: SOLASHINE MD. LP
227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060

DMW
Darr McCune-Walker, Inc.
300 East Pennsylvania Avenue, Towson, Maryland 21286
(410) 286-3333 Fax 286-4705
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

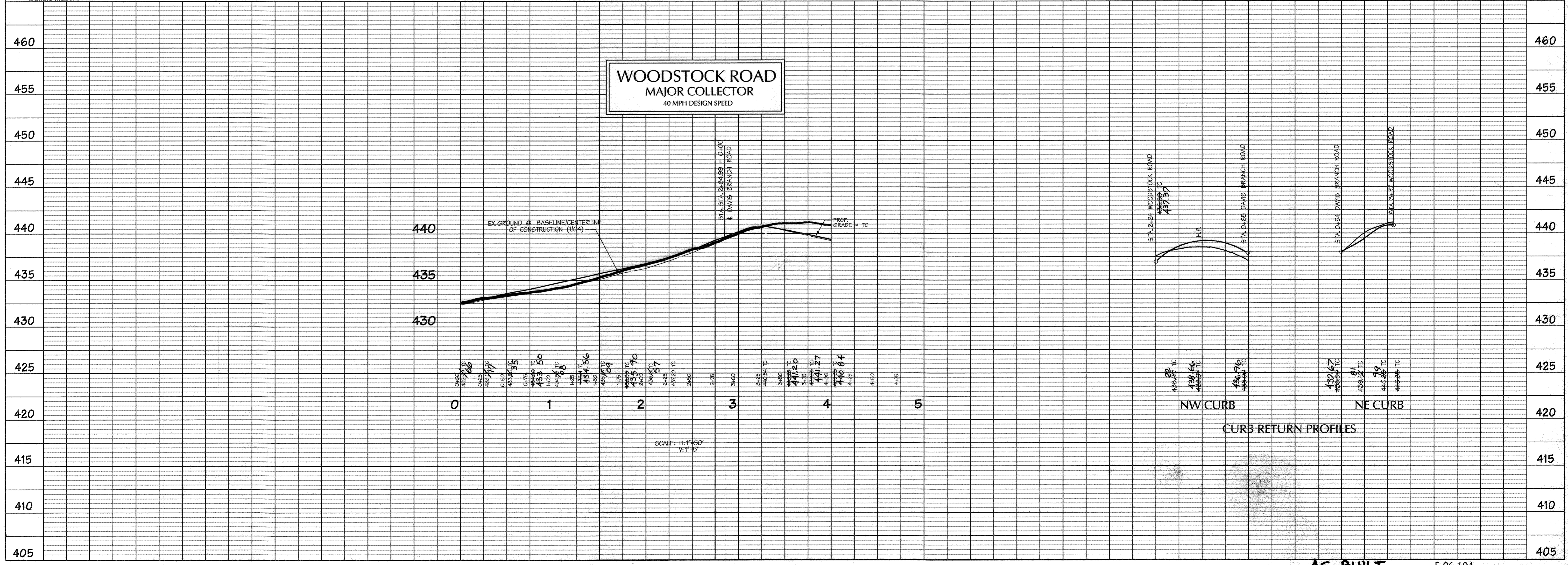
AREA	3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND	
TITLE	ROAD WIDENING AND SEDIMENT CONTROL PLAN WOODSTOCK ROAD	
Des. By	KAD	Scale 1" = 50'
Drn. By	GMO	Date 2/14/07
Proj. No.	02033.D	
Chk. By	Approved	8 of 56

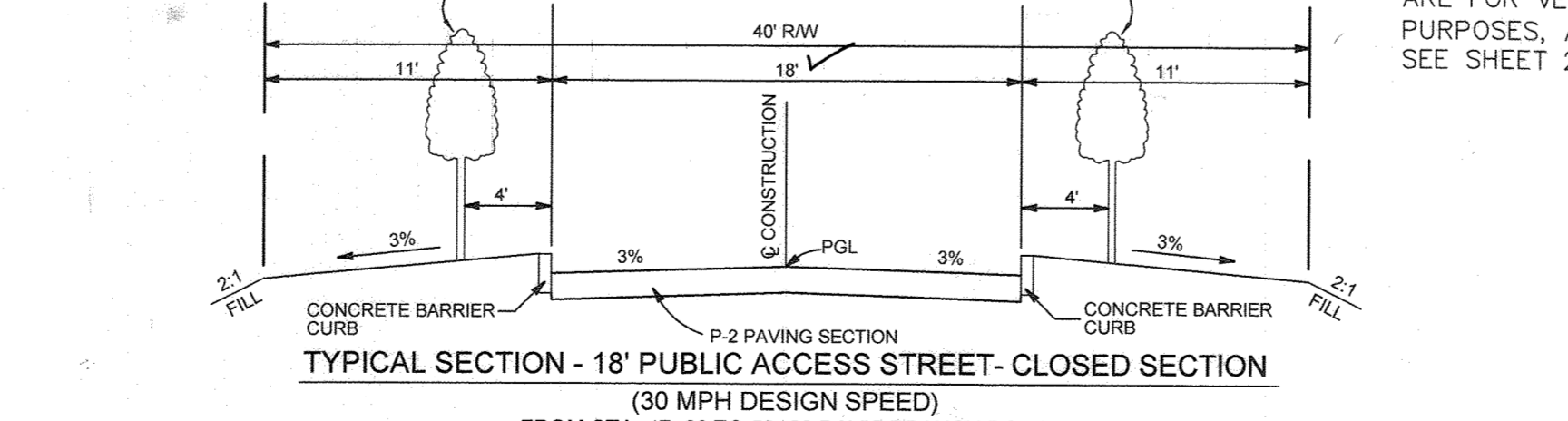
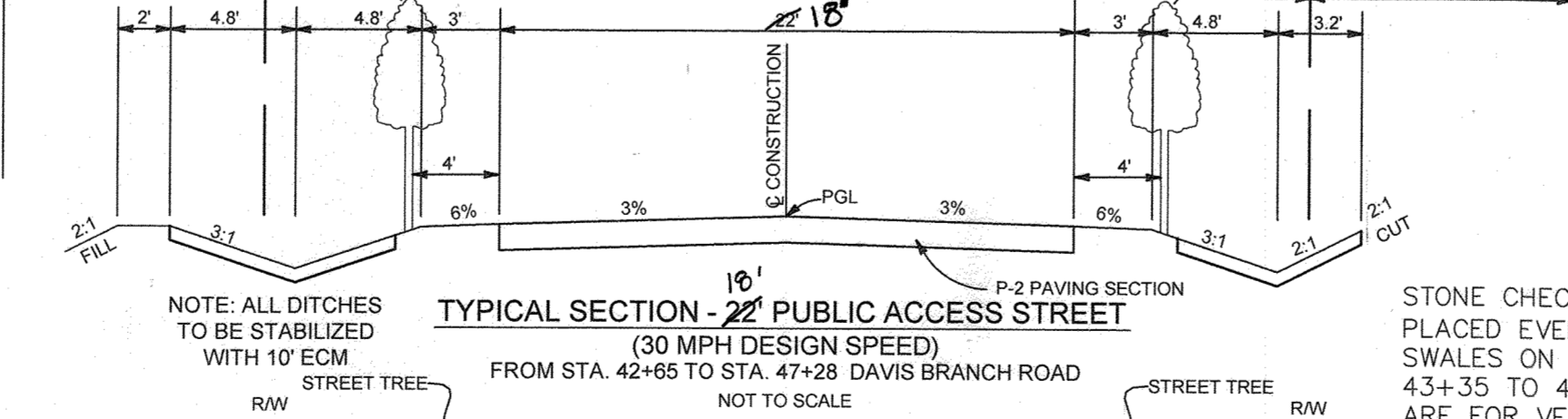
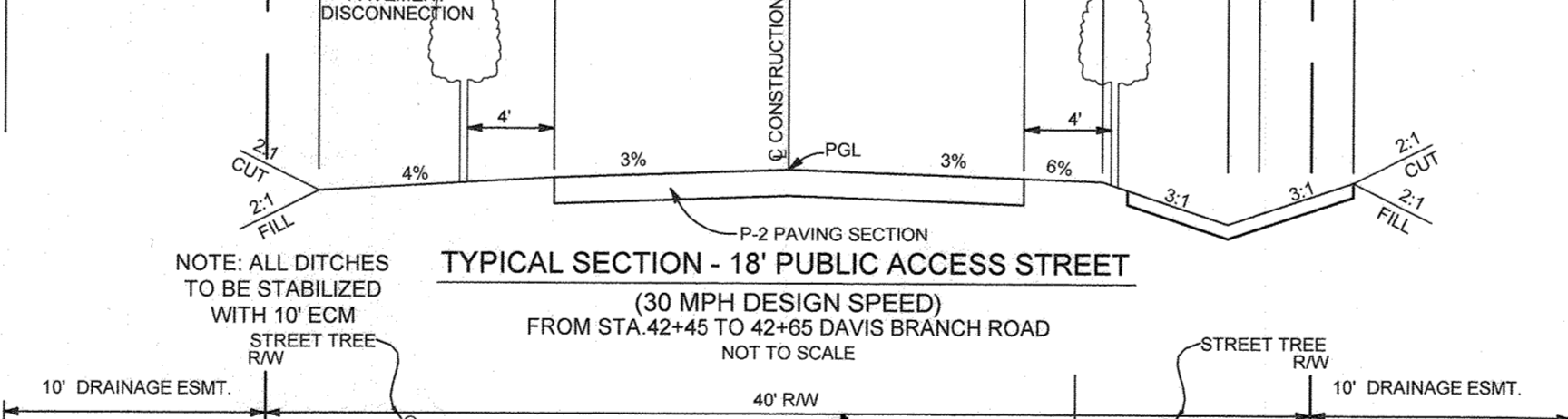
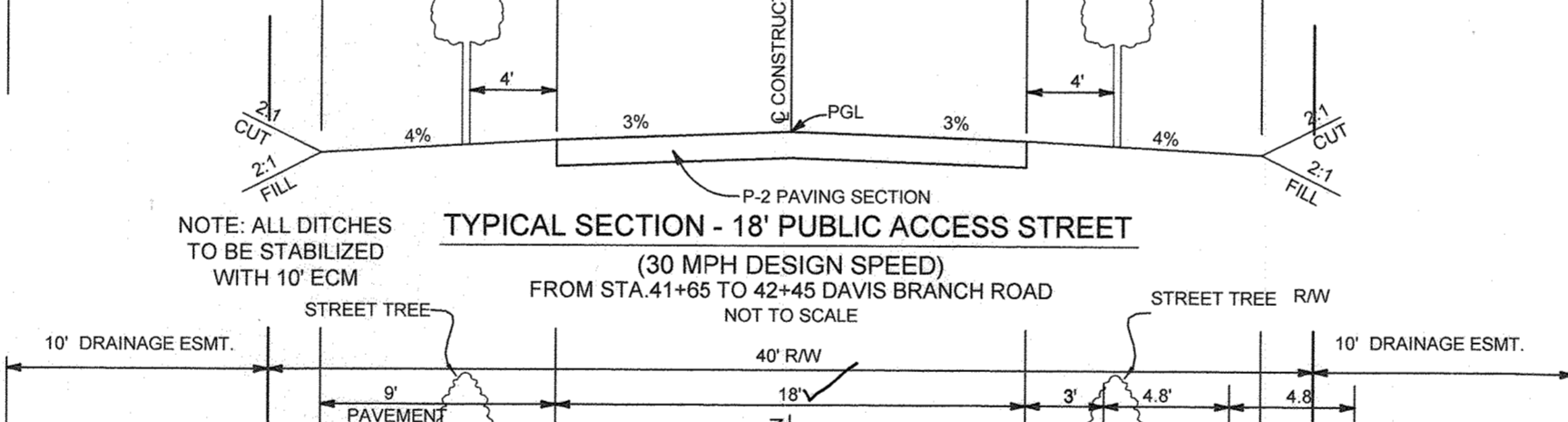
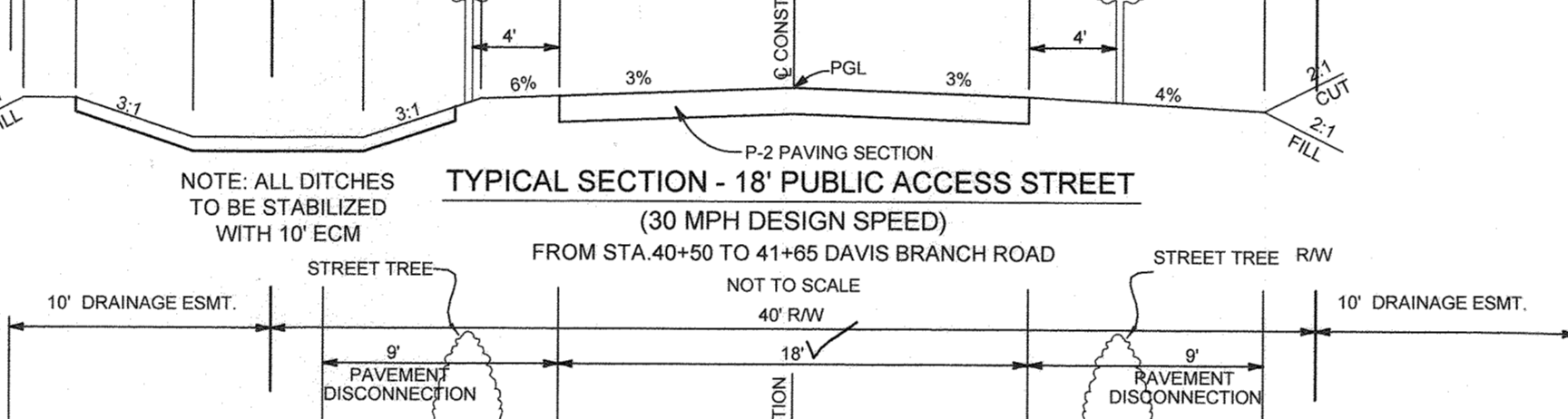
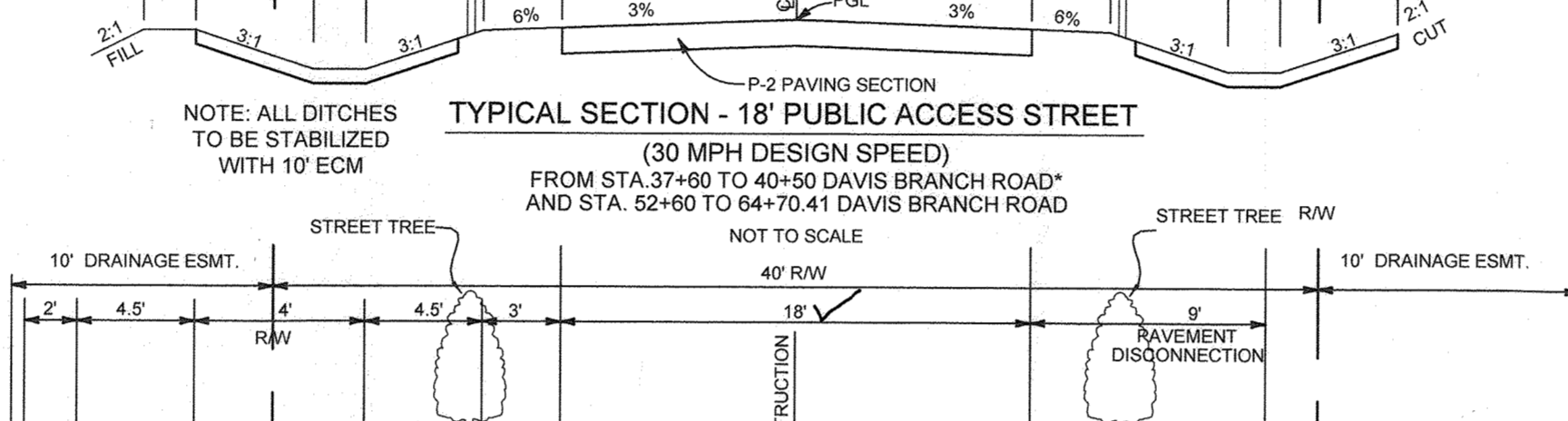
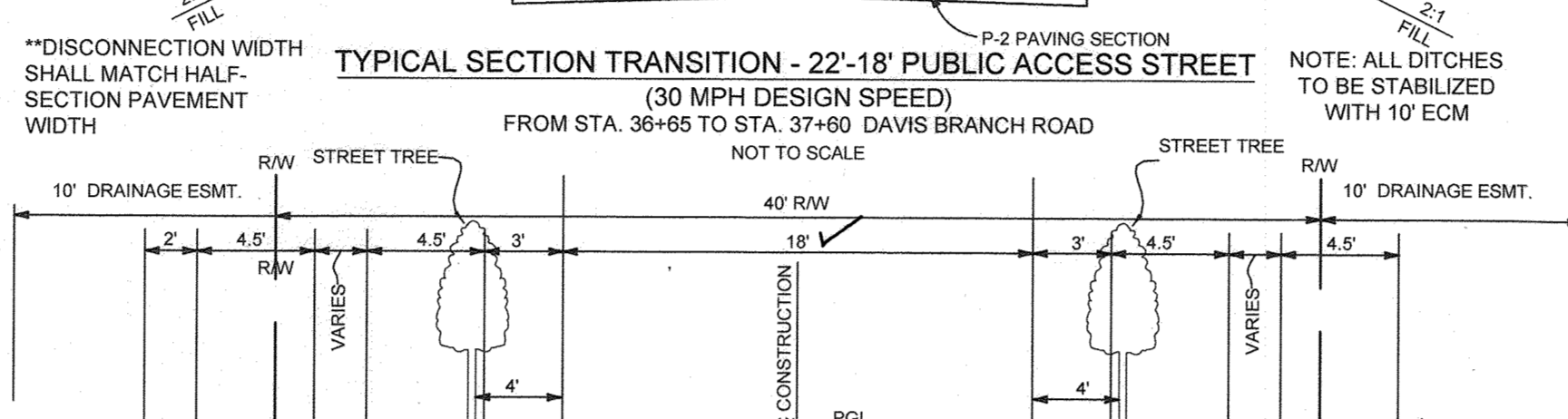
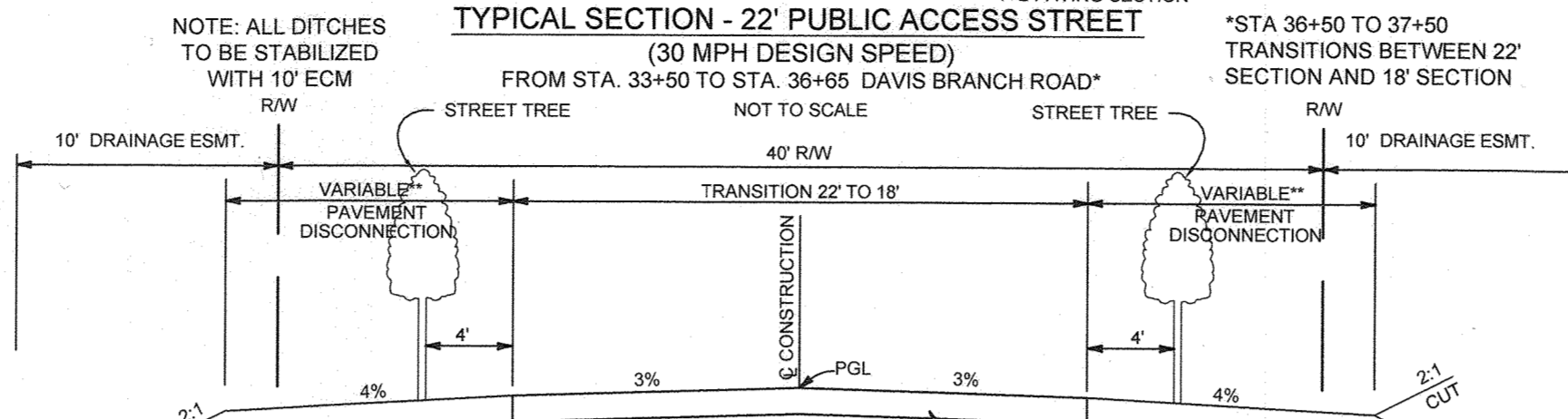
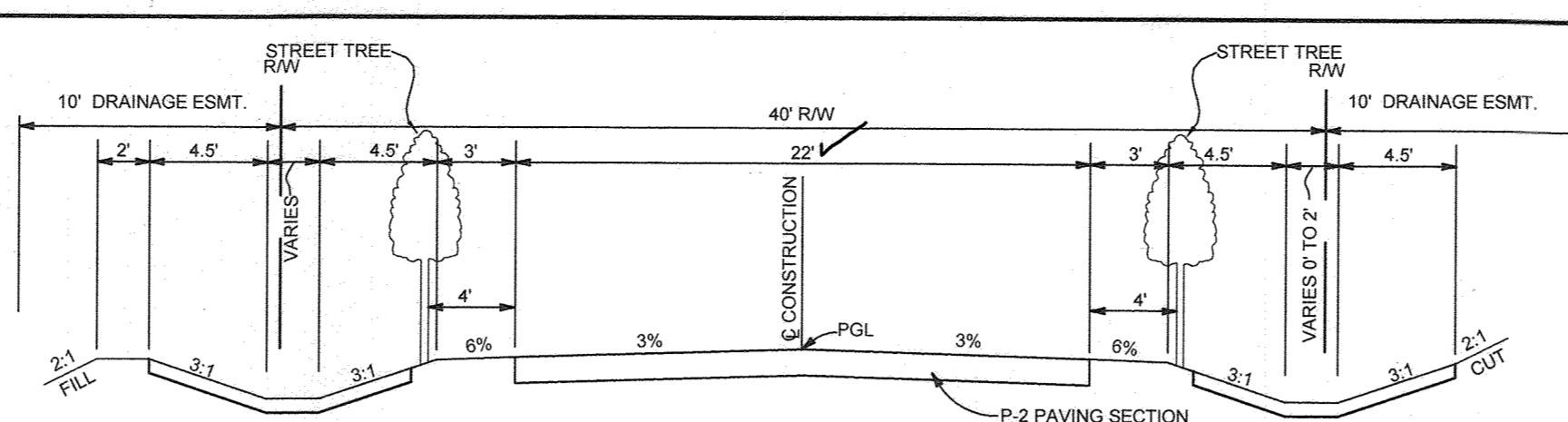
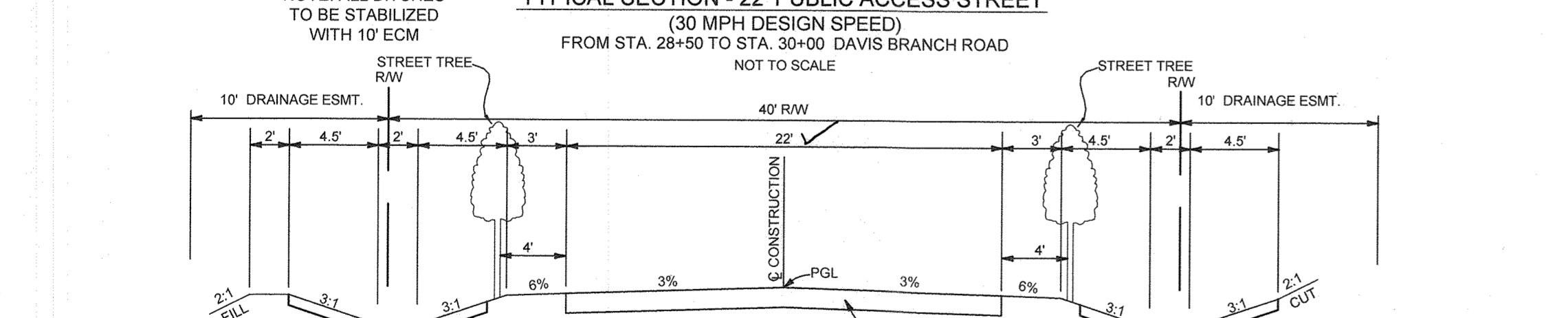
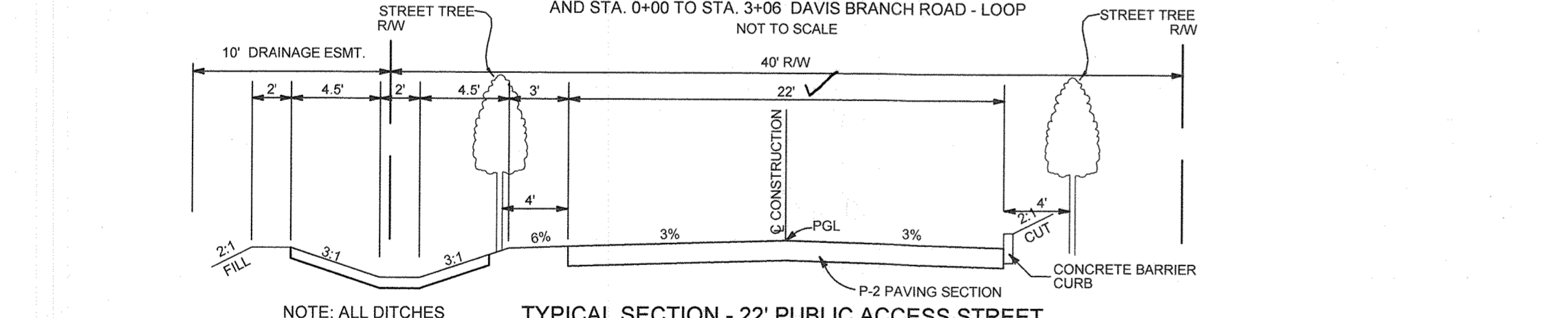
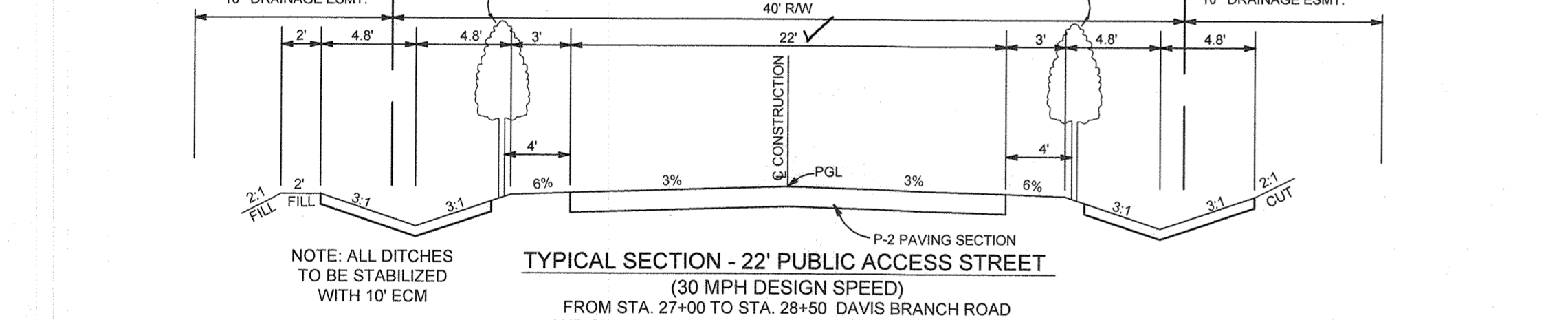
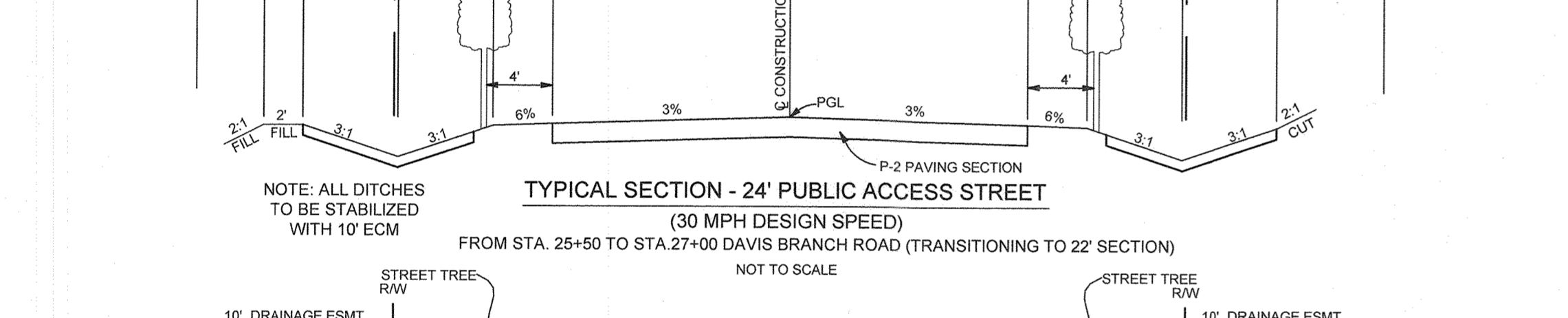
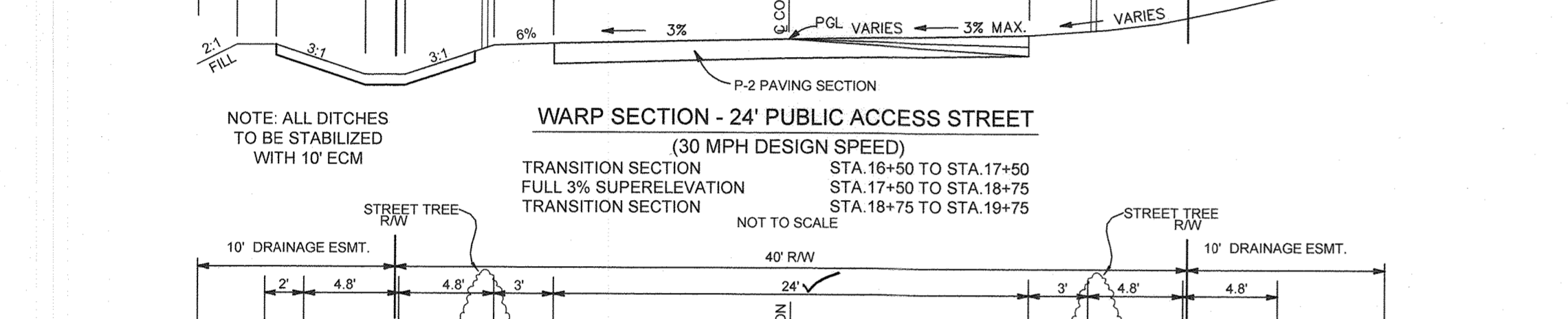
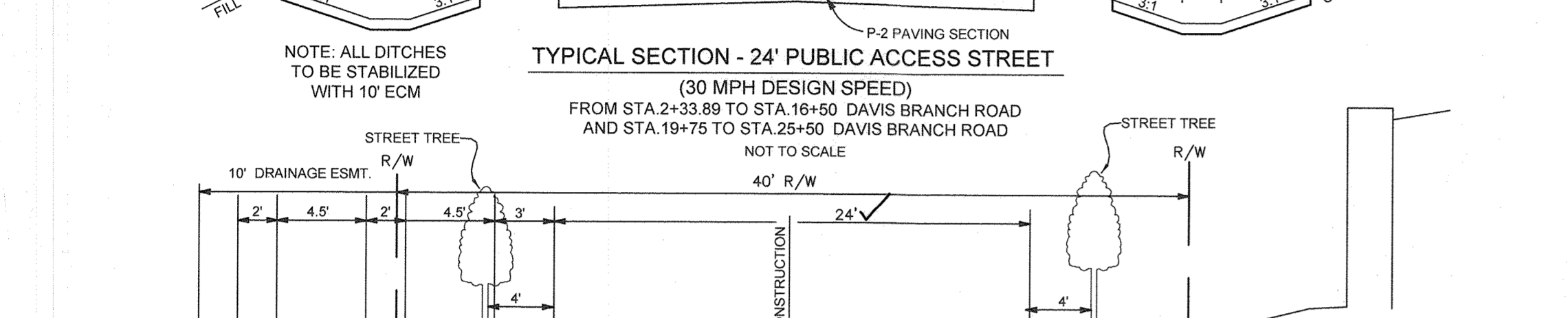
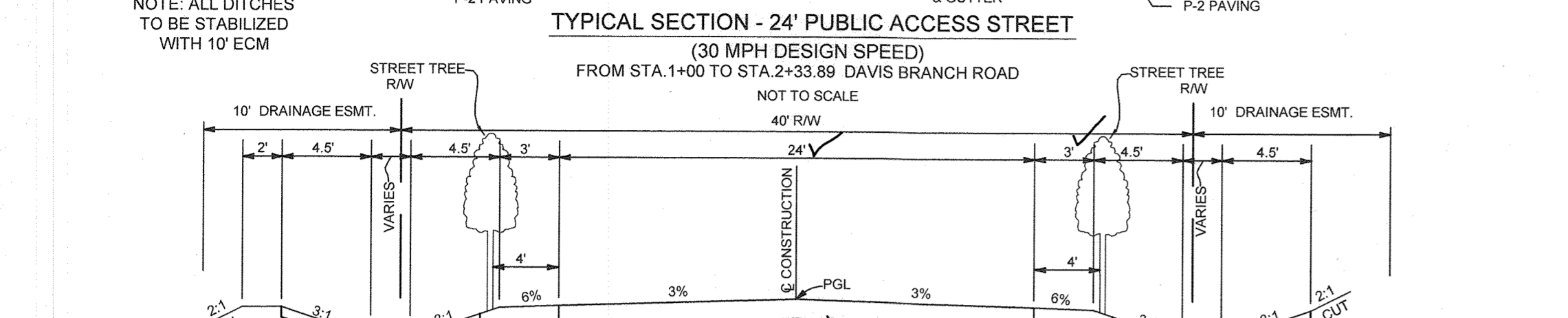
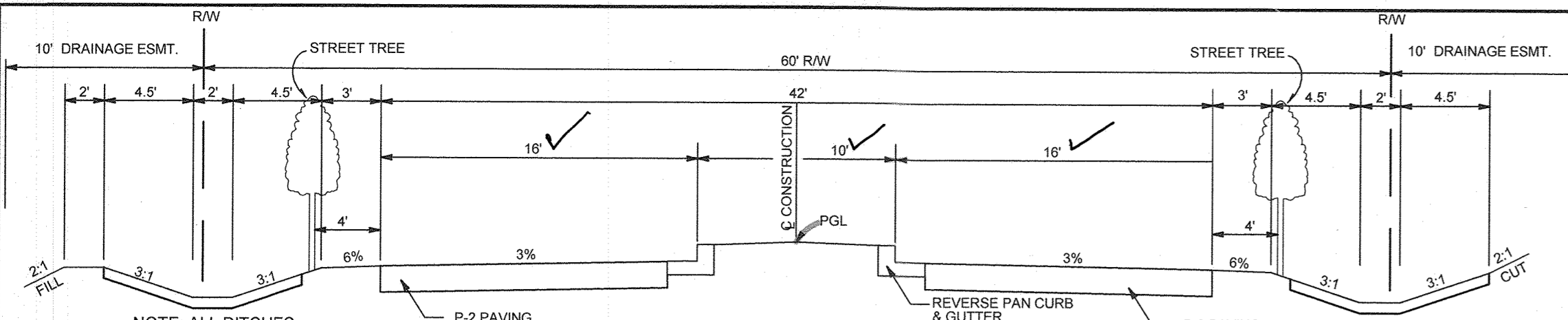
AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Donald Mason, P.E. Date: 5-13-24

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. 21443, Expiration Date: 12-21-24

THIS SHEET IS FOR WOODSTOCK ROAD ONLY.

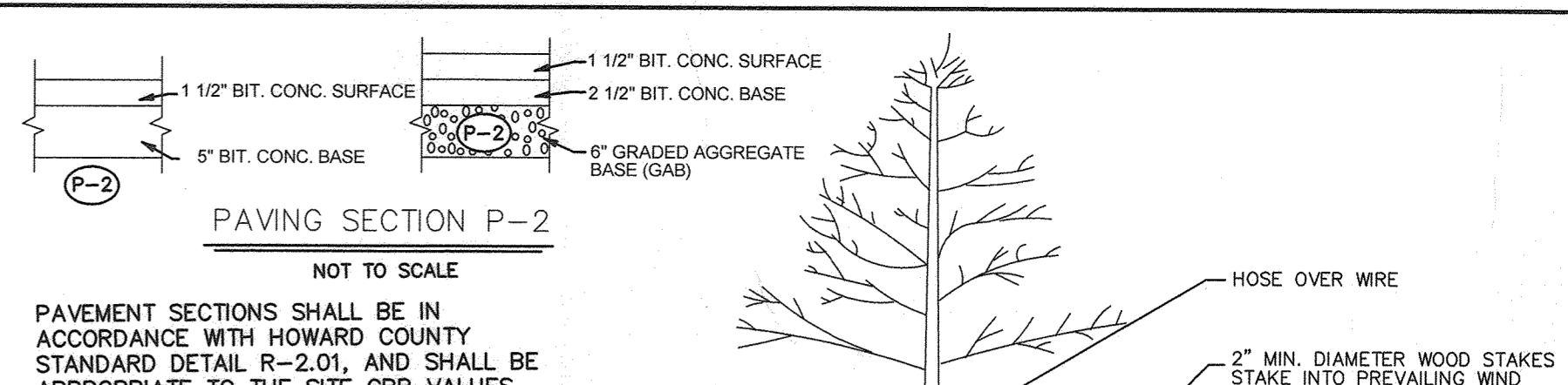
LEGEND
FULL DEPTH PAVING (P-3)
1 1/2" RESURFACING, WEDGE & LEVELING COURSE AS DIVIDED BY ENGINEER IN THE FIELD.





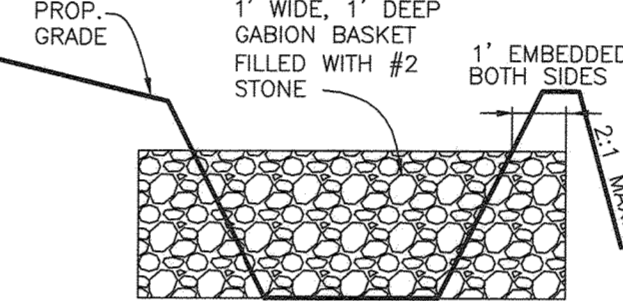
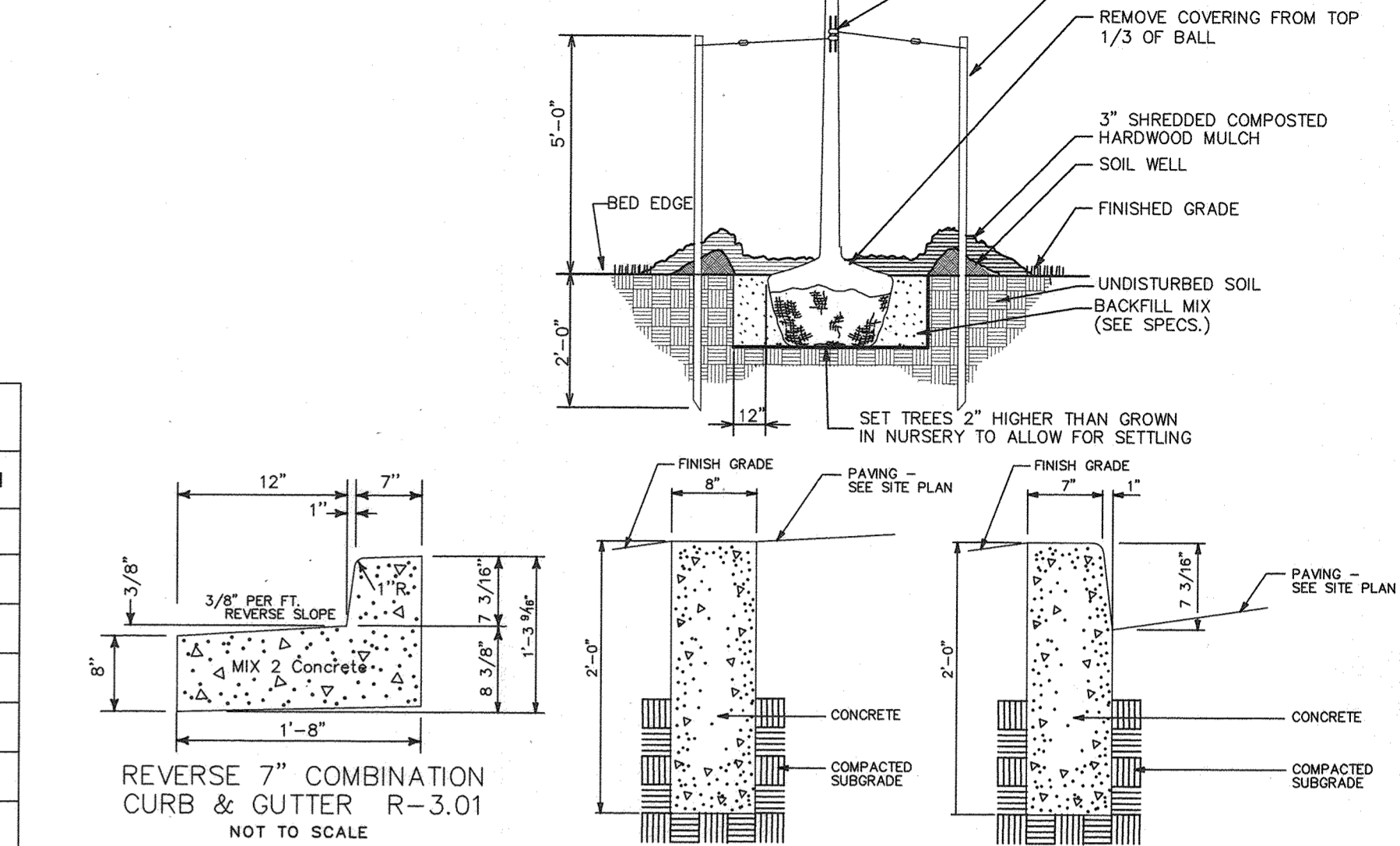
CREDITED STORMWATER MANAGEMENT SWALE WIDTH TABLE

LOCATION	OFFSET	WIDTH
STA 2+00 TO STA 7+30	RT & LT	6'
STA 28+50 TO STA 31+10	LT	5'
STA 30+00 TO STA 32+50	RT	5'
STA 33+60 TO STA 36+85	LT	5'
STA 37+60 TO STA 38+25	RT & LT	2'
STA 38+50 TO STA 40+50	RT & LT	4'
STA 40+50 TO STA 41+65	RT	4'
STA 52+75 TO STA 54+75	RT & LT	8'
STA 54+75 TO STA 64+85	RT & LT	3'

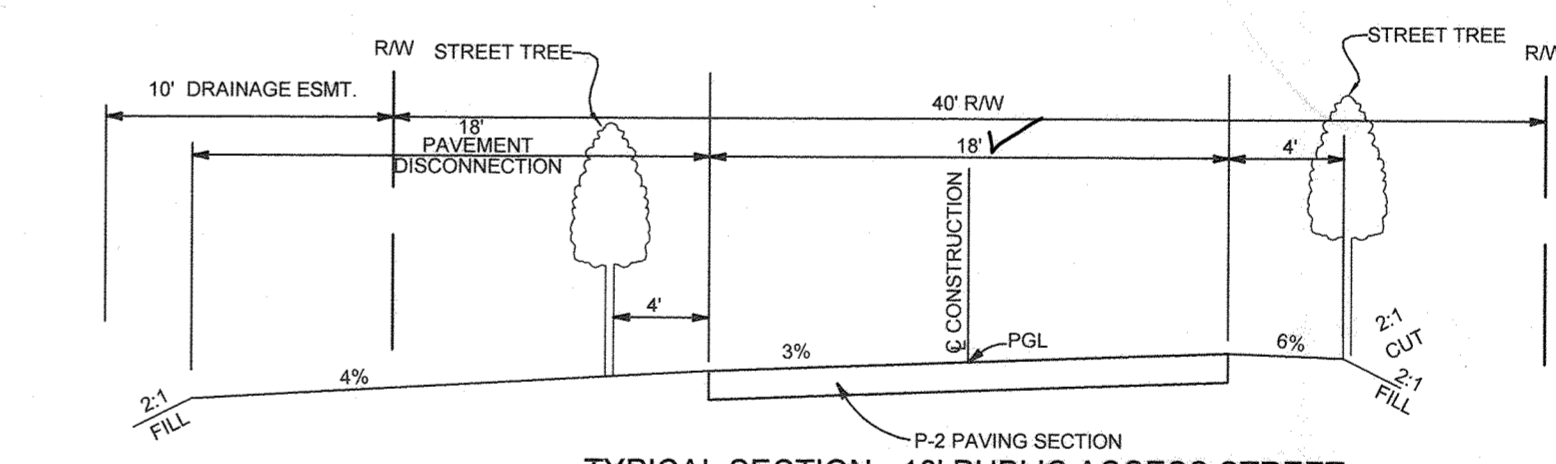


GABION CHECK DAMS

SWALE NAME	STATION	OFFSET	LENGTH
GS-5A	3+03	22.6' RT	14'
GS-6A	3+21	22.9' LT	14'
GS-6A	3+84	22.8' LT	14'
GS-5A	3+84	22.5' RT	14'
GS-13	34+95	22.4' LT	13'
GS-13	35+39	22.4' LT	13'
GS-13	35+84	22.4' LT	13'



GABION CHECK DAM
NOT TO SCALE



TYPICAL SECTION - 18' PUBLIC ACCESS STREET
(30 MPH DESIGN SPEED)
FROM 0+00 TO 5+86.99 CUL-DE-SAC OF DAVIS BRANCH ROAD
NOT TO SCALE

AS-BUILT 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. 21443, Expiration Date: 12-21-24

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications.
Donald Mason, P.E. Date: 5-13-24

NO.	DATE	REVISION
2	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND PROFESSIONAL ENGINEER
ALAN MILLER
NO. 21443
EXPIRES 12/31/24

APPROVED: DEPARTMENT OF PUBLIC WORKS
Chang 04/27/2020
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chang 5/14/2020
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Chang 5-13-20
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

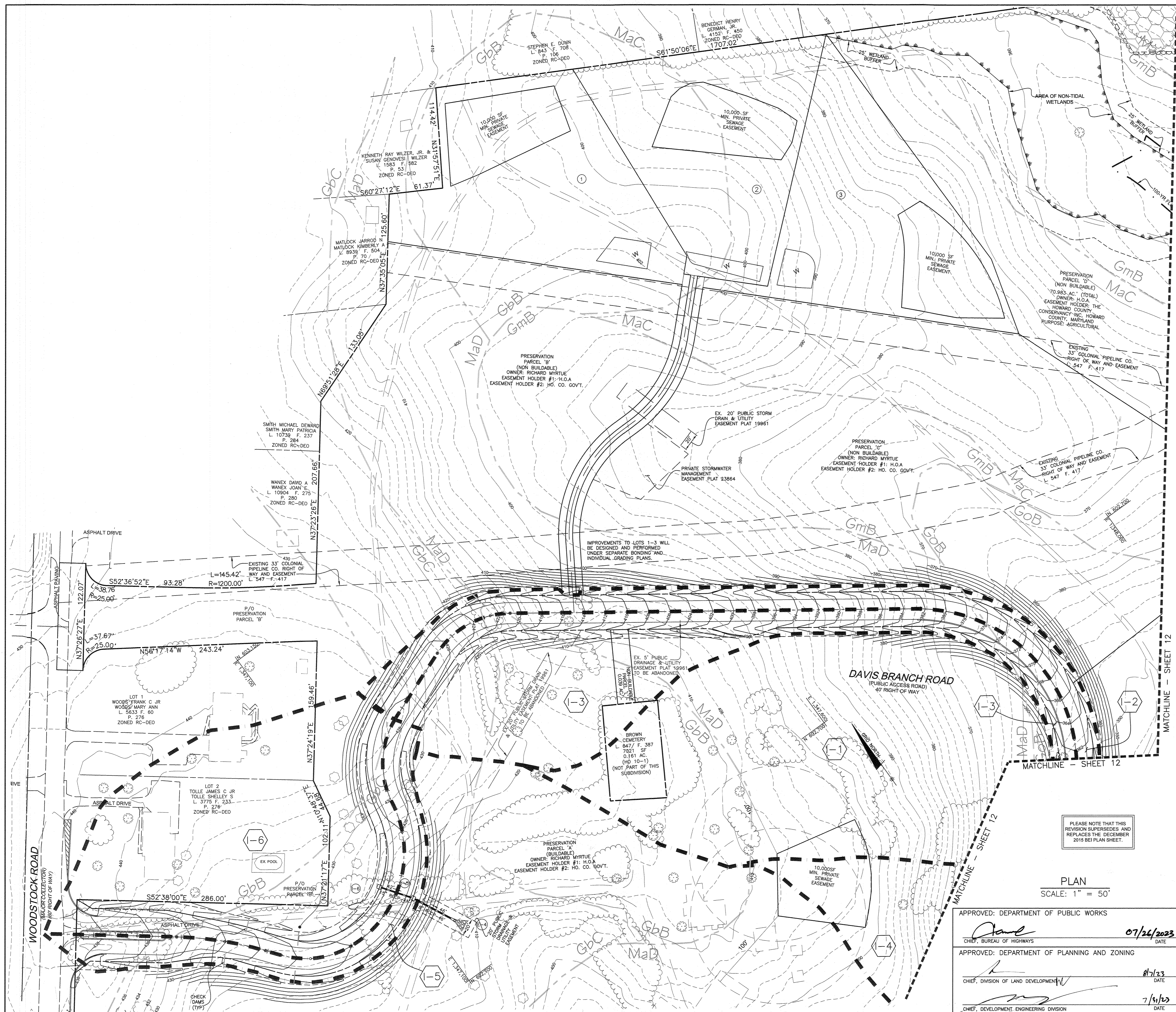
OWNER/DEVELOPER:
SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

PROJECT:
MYRTUE PROPERTY

LOCATION:
TAX MAP 10, GRID 24
PARCEL 225
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
REVISED ROAD PLANS
ROAD DETAILS

DATE: MARCH, 2020 PROJECT NO. 2099
SCALE: AS SHOWN DRAWING 9 OF 56
DES: AAM DRAFT: AAM CHECK: CAM



AREA AND "C" FACTOR TABULATION

PROJECT: Myrtue Property DATE: 09/17/15 AAM

INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR (C)	% IMPERVIOUS (P) CALCULATED
I-1	RC-DEO		2.66	0.22	0
I-2	RC-DEO		0.68	0.49	42
I-3	RC-DEO		1.44	0.34	19
I-4	RC-DEO		2.66	0.34	19
I-5	RC-DEO		0.43	0.52	48
I-6	RC-DEO		1.94	0.34	21
I-7	RC-DEO		0.79	0.64	67
I-8	RC-DEO		2.15	0.28	10
I-9	RC-DEO		0.30	0.43	33
I-10	RC-DEO		0.28	0.42	33
I-11	RC-DEO		0.64	0.33	17
I-12	RC-DEO		0.10	0.47	39
I-13	RC-DEO		0.19	0.45	37
I-14	RC-DEO		0.96	0.29	12
I-15	RC-DEO		0.39	0.41	30
I-16	RC-DEO		2.97	0.28	10
I-17	RC-DEO		0.30	0.53	49
I-18	RC-DEO		2.20	0.28	10
HW-3	RC-DEO		11.89	0.28	10
I-20	RC-DEO		0.16	0.56	54
I-21	RC-DEO		0.17	0.57	56
I-22	RC-DEO		0.77	0.38	27
I-23	RC-DEO		0.88	0.42	23
I-24	RC-DEO		0.79	0.42	33
HW-2	RC-DEO		15.31	0.27	10

- LEGEND**
- PROJECT BOUNDARY
 - EXISTING CONTOURS
 - EXISTING SLOPES 25% OR GREATER
 - FOREST CONSERVATION EASEMENT
 - PROPOSED WELL BOX
 - PROPOSED PRIVATE SEWAGE EASEMENT
 - AREA OF NON-TIDAL WETLANDS
 - STREAM
 - PROPOSED CONTOURS
 - EXISTING TREELINE
 - SOILS MAP SYMBOL
 - SOILS DELINEATION LINE
 - STORM DRAIN DRAINAGE AREA DIVIDE
 - STORM DRAIN DRAINAGE AREA DESIGNATION

"No AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

AS-BUILT 5/13/24

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. 21443, Expiration Date: 12-21-24

NO.	DATE	REVISION
3	7-2023	REVISED BY SHEET SUBSTITUTION TO REMOVE IMPROVEMENTS TO LOT 1-3.
2	3-2020	REVISED OWNER INFORMATION
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE DECEMBER 2015 BEI PLAN SHEET.

PLAN
 SCALE: 1" = 50'

APPROVED: DEPARTMENT OF PUBLIC WORKS

 CHIEF, BUREAU OF HIGHWAYS 07/26/2023 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

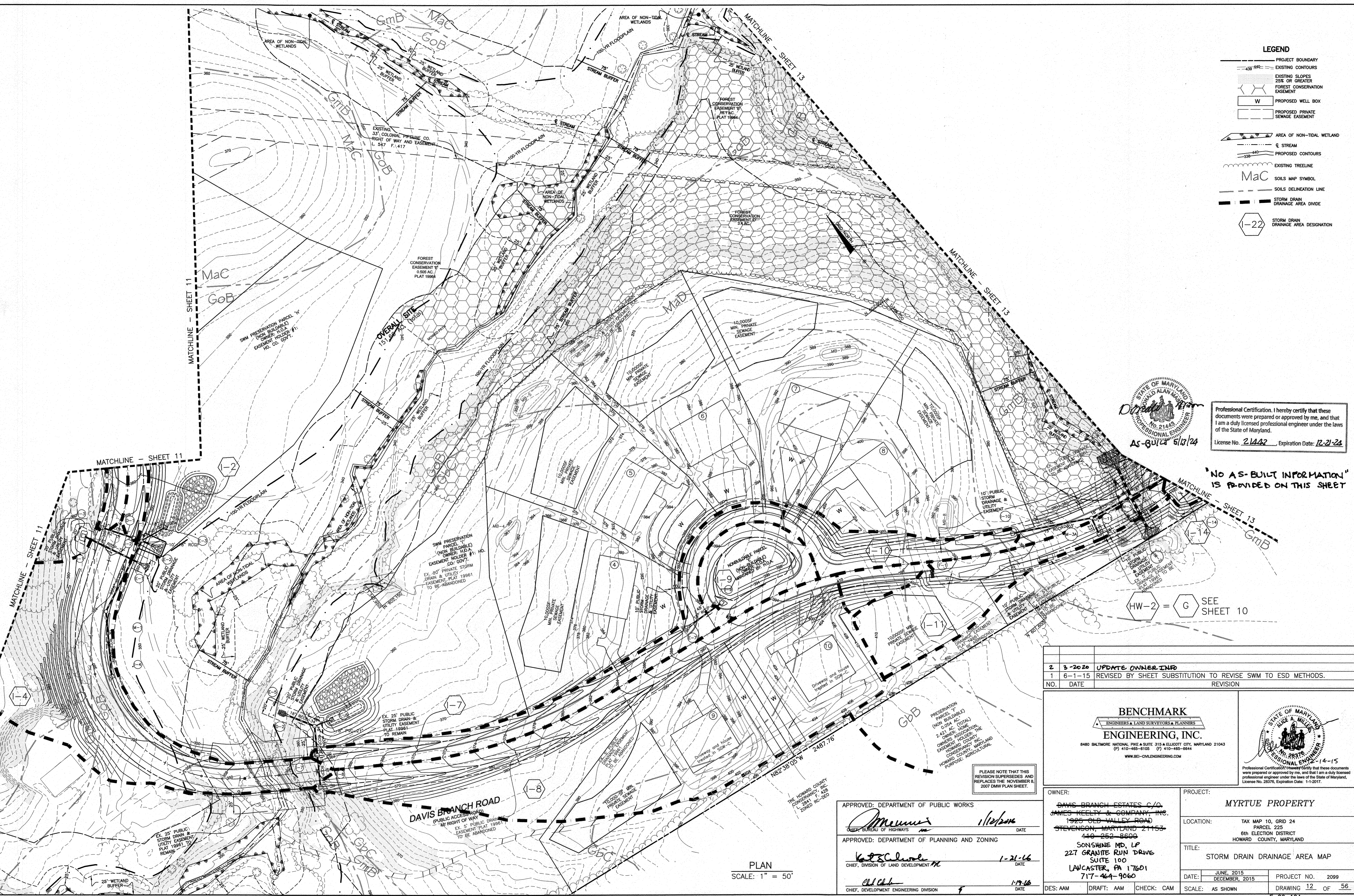
 CHIEF, DIVISION OF LAND DEVELOPMENT 8/7/23 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 7/31/23 DATE

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 3300 NORTH RIDGE ROAD SUITE 140 • ELICOTT CITY, MARYLAND 21043
 (P) 410-465-0105 (F) 410-465-6644
 WWW.BEI-CIVILENGINEERING.COM

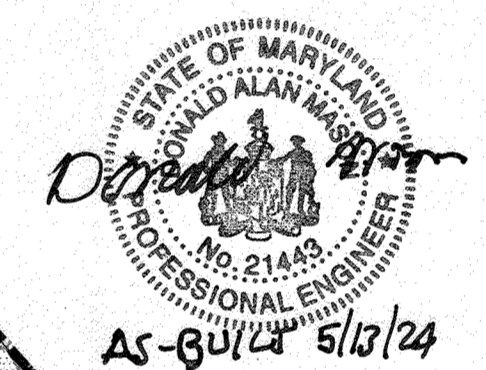
BEI-AAM
 2023.07.12 07:42:59 -04'00
 Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376, Expiration Date: 1-1-2025.

OWNER: SUNSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT: MYRTUE PROPERTY
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: REVISED STORM DRAIN DRAINAGE AREA MAP
DATE: JUNE 2023	PROJECT NO. 2099
DES: AAM	DRAFT: AAM
CHECK: CAM	SCALE: AS SHOWN
DRAWING 11 OF 56	



LEGEND

- PROJECT BOUNDARY
- EXISTING CONTOURS
- EXISTING SLOPES 25% OR GREATER
- FOREST CONSERVATION EASEMENT
- PROPOSED WELL BOX
- PROPOSED PRIVATE SEWAGE EASEMENT
- AREA OF NON-TIDAL WETLAND
- STREAM
- PROPOSED CONTOURS
- EXISTING TREELINE
- SOILS MAP SYMBOL
- SOILS DELINEATION LINE
- STORM DRAIN DRAINAGE AREA DIVIDE
- STORM DRAIN DRAINAGE AREA DESIGNATION



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. 21442 Expiration Date: 12-21-24

'NO AS-BUILT INFORMATION' IS PROVIDED ON THIS SHEET

HW-2 = G SEE SHEET 10

NO.	DATE	REVISION
2	3-2020	UPDATE OWNER INFO
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-8644
 WWW.BE-CIVLENGINEERING.COM

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28376, Expiration Date: 1-1-2017.

OWNER: DAVIS BRANCH ESTATES C/O JAMES KELLY & COMPANY, INC. 1925 OLD VALLEY ROAD STEVENSON, MARYLAND 21153 410-252-8600 SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LAWCASTER, PA 17601 717-464-9060	PROJECT: MYRTUE PROPERTY
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 8TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: STORM DRAIN DRAINAGE AREA MAP
DATE: JUNE, 2015 DECEMBER, 2015	PROJECT NO.: 2099 DRAWING 12 OF 56
DES: AAM DRAFT: AAM CHECK: CAM	SCALE: AS SHOWN

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 1/10/2016
 CHIEF, BUREAU OF HIGHWAYS

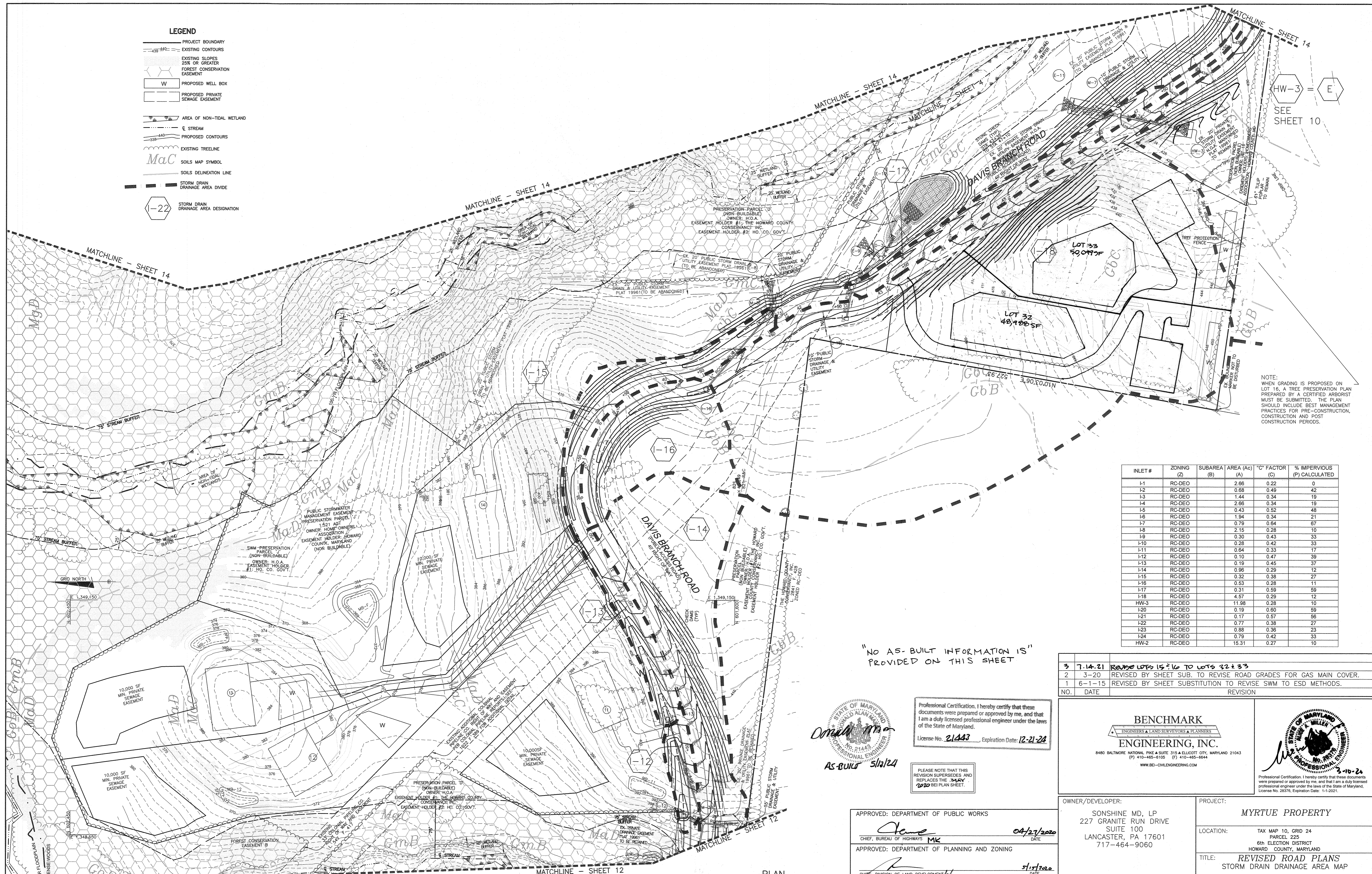
APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 1-21-16
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 1/19/16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

PLAN
 SCALE: 1" = 50'

LEGEND

- PROJECT BOUNDARY
- EXISTING CONTOURS
- EXISTING SLOPES 25% OR GREATER
- FOREST CONSERVATION EASEMENT
- PROPOSED WELL BOX
- PROPOSED PRIVATE SEWAGE EASEMENT
- AREA OF NON-TIDAL WETLAND
- STREAM
- PROPOSED CONTOURS
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- SOILS DELINEATION LINE
- STORM DRAIN DRAINAGE AREA DIVIDE
- STORM DRAIN DRAINAGE AREA DESIGNATION



HW-3 = E
SEE SHEET 10

NOTE: WHEN GRADING IS PROPOSED ON LOT 16, A TREE PRESERVATION PLAN PREPARED BY A CERTIFIED ARBORIST MUST BE SUBMITTED. THE PLAN SHOULD INCLUDE BEST MANAGEMENT PRACTICES FOR PRE-CONSTRUCTION, CONSTRUCTION AND POST CONSTRUCTION PERIODS.

INLET #	ZONING (Z)	SUBAREA (B)	AREA (A)	"C" FACTOR (C)	% IMPERVIOUS (P) CALCULATED
I-1	RC-DEO	2.66	0.22	0	0
I-2	RC-DEO	0.68	0.49	42	
I-3	RC-DEO	1.44	0.34	19	
I-4	RC-DEO	2.66	0.34	19	
I-5	RC-DEO	0.43	0.52	48	
I-6	RC-DEO	1.94	0.34	21	
I-7	RC-DEO	0.79	0.64	67	
I-8	RC-DEO	2.15	0.28	10	
I-9	RC-DEO	0.30	0.43	33	
I-10	RC-DEO	0.28	0.42	33	
I-11	RC-DEO	0.64	0.33	17	
I-12	RC-DEO	0.10	0.47	39	
I-13	RC-DEO	0.19	0.45	37	
I-14	RC-DEO	0.96	0.29	12	
I-15	RC-DEO	0.32	0.38	27	
I-16	RC-DEO	0.53	0.28	11	
I-17	RC-DEO	0.31	0.59	59	
I-18	RC-DEO	4.57	0.29	12	
HW-3	RC-DEO	11.98	0.28	10	
I-20	RC-DEO	0.19	0.60	59	
I-21	RC-DEO	0.17	0.57	56	
I-22	RC-DEO	0.77	0.38	27	
I-23	RC-DEO	0.88	0.36	23	
I-24	RC-DEO	0.79	0.42	33	
HW-2	RC-DEO	15.31	0.27	10	

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



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. 21443, Expiration Date: 12-21-24

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE MAY 2020 REI PLAN SHEET.

APPROVED: DEPARTMENT OF PUBLIC WORKS
James 04/27/2020
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
W. Hall 5/15/2020
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

5-13-20
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
3	7.14.21	REVISE LOTS 15 & 16 TO LOTS 32 & 33
2	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

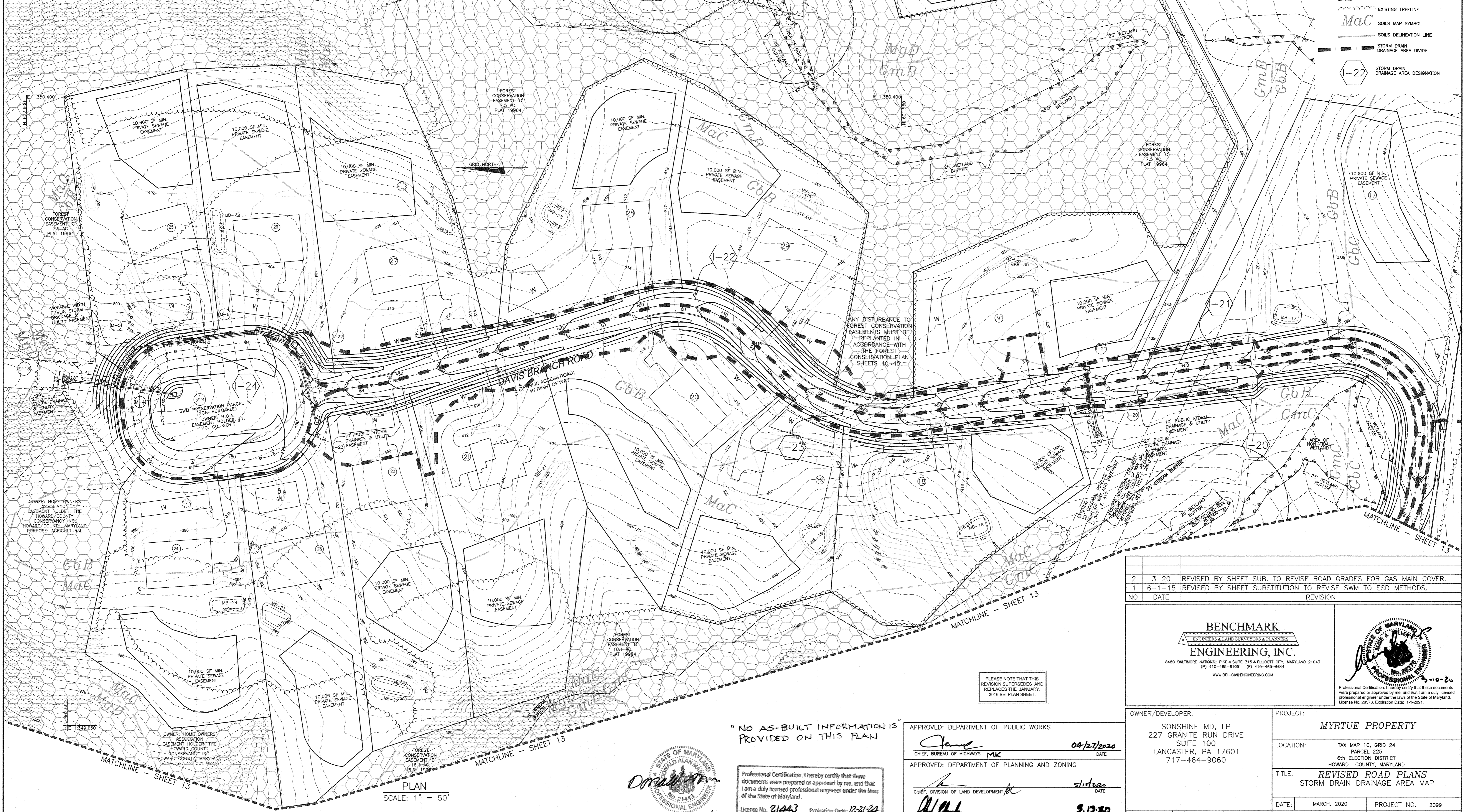
BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6100 (F) 410-465-6644
WWW.BE-ENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 28376, Expiration Date: 1-1-2021.

OWNER/DEVELOPER: SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT: MYRTUE PROPERTY
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: REVISED ROAD PLANS STORM DRAIN DRAINAGE AREA MAP
DATE: MARCH, 2020	PROJECT NO. 2099
DES: AAM	DRAFT: AAM
CHECK: CAM	SCALE: AS SHOWN
DRAWING NO. 13	OF 56

PLAN
SCALE: 1" = 50'

AREA AND "C" FACTOR TABULATION					AREA AND "C" FACTOR TABULATION						
PROJECT:	Myrtue Property	DATE:	07/26/19	AAM	PROJECT:	Myrtue Property	DATE:	07/26/19	AAM		
INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR (C)	% IMPERVIOUS (P) CALCULATED	INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR (C)	% IMPERVIOUS (P) CALCULATED
I-1	RC-DEO		2.66	0.22	0	I-14	RC-DEO		0.96	0.29	12
I-2	RC-DEO		0.68	0.49	42	I-15	RC-DEO		0.32	0.38	27
I-3	RC-DEO		1.44	0.34	19	I-16	RC-DEO		0.53	0.28	11
I-4	RC-DEO		2.66	0.34	19	I-17	RC-DEO		0.31	0.59	59
I-5	RC-DEO		0.43	0.52	48	I-18	RC-DEO		4.57	0.29	12
I-6	RC-DEO		1.94	0.34	21	HW-3	RC-DEO		11.98	0.28	10
I-7	RC-DEO		0.79	0.64	67	I-20	RC-DEO		0.19	0.60	59
I-8	RC-DEO		2.15	0.28	10	I-21	RC-DEO		0.17	0.57	56
I-9	RC-DEO		0.30	0.43	33	I-22	RC-DEO		0.77	0.38	27
I-10	RC-DEO		0.28	0.42	33	I-23	RC-DEO		0.88	0.36	23
I-11	RC-DEO		0.64	0.33	17	I-24	RC-DEO		0.79	0.42	33
I-12	RC-DEO		0.10	0.47	39	HW-2	RC-DEO		15.31	0.27	10
I-13	RC-DEO		0.19	0.45	37						



LEGEND

- PROJECT BOUNDARY
- EXISTING CONTOURS
- EXISTING SLOPES 25% OR GREATER
- FOREST CONSERVATION EASEMENT
- PROPOSED WELL BOX
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- STORM DRAIN DRAINAGE AREA DESIGNATION

2	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.
NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
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 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6100 (F) 410-465-6644
 WWW.BEI-CHALLENGERING.COM

PROFESSIONAL ENGINEER
 STATE OF MARYLAND
 LICENSE NO. 28376, EXPIRATION DATE: 1-1-2021

OWNER/DEVELOPER:	SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060
PROJECT:	MYRTUE PROPERTY
LOCATION:	TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	REVISED ROAD PLANS STORM DRAIN DRAINAGE AREA MAP
DATE:	MARCH, 2020
PROJECT NO.	2099
DES: AAM	DRAFT: AAM
CHECK: CAM	SCALE: AS SHOWN
DRAWING 14	OF 56

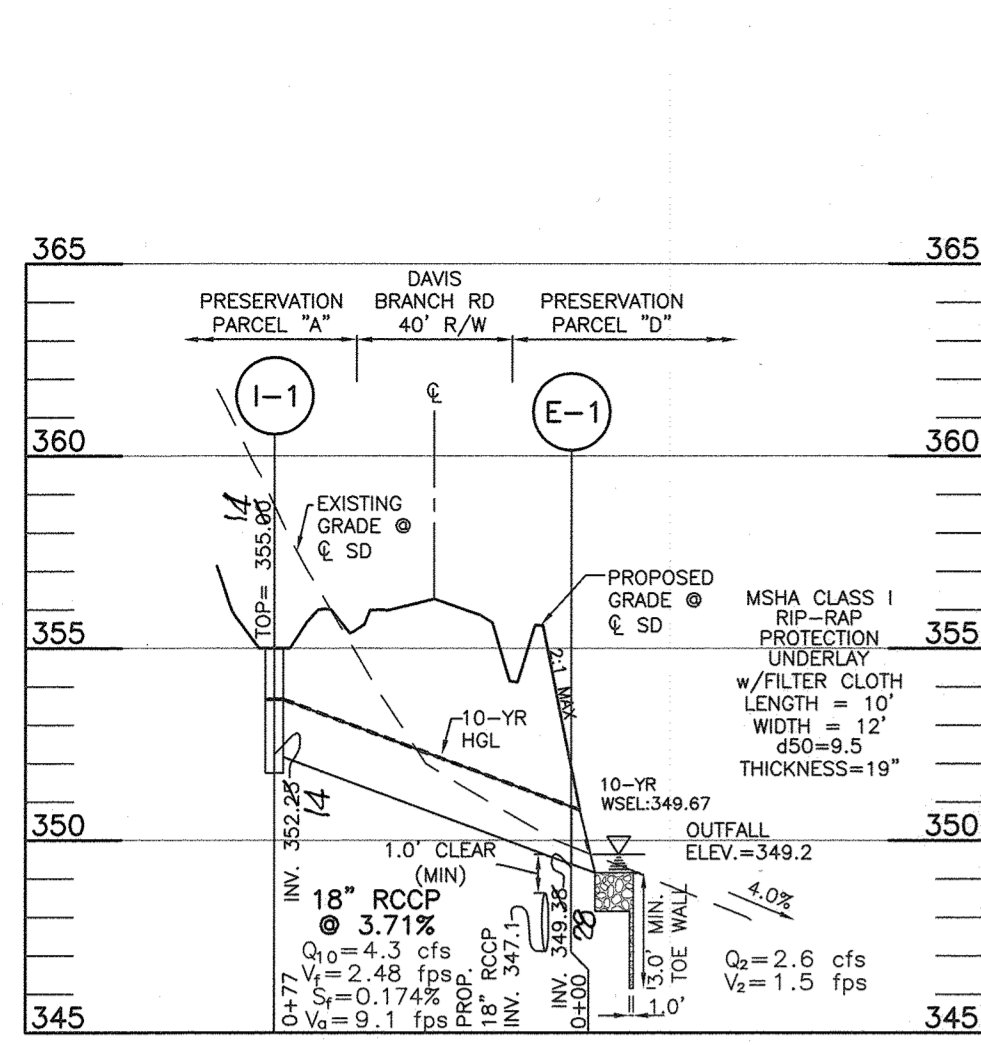
"NO AS-BUILT INFORMATION IS PROVIDED ON THIS PLAN"



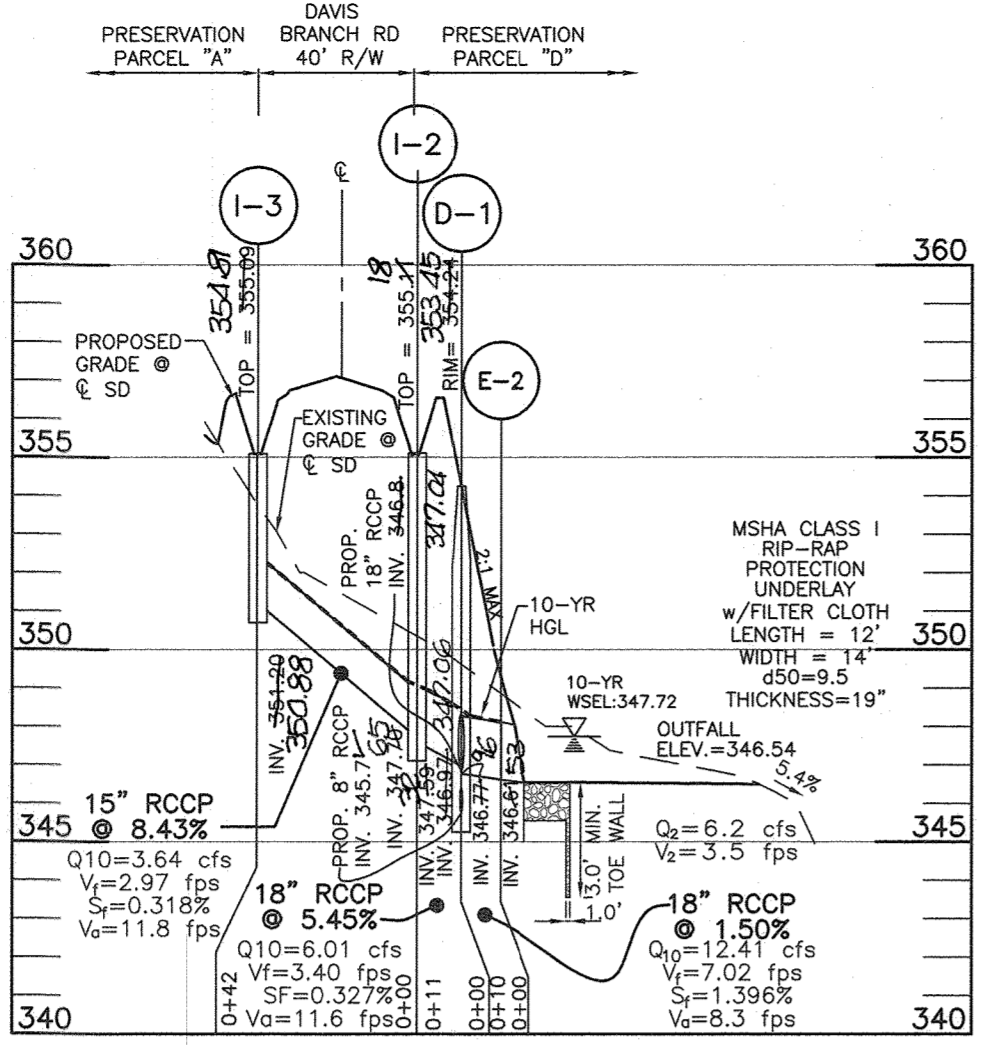
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-31-24

APPROVED: DEPARTMENT OF PUBLIC WORKS	DATE: 04/27/2020
APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE: 5/1/2020
APPROVED: DEPARTMENT OF DEVELOPMENT ENGINEERING DIVISION	DATE: 5/13/20

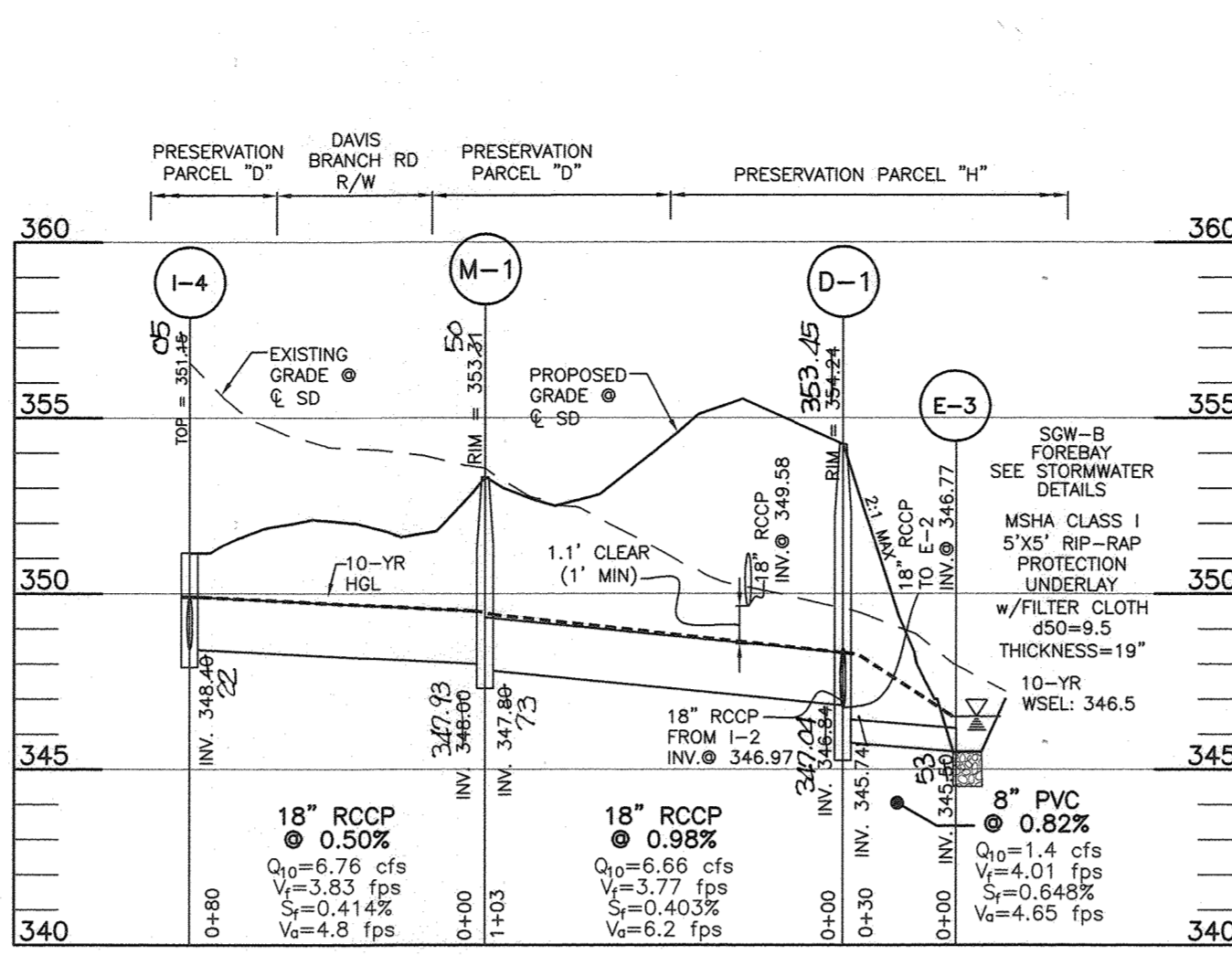
PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE JANUARY, 2016 BEI PLAN SHEET.



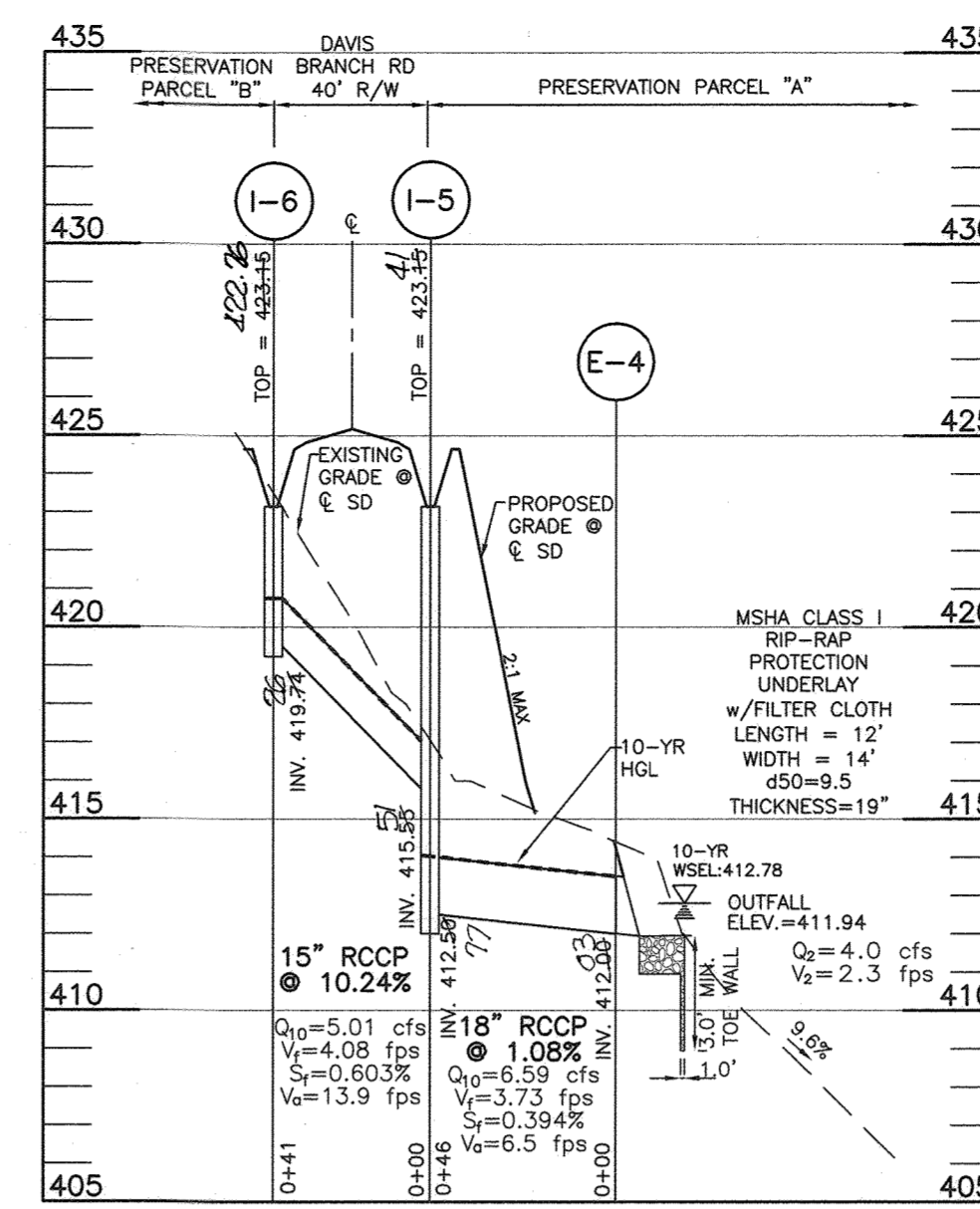
E1 TO I1
SCALE: 1"=50' HORIZ., 1"=5' VERT.



