

GENERAL NOTES:

- THE PROPERTY IS ZONED NT PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN AND IS DESIGNATED DMIA PER FDP-DC-CRESCENT-1A.
- APPLICABLE DPZ FILE REFERENCES: FDP-DC-CRESCENT-1, FDP-DC-CRESCENT-1A, ECP 15-074, ECP 15-083, F 15-048, ECP 16-041, F 15-106, SDP 15-068, AND SP 16-004.
- THE FOLLOWING PERMITS AND TRACKING NUMBER HAVE BEEN ASSIGNED TO THIS PROJECT BY STATE AND FEDERAL AGENCIES:
FOR THE MARYLAND DEPT. OF THE ENVIRONMENT: 14-NT-3189/201461063
FOR THE ARMY CORPS OF ENGINEERS: GENAB-PP-RMN-2014-61063-N36
- 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) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-TTTT AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006), SECTION 55.A. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- TRAFFIC CONTROL DEVICES: A) THE R-1 (STOP) SIGNS AND THE STREET NAME SIGNS (SNS) ASSEMBLIES FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED. B) THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY TRAFFIC CONTROL DEVICES. C) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). D) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED (QUICK PUNCH), SQUARE TUBE POST (1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED SQUARE TUBE SLEEVE (2 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO (2) "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- 95% COMPACTION IN FILL AREAS SHALL MEET AASHTO T-180 REQUIREMENTS.
- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED. TRAFFIC IMPACT STUDY AND TRAFFIC SIGNAL WARRANT ANALYSIS SUBMITTED AND APPROVED AS A PART OF THE FINAL DEVELOPMENT PLAN (FDP-DC-CRESCENT-1A) BY WELLS AND ASSOCIATES.
- BOUNDARY INFORMATION IS FROM BOUNDARY SURVEYS BY GUTSCHICK, LITTLE, AND WEBER, P.A., DATED NOVEMBER, 2011.
- HORIZONTAL AND VERTICAL DATUM IS BASED ON HOWARD COUNTY CONTROL STATIONS: 306A, 36AA.
- AERIAL TOPOGRAPHY BY MCKENZIE SNYDER, INC. ON MARCH, 2007 AND GUTSCHICK, LITTLE AND WEBER ON AUGUST, 2011.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES OR PLACEMENT OF NEW STRUCTURES IS PERMITTED WITHIN WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS, AND 100 YEAR FLOODPLAIN AREAS EXCEPT AS APPROVED ON JANUARY 9, 2017 HOWARD COUNTY DEPT. OF PLANNING & ZONING DETERMINED THAT THE DISTURBANCES TO ENVIRONMENTAL SENSITIVE AREAS FOR THE IMPROVEMENTS SHOWN WITHIN THIS FINAL PLAN ARE ESSENTIAL AND NECESSARY.
- THE CEMETERY INVENTORY MAPS DO NOT SHOW ANY CEMETERIES WITHIN THE PROJECT LIMITS.
- THE SCENIC ROADS MAP DOES NOT INDICATE ANY SCENIC ROADS WITHIN OR ADJACENT TO THE PROJECT LIMITS. EXISTING UTILITIES ARE BASED ON AVAILABLE HOWARD COUNTY RECORDS.
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT.
- WATER AND SEWER ARE PUBLIC PER CONTRACT NO. 24-4475-D AND ARE WITHIN THE LITTLE PATUXENT SEWERAGE AREA.
- THE 100-YEAR FLOOD PLAIN LIMITS SHOWN ON THESE PLANS WERE DETERMINED IN A FLOODPLAIN STUDY PREPARED BY BIOHABITATS AND WAS SUBMITTED AS PART OF F 15-048 AND F 15-106.
- THIS SUBDIVISION IS EXEMPT FROM THE REQUIREMENTS OF SECTION 16.1202(B)(V)(V) OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BECAUSE THE SUBJECT PROPERTY IS PART OF A PLANNED UNIT DEVELOPMENT WHICH HAS PRELIMINARY DEVELOPMENT PLAN APPROVAL AND 50% OR MORE OF THE LAND IS RECORDED AND SUBSTANTIALLY DEVELOPED BEFORE DECEMBER 31, 1992.
- THIS SITE IS SUBJECT TO THE FINAL DEVELOPMENT PLAN RECORDED AS PLAT NUMBERS 24102 THRU 24110, THE NEIGHBORHOOD CONCEPT PLAN (NCP) RECORDED AS PLAT NUMBERS 23971 THRU 23402, THE NEIGHBORHOOD SPECIFIC DESIGN GUIDELINES (NSDG) RECORDED AS LIBER 16305 FOLIO 415 THRU 511 & LIBER 16306 FOLIO 1 THRU 150 AND THE NEIGHBORHOOD SPECIFIC IMPLEMENTATION PLAN (NSIP) RECORDED AS LIBER 16306 FOLIO 151 THRU 192.
- THERE ARE NO KNOWN EXISTING DEDICATED BICYCLE LANES OR SHARED BICYCLE AND VEHICULAR TRAVEL LANES.
- FOR INFORMATION ON THE POTENTIAL TRANSIT ROUTE CIRCULATION, SEE THE NEIGHBORHOOD SPECIFIC IMPLEMENTATION PLAN PAGES 16 AND 17.
- FOR INFORMATION ON THE LOCATIONS OF PRIMARY AND SECONDARY PEDESTRIAN ROUTES AND THE BICYCLE CIRCULATION, SEE CHAPTER 3 OF THE CRESCENT NEIGHBORHOOD SPECIFIC DESIGN GUIDELINES. FOR INFORMATION ON THE STREET FRAMEWORK CHANGES, SEE CHAPTER 3 OF THE CRESCENT NEIGHBORHOOD SPECIFIC DESIGN GUIDELINES.
- STREET TREE AND LANDSCAPE PLANS HAVE BEEN PREPARED BY A REGISTERED LANDSCAPE ARCHITECT AND ARE CERTIFIED TO CONFORM WITH THE CRESCENT NEIGHBORHOOD DESIGN GUIDELINES RECORDED IN THE LAND RECORDS OF HOWARD COUNTY IN LIBER 16305, FOLIO 415 THRU 511 AND LIBER 16306 FOLIO 1 THRU 150.
- A SURETY IN THE AMOUNT OF \$21600 WILL BE PROVIDED FOR THE STREET TREES AS PART OF THE DPW DEVELOPER AGREEMENT.
- STORMWATER MANAGEMENT FOR THIS SITE IS PROVIDED IN ACCORDANCE WITH CHAPTER 5 OF THE MDE STORMWATER MANAGEMENT DESIGN MANUAL, VOLUMES 1 AND 2 REDEVELOPMENT CRITERIA. THROUGHOUT THE SITE, MICRO BIO-RETENTION (M6) AND FILTERRA DEVICES HAVE BEEN UTILIZED. A PE VALUE OF 2.517 WAS CALCULATED PER ECP-16-041 FOR THE EXTENTS OF THE F-16-101 AND F-16-114 ROAD CONSTRUCTION PLANS. THE MICRO BIO-RETENTION (M6) FACILITIES WILL BE PRIVATELY OWNED BUT JOINTLY MAINTAINED; THE FILTERRA DEVICES WILL BE PRIVATELY OWNED AND PRIVATELY MAINTAINED.

- WATER AND SEWER SERVICE TO THESE PARCELS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 16.122B OF THE HOWARD COUNTY CODE.
- PUBLIC WATER AND SEWER ALLOCATIONS WILL BE GRANTED AT THE TIME OF ISSUANCE OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- IN A LETTER DATED DECEMBER 19, 2016 BIOHABITATS OUTLINED THE ABILITY TO PROVIDE THE REQUIRED ENVIRONMENTAL RESTORATION WITHIN AN AREA WITH ROADSIDE GRADING AND A MICRO BIO-RETENTION FACILITY.
- THE RIGHT-OF-WAY AND PAVING LIMITS BEING PROVIDED WITH THESE FINAL PLANS PROVIDES THE AREA FOR THE LANES AND SIGNALIZATION NEEDED FOR THE JUMP LANES WHEN THE NEED FOR THOSE IMPROVEMENTS IS DEEMED WARRANTED.

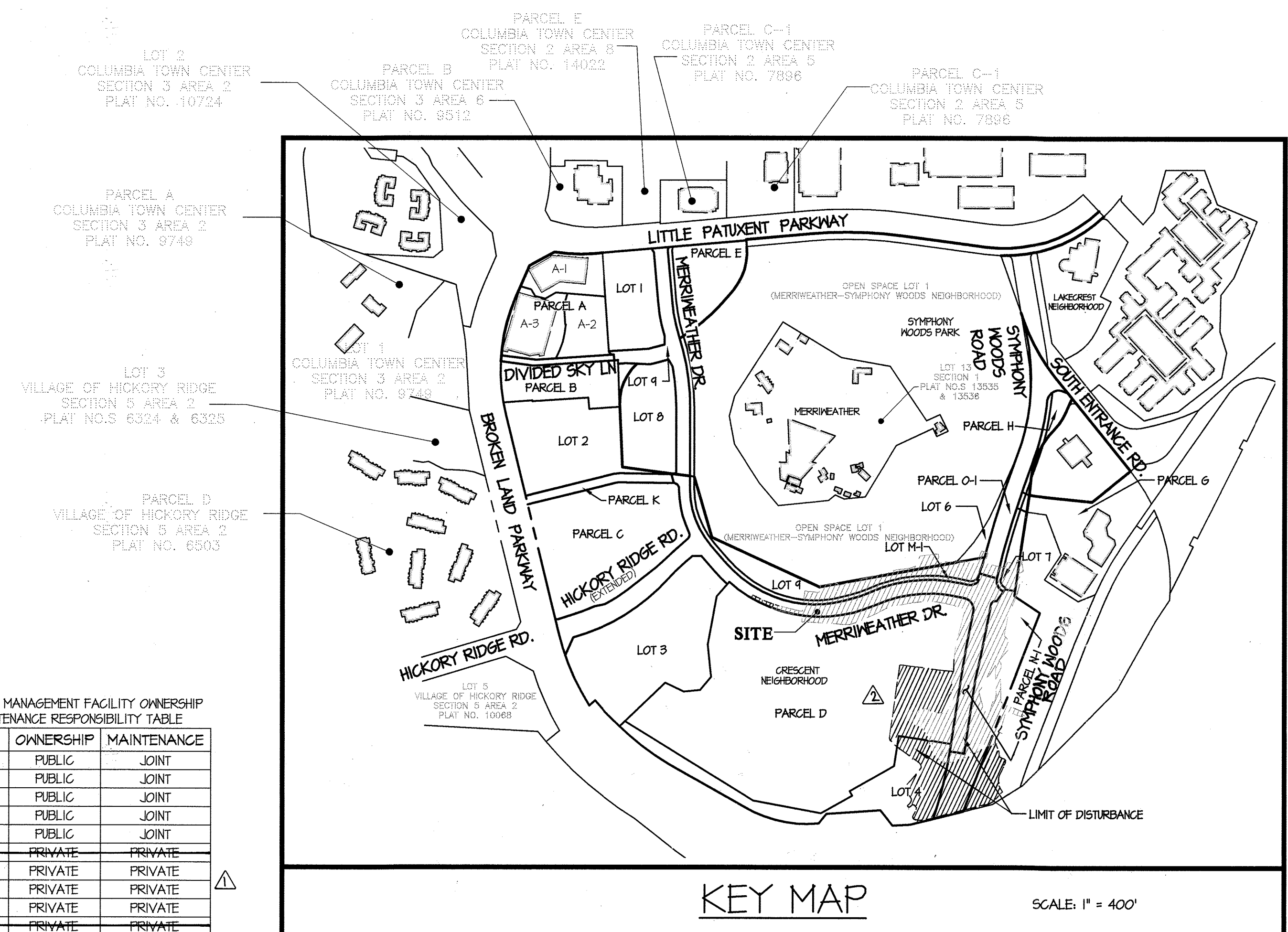
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 4/10/17

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 5-15-17

Chief, Development Engineering Division
 Date: 4-17-17

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONVILLE OFFICE PARK
 BURTONVILLE, MARYLAND 20866
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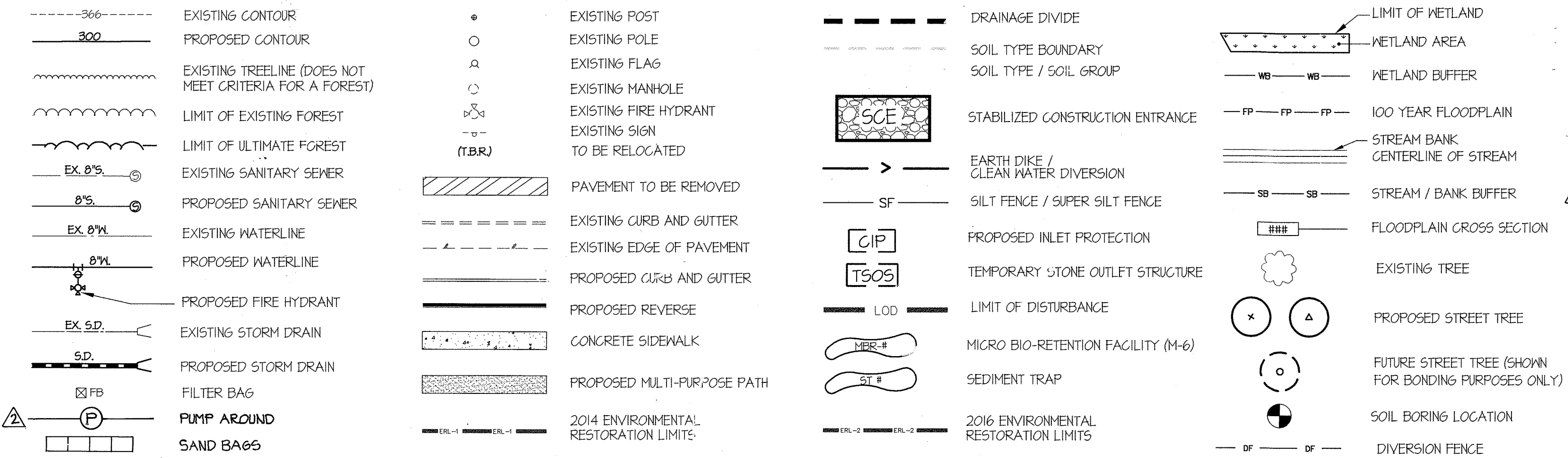
PHASE 2A-FINAL PLAN DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9



STORMWATER MANAGEMENT FACILITY OWNERSHIP AND MAINTENANCE RESPONSIBILITY TABLE

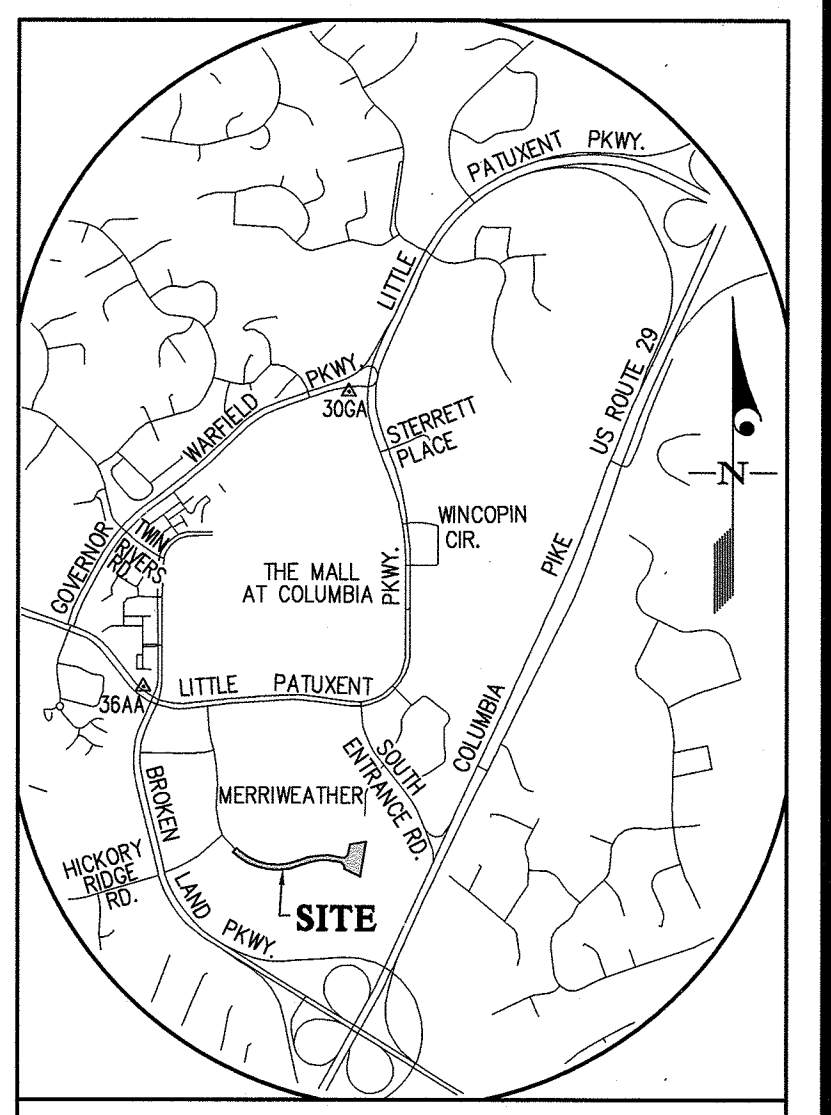
FACILITY	OWNERSHIP	MAINTENANCE
MER-6	PUBLIC	JOINT
MER-4	PUBLIC	JOINT
MER-10	PUBLIC	JOINT
MER-11	PUBLIC	JOINT
MER-12	PUBLIC	JOINT
FILTERRA 50	PRIVATE	PRIVATE
FILTERRA 51	PRIVATE	PRIVATE
FILTERRA 52	PRIVATE	PRIVATE
FILTERRA 53	PRIVATE	PRIVATE
FILTERRA 54	PRIVATE	PRIVATE

LEGEND



SITE ANALYSIS

TOTAL AREA OF CRESCENT NEIGHBORHOOD	99.94 ACRES
AREA OF THIS SUBMISSION (LIMIT OF DISTURBANCE)	11.27 ACRES
NUMBER OF PARCELS UNDER THIS SUBMISSION	0
AREA OF PARCELS	0.0000 ACRES
NUMBER OF NON-BUILDABLE PARCELS UNDER THIS SUBMISSION	3
AREA OF NON-BUILDABLE PARCELS	5.8250 ACRES
NUMBER OF OPEN SPACE LOTS UNDER THIS SUBMISSION	1
AREA OF OPEN SPACE LOTS	1.9074 ACRES
AREA OF PUBLIC ROADWAYS	2.2451 ACRES



VICINITY MAP
 SCALE: 1" = 2,000'
 ADC MAP 32 GRID A-1

HOWARD COUNTY CONTROL STATIONS

306A	36AA
NORTHING: 566,053.5919	NORTHING: 562,804.8537
EASTING: 1352,171.5307	EASTING: 1344,906.1101
ELEVATION: 339.8716	ELEVATION: 354.151
(LATEST ADJ. NOV. 2008)	(LATEST ADJ. NOV. 2008)

SHEET INDEX

- 1 - COVER SHEET
- ROAD CONSTRUCTION
 - 2 - EXISTING CONDITIONS AND DEMOLITION PLAN
 - 3 - MERRIMETHER DRIVE - PLAN AND PROFILE
 - 4 - SYMPHONY WOODS ROAD - PLAN AND PROFILE
 - 5 - TYPICAL ROAD SECTION & CURB DETAILS
 - 6 - PARKLAND REPLACEMENT SHEET
 - 7 - GRADING PLAN INITIAL
 - 8 - STORM DRAIN DRAINAGE AREA MAP
 - 9 - STORM DRAIN PROFILES
 - 10 - STORM DRAIN PROFILES
 - 11 - STREET TREE AND LIGHTING PLAN
- SEDIMENT CONTROL
 - 12 - SEDIMENT CONTROL PLAN AND SOILS MAP - INITIAL
 - 13 - SEDIMENT CONTROL DRAINAGE AREA MAP
 - 14 - SEDIMENT CONTROL NOTES AND DETAILS
 - 15 - SEDIMENT CONTROL NOTES AND DETAILS
- STORMWATER MANAGEMENT
 - 16 - STORMWATER MANAGEMENT DRAINAGE AREA MAP
 - 17 - ESD DETAILS
 - 18 - ESD DETAILS
 - 19 - STORMWATER MANAGEMENT NOTES AND DETAILS
- MAINTENANCE OF TRAFFIC
 - 20 - SIGNING AND STRIPING DESIGN PLAN - STAGE 1
 - 21 - SIGNING AND STRIPING DESIGN PLAN - STAGE 2
 - 22 - SIGNING AND STRIPING DESIGN PLAN - STAGE 3
- SYMPHONY WOODS ROAD EXTENSION
 - 23 - CURVE PROFILE
 - 24 - FINAL GRADING PLAN + SEDIMENT CONTROL PLAN AND SOILS MAP - STAGE 1
 - 25 - FINAL GRADING PLAN + SEDIMENT CONTROL PLAN AND SOILS MAP - STAGE 2
- STORMWATER MANAGEMENT
 - 26 - EMERGENCY TRAFFIC SIGNAL PLAN
 - 27 - EMERGENCY TRAFFIC SIGNAL PLAN

ESD COMPUTATION SUMMARY

ESD FACILITY	ESD TYPE	DRAINAGE AREA (AC.)	IMPERVIOUS AREA (AC.)	PERVIOUS AREA (AC.)	Pe PROVIDED (IN)	ESDv PROVIDED (CF)	Pe MINIMUM (IN)	ESDv MINIMUM (CF)
MER-6	M-6	1.51 AC.	1.00 AC.	0.51 AC.	2.38 IN	8,421 CF	1.00 IN	3,539 CF
MER-4	M-6	0.74 AC.	0.17 AC.	0.57 AC.	2.60 IN	1,005 CF	1.00 IN	644 CF
MER-10	M-6	0.50 AC.	0.24 AC.	0.26 AC.	2.60 IN	2,716 CF	1.00 IN	1,045 CF
MER-11	M-6	0.35 AC.	0.15 AC.	0.20 AC.	2.60 IN	1,463 CF	1.00 IN	563 CF
MER-12	M-6	0.47 AC.	0.24 AC.	0.23 AC.	2.60 IN	2,688 CF	1.00 IN	1,034 CF
FILTERRA 50	FTSC 8x6'	0.16 AC.	0.14 AC.	0.02 AC.	1.00 IN	551 CF	1.00 IN	551 CF
FILTERRA 51	FTSC 8x4'	0.15 AC.	0.13 AC.	0.02 AC.	1.00 IN	523 CF	1.00 IN	523 CF
FILTERRA 52	FTSC 8x4'	0.12 AC.	0.11 AC.	0.01 AC.	1.00 IN	426 CF	1.00 IN	426 CF
FILTERRA 53	FTSC 8x6'	0.14 AC.	0.12 AC.	0.02 AC.	1.00 IN	488 CF	1.00 IN	488 CF
FILTERRA 54	FTSC 10x20	0.23 AC.	0.21 AC.	0.02 AC.	1.00 IN	713 CF	1.00 IN	713 CF
TOTALS						16,530 CF		16,346 CF

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 BILL ROWE
 LICENSE NO. 12975
 EXPIRATION DATE: MAY 26, 2018
 1/24/17

COVER SHEET

I HEREBY CERTIFY THAT THESE PLANS 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. 12975, EXPIRATION DATE: MAY 26, 2018.

**DOWNTOWN COLUMBIA
 CRESCENT NEIGHBORHOOD
 NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**

ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

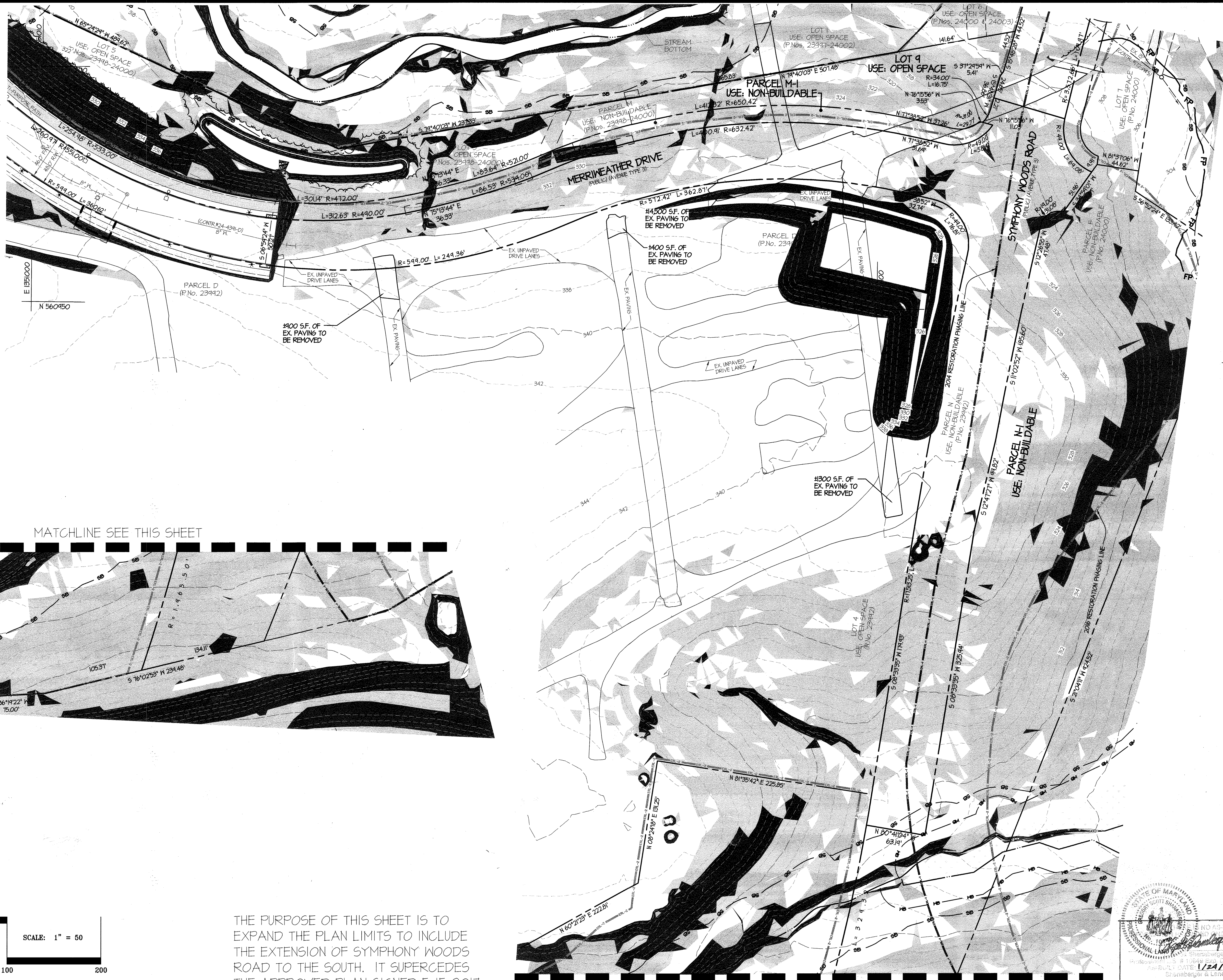
NO.	DATE	REVISION	BY	APPR.
1-17-19		Revised sheet index & sheet total	GLW	DEX
1-21-18		Revised sheet index, legend & sheet total	GLW	DEV
11-2-17		Removed two Filterra	GLW	DEV

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 1048J LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

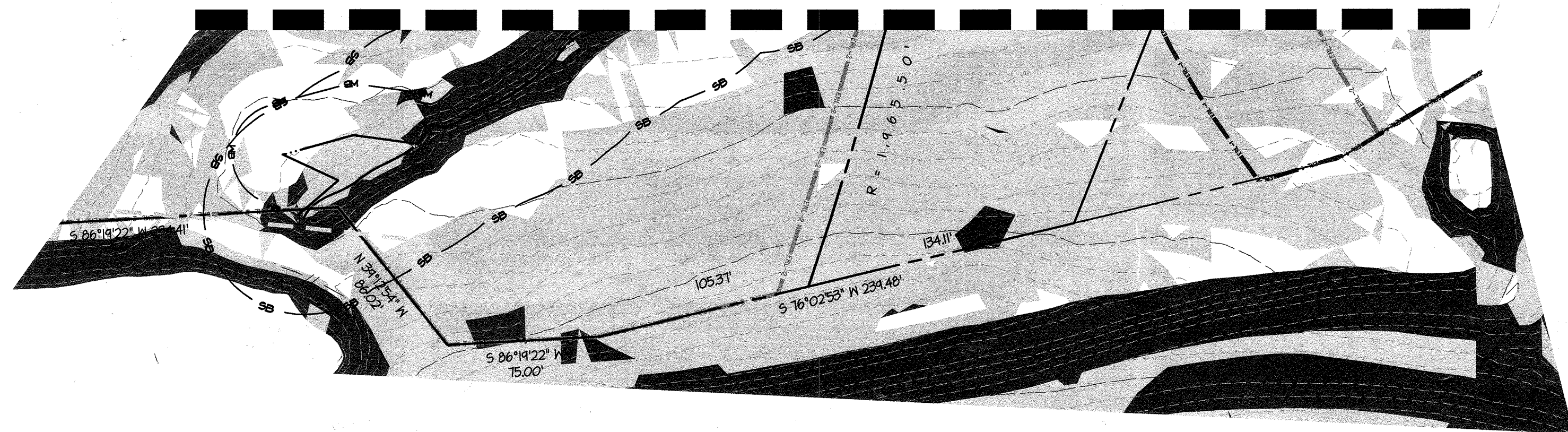
PROFESSIONAL CERTIFICATION
 BILL ROWE
 3/8/17

LEGEND

- EASEMENTS
- EXISTING PAVING
- CONCRETE WALKS
- ASPHALT PATH
- 50' STREAM / BANK BUFFER
- 25' WETLAND BUFFER
- 10-25% SLOPES
- >25% SLOPES
- FLOODPLAIN
- STREAM CENTERLINE
- 2014 ENVIRONMENTAL RESTORATION LIMITS
- 2016 ENVIRONMENTAL RESTORATION LIMITS
- ERL-1
- ERL-2



MATCHLINE SEE THIS SHEET

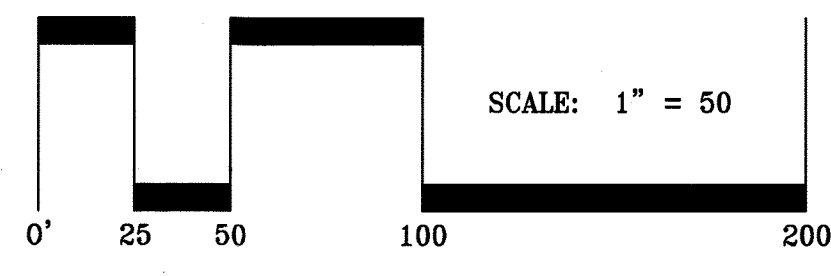


MATCHLINE SEE THIS SHEET

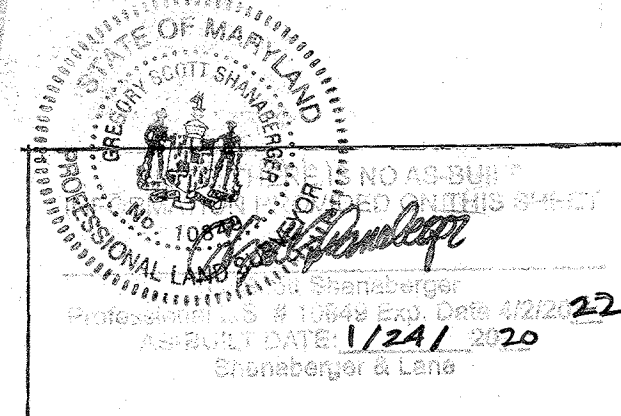
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
M. Munnis 4/30/2018
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
T. Marshall 5-8-18
 Chief, Division of Land Development Date

Ch. P. ... 5-3-18
 Chief, Development Engineering Division Date



THE PURPOSE OF THIS SHEET IS TO EXPAND THE PLAN LIMITS TO INCLUDE THE EXTENSION OF SYMPHONY WOODS ROAD TO THE SOUTH. IT SUPERCEDES THE APPROVED PLAN SIGNED 5-15-2017.

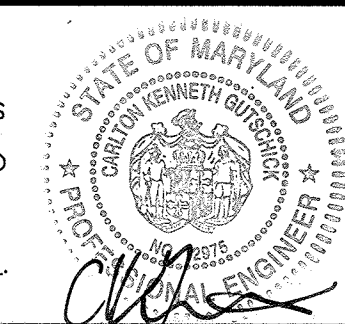


GLWGUTSCHICK LITTLE & WEBER, P.A.
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 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-988-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS 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. 43518, EXPIRATION DATE: MAY 26, 2018



REVISED EXISTING CONDITIONS AND DEMOLITION PLAN

**DOWNTOWN COLUMBIA
 CRESCENT NEIGHBORHOOD
 NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**

ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	NT	11071
DATE	TAX MAP - GRID	SHEET
DEC., 2017	36 - 01	2 OF 27

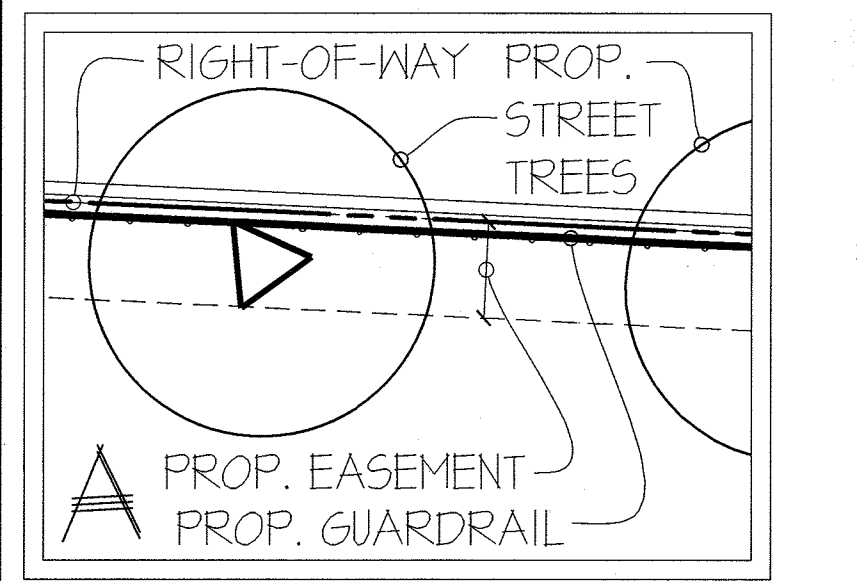
L:\CADD\DRAWINGS\11071\PLANS BY G.L.W. (Resub) (Phase 2A) Grading Symphony Woods Across Stream 2017-05-01\SHEET_02_.plotted.dwg, DATE: 5/22/2018, 10:54 AM, USER: G.L.W., PLOT: 5/22/2018, 12:40 PM, PLOTTED BY: G.L.W.

- NOTES:**
- SEE SHEET 2 FOR EXISTING ITEMS TO BE REMOVED AND BEARINGS AND DISTANCES.
 - SEE SHEET 5 FOR TYPICAL ROAD SECTIONS
 - SEE SHEET 5 FOR CURB DETAILS
 - SEE SHEET 5 FOR TYPICAL SECTIONS FOR THE ASPHALT MULTI-USE PATH.
 - SEE SHEET 1 FOR FLOODPLAIN CROSS SECTION AND WSEL.
 - SEE SHEET 8 FOR STORM DRAIN INFORMATION.
 - SEE SHEETS 4-10 FOR OUTFALL PROTECTION INFORMATION.
 - SEE SHEET 11 FOR STREET TREES AND STREET LIGHTS.
 - ALL SIDEWALK RAMPAS ARE TYPE B UNLESS OTHERWISE NOTED.
 - TREES AND SHRUBS TO BE PLANTED AT LEAST 15 FEET AWAY FROM RETAINING WALL.
 - THE STREET TREES, STREET LIGHTS, AND SIDEWALK SOUTH OF THE MERRINEATHER DRIVE AND WEST OF THE SYMPHONY WOODS ROAD RIGHT-OF-WAYS ARE SHOWN FOR BONDING PURPOSES ONLY. THE IMPROVEMENTS ALONG THE FRONTAGE OF PARCEL 'D' ARE TO BE CONSTRUCTED AS PART OF THE SITE DEVELOPMENT PLAN FOR THAT PARCEL. THEY WILL ONLY BE CONSTRUCTED AS SHOWN ON THESE PLANS IF THEY ARE NEEDED PRIOR TO THE COMPLETION OF THE STREETScape ASSOCIATED WITH THAT PLAN. FINAL LOCATION OF STREET TREES AND LIGHTS ALONG PARCEL 'D' FRONTAGE WILL BE DETERMINED WITH SITE DEVELOPMENT PLAN.
 - ON JANUARY 9, 2017 HOWARD COUNTY DEPT. OF PLANNING & ZONING DETERMINED THAT THE DISTURBANCES TO ENVIRONMENTAL SENSITIVE AREAS FOR THE IMPROVEMENTS SHOWN WITHIN THIS FINAL PLAN ARE ESSENTIAL AND NECESSARY.
 - FOR SIGNING AND STRIPING AT EACH STAGE OF THE AREA 3 DEVELOPMENT, SEE SHEETS 20 THRU 22.
 - THE RIGHT-OF-WAY AND PAVING LIMITS BEING PROVIDED WITH THESE FINAL PLANS PROVIDES THE AREA FOR THE LANES AND SIGNALIZATION NEEDED FOR THE LANE PHASES WHEN THE NEED FOR THOSE IMPROVEMENTS IS DEEMED WARRANTED.

- LEGEND**
- EASEMENTS
 - EXISTING PAVING
 - CONCRETE WALKS
 - ASPHALT PATH
 - 50' STREAM / BANK BUFFER
 - 25' WETLAND BUFFER
 - EXISTING STREET LIGHT
 - TYPE A STREET LIGHT (SEE SHEET 11 FOR DETAILS)
 - TYPE B STREET LIGHT (SEE SHEET 11 FOR DETAILS)
 - TYPE C STREET LIGHT (SEE SHEET 11 FOR DETAILS)
 - TYPE D STREET LIGHT (SEE SHEET 11 FOR DETAILS)
 - TYPE E STREET LIGHT (SEE SHEET 11 FOR DETAILS)
 - 2014 ENVIRONMENTAL RESTORATION LIMITS
 - 2016 ENVIRONMENTAL RESTORATION LIMITS

SYMPHONY WOODS ROAD GUARDRAIL STATIONS TABLE

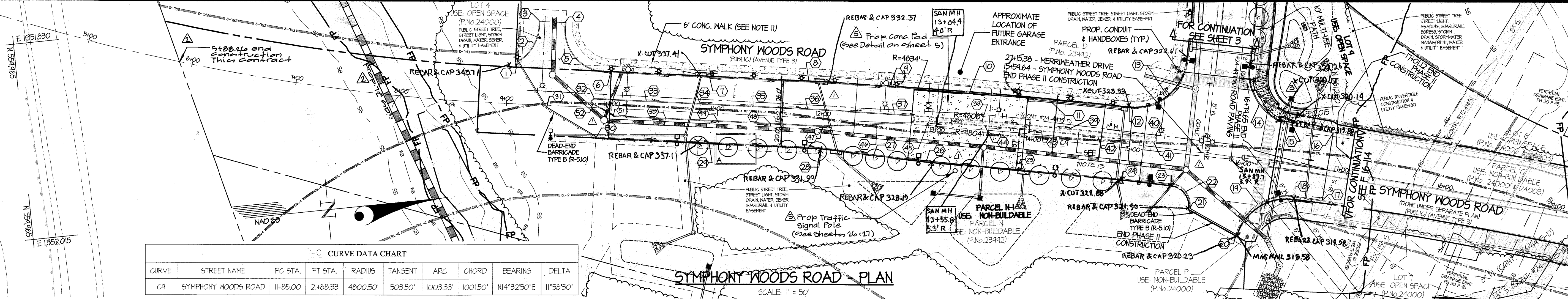
WEST OF ROAD		EAST OF ROAD	
START	END	START	END
---	---	9+86	11+51



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways: *M. Meunier* 4/16/2017

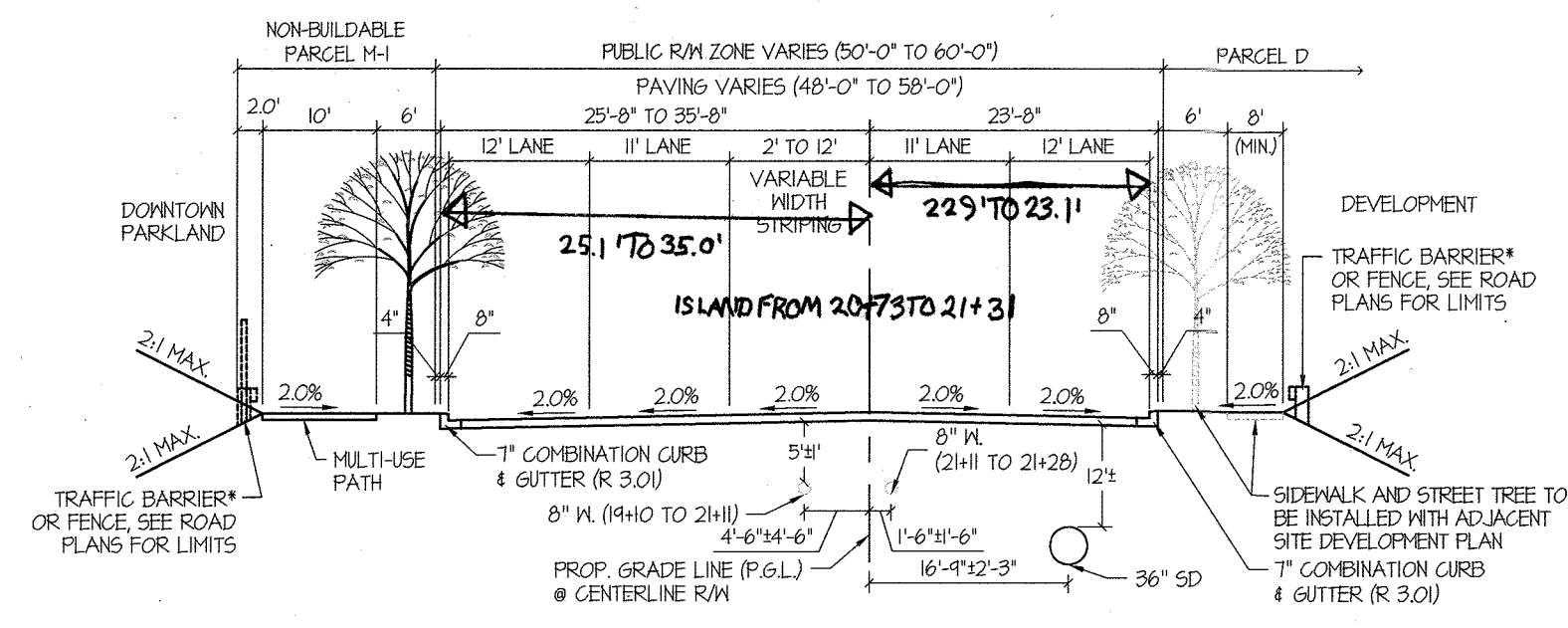
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development: *Kentel Leach* 5-15-17
Chief, Development Engineering Division: *Chad E. ...* 4.17.17

GLWGUTSCHICK LITTLE & WEBER, P.A.
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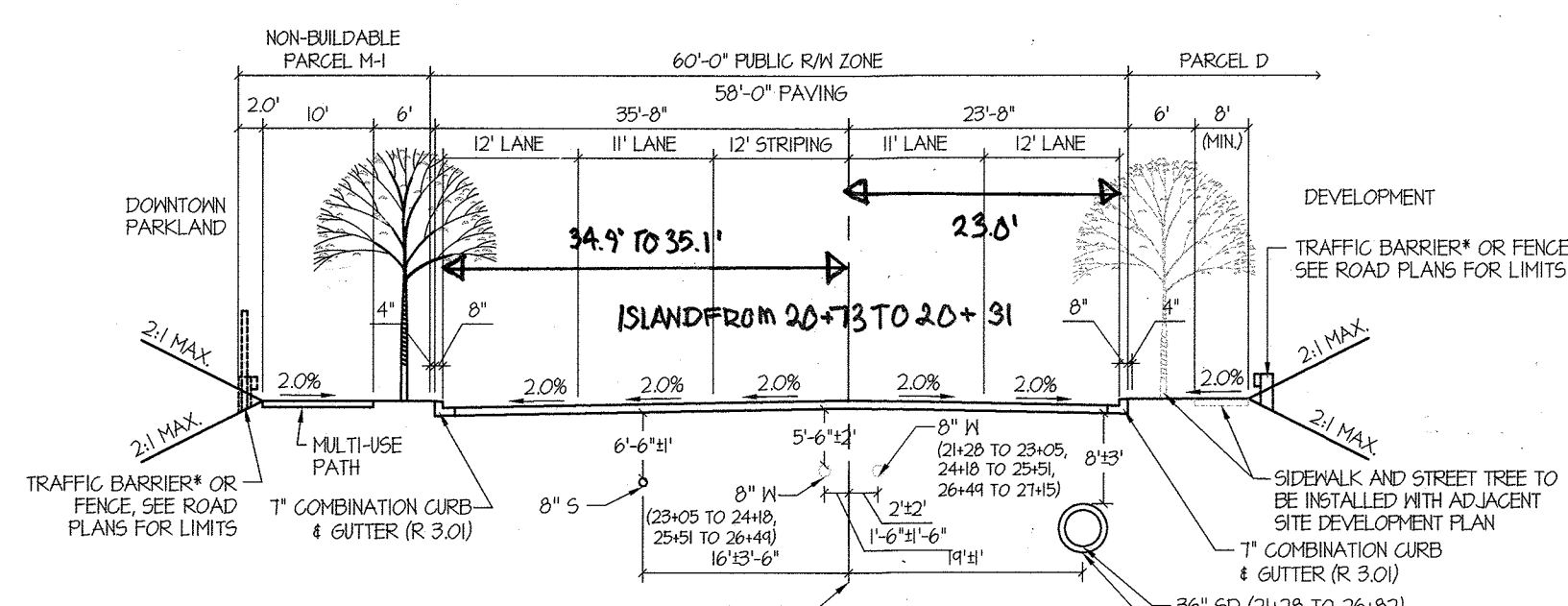


SYMPHONY WOODS ROAD CURB FLOW LINE ELEVATION TABLE

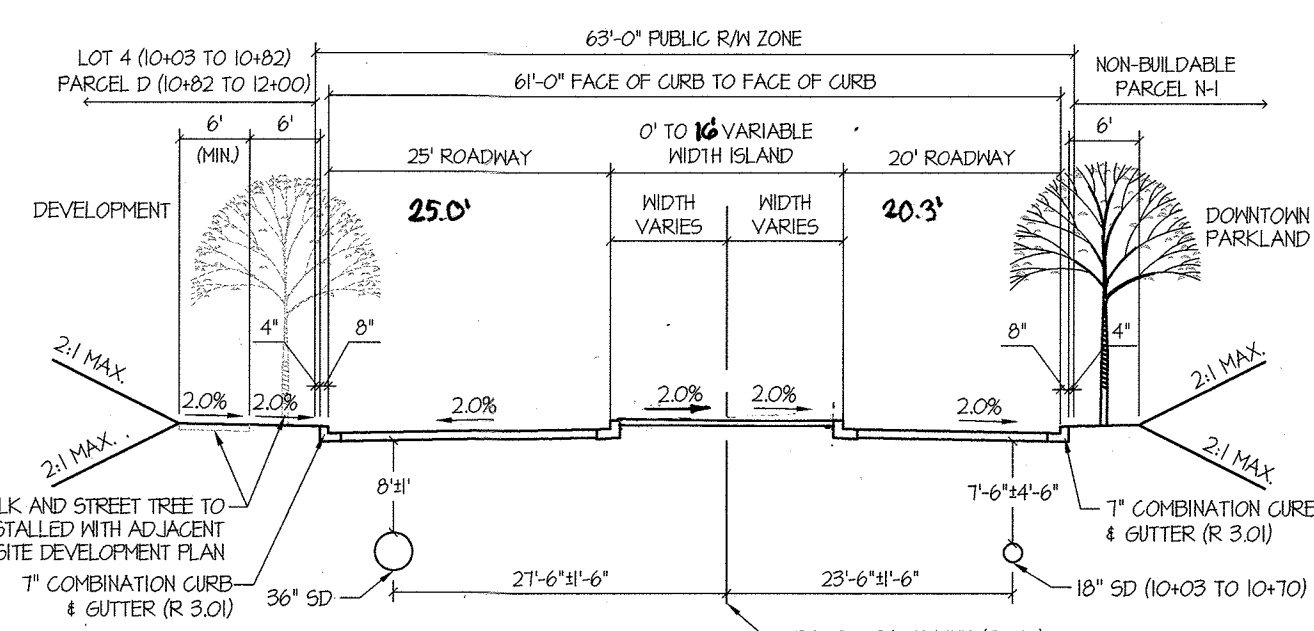
PT. NO.	STATION	OFFSET	ELEV.
1	11+85.00	3.42	344.82
2	11+85.00	5.41	344.83
3	11+85.00	7.39	344.84
4	11+85.00	9.36	344.85
5	11+85.00	11.33	344.86
6	11+85.00	13.30	344.87
7	11+85.00	15.27	344.88
8	11+85.00	17.24	344.89
9	11+85.00	19.21	344.90
10	11+85.00	21.18	344.91
11	11+85.00	23.15	344.92
12	11+85.00	25.12	344.93
13	11+85.00	27.09	344.94
14	11+85.00	29.06	344.95
15	11+85.00	31.03	344.96
16	11+85.00	33.00	344.97
17	11+85.00	34.97	344.98
18	11+85.00	36.94	344.99
19	11+85.00	38.91	345.00
20	11+85.00	40.88	345.01
21	11+85.00	42.85	345.02
22	11+85.00	44.82	345.03
23	11+85.00	46.79	345.04
24	11+85.00	48.76	345.05
25	11+85.00	50.73	345.06
26	11+85.00	52.70	345.07
27	11+85.00	54.67	345.08
28	11+85.00	56.64	345.09
29	11+85.00	58.61	345.10
30	11+85.00	60.58	345.11
31	11+85.00	62.55	345.12
32	11+85.00	64.52	345.13
33	11+85.00	66.49	345.14
34	11+85.00	68.46	345.15
35	11+85.00	70.43	345.16
36	11+85.00	72.40	345.17
37	11+85.00	74.37	345.18
38	11+85.00	76.34	345.19
39	11+85.00	78.31	345.20
40	11+85.00	80.28	345.21
41	11+85.00	82.25	345.22
42	11+85.00	84.22	345.23
43	11+85.00	86.19	345.24
44	11+85.00	88.16	345.25
45	11+85.00	90.13	345.26
46	11+85.00	92.10	345.27
47	11+85.00	94.07	345.28
48	11+85.00	96.04	345.29
49	11+85.00	98.01	345.30
50	11+85.00	100.00	345.31
51	11+85.00	101.97	345.32
52	11+85.00	103.94	345.33
53	11+85.00	105.91	345.34
54	11+85.00	107.88	345.35
55	11+85.00	109.85	345.36
56	11+85.00	111.82	345.37
57	11+85.00	113.79	345.38
58	11+85.00	115.76	345.39
59	11+85.00	117.73	345.40
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62	11+85.00	123.64	345.43
63	11+85.00	125.61	345.44
64	11+85.00	127.58	345.45
65	11+85.00	129.55	345.46
66	11+85.00	131.52	345.47
67	11+85.00	133.49	345.48
68	11+85.00	135.46	345.49
69	11+85.00	137.43	345.50
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79	11+85.00	157.13	345.60
80	11+85.00	159.10	345.61
81	11+85.00	161.07	345.62
82	11+85.00	163.04	345.63
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117	11+85.00	231.99	345.98
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120	11+85.00	237.90	346.01
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154	11+85.00	304.88	346.35
155	11+85.00	306.85	346.36
156	11+85.00	308.82	346.37
157	11+85.00	310.79	346.38
158	11+85.00	312.76	346.39
159	11+85.00	314.73	346.40
160	11+85.00	316.70	346.41
161	11+85.00	318.67	346.42
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174	11+85.00	344.28	346.55
175	11+85.00	346.25	346.56
176	11+85.00	348.22	346.57
177	11+85.00	350.19	346.58
178	11+85.00	352.16	346.59
179	11+85.00	354.13	346.60
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181	11+85.00	358.07	346.62
182	11+85.00	360.04	346.63
183	11+85.00	362.01	346.64
184	11+85.00	363.98	346.65
185	11+85.00	365.95	346.66
186	11+85.00	367.92	346.67
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188	11+85.00	371.86	346.69
189	11+85.00	373.83	346.70
190	11+85.00	375.80	346.71
191	11+85.00	377.77	346.72
192	11+85.00	379.74	346.73
193	11+85.00	381.71	346.74
194	11+85.00	383.68	346.75
195	11+85.00	385.65	346.76
196	11+85.00	387.62	346.77
197	11+85.00	389.59	346.78
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199	11+85.00	393.53	346.80
200	11+85.00	395.50	346.81
201	11+85.00	397.47	346.82
202	11+85.00	399.44	346.83
203	11+85.00	401.41	346.84
204	11+85.00	403.38	346.85
205	11+85.00	405.35	346.86
206	11+85.00	407.32	346.87
207	11+85.00	409.29	346.88
208	11+85.00	411.26	346.89
209	11+85.00	413.23	346.90
210	11+85.00	415.20	346.91
211	11+85.00	417.17	346.92
212	11+85.00	419.14	346.93
213	11+85.00	421.11	346.94
214	11+85.00	423.08	346.95
215	11+85.00	425.05	346.96
216	11+85.00	427.02	346.97
217	11+85.00	428.99	346.98
218	11+85.00	430.96	346.99
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220	11+85.00	434.90	347.01
221	11+85.00	436.87	347.02
222	11+85.00		



