HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO. N-3965 SITE DEVELOPMENT PLAN SDP-14-055

GENERAL NOTES

- . ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY SPECIFICATIONS AND DETAILS FOR CONSTRUCTION PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- 2. 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.
- 3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 4. THE SUBJECT PROPERTY IS ZONED NT AND R20 PER THE COMPREHENSIVE ZONING PLAN, EFFECTIVE OCTOBER 6, 2013.
- 5. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN WETLANDS. STREAMS, WETLAND OR STREAM BUFFERS, 100-YEAR FLOODPLAIN, OR FOREST CONSERVATION EASEMENTS UNLESS APPROVED BY THE DEPARTMENT OF PLANNING AND ZONING.
- 6. WATER IS PROVIDED BY CONTRACT 34-4170-D.
- SEWER IS PROVIDED BY CONTRACT 34-4345.
- 8. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UP ON THE MARYLAND STATE PLANE COORDINATE SYSTEM: HORIZONTAL NAD'83/91 VERTICAL NAVD'88.
- 9. THERE ARE NO FLOODPLAINS ON THE SITE AS SHOWN ON NFIP FIRM PANEL 240044 0033B, DATE 12/4/1986.
- 10. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY KCI DATED 2007. ADDITIONAL UTILITY INFORMATION WAS PROVIDED BY HOWARD COUNTY RECORDS AND MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPHIC AND UTILITY INFORMATION.
- . APPROXIMATE LOCATION AND INVERTS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN AN UNINTERRUPTED SERVICE. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES BY TEST PIT OR OTHER MEANS OF INVESTIGATION APPROVED BY THE OWNER WELL IN ADVANCE OF CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- 12. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIÓR TO THE PLACEMENT OF ANY ASPHALT.
- 13. ENVIRONMENTAL SITE DESIGN (ESD) IS INCORPORATED INTO THE DEVELOPMENT AT THE MAXIMUM EXTENT POSSIBLE. ESD FACILITIES INCLUDE AN M-6 MICRO-BIORETENTION AND A-2 PERVIOUS CONCRETE. NON-STRUCTURAL PRACTICES INCLUDE N-1 DISCONNECTION OF ROOFTOP RUNOFF. HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL STORMWATER MANAGEMENT FACILITIES.
- 14. A PERENNIAL STREAM AND 100-FOOT BUFFER ARE LOCATED TO THE SOUTH OF THE PROJECT. THE PROJECT WILL DISTURB THE 100-FOOT BUFFER AND WILL THEREFORE REQUIRE A WAIVER.
- 15. WAIVER PETITION WP-14-052 HAS BEEN APPROVED ON NOVEMBER 22, 2013. REQUIREMENTS OF SECTION 16.116(A)(2)(iii) HAVE BEEN WAIVED PENDING THESE CONDITIONS: THE APPLICANT SHALL ACQUIRE ALL REQUIRED STATE AND/OR CORPS OF ENGINEERS PERMITS FOR DISTURBANCE

WITHIN THE 100-FOOT STREAM BUFFER.

- 15.2. FOREST CONSERVATION FOR THE LIMIT OF DISTURBANCE LOD) MUST BE ADDRESSED ONLY FOR THE R-20 ZONED SDP SUBMISSION AND AREAS IDENTIFIED AS HIGH PRIORITY FOR FOREST RETENTION MUST BE DELINEATED AND PROTECTED FROM DISTURBANCE TO THE MAXIMUM EXTENT POSSIBLE.
- 15.3. NO DISTURBANCE IS PERMITTED BEYOND THE LIMIT OF DISTURBANCE SHOWN ON THE WAIVER PETITION PLAN EXHIBIT UNLESS IT CAN SUFFICIENTLY BE DEMONSTRATED TO BE NECESSARY OR ESSENTIAL.
- 15.4. ON THE FORTHCOMING SITE DEVELOPMENT PLAN, PROVIDE A BRIEF DESCRIPTION OF THE WAIVER PETITION (WP-14-052). AS A GENERAL NOTE TO INCLUDE REQUEST(S), SECTION(S) OF THE REGULATIONS. ACTION AND DATE.
- 15.5. ALL DISTURBED AREAS MUST BE STABILIZED AND REPLANTED

DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

el el CHIEF, DEVELOPMENT ENGINEERING DIVISION Vater alunks 9-13-17 CHIEF DIVISION OF LAND DEVELOPMENT 9-13-17

- AS APPROPRIATE IMMEDIATELY UPON COMPLETION OF THE
- 15.6. A PRE-SUBMISSION COMMUNITY MEETING AS REQUIRED UNDER SECTION 16.156(A)(2) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS MUST BE HELD TO PROVIDE RESIDENTIALLY ZONED PROPERTY OWNERS THAT ARE ADJACENT TO THIS ENVIRONMENTAL AREA THE OPPORTUNITY TO HEAR AND COMMENT ON THIS PROPOSAL
- 16. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES LOCATED ON THIS SITE.
- 17. THE REQUIRED PERIMETER PLANTINGS AND PARKING LOT PLANTINGS ARE PROVIDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- 18. THE FOREST CONSERVATION OBLIGATION FOR THIS PLAN HAS BEEN MET BY PROVIDING A FEE IN LIEU TOTAL OF \$3,920.40. THE FEE-IN-LIEU AMOUNT IS BASED ON A TOTAL AFFORESTATION REQUIREMENT OF 5,227 SQUARE FEET X 0.75 PER SQUARE FOOT. THE FOREST CONSERVATION OBLIGATION IS ONLY FOR THE R-20 PORTION OF THE SITE. THE NT ZONED PORTION OF THE SITE IS EXEMPT FROM FOREST CONSERVATION OBLIGATIONS ACCORDING TO SECTION 16.1202(b)(iv) OF THE HOWARD COUNTY CODE FOR A PLANNED UNIT DEVÈLOPMENT APPROVED PRIOR TO 12/31/92.
- 19. ALL OUTDOOR LIGHTING SHALL COMPLY WITH THE REQUIREMENTS OF ZONING SECTION 134. ALL PROPOSED EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS. LIGHT TRESPASS ONTO ANY PROPERTY ZONED OR USED FOR RESIDENTIAL PURPOSES SHALL BE LIMITED TO 0.5 FOOT
- 20. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUTNY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993) A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
- 21. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE), 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF
- 22. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- 23. THERE ARE NO WETLANDS ON THIS SITE.
- 24. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- 25. THIS PLAN IS IN ACCORDANCE WITH SECTION 128.0.A.10 AND 11 OF THE ZONING REGULATIONS WHEN 2 OR MORE CONTIGUOUS LOTS OR PARCELS ARE TREATED AS A SINGLE PARCEL FOR DEVELOPMENT PURPOSES, THE ZONING STRUCTURE AND USE SETBACKS FROM INTERNAL LOT LINES SHALL NOT APPLY AND IF THE DEVELOPMENT PLAN SHOWS AN INTEGRATED DESIGN. THAT INCORPORATES MORE THAN ONE ZONING DISTRICT, THERE IS NO REQUIRED SETBACK FROM AN INTERNAL ZONING DISTRICT BOUNDARY.
- 26, A COMMUNITY MEETING WAS HELD ON JUNE 25, 2014 TO PROVIDE THE COMMUNITY WITH INFORMATION ON THIS PROPOSED
- 27. ON AUGUST 21, 2014, THIS SDP WAS APPROVED BY THE PLANNING BOARD WITHOUT ANY CONDITIONS.
- 28. THIS SDP IS SUBJECT TO FDP-201-A-1. WHICH WAS AMENDED AND APPROVED BY THE HOWARD COUNTY PLANNING BOARD ON JULY 17, 2014.
- PORTION OF THIS ENVIRONMENT AREA ON THE FORTHCOMING 29. THE FOLLOWING DESIGN MANUAL WAIVERS WERE APPROVED BY DPW ON JUNE 24, 2014: MATCH CROWN OF PIPES (SECTION 4.1.1.D.9), CRITERIA FOR ESD PRACTICES (SECTION 5.2.4), EXISTING ROADWAY WIDENING STRIP (DETAIL R-1.08), TROTTER ROAD CENTERLINE STATION TIE IN.
 - 30. ALL TRASH AND REFUSE WILL BE THE RESPONSIBILITY OF THE DEPARTMENT OF RECREATION AND PARKS. DURING CONSTRUCTION, ALL TRASH AND REFUSE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

APPROVED: PLANNING BOARD OF HOWARD COUNTY

08/21/2014 DATE

SITE ANALYSIS DATA CHART*

TOTAL PROPERTY AREA: 648.98 AC AREA OF PLAN SUBMISSION: 2.44 AC LIMIT OF DISTURBED AREA: 2.44 AC PROPOSED IMPERVIOUS COVER: 0.75 AC

PRESENT ZONING DESIGNATION: NT & R-20, PER THE COMPREHENSIVE ZONING PLAN, EFFECTIVE OCTOBER 8, 2013

EXISTING/PROPOSED USES: TRAILHEAD — FOR INDIVIDUALS TO PARK AND GATHER PRIOR TO ENTERING THE PARK.

FLOOR SPACE: STORAGE BUILDING: 1520 SF:

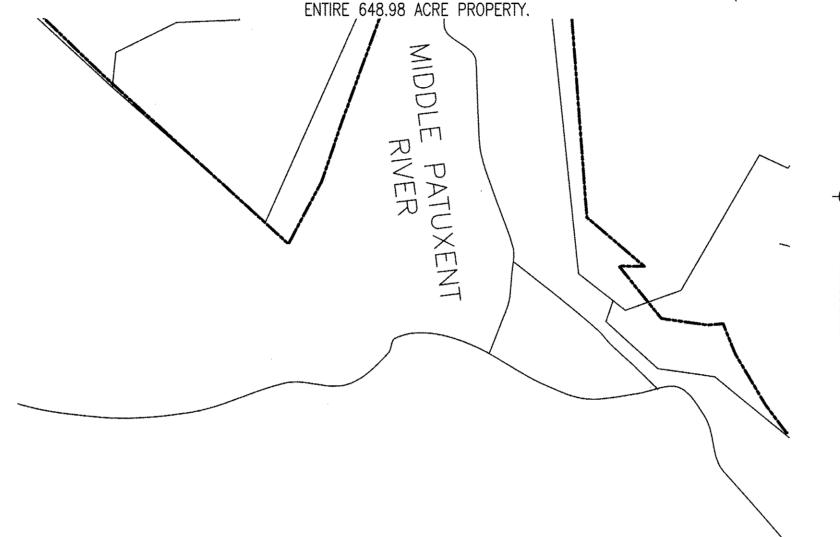
COMFORT STATION: 302 SF PARKING SPACES PROVIDED AS DETERMINED BY THE DEPARTMENT OF RECREATION AND PARKS PARKING SPACES PROVIDED: 34 SPACES,

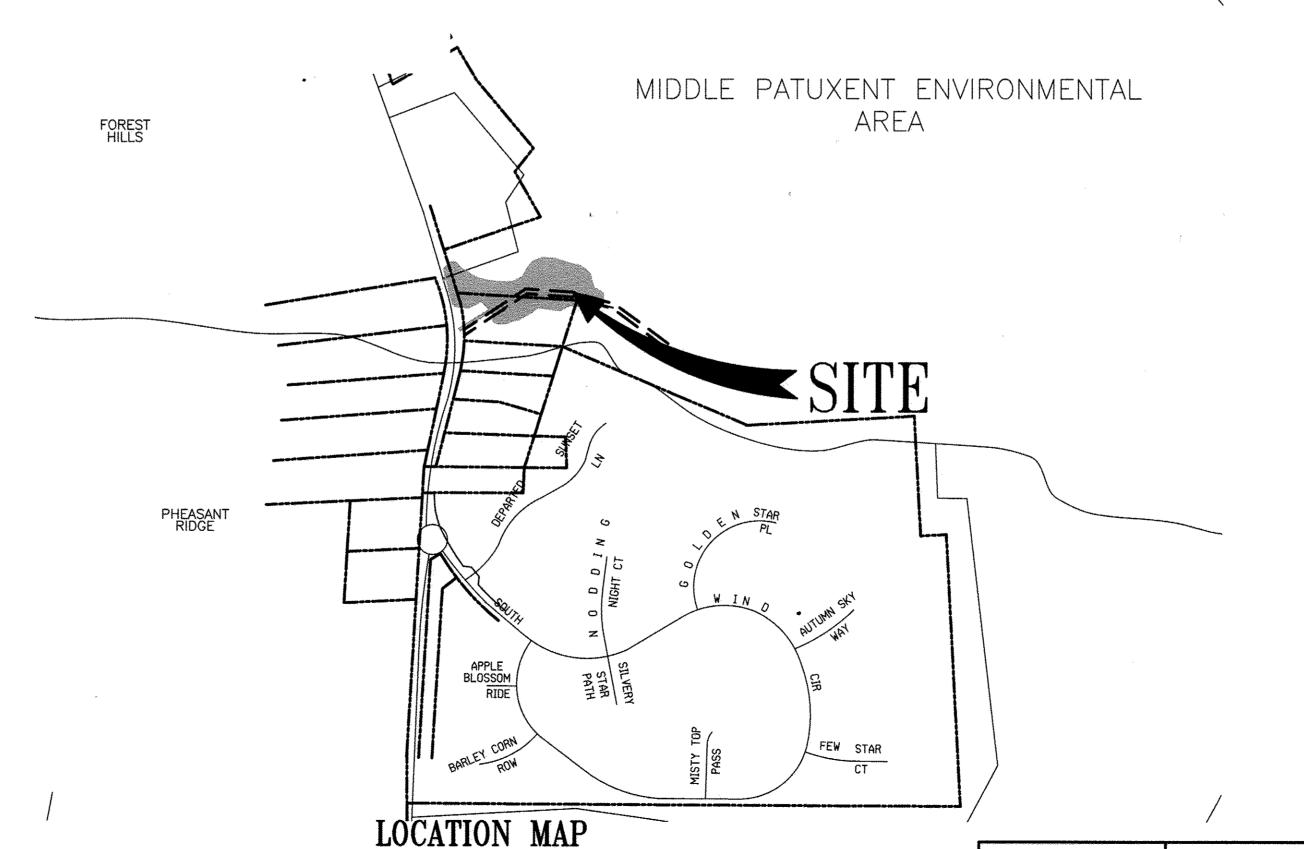
3 HANDICAP (37 TOTAL) AREA OF RIGHT OF WAY: 0.00 AC AREA OF WETLANDS/BUFFER: N/A AREA OF FLOODPLAINS/BUFFER: N/A AREA OF STREAM BUFFER IMPACT: 0.80 AC

AREA OF STEEP SLOPES >15%: 0.71 AC AREA OF ERODIBLE SOILS: 1.86 AC AREA OF GREEN OPEN SPACE: 1.62 AC

APPLICABLE DPZ FILE NUMBERS: ECP-14-031, WP-14-052, FDP PHASE 201-A MIDDLE PATUXENT ENVIRONMENTAL AREA (APPROVED 5/6/1999), FDP PHASE 201-A-1 (APPROVED 7/17/2014)

*NOTE: THIS PLAN AND ALL AREAS IN THIS SITE ANALYSIS DATA CHART ARE WITHIN THE 2.44 ACRES THAT THIS SUBMISSION COVERS, NOT THE

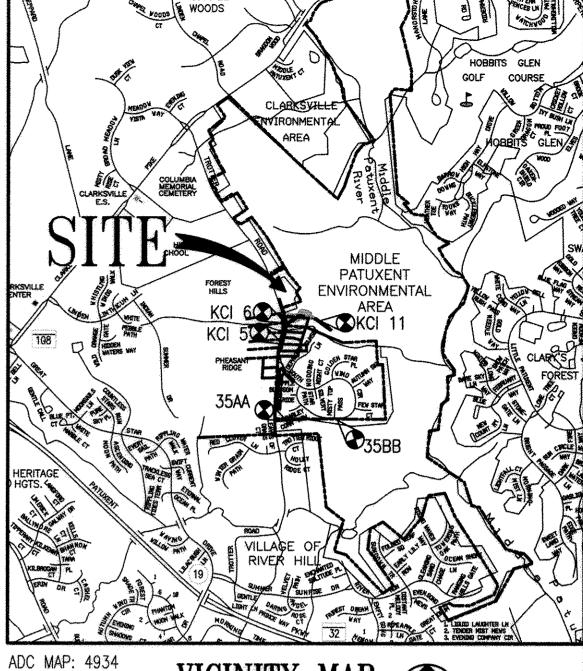




1" = 400'

BENCHMARK DATA

35AA: N 560767.7, E 1335483.83, ELEV. 430.95 35BB: N 560790.42, E 1336537.22, ELEV. 394.26 KCI 5: N 562367.39, E 1335373.4, ELEV. 380.99 KCI 6: N 562794.28, E 1335445.76, ELEV. 371.28 KCI 11: N 562850.49, E 1336162.86, ELEV. 363.65 NOTE: KCI BENCHMARKS USED TO ESTABLISH THE PROJECT CONTROL



VICINITY MAP



LIST OF DRAWINGS

. CO.1 COVER SHEET

CO.2 ABBREVIATIONS, NOTES, AND LEGENDS

C1.0 EXISTING SITE PLAN

4. C1.1 SITE DEMOLITION PLAN 5. C1.2 SITE AND UTILITY PLAN

C1.3 STAKEOUT PLAN C1.4 GRADING AND STORMWATER MANAGEMENT PLAN

C1.5 EROSION AND SEDIMENT CONTROL PLAN

9. C2.1 STORM DRAIN PROFILES 10. C3.1 ENLARGED SITE PLANS

11. C4.1 SITE DETAILS

12. C4.2 SITE DETAILS 13. C4.3 STORMWATER MANAGEMENT DETAILS AND NOTES

14. C5.1 EROSION AND SEDIMENT CONTROL - NOTES

15. C5.2 EROSION AND SEDIMENT CONTROL - NOTES/DETAILS

16. C5.3 SOIL BORING LOGS

17. C6.1 OVERALL ESD DRAINAGE AREA MAP 18. C6.2 STORMWATER DRAINAGE AREA MAP

19. C6.3 INLET DRAINAGE AREA MAP

20. C6.4 EROSION AND SEDIMENT CONTROL DRAINAGE AREA MAP

21. L1.0 LANDSCAPE PLAN

22. L1.1 MINIMUM LANDSCAPE REQUIREMENTS 23. L1.2 PLANTING DETAILS

FOREST CONSERVATION 24. F2.1 FOREST CONSERVATION COVER SHEET

25. F2.2 FOREST CONSERVATION PLAN 26. F2.3 FOREST CONSERVATION NOTES AND DETAILS

CIVIL CONTINUED

COLUMBIA, MD 21045

ATTN: MR. TOM AUYEUNG

VOICE 410-313-6142

FAX 410-313-6161

OWNER:

HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS

7120 OAKLAND MILLS ROAD

ATTN: MR. RAUL DELERME

COLUMBIA, MD 21046

VOICE 410-313-4689

FAX 410-313-4646

27. 3.2 ENLARGED SUBMERGED GRAVEL WETLAND PLAN

	REVISIONS						
A	ADD SHEET 27, PARKING	6/28/17					
	SPACE NUMBER						
	and the second control of the second control						

	ADDRESS CHART				
	PARCEL #		ST	reet add	RESS
	512/467/427	1	STORAGE BUILDING: 5787 TROTTER ROAD COMFORT STATION: 5791 TROTTER ROAD		
DEVELOPER:		PERM	T INFORMATION C	HART	
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	WATER CODE: PUBLIC	SEWER CODE: PUBLIC	BUILDING N/A		
9250 BENDIX ROAD	PROJECT NA	WE:	0505041/4		84805

NT & R-20 35

MPEA SITE IMPROVEMENTS

GRID #3,9,2

4718/06 4718/41

SECTION/AREA

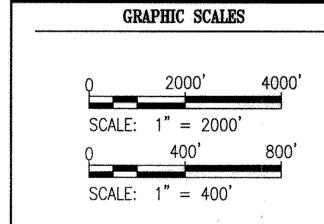
ZONING TAX MAP BLOCK ELEC. DIST. CENSUS TRAC

PARCEL

512/467/427

605505

Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716 GRAPHIC SCALES



SIGNATURE



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME. AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376 EXPIRATION DATE: ___09/22/2017

MPEA SITE **IMPROVEMENTS**

COVER SHEET Drawing No.