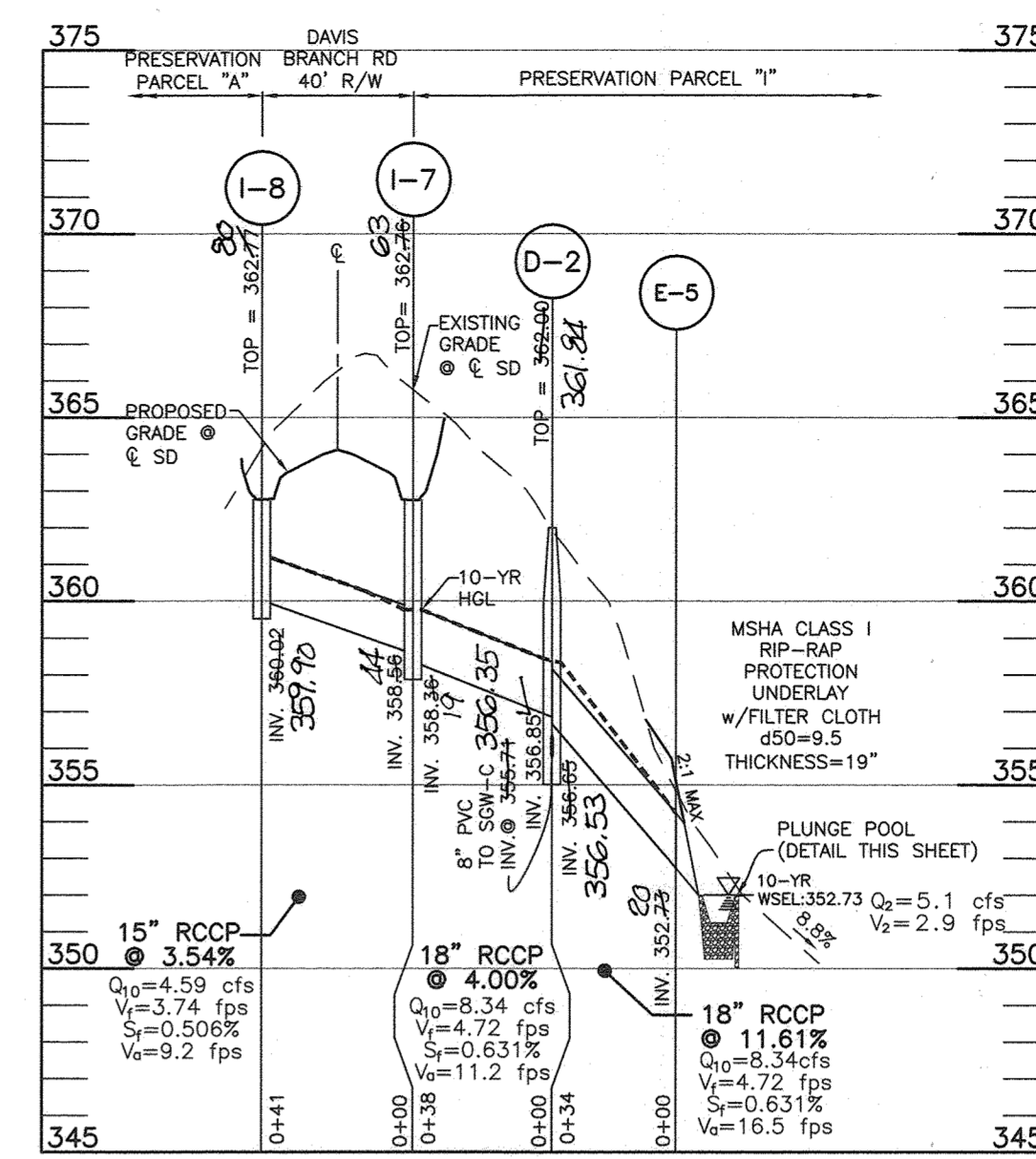
E2 TO I3
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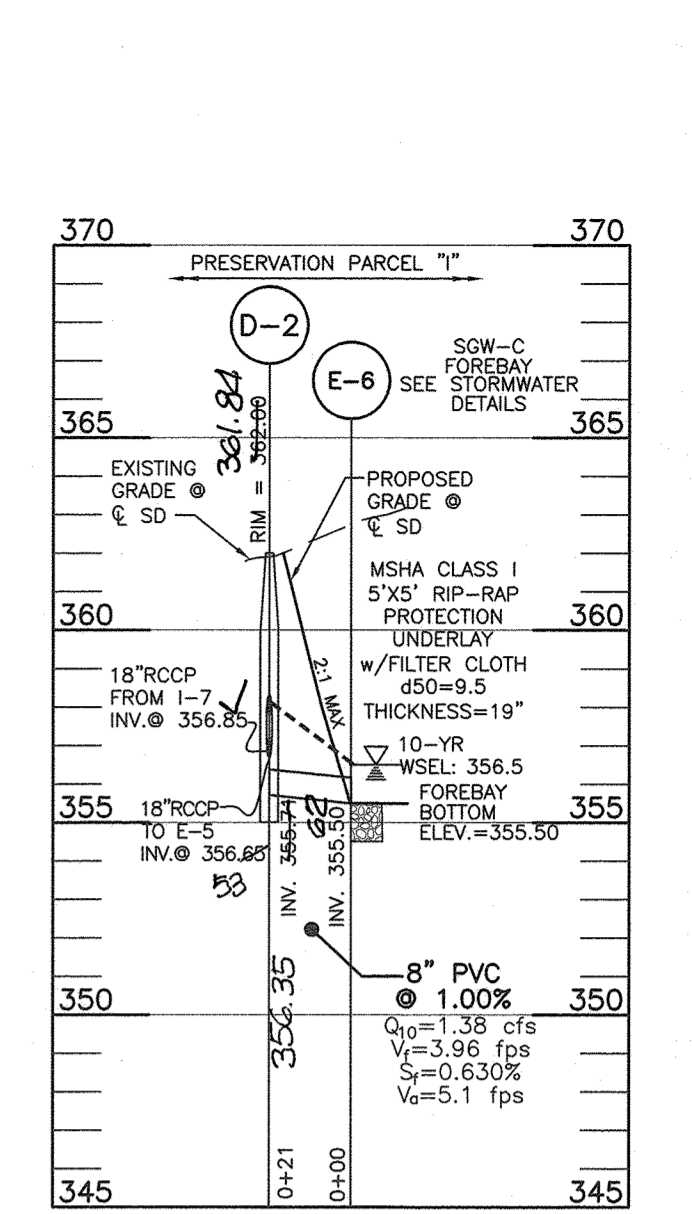
E3 TO I4
SCALE: 1"=50' HORIZ., 1"=5' VERT.



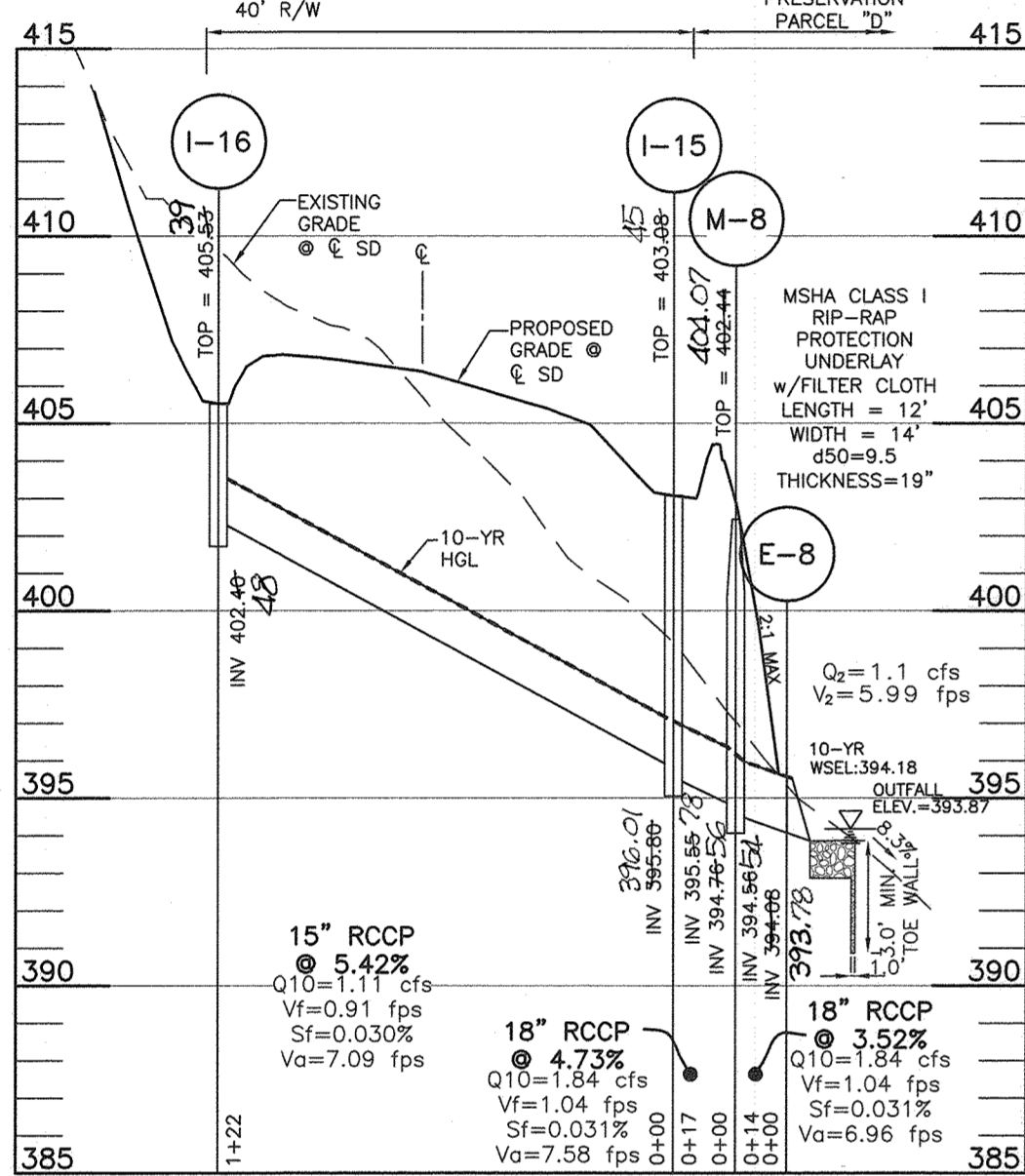
E4 TO I6
SCALE: 1"=50' HORIZ., 1"=5' VERT.



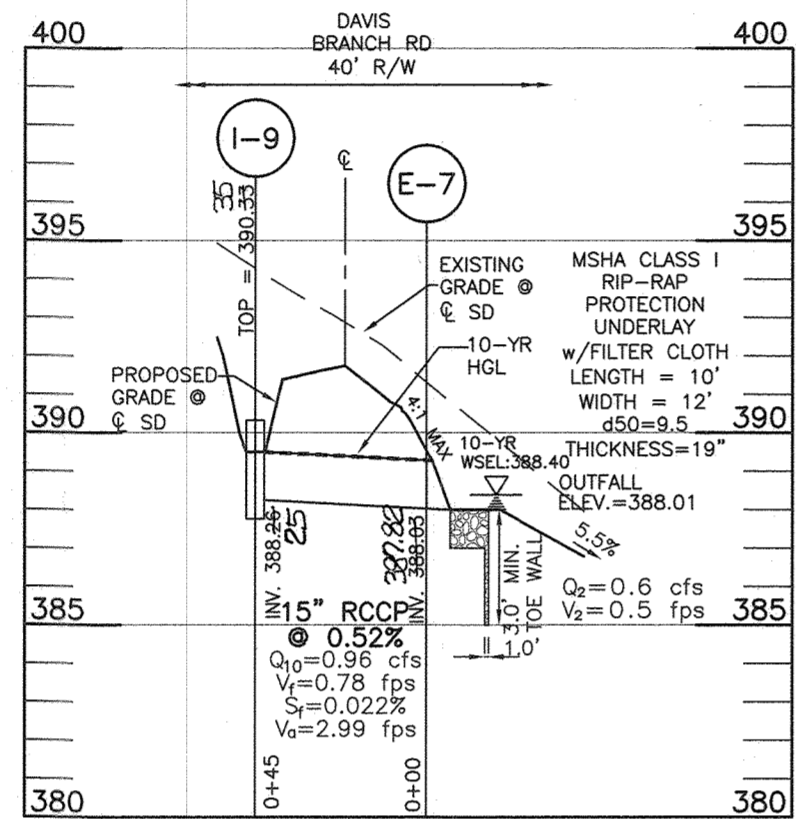
E5 TO I8
SCALE: 1"=50' HORIZ., 1"=5' VERT.



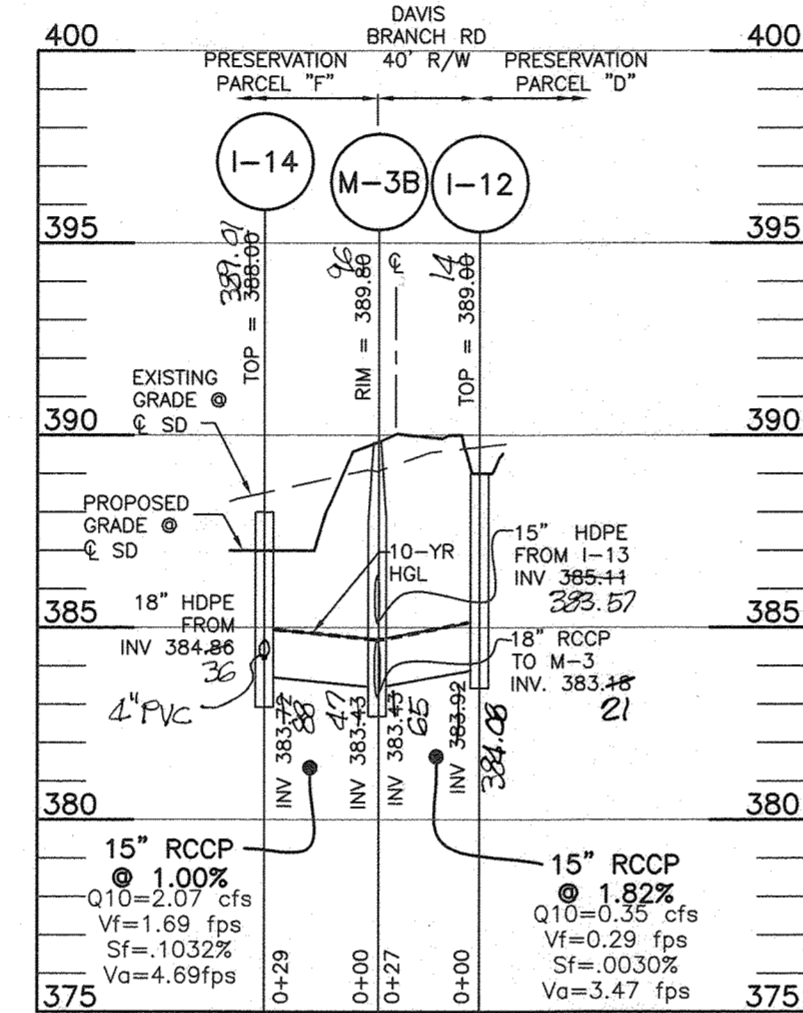
E6 TO D2
SCALE: 1"=50' HORIZ., 1"=5' VERT.



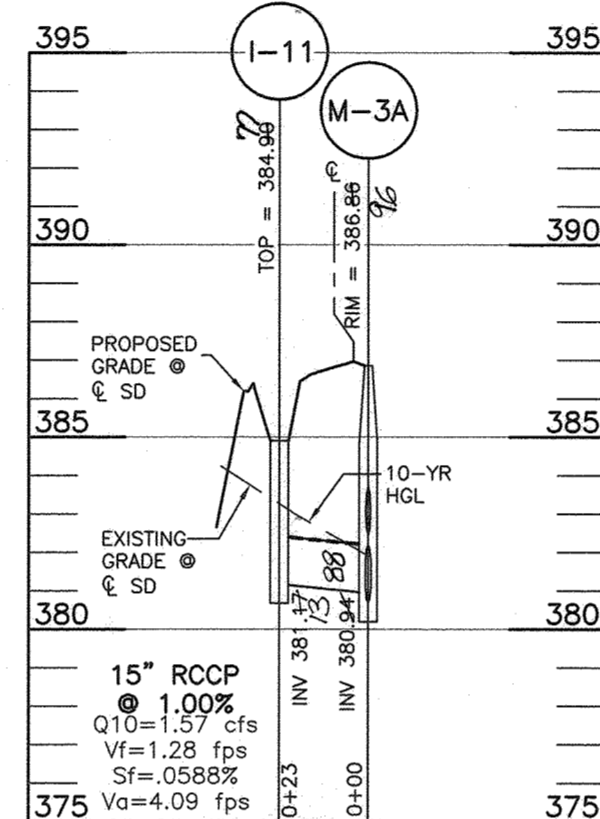
I-16 TO M-8
SCALE: 1"=50' HORIZ., 1"=5' VERT.



I-9 TO E-7
SCALE: 1"=50' HORIZ., 1"=5' VERT.



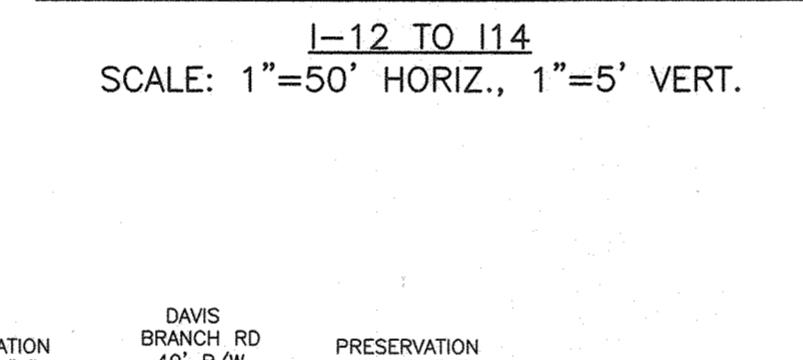
I-14 TO M-3A
SCALE: 1"=50' HORIZ., 1"=5' VERT.



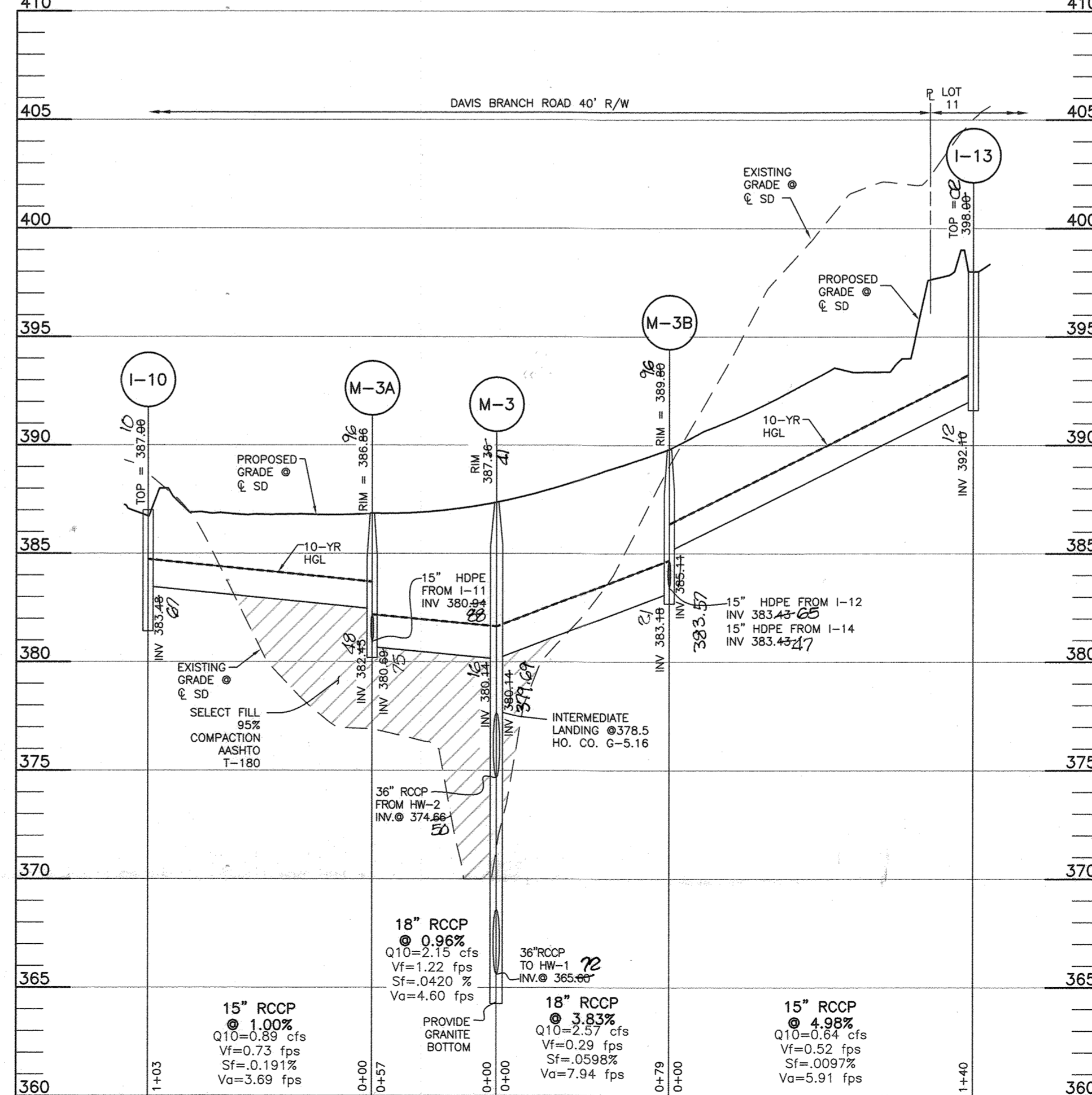
I-11 TO M-3A
SCALE: 1"=50' HORIZ., 1"=5' VERT.



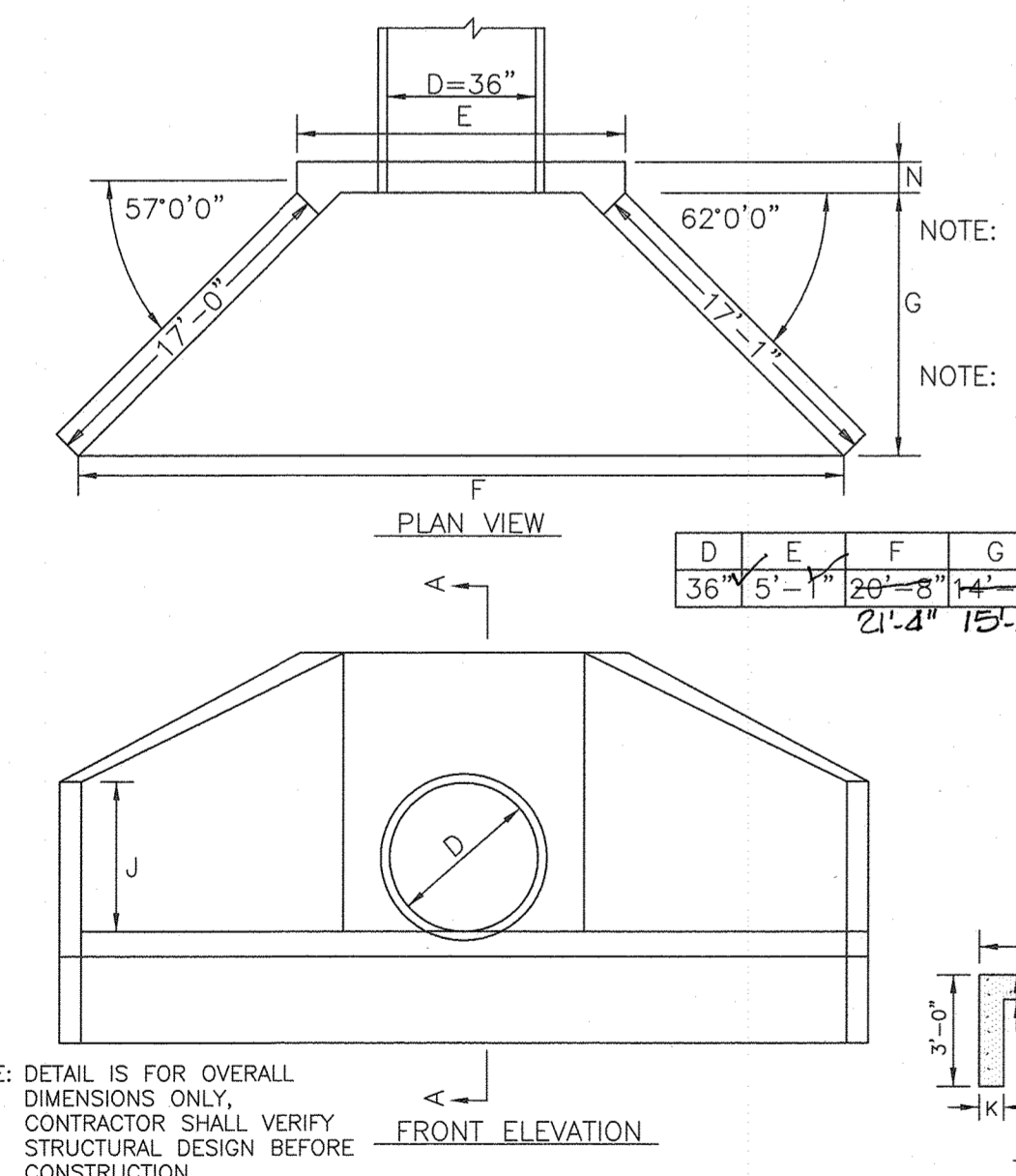
I-12 TO I14
SCALE: 1"=50' HORIZ., 1"=5' VERT.



I-12 TO I14
SCALE: 1"=50' HORIZ., 1"=5' VERT.



I-10 TO I13
SCALE: 1"=50' HORIZ., 1"=5' VERT.



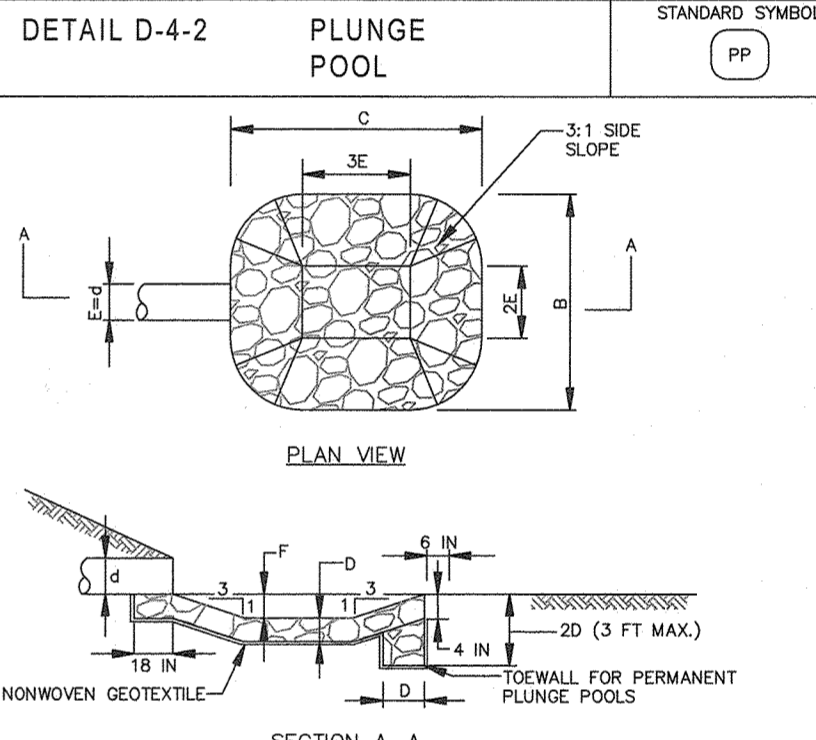
H-1 (DOWNSTREAM)
MODIFIED TYPE 'A' HEADWALL
NOT TO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 04/27/2020
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 5.13.20

PLUNGE POOL GEOMETRY

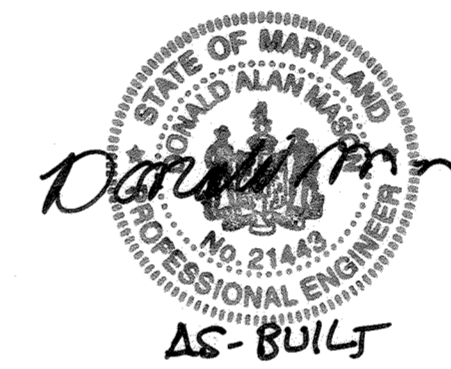
OUTFALL	B	C	D	E	F	RIP-RAP SHA CLASS
E-5*	7.50'	9.00'	19'	1.5'	0.75'	0

*A 6' X 3' X 1' GABION WALL SHALL BE PROVIDED AT THE END OF PLUNGE POOL AT E-5 FOR ENERGY DISSIPATION. THE GABION SHALL BE EMBEDDED ALONG ITS LENGTH TO A DEPTH OF 2' OF ITS WIDTH, WITH AN EXPOSED DIMENSION OF 1'X1'6".



- CONSTRUCTION SPECIFICATIONS
- USE SPECIFIED CLASS OF RIPRAP.
 - USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCHING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE.
 - PREPARE THE SUBGRADE FOR THE PLUNGE POOL TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
 - EMBED THE GEOTEXTILE A MINIMUM OF 4 INCHES AND EXTEND THE GEOTEXTILE A MINIMUM OF 6 INCHES BEYOND THE EDGE OF THE SCOUR HOLE.
 - STONE FOR THE PLUNGE POOL MAY BE PLACED BY EQUIPMENT. CONSTRUCT TO THE FULL COURSE TWICES. STONE TO BE PLACED IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. DELIVER AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE Voids BETWEEN THE LARGER STONES. PLACE STONE FOR THE PLUNGE POOL IN A MANNER TO PREVENT DAMAGE TO THE GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
 - AT THE PLUNGE POOL OUTLET, PLACE THE STONE SO THAT IT MEETS THE EXISTING GRADE.
 - MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF ENDSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Donald Mason, P.E.
Date: 5/13/24



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. 21443, Expiration Date: 12-21-24

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE JANUARY, 2016 BEI PLAN SHEET.

*NOTE: SEE SHEET 15 FOR STRUCTURE SCHEDULES

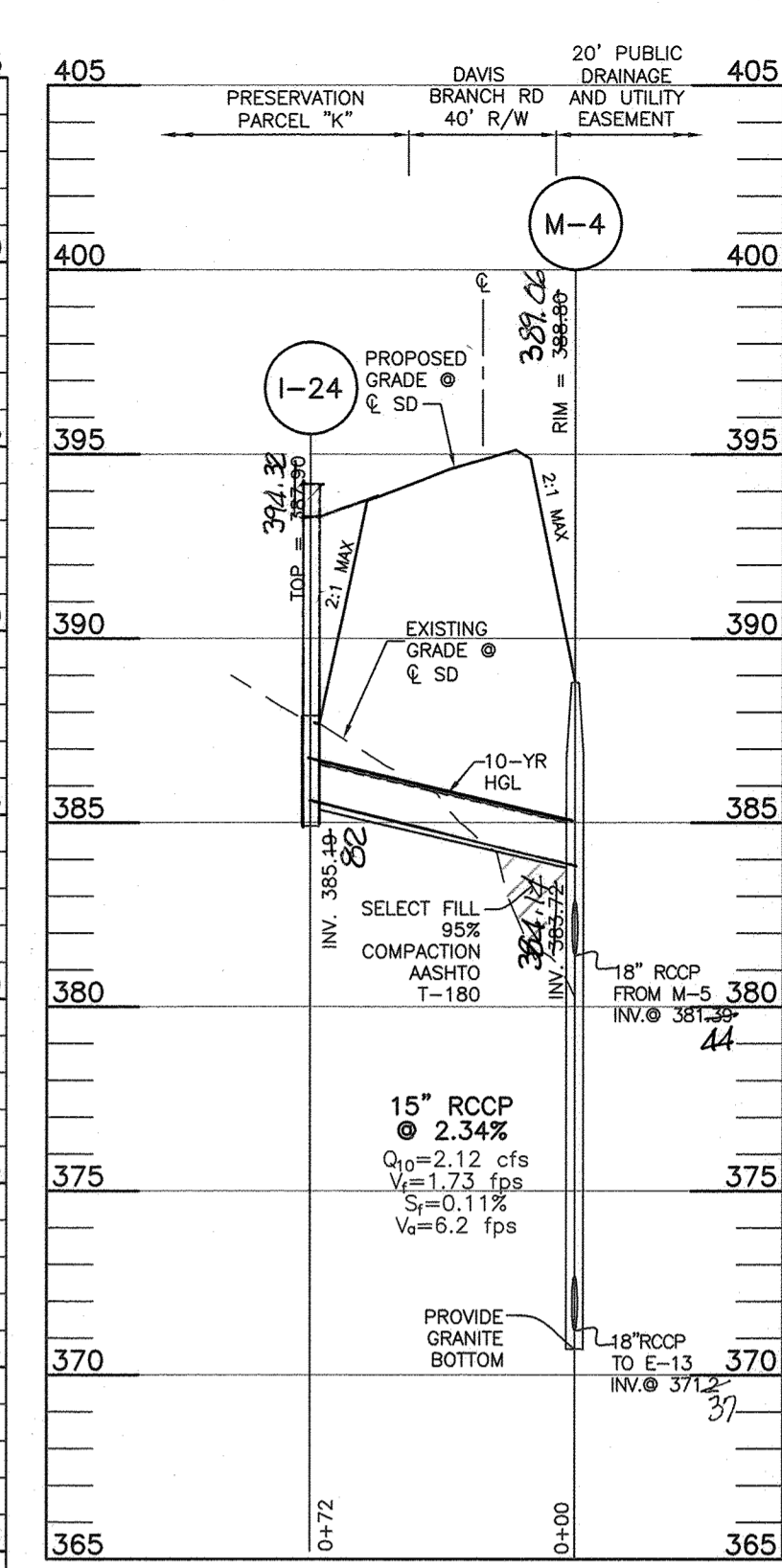
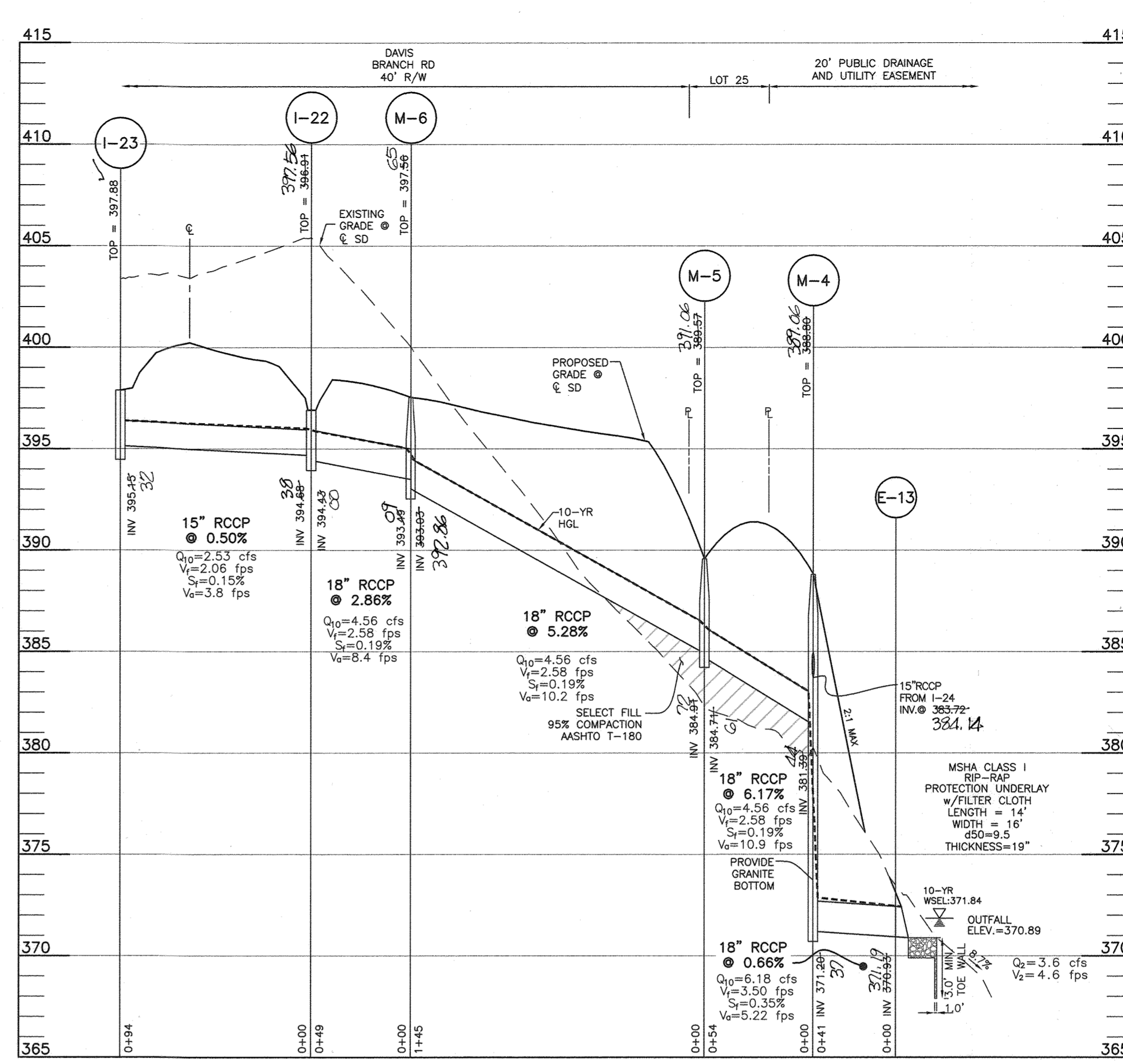
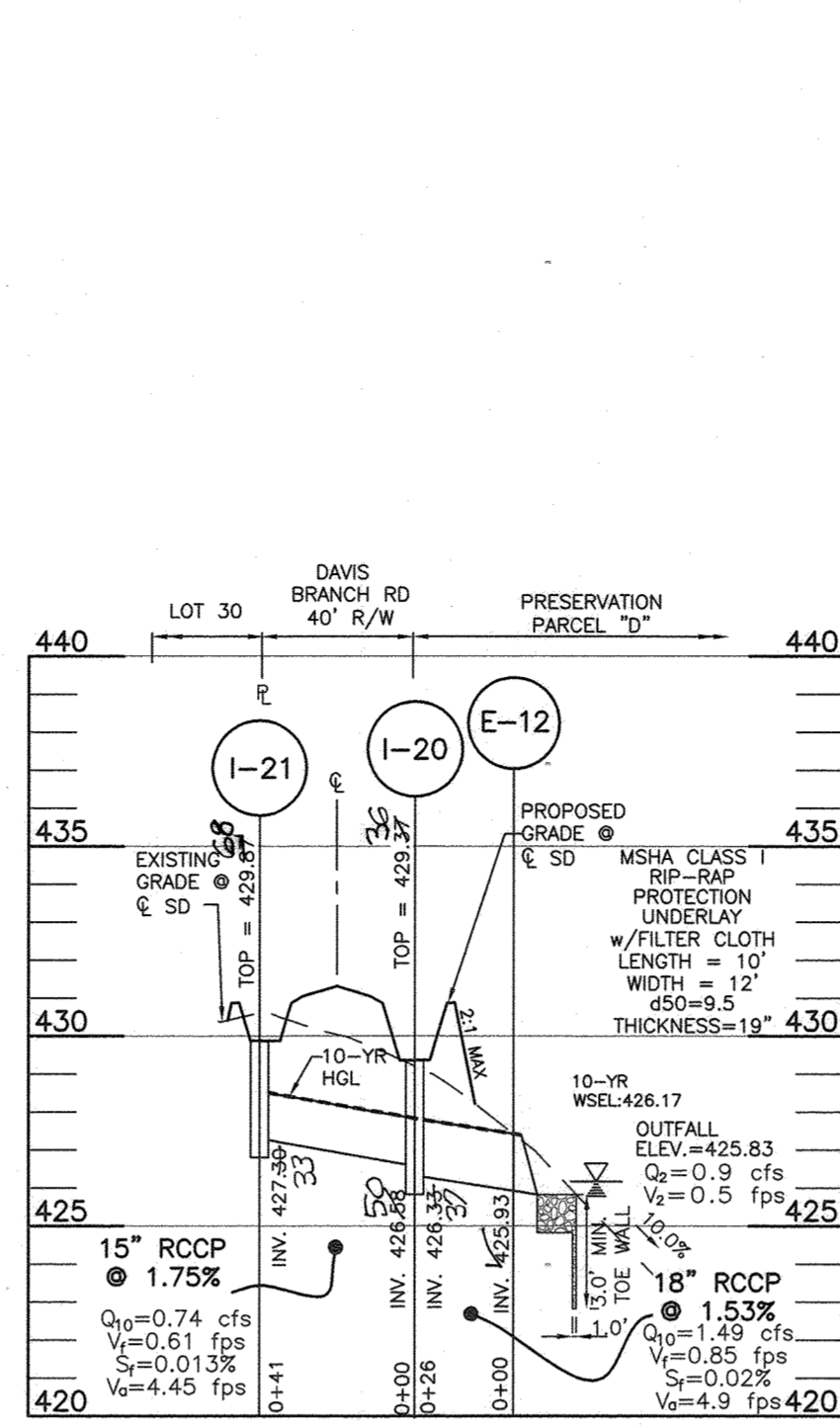
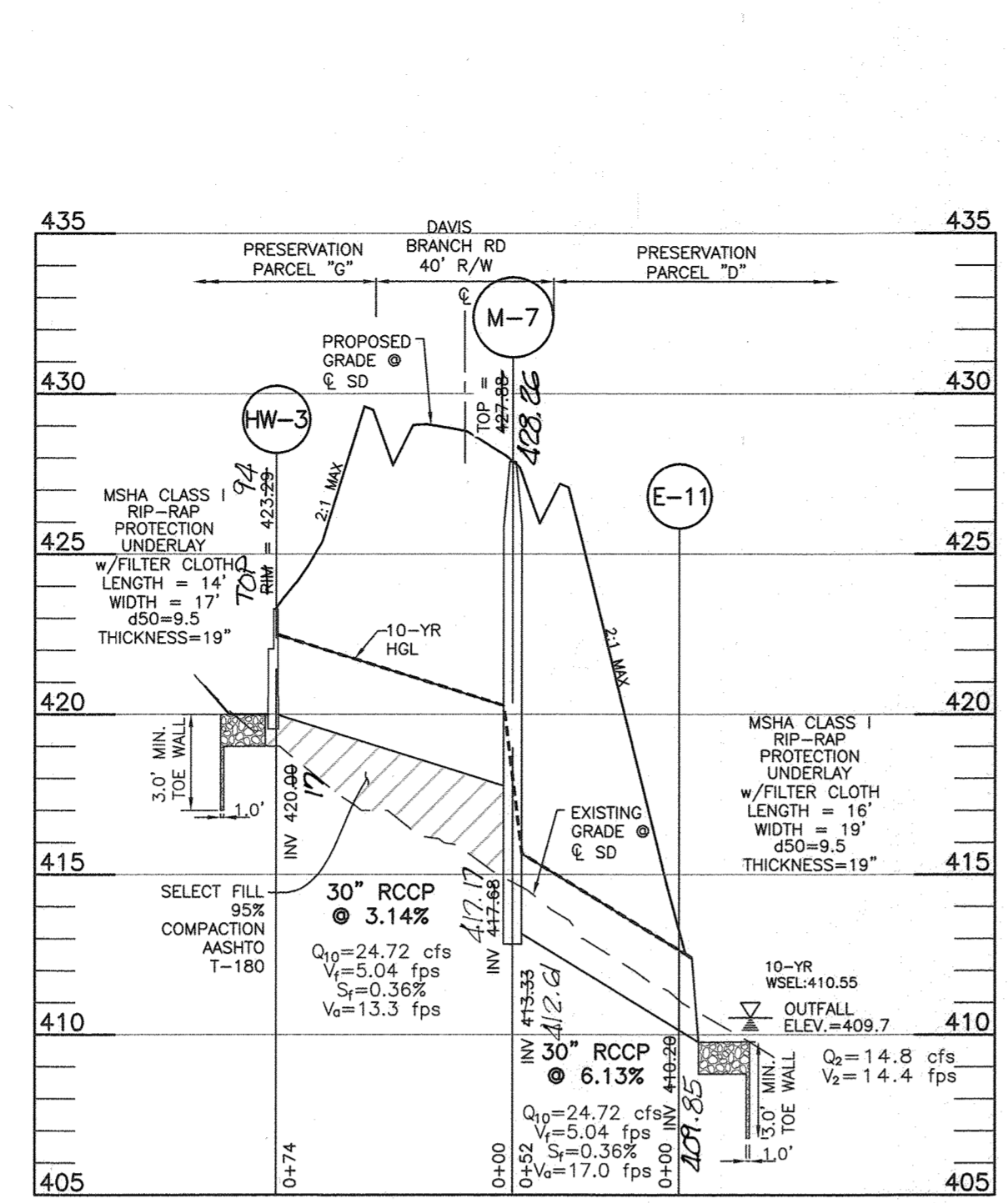
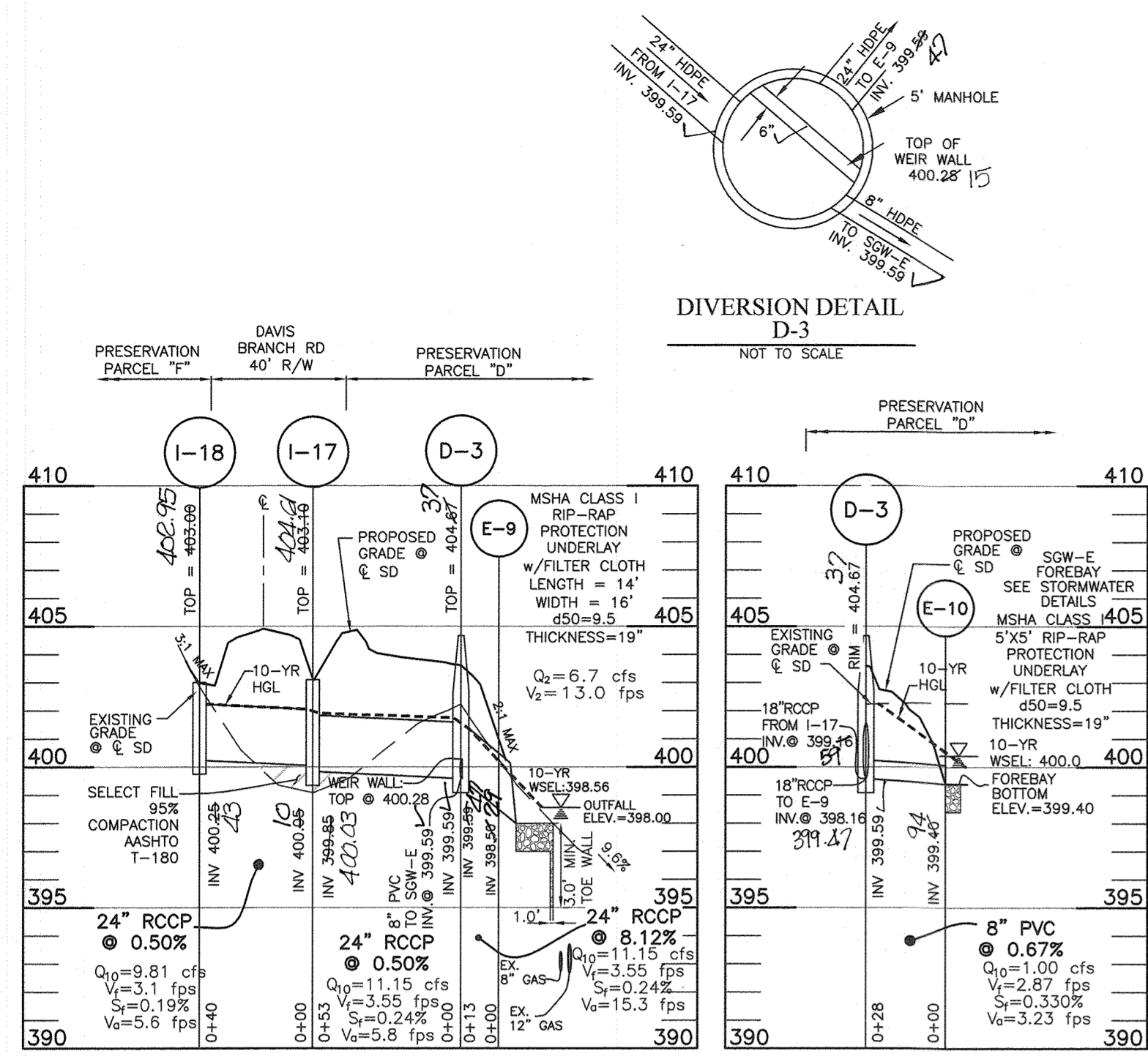
NO.	DATE	REVISION
2	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELICOTT CITY, MARYLAND 21043
(P) 410-465-0105 (F) 410-465-8544
WWW.BEI-ENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 28376, Expiration Date: 1-1-2021.

OWNER/DEVELOPER: SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT: MYRTUE PROPERTY
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: REVISED ROAD PLANS STORMDRAIN PROFILES
DATE: MARCH, 2020	PROJECT NO. 2099
DES: AAM	DRAFT: AAM
CHECK: CAM	SCALE: AS SHOWN
DRAWING NO. OF 56	

AS-BUILT



E9 to I18
SCALE: 1"=50' HORIZ., 1"=5' VERT.

E10 to D3
SCALE: 1"=50' HORIZ., 1"=5' VERT.

E11 to HW3
SCALE: 1"=50' HORIZ., 1"=5' VERT.

E12 to I21
SCALE: 1"=50' HORIZ., 1"=5' VERT.

M4 to I24
SCALE: 1"=50' HORIZ., 1"=5' VERT.

STRUCTURE TABLE						
INLETS*						
NUMBER	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL
I-1	TYPE 'K'	CL STA. 16+29.25 Davis Branch Road, OFFSET 41.09' RIGHT	352.24(18)	355.00(14)	355.00(14)	HO.CO. STD D-4.12
I-2	TYPE 'K'	CL STA. 16+12.36 Davis Branch Road, OFFSET 21.17' LEFT	347.90(15)	347.90(15)	355.11(18)	HO.CO. STD D-4.12
I-3	TYPE 'K'	CL STA. 16+11.74 Davis Branch Road, OFFSET 20.37' RIGHT	351.20(15)	351.20(15)	355.00(14)	HO.CO. STD D-4.12
I-4	TYPE 'K'	CL STA. 18+09.29 Davis Branch Road, OFFSET 20.46' LEFT	348.40(18)	351.45(15)	355.00(14)	HO.CO. STD D-4.12
I-5	TYPE 'K'	CL STA. 5+30.99 Davis Branch Road, OFFSET 20.47' RIGHT	415.85(15)	412.50(18)	423.26	HO.CO. STD D-4.12
I-6	TYPE 'K'	CL STA. 05+28.71 Davis Branch Road, OFFSET 20.43' LEFT	419.25(15)	423.15	423.15	HO.CO. STD D-4.12
I-7	TYPE 'K'	CL STA. 21+51.92 Davis Branch Road, OFFSET 20.63' LEFT	358.95(15)	358.95(15)	362.20	HO.CO. STD D-4.12
I-8	TYPE 'K'	CL STA. 21+51.61 Davis Branch Road, OFFSET 20.58' RIGHT	366.90(15)	366.90(15)	362.20	HO.CO. STD D-4.12
I-9	TYPE 'D'	CL STA. 27+27.39 Davis Branch Road, OFFSET 25.62' LEFT	388.20(15)	390.35	390.35	HO.CO. STD D-4.10
I-10	TYPE 'K'	CL STA. 31+09.10 Davis Branch Road, OFFSET 19.58' LEFT	383.20(15)	387.40	387.40	HO.CO. STD D-4.12
I-11	TYPE 'K'	CL STA. 32+13.51 Davis Branch Road, OFFSET 19.32' RIGHT	387.10(15)	384.80	384.80	HO.CO. STD D-4.12
I-12	TYPE 'K'	CL STA. 33+60.45 Davis Branch Road, OFFSET 20.05' LEFT	383.20(15)	389.80	389.80	HO.CO. STD D-4.12
I-13	TYPE 'K'	CL STA. 34+90.96 Davis Branch Road, OFFSET 21.68' LEFT	392.50(15)	390.80	390.80	HO.CO. STD D-4.12
I-14	TYPE 'D'	CL STA. 33+46.66 Davis Branch Road, OFFSET 33.76' RIGHT	383.20(15)	388.80	388.80	HO.CO. STD D-4.10
I-15	TYPE 'K'	CL STA. 41+59.53 Davis Branch Road, OFFSET 17.81' LEFT	395.80(15)	400.30	400.30	HO.CO. STD D-4.12
I-16	TYPE 'K'	CL STA. 40+46.33 Davis Branch Road, OFFSET 18.31' RIGHT	402.40(15)	405.50	405.50	HO.CO. STD D-4.12
I-17	TYPE 'K'	CL STA. 42+70.31 Davis Branch Road, OFFSET 16.34' LEFT	400.00(24)	403.00	403.00	HO.CO. STD D-4.36
I-18	TYPE 'K'	CL STA. 42+56.84 Davis Branch Road, OFFSET 21.60' RIGHT	400.25(24)	403.00	403.00	HO.CO. STD D-4.12
I-20	TYPE 'K'	CL STA. 54+67.97 Davis Branch Road, OFFSET 20.56' LEFT	426.88(15)	426.30	426.30	HO.CO. STD D-4.12
I-21	TYPE 'K'	CL STA. 54+67.59 Davis Branch Road, OFFSET 20.52' RIGHT	427.30(15)	429.30	429.30	HO.CO. STD D-4.12
I-22	TYPE 'K'	CL STA. 0+52.10 Davis Branch Loop, OFFSET 16.38' RIGHT	394.88(15)	394.20(18)	396.90	HO.CO. STD D-4.12
I-23	TYPE 'K'	CL STA. 64+57.10 Davis Branch Road, OFFSET 33.64' LEFT	395.15(15)	397.80	397.80	HO.CO. STD D-4.12
I-24	TYPE 'K'	CL STA. 02+31.05 Davis Branch Loop, OFFSET 48.13' LEFT	385.78(15)	384.30	384.30	HO.CO. STD D-4.12
F-1	FLOW-THRU	CL STA. 29+98.05 Davis Branch Loop, OFFSET 11.00' LEFT	---	393.20	393.20	MD-474.68

1) STRUCTURE ELEVATION AND LOCATION FOR TYPE 'K' AND TYPE 'D' INLETS IS AT THE TOP OF GRATE OR COVER AT THE MIDPOINT OF THE INLET.
 2) FLOW THROUGH CURB INLETS SHALL BE WITH A 3" OPENING, AND 2" WIDE FROM FACE OF CURB TO REAR INLET LIP. IN GENERAL COMPLIANCE WITH MD 374.68.
 3) FLOW THROUGH CURB INLETS (P) SHALL BE EROSION PROTECTION SHALL CONSIST OF CLASS I RIP-RAP, 19" THICK FROM BACK OF INLET TO BOTTOM OF SWALE.

PIPE SCHEDULE			
SIZE	LENGTH	TYPE & CLASS	OWNER
8"	79'	CLASS IV RCP	PRIVATE
15"	820'	CLASS IV RCP	PUBLIC
18"	881'	CLASS IV RCP	PUBLIC
24"	106'	CLASS IV RCP	PUBLIC
30"	126'	CLASS IV RCP	PUBLIC
36"	86'	CLASS IV RCP	PUBLIC

STRUCTURE TABLE						
DIVERSION MANHOLES*						
NUMBER	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL
D-1	48" MH	CL STA. 16+12.58 DAVIS BRANCH ROAD, OFFSET 32.66' LEFT	346.84(18)	345.74(18)	353.25	HO.CO. STD G-5.12
D-2	48" MH	CL STA. 21+52.05 DAVIS BRANCH ROAD, OFFSET 58.39' LEFT	356.85(18)	355.71(18)	363.24	HO.CO. STD G-5.12
D-3	60" MH	CL STA. 43+26.84 DAVIS BRANCH ROAD, OFFSET 35.11' LEFT	399.59(24)	399.59(24)	404.67	HO.CO. STD G-5.13

STRUCTURE TABLE						
HEADWALL STRUCTURES*						
NUMBER	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL
HW-1	MODIFIED TYPE "A"	CL STA. 32+74.39 DAVIS BRANCH ROAD, OFFSET 44.77' LEFT	365.28(36)	376.20	376.20	PUBLIC
HW-2	TYPE "A" 36" RCCP	CL STA. 32+71.40 DAVIS BRANCH ROAD, OFFSET 40.26' RIGHT	377.88(36)	382.20	382.20	HO.CO. STD D-5.11
HW-3	TYPE "A" 30" RCCP	CL STA. 47+33.90 DAVIS BRANCH ROAD, OFFSET 42.69' RIGHT	420.00(30)	423.20	423.20	HO.CO. STD D-5.11

STRUCTURE TABLE						
END SECTIONS*						
NUMBER	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL
E-1	18" CONCRETE END SECTION	CL STA. 16+40.58 DAVIS BRANCH ROAD, OFFSET 35.36' LEFT	349.38(18)	351.17	351.17	HO.CO. STD G-5.5
E-2	18" CONCRETE END SECTION	CL STA. 16+13.64 Davis Branch Road, OFFSET 42.94' LEFT	346.61(18)	348.41	348.41	HO.CO. STD G-5.5
E-3	8" PVC; NO END SECTION	N=602,404,5068 E=1,347,793,2890	N/A	N/A	N/A	PUBLIC
E-4	18" CONCRETE END SECTION	CL STA. 05+27.25 Davis Branch Road, OFFSET 68.79' RIGHT	412.00(18)	413.89	413.89	HO.CO. STD G-5.5
E-5	18" CONCRETE END SECTION	CL STA. 21+22.06 Davis Branch Road, OFFSET 74.01' LEFT	352.73(18)	354.52	354.52	HO.CO. STD G-5.5
E-6	8" PVC; NO END SECTION	N=602,077,6798 E=1,347,804,7303	N/A	N/A	N/A	PUBLIC
E-7	15" CONCRETE END SECTION	CL STA. 26+82.98 Davis Branch Road, OFFSET 21.69' LEFT	388.03(15)	389.55	389.55	HO.CO. STD G-5.5
E-8	18" CONCRETE END SECTION	CL STA. 41+80.56 Davis Branch Road, OFFSET 37.03' LEFT	394.08(18)	395.58	395.58	HO.CO. STD G-5.5
E-9	24" CONCRETE END SECTION	CL STA. 43+25.63 Davis Branch Road, OFFSET 39.18' LEFT	398.50(24)	400.50	400.50	HO.CO. STD G-5.5
E-10	8" PVC; NO END SECTION	CL STA. 21+72.62 Davis Branch Road, OFFSET 64.07' LEFT	N/A	N/A	N/A	PUBLIC
E-11	30" CONCRETE END SECTION	CL STA. 46+50.29 Davis Branch Road, OFFSET 44.10' LEFT	410.20(30)	412.70	412.70	HO.CO. STD G-5.5
E-12	18" CONCRETE END SECTION	CL STA. 54+67.14 Davis Branch Road, OFFSET 46.54' LEFT	425.93(18)	427.43	427.43	HO.CO. STD G-5.5
E-13	18" CONCRETE END SECTION	CL STA. 02+64.66 Davis Branch Loop, OFFSET 65.59' RIGHT	372.93(18)	372.43	372.43	HO.CO. STD G-5.5

*NOTE: THERE IS NO END SECTION FOR E-3, E-6, E-10. 8" PVC SHALL OUTFALL TO 5x5' CLASS I RIP-RAP. LOCATION REFERS TO ENDPOINT QUADRANT OF 8" PIPE.

STRUCTURE TABLE						
MANHOLES*						
NUMBER	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	STD. DETAIL
M-1	48" MH	CL STA. 17+14.85 Davis Branch Road, OFFSET 15.72' LEFT	346.84(18)	347.88(18)	353.30	HO.CO. STD G-5.12
M-3	60" MH	CL STA. 32+71.49 Davis Branch Road, OFFSET 4.25' LEFT	380.54(18)	385.66(36)	387.32	HO.CO. STD G-5.13
M-3A	48" MH	CL STA. 32+13.66 Davis Branch Road, OFFSET 3.85' LEFT	380.54(18)	380.68(18)	386.65	HO.CO. STD G-5.12
M-3B	48" MH	CL STA. 33+50.50 Davis Branch Road, OFFSET 4.77' RIGHT	383.43(15)	383.36(18)	389.80	HO.CO. STD G-5.12
M-4	48" MH	CL STA. 02+62.63 Davis Branch Loop, OFFSET 25.97' RIGHT	381.39(18)	371.20(18)	380.90	HO.CO. STD G-5.12
M-5	48" MH	CL STA. 02+23.80 Davis Branch Loop, OFFSET 24.00' RIGHT	386.25(18)	389.20(18)	389.50	HO.CO. STD G-5.12
M-6	48" MH	CL STA. 0+92.34 Davis Branch Loop, OFFSET 12.95' RIGHT	393.40(18)	392.80	392.80	HO.CO. STD G-5.12
M-7	60" MH	CL STA. 46+82.65 Davis Branch Road, OFFSET 10.50' LEFT	417.68(30)	419.33(30)	424.50	HO.CO. STD G-5.13
M-8	48" MH	CL STA. 41+74.76 Davis Branch Road, OFFSET 35.11' LEFT	392.18(18)	394.20(18)	402.20	HO.CO. STD G-5.12

M-2 HAS BEEN PURPOSELY REMOVED FROM THIS PLAN.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 [Signature] 04/21/2020
 CHIEF, BUREAU OF HIGHWAYS MK
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5.13.20
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 5.13.20
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE JANUARY, 2016 BEI PLAN SHEET.

*NOTE: STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE RIM. STRUCTURE LOCATION FOR INLETS IS AT THE CENTER OF THE INLET. STRUCTURE LOCATION FOR THE END-SECTIONS IS AT THE PIPE INVERT OF THE STRUCTURE. PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.

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. 21243 Expiration Date: 12-21-24

AS-BUILT

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5/13/24

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLIOTT CITY, MARYLAND 21043
 (P) 410-465-6106 (F) 410-465-6544
 WWW.BE-ENR.COM

Professional Engineer Seal: Donald Mason, License No. 21243, State of Maryland, 3-10-20

OWNER/DEVELOPER: SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT: MYRTUE PROPERTY
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: REVISED ROAD PLANS STORMDRAIN PROFILES
DATE: MARCH, 2020	PROJECT NO. 2099
DES: AAM	DRAFT: AAM
CHECK: CAM	SCALE: AS SHOWN
DRAWING 16 OF 56	

AS-BUILT

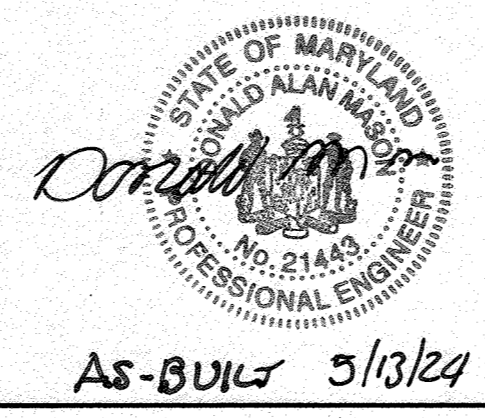


PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE NOVEMBER 8, 2007 DMW PLAN SHEET.

FOR SEDIMENT CONTROL ONLY

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

PLAN
SCALE: 1" = 150'



As-Built 5/13/24

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. 21443 Expiration Date: 12-21-24

ENGINEER'S CERTIFICATE
I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
Alice A. Miller 12-14-15
ENGINEER - Alice A. Miller P.E. DATE

DEVELOPER'S CERTIFICATE
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
John Keilty 12/16/15
DEVELOPER DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
John Keilty 1/17/16
HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
Melvin 1/21/16
CHIEF, BUREAU OF HIGHWAYS DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Kevin 1-21-16
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
M/16 1-18-16
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO.	DATE	REVISION
2	3-2020	REVISED OWNER INF
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
4400 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BE-CIVILENGINEERING.COM

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. 29378, Expiration Date: 1-1-2017.

OWNER:	DAVIS BRANCH ESTATES C/O JAMES KEILTY & COMPANY, INC. 1025 OLD VALLEY ROAD STEVENSON, MARYLAND 21153 440-252-8600	PROJECT:	MYRTUE PROPERTY
LOCATION:	TAX MAP 10, GRID 24 PARCEL 225 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE:	COMPOSITE EROSION AND SEDIMENT CONTROL PLAN
DATE:	JUNE, 2015	PROJECT NO.	2099
DES: AAM	DRAFT: AAM	CHECK: CAM	SCALE: AS SHOWN
			DRAWING 17 OF 56

AS-BUILT F-06-104

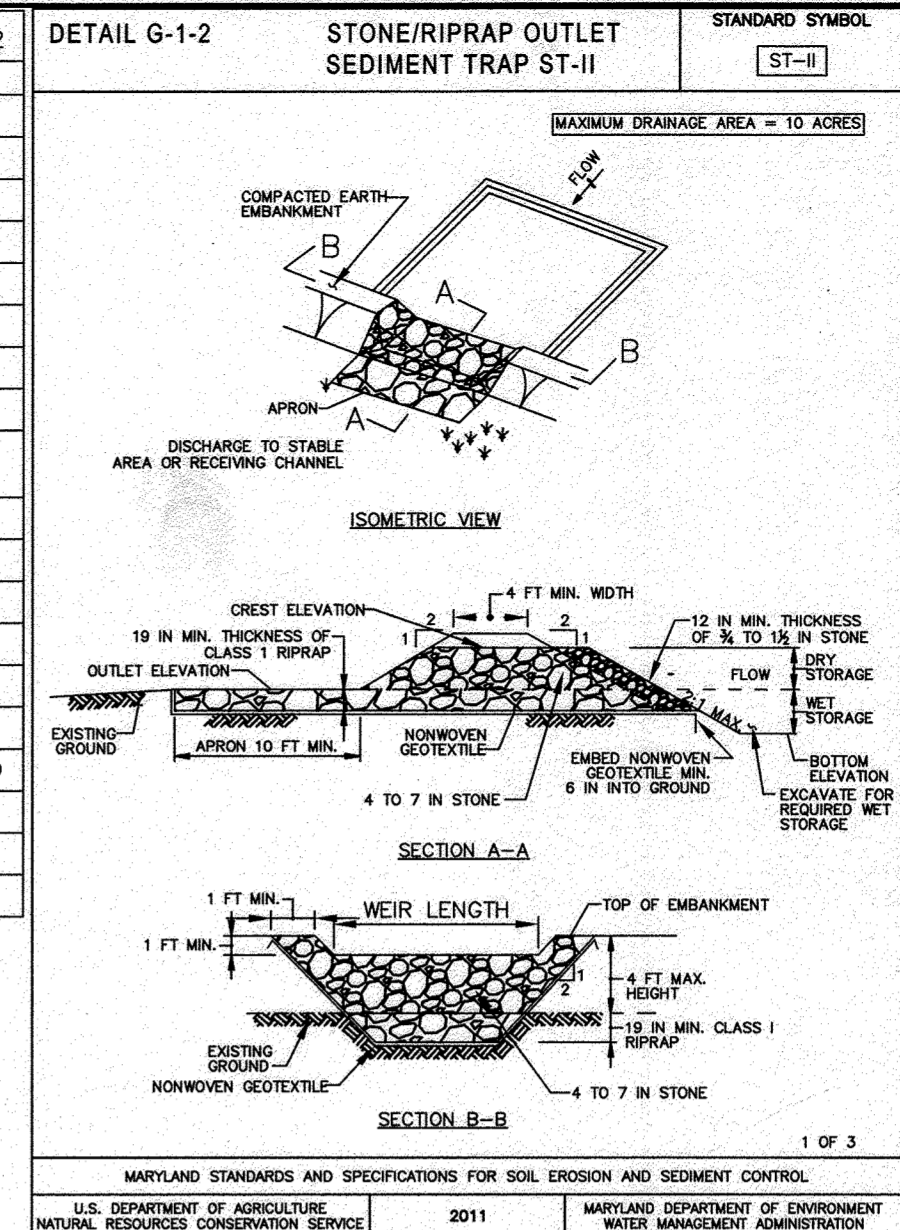
STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 1	
Drainage Area - Initial	3.36 ACRES
Drainage Area - Interim	3.36 ACRES
Drainage Area - Final	3.36 ACRES
Total Storage Required	12,096 CF
Total Storage Provided	29,589 CF
Wet Storage Required	6,048 CF
Wet Storage Provided	6,064 CF
Dry Storage Required	6,048 CF
Dry Storage Provided	23,525 CF
Existing Ground Elevation at Outlet (Wet Storage Elevation)	344.0 FT
Trap Bottom Elevation	343.0 FT
Trap Bottom Dimensions	32 x 180 FT x FT
Weir Length	14 FT
Weir Crest (Dry Storage) Elevation	347.0 FT
Cleanout Elevation	343.50 FT
Top of Embankment Elevation	348.0 FT
Side Slope	2:1 H:V RATIO
Embankment Top Width	4 FT
Outlet Protection - Length	15 FT
Outlet Protection - Depth	19 IN

Trap 1 - 2 year volume SCS Method	
Given Input Data:	
Description	Trap 1
Drainage area	0.0052 mi ²
Runoff curve number, CN	91
Time of concentration, Tc	0.1100 hrs
Dimensionless Hydrograph	scsdim
Rainfall	3.2000 in
Distribution Curve	1200; Type 2, 24 hrs
Duration	24.0000 hrs
Antecedent Moisture Condition	Type II
Time Increment, Tp	0.1000 hrs
Computed Results:	
Peak discharge, qp	11.3850 cfs
Peak Time, Tp	11.9543 hrs
Peak rate factor	484
Constant, K	0.7500
Runoff Volume	2.2714 in
	7.6227 cu-ft
	0.6290 ac-ft
	27.430 cf

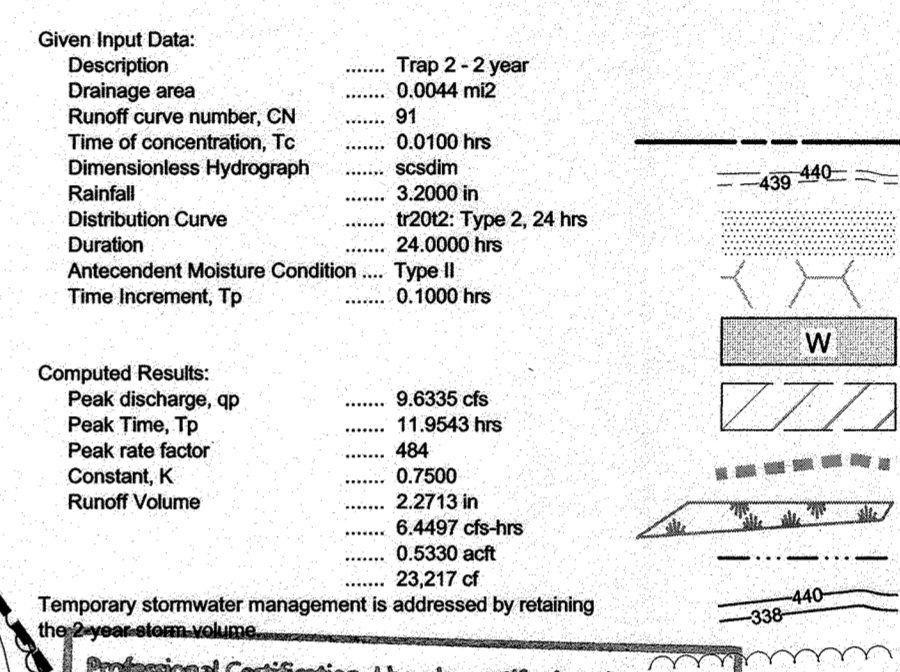
Trap 2 - 2 year volume SCS Method	
Given Input Data:	
Description	Trap 2
Drainage area	0.0044 mi ²
Runoff curve number, CN	91
Time of concentration, Tc	0.1100 hrs
Dimensionless Hydrograph	scsdim
Rainfall	3.2000 in
Distribution Curve	1200; Type 2, 24 hrs
Duration	24.0000 hrs
Antecedent Moisture Condition	Type II
Time Increment, Tp	0.1000 hrs
Computed Results:	
Peak discharge, qp	9.6335 cfs
Peak Time, Tp	11.9543 hrs
Peak rate factor	484
Constant, K	0.7500
Runoff Volume	2.2173 in
	6.4487 cu-ft
	0.5330 ac-ft
	23.217 cf

Temporary stormwater management is addressed by retaining the 2-year storm volume.

STONE/RIPRAP OUTLET SEDIMENT TRAP ST-II, TRAP NO. 2	
Drainage Area - Initial	2.79 ACRES
Drainage Area - Interim	2.79 ACRES
Drainage Area - Final	2.79 ACRES
Total Storage Required	10,044 CF
Total Storage Provided	23,450 CF
Wet Storage Required	10,890 CF
Wet Storage Provided	10,993 CF
Dry Storage Required	10,890 CF
Dry Storage Provided	33,242 CF
Existing Ground Elevation at Outlet (Wet Storage Elevation)	360.0 FT
Trap Bottom Elevation	358.75 FT
Trap Bottom Dimensions	27 x 130 FT x FT
Weir Length	12 FT
Weir Crest (Dry Storage) Elevation	363.0 FT
Cleanout Elevation	359.35 FT
Top of Embankment Elevation	364.0 FT
Side Slope	2:1 H:V RATIO
Embankment Top Width	4 FT
Outlet Protection - Length	12 FT
Outlet Protection - Depth	19 IN



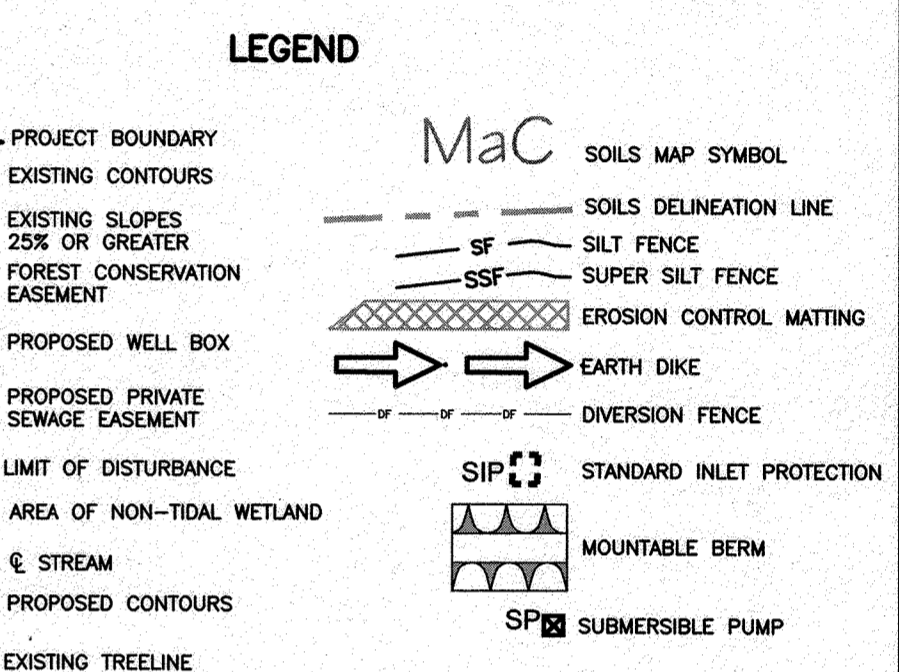
Trap 2 - 2 year volume SCS Method	
Given Input Data:	
Description	Trap 2 - 2 year
Drainage area	0.0044 mi ²
Runoff curve number, CN	91
Time of concentration, Tc	0.1100 hrs
Dimensionless Hydrograph	scsdim
Rainfall	3.2000 in
Distribution Curve	1200; Type 2, 24 hrs
Duration	24.0000 hrs
Antecedent Moisture Condition	Type II
Time Increment, Tp	0.1000 hrs
Computed Results:	
Peak discharge, qp	9.6335 cfs
Peak Time, Tp	11.9543 hrs
Peak rate factor	484
Constant, K	0.7500
Runoff Volume	2.2173 in
	6.4487 cu-ft
	0.5330 ac-ft
	23.217 cf



Temporary stormwater management is addressed by retaining the 2-year storm volume.

CONSTRUCTION SPECIFICATIONS	
1.	CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
2.	CLEAR, GRUB, AND STRIP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE EMBANKMENT AND TRAP BOTTOM.
3.	USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERGROWN STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBSTRUCTIVE MATERIAL FOR THE EMBANKMENT.
4.	CONSTRUCT TOP OF EMBANKMENT 1 FOOT MINIMUM ABOVE WEIR CREST. COMPACT THE EMBANKMENT BY STRAWBROWS WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
5.	MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
6.	PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE BOTTOM AND SIDES OF OUTLET AND APPROX PRIOR TO PLACEMENT OF RIPRAP. OVERLAP SECTIONS OF GEOTEXTILE AT LEAST 1 FOOT WITH THE SECTION NEARER TO THE TRAP PLACED ON TOP. LAMER GEOTEXTILE AT LEAST 6 INCHES INTO EXISTING GROUND AT ENTRANCE OF OUTLET CHANNEL.
7.	USE CLEAR 4 TO 7 INCH RIPRAP TO CONSTRUCT THE WEIR. USE CLASS I RIPRAP FOR THE APPROX. USE OF RECYCLED CONCRETE EQUIVALENT IS ACCEPTABLE.
8.	PLACE 1 FOOT OF CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE ON THE UPSTREAM FACE OF THE WEIR.
9.	CONSTRUCT AND MAINTAIN THE OUTLET ACCORDING TO APPROVED PLAN, AND IN SUCH A MANNER THAT EROSION AT OR BELOW THE OUTLET DOES NOT OCCUR.
10.	STABILIZE THE EMBANKMENT AND INTERIOR SLOPES WITH SEED AND MULCH. STABILIZE POINTS OF CONCENTRATED INFLOW AS SHOWN ON APPROVED PLAN.
11.	REMOVE SEDIMENT AND RESTORE TRAP TO ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO CLEANOUT ELEVATION (SIDE OF WET STORAGE). EXPOSE REMOVED SEDIMENT IN AN APPROVED AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. KEEP POINTS OF INFLOW AND OUTFLOW AS WELL AS THE SECTION NEARER TO THE TRAP FREE FROM EROSION AND ACCUMULATED SEDIMENT. MAINTAIN EMBANKMENTS TO CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE STABILIZATION IN ACCORDANCE WITH SECTION H-1. MAINTAIN VEGETATION THROUGHOUT THE PROJECT. MAINTAIN LIFE, GRADE, AND CROSS SECTION OF THE TRAP THROUGHOUT THE PROJECT.
12.	WHEN DEWATERING TRAP, PASS REMOVED WATER THROUGH AN APPROVED SEDIMENT CONTROL.
13.	UPON REMOVAL, GRADE AND STABILIZE THE AREA OCCUPIED BY TRAP.

Trap 2 - 2 year volume SCS Method	
Given Input Data:	
Description	Trap 2 - 2 year
Drainage area	0.0044 mi ²
Runoff curve number, CN	91
Time of concentration, Tc	0.1100 hrs
Dimensionless Hydrograph	scsdim
Rainfall	3.2000 in
Distribution Curve	1200; Type 2, 24 hrs
Duration	24.0000 hrs
Antecedent Moisture Condition	Type II
Time Increment, Tp	0.1000 hrs
Computed Results:	
Peak discharge, qp	9.6335 cfs
Peak Time, Tp	11.9543 hrs
Peak rate factor	484
Constant, K	0.7500
Runoff Volume	2.2173 in
	6.4487 cu-ft
	0.5330 ac-ft
	23.217 cf



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.

21443 Expiration Date: 12-21-24

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

12-14-15 DATE
ENGINEER - Alice A. Miller, P.E.

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

12/10/15 DATE
DEVELOPER

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

1/11/16 DATE
APPROVED: DEPARTMENT OF PUBLIC WORKS

1/12/16 DATE
CHIEF, BUREAU OF HIGHWAYS

1-21-16 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT

1-19-16 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION

MAINTAIN MOUNTABLE BERM TO DIVERT FLOW TO TRAP 1 UNTIL ROAD GRADING IS COMPLETE AND SWALES ARE STABILIZED.

TEMPORARY EROSION CONTROL MATTING

TEMPORARY EROSION CONTROL MATTING

TEMPORARY EROSION CONTROL MATTING

TEMPORARY EROSION CONTROL MATTING

TEMPORARY EROSION CONTROL MATTING



NO.	DATE	REVISION
2	3-2020	UPDATED OWNER INFO
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

NO. AS-BUILT

DATE: JUNE, 2015 PROJECT NO. 2099
DECEMBER, 2015

SCALE: AS SHOWN DRAWING 19 OF 56

DES: AAM DRAFT: AAM/NAF CHECK: CAM

OWNER: DAVIS BRANCH ESTATES C/O JAMES KEELY & COMPANY, INC. 1925 OLD VALLEY ROAD STEVENSON, MARYLAND 21153 410-252-8600 SONSUNGHE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9260

PROJECT: MYRTUE PROPERTY

LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: GRADING & SEDIMENT AND EROSION CONTROL PLAN

DATE: JUNE, 2015 PROJECT NO. 2099
DECEMBER, 2015

SCALE: AS SHOWN DRAWING 19 OF 56

NO. AS-BUILT F-06-104

BENCHMARK ENGINEERING, INC. 6480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043 (P) 410-465-6105 (F) 410-465-6444 WWW.BE-CVENGINEERING.COM

STATE OF MARYLAND PROFESSIONAL ENGINEER NO. 28376 EXPIRES 1-14-15

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28376, Expiration Date: 1-1-2017.

SOILS LEGEND		
SYMBOL	TYPE	NAME
GbB	B	GLADSTONE LOAM - 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE LOAM - 8 TO 15 PERCENT SLOPES
GmB	C	GLENNVILLE SILT LOAM - 8 TO 15 PERCENT SLOPES
GmC	C	GLENNVILLE SILT LOAM - 8 TO 15 PERCENT SLOPES
GmD	C	GLENNVILLE-CORDORUS SILT LOAMS - 0 TO 8 PERCENT SLOPES
MmC	B	MANOR LOAM - 8 TO 15 PERCENT SLOPES
MmD	B	MANOR LOAM - 15 TO 25 PERCENT SLOPES
MmD	B	MANOR-BANNERTOWN SANDY LOAMS, 15 TO 20 PERCENT SLOPES, ROCKY

SOILS TAKEN FROM NRCS WEB SOIL SURVEY, MARCH 17, 2014. REF. SOIL SURVEY MAPS 5 & 6. *WHOLE SOIL K FACTOR

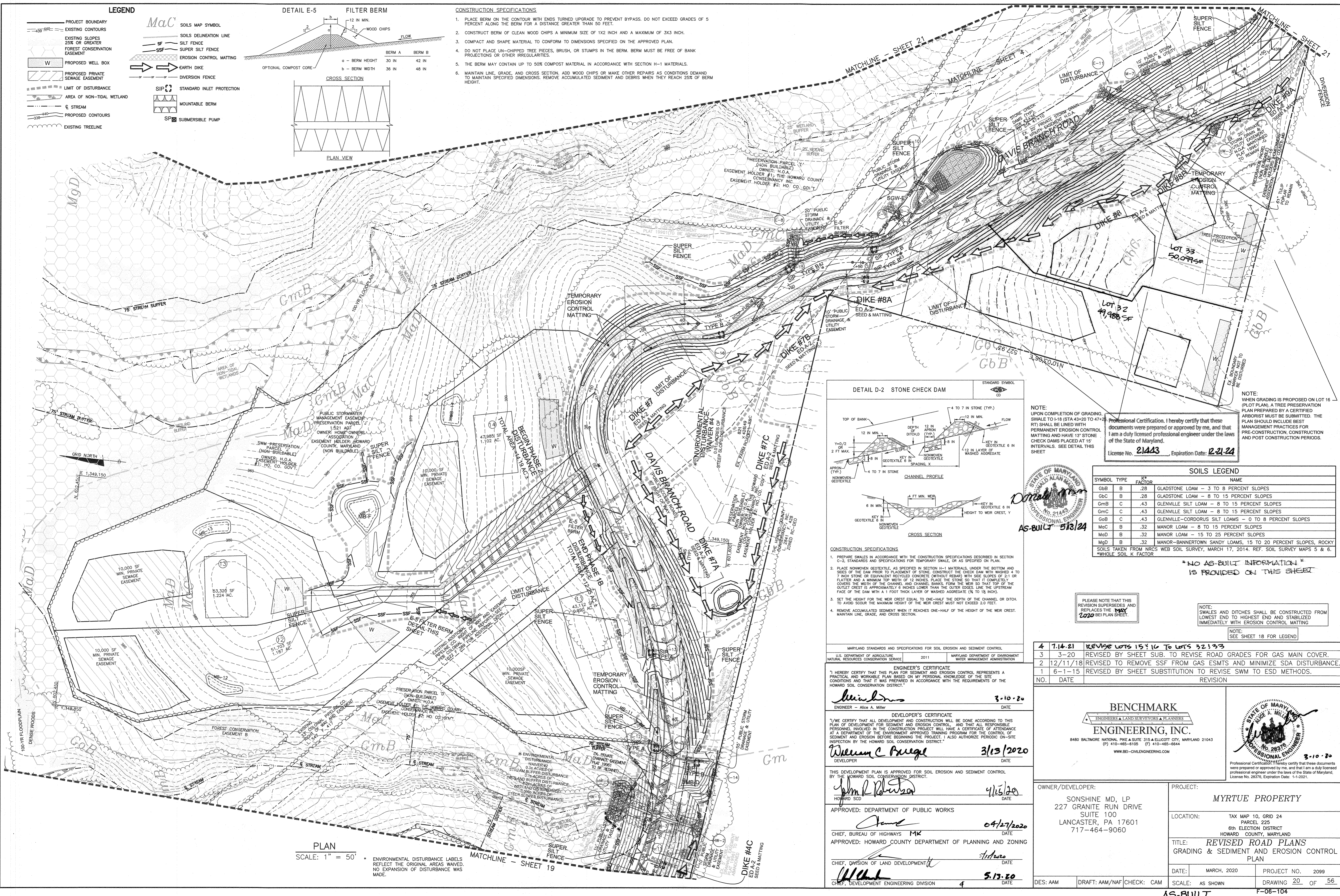
PLAN SCALE: 1" = 50'

ENVIRONMENTAL DISTURBANCE LABELS REFLECT THE ORIGINAL AREAS WAIVED.