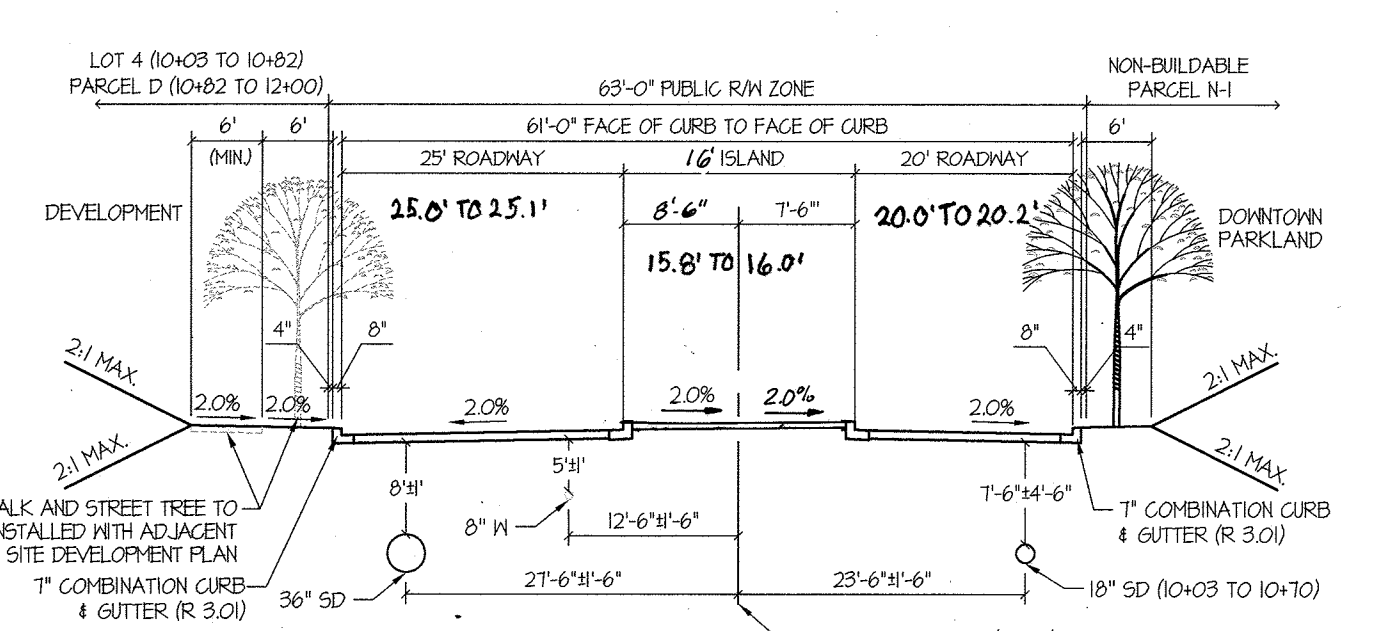
MERRIMWEATHER DRIVE
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 (4 TO 5 LANE) ROAD SECTION WITH MULTI-USE PATH
NOT TO SCALE



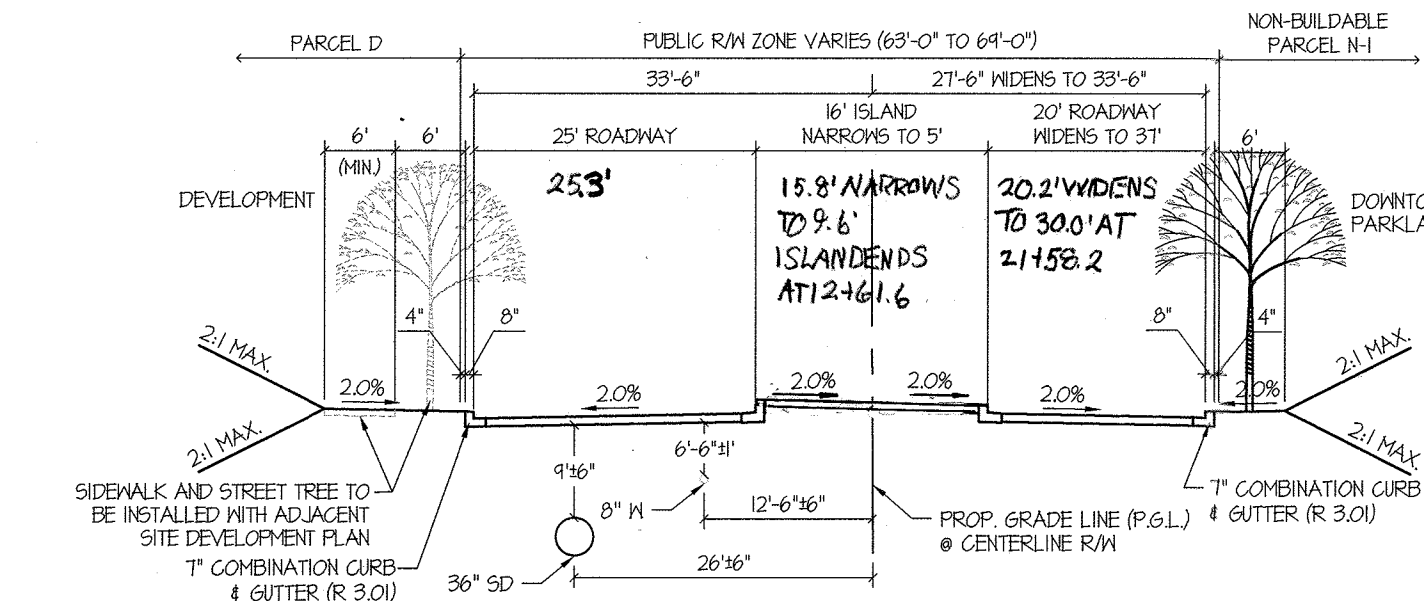
MERRIMWEATHER DRIVE
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 (5 LANE) ROAD SECTION WITH MULTI-USE PATH
NOT TO SCALE



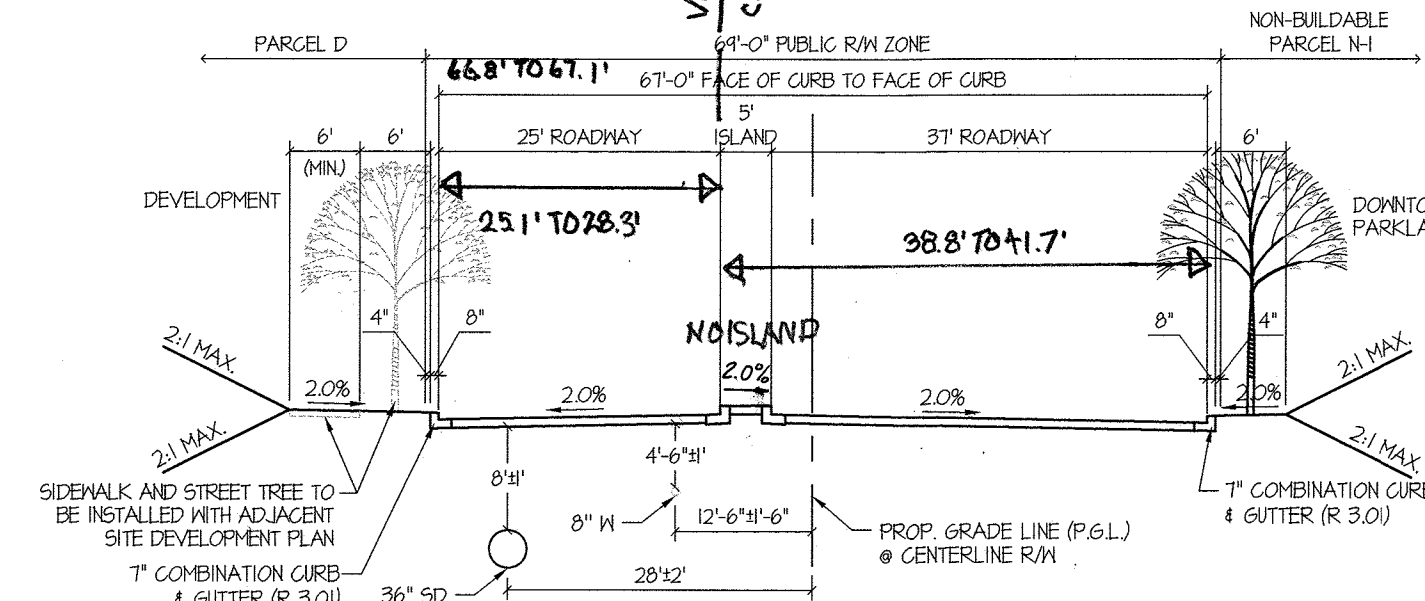
SYMPHONY WOODS ROAD
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 ROAD SECTION
NOT TO SCALE



SYMPHONY WOODS ROAD
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 ROAD SECTION
NOT TO SCALE

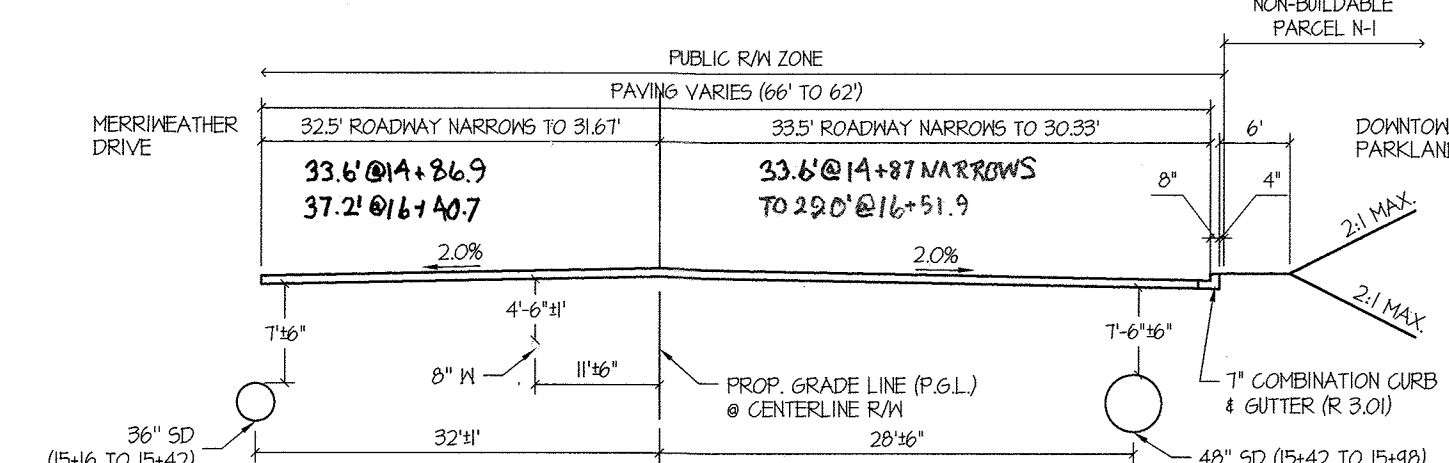


SYMPHONY WOODS ROAD
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 (ADDITION OF TURN LANE) ROAD SECTION
NOT TO SCALE

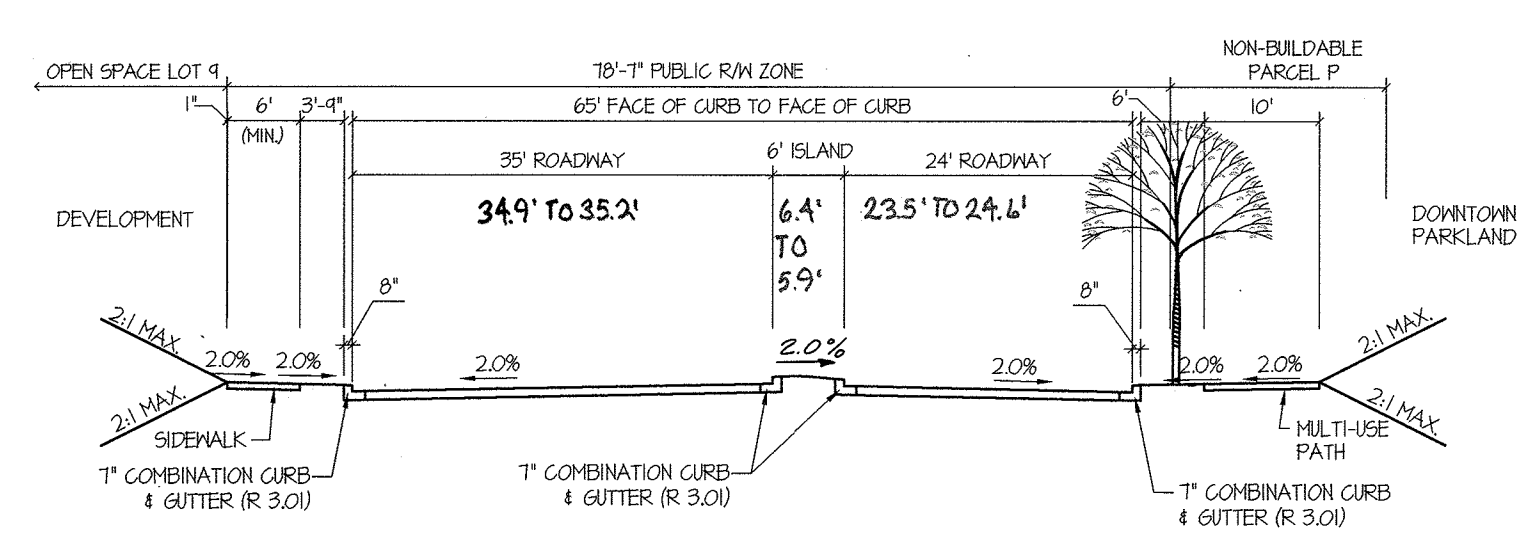


SYMPHONY WOODS ROAD
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 (WITH TURN LANE) ROAD SECTION
NOT TO SCALE

ALL TYPICAL SECTIONS ARE DRAIN LOOKING UP STATION ALONG SYMPHONY WOODS ROAD.

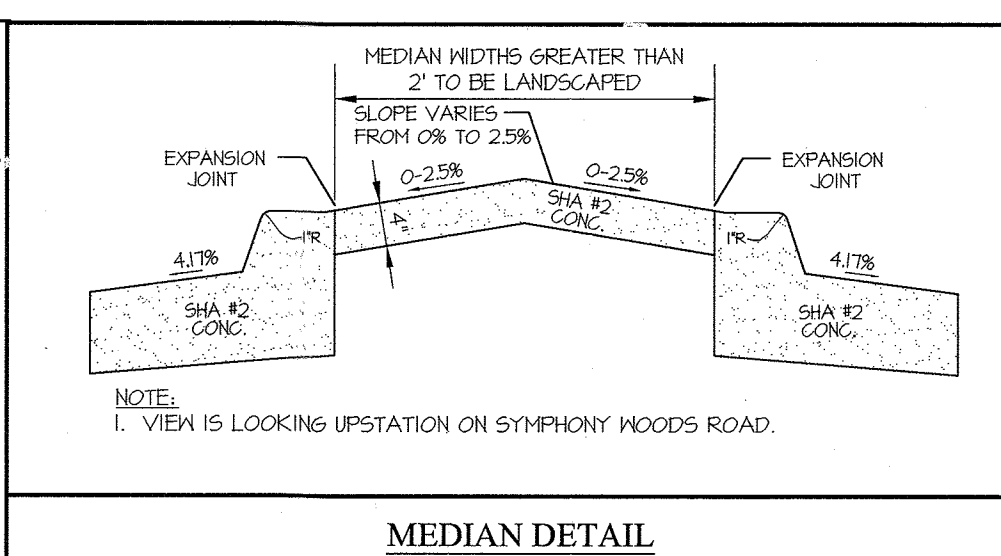
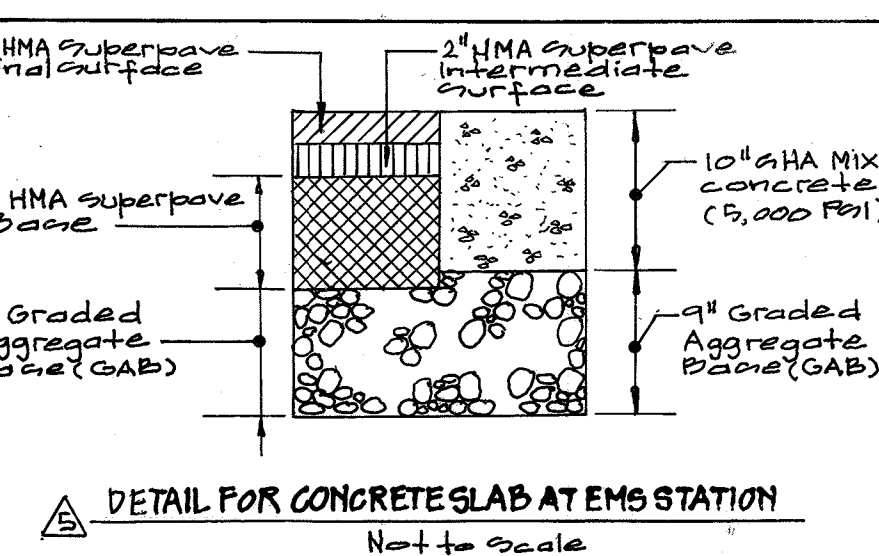


SYMPHONY WOODS ROAD
INTERSECTION OF SYMPHONY DRIVE AND MERRIMWEATHER DRIVE
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 (ADDITION OF TURN LANE) ROAD SECTION
NOT TO SCALE



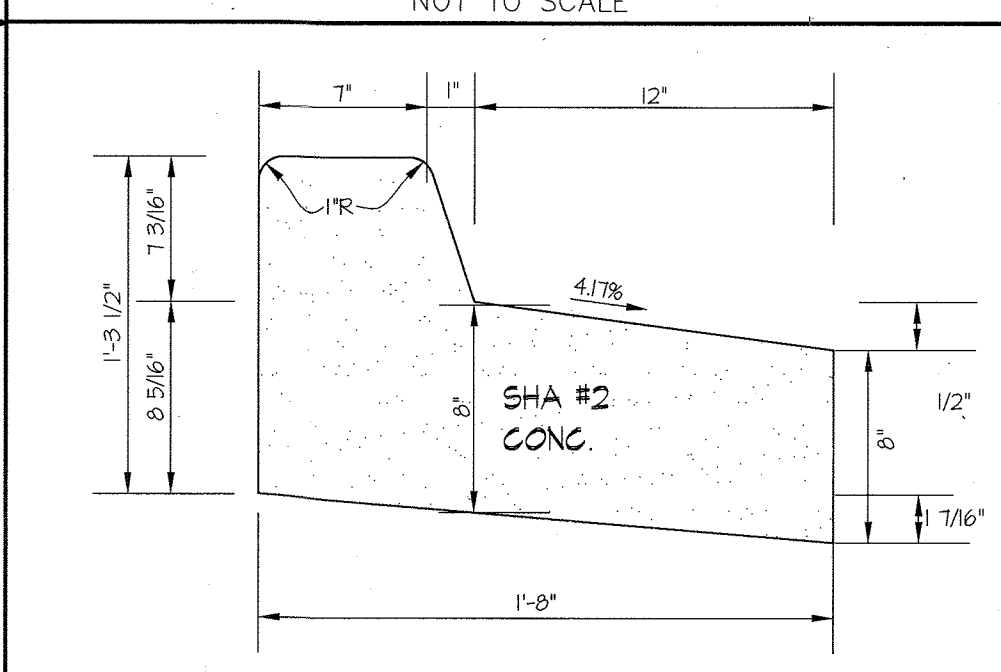
SYMPHONY WOODS ROAD
DOWNTOWN COLUMBIA
TYPICAL AVENUE TYPE 3 (ADDITION OF TURN LANE) ROAD SECTION
NOT TO SCALE
(THIS CROSS SECTION WAS TAKEN AT CENTERLINE STA. 16+53)

* TRAFFIC AND DEAD END BARRIER TO BE POWDER COATED BRONZE. COLOR TO BE SPECIFIED BY GRAPHIC DESIGNER PRIOR TO FABRICATION.



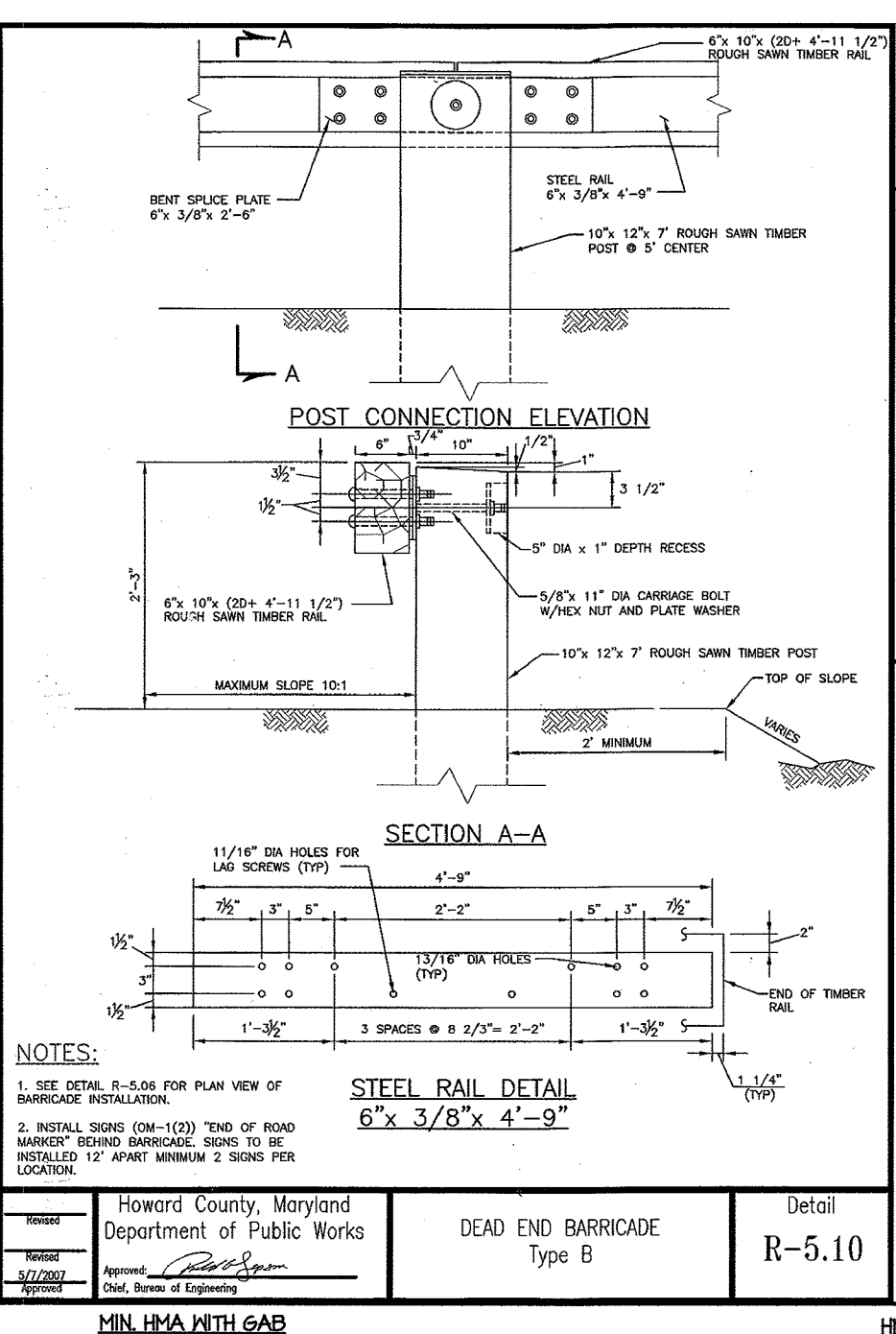
DETAIL FOR CONCRETE SLAB AT EMS STATION
NOT TO SCALE

AS BUILT CONSTRUCTION HISTORY SHEET FOR THIS PROJECT IS ATTACHED TO THE END OF THIS SHEET. THE SHEET IS TO BE USED FOR CONSTRUCTION OF THE PROJECT. THE SHEET IS TO BE USED FOR CONSTRUCTION OF THE PROJECT. THE SHEET IS TO BE USED FOR CONSTRUCTION OF THE PROJECT.



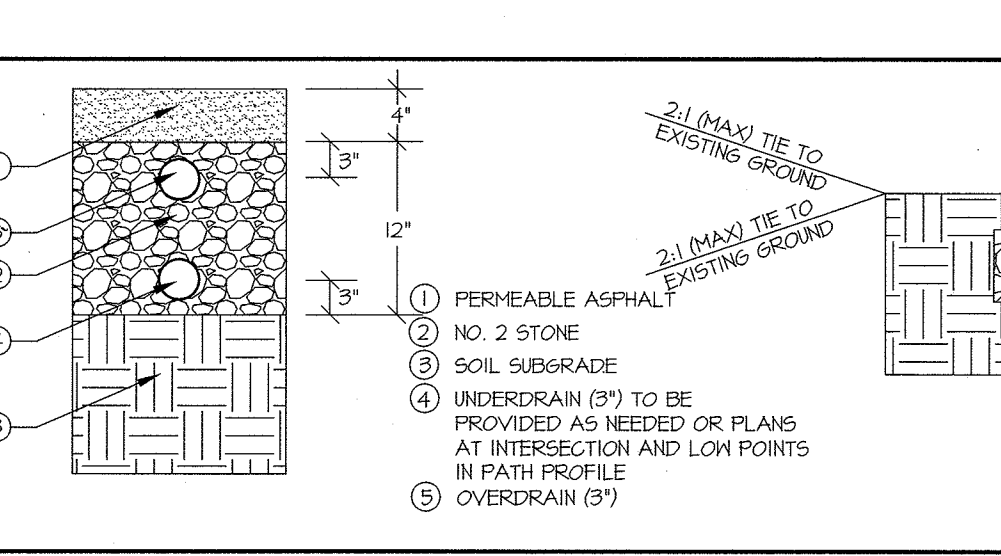
TYPE-A REVERSE CONCRETE CURB AND GUTTER
NOT TO SCALE

NOTES:
1. 50' MAX. BETWEEN EXPANSION JOINTS & 10' MAX. BETWEEN CONTROL JOINTS.
2. ALL ON-SITE CURB & GUTTER SHALL BE 6" HIGH.
3. STANDARD CURB & GUTTER SHALL BE USED WHERE THE DRIVEWAY SLOPES TOWARDS THE CURB & GUTTER. REVERSE CURB & GUTTER SHALL BE USED WHERE THE DRIVEWAY SLOPES AWAY FROM THE CURB & GUTTER.
4. PROVIDE A 5' TRANSITION TO OPEN SECTION.



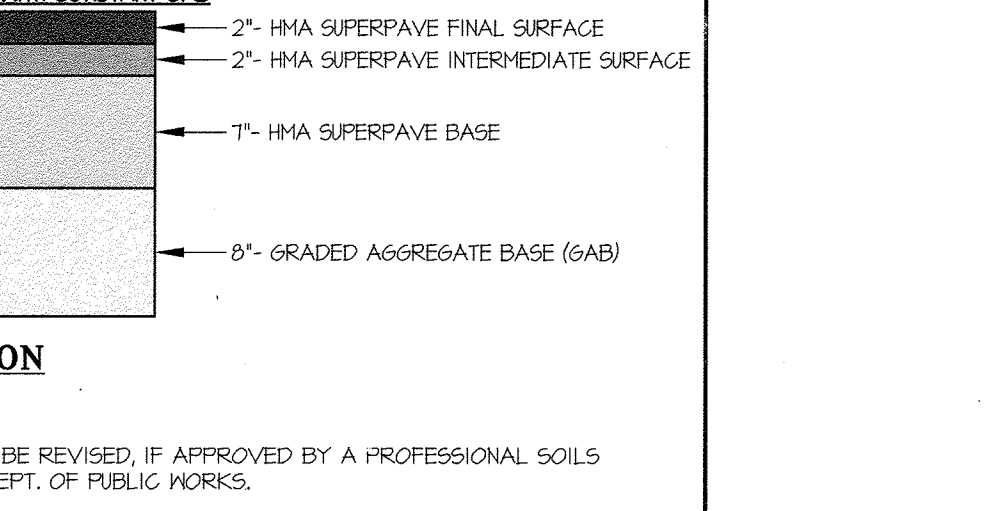
STEEL RAIL DETAIL
6" x 3/8" x 4'-9"

NOTES:
1. SEE DETAIL R-548 FOR PLAN VIEW OF BARRIER INSTALLATION.
2. INSTALL SPIRES (OM-123) TOP OF ROAD WHERE REQUIRED. SPIRES TO BE INSTALLED 12" APART MINIMUM 2 SPIRES PER LOCATION.



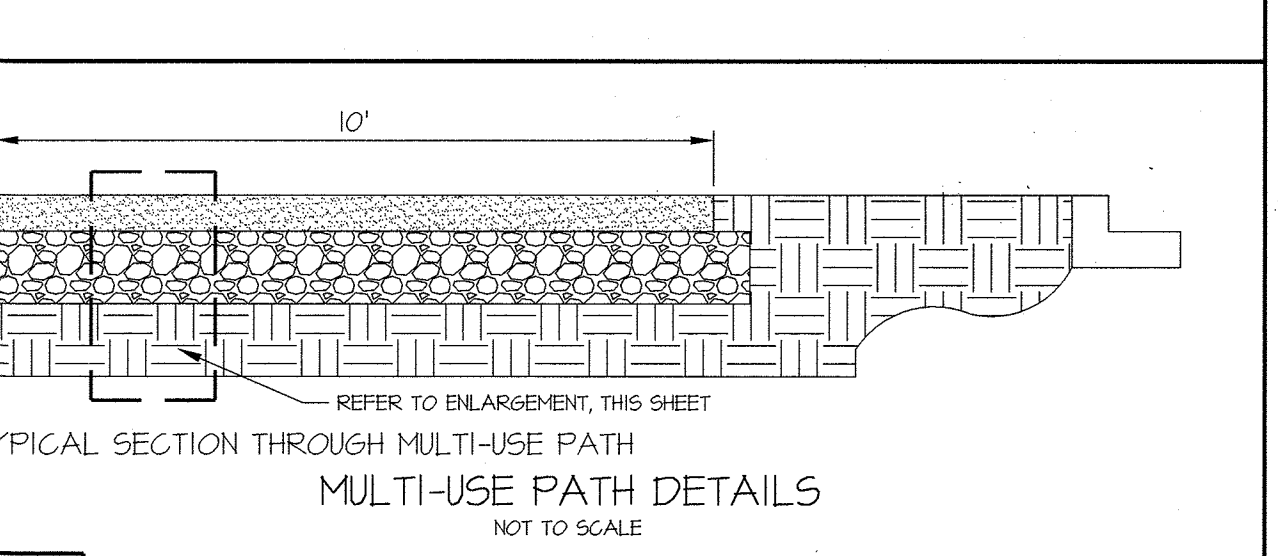
TYPE A STANDARD COMBINATION CURB AND GUTTER
NOT TO SCALE

PERMEABLE ASPHALT PAVING ENLARGEMENT



P5 PAVING SECTION
NO SCALE

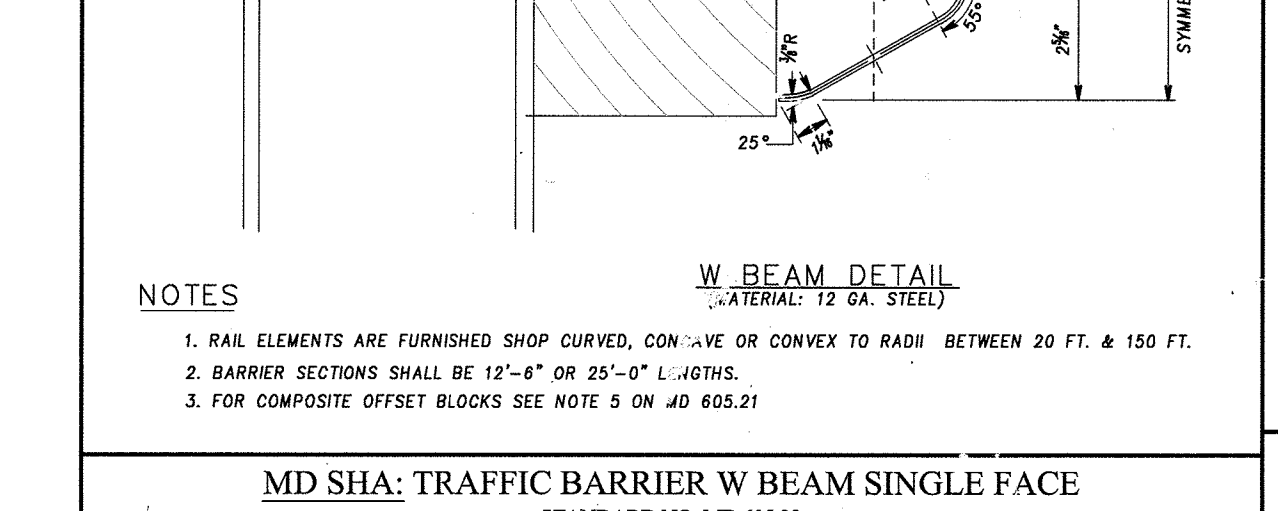
NOTES:
1. DEPENDING ON THE CURB VALUES OBTAINED IN THE FIELD, THE PAVING SECTIONS MAY BE REVISED, IF APPROVED BY A PROFESSIONAL SOILS ENGINEER, THESE SUBSTITUTIONS MUST ALSO BE APPROVED BY THE HOWARD COUNTY DEPT. OF PUBLIC WORKS.
2. ALL ROADS TO BE P-5 PAVING.



TYPICAL SECTION THROUGH MULTI-USE PATH
MULTI-USE PATH DETAILS
NOT TO SCALE

REFER TO ENLARGEMENT, THIS SHEET

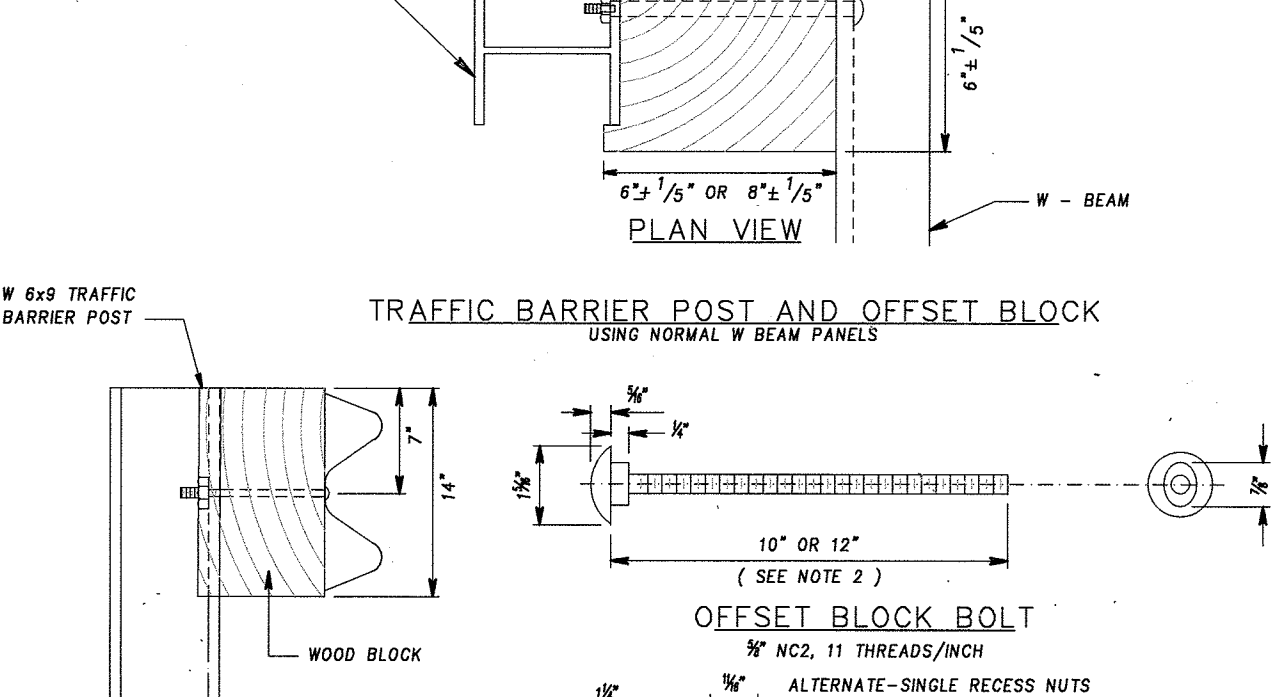
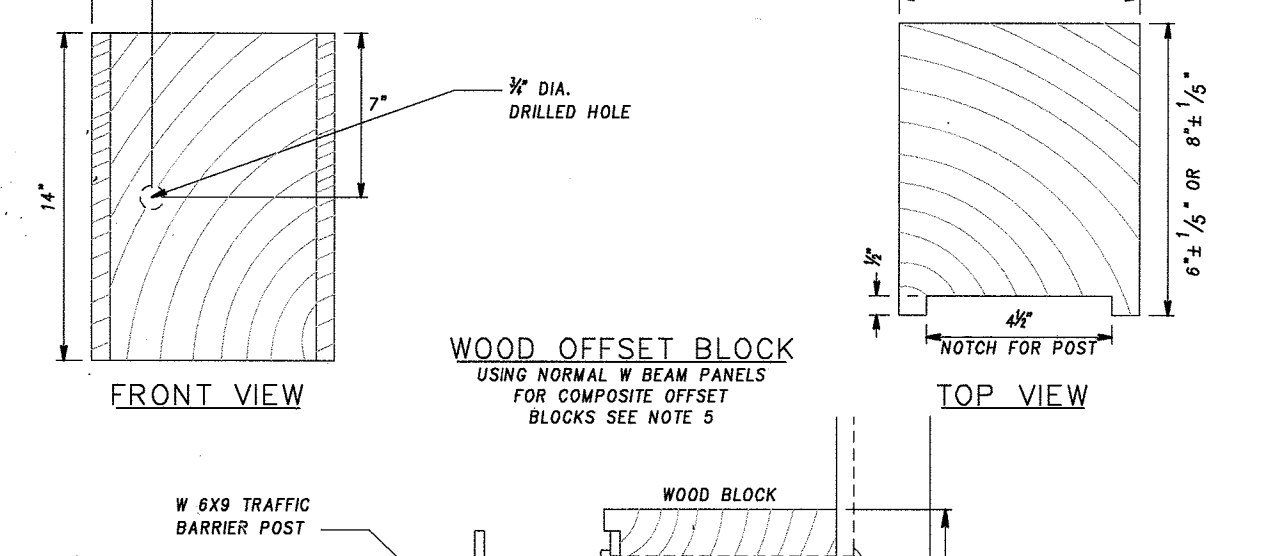
1. FERMEABLE ASPHALT
2. NO. 2 STONE
3. SOIL SUBGRADE
4. UNDERDRAIN (3") TO BE PROVIDED AS NEEDED OR PLANS AT INTERSECTION AND LOW POINTS IN PATH PROFILE
5. OVERDRAIN (3")



W BEAM DETAIL
LATERAL: 12 GA. STEEL

NOTES:
1. RAIL ELEMENTS ARE FURNISHED SHOP CURVED, CON-VE OR CONVEX TO RADII BETWEEN 20 FT. & 150 FT.
2. BARRIER SECTIONS SHALL BE 12'-0" OR 25'-0" L. LENGTHS.
3. FOR COMPOSITE OFFSET BLOCKS SEE NOTE 5 ON JD 605.21

MD SHA: TRAFFIC BARRIER W BEAM SINGLE FACE
STANDARD NO. MD 605.22



WOOD OFFSET BLOCK
USING NORMAL W BEAM PANELS FOR COMPOSITE OFFSET BLOCKS SEE NOTE 5

TRAFFIC BARRIER POST AND OFFSET BLOCK
USING NORMAL W BEAM PANELS

OFFSET BLOCK BOLT
5/8" NC2, 11 THREADS/INCH
5/8" DIA. 3/8" DEEP RECESS TWO SIDES

NOTES:
1. WOOD OFFSET BLOCKS 8x14 INCHES TO BE USED ON ALL NEW CONSTRUCTION AND WHEN THE EXISTING TRAFFIC BARRIER WITH METAL OFFSET BLOCKS IS TO BE REMOVED AND RESET.
2. THE CONTRACTOR HAS THE OPTION TO USE SHORTER BOLTS WITH A MINIMUM OF 3/8" PROTRUSION BEYOND NUT. TWO BOLTS ARE REQUIRED FOR ATTACHMENT TO THE POSTS.
3. WOOD BLOCKS FOR THREE BEAM PANELS SHALL BE 8x22 INCHES AND NOTCHED AS SHOWN IN THE TOP VIEW. TWO BOLTS ARE REQUIRED FOR ATTACHMENT TO THE POSTS.
4. THE 8x14 INCH WOOD OFFSET BLOCKS ARE TO BE USED FOR REPAIR WORK ONLY.
5. WHEN DIRECTED BY THE ENGINEER OR WHEN SPECIFIED IN THE CONTRACT DOCUMENTS, COMPOSITE OFFSET BLOCKS THAT ARE APPROVED BY THE ADMINISTRATION CAN BE USED IN LIEU OF THE WOOD BLOCKS. FOR THE APPROVED SUBSTITUTES LIST SEE SHEET 1 OF 1 APPROVED SUBSTITUTES FOR WOOD OFFSET BLOCKS.

MD SHA: TRAFFIC BARRIER W BEAM W WOOD OFFSET BLOCK
STANDARD NO. MD 605.21

GLWGUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALTO: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

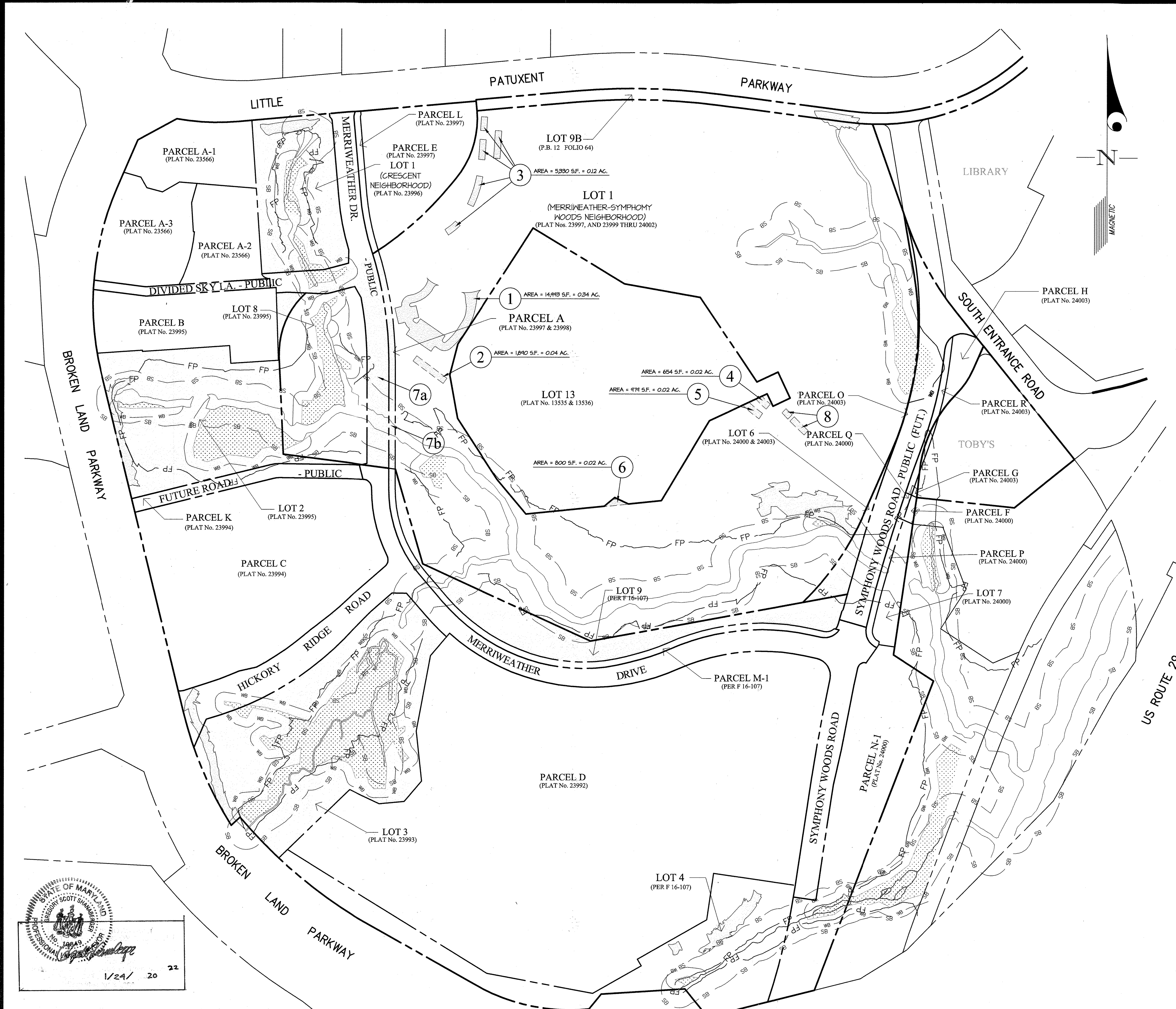
1-17-19	Revised EMS station curb detail, SHA Mix sheet total	GL	DEV
11/02/2017	REVISED TYPICAL SECTIONS	HKJ	APPR
DATE	REVISION	BY	APPR

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BILL ROWE
410-964-4987

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS 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. 12975
EXPIRATION DATE: MAY 28, 2018
3/6/17

TYPICAL ROAD SECTION & CURB DETAILS
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9
ELECTION DISTRICT No. 5
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	5 OF 27



LEGEND

- PROPOSED DOWNTOWN PARKLAND (COUNTY)
- EXISTING, APPROVED AND PLANNED PARKING ON DOWNTOWN PARKLAND PROPERTY.
- PROPOSED DOWNTOWN PARKLAND (COLUMBIA ASSOCIATION, INC.)
- LIMIT OF STEEP SLOPES (SLOPES THAT AVERAGE 25% OR GREATER OVER 10 VERTICAL FEET)
- EXISTING LIMIT OF WETLANDS
- EXISTING WETLANDS
- LIMIT OF FLOOD PLAIN
- EX. & PROP. PROPERTY LINES
- EX. STREAM BANK
- 50' STREAM BUFFER
- 25' WETLAND BUFFER

ON JUNE 1, 2012 A MEMORANDUM OF UNDERSTANDING BETWEEN HOWARD COUNTY AND HOWARD HUGHES WAS ISSUED TO ADDRESS WHAT CONSTITUTES ALLOWABLE LAND AREA FOR PARKLAND REPLACEMENT. THE MOU STATES THE COUNTY UNDERSTANDS THAT HRD HAS IDENTIFIED AREAS OF NON-DOWNTOWN ENVIRONMENTALLY SENSITIVE LAND AREA (DESA) IN THE CRESCENT NEIGHBORHOOD THAT ADJOIN SYMPHONY WOODS FOR POTENTIAL REPLACEMENT OF DOWNTOWN PARKLAND. WHILE SOME OF THESE AREAS ARE SMALLER THAN ONE ACRE, THEY ARE INTEGRATED INTO LARGER OPEN SPACE AREAS THAT INCLUDE DESA LAND. THE ACREAGE OF THESE NON-DESA AREAS CAN BE COUNTEd TOWARDS THE ACREAGE NEEDED FOR DOWNTOWN PARKLAND REPLACEMENT UNDER SECTION 125A.9.6(B), AS LONG AS THE AREAS ARE INCORPORATED INTO PARCELS OF AT LEAST ONE CONTIGUOUS ACRE WHICH MAY INCLUDE DESA AND NON-DESA LAND. THESE NON-DESA AREAS MAY ALSO BE USED FOR ENVIRONMENTAL ENHANCEMENT, ENVIRONMENTAL RESTORATION AND ENVIRONMENTAL SITE DESIGN FOR STORMWATER MANAGEMENT AND WATER QUALITY PURPOSES. THE USE OF NON-DESA LAND FOR ENVIRONMENTAL ENHANCEMENT, ENVIRONMENTAL RESTORATION AND ENVIRONMENTAL SITE DESIGN FOR STORMWATER MANAGEMENT AND WATER QUALITY PURPOSES WILL NOT CONVERT THE NON-DESA LAND INTO DESA LAND, AND ANY NON-DESA LAND SO USED WILL STILL BE COUNTEd TOWARD THE ACREAGE NEEDED FOR DOWNTOWN PARKLAND REPLACEMENT.

Downtown Columbia Replacement Parkland Tabulation

Neighborhood	Lot	Area - Envir (Ac.)	Area - Non-envir (Ac.)	Total Area (Ac.)
Crescent	1	1.34	0.94	2.28
Crescent	2	3.06	1.00	4.06
Crescent	3	4.10	2.12	6.22
Crescent	9	0.23	1.68	1.91
Crescent	6	0.20	0.14	0.39
Total		8.93	5.89	14.86

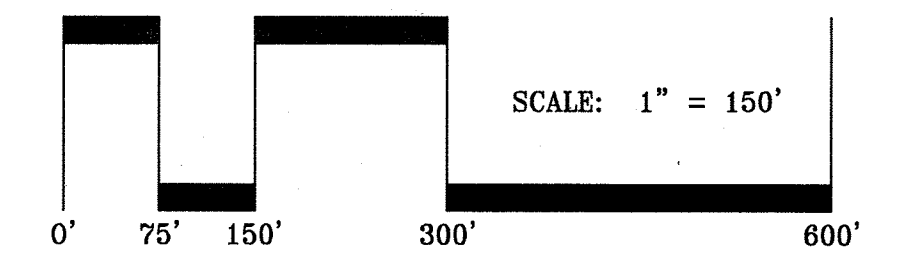
A total of 14.86 acres, of which 5.89 acres was non-environmental Downtown Parkland was transferred to The Columbia Association, Inc. with the recording of plats 23991-24012.

Downtown Columbia Existing Parkland Tabulation - Lots

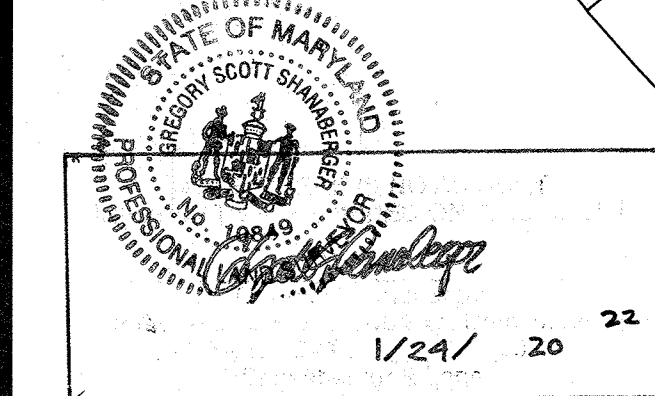
Neighborhood	Lot or Parcel	Downtown Parkland			Notes
		Area - Non-credited* (Ac.)	Area - Credited (Ac.)	Total Area (Ac.)	
MSW	1	0.56	32.00	32.56	Formerly P/O Lot 23, non-credited areas identified as circled nos. 1-6
MSW	A	0.25	0.00	0.25	Formerly P/O Lot 23, non-credited areas identified as circled no. 7b
Crescent	8	0.00	2.47	2.47	Formerly P/O Lot 23
Crescent	Merrivether Dr.	0.95	0.00	0.95	Formerly P/O Lot 23, non-credited area identified as circled no. 7a
Total		1.76	34.47	36.23	

Total area to be exchanged with non-environmental Downtown Parkland from the Crescent is 1.61 acres.

* Area for parking** and public roadways and apurtenances and multi-use path.
 ** The area for handicap parking includes the handicap transfer space. When parking is within a parking lot, the area of parking spaces and the drive isles are included in the area. When parking is adjacent to a circulation route, only the area of the parking spaces is included.



THIS PLAN DEMONSTRATES THE AREAS WHICH ARE USED TO OFFSET THE LOSS OF CREDITED DOWNTOWN PARKLAND.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 4/16/17
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 5-15-17
 Chief, Division of Land Development Date

[Signature] 4-17-17
 Chief, Development Engineering Division Date

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APPR.