Scale: AS SHOWN Sheet 1 of 27 Date: 09/12/2014 Des: BWJ Drawn: SAD Check: AUO

ABBREVIATIONS OUTSIDE DIAMETER _AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OVERHEAD ELECTRIC OHE OFFICIALS OVERHEAD TELEPHONE ABAN, ABAND___ABANDON POINT OF CURVATURE POINT OF COMPOUND CURVATURE APPROX APPROXIMATELY PERFORATED ASTM ASSOCIATION FOR STANDARD TESTING PERF_ METHODS POINT OF INTERSECTION, POST INDICATOR BUILDING POINT OF BEGINNING BITUMINOUS POINT ON CURVE BENCH MARK POINT OF END CFS CUBIC FEET PER SECOND POINT ON TRAVERSE CAST IRON CAST IRON PIPE POINT OF TANGENCY C.I.P POLYVINYL CHLORIDE, POINT OF CENTERLINE VERTICAL CURVE CLEAN OUT POINT OF VERTICAL INTERSECTION COMM COMMUNICATION PVMT PAVEMENT CONTR. JT CONTRACTION JOINT POINT OF VERTICAL TANGENCY CONCRETE CONC POWER POLE CORRUGATED METAL PIPE POST INDICATOR VALVE DEMO DEMOLITION PROPOSED DIP___ _DUCTILE IRON PIPE RADIUS, RIGHT DIA, DIAM_ DIAMETER ROAD DWG, DRWG__ DRAWING RCCP REINFORCED CONCRETE CULVERT PIPE EAST REINFORCED CONCRETE PIPE EL, ELEV_ **ELEVATION** REIN, REINF REINFORCED ELECT, ELEC___ELECTRICAL RAILROAD EMBED **EMBEDDED** SOUTH, SLOPE, SANITARY **EXISTING** SANITARY EXP JT **EXPANSION JOINT** STABILIZED CONSTRUCTION ENTRANCE EACH WAY SCHEDULE FRAME AND COVER STORM DRAIN FIRE HYDRANT STANDARD DIMENSION RATIO FIN, FL, F.F.___FINISHED FLOOR _SOUTHEAST FEET SILT FENCE FEET PER SECOND SHEET HORIZONTAL BEND _STUDY POINT HO. CO. HOWARD COUNTY STAINLESS STEEL HANDICAPPED STATION HIGH POINT _STANDARD STD_ INCH STRUCT, STR__STRUCTURAL INVERT SOUTHWEST __INLET PROTECTION TELEPHONE JOINT _TAPPING SLEEVE & VALVE LEFT TS&V_ LIMIT OF DISTURBANCE TOP OF CURB TOP OF COVER LOW POINT _TOP_OF_GRATE MAXIMUM **MECHANICAL** TOP OF WALL MECH TYPICAL MANHOLE _UNDERGROUND MINIMUM _UNDERDRAIN MONITORING WELL _UNDERGROUND ELECTRIC DUCT NORTH NORTHEAST UNKNOWN MANHOLE UNDERGROUND TELEPHONE DUCT NOT IN CONTRACT

LETTER INDICATES SECTION, NUMBER INDICATES DETAIL OR ELEVATION	— DETAIL,SECTION OR ELEVATION DESIGNATOR —		-LETTER INDICATES SECTION, NUMBER INDICATES DETAIL OR ELEVATION
	DRAWING NUMBER WHERE DETAIL, SECTION OR ELEVATION IS DRAWN		
SITE ELEVATION/SECTION/ SYMBOL	DETAIL	TITLE AND SECTION/DETAIL REFERENCE	
		SYMBOL	

_UNDERGROUND FIRE ALARM

__WEST, WATT, WATER, WIDE

WELDED WIRE FABRIC

_vertical bend

__VERTICAL CURVE

D12*RCP_D_	12"SD	STORM DRAIN
	1-1/2*W	WATER
6"SAN s	6"SAN	SANITARY SEWER
	E E	UNDERGROUND ELECTRIC
		UNDERGROUND TELEPHONE
		CONCRETE CURB AND GUTTER
		FENCE
		BUILDING
		GRAVEL PAVEMENT
Makes the majoritable of general manney of an interfer is a final of a place of the first of the		ASPHALT PAVEMENT
		PARKING PERVIOUS PAVERS
		CONCRETE SIDEWALK
\bowtie	₹	WATER VALVE
\mathbb{A}	•	WATER METER
	∞	FIRE HYDRANT
(D)	0	STORM DRAIN INLET STORM DRAIN MANHOLE
	A	STORM DRAIN END SECTION
		STORM DRAIN ENDWALL
	0	RAIN BARREL
(§)		SANITARY SEWER MANHOLE
Œ		ELECTRIC MANHOLE
(T)		TELEPHONE MANHOLE
*		LIGHT POLE
ø		UTILITY POLE
	T	TRANSFORMER
dipolemanga maran manifolio (maran		GUY WIRE
- Carallel Control	•	SIGN
Enris		EVERGREEN TREE
(3)		DECIDUOUS TREE
	.~~~.	WOODSLINE/CLEARING LIMITS
\$0\$0\$Q		RIPRAP
Wus		STREAM
SB		100' STREAM BUFFER
AOL52 KCI 6		SURVEY TRAVERSE MONUMENT
		PROPERTY LINE
		35' SCENIC ROADS BUFFER
		EASEMENT LINE
⊕ SWM-1		SOIL BORING LOCATION
		REMOVE TREES
		REMOVE GRAVEL ROADWAY
		15-24.9% SLOPES
		>25% SLOPES

LEGEND

EXISTING

145,50

PROPOSED

145.50

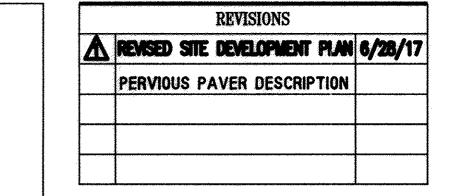
DESCRIPTION

CONTOUR

SPOT ELEVATION

PROPOSED	DESCRIPTION
—— LOD ——	LIMIT OF DISTURBANCE
SF	SILT FENCE
SSF	SUPER SILT FENCE
TP	TREE PROTECTION FENCE
DF	DIVERSION FENCE
[] AGIP	INLET PROTECTION
TSOS	TEMPORARY STONE OUTLET STRUCTURE
	LIMITS OF WET MEADOW AND RAIN GARDEN
Ho	STABILIZED CONSTRUCTION ENTRANCE
(HSG D) GbC (HSG B)	SOIL DIVIDE

EXISTING



HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

> DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043



PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376

EXPIRATION DATE: 09/22/2017

MPEA - SITE **IMPROVEMENTS**

ABBREVIATIONS, NOTES AND LEGENDS

Drawing No.

Scale: NONE

Date: 09/12/2014 Sheet 2 of 27 Des: BWJ/SAD Drawn: SAD Check: AUO

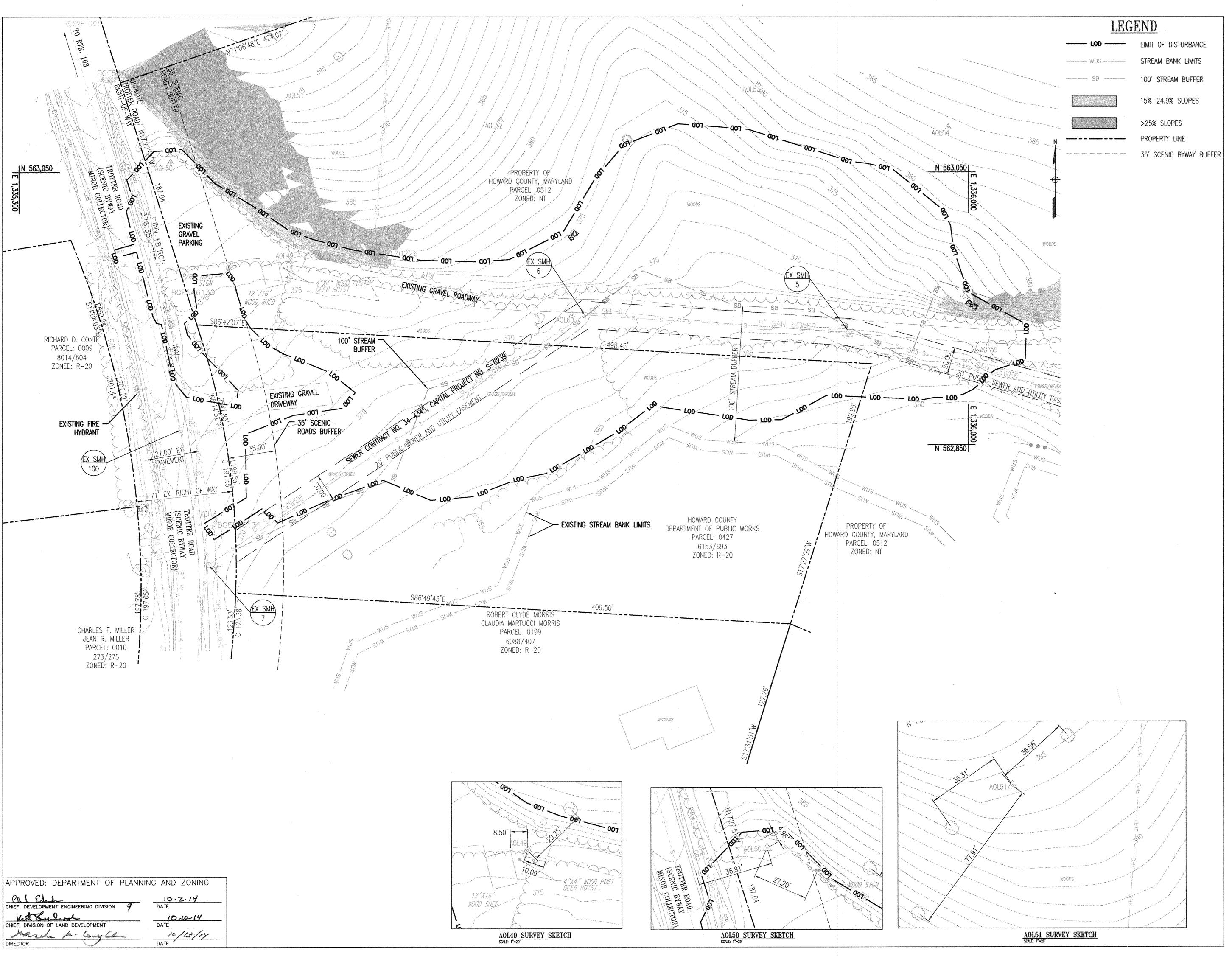
SDP-14-055

APPROVED:	DEPARTMENT	OF PLA	NNING AND	ZONING
Qu ca	ENT ENONEEDING DIV	ACION!		29.17
CHIEF, DEVELOPM	ENT ENGINEERING DIV	ISIUN 4	DATE 9-	- 13 -17
CHIEF, DIVISION O	OF LAND DEVELOPMEN	T X	DATE A-/	' 3:/7
. I common a series			# #	

NOT TO SCALE

NORTHWEST

__ON CENTER



REVISIONS					
REVISED SHEET TOTAL	6/28/17				

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



WHITMAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3460 Fax: 410-243-5716

PROPERTY

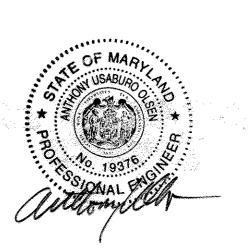
TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

0 15' 30' 60' SCALE: 1" = 30'

SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2015

MPEA - SITE IMPROVEMENTS

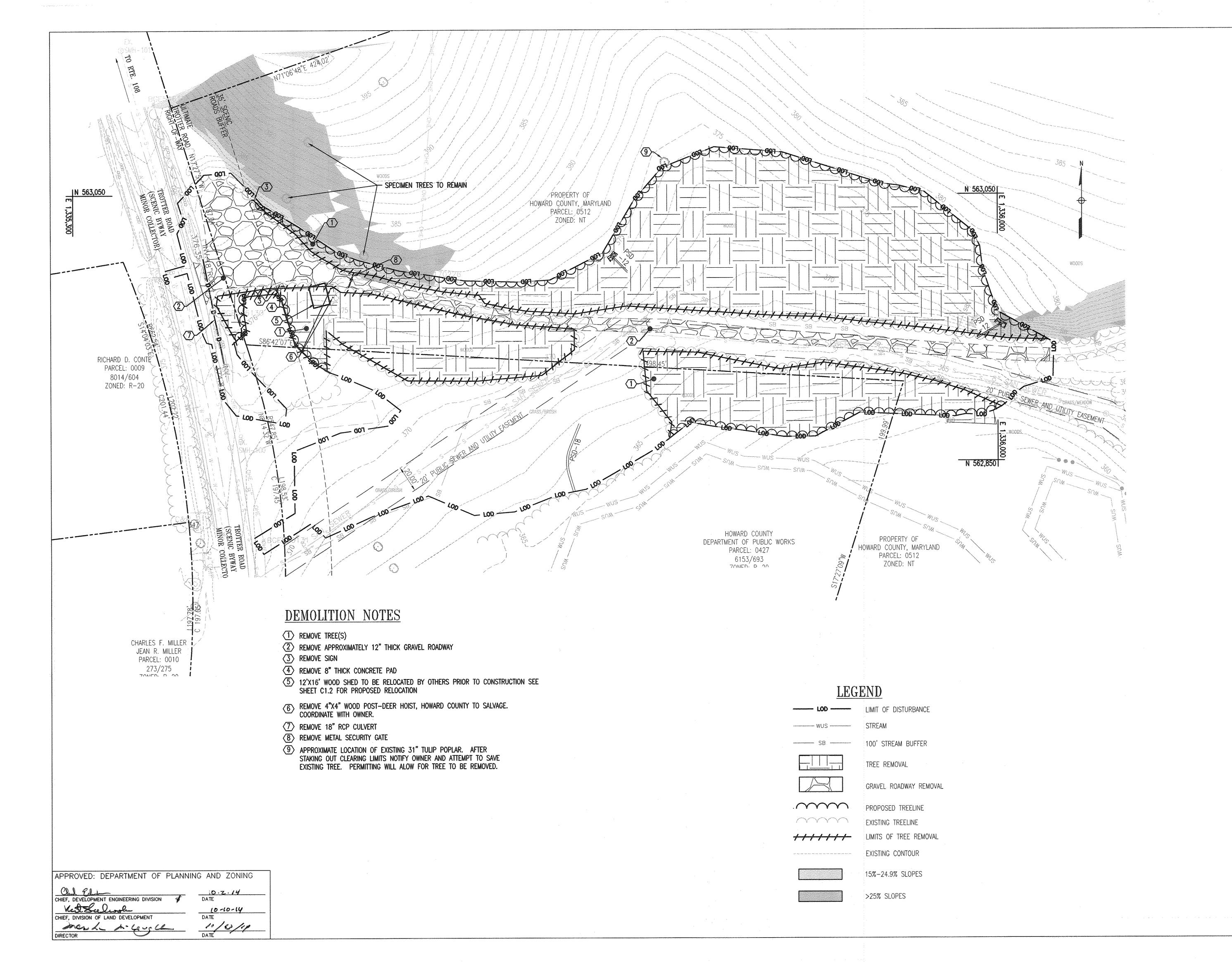
EXISTING SITE PLAN

Drawing No.

Scale: 1" = 30'

Date: 09/12/2014 | Sheet 3 of 27

Des: BWJ/SAD | Drawn: SAD | Check: AUO



	REVISIONS				
Δ	REVISED SHEET TOTAL	6/28/17			
, , , , , , , , , , , , , , , , , , ,					
	•	ŀ			

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



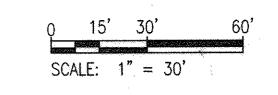
W HITMAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

> ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES



SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2015

MPEA - SITE IMPROVEMENTS

SITE DEMOLITION PLAN

Drawing No.

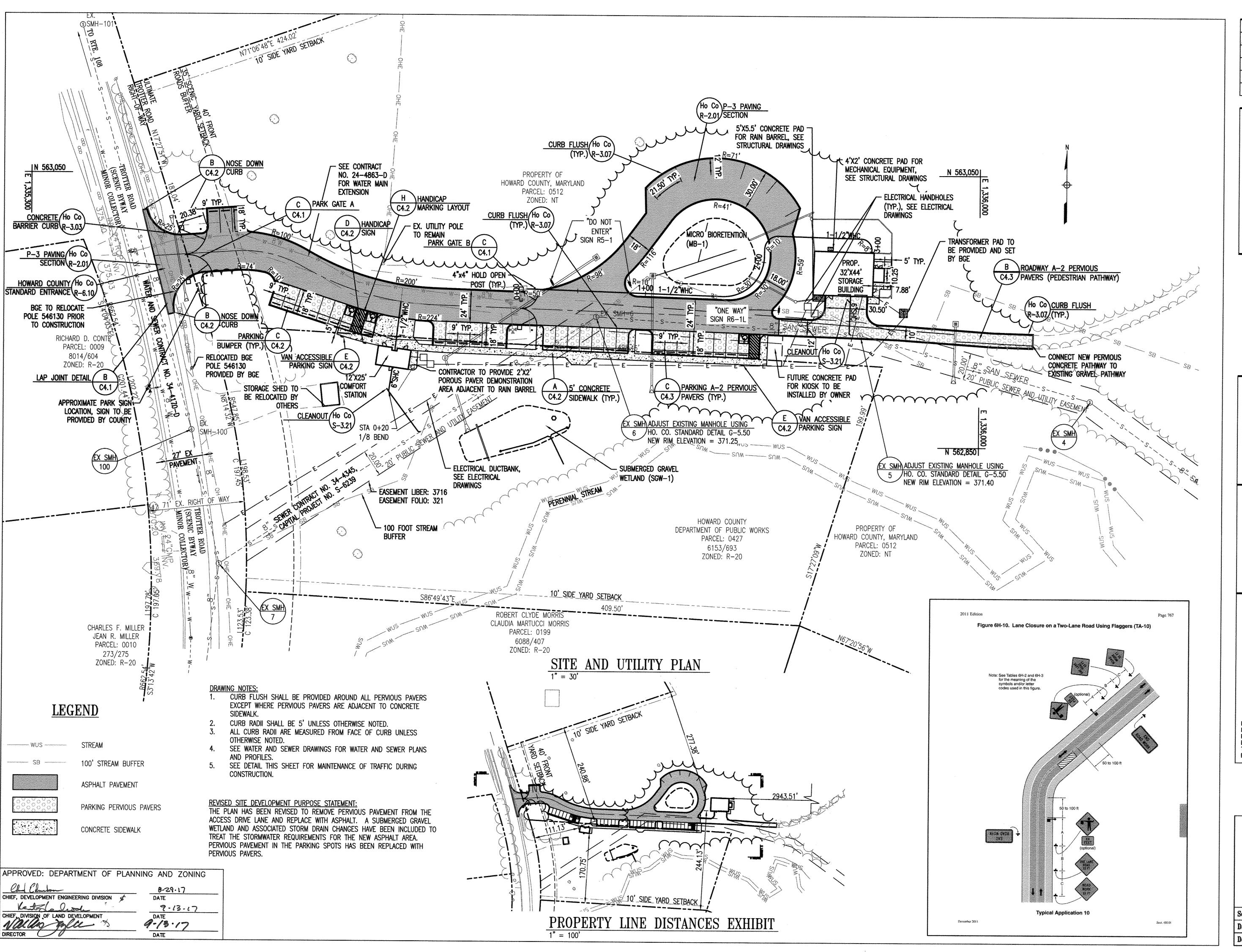
C1.1

Scale: 1" = 30'

Date: 09/12/2014

Date: 09/12/2014 Sheet 4 of 27.

Des: BWJ/SAD Drawn: SAD Check: AU0



Δ	REVISED SITE DEVELOPMENT PLAN 6/28/
	PERVIOUS PAVER, SWM,
	STORM DRAINS

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



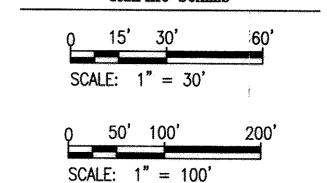
Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

> ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES



SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376 EXPIRATION DATE: 09/22/2017

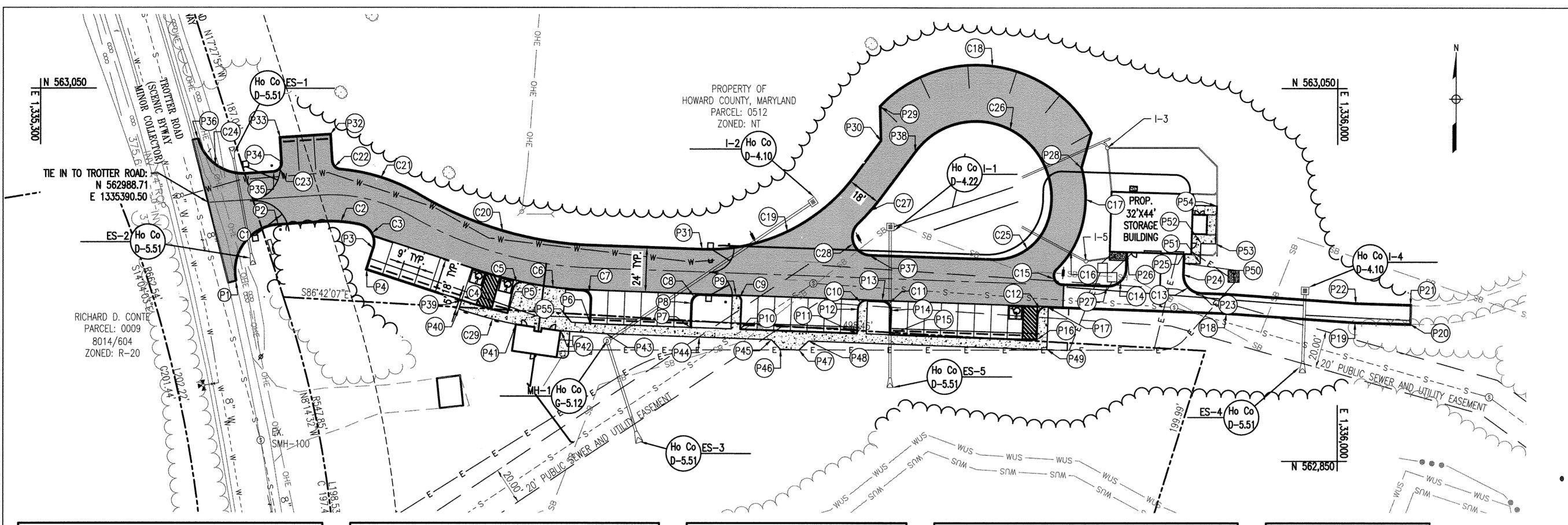
MPEA - SITE IMPROVEMENTS

Drawing No.

Scale: 1" = 30'

Date: 09/12/2014 Sheet 5 of 27

Des: BWJ/SAD Drawn: SAD Check: AU0



	ROADWAY STAKEOUT					
POINT	NORTHING	EASTING	R	Δ	T	
C1	562,975.24	1,335,399.14	25.00'	098°47'25"	29.16'	
C2	562,979.34	1,335,462.30	74.00'	015*50'53"	10.30'	
С3	562,974.85	1,335,483.21	10.00'	095°52'04"	11.08'	
C4	562,931.60	1,335,542.57	242.09	004°40'22"	9.88'	
C5	562,946.95	1,335,556.14	5.00'	088°44'56"	4.89'	
C6	562,942.81	1,335,576.67	224.00'	008°11'48"	16.05	
C7	562,941.64	1,335,597.58	5.00'	088*49'07"	4.90'	
C8	562,939.79	1,335,651.55	5.00'	090*00'00"	5.00'	
С9	562,938.84	1,335,678.53	3.00'	090*00'00"	3.00'	
C10	562,936.62	1,335,741.50	5.00'	090'00'00"	5.00'	
C11	562,935.98	1,335,759.48	5.00'	090*00'00"	5.00'	
C12	562,933.20	1,335,838.43	5.00'	090'00'00"	5.00'	
C13	562,940.46	1,335,916.36	10.00'	090°00'00"	10.00'	
C14	562,943.63	1,335,885.94	10.00'	090'00'00"	10.00'	
C15	562,945.16	1,335,839.75	5.00'	134*31'07"	11.93'	
C16	562,962.09	1,335,857.61	48.00'	029*35'37"	12.68'	
C17	562,990.77	1,335,866.35	59.00'	032°41'09"	17.30'	
C18	563,110.46	1,335,819.95	71.00'	107*27'05"	96.75'	
C19	562,961.79	1,335,708.63	98.00'	055°00'00"	51.02'	
C20	562,967.47	1,335,547.74	200.00'	028'18'47"	50.45	
C21	563,004.44	1,335,484.55	100.00'	025*38'36"	22.76'	
C22	563,006.65	1,335,457.57	5.00'	081°35'56"	4.32'	
C23	563,005.65	1,335,430.58	5.00'	086°20′00″	4.69'	
C24	563,002.70	1,335,390.03	24.98'	079*32'06"	20.79	
C25	562,957.46	1,335,837.38	30.00'	074°56'50"	23.00'	

	ROADWAY STAKEOUT					
POINT	NORTHING	EASTING	R	Δ	T	
C26	563,201.04	1,335,911.60	41.00'	159'55'31"	231.64	
C27	562,984.16	1,335,748.05	116.00'	009'17'31"	9.43'	
C28	562,961.21	1,335,724.02	10.00'	134°25'11"	23.80'	
P1	562,945.75	1,335,401.42	-			
P2	562,977.13	1,335,428.24				
P3	562,964.31	1,335,479.78	-			
P4	562,953.07	1,335,476.13				
P5	562,929.44	1,335,552.21	·			
P6	562,936.75	1,335,597.41		45.40		
P7	562,923.90	1,335,596.96				
P8	562,921.80	1,335,650.92		<u> </u>	· —	
P9	562,939.61	1,335,656.55		——————————————————————————————————————		
P10	562,935.84	1,335,678.43				
P11	562,920.85	1,335,677.90	*****	_		
P12	562,918.63	1,335,740.86		 		
P13	562,936.44	1,335,746.49				
P14	562,930.99	1,335,759.31	_	_		
P15	562,917.99	1,335,758.85	-		Addison to the second s	
P16	562,915.21	1,335,837.80		_		
P17	562,933.02	1,335,843.43	aalii ka	-		
P18	562,929.61	1,335,940.07		——————————————————————————————————————		
P19	562,924.69	1,336,009.44				
P20	562,923.80	1,336,039.14	_			
P21	562,933.80	1,336,039.43			_	
P22	562,934.67	1,336,010.03		-	•••••	