NOTE: SWALES AND DITCHES SHALL BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING

NOTE: SEE SHEET 18 FOR LEGEND

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE NOVEMBER 8, 2007 DMW PLAN SHEET.

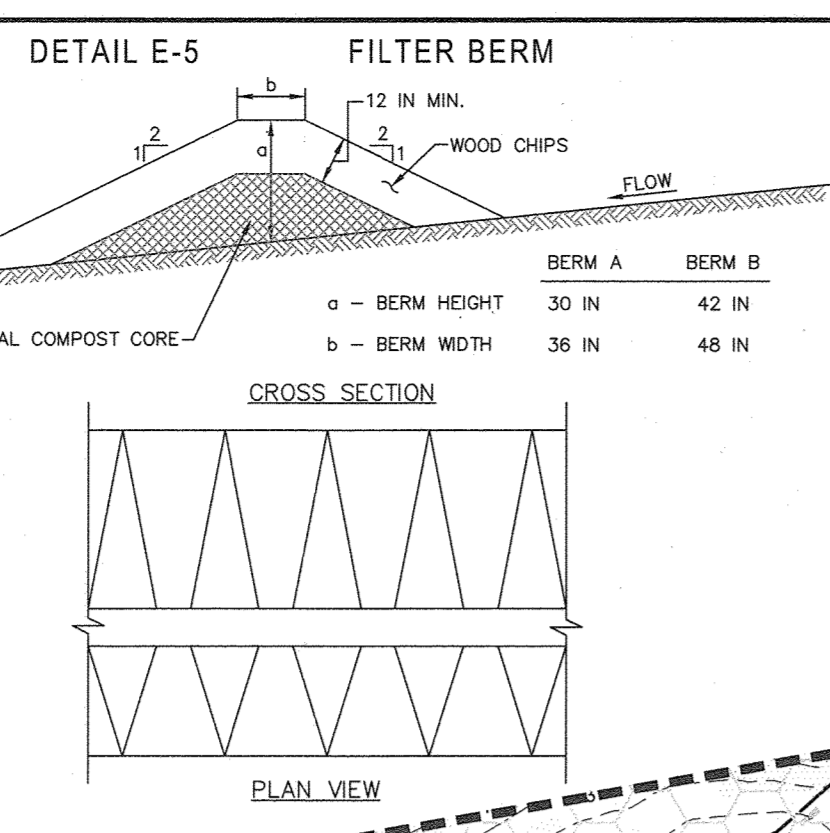


LEGEND

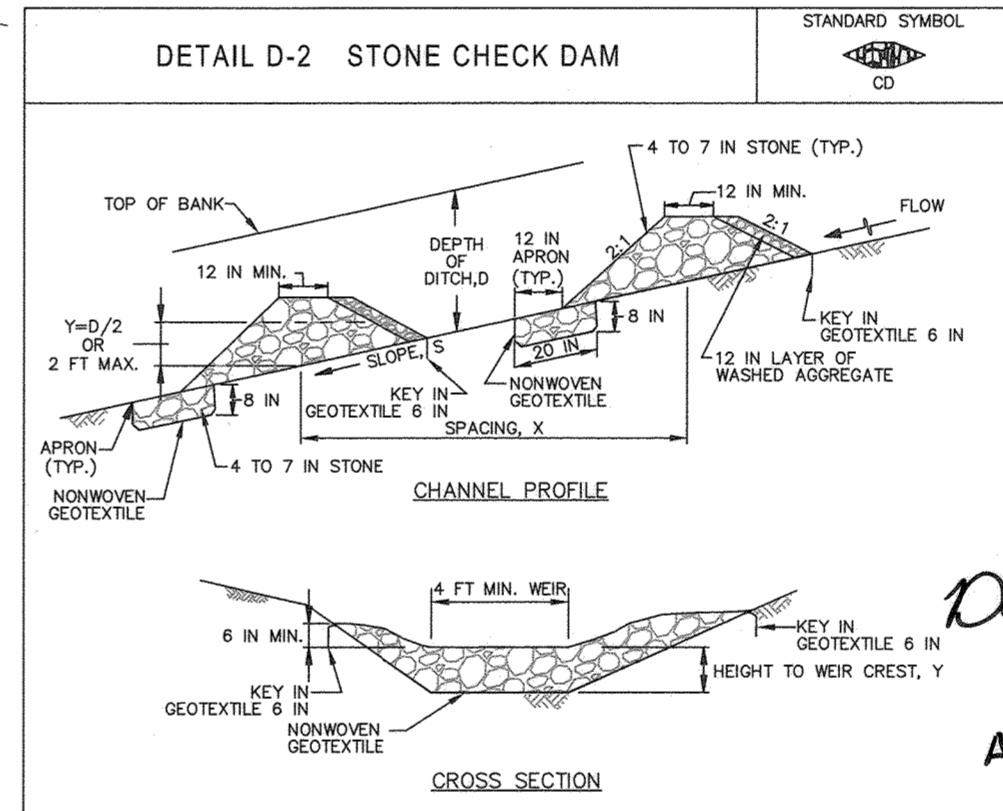
	PROJECT BOUNDARY
	EXISTING CONTOURS
	EXISTING SLOPES 25% OR GREATER
	FOREST CONSERVATION EASEMENT
	PROPOSED WELL BOX
	PROPOSED PRIVATE SEWAGE EASEMENT
	LIMIT OF DISTURBANCE
	AREA OF NON-TIDAL WETLAND
	STREAM
	PROPOSED CONTOURS
	EXISTING TREELINE

SOILS MAP SYMBOL

	SOILS DELINEATION LINE
	SILT FENCE
	SUPER SILT FENCE
	EROSION CONTROL MATTING
	EARTH DIKE
	DIVERSION FENCE
	STANDARD INLET PROTECTION
	MOUNTABLE BERM
	SUBMERSIBLE PUMP



- CONSTRUCTION SPECIFICATIONS**
1. PLACE BERM ON THE CONTOUR WITH ENDS TURNED UPGRADE TO PREVENT BYPASS. DO NOT EXCEED GRADES OF 5 PERCENT ALONG THE BERM FOR A DISTANCE GREATER THAN 50 FEET.
 2. CONSTRUCT BERM OF CLEAN WOOD CHIPS TO A MINIMUM SIZE OF 1X2 INCH AND A MAXIMUM OF 3X3 INCH.
 3. COMPACT AND SHAPE MATERIAL TO CONFORM TO DIMENSIONS SPECIFIED ON THE APPROVED PLAN.
 4. DO NOT PLACE UN-CHIPPED TREE PIECES, BRUSH, OR STUMPS IN THE BERM. BERM MUST BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES.
 5. THE BERM MAY CONTAIN UP TO 50% COMPOST MATERIAL IN ACCORDANCE WITH SECTION H-1 MATERIALS.
 6. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD WOOD CHIPS OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN THEY REACH 25% OF BERM HEIGHT.



- CONSTRUCTION SPECIFICATIONS**
1. PREPARE SWALES IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS DESCRIBED IN SECTION C-2, STANDARDS AND SPECIFICATIONS FOR TEMPORARY SWALE, OR AS SPECIFIED ON PLAN.
 2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND SIDES OF THE DAM PRIOR TO PLACEMENT OF STONE. CONSTRUCT THE CHECK DAM WITH WASHED 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) WITH SLOPE SIDES OF 2:1 OR FLATTER AND A MINIMUM TOP WIDTH OF 12 INCHES. PLACE THE STONE SO THAT IT COMPLETELY COVERS THE WIDTH OF THE CHANNEL AND CHANNEL BANKS, FORM THE WEIR SO THAT TOP OF THE OUTLET CREST IS APPROXIMATELY 6 INCHES LOWER THAN THE OUTER EDGES. LINE THE UPSTREAM FACE OF THE DAM WITH A 1 FOOT THICK LAYER OF WASHED AGGREGATE (6 TO 18 INCH).
 3. SET THE HEIGHT FOR THE WEIR CREST EQUAL TO ONE-HALF THE DEPTH OF THE CHANNEL OR DITCH. TO AVOID SCOUR THE MAXIMUM HEIGHT OF THE WEIR MUST NOT EXCEED 2.0 FEET.
 4. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES ONE-HALF THE HEIGHT OF THE WEIR CREST. MAINTAIN LINE, GRADE, AND CROSS SECTION.

NOTE: UPON COMPLETION OF GRADING, SWALE TO 1:18 (STA 43+20 TO 47+20 RT) SHALL BE LINED WITH PERMANENT EROSION CONTROL MATTING AND HAVE 15' STONE CHECK DAMS PLACED AT 15' INTERVALS. SEE DETAIL THIS SHEET.

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. **21443** Expiration Date: **12-21-24**

SOILS LEGEND

SYMBOL	TYPE	K ² FACTOR	NAME
GbB	B	.28	GLADSTONE LOAM - 3 TO 8 PERCENT SLOPES
GbC	B	.28	GLADSTONE LOAM - 8 TO 15 PERCENT SLOPES
GmB	C	.43	GLENVILLE SILT LOAM - 8 TO 15 PERCENT SLOPES
GmC	C	.43	GLENVILLE SILT LOAM - 8 TO 15 PERCENT SLOPES
GoB	C	.43	GLENVILLE-CORODRUS SILT LOAMS - 0 TO 8 PERCENT SLOPES
MaC	B	.32	MANOR LOAM - 8 TO 15 PERCENT SLOPES
MoB	B	.32	MANOR LOAM - 15 TO 25 PERCENT SLOPES
MdD	B	.32	MANOR-BANNERTOWN SANDY LOAMS, 15 TO 20 PERCENT SLOPES, ROCKY

SOILS TAKEN FROM NRCS WEB SOIL SURVEY, MARCH 17, 2014. REF. SOIL SURVEY MAPS 5 & 6. *WHOLE SOIL K FACTOR

***NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET**

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE MAY 2020 B1 PLAN SHEET.

NOTE: SWALES AND DITCHES SHALL BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING

NOTE: SEE SHEET 18 FOR LEGEND

4	7-14-21	REVISE LOTS 15 & 16 TO LOTS 32 & 33
3	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
2	12/11/18	REVISED TO REMOVE SSF FROM GAS ESMTS AND MINIMIZE SDA DISTURBANCE.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

ENGINEER'S CERTIFICATE

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

Alice A. Miller 3-10-20
ENGINEER - Alice A. Miller DATE

DEVELOPER'S CERTIFICATE

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

William C. Puzge 3/13/2020
DEVELOPER DATE

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

John L. Burtson 4/15/20
HOWARD SCD DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS
James 04/27/2020
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
W. Chalk 5.13.20
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 4 DATE

BENCHMARK ENGINEERING, INC.

ENGINEERS & LAND SURVEYORS & PLANNERS

8480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELLICOTT CITY, MARYLAND 21043
(P) 410-465-4100 (F) 410-465-8644
WWW.BE-CVLENGINEERING.COM

OWNER/DEVELOPER: SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

PROJECT: MYRTUE PROPERTY

LOCATION: TAX MAP 10, GRID 24
PARCEL 225
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

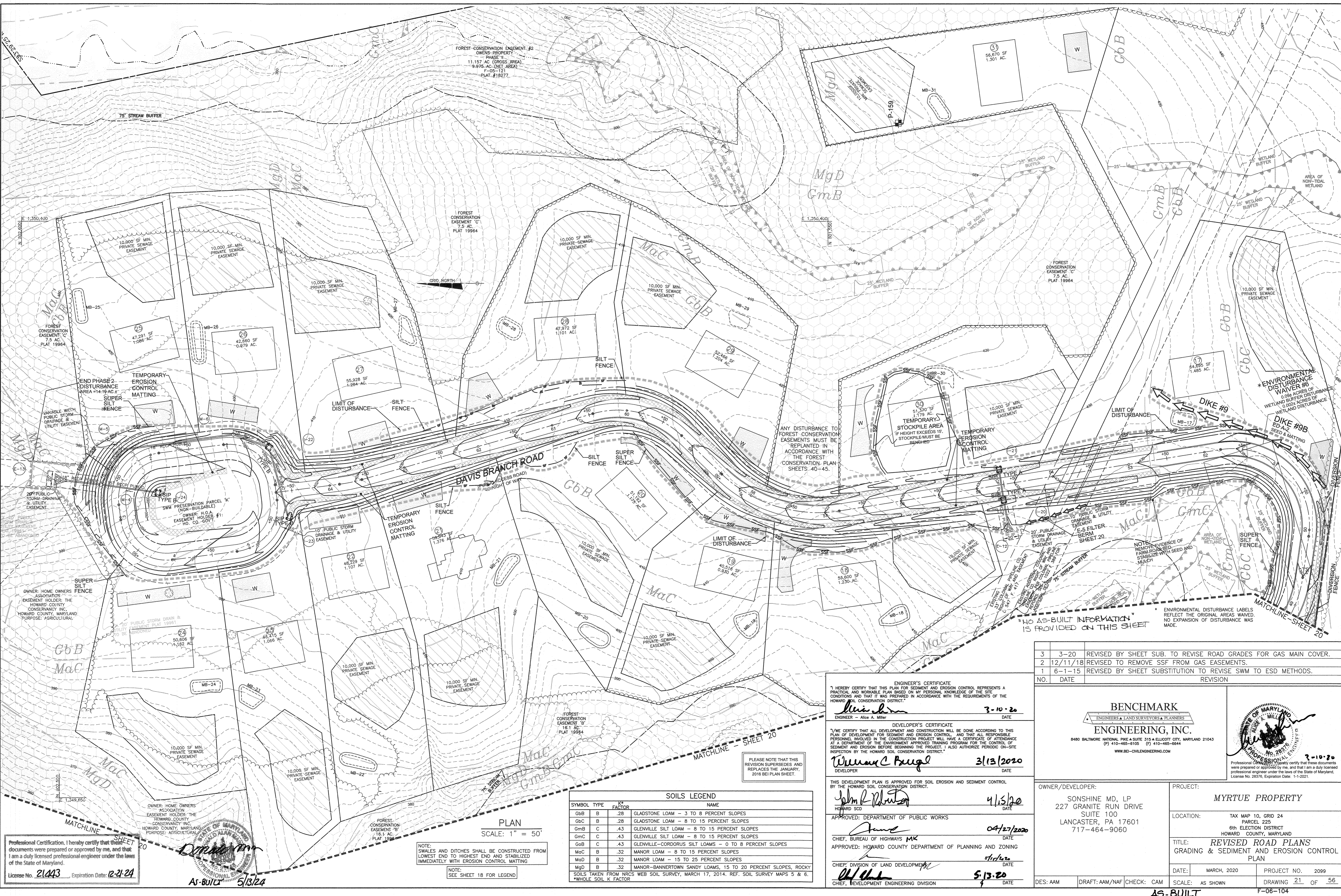
TITLE: REVISED ROAD PLANS
GRADING & SEDIMENT AND EROSION CONTROL PLAN

DATE: MARCH, 2020 **PROJECT NO.:** 2099
DRAWING NO. OF 56

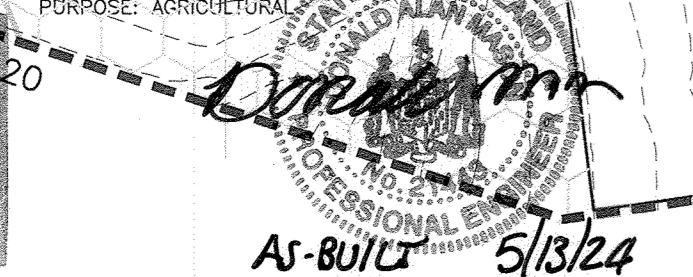
DES: AAM **DRAFT:** AAM/NAF **CHECK:** CAM **SCALE:** AS SHOWN

PLAN
SCALE: 1" = 50'

ENVIRONMENTAL DISTURBANCE LABELS REFLECT THE ORIGINAL AREAS WAIVED. NO EXPANSION OF DISTURBANCE WAS MADE.



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. 21443 Expiration Date: 12-21-24



OWNER: HOME OWNERS ASSOCIATION EASEMENT HOLDER, THE HOWARD COUNTY CONSERVANCY INC. HOWARD COUNTY, MARYLAND PURPOSE: AGRICULTURAL

NOTE: SWALES AND DITCHES SHALL BE CONSTRUCTED FROM LOWEST END TO HIGHEST END AND STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING

NOTE: REMOVE EVIDENCE OF FARM ROADS. STABILIZE WITH SEED AND MULCH.

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE JANUARY, 2016 BEI PLAN SHEET.

PLAN
SCALE: 1" = 50'

SOILS LEGEND			
SYMBOL	TYPE	K _f FACTOR	NAME
GbB	B	.28	GLADSTONE LOAM - 3 TO 8 PERCENT SLOPES
GbC	B	.28	GLADSTONE LOAM - 8 TO 15 PERCENT SLOPES
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GcC	C	.43	GLENVILLE-CORDORUS SILT LOAMS - 0 TO 8 PERCENT SLOPES
MaC	B	.32	MANOR LOAM - 8 TO 15 PERCENT SLOPES
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SOILS TAKEN FROM NRCS WEB SOIL SURVEY, MARCH 17, 2014. REF. SOIL SURVEY MAPS 5 & 6.
 *WHOLE SOIL K FACTOR

NO.	DATE	REVISION
3	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
2	12/11/18	REVISED TO REMOVE SSF FROM GAS EASEMENTS.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

ENGINEER'S CERTIFICATE
 I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD COUNTY CONSERVATION DISTRICT.
 Alice A. Miller 3-10-20
 ENGINEER - Alice A. Miller DATE

DEVELOPER'S CERTIFICATE
 I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY CONSERVATION DISTRICT.
 William C. Paup 3/13/2020
 DEVELOPER DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.
 John R. [Signature] 4/15/20
 APPROVED: DEPARTMENT OF PUBLIC WORKS DATE
 [Signature] 04/27/2020
 CHIEF, BUREAU OF HIGHWAYS MK DATE
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5/13/20
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 [Signature] DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 6480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELLOTT CITY, MARYLAND 21043
 (P) 410-465-4106 (F) 410-465-6644
 WWW.BE-ENGINERING.COM

OWNER/DEVELOPER: SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

PROJECT: MYRTUE PROPERTY

LOCATION: TAX MAP 10, GRID 24
 PARCEL 225
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PLANS
 GRADING & SEDIMENT AND EROSION CONTROL PLAN

DATE: MARCH, 2020 PROJECT NO. 2099
 DES: AAM DRAFT: AAM/NAF CHECK: CAM SCALE: AS SHOWN DRAWING 21 OF 56
 AS-BUILT 5/13/24

B-4.2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

- A. Soil Preparation**
1. Temporary Stabilization
 - a. Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or similar equipment, on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth to the surface in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on or off-site.
 - c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
 2. Permanent Stabilization
 - a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - i. Soil pH between 6.0 and 7.0.
 - ii. Soluble salts less than 500 parts per million (ppm).
 - iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 10 percent all plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if overcast soil (soil with a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - iv. Soil contains 1.5 percent minimum organic matter by weight.
 - v. Soil contains sufficient pore space to permit adequate root penetration.
 - b. Application of amendments or topsoil is required if one or more of the above conditions.
 - c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
 - d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
 - e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Raise lawn areas to the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where seed conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seeded loosening may be unnecessary on newly disturbed areas.

- B. Topsoiling**
1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil profile for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
 2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
 3. Topsoiling is limited to areas having 2:1 or flatter slopes.
 4. The texture of the exposed subsoil material is not adequate to produce vegetative growth.
 5. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish sufficient supplies of moisture to the roots of plants.
 6. The original soil to be vegetated contains material toxic to plant growth.
 7. The soil is so toxic that treatment with lime is not feasible.
 8. Areas having slopes steeper than 2:1 require special consideration and design.
 9. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - a. Topsoil must be from a recent soil (less than 1 year old) and not be sandy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate authority.
 - b. Topsoil must not be placed if a mixture of cracked textured subsoils and silt contains less than 5 percent by volume of organic matter, such as coarse fibrous, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
 - c. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, red top, poison ivy, or other noxious plants.
 - d. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate authority, may be used in lieu of natural topsoil.
 10. Topsoil application
 - a. Erosion and sediment control practices must be maintained when applying topsoil.
 - b. Uniformly distribute topsoil in a 5 to 6 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
 - c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

HARDNESS ZONE: 6b
TABLE B.3 SEED MIXTURE: 11

NO.	SPECIES	APPLICATION (LB/AC)	SEEDING DATES	SEEDING DEPTHS (IN)	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P2O5	K2O	
1	SWITCH GRASS	10	3/1 to 5/15 or 6/15 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
2	OROPHEGUS RED FESCUE	15	5/16 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
3	BUSH CLOVER	2	3/1 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
9	FESCUE, TALL	60	3/1 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
	KENTUCKY BLUEGRASS	40	3/1 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)

- C. Soil Amendments (Fertilizer and Lime Specifications)**
1. Soil tests must be performed to determine the exact rates and application rates for both lime and fertilizer on lands having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analysis.
 2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate authority. Fertilizers must all be delivered to the site fully labeled according to the application rates and must bear the name, trade name or trademark, and warranty of the producer.
 3. Lime materials must be ground to meet the specifications and must be substituted except when hydrosediment, which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 90 to 100 percent will pass through a #200 mesh sieve.
 4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
 5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4.3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

- 1. Specifications**
- a. All seed used must meet the requirements of the Maryland State Seed Law. All seed must be subject to testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify the quantity and purity of the seed.
 - b. Much area may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
 - c. Inoculants: The inoculant for treating legume seeds in the seed mixture must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculants cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
 - d. Soil or seed must not be placed on soil which has been treated with any chemical used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.
- 2. Application**
- a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - b. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1. Permanent Seeding Table B.3, or area-specific seeding summaries.
 - c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - d. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
 - e. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - f. Mix seed and fertilizer on site and seed immediately and without interruption.
 - g. When hydroseeding do not incorporate seed into the soil.

B.4.4 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

- 1. Mulch**
- a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, decayed, or excessively chaffy. Note: Use only straw straw mulch in areas where one species of grass is desired.
 - b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - c. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - d. WCFM, including dye, must contain no germination or growth inhibiting factors.
 - e. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a barrier ground cover on application, having moisture absorption and porosity properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - f. WCFM material must not contain elements or compounds at concentration levels that will be phytotoxic.
 - g. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 6.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.
- 2. Application**
- a. Apply mulch to all seeded areas immediately after seeding.
 - b. When straw mulch is used, spread cover all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1.2 inches. Apply mulch to achieve a uniform distribution and depth such that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
 - c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- 3. Anchoring**
- a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
 - i. A surface anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, it is to be applied to follow the contour.
 - ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. It is to be applied in such a manner that the mulch will be anchored to the soil. The manufacturer's application instructions regarding the use of the fiber binder and other additives such as wetting agents, surfactants, and other approved equal may be used. Follow application rates and rates by the manufacturer. Application of liquid binders needs to be done at the edges where wind and water can cause mulch, such as in valleys and on crests of tanks. Use of asphalt binders is strictly prohibited.
 - iii. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 450 feet long.

B-4.5 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

- Definition:** A mound or pile of soil prepared by appropriately designed erosion and sediment control measures. Purpose: To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes in soil conditions.
- Conditions Where Practice Applies**
- Stockpile areas are utilized when it is necessary to salvage and store soil for later use.
1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and located on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
 3. Runoff from the stockpile area must drain to a suitable sediment control practice.
 4. Access the stockpile area from the upgrade side.
 5. Clear water runoff into the stockpile and sediment 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.
 6. Where runoff concentrates along the top of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
 7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
 8. If the stockpile is located on an impervious surface, a liner should be provided and below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.
 - a. Maintenance
 - Use and ID March 1 - June 15
 - Use and ID October 1 - April 30
 - Use IV March 1 - May 31
 9. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.
 10. Stream channels must not be disturbed during the following restricted time periods (inclusive):
 - a. Use and ID March 1 - June 15
 - b. Use and ID October 1 - April 30
 - c. Use IV March 1 - May 31
 11. 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.

H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

- Definition:** Controlling the suspension of dust particles from construction activities. Purpose: To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards. Conditions Where Practice Applies
- Areas subject to dust blowing and movement where on and off-site damage is likely without the use of the following practices:
1. Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
 2. Vegetative Cover: See Section B-4-4 Temporary Stabilization.
 3. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-tine plows spaced about 12 inches apart, spring-tipped harrows, and similar plows are examples of equipment that may produce the desired effect.
 4. Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
 5. Barriers: Solid board fences, artificial snow fences, and similar material can be used to control air currents and soil blowing.
 6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan review authority.

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.
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 SERVICABLE 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 THE 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 HYDRANGEA (COLIUM HYDRANGEA), CALYNDORIS (CALYNDORIS ITALICA), OATS (LINTARA ITALICA), AND RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DEleterious SUBSTANCE.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADATIONS AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS TEMPORARILY IMPACTED.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM USE WATERS. IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM PREVIOUS 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 TEMPORARILY. MATS WILL BE USED DURING VEGETATIVE CONSTRUCTION.

PERMANENT SEED MIXTURE

NO.	SPECIES	APPLICATION (LB/AC)	SEEDING DATES	SEEDING DEPTHS (IN)	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P2O5	K2O	
1	SWITCH GRASS	10	3/1 to 5/15 or 6/15 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
2	OROPHEGUS RED FESCUE	15	5/16 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
3	BUSH CLOVER	2	3/1 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
9	FESCUE, TALL	60	3/1 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)
	KENTUCKY BLUEGRASS	40	3/1 to 5/15 or 5/16 to 6/15	1/4-1/2 IN	45 LB PER ACRE (1.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	90 LB PER ACRE (2.0 LB/1000 SF)	2 TONS PER ACRE (90 LB/1000 SF)

Table B.1 Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/		Seeding Depth (inch)	Recommended Seeding Dates by Plant Hardiness Zone 3/		
	R/acre	R/1000sq ft		5b and 6a	6b	7a and 7b
Annual Grasses						
Common Yarrow (Lolium perenne ssp. bulbosum)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (Hordeum vulgare)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (Avena sativa)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (Triticum aestivum)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (Secale cereale)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30
Warm-Season Grasses						
Foxtail Millet (Setaria italica)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (Pennisetum glaucum)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

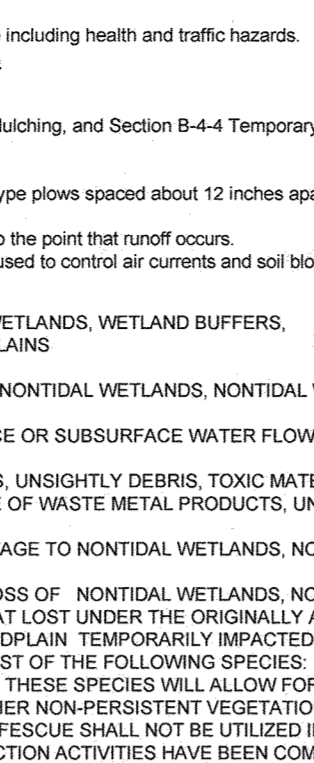
Notes:

- 1/ Seeding rates for the warm season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.
- 2/ For sandy soils, plant seeds at twice the depth listed above.
- 3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

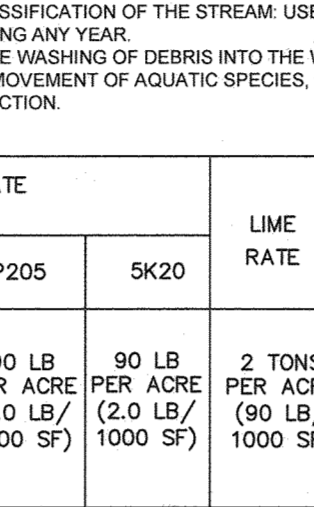
HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID), 410-3133-1855 after the future LOD and protected areas are marked clearly in the field. A minimum of 48 hours notice to CID must be given at the following stages:
 - a. Prior to the start of any disturbance of the perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading.
 - b. Prior to the start of another phase of construction or opening of another grading unit.
 - c. Prior to the removal or modification of sediment control practices.
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 thereof.
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 3:1 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-4-3), temporary seeding (Sec. B-4-4) and mulching with mulch alone can only be applied to areas under active grading from 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 only/roll. Sloppings (Sec. B-4-8) in excess of 20 feet must be bench with stable outlet. All concentrated flow, steep slope, and highly erodible areas shall require stabilization practices (Sec. B-4-4).
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: 181.3 AC. Acres
 - Area Disturbed: 21.31 AC. Acres
 - Area to be roofed or paved: 31.4 AC. Acres
 - Area to be vegetatively stabilized: 17.9 AC. Acres
 - 75,879 Cu. Yds
 - Total fill: 53,590 Cu. Yds
 - Off-site waste/borrow area location: SITE WITH ACTIVE GRADING PERMIT
7. Any sediment control practice which is disturbed by grading activity or 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 pre-1's status (as percent complete) and/or current activities
 - Evidence of sediment discharges
 - Identification of sediment control deficiencies
 - 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 back filled and stabilized by the end of each work day, 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.
 - a. Disturbance shall not occur outside the L.O.D. 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, more than 30 acres cumulatively may be disturbed at a given time.
 - b. Wash water from any equipment, vehicles, wheels, pavement, and other sources must be treated in a sediment basin or other approved washout structure.
 - c. Topsoil shall be stockpiled and preserved on-site for redistribution onto final grade.
11. All silt fence and super silt fence shall be placed on- and over-the-contour, and be imbricated at 25' minimum intervals, with lower ends curved uphill by 2' in elevation.
12. Stream channels must not be disturbed during the following restricted time periods (inclusive):
 - a. Use and ID March 1 - June 15
 - b. Use and ID October 1 - April 30
 - c. Use IV March 1 - May 31

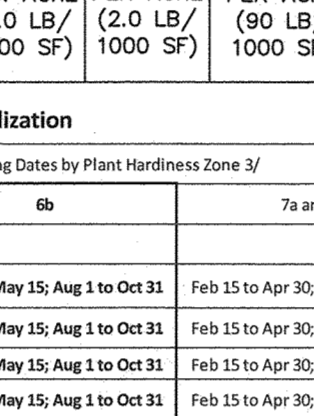
DETAIL E-3 SUPER SILT FENCE



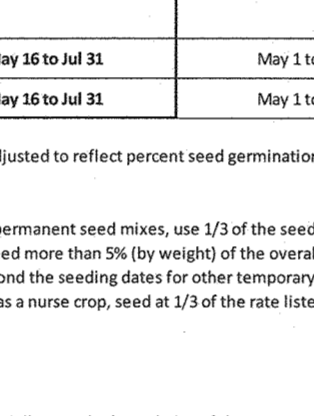
DETAIL C-1 EARTH DIKE



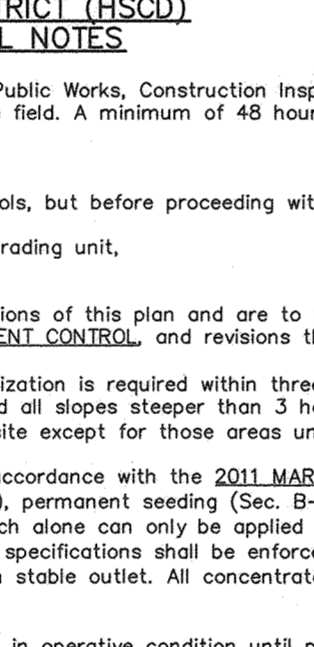
DETAIL D-4-1-C ROCK OUTLET PROTECTION III



DETAIL E-1 SILT FENCE



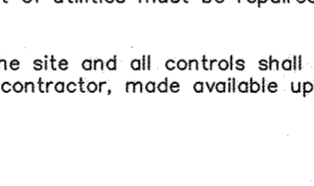
DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION



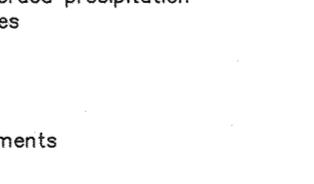
DETAIL E-1 SILT FENCE



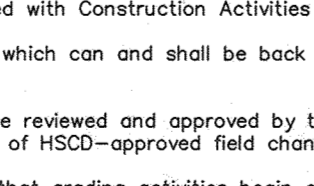
DETAIL E-1 SILT FENCE



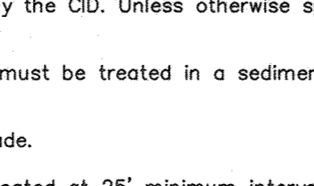
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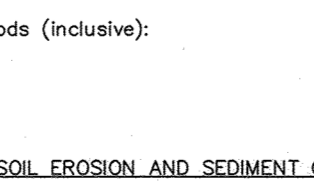
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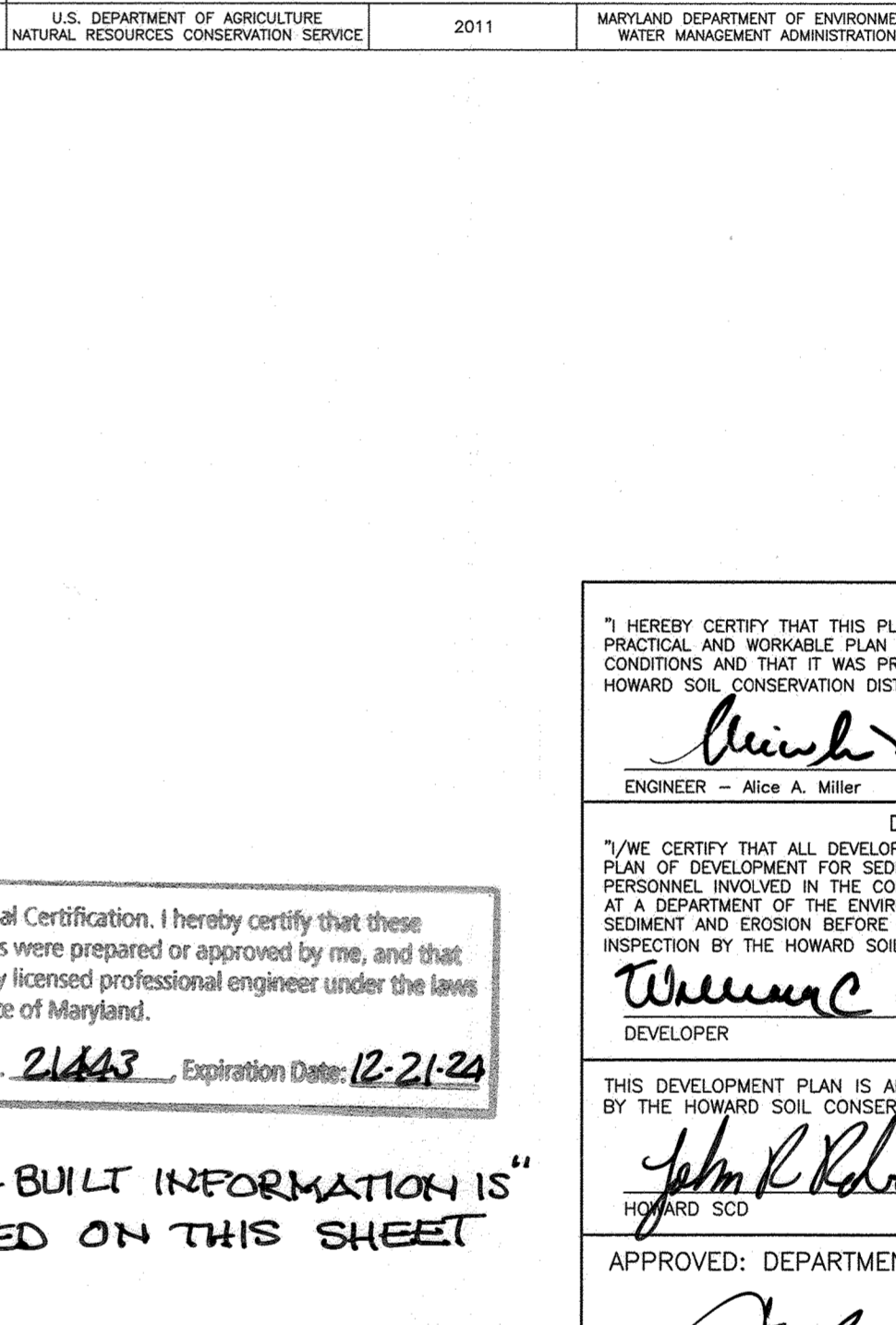
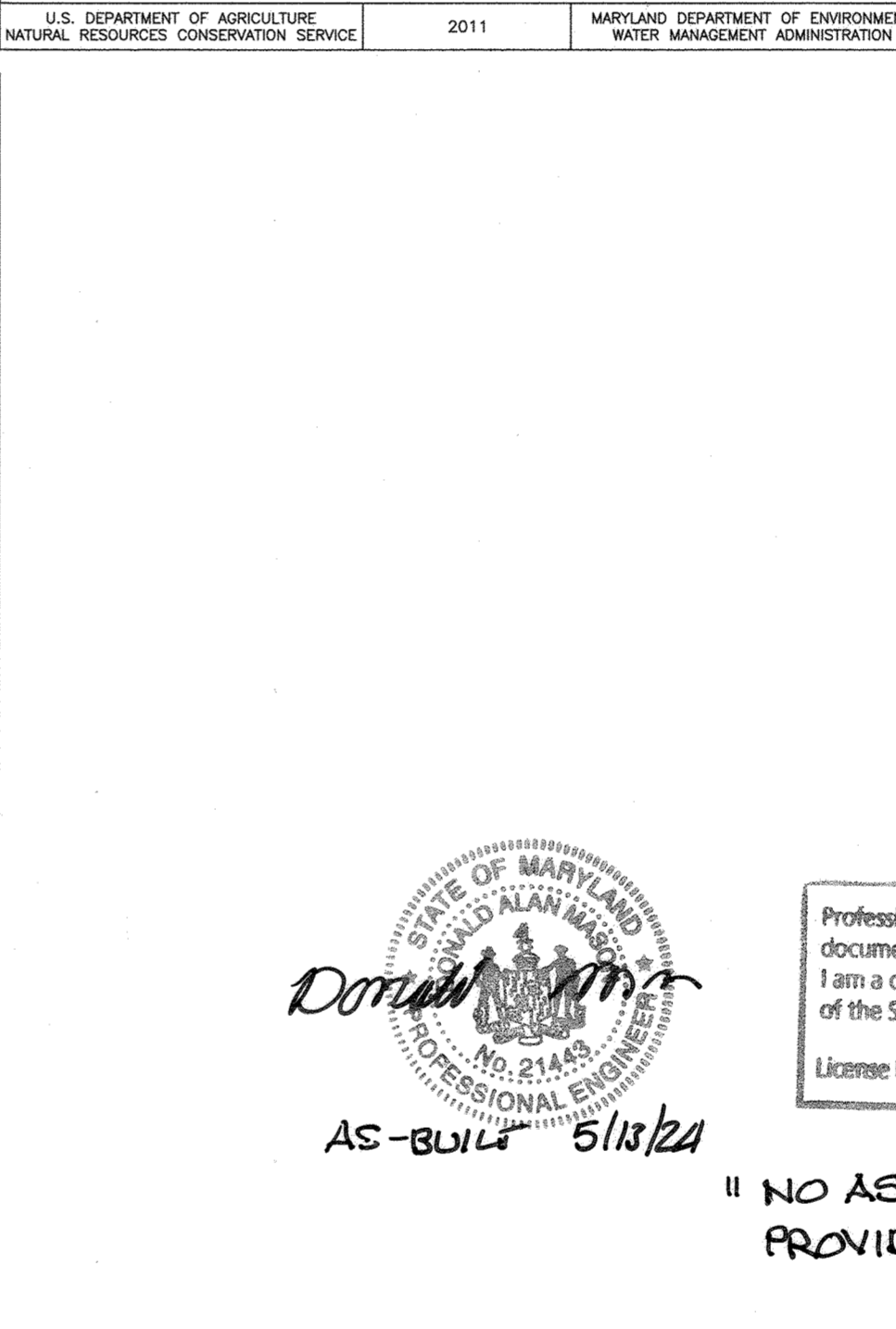
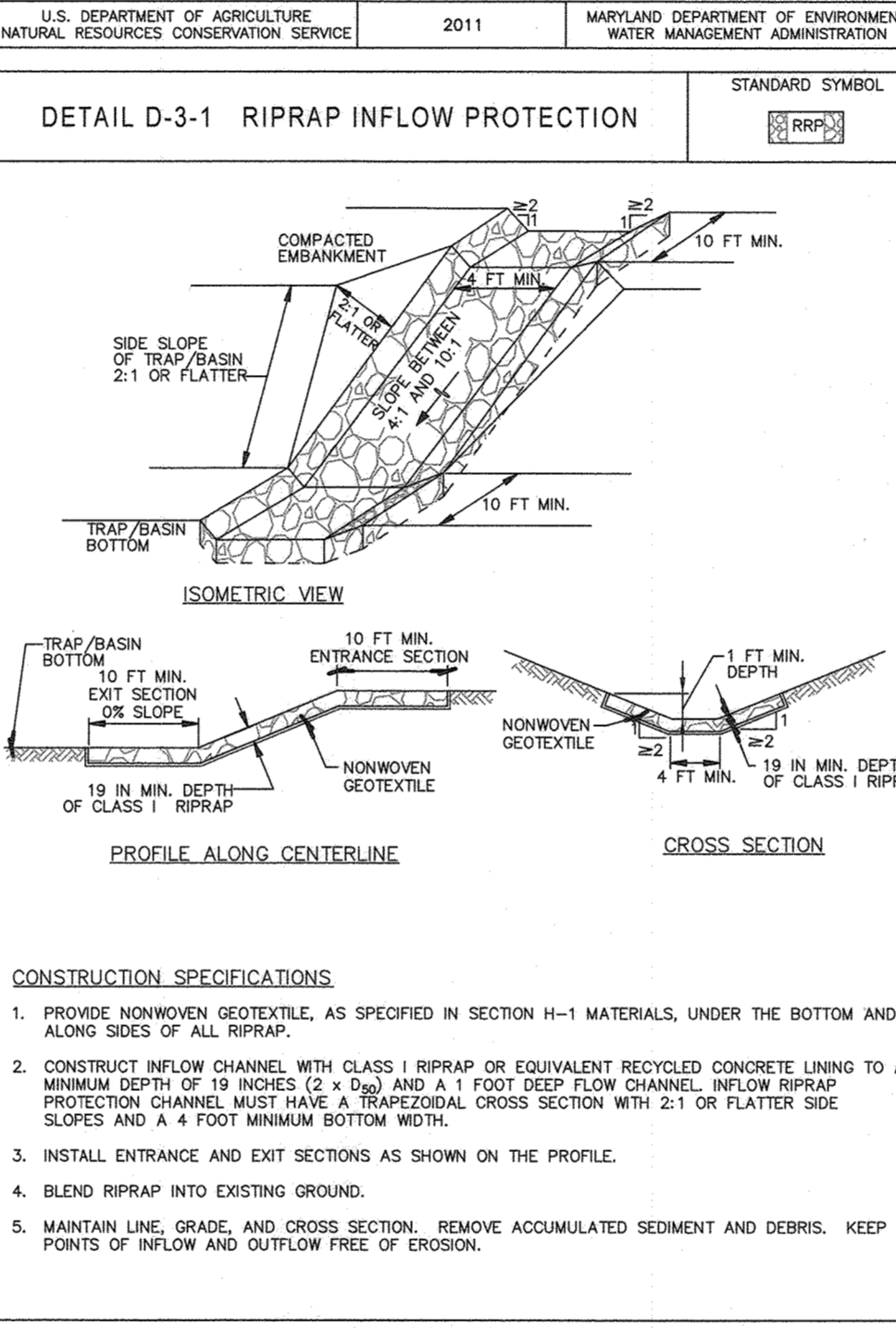
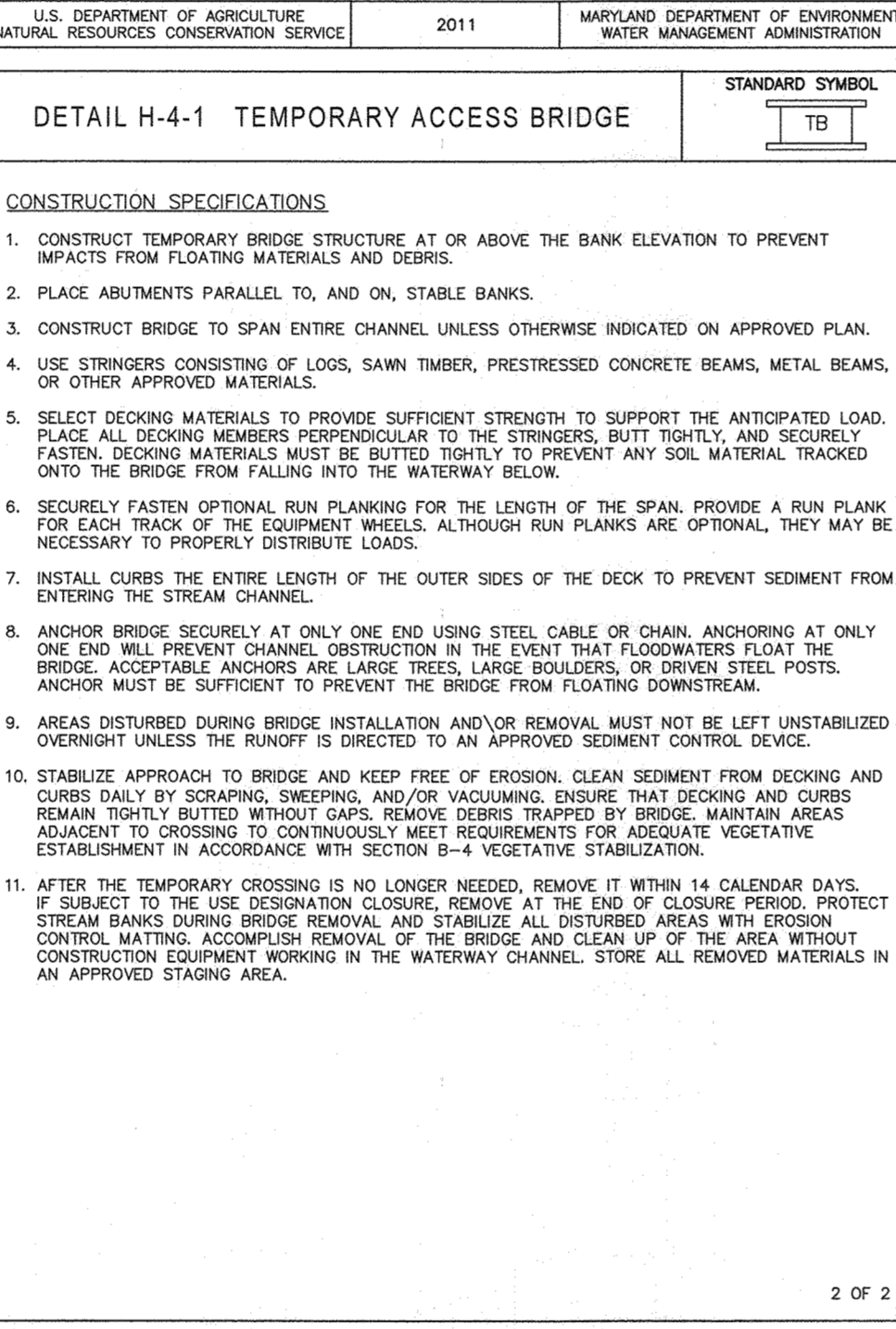
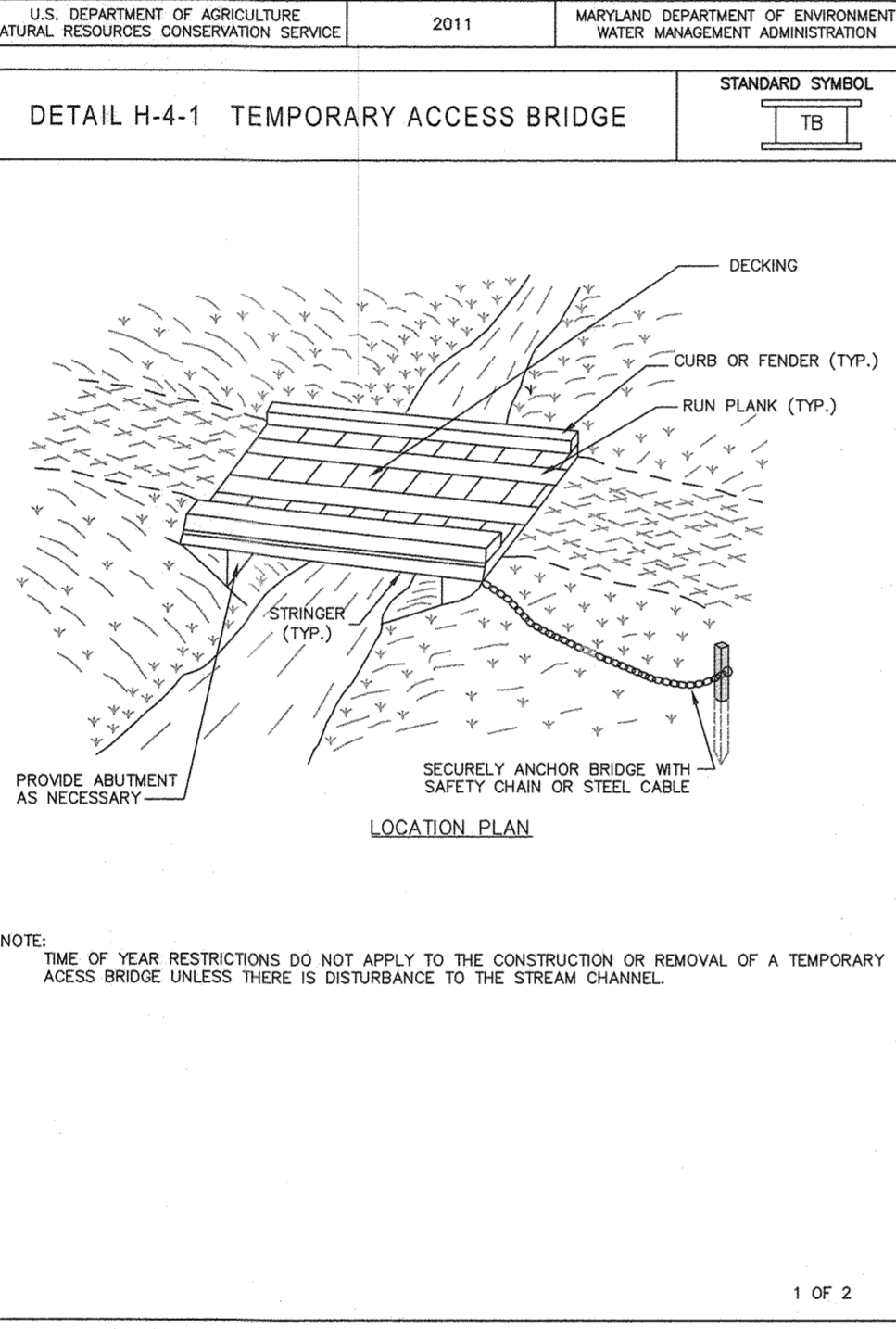
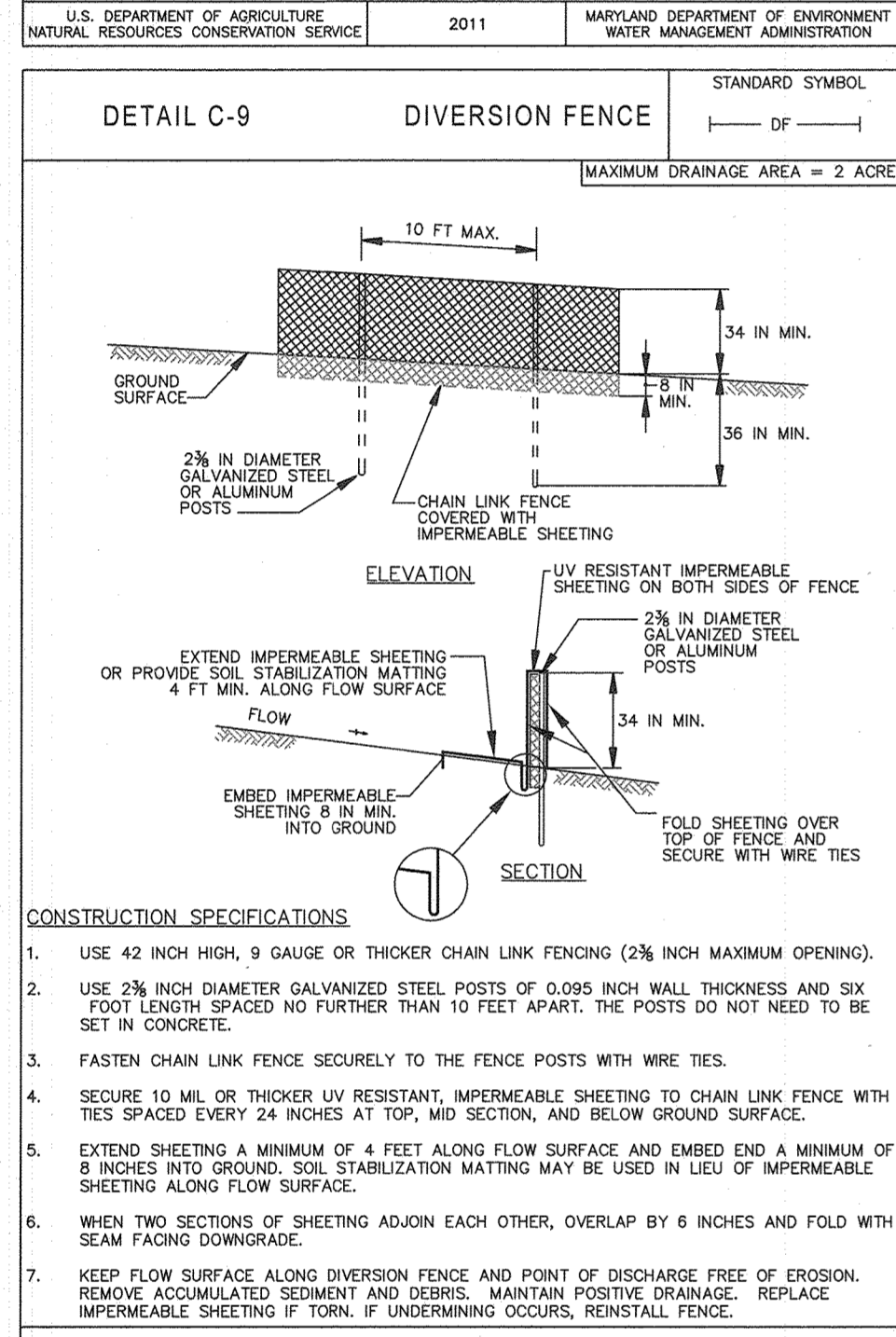
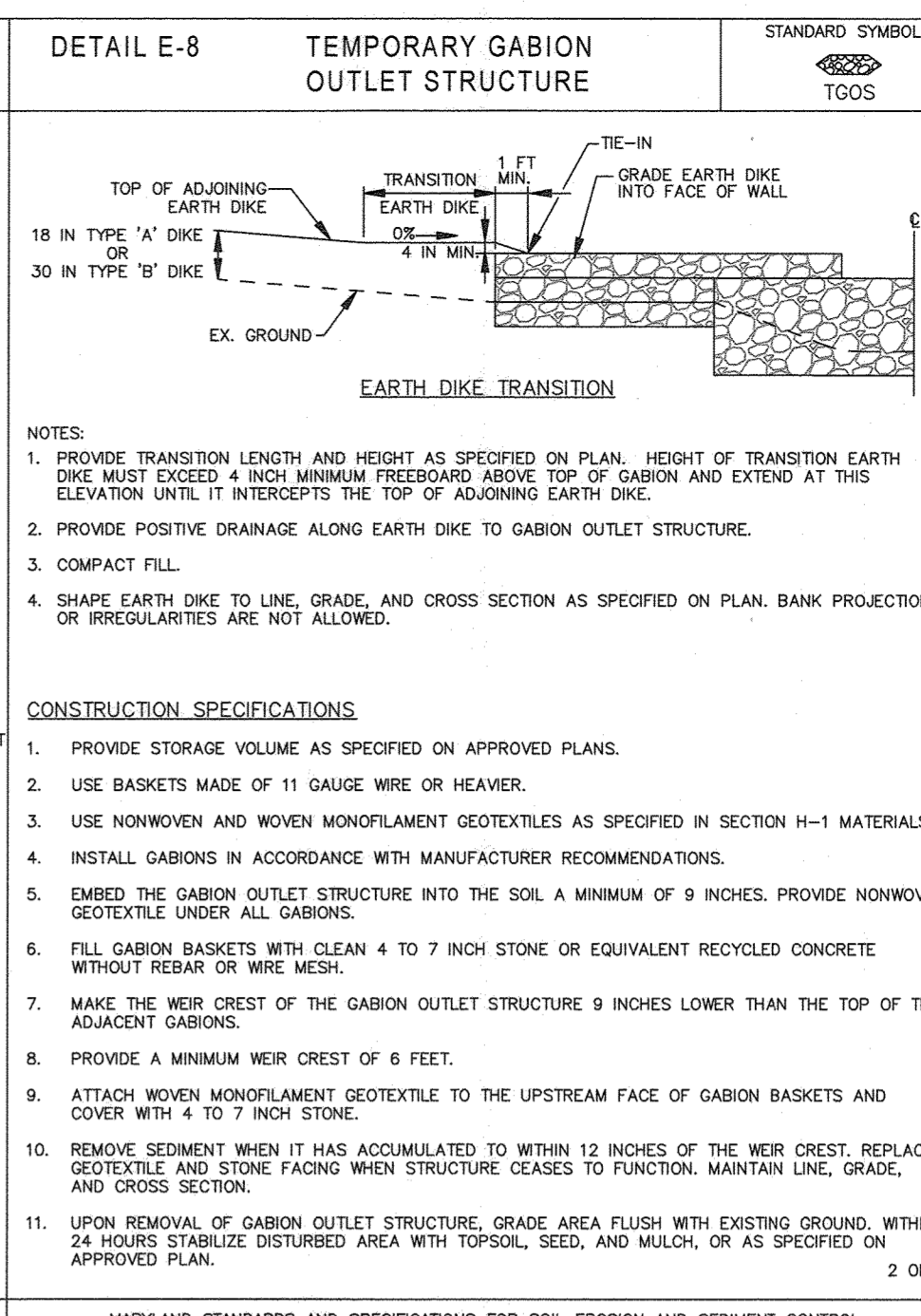
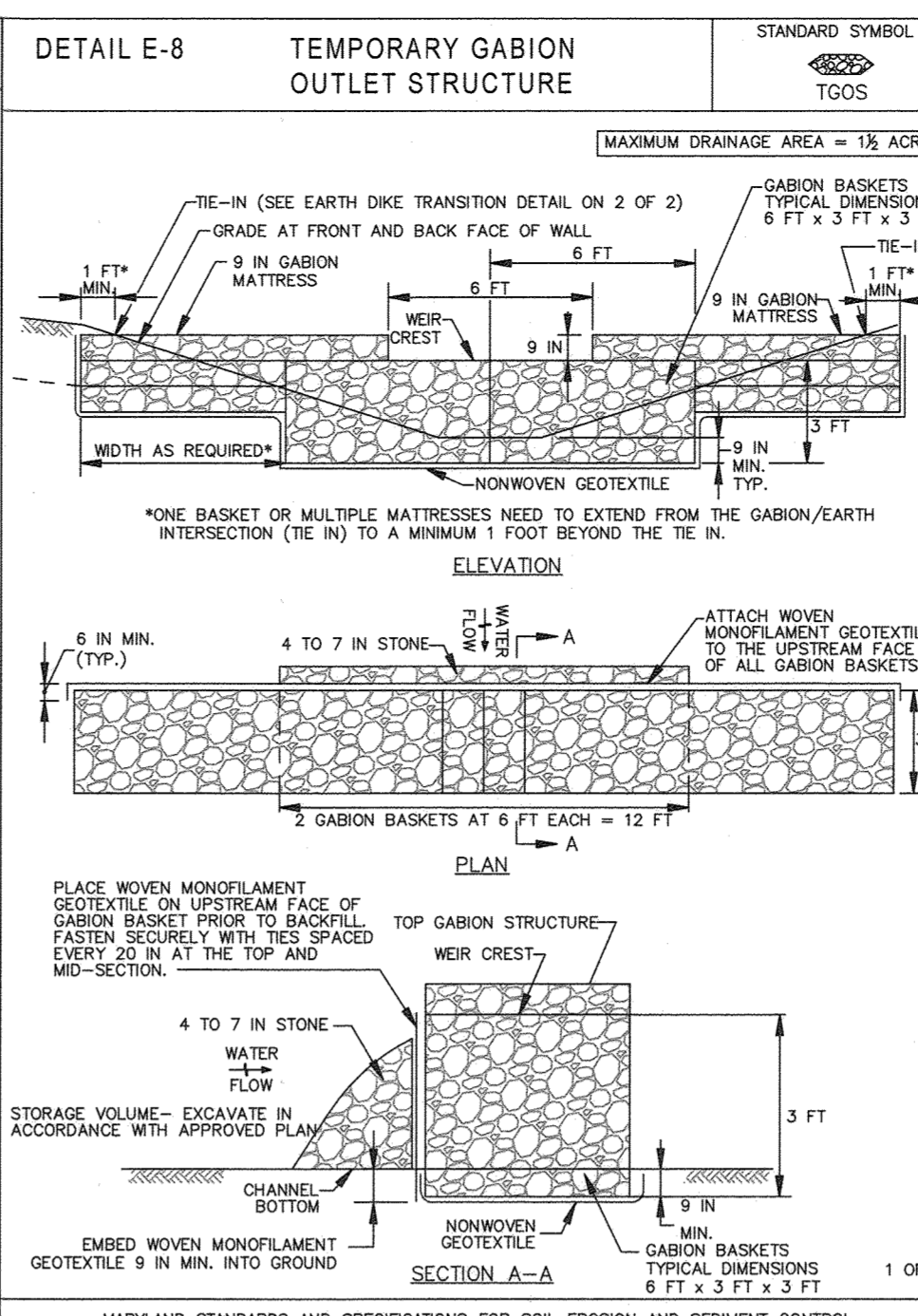
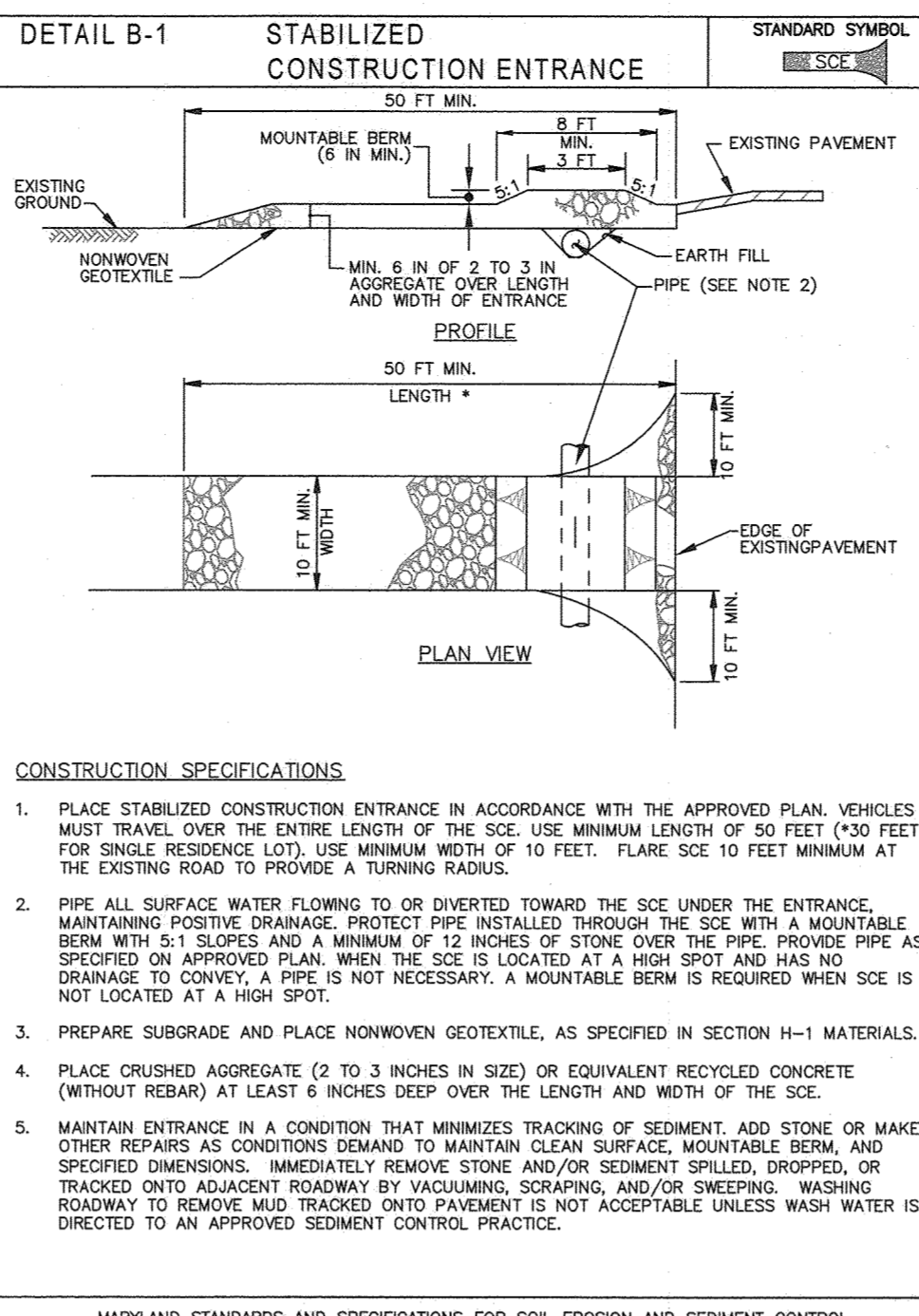
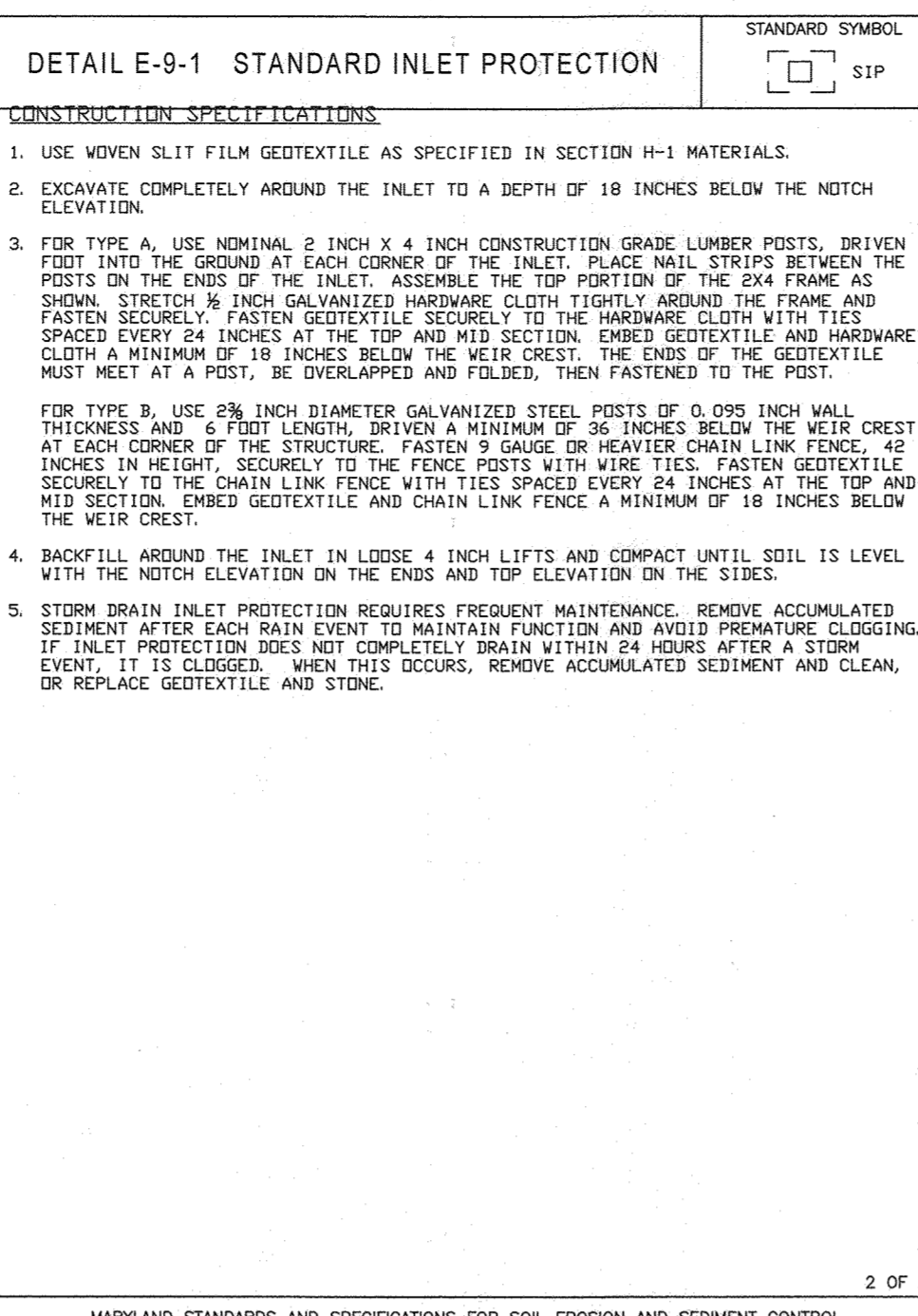
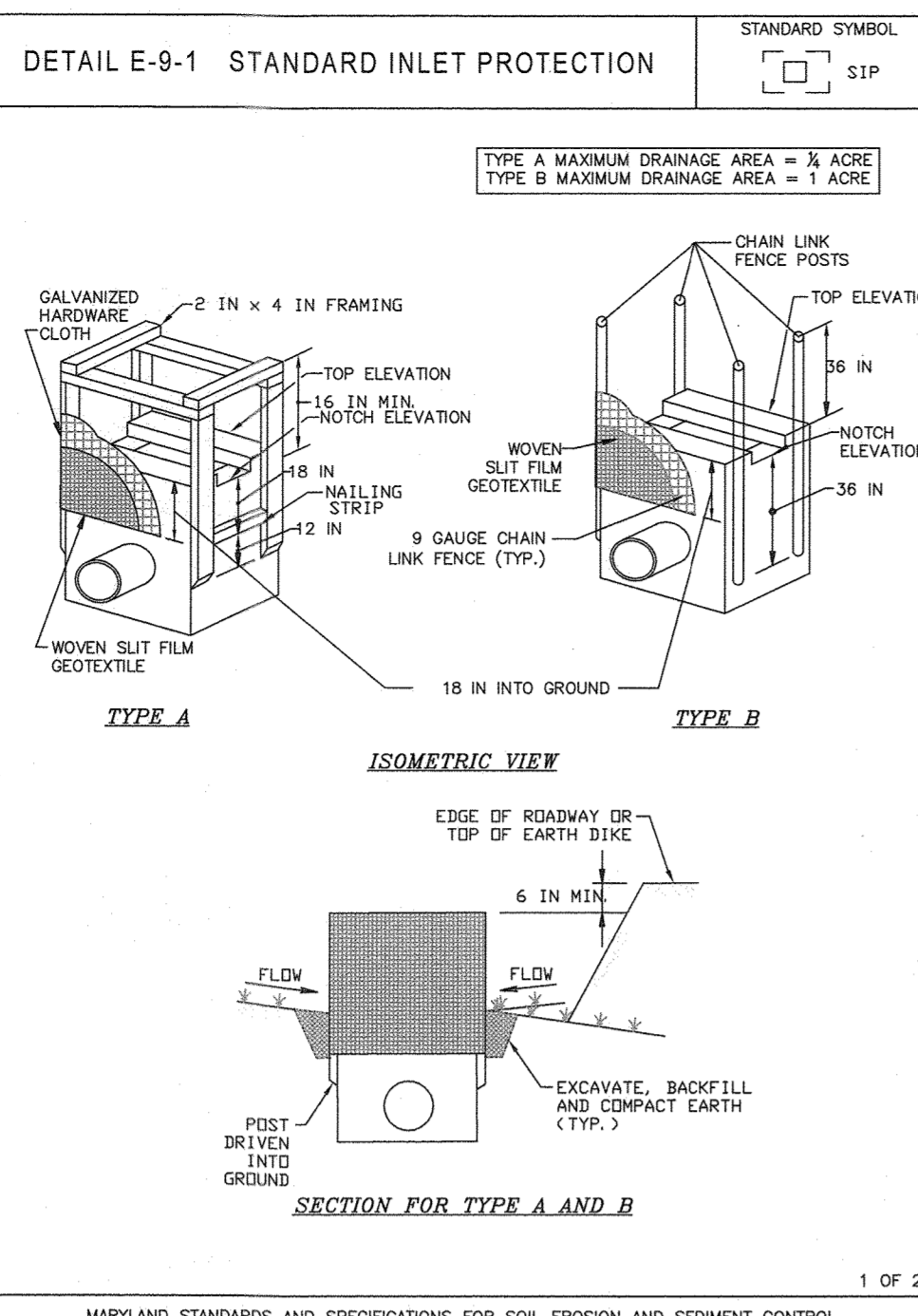
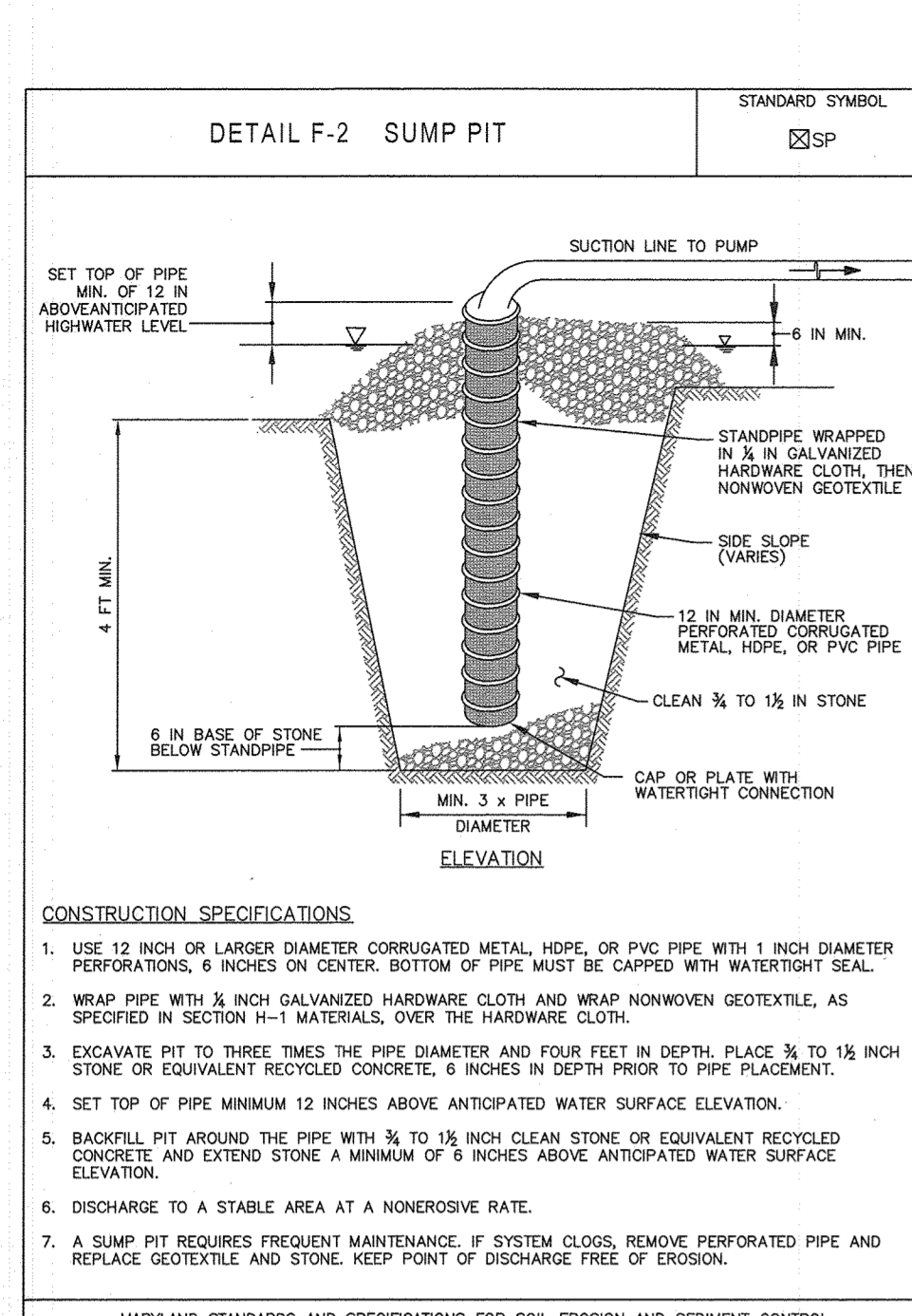


DETAIL E-1 SILT FENCE



DETAIL E-1 SILT FENCE



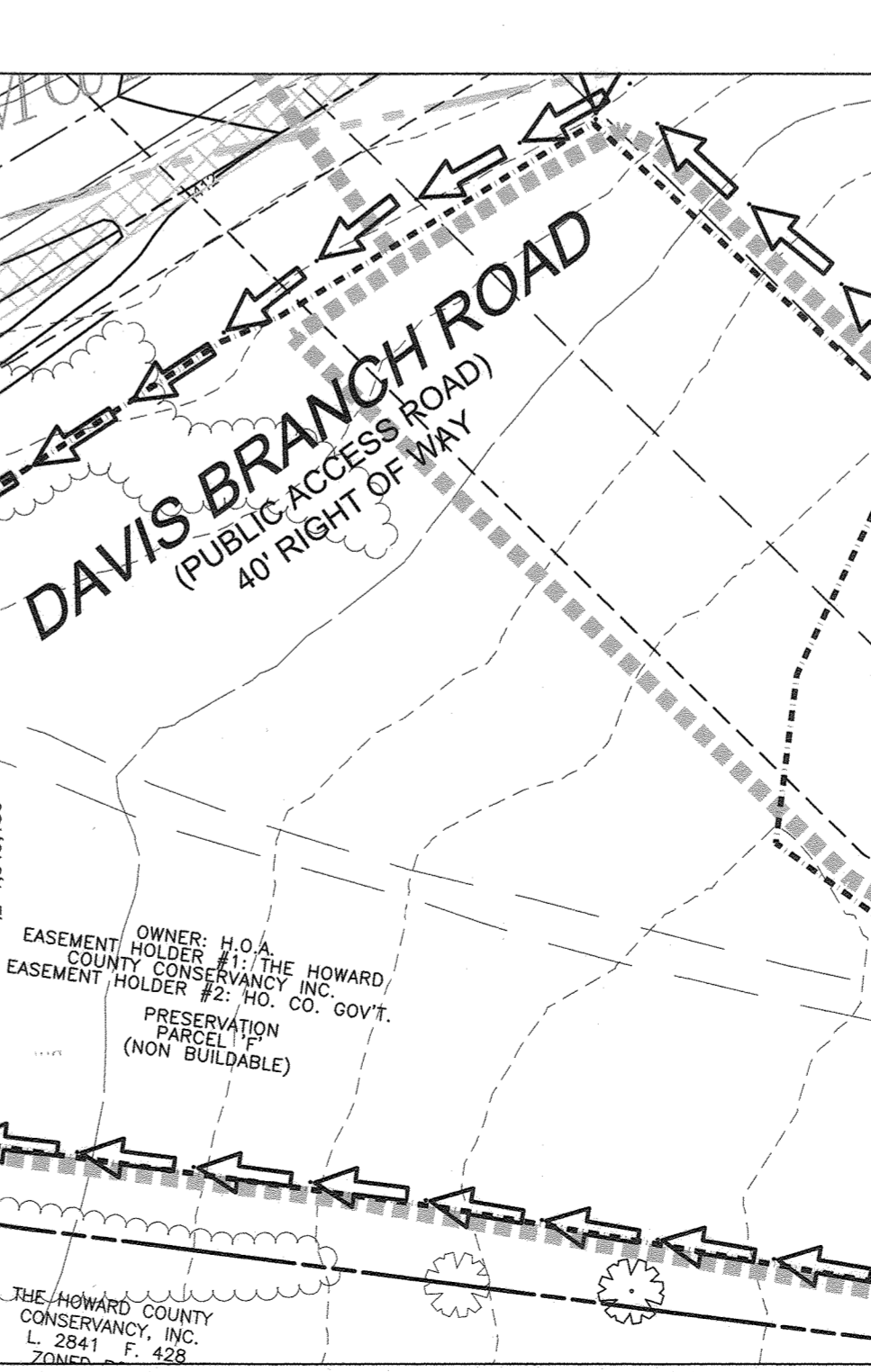


MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL	
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011
MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	

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	

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MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION	

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	



PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE NOVEMBER 8, 2007 DMW PLAN SHEET.

NO.	DATE	REVISION
2	3-20	REVISED BY SHEET SUB. TO ADD BORROW AREA FOR GAS MAIN COVER.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC. ENGINEERS & LAND SURVEYORS & PLANNERS 8480 BALTIMORE NATIONAL PIKE A SUITE 315 A ELICOTT CITY, MARYLAND 21043 (P) 410-465-6100 (F) 410-465-6944 WWW.BEI-ONLINEENGINEERING.COM	
OWNER/DEVELOPER:	PROJECT:
SUNSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	MYRTUE PROPERTY
LOCATION:	TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	REVISED ROAD PLANS GRADING & SEDIMENT AND EROSION CONTROL DETAILS
DATE:	MARCH, 2020 PROJECT NO. 2099
DES: AAM DRAFT: AAM CHECK: CAM SCALE: AS SHOWN DRAWING 23 OF 56	

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

Alice A. Miller
ENGINEER - Alice A. Miller
3-10-20 DATE

DEVELOPER'S CERTIFICATE

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

William C. Buege
DEVELOPER
3/13/2020 DATE

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

John P. Roberts
HOWARD SCD
4/6/20 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

James
CHIEF, BUREAU OF HIGHWAYS MK
04/27/2020 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

William C. Buege
CHIEF, DIVISION OF LAND DEVELOPMENT
5/13/20 DATE

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. 21443 Expiration Date: 12-21-24

AS-BUILT 5/13/24

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

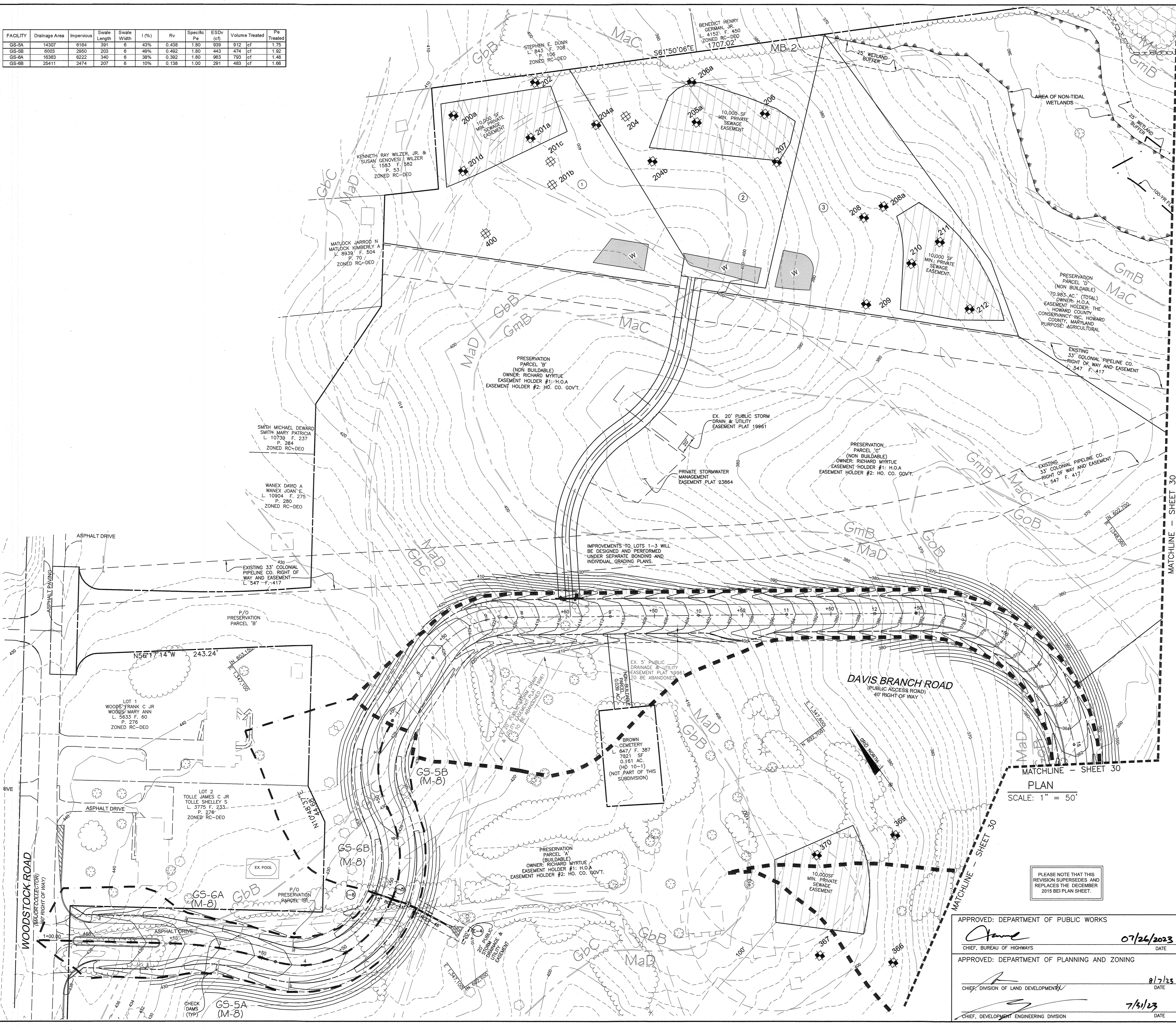
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 28376, Expiration Date: 1-1-2021.