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS 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. 10276, EXPIRATION DATE: MAY 26, 2018
[Signature] 3/8/17

PARKLAND REPLACEMENT PLAN

DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9

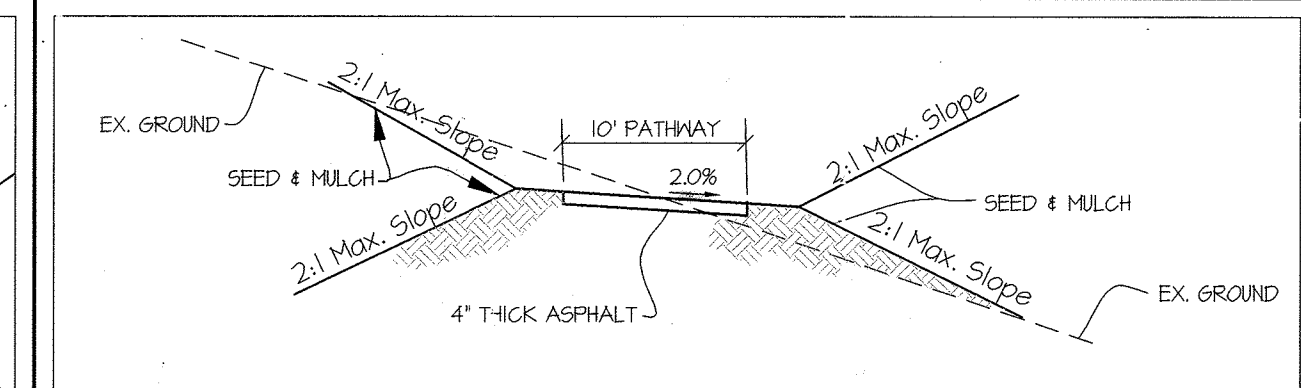
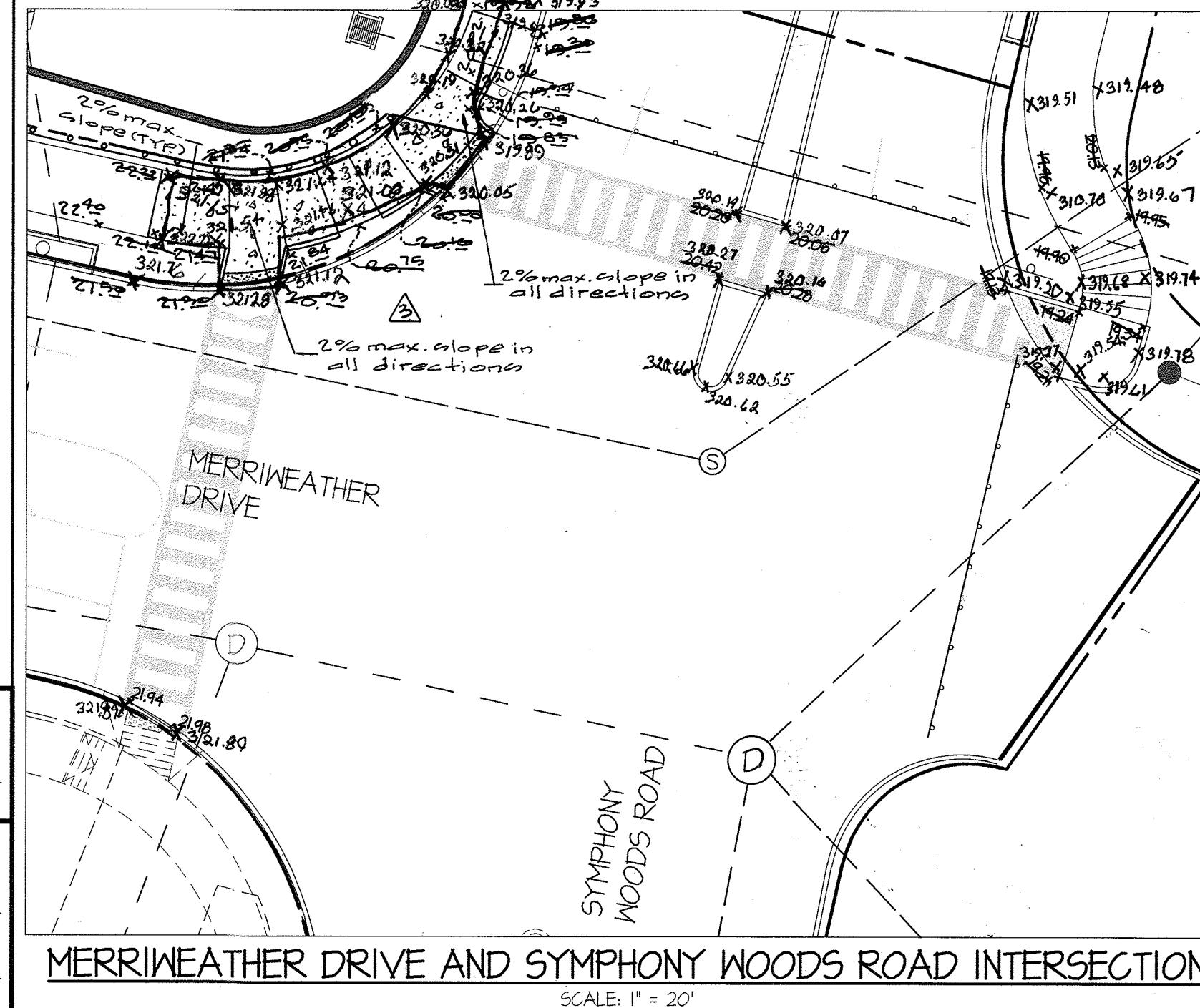
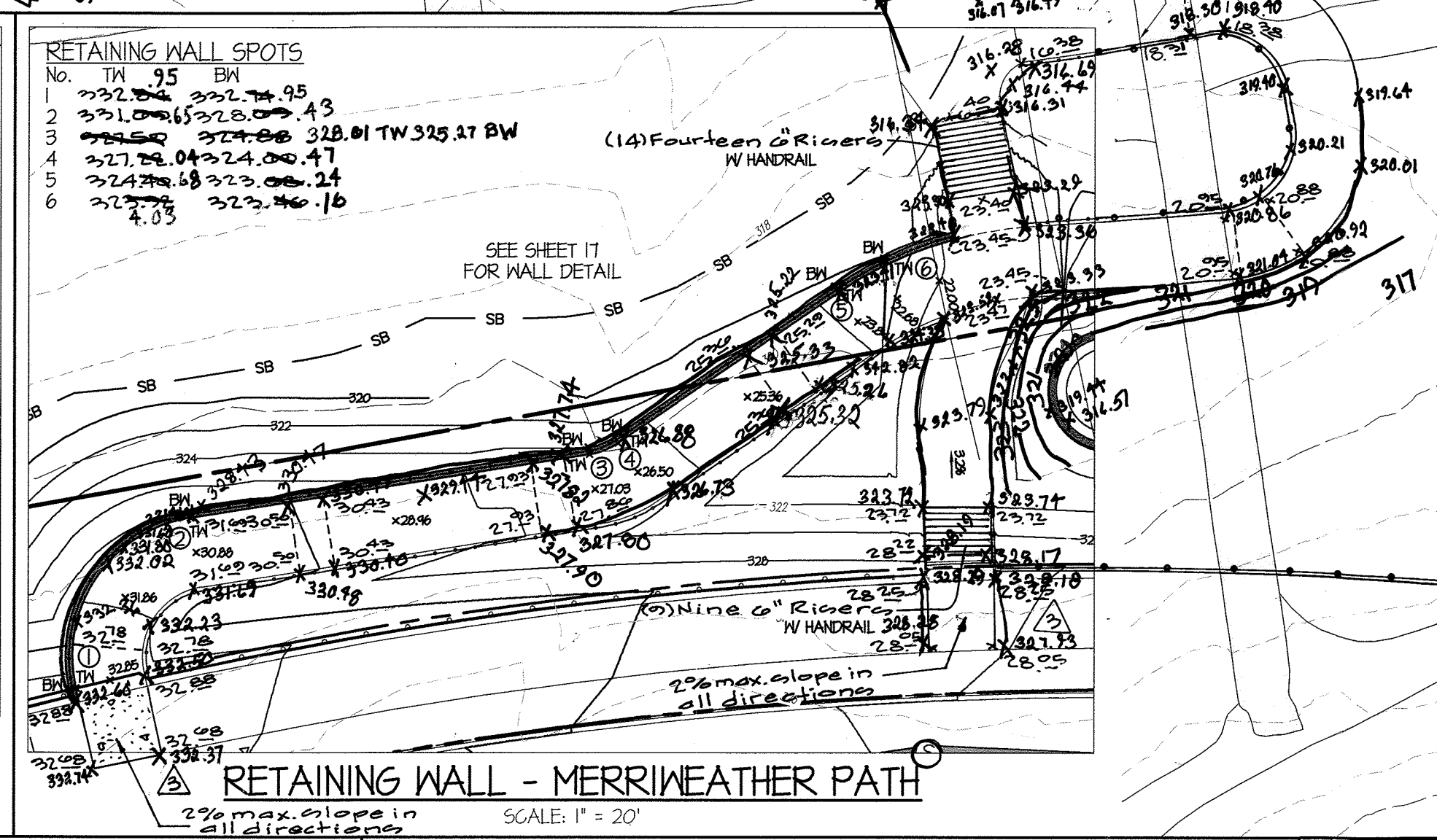
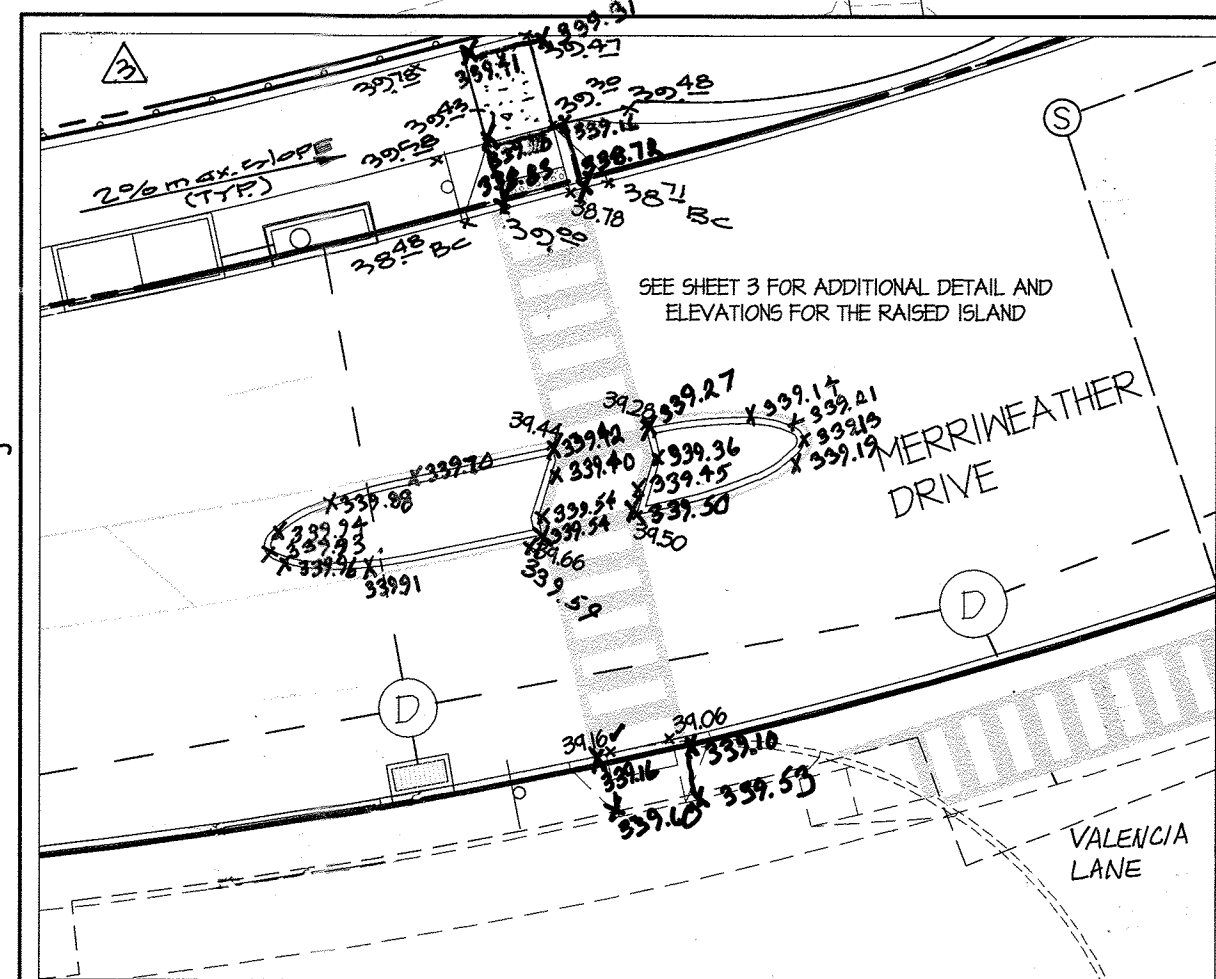
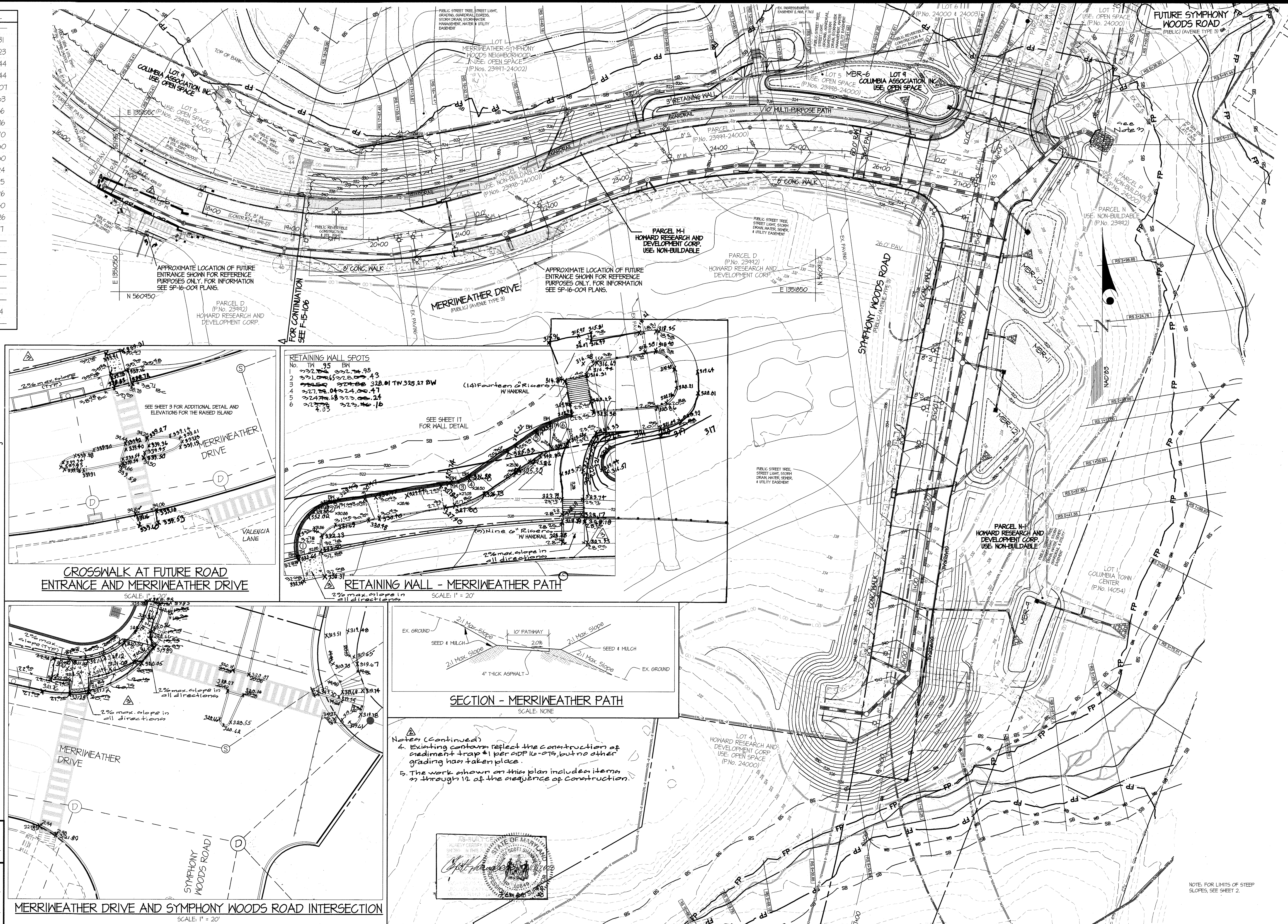
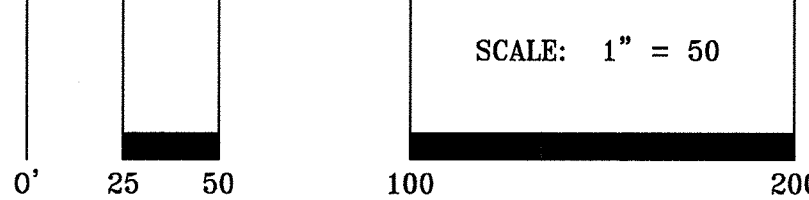
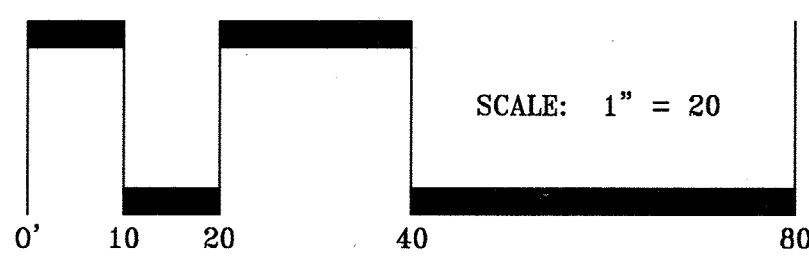
ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1"=150'	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	6 OF 27

RIVER STATION	WEEL	RIVER STATION	WEEL
20+73.62	318.83	8+01.60	305.31
20+19.41	318.54	7+00.06	305.23
19+75.41	318.45	6+38.50	304.44
18+84.71	318.02	5+91.44	302.44
18+28.08	317.76	5+21.03	302.44
17+57.45	317.64	3+98.60	300.07
17+35.04	317.60	3+24.76	298.63
17+13.67	317.44	2+39.86	297.56
16+76.41	317.20	1+71.00	296.96
16+32.75	316.91	1+04.84	296.70
15+86.01	316.81	0+87.90	296.60
15+40.16	316.25	0+41.55	295.80
15+00.19	315.79	1+98.83	297.24
14+49.82	315.32	2+84.83	297.25
13+99.64	314.86	3+70.51	297.26
13+56.92	314.81	4+44.80	297.30
13+00.82	314.65	5+26.24	298.26
12+60.70	313.85	5+91.22	301.27
12+20.94	312.34	6+44.54	
11+57.50	310.17	6+94.36	
10+91.95	309.51	7+61.26	
10+32.25	309.27	8+35.84	
9+81.61	309.16	9+00.85	
9+40.87	309.08	9+68.18	
8+96.06		10+19.78	313.44
8+45.27			

NOTES:
1. ON JANUARY 4, 2011 HOWARD COUNTY DEPT. OF PLANNING & ZONING DETERMINED THAT THE DISTURBANCES SHOWN ARE ESSENTIAL & NECESSARY.
2. ALL SIDEWALK RAMP SHALL HAVE A WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP, AND DETECTABLE WARNING SURFACE TRUNCATED DOME MAT AS APPLICABLE PER HOWARD COUNTY DETAIL R-4.06.
3. SINCE THE DESIGN OF THE STREAM IMPROVEMENTS SHOWN AN SDP 13-026 WAS BASED UPON A 60 YEAR DISCHARGE OF 2140 c.f.s. FROM R.S. 5+91.44 THROUGH R.S. 1+77.00, THE IMPROVEMENTS SHOWN ON THESE PLANS WILL PROVIDE A STABLE STREAM FOR THE ANTICIPATED FLOWS FROM ES 2.8.E.

- LEGEND**
- 2014 ENVIRONMENTAL RESTORATION LIMITS
 - 2016 ENVIRONMENTAL RESTORATION LIMITS
 - LIMIT OF DISTURBANCE ROAD WORK
 - MULTI-USE PATH LIMITS
 - FP FLOODPLAIN
 - SB STREAM BUFFER
 - STREAM CENTERLINE
 - ESD FACILITY



Notes (Continued)
4. Existing contours reflect the construction of a sediment trap #1 per SDP 16-079, but no other grading has taken place.
5. The work shown on this plan includes items 2 through 12 of the sequence of construction.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 4/16/17
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 5-15-17
Chief, Division of Land Development Date

[Signature] 4/17/17
Chief, Development Engineering Division Date

GLWGUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 FAX: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R
11/2/2017	REVISED STORM DRAIN, WATER AND SEWER; REMOVED TWO FILTERBAYS	AKT	
9/1/16	REVISED PATH, ADA GRADEN, HANDRAIL & GUARDRAIL	AKT	DEV.
1/1/16	Phase 1 added to sheet title; Revised sheet total storm drain	AKT	DEV.

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BILL ROWE
410-964-4987

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS 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. 12875
EXPIRATION DATE: MAY 26, 2018
3/16/17 *[Signature]*

GRADING PLAN - INITIAL
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9
ELECTION DISTRICT No. 5
HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	7 OF 27

FROM NO.	TO NO.	DIA. (IN) & TYPE OF PIPE	L (FT)
I-312	I-311	18" HDPE	60
I-311	ES-310	18" HDPE	41
ES-310	RS-309A	18" HDPE	41
RS-309A	RS-309	18" HDPE	41
RS-309	M-400	48" RCCP	186
I-311	I-294A	18" HDPE	40
I-294A	I-294	18" HDPE	80
I-294	I-28	18" HDPE	56
I-28	ES-28A	18" HDPE	31
ES-28A	RS-28B	18" HDPE	126
RS-28B	M-28C	18" HDPE	126
ST-322	M-316	18" HDPE	122
I-315	M-316	18" HDPE	55
M-316	M-313	18" HDPE	80
M-313	ES-317	18" HDPE	26
ES-317	RS-310	18" HDPE	---
RS-310	M-314	18" HDPE	30
M-314	ES-321	24" HDPE	36
ST-320	M-314	18" HDPE	10
I-26A	I-26	18" HDPE	66
I-26	ES-26B	18" HDPE	32
ES-26B	RS-26B	18" HDPE	---
I-32C	M-33B	18" HDPE	46
I-33A	M-33B	18" HDPE	3
I-34	ES-34A	18" HDPE	40

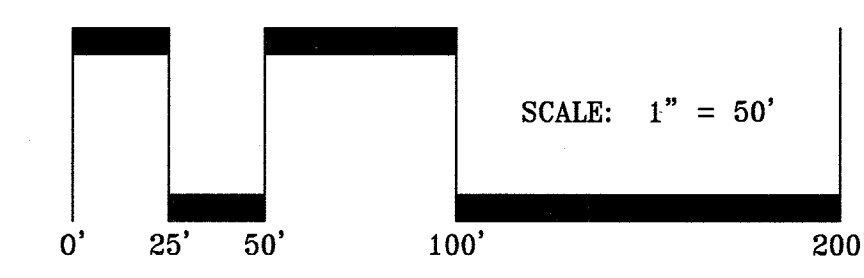
FROM NO.	TO NO.	DIA. (IN) & TYPE OF PIPE	L (FT)
M-1	M-34	24" HDPE	15
M-34	M-33	24" HDPE	101
M-33	M-33B	24" HDPE	0.9
M-33B	M-32	24" HDPE	9.5
M-32	M-33B	12" RCCP	170
M-33B	M-30	12" RCCP	9.9
M-30	M-30A	27" RCCP	9.5
M-30A	M-24A	27" RCCP	12.5
M-24A	M-24	30" RCCP	70
M-24	M-28C	48" RCCP	9.7
M-28C	M-28D	48" HDPE	22
M-28D	ES-28E	48" HDPE	10
ST-1	M-32	24" HDPE	10
ST-30	M-30B	18" RCCP	14
I-38A	M-30B	18" HDPE	6
ST-30T	M-24A	30" RCCP	4.1
I-305A	I-305	18" HDPE	8.5
I-305	I-304	18" HDPE	6.5
I-304	ES-303	18" HDPE	22
ES-303	RS-302	18" HDPE	4.1
RS-302	M-301	18" HDPE	4.1
ST-2	M-403	48" RCCP	5.2
M-403	M-402	48" RCCP	0.0
M-402	M-401	48" RCCP	19.9
M-401	ES-400	48" HDPE	15.3
I-308A	ES-308B	18" HDPE	2.1
ES-308B	RS-309	18" HDPE	---
ST-3	M-2	18" HDPE	1.4
M-2	M-1	24" HDPE	9.7

STRUCTURE	AREA (AC.)	'C'	IMPERVIOUS
I-38A	0.30 Ac.	0.85	99%
ST-3	0.28 Ac.	0.84	97%
ST-4	0.30 Ac.	0.85	100%

STRUCTURE	AREA (AC.)	'C'	IMPERVIOUS
I-26	0.35 Ac.	0.85	99%
I-26A	0.28 Ac.	0.85	99%
I-28	0.26 Ac.	0.85	99%
RS-28B	0.34 Ac.	0.24	0%
I-29	0.16 Ac.	0.85	99%
I-29A	0.19 Ac.	0.85	99%
I-31	0.15 Ac.	0.85	99%
I-32C	0.16 Ac.	0.85	99%
I-33A	0.11 Ac.	0.85	99%
M-1	1.22 Ac.	0.85	99%
ST-30	0.20 Ac.	0.85	99%

STRUCTURE	AREA (AC.)	'C'	IMPERVIOUS
I-34	0.25 Ac.	0.85	99%
RS-302	0.18 Ac.	0.24	0%
I-304	0.14 Ac.	0.85	99%
I-305	0.14 Ac.	0.85	99%
I-305A	0.21 Ac.	0.85	99%
ST-1	0.29 Ac.	0.85	99%
ST-307	0.22 Ac.	0.85	99%
I-308A	0.16 Ac.	0.85	99%
RS-304	0.20 Ac.	0.24	0%
RS-304A	0.14 Ac.	0.24	0%
I-311	0.20 Ac.	0.85	99%
I-312	0.16 Ac.	0.85	99%
ST-2	16.21 Ac.	0.85	99%
I-315	0.21 Ac.	0.85	99%
RS-310	0.31 Ac.	0.24	0%
ST-320	1.34 Ac.	0.85	99%
ST-322	0.41 Ac.	0.85	99%

NOTE: PARCEL D DRAINAGE DIVIDES SHOWN FOR ULTIMATE DEVELOPMENT CONDITIONS



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Melanie 4/10/2017
 Chief, Bureau of Highways

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Kathleen 5-15-17
 Chief, Division of Land Development
Chick 4-17-17
 Chief, Development Engineering Division

GLW GUTSCHICK LITTLE & WEBER, PA.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
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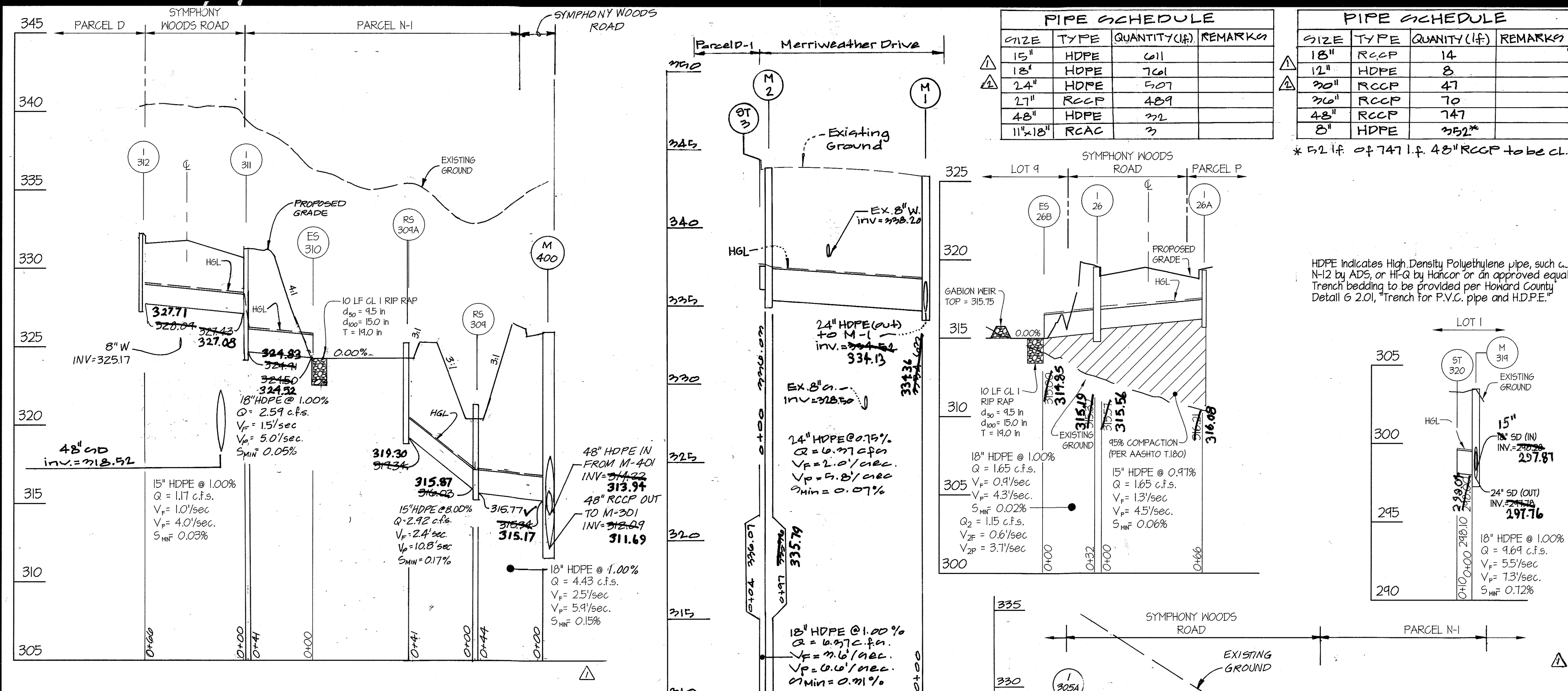
DATE	REVISION	BY	APP'R
5-24-16	Revised Multi-use Path & added sewer	gt	DEV
2-2-16	Added Note: SD run, revised sheet total & drainage area	gt	DEV
11-6-15	Rev Storm Drain, Drainage area, water & sewer, removed two filters	gt	DEV

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
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 EXPIRATION DATE: MAY 26, 2018
3/8/17

STORM DRAIN DRAINAGE AREA MAP
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9
 ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
1" = 50'	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	8 OF 27



SIZE	TYPE	QUANTITY(LF)	REMARKS
15"	HDPE	611	
18"	HDPE	761	
24"	HDPE	507	
24"	RCOP	409	
48"	HDPE	22	
11x18"	RCAC	2	

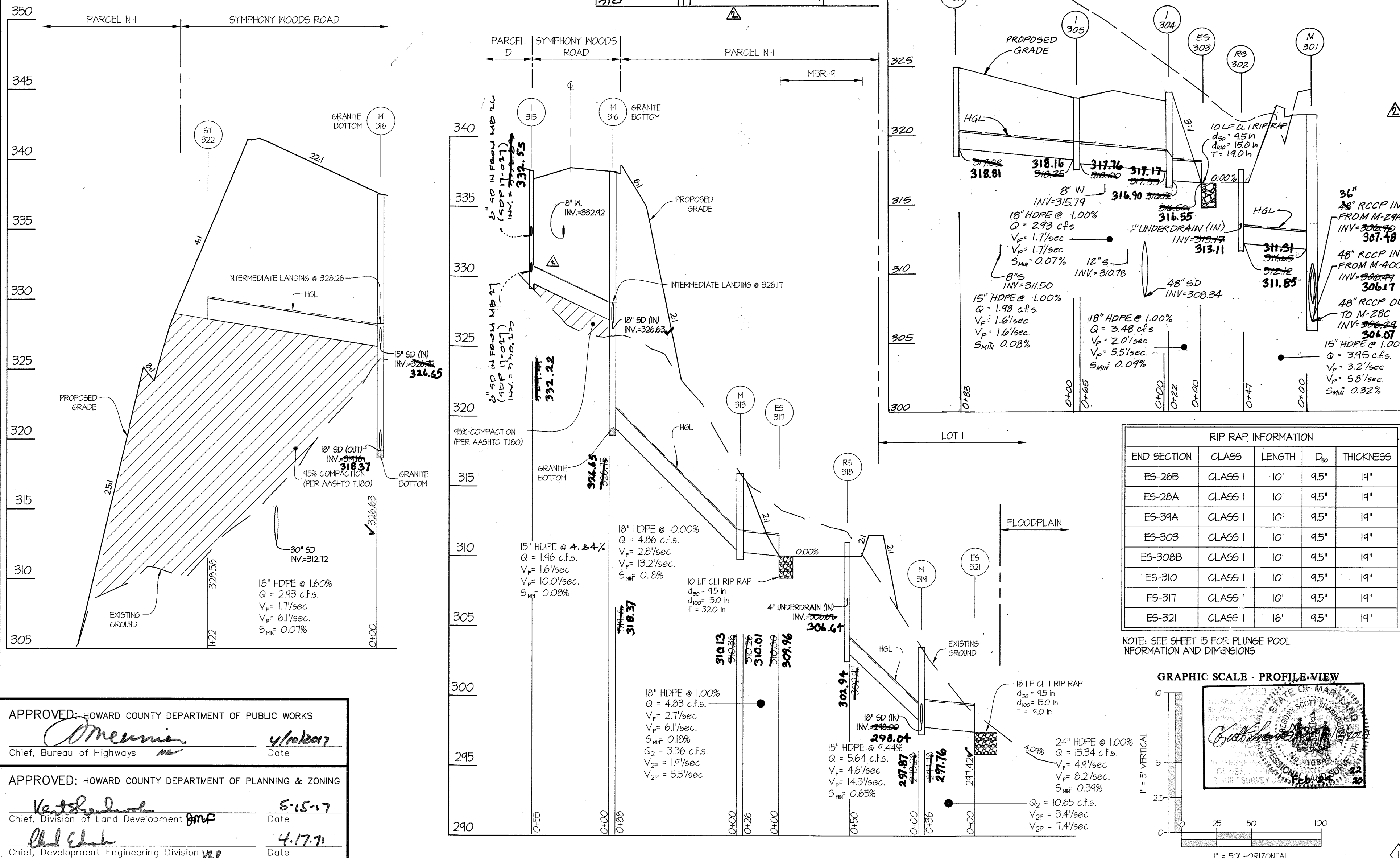
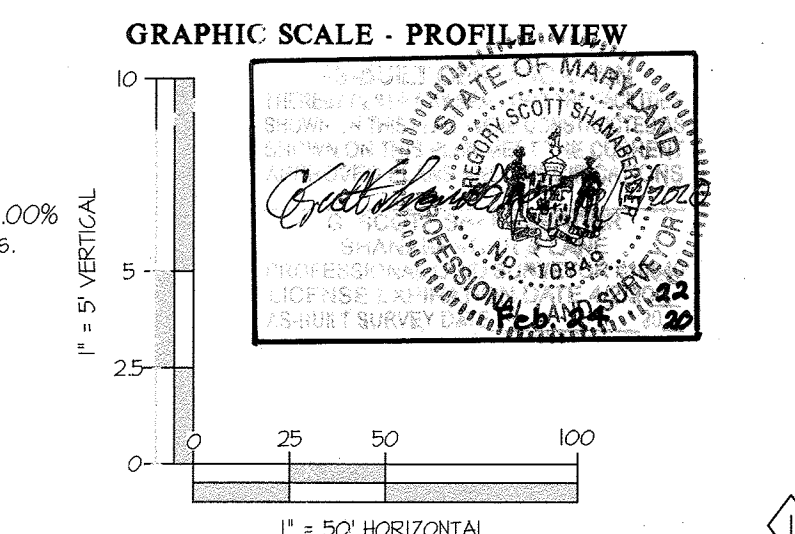
SIZE	TYPE	QUANTITY(LF)	REMARKS
15"	RCOP	14	
18"	HDPE	8	
24"	RCOP	47	
36"	RCOP	70	
48"	RCOP	747	
8"	HDPE	252*	

* 52 LF of 747 LF 48" RCOP to be CLV

NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION				INVERT				STD. DETAIL	LOCATIONS	REMARKS
			PROPOSED		AS-BUILT		PROPOSED		AS-BUILT				
			UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER			
I-26	COS-15 INLET	3'-0"	314.42	314.10	319.50	319.07	315.51	315.32	315.56	315.19	MD 314.41	N 561185 E 1352034	✓
I-26A	A-10 INLET	2'-6"	314.46	314.22	319.48	319.28	---	316.21	319.38	315.19	HO.CO. D-4.03	N 561185 E 1352047	✓
I-28	A-10 INLET	2'-6"	322.74	322.44	322.86	322.51	318.50	315.31	318.44	315.19	HO.CO. D-4.03	N 561128 E 1351954	✓
I-24	DOUBLE WR INLET	3'-5 1/2"	322.48	322.78	322.38	---	319.16	314.06	318.83	318.80	HO.CO. D-4.35	N 561071 E 1351946	✓
I-24A	DOUBLE WR INLET	3'-5 1/2"	325.48	325.78	325.28	---	320.14	320.04	321.50	320.17	HO.CO. D-4.35	N 561087 E 1351854	✓
I-31	DOUBLE WR INLET	3'-5 1/2"	324.14	328.45	328.49	---	---	321.04	---	324.30	HO.CO. D-4.35	N 561087 E 1351754	✓
I-32C	A-10 INLET	2'-6"	334.84	334.71	339.82	339.15	336.05	335.13	335.83	334.97	HO.CO. D-4.03	N 561055 E 1351426	✓
I-33A	DOUBLE WR INLET	3'-5 1/2"	340.08	340.00	339.39	---	336.00	335.24	335.51	335.06	HO.CO. D-4.35	N 560998 E 1351438	✓
I-38A	2 DOUBLE WR INLETS	3'-5 1/2"	334.04	333.76	333.29	---	---	327.69	---	328.00	HO.CO. D-4.35	N 561068 E 1351651	✓
I-34	A-10 INLET	2'-6"	333.13	333.01	333.16	332.76	324.57	319.71	349.52	319.89	HO.CO. D-4.03	N 561128 E 1351674	✓
I-304	A-10 INLET	2'-6"	323.18	322.92	323.09	322.84	317.35	316.72	317.17	316.26	HO.CO. D-4.03	N 560944 E 1352061	✓
I-305	DOUBLE WR INLET	3'-5 1/2"	323.40	323.32	322.78	---	318.25	318.0	318.16	317.76	HO.CO. D-4.35	N 561008 E 1351946	✓
I-305A	DOUBLE WR INLET	3'-5 1/2"	325.09	325.51	324.93	---	---	319.08	---	320.81	HO.CO. D-4.35	N 560910 E 1351910	✓
I-308A	A-10 INLET	2'-6"	325.56	325.24	325.13	---	---	320.71	---	320.71	HO.CO. D-4.03	N 560904 E 1352044	✓
I-311	A-10 INLET	2'-6"	331.69	331.22	331.57	331.18	327.43	324.91	327.08	324.83	HO.CO. D-4.03	N 560736 E 1352008	✓
I-312	A-10 INLET	2'-6"	332.09	332.24	332.13	332.18	---	328.09	---	327.71	HO.CO. D-4.03	N 560720 E 1351944	✓
I-315	A-10 INLET	2'-6"	337.08	337.16	337.61	337.08	322.25	321.41	332.55	332.12	HO.CO. D-4.03	N 560602 E 1351924	✓
ES-26B	END SECTION	1'-6"	316.50	---	316.35	---	---	315.00	---	314.85	HO.CO. D-5.51	N 561184 E 1352061	✓
ES-28A	END SECTION	1'-6"	316.50	---	316.49	---	---	315.00	---	314.99	HO.CO. D-5.51	N 561164 E 1351954	✓
ES-28E	HEADWALL	---	310.63	---	310.43	---	---	305.13	---	304.41	HO.CO. D-5.11	N 561130 E 1352164	✓
ES-34A	END SECTION	1'-3"	320.56	---	320.55	---	---	314.31	---	319.36	HO.CO. D-5.51	N 561103 E 1351638	✓
ES-34C	END SECTION	0'-4"	321.33	---	321.13	---	---	321.00	---	320.80	---	---	---
ES-30B	END SECTION	1'-6"	318.00	---	318.05	---	---	316.50	---	316.55	HO.CO. D-5.51	N 560948 E 1352084	✓
ES-308B	END SECTION	1'-3"	321.75	---	321.69	---	---	320.50	---	320.44	HO.CO. D-5.51	N 560894 E 1352064	✓
ES-310	END SECTION	1'-6"	326.00	---	326.02	---	---	324.50	---	324.52	HO.CO. D-5.51	N 560754 E 1352042	✓
ES-311	END SECTION	1'-6"	311.50	---	311.46	---	---	310.00	---	309.96	HO.CO. D-5.51	N 560566 E 1352080	✓
ES-321	END SECTION	2'-0"	249.42	---	---	---	---	247.42	---	---	HO.CO. D-5.51	N 560510 E 1352143	✓
M-2	STANDARD MANHOLE	4'-0"	343.84	---	343.71	---	336.09	335.26	335.79	335.08	HO.CO. G-5.12	N 561072 E 1351033	✓
M-1	STANDARD MANHOLE	4'-0"	343.27	---	343.24	---	334.63	334.52	334.36	334.13	HO.CO. G-5.12	N 561029 E 1351128	✓
M-28C	STANDARD MANHOLE	7'-0"	319.17	---	319.14	---	305.75	305.58	305.76	305.8	MD 38407	N 561128 E 1352123	✓
M-28D	STANDARD MANHOLE	6'-0"	310.84	---	311.28	---	305.44	305.24	305.29	305.15	MD 38405	N 561130 E 1352158	✓
M-29A	STANDARD MANHOLE	5'-0"	321.74	---	321.56	---	309.15	308.08	308.97	307.71	HO.CO. G-5.13	N 561078 E 1351881	✓
M-30	STANDARD MANHOLE	4'-0"	328.67	---	328.75	---	315.68	315.40	315.20	315.07	HO.CO. G-5.12	N 561048 E 1351758	✓
M-30A	STANDARD MANHOLE	4'-0"	325.24	---	325.32	---	312.6	312.4	312.22	312.14	HO.CO. G-5.12	N 561048 E 1351854	✓
M-32	STANDARD MANHOLE	5'-0"	338.54	---	338.53	---	329.07	325.03	328.91	324.93	HO.CO. G-5.13	N 561010 E 1351444	✓
M-33	STANDARD MANHOLE	4'-0"	340.41	---	340.44	---	328.82	328.12	328.43	328.35	HO.CO. G-5.12	N 560948 E 1351363	✓
M-33B	STANDARD MANHOLE	6'-0"	334.63	---	334.50	---	328.04	327.44	327.81	327.76	MD 38405	N 561006 E 1351438	✓
M-34	STANDARD MANHOLE	4'-0"	341.42	---	341.83	---	320.7	330.01	330.51	329.13	HO.CO. G-5.12	N 561008 E 1351240	✓
M-38B	STANDARD MANHOLE	6'-0"	333.11	---	333.13	---	327.35	319.52	327.51	319.87	MD 38405	N 561074 E 1351654	✓
M-301	STANDARD MANHOLE	7'-0"	324.45	---	321.23	---	306.49	306.29	306.17	306.07	MD 38405	N 561037 E 1352058	✓
M-400	STANDARD MANHOLE	6'-0"	326.19	---	326.32	---	314.22	312.09	313.94	311.69	MD 38405	N 560848 E 1352081	✓
M-313	STANDARD MANHOLE	4'-0"	303.48	---	315.75	---	310.36	310.26	310.13	310.01	HO.CO. G-5.12	N 560587 E 1352012	✓
M-402	STANDARD MANHOLE	6'-0"	343.50	---	343.16	---	325.53	325.41	324.88	324.78	MD 38405	N 560448 E 1351974	✓
M-316	STANDARD MANHOLE	4'-0"	337.33	---	337.14	---	326.75	319.16	324.65	318.37	HO.CO. G-5.12	N 560584 E 1351903	✓
M-314	STANDARD MANHOLE	4'-0"	303.48	---	303.58	---	248.28	247.78	248.04	247.76	HO.CO. G-5.12	N 560584 E 1352158	✓
M-401	STANDARD MANHOLE	6'-0"	341.11	---	340.71	---	325.03	322.94	324.71	320.43	MD 38405	N 560918 E 1351786	✓
M-401	STANDARD MANHOLE	6'-0"	331.92	---	331.77	---	319.02	318.82	318.47	318.40	MD 38405	N 560714 E 1351984	✓
RS-28B	5' RISER	2'-15"	316.00	---	315.93	---	311.67	311.40	311.45	311.25	HO.CO. D-4.22	N 561162 E 1352003	✓
RS-302	5' RISER	2'-15"	317.50	---	317.55	---	313.17	312.12	313.11	311.85	HO.CO. D-4.22	N 561038 E 1352045	✓
RS-304	5' RISER	2'-15"	321.50	---	321.54	---	316.03	315.34	317.21	315.77	HO.CO. D-4.22	N 560864 E 1352061	✓
RS-304A	5' RISER	2'-15"	325.50	---	---	---	325.51	319.34	319.73	321.17	HO.CO. D-4.22	N 560818 E 1352057	✓
RS-318	5' RISER	2'-15"	311.00	---	---	---	311.03	306.67	302.97	306.64	HO.CO. D-4.22	N 560548 E 1352108	✓
FILTERRA 51	FILTERRA WITH SEDIMENTATION CHAMBER	6'-0"	340.22	334.48	340.21	339.88	---	336.15	---	335.79	FTSC 8' x 6'	N 561048 E 1351408	4' UNDERDRAIN
FILTERRA 52	FILTERRA WITH SEDIMENTATION CHAMBER	4'-0"	331.86	331.37	331.83	331.30	---	333.54	---	333.11	FTSC 8' x 4'	N 561083 E 1351524	4' UNDERDRAIN
FILTERRA 53	FILTERRA WITH SEDIMENTATION CHAMBER	6'-0"	334.16	333.50	334.05	333.41	---	324.67	---	324.20	FTSC 8' x 6'	N 561123 E 1351631	4' UNDERDRAIN

END SECTION	CLASS	LENGTH	D ₁₀	THICKNESS
ES-26B	CLASS I	10'	9.5"	19"
ES-28A	CLASS I	10'	9.5"	19"
ES-34A	CLASS I	10'	9.5"	19"
ES-30B	CLASS I	10'	9.5"	19"
ES-308B	CLASS I	10'	9.5"	19"
ES-310	CLASS I	10'	9.5"	19"
ES-311	CLASS I	10'	9.5"	19"
ES-321	CLASS I	16'	9.5"	19"

NOTE: SEE SHEET 15 FOR PLUNGE POOL INFORMATION AND DIMENSIONS



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 4/10/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 5-15-17