	ROADW	AY STAKEOUT			
POINT	NORTHING	EASTING	R	Δ	T
P23	562,939.60	1,335,940.65	_		-
P24	562,950.45	1,335,916.72	_	_	_
P25	562,961.44	1,335,917.10	_		_
P26	562,962.34	1,335,886.55	-	-	_
P27	562,943.95	1,335,875.94	-	-	_
P28	563,007.42	1,335,861.65	_	_	-
P29	563,040.28	1,335,753.36	_	_	-
P30	563,021.75	1,335,753.85		-	_
P31	562,963.59	1,335,657.65	_	_	-
P32	563,010.96	1,335,457.29			-
P33	563,025.05	1,335,456.37		-	-
P34	563,023.31	1,335,429.43	_	-	
P35	563,005.05	1,335,425.93	_	1	
P36	563,022.85	1,335,384.93	-	-	_
P37	562,960.42	1,335,747.81			_
P38	563,016.10	1,335,772.13	_	-	_

		SIDEWALK ST	AKEOUT		
POINT	NORTHING	EASTING	R	Δ	Т
C29	562,925.92	1,335,544.00	247.00'	006°00'24"	12.96
P39	562,936.38	1,335,527.49	-		_
P40	562,931.62	1,335,525.94	_		
P41	562,923.37	1,335,556.70			
P42	562,919.87	1,335,580.82	-		
P43	562,918.37	1,335,605.48	_		-
P44	562,916.63	1,335,655.74		-	y
P45	562,915.25	1,335,694.71			
P46	562,910.08	1,335,699.53			
P47	562,909.72	1,335,709.52			
P48	562,914.55	1,335,714.71			
P49	562,910.01	1,335,843.29			
P50	562,956.42	1,335,916.93		-	_
P51	562,956.15	1,335,925.95			
P52	562,967.05	1,335,926.28			
P53	562,966.81	1,335,934.20	_		_
P54	562,987.10	1,335,934.81	-		
P55	562,924.52	1,335,586.69	_		

	UTILITY STA	KEOUT
POINT	NORTHING	EASTING
ES-1	563,012.23	1,335,404.23
ES-2	562,961.39	1,335,413.71
ES-3	562,862.50	1,335,622.70
ES-4	562,903.81	1,335,981.38
ES-5	562,891.92	1,335,758.69
l - 1	562,975.80	1,335,758.81
I-2	562,989.12	133,5717.05
1–3	563,018.12	1,335,875.78
I - 4	562,941.71	1,335,982.51
I5	562,957.53	1,335,864.32
MH-1	562914.45	1,335,606.00

		REVISIONS	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	A	REMSED SITE DEVELOPMENT PLAN	6/28/17
		SD STRUCTURE LOCATIONS	
			, , , , , , , , , , , , , , , , , , ,

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

> DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043



Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 **ELECTION DISTRICT 05**

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION.
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376

EXPIRATION DATE: 09/22/2017

MPEA - SITE **IMPROVEMENTS**

STAKEOUT PLAN

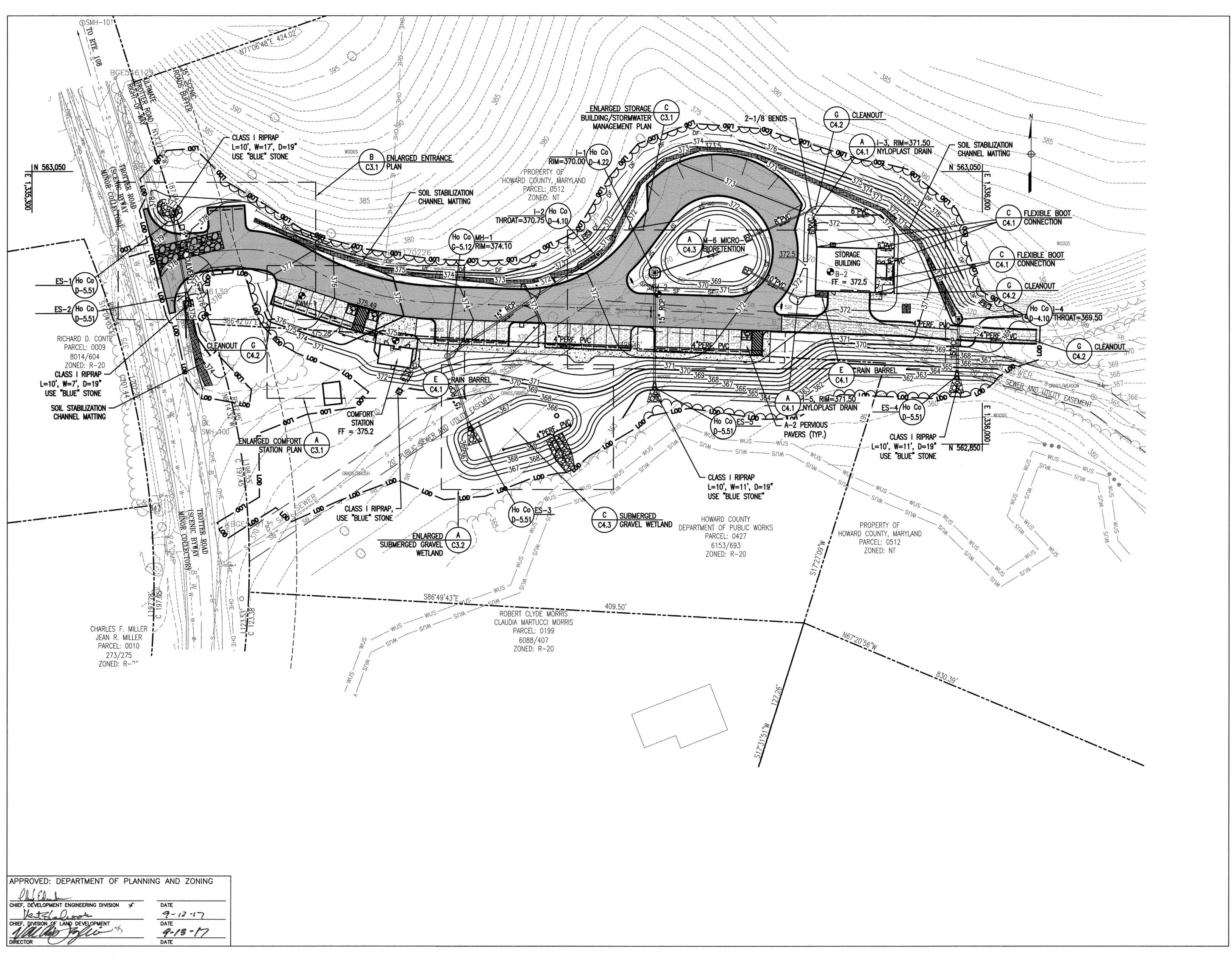
Drawing No.

Scale: 1" = 30'

Date: 09/12/2014 Sheet 6 of 27 Des: BWJ/SAD Drawn: SAD Check: AUO

APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT 9-13-17 DATE



Δ	REASE)	SIE	DESCRIPTION	PLAN	6/28/17
	GRADIN	IG, S	SWM, SD		

		,,			

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



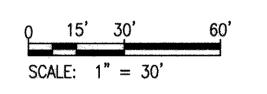
Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES



SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

MPEA - SITE IMPROVEMENTS

GRADING AND STORMWATER MANAGEMENT PLAN

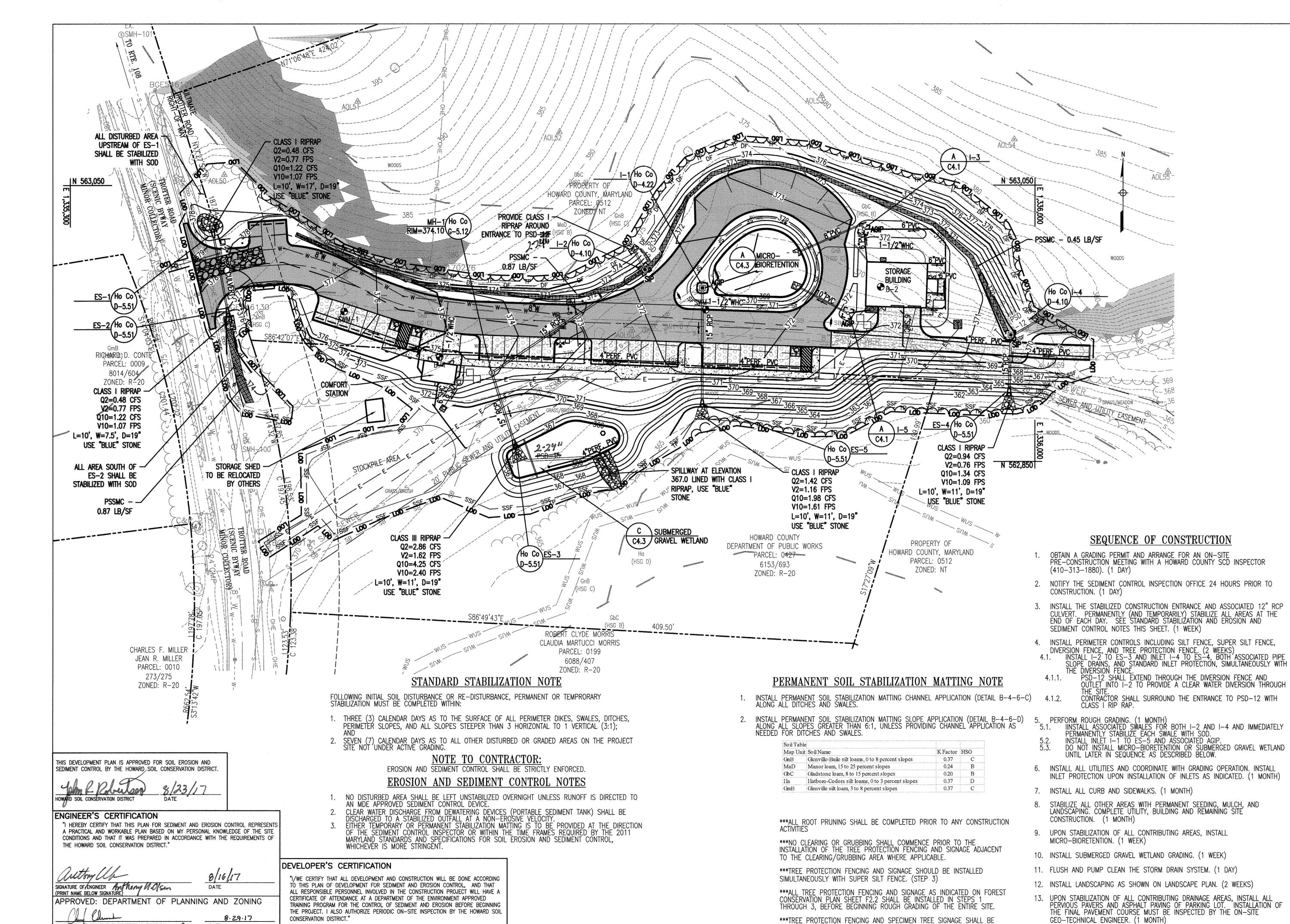
Drawing No.

C1.4

 Scale: 1" = 30'

 Date: 09/12/2014 Sheet 7 of 27

 Des: BWJ/SAD Drawn: SAD Check: AU0



REMOVED UPON PERMANENT STABILIZATION OF ALL DISTURBED AREAS.

***IF STOCKPILE AREA EXCEEDS 15 FEET IN HEIGHT. BENCHING WILL BE

FOREST RETENTION SIGNAGE SHALL REMAIN. (STEP 11)

REQUIRED.

CHIEF, DEVELOPMENT ENGINEERING DIVISION #

16-94 lwoh

CHIEF DIVISION OF LAND DEVELOPMENT

DATE

DATE

9-13.17

mital hular

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE)

SIGNATURE OF DEVELOPER

REVISIONS A REVISED SITE DEVELOPMENT PLAN 6/28/17 OUTLET PROTECTION, SOC SSF. ESC MATTING

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

> DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043



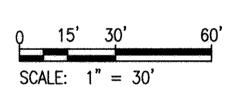
Whitman, Reguardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 **ELECTION DISTRICT 05**

GRAPHIC SCALES



SIGNATURE



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376 EXPIRATION DATE: 09/22/2017

MPEA - SITE **IMPROVEMENTS**

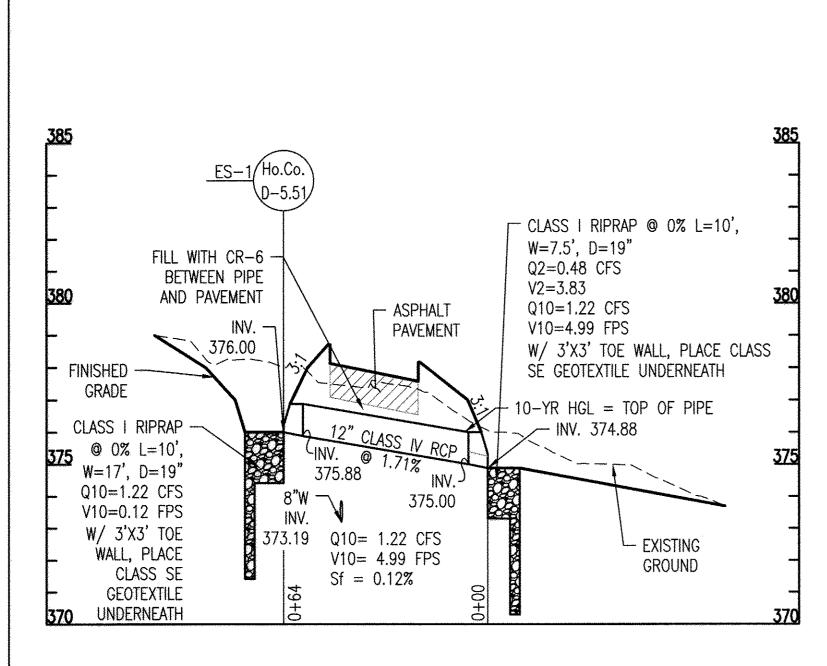
EROSION AND SEDIMENT CONTROL PLAN

Drawing No.

Scale: 1" = 30' Sheet 8 of 27 Date: 09/12/2014

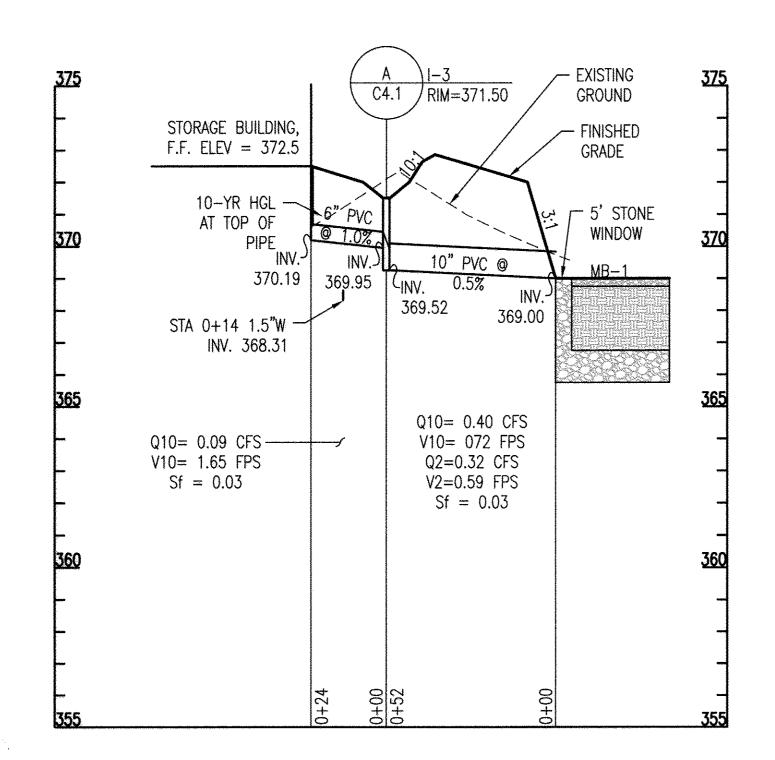
14. UPON PERMANENT STABILIZATION OF ALL DISTURBED AREAS AND WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, REMOVE ANY REMAINING SEDIMENT CONTROL DEVICES AND ALL NON-NATURAL ITEMS FROM FORESTS, FLOODPLAIN, STREAMS, WETLANDS AND THEIR BUFFERS.

Des: BWJ/SAD | Drawn: SAD | Check: AUO SDP-14-055



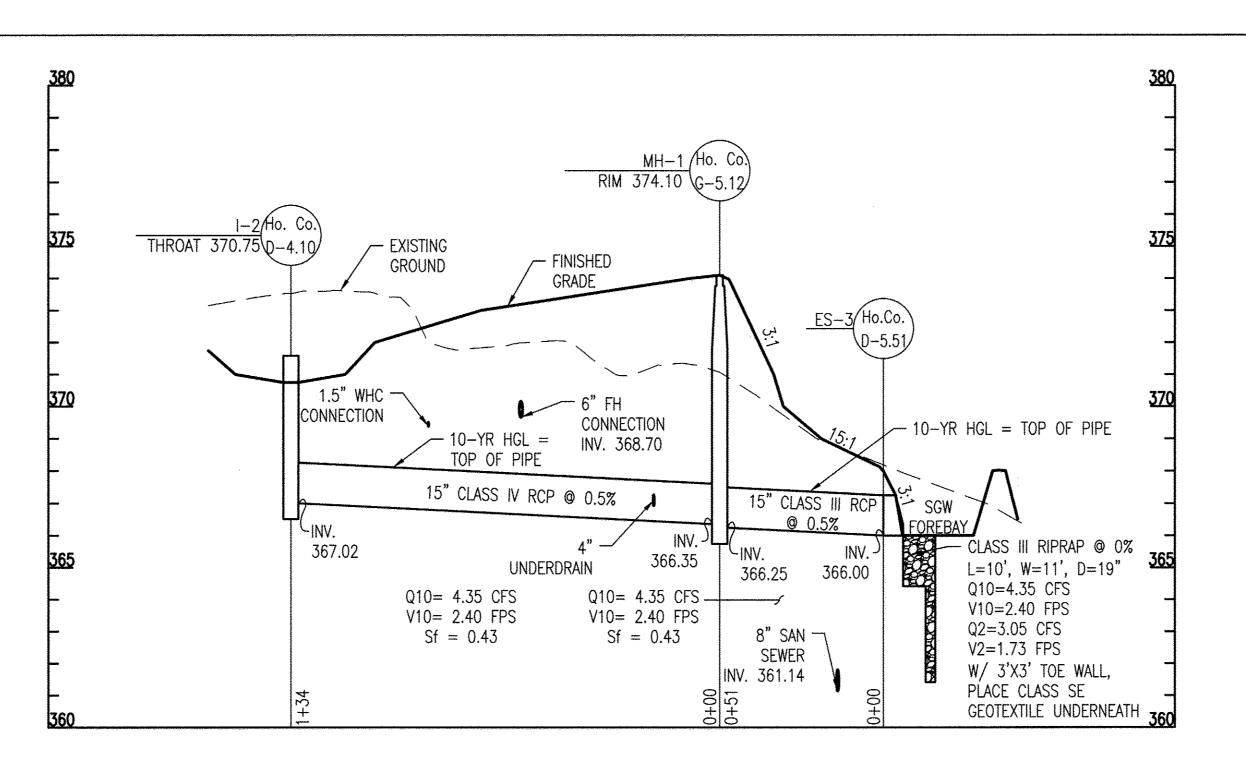
ES-1 TO ES-2 STORM DRAIN PROFILE SCALE: 1"= 30' HORIZ.

3' VERT.



STORAGE BUILDING TO MB-1 STORM DRAIN PROFILE

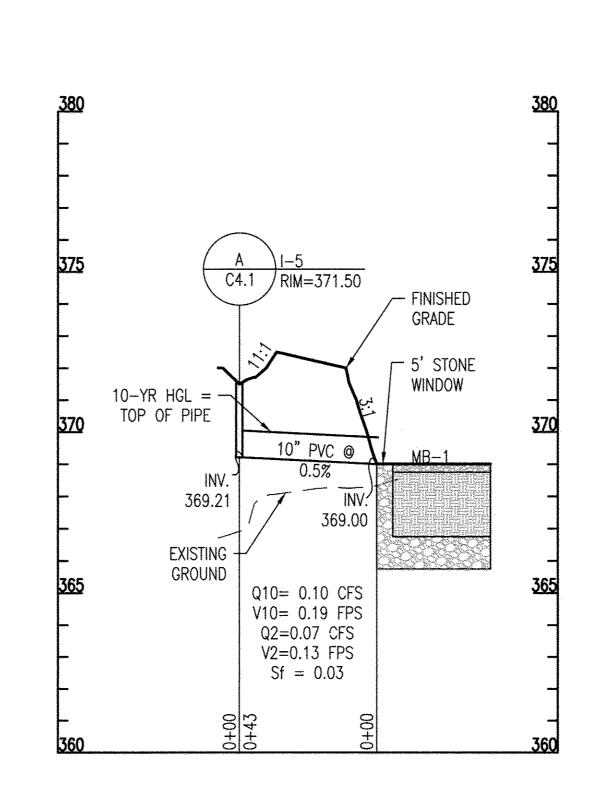
SCALE: 1"= 30' HORIZ.
3' VERT.



I-2 to ES-3 STORM DRAIN PROFILE

SCALE: 1"= 30' HORIZ.

3' VERT.