Alice A. Miller
3-10-20

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 28376, Expiration Date: 1-1-2021.

Alice A. Miller
3-10-20

FACILITY	Drainage Area	Impervious	Swale Length	Swale Width	I (%)	Rv	Specific Pe	ESDv (cf)	Volume Treated	Pc Treated
GS-5A	14307	6164	381	6	43%	0.438	1.80	939	912 cf	1.75
GS-5B	6003	2950	203	6	49%	0.492	1.80	443	474 cf	1.92
GS-5A	19383	6222	340	6	38%	0.392	1.80	963	793 cf	1.48
GS-5B	28411	2474	207	6	10%	0.138	1.00	291	483 cf	1.68



LEGEND

- PROJECT BOUNDARY
- EXISTING CONTOURS
- EXISTING SLOPES 25% OR GREATER
- FOREST CONSERVATION EASEMENT
- PROPOSED WELL BOX
- PROPOSED PRIVATE SEWAGE EASEMENT
- AREA OF NON-TIDAL WETLAND
- STREAM
- PROPOSED CONTOURS
- EXISTING TREELINE
- SOILS MAP SYMBOL
- SOILS DELINEATION LINE
- MICRO-BIORETENTION FACILITY
- SUBMERGED GRAVEL WETLANDS
- STORMDRAIN STRUCTURE
- DISCONNECTED PAVEMENT
- DISCONNECTION RECEIVING AREA

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. 21143 Expiration Date: 12-24-22
 AS-BUILT 5/13/24

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

NO.	DATE	REVISION
3	7-2023	REVISED BY SHEET SUBSTITUTION TO REMOVE IMPROVEMENTS TO LOT 1-3.
2	3-2020	REVISED OWNER INFORMATION
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 3300 NORTH RIDGE ROAD & SUITE 140 • ELICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8644
 WWW.BEI-CIVILENGINEERING.COM

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 28376, Expiration Date: 1-1-2025.

BEI-AAM
 2023.07.12 07:43:29 -04'00

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 07/26/2023

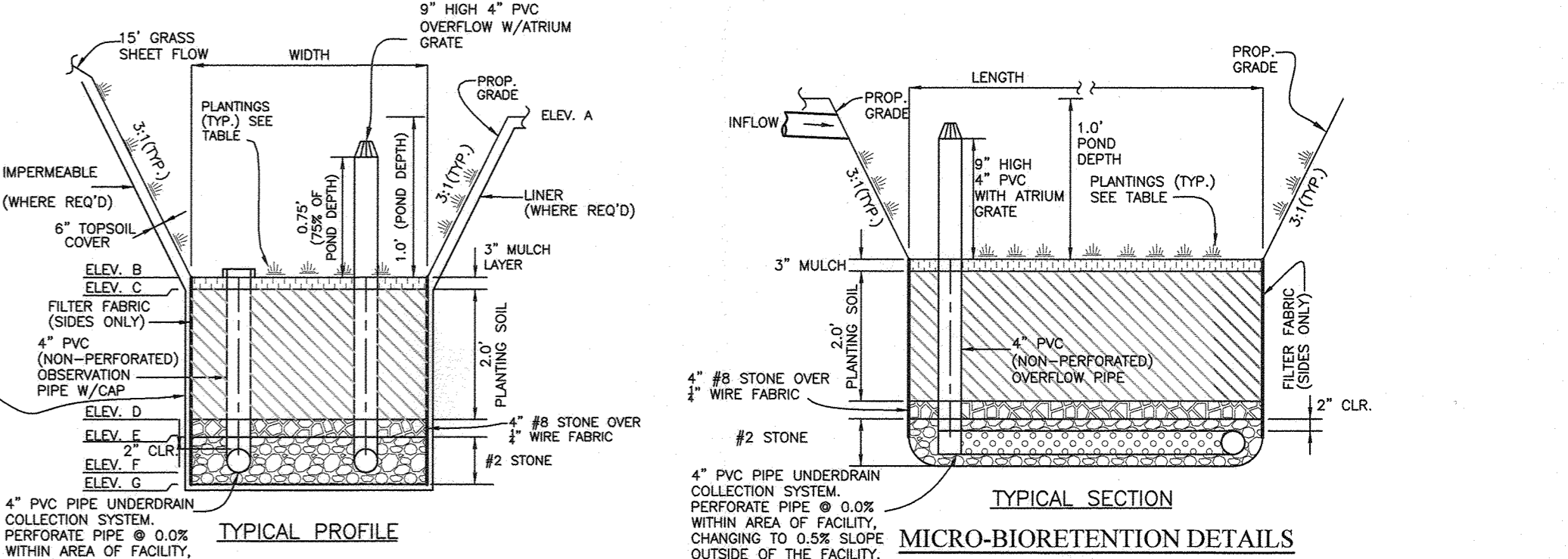
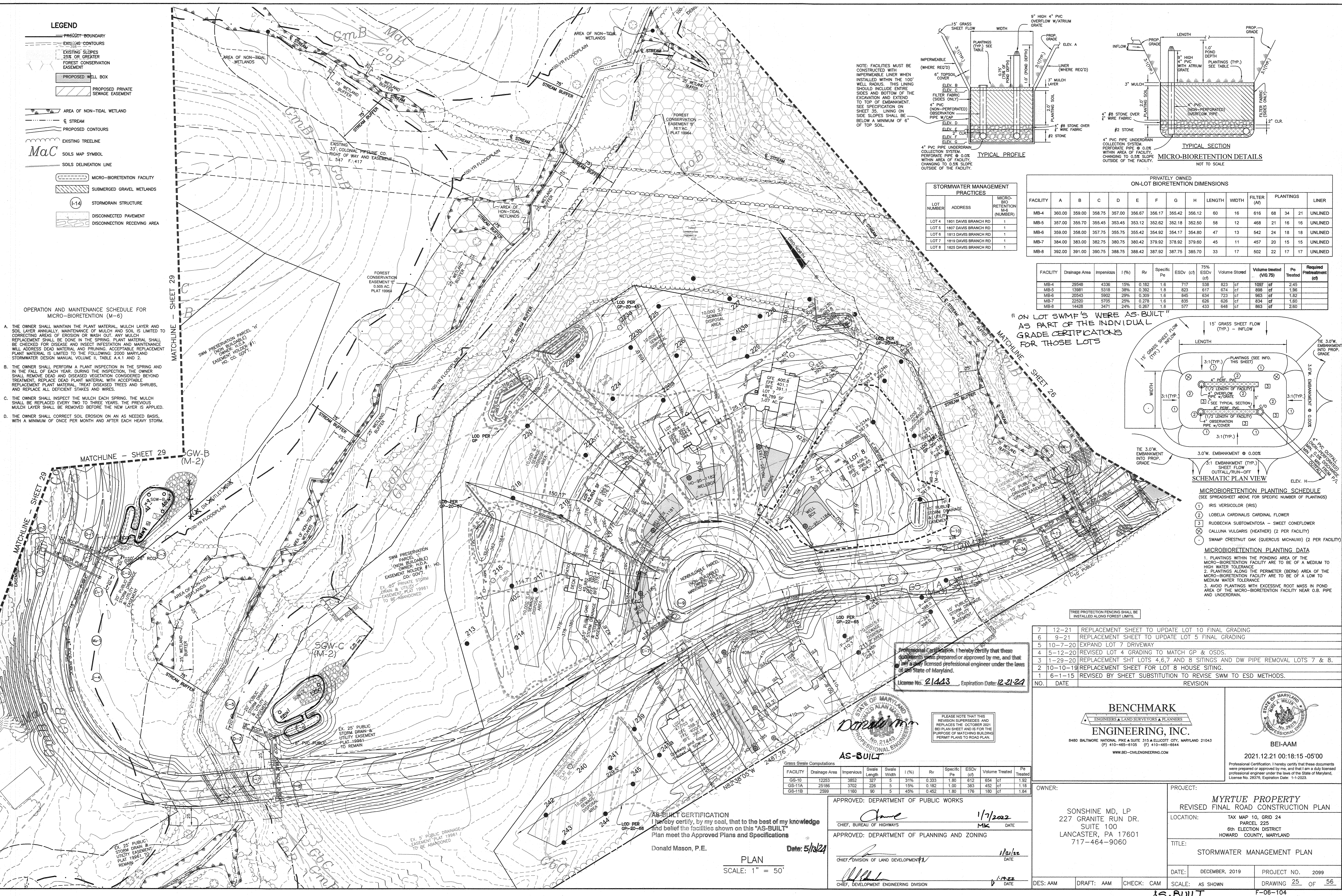
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 8/7/23

CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/31/23

OWNER: SUNSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT: MYRTUE PROPERTY
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: REVISED STORMWATER MANAGEMENT PLAN
DATE: JUNE 2023	PROJECT NO. 2099
DES: AAM	DRAFT: AAM
CHECK: CAM	SCALE: AS SHOWN
DRAWING 24 OF 56	

LEGEND

- PROTECT BOUNDARY
- EXISTING CONTOURS
- EXISTING SLOPES 25% OR GREATER
- FOREST CONSERVATION EASEMENT
- PROPOSED WELL BOX
- PROPOSED PRIVATE SEWAGE EASEMENT
- AREA OF NON-TIDAL WETLAND
- STREAM
- PROPOSED CONTOURS
- EXISTING TRELINE
- SOILS MAP SYMBOL
- SOILS DELINEATION LINE
- MICRO-BIORETENTION FACILITY
- SUBMERGED GRAVEL WETLANDS
- STORMDRAIN STRUCTURE
- DISCONNECTED PAVEMENT
- DISCONNECTION RECEIVING AREA



STORMWATER MANAGEMENT PRACTICES

LOT NUMBER	ADDRESS	MICRO-BIO RETENTION (NUMBER)
LOT 4	1801 DAVIS BRANCH RD	1
LOT 5	1807 DAVIS BRANCH RD	1
LOT 6	1813 DAVIS BRANCH RD	1
LOT 7	1819 DAVIS BRANCH RD	1
LOT 8	1825 DAVIS BRANCH RD	1

PRIVATELY OWNED ON-LOT BIOTRETENTION DIMENSIONS

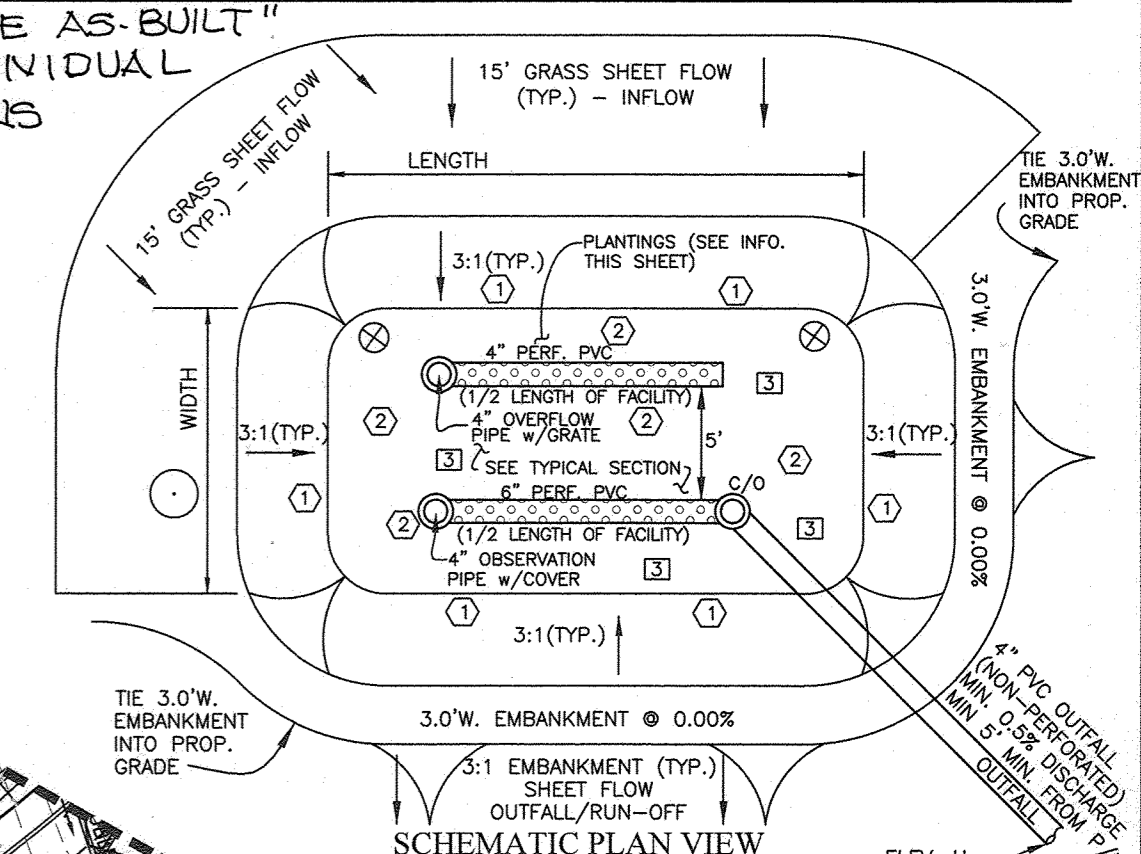
FACILITY	A	B	C	D	E	F	G	H	LENGTH	WIDTH	FILTER (IN)	PLANTINGS	LINER
MB-4	360.00	359.00	358.75	357.00	356.67	356.17	355.42	356.12	60	16	616	68 34 21	UNLINED
MB-5	357.00	355.70	355.45	353.45	353.12	352.62	352.18	352.50	58	12	468	21 16 16	UNLINED
MB-6	359.00	358.00	357.75	355.75	355.42	354.92	354.17	354.80	47	13	542	24 18 18	UNLINED
MB-7	384.00	383.00	382.75	380.75	380.42	379.92	379.60	379.60	45	11	457	20 15 15	UNLINED
MB-8	392.00	391.00	390.75	388.75	388.42	387.92	387.75	385.70	33	17	502	22 17 17	UNLINED

FACILITY	Drainage Area	Impervious	I (%)	Rv	Specific Pe	ESDv (cf)	75% ESDv (cf)	Volume Stored	Volume treated (V10.75)	Pe Treated	Required Pretreatment (cf)
MB-4	29548	4336	15%	0.182	1.6	717	538	823 cf	1097 cf	2.45	
MB-5	13881	3318	33%	0.309	1.8	623	517	674 cf	569 cf	1.98	
MB-6	20543	5902	29%	0.309	1.6	845	634	723 cf	853 cf	1.82	
MB-7	22520	5705	25%	0.278	1.6	835	626	626 cf	834 cf	1.60	
MB-8	14428	3471	24%	0.267	1.8	577	433	648 cf	863 cf	2.60	

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

- THE OWNER 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 OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF 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 OWNER 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 OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

"ON LOT SWMF'S WERE AS-BUILT" AS PART OF THE INDIVIDUAL GRADE CERTIFICATIONS FOR THOSE LOTS



- MICROBIORETENTION PLANTING SCHEDULE**
(SEE SPREADSHEET ABOVE FOR SPECIFIC NUMBER OF PLANTINGS)
- 1 IRIS VERSICOLOR (RIS)
 - 2 LOBELIA CARDINALIS CARDINAL FLOWER
 - 3 RUDBECKIA SUBTMENTOSA - SWEET CONEFLOWER
 - 4 CALLUNA VULGARIS (HEATHER) (2 PER FACILITY)
 - 5 SWAMP CHESTNUT OAK (QUERCUS MICHAUXII) (2 PER FACILITY)

- MICROBIORETENTION PLANTING DATA**
- PLANTINGS WITHIN THE PONDING AREA OF A MEDIUM TO HIGH WATER TOLERANCE
 - PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE
 - AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION FACILITY NEAR O.B. PIPE AND UNDERDRAIN.

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. 21443, Expiration Date: 12-21-24



PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE OCTOBER 2021 BEI-AN SHEET AND IS FOR THE PURPOSE OF MATCHING BUILDING PERMIT PLANS TO ROAD PLAN.

Grass Swale Computations

FACILITY	Drainage Area	Impervious	Swale Length	Swale Width	I (%)	Rv	Specific Pe	ESDv (cf)	Volume Treated	Pe Treated
GS-10	12253	3652	327	5	31%	0.333	1.80	612	654 cf	1.92
GS-11A	25186	3702	226	5	15%	0.182	1.00	383	452 cf	1.16
GS-11B	2599	1160	90	5	45%	0.452	1.80	176	180 cf	1.84

APPROVED: DEPARTMENT OF PUBLIC WORKS
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 APPROVED: DEPARTMENT OF LAND DEVELOPMENT
 APPROVED: DEPARTMENT OF DEVELOPMENT ENGINEERING DIVISION

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. DATE: 5/13/24

PLAN SCALE: 1" = 50'

NO.	DATE	REVISION
7	12-21	REPLACEMENT SHEET TO UPDATE LOT 10 FINAL GRADING
6	9-21	REPLACEMENT SHEET TO UPDATE LOT 5 FINAL GRADING
5	10-7-20	EXPAND LOT 7 DRIVEWAY
4	5-12-20	REVEALED LOT 4 GRADING TO MATCH GP & OSDS.
3	1-29-20	REPLACEMENT SHT LOTS 4,6,7 AND 8 SITINGS AND DW PIPE REMOVAL LOTS 7 & 8.
2	10-10-19	REPLACEMENT SHEET FOR LOT 8 HOUSE SITING.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6544
 WWW.BEI-CIVILENGINEERING.COM

BEI-AAM
 2021.12.21 00:18:15 -05'00
 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. 28576, Expiration Date: 1-1-2025.

OWNER: SONSHINE MD, LP
 227 GRANITE RUN DR.
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

PROJECT: MYRTLE PROPERTY
 REVISED FINAL ROAD CONSTRUCTION PLAN

LOCATION: TAX MAP 10, GRID 24
 PARCEL 225
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

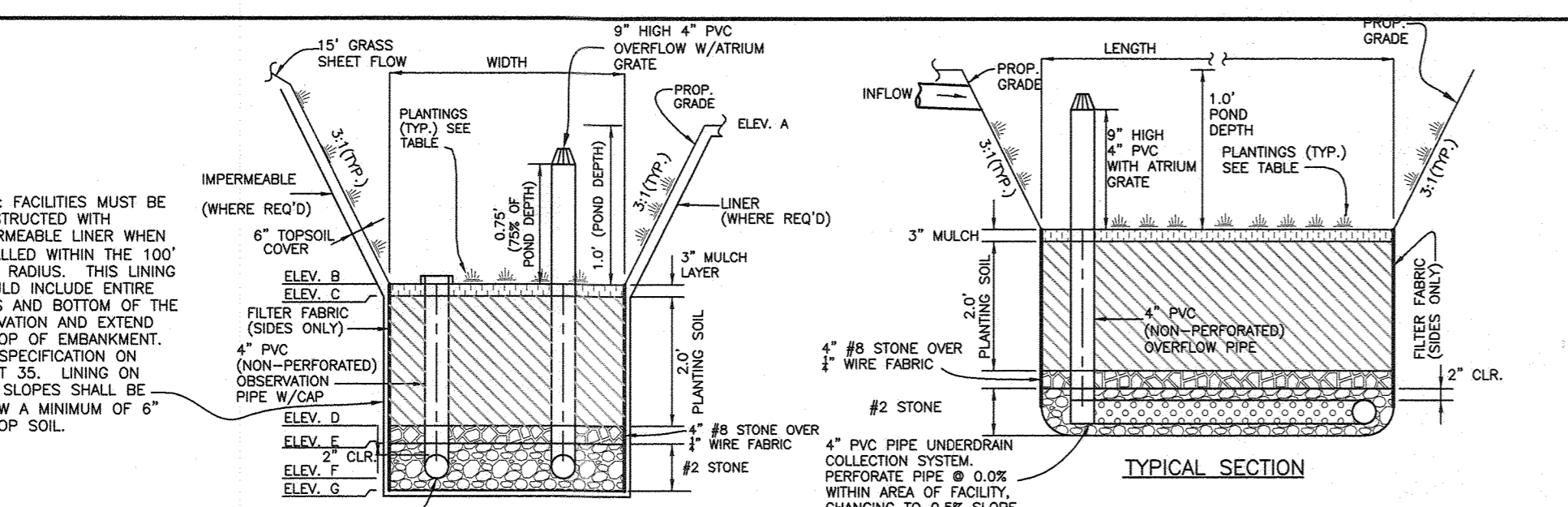
TITLE: STORMWATER MANAGEMENT PLAN

DATE: DECEMBER, 2019 PROJECT NO. 2099
 DRAWING NO. OF 56

DES: AAM DRAFT: AAM CHECK: CAM SCALE: AS SHOWN DRAWING NO. OF 56
AS-BUILT
 F-06-104

LEGEND

- PROJECT BOUNDARY
- EXISTING CONTOURS
- EXISTING SLOPES 25% OR GREATER
- FOREST CONSERVATION EASEMENT
- PROPOSED PRIVATE SEWAGE EASEMENT
- LIMIT OF DISTURBANCE
- AREA OF NON-TIDAL WETLAND
- STREAM
- PROPOSED CONTOURS
- EXISTING TREELINE
- SOILS MAP SYMBOL
- SOILS DELINEATION LINE
- MICRO-BIORETENTION FACILITY
- SUBMERGED GRAVEL WETLANDS
- STORMRAIN STRUCTURE
- DISCONNECTED PAVEMENT
- DISCONNECTION RECEIVING AREA



OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

Lot 13

Designation	Drainage Area	Impervious Area	I (%)	Rv	ESDv (cf)	Depth (ft)	Porosity	Length (ft)	Width (ft)	Volume Stored	Pe Treated
DW-1	651	651	100%	0.950	93	5.0	0.40	10	5	100	1.94
DW-2	712	712	100%	0.950	101	5.0	0.40	10	5	100	1.77
DW-3	724	724	100%	0.950	103	5.0	0.40	9	6	108	1.88
DW-4	977	977	100%	0.950	139	5.0	0.40	12	6	144	1.88
Totals:					437					452	

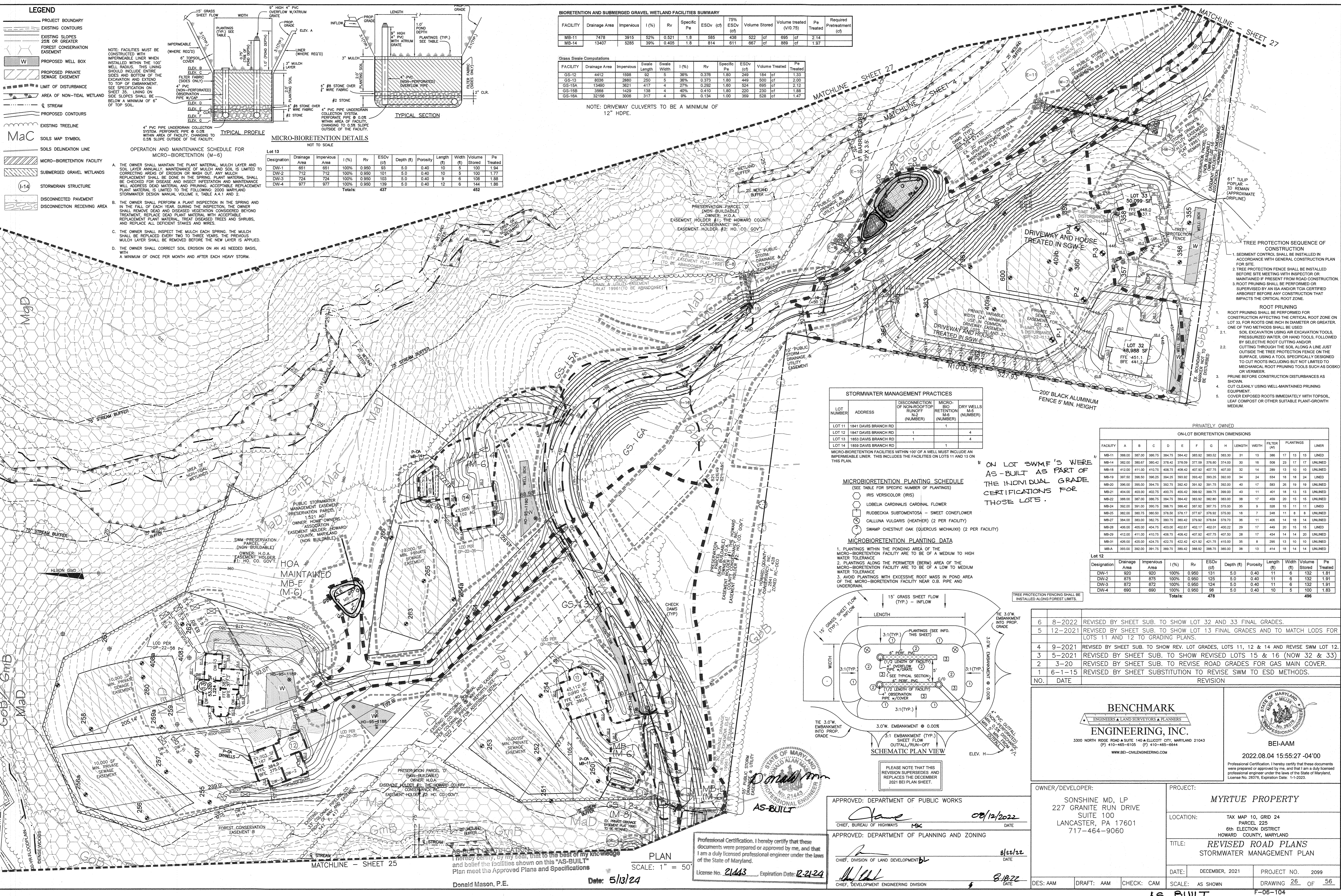
BIORETENTION AND SUBMERGED GRAVEL WETLAND FACILITIES SUMMARY

FACILITY	Drainage Area	Impervious	I (%)	Rv	Specific Pe	ESDv (cf)	75% ESDv (cf)	Volume Stored	Volume treated (V/O.75)	Pe Treated	Required Pretreatment (cf)
MB-11	7478	3915	52%	0.521	1.8	585	438	522	895	2.14	
MB-14	13407	5285	39%	0.405	1.8	814	611	667	889	1.97	

Grass Swale Computations

FACILITY	Drainage Area	Impervious	Swale Length	Swale Width	I (%)	Rv	Specific Pe	ESDv (cf)	Volume Treated	Pe
GS-12	4412	1998	92	5	36%	0.378	1.80	249	184	1.33
GS-13	8208	2880	250	5	36%	0.378	1.80	449	500	2.00
GS-15A	13490	3621	417	4	27%	0.292	1.60	524	695	2.12
GS-15B	3568	1429	138	4	40%	0.410	1.80	220	230	1.88
GS-16A	32196	3008	317	4	9%	0.134	1.00	359	528	1.47

NOTE: DRIVEWAY CULVERTS TO BE A MINIMUM OF 12" HOPE.

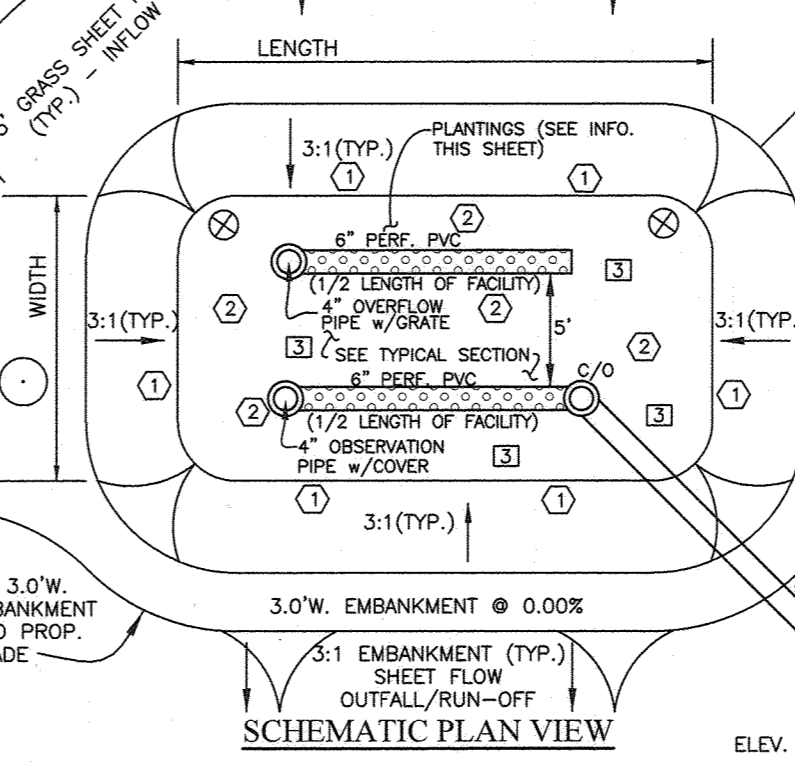


STORMWATER MANAGEMENT PRACTICES

LOT NUMBER	ADDRESS	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) (NUMBER)	MICRO-BIO RETENTION (M-6) (NUMBER)	DRY WELLS (NUMBER)
LOT 11	1841 DAVIS BRANCH RD	1	1	4
LOT 12	1847 DAVIS BRANCH RD	1	1	4
LOT 13	1853 DAVIS BRANCH RD	1	1	4
LOT 14	1859 DAVIS BRANCH RD	1	1	4

- MICROBIORETENTION PLANTING SCHEDULE**
(SEE TABLE FOR SPECIFIC NUMBER OF PLANTINGS)
- IRIS VERSICOLOR (IRIS)
 - LOBELIA CARDINALIS CARDINAL FLOWER
 - RUEBICKIA SUBTOMENTOSA - SWEET CONEFLOWER
 - CALLUNA VULGARIS (HEATHER) (2 PER FACILITY)
 - SWAMP CHESTNUT OAK (QUERCUS MICHAUXII) (2 PER FACILITY)

- MICROBIORETENTION PLANTING DATA**
- PLANTINGS WITHIN THE PONDING AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE.
 - PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE.
 - AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION FACILITY NEAR O.B. PIPE AND UNDERDRAIN.



"ON LOT SWMF'S WERE AS-BUILT AS PART OF THE INDIVIDUAL GRADE CERTIFICATIONS FOR THOSE LOTS."

ON-LOT BIORETENTION DIMENSIONS

FACILITY	A	B	C	D	E	F	G	H	LENGTH	WIDTH	FILTER	PLANTINGS	LINER	
MB-11	388.00	397.00	398.75	384.75	384.43	383.92	383.30	31	13	385	17	13	LINED	
MB-14	382.00	380.67	380.42	378.43	378.99	377.59	376.80	374.00	30	16	508	27	UNLINED	
MB-18	412.00	411.00	410.75	408.75	408.43	407.92	407.30	32	14	255	10	10	LINED	
MB-19	397.00	396.60	396.25	394.25	394.29	393.43	392.25	392.00	34	24	834	18	24	LINED
MB-20	356.00	355.00	354.75	352.75	352.43	351.92	351.30	40	17	883	26	19	UNLINED	
MB-21	404.00	403.00	402.75	400.75	400.43	399.92	399.30	42	11	407	18	13	UNLINED	
MB-22	388.00	387.00	386.75	384.75	384.43	383.92	383.30	38	17	455	20	15	UNLINED	
MB-24	352.00	351.00	350.75	348.75	348.43	347.92	347.30	35	9	328	15	11	LINED	
MB-25	382.00	380.75	380.50	378.50	378.17	377.67	377.00	18	7	248	11	8	UNLINED	
MB-27	384.00	383.00	382.75	380.75	380.43	379.92	379.30	36	11	405	14	14	UNLINED	
MB-28	406.00	405.00	404.75	402.75	402.43	401.92	401.30	27	17	440	20	15	LINED	
MB-29	412.00	411.00	410.75	408.75	408.43	407.92	407.30	28	17	434	14	20	UNLINED	
MB-31	426.00	425.00	424.75	422.75	422.43	421.92	421.30	35	8	295	13	10	UNLINED	
MB-4	393.00	392.00	391.75	389.75	389.43	388.92	388.30	38	13	414	18	14	UNLINED	

Lot 12

Designation	Drainage Area	Impervious Area	I (%)	Rv	ESDv (cf)	Depth (ft)	Porosity	Length (ft)	Width (ft)	Volume Stored	Pe Treated
DW-1	920	920	100%	0.950	131	5.0	0.40	11	6	132	1.81
DW-2	875	875	100%	0.950	125	5.0	0.40	11	6	132	1.91
DW-3	872	872	100%	0.950	124	5.0	0.40	11	6	132	1.91
DW-4	690	690	100%	0.950	98	5.0	0.40	10	5	100	1.83
Totals:					478					496	

NO.	DATE	REVISION
6	8-2022	REVISED BY SHEET SUB. TO SHOW LOT 32 AND 33 FINAL GRADES.
5	12-2021	REVISED BY SHEET SUB. TO SHOW LOT 13 FINAL GRADES AND TO MATCH LODS FOR LOTS 11 AND 12 TO GRADING PLANS.
4	9-2021	REVISED BY SHEET SUB. TO SHOW REV. LOT GRADES, LOTS 11, 12 & 14 AND REVISE SWM LOT 12.
3	5-2021	REVISED BY SHEET SUB. TO SHOW REVISED LOTS 15 & 16 (NOW 32 & 33)
2	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
3300 NORTH RIDGE ROAD SUITE 140 & ELLICOTT CITY, MARYLAND 21043
(P) 410-485-6105 (F) 410-485-6644
www.bei-civilengineering.com

BEI-AAM
2022.08.04 15:55:27 -04'00

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 28376, Expiration Date: 1-1-2023.

OWNER/DEVELOPER: SONSHINE MD, LP
227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060

PROJECT: MYRTUE PROPERTY

LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PLANS STORMWATER MANAGEMENT PLAN

DATE: DECEMBER, 2021 PROJECT NO. 2099

DES: AAM DRAFT: AAM CHECK: CAM SCALE: AS SHOWN DRAWING 26 OF 56

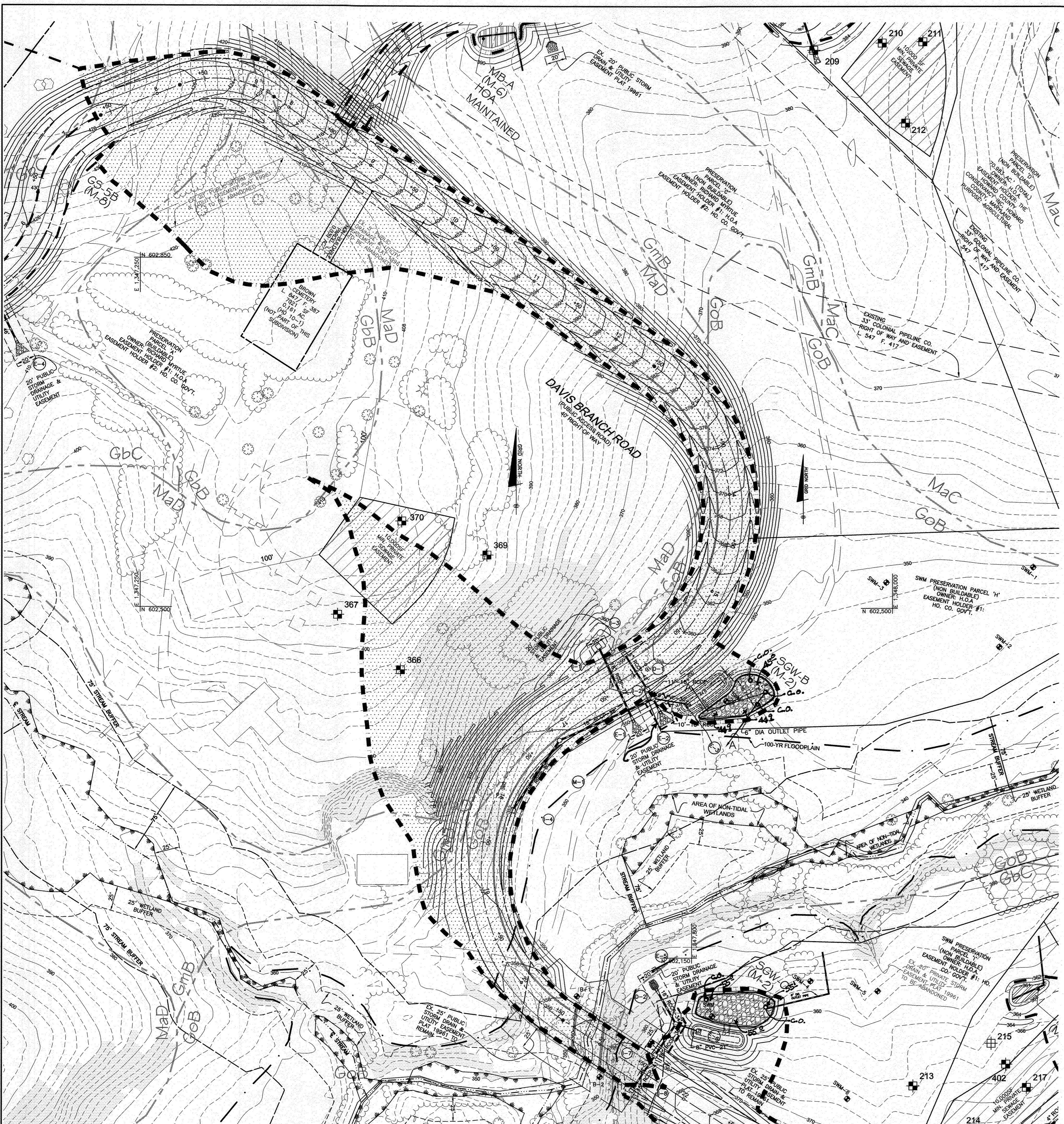
AS-BUILT

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. 21443 Expiration Date: 12-21-24
Date: 5/13/24
Donald Mason, P.E.

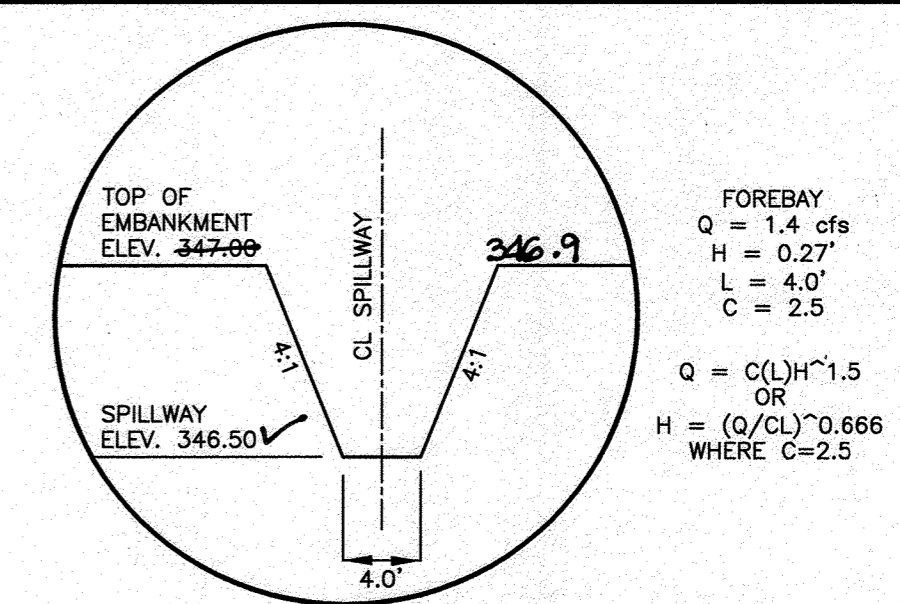
APPROVED: DEPARTMENT OF PUBLIC WORKS
Jae 08/12/2022
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
MK 8/18/22
CHIEF, DIVISION OF LAND DEVELOPMENT

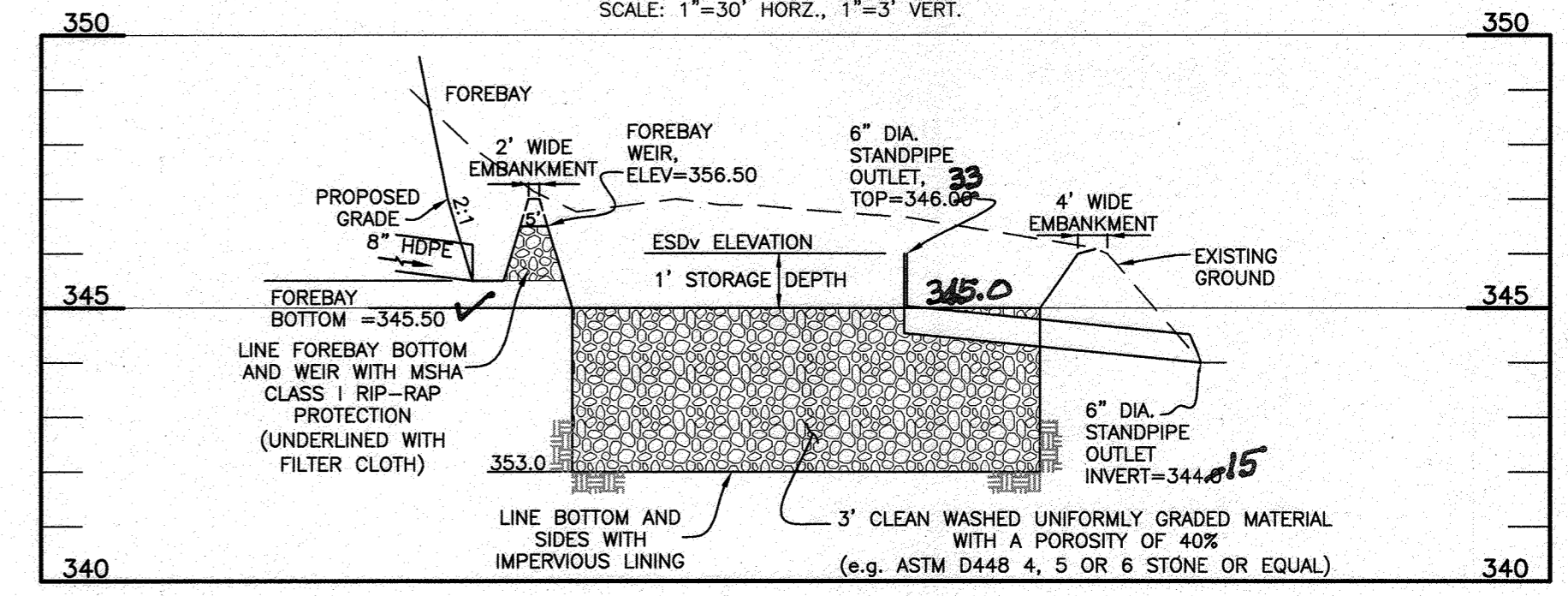
APPROVED: DEPARTMENT OF PLANNING AND ZONING
BL 8/18/22
CHIEF, DEVELOPMENT ENGINEERING DIVISION



PLAN - SUBMERGED GRAVEL WETLANDS - B PRIVATELY OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION
SCALE: 1" = 50'



(M-2) SUBMERGED GRAVEL WETLAND B
FOREBAY SPILLWAY DETAIL
SCALE: 1"=30' HORIZ., 1"=3' VERT.



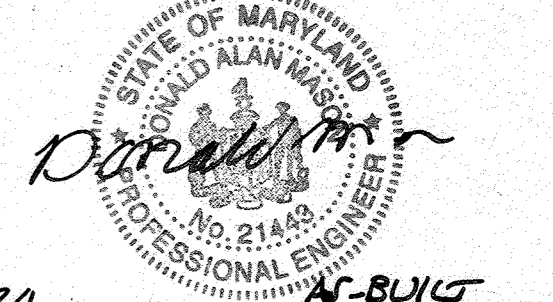
SGW-B SECTION A-A
SCALE: 1"=30' HORIZ., 1"=3' VERT.

SGW-B: Submerged Gravel Wetland (M-2)

Storage Computation:	Elevation	Area	Average Area	Contour Interval	Incremental Volume	Total Volume
	(ft)	(sq ft)	(sq ft)	(ft)	(ft ³)	(ft ³)
Total Drainage Area:	350	169719				
Impervious Area:	345	35598				
Rv =		0.239			2060.0	2060.0
ESDV =		5403.2	346.00	2351	1.00	2060.0
75% Reqd Storage:	4052				2122.8	
Depth of Stone:	3 ft.				4183	
Stone Porosity:	0.40					

Forebay Storage Computation:	Elevation	Area	Average Area	Contour Interval	Incremental Volume	Total Volume
	(ft)	(sq ft)	(sq ft)	(ft)	(ft ³)	(ft ³)
	345.50	289				0
	346.50	691	430.0	1.00	430.0	430

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief, no facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

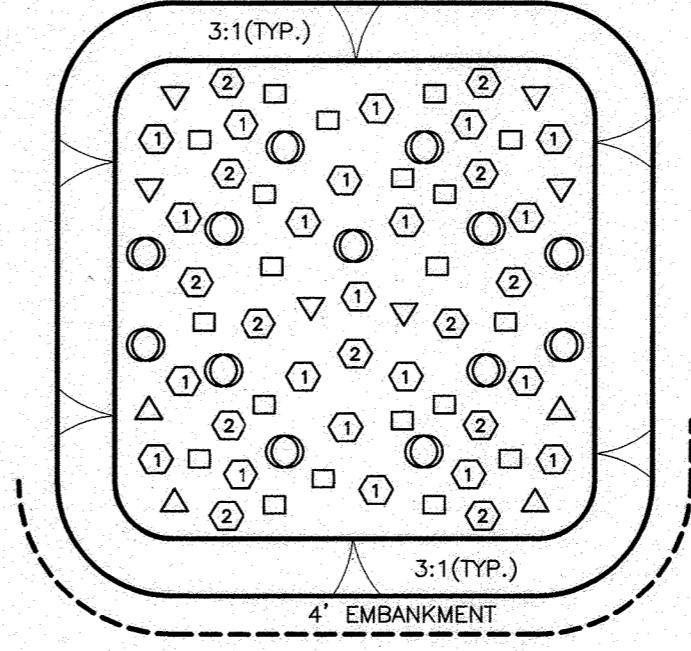


Donald Mason, P.E.

Date: 5/14/24
OPERATION AND MAINTENANCE SCHEDULE FOR SUBMERGED GRAVEL WETLANDS (M-2)

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. 21443, Expiration Date: 12-21-24

- During the first year of operation, inspections should be conducted after every major storm and poorly established areas revegetated.
- Sediment accumulation in the pretreatment areas should be removed as necessary.
- Signs of uneven flow within the wetland may mean that the gravel or underdrain is clogged. The gravel or underdrain may need to be removed, cleaned and replaced.
- A dense stand of wetland vegetation should be maintained through the life of the facility with plantings replaced as needed.
- Inlets and outlets to each gravel wetland cell should be free from debris.
- Erosion at inflow points should be repaired. Flow splitters should be functional to prevent bypassing of the facility.



SYMBOL	NAME
①	41 POND BUTTERCUP RANUNCULUS SUBGRIGIDUS
②	29 MEADOW PHLOX PHLOX MACULATA
□	47 CARDINAL FLOWER LOBELIA CARDINALIS
△	18 SILKY WILLOW SALIX SERICEA
○	25 VIBURNUM, POSSUM-HAW VIBURNUM NUDUM

PLANTING DETAIL FOR SGW-B (M-2) SUBMERGED GRAVEL WETLANDS
NOT TO SCALE

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A; TABLE A.2	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND 60-65% COMPOST 35-40% OR SANDY LOAM 30% COARSE SAND 30% & COMPOST 40%	N/A	USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; CLAY CONTENT <5%
ORGANIC CONTENT	MIN 10% BY DRY WEIGHT ASTM D 2974		
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM. NO PINE OR WOOD CHIPS
GEOTEXTILE (CLASS "C")		N/A	PE TYPE 1 NONWOVEN
GEOTEXTILE (1/4" WIRE MESH)		1/4" WIRE MESH	1/4" WIRE MESH
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 6 0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH40 PVC, SDR35 OR HDPE	3/8" PERF. @ 6" O/C. 4 HOLES PER ROW; MINIMUM OF 2" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES.
IMPERVIOUS LINER	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: +8 TO -2% MASS) ASTM-D-4833 (PUNCTURE STRENGTH 125LB) ASTM-D-4832 (TENSILE STRENGTH 300 LB.)	30 MIL THICK	LINER TO BE ULTRAVIOLET RESISTANT; A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
GEOTEXTILE (BELOW IMPERV. LINER)			

NO.	DATE	REVISION
2	3-2020	UPDATED OWNER INFO
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 A ELLICOTT CITY, MARYLAND 21043
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WWW.BE-CIVILENGINEERING.COM

STATE OF MARYLAND
JAMES A. WELLS
PROFESSIONAL ENGINEER
LICENSE NO. 28376
EXPIRES 12-14-15

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 28376, Expiration Date: 1-1-2017.

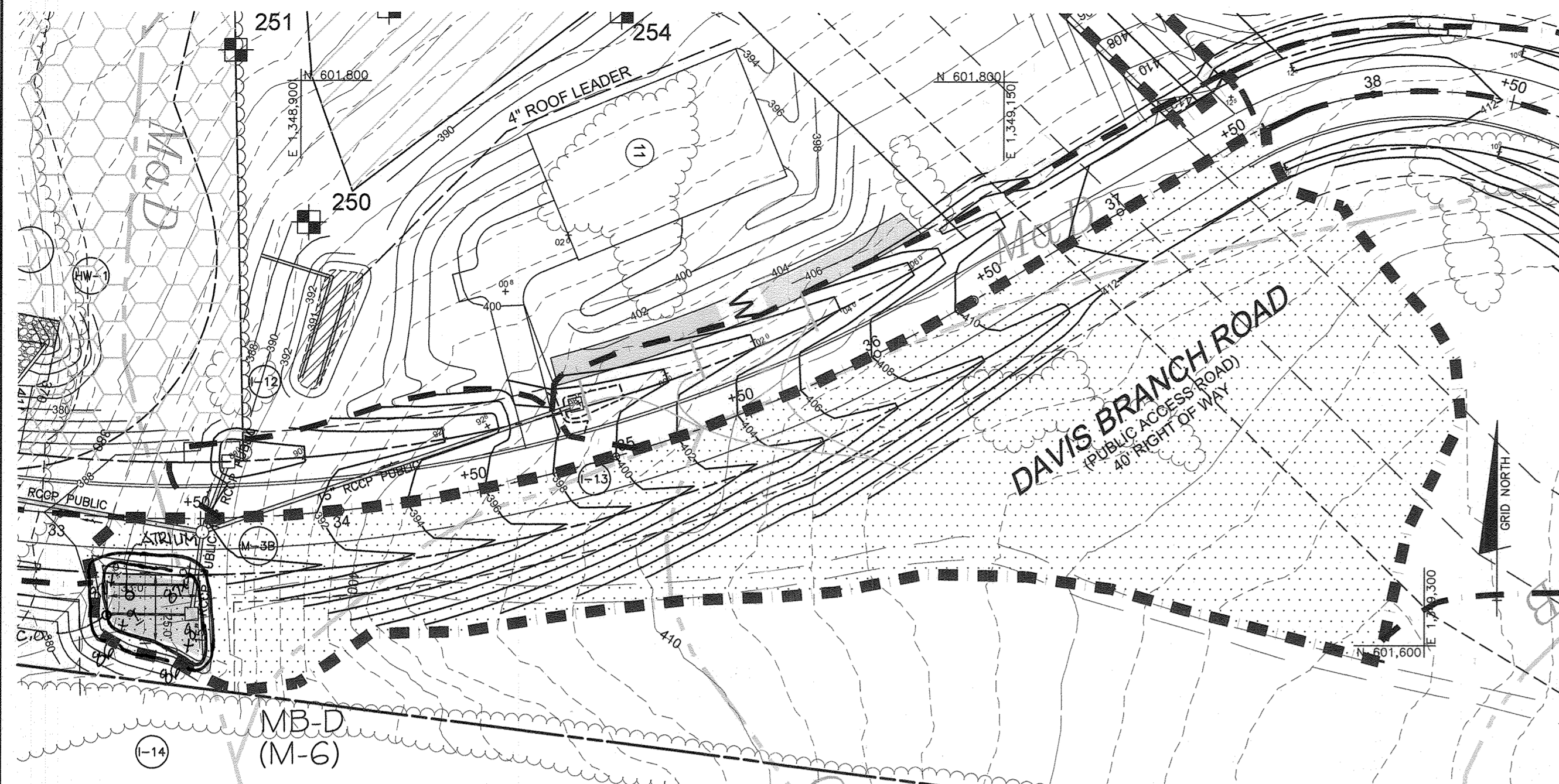
APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS
DATE: 1/12/2016

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 1-21-16

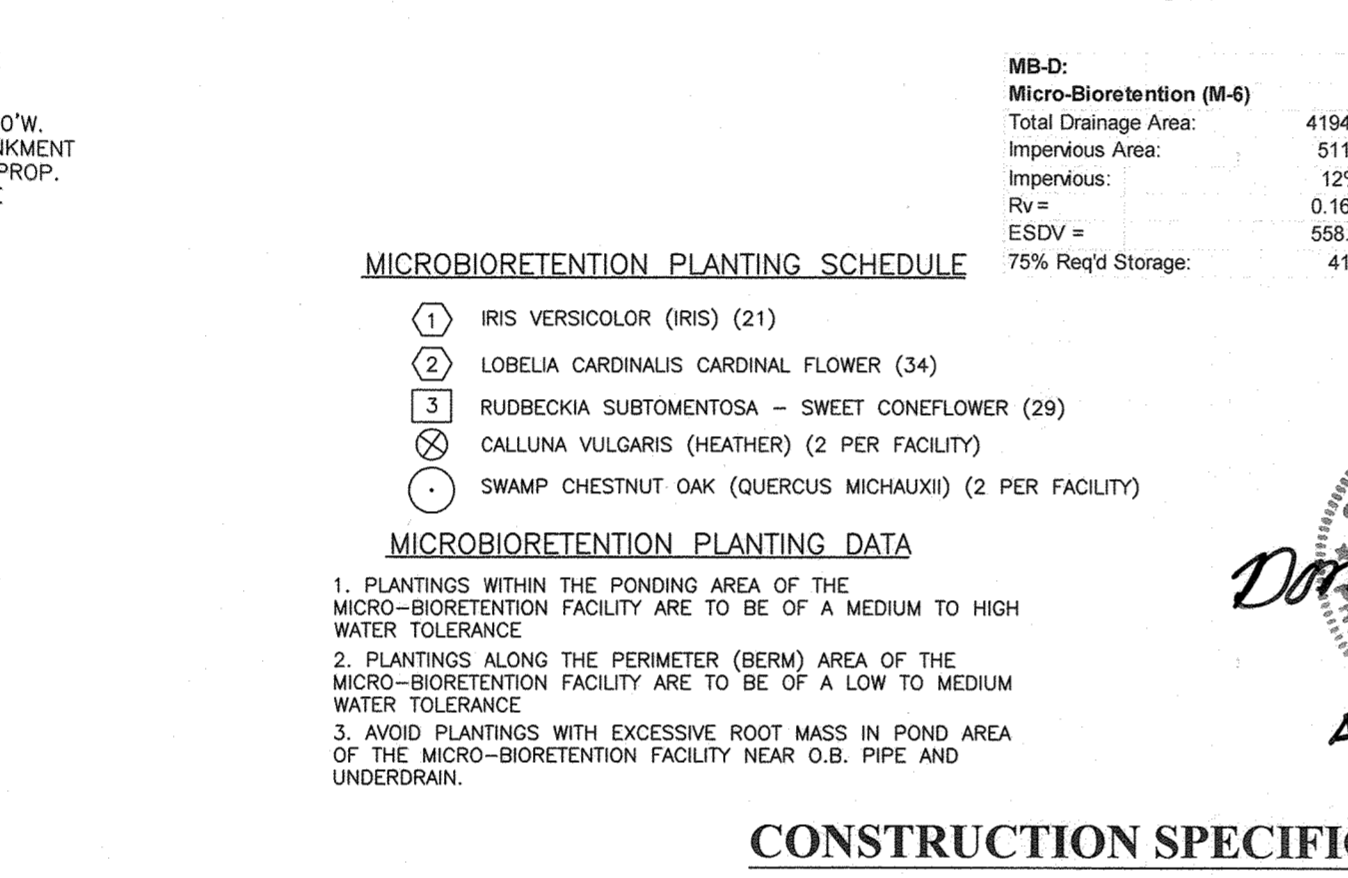
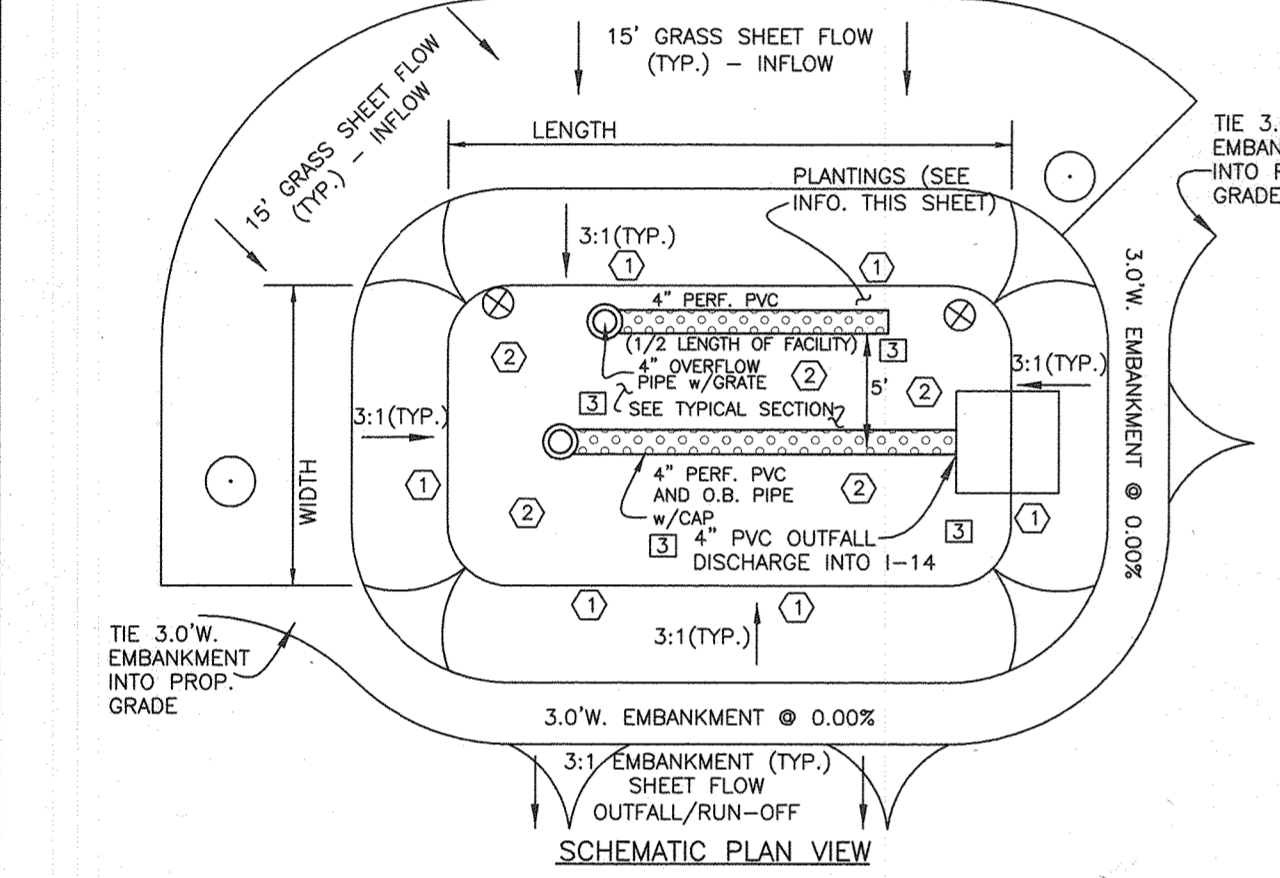
APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 1/19/16

OWNER: DAVIS BRANCH ESTATES C/O JAMES KEELY & COMPANY, INC. 1925 OLD VALLEY ROAD STEVENSON, MARYLAND 21153 410-252-8690
SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060

PROJECT: MYRTUE PROPERTY
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 8TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE: STORMWATER FACILITIES DETAILS
DATE: JUNE, 2015 DECEMBER, 2015
PROJECT NO. 2099
SCALE: AS SHOWN DRAWING 28 OF 56
DES: AAM DRAFT: AAM CHECK: CAM



PLAN - MICRO-BIORETENTION D
SCALE: 1" = 40'
PRIVATELY OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION



MICROBIORETENTION PLANTING SCHEDULE

1	IRIS VERSICOLOR (RIS) (21)
2	LOBELIA CARDINALIS CARDINAL FLOWER (34)
3	RUBEBCKIA SUBTOMETOSA - SWEET CONEFLOWER (29)
4	CALLUNA VULGARIS (HEATHER) (2 PER FACILITY)
5	SWAMP CHESTNUT OAK (QUERCUS MICHAUXII) (2 PER FACILITY)

MICROBIORETENTION PLANTING DATA

- PLANTINGS WITHIN THE PONDING AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE.
- PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE.
- AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION FACILITY NEAR O.B. PIPE AND UNDERDRAIN.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

- THE OWNER 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 OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF 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 OWNER 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 OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

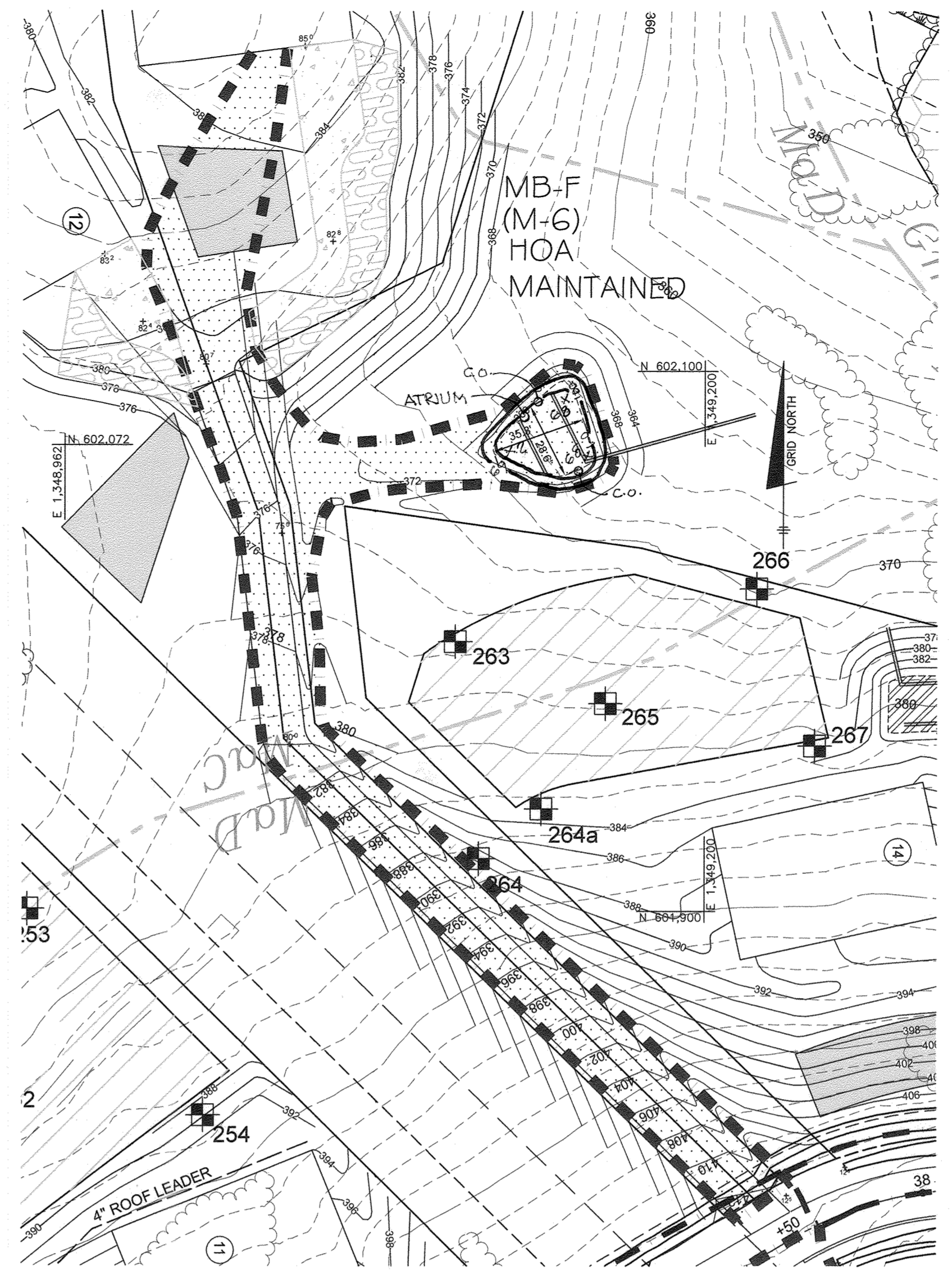
Storage Computation:

Elevation	Area	Average Area	Contour Interval	Incremental Volume	Total Volume
(ft)	(sf)	(sf)	(ft)	(ft ³)	(ft ³)
41944 s.f.					
5115 s.f.					
12%	387.00	785	971.0	0.80	778.8
Rv =	0.160				
ESDV =	558.4	1157			777
75% Req'd Storage:	419				838.88
					NO



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. 21043, Expiration Date: 12-2-24

AS-BUILT CERTIFICATION: I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications.
Donald Mason, P.E. Date: 5/14/24



PLAN - MICRO-BIORETENTION F
SCALE: 1" = 40'
PRIVATELY OWNED AND MAINTAINED BY HOMEOWNERS ASSOCIATION

Micro-

Elevation	Area	Average Area	Contour Interval	Incremental Volume	Total Volume
(ft)	(sf)	(sf)	(ft)	(ft ³)	(ft ³)
16955 s.f.					
6711 s.f.					
40%	387.00	815	1005.0	0.80	804.0
Rv =	0.406				
ESDV =	775				804
75% Req'd Storage:	583				804
25% Rev Storage Depth:	0.79				ft =

Storage Computation:

Elevation	Area	Average Area	Contour Interval	Incremental Volume	Total Volume
(ft)	(sf)	(sf)	(ft)	(ft ³)	(ft ³)
16955 s.f.					
6711 s.f.					
40%	387.00	815	1005.0	0.80	804.0
Rv =	0.406				
ESDV =	775				804
75% Req'd Storage:	583				804
25% Rev Storage Depth:	0.79				ft =

MATERIALS & SPECIFICATIONS FOR MICRO-BIORETENTION

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.0' TO 4.0' DEEP)	LOAMY SAND 60-65% COMPOST 35-40% OR SANDY LOAM 30% COARSE SAND 30% & COMPOST 40%	N/A	USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; CLAY CONTENT <5%
ORGANIC CONTENT	MIN 10% BY DRY WEIGHT ASTM D 2974	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
GEOTEXTILE (CLASS "C")	N/A	N/A	PE TYPE 1 NONWOVEN
GEOTEXTILE	1/4" WIRE MESH	1/4" WIRE MESH	
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 6 0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH-40 PVC, SDR35 OR HDPE	3/8" PERFORATED 4 HOLES PER ROW; MINIMUM 2" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES.
IMPERVIOUS LINER	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: +8 TO -2% MASS) ASTM-D-4833 (PUNCTURE STRENGTH 125LB) ASTM-D-4632 (TENSILE STRENGTH 300 LB.)	30 MIL THICK	LINER TO BE ULTRAVIOLET RESISTANT; A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
GEOTEXTILE (BELOW IMPERV. LINER)	ASTM-D-4833 (PUNCTURE STRENGTH 125LB) ASTM-D-4632 (TENSILE STRENGTH 300 LB.)		
PEA GRAVEL	#8 OR #9 STONE		

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE JANUARY, 2016 BEI PLAN SHEET.

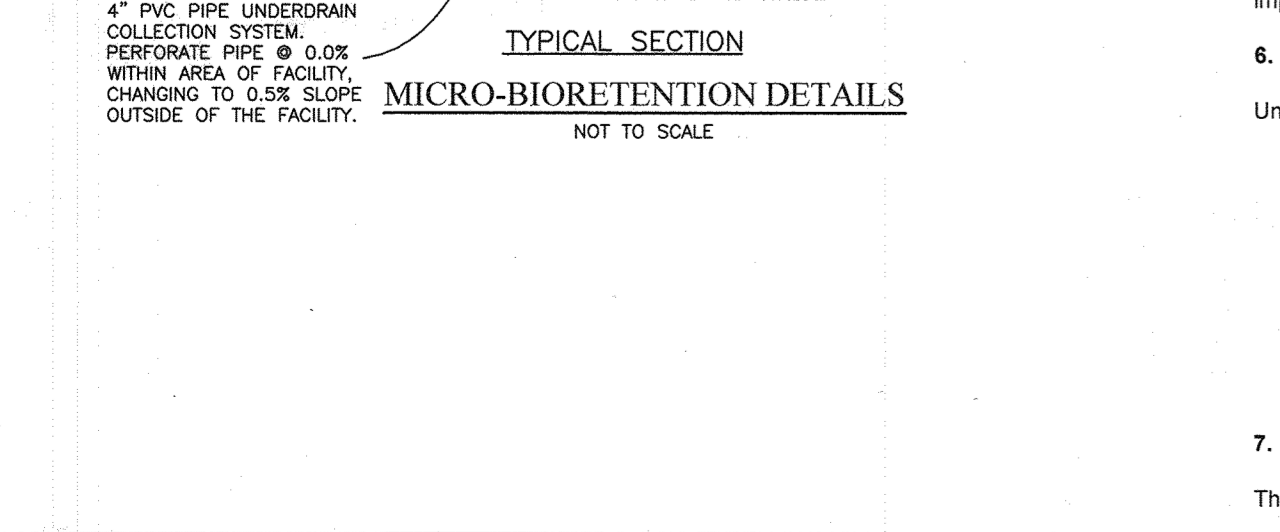
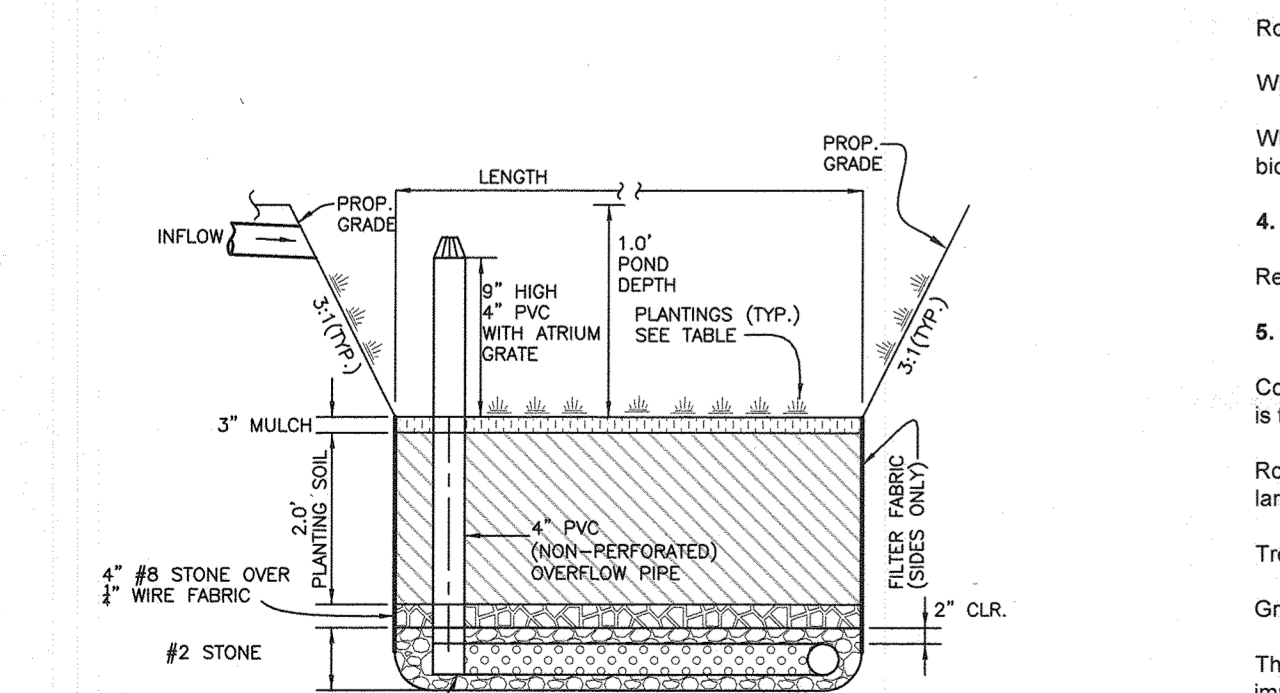
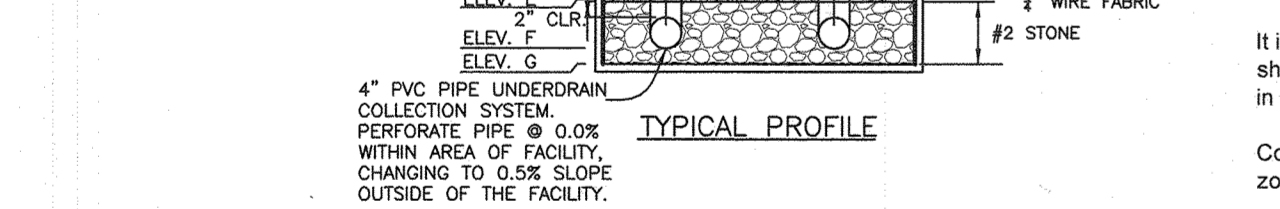
NO.	DATE	REVISION
2	3-20	REVISED BY SHEET SUB. TO REVISE ROAD GRADES FOR GAS MAIN COVER.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
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8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-8644
WWW.BE-ENGINEERING.COM

Professional Engineer Seal for Donald Mason, P.E., License No. 21043, State of Maryland.

OWNER/DEVELOPER:	SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT:	MYRTUE PROPERTY
LOCATION:	TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE:	REVISED ROAD PLANS STORMWATER FACILITIES DETAILS
DATE:	MARCH, 2020	PROJECT NO.:	2099
DES: AAM	DRAFT: AAM	CHECK: CAM	SCALE: AS SHOWN
			DRAWING NO. OF 56

NOTE: FACILITIES MUST BE CONSTRUCTED WITH IMPERMEABLE LINER WHEN INSTALLED WITHIN THE 100' WELL RADII. THIS LINING SHOULD INCLUDE ENTIRE SIDES AND BOTTOM OF THE EXCAVATION AND EXTEND TO TOP OF EMBANKMENT. SEE SPECIFICATION ON SHEET 35. LINING ON SIDE SLOPES SHALL BE BELOW A MINIMUM OF 6" OF TOP SOIL.



CONSTRUCTION SPECIFICATIONS

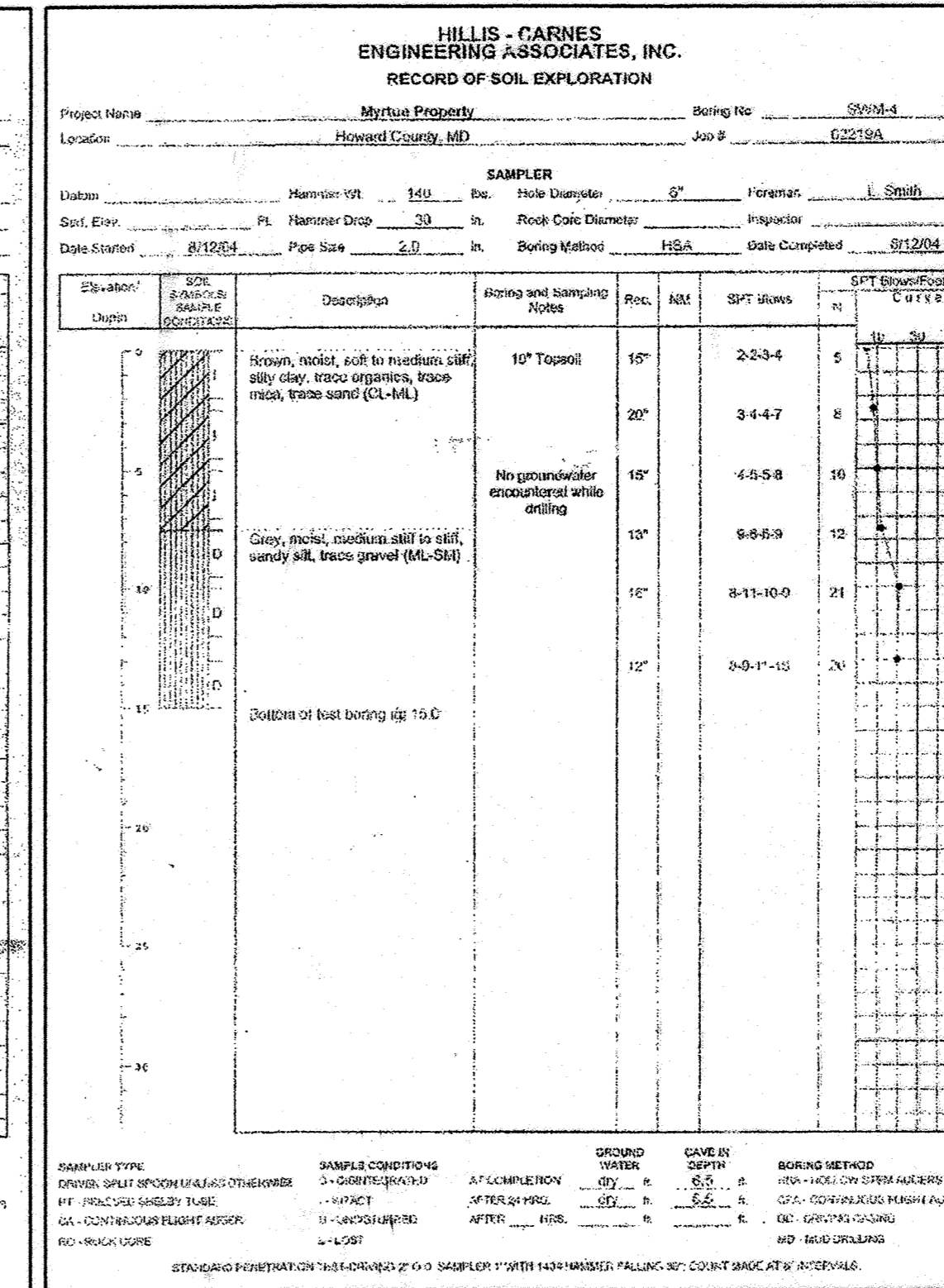
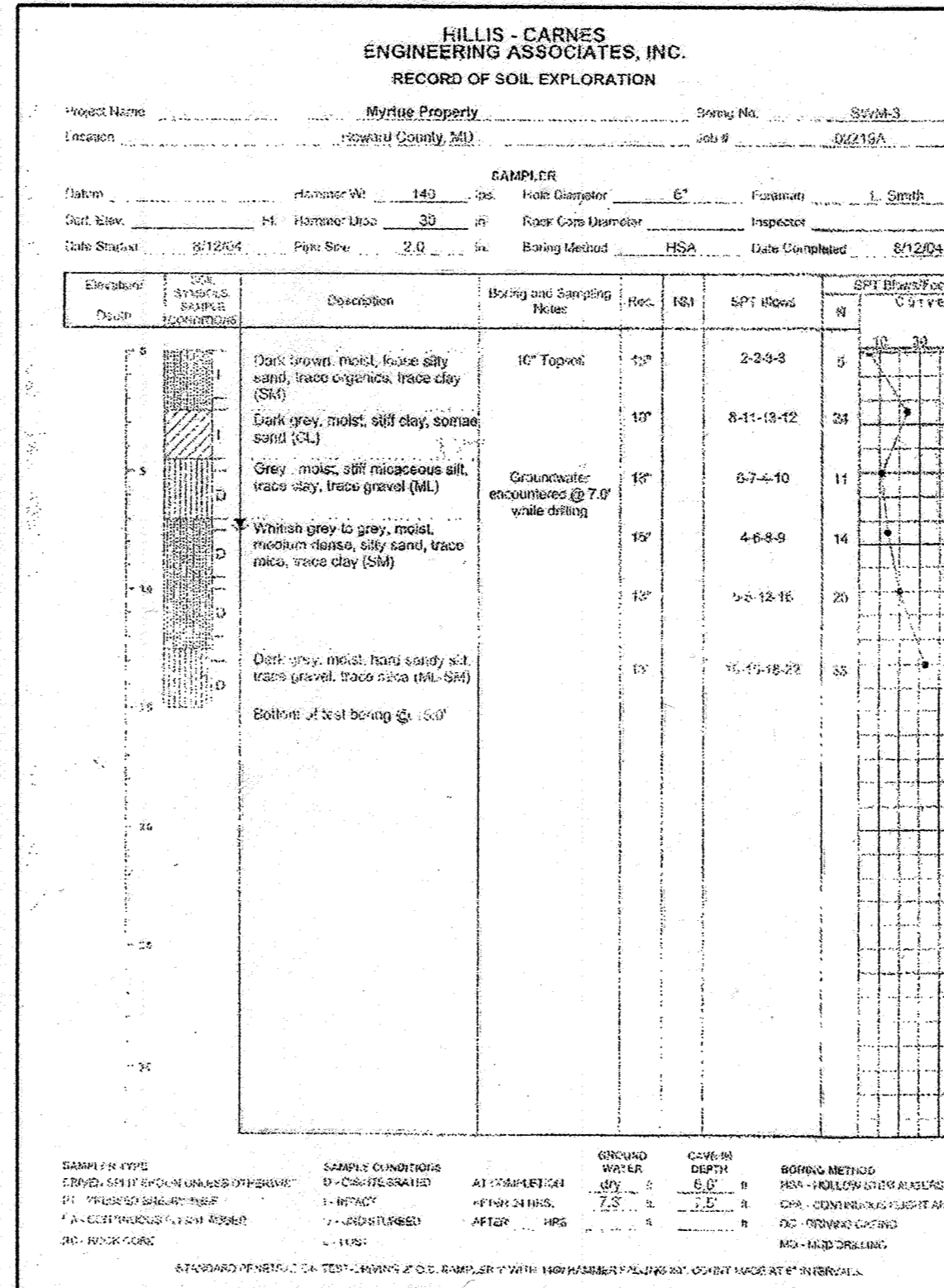
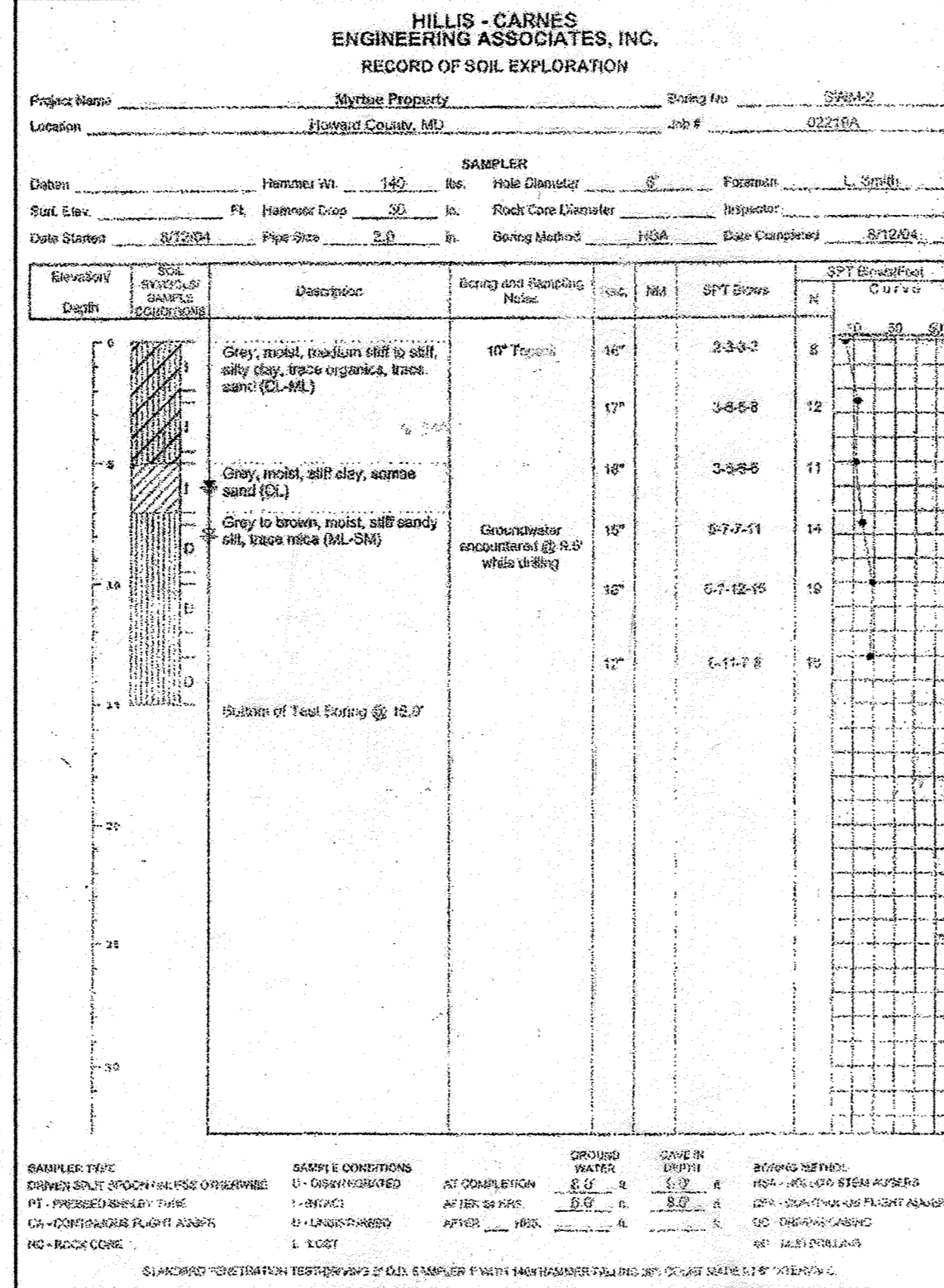
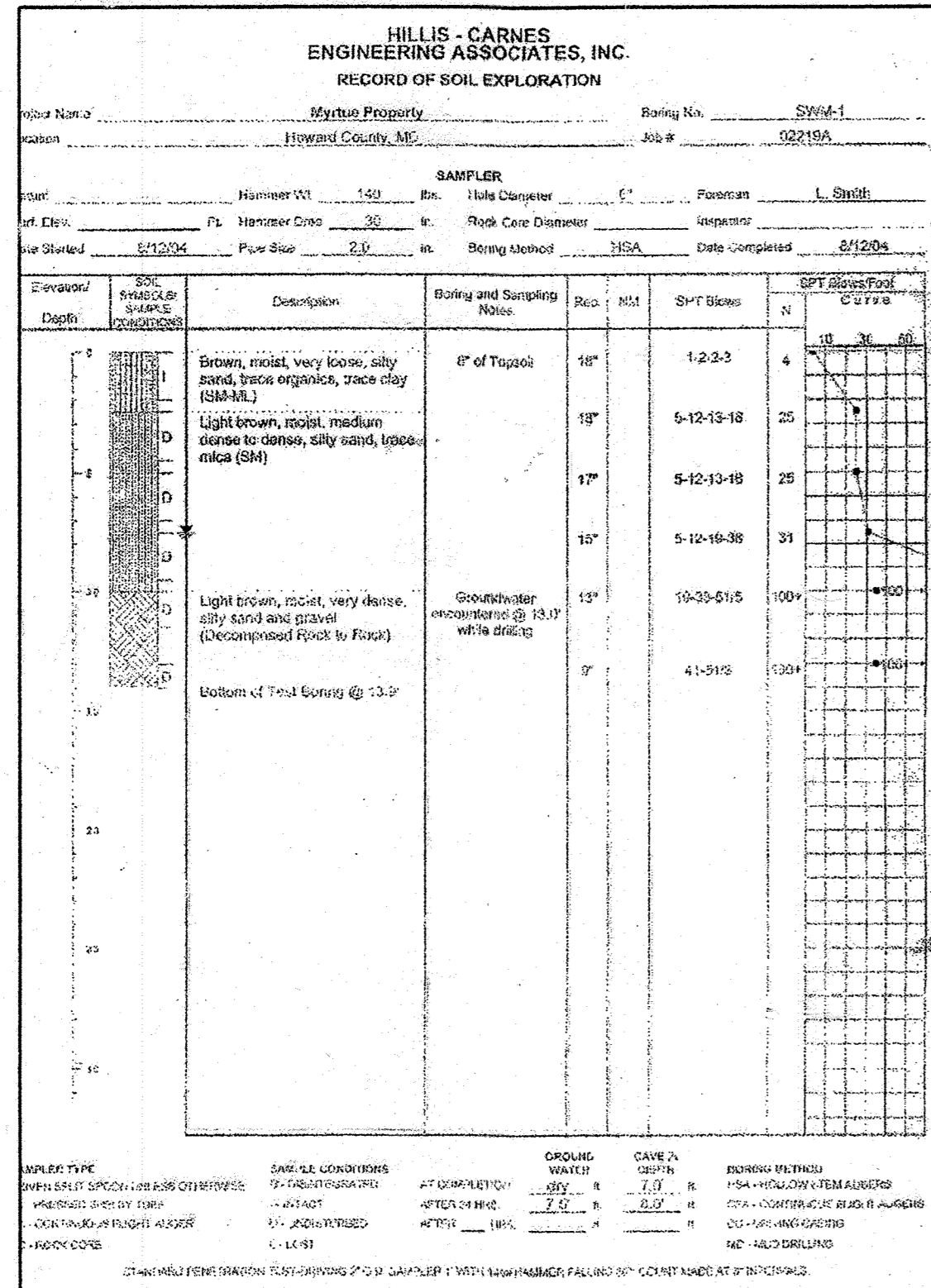
B.4.C Specifications for Micro-Bioretentation, Rain Gardens, Landscape Infiltration & Infiltration Berms

- Material Specifications:**
The allowable materials to be used in these practices are detailed in Table B.4.1.
- Filtering Media or Planting Soil:**
The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretentation practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05. The planting soil shall be tested and shall meet the following criteria:
Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy and (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
Clay Content - Media shall have a clay content of less than 5%.
pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.
There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.
- Compaction:**
It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoers to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.
Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.
Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.
When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.
When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.
- Plant Material:**
Recommended plant material for micro-bioretentation practices can be found in Appendix A, Section A.2.3.
- Plant Installation:**
Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.
Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.
Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.
Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.
The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.
- Underdrains:**
Underdrains should meet the following criteria:
 - Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
 - Perforations - If perforated pipe is used, perforations should be 1/4" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a 1/2" (No. 4 or 4x4) galvanized hardware cloth.
 - Gravel - The gravel layer (No. 57 stone preferred) shall be 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 square feet) to provide a clean-out port and monitor performance of the filter.
 - A 4" layer of pea gravel (1/2" to 3/4" 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".
The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).
- Miscellaneous:**
These practices may not be constructed until all contributing drainage area has been stabilized.