Chief, Development Engineering Division
 Date: 4-17-17

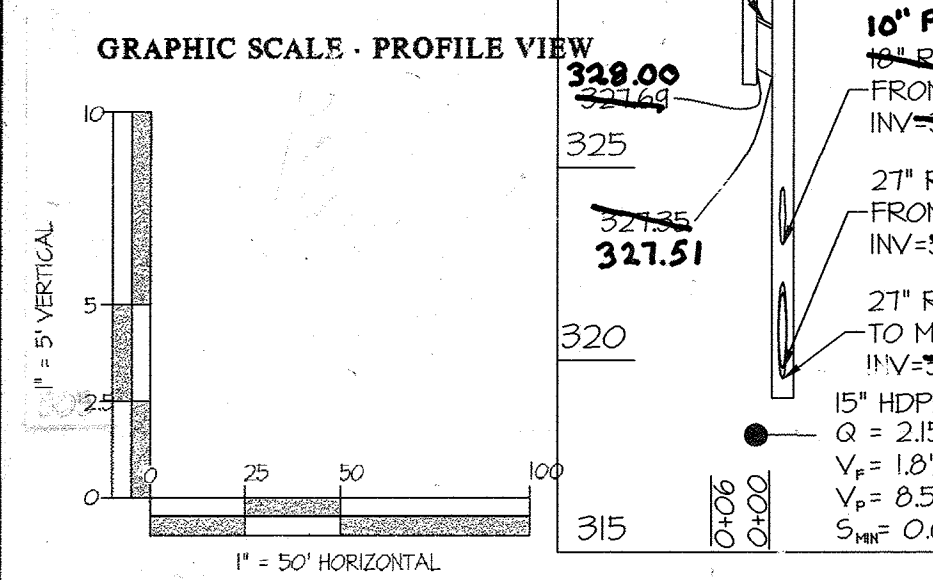
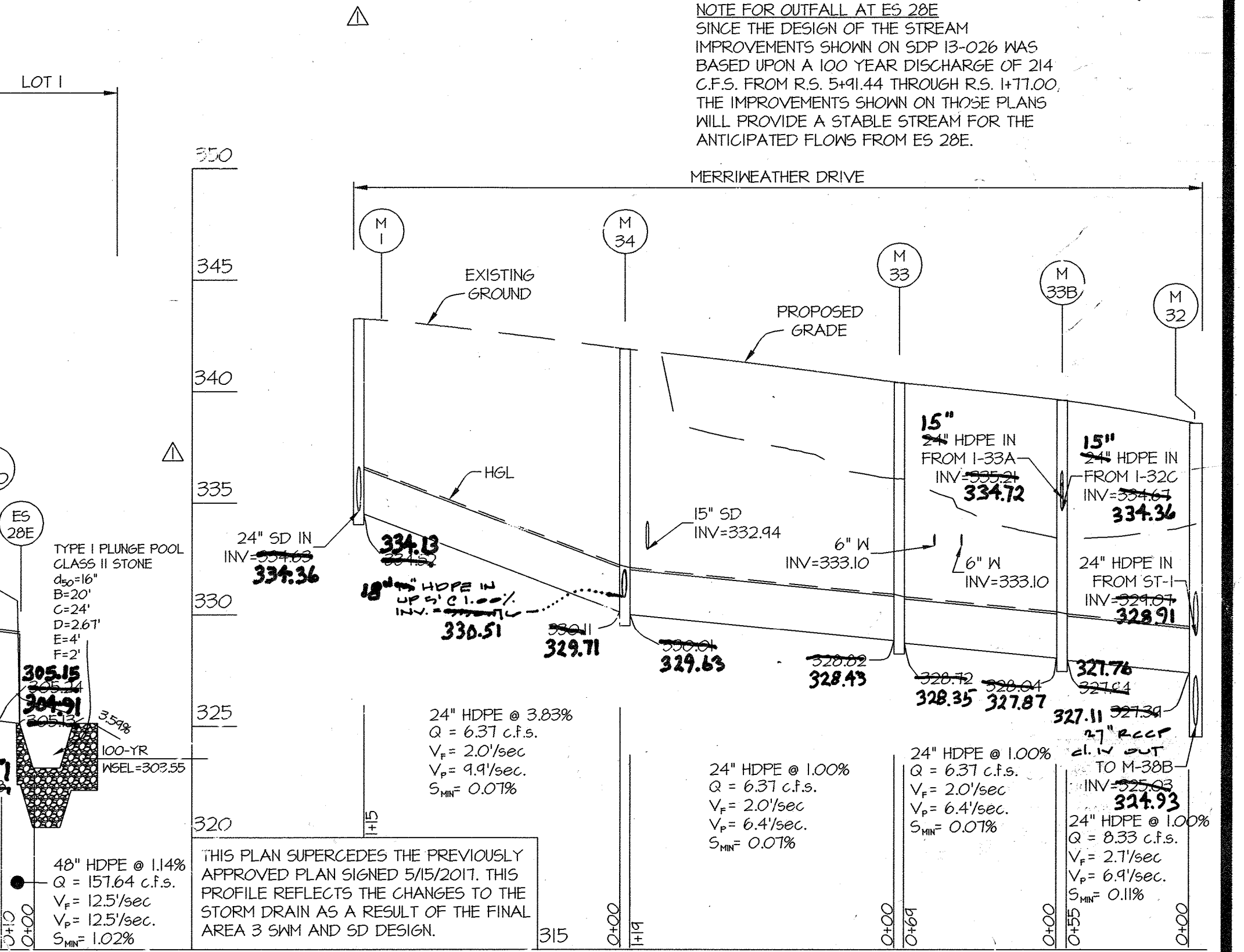
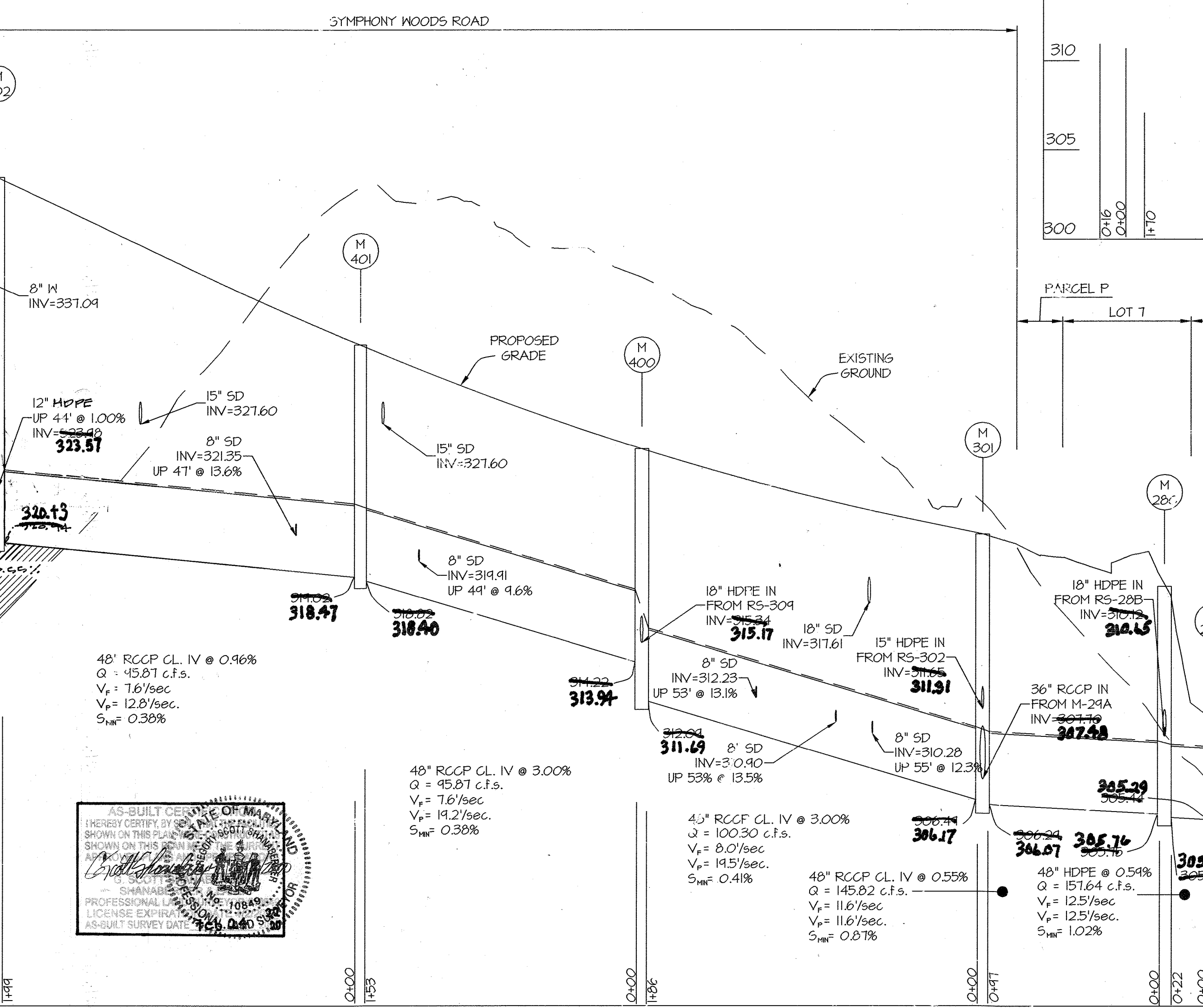
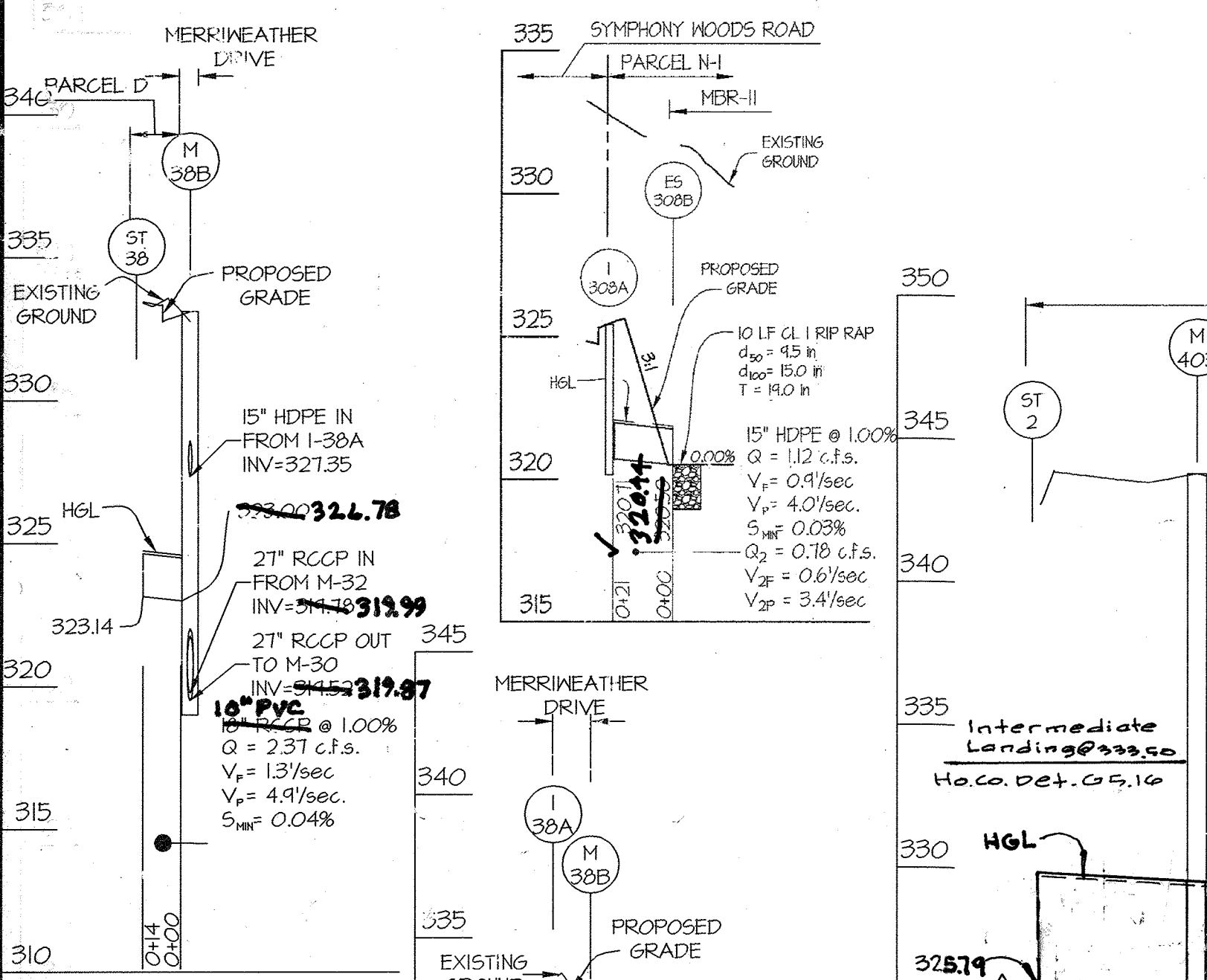
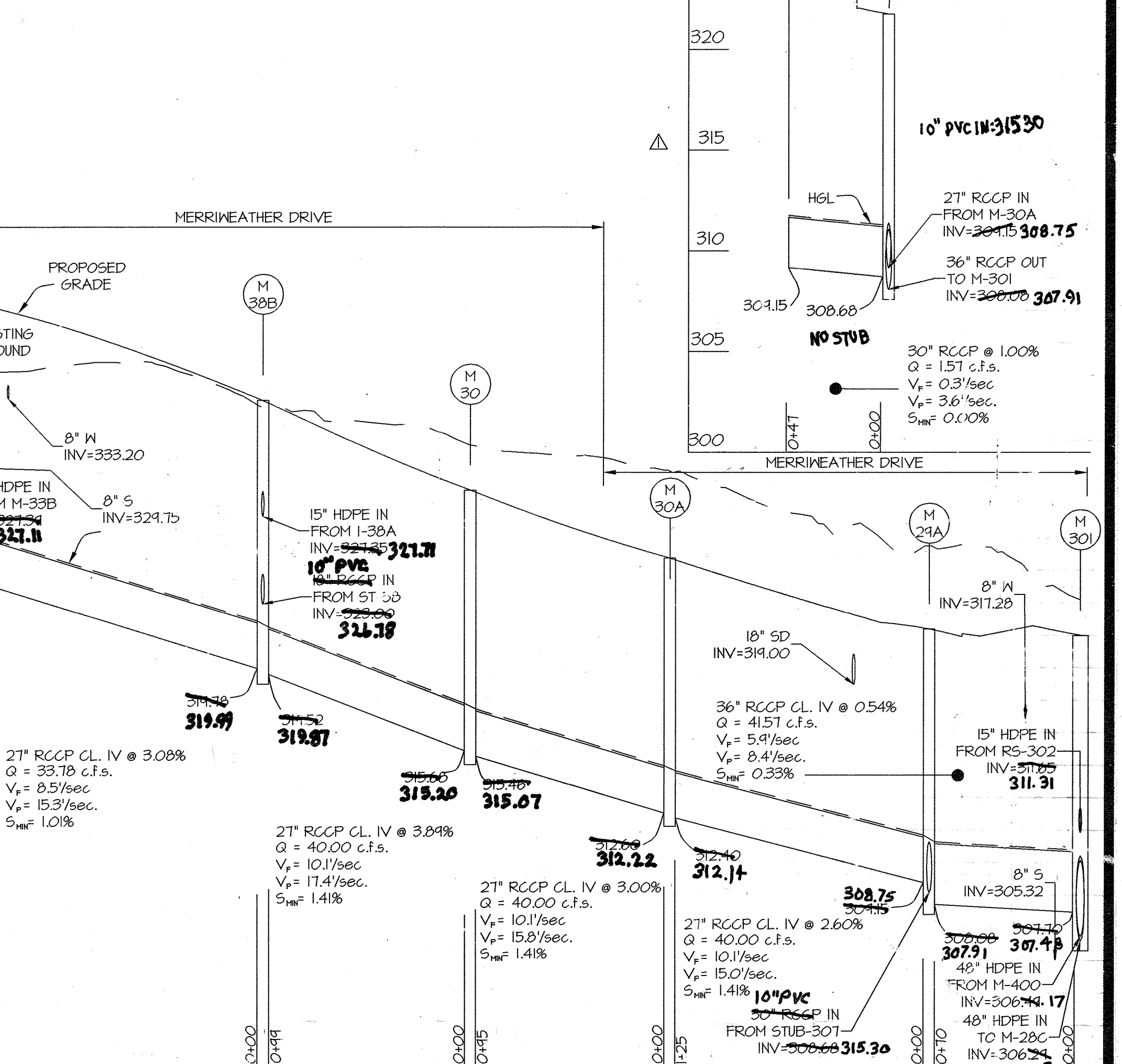
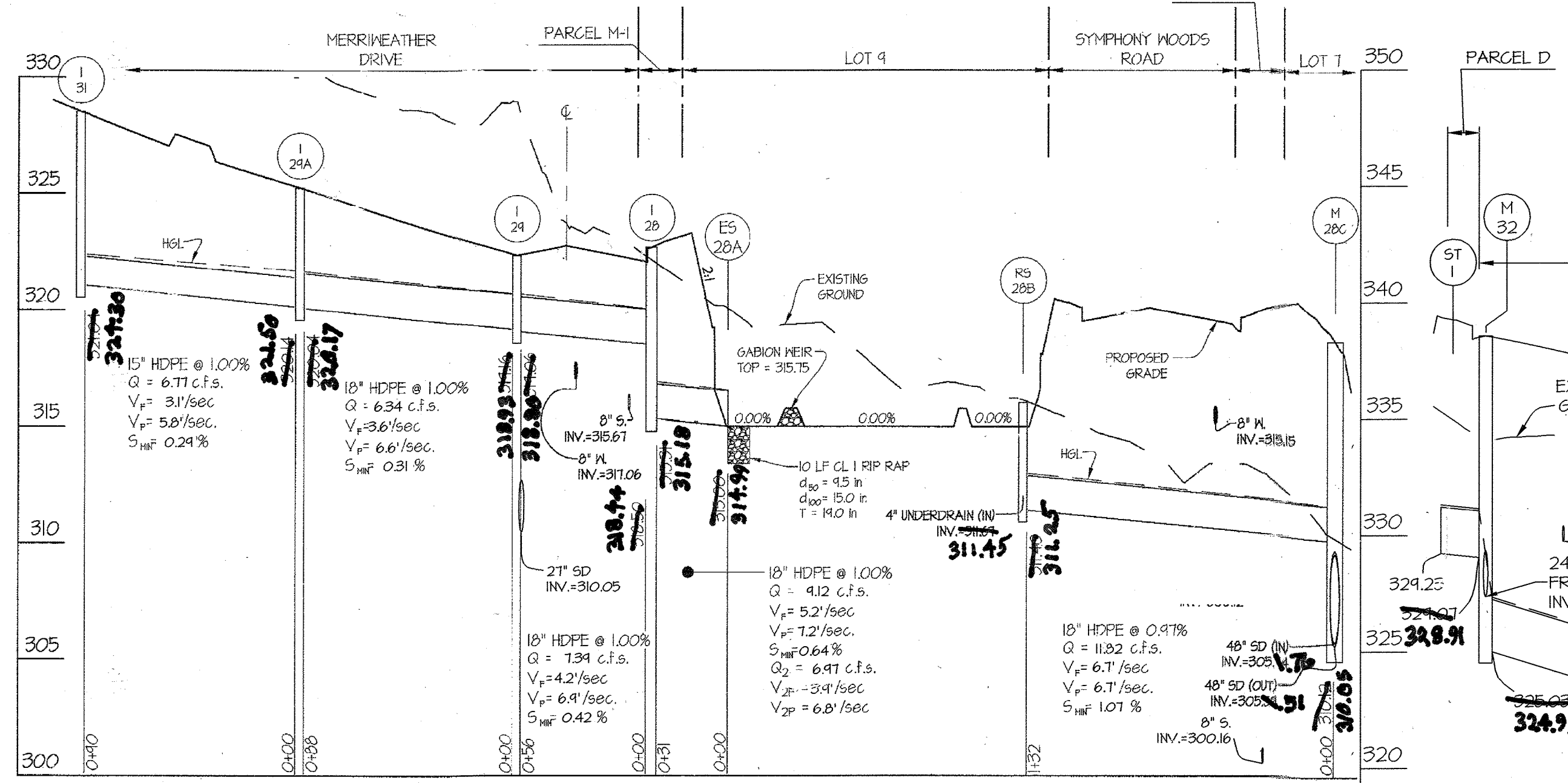
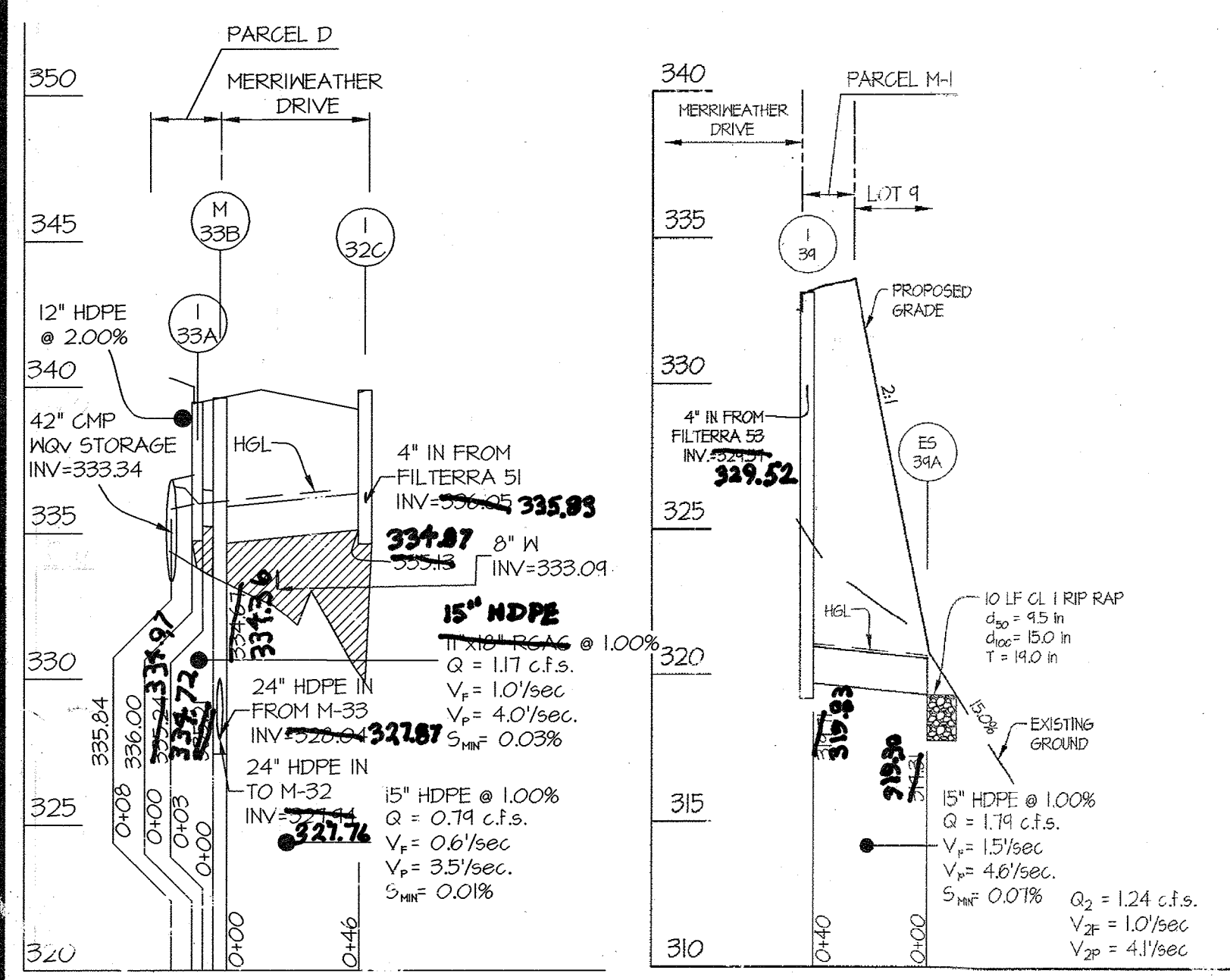
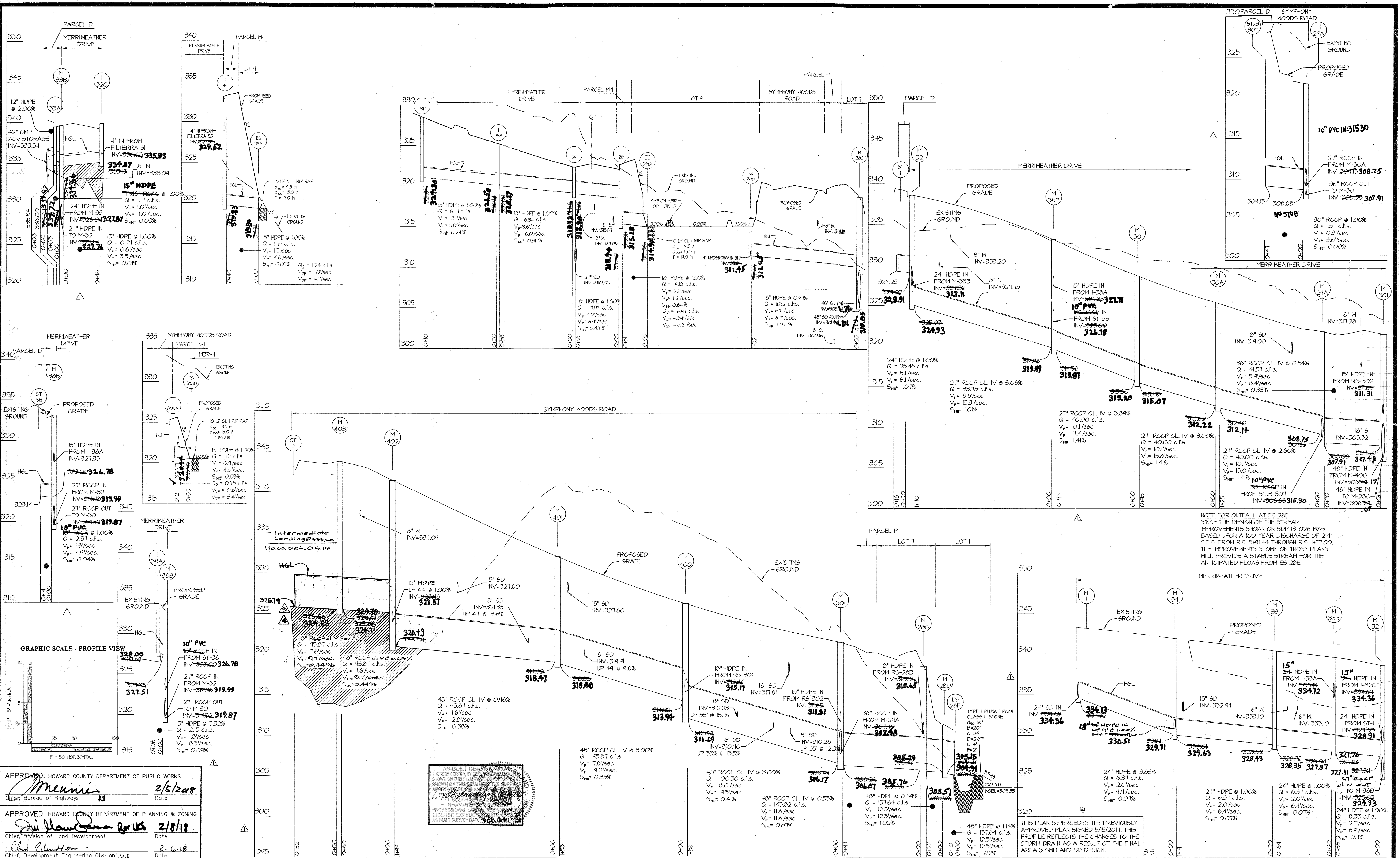
GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 FAX: 301-421-4186

NO.	DATE	REVISION	BY	APPR.
12-17-18		Revise Inverts	gt	DEV
5-3-18		Revise Inverts	gt	DEV
1-2-18		ADDED PROFILE RUN, REVISED STRUCTURE SCHEDULE, PIPE SCHEDULE - SHEET TOTAL	gt	DEV
11/01/2017		REVISED TWO PROFILE RUNS, STRUCTURE SCHEDULE AND PIPE SCHEDULE	gt	DEV

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS 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. 15972
 EXPIRATION DATE: MAY 26, 2018
 3/8/17

STORM DRAIN PROFILES
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT

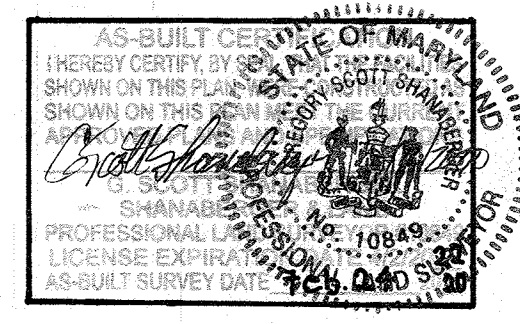


NOTE FOR OUTFALL AT ES 28E
 SINCE THE DESIGN OF THE STREAM IMPROVEMENTS SHOWN ON SDP 13-026 WAS BASED UPON A 100 YEAR DISCHARGE OF 214 C.F.S. FROM R.S. 541.44 THROUGH R.S. 117.00, THE IMPROVEMENTS SHOWN ON THOSE PLANS WILL PROVIDE A STABLE STREAM FOR THE ANTICIPATED FLOWS FROM ES 28E.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 2/5/2018

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 2/8/18

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Development Engineering Division
 Date: 2-6-18



GLW GUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3809 NATIONAL DRIVE - SUITE 250 - BURTNSVILLE OFFICE PARK
 BURTNSVILLE, MARYLAND 20868
 TEL: 301-421-4024 FAX: 410-980-1820 DC/VA: 301-989-2324 FAX: 301-421-4188

NO.	DATE	DESCRIPTION	BY	APP'R.
11-17-18	11/17/18	Revised Profiles	34	Dev.
12-11-18	12/11/18	Revised Profiles	LAG	BEV
1/2/19	1/2/19	REVISED PROFILES	LAG	BEV

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS 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. 12975
 EXPIRATION DATE: MAY 26, 2018
 1/10/18

REVISED STORM DRAIN PROFILES
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9
 ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
HOR: 1" = 50' VERT: 1" = 5'	NT	11071
DATE	TAX MAP - GRID	SHEET
JAN., 2017	36 - 01	10 OF 27

LEGEND

- EXISTING TREE
- PROPOSED STREET TREE
- FUTURE STREET TREE (SHOWN FOR BONDING PURPOSES ONLY)
- PROPOSED TREE LINE
- EXISTING TREE LINE
- EXISTING PAVEMENT
- EXISTING STREET LIGHT
- TYPE M - LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 12" BLACK FIBERGLASS POLE
- TYPE A - LED-100 MODERN POST-TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE
- TYPE I - LED-150 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
- TYPE C - LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
- TYPE B - LED-200 COBRA FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 6" ARM

PLANT LIST				
SYMBOL	QTY.	TYPE	NAMES (BOTANICAL / SCIENTIFIC)	SIZE/COMMENTS
SHADE TREES				
	22	AR	ACER RUBRUM 'OCTOBER GLORY' / OCTOBER GLORY RED MAPLE	4" CAL. B&B
	14	QR	QUERCUS RUBRA / NORTHERN RED OAK	4" CAL. B&B
	35	---	PLANTING IS BEING SHOWN FOR BONDING PURPOSES ONLY FINAL TYPE AND LOCATION TO BE SHOWN WITH THE SDP FOR PARCEL 'D'	---

TOTAL LENGTH OF ROAD BEING CONSTRUCTED (R/W): 2860'
 NUMBER OF TREES REQUIRED @ 1 PER 40 FEET: 72
 NUMBER OF TREES PROVIDED: 71

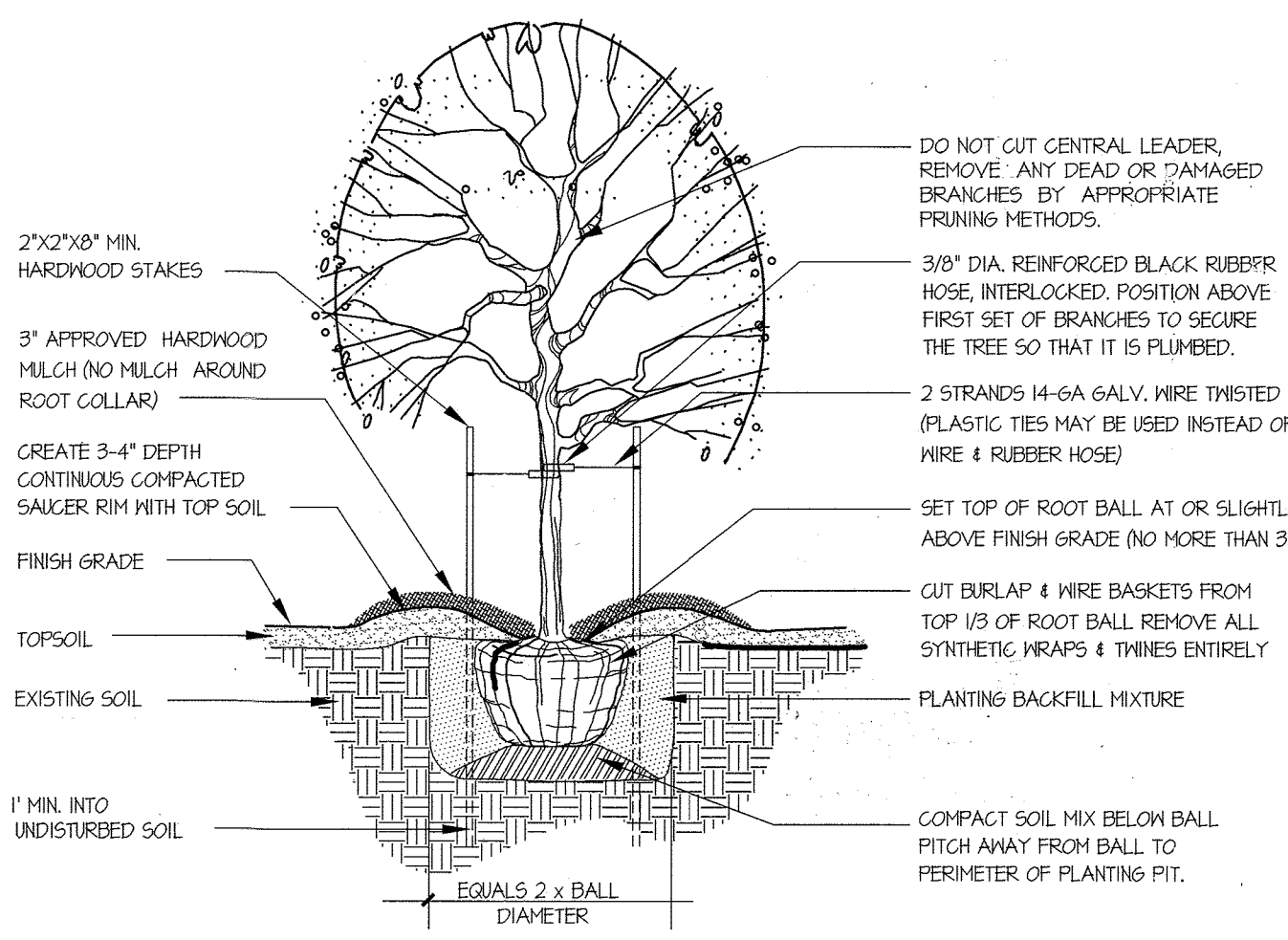
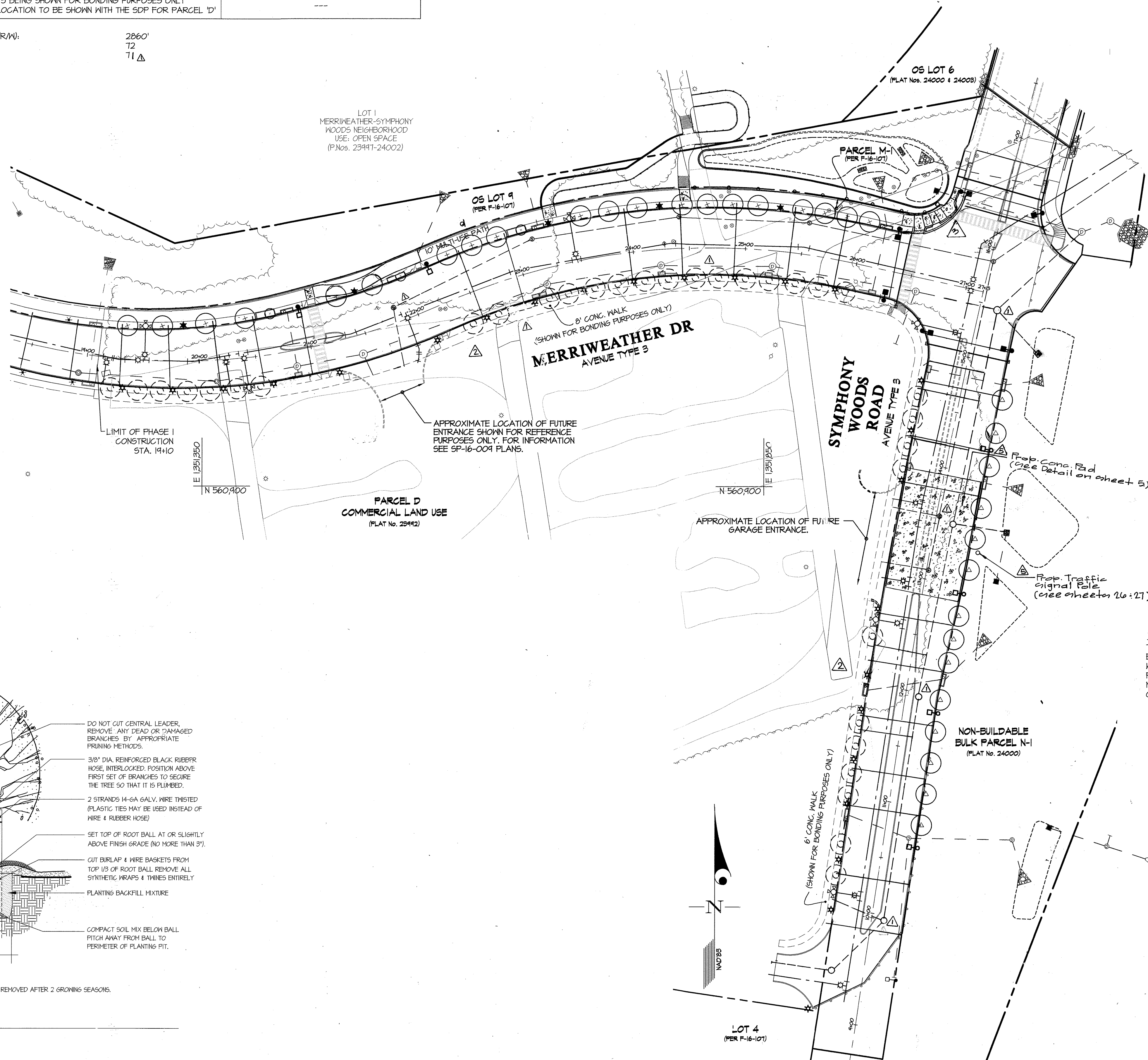
SURETY FOR STREET TREES:

STREET TREES ARE TO BE BONDED WITH THE DPM COST ESTIMATE FOR ROAD CONSTRUCTION

(72) SHADE TREES X \$300 = \$21,600
 TOTAL = \$21,600

STREET LIGHT SCHEDULE

LOCATION	TYPE
ST. 14+33	MERRIMEATHER DR. 26.00' RT. H
ST. 14+16	MERRIMEATHER DR. 26.00' RT. H
ST. 20+10	MERRIMEATHER DR. 26.00' RT. H
ST. 20+05	MERRIMEATHER DR. 26.00' RT. H
ST. 24+11	MERRIMEATHER DR. 27.53' RT. H
ST. 22+14	MERRIMEATHER DR. 25.56' RT. H
ST. 22+54	MERRIMEATHER DR. 26.00' RT. H
ST. 23+04	MERRIMEATHER DR. 26.00' RT. H
ST. 23+51	MERRIMEATHER DR. 26.00' RT. H
ST. 23+98	MERRIMEATHER DR. 26.00' RT. H
ST. 24+45	MERRIMEATHER DR. 26.00' RT. H
ST. 24+92	MERRIMEATHER DR. 26.00' RT. H
ST. 25+44	MERRIMEATHER DR. 26.00' RT. H
ST. 25+89	MERRIMEATHER DR. 26.00' RT. H
ST. 26+34	MERRIMEATHER DR. 26.00' RT. B
ST. 14+80	MERRIMEATHER DR. 31.80' LT. A
ST. 20+45	MERRIMEATHER DR. 37.25' LT. C
ST. 24+11	MERRIMEATHER DR. 38.36' LT. A
ST. 22+15	MERRIMEATHER DR. 39.17' LT. C
ST. 23+32	MERRIMEATHER DR. 38.49' LT. A
ST. 24+26	MERRIMEATHER DR. 38.42' LT. A
ST. 25+21	MERRIMEATHER DR. 38.42' LT. A
ST. 26+31	MERRIMEATHER DR. 38.42' LT. B
ST. 4+02	SYMPHONY WOODS RD. 44.80' LT. H
ST. 4+42	SYMPHONY WOODS RD. 36.11' LT. H
ST. 10+91	SYMPHONY WOODS RD. 36.41' LT. H
ST. 10+49	SYMPHONY WOODS RD. 36.50' LT. H
ST. 11+24	SYMPHONY WOODS RD. 37.31' LT. H
ST. 11+61	SYMPHONY WOODS RD. 36.16' LT. H
ST. 12+10	SYMPHONY WOODS RD. 36.46' LT. H
ST. 12+64	SYMPHONY WOODS RD. 36.32' LT. H
ST. 13+01	SYMPHONY WOODS RD. 37.34' LT. H
ST. 14+17	SYMPHONY WOODS RD. 36.50' LT. H
ST. 14+14	SYMPHONY WOODS RD. 36.50' LT. H
ST. 15+14	SYMPHONY WOODS RD. 45.21' LT. B
ST. 16+41	SYMPHONY WOODS RD. 40.07' LT. B
ST. 16+41	SYMPHONY WOODS RD. 36.63' RT. B
ST. 10+69	SYMPHONY WOODS RD. 30.42' RT. I
ST. 11+24	SYMPHONY WOODS RD. 30.42' RT. I
ST. 12+99	SYMPHONY WOODS RD. 36.55' RT. I
ST. 14+23	SYMPHONY WOODS RD. 36.84' RT. J
ST. 15+14	SYMPHONY WOODS RD. 36.32' RT. B
ST. 16+40	SYMPHONY WOODS RD. 34.63' RT. B



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC.) SHALL BE REMOVED AFTER 2 GROWING SEASONS.

DECIDUOUS TREE PLANTING DETAIL
 FOR PLANTING MATERIAL UP TO 3 1/2" CALIFER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 4/10/17

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 5-15-17

Chief, Development Engineering Division
 Date: 4-17-17

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BALTO: 410-880-1820 DC/VA: 301-399-2524 FAX: 301-421-4186

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-364-4987

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 12972
 EXPIRATION DATE: MAY 26, 2018

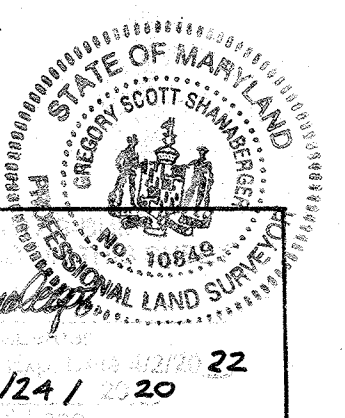


STREET TREE and LIGHTING

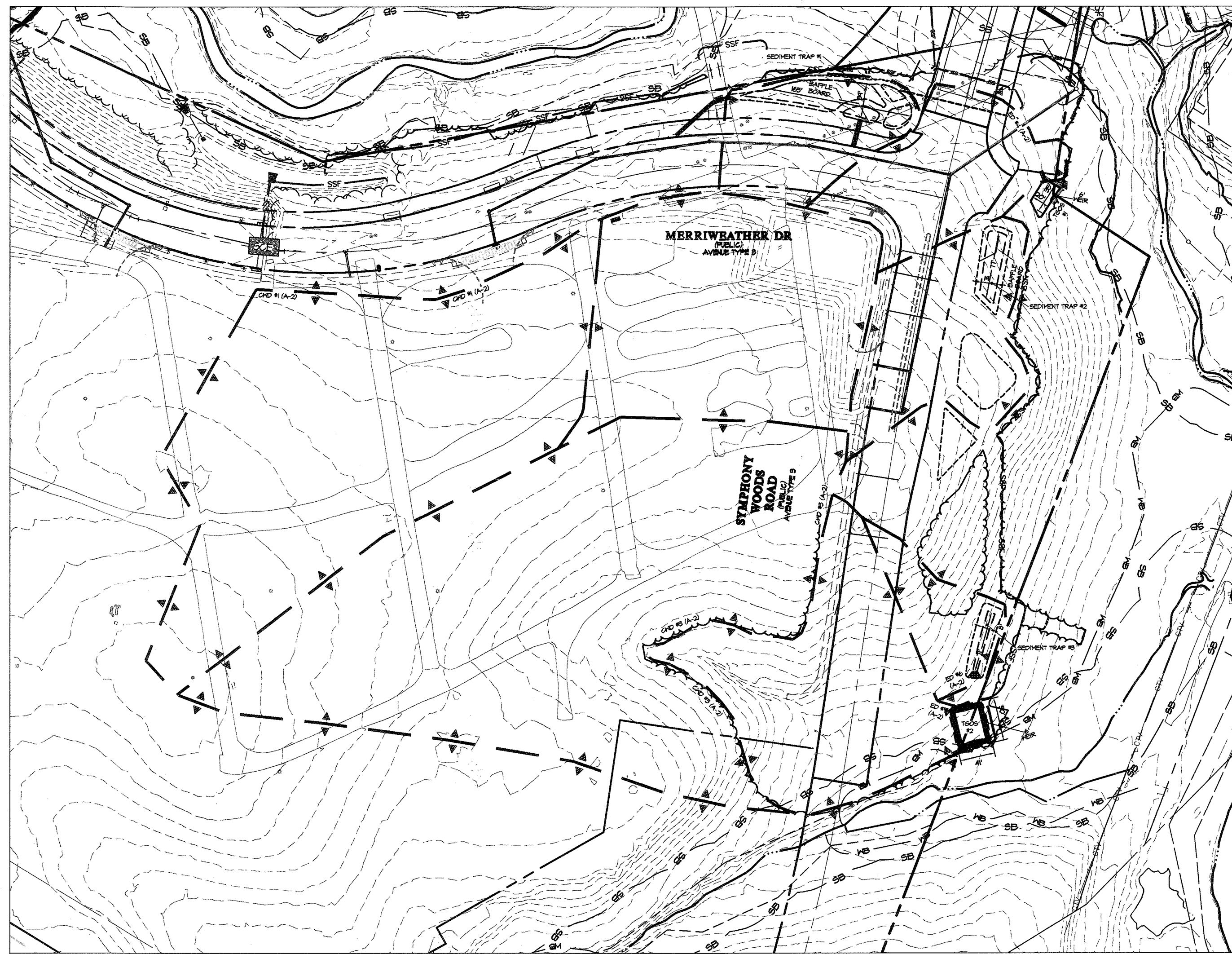
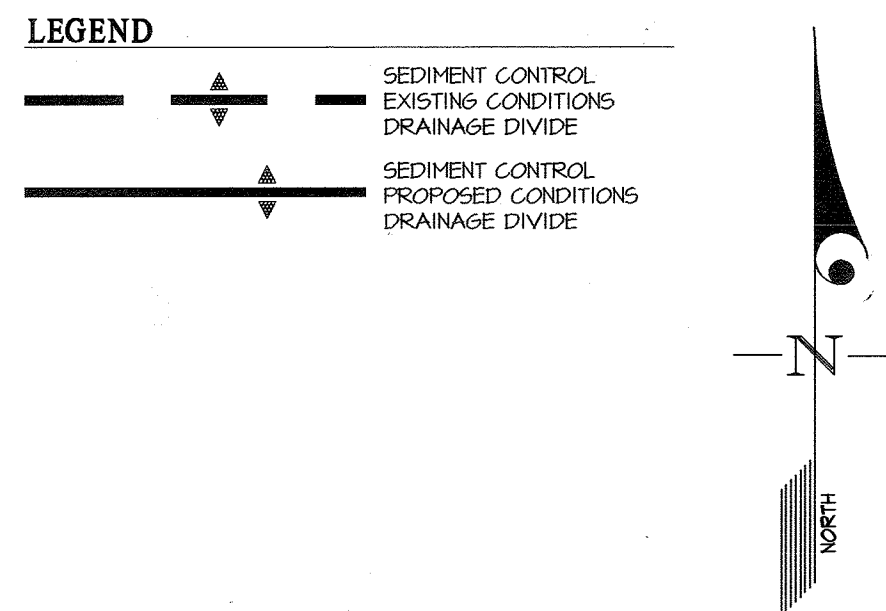
**DOWNTOWN COLUMBIA
 CRESCENT NEIGHBORHOOD
 NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**

ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

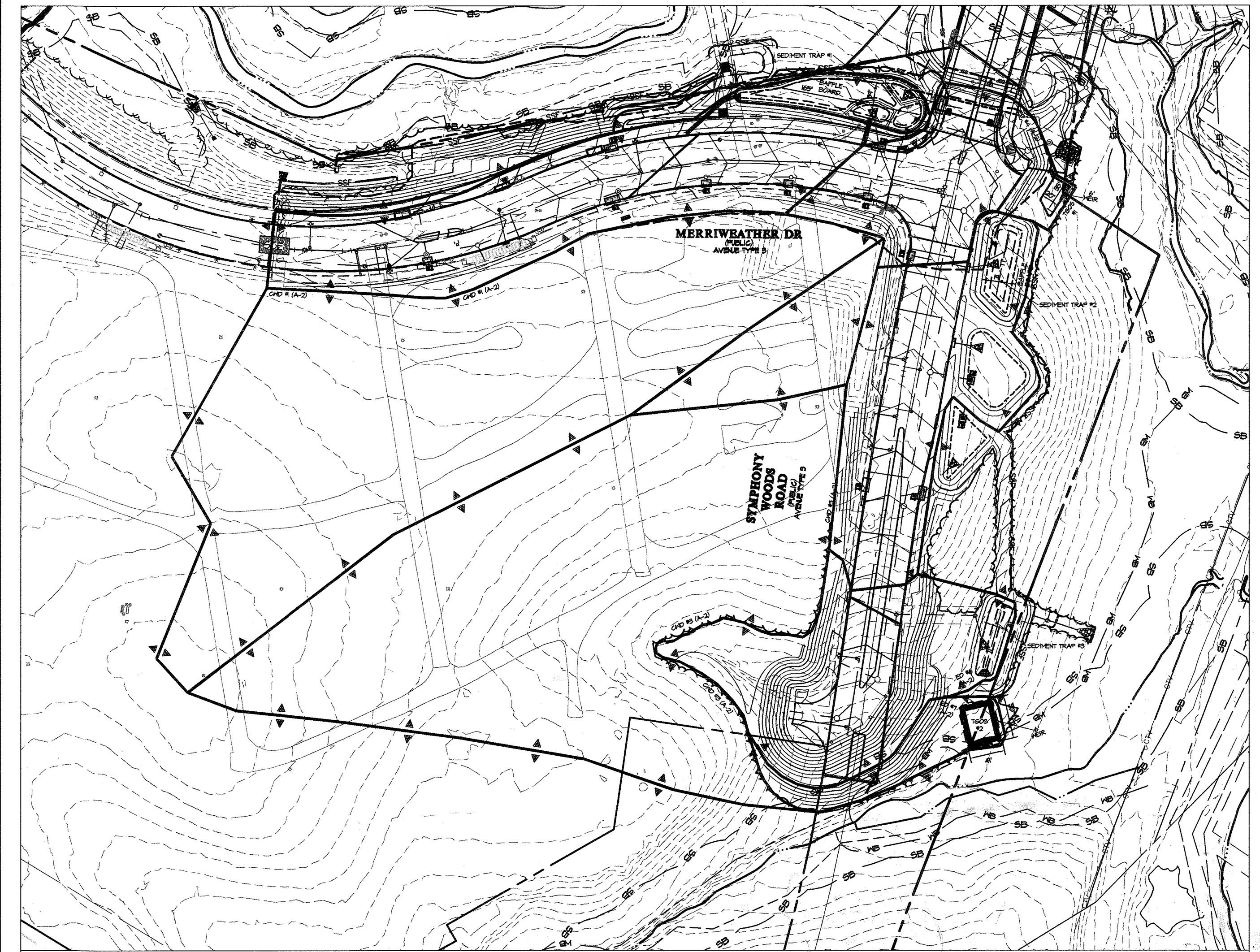
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1" = 50'	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	11 OF 27



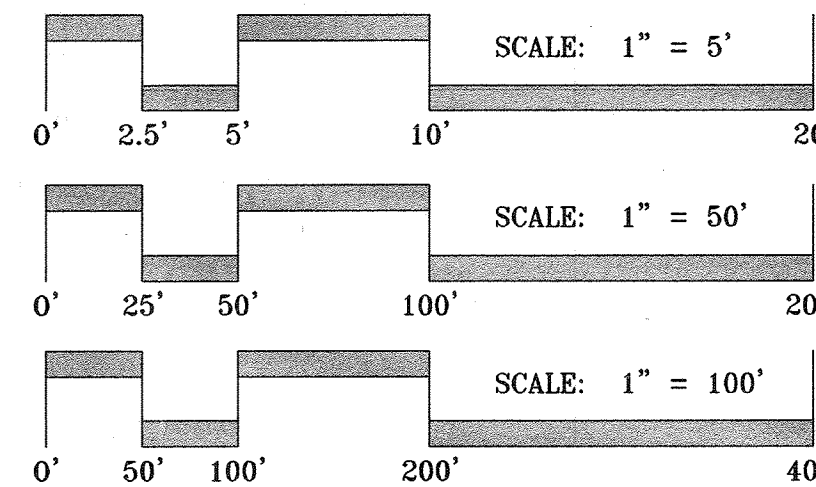
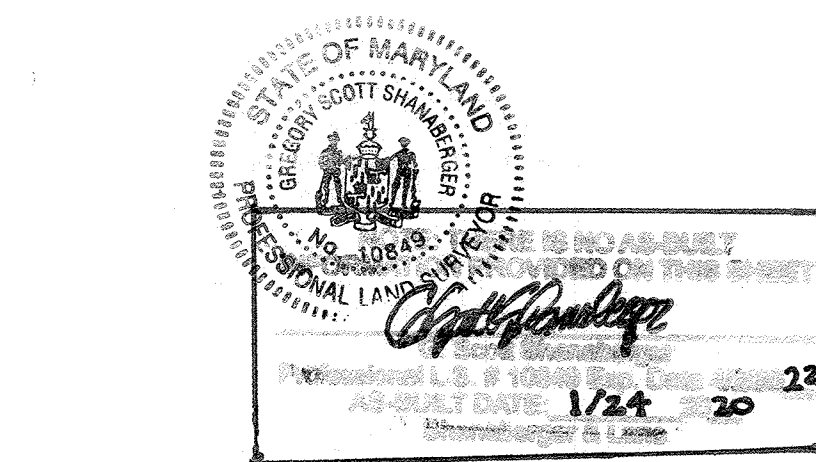
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 PLOTTED: 5/7/2017 2:53 PM, LAST SAVED: 5/7/2017 2:52 PM, PLOTTED BY: Jennifer R. Dicks
 L:\CAD\DRAWINGS\11071\PLANS BY G.L.W. PHASE 2\PHASE 2\11071-02-F-11 - Street Tree.dwg
 PLOTTED: 5/7/2017 2:53 PM, LAST SAVED: 5/7/2017 2:52 PM, PLOTTED BY: Jennifer R. Dicks



PRE-DEVELOPMENT SEDIMENT CONTROL DRAINAGE DIVIDES SCALE: 1" = 100'



POST-DEVELOPMENT SEDIMENT CONTROL DRAINAGE DIVIDES SCALE: 1" = 100'



This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

J. March 4/25/18
 Date

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.

[Signature] 4/2/18
 ENGINEER'S SIGNATURE DATE

DEVELOPER'S/BUILDER'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 ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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.

[Signature] 4-18-18
 SIGNATURE OF DEVELOPER/BUILDER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[Signature] 4/20/18
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[Signature] 5-9-18
 Chief, Division of Land Development Date

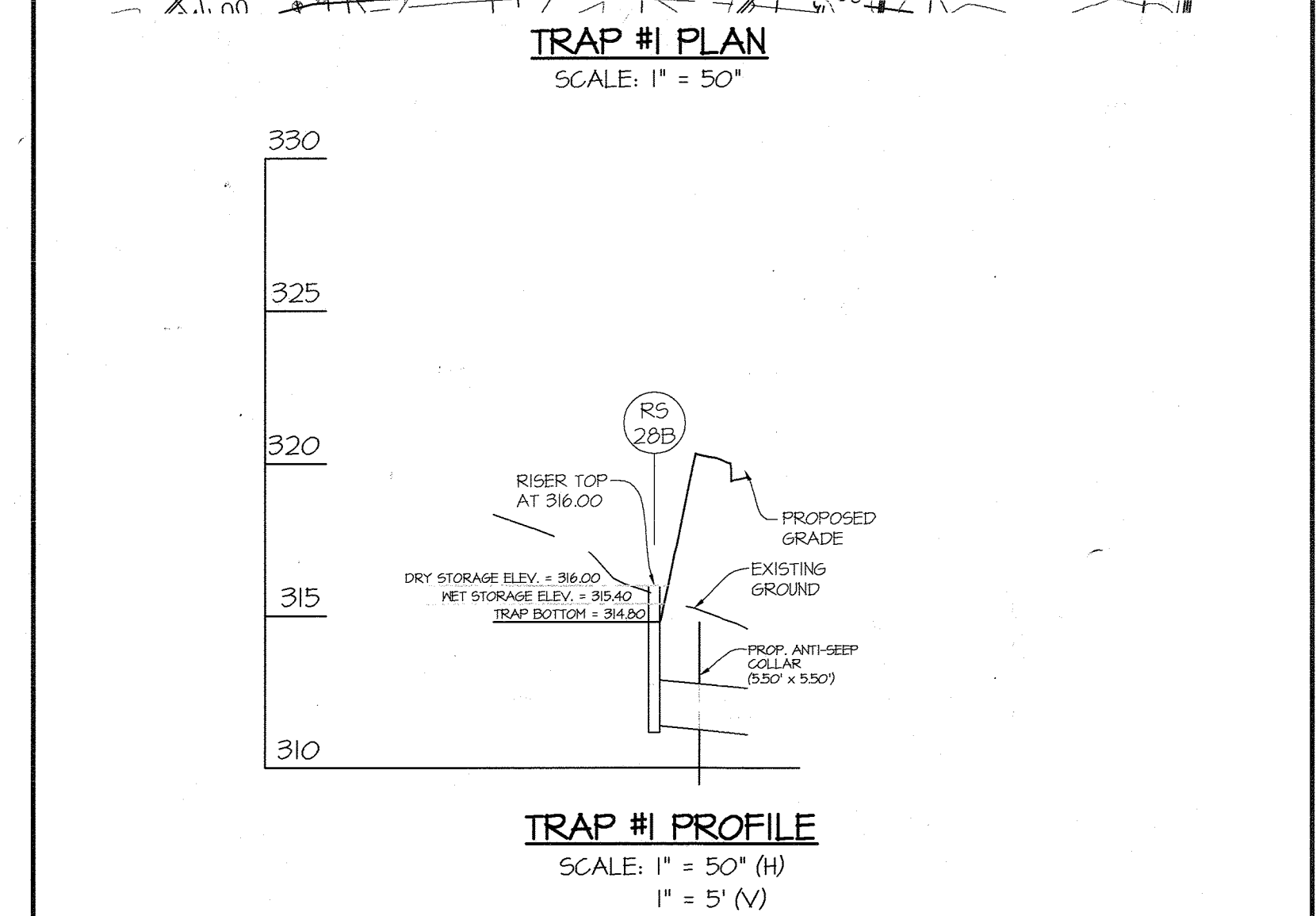
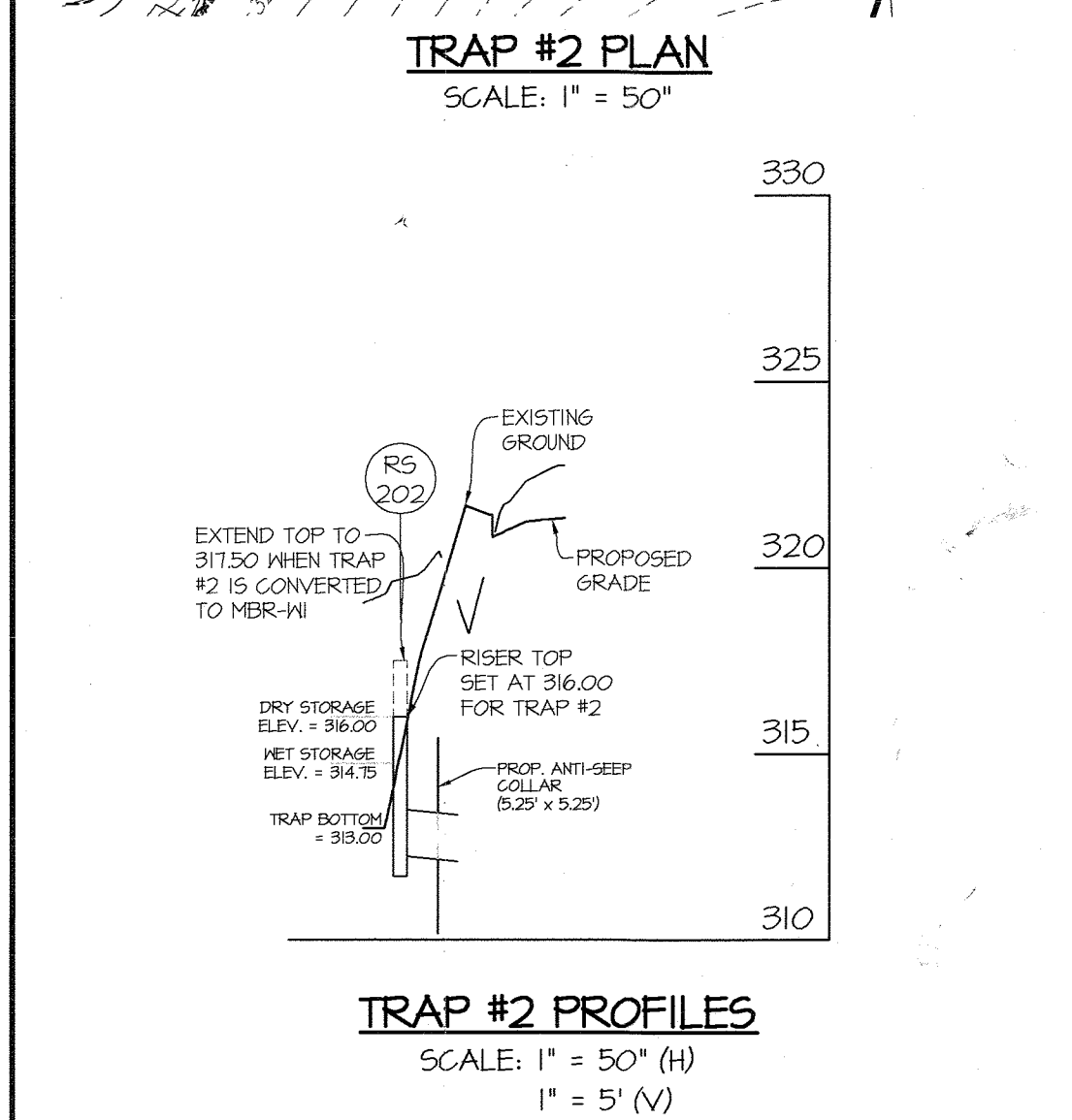
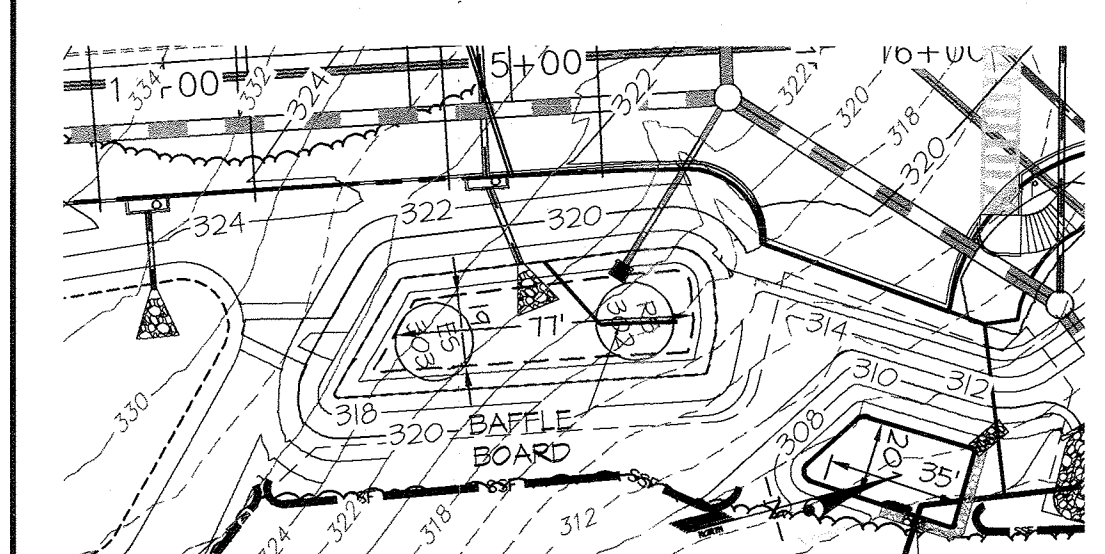
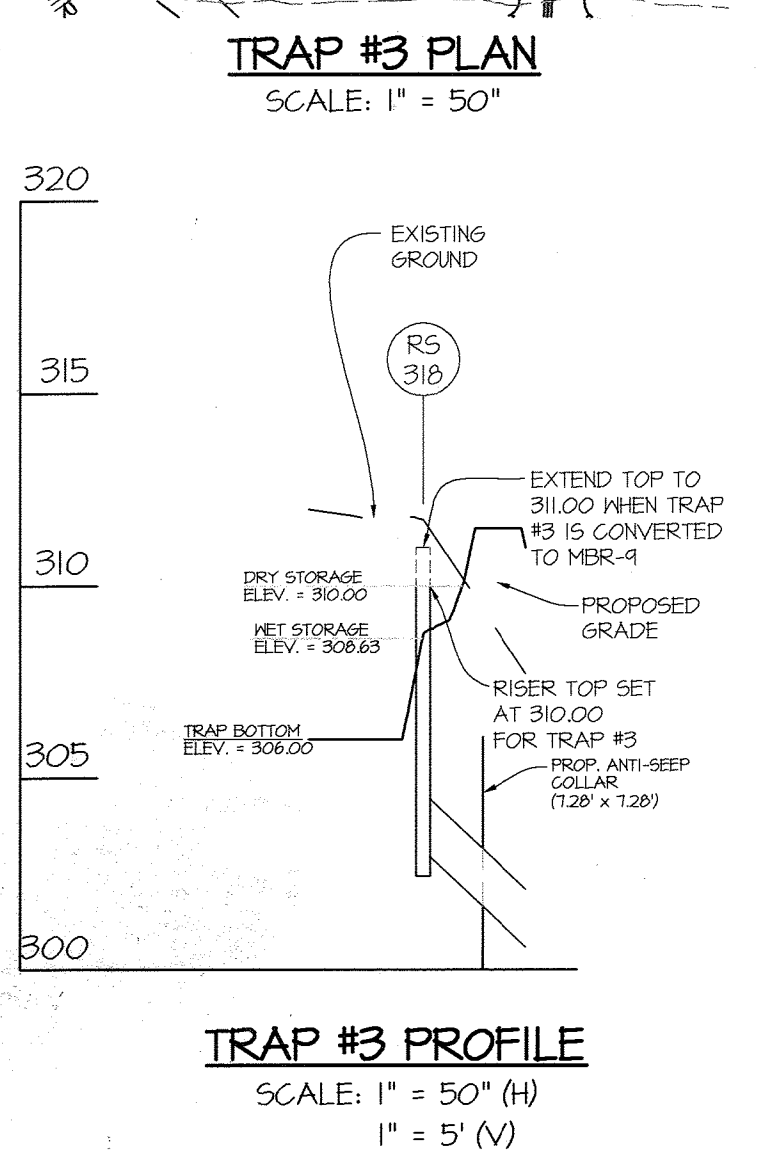
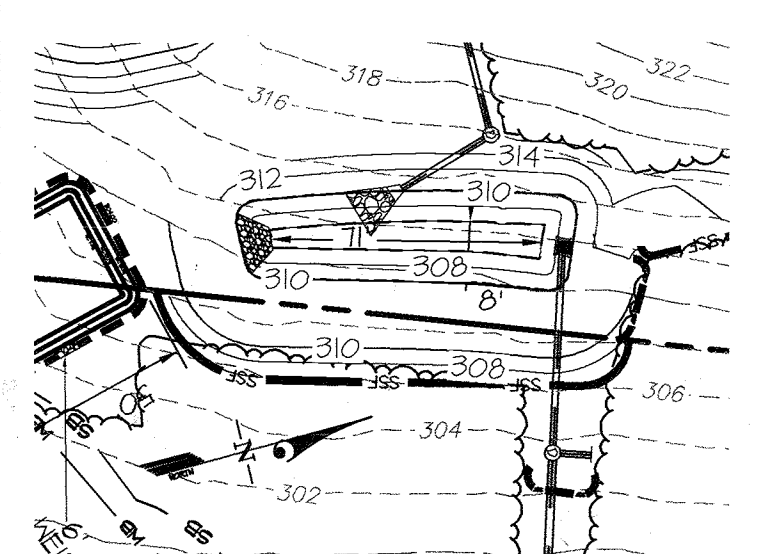
[Signature] 5-3-18
 Chief, Development Engineering Division Date

SEQUENCE OF CONSTRUCTION

- OBTAIN GRADING PERMIT. (1 DAY)
 - ARRANGE FOR AN ON-SITE PRE-CONSTRUCTION MEETING WITH THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR. (1 DAY)
- NOTE: FOR ITEM 3 THROUGH 10 IT IS ASSUMED ONLY THE SEDIMENT TRAPS FROM SDP 16-075 HAVE BEEN CONSTRUCTED AND THAT NO MASS GRADING HAS TAKEN PLACE.
- INITIAL GRADING**
- INSPECT THE SEDIMENT TRAP CONSTRUCTED UNDER SDP 16-075 AND MAKE ANY NECESSARY REPAIRS. (2 DAYS)
 - INSTALL THE STONE CONSTRUCTION ENTRANCE, SUPER SILT FENCE, AND CLEAN WATER DIVERSION DIKE #3. THE CLEAN WATER DIVERSION IS TO BE CONSTRUCTED BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL. (1 WEEK)
 - INSTALL THE STORM DRAIN STRUCTURES 51-301, M-29A, M-301, M-21, M-28C, AND ES-28E, ALONG WITH THE ASSOCIATED STORM DRAINS AND RIP RAP AT THE OUTFALL. (2 WEEKS)
 - CUT BACK THE PRINCIPAL SPILLWAY OUT OF THE EXISTING TRAP AND TIE INTO M-29A. (1 DAY)
 - INSTALL THE CLEAN WATER DIVERSION DIKE #1. THE CLEAN WATER DIVERSION IS TO BE CONSTRUCTED BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL. (1 WEEK)
 - INSTALL THE TEMPORARY GABION STRUCTURES, SEDIMENT TRAPS, AND STORM DRAIN ASSOCIATED WITH THE SEDIMENT TRAP OUTFALLS. (RS-302 TO M-301, RS-328 TO ES-301, AND RS-288 TO M-28C.) (1 WEEK)
 - CONSTRUCT THE EARTH DIKES. (2 WEEKS)
 - AS THE ROADS ARE BEING PLACED ON GRADE, INSTALL STORM DRAIN WATER AND SEWER LINES WHEN POSSIBLE WITH THE APPROPRIATE INLET BLOCKING AS SHOWN ON THESE PLANS. PROVIDE BERMS AS INDICATED TO DIRECT RUNOFF TO INLETS AND CURB CUTS WHERE REQUIRED TO ALLOW RUNOFF TO ESCAPE ROADWAYS AND ENTER THE SEDIMENT TREATMENT DEVICES AS INTENDED. THE CONTRACTOR IS TO INSTALL EARTH BERMS INITIALLY, AND THEN CONVERT TO ASPHALT BERMS AS DIRECTED BY THE INSPECTOR. (2 MONTHS)
 - STABILIZE DISTURBED AREA IN ACCORDANCE WITH THE PERMANENT SEEDING SPECIFICATIONS. (1 WEEK)
 - ONCE THE CONSTRUCTION OF THE ROADWAYS IS COMPLETE, REMOVE THE ASPHALT BERMS AND FILL IN THE CURB CUTS. ALSO REMOVE THE INLET BLOCKING FOR THE INLETS WITHIN THE ROAD RIGHT-OF-WAY, AND FLUSH THE STORM DRAIN SYSTEM. (1 WEEK)

NOTE: FOR THE REMAINING GRADING OPERATIONS IT IS ASSUMED THAT ALL OF THE INITIAL GRADING SHOWN ON SHEET 7 AND THE MASS GRADING ON SDP 16-075 HAS TAKEN PLACE. IF IN THE EVENT ALL OF THAT WORK HAS NOT BEEN FINISHED, THE FOLLOWING ITEMS CAN BE DONE CONCURRENT WITH THE COMPLETION OF THAT WORK.