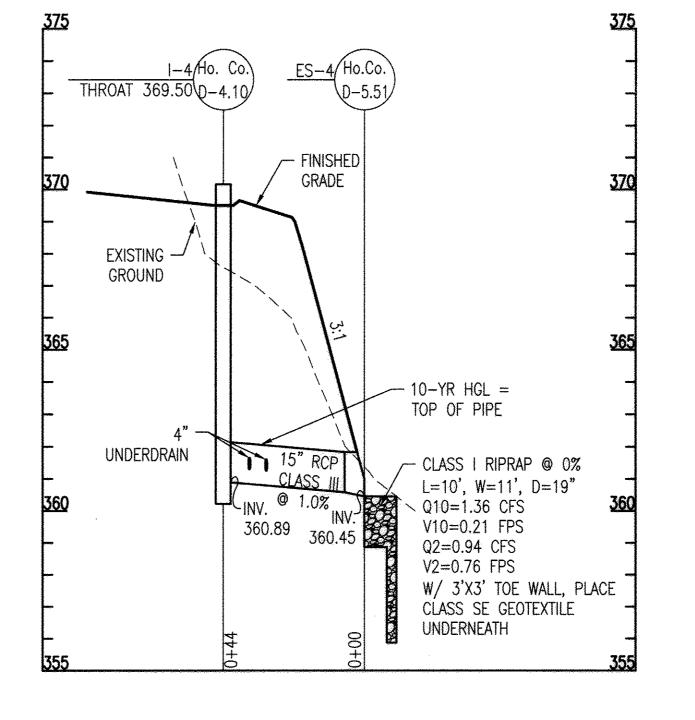


I-5 to MB-1 STORM DRAIN PROFILE

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

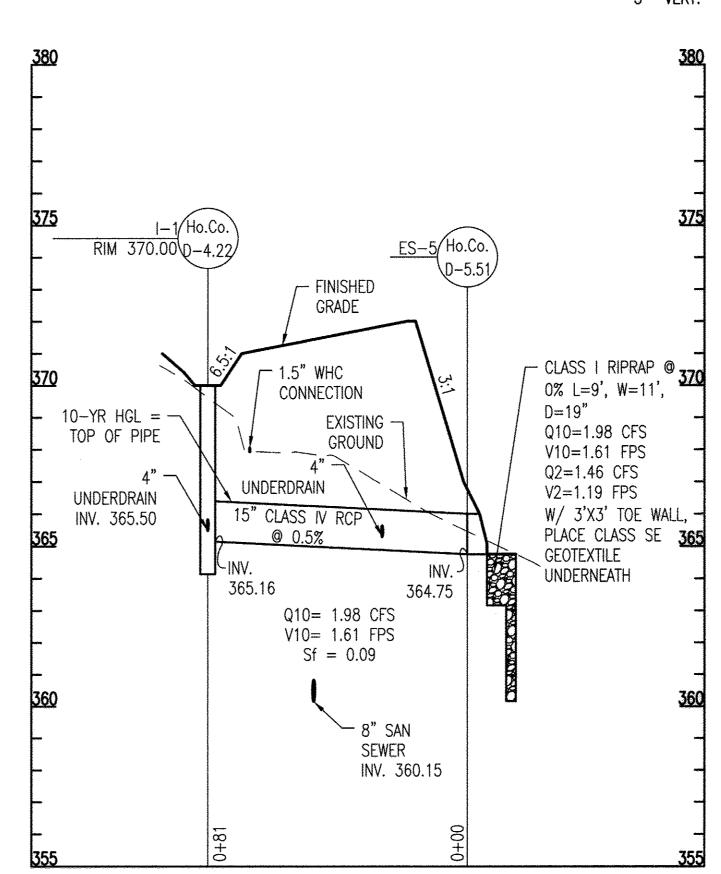
	STORM DRAI	N STRUCTURE S	SCHEDULE	
NO.	TYPE	STANDARD DETAIL	RIM ELEV.	THROAT ELEV.
I-1	TYPE 'S' INLET	HO.CO. D-4.22	370.00	•
1-2	TYPE 'D' INLET	HO.CO. D-4.10	-	370.75
I-3	24" NYLOPLAST DRAIN	HO.CO. D-4.10	371,50	•
I-4	TYPE 'D' INLET	HO.CO. D-4.10	-	370.00
I-5	24" NYLOPLAST DRAIN	HO.CO. D-4.10	371.50	-
MH-1	48" PRECAST MANHOLE	HO.CO, G-5.12	374.10	1
ES-1	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-2	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-3	CONCRETE END SECTION	HO.CO. D-5.51	-	-
ES-4	CONCRETE END SECTION	HO.CO. D-5.51	-	_
ES-5	CONCRETE END SECTION	HO.CO. D-5.51	-	/

ST	ORM DR	AIN PIPE	SCHEDUL	E
FROM	ТО	SIZE	TYPE	LENGTH
I-1	ES-5	15	RCP CL IV	81
I-2	MH-1	15	RCP CL IV	134
MH-1	ES-3	15	RCP CL III	51
I-4	ES-4	15	RCP CL III	44
BLDG	I-3	6	PVC	24
I-3	MB-1	10	PVC	52
BLDG	1-3	6	PVC	145
1-5	MB-1	10	PVC	43
ES-1	ES-2	12	RCP	64
UNDERI	ORAIN	4	PERF. PVC	514



I-4 to ES-4 STORM DRAIN PROFILE

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



I-1 to ES-5 STORM DRAIN PROFILE

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

	REVISIONS	
Δ	REVISED SITE DEVELOPMENT PLAN	6/28/17
	Q10/V10, I-2 TO ES-3	
	I-5 TO MB-1, I-1 TO ES-5	

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



PROPERTY

Phone: 410-235-3450 Fax: 410-243-5716

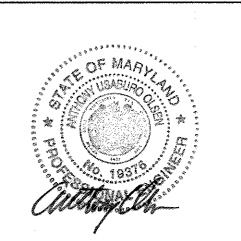
TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

0 15' 30' 60'

SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. ____19376
EXPIRATION DATE: ____09/22/2017

MPEA - SITE IMPROVEMENTS

STORM DRAIN PROFILES

Drawing No.

02.1

 Scale: 1" = 30'

 Date: 09/12/2014
 Sheet 9 of 27

 Des: BWJ/SAD Drawn: SAD Check: AU0

n: SAD | Check: AU0 SDP-14-055

CHIEF, DEVELOPMENT ENGINEERING DIVISION

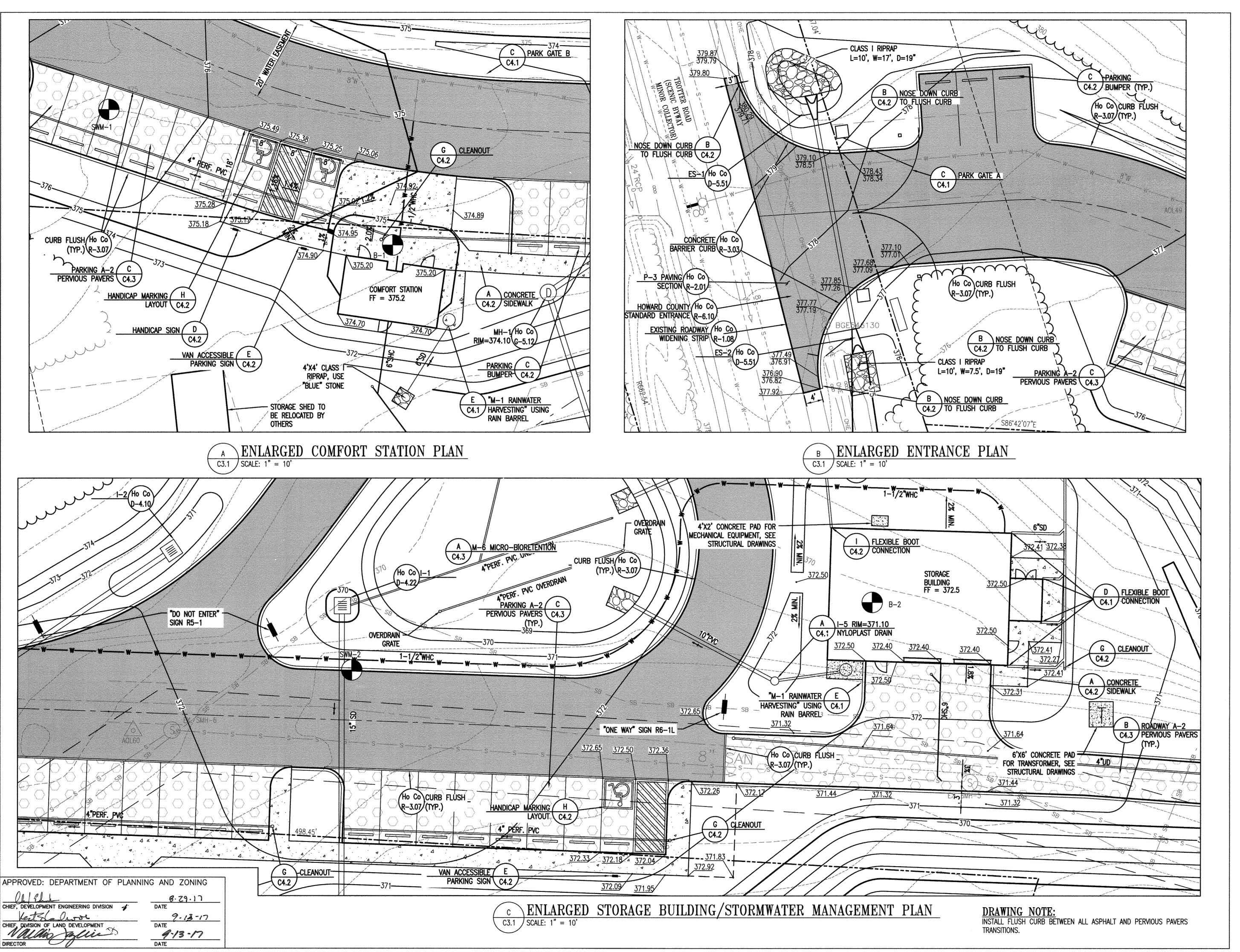
CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

DIRECTOR

DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING



REVISIONS

A REVISIONS

ADA SPOT SHOTS, PERVIOUS

PAVERS, UNDERDRAINS

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



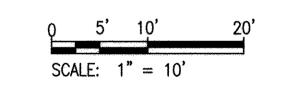
Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

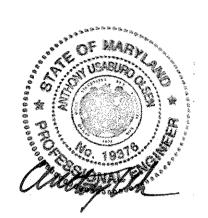
TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES



SIGNATURE



PROFESSIONAL CERTIFICATION.

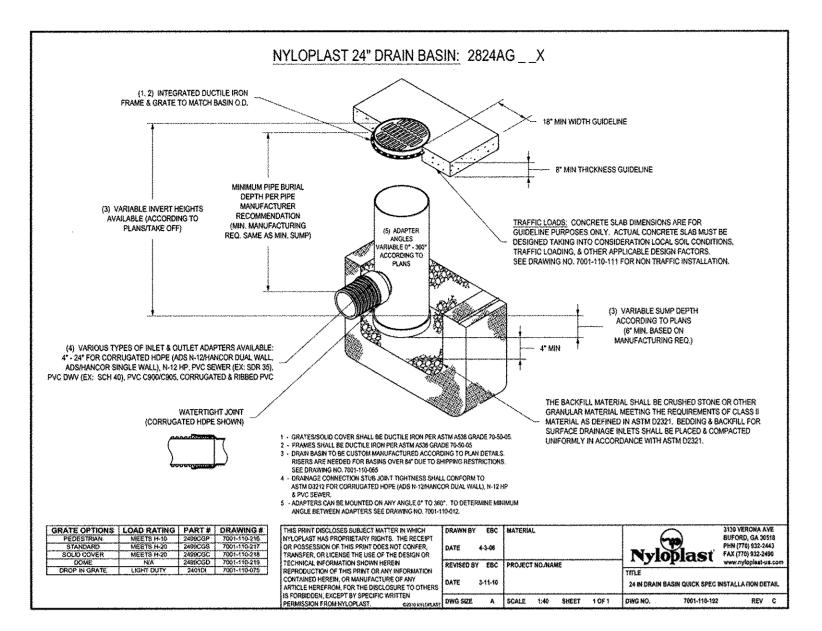
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

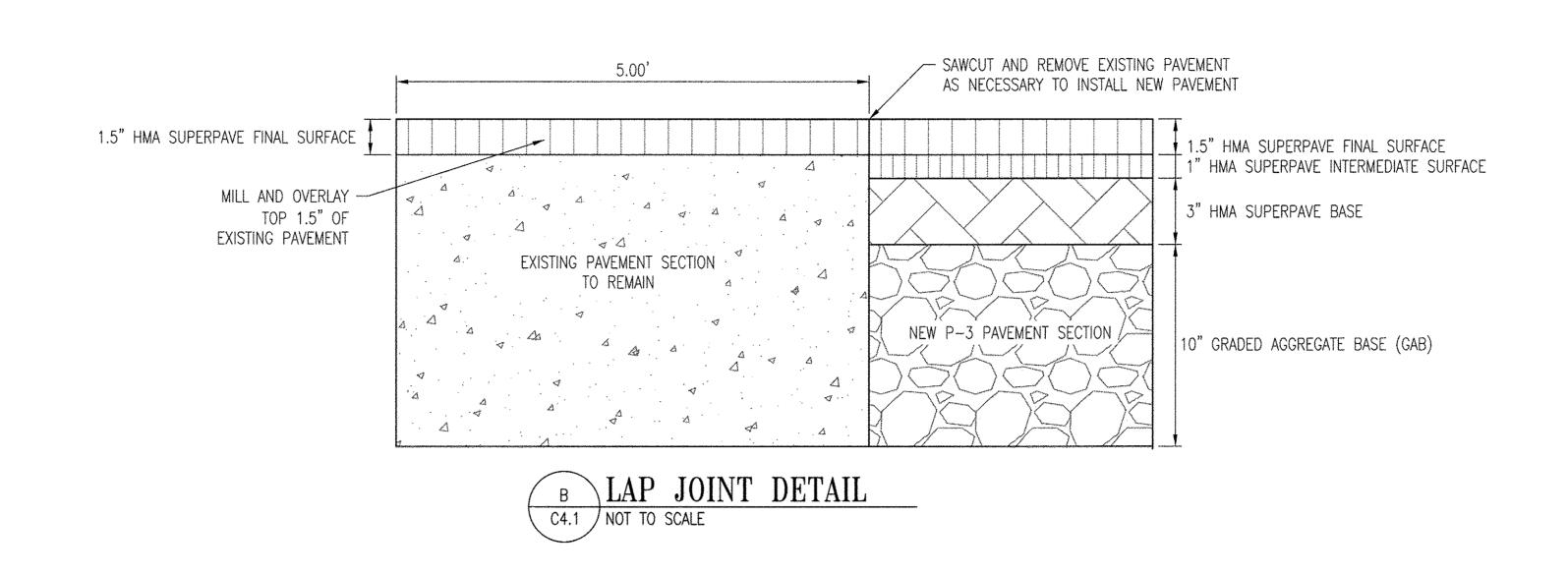
MPEA - SITE IMPROVEMENTS

ENLARGED SITE PLANS

Drawing No.

C3.1





NYLOPLAST DRAIN C4.1 / N.T.S.

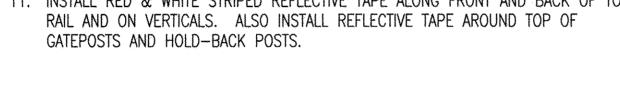
NOTES:

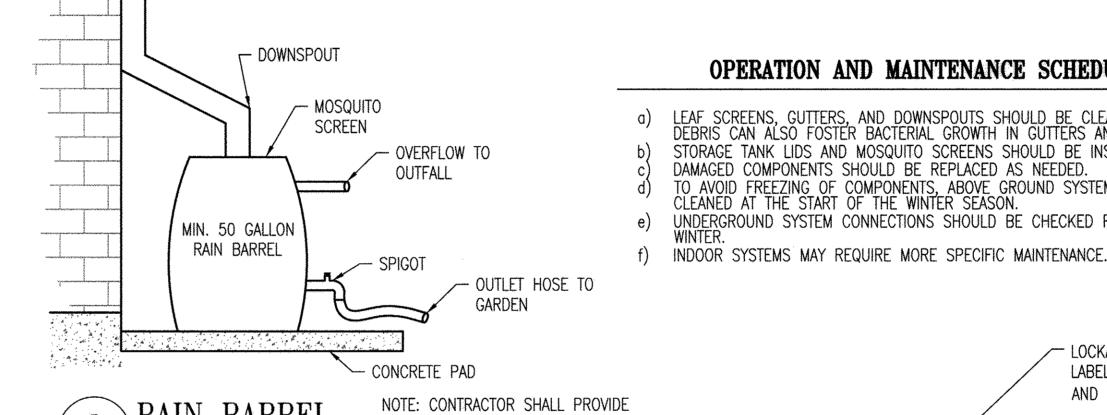
- GATE SHALL SWING IN TOWARDS PARK.
- ALL WELDING TO BE CLEANED AND GROUND SMOOTH.
- WELD FLANGES AT ENDS OF TOP RAILS, ONE SIDE TO HAVE SLOT OPENING TO FIT OVER WELDED U-BOLT ON OTHER SIDE FOR PADLOCK ATTACHMENT.
- 4. INSTALL 4"X4" HOLD-OPEN POSTS ON EACH SIDE OF GATE, 2 FT. 7 IN FROM EDGE OF ROADWAY. AND APPROPRIATE DISTANCE FROM GATEPOSTS.

- EXISTING ASPHALT

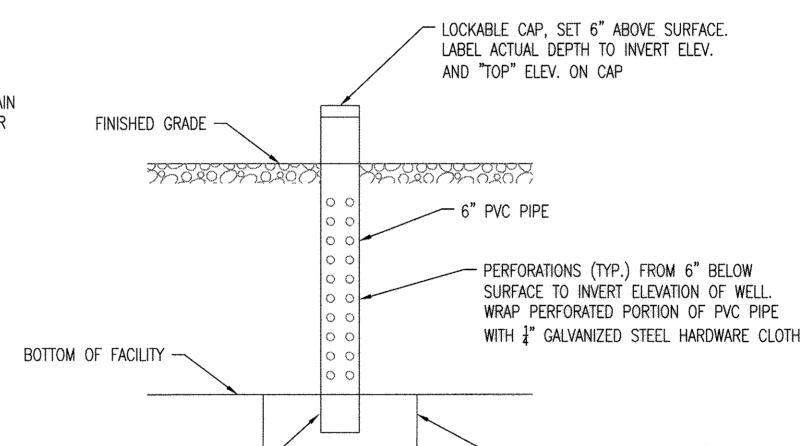
PATHWAY

- GREASE ALL FITTINGS.
- 6. ATTACH U-BOLT WITH STAINLESS STEEL CLIP TO HOLD OPEN POST AND WELD U-BOLT TO GATE FOR EASY ATTACHMENT AND RELEASE OF GATE.
- 7. USE 7" BARREL HINGES WITH STAINLESS PIN, AND WELD PADS 3"X1-1/2"X3/8" THICK. GATE HINGES TO BE PLUMB AND SQUARE WITH GATE POST.
- 7. PRIME ALL METAL SURFACES AND APPLY TWO COATS OF GLOSS BLACK POLYURETHANE PAINT. USE ROLLER ON LARGE AREAS AND USE BRUSH OR SPONGE FOR TIGHT AREAS.
- GREASE ALL FITTINGS. TOP OF FOOTINGS TO BE LEVEL WITH EXISTING GRADE.
- 10. BACK-FILL AROUND FOOTINGS, AND FINISH WITH APPROPRIATE MATERIAL: TOPSOIL AND SEED, MULCH, OR PAVED SURFACE TO MATCH ADJACENT.
- 11. INSTALL RED & WHITE STRIPED REFLECTIVE TAPE ALONG FRONT AND BACK OF TOP RAIL AND ON VERTICALS. ALSO INSTALL REFLECTIVE TAPE AROUND TOP OF





RAIN BARREL SHOP DRAWINGS OF 50 GALLON RAIN BARREL AND ALL CONNECTIONS FOR C4.1 / NOT TO SCALE APPROVAL BY ENGINEER



OBSERVATION WELL

OPERATION AND MAINTENANCE SCHEDULE FOR RAIN BARRELS

LEAF SCREENS, GUTTERS, AND DOWNSPOUTS SHOULD BE CLEANED TO PREVENT CLOGGING. BUILT-UP DEBRIS CAN ALSO FOSTER BACTERIAL GROWTH IN GUTTERS AND DOWNSPOUTS.

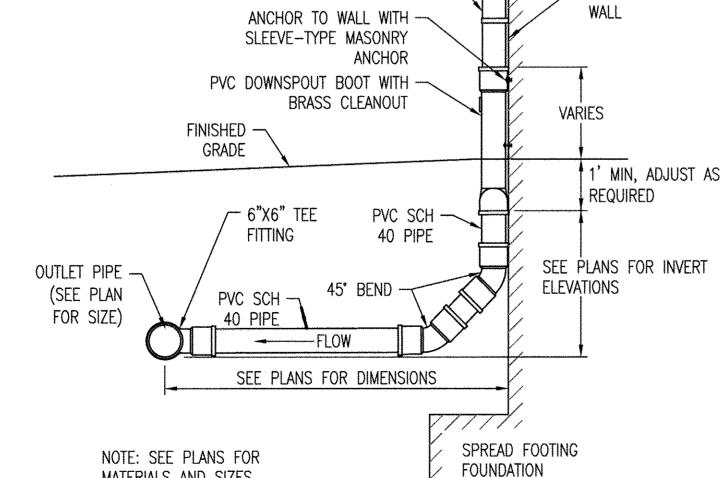
TO AVOID FREEZING OF COMPONENTS, ABOVE GROUND SYSTEMS SHOULD BE DISCONNECTED, DRAINED, AND CLEANED AT THE START OF THE WINTER SEASON.

UNDERGROUND SYSTEM CONNECTIONS SHOULD BE CHECKED FOR FROZEN LINES AND ICE BLOCKAGES DURING

STORAGE TANK LIDS AND MOSQUITO SCREENS SHOULD BE INSPECTED AND CLEANED.

DAMAGED COMPONENTS SHOULD BE REPLACED AS NEEDED.