APPROVED: DEPARTMENT OF PUBLIC WORKS
04/27/2020
CHIEF, BUREAU OF HIGHWAYS MK DATE

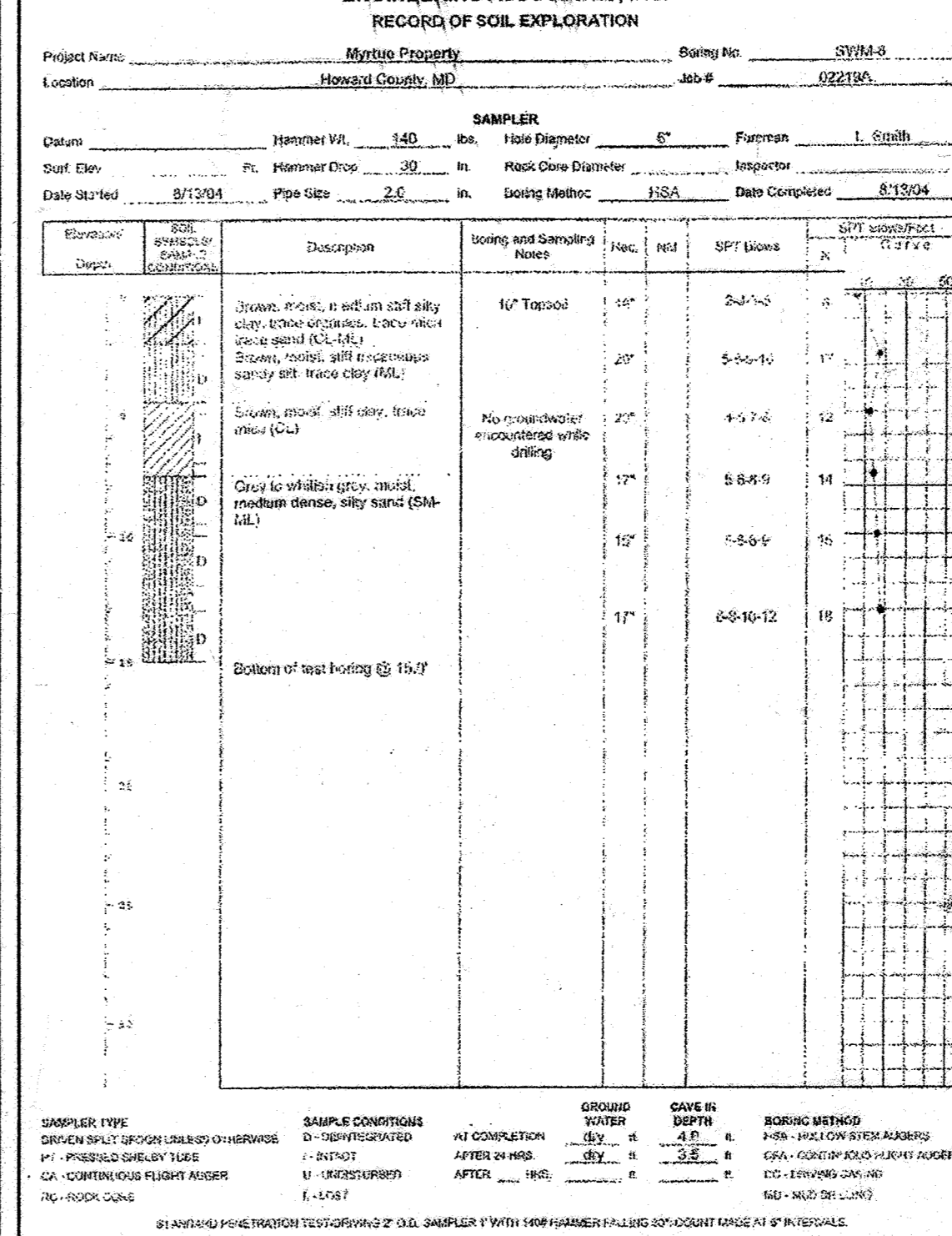
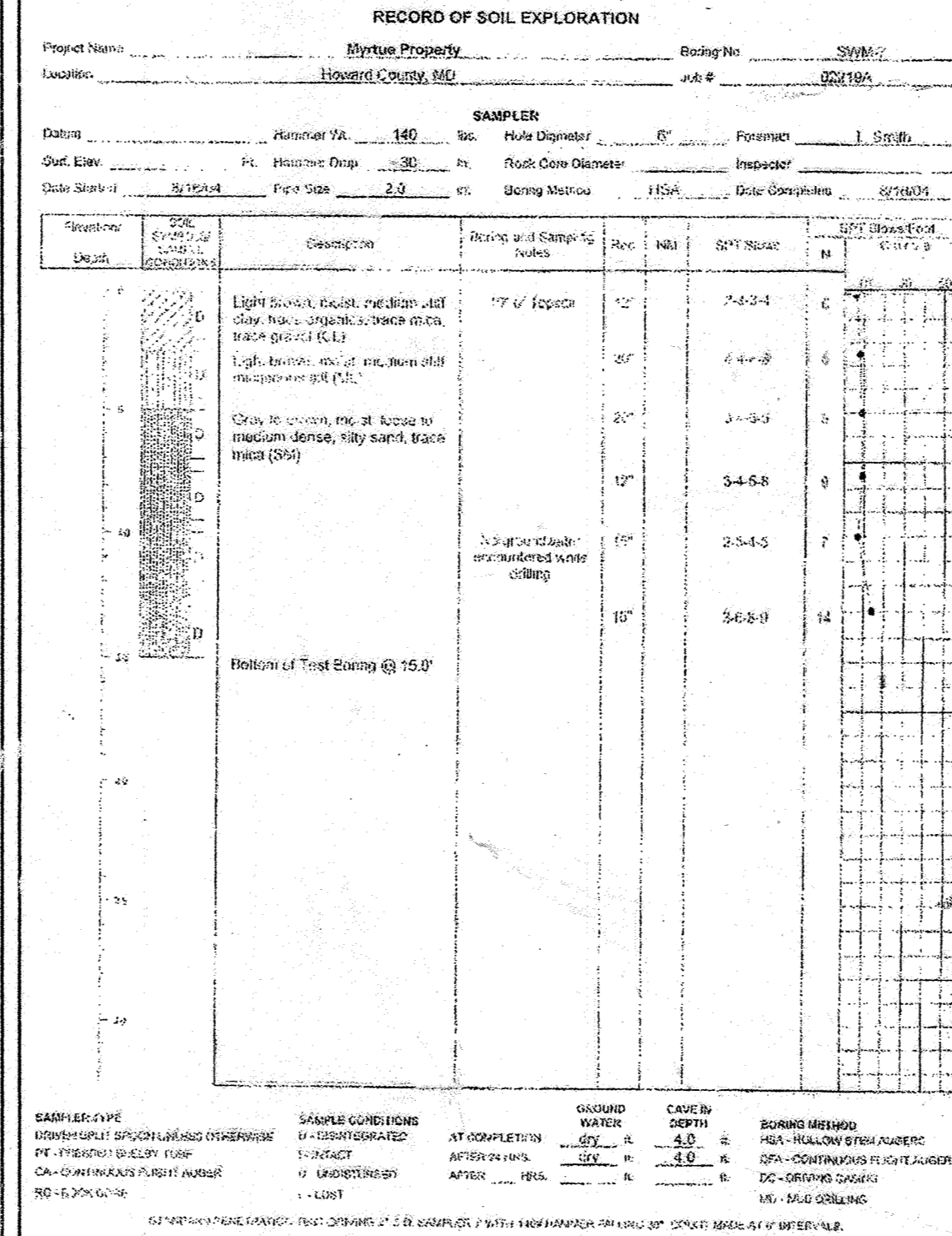
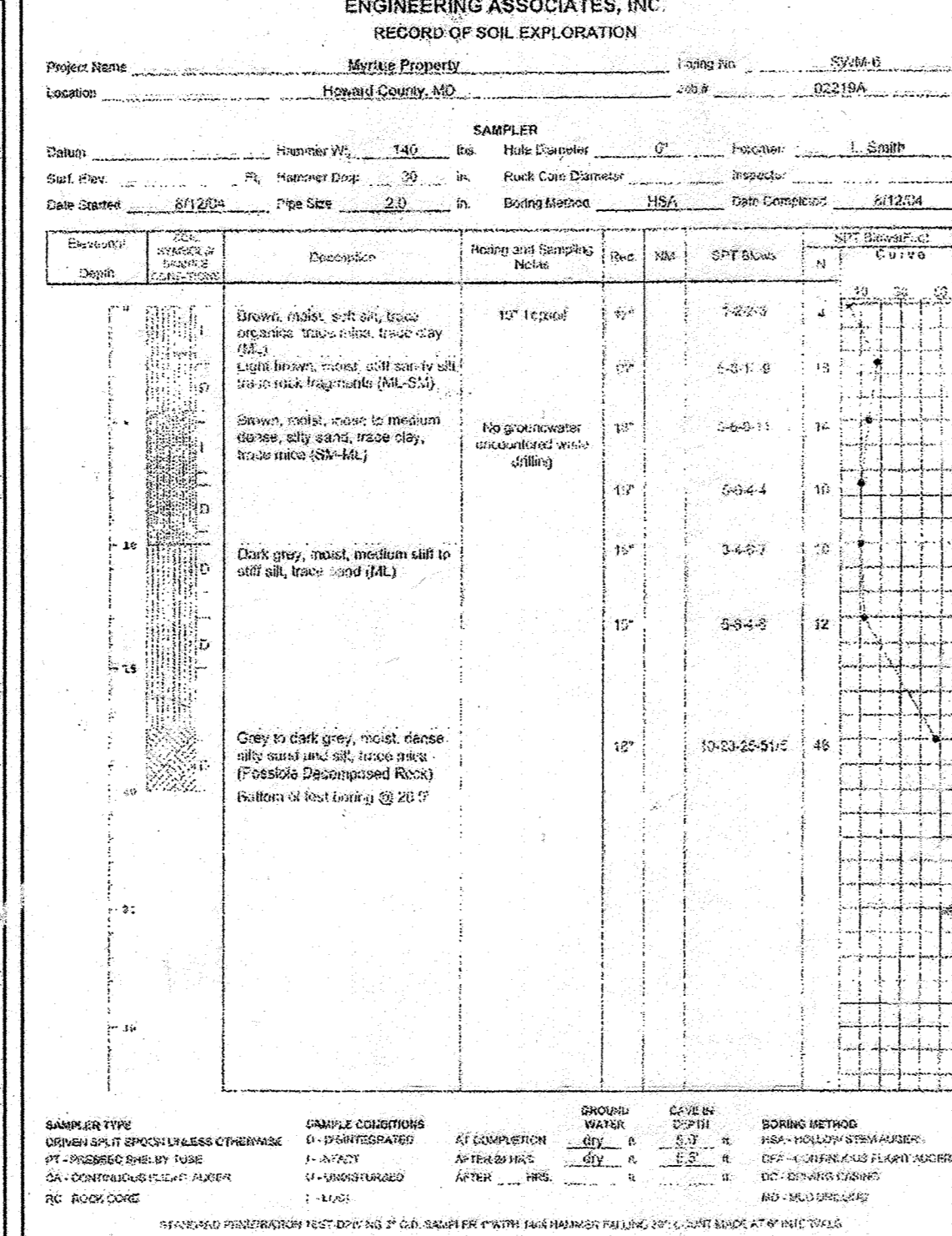
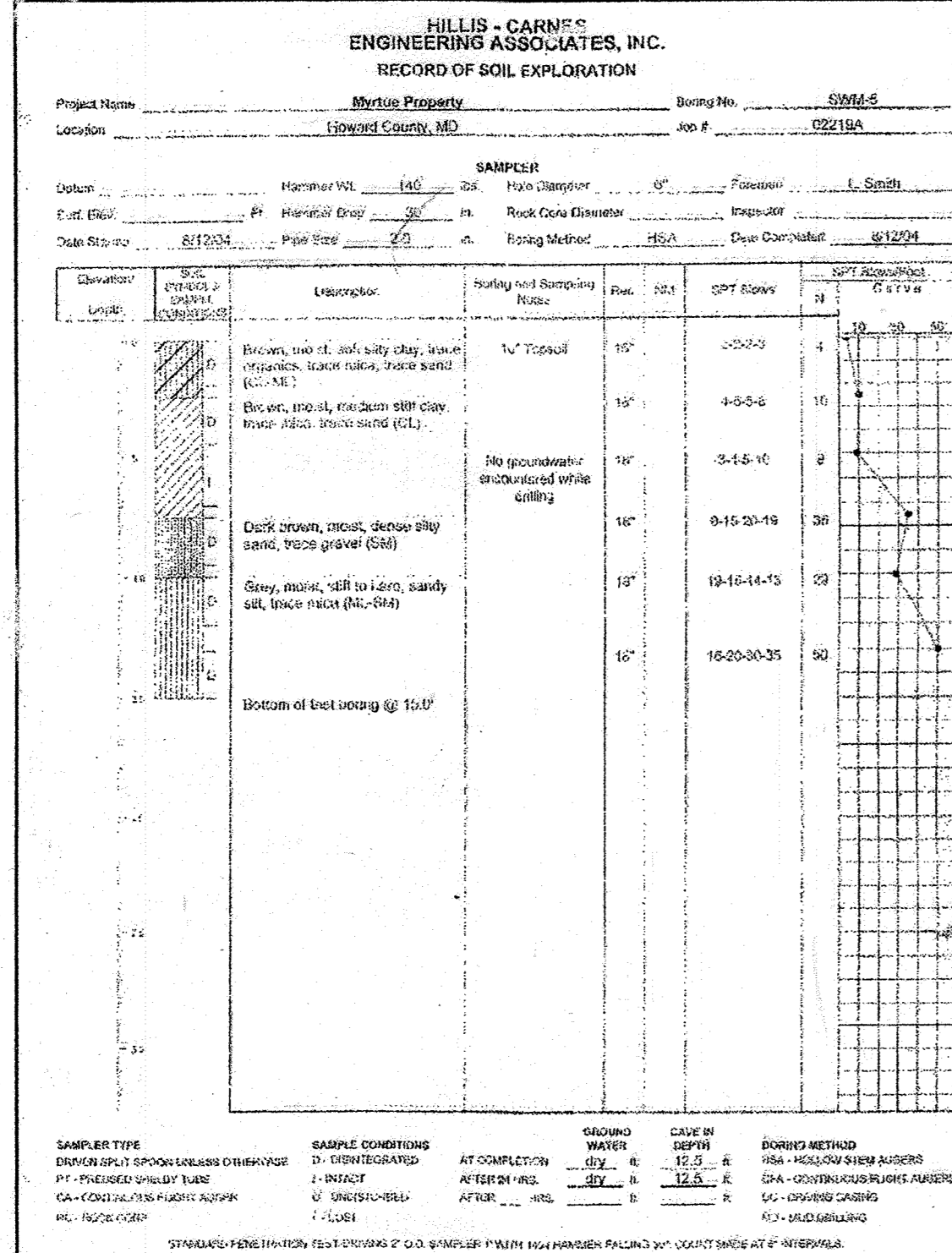
APPROVED: DEPARTMENT OF PLANNING AND ZONING
5/15/2020
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
5/15/2020
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376 Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING, INC. ONLY. REVISION # 1, DEC. 3, 2015
 4.2, 3-24-20



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 DATE: 10-23-07
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 DATE: 11/15/07
 APPROVED: CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 9/5/10

Date	No.	Revision Description
3-2020	2	UPDATED OWNER INFO
12-3-15	1	REVISED SHEET NO.

MYRTUE PROPERTY
 LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 OWNER: SONSHINE MD, LP
 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060

DMW
 DaftMcCune Walker, Inc.
 200 East Pennsylvania Avenue Towson, Maryland 21286 (410) 286-0250 Fax 286-4706

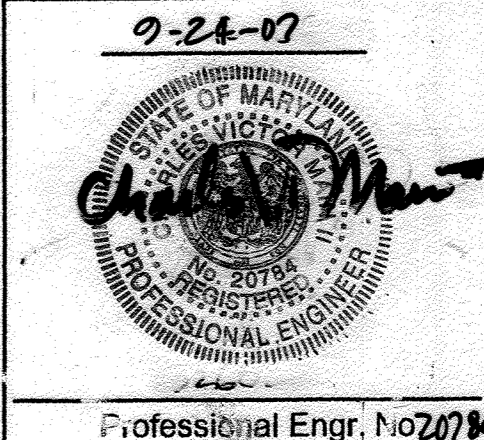
STORMWATER MANAGEMENT BORING LOGS

Des. By	tes	Scale	town	Proj. No.
Des. By	tes	Scale	town	Proj. No. 02033
Drn. By	TSA	Date	3-06	
Chk. By	Approved			31 of 56

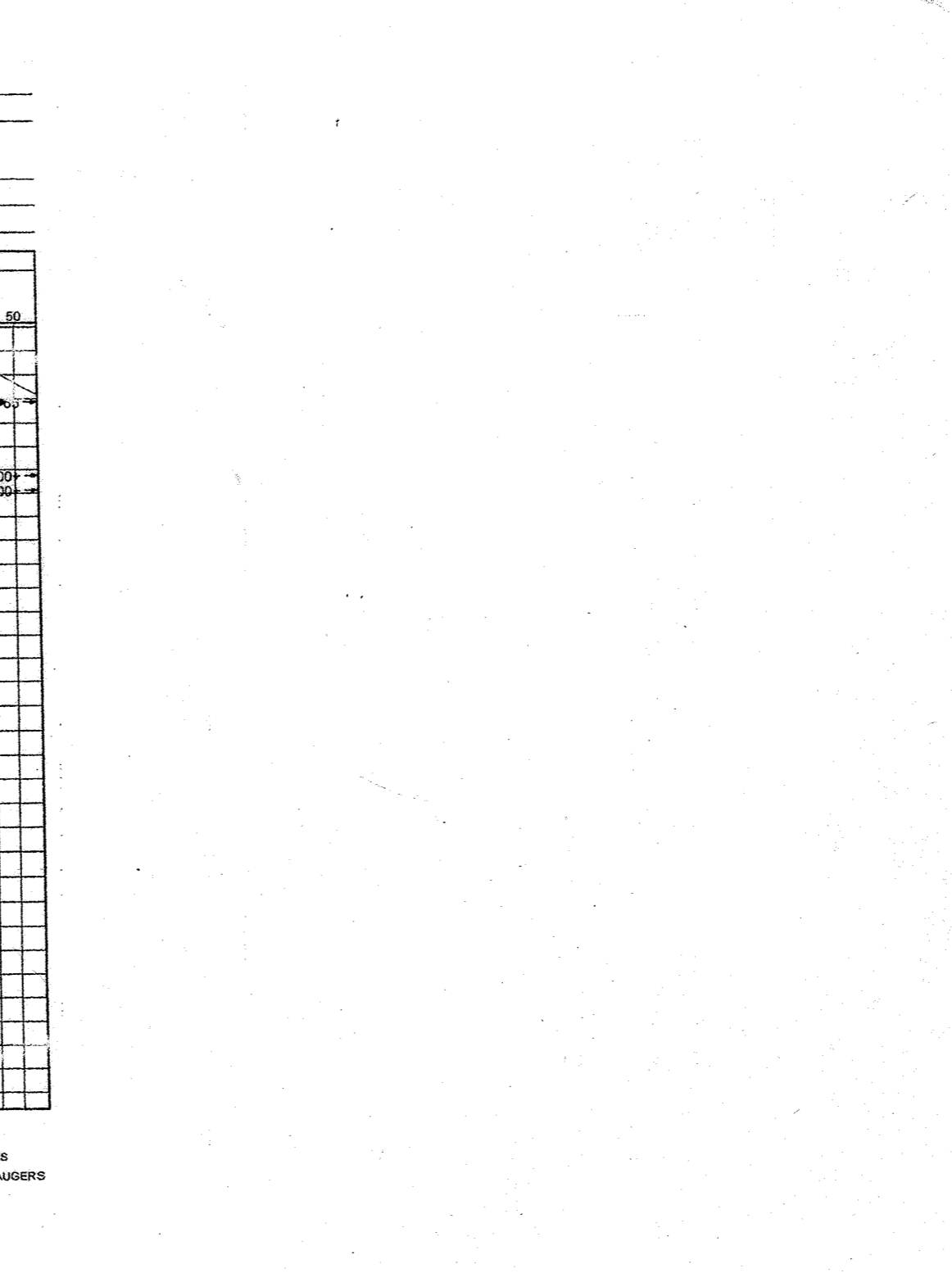
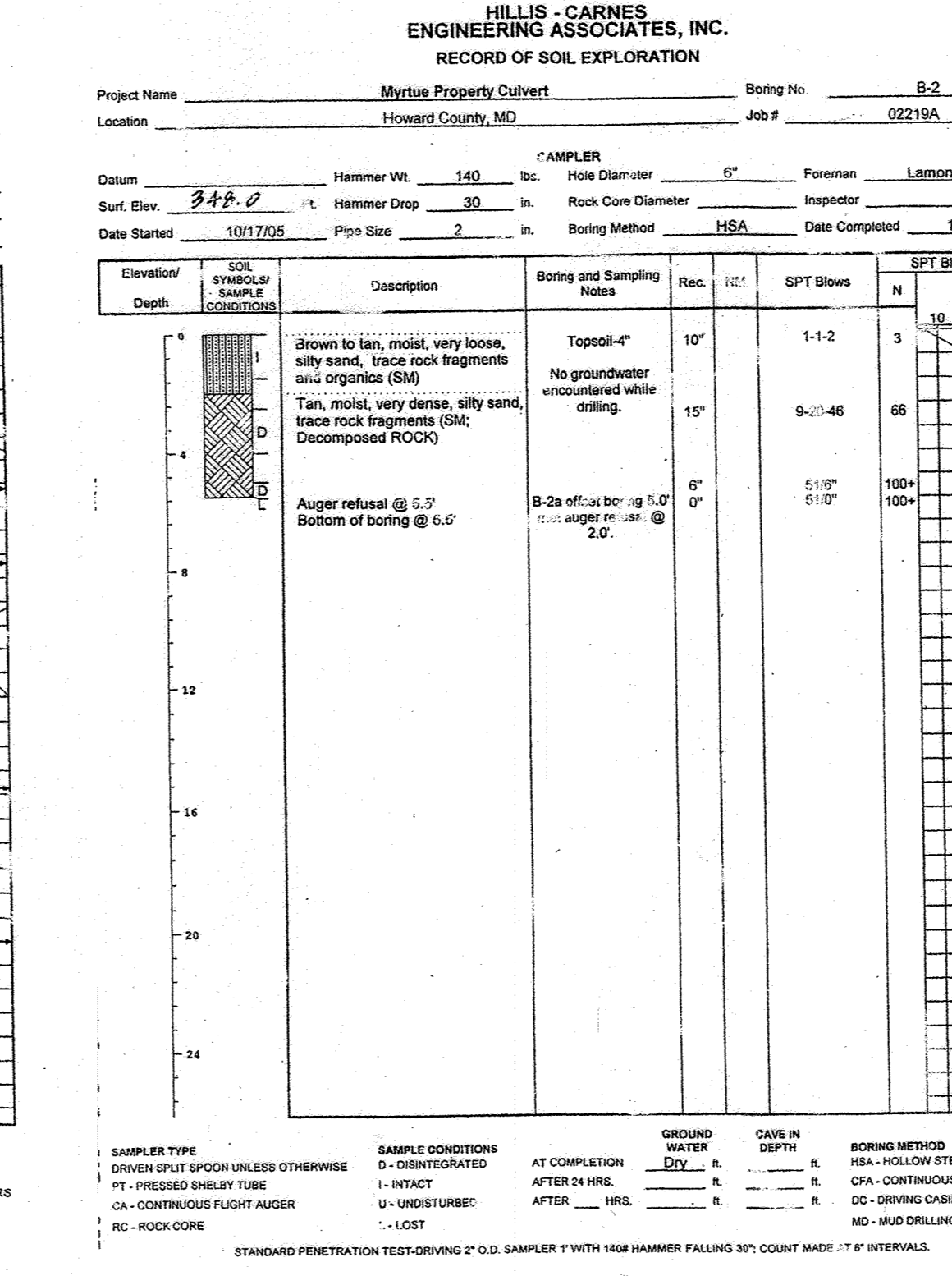
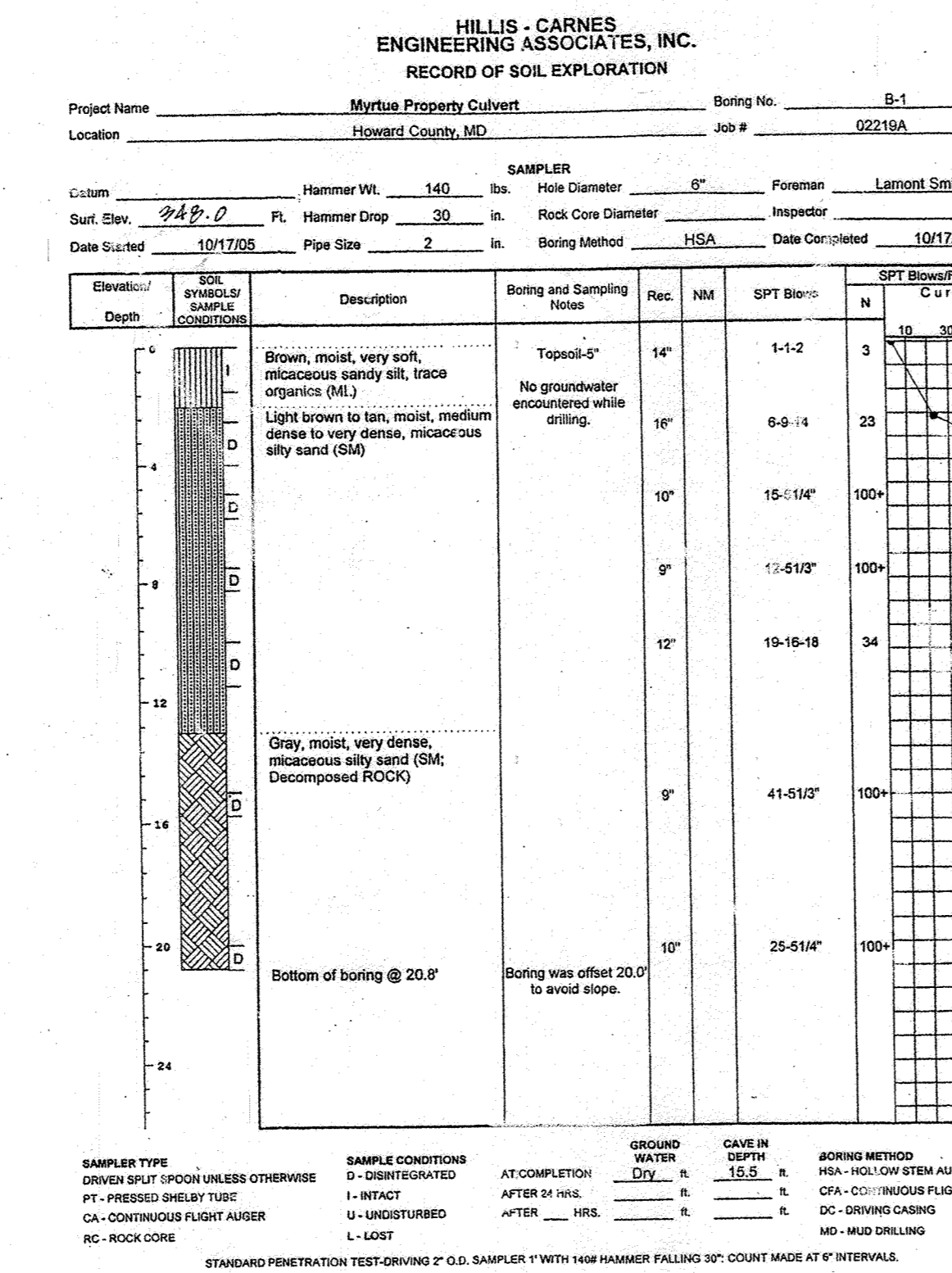
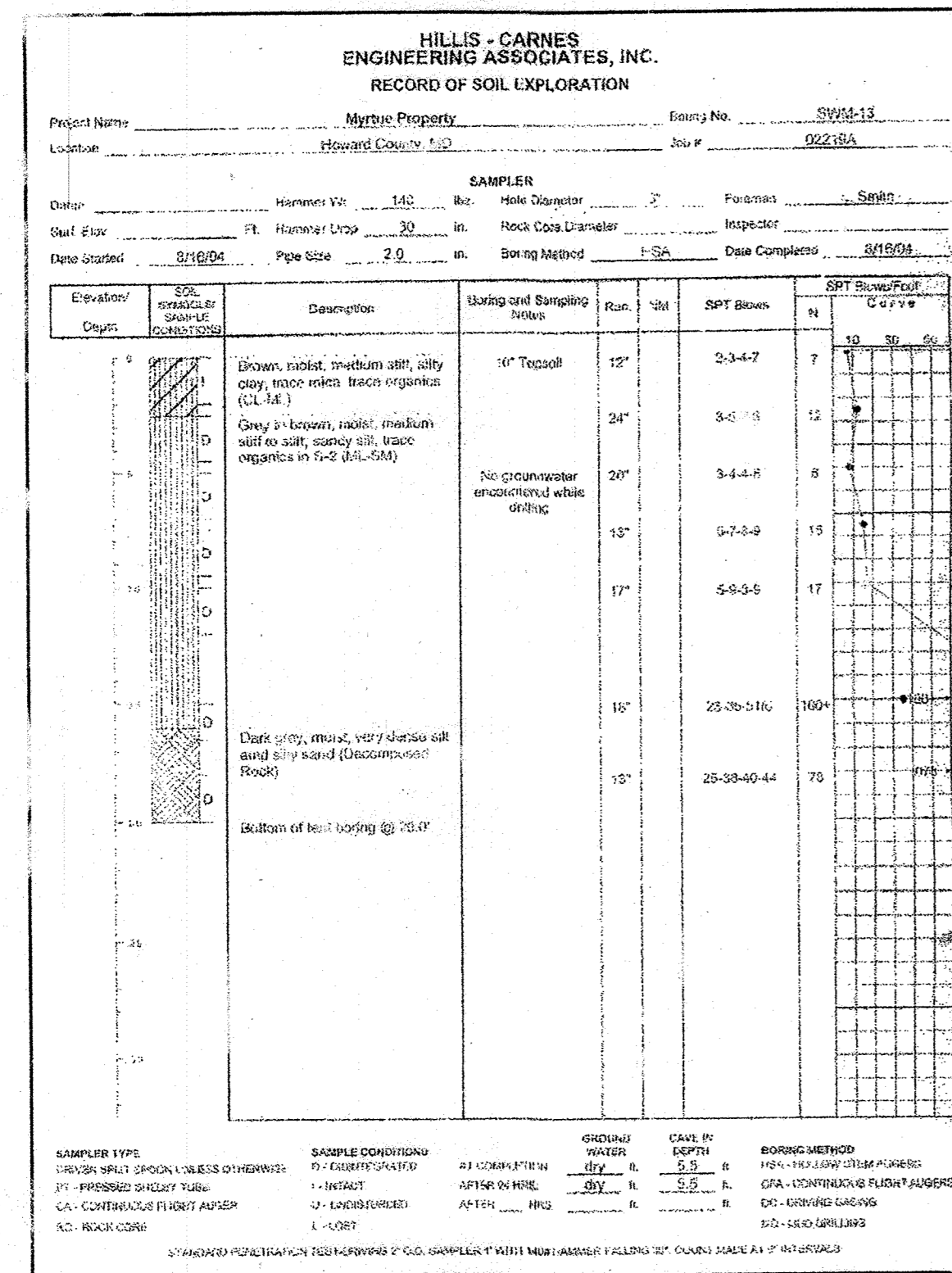
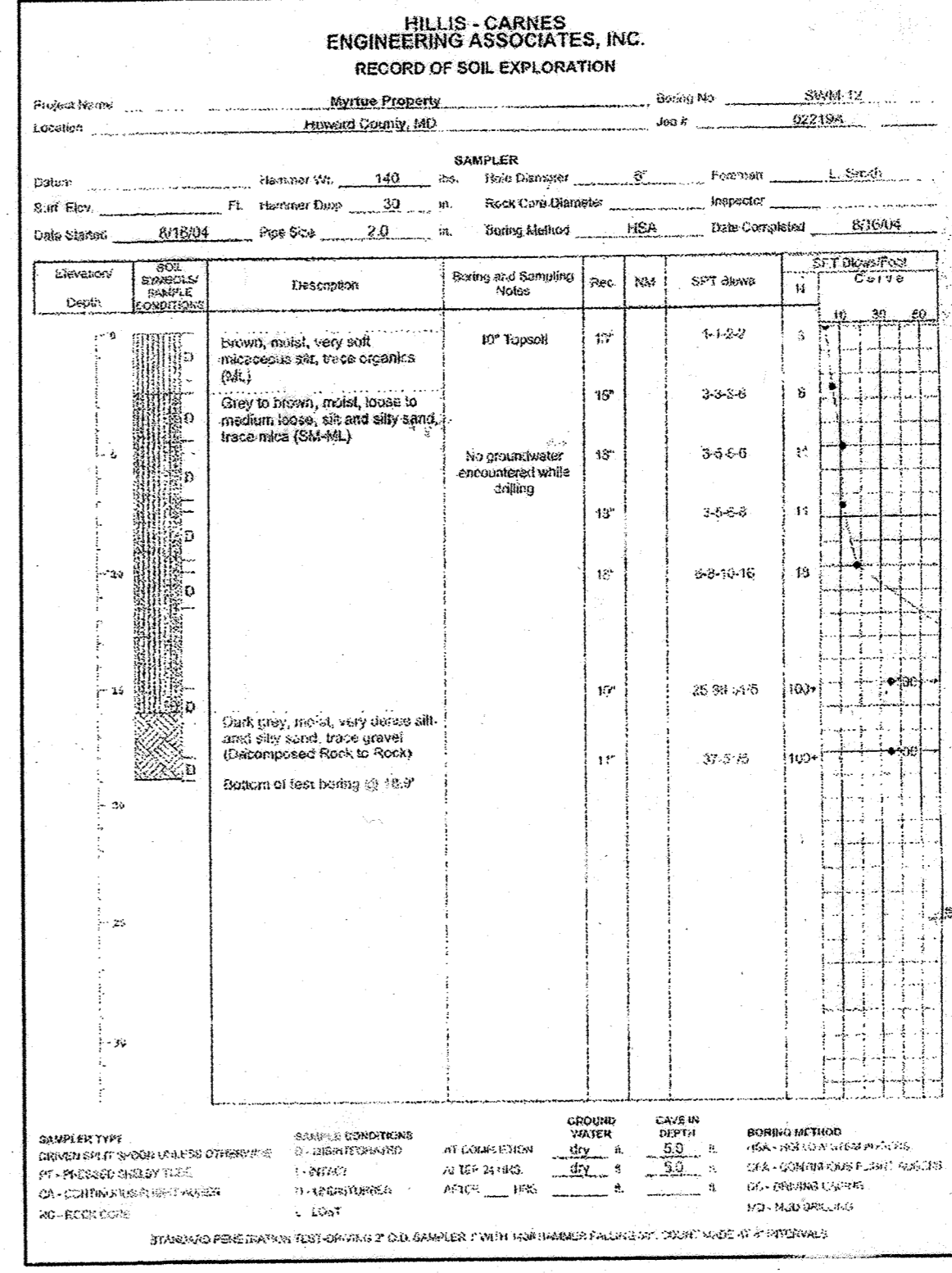
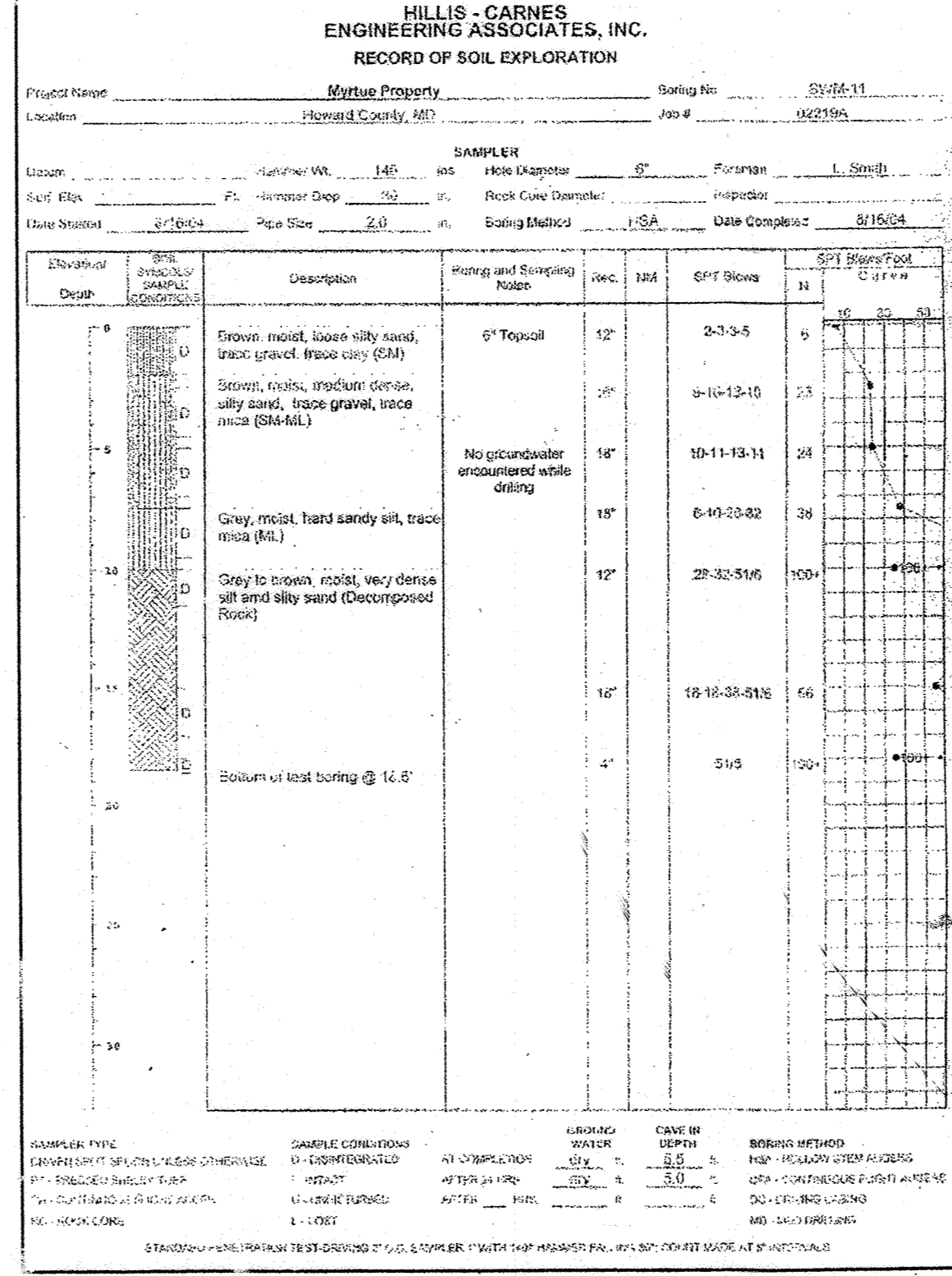
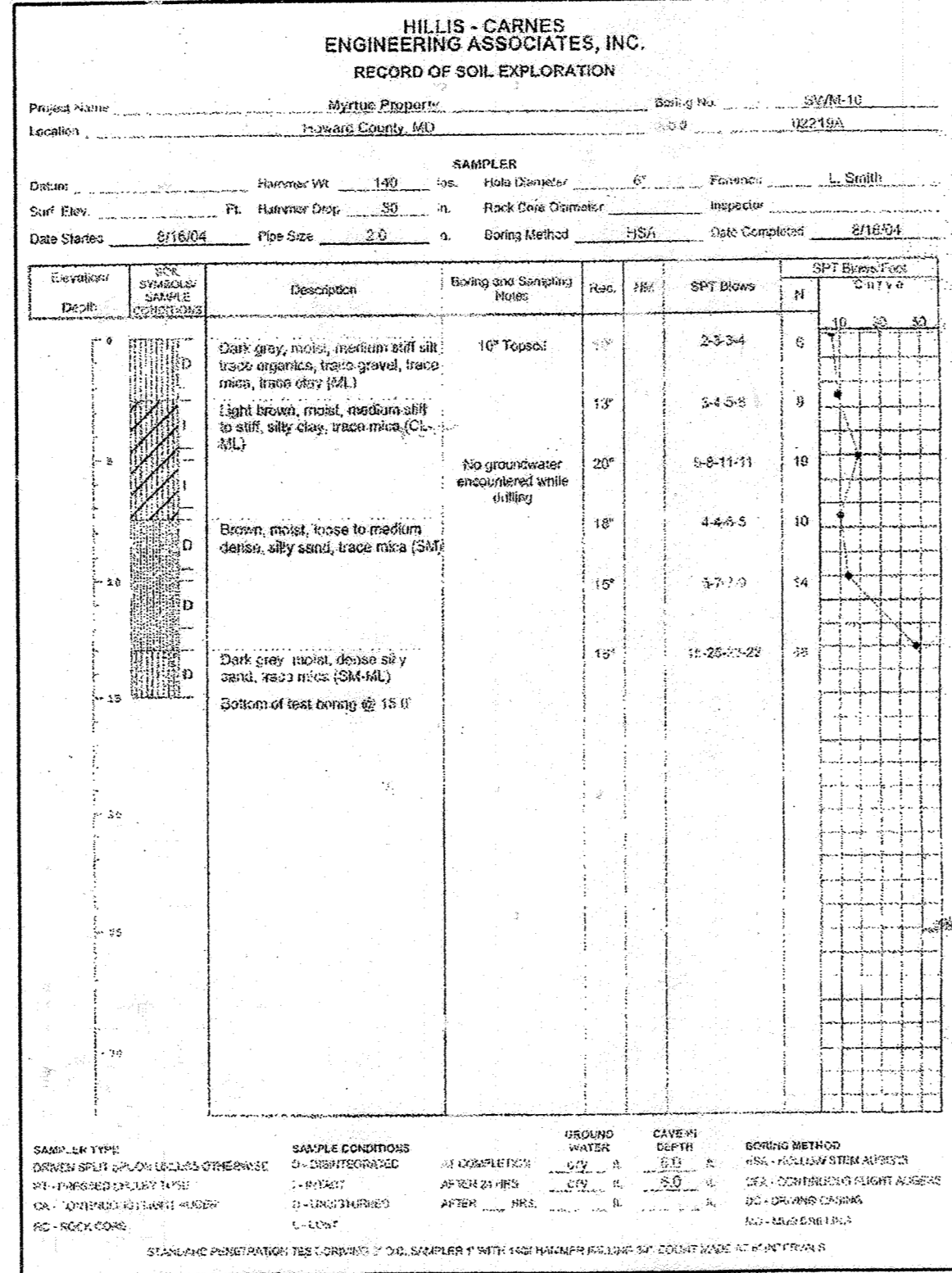
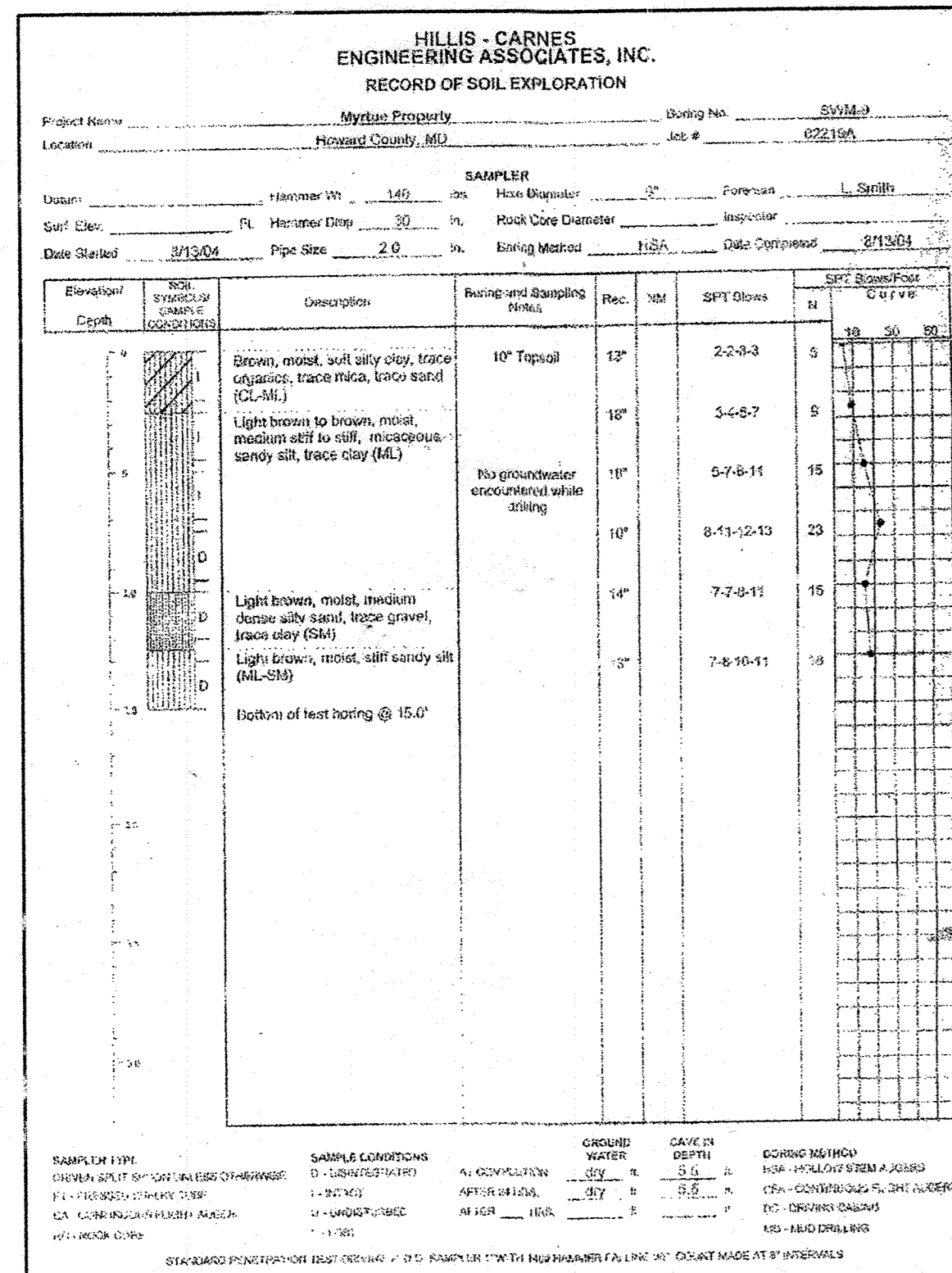
"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

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. 21433 Expiration Date: 12-21-24

T. E. SCOTT & ASSOCIATES, INC.
 128 COCKEYSVILLE ROAD, SUITE 300 HUNT VALLEY, MARYLAND 21030 Phone: 410-458-2851 Fax: 443-269-0216 tes@MDSWM.com www.MDSWM.com



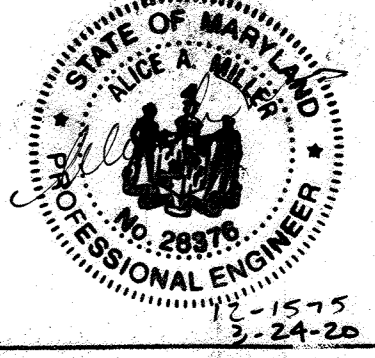
AS-BUILT



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 28376 Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION # 1, DEC 3, 2015 # 2, 3-24-20

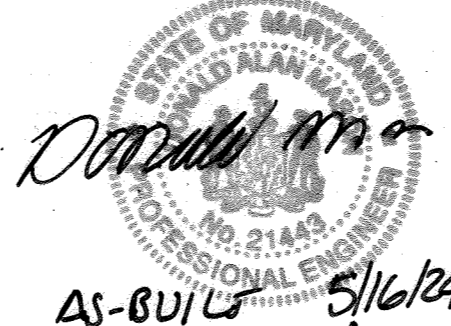


APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 With 2 modifications 10-23-07
 CHIEF BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/5/07
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/5/07

DATE NO. 3-20-20 2 REVISED SHEET NO. 12-3-15 1
 DATE NO. 10-23-07 2
 REVISION DESCRIPTION
MYRTUE PROPERTY
 LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCELS E AND CEMETERY LOT 1 TAX MAP 10 GRID 74 PARCEL 225287
 OWNER: SONSHINE MD LP
 227GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060

DMW DeftMcCune Walker, Inc.
 200 East Pennsylvania Avenue Towson, Maryland 21286 (410) 296-3333 Fax 296-4706
 A Team of Land Planners, Landscape Architects, Golf Course Architects, Engineers, Surveyors & Environmental Professionals
 SUBDIVISION NAME: MYRTUE PROPERTY SECTION AREA: N/A LOT PARCEL # 22
 PLAT OR REF: 447/201 RECORD DATE: 10/20/07 TAX MAP: 10 GRID: 74 DISTRICT: 6 CENSUS TRACT: 40104
 WATER FOOT: SEWER CODE:
 TITLE: **STORMWATER MANAGEMENT BORING LOGS**
 Des. by: les Scale: As Shown Proj. No.: 2003
 Dm. By: TSA Date: 3-13-06
 Professional Engr. No. 21443 Chk. Approved: 32 of 56

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



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. 21443 Expiration Date: 12-21-24

T. E. SCOTT & ASSOCIATES, INC.
 128 COCKEYSVILLE ROAD, SUITE 300 HUNT VALLEY, MARYLAND 21030 Phone: 410.458.2651 Fax: 443.269.0216 www.MdSWM.com

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Project Name: Myrtue Property Boring No. SWM-20
 Location: Howard County, Maryland Job # 15175A

SAMPLER
 Datum: Hammer Wt. lbs. Hole Diameter in. Foreman: D. Stone
 Surf. Elev. 346.904 ft Hammer Drop in. Rock Core Diameter in. Inspector: C. Hillis
 Date Started: 05/11/2015 Pipe Size in. Boring Method Test Pit Date Completed: 05/11/2015

Elevation/Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve		
							N	Curve	Curve
0		Light brown, moist, silty SAND, trace mica (SM; Sandy Loam)	Topsoil - 3"				10	30	50
345		Gray to black, clayey SAND, some silt, trace mica and rock fragments (SC; Sandy Loam)							
342.5		Brown, very moist, SAND, some gravel and silt, trace clay (SP-SM; Sand)							
340									
337.5									
335									
332.5									
330									

SAMPLER TYPE: DRIVEN SPT SPOON UNLESS OTHERWISE SPECIFIED
 SAMPLE CONDITIONS: D - DISINTEGRATED, I - INTACT, U - UNDISTURBED, L - LOST
 GROUND WATER: 5.0 ft CAVE IN DEPTH: 12.0 ft BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

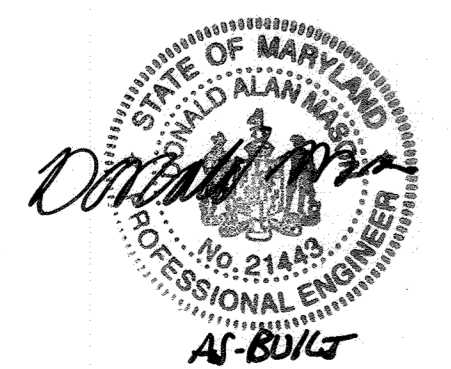
Project Name: Myrtue Property Boring No. SWM-22
 Location: Howard County, Maryland Job # 15175A

SAMPLER
 Datum: Hammer Wt. lbs. Hole Diameter in. Foreman: D. Stone
 Surf. Elev. 385.32 ft Hammer Drop in. Rock Core Diameter in. Inspector: C. Hillis
 Date Started: 05/11/2015 Pipe Size in. Boring Method Test Pit Date Completed: 05/11/2015

Elevation/Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve		
							N	Curve	Curve
385		Brown SAND, some silt, trace clay, gravel, and mica (SM; Loamy Sand)	Topsoil - 3"				10	30	50
382.5									
380									
377.5									
375									
372.5									
370									

SAMPLER TYPE: DRIVEN SPT SPOON UNLESS OTHERWISE SPECIFIED
 SAMPLE CONDITIONS: D - DISINTEGRATED, I - INTACT, U - UNDISTURBED, L - LOST
 GROUND WATER: Dry CAVE IN DEPTH: 12.0 ft BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

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. 21442 Expiration Date: 12-21-24



AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5/16/24

HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Project Name: Myrtue Property Boring No. SWM-21
 Location: Howard County, Maryland Job # 15175A

SAMPLER
 Datum: Hammer Wt. lbs. Hole Diameter in. Foreman: D. Stone
 Surf. Elev. 360.25 ft Hammer Drop in. Rock Core Diameter in. Inspector: C. Hillis
 Date Started: 05/11/2015 Pipe Size in. Boring Method Test Pit Date Completed: 05/11/2015

Elevation/Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve		
							N	Curve	Curve
360		Brown moist, silty SAND, trace mica (SM; Loamy Sand)	Topsoil - 3"				10	30	50
357.5									
355									
352.5									
350									
347.5									
345									

SAMPLER TYPE: DRIVEN SPT SPOON UNLESS OTHERWISE SPECIFIED
 SAMPLE CONDITIONS: D - DISINTEGRATED, I - INTACT, U - UNDISTURBED, L - LOST
 GROUND WATER: Dry CAVE IN DEPTH: 12.0 ft BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

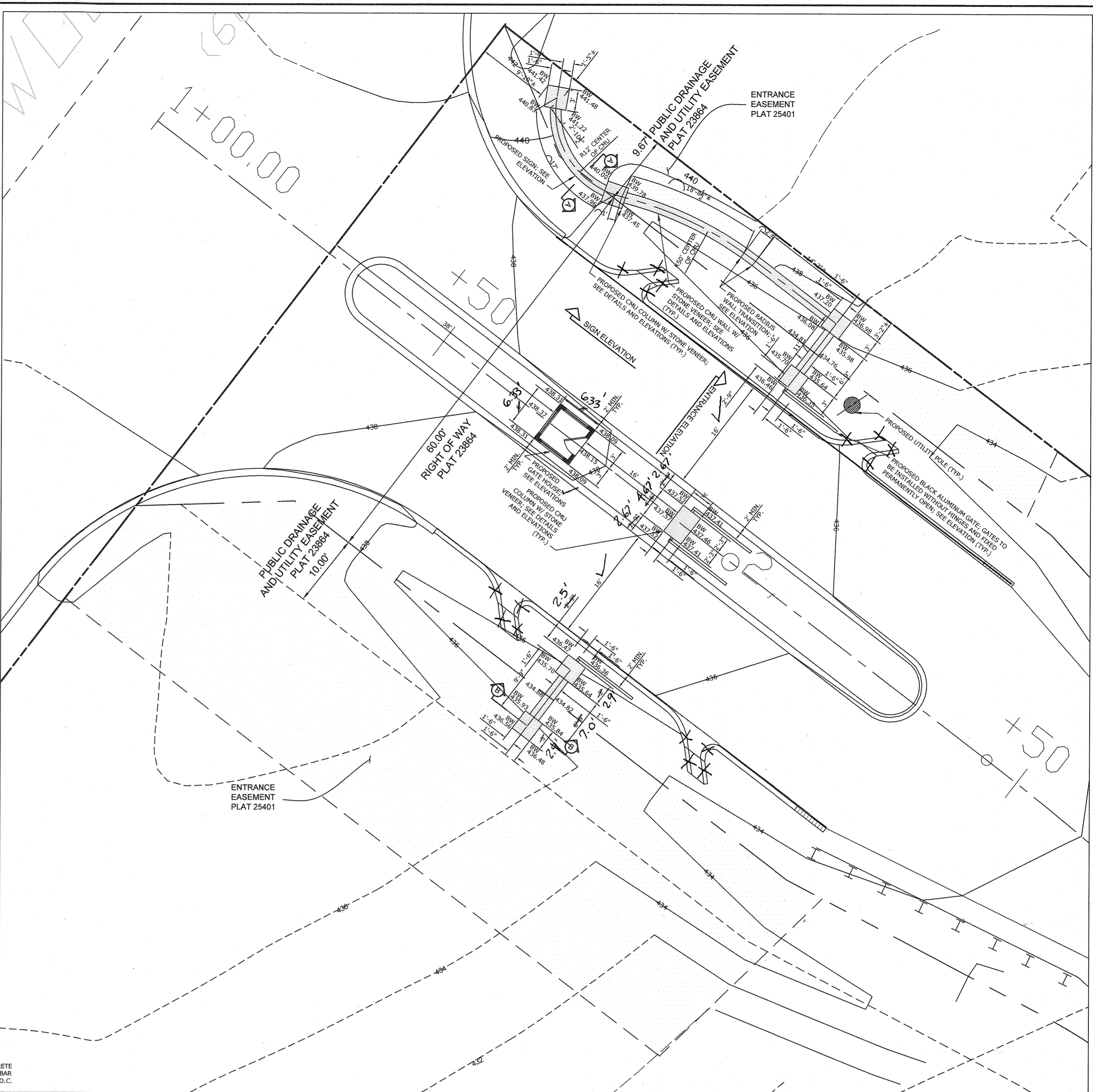
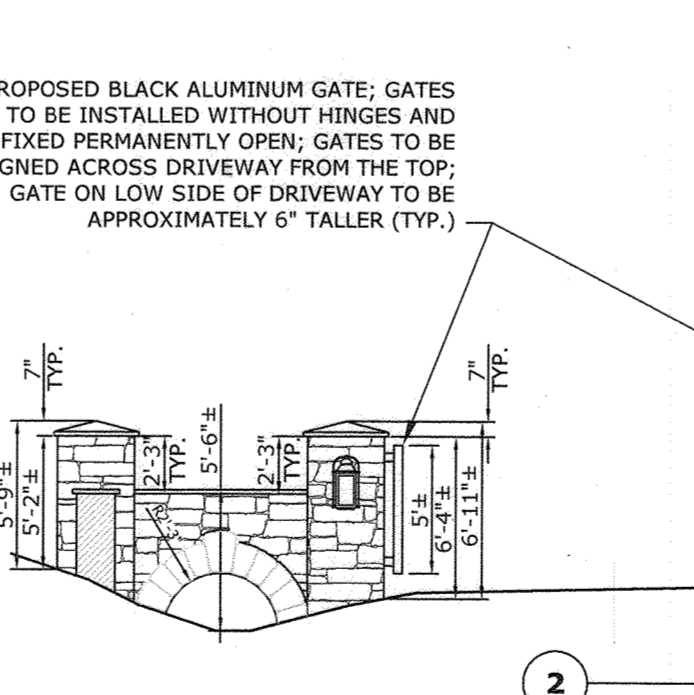
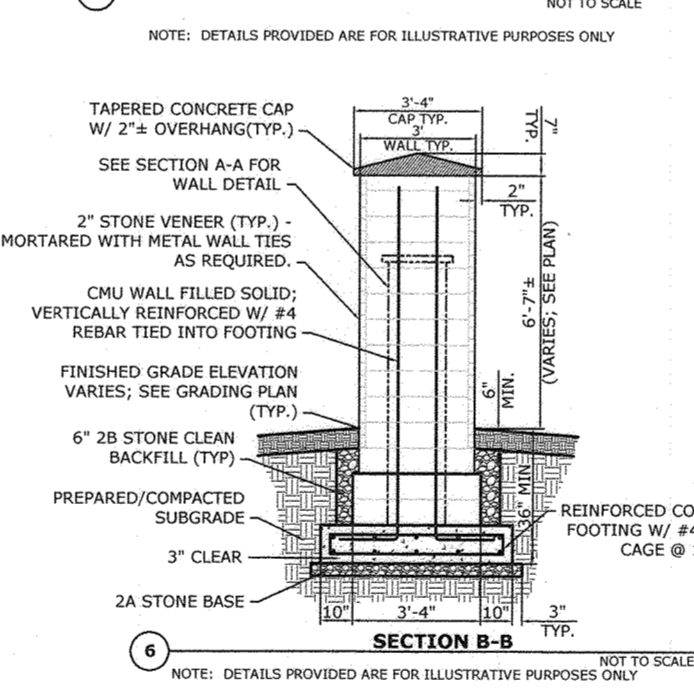
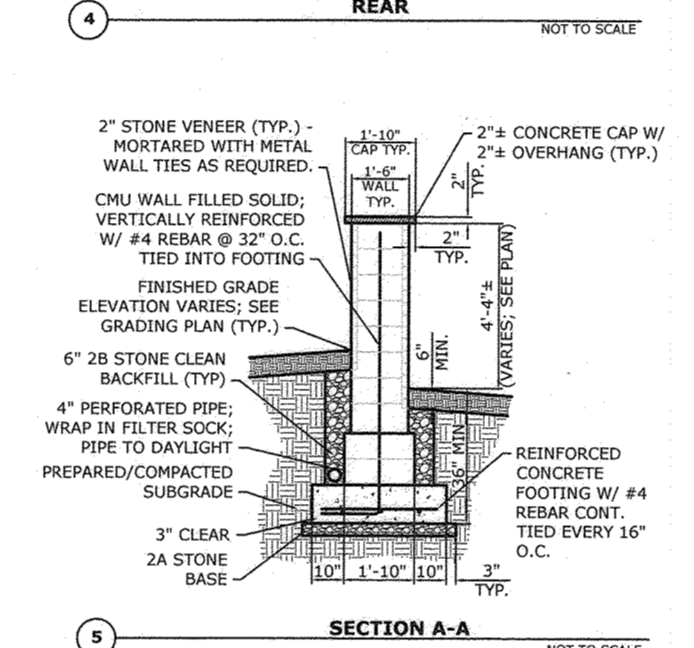
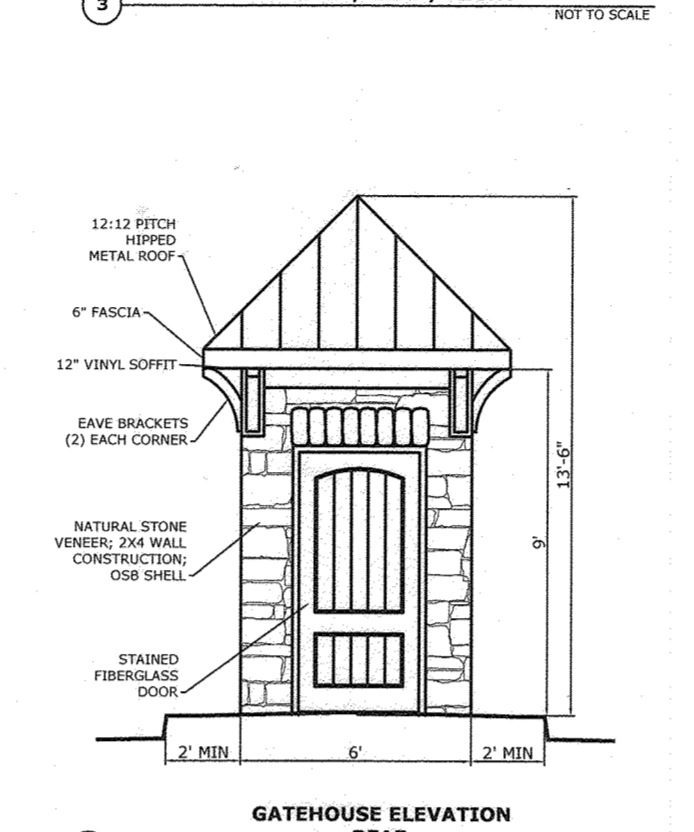
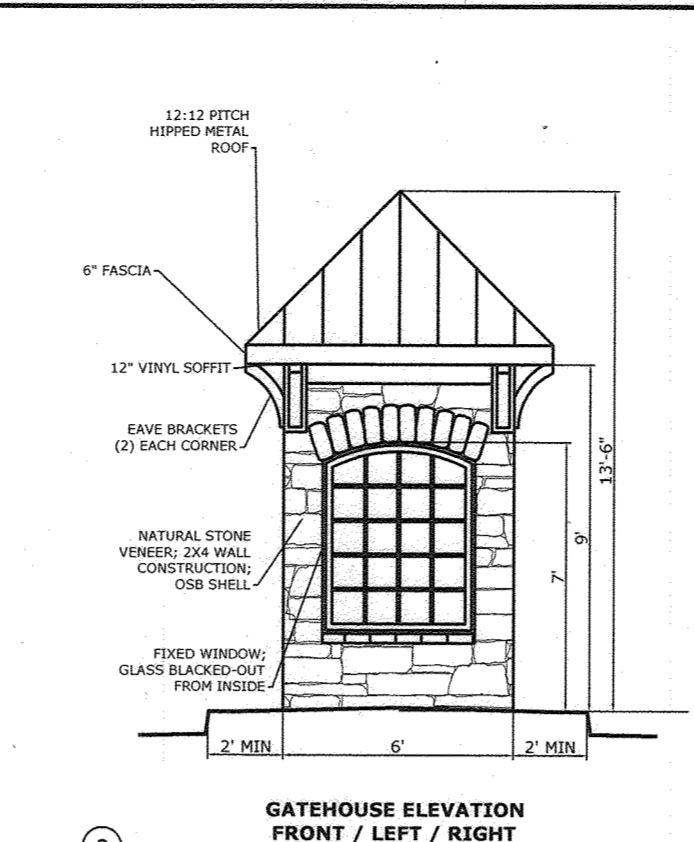
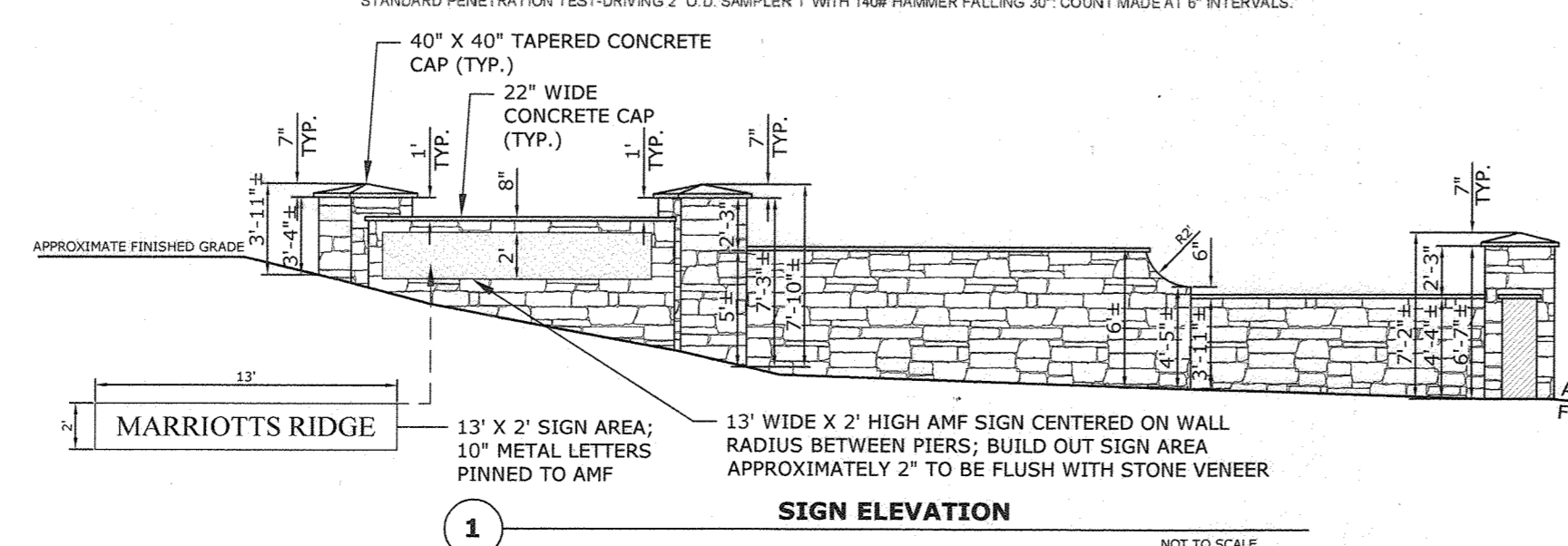
HILLIS - CARNES ENGINEERING ASSOCIATES, INC. RECORD OF SOIL EXPLORATION

Project Name: Myrtue Property Boring No. SWM-23
 Location: Howard County, Maryland Job # 15175A

SAMPLER
 Datum: Hammer Wt. lbs. Hole Diameter in. Foreman: D. Stone
 Surf. Elev. 492.75 ft Hammer Drop in. Rock Core Diameter in. Inspector: C. Hillis
 Date Started: 05/11/2015 Pipe Size in. Boring Method Test Pit Date Completed: 05/11/2015

Elevation/Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve		
							N	Curve	Curve
492.5		Brown, moist, SAND, some silt, trace clay, gravel, and mica (SM; Loamy Sand)	Topsoil - 2"				10	30	50
490			Boring offset 32" to the south of the pipeline.						
487.5			Estimated 3' elevation increase.						
485									
482.5									
480									
477.5									
475									
472.5									
470									

SAMPLER TYPE: DRIVEN SPT SPOON UNLESS OTHERWISE SPECIFIED
 SAMPLE CONDITIONS: D - DISINTEGRATED, I - INTACT, U - UNDISTURBED, L - LOST
 GROUND WATER: Dry CAVE IN DEPTH: 12.0 ft BORING METHOD: HSA - HOLLOW STEM AUGERS, CFA - CONTINUOUS FLIGHT AUGERS, DC - DRIVING CASING, MD - MUD DRILLING

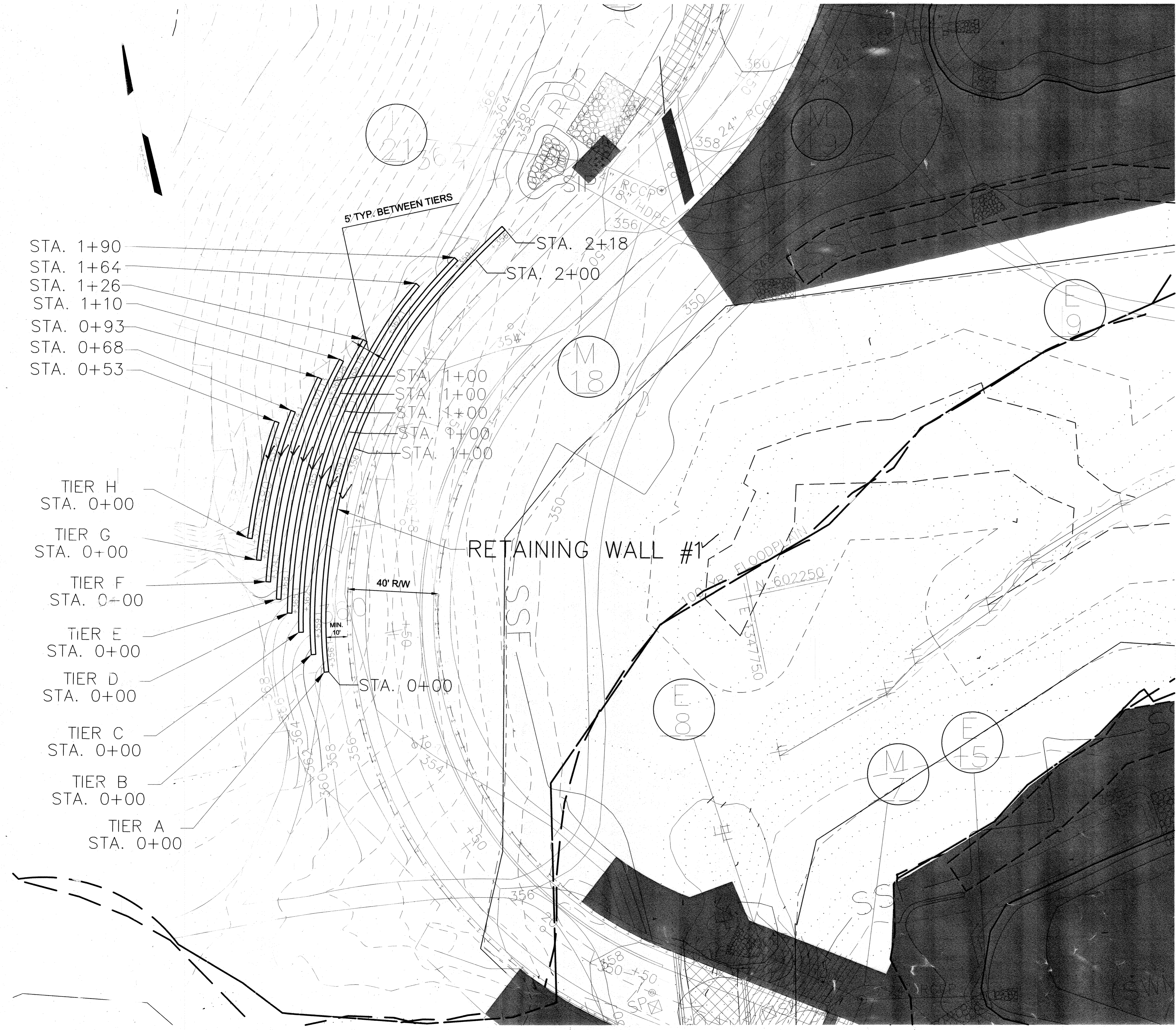


ENTRANCE FEATURE PLAN SCALE: 1" = 10'
 NOTES:
 1. ENTRANCE TO BE CLOSED SECTION TO END OF MEDIAN.
 2. TWO CURB CUTS, IN GENERAL COMPLIANCE WITH MD 640.02 SHALL BE PLACED AS SHOWN, TO TERMINATE WITHIN THE RIVER ROCK AREAS OF THE PLANTING BEDS.
 3. PLANTING SHALL BE ADJUSTED AS NECESSARY AROUND CURB CUT GUTTERS AND CURBING.
 4. MAINTENANCE SHALL BE IN ACCORDANCE WITH THE PUBLIC-PRIVATE AGREEMENT EXECUTED JANUARY 24, 2020 BETWEEN HOWARD COUNTY AND THE PRESERVE AT MARRIOTT'S RIDGE COMMUNITY ASSOCIATION, INC.