- FINAL GRADING - STAGE 1**
- INSTALL THE SUPER SILT FENCE, CLEAN WATER DIVERSION DIKES #9 AND #10, EARTH DIKE #9, AND THE PUMP AROUND DEVICES. THE CLEAN WATER DIVERSION DIKES AND EARTH DIKES ARE TO BE CONSTRUCTED BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL. (2 WEEKS)
 - BEGIN GRADING THE AREA SOUTH OF FUTURE MANGO TREE ROAD AND THE ACCESS DOWN TO THE WORK AREA FOR THE CONSTRUCTION OF THE CULVERT. (2 WEEKS)
 - INSTALL THE 12" RCCP CULVERT AND HEADWALLS HW-1 AND HW-2. (1 MONTH)
- FINAL GRADING - STAGE 2**
- INSTALL T605 #3 AND T505 #4, #5, AND #6. INSTALL THE EARTH DIKES DIRECTING RUNOFF TO THESE STRUCTURES BEGINNING AT THE DOWNSTREAM END AND WORKING UPHILL. (2 WEEKS)
 - WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN PLACING THE FILL. AS THE FILL IS BEING PLACED, T605#2, CONSTRUCTED WITH THE INITIAL GRADING WILL BE BACKFILLED. (1 MONTH)
 - STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES. (1 WEEK)
 - AS CONTRIBUTING AREAS ARE STABILIZED AND PERMISSION HAS BEEN GRANTED BY THE SEDIMENT CONTROL INSPECTOR, CONTRACTOR IS TO REMOVE THE REMAINING SEDIMENT CONTROL DEVICES AND IMMEDIATELY STABILIZE ANY AREAS THAT ARE DISTURBED AS A RESULT. (1 WEEK)



THE PURPOSE OF THIS SHEET IS TO REVISE THE SEQUENCE OF CONSTRUCTION TO INCLUDE THE EXTENSION OF SYMPHONY WOODS ROAD TO THE SOUTH. IT SUPERCEDES THE APPROVED PLAN SIGNED 5-15-2017.

THIS PLAN IS FOR SEDIMENT CONTROL PURPOSES ONLY

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DATE	REVISION	BY	APP'R.

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 12975
 EXPIRATION DATE: MAY 26, 2018

4/2/18

REVISED SEDIMENT CONTROL DRAINAGE AREA MAP

**DOWNTOWN COLUMBIA
 CRESCENT NEIGHBORHOOD
 NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**

ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	13 OF 27

SEDIMENT CONTROL NOTES

- 1. PRE-CONSTRUCTION PERMITS MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS...
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'...
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, SHALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING...
4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE '2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL'...
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: 8.2 Acres...
7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE...
8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID...
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 WORKDAY...
10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HCD PRIOR TO PROCEEDING WITH CONSTRUCTION...
11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE LOD. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MINIMUM AVERAGE OF 20 AC, PER GRADING UNIT) AT A TIME...
12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS OR OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR AN APPROVED WASHOUT STRUCTURE...
13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE...
14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE REPLICATED AT 25' MINIMUM INTERVALS WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION...
15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE): USE I AND II FROM MARCH 1 - JUNE 15; USE II AND III FROM OCTOBER 1 - APRIL 30; USE IV FROM MARCH 1 - MAY 31...
16. A COPY OF THIS PLAN, THE '2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL' AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION CONSTRUCTION AND MATERIAL SPECIFICATIONS CONT.

- a. Topsoil must be free of plant parts such as bermuda grass, quackgrass, Johnsongrass, reseeded, poison ivy, ticks, or others as specified...
b. Topsoil shall be applied at the rate of 4 to 8 tons/acre (200-400 pounds per 1000 square feet) prior to the placement of topsoil...
III. For sites having disturbed areas under 5 acres:
a. Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
IV. For sites having disturbed areas over 5 acres:
a. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
1. pH for topsoil shall be between 6.0 and 7.5...
2. Organic content of topsoil shall be not less than 15 percent by weight...
3. Topsoil having soluble salt greater than 500 parts per mill shall not be used...
4. No sod or seed shall be placed on soil which has been with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min) to permit dissipation of photo-toxic materials...
Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority may be used in lieu of natural topsoil...
b. Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
V. Topsoil Application
a. When topsoiling, maintain needed erosion and sediment control practices such as diversion, grade stabilization structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins...
b. Grades on the areas to be topsoiled which have been previously established, shall be maintained, about 4" - 6" higher in elevation...
c. Topsoil shall be uniformly distributed in a 4" - 6" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage...
d. Topsoil shall not be placed while the topsoil or subsoil is frozen or muddy condition when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation...
VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
a. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be applied at the rate of 10 tons/acre...
1. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06...
2. Composted sludge shall contain at least 1 percent nitrogen, 15 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0...
3. Composted sludge shall be applied at a rate of 1 ton/1000 square feet...
References: guideline Specifications, Soil Preparation and Sodding, MD-VA Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1/73.

STANDARD AND SPECIFICATIONS FOR TOPSOIL DEFINITION

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

PURPOSE

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

CONDITIONS WHERE PRACTICE APPLIES

This practice is limited to areas having 2:1 or flatter slopes where:

- a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.
e. Areas having slopes steeper than 2:1 require special consideration and design.
f. Topsoil specifications - soil to be used as topsoil must meet the following criteria:
1. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by a agronomist or soil scientist and approved by the appropriate approval authority...
2. Topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/4 inches in diameter.
3. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

I. Topsoil salvaged from the existing site may be used provided that 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 respective soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.

II. Topsoil specifications - soil to be used as topsoil must meet the following:

- a. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by a agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/4" in diameter materials.
b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, johnson grass, nut sedge, poison ivy, ticks, or others as specified.
c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
d. Topsoil Application
1. Erosion and sediment control practices must be maintained when applying topsoil.
2. Uniformly distribute topsoil in a 5 to 6 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading 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.
3. Topsoil shall not be placed if the topsoil or subsoil is in a frozen or muddy condition when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

DUST CONTROL

Controlling dust blowing and movement on construction sites and roads.

PURPOSE

To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

CONDITIONS WHERE PRACTICE APPLIES

This practice is applicable to areas subject to dust blowing and movements where on and off-site damage is likely without treatment.

Specifications

1. Mitches - See standards for vegetative stabilization with mitches only. Mutch should be crimped or tacked to prevent blowing.

2. Vegetative Cover - See standards for temporary vegetative cover.

3. Tillage - To roughen surface and bring clods to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Obsolete plows spaced about 12' apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.

4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.

5. Barriers - Solid board fences, silt fences, barlog fences, straw bales, and similar material can be used to control or curtail soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.

6. Calcium Chloride - Apply at rates that will keep surface moist. May need re-treatment.

Permanent Methods

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.

2. Topsoiling - Covering with less erosive soil materials. See standards for topsoiling.

3. Stone - Cover surface with crushed stone or coarse gravel.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

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

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization
a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 2:1 or flatter one to be tracked with ridges running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization
a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
1. Soil pH between 6.0 and 7.0.
2. Soluble salts less than 500 parts per million (ppm).
3. Soil contains less than 40 percent clay but enough the graded material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: If leewaygrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

b. Soil contains 15 percent minimum organic matter by weight.

c. Soil contains sufficient pore space to permit adequate root penetration.

d. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

e. 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.

f. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

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

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
c. The original soil to be vegetated contains material toxic to plant growth.
d. The soil is so acidic that treatment with limestone is not feasible.
e. Areas having slopes steeper than 2:1 require special consideration and design.
f. Topsoil specifications - soil to be used as topsoil must meet the following criteria:
1. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by a agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1/4 inches in diameter.
2. Topsoil must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 16 percent maximum and water holding capacity of 90 percent minimum.

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

4. 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 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 shall not be placed if the topsoil or subsoil is in a frozen or muddy condition when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

5. Topsoil Application
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8. Topsoil Application
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11. Topsoil Application
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13. Topsoil Application
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c. Topsoil shall not be placed if the topsoil or subsoil is in a frozen or muddy condition when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

17. Topsoil Application
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19. Topsoil Application
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21. Topsoil Application
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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 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 shall not be placed if the topsoil or subsoil is in a frozen or muddy condition when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

23. 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 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.
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24. Topsoil Application
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25. Topsoil Application
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31. Topsoil Application
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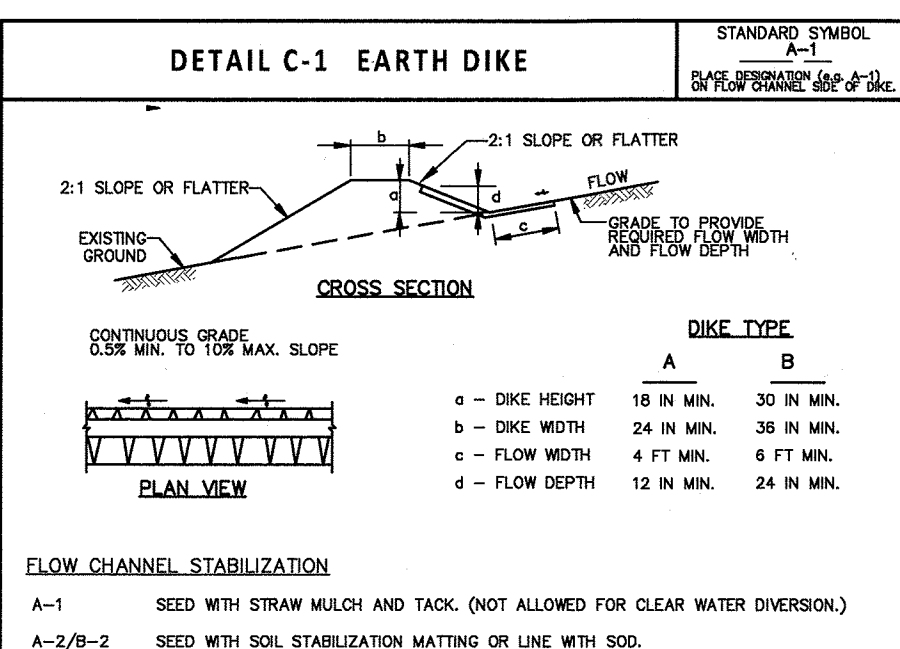
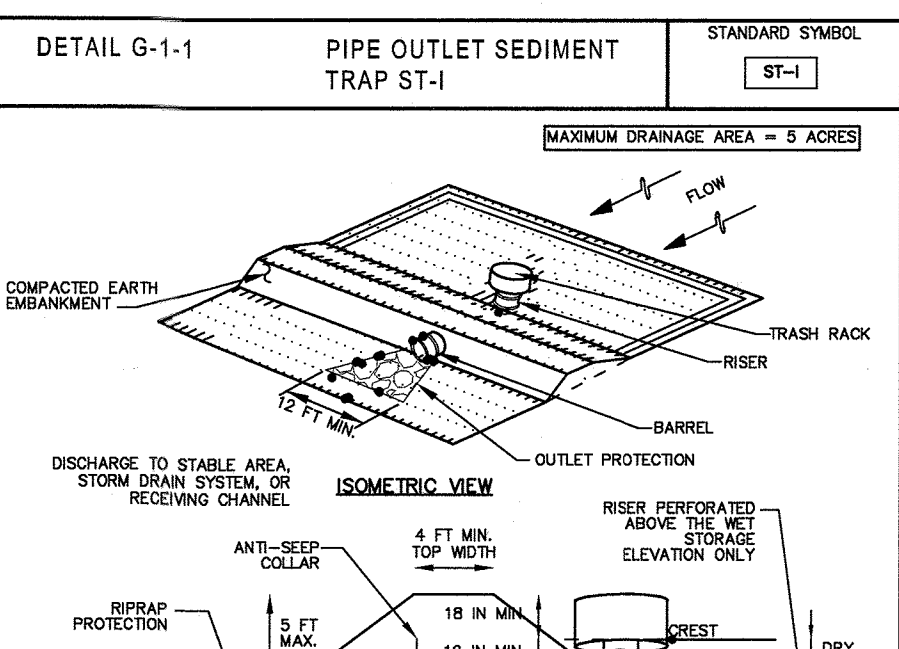
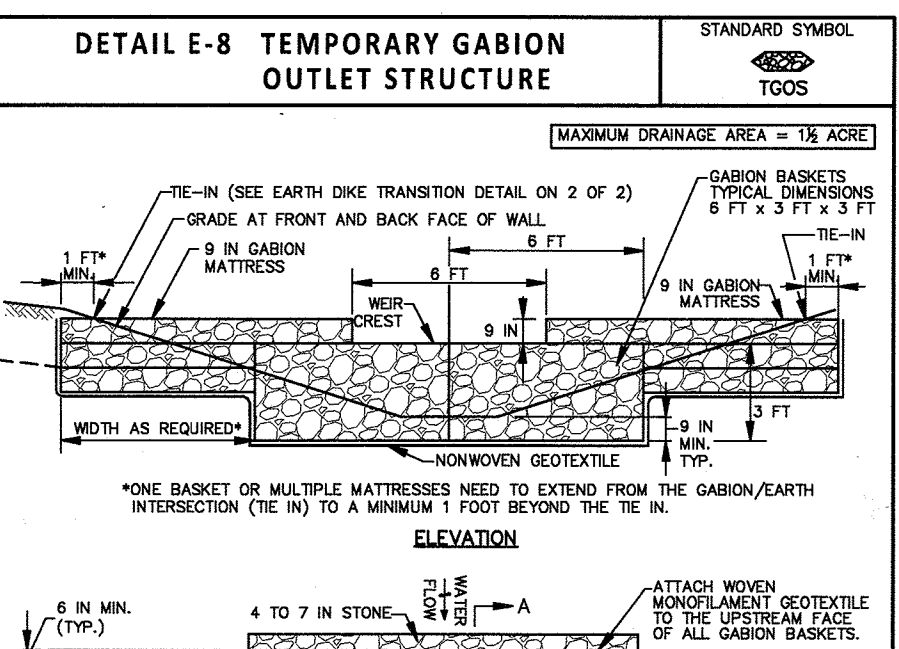
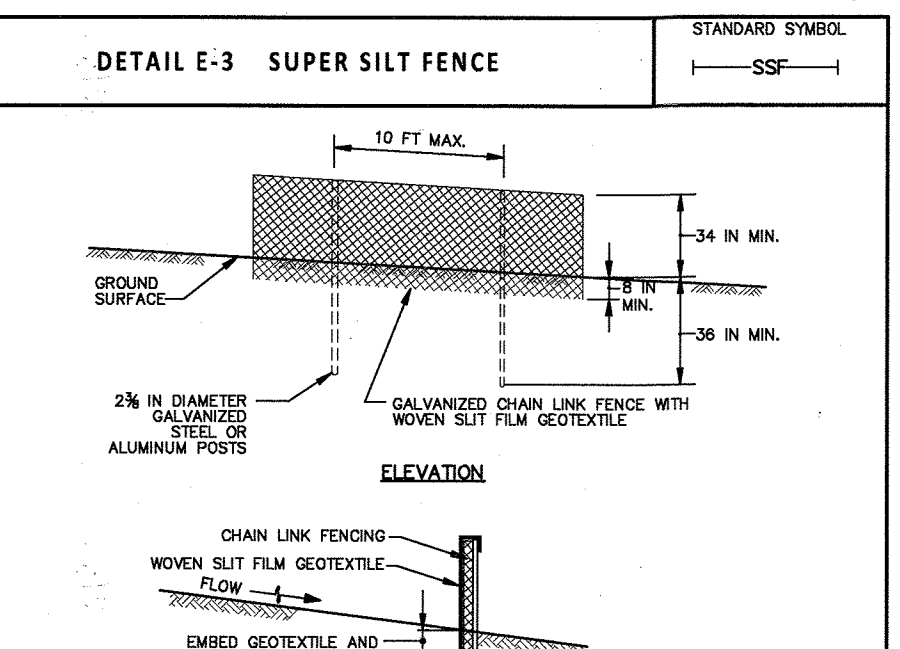
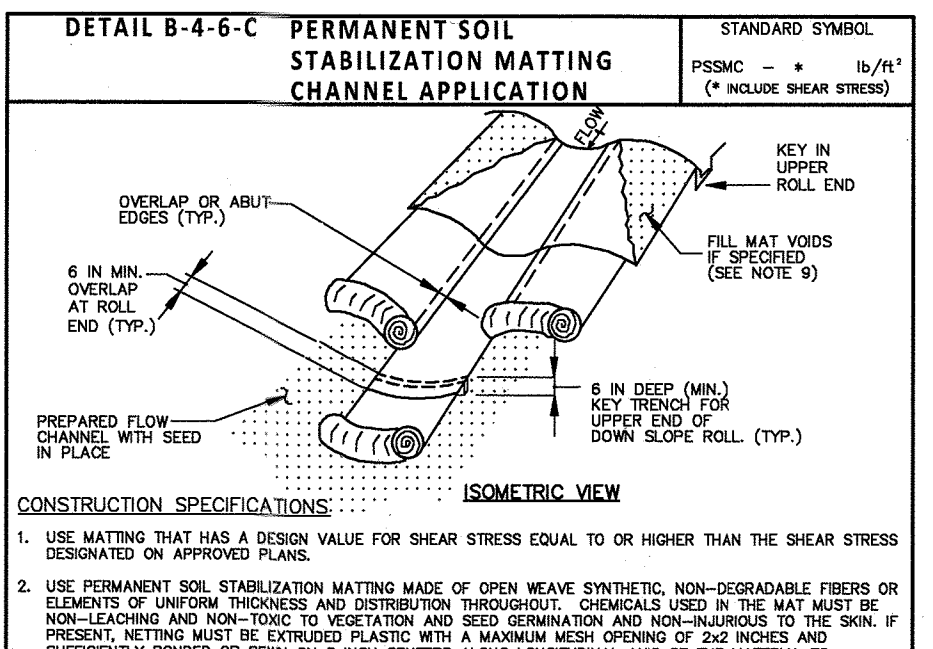
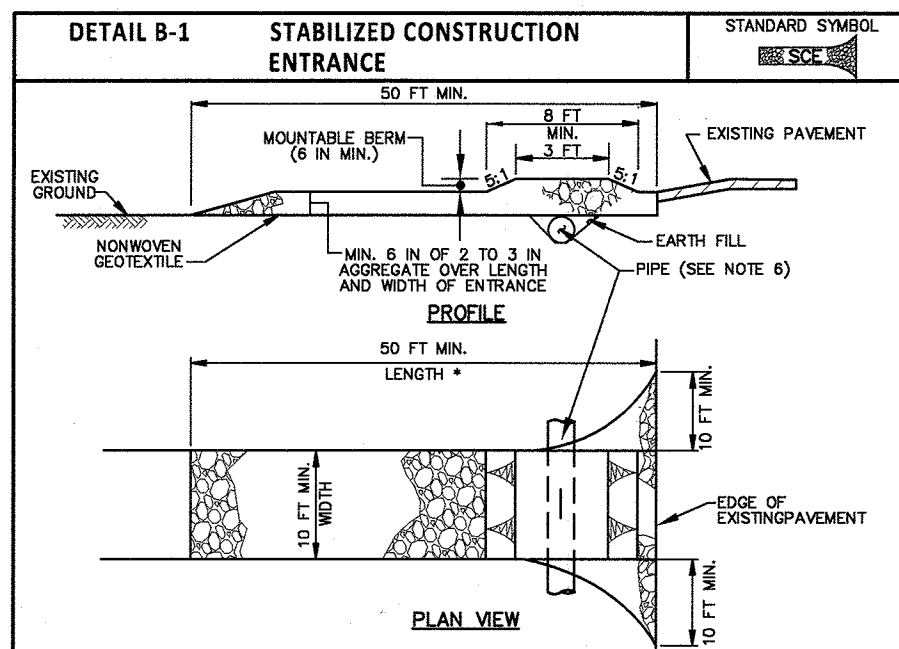
32. Topsoil Application
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36. Topsoil Application
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c. Topsoil shall not be placed if the topsoil or subsoil is in a frozen or muddy condition when the subsoil is excessively wet



CONSTRUCTION SPECIFICATIONS

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

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

U.S. DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, 2011

MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES CONSERVATION SERVICE, 2011

CONSTRUCTION SPECIFICATIONS

- INSTALL 2 1/2 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.063 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (26 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUNG RINGS.
- FASTEN WOVEN SILT FILL GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSIDE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND 12 INCHES AT THE BOTTOM.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEEDING BY PARS.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSTREAM AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- REMOVE MANUFACTURED SEDIMENT TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN SLOPES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 20% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCE AND GEOTEXTILE.

CONSTRUCTION SPECIFICATIONS

- CONSTRUCT TRAP IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE AVOIDED.
- CLEAR GRASS AND STOP ANY VEGETATION AND ROOT MAT FROM THE AREA UNDER THE ENHANCEMENT AND TRAP BOTTOM.
- PERFORATE THE RISER WITH 1/4 INCH DIAMETER HOLES SPACED 8 INCHES ON CENTER WITH THE LATEST AVAILABLE EQUIPMENT. PROVIDE A HORIZONTAL BAR AT THE BOTTOM OF THE TRAP TO PREVENT FLOTTATION. MAKE CONCRETE BASES AT LEAST TWICE THE RISER DIAMETER AND 18 INCHES THICK WITH THE RISER EMBEDDED 9 INCHES.
- USE FILL MATERIAL FREE OF ROOTS, WOODY VEGETATION, OVERIZED STONES, ROCKS, ORGANIC MATERIAL, OR OTHER OBJECTIONABLE MATERIAL FOR THE ENHANCEMENT.
- HAND COMPACT IN 4 INCH LAYERS FILL MATERIAL ABOVE THE PIPE SPILLWAY. PLACE A MINIMUM OF 2 INCHES OF BANK COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
- CONSTRUCT TOP OF ENHANCEMENT 1 FOOT MINIMUM ABOVE RISER CREST. COMPACT THE ENHANCEMENT BY TRAVELING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
- MAKE ALL CUT AND FILL SLOPES 2:1 OR FLATTER.
- WRAP THE RISER WITH 3/8 INCH GALVANIZED HARDWARE CLOTH THEN WRAP WITH NONWOVEN GEOTEXTILE. WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE EXCEPT HARDWARE CLOTH AND GEOTEXTILE AT LEAST 6 INCHES ABOVE THE HIGHEST PERFORATIONS AND AT LEAST 6 INCHES BELOW THE LOWEST PERFORATIONS. OVERLAP, FOLD AND FASTEN WHERE OVERLAP OCCURS TOGETHER TO PREVENT BYPASS. REPLACE GEOTEXTILE AS NECESSARY TO PREVENT CLOGGING.
- ATTACH WOVEN MONITORING GEOTEXTILES TO THE UPSTREAM FACE OF GABION BASKETS AND COVER WITH 4 TO 7 INCH STONE.
- REMOVE SEDIMENT WHEN IT HAS ACCUMULATED TO WITHIN 12 INCHES OF THE WEIR CREST. REPLACE GEOTEXTILE AND STONE FACING WHEN STRUCTURE CEASES TO FUNCTION. MAINTAIN LINE, GRADE, AND CROSS SECTION.
- UPON REMOVAL OF GABION OUTLET STRUCTURE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

CONSTRUCTION SPECIFICATIONS

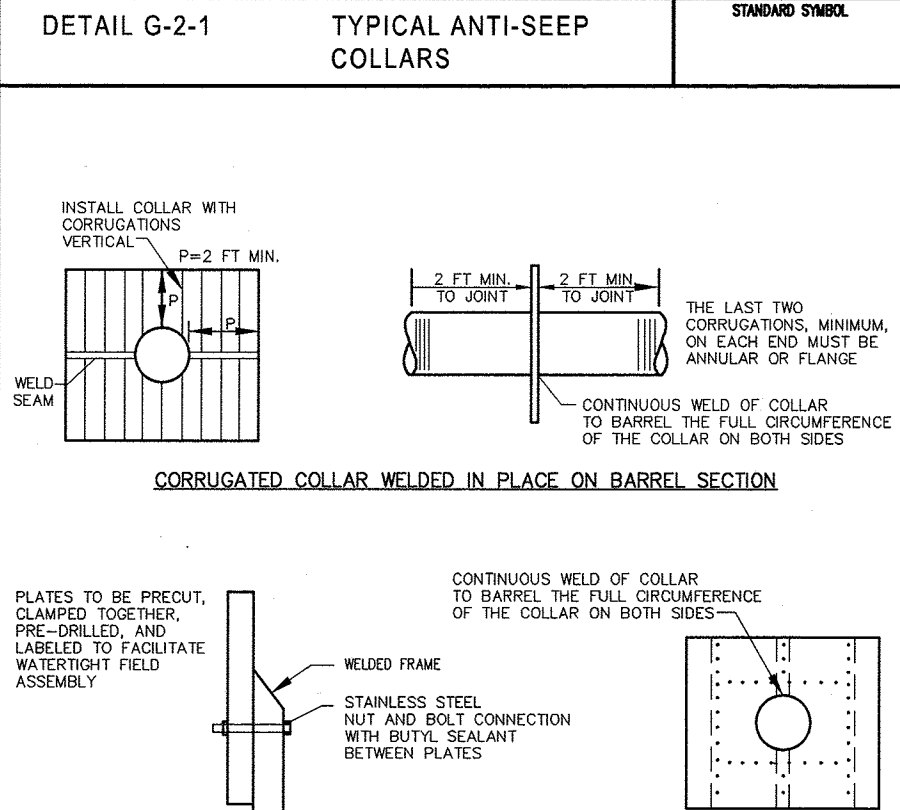
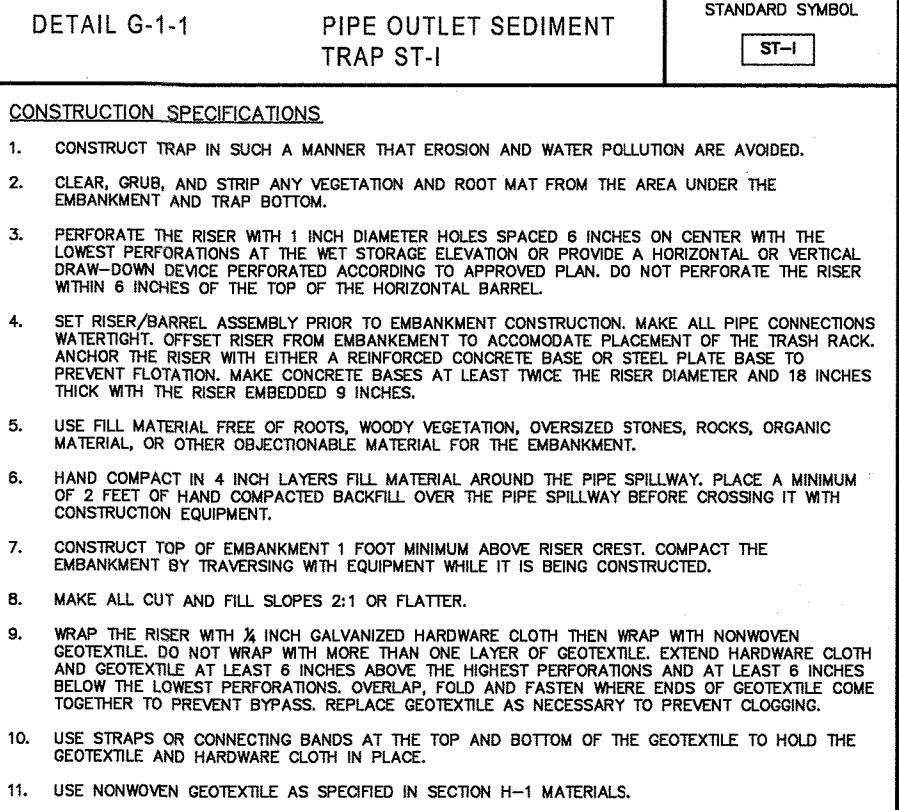
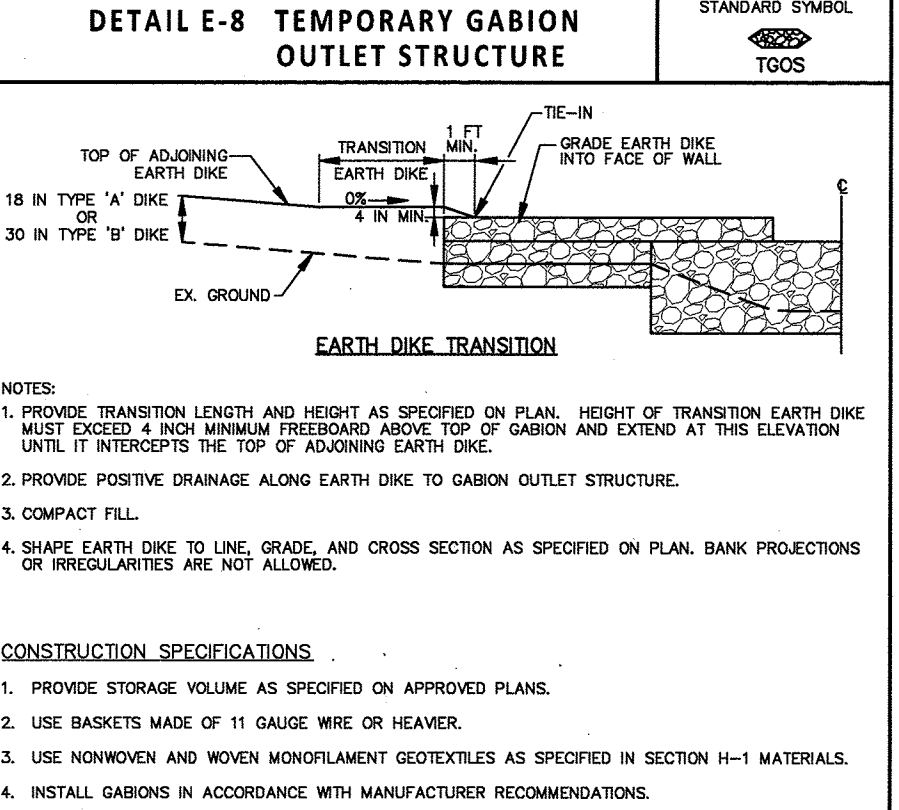
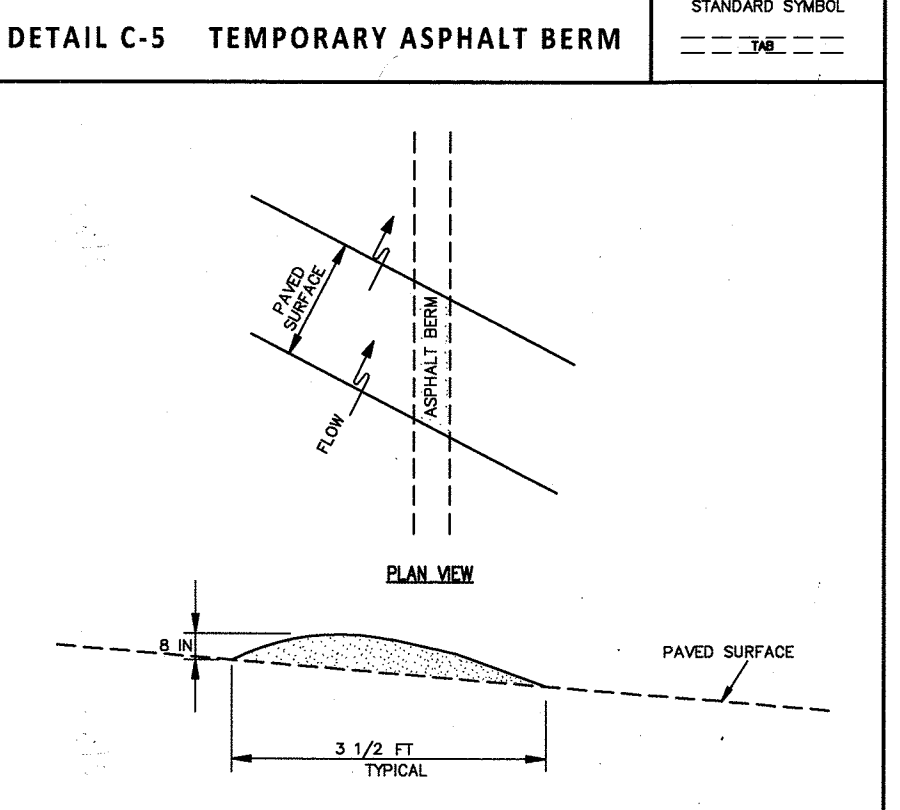
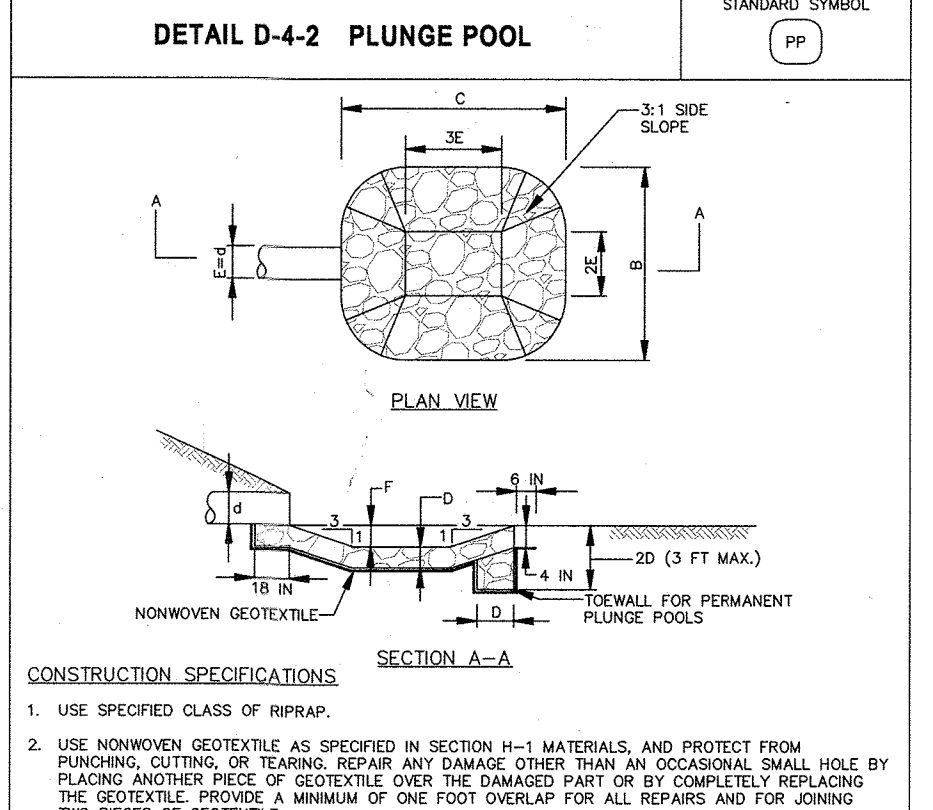
- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL. SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
- EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
- COMPACT FILL.
- CONSTRUCT FLOW CHANNEL ON AN UNINTERFERED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
- PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
- STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
- UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF APPROVED PLAN.

CONSTRUCTION SPECIFICATIONS

- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL. SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
- EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
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- UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF APPROVED PLAN.

PLUNGE POOL DIMENSIONS

END SECTION	TYPE	250	B	C	D	E	3E	2E	F	CLASS
ES-20E	1	159	207	24	267	4	127	8	2	II
ES-22E	1	074	129	8	159	29	119	9	129	I



This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

John R. Blanton 3/22/17
Howard S.C.D. Date

CONSTRUCTION SPECIFICATIONS

- USE SPECIFIED CLASS OF RIPRAP.
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, 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 6 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 THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DEPENDANCE OF UNDERLYING MATERIALS. LEVEL AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE BETWEEN THE LARGER STONES. PLACE THE STONE IN A MANNER TO PREVENT THE GEOTEXTILE FROM BEING PULLED OR TORN.
- 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 EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOADED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

CONSTRUCTION SPECIFICATIONS

- CONSTRUCT BERM ON AN UNINTERFERED, CONTINUOUS GRADE.
- INSTALL BERM TO CONFORM TO CROSS SECTION DIMENSIONS OF A UNIFORM HEIGHT OF 8 INCHES MINIMUM AND APPROXIMATE WIDTH OF 36 FEET.
- PROVIDE OUTLET PROTECTION AS REQUIRED ON PLAN.
- COMPACT ASPHALT BERM.
- REPAIR DAMAGED ASPHALT. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.
- UPON REMOVAL OF ASPHALT BERM, RETURN TO ORIGINAL CONDITIONS OR AS SPECIFIED ON APPROVED PLAN.

CONSTRUCTION SPECIFICATIONS

- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL. SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
- EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
- COMPACT FILL.
- CONSTRUCT FLOW CHANNEL ON AN UNINTERFERED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
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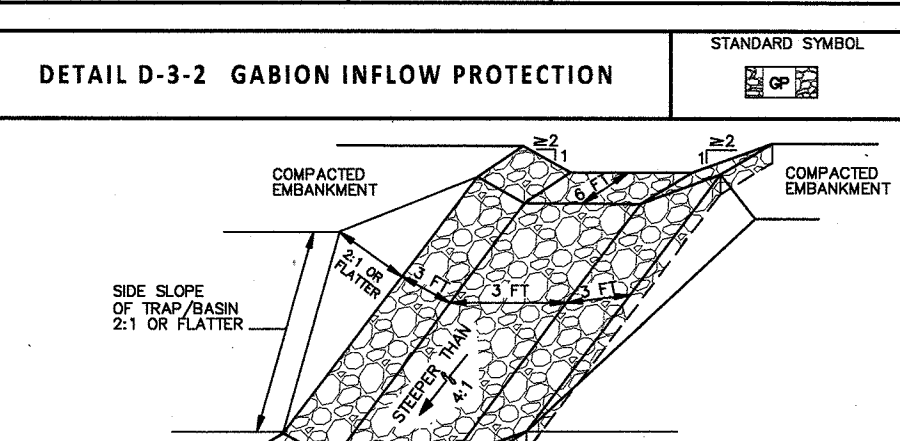
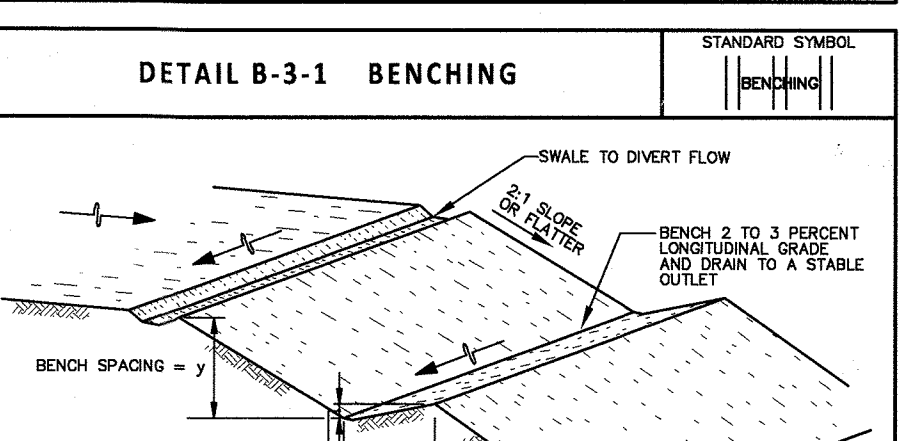
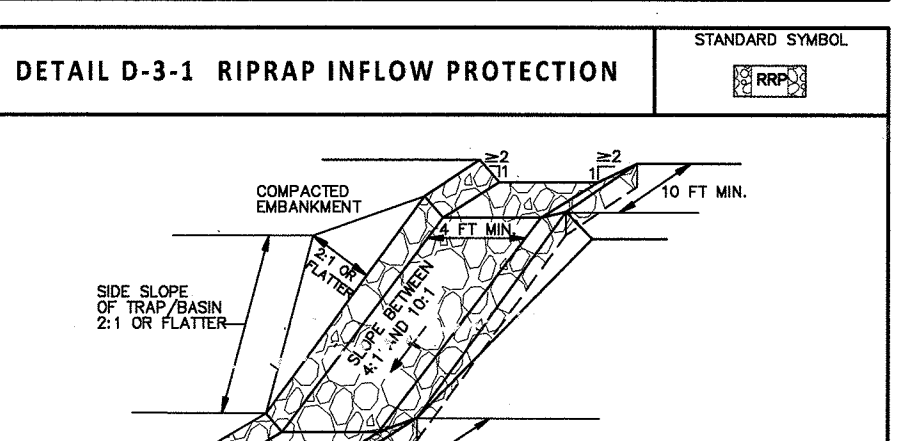
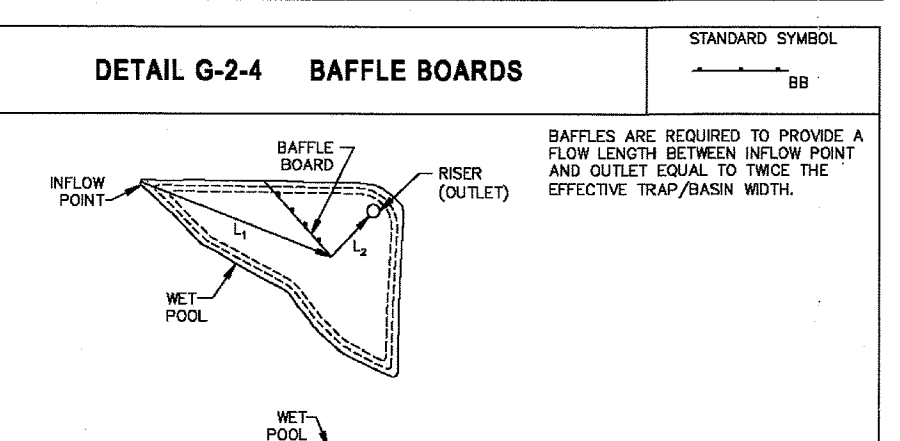
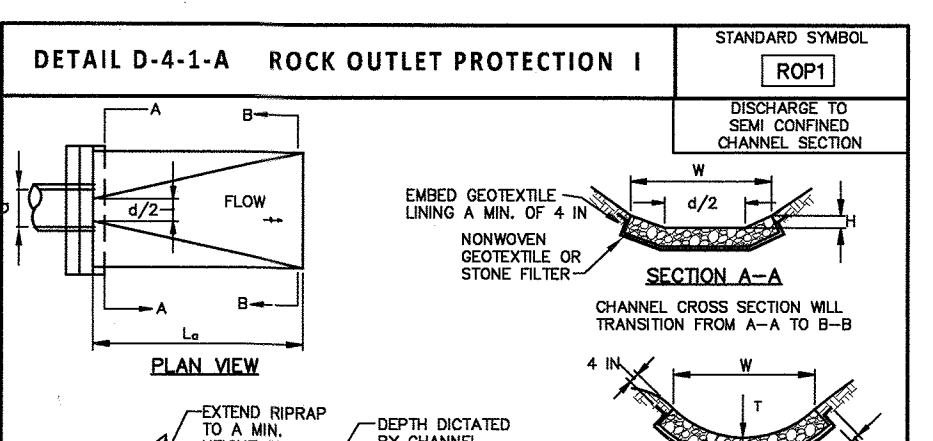
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- COMPACT FILL.
- CONSTRUCT FLOW CHANNEL ON AN UNINTERFERED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
- PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
- STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
- UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF APPROVED PLAN.

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND REASONABLE 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.

John R. Blanton 3/16/17
ENGINEER'S SIGNATURE DATE



DEVELOPER'S/BUILDER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS PLAN OF DEVELOPMENT FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 R. Blanton 3-8-17
SIGNATURE OF DEVELOPER/BUILDER DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
John R. Blanton 4/6/2017
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
John R. Blanton 5-15-17
Chief, Division of Land Development Date

John R. Blanton 4-17-17
Chief, Development Engineering Division Date

CONSTRUCTION SPECIFICATIONS

- RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, 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 GEOTEXTILE OR STONE FILTER (1/2 TO 1/4 INCH FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
- EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
- CONSTRUCT RIPRAP TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DEPENDANCE OF UNDERLYING MATERIALS. LEVEL AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE BETWEEN THE LARGER STONES. PLACE THE STONE IN A MANNER TO PREVENT THE GEOTEXTILE FROM BEING PULLED OR TORN.
- WHEN NONWOVEN GEOTEXTILE IS USED, CONSTRUCT THE UPSTREAM END OF THE RIPRAP SO THAT THE WIDTH IS TWICE THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
- CONSTRUCT RIPRAP WITH SLOPE FLAT TO ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOADED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

CONSTRUCTION SPECIFICATIONS

- CONSTRUCT RIPRAP TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DEPENDANCE OF UNDERLYING MATERIALS. LEVEL AND PLACE THE STONE FOR THE PLUNGE POOL IN A MANNER THAT WILL ENSURE BETWEEN THE LARGER STONES. PLACE THE STONE IN A MANNER TO PREVENT THE GEOTEXTILE FROM BEING PULLED OR TORN.
- WHEN NONWOVEN GEOTEXTILE IS USED, CONSTRUCT THE UPSTREAM END OF THE RIPRAP SO THAT THE WIDTH IS TWICE THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
- CONSTRUCT RIPRAP WITH SLOPE FLAT TO ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLOADED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

CONSTRUCTION SPECIFICATIONS

- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL. SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
- EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
- COMPACT FILL.
- CONSTRUCT FLOW CHANNEL ON AN UNINTERFERED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
- PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
- STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
- MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

CONSTRUCTION SPECIFICATIONS

- USE FILL MATERIAL FREE OF BRUSH, RUBBER, ROCKS, LOOS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
- DO NOT INCORPORATE FROZEN, SOFT, MUCKY, OR HEAVILY COMPRESSIBLE MATERIALS INTO FILL SLOPES OR STRUCTURAL FILLS. DO NOT PLACE FILL ON A PROXIMOUS EROSION AND SEDIMENT CONTROL STRUCTURE.
- PLACE ALL FILL IN LOOSE LIFTS NOT TO EXCEED 8 INCHES AND THEN COMPACT.
- COMPACT ALL FILLS AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, OR OTHER RELATED PROBLEMS. COMPACT FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES, CONDUITS, ETC., IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
- HANDLE SEEPS OR SPRINGS DISCOVERED DURING CONSTRUCTION IN ACCORDANCE WITH SECTION H-2 SUBSURFACE DRAINS OR OTHER APPROVED METHODS.
- MAINTAIN LINE, GRADE, AND CROSS SECTION OF BENCHING. STABILIZE IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION CRITERIA OR AS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. INSTALLATION OF EROSION CONTROL MATTING MAY BE NECESSARY IN BENCH/SWALE INVERTS. CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
- KEEP ALL BENCHES FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.

CONSTRUCTION SPECIFICATIONS

- REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL. SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
- EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
- COMPACT FILL.
- CONSTRUCT FLOW CHANNEL ON AN UNINTERFERED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
- PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
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- MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION.

GLWGUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTNSVILLE OFFICE PARK
BURTNSVILLE, MARYLAND 20866
TEL: 301-421-4024 FAX: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DES. MJT DRN. WSJ CHK. MJT

DATE: _____ REVISION: _____

BY: _____ APPR: _____

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BILL ROWE
410-964-4987

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 15278. EXPIRATION DATE: MAY 26, 2018.

John R. Blanton 3/16/17
Professional Engineer

SEDIMENT CONTROL NOTES AND DETAILS

DOWNTOWN COLUMBIA CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9

ELECTION DISTRICT No. 5

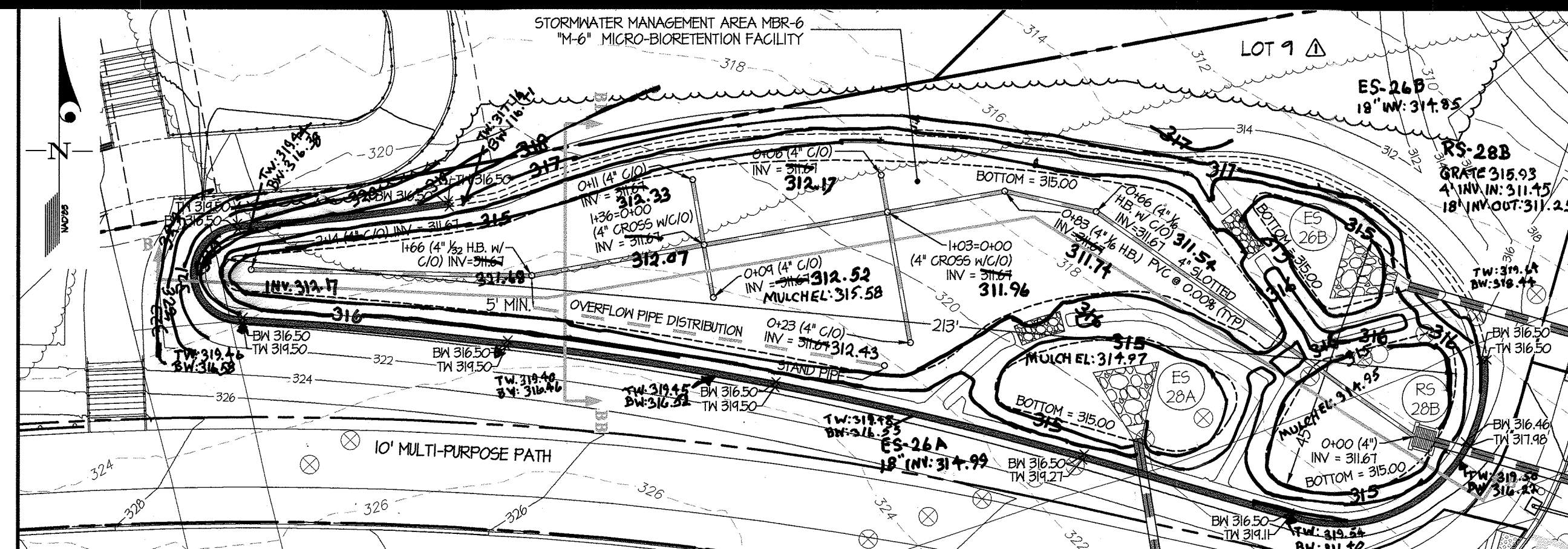
BEST MANAGEMENT PRACTICES
FOR WORKING IN NON-TIDAL WETLAND, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DEleterious SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DEleterious SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NON-TIDAL WETLANDS, NON-TIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NON-TIDAL WETLAND AND NON-TIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:
NATURAL RYE GRASS (LOLIUM MULTIFLORUM)
MILLET (SETARIA ITALICA)
BARLEY (HORDEUM SPECIES)
OATS (SP.)
RYE (SECALE CEREALE)
THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NON-TIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDING AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.
USE 1 WATER: IN-STREAM WORK SHALL BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- 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 INFLOW WATER.