ANTI-FLOTATION DEVICE, 18"X18"X12" MIX NO. 6 CONCRETE EMBED PVC PIPE MINIMUM OF 6" INTO CONCRETE



C4.1 / NOT TO SCALE

DIM 1 VARIES, SEE TABLE

DIM 2 VARIES, SEE TABLE

PARK GATE DETAIL

DOWNSPOUT -

EXISTING CURB

GUTTER AND ROADWAY

- EXPANSION JOINT TO BE SEALED WITH CAULK

C4.1 / NOT TO SCALE

DOWNSPOUT -RUBBER BOOT — 6"X6" WYE WITH CAP AND COVER PVC DOWNSPOUT BOOT WITH FOR CLEANOUT BRASS CLEANOUT FINISHED GRADE 1' MIN, ADJUST AS REQUIRED SEE PLANS FOR INVERT **ELEVATIONS**

DIM 2

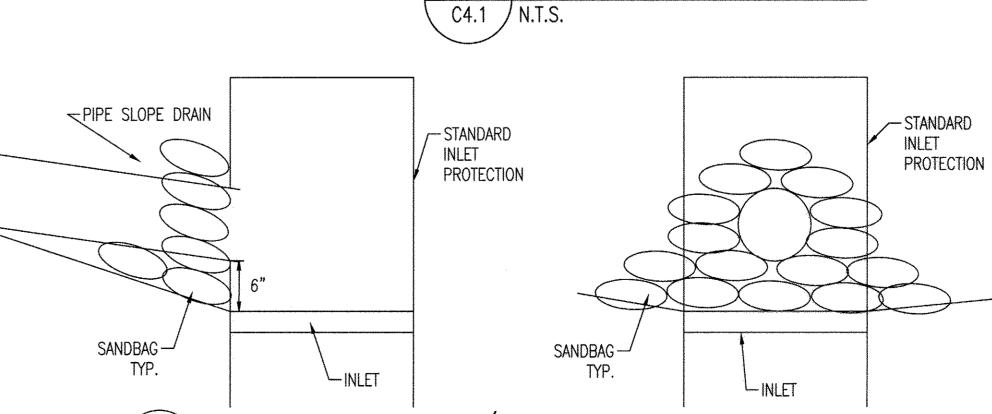
16.88

11.97

DIM 1

14.14'

В



PIPE SLOPE DRAIN/INLET PROTECTION CONNECTION C4.3 NOT TO SCALE

PSD/INLET CONNECTION **OBSERVATION WELL**

REVISIONS

A REVISED SITE DEVELOPMENT PLAN 6/28/17

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

> DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043



Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 **ELECTION DISTRICT 05**

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

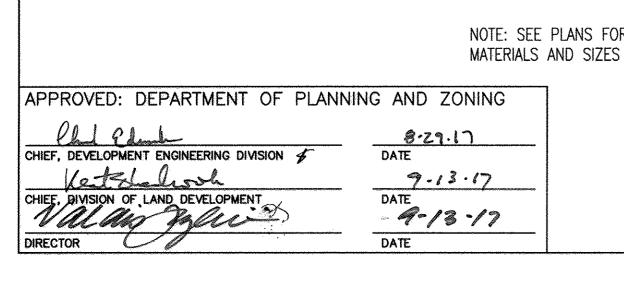
> MPEA - SITE **IMPROVEMENTS**

> > SITE DETAILS

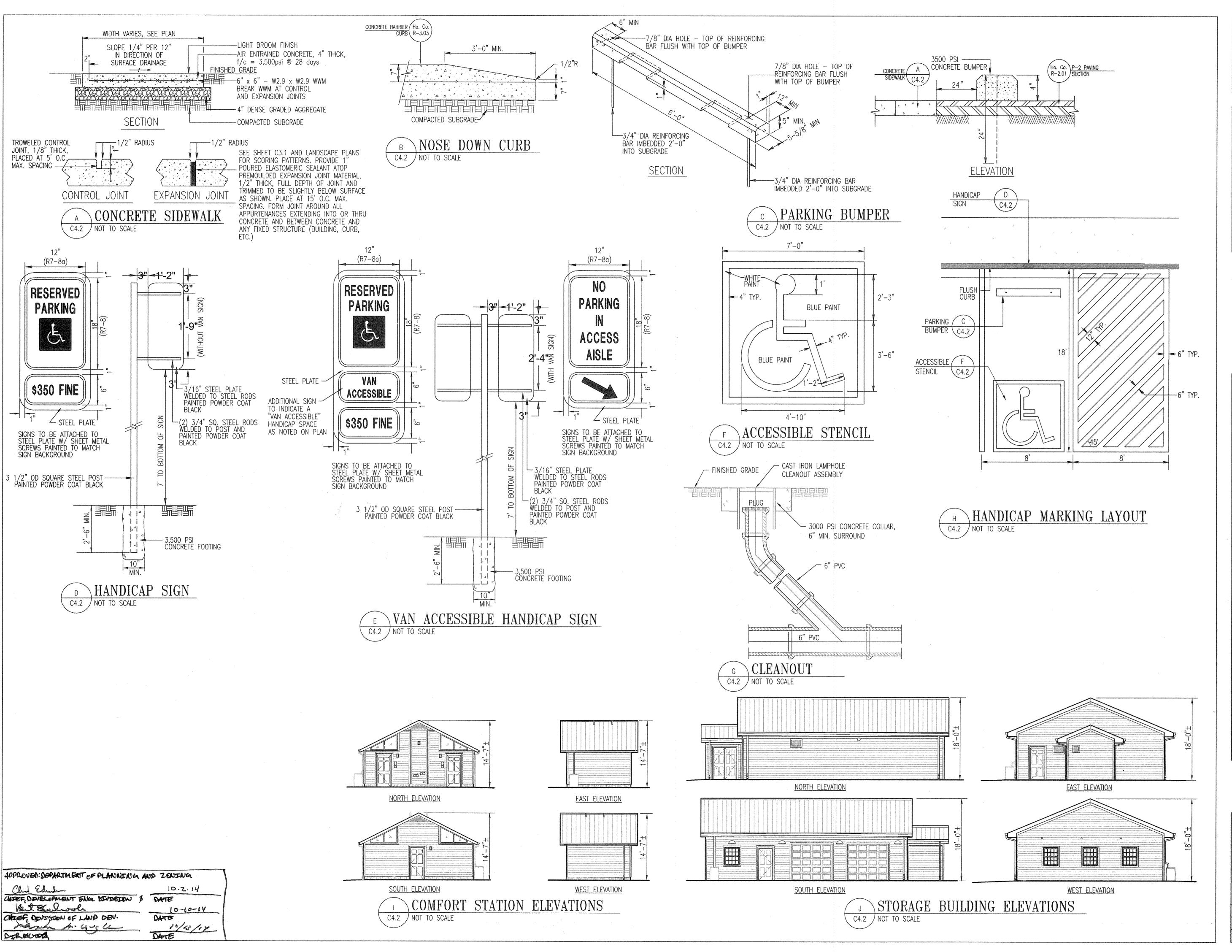
Drawing No.

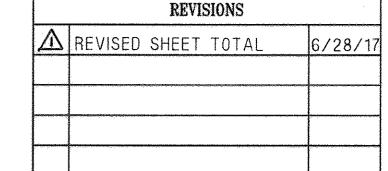
Scale: NOT TO SCALE Date: 09/12/2014 | Sheet 11 of 27 Des: BWJ/SAD | Drawn: SAD | Check: AUO

SDP-14-055



FRONT VIEW SIDE VIEW FLEXIBLE BOOT CONNECTION





DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



W HIT MAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2015

MPEA - SITE IMPROVEMENTS

SITE DETAILS

Drawing No.

C4.2

Scale: NOT TO SCALE

Date: 09/12/2014 | Sheet 12 of 27

Des: BWJ/SAD Drawn: SAD Check: AU0
SDP-14-055

B.4.C SPECIFICATIONS FOR MICRO-BIORETENTIONS

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-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 BERMUDA GRASS. QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

-SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION) -ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGH (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%). -CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.

-PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE COMPTACOTO BORETENTION 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 MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RÜBBER 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 CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL

5. PLANT INSTALLATION

COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

-PIPE- SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OR HDPE).

-PERFORATIONS - IF PERFORATED PIPE IS USED. PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4X4) GALVANIZED HARDWARE CLOTH.

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

-THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE. -A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN—OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

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

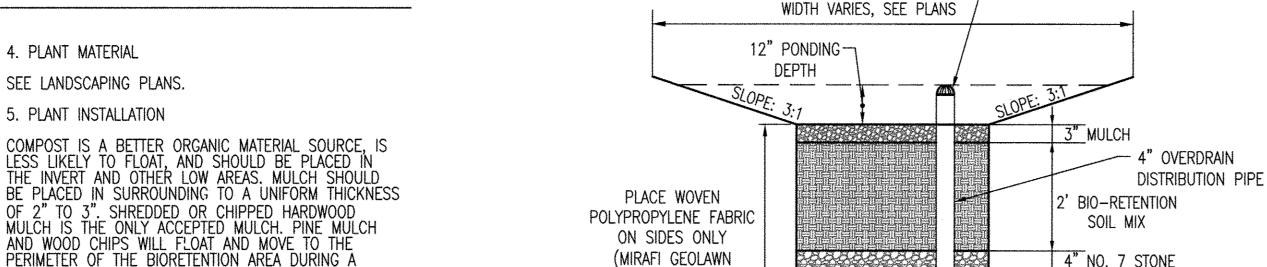
THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN

Lot/Parcel Number	Facility Name & Number	Practice Type (Quality)	Public	Private	Howard County Maintains	Misc
512,427	PP-2, PP-3, PP-4, PP-5, PP-8	A-2 Pervious Pavers	X		Yes	
512,427	MBR-1	M-6 Micro-Bioretention	Х		Yes	
512,427	RH-1	M-1 Rainwater Harvesting	X		Yes	angunigan a mang gagan nagun mang paggagan g
512,427	SCW-1	M-2 Submerged Gravel Wetlands	X		Yes	
512,427	RD-1	N-1 Disconnextion of Rooftop Runoff	Х		Yes	

ADDROVED, DEDARTMENT OF BLANKIN	NO AND ZONINO
APPROVED: DEPARTMENT OF PLANNII	NG AND ZUNING
Par Edul	8.29.17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
La Fola wool	2-13-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
Valais solie	9-13-17
DIRECTOR /	DATE



HP-370 OR EQUAL)

4" PERFORATED PVC UNDERDRAIN

STONE RESERVOIR Table B.4.1 Materials Specifications for Micro-Bioretentions

5' MIN.

ROUND PLASTIC

ATRIUM GRATE

4" NO. 7 STONE

7" NO. 57 STONE

6" NO. 57 STONE

4" PERFORATED

Material	Specification	Size	Notes
Planting soil [2' to 4' deep]	SHA BIO-RETENTION SOIL MIX	n/a	SPECIFICATION 920.01.05 (SEE BELOW)
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea Gravel	ASTM-D-448	No. 8 or No. 9 (1/8" or 3/8")	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE	·
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" rigid schedule 40 PVC or as shown on plan	Maximum slot length or diameter = 0.875" Maximum Slot Width = 0.125"

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTIONS

- 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 WOLLD AND 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 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.

SHA BIO-RETENTION SOIL MIX SPECIFICATION

TEST PROPERTY	TEST METHOD		TEST VALUE AN	D AMENDME	NT	
Prohibited Weeds	_		eed and viable plan 2(a)(b)(c) when ins	nt parts of species in spected.		
Debris			No observable content of cement, concrete, a crushed gravel or construction debris when in			
			Sieve Size		oy Weight num %	
Grading Analysis	T 87	2 in.		100		
Anarysis			No. 4		90	
		No. 10		80		
			Particle		% Passing by Weight	
		Size	mm	Minimum	Maximu	
Textural Analysis	T 88	Sand	2.0 - 0.050	50	85	
7 13141 3 213		Silt	0.050 - 0.002	5	45	
		Clay	less than 0.002	5	10	
Soil pH	D 4972	pH of 5.	7 to 6.9.			
Organic Matter	T 194	1.0 to 10	1.0 to 10.0 % by weight.			
Soluble Salts	EC1:2 (V:V)	500 ppm (1.25 mmhos/cm) or less.				
Harmful Materials		920.01.01(a)				

(3) Fine Bark. Fine Bark shall be the bark of hardwood trees that is milled and screened to a uniform particle size of 2 in. or less. Fine Bark shall be composted and aged for 6 months or longer, and be free from sawdust and foreign materials.

A 1 to 2 lb sample of Fine Bark shall be submitted to the Landscape Operations Division for examination.

composed by loose volume of 5 parts Coarse Sand, 3 parts Base Soil, and 2 parts Fine Bark. BSM shall conform to the following:

920.01.05 Bioretention Soil Mix (BSM). A homogeneous mixture

- (a) Components. Components of BSM shall be sampled, tested and approved before mixing as follows:
- (1) Coarse Sand. MSMT 356. Coarse Sand shall be washed silica sand or crushed glass that conforms to ASTM Fine Aggregate C-33. Coarse Sand shall include less than 1% by weight of clay or silt size particles, and less than 5% by weight of any combination of diabase, greystone, calcareous or dolomitic
- (2) Base Soil. Base Soil shall be tested and certified by the producer to conform to the following requirements:

(b) Composition. BSM shall be sampled and tested according to the requirements of MSMT 356 and conform to the following:

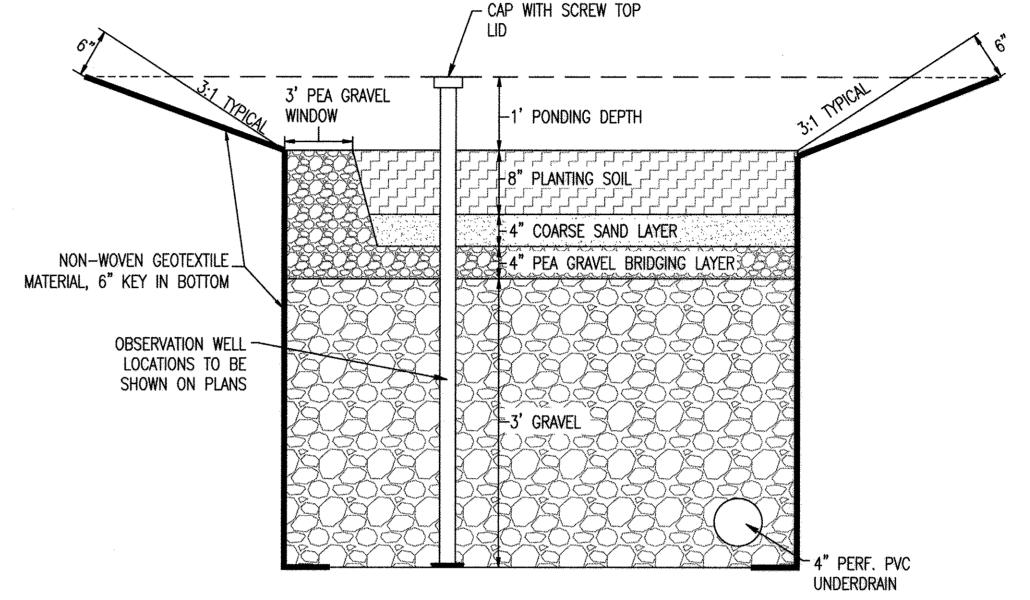
CC	OMPOSITIO	ON- BIO	RETENT	TION S	OIL M	IX (BSM)	
TEST PROPERTY	TEST METHOD		TEST VALUE AND AMENDMENT					
Weeds	_		Free of seed and viable plant parts of species in 920.06.02(a)(b)(c) when inspected.					
Debris		920.01.0	920.01.05(a)(2)					
			Particle		%	Passing by	Weight	
Tantani	T 88	Size	mı	n	Minin	num	Maximum	
Textural Analysis		Sand	2.0 - 0.0	50	55		85	
2 K1100 KJ (51.5)		Silt	0.050 - 0.002				20	
		Clay	less than 0.002		1		8	
Soil pH	D 4972	pH of 5.7	pH of 5.7 to 7.1.					
Organic Matter	T 194	Minimum 1.5 % by weight.						
		Concentration						
		-		Minimum		Ma	ximum	
Nutrient		Element		ppm	FIV	ppm	FIV	
Analysis	Mehlich-3	Calcium	(Ca)	32	25	no limit	no limit	
and	Wichild in S	Magnesi	um (Mg)	15	25	no limit	no limit	
Soluble Salts		Phosphor	rus (P)	18	25	92	100	
Saits		Potassiur	n (K)	22	25	no limit	no limit	
		Sulfur (S	O ₄)	25	n/a	no limit	no limit	
	EC1:2 (V:V)	Soluble S	Salts	40	n/a	500	n/a	
Harmful Materials		920.01.0	l(a).				The first section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a second section in the second section in the second section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section is a section in the section in the section in the section in the section is a section in the section	

(c) Amendment or Failure. BSM that does not conform to composition requirements for pH or nutrient analysis shall be amended as specified by the NMP. BSM that exceeds maximum phosphorus concentration or fails other composition requirements will not be accepted, and shall not be delivered or used as BSM.

(d) Storage. 920.01.02(b). BSM shall be stored in a stockpile that is protected from weather under tarp or shed. BSM stored for 6 months or longer shall be resampled, retested, and reapproved

SUBMERGED GRAVEL WETLAND MATERIAL SPECIFICATIONS

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTING SOIL (12" DEEP)	LOAMY SAND AND COMPOST	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM (CLAY CONTENT < 15%, ORGANIC CONTENT 3%) PH 4.5 TO 6.5
ORGANIC CONTENT	MIN. 5% BY WEIGHT ASTM-D-2974	N/A	
GRAVEL BRIDGING LAYER	PEA GRAVEL: ASTM-D-448	NO. 8 OR NO. 9	
GEOTEXTILE	MDSHA SE/PE TYPE I NON-WOVEN GEOTEXTILE	N/A	
GRAVEL	AASHTO M-43 OR ASTM-D-448	NO. 67	CLEAN WASHED AND UNIFORMLY GRADED; ROUNDED BANK RUN GRAVEL
UNDERDRAIN PIPING	ASTM-F-758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	SLOTTED OR PERFORATED PIPE; 3/8" PERF. @ 6" ON-CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED STEEL HARDWARE CLOTH

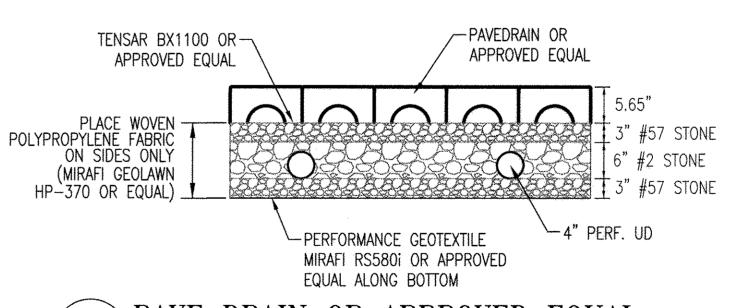


SUBMERGED GRAVEL WETLAND - TYPICAL SECTION

OPERATION AND MAINTENANCE SCHEDULE FOR SUBMERGED GRAVEL WETLANDS

- DURING THE FIRST YEAR OF OPERATION, INSPECTIONS SHOULD BE CONDUCTED AFTER EVERY MAJOR STORM AND POORLY ESTABLISHED AREAS REPLANTED.
 SEDIMENT ACCUMULATION IN THE PRETREATMENT AREAS SHOULD BE REMOVED AS NECESSARY.
 SIGNS OF UNEVEN FLOW DISTRIBUTION WITHIN THE WETLAND MAY MEAN THAT THE GRAVEL OR UNDERDRAIN
- IS CLOGGED. THE GRAVEL AND/OR UNDERDRAIN MAY NEED TO BE REMOVED, CLEANED AND REPLACED.
 A DENSE STAND OF WETLAND VEGETATION SHOULD BE MAINTAINED THROUGH THE LIFE OF THE FACILITY WITH PLANTINGS REPLACED AS NECESSARY.
 INLETS AND OUTLETS TO EACH SUBMERGED GRAVEL WETLAND CELL SHOULD BE FREE FROM DEBRIS TO PREVENT CLOGGING

- EROSION AS INFLOW POINTS SHOULD BE REPAIRED. FLOW SPLITTERS SHOULD BE FUNCTIONAL TO PREVENT BYPASSING OF THE FACILITY



PAVE DRAIN OR APPROVED EQUAL C4.2 / NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR PERVIOUS PAVER

- THE OWNER SHALL PERIODICALLY SWEEP (OR VACUUM PERVIOUS PAVERS) THE PAVERS SURFACES TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE.
- THE OWNER SHALL USE DEICERS IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT.
- THE OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BLADES SET ONE-INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOWMELT SHOULD NOT BE DIRECTED TO PERVIOUS PAVERS.

REVISIONS REVISED SITE DEVELOPMENT PLAN 6/28/17 MICRO-BIO. SGW. PAVE DRAIN DETAILS

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043



Whitman, Requardt & Associates, LLF 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

> ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376 EXPIRATION DATE: __09/22/2017

MPEA - SITE **IMPROVEMENTS**

STORMWATER MANAGEMENT DETAILS AND NOTES

Drawing No.

Scale: NOT TO SCALE Date: 09/12/2014 | Sheet 13 of 27

Des: BWJ/SAD | Drawn: SAD | Check: AUO SDP-14-055

HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410-313-1855).
- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES. DIKES. PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- 4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL 1, CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- 5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
- 6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 7. SITE ANALYSIS:

TOTAL AREA OF SITE: 2.34 ACRES AREA DISTURBED: 2.34 ACRES AREA TO BE ROOFED OR PAVED ACRES: 0.72 ACRES AREA TO BE VEGETATIVELY STABILIZED ACRES: 1.62 ACRES TOTAL CUT CU. YDS.: 4,078 CU. YDS. TOTAL FILL: 4.839 CU. YDS. OFFSITE WASTE/BORROW AREA LOCATION: TO BE DETERMINED BY CONTRACTOR

- 8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 9. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- 11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

HOWARD SOIL CONSERVATION DISTRICT TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RE-DISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: -- LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: -- APPLY 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.).

SEEDING: -- FOR PERIODS MARCH 1 -- APRIL 30 AND FROM AUGUST 15 -- OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 IBS/1000 SQ. FT.). FOR THE PERIOD MAY 1 -- AUGUST 14. SEED WITH 3 IBS/ACRE OF WEEPING LOVEGRASS (.07 IBS/1000 SQ. FT.). FO~ THE PERIOD NOVEMBER 16 -- FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS/ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: -- APPLY L-1/2 TO 2 TONS/ACRE (70 TO 90 IBS/1000 SQ. FT.) OF UNROTTED WEED-FREE, SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING, ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FT. OR HIGHER, USE 348 GAL. PER ACRE (8 GAL/1000 SQ, FT.) FOR ANCHORING.

REFER TO THE 2011 MAR4AND STANDARDS AND SPECIFICATIONS FOR SOL EROSION AND SEDIMENT Purpose CONTROL FOR ADDITIONAL RATES AND METHODS NOT COVERED.

ENGINEER'S CERTIFICATION

"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 OF ENGINEER (PRINT NAME BELOW SIGNATURE) And Long U. Olses

DEVELOPER'S CERTIFICATION

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



APPROVED: DEPARTMENT OF PLANNING AND ZONING

Ph Edul 10.2.14 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE CHIEF, DIVISION OF LAND DEVELOPMENT Men L M. Cyll

ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED. SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:

A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

1. PREFERRED -- APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 600 IBS/ACRE 10-10-10 FERTILIZER (14 IBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 IBS/ACRE 30-0-0 UREAFORM FERTILIZER (9 IBS/1000 SQ. FT.)

HOWARD SOIL CONSERVATION DISTRICT

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE

SFEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISKING OR OTHER

2. ACCEPTABLE -- APPLY 2 TONS/ACRE DOLOMITIC LIMESTONE (92 IBS/1000 SQ. FT.) AND 1000 IBS/ACRE 10-10-10 FERTILIZER (23 IBS/1000 SQ, FT.) BEFORE SEEDING, HARROW OR DISK INTO UPPER THREE INCHES OF SOIL.

SEEDING -- FOR THE PERIODS MARCH 1 -- APRIL 30, AND AUGUST 1 -- OCTOBER 15, SEED WITH 60 IBS/ACRE (1.4 IBS/1000 SQ. FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 -- JULY 31, SEED WITH 60 IBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 IBS/ACRE (.05 IBS/100() SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 -- FEBRUARY 28. PROTECT SITE BY:

OPTION 1 - TWO TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION 2 -USE SOD.

OPTION 3 - SEER: WITH 60 IBS/ACRE KENTUCKY 30 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING -- APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 IBS/1000 SQ. FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPE 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE -- INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

B-4 STANDARDS AND SPECIFICATIONS VEGETATIVE STABILIZATION

Using vegetation as cover to protect exposed soil from erosion. To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling;

seeding and mulching; temporary stabilization; and permanent stabilization. Effects on Water Quality and Quantity Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream

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

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

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

Adequate Vegetative Establishment Inspect seeded areas for vegetative establishment and make necessary repairs,

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

B-4-1 STANDARDS AND SPECIFICATIONS INCREMENTAL STABILIZATION

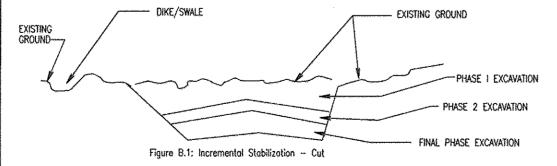
Establishment of vegetative cover on cut and fill slopes.

To provide timely vegetative cover on cut and fill slopes as work progresses. Conditions Where Practice Applies Any cut or fill slope greater than 15 feet in height. This practice also applies to

A. Incremental Stabilization - Cut Slopes 1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work

- 2. Construction sequence example (Refer to Figure B.1)
- a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation. b. Perform Phase 1 excovation, prepare seedbed, and stabilize.
- c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
- d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

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

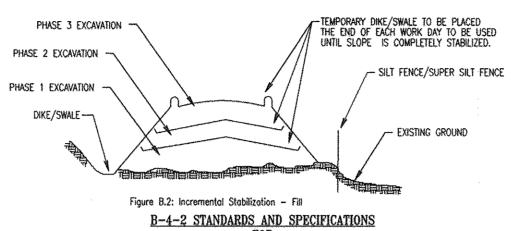


THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY

B. Incremental Stabilization - Fill Slopes

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

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



SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

The process of preparing the soils to sustain adequate vegetative stabilization To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies Where vegetative stabilization is to be established.