NO.	DATE	REVISION
2	6-11-19	REVISED BY SHEET SUBSTITUTION TO ADD ENTRANCE FEATURES & DETAILS.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8644
 WWW.BE-CIVILENGINEERING.COM

OWNER: SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT: MYRTUE PROPERTY (REVISED ROAD PLAN)
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: STORMWATER BORINGS AND ENTRANCE FEATURE DETAILS
DATE: APRIL, 2020	PROJECT NO. 2099
DES: AAM	DRAFT: AAM
CHECK: CAM	SCALE: AS SHOWN
DRAWING 33	OF 56



STA. 1+90
 STA. 1+64
 STA. 1+26
 STA. 1+10
 STA. 0+93
 STA. 0+68
 STA. 0+53

TIER H
 STA. 0+00

TIER G
 STA. 0+00

TIER F
 STA. 0+00

TIER E
 STA. 0+00

TIER D
 STA. 0+00

TIER C
 STA. 0+00

TIER B
 STA. 0+00

TIER A
 STA. 0+00

5' TYP. BETWEEN TIERS

STA. 2+18
 STA. 2+00

STA. 1+00
 STA. 1+00
 STA. 1+00
 STA. 1+00
 STA. 1+00

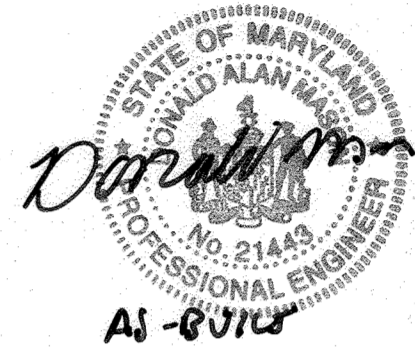
RETAINING WALL #1

40' RW

STA. 0+00

MIN. 10'

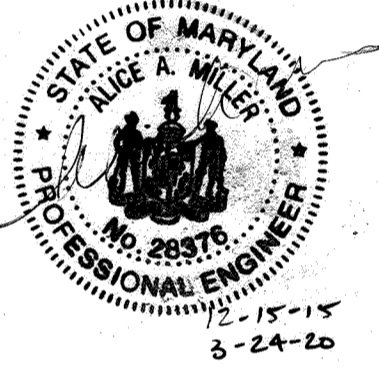
AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this 'AS-BUILT' Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5/16/24



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. 21443 Expiration Date: 12-31-24

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376 Expiration Date: 1-1-21

FOR REVISIONS BY BENCHMARK ENGINEERING INC.
 ONLY. REVISION #1, DEC. 3, 2015
 #2 3-24-20



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 [Signature] 10-23-07
 CHIEF, BUREAU OF HIGHWAYS
 APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 [Signature] 4/7/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 APPROVED: [Signature] 11/8/09
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR DATE

2-2020 2 UPDATED OWNER INFO
 12-3-15 1 REVISED SHEET NO.
 Date No. Revision Description

MYRTUE PROPERTY
 SONSANE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060
 OWNER: MYRTUE RICHARDS & WIFE
 3604 MARBLE ST
 EIGHTON, SC 29517-3729
 DEVELOPER: JAMES KEELTY AND CO. INC.
 P.O. BOX 526
 STATE ROAD 20A-ROAD
 TIMONUM, MD 21088

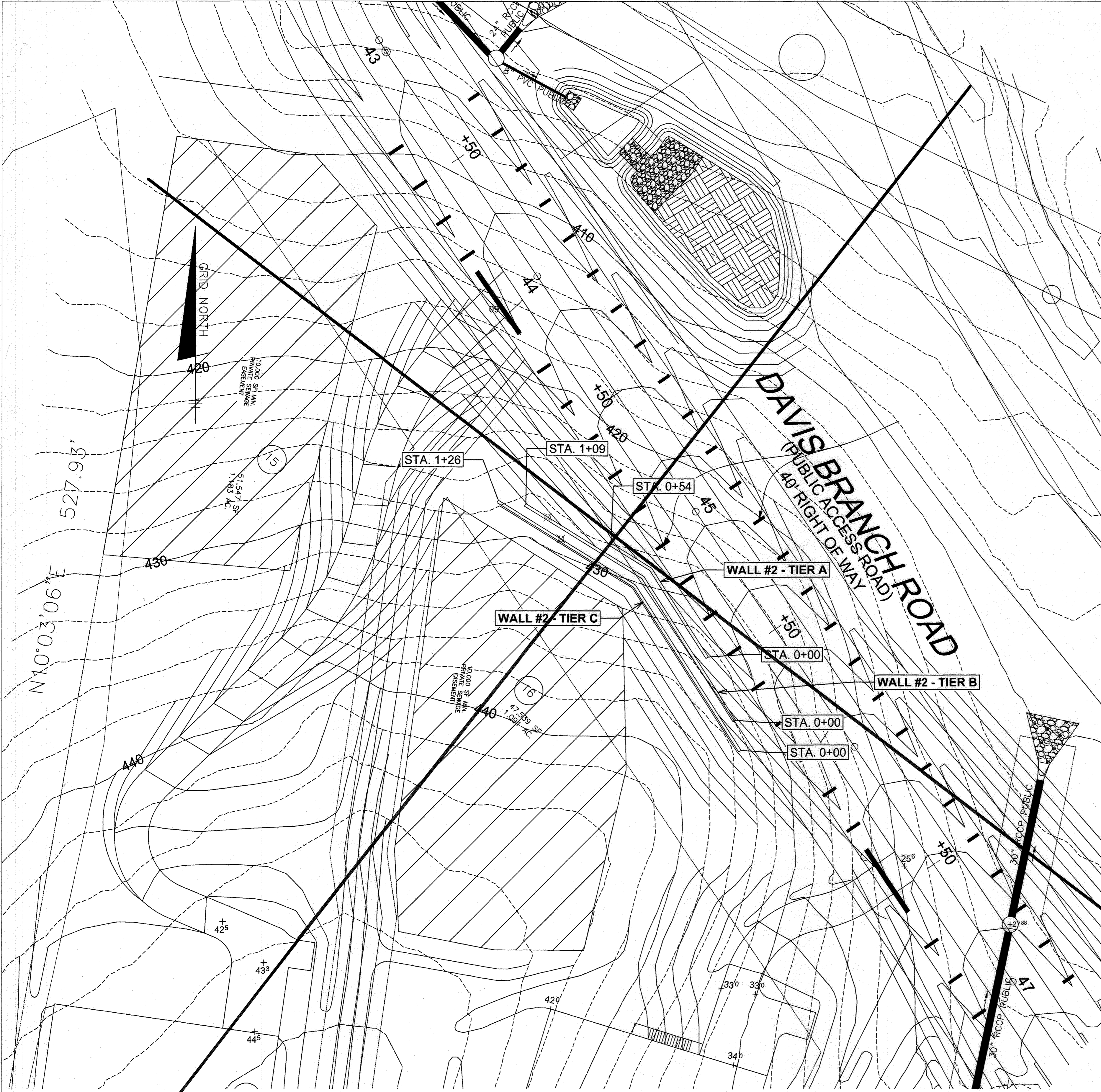
HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, MD
 (410) 880-4788 Fax: (410) 880-4098

DMW
 Dan McCune Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax: 296-4705
 A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals



9/25/07 Date
 SUBDIVISION NAME: MYRTUE PROPERTY SECTION: N/A LOT/PARCEL #: 225
 PLAT OR F: 647/387 BLOCK # ZONE: 24 TAXZONE: 111 ELECT. DISTRICT: 111 CENSUS TRACT: C067.04
 WATER CODE: SEWERS: DE
 TITLE: RETAINING WALL #1 LOCATION PLAN
 Des. By: HM Scale: 1" = 20' Proj. No.: 03053-G
 Dwn. By: HM Date: 5/25/07
 Chk. By: RWS Approved: RWS 34 of 56

AS-BUILT



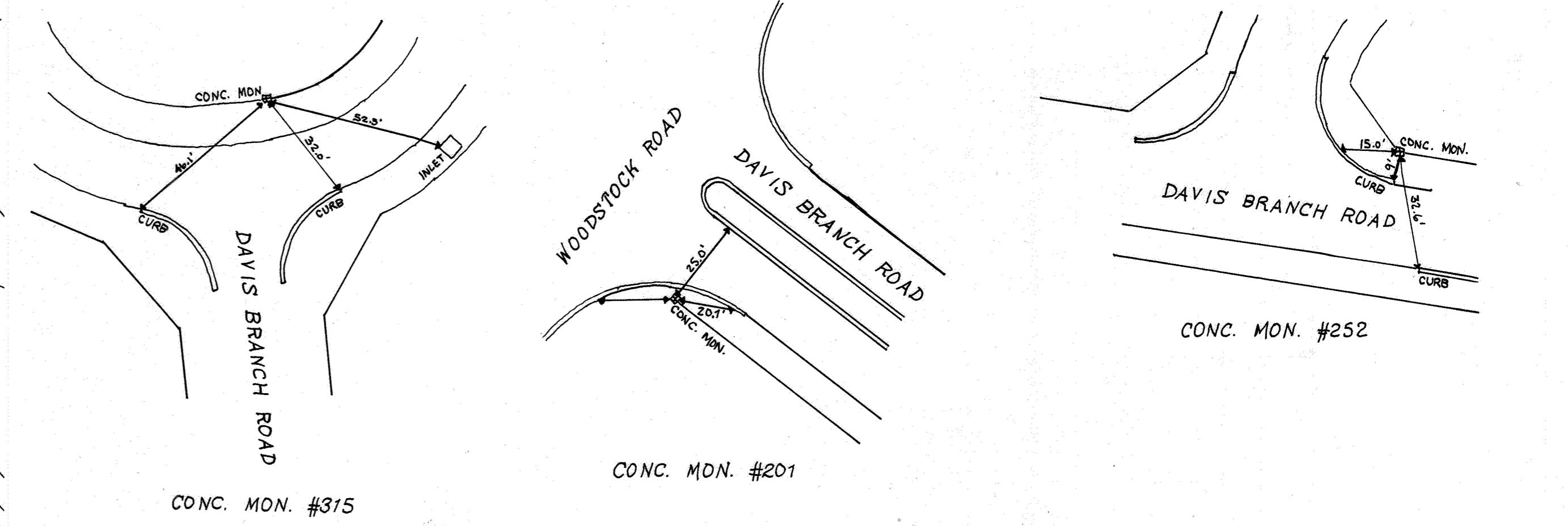
WALL LOCATION PLAN
1" = 20'

* WALLS ELIMINATED BY A REVISED *
PERC PLAN AND LOT GRADING
UNDER GP-22-114

R/W PT. NO.	DESCRIPTION	ELEVATION
200	REBAR & CAP	438.24'
201	CONC. MON.	438.73'
202	REBAR & CAP	433.47'
203	REBAR & CAP	411.54'
204	REBAR & CAP	440.50'
205	REBAR & CAP	433.23'
206	REBAR & CAP	430.48'
207	REBAR & CAP	428.59'
208	REBAR & CAP	431.17'
209	REBAR & CAP	429.43'
210	REBAR & CAP	427.14'
211	REBAR & CAP	424.42'
212	REBAR & CAP	424.36'
213	REBAR & CAP	427.26'
214	REBAR & CAP	424.81'
215	REBAR & CAP	424.75'
216	REBAR & CAP	426.51'
217	REBAR & CAP	424.98'
218	REBAR & CAP	424.90'
219	REBAR & CAP	428.60'
220	REBAR & CAP	419.30'
221	REBAR & CAP	419.11'
222	REBAR & CAP	401.02'
223	REBAR & CAP	400.76'
224	REBAR & CAP	400.03'
225	REBAR & CAP	393.54'
226	REBAR & CAP	393.74'
227	REBAR & CAP	393.39'
228	REBAR & CAP	395.26'
229	REBAR & CAP	400.49'
230	REBAR & CAP	380.86'
231	REBAR & CAP	380.36'
232	REBAR & CAP	355.95'
233	REBAR & CAP	355.99'
234	REBAR & CAP	354.84'
235	REBAR & CAP	353.51'
236	X-CUT	359.94'
237	X-CUT	359.10'
238	REBAR & CAP	367.89'
239	REBAR & CAP	368.30'
240	REBAR & CAP	376.75'
241	REBAR & CAP	378.31'
242	REBAR & CAP	381.47'
243	REBAR & CAP	381.06'
244	REBAR & CAP	381.50'
245	REBAR & CAP	381.19'
246	REBAR & CAP	377.96'
247	REBAR & CAP	377.10'
248	REBAR & CAP	391.48'
249	REBAR & CAP	387.66'

R/W PT. NO.	DESCRIPTION	ELEVATION
250	REBAR & CAP	390.71'
251	REBAR & CAP	391.29'
252	CONC. MON.	391.85'
253	REBAR & CAP	393.99'
254	REBAR & CAP	393.08'
255	REBAR & CAP	394.47'
256	REBAR & CAP	393.60'
258	REBAR & CAP	392.79'
259	REBAR & CAP	390.89'
260	REBAR & CAP	390.47'
261	REBAR & CAP	386.07'
262	REBAR & CAP	387.37'
263	REBAR & CAP	387.03'
264	REBAR & CAP	388.40'
265	REBAR & CAP	390.51'
266	REBAR & CAP	390.88'
267	REBAR & CAP	409.18'
268	REBAR & CAP	412.43'
269	REBAR & CAP	412.64'
270	REBAR & CAP	408.86'
271	REBAR & CAP	406.77'
272	REBAR & CAP	406.69'
273	REBAR & CAP	406.47'
274	REBAR & CAP	406.56'
275	REBAR & CAP	406.84'
276	REBAR & CAP	409.33'
277	REBAR & CAP	404.80'
278	REBAR & CAP	404.51'
279	REBAR & CAP	404.20'
280	REBAR & CAP	404.27'
281	REBAR & CAP	404.94'
282	REBAR & CAP	405.34'
283	REBAR & CAP	404.73'
284	REBAR & CAP	405.16'
285	REBAR & CAP	434.47'
286	REBAR & CAP	434.71'
287	REBAR & CAP	437.86'
288	REBAR & CAP	438.43'
289	REBAR & CAP	438.84'
290	REBAR & CAP	439.35'
291	REBAR & CAP	437.93'
292	REBAR & CAP	437.38'
293	REBAR & CAP	421.66'
294	REBAR & CAP	421.00'
295	REBAR & CAP	415.72'
296	REBAR & CAP	415.73'
297	REBAR & CAP	413.88'
298	REBAR & CAP	416.01'
299	REBAR & CAP	411.24'
300	NAIL IN DRIVEWAY	413.05'

R/W PT. NO.	DESCRIPTION	ELEVATION
301	MAONAIL	404.87'
302	REBAR & CAP	403.00'
303	REBAR & CAP	402.02'
304	REBAR & CAP	401.52'
305	REBAR & CAP	399.52'
306	REBAR & CAP	398.40'
307	REBAR & CAP	399.23'
308	REBAR & CAP	397.47'
309	REBAR & CAP	399.36'
310	REBAR & CAP	393.14'
311	REBAR & CAP	394.25'
312	REBAR & CAP	397.12'
313	REBAR & CAP	398.31'
314	REBAR & CAP	399.56'
315	CONC. MON.	396.56'
316	REBAR & CAP	396.83'
317	REBAR & CAP	396.84'
318	REBAR & CAP	395.02'
319	REBAR & CAP	394.67'
320	REBAR & CAP	394.26'
321	REBAR & CAP	395.06'
322	REBAR & CAP	396.66'

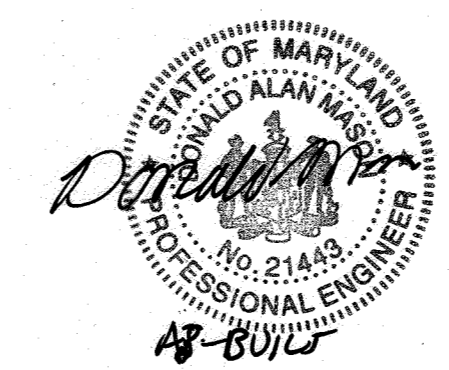


AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.

Date: 5/16/24

NO.	DATE	REVISION
3	7.14.21	REVISED TO REMOVE WALL # 2
2	12-18-19	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.
1	12-3-15	REVISED SHEET NUMBERS.



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. 21443 Expiration Date: 12-21-24

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE NOVEMBER 8, 2007 DMW PLAN SHEET.

HILLIS-CARNES ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098



APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 04/27/2020
CHIEF, BUREAU OF HIGHWAYS MK DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/17/2020
CHIEF, DIVISION OF LAND DEVELOPMENT PL DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION [Signature] 5.17.20 DATE

OWNER: SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

PROJECT: MYRTUE PROPERTY

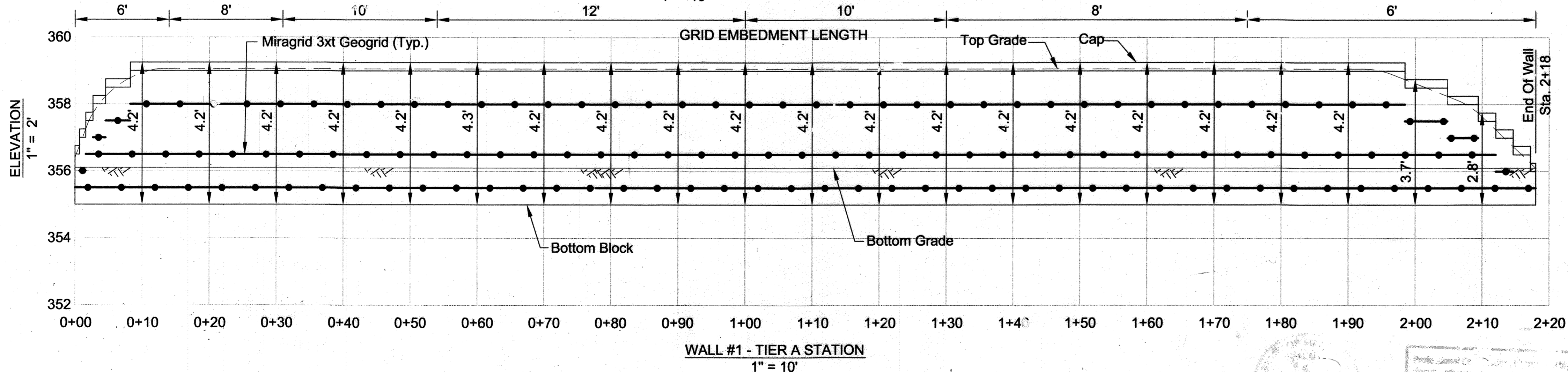
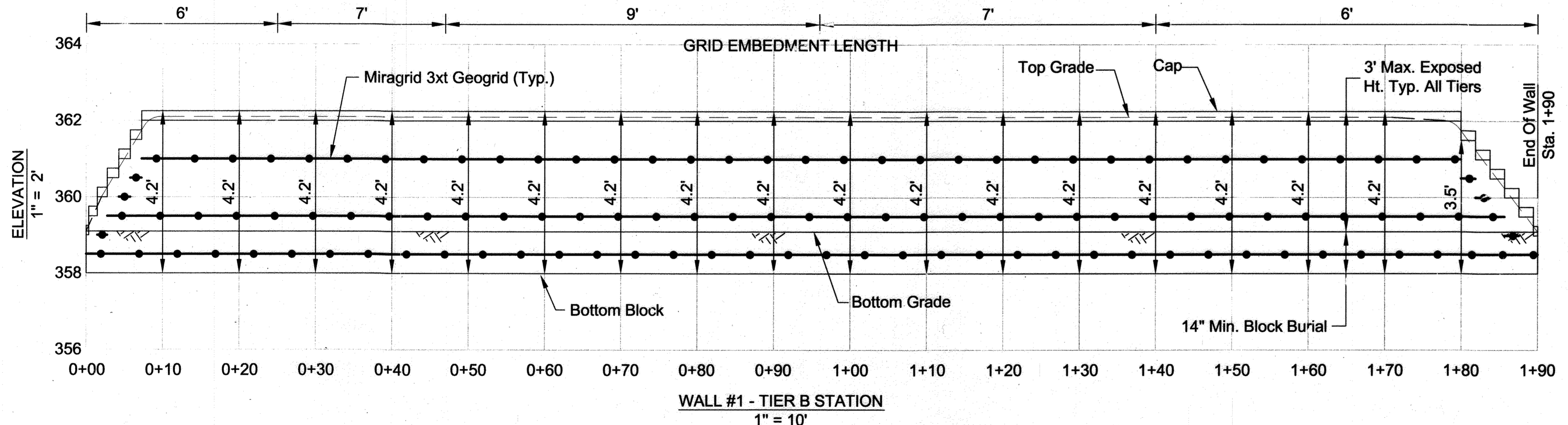
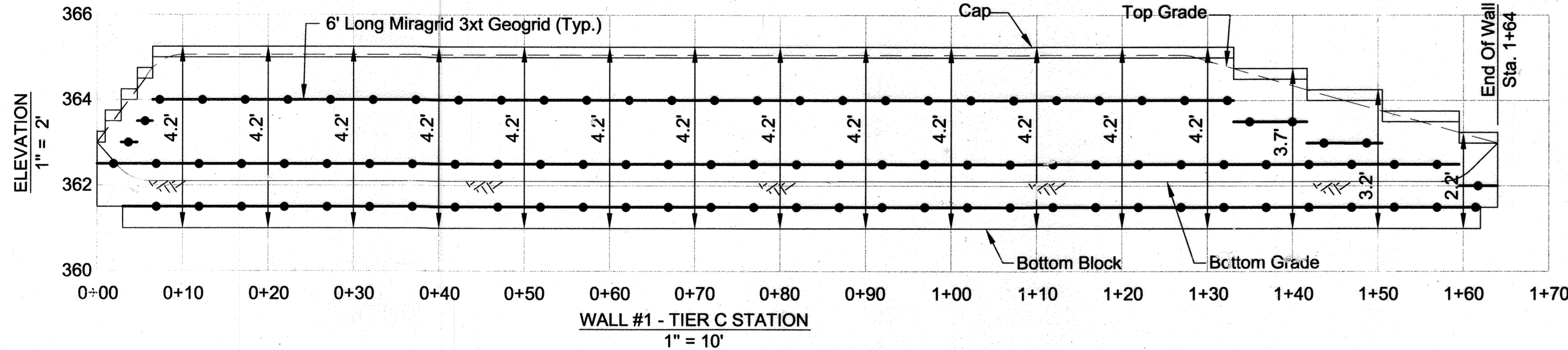
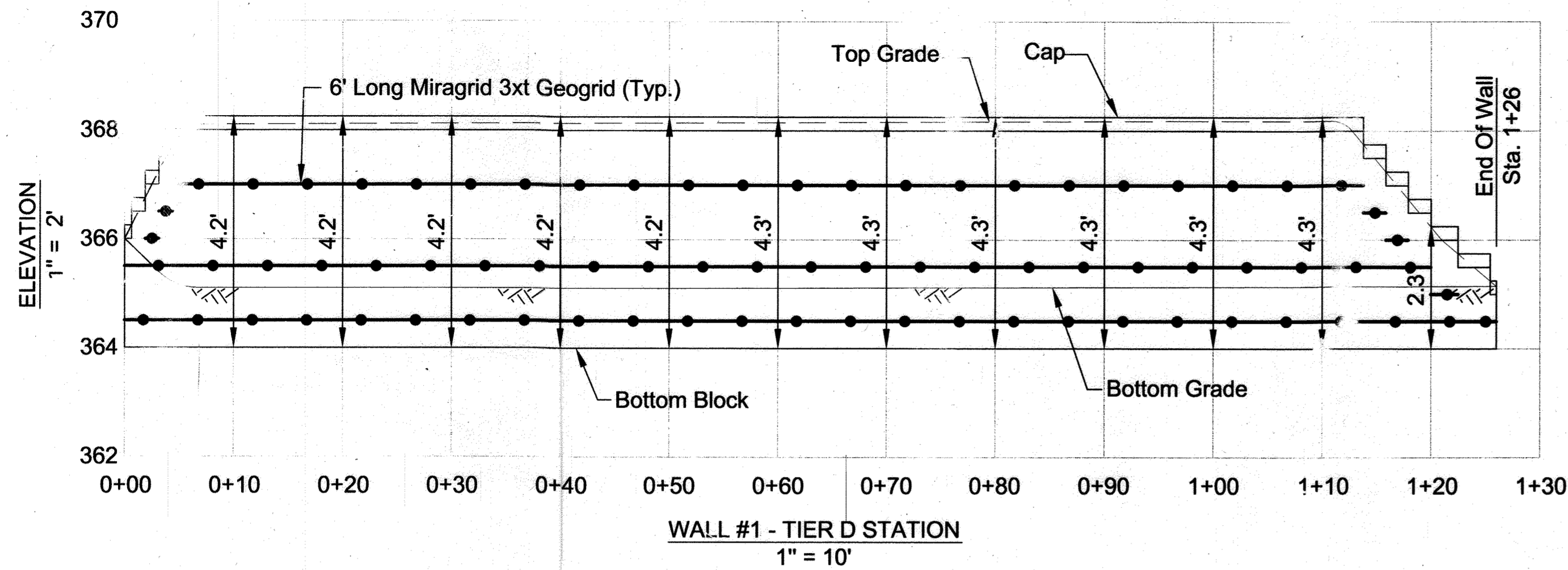
LOCATION: TAX MAP 10, GRID 24
PARCEL 225
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVIS ROAD PLANS
RETAINING WALL #2
LOCATION PLAN

DATE: SEPTEMBER, 2019 HCEA PROJECT NO. 187678

DES: HM DRAFT: HM CHECK: RWS SCALE: AS SHOWN DRAWING 35 OF 56

AS-BUILT



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376 Expiration Date: 1-1-21 / 3-24-20

FOR REVISIONS BY BENCHMARK ENGINEERING, INC.
 ONLY. REVISION #1 DEC. 3, 2015
 #2 3-24-20



"NO AS-BUILT INFORMATION"
 PROVIDED ON THIS SHEET



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. 21447 Expiration Date: 12-21-24

AS-BUILT 5/16/24

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 W. J. M... 10-23-07
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
 J. P... 11/15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: J. H... 11/17
 CHIEF, DIVISION OF LAND DEVELOPMENT

3-2010 2 UPDATED OWNER INFO
 12-3-15 1 REVISED SHEET NO.
 Date No. Revision Description

MYRTUE PROPERTY
 SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-469-9060

OWNER/DEVELOPER:
 OWNER: MYRTUE RICHARDS & W...
 DEVELOPER: JAMES KEELTY AND CO. INC.

HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Gullford Road, Suite A Annapolis Junction, MD
 (410) 880-4788 Fax: (410) 880-4098

DMW
 Draft: McCune Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3353 Fax: 296-4705

A Team of Land Planners,
 Landscape Architects,
 Engineers, Surveyors &
 Environmental Professionals

9/25/07
 Date

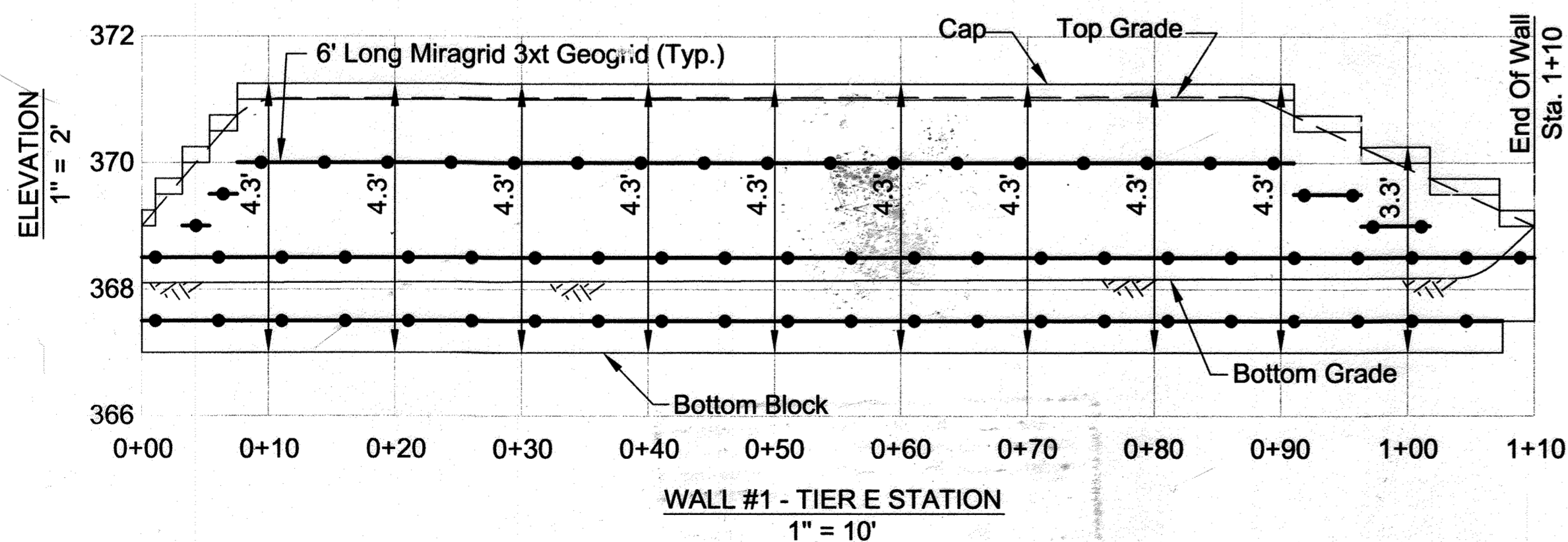
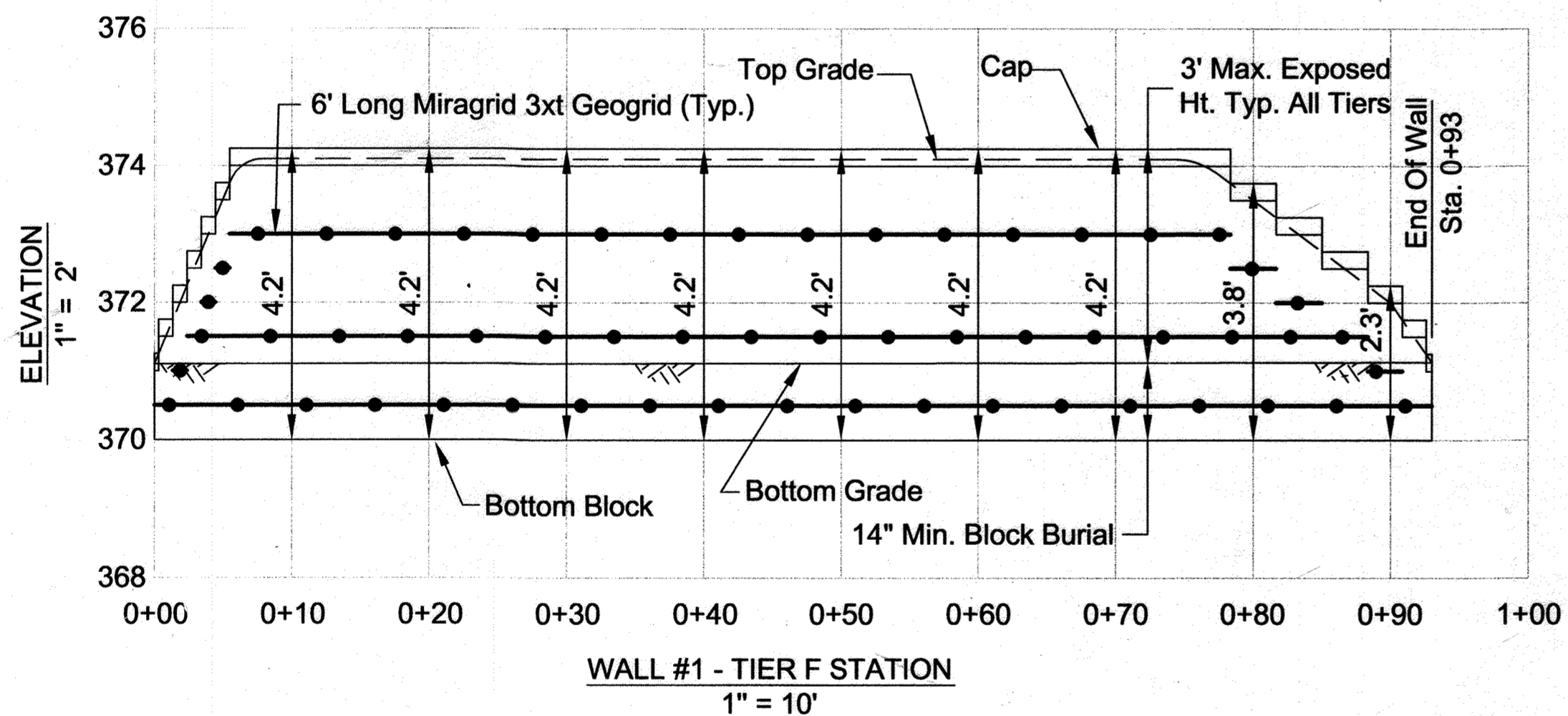
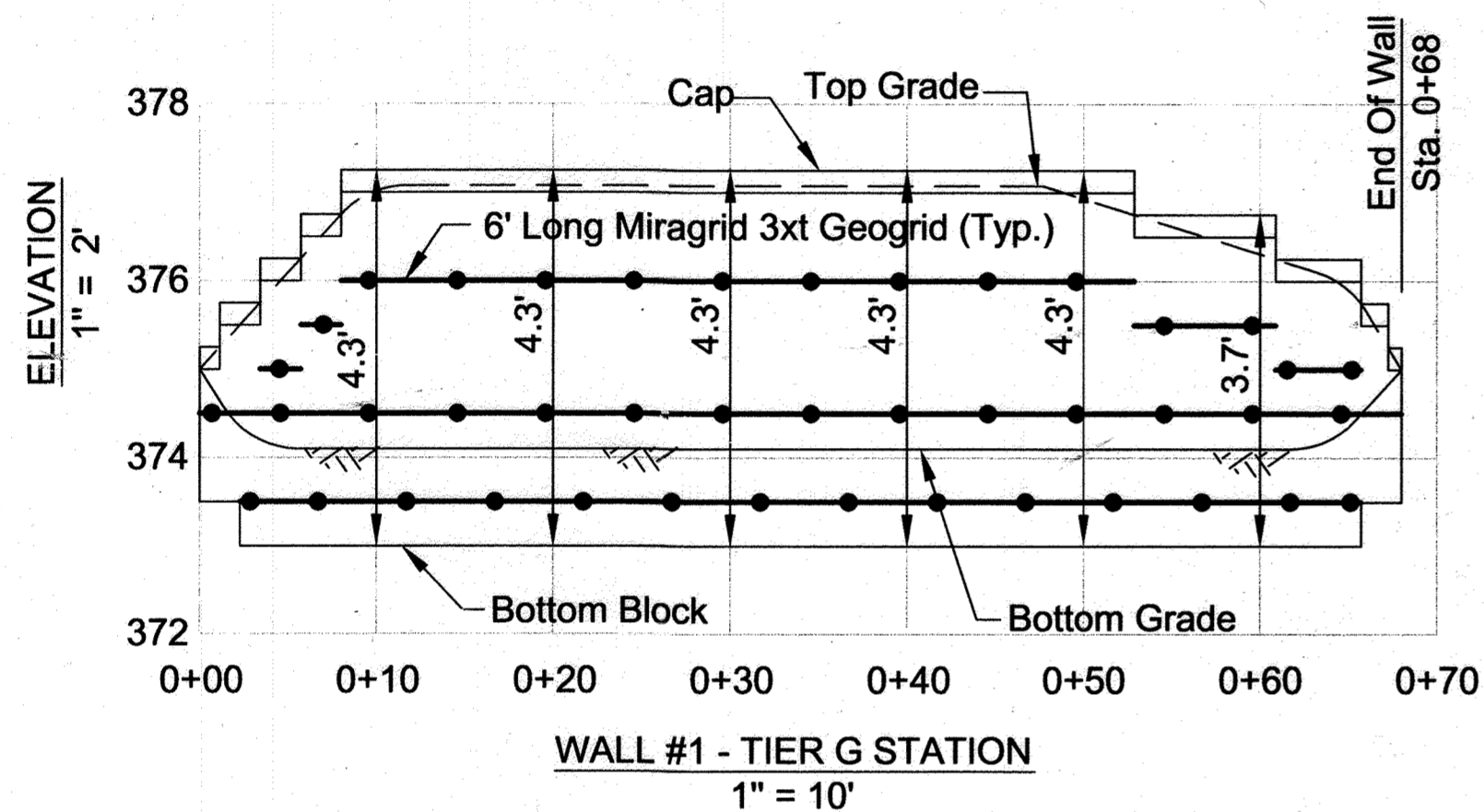
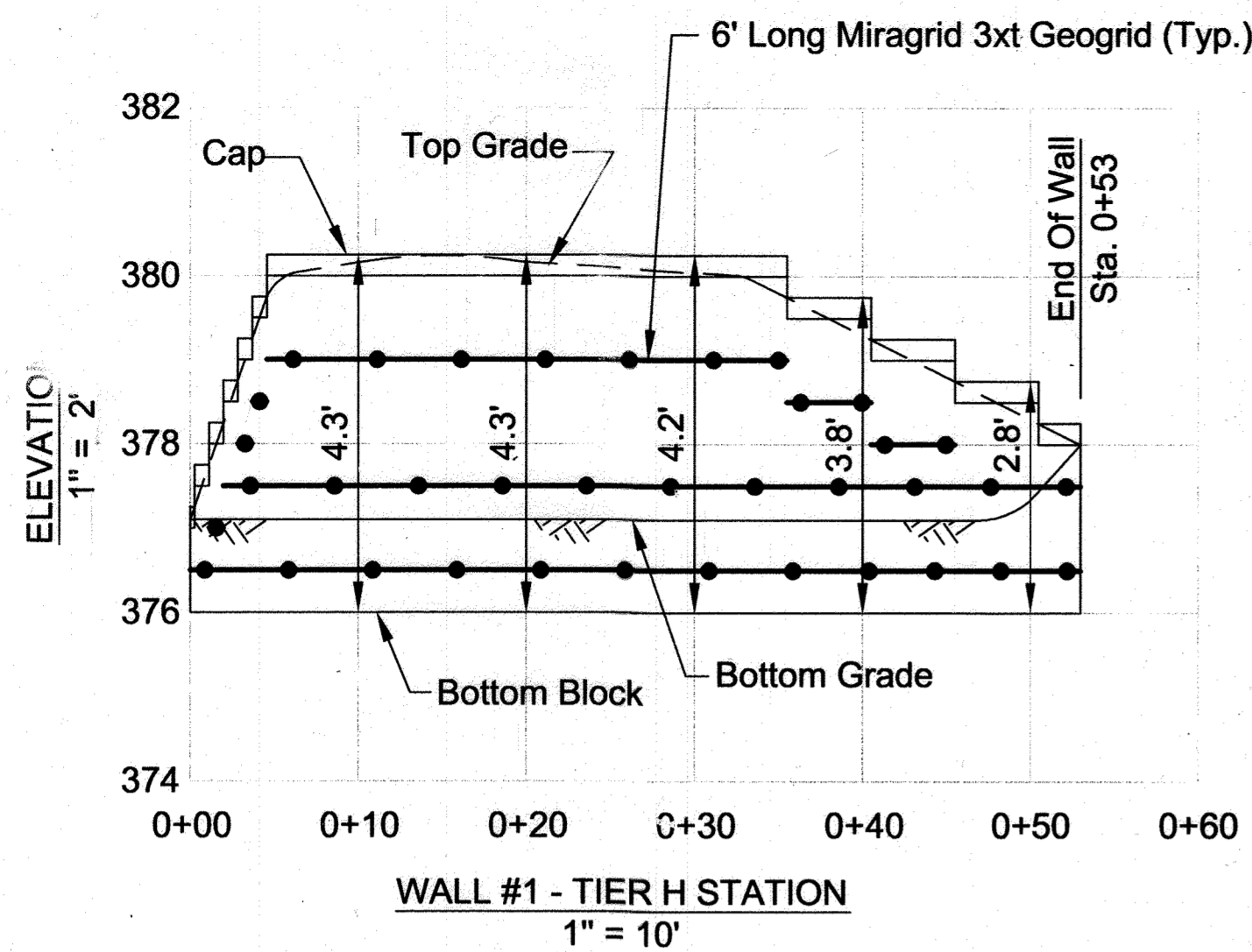
19434
 Professional Engr. No.

SUBDIVISION NAME	MYRTUE PROPERTY	SECTION/AREA	1A	LOT/PARCEL #	22F
PLAY ORL #	647/387	TAXZONE MAP	10	ACT. DISTRICT	5th
WATER CODE	24	SEWER CODE	10	CENSUS TRACT	6067.04

TITLE: **RETAINING WALL #1 ELEVATION VIEW**

Des. By: HM Scale: AS SHOWN Proj. No. 03053-G
 Dm. By: HM Date: 9/25/07
 Chk. By: RWS Approved: RWS

AS-BUILT



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. 29376 Expiration Date: 1-1-21

FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION # 1 DEC. 3, 2015
2 3-24-20



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. Walker, 10-23-07
CHIEF, BUREAU OF HIGHWAYS
APPROVED: HOWARD COUNTY DEPT. OF PLANNING & ZONING
John DeWitt, 4/7/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION
Andy Harsh, 11/5/07
CHIEF, DIVISION OF LAND DEVELOPMENT

3-2020 2 UPDATED OWNER INFO
12-3-15 1 REVISED SHEET NO.
Date No. Revision Description

MYRTUE PROPERTY
SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060
OWNER/DEVELOPER:
OWNER: MYRTUE RICHARD E & WIFE
200 EAST PENNSYLVANIA AVENUE
TOWSON, MD 21286
410-286-3353
FAX: 286-4705
DEVELOPER: JAMES KEELY AND CO. INC.
P.O. BOX 628
54 S. PADONIA ROAD
TIMONIUM, MD 21088

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, MD
(410) 880-4788 Fax: (410) 880-4098

DMW
Date: 9/25/07
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals
SUBDIVISION NAME: MYRTUE PROPERTY SECTION AREA: N/A LOT/PARCEL #: 225
PLAT/ORD. F. BLOCK & ZONE: 647387 24 TAXZONE MAP: 10 ELECT. DISTRICT: 6th CENSUS TRACT: 6967.04
WATER CODE: SEWER CODE:

TITLE: RETAINING WALL #1 (CONT)
ELEVATION VIEW
Des. By: HM Scale: AS SHOWN Proj. No.: 03053-G
Dwn. By: HM Date: 9/25/07
Chk. By: RWS Approved: RWS

"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET

Dorothy Ann
AS-BUILT 5/16/24

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. 21443 Expiration Date: 12-21-24

14434
Professional Engr. No.

SPECIFICATIONS
MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 DESCRIPTION

- A. WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A MODULAR RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.
- B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT DRAINAGE FILL AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- C. WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 DELIVERY, STORAGE AND HANDLING

- A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 MODULAR CONCRETE RETAINING WALL UNITS

- A. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:
- B. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
- C. MODULAR CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH APPROPRIATE REFERENCES:
COMPRESSIVE STRENGTH = 3000 PSI MINIMUM;
ABSORPTION = 8% MAXIMUM
DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS.
- D. MAXIMUM GAP BETWEEN ERECTED UNITS SHALL BE - 1/2 INCH.

2.02 SHEAR CONNECTORS

- A. SHEAR CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN-PROTRUDED FIBERGLASS REINFORCED RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS. STRENGTH OF SHEAR CONNECTORS BETWEEN VERTICAL ADJACENT UNITS

SHALL BE APPLICABLE OVER A DESIGN TEMPERATURE OF 10 DEGREES F TO +100 DEGREES F.

- B. SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

2.03 BASE LEVELING PAD MATERIAL

- A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.04 UNIT DRAINAGE FILL

- A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE

2.05 REINFORCED BACKFILL

- A. REINFORCED BACKFILL SHALL BE TYPE SM, FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D-422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIEVE SIZE	PERCENT PASSING
2 INCH	100-75
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) <10 AND LIQUID LIMIT <40 PER ASTM D-4318.

2.06 GEOGRID SOIL REINFORCEMENT

- A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER YARN, OR HDPE MATERIAL.

2.07 DRAINAGE PIPE

- A. THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-1248.

PART 3 EXECUTION

3.01 EXCAVATION

- A. CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE EXCAVATION PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.

3.02 BASE LEVELING PAD

- A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6' IN FRONT AND BEHIND THE MODULAR WALL UNIT.
- B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

3.03 MODULAR UNIT INSTALLATION

- A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.
- B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.
- D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. PLACE AND COMPACT BACKFILL SOIL BEHIND DRAINAGE FILL.
- E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATIONS.
- F. RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHALL BE AVOIDED.
- G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

- B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 8 INCHES WHERE HAND COMPACTION IS USED, OR 9 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.
- C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 3% TO - 3% OF OPTIMUM.
- D. ONLY LIGHTWEIGHT HAND-OPERATED EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE TAIL OF THE MODULAR CONCRETE UNIT.
- E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING THE GEOGRID.

3.06 CAP INSTALLATION

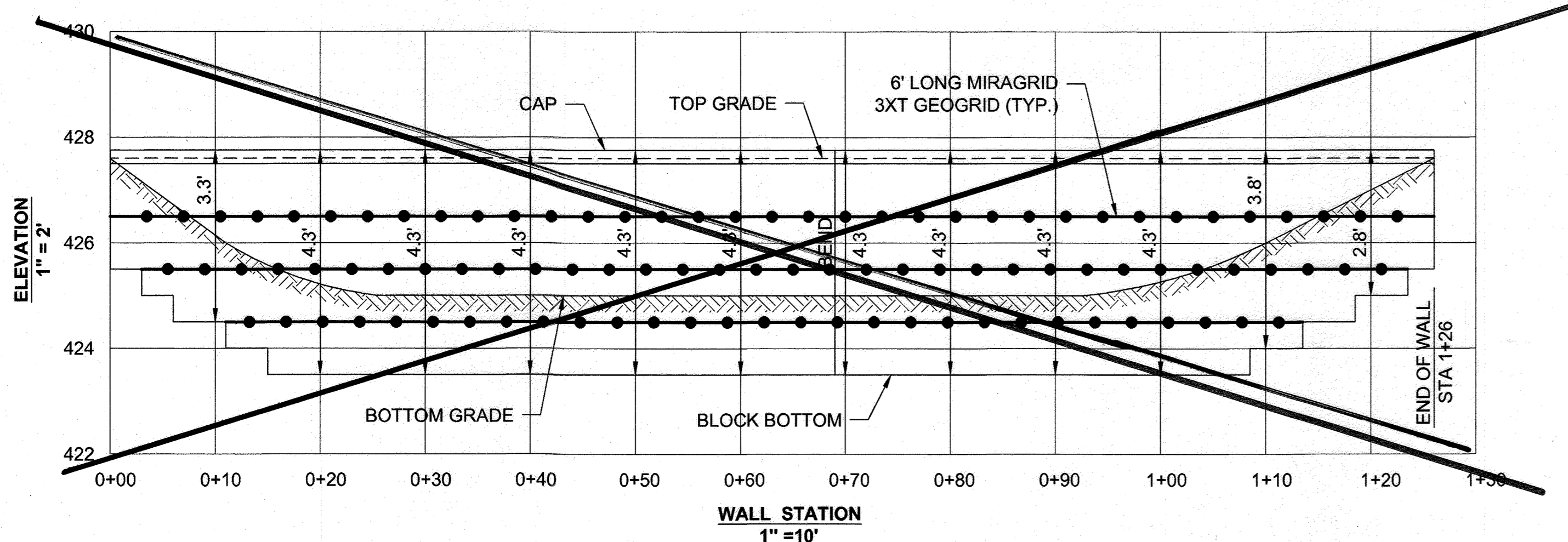
- A. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL

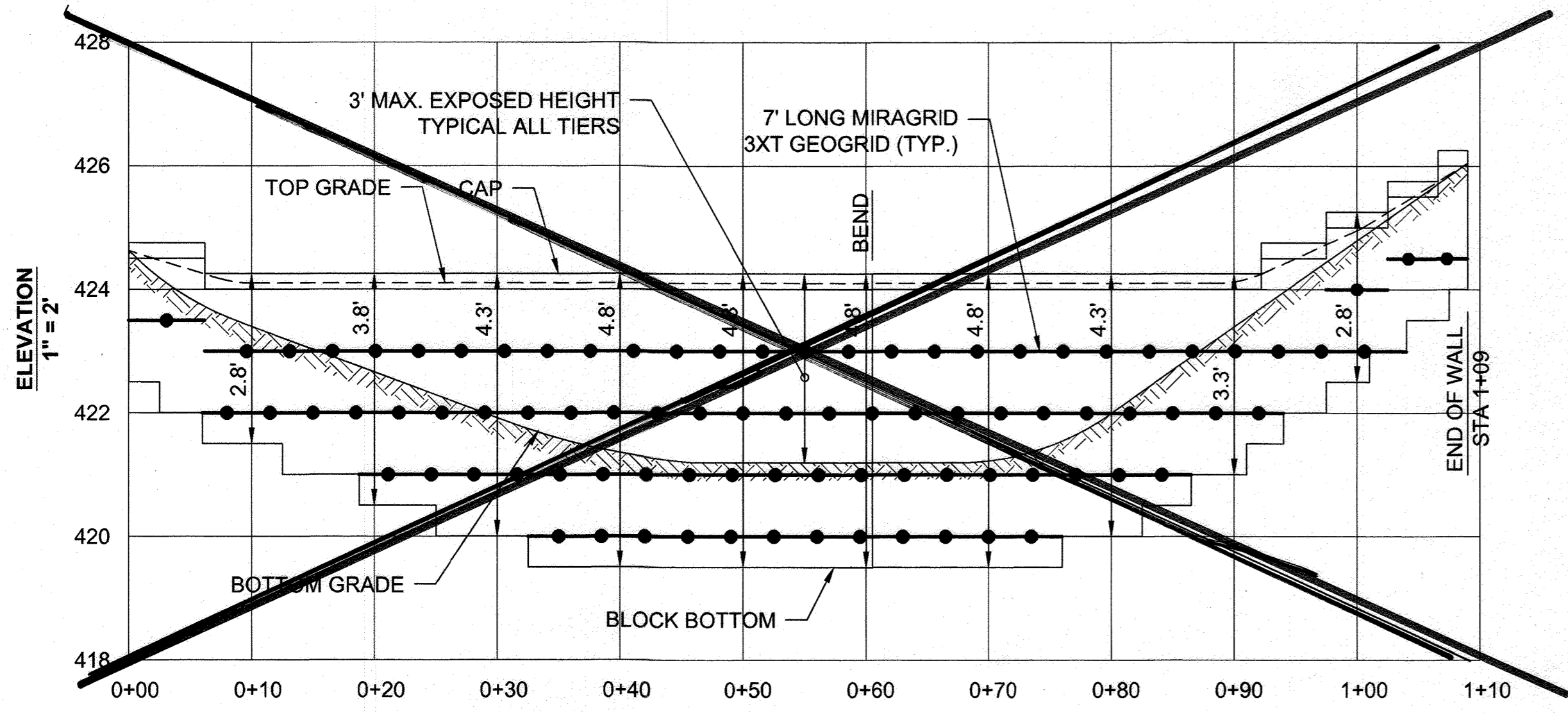
- A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.
- B. AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.

HOWARD COUNTY NOTES:

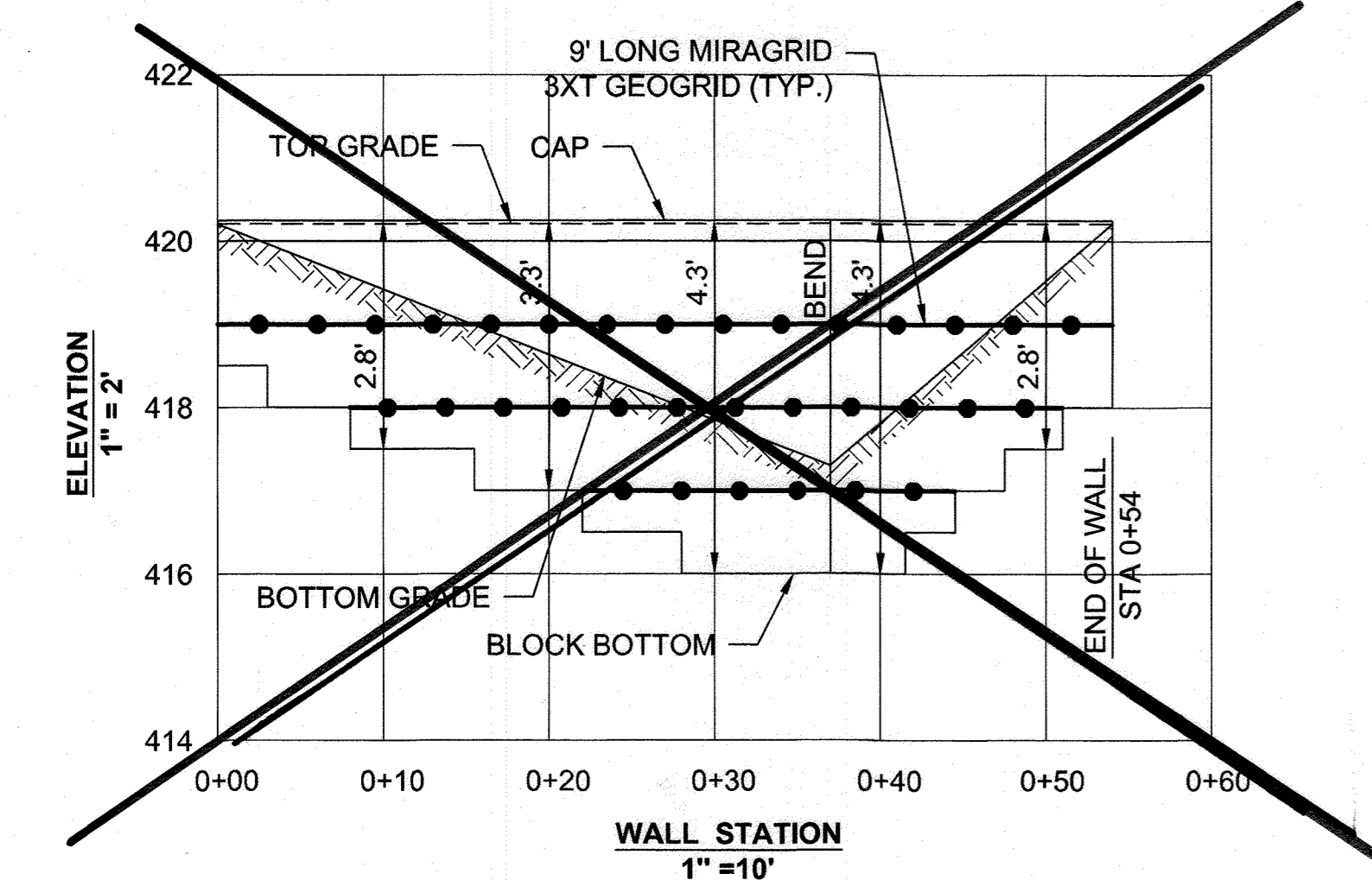
1. NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
2. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.
3. ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
4. THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
5. THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8' LIFT MUST BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
6. WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
7. WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD COUNTY RIGHT-OF-WAY OR EASEMENT.



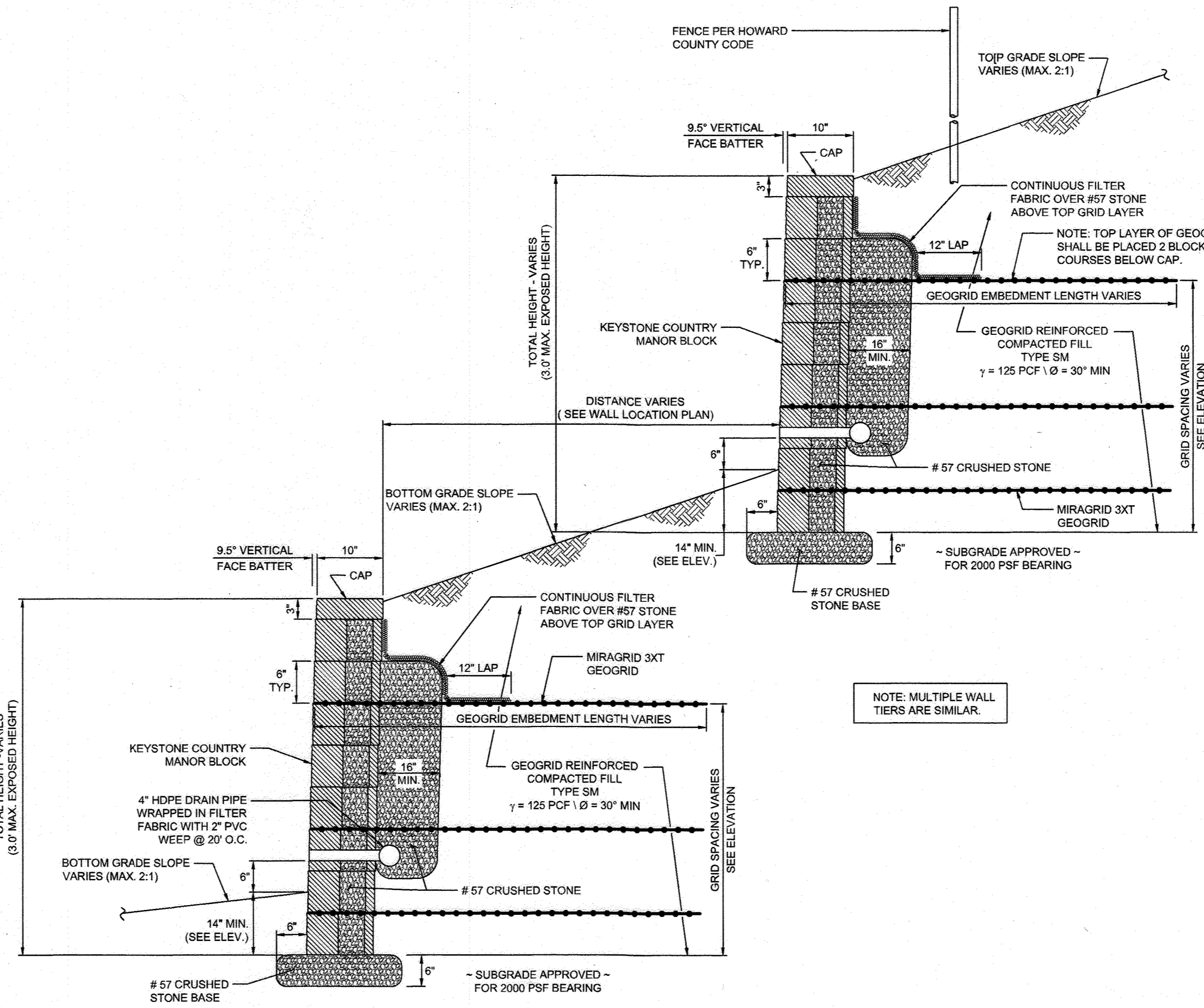
WALL #2 - TIER C ELEVATION



WALL #2 - TIER B ELEVATION



WALL #2 - TIER A ELEVATION



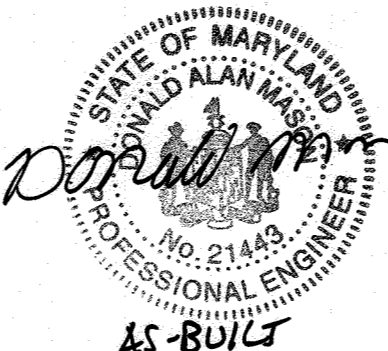
TYPICAL WALL SECTION N.T.S.

AS-BUILT CERTIFICATION

I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E.

Date: 5/16/24



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. 21143, Expiration Date: 12-21-24

APPROVED: DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PLANNING AND ZONING

APPROVED: DEPARTMENT OF LAND DEVELOPMENT

APPROVED: CHIEF, DEVELOPMENT ENGINEERING DIVISION

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE NOVEMBER 8, 2007 DMW PLAN SHEET.

NO.	DATE	REVISION
3	7.14.21	REVISED TO REMOVE WALL #2
2	12-18-19	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.
1	12-3-15	REVISED SHEET NUMBERS.

HILLIS-CARNES ENGINEERING ASSOCIATES

10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098



OWNER: SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

PROJECT: MYRTUE PROPERTY

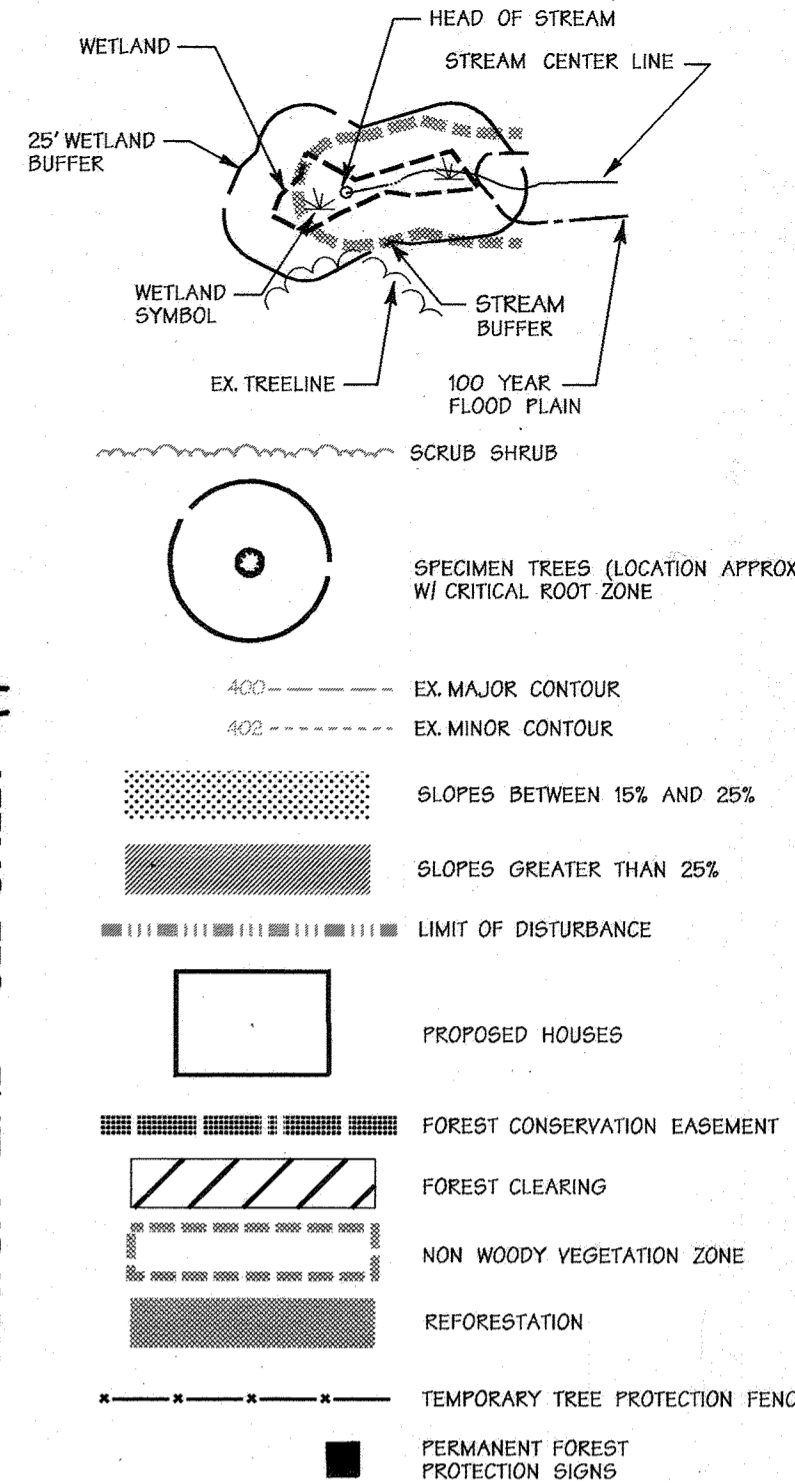
LOCATION: TAX MAP 10, GRID 24
PARCEL 225
6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: REVISED ROAD PLANS
RETAINING WALL #2 ELEVATION
AND CONSTRUCTION DETAILS

DATE: SEPTEMBER, 2019 HCEA PROJECT NO. 18767B
SCALE: AS SHOWN DRAWING 38 OF 56

AS-BUILT

LEGEND



MATCH LINE - SEE SHEET 41

NOTE:
HATCHING INDICATES EXISTING FORESTS THAT WILL NOT BE RETAINED IN EASEMENT PER SECTION 16.120 (b) (4) (III) (b) OF THE HOWARD COUNTY CODE; THEREFORE, THESE AREAS ARE COUNTED AS "CLEARED" FOR FOREST CALCULATION PURPOSES. THE ACTUAL LIMITS OF TREE REMOVAL WILL DEPEND ON INDIVIDUAL LOT DEVELOPMENT. WOODED PORTIONS OF SLOPES GREATER THAN 25% AND THEIR ADJACENT SLOPES GREATER THAN 15% SHALL REMAIN UNDISTURBED.

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 28376 Expiration Date: 1-1-24 / 1-1-17

FOR REVISIONS BY BENKMARK ENGINEERING, INC. ONLY. REVISION #1 DEC. 3, 2015 3-24-20 # 2



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William J. Whelan 10-23-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Quincy Hamilton 11/9/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John D. ... 11/7/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

3-2020	2	UPDATED OWNER DWF
12-3-15	1	REVISED SHEET NOS. PLAN # TITLE BLOCK

Date	No.	Revision Description
------	-----	----------------------

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
TAX MAP 10 GRID 24 PARCEL 225287
SUNSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

DMW
Dart-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3533
Fax: 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	MYRTUE PROPERTY	SECTION/AREA	N/A	LOT/PARCEL #	225287
MAP #	281229	TAX/GRID #	10	GRID #	24
WATER CODE		SEWER CODE		GRID #	6067.04

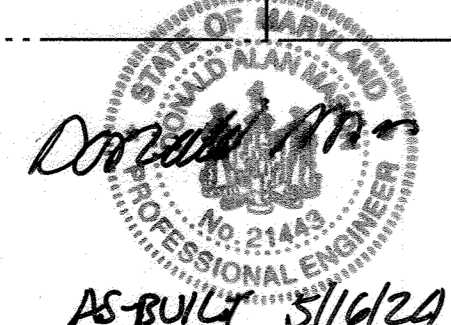
TITLE FOREST CONSERVATION PLAN

Des. By	Scale	1"=50'	Proj. No.	02033.D
Drn. By	Date	2/14/07		
Chk. By	Approved			

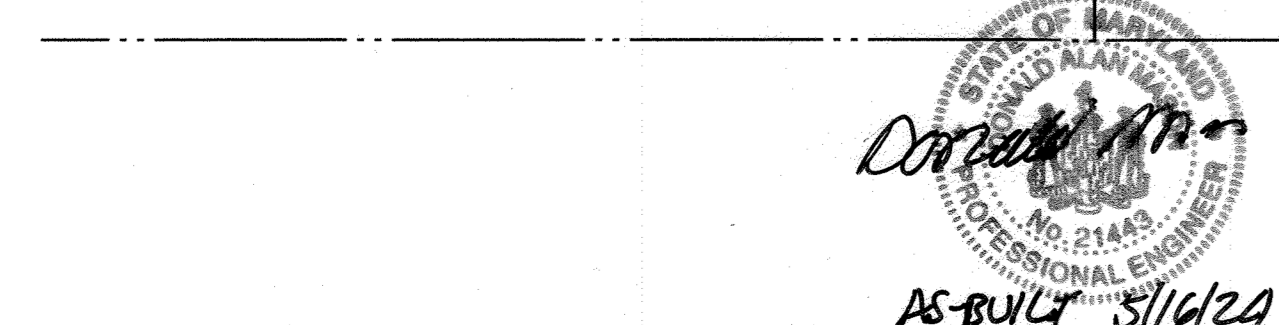
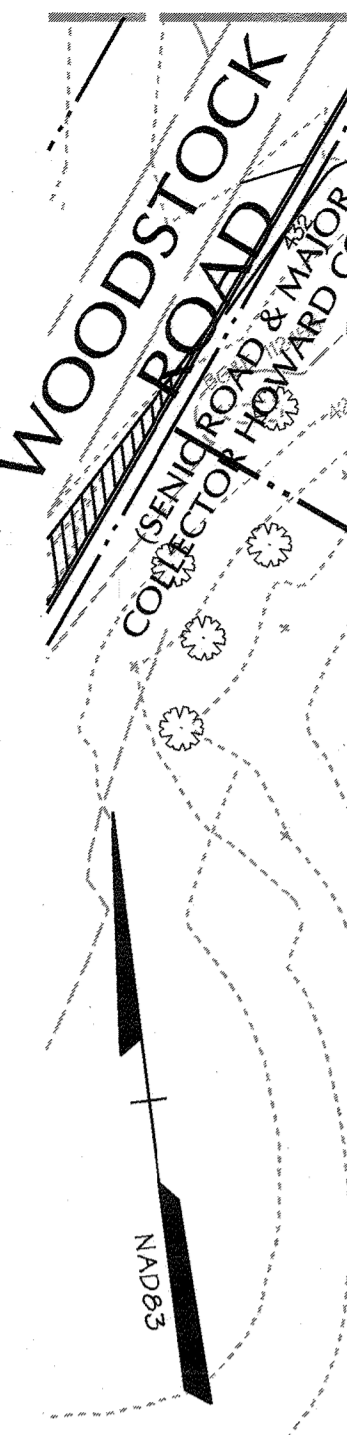
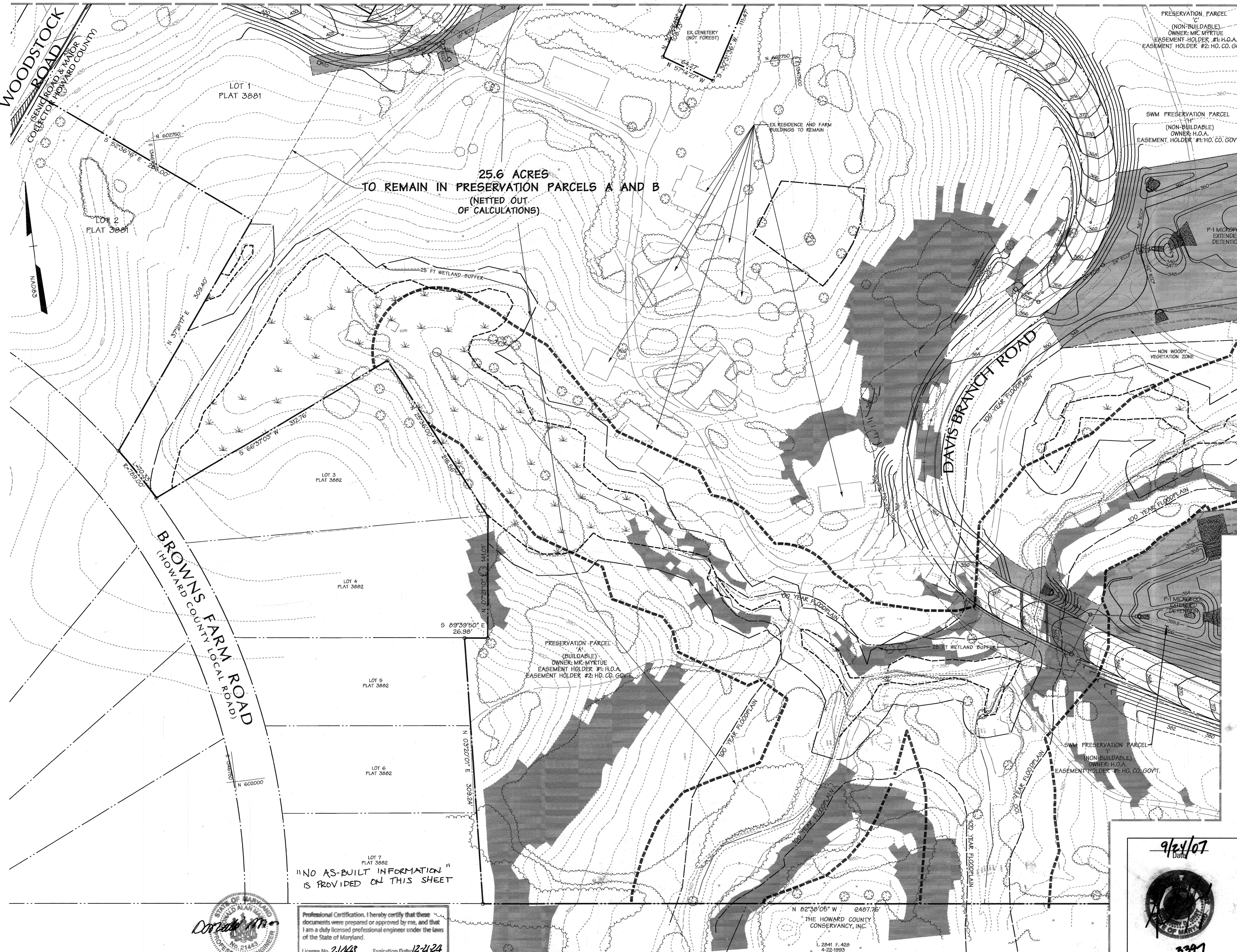
25.6 ACRES TO REMAIN IN PRESERVATION PARCELS A AND B (NETTED OUT OF CALCULATIONS)

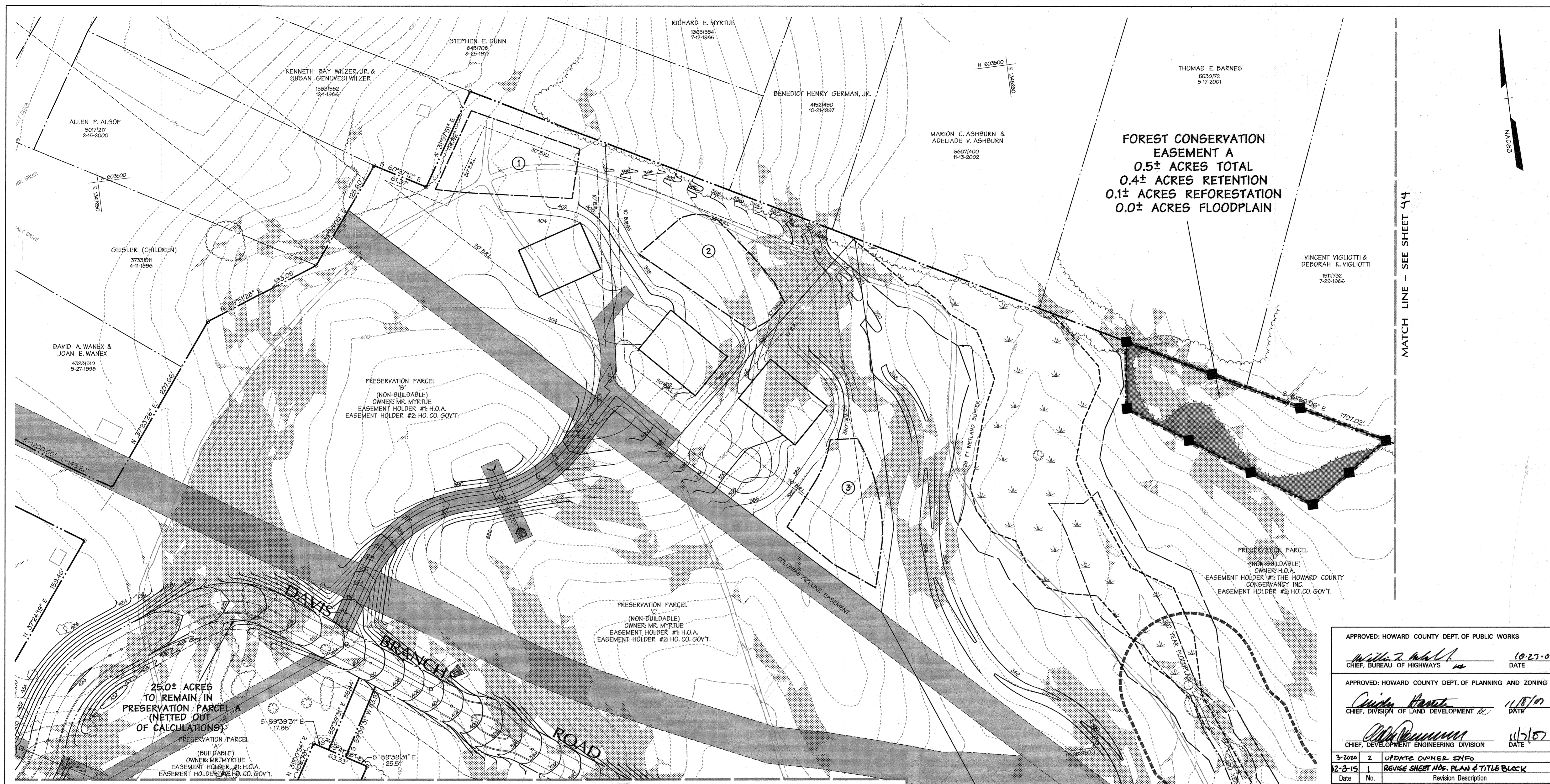
"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET

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. 21443 Expiration Date: 12-21-24



AS-BUILT 5/11/24





FOREST CONSERVATION EASEMENT A
 0.5± ACRES TOTAL
 0.4± ACRES RETENTION
 0.1± ACRES REFORESTATION
 0.0± ACRES FLOODPLAIN

MATCH LINE - SEE SHEET 44

25.0± ACRES TO REMAIN IN PRESERVATION PARCEL A (NETTED OUT OF CALCULATIONS)

MATCH LINE - SEE SHEET 39

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

LEGEND

- WETLAND
- HEAD OF STREAM
STREAM CENTER LINE
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- EX. TREELINE
- 100 YEAR FLOOD PLAN
- SCRUB SHRUB
- SPECIMEN TREES (LOCATION APPROX) W/ CRITICAL ROOT ZONE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- LIMIT OF DISTURBANCE
- PROPOSED HOUSES
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- TEMPORARY TREE PROTECTION FENCE
- PERMANENT FOREST PROTECTION SIGNS
- NON WOODY VEGETATION ZONE

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 DORRIS M. B...
 No. 21445
 AS-6016 5/16/24

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 M...
 No. 28376
 AS-6016 1/1/17

FOR REVISIONS BY BENCHMARK ENGINEERING INC.
 ONLY. REVISION #1 DEC 3, 2015
 # 2 3-24-20

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>William J. ...</i>	10-27-07
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Christy ...</i>	11/5/10
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>...</i>	11/7/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
3-2020	2 UPDATE OWNER INFO
12-3-15	1 REVISE SHEET NOS. PLAN & TITLE BLOCK
Date	No. Revision Description

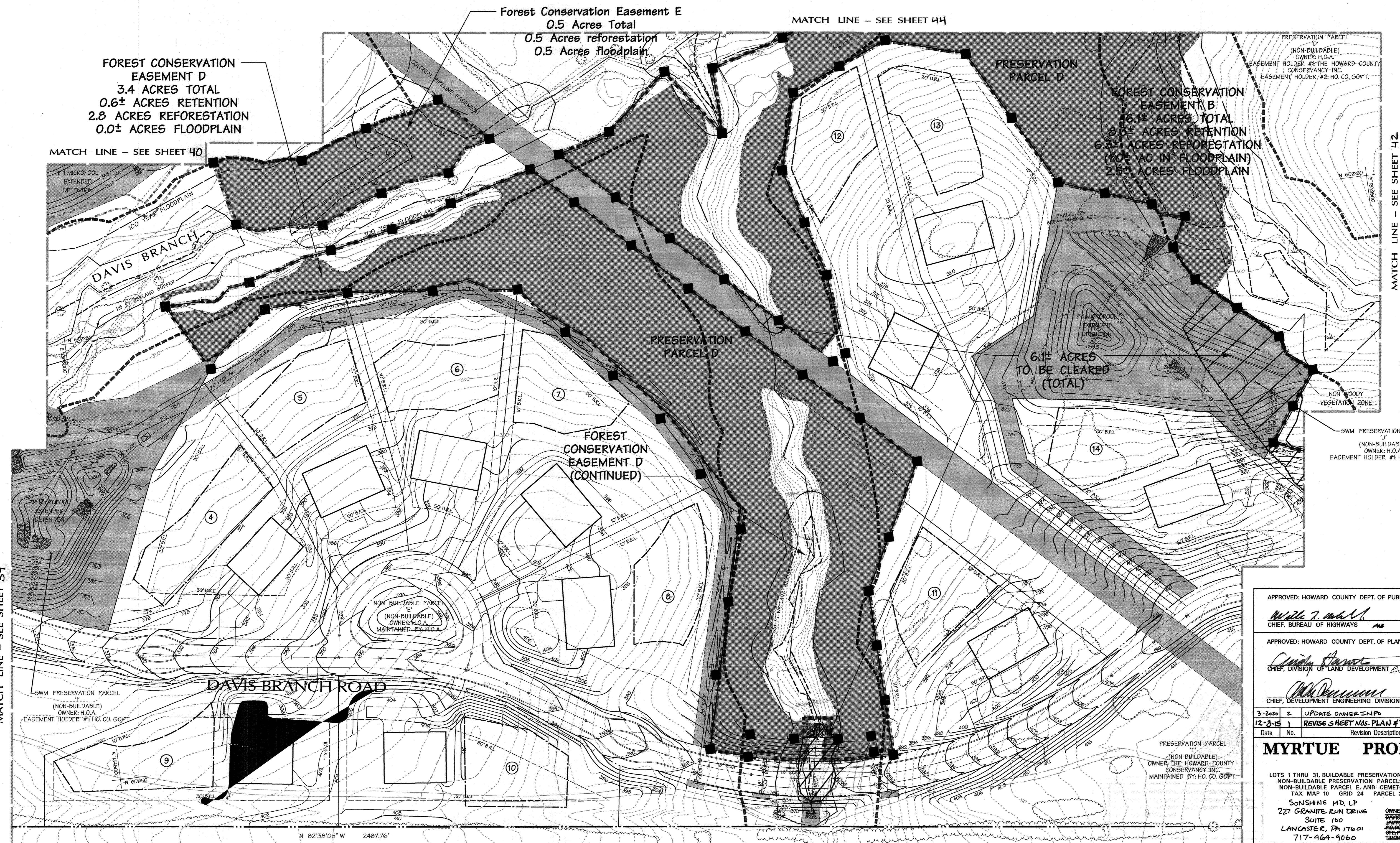
MYRTUE PROPERTY
 LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 TAX MAP 10 GRID 24 PARCEL 225287
 SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

DMW
 Daft-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	MYRTUE PROPERTY	SECTION/AREA	N/A	LOT/PARCEL #	225-287
PLAT # OR L.P.	2812B9	BLOCK #	24	TAXING MAP	10
WATER CODE		SEWER CODE		DEVELOPMENT	6067.04
TITLE FOREST CONSERVATION PLAN					
Des. By	WDE/MS5	Scale	1"=50'	Proj. No.	02033.D
Dwn. By		Date	2/14/07	40 of 56	
Chk. By		Approved			

9/24/07
 Date
 Landscape Architect No. 397

n:\02033.D\Final Plans\02033.D.F01 1.caf Sep 18 09:42:03 2007



FOREST CONSERVATION EASEMENT D
 3.4 ACRES TOTAL
 0.6± ACRES RETENTION
 2.8 ACRES REFORESTATION
 0.0± ACRES FLOODPLAIN

Forest Conservation Easement E
 0.5 Acres Total
 0.5 Acres reforestation
 0.5 Acres floodplain

FOREST CONSERVATION EASEMENT B
 16.1± ACRES TOTAL
 8.5± ACRES RETENTION
 6.3± ACRES REFORESTATION
 (10± AC IN FLOODPLAIN)
 2.5± ACRES FLOODPLAIN

6.1± ACRES TO BE CLEARED (TOTAL)

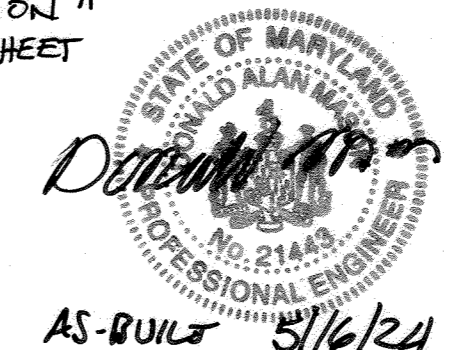
PRESERVATION PARCEL D
 (NON-BUILDABLE)
 OWNER: H.O.A.
 EASEMENT HOLDER #1: THE HOWARD COUNTY CONSERVANCY INC.
 EASEMENT HOLDER #2: HO. CO. GOV'T.

SWM PRESERVATION PARCEL
 (NON-BUILDABLE)
 OWNER: H.O.A.
 EASEMENT HOLDER #1: HO. CO. GOV'T.

NON-BUILDABLE PARCEL E
 (NON-BUILDABLE)
 OWNER: H.O.A.
 MAINTAINED BY H.O.A.

RUTH D. BROWN
 L. 2214 F. 731
 SAMUEL BROWN, RUTH D. BROWN &
 FRANCES LOUISE BROWN
 L. 304 F. 953
 L. 60 F. 36
 1st PARCEL

"NO AS-BUILT INFORMATION" IS PROVIDED ON THIS SHEET



9/24/07
 Date
 3397
 Landscape Architect No.

LEGEND

- WETLAND
- 25' WETLAND BUFFER
- WETLAND SYMBOL
- EX. TREELINE
- SCRUB SHRUB
- HEAD OF STREAM
- STREAM CENTER LINE
- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- LIMIT OF DISTURBANCE
- PROPOSED HOUSES
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- REFORESTATION
- TEMPORARY TREE PROTECTION FENCE
- PERMANENT FOREST PROTECTION SIGNS
- NON WOODY VEGETATION ZONE

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Wade J. Mohr
 CHIEF, BUREAU OF HIGHWAYS
 10-27-07
 DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy Starnes
 CHIEF, DIVISION OF LAND DEVELOPMENT
 11/8/07
 DATE

Mike DeCunzio
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 11/7/07
 DATE

3-2-20	2	UPDATE OWNER INFO
12-3-15	1	REVISE SHEET NOS. PLAN # TITLE BLOCK
Date	No.	Revision Description

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
 TAX MAP 10 GRID 24 PARCEL 225/287
 SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

DMW
 Datt-McCune-Walker, Inc.
 200 East Pennsylvania Avenue
 Towson, Maryland 21286
 (410) 296-3333
 Fax 296-4705

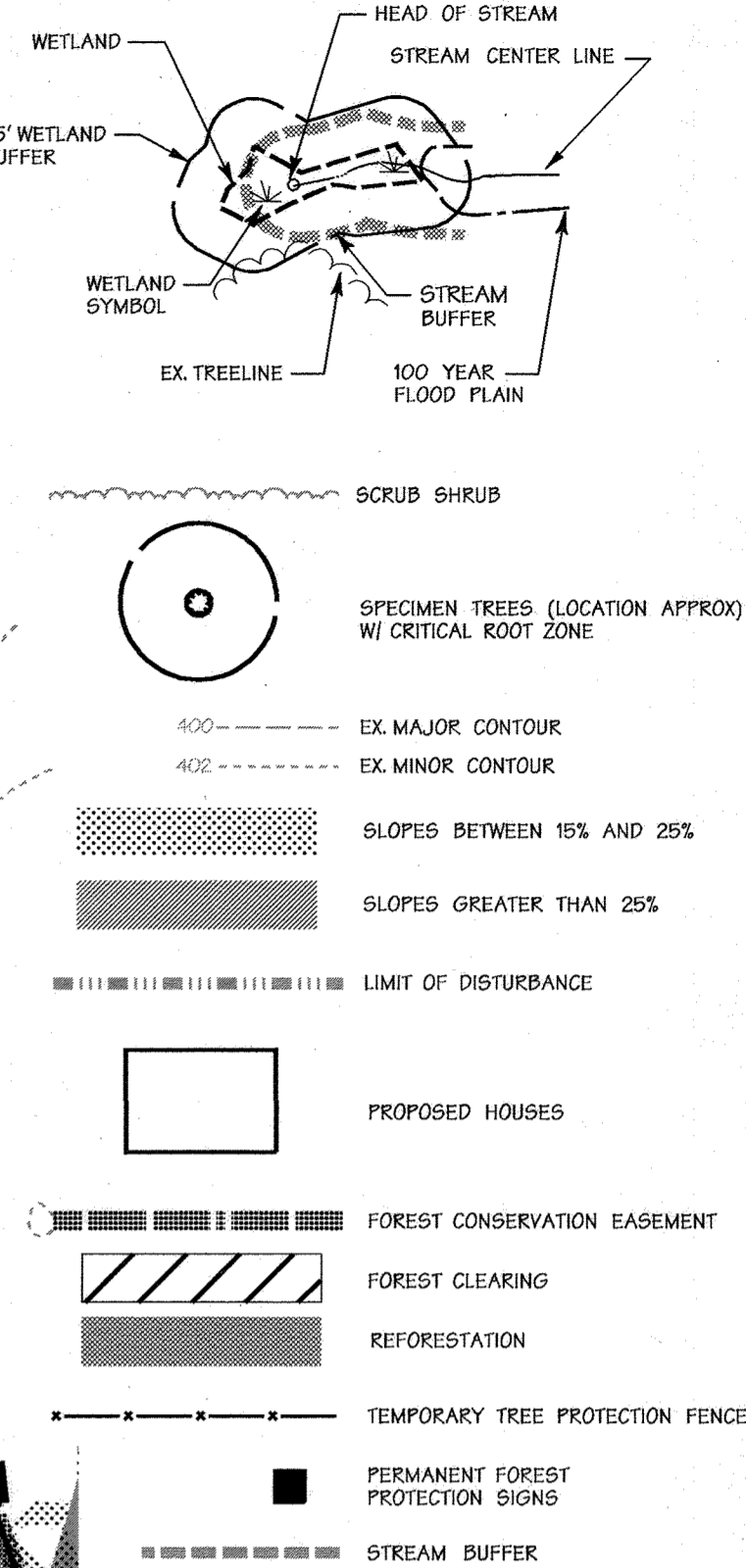
SUBDIVISION NAME	MYRTUE PROPERTY	SECTION/JARA	NA	LOT/PARCEL #	225/287
BLK # OR LOT	24	GRID #	10	TAX/LOT MAP	2nd
WATER CODE		SEWER CODE		DISSECT TRACK	6067.04

FOREST CONSERVATION PLAN

Des. By	Scale	1"=50'	Proj. No.	02033.D
Dwn. By	Date	2/14/07		
Chk. By	Approved			41 of 56

MATCH LINE - SEE SHEET 41

LEGEND



6.1± ACRES TO BE CLEARED (TOTAL)

FCE C CONTINUED

EXISTING FOREST CONSERVATION EASEMENT 2 11.2± AC. TOTAL 10.0 AC. RETENTION (OUTSIDE FLOODPLAIN) F-05-121 (OWENS' PROPERTY)

FOREST CONSERVATION EASEMENT B 16.1± AC. TOTAL 8.3± AC. RETENTION 2.5± AC. REFORESTATION (1.0 ± AC. IN FLOODPLAIN) 2.5 ± AC. FLOODPLAIN

FOREST CONSERVATION EASEMENT C 7.5± AC. TOTAL 0.0± AC. RETENTION 7.5± AC. REFORESTATION 0.0± AC. FLOODPLAIN

FCE C CONTINUED

PRESERVATION PARCEL (NON-BUILDABLE) OWNER: H.O.A. EASEMENT HOLDER #1: THE HOWARD COUNTY CONSERVANCY INC. EASEMENT HOLDER #2: HO. CO. GOVT.