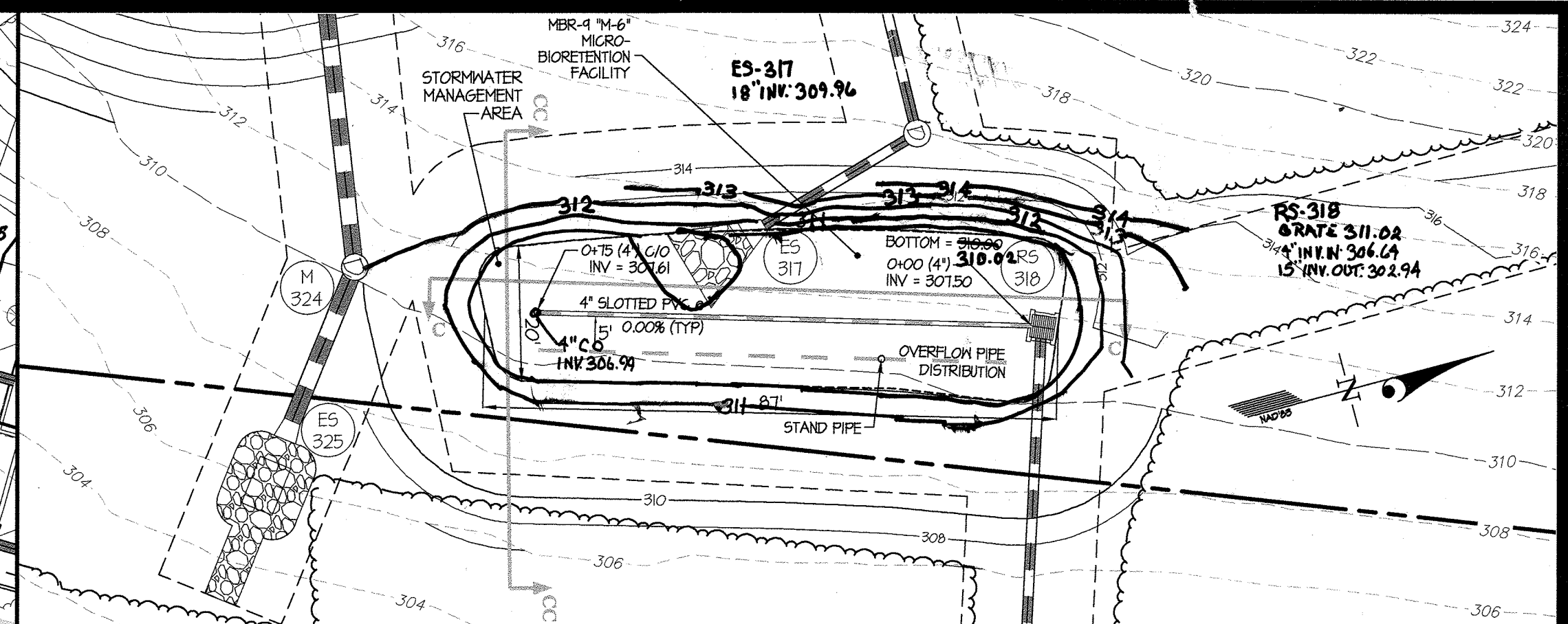
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DATE: MARCH, 2017 TAX MAP - GRID: 36 - 01 SHEET: 15 OF 27

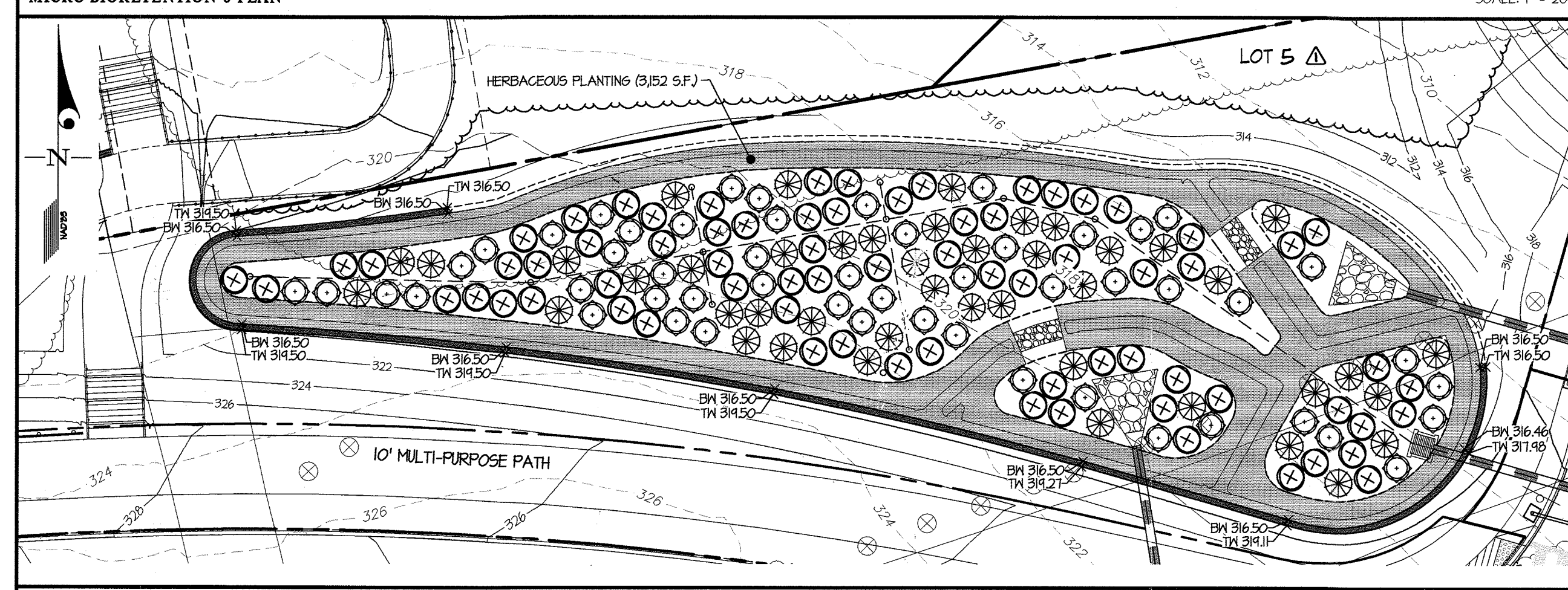
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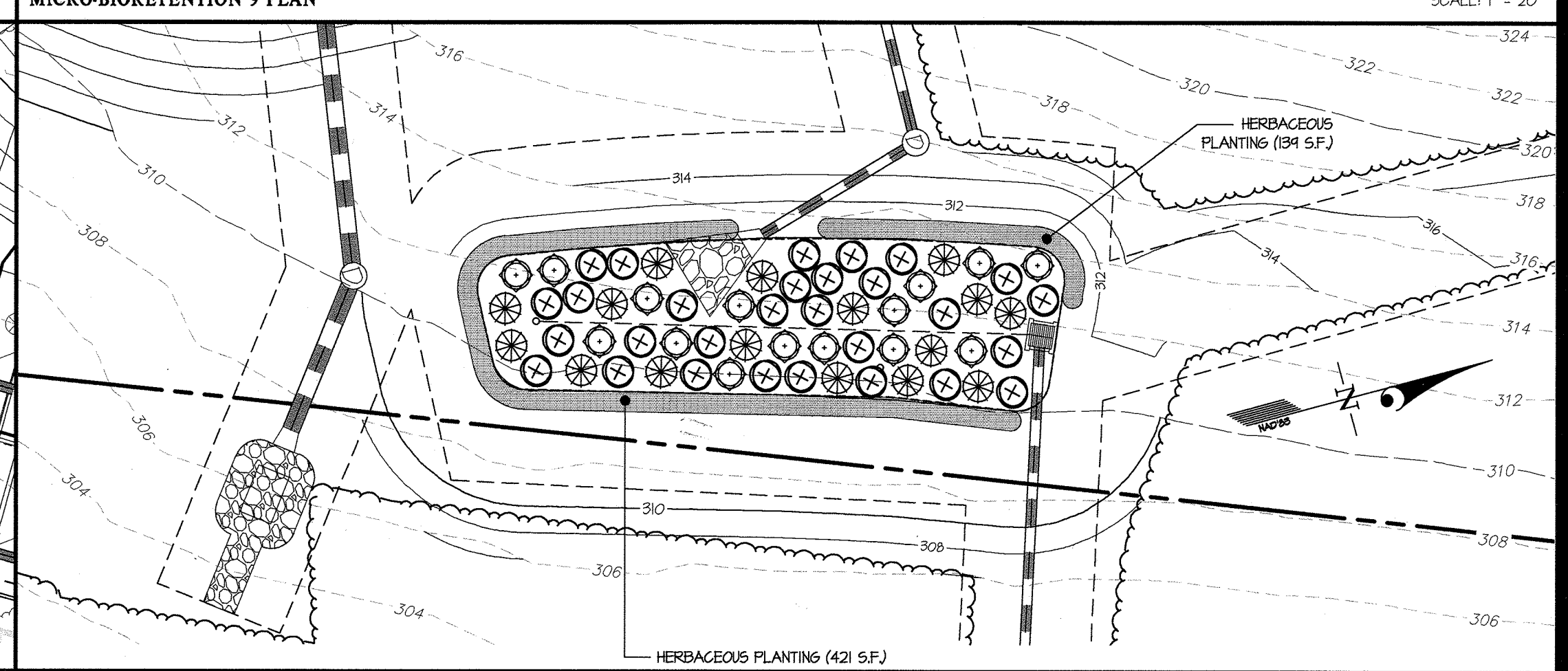
MICRO-BIORETENTION 6 PLAN SCALE: 1" = 20'



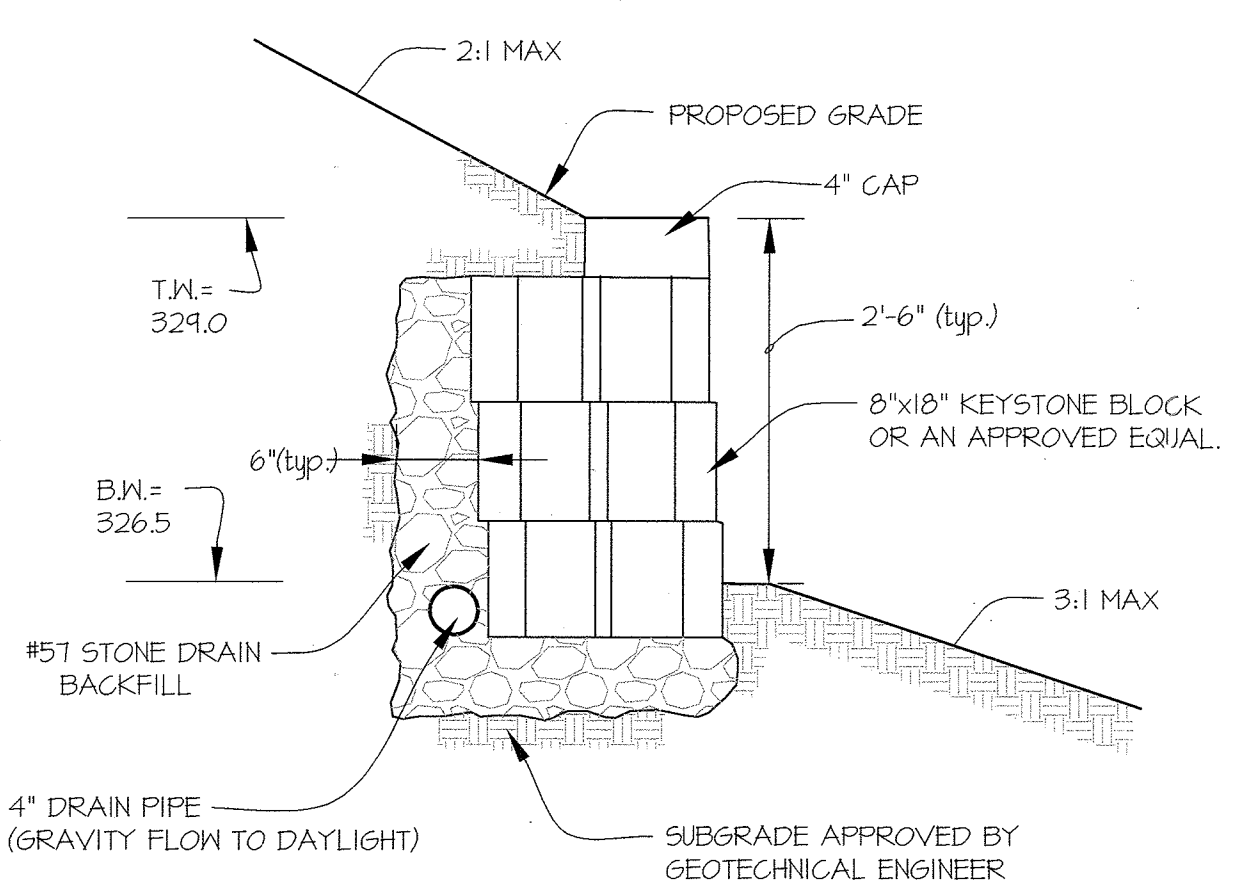
MICRO-BIORETENTION 9 PLAN SCALE: 1" = 20'



MICRO-BIORETENTION 6 LANDSCAPE PLAN SCALE: 1" = 20'



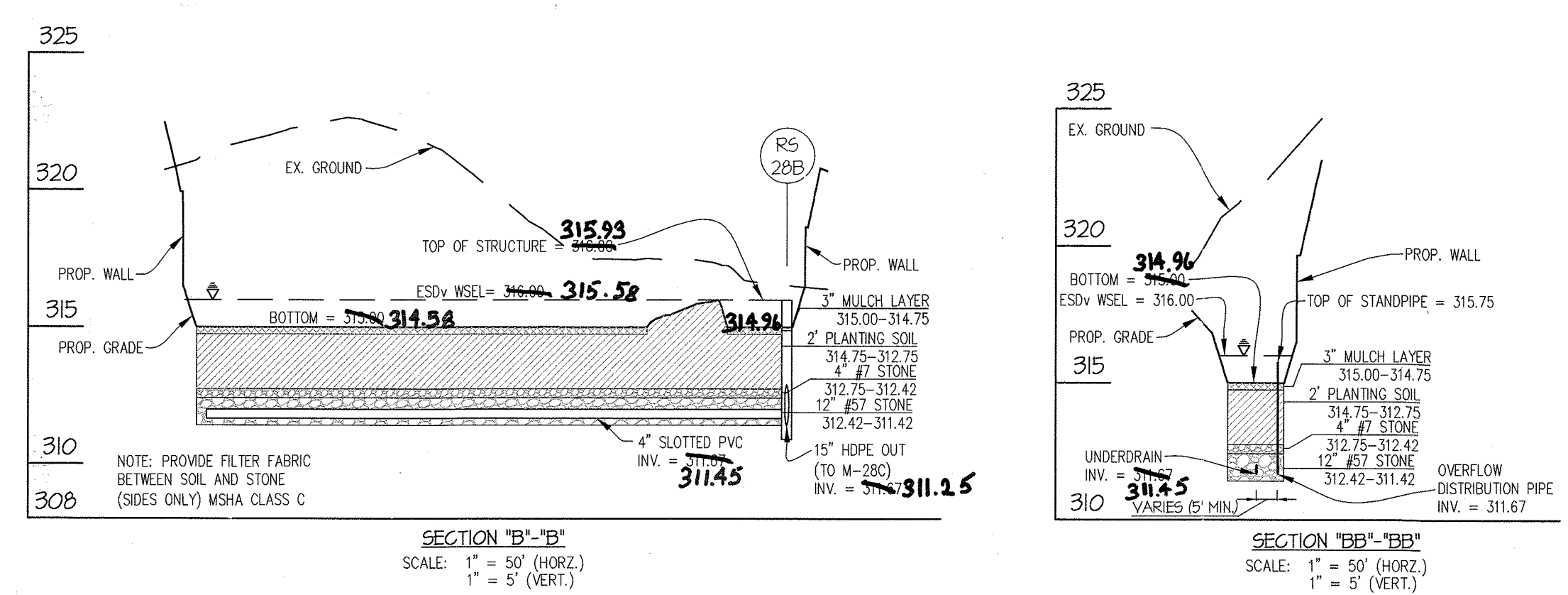
MICRO-BIORETENTION 9 LANDSCAPE PLAN SCALE: 1" = 20'



Note:
Drain system is suitable for wall sites where ground water seepage does not exist. A geotechnical engineer shall evaluate the wall site for groundwater conditions and provide alternative wall drain details as needed.

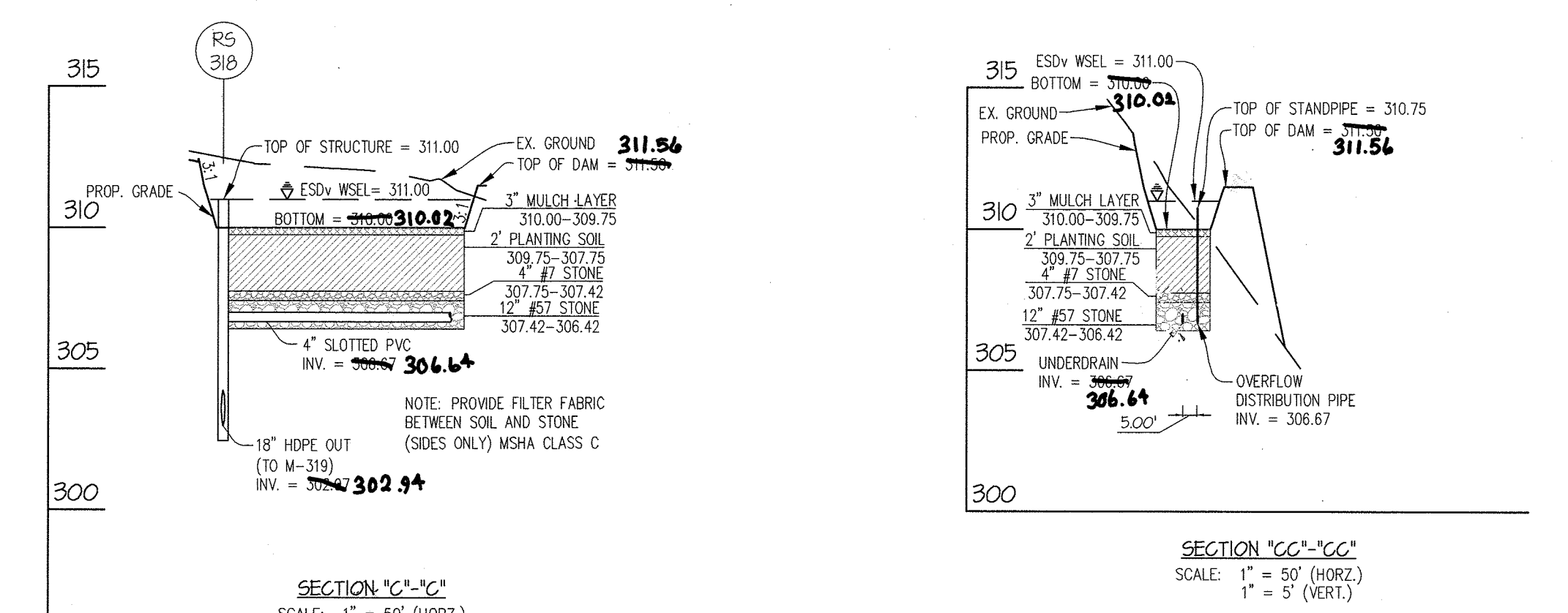
WALL DETAIL NOT TO SCALE

MICRO-BIORETENTION 6 PROFILE
 MER-6 TYPE (PER MDE) MICRO-BIORETENTION SYSTEM (M6)
 NON-HOE 318 FACILITY
 TOTAL DRAINAGE AREA TO FACILITY = 48,506 SF
 STORAGE PROVIDED = 1,125 CU-FT (836.00)
 ESDV PROVIDED = 4,920 CU-FT
 LOW-FLOW OUTFALL: SLOTTED 4" UNDERDRAIN SYSTEM
 BOTTOM OF FACILITY = 315.00
 HIGH-FLOW OUTFALL: RS-28B (5' INLET, TOP = 316.00)



MICRO-BIORETENTION 6 PROFILE SCALE: 1" = 20'

MICRO-BIORETENTION 9 PROFILE
 MBR-4 TYPE (PER MDE) MICRO-BIORETENTION SYSTEM (M6)
 NON-HOE 318 FACILITY
 TOTAL DRAINAGE AREA TO FACILITY = 48,506 SF
 STORAGE PROVIDED = 2,281 CU-FT (831.00)
 ESDV PROVIDED = 1,915 CU-FT
 LOW-FLOW OUTFALL: SLOTTED 4" UNDERDRAIN SYSTEM
 BOTTOM OF FACILITY = 310.00
 HIGH-FLOW OUTFALL: RS-318 (5' INLET, TOP = 311.00)



MICRO-BIORETENTION 9 PROFILE SCALE: 1" = 20'

NOTES:
 1) SEE SHEET #4 FOR SHRUB DETAILS
 2) SPECIES MAY VARY DEPENDING ON AVAILABILITY AT THE TIME OF CONSTRUCTION.
 3) TREES AND SHRUBS TO BE PLANTED AT LEAST 15 FEET AWAY FROM RETAINING WALL.

SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS				
⊙	67	LINDREA BENZONI / SPICEBUSH	18"-24" SPR.	CONTAINER
⊙	101	CORNUS SERICEA 'RUBY' / RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
⊙	60	ITEA VIRGINICA 'HENRY'S GARNET' / VIRGINIA SWEETSPICE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
⊙	3,291 SF	CONTRACTOR TO CHOOSE HERBACEOUS PLANTING FROM: -HER-ROG-ALLIS 'STRAWBERRY CANDY' DAYLILY -HER-ROG-ALLIS 'JOAN SENIOR' DAYLILY -KALINA ANGIUSTIFOLIA/SHEEP LAUREL -BLECHARRIS OVATA/CENTAURIN/ SPIKE RUSH	10" O.C.	CONTAINER

SIZE (INCHES)	TYPE	QUANTITY (L.F.)	REMARKS
4	SLOTTED PVC	338	SCHEDULE 40
4	SLOTTED PVC	181	OVERFLOW DISTRIBUTION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 5.15.17

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 5.15.17
 Chief, Development Engineering Division
 Date: 4.17.17

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

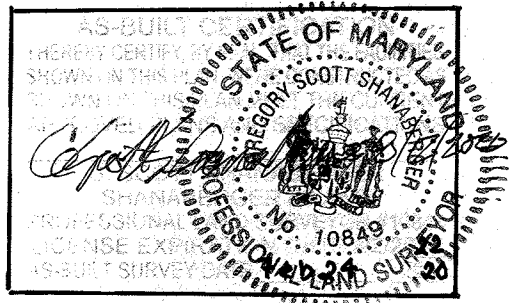
DATE	REVISION	BY	APP'R.
11.20.17	Revised Lot number	3+	DEV

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

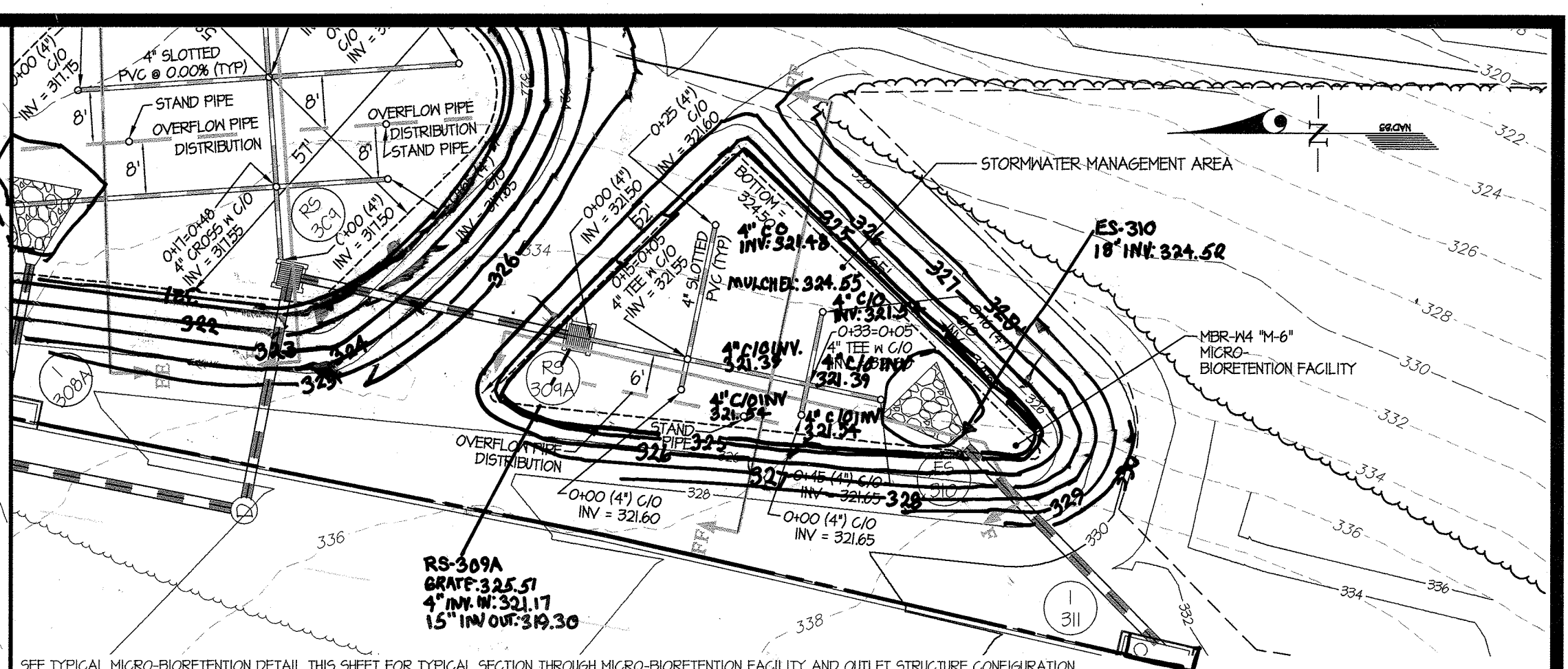
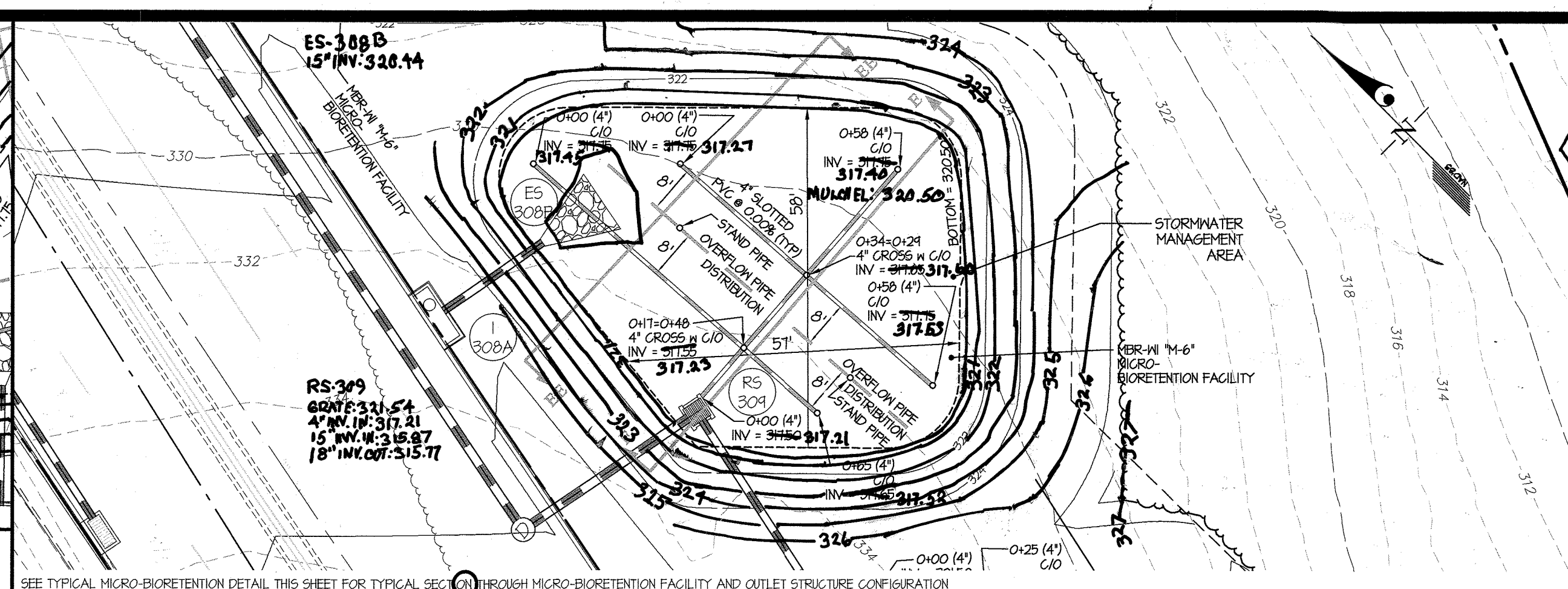
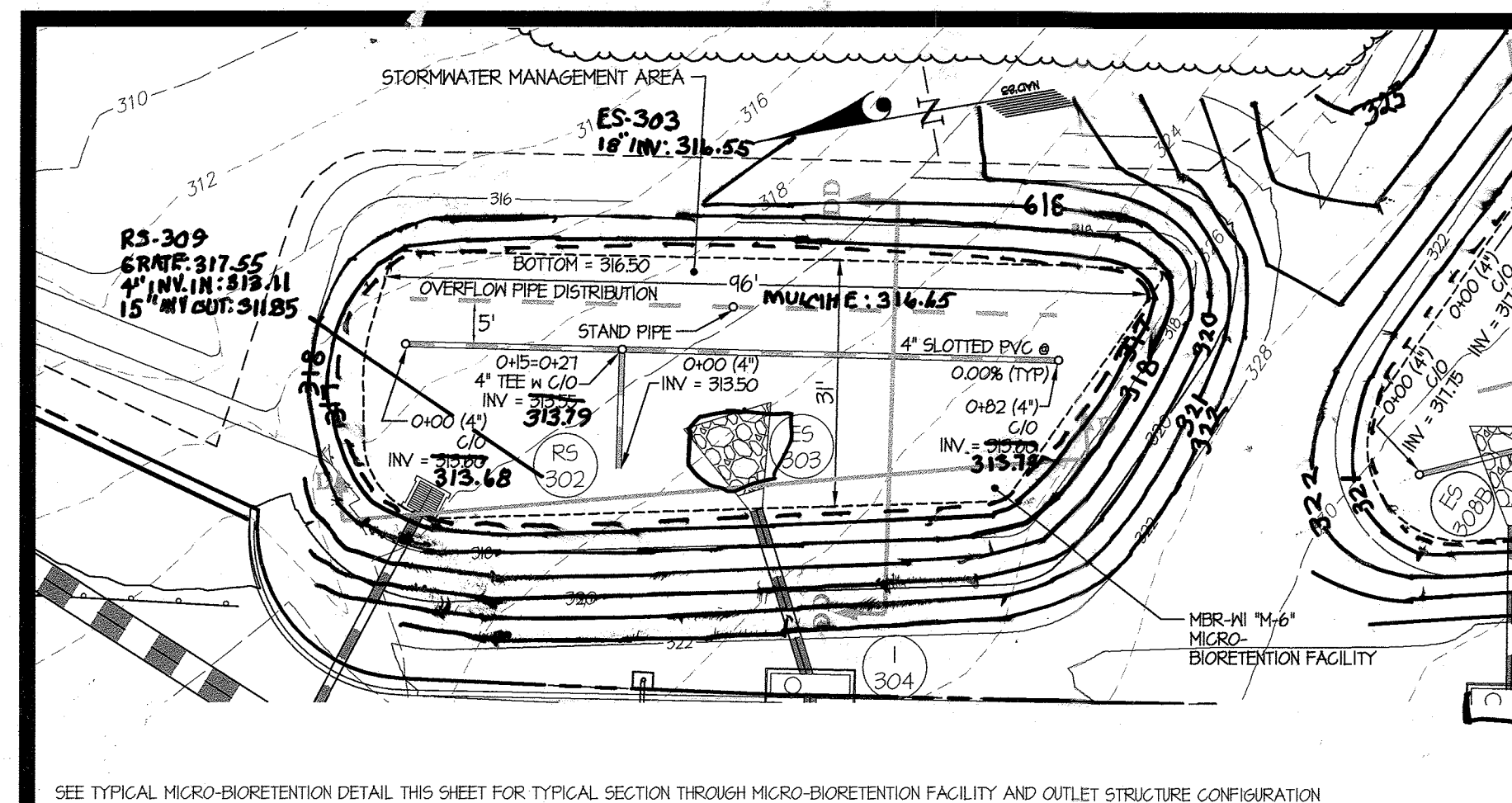
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975
 EXPIRATION DATE: MAY 26, 2018
 3/17/17

ESD DETAILS
**DOWNTOWN COLUMBIA
 CRESCENT NEIGHBORHOOD
 NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**
 ELECTION DISTRICT No. 5
 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	17 OF 27



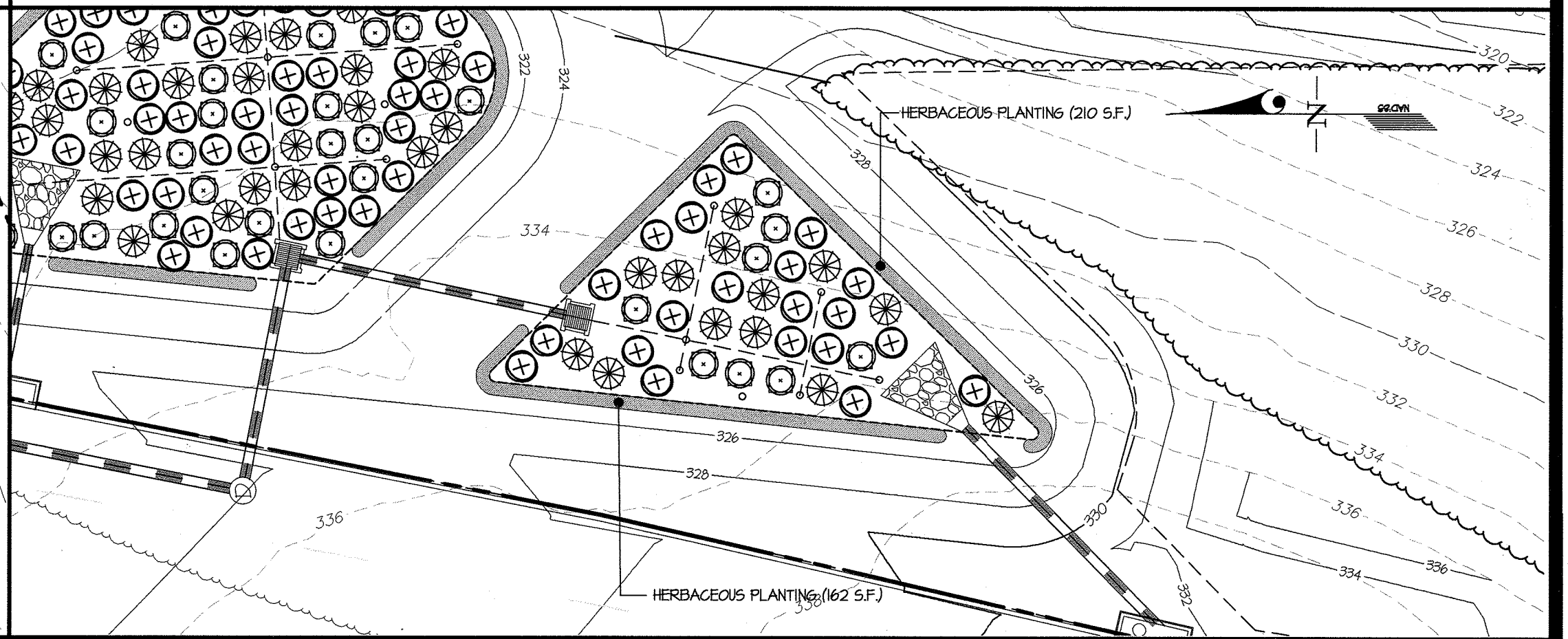
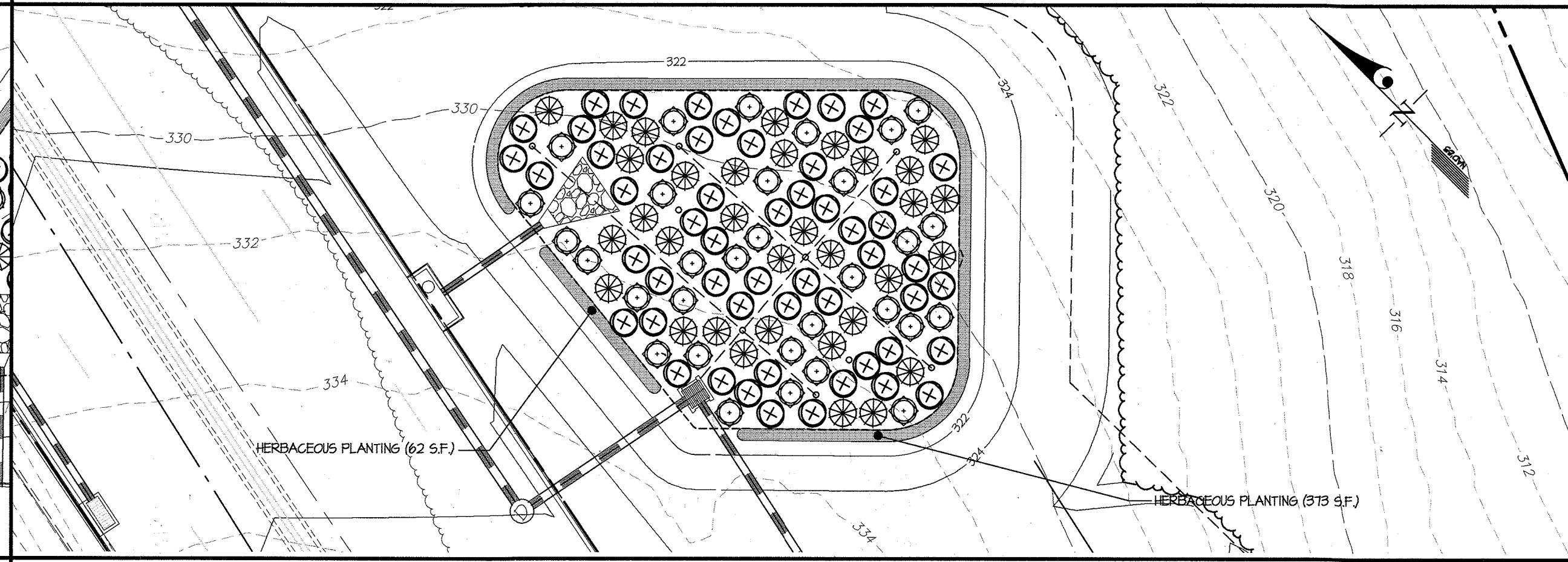
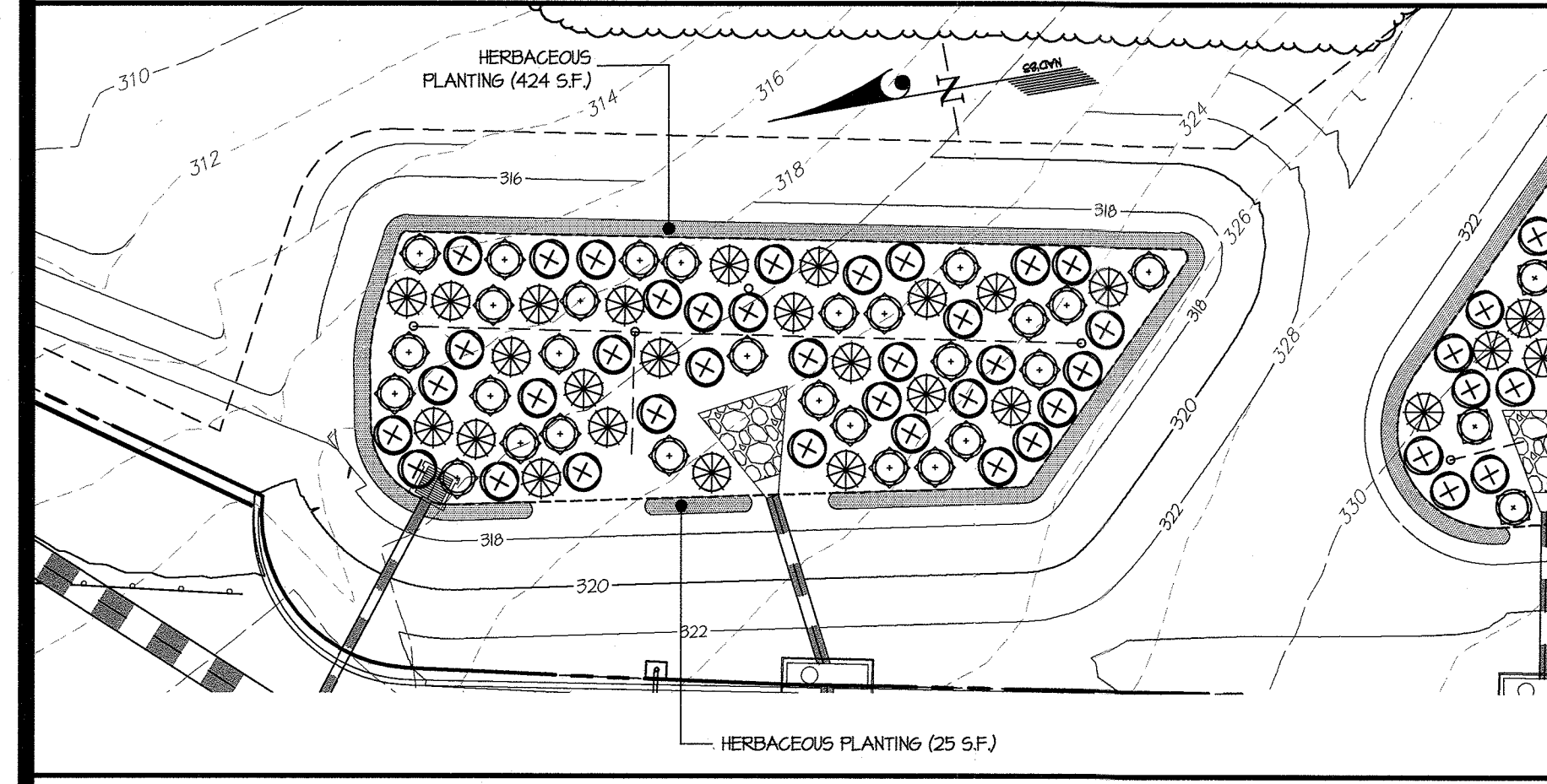
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 2. 11/20/17/17 BY GUY FINEAS/PHASE 2/PHASE 2A/11/17/17-17-19 - SWM, ESD, Notes & Details.dwg
 3. 11/20/17/17 BY GUY FINEAS/PHASE 2/PHASE 2A/11/17/17-17-19 - SWM, ESD, Notes & Details.dwg



MICRO-BIORETENTMENT W1 PLAN SCALE: 1" = 20'

MICRO-BIORETENTMENT W3 PLAN SCALE: 1" = 20'

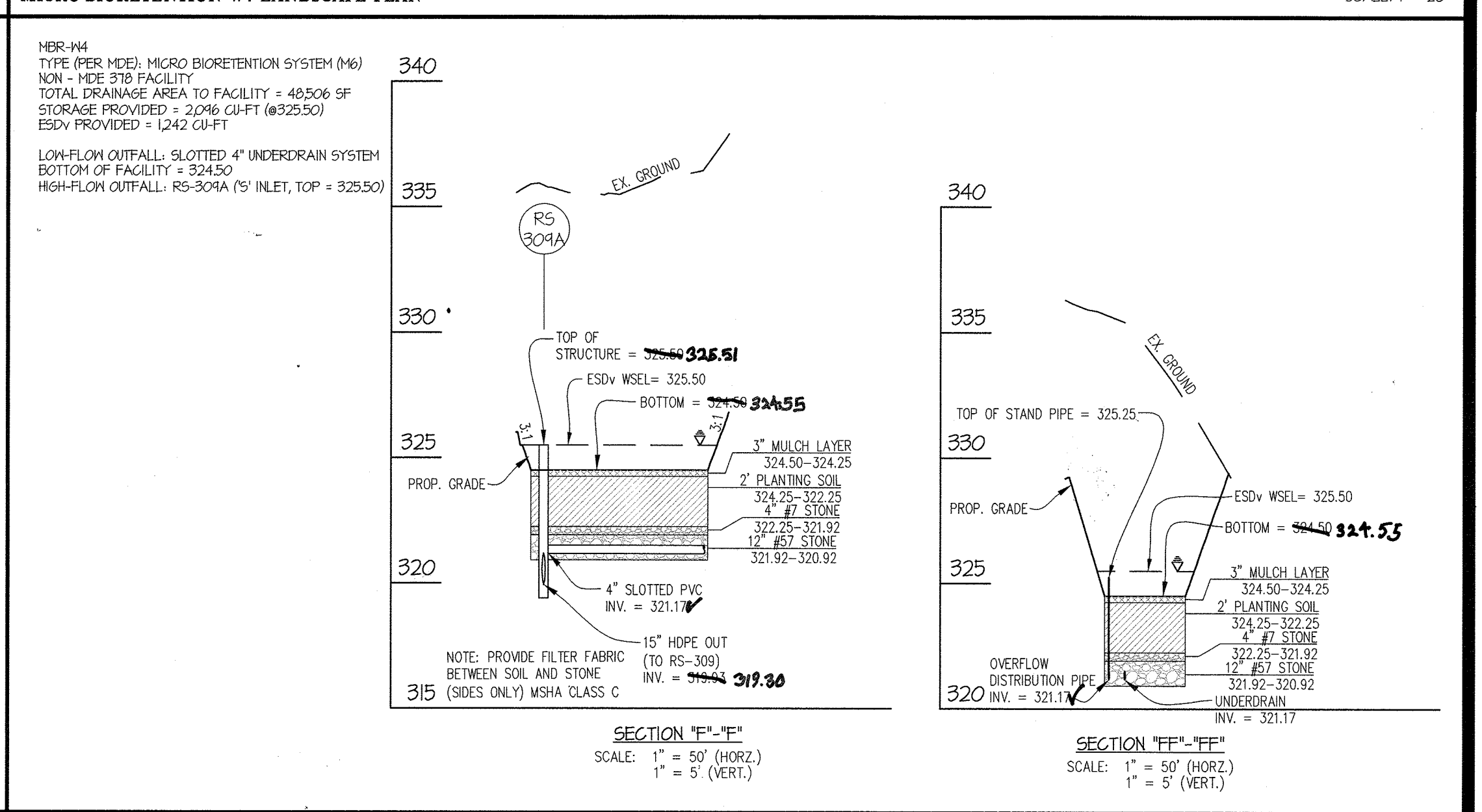
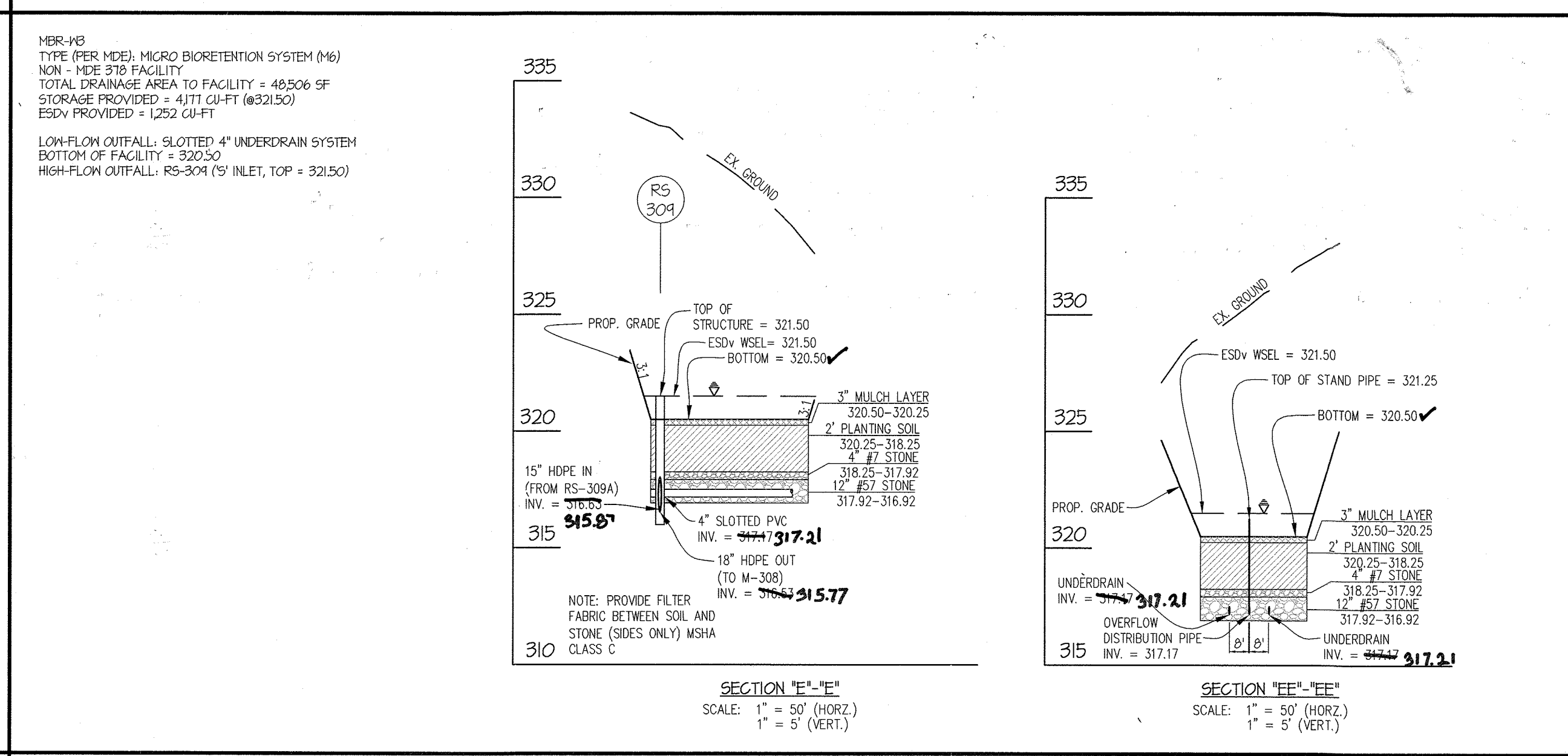
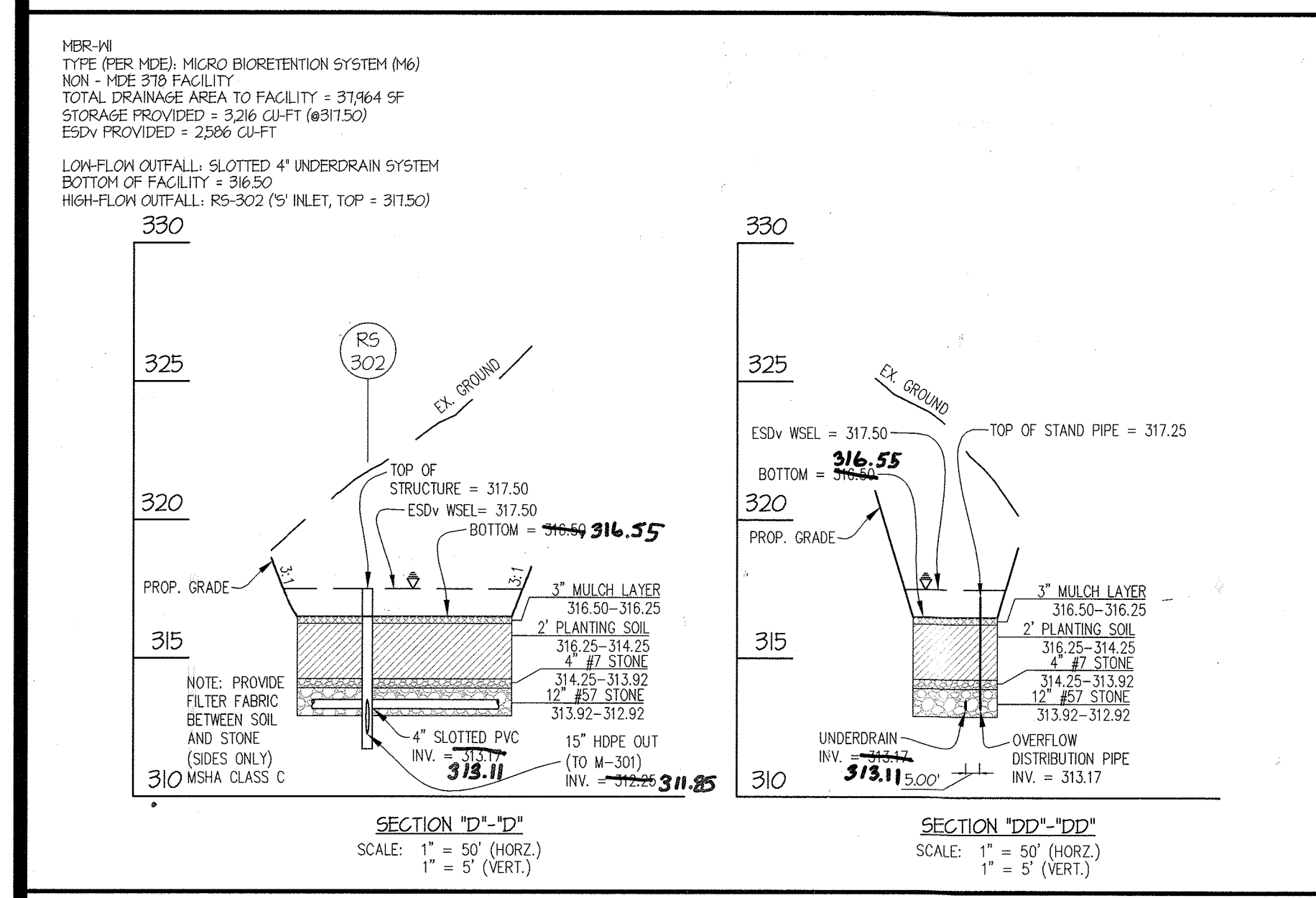
MICRO-BIORETENTMENT W4 PLAN SCALE: 1" = 20'



MICRO-BIORETENTMENT W1 LANDSCAPE PLAN SCALE: 1" = 20'

MICRO-BIORETENTMENT W3 LANDSCAPE PLAN SCALE: 1" = 20'

MICRO-BIORETENTMENT W4 LANDSCAPE PLAN SCALE: 1" = 20'



MICRO-BIORETENTMENT W1 PROFILE SCALE: AS SHOWN

MICRO-BIORETENTMENT W3 PROFILE SCALE: AS SHOWN

MICRO-BIORETENTMENT W4 PROFILE SCALE: AS SHOWN

NOTES:
 1) SEE SHEET M FOR SHRUB DETAILS
 2) SPECIES MAY VARY DEPENDING ON AVAILABILITY AT THE TIME OF CONSTRUCTION.
 3) TREES AND SHRUBS TO BE PLANTED AT LEAST 15 FEET AWAY FROM RETAINING WALL.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 4/10/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 5-15-17

Chief, Development Engineering Division
 Date: 4-17-17

MICRO-BIORETENTMENT PLANT LIST				
SYMBOL	QTY.	NAMES (BOTANICAL / SCIENTIFIC)	SIZE	ROOT/COMMENTS
SHRUBS *				
67	67	LINDIRA BENZONI SPICEBUSH	18"-24" SPR.	CONTAINER
109	109	CORNUS SERICEA 'RUBY' RUBY RED OSIER DOGWOOD	18"-24" SPR.	CONTAINER
66	66	ITEA VIRGINICA 'HENRY'S GARNET' VIRGINIA SNEETSPIRE	18"-24" SPR.	CONTAINER
HERBACEOUS *				
1256	1256	CONTRACTOR TO CHOOSE HERBACEOUS PLANTING FROM: -HERBEROCALLIS 'STRAWBERRY CANDY' DAYLILY -HERBEROCALLIS 'JOAN SENIOR' DAYLILY -CALMA ANSUTIFOLIASHREEP LAUREL -ELEGANCIAS OVATA GETSUNBELUNT SPIKE RUSH	18" O.G.	CONTAINER

S.D. PIPE SUMMARY TABLE PRIVATELY OWNED AND MAINTAINED			
SIZE (INCHES)	TYPE	QUANTITY (L.F.)	REMARKS
4	SLOTTED PVC	364	SCHEDULE 40
4	SLOTTED PVC	184	OVERFLOW DISTRIBUTION

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS 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. 12975
 EXPIRATION DATE: MAY 26, 2018
 [Signature]

ESD NOTES AND DETAILS

**DOWNTOWN COLUMBIA
 CRESCENT NEIGHBORHOOD
 NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**

HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRD	SHEET
MARCH, 2017	36-01	18 OF 27

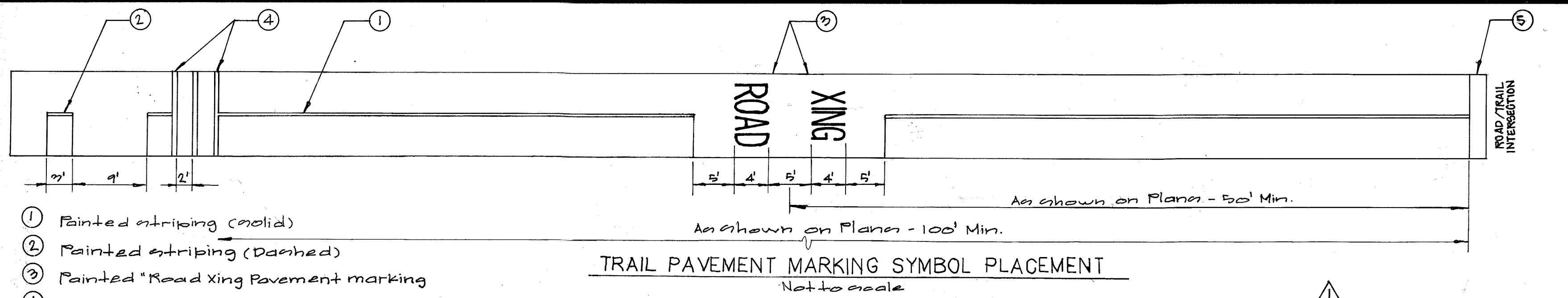
GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 FAX: 301-421-4186

DATE	REVISION	BY	APP'R

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 [Signature]

ELECTION DISTRICT No. 5

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 [Signature]



- ① Painted striping (solid)
- ② Painted striping (Dashed)
- ③ Painted "Road Xing" Pavement marking
- ④ (3) Rumble strips 20" on center.
- ⑤ 12" stop Bar (Inc. "stop marking depending on traffic control).