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

the contour of the slope. b. Apply fertilizer and lime as prescribed on the plans. c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

a.a. Soil pH between 6.0 and 7.0. a.b. Soluble salts less than 500 parts per million (ppm). a.c. Soil contains less than 40 percent clay but enough fine grained material

(greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable. a.d. Soil contains 1.5 percent minimum organic matter by weight.

a.e. Soil contains sufficient pore space to permit adequate root penetration. b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches. d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

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

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. Areas having slopes steeper than 2:1 require special consideration and design. 5. Topsoil specifications: Soil to be used as topsoil must meet the following criteria: a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not

be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter. b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as

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

6. Topsoil Application a. Erosion and sediment control practices must be maintained when applying topsoil. b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling

or other operations must be corrected in order to prevent the formation of

depressions or water packets. c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications) 1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with

prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer. 3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pas through a #100 mesh sieve and 98 to

100 percent will pass through a #20 mesh sieve.

3. Lime and fertilizer are to be evenly distributed and incorporated into the top 3

to 5 inches of soil by disking or other suitable means. 4. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-3 STANDARDS AND SPECIFICATIONS SEEDING AND MULCHING

The application of seed and mulch to establish vegetative cover

To protect disturbed soils from erosion during and at the end of construction. Conditions Where Practice Applies To the surface of all perimeter controls, slopes, and any disturbed area not under active

Specifications

a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. d. Sod or seed must not be placed on soil which has been treated with soil

sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

a. Dry Seeding: This includes use of conventional drop or broadcast spreaders. a.a. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding

a.b. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with b.a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after

b.b. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and

c.a. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous), 200 pounds per acre; K20 potassium), 200 pounds per acre.

c.b. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when

c.c. Mix seed and fertilizer on site and seed immediately and without interruption. c.d. When hydroseeding do not incorporate seed into the soil.

Mulching 1. Mulch Materials (in order of preference)

a. Straw consisting of thoroughly threshed wheat, rve, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where on species of grass is

b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state. b.a. WSFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly

b.b. WSFM, including dye, must contain no germination or growth inhibiting

b.c. WSFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under gaitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absortion and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

b.d. WSFM material must not contain elements or compounds at concentration leveles that will be phyto-toxic. b.e. WSFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range

of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum. 2. Application

a. Apply mulch to all seeded areas immediately after seeding. b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per

c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. Anchoring

a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard: a.a. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice

should follow the contour. a.b. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mis the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

a.c. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heaver at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly

a.d. Lightweight plastic netting may be stapled over the mulch according to nanufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long. B-4-4 STANDARDS AND SPECIFICATIONS

FOR TEMPORARY STABILIZATION

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

To use fast growing vegetation that provides cover on disturbed soils. Conditions Where Practice Applies Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. if this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding. When stabilization is required outside of a seeding season, apply seed and mulch or

straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Hardi	ness Zone	(from Figure	B.3): <u>6b</u>			
Seed	Mixture (f	rom Table B	.1):		Fertilizer Rote (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	(10-20-20)	
	Annual Ryegrass	40	3/1-5/15 8/1-10/15	1/2"		
	Foxtail Millet	30	5/16-7/31	½"	436 lb/ac (10lb/1000sf)	2 tons/ac (90 lb/1000sf)
	ļ			A	, , ,	
	ove permanent pe					

PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation

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

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

General Use

2. Turfgrass Mixtures

a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be place don the plan.

b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency. d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in

addition to the soil amendments shown in the Permanent Seeding Summary.

a. Areas where turfarass may be desired include lawns, parks, playground, and commercial sites which will receive a medium to high level of maintenance. b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be place don

b.a. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

b.b. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 squire feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

b.c. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiveing low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescure Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended. b.d. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade

in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet. Notes: Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar

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

c. Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone:

Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b) d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 % inches in diameter. The resulting seedbed must be in such condition that future moving of grasses will pose no difficulty.

e. If soil moisture is deficient, supply new seedings with adequate water for plant growth 1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

lardiness Zone leed Mixture (f	•	,	Fe (rtilizer R 10-20-2	Lime Rate			
Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	N	P205	K20	Rote	
reeping led Fescue	30	3/1-10/15	1/4"-1/2"					
hewings escue	30	3/1-10/15	1/4"-1/2"	45 lb/ac	90 lb/ac	90 lb/ac	tons/ac	
entucky Iluegrass	15	3/1-10/15	¼"-½"	1000sf)	1000sr)	1000sf)	tons/ac (90 lb/1000sf)	

REVISIONS A REVISED SHEET TOTAL 6/28/17

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD

> DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043

COLUMBIA, MD 21046



WHITMAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

> ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

> > GRAPHIC SCALES

SIGNATURE



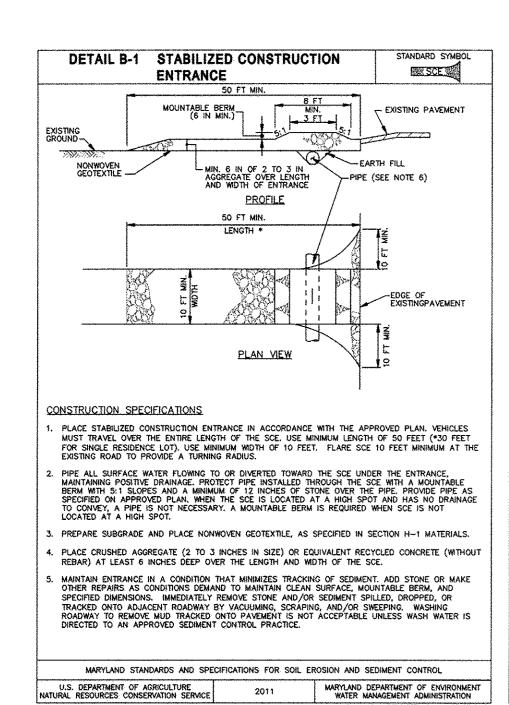
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376 EXPIRATION DATE: __09/22/2015

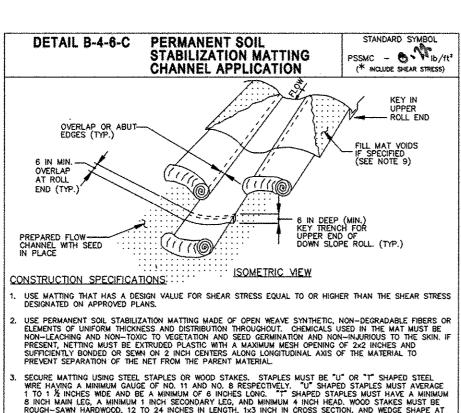
MPEA - SITE **IMPROVEMENTS**

EROSION AND SEDIMENT CONTROL - NOTES

Drawing No.

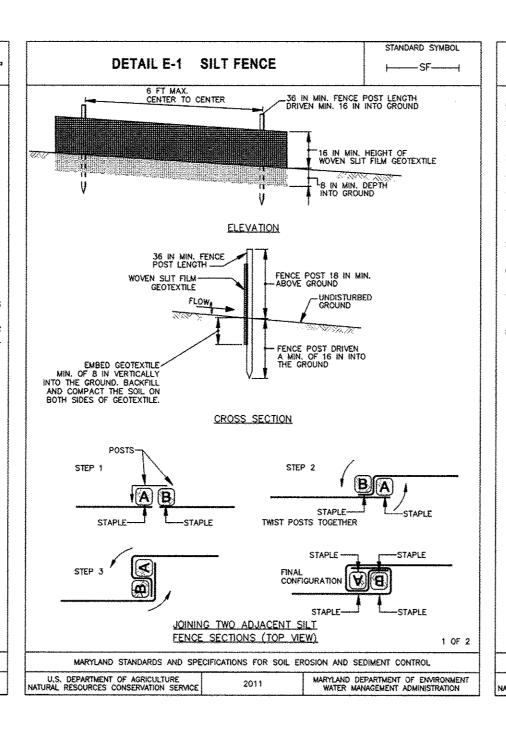
Scale: NOT TO SCALE Date: 09/12/2014 | Sheet 14 of 27 Des: BWJ/SAD | Drawn: SAD | Check: AUO





. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES, STAPLES MUST BE "U" OR "I" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "I" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE A THE BOTTOM. . PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. . UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS, LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLE ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT. 10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

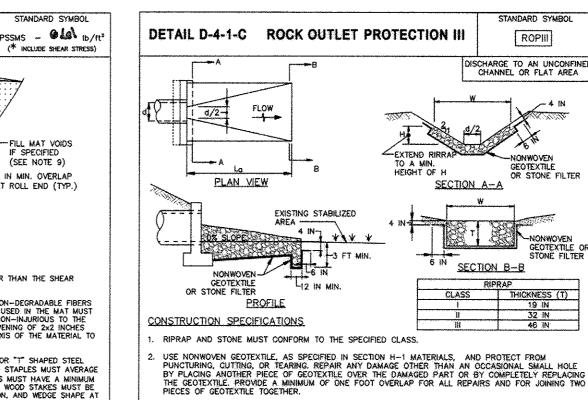


DETAIL B-4-6-D PERMANENT SOIL DETAIL E-1 SILT FENCE STABILIZATION MATTING -----SF-----SLOPE APPLICATION CONSTRUCTION SPECIFICATIONS ROLL EDGES (TYP.)-USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. CONSTRUCTION SPECIFICATIONS EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT, REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE. 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

--- 6 IN MIN, OVERLAP USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS. . USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES, STAPLES MUST BE "U" OR "T" SHAPED STEE SECURE MATING COINC STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE U OR 1 SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM. I. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE, AVOID STRETCHING THE MATTING. BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT. KEY IN THE TOP OF SLOPE END OF MAT 8 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT. 10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE
JRAL RESOURCES CONSERVATION SERVICE 2011 PSD - 12 DETAIL D-1 PIPE SLOPE DRAIN

STANDARD SYMBOL

(* INCLUDE SHEAR STRESS)



7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046 DEPARTMENT OF PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (% TO 1½ INCH MINIMUM STONE 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 HINDSTUBBED MATERIAL PUBLIC WORKS EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP. 9250 BENDIX ROAD

PSD - 12

Designation PSD-12 refers to 12 in PIPE SLOPE DRAIN.

2 OF 2

----SSF-----I

CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DETAIL D-1 PIPE SLOPE DRAIN

CONSTRUCTION SPECIFICATIONS

Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231

Phone: 410-235-3450 Fax: 410-243-5716



REVISIONS

A REVISED STE DEVELOPMENT PLAN 6/28/17

HOWARD COUNTY

DEPARTMENT OF

RECREATION AND PARKS

ELLICOTT CITY, MD 21043

SIP. PSD DETAILS

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

> ZONING: NEWTOWN & R-20 **ELECTION DISTRICT 05**

GRAPHIC SCALES

SIGNATURE

PROFESSIONAL CERTIFICATION. HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 19376

MPEA - SITE **IMPROVEMENTS**

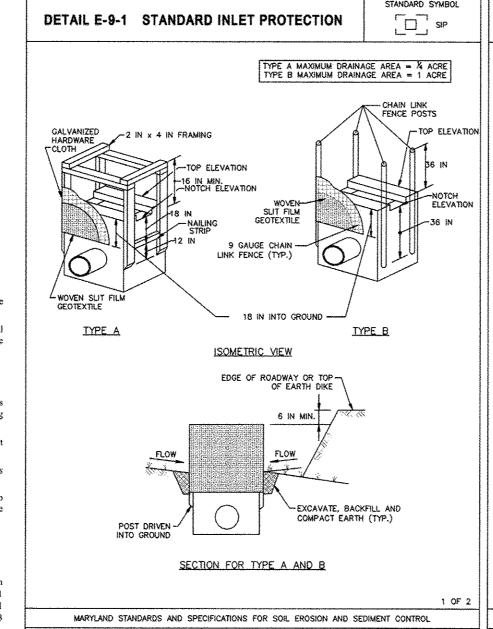
EROSION AND SEDIMENT CONTROL - NOTES/DETAILS

Drawing No.

Scale: NOT TO SCALE

-HIGHLY VISABLE FLAGGING ATTACHED TO TOPS OF **B-4-8 STANDARDS AND SPECIFICATIONS** ANCHOR POSTS -ANCHOR POSTS SHOULD BE MIN. 2" STEEL U-CHANNEL OR 8' MAX FOR ∕~USE 2" x 4" STOCKPILE AREA " TIMBER, 6' IN LUMBER FOR CROSS BRACING A mound or pile of soil protected by appropriately designed erosion and sediment control measures. 7777 772777 To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns. Conditions Where Practice Applies Stockpile areas are utilized when it is necessary to salvage and store soil for later use. 1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance 3. Runoff from the stockpile area must drain to a suitable sediment control practice. ANCHOR POSTS MUST Access the stockpile area from the upgrade side. BE INSTALLED TO A 5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging DEPTH OF NO LESS TO SECURE concentrated flow in a non-crosive manner. FENCE BOTTOM THAN 1/3 THE TOTAL 6. Where runoff concentrates along the toe of the stockpile fill, an appropriate crossion/sediment HEIGHT OF POST control practice must be used to intercept the discharge. 7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable

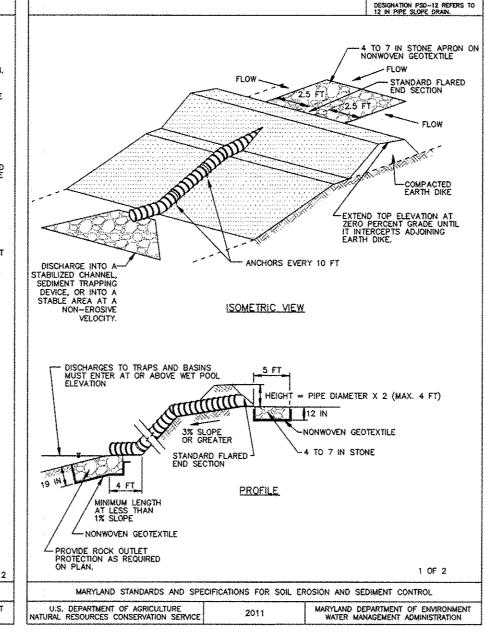
> The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3



CONSTRUCTION SPECIFICATIONS USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. . EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION, FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN, STRETCH & INCH GALVANIZED HARDWARZ CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST. FOR TYPE B, USE 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE, REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DETAIL E-9-1 STANDARD INLET PROTECTION



THE HEIGHT OF THE EARTH DIKE MUST BE AT LEAST 2 TIMES THE PIPE DIAMETER MEASURED FROM THE INVERT OF THE PIPE. EXTEND THE TOP ELEVATION OF DIKE AT ZERO PERCENT GRADE UNTIL IT INTERCEPTS THE TOP OF THE ADJOINING EARTH DIKE. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. ALL CONNECTIONS MUST BE WATERTIGHT. ATTACH A FLARED END SECTION TO THE INLET END OF PIPE WITH A WATERTIGHT CONNECTION, AT THE INLET OF THE PIPE SLOPE DRAIN, INSTALL 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PLACED 12 INCHES IN DEPTH ON NONWOVEN GEOTEXTILE AND EXTEND OUT 5 FEET FROM THE INLET IN ALL DIRECTIONS. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL RIPRAP. SECURELY ANCHOR THE PIPE SLOPE DRAIN (PSD) TO THE SLOPE. SPACE THE ANCHORS EVERY 10 HAND TAMP THE SOIL AROUND AND UNDER THE PIPE AND END SECTION IN 4 INCH LIFTS TO THE TOP OF THE EARTH DIKE. UPON COMPLETING INSTALLATION OF THE PSD, STABILIZE ASSOCIATED DISTURBANCES WITH SEED, MULCH, AND TACK. . INSTALL OUTLET PROTECTION AS SPECIFIED ON APPROVED PLAN.). KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DETAIL E-8 TEMPORARY GABION **DETAIL E-8 TEMPORARY GABION** TGOS **DETAIL E-9-2 AT-GRADE INLET PROTECTION** ____AGIP **OUTLET STRUCTURE OUTLET STRUCTURE** TGOS MAXIMUM DRAINAGE AREA = 12 ACRE MAXIMUM DRAINAGE AREA = 1 ACRE TIE-IN (SEE EARTH DIKE TRANSITION DETAIL ON 2 OF 2) -GRADE AT FRONT AND BACK FACE OF WALL MI-BIT-IN 30 IN TYPE 'B' DIKE IN GABION MIN EARTH DIKE TRANSITION PROVIDE TRANSITION LENGTH AND HEIGHT AS SPECIFIED ON PLAN. HEIGHT OF TRANSITION EARTH DIKE MUST EXCEED 4 INCH MINIMUM FREEBOARD ABOVE TOP OF GABION AND EXTEND AT THIS ELEVATION UNTIL IT INTERCEPTS THE TOP OF ADJOINING EARTH DIKE. -NONWOVEN GEOTEXTILE 2. PROVIDE POSITIVE DRAINAGE ALONG EARTH DIKE TO GABION OUTLET STRUCTURE. PLAN / CUT AWAY VIEW SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED ON PLAN. BANK PROJECTIONS OR IRREGULARITIES ARE NOT ALLOWED. -4 IN HARDWARE CLOTH CONSTRUCTION SPECIFICATIONS PROVIDE STORAGE VOLUME AS SPECIFIED ON APPROVED PLANS. USE BASKETS MADE OF 11 GAUGE WIRE OR HEAVIER. 2 GABION BASKETS AT 6 FT EACH = 12 FT USE NONWOVEN AND WOVEN MONOFILAMENT GEOTEXTILES AS SPECIFIED IN SECTION H-1 MATERIALS. PLAN EMBED THE GABION OUTLET STRUCTURE INTO THE SOIL A MINIMUM OF 9 INCHES, PROVIDE NONWOVEN GEOTEXTILE UNDER ALL GABIONS, TOP GABION STRUCTURE-FILL GABION BASKETS WITH CLEAN 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WIRE MESH. WEIR CREST-CROSS SECTION MAKE THE WEIR CREST OF THE GABION OUTLET STRUCTURE 9 INCHES LOWER THAN THE TOP OF THE ADJACENT GABIONS. CONSTRUCTION SPECIFICATIONS USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. PROVIDE A MINIMUM WEIR CREST OF 6 FEET, LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE. ATTACH WOVEN MONOFILAMENT GEOTEXTILE 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.

6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION. PLASTIC MESH TREE PROTECTION FENCE

NO SCALE

2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE

3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR

4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE

FOREST CONSERVATION PLAN REVIEW PROCESS.

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

DEVICE, ONLY.

TO INSTALLING DEVICE.

ROOTS WHEN INSTALLING POSTS. 5. PROTECTION SIGNAGE IS REQUIRED.

ENGINEER'S CERTIFICATION "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 OF ENGINEER AND LOCKEN APPROVED: DEPARTMENT OF PLANNING AND ZONING 8.29.17

DATE

DATE

9-13-67

9-13-17

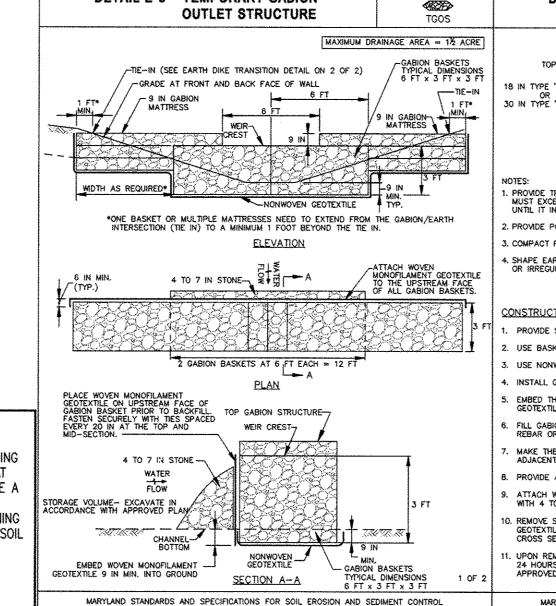
CHIEF, DEVELOPMENT ENGINEERING DIVISION 🛷

CHIEF, DIVISION OF LAND DEVELOPMENT

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

8-17-17 **MO** (PRINT NAME BELOW SIGNATURE)

DEVELOPER'S CERTIFICATION



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.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

—¾ TO 1½ IN STONE — ¾ to 1½ in stone INLET GRATE

PLACE CLEAN $\frac{3}{4}$ TO $\frac{1}{2}$ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING, IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

GALVANIZED CHAIN LINK FENCE WITH WOVEN SLIT FILM GEOTEXTILE ELEVATION CHAIN LINK FENCING -WOVEN SLIT FILM GEOTEXTILE-FLOW -1 CROSS SECTION CONSTRUCTION SPECIFICATIONS

WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.

EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE,

PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.

REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN, IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DETAIL E-3 SUPER SILT FENCE

INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0,095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.

FASTEN 9 GAUGE OR HEAVER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS. . FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.