RUTH D. BROWN L. 224 F. 731 SAMUEL BROWN, RUTH D. BROWN & FRANCES LOUISE BROWN L. 394 F. 553 L. 60 F. 36 1st PARCEL

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 28376 Expiration Date: 1-1-21

FOR REVISIONS BY BENCHMARK ENGINEERING INC ONLY. REVISION #1 DEC 3, 2015 #2 3-24-20



NOTE: HATCHING INDICATES EXISTING FORESTS THAT WILL NOT BE RETAINED IN EASEMENT PER SECTION 16.120 (b) (4) (ii) (b) OF THE HOWARD COUNTY CODE. THEREFORE, THESE AREAS ARE COUNTED AS 'CLEARED' FOR FOREST CALCULATION PURPOSES. THE ACTUAL LIMITS OF TREE REMOVAL WILL DEPEND ON INDIVIDUAL LOT DEVELOPMENT. WOODED PORTIONS OF SLOPES GREATER THAN 25% AND THEIR ADJACENT SLOPES GREATER THAN 15% SHALL REMAIN UNDISTURBED.



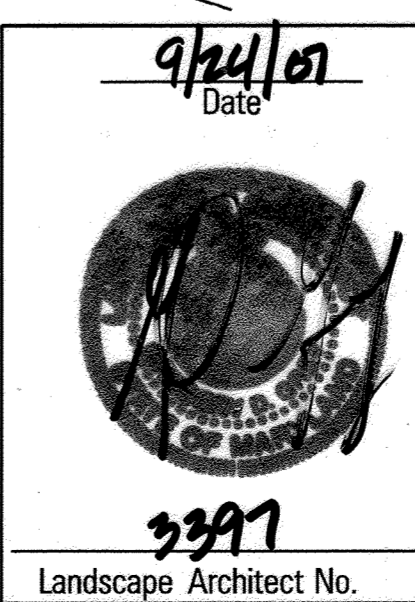
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21243 Expiration Date: 12-21-24

IF NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Date: 10-23-07
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Date: 11/5/10
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Date: 11/10/10
CHIEF, DEVELOPMENT ENGINEERING DIVISION



Landscape Architect No. 3297

Date	No.	Revision Description
3-20-20	2	UPDATE OWNER INFO
12-3-15	1	REVISED SHEET NO. & PLAN # TITLE BLOCK

MYRTUE PROPERTY

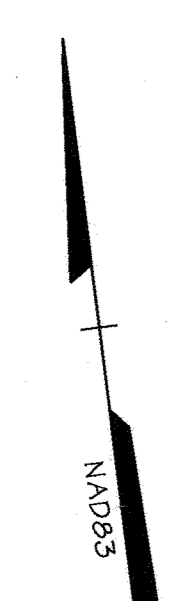
OWNER/DEVELOPER: DAVIS-BRANFELLES JAMES, ESTEY AND OWENS, INC. 227 GRANITE RUN DR SUITE 100 LANCASTER, PA 717-464-9100

DMW Draft-McCune-Walker, Inc. 200 East Pennsylvania Avenue Towson, Maryland 21286 (410) 296-3333 Fax 296-4705

SECTION NAME	MYRTUE PROPERTY	SECTION/AREA	N/A	LOT/PARCEL #	2251287
PLAT OR L.P.	2011289	BLOCK #	24	TRACT MAP	10
WATER CODE		SEWER CODE		OWNER TRACT	6067.04

FOREST CONSERVATION PLAN

Des. By	Scale	1"=50'	Proj. No.	02033.D
Drn. By	Date	2/14/07		
Chk. By	Approved			42 of 56



0.5± AC. FLOODPLAIN
IN EXISTING FCE 1

GEORGE ALAN SMITH &
CYNTHIA JUNE
CALLAHAN
L. 2347 F. 432

EXISTING FOREST
CONSERVATION
EASEMENT 1
2.7± AC. TOTAL
2.2 AC. RETENTION (OUTSIDE FLOODPLAIN)
FOR F-05-121
(OWENS PROPERTY)

FUTURE FOREST CONSERVATION
EASEMENT 3
2.3± AC. TOTAL
2.1± AC. RETENTION (OUTSIDE FLOODPLAIN)
FOR F-06-116
(ZAISER PROPERTY)

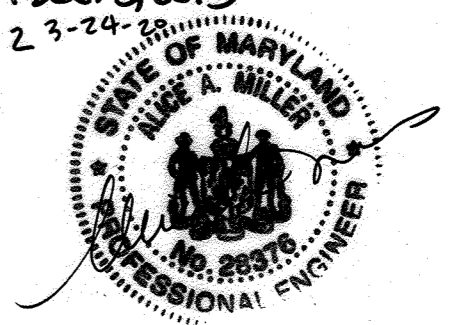
EXISTING FOREST CONSERVATION
EASEMENT 2
11.2± AC. TOTAL
10.0± AC. RETENTION (OUTSIDE FLOODPLAIN)
FOR F-05-121
(OWENS PROPERTY)

1.2± AC. FLOODPLAIN
IN EXISTING FCE 2

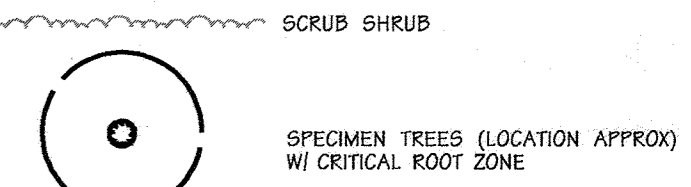
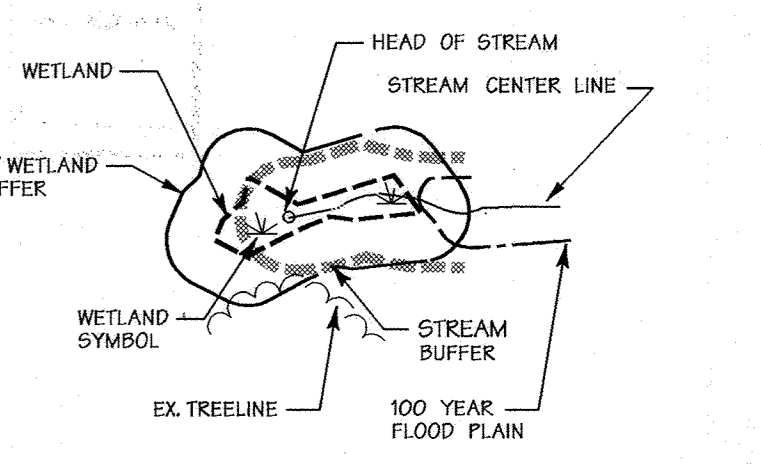
MARK S. VALENTINE &
APRIL S. VALENTINE
L. 5093 F. 277

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 28376 Expiration Date: 1-1-21

FOR REVISION BY BENCH MAR ENGINEERING INC.
ONLY. REVISION #1 DEC. 3, 2015
2 3-29-16



LEGEND



TREE	DESCRIPTION	CONDITION	STATUS
1	30" WHITE OAK	FAIR	TO BE SAVED *
2	41" TULIP POPLAR	FAIR	TO BE SAVED *
3	32" TULIP POPLAR	POOR	TO BE REMOVED
4	34" RED MAPLE	FAIR	TO BE REMOVED
5	37" TULIP POPLAR	GOOD	TO BE SAVED *

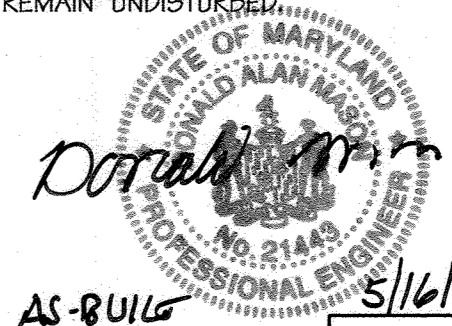
* SPECIMEN TREES 1, 2 AND 5 SHALL REMAIN UNDISTURBED TO THE EXTENT FEASIBLE DURING CONSTRUCTION.

- EX. MAJOR CONTOUR
- EX. MINOR CONTOUR
- SLOPES BETWEEN 15% AND 25%
- SLOPES GREATER THAN 25%
- LIMIT OF DISTURBANCE
- PROPOSED HOUSES
- FOREST CONSERVATION EASEMENT
- FOREST CLEARING
- NON WOODY VEGETATION ZONE
- REFORESTATION
- TEMPORARY TREE PROTECTION FENCE
- PERMANENT FOREST PROTECTION SIGN
- TEMPORARY SPECIMAN TREE PROTECTION SIGN

NOTE:
HATCHING INDICATES EXISTING FORESTS THAT WILL NOT BE RETAINED IN EASEMENT PER SECTION 16-122 (5) (4) (iii) (b) OF THE HOWARD COUNTY CODE; THEREFORE THESE AREAS ARE COUNTED AS "CLEARED" FOR FOREST CALCULATION PURPOSES. THE ACTUAL LIMITS OF TREE REMOVAL WILL DEPEND ON INDIVIDUAL LOT DEVELOPMENT. WOODED PORTIONS OF SLOPES GREATER THAN 25% AND THEIR ADJACENT SLOPES GREATER THAN 15% SHALL REMAIN UNDISTURBED.

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

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License No. 21443 Expiration Date: 12-21-24



AS-BUILT 5/16/24

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walt J. ... 10-27-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cindy ... 11/8/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

... 11/7/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description
3-20-20	2	UPDATE OWNER INFO
12-3-15	1	REVISED SHEET NO. PLAN & TITLE BLOCK

MYRTUE PROPERTY

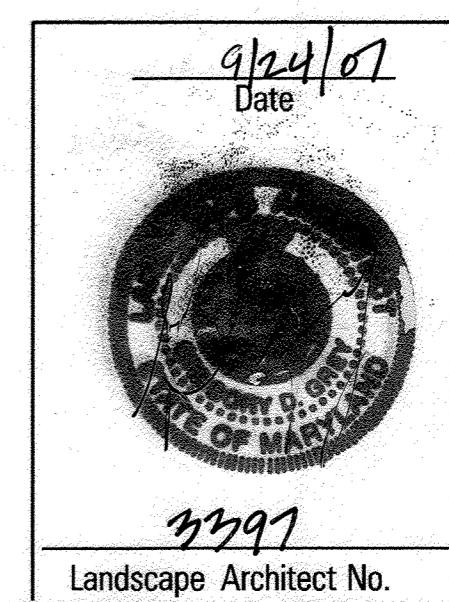
LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
TAX MAP 10 GRID 24 PARCEL 225/287
SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax: 296-4705

LABORER NAME	PROPERTY	SECTION/AREA	N/A	LOT/PARCEL #
MYRTUE PROPERTY	225/287			225/287
DATE OF MAP	BLK # / LOTS	TAXING MAP	DEPT. DISTRICT	OFFICE MAP
281289	24	10	3rd	6067.04

TITLE FOREST CONSERVATION PLAN

Des. By	Scale	Proj. No.
WDE/MS5	1"=50'	02033.D
Drn. By	Date	
WDE/MS5	2/14/07	
Chk. By	Approved	
		43 of 56



MATCH LINE - SEE SHEET 44

MATCH LINE - SEE SHEET 42

FCE B CONTINUED

FCE C CONTINUED

DAVIS
BRANCH
ROAD

6.1± ACRES
TO BE CLEARED
(TOTAL)

#1 30" WHITE OAK
(FAIR CONDITION)

#3 32" TULIP POPLAR
(POOR CONDITION)

#2 41" TULIP POPLAR
(FAIR CONDITION)

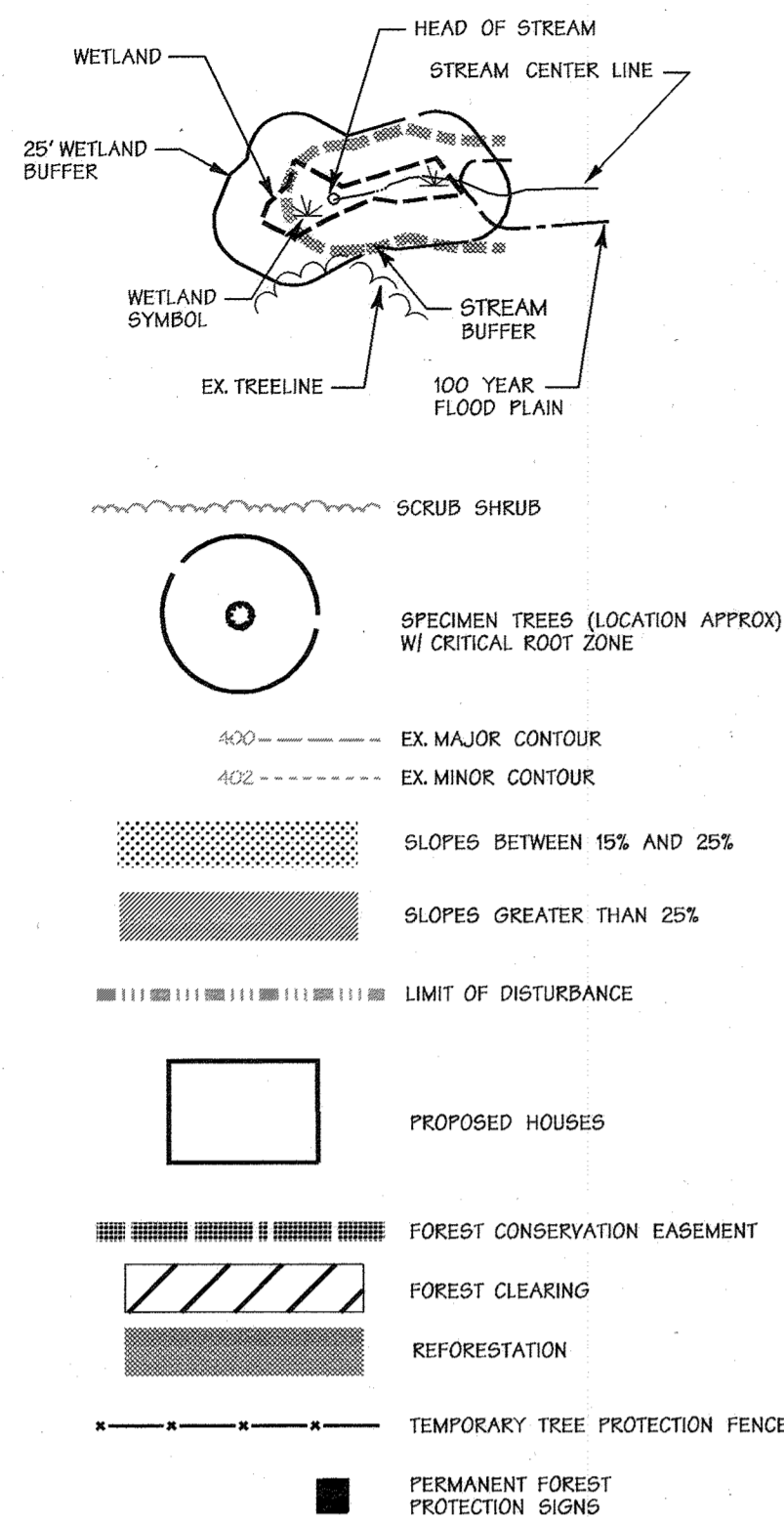
#4 34" RED MAPLE
(FAIR CONDITION)

#5 37" TULIP POPLAR
(GOOD CONDITION)

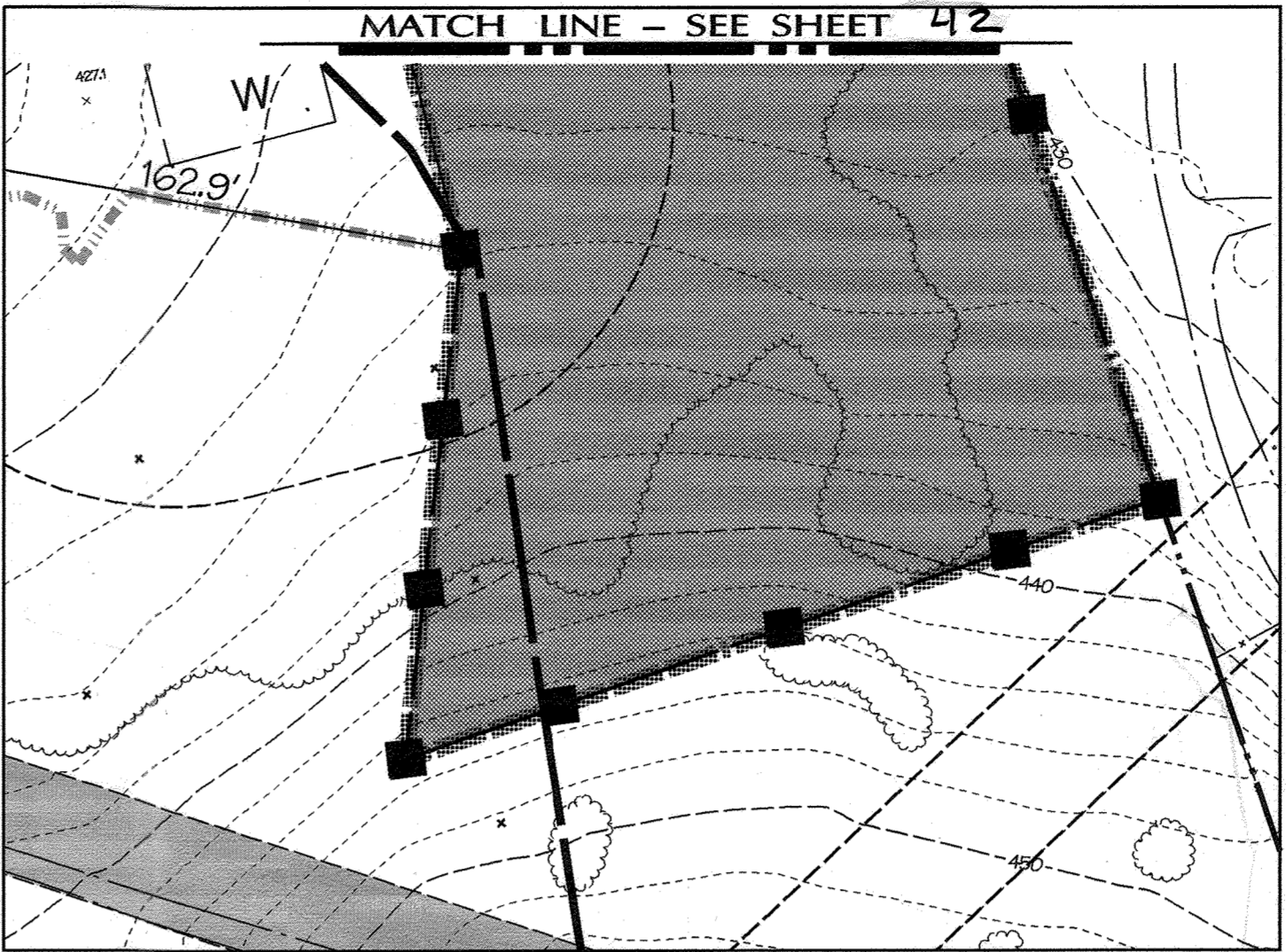
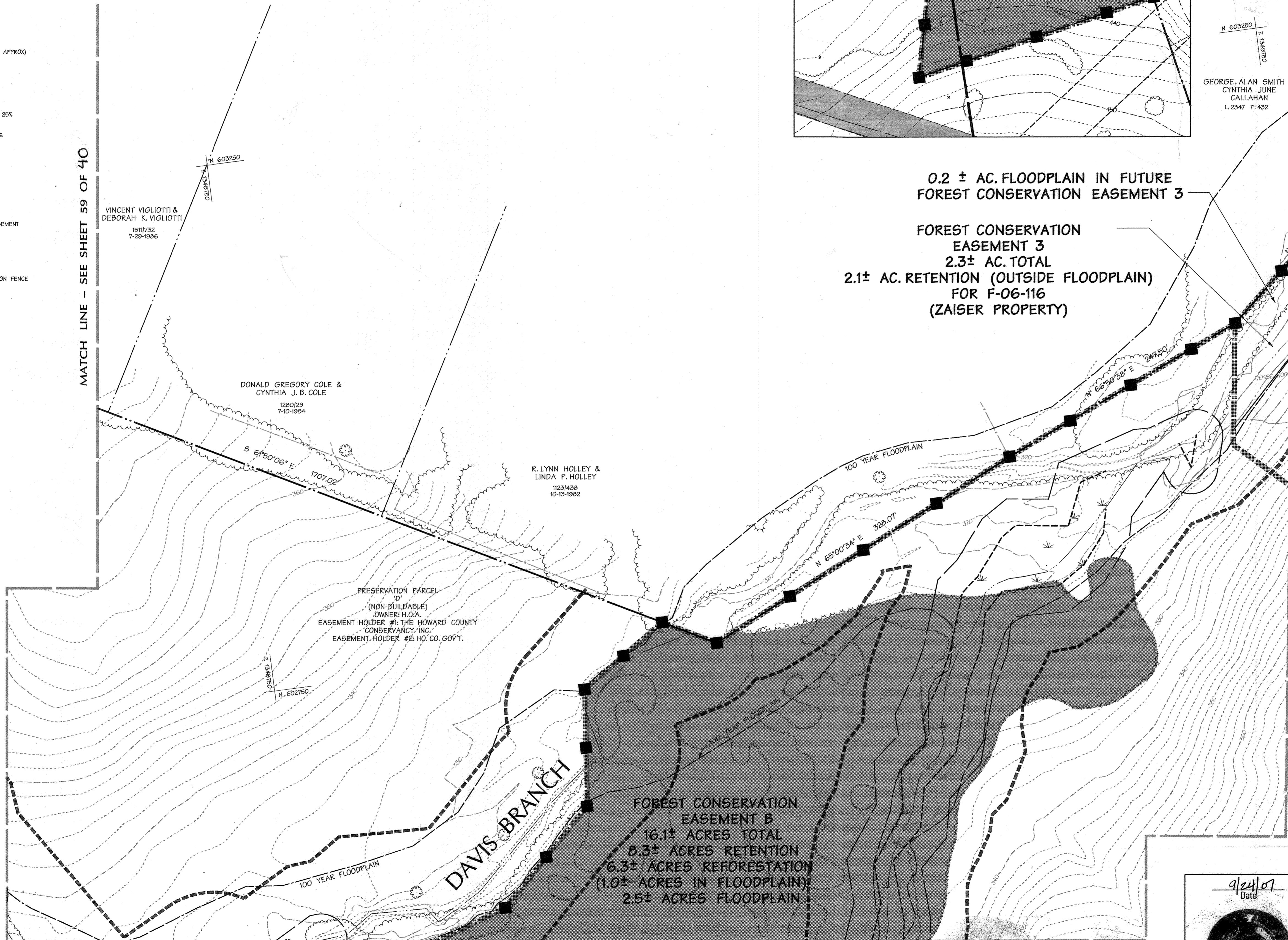
SWM PRESERVATION PARCEL
(NON-BUILDABLE)
OWNER: H.O.A.
EASEMENT HOLDER: HO. CO. GOV'T.

1020293\Final Plans\02033.F05 - 10-4-07.dwg

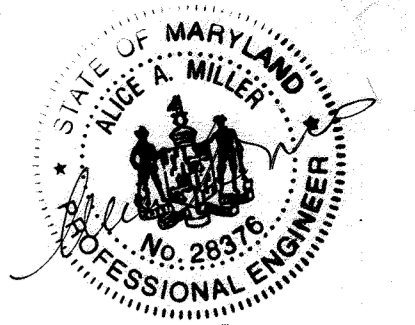
LEGEND



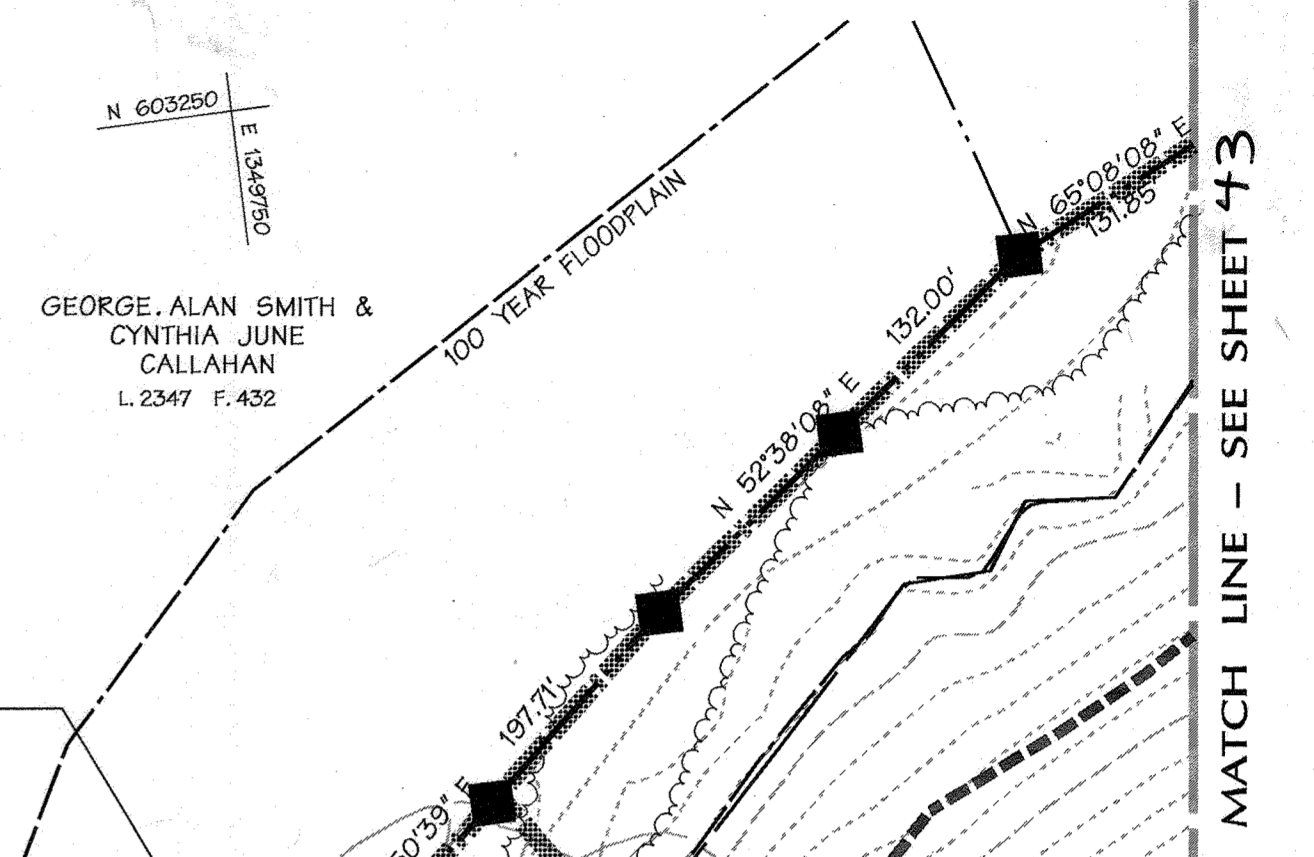
MATCH LINE - SEE SHEET 59 OF 40



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 28376 Expiration Date: 1-1-21
FOR REVISIONS BY BENCHMARK ENGINEERING, INC. ONLY. REVISION #1 DEC. 3, 2015 # 2 3-24-20

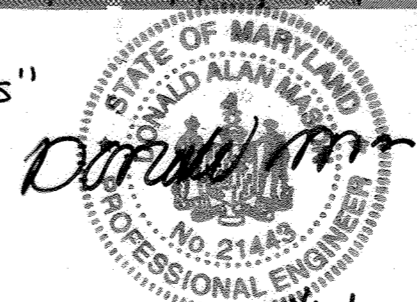


12-15-15
3-24-20



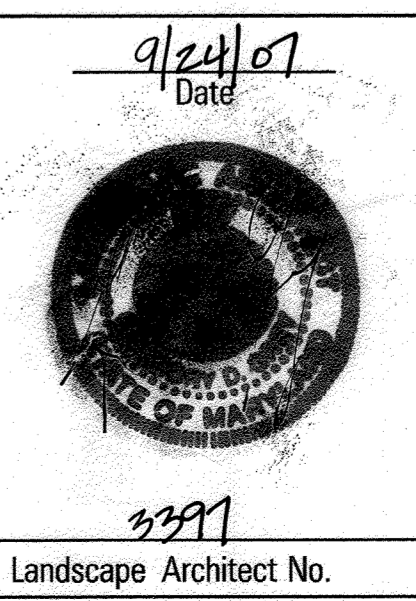
MATCH LINE - SEE SHEET 41

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



AS-BUILT 5/16/24

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License No. 21443 Expiration Date: 12-21-24



APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. Smith 10-23-07
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Cinda Hamt 11/8/07
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

John Deunman 11/7/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Date	No.	Revision Description
3-24-20	2	UPDATED OWNER INFO
12-3-15	1	REVISED SHEET NOS. PLAN # TITLE BLOCK

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
TAX MAP 10 GRID 24 PARCEL 225287

SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

OWNER/DEVELOPER
SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	MYRTUE PROPERTY	SECTION/AREA	N/A	LOT/PARCEL #	225/287
PLAT OR LR	281/289	BOOK #	24	PAGE/NO MAP	10
WATER CODE		SEWER CODE		DEVELOPMENT	3rd
				ORDER TRACT	6067.04

TITLE **FOREST CONSERVATION PLAN**

Des. By	Scale	1"=50'	Proj. No.	02033.D
Drn. By	WDE/MS5/MDT	Date	11/17/06	
Chk. By	Approved			44 of 56

STANDARDS AND SPECIFICATIONS FOR PLANTING

1. PLANT MATERIAL SELECTION

A. Nursery grown plant materials greater than 1" caliper should meet or exceed the requirements of the American Nurserymen Specifications, i.e. should be typical of the species and variety, have a normal habit of growth, be first quality, sound, vigorous, well-branched, have healthy, well furnished root systems, and be free of disease, insect pests and mechanical injuries.

B. Planting stock less than 1" caliper should meet the following standards:

- Seedling whips:
- Hardwoods - 1/4" to 1/2" caliper with roots not less than 8" long
- Shrubs - 1/8" or larger caliper with 8" root system.

2. PLANTING SITE PREPARATION

Soils shall not be disturbed outside the area necessary for planting individual specimens and the removal of exotic invasive plant material. These areas should be stabilized as shown on the temporary seeding notes. At least two weeks prior to the proposed planting date, the contractor shall spot spray with Round-up, Aiy or other approved herbicide to remove multiflora rose and other undesirable vegetation.

3. PLANTING PERIOD

All material shall be planted between September 15 and May 31. Material shall not be installed when ground is frozen.

4. PLANT MATERIAL STORAGE

Plants should be planted within 24 hours of delivery if possible. Plant material which are left unplanted for more than 24 hours shall be protected from direct sun and weather and kept moist. Nursery stock should not be left unplanted for more than two weeks.

5. ON-SITE INSPECTION

Prior to planting, planting stock shall be inspected by the landscape architect or other qualified professional familiar with this plan. Plant material not conforming to standard nurseryman specifications for size, form, vigor, roots, trunk wounds, insects and disease should be replaced.

6. TOPSOIL FOR PLANTING SOIL

A. On-site material or imported from same source as topsoil used on site for finish grading.

- Uniform composition, free of subsoil, clay lumps, stones, stumps, roots or similar objects larger than 1 inch.
- Topsoil must be free of plants or plant parts of bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, Canada thistle, or others as specified.
- All topsoil shall be tested by a recognized laboratory for pH and soluble salts. A pH of 4.5 to 7.5 is required. Soluble salts shall not be higher than 500 parts per million.

7. ADDITIVE FOR BACKFILL MIX

A. Wood Residuals:

- Source shall be well composted, not chemically treated.
- Physical properties - grading:

U.S. Sieve	Dry Weight Percent Passing
3/8"	100
1/4"	90 - 100
No. 8	70 - 100
No. 35	0 - 30

B. Sand

- Physical Properties - Grading:

U.S. Sieve	Dry Weight Percent Passing
No. 4	100
No. 10	95 - 100
No. 16	90 - 100
No. 35	85 - 100
No. 60	0 - 50
No. 140	0 - 20
No. 270	0 - 7
- Chemistry:
 - Saturation Extract Conductivity (EC) - Nil - 3.0
 - Sodium Absorption Ratio (SAR) - Nil - 6.0
 - Boron - ppm in saturation extract solution - Nil - 1.0
 - Reaction (pH) - 6.0 - 7.5
 - Available calcium - sodium acetate extractable - ppm - Nil - 2000 dry weight

- Organic content by ash analysis: 90 - 100 percent dry weight
- Chemistry:
 - Range:
 - Saturation Extract Conductivity (EC) - Nil - 3.5
 - Reaction (pH) - 3.0 - 5.5

8. Treble Superphosphate: Commercial product containing 19 to 20 percent available phosphoric acid.

8. MULCH

- A. Shredded long fiber hardwood.
- B. Mulch shall have been shredded within the last six (6) months.

9. PLANTING MIX

- A. Planting mix shall be prepared at approved on-site staging area using approved on-site existing soil. Mix minimum quantities of 20 cubic yards or sufficient mix for entire job if less than 20 cubic yards is required.
- B. Thoroughly mixed in the following proportions for tree and shrub planting mix:
 - 5 cy Existing soil
 - 2 cy Sharp sand
 - 3 cy Wood residuals
 - 4.5 lbs. Treble superphosphate
 - 5 lbs. Dolomite limestone (eliminate for acid loving plants)

10. LAYOUT AND EXCAVATION OF PLANTING AREAS

- A. Plants shall be placed in each zone at random locations shown at spacing as indicated on the plan.
- B. The Landscape Architect or qualified professional will check location of plants in the field and shall adjust to exact position before planting begins.
- C. Subsoil shall not be worked when moisture content is so great that excessive compaction will occur, nor when it is so dry that clods will not readily break. Water shall be applied, if necessary, to bring soil to an optimum moisture content before tilling and planting.
- D. Tree pits shall not be excavated more than 24 hours in advance of planting operation. Tree pits shall be excavated to the following dimensions:

Excavation for	Width	Depth
Canned Trees	Can + 12 in.	Can + 4 in.
B&B Trees	Ball + 12 in.	Ball + 4 in.
- E. Excavate shrub pits to the following depths:

Excavation for	Width	Depth
Shrubs	Ball or Can + 8 in.	Can + 4 in., not less than 12 in.

11. PREPARING PLANT MATERIALS FOR PLANTING

- A. Container stock shall be removed carefully after cans have been cut on two sides with approved cutter. Do not use spade to cut cans. Do not lift or handle container plants by tops, stems or trunks at any time.
- B. Do not bind or handle any plant with wire or rope at any time so as to damage bark or break branches. Lift and handle plants only from bottom of ball.
- C. Balled and burlapped (B&B) plants shall have firm balls of earth. Plants moved with a ball will not be accepted if the ball is cracked or broken before or during planting operations. B&B material shall be dug only when dormant. Pre-dug stored B&B material shall be inspected and approved at the storage site.
- D. Do not force roots for bare rooted trees into excavated pits - custom dig pits to receive roots without deformation.

12. MIXING

- A. Mix soil base, amendments and chemical additives by mechanical means.
- B. Soil and sand bases shall be completely pulverized and free of lumps or aggregated material. Moisture content of base materials shall not be such that chemical granular or pelletized additives become dissolved during the mixing process.
- C. Mix media in quantities of not less than 20 cubic yards or mix total quantity required if less than 50 cubic yards. The Contractor shall be responsible for continuity between batches.
- D. Contaminating backfill mix with unmixed soil in backfill mixing lots shall be avoided.

13. INSTALLATION OF CONTAINERIZED PLANT MATERIAL

- A. Scarify the walls and bottom of all plant pits immediately prior to the placement of plant and backfill mix. The Contractor shall remove all glazing of soil caused by an auger or mechanical hole digger.
- B. Wells around trees and shrubs: after planting is complete, form a soil well 3 inches high around each plant, extending to the outer limit of the plant pit in accordance with planting details shown on the Drawings.
- C. Smooth planted areas to conform to specified grades after full settlement as occurred. Contractor shall bear final responsibility for proper surface drainage of planted areas. Any discrepancy in the drawings or specifications, obstructions on the site, or prior work done by another party, which Contractor feels precludes establishing proper drainage, shall be brought to the attention of the Landscape Architect in writing.
- D. Water all plants immediately again after planting.
- E. Spread mulch in required areas to the compacted depth of 2 inches.

14. Maintenance by the Contractor

- A. A 2-year Contractor's Maintenance and Monitoring Period shall be at mobilization. Seventy-five percent survivorship must be guaranteed for this period. The Site Shall be inspected at the end of the two year period to ascertain survivorship and provide for replacement if necessary.
- B. The Contractor's maintenance of new planting shall consist of watering, cultivating, weeding (and spot spraying with an approved herbicide as needed to control multiflora rose), mulching, and removing invasive vegetation as necessary to insure survival. The Contractor shall maintain and protect plantings from herbivory using Ropel or other approved herbivore deterrent as necessary to ensure survival.
- C. Protect planting area and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treat or replace as directed by Landscape Architect at no additional cost to Owner.

GUARANTEE: A MINIMUM SURVIVAL RATE OF 75% IS TO BE GUARANTEED BY THE CONTRACTOR AT THE END OF THE TWO YEAR MAINTENANCE PERIOD.

PRECONSTRUCTION MEETING/CONSTRUCTION PERIOD PRACTICES

Before construction begins, a required preconstruction meeting shall be held. The principle contractors, engineer, Howard County Inspectors and a qualified forest professional familiar with the plan shall be present. All items pertaining to forest retention, tree preservation, and construction period practices shall be discussed.

Any changes to the plan due to on-site conditions must be approved by the Howard County Department of Planning and Zoning.

POST CONSTRUCTION MANAGEMENT/MAINTENANCE BY CONTRACTOR

All dead trees or tree limbs which pose an immediate safety hazard will be felled. Trees dropped within the forest retention area will not be removed.

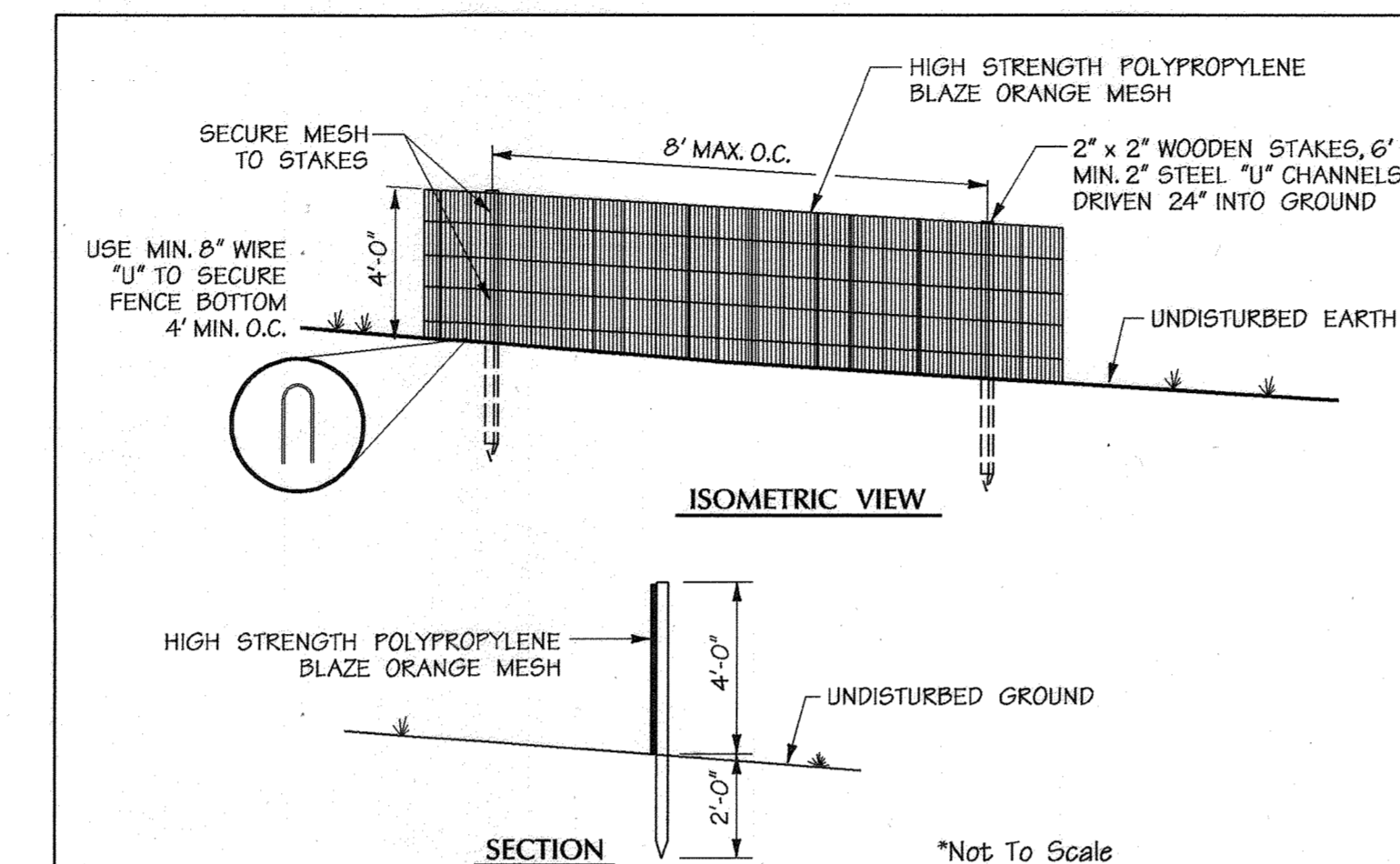
All temporary forest protection structures will be removed after construction and permanent signage will be placed where indicated on the plan.

A 2-year Contractor's Maintenance and Monitoring Period shall begin at mobilization. Seventy five percent survivorship must be guaranteed for this period. The site shall be inspected at the end of the two year period to ascertain survivorship and provide for replacement if necessary.

The Contractor's maintenance of new planting shall consist of watering, cultivating, weeding, and mulching as necessary to insure survival.

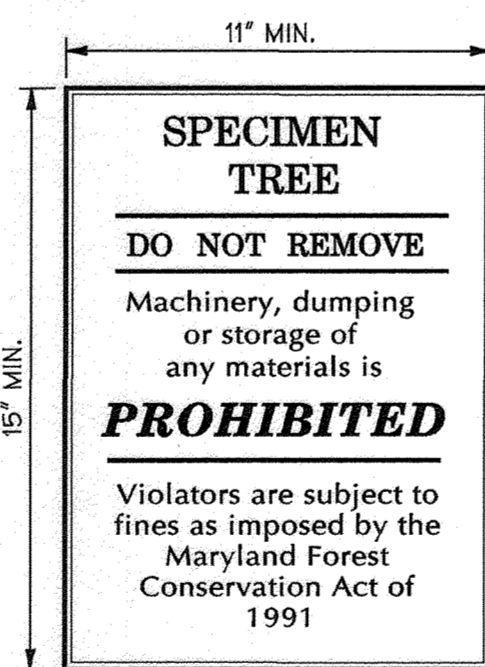
Contractor shall protect planting areas and plants at all times against damage of all kinds for duration of maintenance period. Maintenance includes temporary protection barriers and signs as required for protection. If any plants become damaged or injured, because sufficient protection was not provided, treat or replace as directed by Landscape Architect at no additional cost to Owner.

REFORESTATION AREAS SHOWN ON THIS PLAN TO BE PLACED IN FOREST CONSERVATION EASEMENT WITH PERMANENT FOREST PROTECTION SIGNS PLACED AT 50' TO 100' INTERVALS AROUND EASEMENTS.



- NOTES:**
- THIS DETAIL IS FOR FOREST PROTECTION DEVICE ONLY.
 - FOREST RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF FOREST RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING THE DEVICE.
 - ROOT DAMAGE SHALL BE AVOIDED.
 - PROTECTION SIGNAGE MAY ALSO BE USED.
 - FOREST PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
 - INSTALLATION OF FOREST PROTECTION FENCE MUST BE APPROVED BY BALTIMORE COUNTY EIR (410-887-3920) PRIOR TO ISSUANCE OF BUILDING OR GRADING PERMITS.

Forest Protection Fence

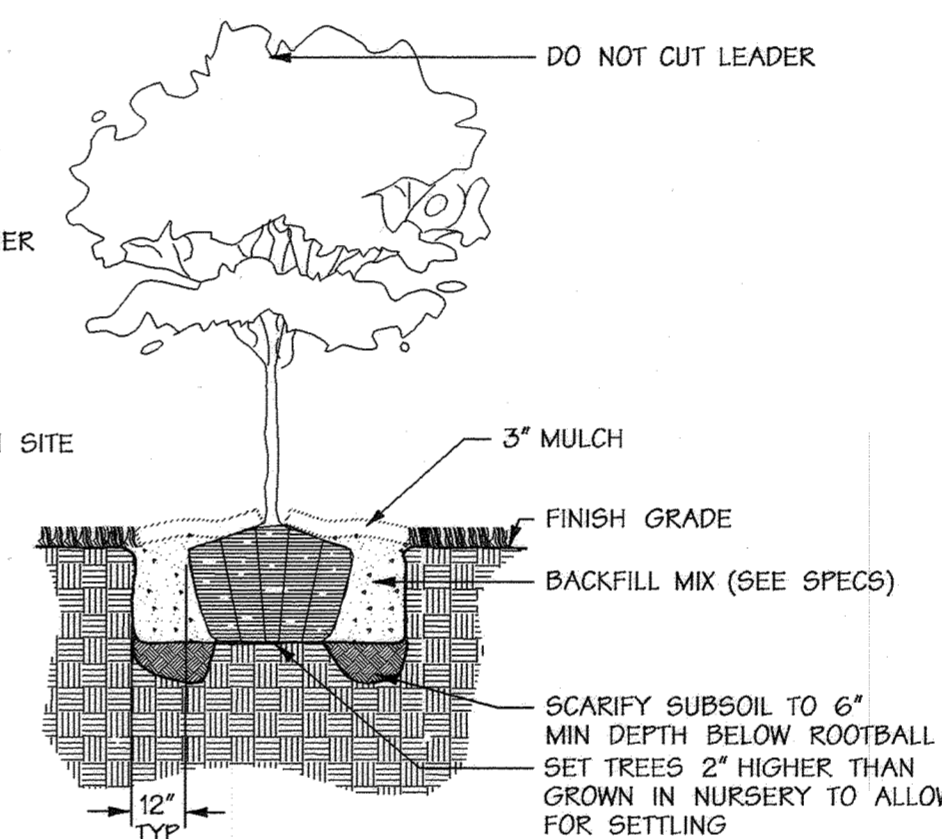


Specimen Tree Protection Signage

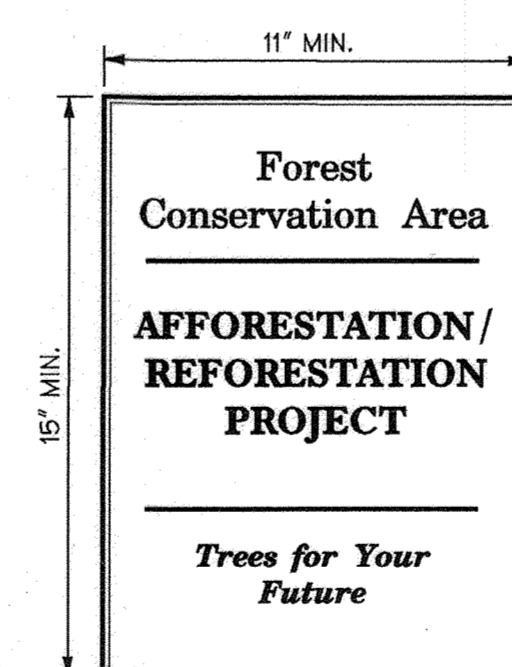
Note to Contractor:
Zone I species shall be planted within wetlands. Zone II species shall be planted within wetland buffers and floodplains. Zone III species shall be planted on all remaining uplands. Each planting area shall have a minimum of five different species. Maintenance is required to remove and control exotic, invasive herbaceous and shrub species throughout the planting areas. Tree shelters shall be used.

PLANTING PROCEDURES FOR ALL CONTAINER GROWN TREES AND SHRUBS:

- REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER
- GENTLY LOOSEN ROOTS FROM SOILS. ROOTS MAY NOT BE CUT OR TRIMMED ON SITE
- PLANT SHRUB OR TREE 1 TO 2 INCHES ABOVE THE EXISTING GRADE.
- APPLY 2 TO 3 INCH THICK LAYER OF SHREDDED HARDWOOD MULCH



Typical Tree Planting (For container grown)



Permanent Signage

SIGNS TO BE PLACED ON METAL POSTS 5\"/>

PLANT LIST

Zone 1 - Wetland - Plants required - 245 (350 whips/acre x 0.7 acres)

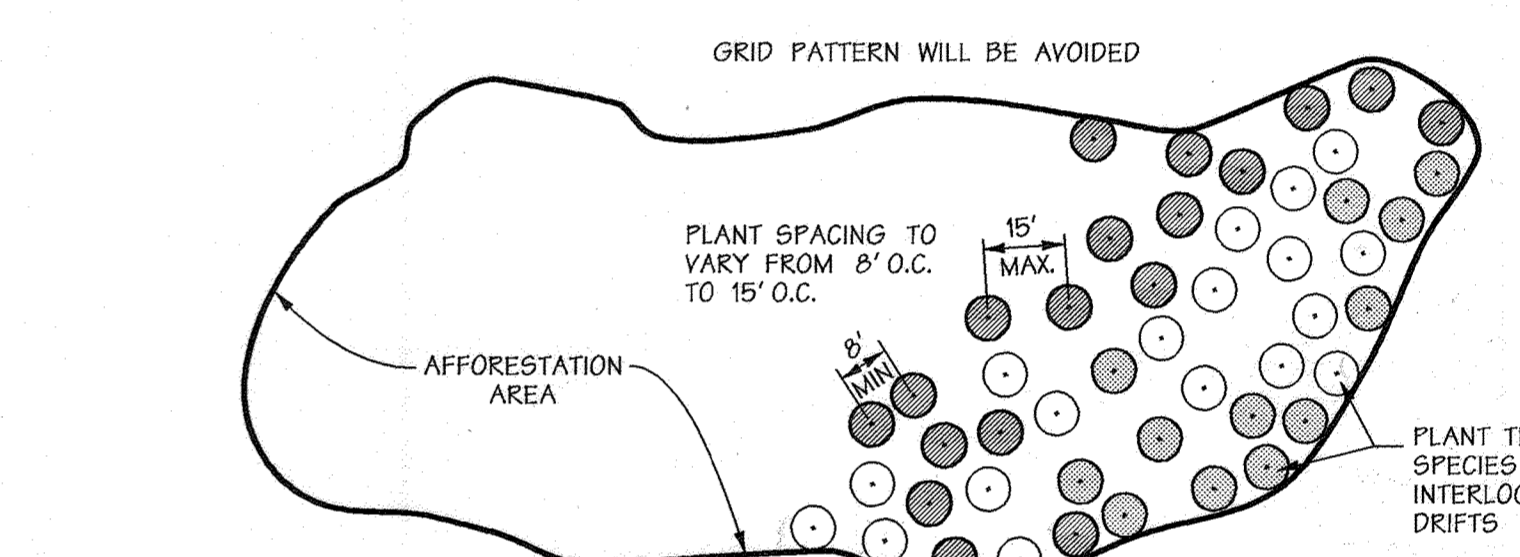
Species name	Common name	Size	Spacing	Quantity	Tolerance	Indicator status
Quercus bicolor	swamp white oak	18\"-24\" height/cont. grown	11' x 11'	49	full sun to part shade	FACW
Salix nigra	black willow	18\"-24\" height/cont. grown	11' x 11'	49	full sun to part shade	FACW
Taxodium distichum	bald cypress	18\"-24\" height/cont. grown	11' x 11'	49	full sun to part shade	OBL
Betula nigra	river birch	18\"-24\" height/cont. grown	11' x 11'	49	full sun	FACW
Cornus amomum	silky dogwood	18\"-24\" height/cont. grown	11' x 11'	49	full sun to part shade	FACW
TOTALS				245		

Zone 2 - Wetland Buffers and Floodplain - Plants required - 525 (350 whips/acre x 1.5 acres)

Species name	Common name	Size	Spacing	Quantity	Tolerance	Indicator status
Acer rubrum	red maple	18\"-24\" height/cont. grown	11' x 11'	120	full sun to part shade	FAC
Betula nigra	river birch	18\"-24\" height/cont. grown	11' x 11'	95	full sun	FACW
Liquidambar styraciflua	sweetgum	18\"-24\" height/cont. grown	11' x 11'	100	full sun	FAC
Platanus occidentalis	sycamore	18\"-24\" height/cont. grown	11' x 11'	130	full sun to part shade	FACW
Fraxinus pennsylvanica	green ash	18\"-24\" height/cont. grown	11' x 11'	80	full sun to part shade	FACW
TOTALS				525		

Zone 3 - Uplands - Plants required - 5,250 (350 whips/acre x 15.0 acres)

Species name	Common name	Size	Spacing	Quantity	Tolerance	Indicator status
Acer rubrum	red maple	18\"-24\" height/cont. grown	11' x 11'	950	full sun to part shade	FAC
Amelanchier canadensis	serviceberry	18\"-24\" height/cont. grown	11' x 11'	275	full sun to part shade	FACU
Cercis canadensis	Eastern redbud	18\"-24\" height/cont. grown	11' x 11'	300	full sun to part shade	FACU
Liriodendron tulipifera	tulip poplar	18\"-24\" height/cont. grown	11' x 11'	865	full sun	FACU
Liquidambar styraciflua	sweetgum	18\"-24\" height/cont. grown	11' x 11'	950	full sun	FAC
Prunus serotina	black cherry	18\"-24\" height/cont. grown	11' x 11'	725	full sun	FACU
Quercus alba	white oak	18\"-24\" height/cont. grown	11' x 11'	700	full sun to part shade	FACU
Quercus rubra	Northern red oak	18\"-24\" height/cont. grown	11' x 11'	685	full sun to part shade	FACU
TOTALS				5,250		



Planting Design Schematic

Not To Scale

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter J. ... 10-23-07
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Quincy ... 11/8/07
CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: *...* 11/7/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Date	No.	Revision Description
3/20/22	2	UPDATED OWNER INFO
12-3-15	1	REVISED SHEET NO. IN TITLE BLOCK

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1
TAX MAP 10 GRID 24, PARCEL 225287

SONSHINE MD, LP
227 GRANITE RUN DRIVE
SUITE 100
LANCASTER, PA 17601
717-464-9060

OWNER/DEVELOPER
DAVE BRANELL
JAMES BRANELL AND CO. INC.
P.O. BOX 588
LANCASTER, PA 17602
717-399-2200

DMW
Daft-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4705

A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	MYRTUE PROPERTY	SECTION/AREA	N/A	LOT/PARCEL #	225287
RATE OR LOT	281289	BLK # / LOT	10	DEPT. DISTRICT	3rd
WHOLE CODE		SEWER CODE		DEPT. TRACT	6067.04

TITLE FOREST CONSERVATION PLAN SPECIFICATIONS and DETAILS

Des. By	Scale	As Shown	Proj. No.	02033.D
Dwn. By	M55	Date	11/17/06	
Chk. By	Approved			45 of 56

F-06-104 AS-BUILT

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

AS-BUILT 5/16/24

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. 21423, Expiration Date: 12-21-24

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 28376, Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING INC.
ONLY. REVISION # 1 DEC 3, 2015
2 3-24-20

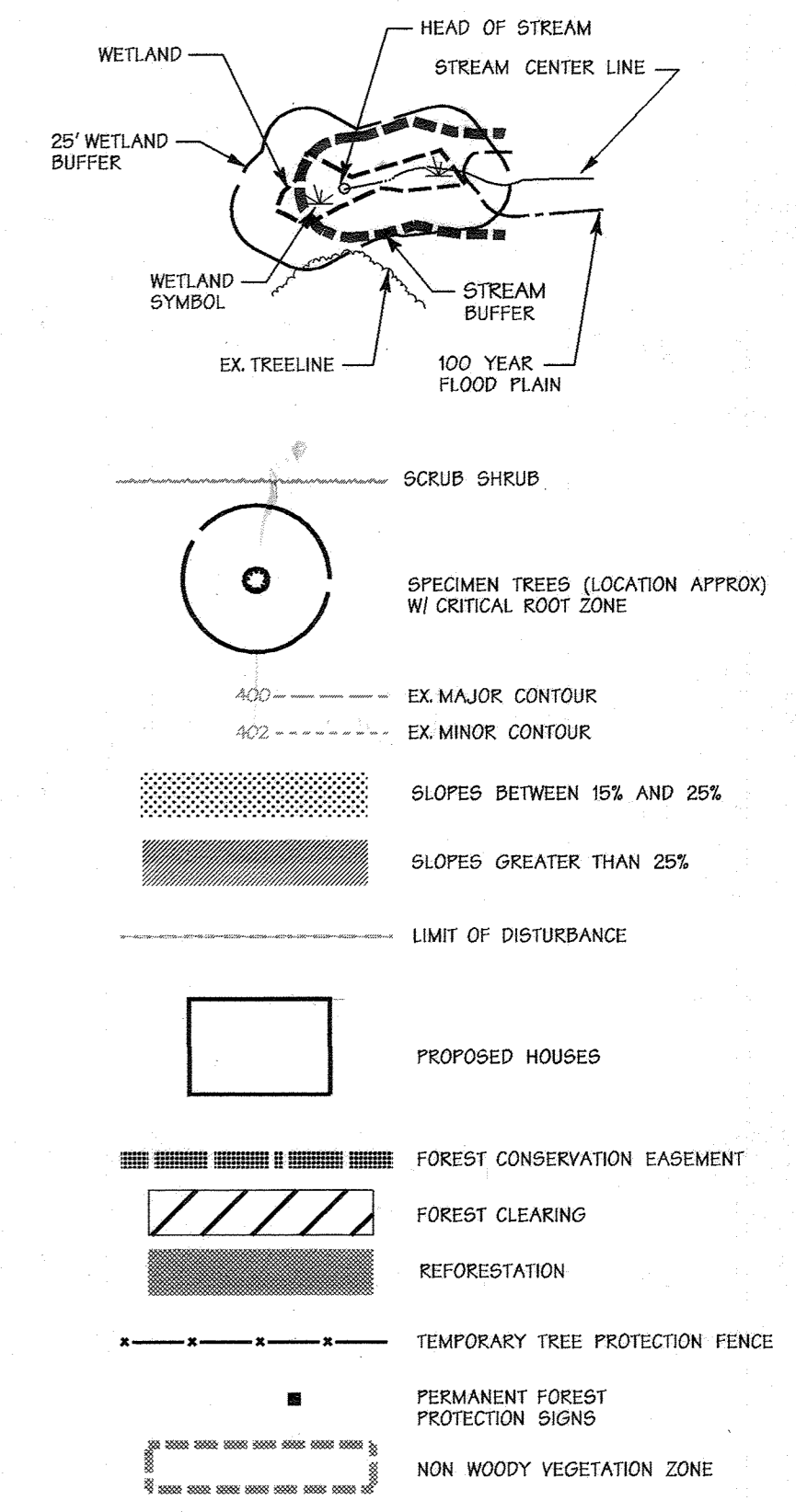
Professional Engineer Seal for James A. Miller, License No. 21423, State of Maryland.

Professional Engineer Seal for David M. ... License No. 28376, State of Maryland.

9/24/07 Date
3097
Landscape Architect No.

10/20/2015 Final Plans 10/20/2015 E07 File Size: 18,084,820 Bytes

LEGEND



Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 28376 Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION #1 DEC. 3, 2015 # 2 3-24-20

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
William J. ... 10-23-07
CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING
Christy ... 11/8/09
CHIEF, DIVISION OF LAND DEVELOPMENT PV DATE

David ... 11/7/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

3-24-20	2	UPDATE OWNER INFO
12-3-15	1	REVISE SHEET NOS. PLAN & TITLE BLOCK
Date	No.	Revision Description

MYRTUE PROPERTY

LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCELS E, AND CEMETERY LOT 1 TAX MAP 10 GRID 24 PARCEL 225/287
SONSHINE MD, LP
227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060
OWNER/DEVELOPER
DAVID ...
LANDSCAPE ARCHITECT
P.O. BOX 2200
LANCASTER, PA 17601

DMW
Duff-McCune-Walker, Inc.
200 East Pennsylvania Avenue
Towson, Maryland 21286
(410) 296-3333
Fax 296-4706
A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

SUBDIVISION NAME	MYRTUE PROPERTY	SECTION/AREA	N/A	LOT/PARCEL #	225/287
PLAT # OF	2811269	BOOK #	24	PAGE/DATE	10
WATER CODE		SEWER CODE		GRID	3rd
				GRID	24
				PARCEL	6067.04

TITLE
FOREST CONSERVATION PLAN INDEX SHEET

Des. By	Scale	1"=200'	Proj. No.	02033.D
Dm. By	Date	11/17/06		
Chk. By	Approved			

3397
Landscape Architect No.



GOALS AND OBJECTIVES

THE GOALS AND OBJECTIVES OF THIS FOREST CONSERVATION PLAN ARE TO ACCOUNT FOR THE CLEARING OF EXISTING FOREST AND TO PROVIDE THE AFFORESTATION THAT IS REQUIRED FOR THE RESIDENTIAL SUBDIVISION OF THE MYRTUE PROPERTY. APPROXIMATELY 4.5 ACRES OF AFFORESTATION IS REQUIRED TO MEET THE MINIMUM FOREST THRESHOLD, AND 12.2 ACRES OF PLANTING IS REQUIRED FOR THE CLEARING OF 6.1 ACRES, GENERATING A TOTAL PLANTING OBLIGATION OF 16.7 ACRES. AN ADDITIONAL 0.5 ACRES OFF RIPARIAN FOREST PLANTING WILL SERVE TO SATISFY FEDERAL STREAM MITIGATION REQUIREMENTS (FOREST CONSERVATION EASEMENT 3).

EXISTING FORESTS ON THE NORTHEASTERN PORTION OF THIS SITE HAVE BEEN PREVIOUSLY DESIGNATED FOR PERMANENT RETENTION TO SATISFY REFORESTATION OBLIGATIONS FOR TWO OTHER RESIDENTIAL SUBDIVISIONS. FOREST CONSERVATION EASEMENTS 1 AND 2 RETAIN A TOTAL OF 12.2 ACRES OF EXISTING FOREST FOR THE BENEFIT OF THE OWENS PROPERTY (F-05-121). FOREST CONSERVATION EASEMENT 3 RETAINS 2.1 ACRES FOR THE BENEFIT OF THE ZAIGER PROPERTY (F-06-116). THEREFORE, THESE EASEMENT AREAS HAVE BEEN SUBTRACTED FROM THE GROSS AND EXISTING FOREST ON-SITE NUMBERS IN THE MYRTUE PROPERTY CALCULATIONS. PRESERVATION PARCELS A AND B TO REMAIN IN THE MYRTUE FAMILY POSSESSION (25.6 ACRES) HAS BEEN SUBTRACTED FROM THE GROSS TRACT AREA, AND LOT 13 OF VALLEY ANNE ESTATES (1.81 ACRES) HAS BEEN INCLUDED.

PLANTING AREAS ARE LOCATED WITHIN AND ADJACENT TO WATER RESOURCES, AND CONTIGUOUS WITH EXISTING WOODED AREAS. SPECIES WERE CHOSEN TO REFLECT AND ENHANCE THOSE FOUND IN THE EXISTING FOREST COMMUNITIES. THREE PLANTING ZONES HAVE BEEN SPECIFIED ACCORDING TO ANTICIPATED MOISTURE REGIME.

EXISTING CONDITIONS AT THE SITE MAKE PLANTING IN WETLANDS AND ALONG STREAMS DIFFICULT OR INAPPROPRIATE. LARGE-SCALE PLANTING IN THE LARGE WETLAND AREA SOUTH OF FCE A WOULD REQUIRE A TEMPORARY STREAM CROSSING, AND SO IS NOT APPROPRIATE GIVEN THE SUITABILITY OF PLANTING AREAS ELSEWHERE ON-SITE. THE MAJORITY OF THE LAND IMMEDIATELY ADJACENT TO DAVIS BRANCH IS CURRENTLY VEGETATED WITH YOUNG TREES AND SAPLINGS. PLANTING THE WETLANDS ON SHEET 60 WOULD OFFER ONLY SMALL EASEMENTS, AND SINCE THESE AREAS WILL ULTIMATELY REVERT TO FOREST WHEN LEFT UNDISTURBED, OTHER PLANTING AREAS WERE CHOSEN. ENHANCEMENT PLANTINGS ALONG THE NARROW CONFIGURATION OF WETLANDS ON THE SOUTHEASTERN PART OF THE SITE ARE APPROPRIATE. OVERALL THE PROPOSED AFFORESTATION/REFORESTATION PLANTINGS FOLLOW DRAINAGE COURSES AND ENHANCE EXISTING RESOURCES TO PROVIDE LARGE BLOCKS OF CONTIGUOUS, RIPARIAN FOREST, WHICH IS CONSISTENT WITH THE PRIORITIES OUTLINED IN THE MANUAL.

FINANCIAL SECURITY IN THE AMOUNT OF \$374,616 (17.2 ACRES @ \$0.50/S.F.) IS REQUIRED FOR PLANTINGS. A SECURITY IN THE AMOUNT OF \$81,021.60 (9.3 ACRES @ \$0.20/S.F.) IS REQUIRED FOR FOREST RETENTION. THE TOTAL FOREST CONSERVATION SECURITY IS \$455,637.60.

FOREST CONSERVATION CALCULATIONS

BASIC SITE DATA	ACRES (1/100)
GROSS SITE AREA	151.7
TOTAL AREA TO REMAIN IN AGRICULTURAL USE / NO CHANGE IN USE (PRESERVATION PARCEL A AND B)	25.6
AREA WITHIN 100 YEAR FLOODPLAIN (OUTSIDE PRESERVATION PARCEL A & B)	10.4
AREA WITHIN EXISTING FOREST CONSERVATION EASEMENTS	16.2
TOTAL NET TRACT AREA	99.5
LAND USE CATEGORY	RMD

INFORMATION FOR CALCULATIONS	ACRES
A. NET TRACT AREA	99.5
B. REFORESTATION THRESHOLD (25% x A)	24.9
C. AFFORESTATION MINIMUM (20% x A)	19.9
D. EXISTING FOREST ON NET TRACT AREA (OUTSIDE PRESERVATION PARCELS AND EX.FCE'S AND FLOODPLAIN)	15.4
E. FOREST AREAS TO BE CLEARED	6.1
F. FOREST AREAS TO BE RETAINED	9.3

AFFORESTATION CALCULATIONS	ACRES
A. NET TRACT AREA	99.5
B. AFFORESTATION THRESHOLD (20% x A)	19.9
C. EXISTING FOREST ON NET TRACT AREA	15.4
D. FOREST AREAS TO BE CLEARED	6.1
E. FOREST AREAS TO BE RETAINED	9.3

CLEARING BELOW THE MINIMUM	ACRES
IF EXISTING FORESTS ARE LESS THAN THE AFFORESTATION MINIMUM (IF C IS LESS THAN B), AND CLEARING IS PROPOSED, THE FOLLOWING CALCULATIONS APPLY:	
AFFORESTATION FOR UNFORESTED AREAS BELOW THE MINIMUM B-C	4.5
REFORESTATION FOR CLEARING BELOW THRESHOLD Dx2	12.2
TOTAL AFFORESTATION AND REFORESTATION REQUIRED (B-C) + (Dx2)	16.7

AFFORESTATION AND REFORESTATION PROVIDED	ACRES
AFFORESTATION AND REFORESTATION PROVIDED	16.7 ACRES
REFORESTATION TO SATISFY STREAM MITIGATION	0.5 ACRES
TOTAL REFORESTATION PROVIDED	17.2 ACRES

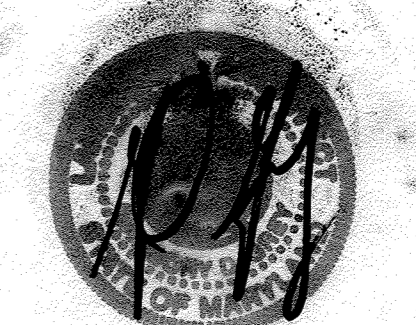
FOREST CONSERVATION EASEMENT SUMMARY CHART

FCE	RETENTION	AFFORESTATION/REFORESTATION	FLOODPLAIN	TOTAL
A	0.4 AC.	0.1 AC.	0.0 AC.	0.5 AC.
B	8.3 AC.	6.3 AC. (1.0 AC. OF THIS IS IN FLOODPLAIN)	2.5 AC.	16.1 AC.
C	0.0 AC.	7.5 AC.	0.0 AC.	7.5 AC.
D	0.6 AC.	2.8 AC.	0.0 AC.	3.4 AC.
E	0.0	0.5 AC.	0.5 AC.	0.5 AC.
TOTAL	9.3 AC.	17.2 AC.	3.0 AC.	27.5 AC.

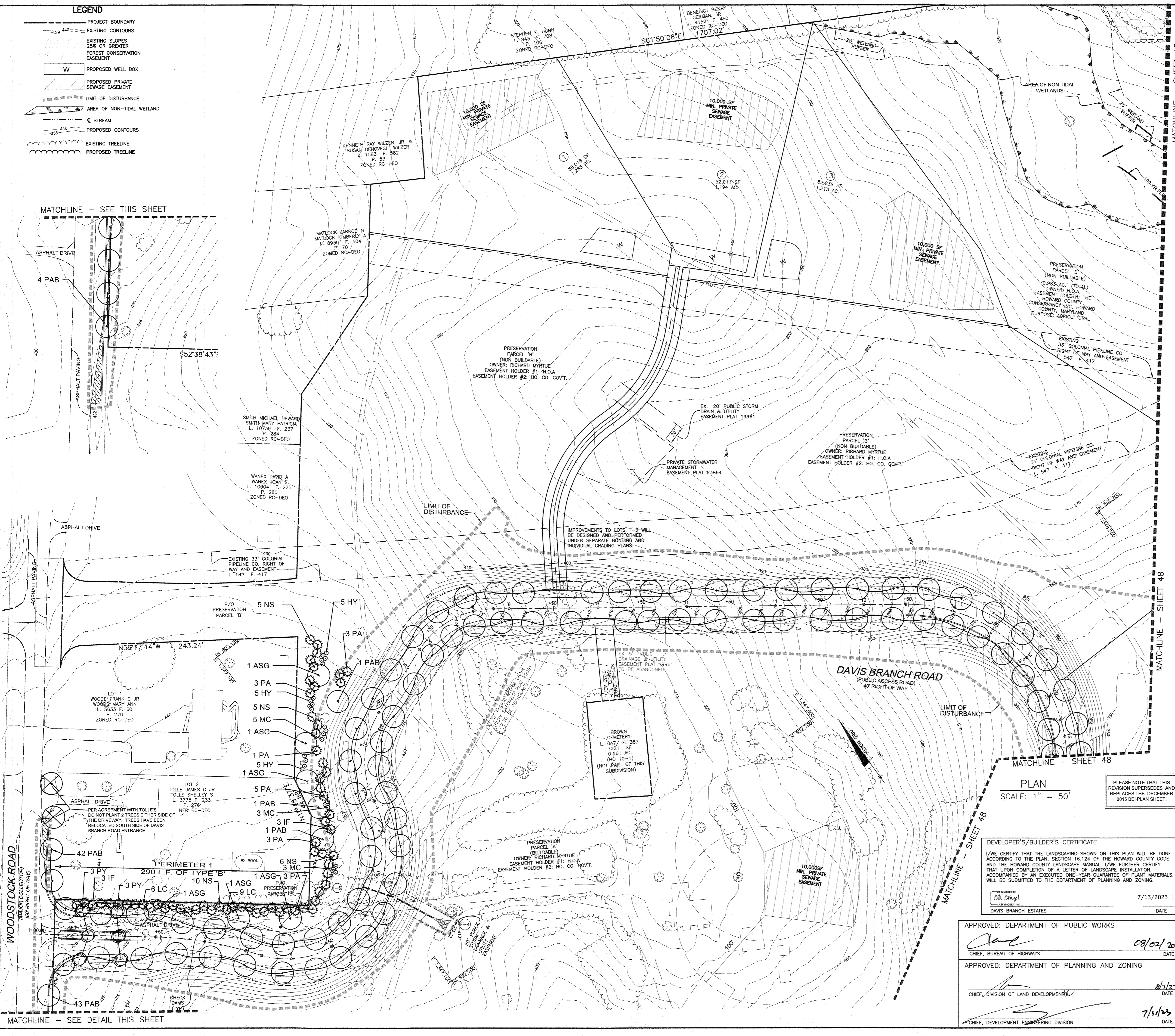
Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21403 Expiration Date: 12-31-20



9/24/07
Date



3397
Landscape Architect No.



**SCHEDULE A
PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROP. / PRES. PARCELS												
		P 4	P 5	P 6	P 7	P 8	P 9	P 10	P 11	P 12	P 13			
LANDSCAPE TYPE 'A'														
LINEAR FEET OF PERIMETER		1235 LF	1067 LF	804 LF	1400 LF	2050 LF	1077 LF	840 LF	2473 LF	800 LF	965 LF			
LANDSCAPE TYPE 'B'	P 1													
LINEAR FEET OF PERIMETER														
LANDSCAPE TYPE 'C'														
LINEAR FEET OF PERIMETER														
LANDSCAPE TYPE 'D'														
LINEAR FEET OF PERIMETER														
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A	1,046 LF	750 LF	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CREDIT FOR BERM (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NUMBER OF PLANTS REQUIRED														
SHADE TREES	6	21	18	10	23	17	5	16	41	13	16			
EVERGREEN TREES	7	-	-	-	-	-	-	-	-	-	-			
SHRUBS	-	-	-	-	-	-	-	-	-	-	-			
NUMBER OF PLANTS PROVIDED*														
SHADE TREES	3	20	16	8	19	15	4	14	36	11	14			
EVERGREEN TREES	7	6	5	4	8	4	2	4	10	4	4			
OTHER TREES (2-1 SUBSTITUTION)	6	-	-	-	-	-	-	-	-	-	-			
SHRUBS (1-1 SUBSTITUTION)	-	-	-	-	-	-	-	-	-	-	-			
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)														

STREET TREE SCHEDULE

ROAD NAME	LENGTH OF ROAD (BOTH SIDES)	# OF TREES REQUIRED (1 PER 40 L.F.)	# OF TREES PROVIDED
WOODSTOCK ROAD	350'	9	9
DAVIS BRANCH ROAD	14,556'	364	364
TOTAL	14,906'	373	373

NOTES:
 1. STREET TREES WILL BE PROVIDED @ 1/40 L.F. THE BONDING FOR THE STREET TREES IS SEPARATE FROM THE LANDSCAPE EDGE PLANTING.
 2. THE DEVELOPER WILL PROVIDE ALL PERIMETER LANDSCAPE OBLIGATIONS, EXCEPT PERIMETER OBLIGATIONS FOR LOTS 1-3 AND THE USE IN COMMON DRIVEWAY, WHICH WILL BE PROVIDED BY THE BUILDER AT THE GRADING PLAN STAGE.
 3. DEVELOPER WILL PROVIDE 65' OF TYPE 'D' BUFFER ON THE REAR OF LOTS 8 & 10 IN LIEU OF THE REQUIRED 65' OF TYPE 'W' BUFFER. THE LANDSCAPE SURETY WILL BE BASED ON ALL PLANTS PROVIDED IN SCHEDULE 'A'.
 4. ADDITIONAL LANDSCAPING ADJACENT TO TOLLE PROPERTY 1789 WOODSTOCK RD. AND TO THE REAR OF 1789 AND 1779 WOODSTOCK RD. TO BE PROVIDED BY THE DEVELOPER. SEE CHART SHEET 48.

NOTES:
 1. LOCATION OF TREES MAY VARY BASED ON EASEMENTS.
 2. THE BONDING OF THE STREET TREES WILL BE INCLUDED IN THE COST ESTIMATE FOR THE ROAD.

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"

AS-BUILT 5/16/24

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. 211495, Expiration Date: 12-31-24

- GENERAL PLANTING NOTES**
- ALL PLANT MATERIAL TO MEET A.A.N. STANDARDS.
 - LANDSCAPE CONTRACTOR TO FOLLOW LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE WASHINGTON METRO AREA APPROVED BY LCA/MW.
 - NO SUBSTITUTIONS TO BE MADE WITHOUT CONSENT OF LANDSCAPE ARCHITECT OR OWNER.
 - ALL BEDS TO BE TOPPED WITH THREE INCHES OF HARDWOOD MULCH.
 - LANDSCAPE CONTRACTOR TO VERIFY LOCATION OF UTILITIES WITH OWNER BEFORE PLANTING.
 - LANDSCAPE ARCHITECT/OWNER SHALL SELECT, VERIFY AND/OR APPROVE ALL PLANT MATERIAL. AT OWNER'S DISCRETION, SPECIMEN AND OTHER PLANT MATERIAL WILL BE SELECTED.
 - LANDSCAPE CONTRACTOR SHALL COORDINATE PLANT BED FILLING OPERATIONS AND PLANT MATERIAL INSTALLATION WITH GENERAL CONTRACTOR AND UTILITIES CONTRACTOR. AT THE TIME OF FINAL INSPECTION WITH ACCEPTANCE, ALL ELECTRIC, WATER, DRAINAGE, AND FOUNTAIN UTILITIES, AS WELL AS ALL PLANT MATERIALS, SHALL REMAIN UNDAMAGED. LIKEWISE, LANDSCAPE CONTRACTOR AND UTILITIES CONTRACTOR SHALL COORDINATE EFFORTS TO ENSURE THAT SURFACE UTILITIES ARE AT THE PROPER ELEVATION RELATIVE TO FINAL GRADES.
 - CONTRACTOR SHALL NOTIFY MISS UTILITY 72 HOURS PRIOR TO CONSTRUCTION.
 - THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 - THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HO. CO. CODE. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$94,050.00 MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT, (209 SHADE, 130 EVERGREENS, AND 79 ORNAMENTAL TREES).
 - 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 OF 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.

NO.	DATE	REVISION
3	7-2023	REVISED BY SHEET SUBSTITUTION TO REMOVE IMPROVEMENTS TO LOT 1-3.
2	3-2020	REVISED OWNER INFORMATION
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

PLAN
SCALE: 1" = 50'

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE DECEMBER 2016 BEI PLAN SHEET.

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 OF 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.

Designed by: Bill Bruyl DATE: 7/13/2023 | 4:02
 DAVIS BRANCH ESTATES

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 08/02/2023
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 8/7/23
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 7/13/23
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 3300 NORTH RIDGE ROAD SUITE 140 • ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6109 (F) 410-465-6644
 WWW.BEI-CIVILENGINEERING.COM

OWNER: SUNSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

PROJECT: **MYRTUE PROPERTY**

LOCATION: TAX MAP 10, GRID 24
 PARCEL 225
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: **REVISED FINAL LANDSCAPE PLAN**

DATE: JUNE 2023 PROJECT NO. 2099

DES: AAM DRAFT: AAM CHECK: CAM SCALE: AS SHOWN DRAWING 47 OF 56

BEI-AAM
 2023.07.12 07:40:14 -04'00

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 28376, Expiration Date: 1-1-2025.