- SIGN NOTES**
- APPLICABLE SPECIFICATIONS AND STANDARDS: MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL (MUMUTC) AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - PREPARATION:
 - IF SITE CONDITIONS VARY FROM PLAN CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION
 - DIMENSIONS FOR LEGEND SIZE AND ALL RELATED DIMENSIONS FOR SIGN LAYOUT, PANEL SIZES, POST SIZES, MOUNTING DIMENSIONS ARE AS SPECIFIED IN THE PLANS.
 - ALL GRAPHIC FORMATS, USE OF TYPOGRAPHY, COLOR, DIRECTIONAL ARROW GRAPHICS, AND PICTOGRAMS ARE AS SPECIFIED IN THE PLANS. SHOP DRAWINGS OF PROPOSED SIGN LAYOUTS SHALL BE SUBMITTED AND APPROVED PRIOR TO SIGN PANEL FABRICATION.
 - ALL STRUCTURES SHALL BE ENGINEERED TO MEET A VARIETY OF SITE CONDITIONS. SIGNS SHALL BE ENGINEERED FOR WIND LOADS, SOIL CONDITIONS, FROST DEPTH, AND STRUCTURAL INTEGRITY. SPECIAL CONDITIONS THAT ARE OUTSIDE THESE PARAMETERS ARE TO BE ENGINEERED ON A SITE-SPECIFIC BASIS. THE DESIGN OF THE STRUCTURAL REQUIREMENTS OF SPECIAL ONE-OF-A-KIND SIGNS SHALL CONFORM TO THE BASIC ASSEMBLY SPECIFICATIONS FOR SIMILAR SIGN TYPES. THE MODIFIED ASSEMBLY SHALL FULFILL THE REQUIREMENTS OF LOCAL CRITERIA FOR WIND PRESSURE, SOIL, AND FROST DEPTH. ALL SIGN ENGINEERING AND STRUCTURAL INTEGRITY WILL BE THE RESPONSIBILITY OF THE CONTRACTOR UNLESS OTHERWISE NOTED.
 - ALL FINISHED SIGN PANELS SHALL BE PROVIDED WITH A 1-1/4 x 2-1/2 WEATHER RESISTANT IDENTIFICATION PLACED ON THE BACK OF THE SIGN INDICATING SIGN PLAN ID NUMBER, MANUFACTURER, DATE OF FABRICATION, AND INSTALLATION DATE.
 - FABRICATION:
 - PROVIDE SHOP AND FABRICATION DRAWINGS FOR REVIEW AND APPROVAL DETAILING THE PROPOSED FABRICATION OF ALL SIGNS AND STRUCTURES INDICATED IN PLAN DOCUMENTS.
 - THE CONTRACTOR SHALL PREPARE, FOR REVIEW BY THE OWNER'S REPRESENTATION'S FABRICATION SHOP DRAWINGS. UPON REVIEW OF THE SHOP DRAWINGS THE CONTRACTOR SHALL MAKE ALL CORRECTIONS AND ADJUSTMENTS AS INDICATED AND RESUBMIT FOR REVIEW AND APPROVAL. REVISIONS TO SHOP DRAWINGS SHALL INCLUDE A REVISION DATE. FABRICATION SHOP DRAWINGS SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
 - ALUMINUM PANEL, TUBULAR STEEL POSTS, MOUNTING HARDWARE AND MATERIAL FINISHES SHALL MEET OR EXCEED (1) STANDARDS AND SPECIFICATIONS HEREIN OR BY REFERENCE. ALL MATERIALS SHALL COMPLY WITH THIS SPECIFICATION OR APPROVED EQUAL.
 - ALL SIGN USED FOR TRAFFIC CONTROL SIGNS SHALL BE MOUNTED ON 2" GALVANIZED STEEL PERFORATED (QUICK PUNCH), SQUARE TUBE POSTS (1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL SQUARE TUBE SLEEVE (9" LONG). THE ANCHOR SHALL NOT EXTEND MORE THAN TWO QUICK PUNCH HOLES ABOVE GROUND LEVEL.
 - INSTALLATION:
 - ALL TRAFFIC CONTROL SIGNS LOCATED WITHIN COUNTY RIGHTS-OF-WAY ARE TO BE STAKED AND BE FIELD APPROVED PRIOR TO INSTALLATION BY HOWARD COUNTY TRAFFIC DIVISION (410-518-2430).
 - ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUMUTC).

- SIGN LOCATIONS SHALL BE MARKED WITH A STAKE AND SHALL HAVE THE SIGN TYPE CODE AND LOCATION CODE, AND CORRESPOND TO THE SIGN LOCATION IN THE PLAN DRAWINGS.
- UNFORESEEN OBSTRUCTIONS MAY LIMIT THE DEPTH OF A STANDARD FOOTING OR REQUIRE SPECIAL MITIGATION TO PREVENT DAMAGE TO EXISTING TREE ROOTS. WHERE POSSIBLE, ADJUST SIGN INSTALLATION LOCATIONS TO KEEP THEM BEYOND THE DRIP LINE OF TREES. WHEREVER POSSIBLE NOTIFY THE PROJECT DESIGNER OF ANY PROPOSED SIGN LOCATIONS WITHIN THE DRIP LINE OF THE TREES. THE DRIP LINE SHALL BE DETERMINED AS THE AREA BELOW THE FARTHEST SPREADING BRANCHES OF A TREE. IF A SIGN PLACEMENT LOCATION MUST BE MOVED, THE CONTRACTOR SHALL GET APPROVAL OF THE PROJECT DESIGNER AND/OR COUNTY REPRESENTATIVE. IF THE SIGN CAN BE LOCALLY MOVED, VERIFY SIGHT LINES OF ADJUSTED LOCATIONS TO AFFIRM THAT SIGN IS STILL VISIBLE FROM THE DESIGNATED APPROACH.
- MATERIALS
 - ALL THERMOPLASTIC MARKING MATERIALS SHALL CONFORM TO THE SHA MANUAL OF TECHNICAL DESIGN STANDARDS
 - APPLICATION METHOD
 - PAINTED STRIPING FOR PATH MATERIAL SPECIFICATIONS:
 - TRAFFIC YELLOW
 - SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
 - BEGINNING 150 FEET (OR PER MARKING PLANS) ON EACH SIDE OF A BRIDGE OR INTERSECTION THERE SHALL BE A SOLID LINE PATTERN IMPLEMENTED IN PLACE OF THE DASHED PATTERN
 - 3" STRIPE / 9" BREAK DASHED LINE SHALL END ONE FOOT BEFORE RUMBLE STRIPS, CROSSWALKS OR OTHER PAVEMENT MARKINGS.
 - SOLID LINE:
 - 10 MILS BEADED
 - 4" AND 6" WIDE / WHITE
 - THREE SEPARATE LINES BEGINNING AT 150' FROM THE CROSSING FOR THE FIRST LINE. THE NEXT TWO LINES SHALL BE PLACED 50' ON CENTER HEADING TOWARD THE INTERSECTION EACH STRIP SHALL EXTEND THE ENTIRE WIDTH OF THE TRAIL.
 - DASHED:
 - 10 MILS BEADED
 - 4" AND 6" WIDE / WHITE
 - THREE SEPARATE LINES BEGINNING AT 150' FROM THE CROSSING FOR THE FIRST LINE. THE NEXT TWO LINES SHALL BE PLACED 50' ON CENTER HEADING TOWARD THE INTERSECTION EACH STRIP SHALL EXTEND THE ENTIRE WIDTH OF THE TRAIL.
 - THERMOPLASTIC RUMBLE STRIPS
 - MATERIAL SPECIFICATIONS:
 - TRAFFIC YELLOW
 - SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
 - BEGINNING 150 FEET (OR PER MARKING PLANS) ON EACH SIDE OF A BRIDGE OR INTERSECTION THERE SHALL BE A SOLID LINE PATTERN IMPLEMENTED IN PLACE OF THE DASHED PATTERN
 - 3" STRIPE / 9" BREAK DASHED LINE SHALL END ONE FOOT BEFORE RUMBLE STRIPS, CROSSWALKS OR OTHER PAVEMENT MARKINGS.
 - APPLICATION METHOD:
 - TRAFFIC YELLOW
 - SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
 - BEGINNING 150 FEET (OR PER MARKING PLANS) ON EACH SIDE OF A BRIDGE OR INTERSECTION THERE SHALL BE A SOLID LINE PATTERN IMPLEMENTED IN PLACE OF THE DASHED PATTERN
 - 3" STRIPE / 9" BREAK DASHED LINE SHALL END ONE FOOT BEFORE RUMBLE STRIPS, CROSSWALKS OR OTHER PAVEMENT MARKINGS.
 - PAINTED ADVANCE MARKINGS FOR PATH
 - MATERIAL SPECIFICATIONS:
 - TRAFFIC YELLOW
 - SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
 - BEGINNING 150 FEET (OR PER MARKING PLANS) ON EACH SIDE OF A BRIDGE OR INTERSECTION THERE SHALL BE A SOLID LINE PATTERN IMPLEMENTED IN PLACE OF THE DASHED PATTERN
 - 3" STRIPE / 9" BREAK DASHED LINE SHALL END ONE FOOT BEFORE RUMBLE STRIPS, CROSSWALKS OR OTHER PAVEMENT MARKINGS.
 - APPLICATION METHOD:
 - TRAFFIC YELLOW
 - SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
 - BEGINNING 150 FEET (OR PER MARKING PLANS) ON EACH SIDE OF A BRIDGE OR INTERSECTION THERE SHALL BE A SOLID LINE PATTERN IMPLEMENTED IN PLACE OF THE DASHED PATTERN
 - 3" STRIPE / 9" BREAK DASHED LINE SHALL END ONE FOOT BEFORE RUMBLE STRIPS, CROSSWALKS OR OTHER PAVEMENT MARKINGS.
 - PAINTED STOP BAR FOR PATH
 - MATERIAL SPECIFICATIONS:
 - TRAFFIC YELLOW
 - SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
 - BEGINNING 150 FEET (OR PER MARKING PLANS) ON EACH SIDE OF A BRIDGE OR INTERSECTION THERE SHALL BE A SOLID LINE PATTERN IMPLEMENTED IN PLACE OF THE DASHED PATTERN
 - 3" STRIPE / 9" BREAK DASHED LINE SHALL END ONE FOOT BEFORE RUMBLE STRIPS, CROSSWALKS OR OTHER PAVEMENT MARKINGS.
 - APPLICATION METHOD:
 - TRAFFIC YELLOW
 - SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
 - BEGINNING 150 FEET (OR PER MARKING PLANS) ON EACH SIDE OF A BRIDGE OR INTERSECTION THERE SHALL BE A SOLID LINE PATTERN IMPLEMENTED IN PLACE OF THE DASHED PATTERN
 - 3" STRIPE / 9" BREAK DASHED LINE SHALL END ONE FOOT BEFORE RUMBLE STRIPS, CROSSWALKS OR OTHER PAVEMENT MARKINGS.

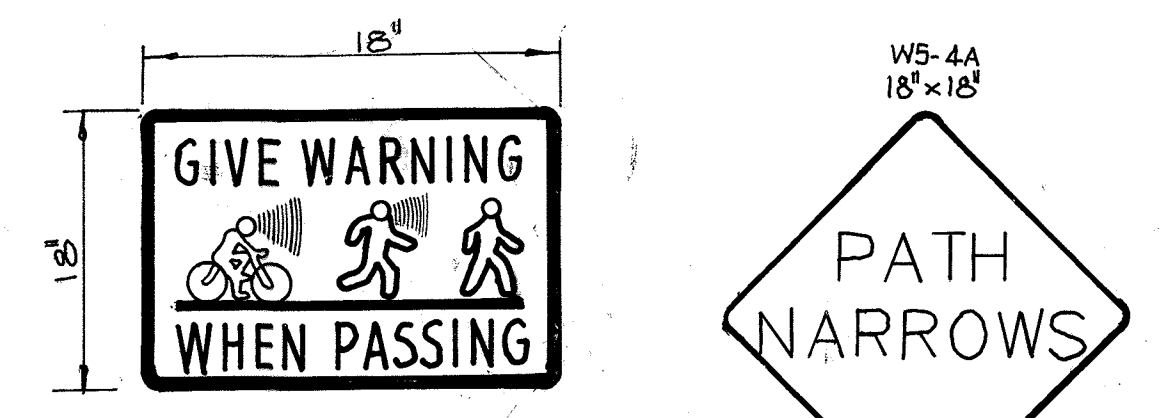
LOCATION: EVEN WITH THE STOP SIGN, NO MORE THAN 5' FROM THE ROAD THRESHOLD. AT INTERSECTIONS WITH PEDESTRIAN SIGNALS, A THERMOPLASTIC STOP BAR SHALL BE PLACED AT THE EDGE OF THE PAVEMENT WITHOUT THE STOP SIGN.

7. PAINTED STOP LETTERING FOR PATH MATERIAL SPECIFICATIONS:

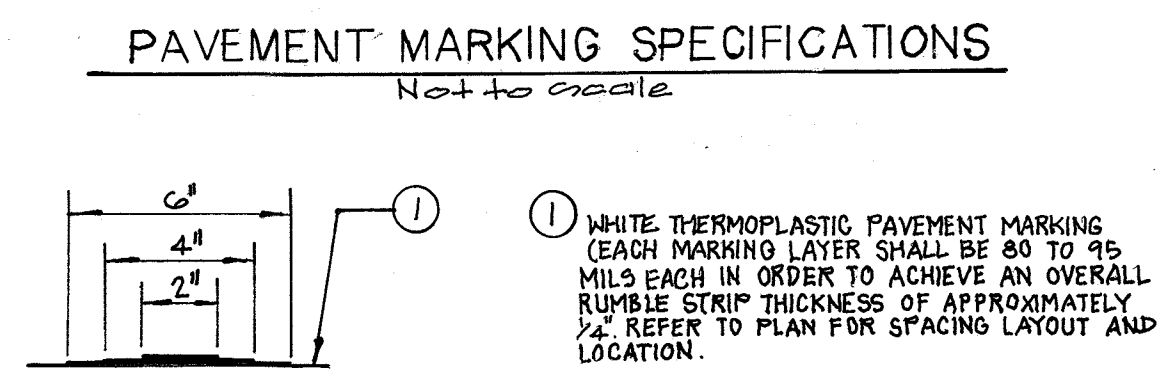
- SIZE / COLOR: 2" / WHITE
- LETTER WIDTH: 1/2"
- LOCATION: PATH SIDE OF STOP BAR (SEE INTERSECTION LAYOUT FOR PLACEMENT)

8. THERMOPLASTIC CROSSWALK MATERIAL SPECIFICATIONS:

- SIZE / COLOR: 14" WIDE BEADED THERMOPLASTIC, HEAT APPLIED
- SMOOTH EDGE WITH CONSTANT ARC IN CURVES (NO WAVING OR SERPENTINE APPEARANCE)
- STRIPE CHARACTER: CENTERLINE OF CROSSWALK TO BE AT CENTERLINE OF PEDESTRIAN RAMP UNLESS OTHERWISE NOTED
- LOCATION: AS SHOWN ON PLANS - 50' MIN.



CUSTOM SIGNS
Not to scale

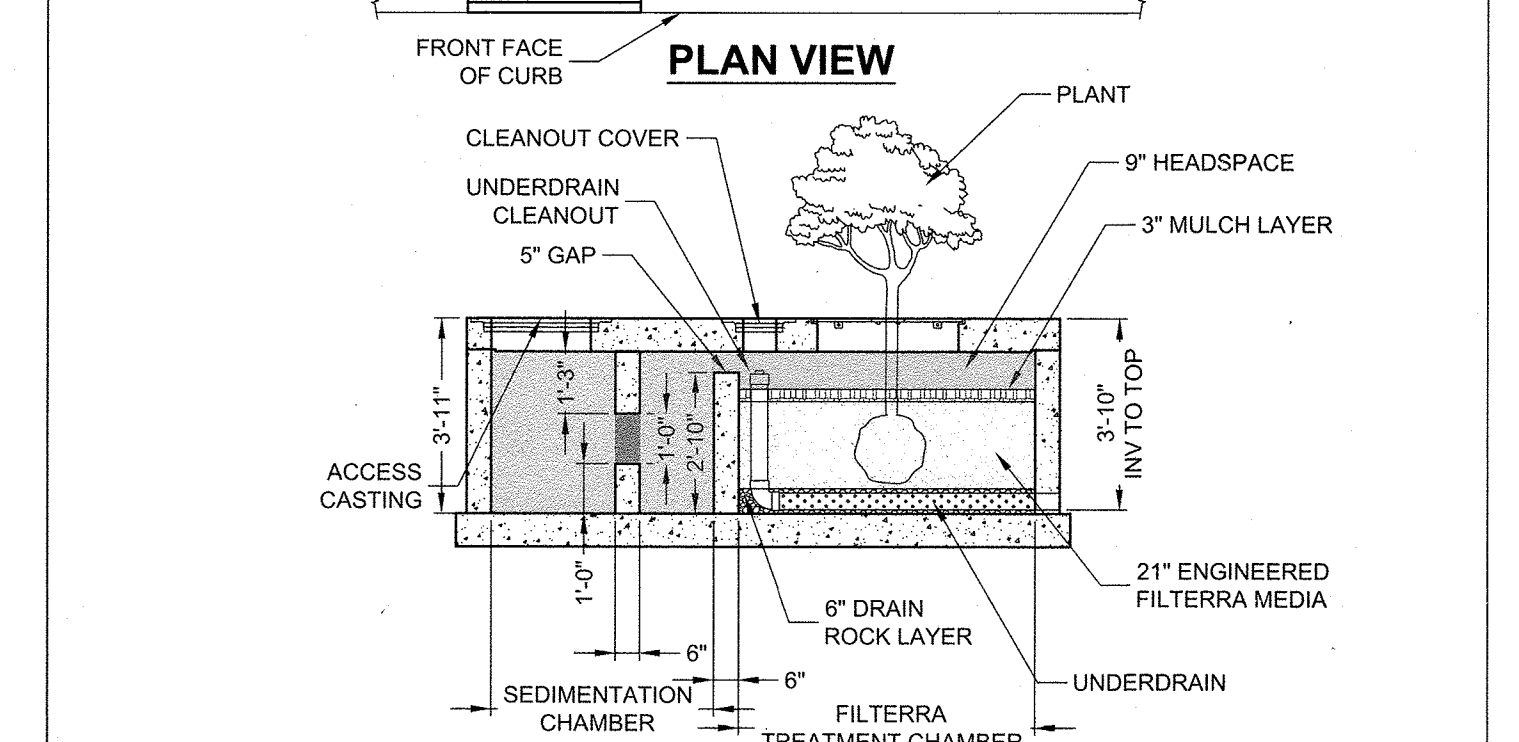
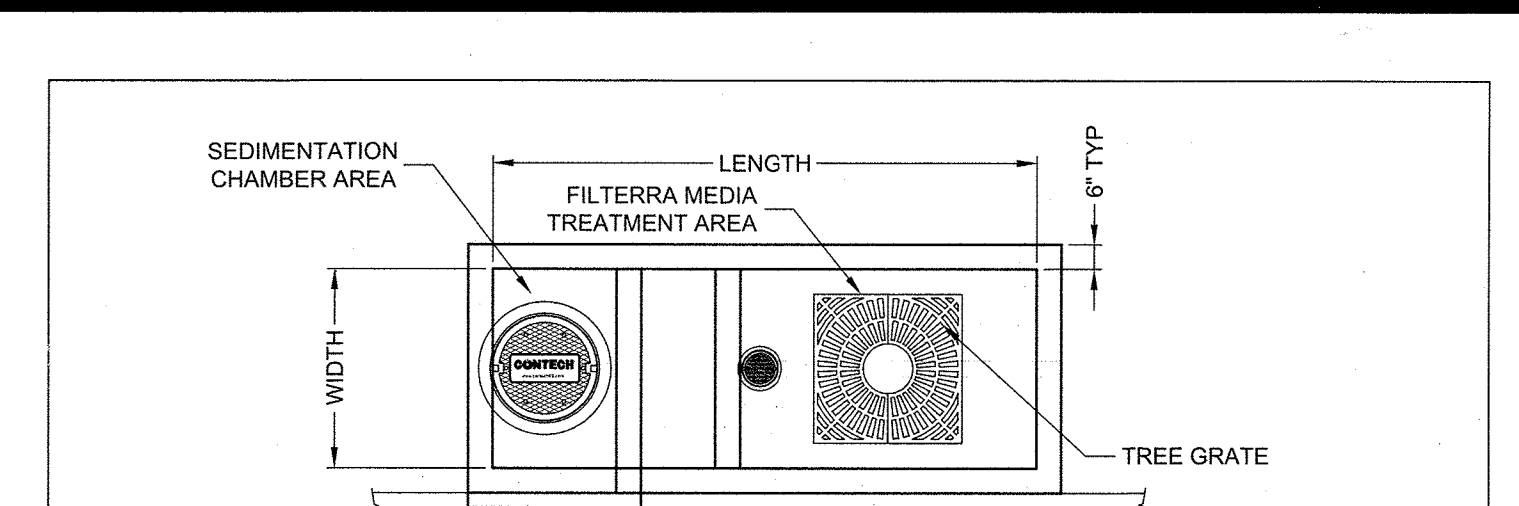


PAVEMENT MARKING SPECIFICATIONS
Not to scale

1. WHITE THERMOPLASTIC PAVEMENT MARKING (EACH MARKING LAYER SHALL BE 80 TO 95 MILS EACH IN ORDER TO ACHIEVE AN OVERALL RUMBLE STRIP THICKNESS OF APPROXIMATELY 1/4". REFER TO PLAN FOR SPACING LAYOUT AND LOCATION.

NOTES:

- TRAFFIC CONTROL SIGNS SHOULD BE INSTALLED AT A MINIMUM 7" HEIGHT WHEN ADJACENT TO TRAIL
- SIGN POSTS: 2-PUNCH SQUARE TUBULAR POSTS



ELEVATION VIEW

UNIT DESIGNATION	INSIDE VAULT DIMENSIONS	FILTRERA TREATMENT AREA	MAXIMUM DRAINAGE AREA TREATED (SF)	STORAGE CAPACITY OF UNIT PRIOR TO FILTRATION (CF)	WQV TREATMENT EQUIVALENT (CF)
FTSC 6' x 4'	12' x 4'	6' x 4'	4,356	85	340
FTSC 8' x 4'	16' x 4'	8' x 4'	5,990	117	468
FTSC 6' x 6'	12' x 6'	6' x 6'	6,534	128	511
FTSC 8' x 6'	16' x 6'	8' x 6'	9,039	176	702
FTSC 10' x 6'	19' x 6'	10' x 6'	10,454	204	816
FTSC 10' x 8'	20' x 8'	10' x 8'	15,246	298	1,192
FTSC 11' x 8'	22' x 8'	11' x 8'	16,990	330	1,322

NOTE:

- FILTRERA TREATMENT AREA BASED UPON MINIMUM OF 0.44% OF THE TOTAL DRAINAGE AREA.
- MAXIMUM DRAINAGE AREA TREATED ASSUMES 25% WQV AND FILTER SURFACE AREA REQUIREMENTS ARE BOTH MET.
- STORAGE CAPACITY ASSUMES 30% WQV IN MULCH WITH NO STORAGE IN MEDIA AND STONE.
- ALL INFORMATION IS BASED ON STANDARD 30\"/>

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GINTECH ENGINEERED SOLUTIONS LLC
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FILTRERA® WITH SEDIMENTATION CHAMBER

805 Global Way, Suite 113, Linthicum, MD 21089
866-740-3378 OFFICE 866-378-6517 FAX DATE: 10-28-15 SCALE: NONE PRODUCT NO.: FTSC DRAWN BY: BAS

GENERAL NOTES

- MATERIAL SPECIFICATIONS: THE ALLOWABLE MATERIALS TO BE USED IN THESE MICRO-BIORETENTION PRACTICES ARE DETAILED IN TABLE B-1.
- 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-BIORETENTION 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 BERBERIS GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER CONVAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 - SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (SDSA SOIL TEXTURAL CLASSIFICATION)
 - ORGANIC CONTENT - MIN 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60-65%) AND COMPOST (35-40%) 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.
- COMPACTION: IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARCH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TIRE TREADS. 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 FLOW RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACATURE 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 DOZELoader WITH MARSH TRACKS.
- PLANT MATERIAL: SEE PLANT LIST TABLES, SHEETS IT AND IO.
- PLANT INSTALLATION: MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. FINE MULL 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 MELL ADDED (6 TO 12 MONTHS) FOR ACCEPTANCE. ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED 50% (WITH) 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 BEH 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.
- UNDERDRAINS: UNDERDRAINS ARE TO BE PLACED ON A 3"-O" WIDE SECTION OF FILTER CLOTH PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED. 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).
- 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, DEFLEATS, 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 ARE TO BE PLACED ON A 3"-O" WIDE SECTION OF FILTER CLOTH PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED. 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).

APPENDIX B-11 - SUPPLEMENTAL POND SPECIFICATIONS (NON-378)

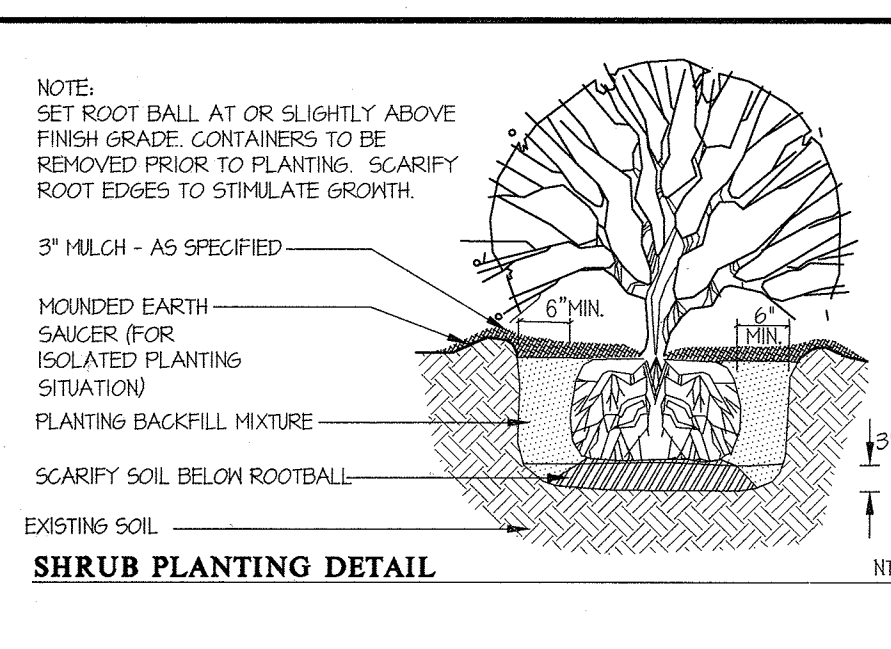
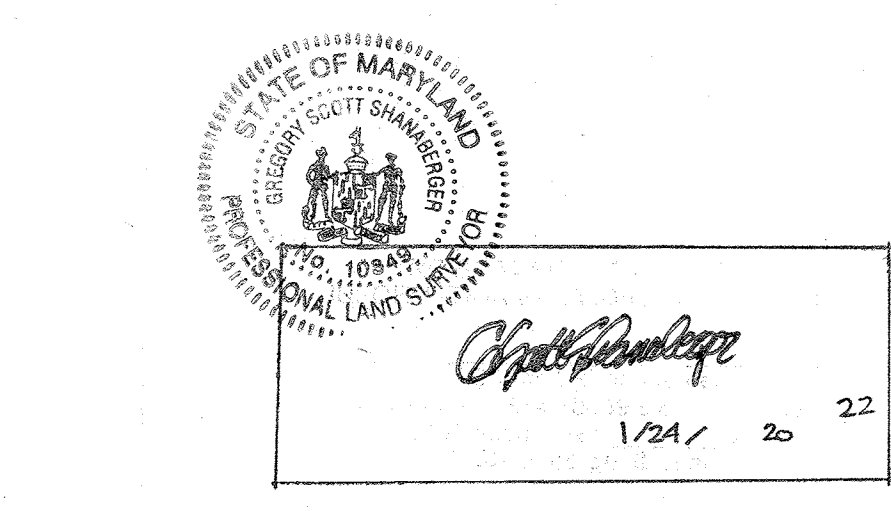
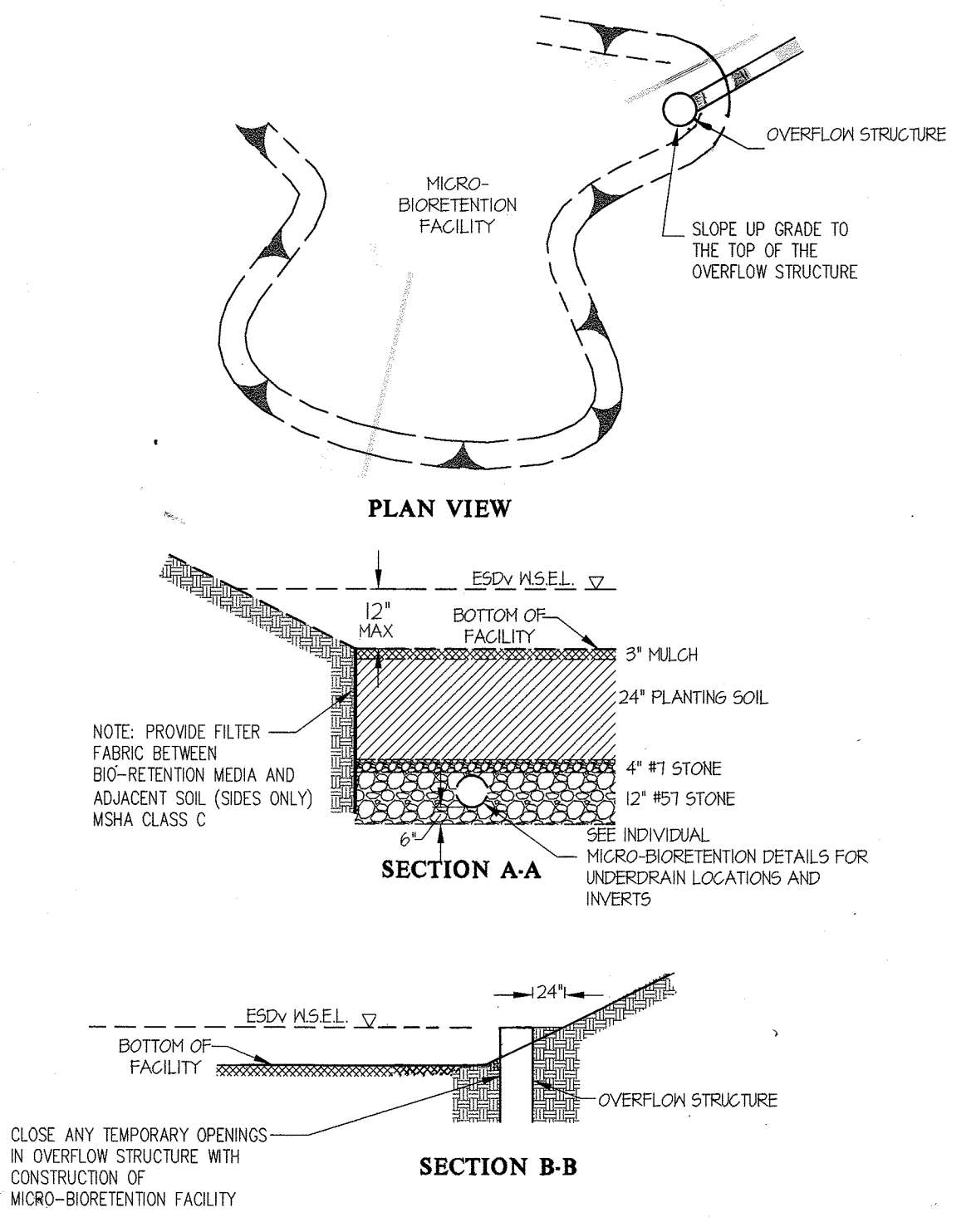
SUPPLEMENTAL STORMWATER PONDS AND WETLAND SPECIFICATIONS (NON-378)

THESE NOTES AND SPECIFICATIONS ARE IN ADDITION TO THE MD-378 SPECIFICATIONS. IF THERE IS ANY QUESTIONS AS TO THE APPLICABILITY, THE MD-378 SPECIFICATIONS SUPERCEDE.

- IT IS PREFERRED TO USE THE SAME MATERIAL IN THE EMBANKMENT AS IS BEING INSTALLED FOR THE CORE TRENCH. IF THIS IS NOT POSSIBLE BECAUSE THE APPROPRIATE MATERIAL IS NOT AVAILABLE, A DAM CORE WITH A SHELL MAY BE USED. THE CROSS-SECTION OF THE STORMWATER FACILITY SHOULD SHOW THE LIMITS OF THE DAM CORE (UP TO 10-YEAR WATER SURFACE ELEVATION) AS WELL AS THE ACCEPTABLE MATERIALS FOR THE SHELL. THE SHAPE OF THE DAM CORE AND THE MATERIAL TO BE USED IN THE SHELL SHOULD BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
- IF THE COMPACTION TESTS FOR THE SITE IMPROVEMENTS IS USING MODIFIED PROCTOR (ASTM D 1557), THEN TO MAINTAIN ON-SITE CONSISTENCY, THE MODIFIED PROCTOR MAY BE USED IN LIEU OF A STANDARD PROCTOR (ASTM D 998). THE MINIMUM DENSITY USING THE MODIFIED PROCTOR TEST METHOD SHALL BE AT LEAST 92% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT OF 12% OF THE OPTIMUM. THE MINIMUM REQUIRED DENSITY USING THE STANDARD PROCTOR TEST METHOD SHALL BE AT LEAST 95% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT OF 12% OF THE OPTIMUM.
- FOR ALL STORMWATER MANAGEMENT FACILITIES, A GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE MUST BE PRESENT TO VERIFY COMPACTION IN ACCORDANCE WITH THE SELECTED TEST METHOD. THIS INFORMATION NEEDS TO BE PROVIDED IN A REPORT TO THE DESIGN ENGINEER SO THAT CERTIFICATION OF THE CONSTRUCTION OF THE FACILITY, IN ACCORDANCE WITH MD-378 SPECIFICATIONS, CAN BE MADE.
- A 4-INCH LAYER OF TOPSOIL SHALL BE PLACED ON ALL DISTURBED AREAS OF THE DAM EMBANKMENT. SEEDING, LIMING, FERTILIZING, MULCHING, ETC. SHALL BE IN ACCORDANCE WITH MARYLAND SOIL CONSERVATION SERVICE MD-342 OR THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. PERMANENT SEEDING SECTION IN CHAPTER 20. THE PURPOSE OF THE TOPSOIL IS TO ESTABLISH A GOOD GROWTH OF GRASS, WHICH IS NOT ALWAYS POSSIBLE WITH SOME OF THE MATERIALS THAT MAY BE PLACED FOR THE EMBANKMENT FILL.
- GEOTEXTILE PLACED BENEATH RIP-RAP SHALL BE CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0. MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (MDE, 1994). SOME ACCEPTABLE GEOTEXTILES THAT MEET THE CLASS "C" CRITERIA INCLUDE:
 - AMOCO 4552
 - CARTHAGE FX-105
 - GEOLON N10
 - MIRAFI 180-N
 - WEBTEC N01
- THIS IS ONLY A PARTIAL LISTING OF AVAILABLE GEOTEXTILES BASED ON INFORMATION PROVIDED BY THE MANUFACTURERS OF THE 1994 SPECIFIERS' GUIDE DATED DECEMBER 1996. IT IS THE RESPONSIBILITY OF THE ENGINEER TO VERIFY THE ADEQUACY OF THE MATERIAL AS THERE ARE CHANGES IN THE MANUFACTURING PROCESS AND THE TYPE OF FABRIC USED, WHICH MAY AFFECT THE CONTINUED ACCEPTANCE.
- A RULE OF THUMB TO DETERMINE WHEN AN EXCAVATED POND MAY NEED TO BE CONSIDERED AN EMBANKMENT POND IS AS FOLLOWS: PROVIDE CALCULATION OF $10H + 20FEET = L$, WHERE H=HEIGHT FROM POND BOTTOM TO TOP OF DAM. IF THE PROJECTION OF L, DOWNSTREAM IS A HORIZONTAL LINE FROM THE UPSTREAM TOE OF SLOPE IS BELOW EXISTING GROUND, THE POND CAN BE CONSIDERED AN EXCAVATED POND. IN ADDITION, THE EXISTING GROUND SLOPE, DOWNSTREAM OF THE TOE, MUST BE LESS THAN 10%.
- THE DESIGN ENGINEER AND GEOTECHNICAL ENGINEER SHOULD MAKE THE DETERMINATION THAT THE SETTLEMENT OF THE POND WILL NOT CAUSE EXCESSIVE JOINT EXTENSION. FOR FURTHER INFORMATION ON JOINT ANALYSIS, SEE NRCE PUBLICATION TR-18.
- FILL PLACEMENT SHALL NOT EXCEED A MAXIMUM 8-INCH. EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF THE EMBANKMENT.
- THE EMBANKMENT FILL SHALL NOT BE PLACED HIGHER THAN THE CENTERLINE OF THE PRINCIPAL SPILLWAY UNTIL AFTER THE PRINCIPAL SPILLWAY HAS BEEN INSTALLED. IF THE EMBANKMENT NEEDS TO BE EXCAVATED TO INSTALL THE PRINCIPAL SPILLWAY, THE SIDE SLOPE SHALL BE NO LESS THAN 2:1.
- THE SIDE SLOPES OF A CUT TO REPAIR A DAM, INSTALL A PRINCIPAL SPILLWAY FOR AN EXCAVATED POND, OR OTHER REPAIR WORK, SHALL BE NO LESS THAN 2:1.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (B-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.
- THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE UNDERDRAINS WITHIN THE BIO-RETENTION LAYERS.
- HOWARD COUNTY SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL STORM DRAIN PIPES AND STRUCTURES WITHIN PUBLIC EASEMENTS. THE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL STORM DRAIN PIPES AND STRUCTURES WITHIN PRIVATE EASEMENTS.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways
Date: 4/10/2017

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Chief, Division of Land Development
Date: 5-15-17

Chief, Development Engineering Division
Date: 4.17.17

GLWGUTSCHICK LITTLE & WEBER, P.A.
CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 FAX: 301-989-2524 FAX: 301-421-4186

DATE	BY	APP'R	REVISION
6-1-18			Provided additional multi-use path signage & markings

PREPARED FOR:
THE HOWARD HUGHES CORPORATION
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BILL ROWE
410-964-4987

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS 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. 1226
EXPIRATION DATE: MAY 28, 2018
3/6/17

STORMWATER MANAGEMENT NOTES AND DETAILS

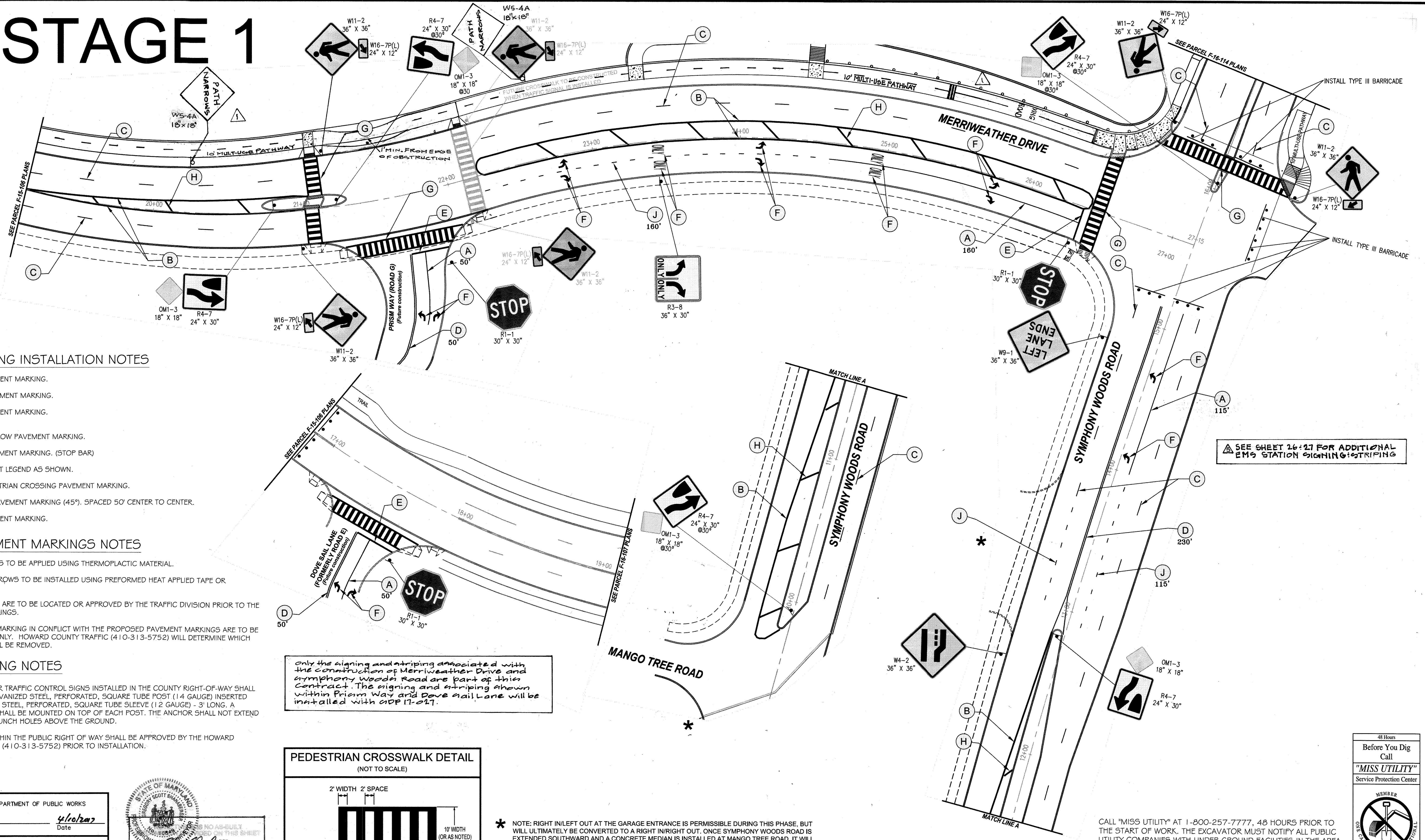
**DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**

HOWARD COUNTY, MARYLAND
ELECTION DISTRICT No. 5

SCALE	ZONING	G. L. W. FILE NO.
AS SHOWN	NT	11071
DATE	TAX MAP - GRID	SHEET
MARCH, 2017	36 - 01	19 OF 27

STAGE 1

MERRIWEATHER DR IS ASSUMED TO RUN IN A EAST-WEST DIRECTION.



PAVEMENT MARKING INSTALLATION NOTES

- A INSTALL 5" WHITE PAVEMENT MARKING.
- B INSTALL 5" YELLOW PAVEMENT MARKING.
- C INSTALL 5" WHITE PAVEMENT MARKING. (10' SKIP, 30' SPACING).
- D INSTALL 5" DOUBLE YELLOW PAVEMENT MARKING.
- E INSTALL 24" WHITE PAVEMENT MARKING. (STOP BAR)
- F INSTALL WHITE PAVEMENT LEGEND AS SHOWN.
- G INSTALL 10' WIDE PEDESTRIAN CROSSING PAVEMENT MARKING.
- H INSTALL 12" YELLOW PAVEMENT MARKING (45°). SPACED 50' CENTER TO CENTER.
- J INSTALL 5" WHITE PAVEMENT MARKING. (3' SKIP, 9' SPACING).

PAVEMENT MARKINGS NOTES

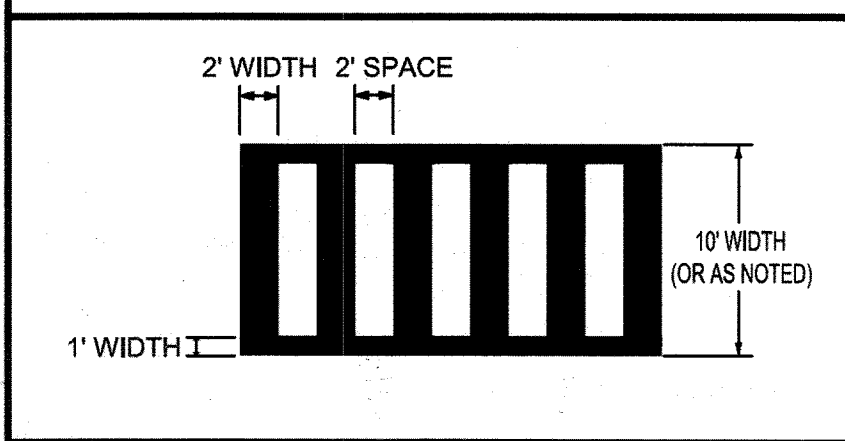
1. ALL LONG LINES MARKINGS TO BE APPLIED USING THERMOPLASTIC MATERIAL.
2. THE CROSSWALK AND ARROWS TO BE INSTALLED USING PREFORMED HEAT APPLIED TAPE OR THERMOPLASTIC.
3. ALL PAVEMENT MARKINGS ARE TO BE LOCATED OR APPROVED BY THE TRAFFIC DIVISION PRIOR TO THE PLACEMENT OF ANY MARKINGS.
4. ALL EXISTING PAVEMENT MARKING IN CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS ARE TO BE REMOVED BY GRINDING ONLY. HOWARD COUNTY TRAFFIC (410-313-5752) WILL DETERMINE WHICH EXISTING MARKINGS SHALL BE REMOVED.

SIGNING NOTES

1. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE SHALL BE MOUNTED ON TOP OF EACH POST. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO QUICK PUNCH HOLES ABOVE THE GROUND.
2. ALL SIGNS LOCATIONS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO INSTALLATION.

only the signing and striping associated with the construction of Merrimweather Drive and Symphony Woods Road are part of this contract. The signing and striping shown within Prism Way and Dove Sail Lane will be installed with ODP 17-027.

PEDESTRIAN CROSSWALK DETAIL (NOT TO SCALE)



* NOTE: RIGHT IN/LEFT OUT AT THE GARAGE ENTRANCE IS PERMISSIBLE DURING THIS PHASE, BUT WILL ULTIMATELY BE CONVERTED TO A RIGHT IN/RIGHT OUT. ONCE SYMPHONY WOODS ROAD IS EXTENDED SOUTHWARD AND A CONCRETE MEDIAN IS INSTALLED AT MANGO TREE ROAD, IT WILL ALSO BECOME A RIGHT IN/RIGHT OUT CONDITION.

SEE SHEET 26-27 FOR ADDITIONAL EMS STATION SIGNING/STRIPING

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
Melanie 4/10/17
 Chm. Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
Keith 5-15-17
 Chief, Division of Land Development Date

Alvin 4-17-17
 Chief, Development Engineering Division HSP Date

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 License No. 12915
 Expiration Date: 05-26-2020
 1/24/20
 Shanberger & Cole

WELLS + ASSOCIATES, INC
 1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102
 Phone: 703/917-6620 Facsimile: 703/917-0739
 210 Wirt Street, SW, Suite B5, Leesburg, Virginia 20175
 Phone: 703/443-1442 Facsimile: 703/443-1225

Professional certification (By GLW For Revision #1)
 I hereby certify that these Plans 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. 12915
 Expiration Date: 05-26-2020
Alvin 6/12/18
 Signature of Registered Engineer Date

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 License No. 12915
 Expiration Date: 03/01/17

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS 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. 12915, EXPIRATION DATE: 03/01/2017.

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 License No. 8795
 Expiration Date: 03/01/17

0 30' 60'
 SCALE: 1" = 30'
 DATE: March 9, 2017
 DESIGNED BY: LES
 DRAWN BY: SZ
 CHECKED BY: LES
 PROJECT NO: 6489

REVISIONS:
 3+ REVISD EMS STATION NOTE & SHEET TOTAL 1/16/17
 3+ Revised Multi-Use Path, signage, Markings, Guardrail 9/27/16
 BY NO. REVISIONS: DATE

TITLE:
 Signing and Striping Design Plan
 Merrimweather Drive/
 Symphony Woods Road
 F-16-107

LOCATION/DESCRIPTION:
 Howard County, Maryland

SHEET: 20 OF 27

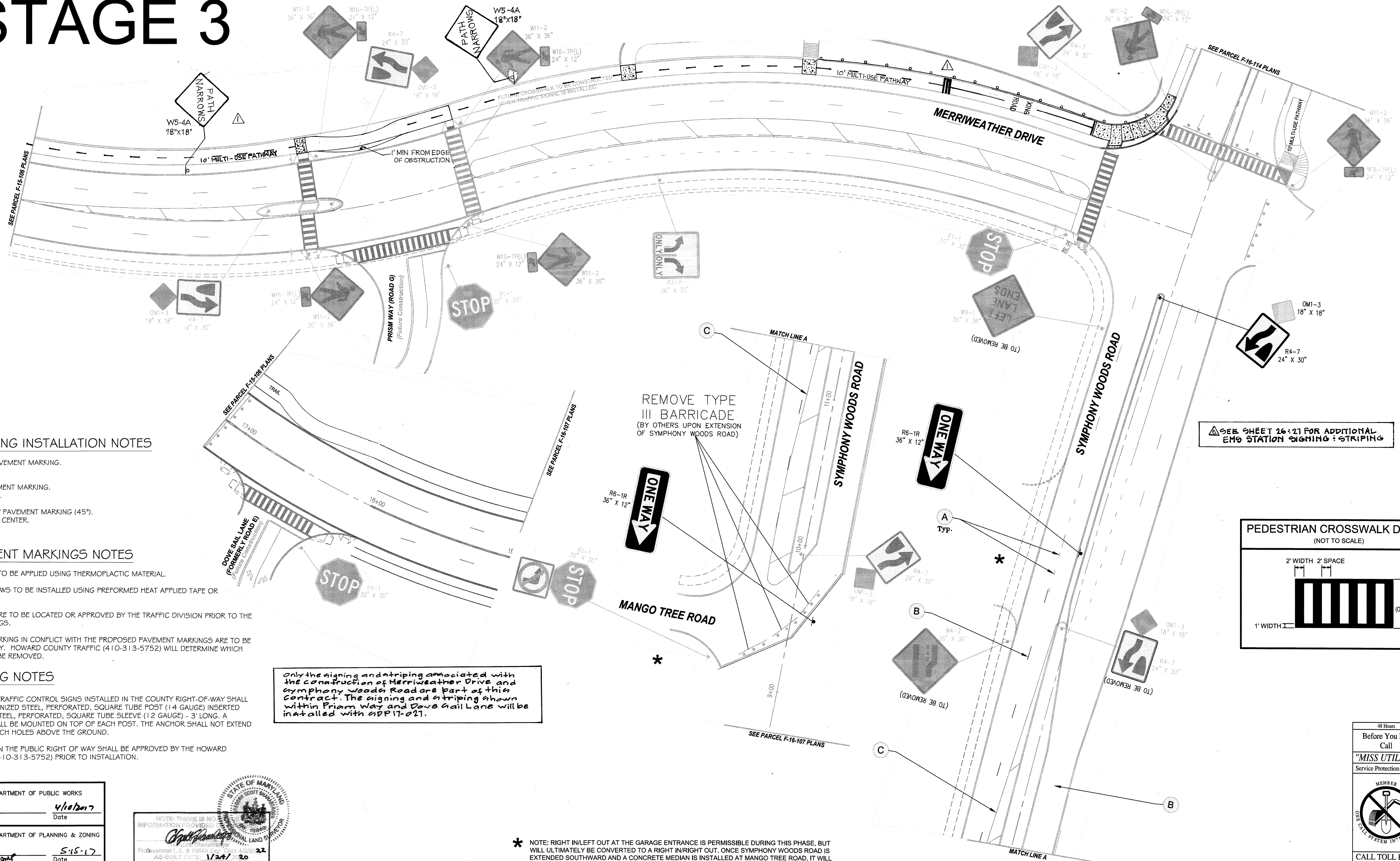
48 Hours
 Before You Dig
 Call
 "MISS UTILITY"
 Service Protection Center

MEMBER
 MISS UTILITY SYSTEM INTERNATIONAL

CALL TOLL FREE
 1-800-257-7777

STAGE 3

MERRIWEATHER DR IS ASSUMED TO RUN IN A EAST-WEST DIRECTION.