EXPIRATION DATE: ___09/22/2017_

Date: 09/12/2014 | Sheet 15 of 27 Des: BWJ/SAD | Drawn: SAD | Check: AUO

Client Project No	ame Middle Patuxent E	nvironmental .	etes. L Area.	LP.			G LC			_ Bor _ Job	ing # _B-1 #WRSA W.O.# 31760
Datum Surf. Elev.	5795 Trotter Road Dr 372.5 Ft. In ed 06/12/2013 Da	ller <u>Dane Lo</u> spector Mr. G	omis enesh			Ham Sam	pler Ty	pe <u>SPT</u>		_ 8	oring Method <u>HSA</u> orehole Diameter <u>6" In</u> ock Core Size <u>NA</u>
STRETA DEPTH	SOIL DESCRIP Color, Moisture, Density, S		ELE 7	ä 8₹	7) A 3,8	No.	Type	SAMPLE Blows/8°	Aec.	P3D (G0p8)	BONING & SAMPLING NOTES
	Brown, dry, very loose dense, fine, sandy silt, of clay, gravel and gla	with trace	3323		1	1	SPT	1-1-2	10"		I) No water encountered.
4.0	fragments, FILL Brown, dry, medium den	¢D.	368.5			2	SPT	3-7-14	15"		The state of the s
	SANDY SILT. with trace and mice	e of clay			0	3	SPT	7-9-11	15"		Boring grouted from 0.1 to 10.0 ft with portland cement at completion.
					10	4	SPT	6-7-5	12"		
						5	SPT	6-7-5	10"		
15.0			357.5		15 15	8	SPT	6-7-8	10"		
<u></u>	Bottom of test boring t	5.0 feet		**************************************	-				Martin de la companio del la companio de la compani		
			mandy-management to the second		20						
4			Townson Funnishinsenskinsenson	Prince and the second s	-						
			- ANN ANN AND AND AND AND AND AND AND AND	market and the second second	25						
			ecolitatives escripturity escri	NACONAL PROPERTY AND THE PROPERTY AND TH					***************************************		
		0.000			30	*Markenson garag	GBO	UNDWATER D	EPTH		Geometrix _
80	RING METHOD ON STEM AUGERS ID AUGER & TRIPOD ING CASING	SPT - STAND	Split Sp	ETRATI	ON		AT COM	PLETION DRY HRS 24 HRSN/A AT10.331	ET	r.	0711110 Inc. 410-242-8220

Proje	t ect Na etion _	me <u>Middle Patuxer</u>	t Environmenta	Area.				-			_ Bor _ Job	ing # <u>B-2</u> # <u>WRSA W.O.# 317</u>
Datur Surt.	n Flev		Inspector Mr.	Genesh			Sam	oler Tv	pe <u>Safety.14</u> pe <u>SPT</u> Mobil B-		B	oring Method <u>HSA</u> orehole Diameter <u>6" Ir</u> ock Core Size <u>NA</u>
		SOIL DESC Color, Monture, Dens	AJPTION Ny, Size, Lilhology		5 5 6 7 8	Sales Company Tr	No.	Туре	SAMPLE Blows/6*	Rec	(non) PID	HOMING & SAMPLING NOTES
	20:0	Brown, dry to damp medium dense, fine with trace of grave	sity SAND	386.6		1	5	SPT	3-4-4	8"	Westernamenssansevasterus	II Water encountered a 9,0 feet.
1		mica.		***************************************		5	2	SPT	3-3-4	14"	meneral announce and announce announce and a	
				***************************************		1	3.	SPT	2-3-8	12"	alan e distributa de destructura de destructura de destructura de destructura de destructura de destructura de	2) Boring offset 8.0 fe south of location.
	9.0	Brown, moist, very	dense,	357.8		10	4	SPT	10-128	10"	Andrean or and the state of the	3) Boring grouted from 0.0 to 11.0 feet at
		silty SANO , with sm	all gravel.			Ī	5	SPT	17-24-51/3"	9"		completion with portland cement.
	15.0			351.8		15	6	SPT	51/1"	ŧ.		4) Slight grinding of augers from 13.0 to 13.5 feet.
	10.0	Bottom of test bor	ing 15,0 feet.			-					alitary a Mining de Afrikaanska († 1884)	15.0 15.01
:-						20			аруадалого в постанований постанований постанований постанований постанований постанований постанований постан		WANTED THE BANK OF THE BANK BANK BANK BANK BANK BANK BANK BANK	
						-	Andrew Comment of the	100000000000000000000000000000000000000	denta-o-o-o-dentalina estatulari de la constanta de la constan	-	odkiskeskimker eskilles erkelisisk	
	mil 15 months in proceedings/ordersons					25			CARALLE CONTRACTOR OF THE CONT		***	
-	eenusessinusessenninge			***************************************	***************************************	_			VOLABRAS HADINIPOSTONIPOS		Andrews and design control of the co	
	- Andrews					30			and a second state of the			
HA/1	- HOLL IR-HAN - ORIVI - NUO D	RING METHOD OW STEM AUGERS D AUGER & TRIPOO NG CASING PRILLING OTANY/AIR HAMMER	SPT - STAI	r split sp by tube r sample	etrati 'OON	Linne		AT CON	DUNDWATER DE	FT.	Ţ,	Geometrix Drilling Inc. 410-242-9220 Baltimore MD

	nt		t & Associa	ites. L	LP.			·····			Bor	ing # _SWM-1	-
eroj oc	iect Na ation	me Middle Patuxent Er 5795 Trotter Road	nvironmental / Clarksvill	area. e Marv	land 2	1029					_ Job	#WB&A W.O.# 31760	
Datu Surf.	. Elev		ller <u>Dane Lo</u> spector Mr. 5	omis anesh	welstern and the second	-	Ham	oler Ty	pe_SPT		. B	oring Method <u>HSA</u> orehole Diameter <u>6" In.</u> ock Core Size <u>NA</u>	
	23 25 25 00:0	SQIL DESCRIPT Color, Moisture, Density, S	ION ize, Lithology	ELEY 374.2	10 10 10 10 10 10 10 10 10 10 10 10 10 1	31 38	No	Type	SAMPLE Blows/8*	Rec	P10 (ppm)	BORING & SAMPLING NOTES	
	2.0	Brown, moist, loose, SA SILT .	NOY	372.2			1	SPT	1-1-2	8*		1) No water encountered,	
1	A Paris Laboration of the Control of	Brown, dry, very dense fine, SANDY STLT , with tragments, trace of cla mica.	rock				2	SPT	9-21-45	12"		2) Intilltration pipe set	-
	7.0			387.2	7:1	5	3	SPT	38-24-15	10"		to 6.0 feet, located 5.0 feet south of SWM-1 pipe removed and boring grouted afte	-
		Brown, dry to moist. The sandy St.T. , with a little	edium dense. e mica.	-		10	4	SPT	4-8-5	10"		test completed. 3) Boring grouted from 0.0 to 6.0 teet at completion, with	-
	11.5	Bottom of test boring t	i 5 feet	302.7		1	5	SPT	5-6-6	15"		portland cement.	
	***************************************	bottom or test boring .	105.0			_							-
-	***************************************				-	15							-
						-						·	
-					***************************************	20							_
1	1				***************************************	-				endoresenda Proportiones			-
						25_							-
						-							
1		·	*****************	<u> </u>		30			**************************************				
HA/ DC MD	A - HOLL TR-HAN ORIVI - MUD E	RING METHOD OM STEM AUGERS OD AUGER & TRIPOD DING CASING DORILLING OTTARY/AIR HAMMER	SPT - STAND	SPLIT SP Y TUBE SAMPLE	ETRATI	ON :	1	AT COM AFTER AFTER	UNOWATER DI PLETION DRY HRS. HAS. 24 HRS. N/A AT 6.08 F	_FT. _FT.	÷	Geometrix Drilling Inc. 410-242-9220	
		dard Penetration Test: Drivin	!		foot w	th 14	0 pou	nd Hami	ner Faling 30	inches;	Blow C	Count Recorded at 6 inch Inte	rvals

Pro	nt ject Na ation _		nvironmental.	Area.				***************************************			_ Bor _ Job	ing # _SWM-2 #WRSA W.O.# 31760
Surf	Elev.	Driller <u>Dane Loomis</u> Fiev. 367.8 Ft. Inspector Mr. Ganesh							pe SPT Mobil B-	namen emission	B	oring Method HSA prehole Diameter 6" In. pock Core Size NA
	žů Hů	SOIL DESCRIPT Color, Moisture, Densify, S	IGN Size, Lithology	ELEY	, W.	SAPLE	No.	Туре	SAMPLE Blows/6"	Her.	PID (ppm)	BORING & SAMPLING NOTES
	2.0	Brown, dry, medium der fine SAND, with gravel		367.8	o, o		***************************************	SPT	7-9-9	6"		i) No water encountered.
		Brown, dry, medium der loose, fine, SILTY SAN SANDY SILT with clay	O T O			1	2	SPT	6-6-5	5"	***************************************	2) Infilltration pipe set
				***************************************		5	3	SPT	3-4-3	12"		to 3.0 feet, located 5.0 feet west of SWM-2. pipe removed and boring grouted afte test completed.
-	0.0	Brown, dry, medium der silty SAND , with gravel of clay. Bottom of test boring	& trace	359,8	6 0 0 0	5	4	SPT	7-10-11	12"		3) Boring grouted from 0,0 to 7.0 feet at completion, with portland cement.
-	Aberte ett mitteret vertil de verb dese des	potton of test points	VID 1244									
						15_						
											,	
	Parameter of Manager School Sc					20			:			
	enesanes messemente			7								
	namer vanomaten anattoira.					 25					- Control of the Cont	
	nayahisaninde kadinaken de paraken da				P-F-V-mineseer-mine-e-mine-e-mine							
	venteenaavenenäuse og enjyse				***************************************	20						
HA	A - HOLL /TR-HAN - DRIVI	NING METHOD OW STEM AUGERS D AUGER & TRIPOO NG CASING BILLING	SPT - STAND	SPLIT SP Y TUBE	ETRATI	0N	ŀ	AT COM	UNDWATER DI PLETION DRY HRS. N/A 24 HRS. N/A AT 7.25 F	FT.	T.	Geometrix Orilling Inc. 410-242-9220

WR&A IN - SITU INFILTRATION TEST

Inspector Ganesh
Date of saturation: 5/28/2013
Depth to top of Pipe above Ground: 2.0 Feet
Beginning: Wet

Location: Accident, Manyland
Boring Number: Swm-1
Depth to Bottom 4.0 Feet
Date of Testing 4.0 Feet
Water filled 2.0 Feet
Infiltration Rate: 0 Inch/Hour

ľ	Ī		Series de mensione de la constante de la const	and the state of t	Reading in Ft		
ate	Time	Duration	From TOP of Pube	From Final Top 4 04	Differnce	Infiltration Rate	Remark
ba	7!05AM		4.0	4.0	0	0	
",	8:0574		15	4.0	0		
.	9:0500	**************************************	fx	4.0	0		
ľ	(0:0504		14	4.0	٥		
	11195			4.0	6		A series and the seri
ſ	T.					<u></u>	
							ļ <u>.</u>
						<u> </u>	ļ
		*****			······································		<u> </u>
I,		***************************************				<u></u>	<u></u>
L							ļ
-		·····				·	ļ
-					·····	!	
-			<u> </u>		40000000000000000000000000000000000000		***************************************
ŀ							
-		***************************************			······································	 	
۲			**************************************				***************************************
F							***************************************
ŀ		······································					
r		***************************************					
						,	
						<u> </u>	
£						1	Į

	Date of	or Ganesh saturation: 5/28/2013 top of Pipe above Ground: beginning: Dry/wek	2.0 feet		Location: Acc Bore Hole: St Depth to Bottom Date of Testing Water filled Infiltration Rate:	5.0 feet 5.0 feet 2.0 feet	
					Reading in Ft	elo eloese e estilida kolonika estilida e elo	000000000000000000000000000000000000000
Date	Time	Duration	From Initial Pibe	From To bet pripe	Differnce	Infiltration Rate	Remarks
5/29	7:00am		4.83				
!,,	45 OU AM	······································	**	4.83	O	0	
-53	Q LOD AM		4 t	4'83	<u> </u>	<u> </u>	
,,	10:00 PM		<u>.</u>	4 83		_ 	
29	11:00 AM			4.83	O		THE PROPERTY OF THE PROPERTY O
			**************************************		**************************************		
			····				
							
- 1							
- 1							
ı			VALUE OF THE PARTY				
1							
ľ	***************************************		***************************************			****************	
ľ	******						
Î						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

WR&A

IN - SITU INFILTRATION TEST

8	
APPROVED: DEPARTMENT OF	PLANNING AND ZONING
De Plant	8-29-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	∮ DATE
lest dalisch	9-13-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
Walley Tolur	9-13-17
DIRECTOR	DATE

APPROVED: DEPARTMENT OF PLANN	ING AND ZONING
Palela	8-29-17
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
lettolelist	9-13-17
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE
Walley Folice	9-13-17
DIRECTOR	DATE

Whitman, Requardt & Associates, I			
Whitman, Requardt & Associates, I			
Whitman, Requardt & Associates, I	V	VF	
	Whitman, F	Requardt &	Associates, L
801 South Caroline Street, Baltimore, Maryland 21			•

REVISIONS

A REVISED SITE DEVELOPMENT PLAN 6/28/17

HOWARD COUNTY

DEPARTMENT OF

RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

DEPARTMENT OF

PUBLIC WORKS

9250 BENDIX ROAD ELLICOTT CITY, MD 21043

IN-SITU INFILTRATION TESTS

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 **ELECTION DISTRICT 05**

GRAPHIC SCALES

SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

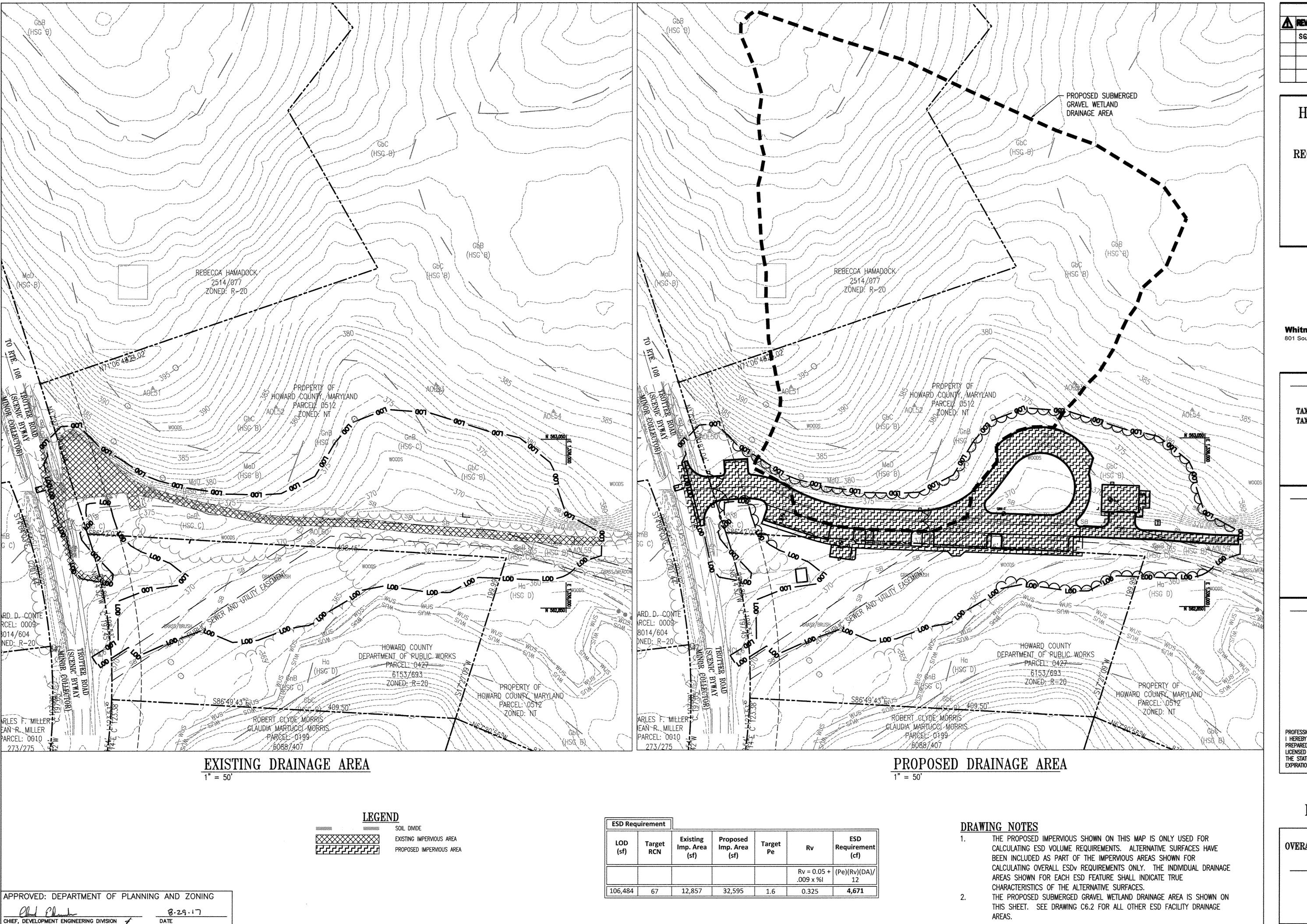
MPEA - SITE IMPROVEMENTS

SOIL BORING LOGS

Drawing No.

Scale: NOT TO SCALE

Date: 09/12/2014 Sheet 16 of 27 Des: BWJ/SAD Drawn: SAD Check: AUO



CHIEF, DIVISION OF LAND DEVELOPMENT

9-13-67 DATE

9-13-17

REVISIONS

REVISED SITE DEVELOPMENT PLAN 6/28/17

SGW DA BOUNDARY

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

> ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

> > GRAPHIC SCALES

0 25' 50' 100' SCALE: 1" = 50'

SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

MPEA - SITE IMPROVEMENTS

OVERALL ESD DRAINAGE AREA MAP

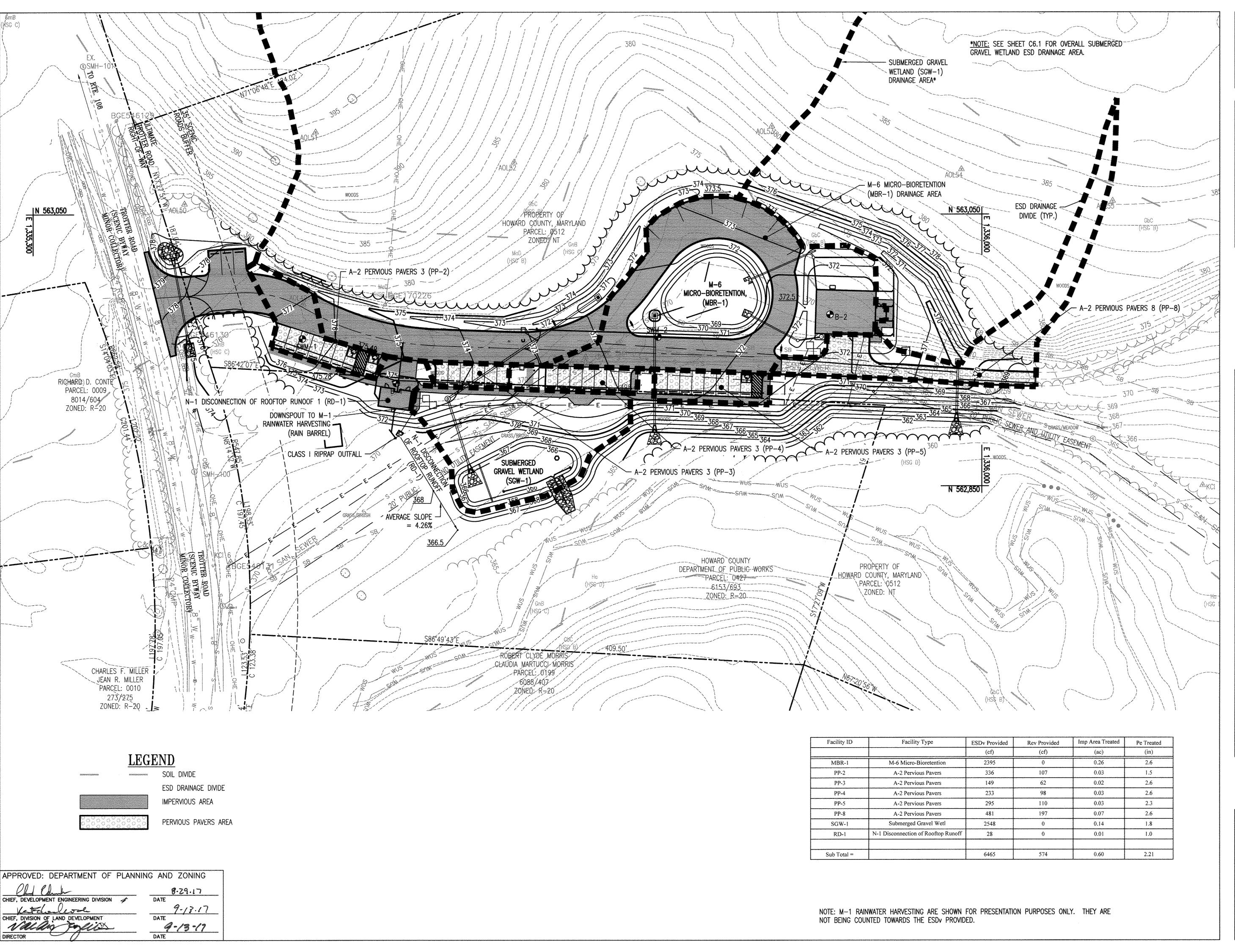
Drawing No.

C6.1

 Scale: 1" = 100'

 Date: 09/12/2014
 Sheet 17 of 27

 Des: BWJ/SAD | Drawn: SAD | Check: AUO



	REVISED SITE DEVELOPMENT PLAN	6/28/
	MICRO-BIO, SGW, PERVIOUS	
	PAVERS DA	
,, <u>.</u>		

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



PROPERTY

Phone: 410-235-3450 Fax: 410-243-5716

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

0 15' 30' 60' SCALE: 1" = 30'

SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

MPEA – SITE IMPROVEMENTS

STORMWATER DRAINAGE AREA MAP

Drawing No.