- LEGEND**
- PROJECT BOUNDARY
 - - - - - EXISTING CONTOURS
 - EXISTING SLOPES 25% OR GREATER
 - FOREST CONSERVATION EASEMENT
 - W PROPOSED WELL BOX
 - PROPOSED PRIVATE SEWAGE EASEMENT
 - LIMIT OF DISTURBANCE
 - AREA OF NON-TIDAL WETLAND
 - STREAM
 - PROPOSED CONTOURS
 - EXISTING TREELINE
 - PROPOSED TREELINE

PERIMETER LANDSCAPE EDGE PLANT LIST

QTY	SYM	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
LARGE TREES				
67	ARR	ACER RUBRUM 'RED SUNSET' / RED SUNSET MAPLE	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
37	ASG	ACER SACCHARUM 'GREEN MOUNTAIN' / GREEN MOUNTAIN MAPLE	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
41	PAB	PLATANUS ACERIFOLIA 'BLOODGOOD' / BLOODGOOD LONDON PLANE	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
58	QP	QUERCUS PALUSTRIS / PIN OAK	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
UNDERSTORY TREES				
10	AC	AMELANCHIER CANADENSIS / SERVICE BERRY	3" CAL.	B & B
6	CC	CERCIS CANADENSIS / EASTERN REDBUD	8-10" HT.	B & B SINGLE STEM
34	CF	CORNUS FLORIDA / FLOWERING DOGWOOD	8-10" HT.	B & B SINGLE STEM
7	PY	PRUNUS YEDONENSIS / YOSHINO CHERRY	8-10" HT.	B & B SINGLE STEM
EVERGREEN TREES				
3	IF	ILEX ATTENUATA 'FOSTER' / FOSTER'S HOLLY	8-10" HT.	B & B (7 MALE)
40	PA	PICEA ABIES / NORWAY SPRUCE	8-10" HT.	B & B
31	PS	PINUS STROBUS / WHITE PINE	8-10" HT.	B & B

ADDITIONAL LANDSCAPE PLANT LIST

QTY	SYM	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
LARGE TREES				
3	ASG	ACER SACCHARUM 'GREEN MOUNTAIN' / GREEN MOUNTAIN MAPLE	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
3	PAB	PLATANUS ACERIFOLIA 'BLOODGOOD' / BLOODGOOD LONDON PLANE	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
EVERGREEN TREES				
3	IF	ILEX ATTENUATA 'FOSTER' / FOSTER'S HOLLY	8-10" HT.	B & B (7 MALE)
14	PA	PICEA ABIES / NORWAY SPRUCE	8-10" HT.	B & B
28	NS	ILEX NELLIE R STEVENS' / NELLIE STEVENS HOLLY	12-14" HT. MIN. PER REQ. SCREENING	B & B (7 MALE)
15	LC	CUPRESSOCYPRIS LEYLANDII / LEYLAND CYPRESS	12-14" HT. MIN. PER REQ. SCREENING	B & B
LARGE SHRUBS				
15	HY	HYDRANGEA QUERCIFOLIA / OKLEAF HYDRANGEA	30"-36"	CONT
11	MC	MYRICA PENNSYLVANICA / BAYBERRY	30"-36"	CONT

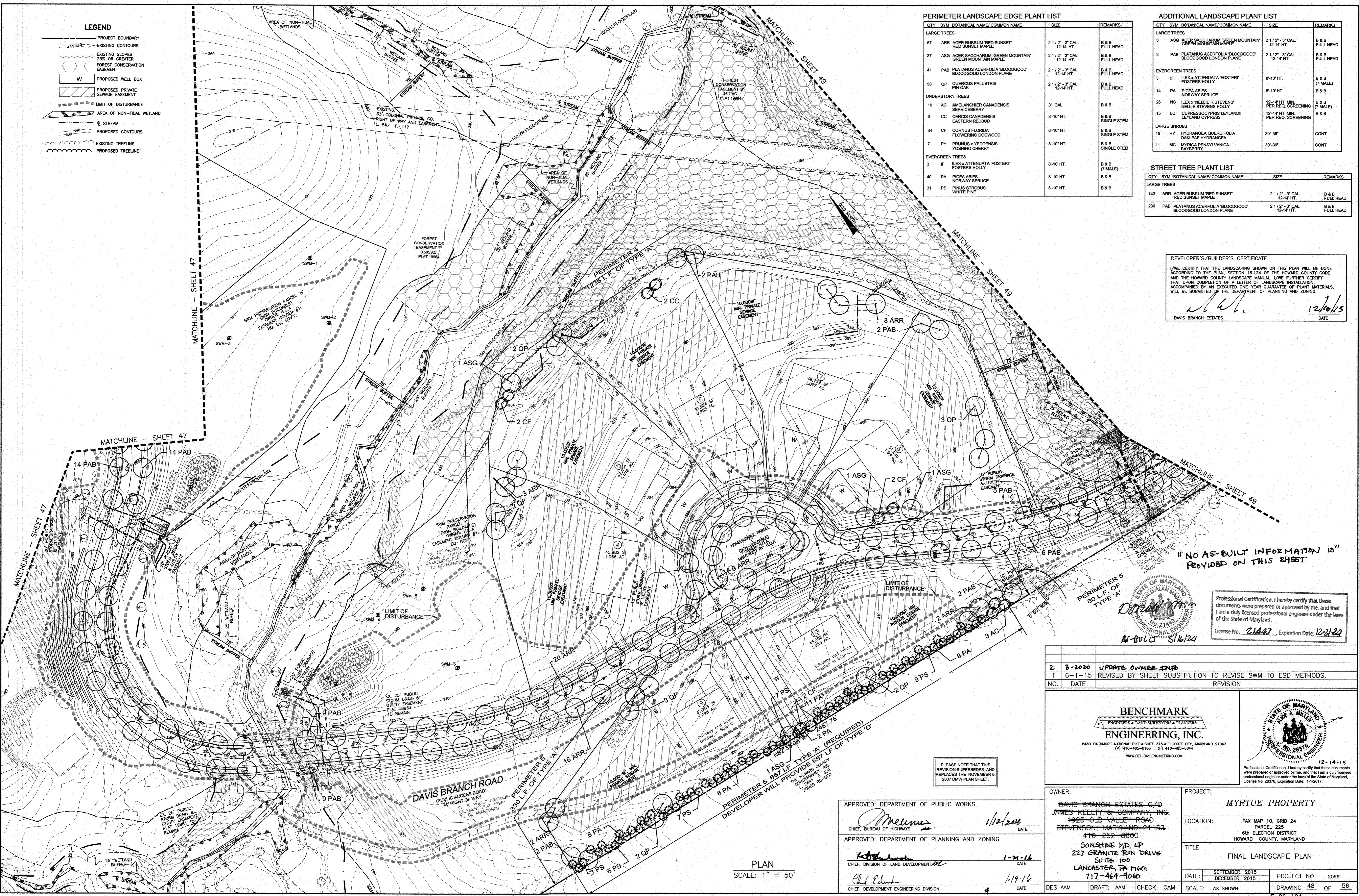
STREET TREE PLANT LIST

QTY	SYM	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
LARGE TREES				
143	ARR	ACER RUBRUM 'RED SUNSET' / RED SUNSET MAPLE	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD
230	PAB	PLATANUS ACERIFOLIA 'BLOODGOOD' / BLOODGOOD LONDON PLANE	2 1/2" - 3" CAL. 12-14 HT.	B & B FULL HEAD

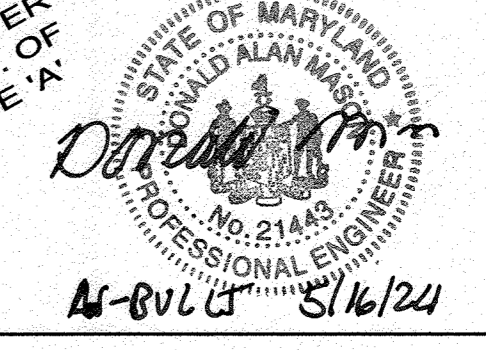
DEVELOPER'S/BUILDER'S CERTIFICATE

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 OF 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] 12/16/15
DAVIS BRANCH ESTATES DATE



"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



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. 21447 Expiration Date: 12-31-22

NO.	DATE	REVISION
2	3-2020	UPDATE OWNER DWP
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315 & ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8644
 WWW.BEI-CVLENGINEERING.COM

STATE OF MARYLAND
 ENGINEERS & LAND SURVEYORS PLANNING
 DAVID A. MILLER
 LICENSE NO. 28376
 PROFESSIONAL ENGINEER
 12-14-15

APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 1/12/2016
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 1-21-16
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 1-19-16
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

OWNER: DAVIS BRANCH ESTATES C/O JAMES KEELY & COMPANY, INC. 1925 OLD VALLEY ROAD STEVENSON, MARYLAND 21153 410-252-8800 SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-4060

PROJECT: MYRTUE PROPERTY

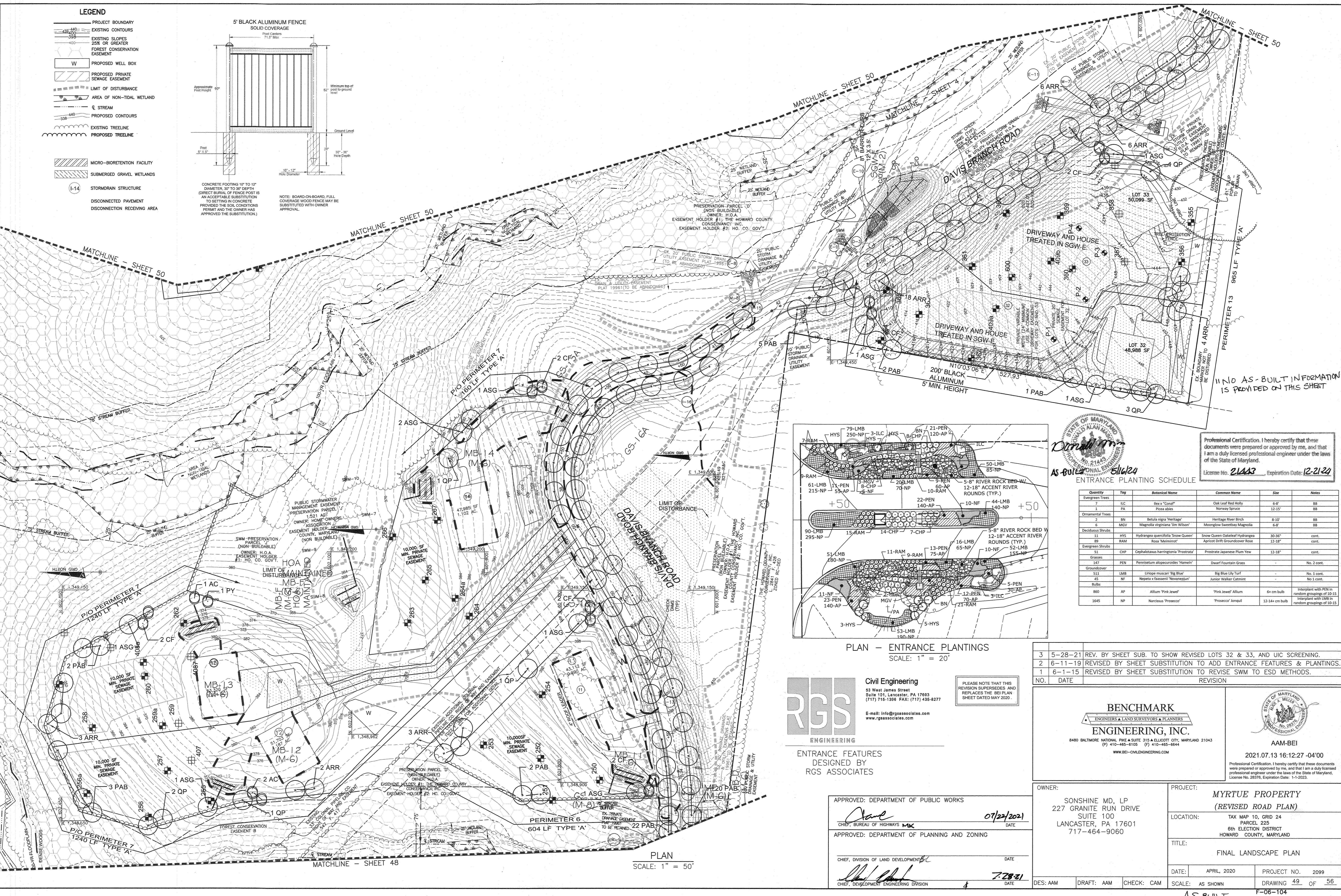
LOCATION: TAX MAP 10, GRID 24 PARCEL 225 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: FINAL LANDSCAPE PLAN

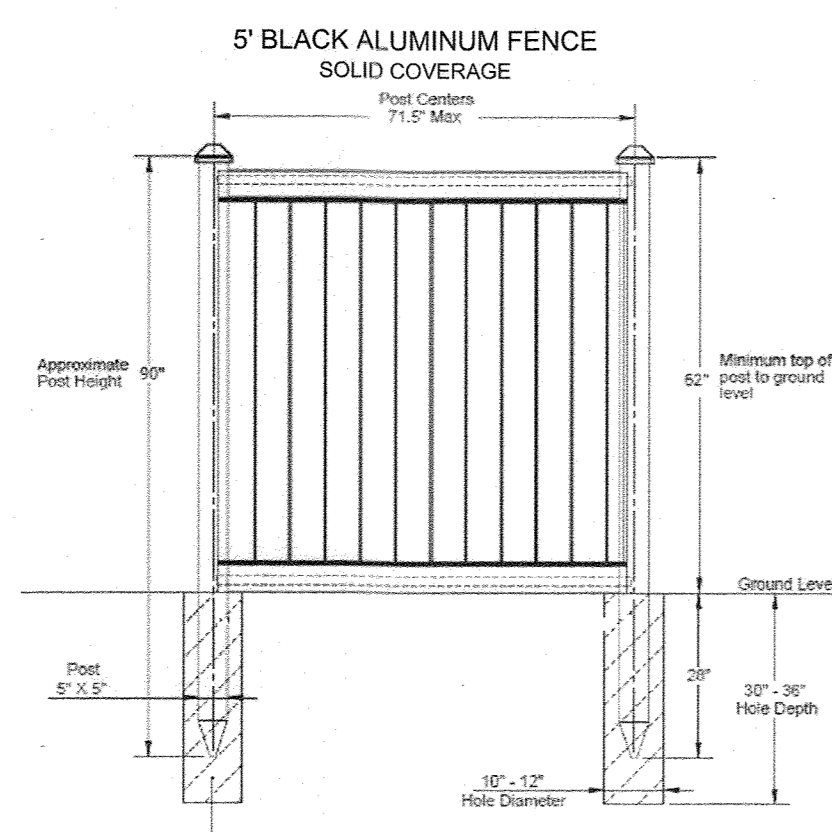
DATE: SEPTEMBER, 2015 PROJECT NO. 2099
 DECEMBER, 2015

DES: AAM DRAFT: AAM CHECK: CAM SCALE: AS SHOWN DRAWING 48 OF 56

PLAN
SCALE: 1" = 50'

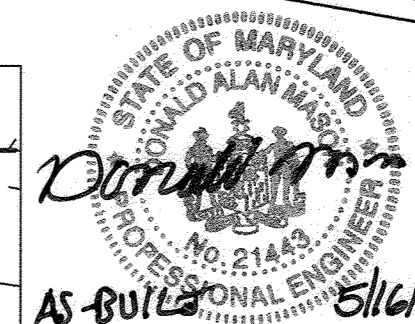
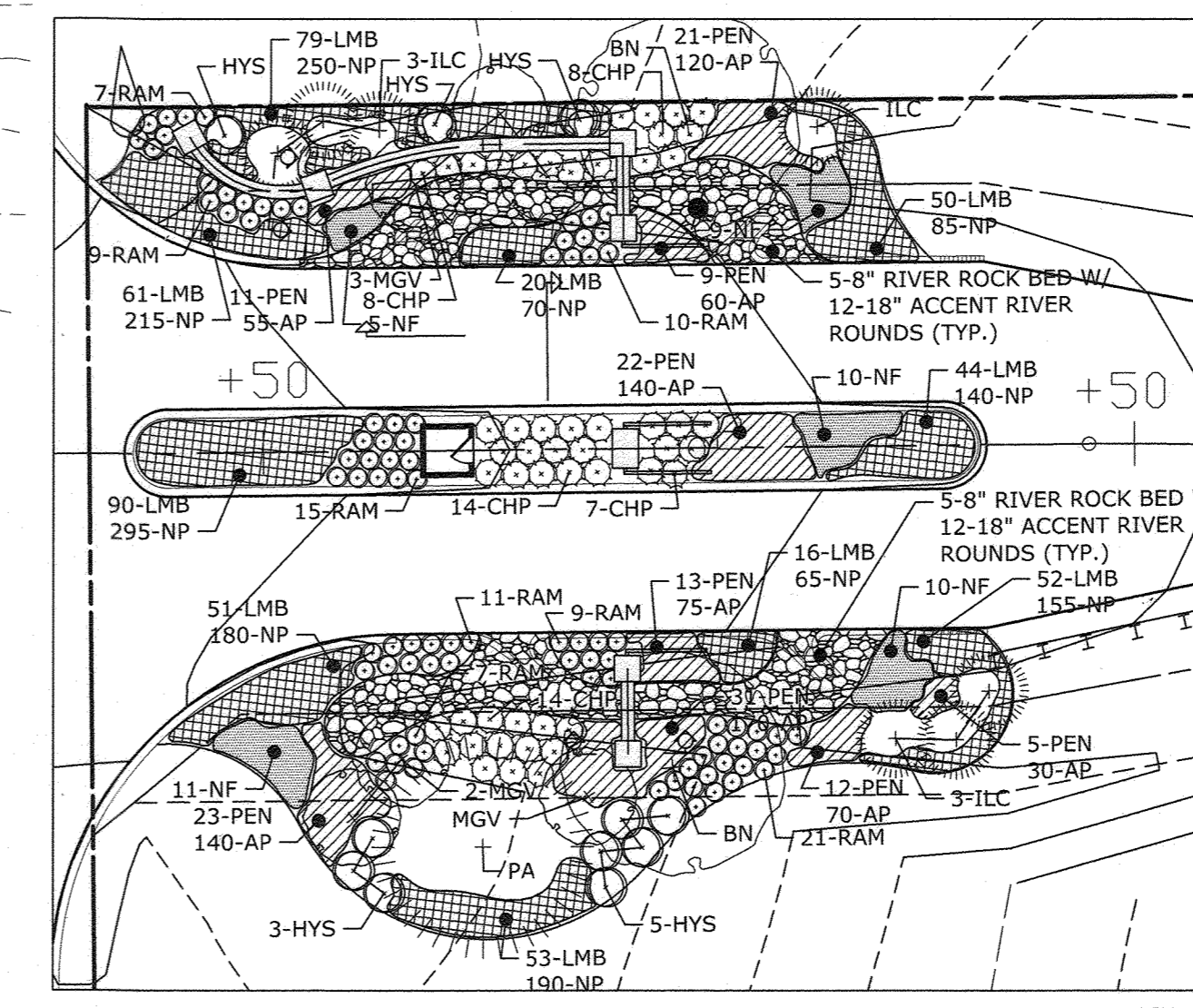


- LEGEND**
- PROJECT BOUNDARY
 - EXISTING CONTOURS
 - EXISTING SLOPES 25% OR GREATER
 - FOREST CONSERVATION EASEMENT
 - PROPOSED WELL BOX
 - PROPOSED PRIVATE SEWAGE EASEMENT
 - LIMIT OF DISTURBANCE
 - AREA OF NON-TIDAL WETLAND
 - STREAM
 - PROPOSED CONTOURS
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - MICRO-BIORETENTION FACILITY
 - SUBMERGED GRAVEL WETLANDS
 - STORMDRAIN STRUCTURE
 - DISCONNECTED PAVEMENT
 - DISCONNECTION RECEIVING AREA



CONCRETE FOOTING 10" TO 12" DIAMETER, 30" TO 36" DEPTH (DIRECT BURIAL OF FENCE POST IS AN ACCEPTABLE SUBSTITUTION TO SETTING IN CONCRETE PROVIDED THE SOIL CONDITIONS PERMIT AND THE OWNER HAS APPROVED THE SUBSTITUTION.)

NOTE: BOARD-ON-BOARD, FULL COVERAGE WOOD FENCE MAY BE SUBSTITUTED WITH OWNER APPROVAL.



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. **21443** Expiration Date: **12-21-24**

ENTRANCE PLANTING SCHEDULE

Quantity	Tag	Botanical Name	Common Name	Size	Notes
7	ILC	Ilex 'Conit'	Oak Leaf Red Holly	6-8"	BB
1	PA	Picea abies	Norway Spruce	12-15"	BB
6	BN	Betula nigra 'Heritage'	Heritage River Birch	8-10"	BB
6	MGV	Magnolia virginiana 'Jim Wilson'	Moonglow Sweetbay Magnolia	6-8"	BB
11	HYS	Hydrangea quercifolia 'Snow Queen'	Snow Queen Obedient Hydrangea	30-36"	cont.
9	RAM	Rosa 'Meimour'	Aristocrat Drift Groundcover Rose	12-18"	cont.
51	CHP	Cephalotaxus harringtonia 'Prostrata'	Prostrate Japanese Plum Yew	12-18"	cont.
147	PEN	Pennisetum alopecuroides 'Hainell'	Dwarf Fountain Grass	-	No. 2 cont.
511	LMB	Liriope muscari 'Big Blue'	Big Blue Lily Turf	-	No. 1 cont.
147	NP	Nepeta x fassenii 'Nevadnejun'	Junior Walker Catmint	-	No. 1 cont.
860	AP	Allium 'Pink Jewel'	'Pink Jewel' Allium	6 cm bulb	Interplant with PEN in random groupings of 10-15
1645	NP	Narcissus 'Prosecco'	'Prosecco' Jonquil	12-14 cm bulb	Interplant with LMB in random groupings of 10-15

RGs ENGINEERING

Civil Engineering
53 West James Street
Suite 101, Lancaster, PA 17603
(717) 715-1388 FAX: (717) 458-8277

E-mail: info@rgsasociates.com
www.rgsasociates.com

PLEASE NOTE THAT THIS REVISION SUPERSEDES AND REPLACES THE 883 PLAN SHEET DATED MAY 2020.

ENTRANCE FEATURES
DESIGNED BY
RGS ASSOCIATES

APPROVED: DEPARTMENT OF PUBLIC WORKS
Clare 07/22/2021
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chad 7/28/21
CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DATE	REVISION
3	5-28-21	REV. BY SHEET SUB. TO SHOW REVISED LOTS 32 & 33, AND UIC SCREENING.
2	6-11-19	REVISED BY SHEET SUBSTITUTION TO ADD ENTRANCE FEATURES & PLANTINGS.
1	6-1-15	REVISED BY SHEET SUBSTITUTION TO REVISE SWM TO ESD METHODS.

BENCHMARK ENGINEERING, INC.

ENGINEERS & LAND SURVEYORS & PLANNERS

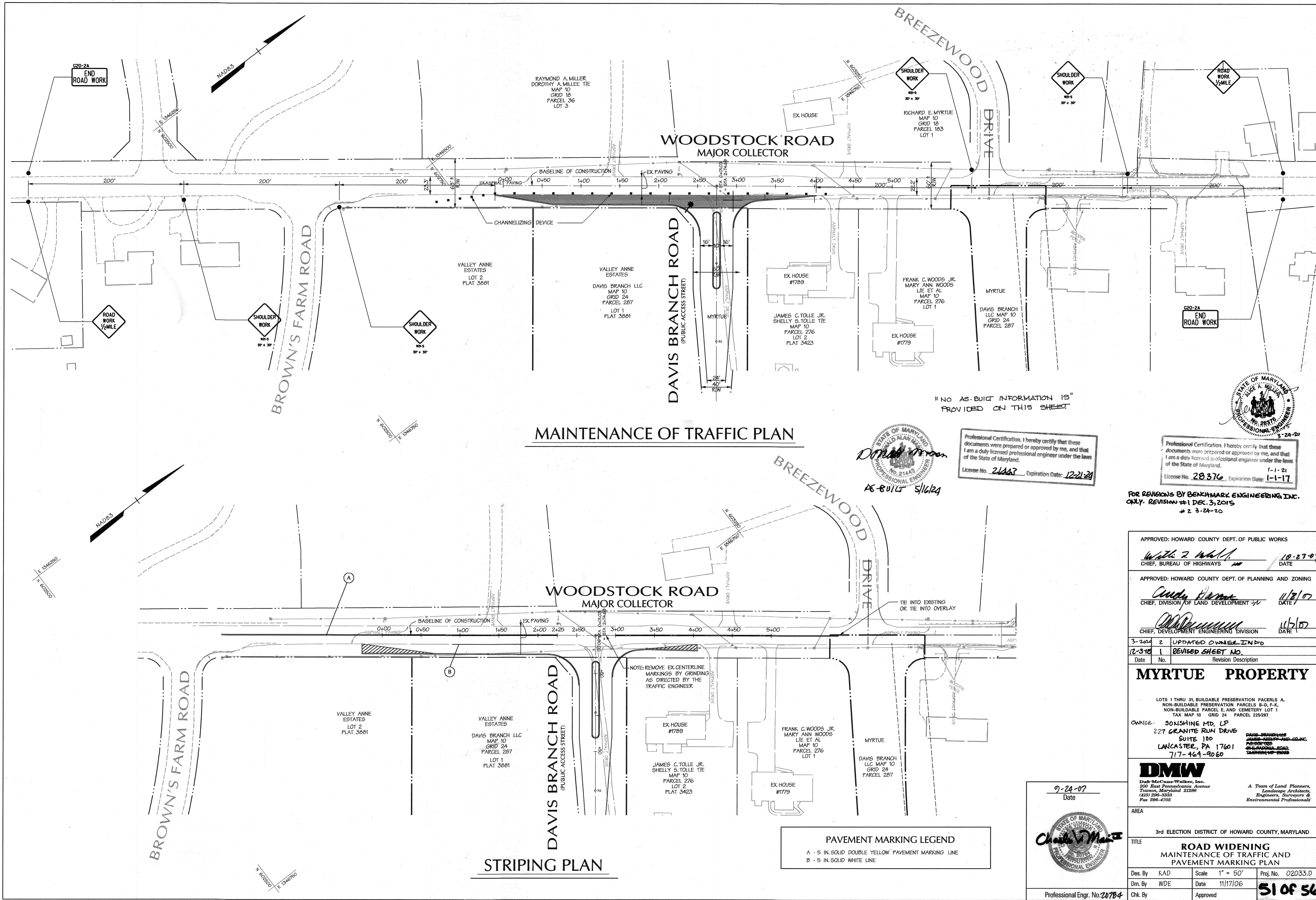
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CVLENGINEERING.COM

AAM-BEI
2021.07.13 16:12:27 -04'00

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, license No. 28376, Expiration Date: 1-1-2023.

OWNER:	SONSHINE MD, LP 227 GRANITE RUN DRIVE SUITE 100 LANCASTER, PA 17601 717-464-9060	PROJECT:	MYRTLE PROPERTY (REVISED ROAD PLAN)
LOCATION:	TAX MAP 10, GRID 24 PARCEL 225 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE:	FINAL LANDSCAPE PLAN
DATE:	APRIL, 2020	PROJECT NO.	2099
DES: AAM	DRAFT: AAM	CHECK: CAM	SCALE: AS SHOWN
DRAWING 49 OF 56		DRAWING NO. OF 56	

AS-BUILT F-06-104



MAINTENANCE OF TRAFFIC PLAN

STRIPING PLAN

PAVEMENT MARKING LEGEND
 A - 5 IN. SOLID DOUBLE YELLOW PAVEMENT MARKING LINE
 B - 5 IN. SOLID WHITE LINE

"NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET"



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. 21443, Expiration Date: 12-21-24
 AS-BUILT 5/16/24



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376, Expiration Date: 1-1-21
 License No. 28376, Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING, INC. ONLY. REVISION #1 DEC. 3, 2015 # 2 3-24-20

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS	
<i>Walter J. White</i>	10-23-07
CHIEF, BUREAU OF HIGHWAYS	DATE
APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
<i>Candy Rame</i>	11/8/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>David Williams</i>	11/8/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
3-2014	2 UPDATED OWNER INFO
12-3-15	1 REVISED SHEET NO.
Date	No. Revision Description

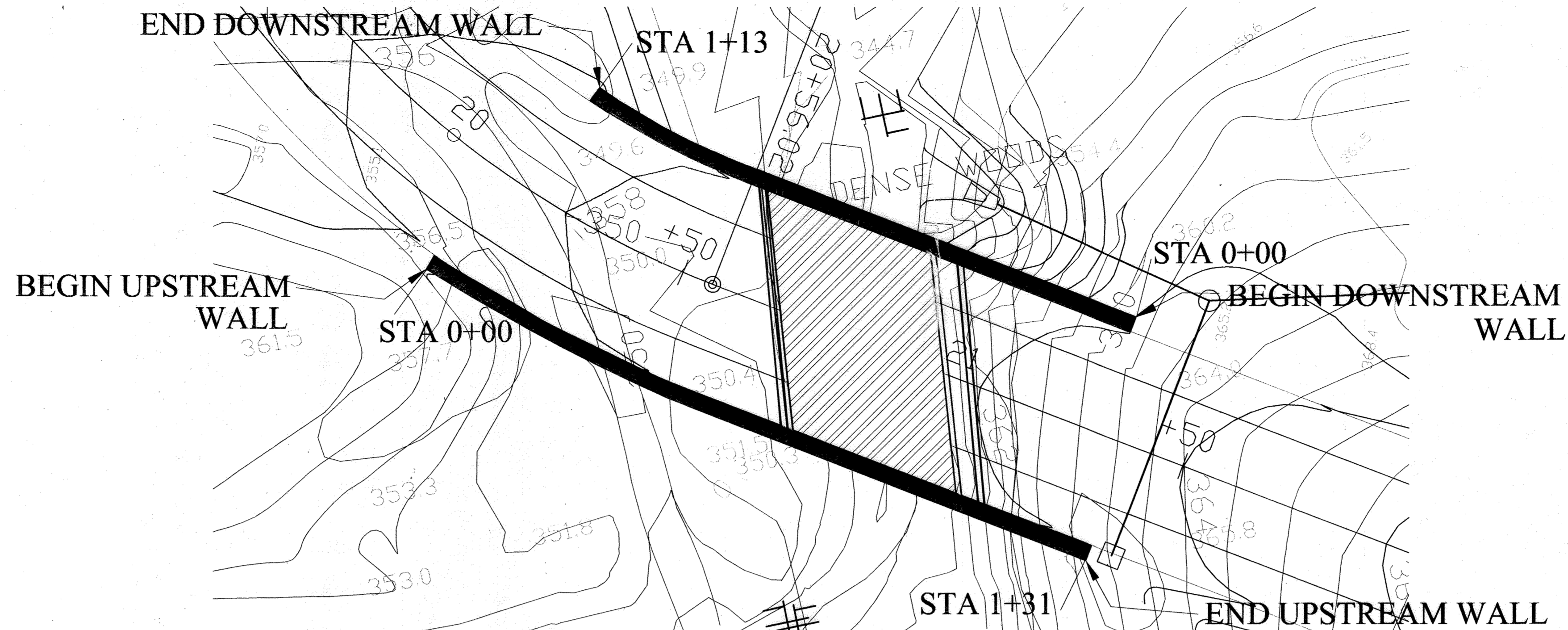
MYRTUE PROPERTY
 LOTS 1 THRU 31, BUILDABLE PRESERVATION PARCELS A, NON-BUILDABLE PRESERVATION PARCELS B-D, F-K, NON-BUILDABLE PARCEL E, AND CEMETERY LOT 1, TAX MAP 10 GRID 24 PARCEL 225287.
 OWNER: SONSHINE MD, LP
 227 GRANITE RUN DRIVE
 SUITE 100
 LANCASTER, PA 17601
 717-464-9060

DMW
 Daft-McCune-Walker, Inc.
 300 East Pennsylvania Avenue
 Potosi, Maryland 21286
 (410) 296-3333
 Fax 296-4705
 A Team of Land Planners, Landscape Architects, Engineers, Surveyors & Environmental Professionals

9-24-07
 Date

 Professional Engr. No. 20784

AREA			
3rd ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND			
TITLE			
ROAD WIDENING MAINTENANCE OF TRAFFIC AND PAVEMENT MARKING PLAN			
Des. By	KAD	Scale	1" = 50'
Drn. By	WDE	Date	11/17/06
Proj. No.	02033.D		
Chk. By	Approved	51 OF 56	



PLAN VIEW (LOW PROFILE ARCH LA3308)
SCALE: 1/16" = 1'

APPROVED: DEPARTMENT OF PLANNING & ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT

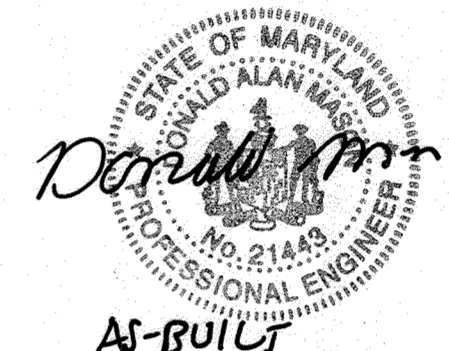
APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376 Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING, INC.
 ONLY. REVISION # 2 DEC 3, 2015
 # 3 3-24-20



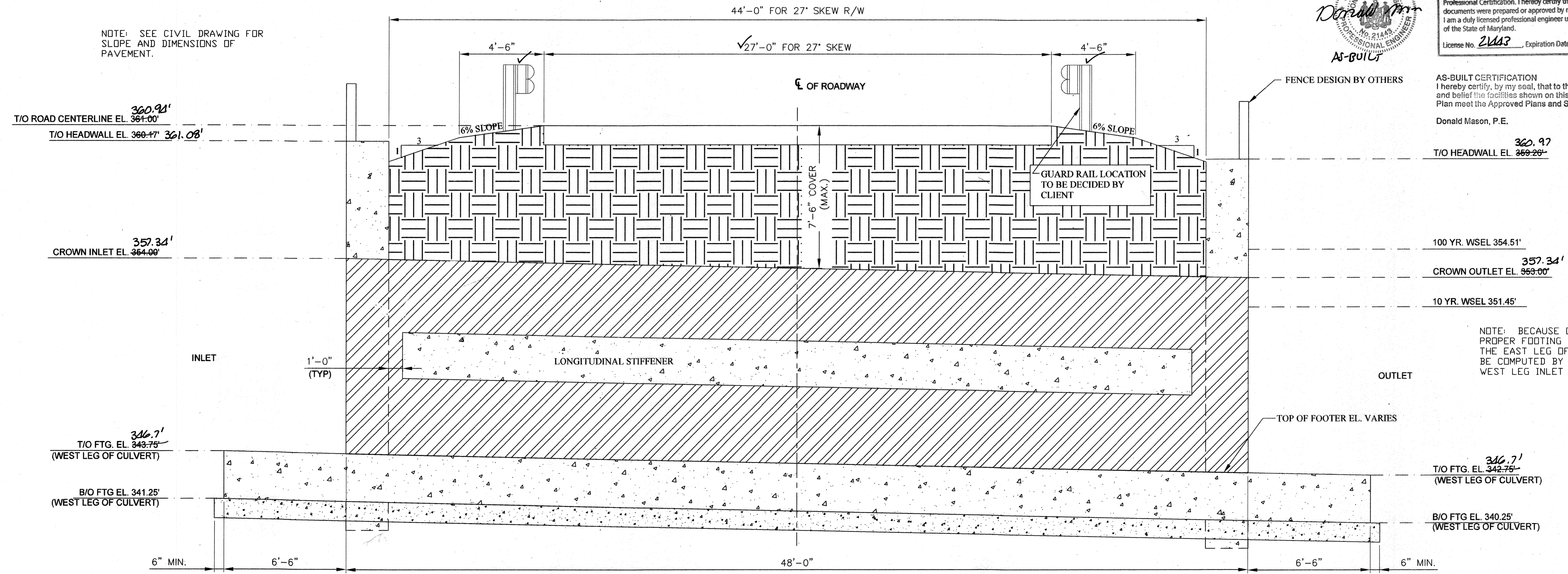
12-15-15
3-24-20



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. 21443 Expiration Date: 12-21-21

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5/16/24

NOTE: SEE CIVIL DRAWING FOR SLOPE AND DIMENSIONS OF PAVEMENT.



CULVERT CENTERLINE PROFILE (LOW PROFILE ARCH NO. LA3308)
SCALE: 3/8" = 1'

AS - BUILT

No.	DATE	BY	DESCRIPTION
1	05/21/06	MH	PER COMMENTS FROM CIVIL ENGINEER
2	12-3-15	DEF	REVISED SHEET NO
3	3-2020	DEF	UPDATE OWNER INFO

DRAWN BY: MH
 DESIGN BY: UH
 CHECKED BY: MS
 DATE: 03/12/08

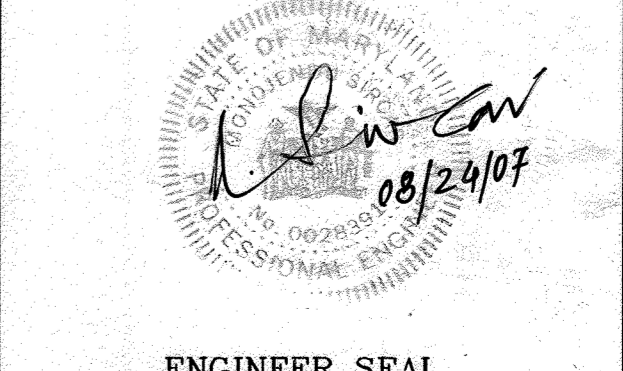
DO NOT SCALE THIS DRAWING. DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWING.

CLIENT: LONG SPAN BRIDGE & CULVERT, LLC
 OWNER: SONSHINE MD, LP.
 JOB No: 1101-05-08

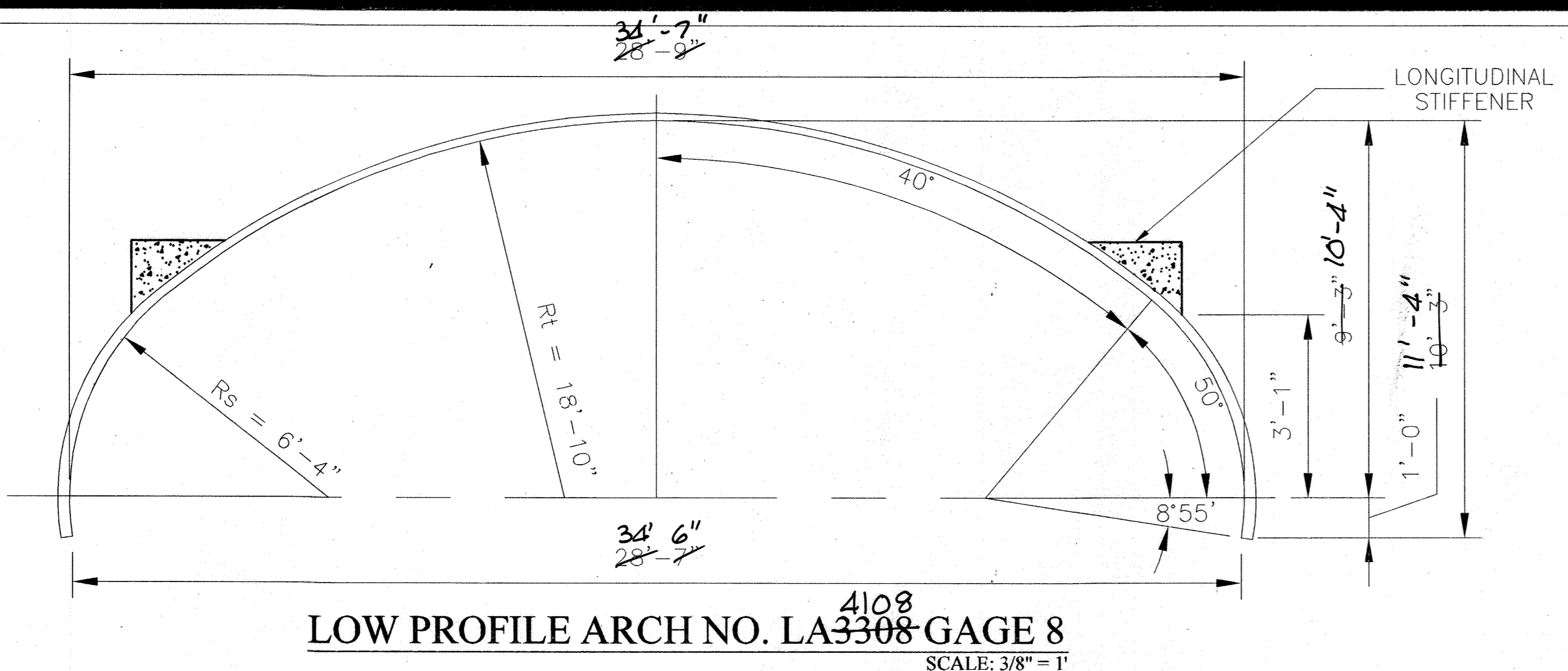


Ryan & Associates
 A Division of WKR Consulting Inc.
 Consulting & Design Engineers
 Structural - Geotechnical - Civil
 Email: info@ryanandassociates.net
 922 North East St. Frederick, Md. 21701
 Tel (301) 360-9534 Fax (301) 360-9574

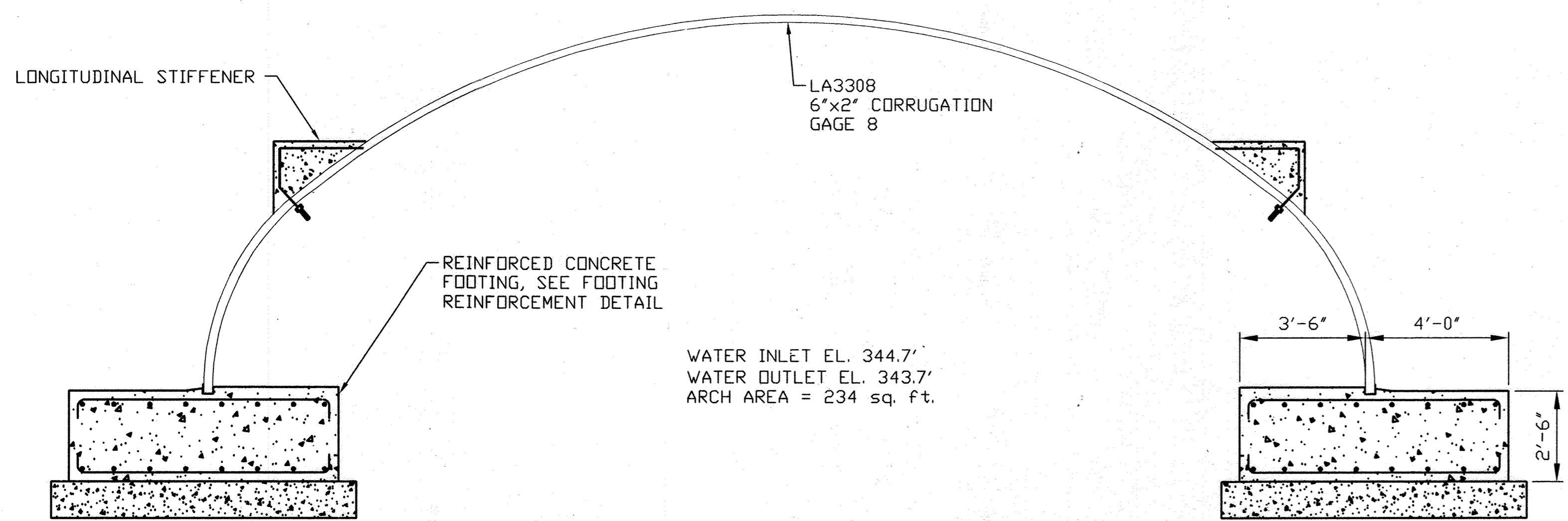
PLAN AND PROFILE
 LONG SPAN LOW PROFILE ARCH LA3308
 MYRTUE PROPERTY CULVERT
 HOWARD COUNTY, MD



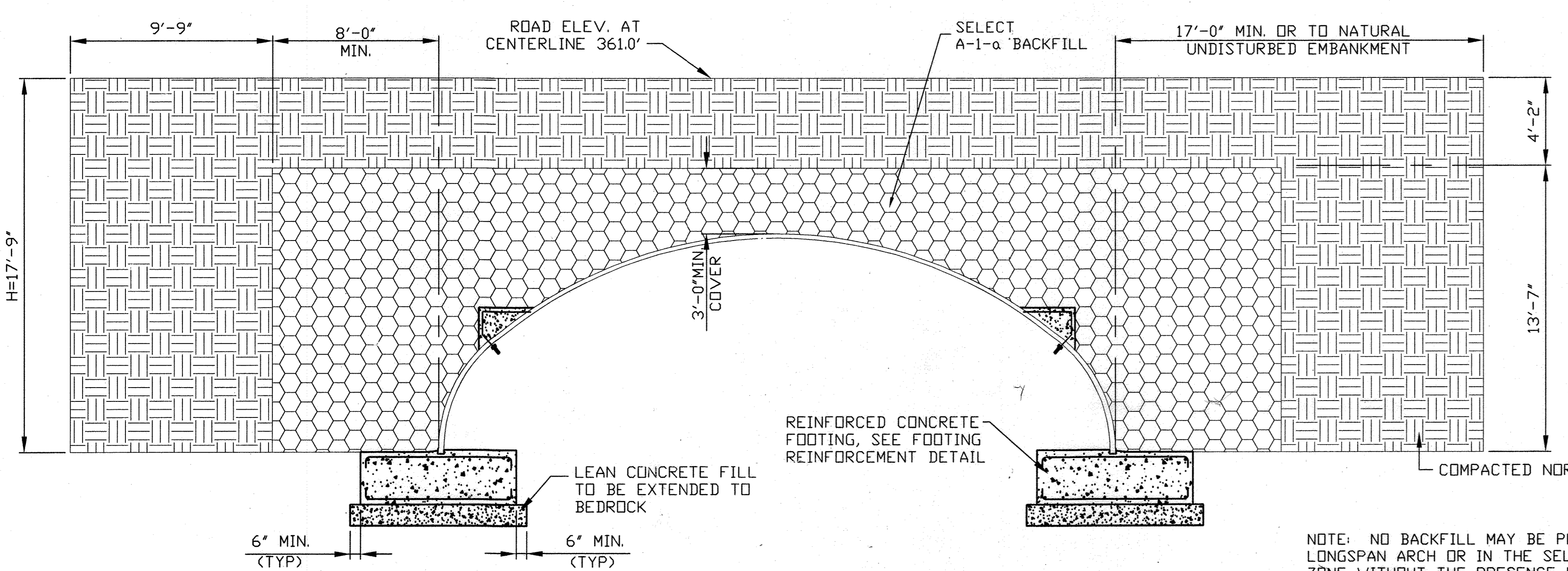
SHEET
52 OF 56



4108
LOW PROFILE ARCH NO. LA3308 GAGE 8
 SCALE: 3/8" = 1'



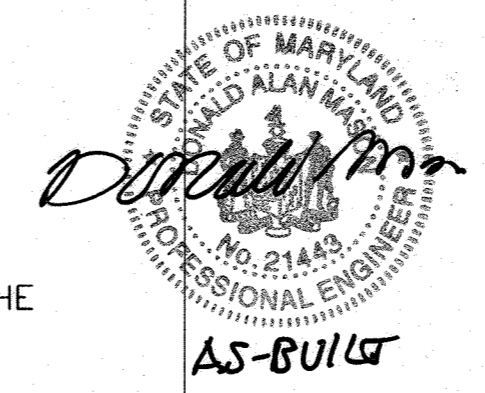
27° SKEWED CROSS SECTION
 SCALE: 3/8" = 1'



TYPICAL SELECT BACKFILL SECTION AT CENTERLINE OF ROAD
 SCALE: 1/4" = 1'

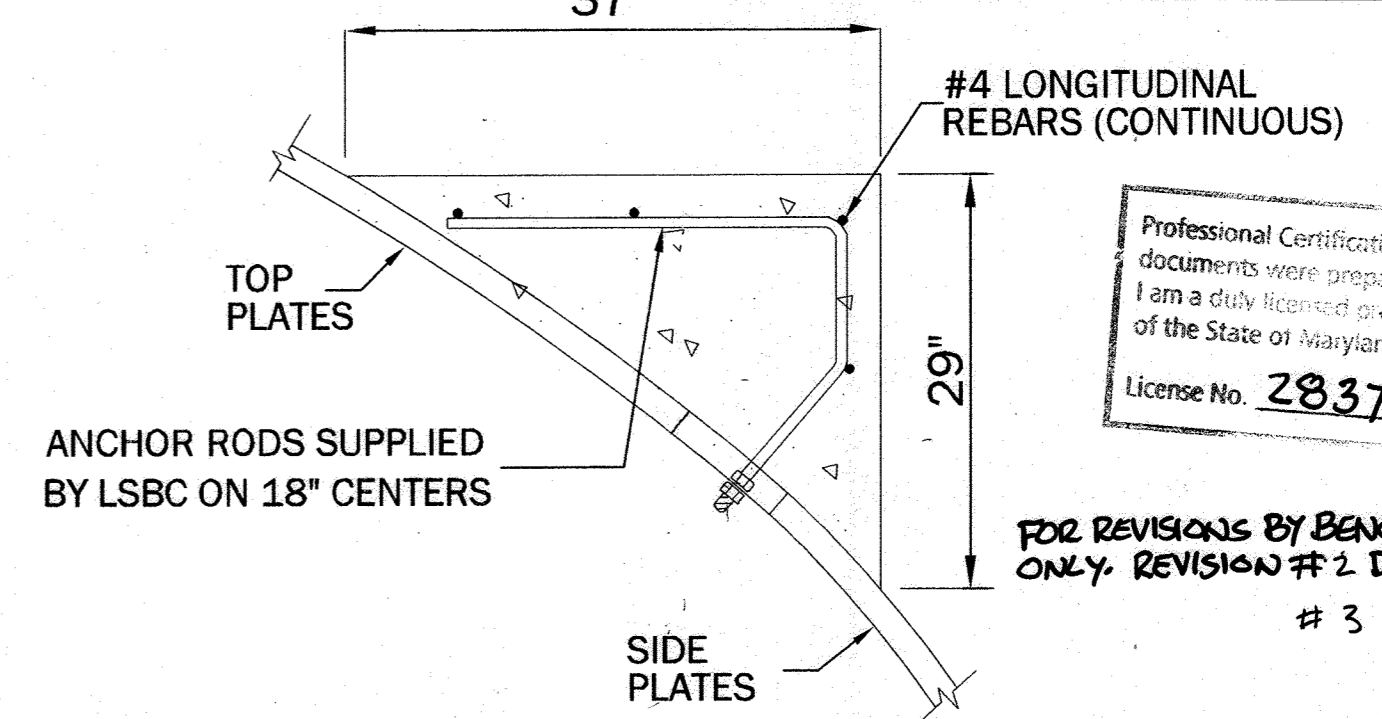
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-21-24

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E.



NOTE: NO BACKFILL MAY BE PLACED AGAINST THE LONGSPAN ARCH OR IN THE SELECT BACKFILL ZONE WITHOUT THE PRESENCE OF A TECHNICIAN UNDER THE SUPERVISION OF THE DESIGN ENGINEER.

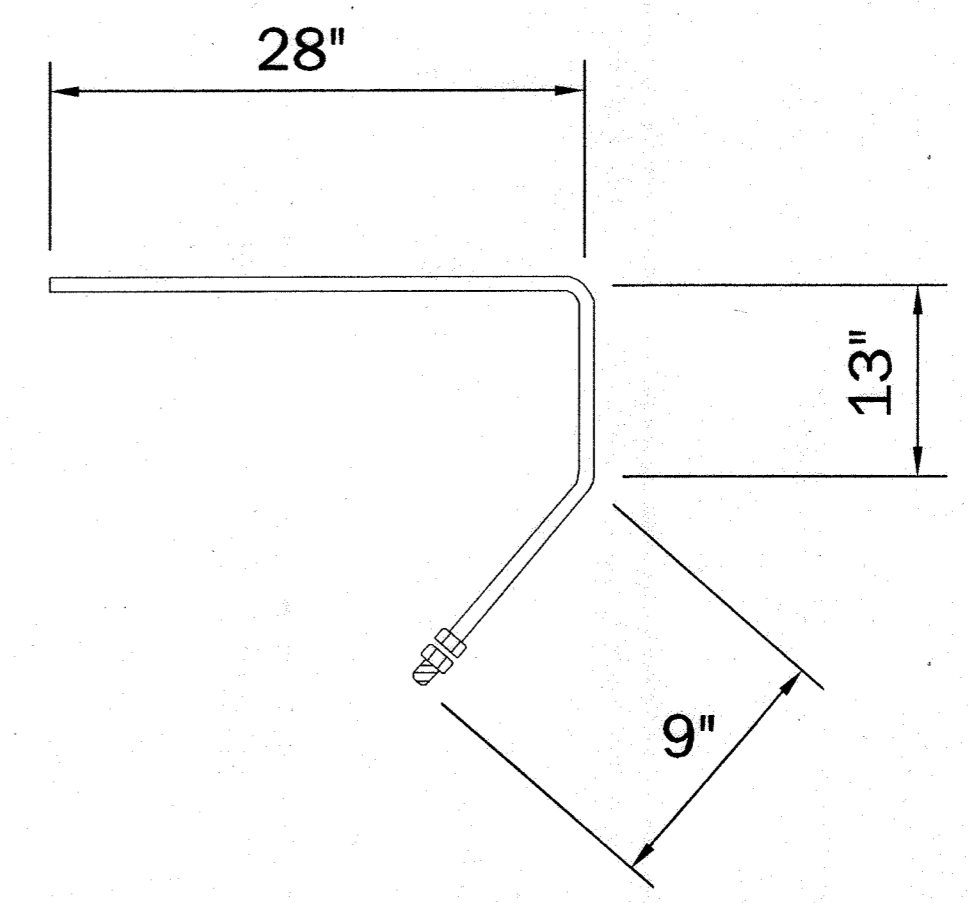
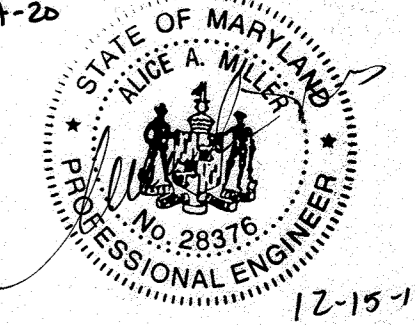
APPROVED: DEPARTMENT OF PLANNING & ZONING
 [Signature] 11/7/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 [Signature] 11/8/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
 [Signature] 10-23-07
 CHIEF, BUREAU OF HIGHWAYS DATE



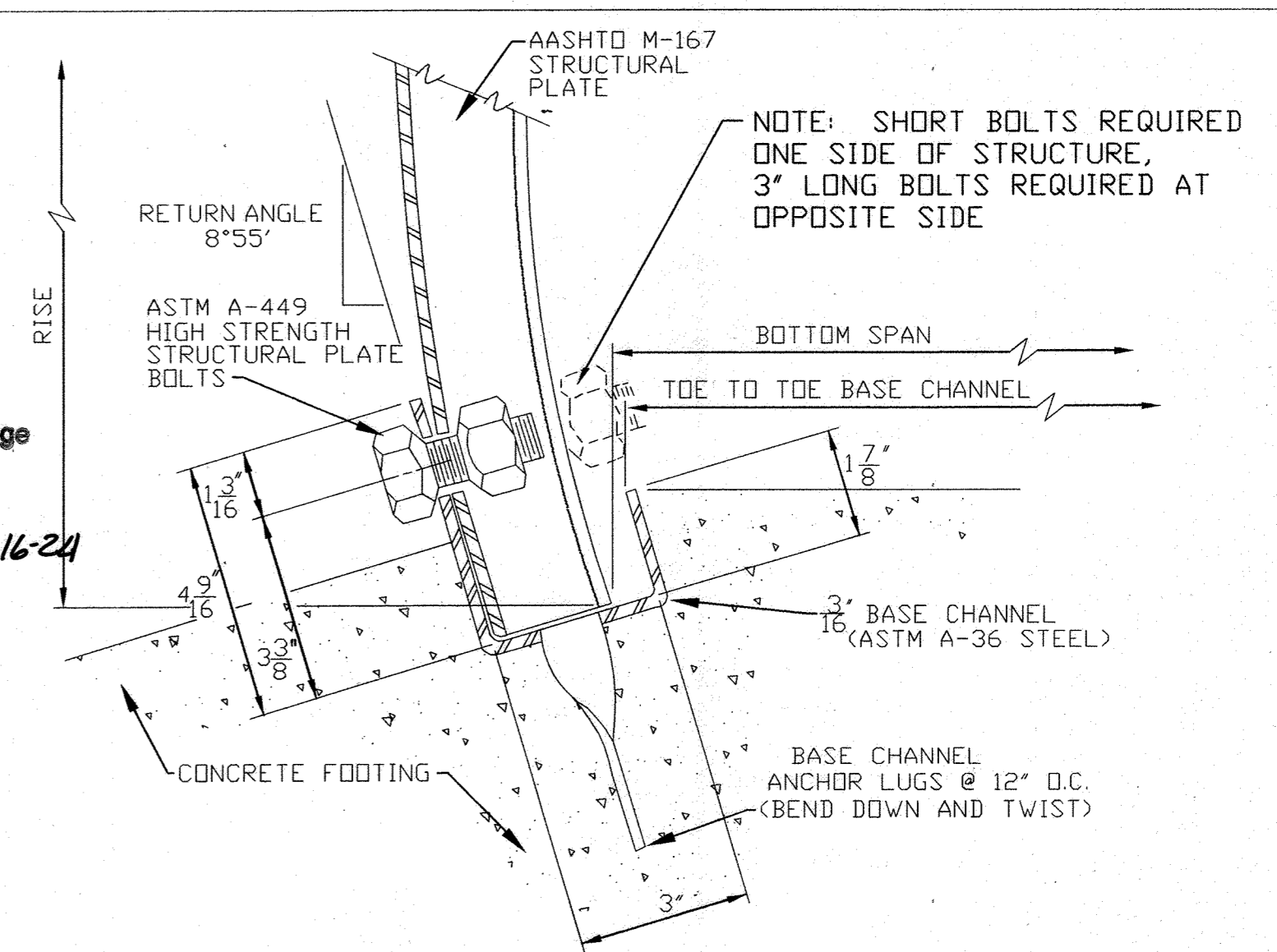
LONGITUDINAL STIFFENER DETAIL
 NOT TO SCALE

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376 Expiration Date: 1-1-17

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 # 3 3-24-20



BENT ROD DETAIL
 NOT TO SCALE

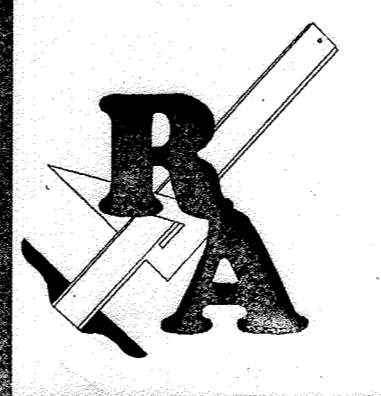


BASE CHANNEL DETAIL
 NOT TO SCALE AS-BUILT

REVISIONS			
No.	DATE	BY	DESCRIPTION
1	05/23/08	MH	PER COMMENTS FROM CIVIL ENGINEER
2	12/3/15	BEF	REVISE SHEET NO.
3	3-2020	BEF	UPDATE OWNER INFO

DRAWN BY: MH
 DESIGN BY: MH
 CHECKED BY: MS
 DATE: 03/12/08
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CLIENT: LONG SPAN BRIDGE & CULVERT, LLC
 OWNER: SUNSHINE MD, LP
 JOB No: 1101-05-08



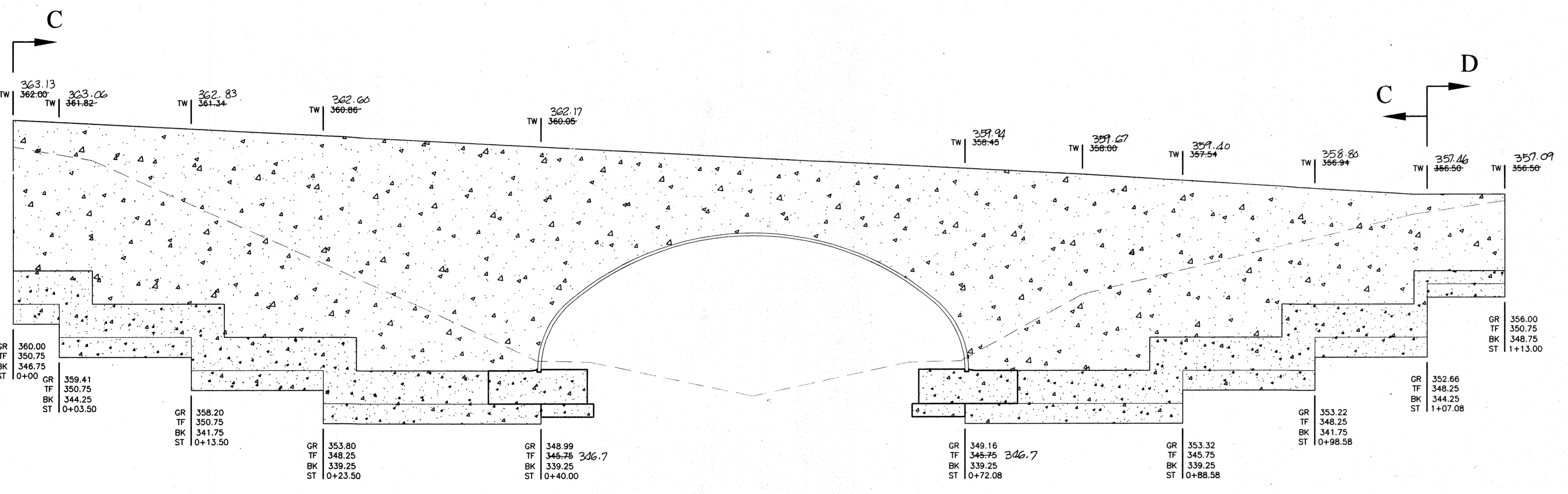
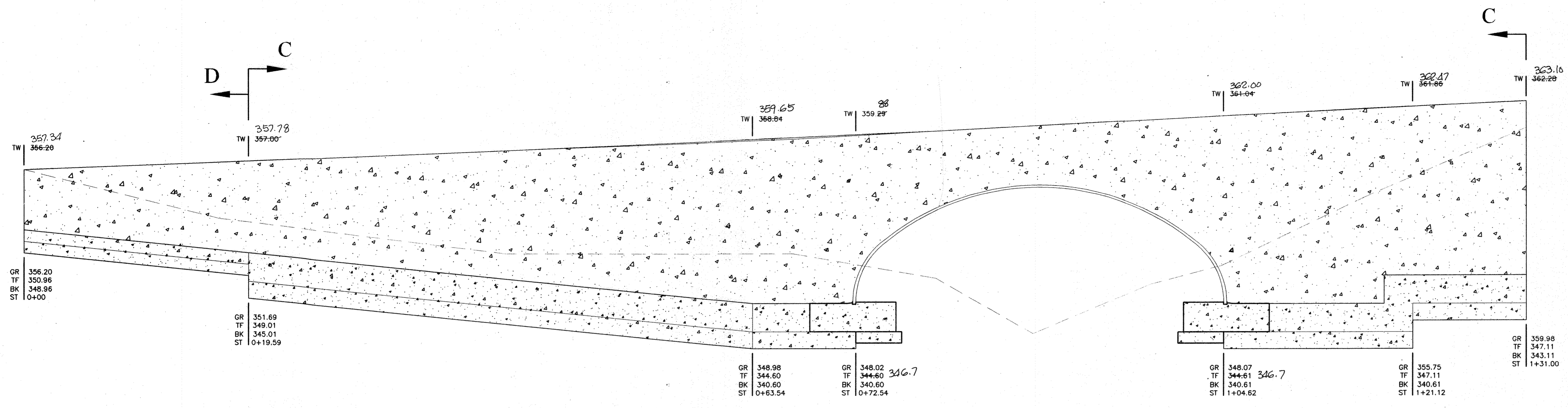
Ryan & Associates
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 Frederick, Md. 21701 Fax (301) 360-9574

SECTIONS & DETAILS
 LONG SPAN LOW PROFILE ARCH LA3308
 MYRTUE PROPERTY CULVERT
 HOWARD COUNTY, MD

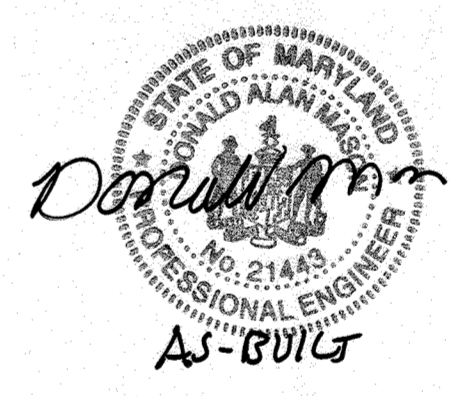
[Signature]
 ENGINEER SEAL

SHEET
53 OF 56

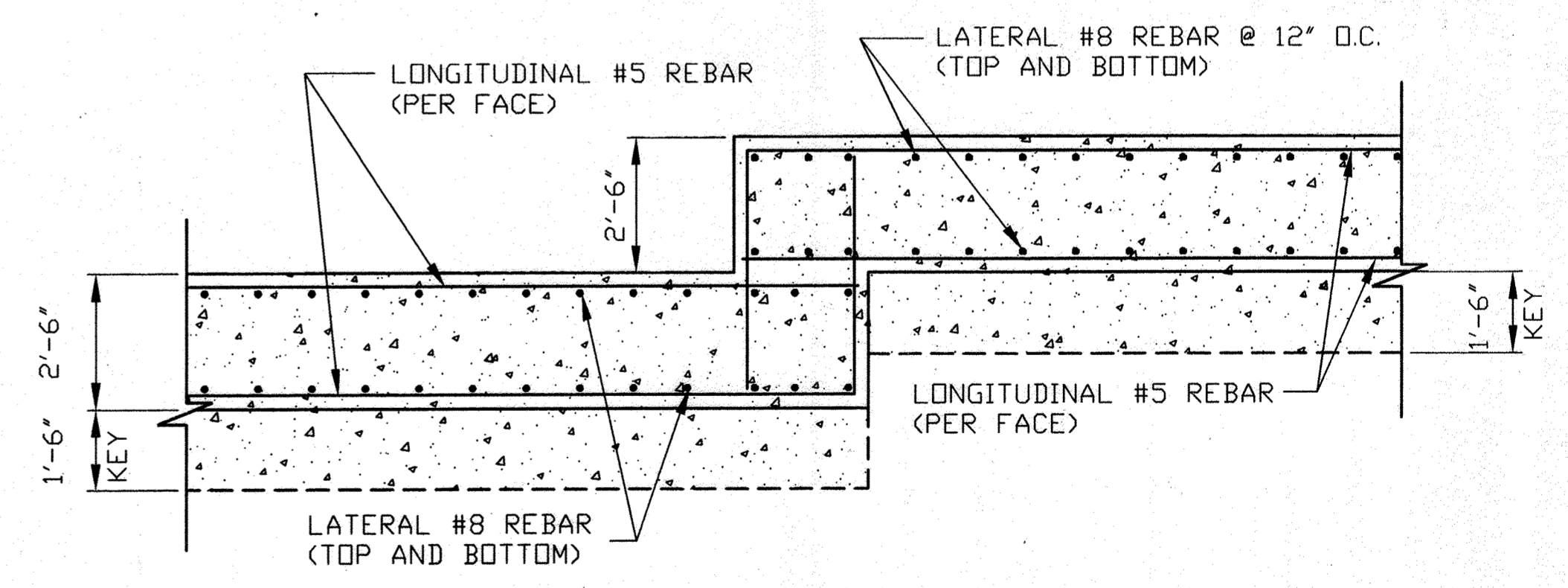
APPROVED: DEPARTMENT OF PLANNING & ZONING
William J. ... 11/7/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
Cindy ... 11/8/07
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS
Walter ... 10-23-07
 CHIEF, BUREAU OF HIGHWAYS DATE



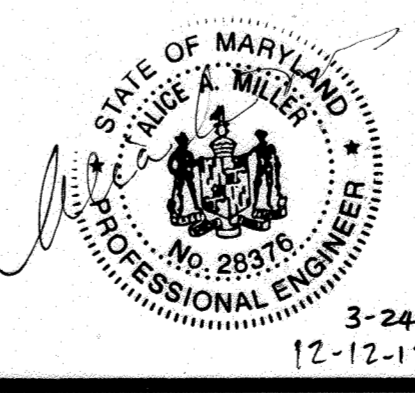
AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 5/16/24



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. 21442, Expiration Date: 12-21-24



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376, Expiration Date: 1-1-17



FOR REVISIONS BY BENCHMARK ENGINEERING INC.
 ONLY. REVISION # 2 DEC-31-2015
 # 3 3-24-20

No.	DATE	BY	DESCRIPTION
1	05/25/08	MH	PER COMMENTS FROM CIVIL ENGINEER
2	12/3/18	MS	REVISE SHEET NO.
3	5/12/20	MS	UPDATE OWNER INFO

DRAWN BY: MH
 DESIGN BY: MH
 CHECKED BY: MS
 DATE: 08/12/08
 DO NOT SCALE THIS DRAWING. DIMENSIONS AND NOTES HAVE PRECEDENCE OVER DRAWING.

CLIENT: LONG SPAN BRIDGE & CULVERT, LLC
 OWNER: SUNSHINE MD, LP
 JOB No: 1101-05-08

Ryan & Associates
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 Consulting & Design Engineers
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HEADWALL PROFILES
 LONG SPAN LOW PROFILE ARCH LA3308
 MYRTUE PROPERTY CULVERT
 HOWARD COUNTY, MD

Professional Engineer Seal for William A. Miller, State of Maryland, License No. 28376, Exp. 1-1-17.
 Date: 08/24/07

SHEET
55 OF 56

NOTES & SPECIFICATIONS

1: DEFINITIONS

- 1.01 Owner: Davis Branch, LLC. Timonium, MD 21093
- 1.02 Contractor: xxx
- 1.03 Design Engineer: Ryan & Associates, Frederick, MD 21701
- 1.04 Site Civil Engineer: Daft, McCune, Walker, Inc. Towson, MD 21286
- 1.05 Site Geotechnical Engineer: Hillis-Carnes Engineering Associates, Inc. MD

If any of the above responsibilities change it is the owner's responsibility to notify LSBC prior to the start of the work. It is the owner's responsibility to make sure all parties listed above are aware of their roles, requirements, responsibilities and final submittals.

2: GENERAL

- 2.01 Contractor shall notify site engineer of any discrepancies, omissions, or conflicts between the various elements of the working drawings and/or specifications before proceeding with any work involved. In all cases, unless otherwise directed, the most stringent requirements shall govern and be performed.
- 2.02 Contractor shall verify all conditions, dimensions and elevations, etc., at the site and shall coordinate work performed by all trades. Do not scale drawings.
- 2.03 Shop drawings shall be reviewed and approved by the civil engineer prior to fabrication.
- 2.04 Sizes, locations, loads, and anchorage of equipment shall be verified in the field with equipment manufacturers (suppliers) prior to fabrication or installation of supporting structures.
- 2.05 Temporary bracing shall be provided wherever necessary to take care of all loads to which the structure may be subjected, including wind. Such bracing shall be left in place as long as may be required for safety or until all the structure elements are complete.
- 2.06 During and after construction the contractor and/or owner shall keep loads on the structure within the limits of the design load.
- 2.07 Contractor shall be responsible for safety and protection within and adjacent to the job site.
- 2.08 Civil engineer is responsible for erosion and sediment control design.
- 2.09 Road pavement design and its appurtenance structure are civil engineer's responsibility. Refer all pavement and roadway drainage system to civil drawing(s).

3: CONCRETE

- 3.01 All foundation concrete (footings, walls etc.) shall be normal weight concrete with a compressive strength equal to at least 4,000 psi within 28 days after casting. The water/cement ratio shall be no greater than 0.50 and slump shall be 2-4 inches.
- 3.02 All concrete work shall be placed, cured, stripped and protected as directed by these specifications and ACI standards and practices.
- 3.03 Contractor is responsible for all shoring and formwork.
- 3.04 Concrete design and detailing shall conform to the requirements of ACI 318-02. Contractor shall submit mix designs to the site engineer accompanied by appropriate graphs and background data for approval. Mix design shall indicate 7 and 28-day strengths, cement content, air content, water-cement ratio, amount of fine and coarse aggregates and admixtures.

- a. Minimum ultimate compressive strength of concrete at 28 days shall be as follows, unless noted otherwise:

Footings and other concrete:	4000 PSI
Unreinforced concrete:	2000 PSI

- 3.05 All exterior concrete and concrete exposed to weather shall be air-entrained.
- 3.06 Use of additives shall not be permitted unless specifically approved by the site engineer.
- 3.07 The concrete subcontractor shall not reproduce any portion of the structural contract drawings for utilization as shop drawings.
- 3.08 Concrete shall be consolidated by means of mechanical vibration. Vibrators shall be inserted and removed vertically at regular intervals not to exceed 18" to ensure uniform consolidation. In no case shall vibrators be used to transport the concrete inside the forms.
- 3.09 Formwork shall follow ACI 347. "Recommended practice for concrete form work". Forms shall conform to the working drawing to shape, line and dimensions members and shall be substantially free from surface defects and sufficiently tight to prevent leakage. They shall be properly braced and tied to maintain position and shape.
- 3.10 Fresh concrete will be protected from rain, flowing water and mechanical injury, sun, drying winds and freezing for a period of 7 days. The temperature of the concrete must be kept above 50 degrees F for at least 7 days.
- 3.11 Ground water and surface water within the subgrade excavation area must be maintained below the bottoms of the footer elevation and the bottoms of the excavation during preparation of the subgrade.

4: GEOTECHNICAL NOTES

- 4.01 Geotechnical site information provided by others.
- 4.02 All structural fill soils will have a minimum dry density of 105PCF. Fill shall be compacted to at least 95% of the maximum dry density as determined by the standard proctor ASTM D698 (AASHTO T-99) with the exception of the top foot, which will be 100% of the maximum dry density.
- 4.03 All structural fill material will be placed in layers, which, before compaction, will not exceed eight inches. Each layer shall be spread to ensure conformity of materials in each layer.
- 4.04 Virgin/undisturbed soils are defined as soils with a minimum SPT "N" value of 12.

5: FOOTINGS

- 5.01 All footings are based on an allowable soil bearing pressure of 6,000 PSF. Any soil condition encountered during excavation that is contrary to those used for design of footings as outlined in these drawings shall be brought to the attention of the site Geotechnical Engineer for direction before proceeding.
- 5.02 Bottom of footings shall be a minimum of 3'-0" below finished grade, unless a lower elevation is noted. Footing elevations noted are estimated based on available geotechnical and grading information. All footings adjacent to existing footings shall be lowered to match existing footing elevation.
- 5.03 All foundation subgrades shall be inspected and approved under the supervision of the registered professional site Geotechnical Engineer or their representative prior to pouring concrete. Footings may be lowered to achieve the minimum footing subgrade bearing capacity of 6,000 PSF.

6: REINFORCING STEEL

- 6.01 Reinforcing bars shall be deformed billet steel conforming to ASTM A615, grade 60. All welded wire fabric shall conform to ASTM A185. Bars shall be branded by the manufacturer with bar size and grade of steel and certified mill reports shall be submitted to Site Engineer for record. Reinforcing steel shall be detailed in accordance with the ACI "manual of standard practice for detailing reinforced concrete structures", latest edition. Provide corner bars at junctions of concrete walls and wall footings and lap 48 x bar diameters.
- 6.02 With wall reinforcing as shown in typical details, size and spacing of corner bars to be same as horizontal wall reinforcing, unless shown otherwise. Where continuous bars are called for, they shall run continuously around corners and lapped as necessary min. 48 x bar diameters. Provide standard hooks at discontinuous ends. Tension and compression lap splices shall not be less than the splice lengths as given in ACI 318. Generally lap top bars at mid span and bottom bars at supports. Provide placing accessories in accordance with ACI recommendations.
- 6.03 Provide the following minimum concrete cover for reinforcement:
 - a. Concrete cast against and permanently exposed to earth ...3"
 - b. Concrete exposed to earth or weather:
 - No. 6 through No. 18 bars ...2"
 - No. 5 bar, W31 or D31 wire, and smaller ...1 1/2"
 - c. Concrete slabs, walls and joists not exposed to the earth or weather:
 - No. 14 and No. 18 bars ...1 1/2"
 - No. 11 bar and smaller ...3/4"
 - d. Beams, columns:
 - Primary reinforcement, ties, stirrups and spirals ... 1 1/2"

7: EARTHWORK SPECIFICATIONS

- 7.01 The contractor shall furnish all labor, material and equipment for the earthwork. The contractor shall perform all work and services except those set out and furnished by Long Span Bridge & Culvert, LLC. (LSBC)
- 7.02 This work shall consist of all clearing and grading, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the project lines, grades, slopes and specifications.
- 7.03 This work is to be accomplished under the observation of the Site Engineer or their representative. Placement of the backfill material will not be permitted unless the Engineer or their representative is on site.
- 7.04 Prior to bidding the work, the contractor shall examine, investigate and inspect the construction site as to the nature and location of the work and local conditions at the construction site including, without limitation, the character of the surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as they may deem necessary for the planning and proper execution of the work.
- 7.05 The professional Site Geotechnical Engineer or their representative in the field shall verify the subgrade soil condition, gravel, and the rock quality. All stone subgrade shall be compacted with a vibratory plate compactor in no more than 8" lifts and verified by the professional Site Geotechnical Engineer or their representative.
- 7.06 If conditions other than those indicated by the confirmatory subsurface boring program are encountered by the contractor, Long Span Bridge & Culvert, LLC (LSBC) should be notified immediately. The material, which the contractor believes to be a changed condition, should not be disturbed so that LSBC and/or their designated representative can investigate the condition.
- 7.07 The work for clearing and grubbing includes furnishing all labor, materials, transportation, supervision, tools and construction machinery, which may be necessary to accomplish the clearing and grubbing for this project area.
- 7.08 All trees, bushes, etc., shall be removed from the limits of the proposed areas to receive fill or other engineered structures. The areas may be extended outside the actual lines of construction only to the distance required to provide the contractor with sufficient space to perform the work.
- 7.09 All stumps, vegetation, brush, debris or deleterious materials shall be removed from the limits of the fill or other engineered structures.
- 7.10 The work for stripping includes furnishing all labor, materials, transportation, supervision, tools and construction machinery, which may be necessary to be provided by the contractor.
- 7.11 When the construction/operation sequence requires, the area of fill or other engineered structures shall be properly stripped. This stripping shall include topsoil and other deleterious materials. Topsoil shall be removed to its full depth and stockpiled for use in the final cover. Any rubbish, organic and objectionable soils and other deleterious material shall be properly disposed of at a site approved by owner or LSBC.
- 7.12 The lines and grades shall be established by using control benchmarks provided by licensed surveyors.
- 7.13 Soft or spongy cohesive or silty materials encountered at the base of the excavation shall be removed at the direction of the Site Geotechnical Engineer or their representative. The excavation for the footing wall foundations shall be observed and subgrade-bearing capacity certified by the Site Geotechnical Engineer upon completion of this task. At the direction of the Site Geotechnical Engineer or their representative, soft material will be removed to a depth directed by the Site Geotechnical Engineer or their representative, and replaced with granular backfill compacted at least 100% of the maximum dry unit weight density at a moisture content within 2% of optimum as determined by AASHTO T-99 method / ASTM D698.
- 7.14 If a shape control technician is supplied by LSBC, no select granular backfill may be placed, without being observed by LSBC's shape control technician.
- 7.15 Ground water and surface water within the subgrade excavation area must be maintained at least 3 feet below the footer elevation during preparation of the subgrade if additional excavation is required to remove unsuitable materials, the water must be maintained 3 feet below the deepest excavation elevation.
- 7.16 The subgrade shall be compacted with a soil vibratory compactor or equivalent with a dynamic force of 50,000 pounds (min.). The top 1 foot of the subgrade soil shall be compacted to at least 100% of the maximum dry unit weight at a moisture content within 2% of optimum as determined by AASHTO T-99 method (standard proctor). All compaction and subgrade bearing capacity to be verified by the site geotechnical engineer or representative.

7.17 All select granular backfill material around the culvert and above the footing shall consist of AASHTO M 145 A-1-a Recycled concrete material shall not be allowed. The select backfill material shall have fines (pass no. 200 sieve material) maximum 15% by weight. See typical select backfill chart this sheet.

7.18 The select granular backfill material and site soil backfill for the adjoining embankment material shall be tested in the laboratory for grain size distribution (AASHTO T-27 for granular material, AASHTO T-88 for soil material) and moisture-density relationship (AASHTO T-99). The testing described above is for purposes of verification of site soil backfill parameters and is in addition to the general project specifications for the embankment backfill, but does not supersede project specifications that may be more stringent.

7.19 All backfill operations shall place the material evenly on both sides of the plate arch and each lift shall extend for the entire length of the plate arch prior to placement of the next sequential lift. Fill placement shall begin in the middle of the plate arch length and extend equally on both sides in the upstream and downstream directions.

7.20 The select granular backfill shall be placed in horizontal layers not to exceed 8" loose depth. The lift thickness may be reduced by the Site Geotechnical Engineer or their representative to obtain the required compaction, fill all the voids, achieve the proper seating of the backfill material and achieve the stability of the backfill material and the plate arch. The granular backfill shall be compacted to 95% of the maximum dry unit weight as determined by the standard proctor test (AASHTO T-99). Field nuclear density tests shall be performed at a minimum frequency of two tests per lift and every 25' on each side of the structure. Greater emphasis shall be given to a uniform degree of compaction throughout each lift than to achieving a degree of compaction greater than the minimum specified criteria. Site Geotechnical Engineer shall do testing of select granular backfill.

7.21 All granular material shall be compacted using mechanical devices, vibrating plates or other equipment approved by the Site Geotechnical Engineer. Compaction equipment weighing more than 24,000 pounds shall not be used within 2.5' of the corrugated metal structure. The compaction equipment shall be capable of compacting the material under the haunch of the plate arch (I.E. below the spring line of the plate arch).

7.22 The soil backfill (compacted normal backfill) within 17'-9" or to natural undisturbed embankment backfill on each side shall be placed in layers not of the selected granular to exceed 8" loose depth. The lift thickness may be reduced by the Site Geotechnical Engineer to obtain the required compaction. The soil backfill shall be compacted to a minimum of 95% of the maximum dry unit weight as determined by the standard proctor test (AASHTO T-99) and to a moisture content within 2% of the optimum moisture content as determined by the same test. Field nuclear density test shall be performed at a minimum frequency of four tests per every other lift and every 25' on the soil backfill on each side of the structure. The testing described above is in addition to the general project specifications for the embankment backfill, but does not supersede project specifications that may be more stringent than those requirements. The Site Geotechnical Engineer is responsible for testing and recording measurements of the soil backfill.

7.23 If at any time longitudinal cracks develop in the backfill surrounding the pipe to a distance of 30' from the spring line of the plate arch, these features must be brought to the immediate attention of the field QA/QC personnel and the Site Geotechnical Engineer.

7.24 While compacting granular backfill material with a vibrator compactor and adjacent to the plate arch, the opposite side of the plate arch should be observed to note if vibrations are loosening the granular material on that side. This may be more prevalent at higher elevations of the backfill with respect to the plate arch. If this condition occurs, the field QA/QC technician and Site Geotechnical Engineer should be notified prior to placement of a sequential lift on either side.

7.25 The structure should not be crossed with equipment heavier than a D4 dozer. No other equipment or highway (HS20) loading shall be allowed to cross the structure until the asphalt pavement is placed unless there is a minimum of 12" of soil cover or span/8 inches of soil cover whichever is greater, covering the plate arch. Top filling should begin at the middle of the structure (lengthwise) with the backfill being pushed up and over the structure with a D4 or preferably smaller type dozer. The fill should be pushed over the structure in a manner 45 to 90 degrees to the axis of the structure. Field nuclear density test shall be performed at a minimum frequency of four tests per every lift on the soil backfill on each side of the structure. The testing described above is in addition to the general project specifications for the embankment backfill, but does not supersede project specifications that may be more stringent than those requirements. The contractor shall submit to the owner samples of all proposed soil backfill material for laboratory testing to verify moisture and density relationships (AASHTO T-99/ASTM D698) and grain size relationships (AASHTO T-27/ASTM C136).

7.26 All construction to be certified at the end of the job by a Professional Engineer (Civil Engineer or Site Geotechnical Engineer) that all work performed by contractor meets these design requirements and specifications. Certification to be submitted to LSBC and the local jurisdiction for record file.

8: REQUIRED SUBMITTALS

- 8.01 The contractor must submit the following items to the Site Civil Engineer for approval in writing at least 2 weeks prior to use:
 - a. Manufacture certification for yield strength of reinforcing steel.
 - b. Manufacture certification for concrete design.
 - c. Shop drawings of all concrete work.

BACKFILL CHART

AASHTO M 145- TABLE 2 (MODIFIED*)				
GROUP CLASSIFICATION	A-1		A-2 (MODIFIED)	
SIEVE ANALYSIS, PERCENT PASSING	A-1-a	A-1-b	A-2-4	A-2-5
NO. 10 (2.00 mm)	50 max	---	---	---
NO. 40 (.425 mm)	30 max	50 max	---	---
NO. 100 (.150 mm)	---	---	50 max	50 max
NO. 200 (.075 mm)	15 max	25 max	20 max	20 max
Characteristics of fraction passing No. 40 (0.425 mm)				
Liquid Limit	---	---	40 max	41 max
Plasticity Index	6 max	6 max	10 max	10 max
Usual Material Types	Stone Fragments Gravel and Sand		Silty or Clayey Gravel and Sand	

*Modified to be more select than M-145

9: CONSTRUCTION OVERSIGHT CERTIFICATIONS

- 9.01 The plate arch construction requires engineering oversight and inspection. The Site, Civil and Geotechnical Engineers must provide LSBC certification reports of all footings and retaining wall/headwalls reinforcing placement and the following items:
 - a. Subgrade bearing capacity and backfill (select granular and compacted normal backfill) compaction testing, field reports, testing results, testing locations, and registered professional engineer's certification.
 - b. Field reports of concrete placement review, laboratory test results of concrete cylinder breaks at 7 and 28 days and certified by a Registered Professional Engineer.
 - c. Final report of construction certification that the construction was performed in accordance with the design and the material testing and inspection verifying the same, stamped by a Registered Professional Engineer.

10: ENVIRONMENTAL PERMITTING

- 10.01 These plans do not address environmental permitting requirements, which must be addressed and applied for with the state and Army Corp of Engineers, if the plate arch culvert lies within the stream buffer.

11: SAFETY

- 11.01 All contractors (and owners), their representatives and their crew must be qualified/certified to perform all works within their scope. They must adhere to OSHA's health and safety laws. The contractor is solely responsible for all site safety.

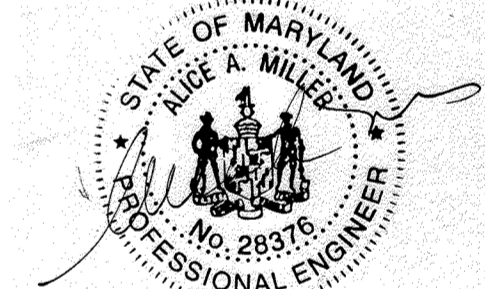
12: RA'S RESPONSIBILITY

- 12.01 RA's scope of works for this project are design of footing, headwall and plate arch culvert, and RA is responsible for that only. Acceptance of the plan drawings by our client & the owner means they agree to our scope and responsibilities.

13: LONG SPAN BRIDGE & CULVERT, LLC SCOPE OF WORK

- 13.01 Long Span Bridge & Culvert, LLC (LSBC) will deliver, furnish and assemble the Long Span low profile arch on footings designed by Ryan & Associates and prepared by Site Contractor. The base channel will be furnished by LSBC and installed in the concrete foundations by the Site Contractor in accordance with the plans.
- 13.02 LSBC will conduct a pre-construction meeting prior to foundation preparation and arch assembly. Attendance at the pre-construction meeting is mandatory for the owner or the owner's representative (e.g. Site Civil Engineer, Site Contractor and Concrete Contractor) and Site Geotechnical Engineer. It is the owner's responsibility to have each party in attendance. If a party is not in attendance it is the owner's responsibility to inform that entity of its responsibilities and duties prior to the start of work.
- 13.03 LSBC will provide a shape control technician to monitor structure's shape and observe the proper placement and compaction of the select fill material.
- 13.04 LSBC will require the Site Contractor to unload the structure plates and base channel. LSBC will require the Site Contractor to provide access to the structure for a rubber-tired crane. Parallel access roads shall be within 30' of the centerline of the structure on each side.

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET



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. 21443, Expiration Date: 12-21-24

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 28376, Expiration Date: 1-1-17

FOR REVISIONS BY BENCHMARK ENGINEERING INC. ONLY. REVISION # 2 DEC 3, 2015 # 3 3-29-20

APPROVED: HOWARD COUNTY DEPT. OF PUBLIC WORKS

Matthew J. Walker 10-23-07
 CHIEF, BUREAU OF HIGHWAYS #0 DATE

APPROVED: DEPARTMENT OF PLANNING & ZONING

Chris Cummings 11/5/07
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamstra 11/5/07
 CHIEF, DIVISION OF LAND DEVELOPMENT #C DATE

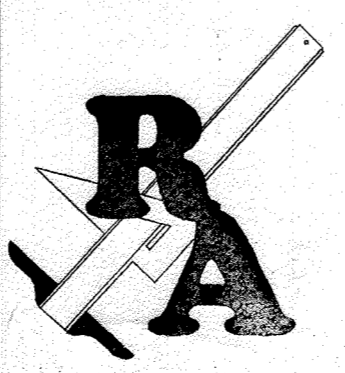
AS-BUILT

REVISIONS			
No.	DATE	BY	DESCRIPTION
1	05/25/08	MH	PER COMMENTS FROM CIVIL ENGINEER
2	12/31/15	DEF	REVISE SHEET NO.
3	3/1/20	DEF	UPDATE OWNER INFO

DRAWN BY: MH
 DESIGN BY: MH
 CHECKED BY: MS
 DATE: 08/18/08

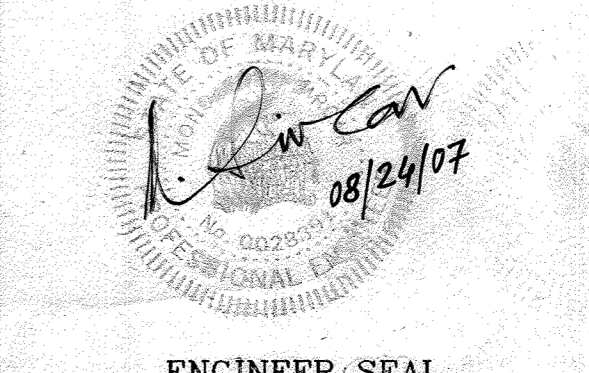
DO NOT SCALE THIS DRAWING. DIMENSIONS AND NOTES TAKE PRECEDENCE OVER DRAWING.

CLIENT: LONG SPAN BRIDGE & CULVERT, LLC
 OWNER: SOLISHINE LTD, LP
 JOB No: 1101-05-08



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NOTES AND SPECIFICATIONS
 LONG SPAN LOW PROFILE ARCH LA3308
 MYRTUE PROPERTY CULVERT
 HOWARD COUNTY, MD



SHEET
56 OF 56
 ENGINEER SEAL