PAVEMENT MARKING INSTALLATION NOTES

- (A) ERADICATE 5" WHITE PAVEMENT MARKING. (3' SKIP, 9' SPACING).
- (B) INSTALL 5" WHITE PAVEMENT MARKING. (1' SKIP, 30' SPACING).
- (C) ERADICATE 1 2" YELLOW PAVEMENT MARKING (45°). SPACED 50' CENTER TO CENTER.

PAVEMENT MARKINGS NOTES

- 1. ALL LONG LINES MARKINGS TO BE APPLIED USING THERMOPLASTIC MATERIAL.
- 2. THE CROSSWALK AND ARROWS TO BE INSTALLED USING PREFORMED HEAT APPLIED TAPE OR THERMOPLASTIC.
- 3. ALL PAVEMENT MARKINGS ARE TO BE LOCATED OR APPROVED BY THE TRAFFIC DIVISION PRIOR TO THE PLACEMENT OF ANY MARKINGS.
- 4. ALL EXISTING PAVEMENT MARKING IN CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS ARE TO BE REMOVED BY GRINDING ONLY. HOWARD COUNTY TRAFFIC (410-313-5752) WILL DETERMINE WHICH EXISTING MARKINGS SHALL BE REMOVED.

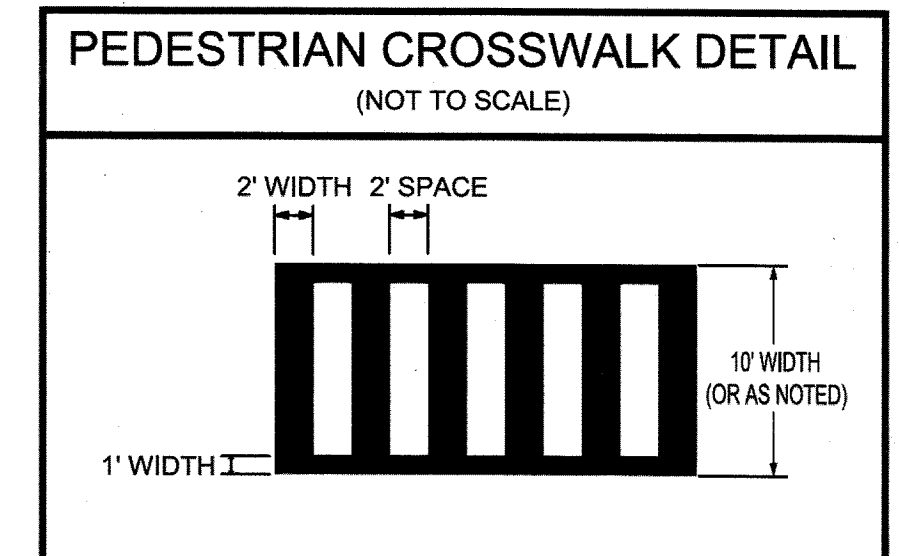
SIGNING NOTES

- 1. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (1 1/4 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (1 1/2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE SHALL BE MOUNTED ON TOP OF EACH POST. THE ANCHOR SHALL NOT EXTEND MORE THAN 2" QUICK PUNCH HOLES ABOVE THE GROUND.
- 2. ALL SIGNS LOCATIONS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO INSTALLATION.

Only the signing and striping associated with the construction of Merrriweather Drive and Symphony Woods Road are part of this contract. The signing and striping shown within Prism Way and Dove Gail Lane will be installed with addendum 17-021.

* NOTE: RIGHT IN/LEFT OUT AT THE GARAGE ENTRANCE IS PERMISSIBLE DURING THIS PHASE, BUT WILL ULTIMATELY BE CONVERTED TO A RIGHT IN/RIGHT OUT. ONCE SYMPHONY WOODS ROAD IS EXTENDED SOUTHWARD AND A CONCRETE MEDIAN IS INSTALLED AT MANGO TREE ROAD, IT WILL ALSO BECOME A RIGHT IN/RIGHT OUT CONDITION.

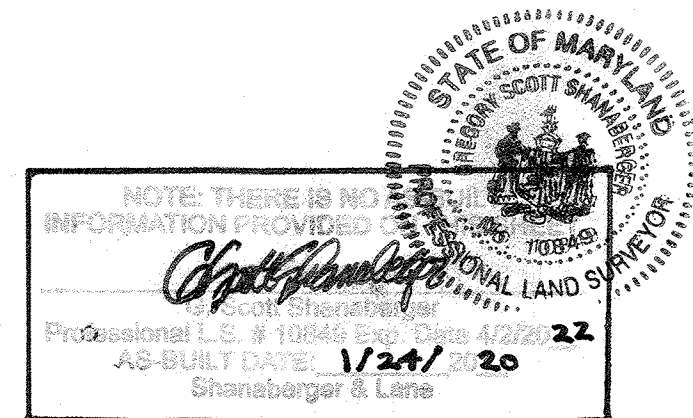
SEE SHEET 26:27 FOR ADDITIONAL EMG STATION SIGNING & STRIPING



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 4/10/2017
 Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
[Signature] 5-15-17
 Chief, Division of Land Development Date

[Signature] 4-17-17
 Chief, Development Engineering Division Date



WA WELLS + ASSOCIATES, INC

1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102
 Phone: 703/917-8620 Facsimile: 703/917-0739

210 Wirt Street, SW, Suite B5, Leesburg, Virginia 20175
 Phone: 703/443-1442 Facsimile: 703/443-1225

Professional Certification (By GLW For Revision #1)
 I hereby certify that these Plans 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.: 12915
 Expiration Date: 09-26-2020
[Signature] 6/12/18
 Signature of Registered Engineer Date

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS 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. 27883
 EXPIRATION DATE: 10/16/2017
[Signature] 03/09/17
 Signature of Registered Engineer Date

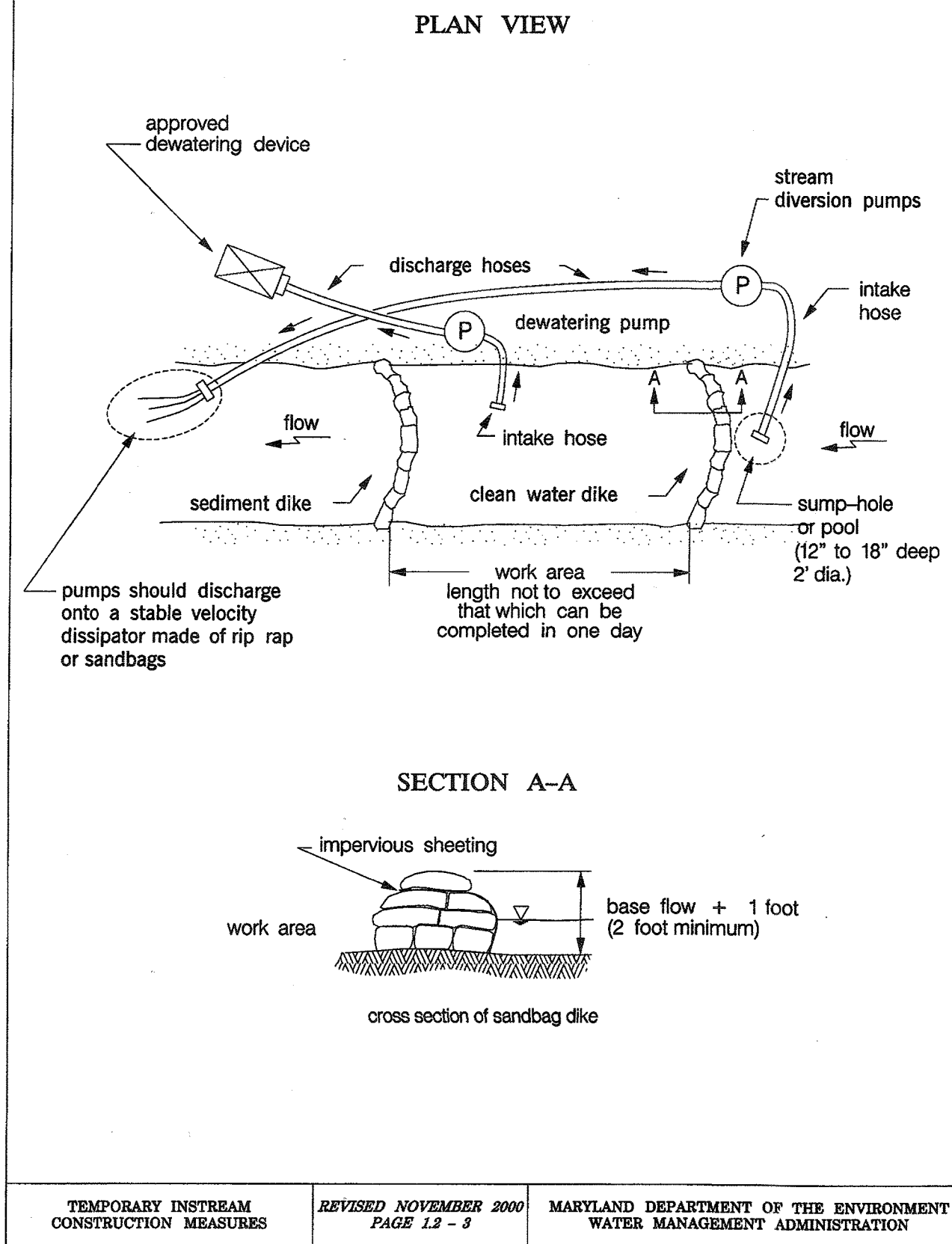
0	30'	60'
SCALE: 1" = 30'		
DATE:	March 9, 2017	
DESIGNED BY:	LES	
DRAWN BY:	SZ	
CHECKED BY:	LES	
PROJECT NO:	6489	
BY	NO.	REVISIONS:
3t	3t	REVISED EMG STATION NOTE & SHEET TOTAL
3t	3t	REVISED Multi-use Path Signage Markings, Guardrail
BY	NO.	DATE

TITLE:
 Signing and Striping Design Plan
 Merrriweather Drive/
 Symphony Woods Road
 F-16-107

LOCATION/DESCRIPTION:
 Howard County, Maryland

SHEET:
 22 of 27

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



MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

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

IMPLEMENTATION SEQUENCE

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

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

TEMPORARY INSTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000
 PAGE 1.2 - 1

BEST MANAGEMENT PRACTICES

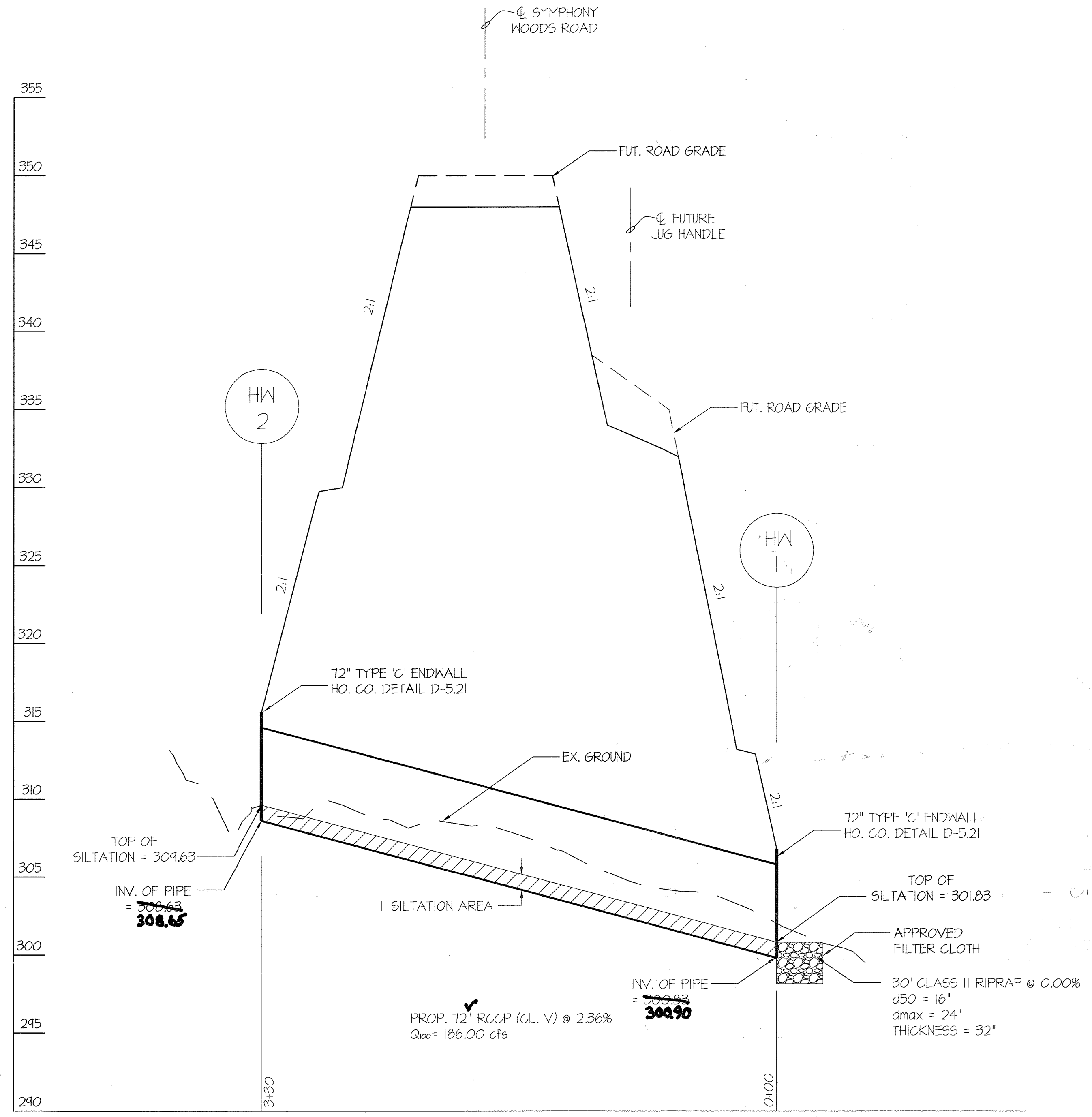
FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

1. NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NON-TIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR 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 FLOOD PLAIN.
3. DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, INSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, INSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
4. PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
5. REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
6. RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS OR 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
7. ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES:
 ANNUAL RYE GRASS (LOLIUM MULTIFLORUM)
 MILLET (SETARIA ITALICA) BARLEY (HORDEUM SPECIES)
 OATS (SP.)
 RYE (SECALE CEREALE)
 THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDING AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
8. AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
9. TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM USE I WATERS. IN-STREAM WORK SHALL BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH LINE IS INCLUSIVE, DURING ANY YEAR.
10. STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
11. CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

MGWC 1.2: PUMP-AROUND PRACTICE

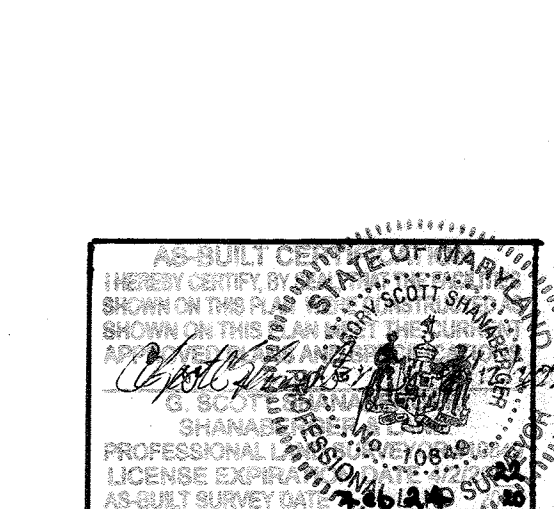
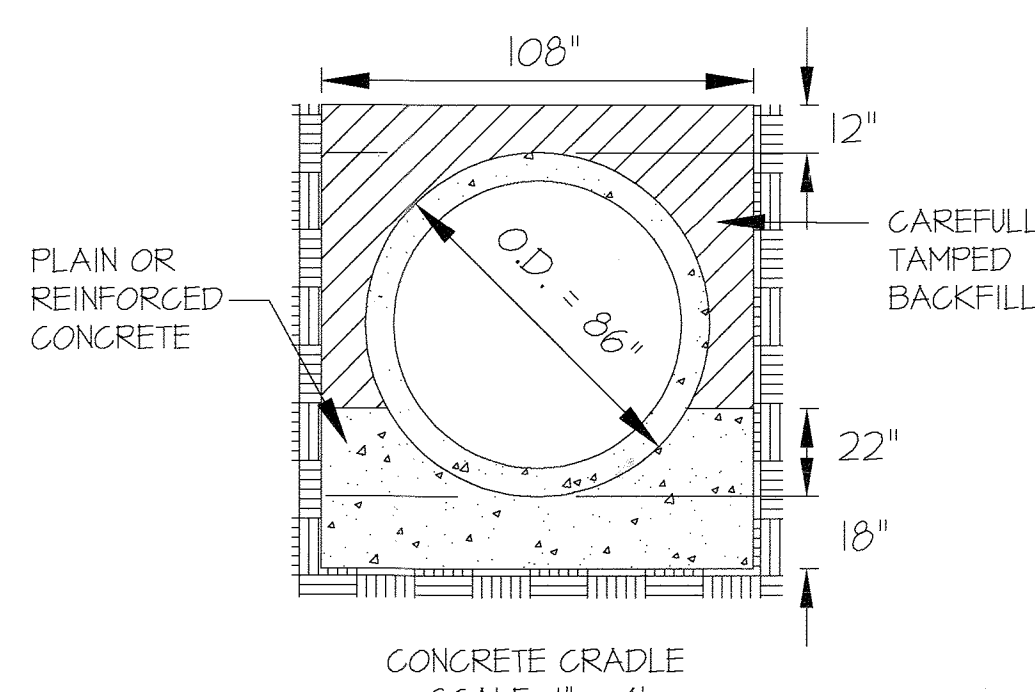
7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.
8. Traversing a channel reach with equipment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

TEMPORARY INSTREAM CONSTRUCTION MEASURES MARYLAND DEPARTMENT OF THE ENVIRONMENT WATERWAY CONSTRUCTION GUIDELINES REVISED NOVEMBER 2000
 PAGE 1.2 - 2



NO	TYPE	WIDTH (INSIDE)	TOP ELEVATION				INVERT				STD. DETAIL	LOCATIONS	REMARKS
			PROPOSED		AS-BUILT		PROPOSED		AS-BUILT				
			UPPER	LOWER	UPPER	LOWER	UPPER	LOWER	UPPER	LOWER			
HW-1	TYPE 'C' ENDWALL	N/A	308.63	308.63			308.90	---			HO.CO. D-5.21	N 560,278 E 1,352,049	
HW-2	TYPE 'C' ENDWALL	N/A	308.63	308.63			308.90	---			HO.CO. D-5.21	N 560,268 E 1,351,771	

COORDINATE POINT GIVEN IS TO THE CENTERLINE OF STRUCTURE AT THE FACE OF HEADWALL.



PIPE SCHEDULE			
SIZE	TYPE	QUANTITY (L.F.)	REMARKS
72"	RCCP (CL. V)	330	

RIP RAP INFORMATION				
SECTION	CLASS	LENGTH	D ₅₀	THICKNESS
HW-1	CLASS II	30'	16"	32"

APPROVED HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
 Chief, Bureau of Highways
 Date: 4/30/18

APPROVED HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING
 Chief, Division of Land Development
 Date: 5-8-18

Chief, Development Engineering Division
 Date: 5-9-18

GLWGUTSCHICK LITTLE & WEBER, P.A.
 CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
 3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
 BURTONSVILLE, MARYLAND 20866
 TEL: 301-421-4024 BAL: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DES. DEV.	DRN. LAG.	CHK. MUT.	DATE	REVISION	BY	APP'R.

PREPARED FOR:
 THE HOWARD HUGHES CORPORATION
 10480 LITTLE PATUXENT PARKWAY
 SUITE 400
 COLUMBIA, MARYLAND 21044
 ATTN: BILL ROWE
 410-964-4987

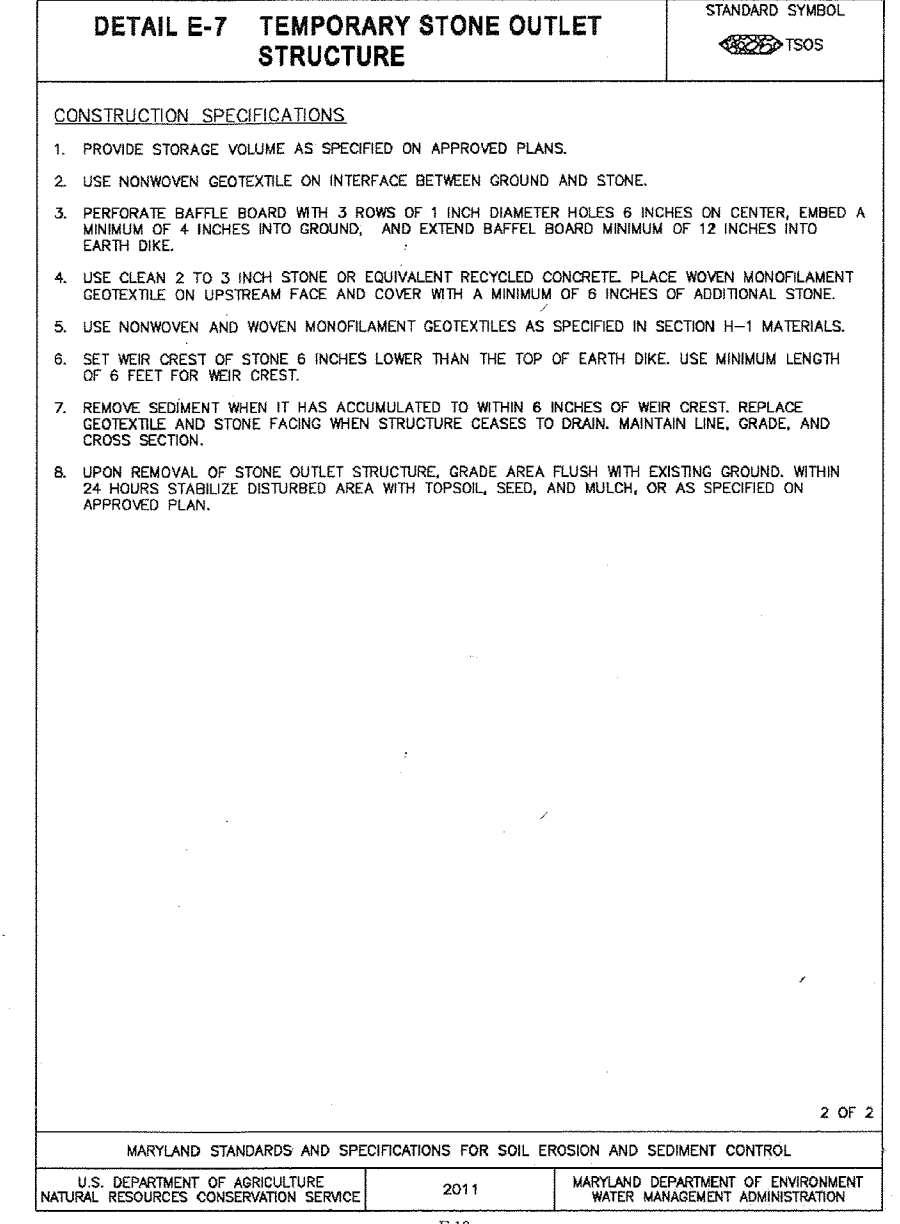
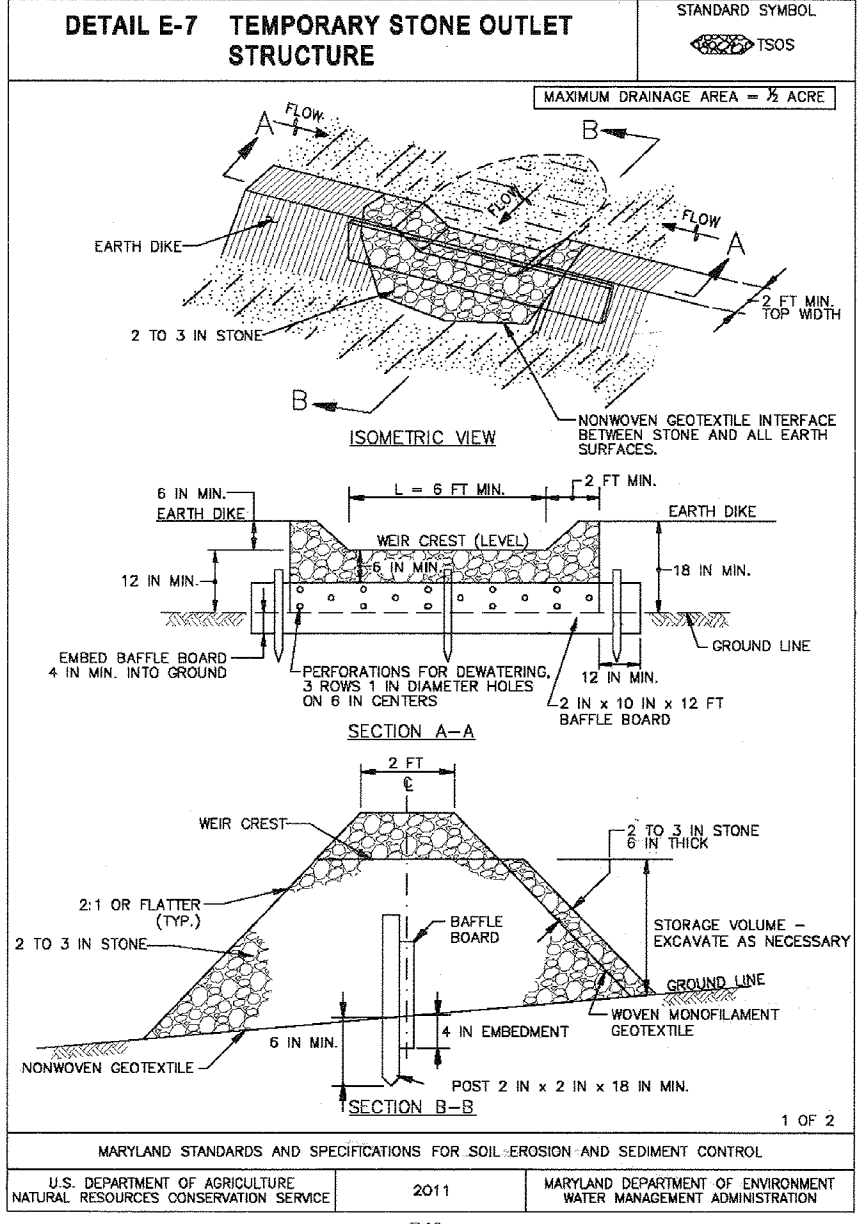
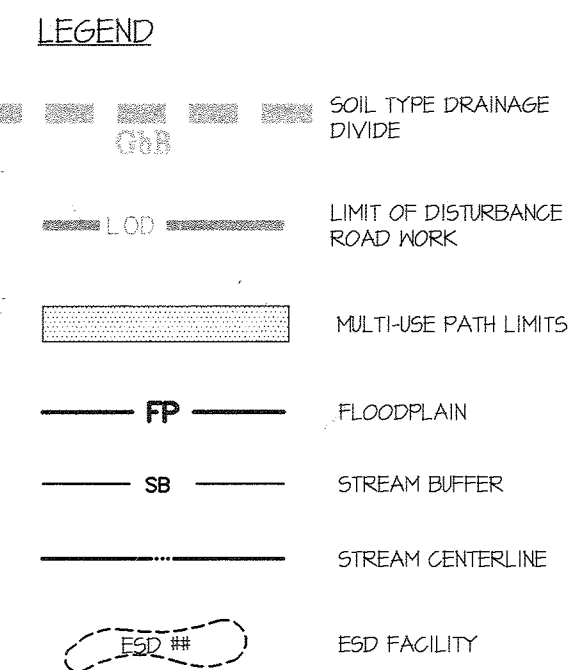
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 12975, EXPIRATION DATE: MAY 26, 2018

CULVERT PROFILE
DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9
 HOWARD COUNTY, MARYLAND
 ELECTION DISTRICT No. 5

SCALE	ZONING	G. L. W. FILE No.
1" = 50' (H) 1" = 5' (V)	NT	11071
DATE	TAX MAP - GRID	SHEET
DEC., 2017	36 - 01	23 OF 27

L:\CAD\DRAWINGS\11071\PLANS BY G.L.W. (Revised) - Phase 2A Working - Symphony Woods Across Stream 2017-05-01\11071_02-F-23 - Culvert Profile.dwg
 DATE: 4/22/2018 10:58 AM, USER: SAWS2018/2018-04-28 PM, PLOTTED BY: Lisa Osann

RIVER STATION	WEEL
11+66.63	313.22
11+19.14	315.40
11+13.45	317.07
12+01.74	317.61
12+32.02	311.78



EARTH DIKES

No.	DRAINAGE AREA	AVG. SLOPE	TREATMENT	SHEAR STRESS AT OUTLET
ED #11	0.84 AC.	5.4%	A-2	0.71 LB/FT ²
ED #12	0.22 AC.	3.0%	A-2	0.36 LB/FT ²
ED #13	0.14 AC.	1.4%	A-2	0.30 LB/FT ²
ED #14	0.12 AC.	1.2%	A-2	0.11 LB/FT ²
ED #15	0.05 AC.	4.4%	A-2	0.41 LB/FT ²

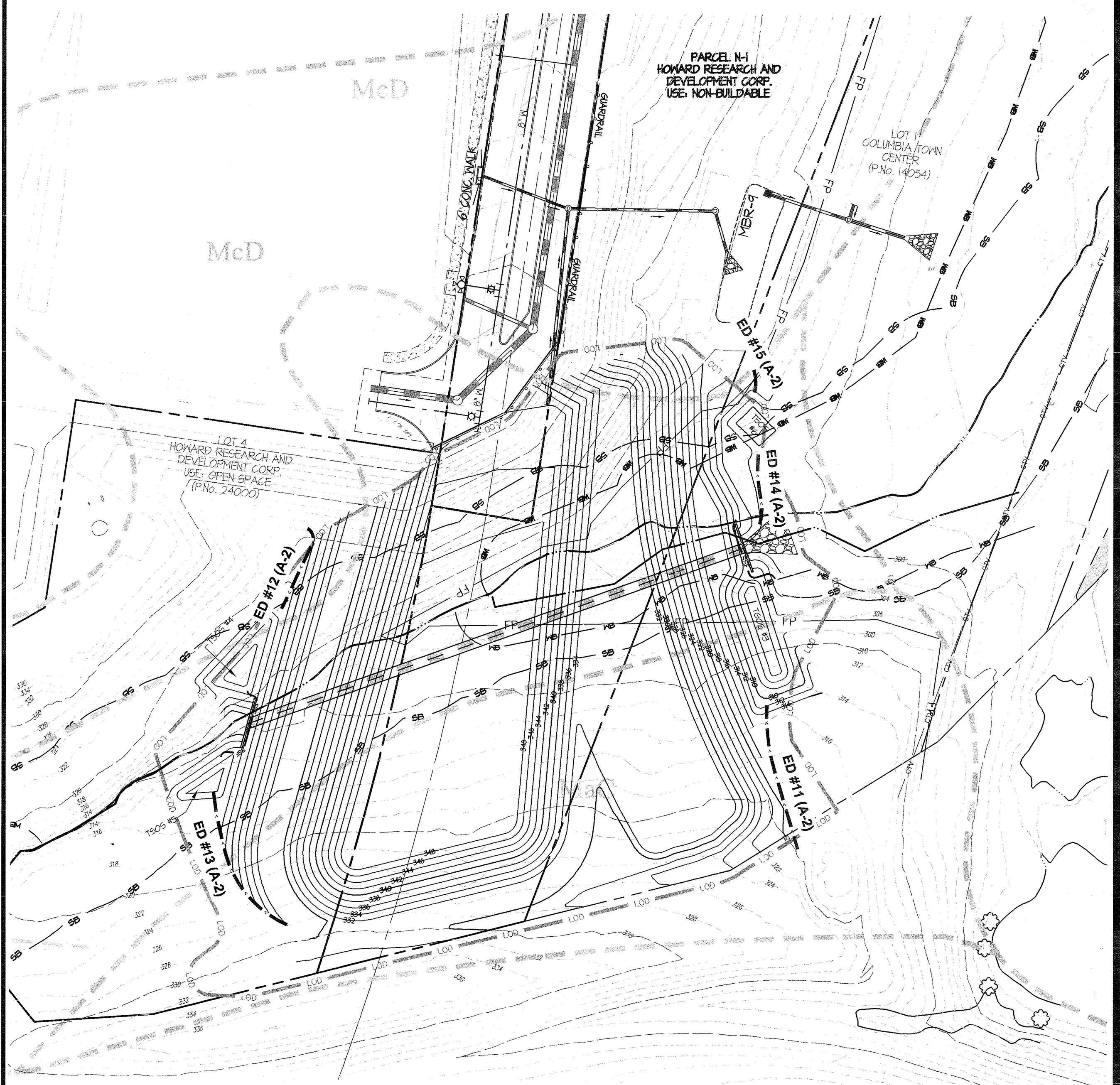
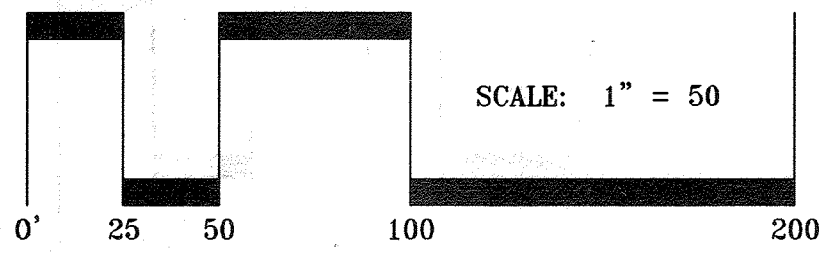
TEMPORARY OUTLET STRUCTURES

STRUCT. #	TYPE	EX. DRAINAGE AREA	PROP. DRAINAGE AREA	REQUIRED STORAGE VOL.	PROVIDED STORAGE VOL.	TOP OF TRANSITION EARTH DIKE	TOP OF BARRIERS	WEIR ELEV.	WEIR LENGTH	BOTTOM ELEVATION	BOTTOM DIMENSIONS
3	T60S	---	1.4 AC.	1,260 CF	1,440 CF	306.00	306.00	303.50	6'	303.50	60' x 7'
4	T50S	---	0.5 AC.	400 CF	400 CF	314.00	314.00	313.50	6'	311.00	12' x 12'
5	T50S	---	0.3 AC.	540 CF	540 CF	314.00	314.00	313.50	6'	312.00	16' x 16'
6	T50S	---	0.5 AC.	400 CF	424 CF	301.75	301.75	301.50	6'	294.30	20' x 12'

(*) DUE TO THE PLACEMENT OF FILL, THE PROPOSED DRAINAGE AREA WILL BE THE LARGEST.

NOTES:

- ON JANUARY 9, 2011 HOWARD COUNTY DEPT. OF PLANNING & ZONING DETERMINED THAT THE DISTURBANCES SHOWN ARE ESSENTIAL & NECESSARY.
- FOR LIMITS OF STEEP SLOPES, SEE SHEET 2.



This Development Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.

J. Hall 4/23/18
Howard S.C.D. Date

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.

Chad G. Guss 4/2/18
ENGINEER'S SIGNATURE DATE

DEVELOPER'S/BUILDER'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 ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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 4-18-18
SIGNATURE OF DEVELOPER/BUILDER DATE

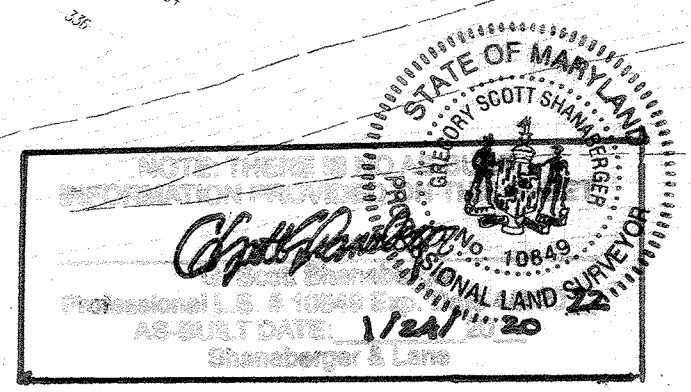
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chad Guss 4/2/2018
Chief, Bureau of Highways Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

J. Mendenhall 5-8-18
Chief, Division of Land Development Date

Chad Guss 5-3-18
Chief, Development Engineering Division Date



GLWGUTSCHICK LITTLE & WEBER, P.A.

CIVIL ENGINEERS, LAND SURVEYORS, LAND PLANNERS, LANDSCAPE ARCHITECTS
3909 NATIONAL DRIVE - SUITE 250 - BURTONSVILLE OFFICE PARK
BURTONSVILLE, MARYLAND 20866
TEL: 301-421-4024 BALT: 410-880-1820 DC/VA: 301-989-2524 FAX: 301-421-4186

DES. MJT DRN. Wsjl CHK. MJT

DATE	REVISION	BY	APPR.

PREPARED FOR:

THE HOWARD HUGHES CORPORATION
10480 LITTLE PATUXENT PARKWAY
SUITE 400
COLUMBIA, MARYLAND 21044
ATTN: BILL ROWE
410-964-4987

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 12975

EXPIRATION DATE: MAY 26, 2018

4/2/18

FINAL GRADING & SEDIMENT CONTROL PLAN & SOILS MAP - STAGE 2

**DOWNTOWN COLUMBIA
CRESCENT NEIGHBORHOOD
NON-BUILDABLE BULK PARCELS M-1 THRU O-1 AND OPEN SPACE LOT 9**

ELECTION DISTRICT No. 5 HOWARD COUNTY, MARYLAND

SCALE	ZONING	G. L. W. FILE No.
1" = 50'	NT	11071
DATE	TAX MAP - GRID	SHEET
DEC., 2017	36 - 01	25 OF 27

L:\CAD\DRAWINGS\11071\PLANS BY G.W\Wetlines\Phase 2A\Grading\Symphony Woods Across Stream 2017-05-01\11071_02-F-25 - Stage 2 - Grading Plan.dwg, PLOTTED: 3/28/2018 9:15 PM, LAST SAVED: 3/22/2018 11:56 AM, PLOTTED BY: Julie Croon

PROJECT DESCRIPTION

EQUIPMENT LIST A

EQUIPMENT TO BE PROVIDED BY THE COUNTY WHEN REIMBURSED BY THE DEVELOPER AND INSTALLED BY THE TRAFFIC SIGNAL CONTRACTOR

DESCRIPTION	UNITS	QUANTITY
EAGLE EIGHT-PHASE, FULL-TRAFFIC ACTUATED CONTROLLER HOUSED IN A NEMA SIZE "M" POLE-MOUNTED CABINET PER HOWARD COUNTY SPECIFICATIONS	EA	1
UPS SYSTEM BATTERY BACK - UP SYSTEM	EA	1
8" YELLOW BALL LED SIGNAL	EA	6
12" YELLOW BALL LED SIGNAL	EA	6
12" RED BALL LED SIGNAL	EA	6
CELLULAR MODEM	EA	1

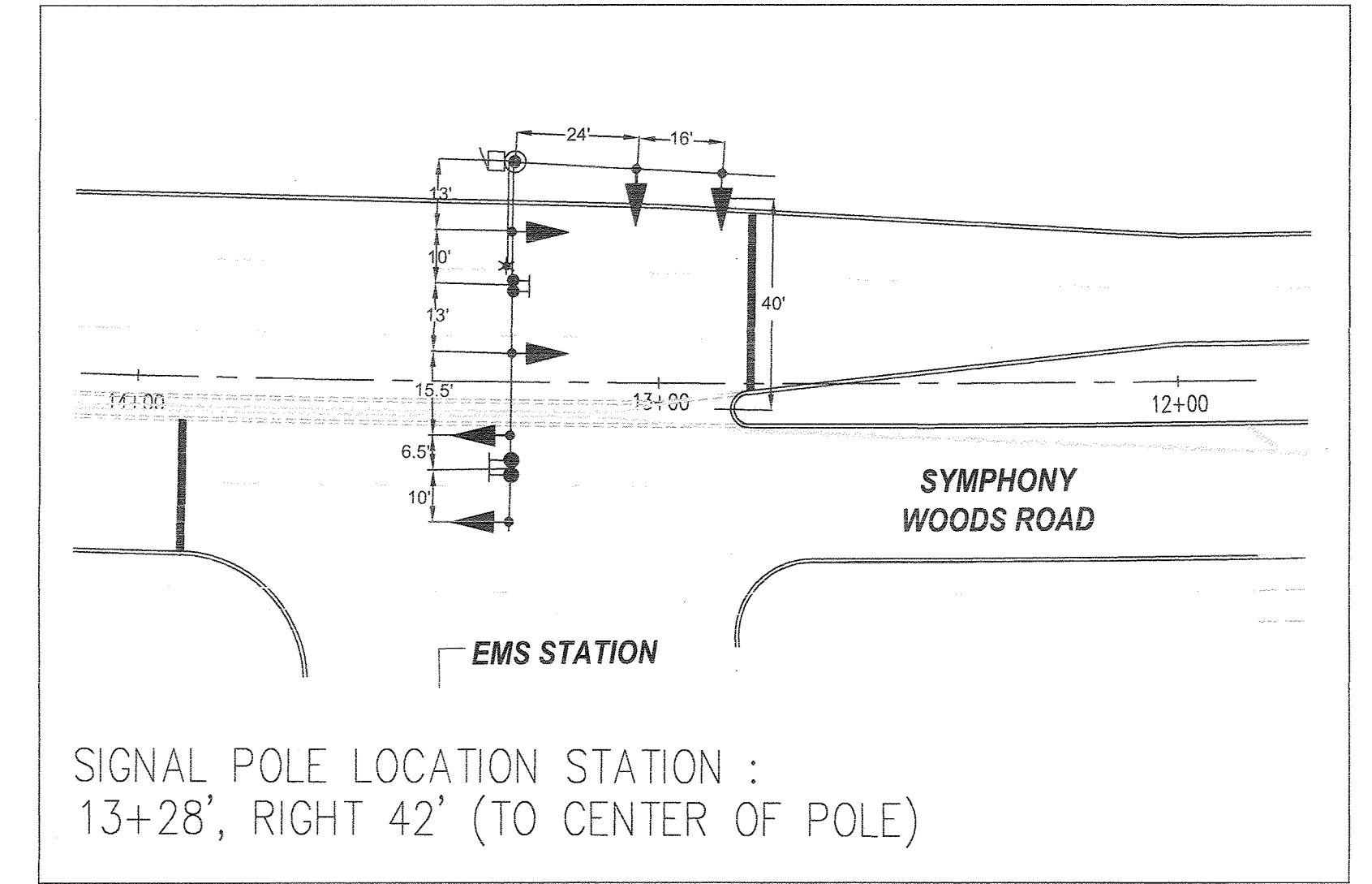
EQUIPMENT LIST B

FURNISHED AND INSTALLED BY THE CONTRACTOR

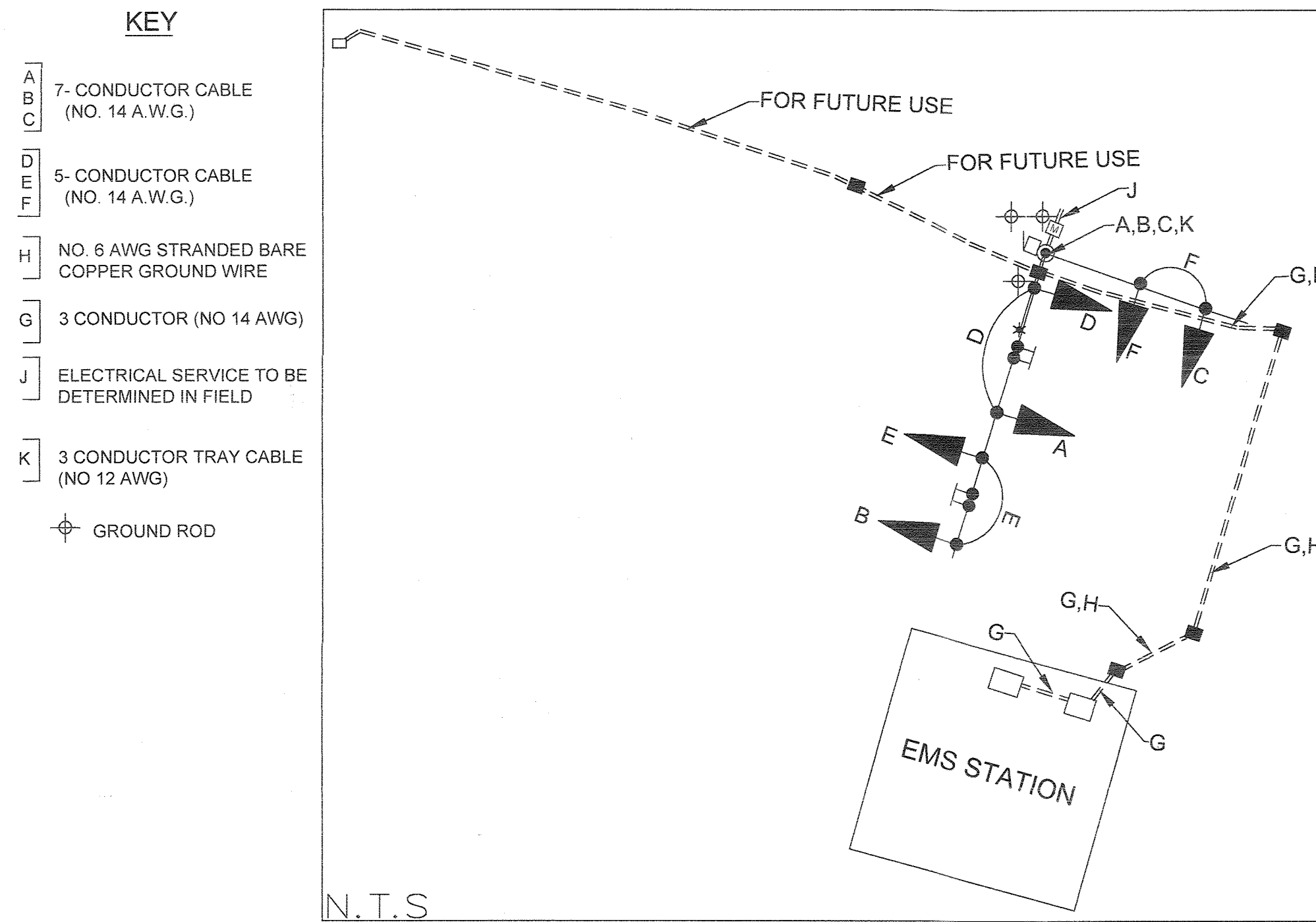
DESCRIPTION	UNITS	QUANTITY
MAINTENANCE OF TRAFFIC	LS	1
MOBILIZATION	LS	1
TEST PIT EXCAVATION	CY	1
CONCRETE FOR SIGNAL FOUNDATION	CY	5
SIGNAL POLE WITH TWIN 70' / 50' MAST ARM (PAINTED FEDERAL BROWN)	EA	1
SHEET ALUMINUM SIGN	SF	72
3 EA. W11-8 (36"X36") GROUND - MOUNTED EMERGENCY VEHICLE		
2 EA. R10-7 (24"X30") GROUND - MOUNTED DO NOT BLOCK INTERSECTION		
2 EA. W11-8B (72"X36") OVERHEAD FIREHOUSE SIGNAL		
LIGHTING ARM (20-FT ARM) (PAINTED FEDERAL BROWN)	EA	1
3" SCHEDULE 80 PVC RIGID CONDUIT - TRENCHED	LF	260
4" SCHEDULE 80 RIGID PVC CONDUIT - BORED	LF	75
4" SCHEDULE 80 RIGID PVC CONDUIT - TRENCHED	LF	100
FURNISH AND INSTALL HANDBOX WITH CONCRETE COLLAR	EA	5
METER SERVICE PEDESTAL (ELECTRICAL UTILITY SERVICE EQUIPMENT 120/240 VOLTS 60 AMPS)	LS	1
NO. 8 AWG STRANDED BARE COPPER GROUND WIRE	LF	60
ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)	LF	225
ELECTRICAL CABLE - 3 CONDUCTOR (NO. 14 AWG) (PRE-EMPTION)	LF	330
ELECTRICAL CABLE - 3 CONDUCTOR (NO. 12 AWG) (STREETLIGHT)	LF	45
ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)	LF	75
GROUND ROD 3/4 IN. DIAMETER X 10 FT. LENGTH	EA	6
24" THERMOPLASTIC WHITE PAVEMENT MARKING (STOPLINE)	LF	60

- I. GENERAL
THIS PROJECT INVOLVES THE INSTALLATION OF AN EMERGENCY TRAFFIC SIGNAL TO BE ACTIVATED BY A PULL-CORD SWITCH WITHIN THE EMS STATION, A TWIN ARM SIGNAL POLE WITH A POLE-MOUNTAIN CABINET WILL BE INSTALLED ALONG SYMPHONY WOODS ROAD AT THE EMS STATION DRIVEWAY LOCATED IN HOWARD COUNTY, MD.
- II. INTERSECTION OPERATION
THE PROPOSED SIGNAL WILL OPERATE IN FLASHING YELLOW MODE FOR SYMPHONY WOODS ROAD AND FLASHING RED FOR THE EMS STATION DRIVEWAY. ONCE EMERGENCY PUSHBUTTON IS ACTIVATED THE SIGNAL WILL QUICK FLASH YELLOW FOLLOWED BY A STEADY YELLOW AND THEN CHANGE TO A STEADY RED MODE AND THE EMS DRIVEWAY WILL CHANGE TO FLASHING YELLOW MODE.
- III. SPECIAL NOTES
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLES TO THE APPROPRIATE TERMINALS AND SHALL PROPERLY LABEL EACH CABLE.
2. CONTACT SUBIN GEORGE AT (410) 313-5753 TO SET UP A PRE-CONSTRUCTION MEETING IN THE FIELD.
3. ALL UNDERGROUND AND OVERHEAD UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING MISS UTILITY (1-800-257-7777) PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.

SIGNAL AND SIGN DIMENSIONS

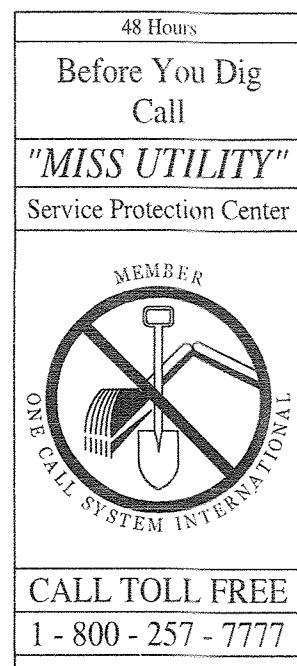


WIRING DIAGRAM



PHASE AND SEQUENCE DIAGRAM	SIGNAL HEADS					
	1	2	3	4	5	6
	(R) (Y) (Y)	(R) (Y) (Y)	(R) (Y) (Y)	(R) (Y) (Y)	(R) (Y) (Y)	(R) (Y) (Y)
NORMAL OPERATION	FL/8" Y	FL/8" Y	FL/8" Y	FL/8" Y	FL/R	FL/R
PRE-EMPT WARNING	QFL/8" Y	QFL/8" Y	QFL/8" Y	QFL/8" Y	R	R
WARNING CHANGE	Y	Y	Y	Y	R	R
PRE-EMPT PHASE	R	R	R	R	FL/8" Y	FL/8" Y
PRE-EMPT CHANGE	R	R	R	R	Y	Y
FLASHING OPERATION	FL/12" Y	FL/12" Y	FL/12" Y	FL/12" Y	FL/R	FL/R

CALL "MISS UTILITY" AT 1-800-257-7777, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE HOWARD COUNTY CODE.



NOTE: THERE IS NO ASSURANCE OF INFORMATION PROVIDED ON THESE PLANS.
G Scott Shanaberger
Professional L.S. # 10849 Exp. Date 4/2/2022
AS-BUILT DATE: 1/24/2022
Shanaberger & Lane

THE PURPOSE OF THIS SHEET IS TO PROVIDE INFORMATION FOR THE EMS SIGNAL INSTALLATION.

FINAL ROAD CONSTRUCTION PLAN-ADDITIONAL SHEET

 WELLS + ASSOCIATES, INC 1420 Spring Hill Road, Suite 610, Tysons, Virginia 22102 Phone: 703/917-6620 Facsimile: 703/917-0739 210 Wirt Street, SW, Suite B5, Leesburg, Virginia 20175 Phone: 703/443-1442 Facsimile: 703/443-1225	APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING Chief, Division of Land Development Date: 1/29/19 Chief, Development Engineering Division Date: 1-28-19	APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS Chief, Bureau of Highways Date: 12/7/2018 Director of Public Works Date: 12/10/18 Chief, Traffic Division Date: 12/2/2018	LEGEND ○ EXISTING SIGN ● PROPOSED SIGN	PROFESSIONAL CERTIFICATION I HEREBY CERTIFY THAT THESE PLANS 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. 05-52094 EXPIRATION DATE: 06/28/2020 	SCALE: 1" = 30' DATE: Nov 29, 2018 DESIGNED BY: LES DRAWN BY: VJS CHECKED BY: LES/RWM PROJECT NO: 6489F	TITLE: Emergency Traffic Signal Plan Symphony Woods Road / EMS STATION LOCATION/DESCRIPTION: Howard County, Maryland	SHEET: 27 OF 27
	REVISIONS:						