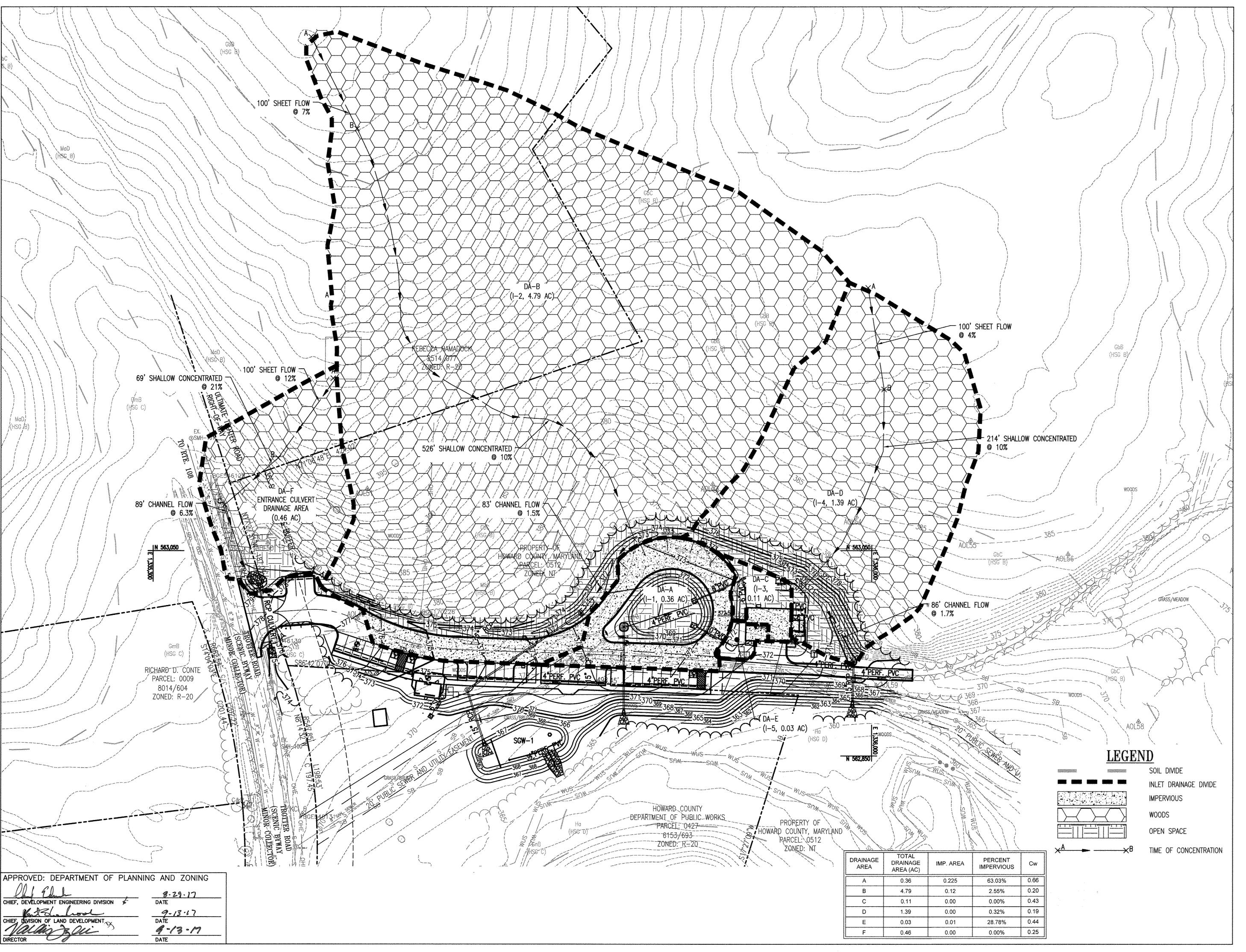
 α

UO.K

 Scale: 1" = 30'

 Date: 09/12/2014
 Sheet 18 of 27

 Des: BWJ/SAD
 Drawn: SAD
 Check: AU0



REVISIONS		
PLAN 6/28/1		

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

0 20' 40' 80' SCALE: 1" = 40'

SIGNATURE



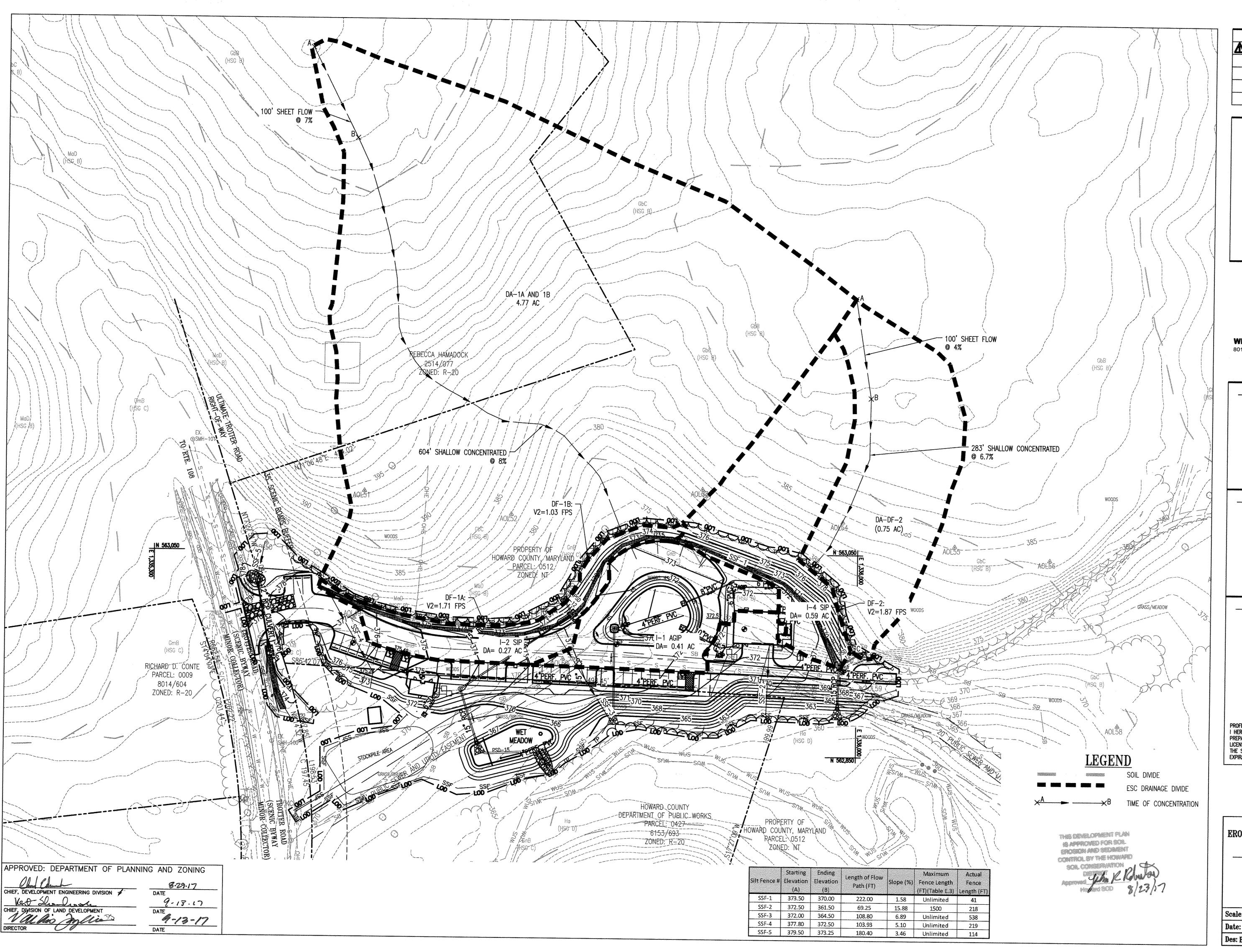
MPEA – SITE IMPROVEMENTS

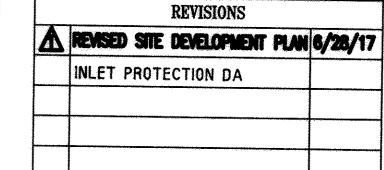
INLET DRAINAGE AREA MAP

Drawing No.

C6.

| Scale: 1" = 40' | | Date: 09/12/2014 | Sheet 19 of 27 | | Des: BWJ/SAD | Drawn: SAD | Check: AUO |





DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

> ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

> > GRAPHIC SCALES

0 20' 40' 80' SCALE: 1" = 40'

SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

MPEA - SITE IMPROVEMENTS

EROSION AND SEDIMENT CONTROL DRAINAGE AREA MAP

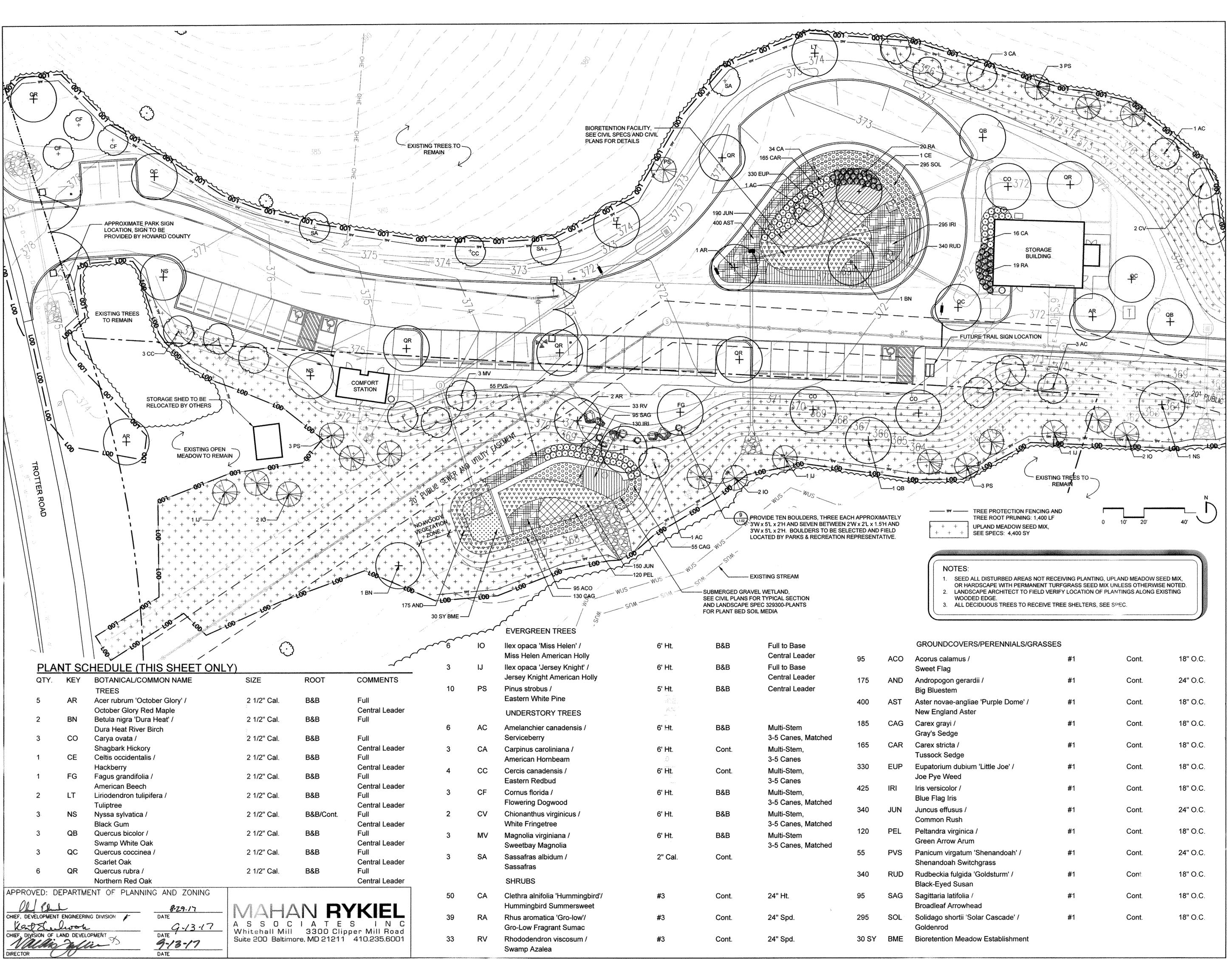
Drawing No.

C6.4

Scale: 1" = 40'

 Date:
 09/12/2014
 Sheet
 20 of
 27

 Des:
 BWJ/SAD
 Drawn:
 SAD
 Check:
 AU0



REVISIONS

REV. SITE DEVELOPMENT PLAN 6/28/17

MICRO-BIO & SGW PLANTINGS,

SITE PLANTINGS

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



PROPERTY

Phone: 410-235-3450 Fax: 410-243-5716

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

OF MARY TH SCHOOL SCHOO

SIGNATURE

MPEA – SITE IMPROVEMENTS

Landscape Plan

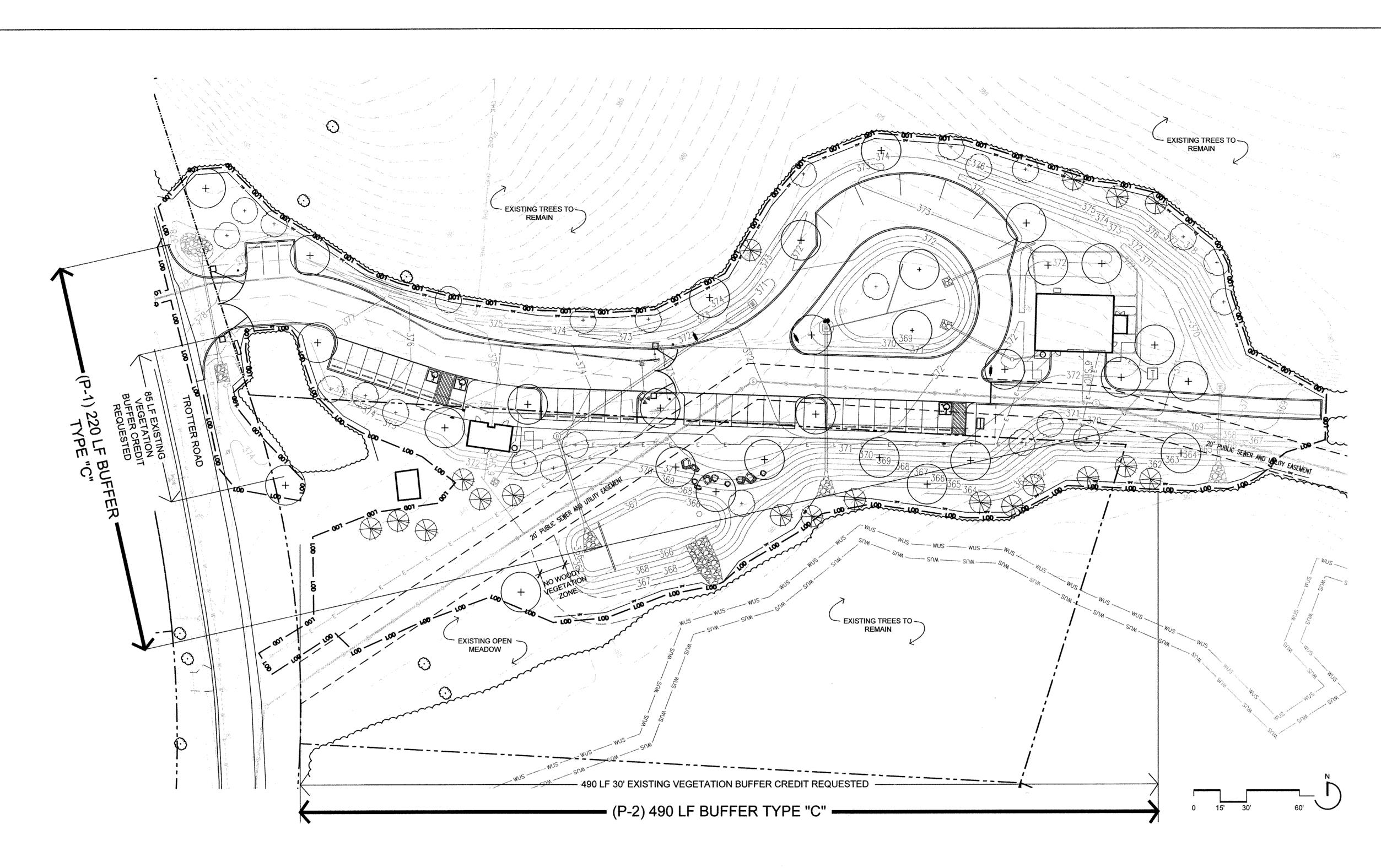
Drawing No.

Scale: As Shown

 Date:
 09/12/2014
 Sheet
 21 of
 27

 Des:
 CB/C0
 Drawn:
 CO
 Check:
 CB/KS

Check: CB/KS
SDP-14-055



SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of parking spaces	37
Number of trees required (1 TREE: 20 SPACES)	2
Number of trees provided	
Shade Trees Other Trees (2:1 Substitution)	2

Developer's/Owner's Landscape Certificate

I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Landscape Manual. I/we further certify that upon completion a Letter of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

Howard County Department of Public Works, Developer Howard County Department of Recreation and Parks, Owner Developer's/Owner's Name

mous

MICHOGE Milani

APPROVED: DEPARTMENT OF PLANNING AND ZONING

8-29-17

CHIEF. DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

DIRECTOR

DATE

A S S O C I A T E S I N C Whitehall Mill 3300 Clipper Mill Road Suite 200 Baltimore, MD 21211 410.235.6001

SCHEDUL PERIMETER LANDSCA		
CATEGORY		PERIMETER ADWAYS
Perimeter	P-1	P-2
Perimeter/Frontage Designation Landscape Type	C	С
Linear Feet of Roadway Frontage/Perimeter	220	490
Credit for Existing Vegetation	YES	YES
(Yes, No, Linear Feet Describe below if needed)	85	490
Credit for Wall, Fence or Berm (Yes, No, Linear Feet Describe below if needed)	NO	NO
Subtotal (linear feet of perimeter - credits)	135	0
Number of Plants Required Shade Trees Evergreen Trees Shrubs	1:40=3 1:20=7 -	1:40=0 1:20=0 -
Number of Plants Provided Shade Trees Evergreen Trees Other Trees (2:1 Substitution) Shrubs (10:1 Substitution) Describe Plant Substitution Credits Below if needed	3 7 - -	0 0 - -

At the time of plant installation, all shrubs and trees listed and approved on the Landscape Plan, shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the approved Landscape Plan may result in denial or delay in the final release of the landscape plan until such time as all required materials are planted and/or revisions are made to the applicable

The owner, tenants, and/or their agents shall be responsible for maintenance of the required landscaping including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.

This plan has been prepared in accordance with Section 16.124 of the Howard County Code and Landscape Manual with 29 shade trees, 24 ornamental trees, 19 evergreen trees and 122 shrubs.

LE	G	EI	ND
	-		

+ SHADE TREE

EVERGREEN TREE

UNDERSTORY TREE

NOTE: SEE L1.0 FOR PLANTING PLAN

REVISIONS REV. SITE DEVELOPMENT PLAN 6/28/17 PLANTINGS, NO WOODY ZONE

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

SIGNATURE



MPEA - SITE IMPROVEMENTS

Minimum Landscape Requirements

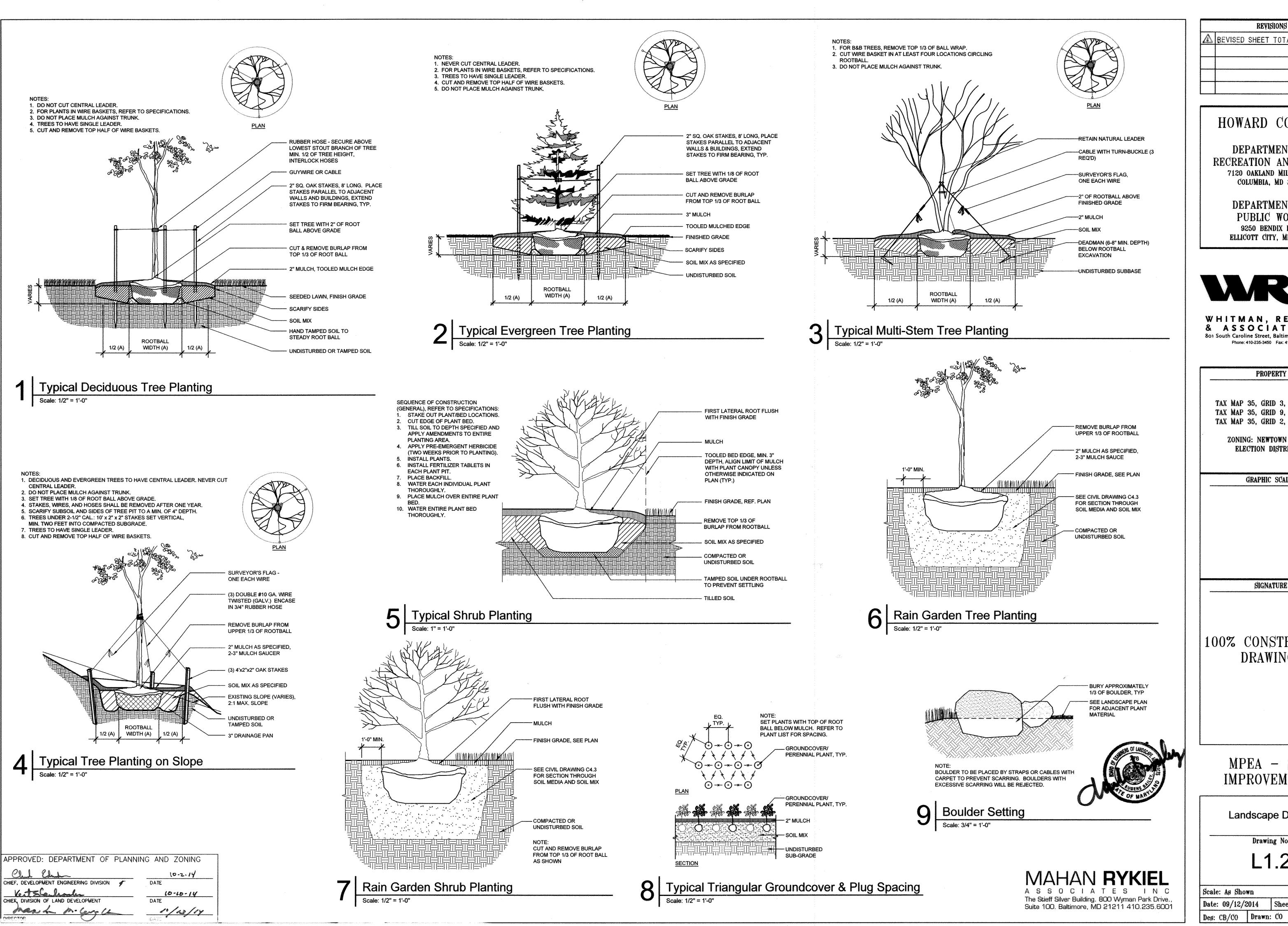
Drawing No.

11'

Scale As Shown

 Date:
 09/12/2014
 Sheet 22 of 27

 Des:
 CB/CO
 Drawn:
 CO
 Check:
 CB/KS



REVISIONS A BEVISED SHEET TOTAL

HOWARD COUNTY

DEPARTMENT OF RECREATION AND PARKS 7120 OAKLAND MILLS ROAD COLUMBIA, MD 21046

> DEPARTMENT OF PUBLIC WORKS 9250 BENDIX ROAD ELLICOTT CITY, MD 21043



WHITMAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 9, PARCEL 467 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES

SIGNATURE

100% CONSTRUCTION DRAWINGS

> MPEA - SITE **IMPROVEMENTS**

Landscape Details

Drawing No. L1.2

Date: 09/12/2014 Sheet 23 of 27

Check: CB dnp_11_055

MIDDLE PATUXENT ENVIRONMENTAL AREA FOREST STAND DELINEATION AND FOREST DATA SUMMARY

GENERAL NOTES

- FOR THIS PROJECT THE LIMIT OF DISTURBANCE (LOD) HAS BEEN USED TO DEFINE THE PROJECT AREA. A LARGER STUDY AREA WAS USED TO GATHER ADDITIONAL INFORMATION ABOUT THE AREAS SURROUNDING THE PROJECT LIMITS.
- 2. TOPOGRAPHIC FIELD SURVEYS WERE PERFORMED IN 2007 BY JOHNSON, MIRMIRAN & THOMPSON (JMT) AND KCI COMMUNICATIONS INFRASTRUCTURE.
- 3. THERE ARE NO NON-TIDAL WETLAND SYSTEMS IN THE PROJECT AREA.
- . ACCORDING TO FEMA MAP 2400440033B, DATED 12/4/1986 THERE ARE NO FLOODPLAINS IN THE PROJECT AREA.
- 5. THROUGH U.S. FISH AND WILDLIFE'S ONLINE CERTIFICATION PROCESS IT WAS DETERMINED THAT EXCEPT FOR THE OCCASIONAL TRANSIENT INDIVIDUALS, THER ARE NO STATE OR FEDERAL RECORDS FOR RARE, THREATENED OR ENDANGERED SPECIES WITHIN THE CLARKSVILLE USGS GRID.
- 6. THERE ARE 4 SPECIMEN TREES LOCATED IN OR NEAR THE STUDY AREA. ALL TREES WERE FIELD SURVEYED.
- 7. THIS SITE DOES LIE WITHIN A COUNTY GREEN INFRASTRUCTURE EVALUATION AREA.
- 8. ACCORDING TO MERLIN ONLINE DATABASE NO HISTORIC PROPERTIES ARE LOCATED WITHIN 1000 FEET OF THE PROJECT AREA.
- 9. THE PROJECT AREA AND THE SURROUNDING PARCELS ARE CONSIDERED NT (NEWTOWN) & R-20 (RESIDENTIAL-SINGLE 20,000 SF).
- 10. THIS PROJECT LIES WITHIN THE MIDDLE PATUXENT RIVER BRANCH MARYLAND WATERSHED AND IS ASSOCIATED WITH HUC CODE 02131106(0959).
- 11. THERE ARE STEEP SLOPES WITHIN THE 15–25% RANGE OF NOTABLE SIZE (GREATER THAN OR EQUAL TO 10,000 SQUARE FEET) WITHIN THE STUDY AREA.
- 12. A FOREST STAND ANALYSIS TABLE WAS NOT COMPLETED, DUE TO NO PRESENCE OF A FOREST STAND IN THE R-20 ZONE.

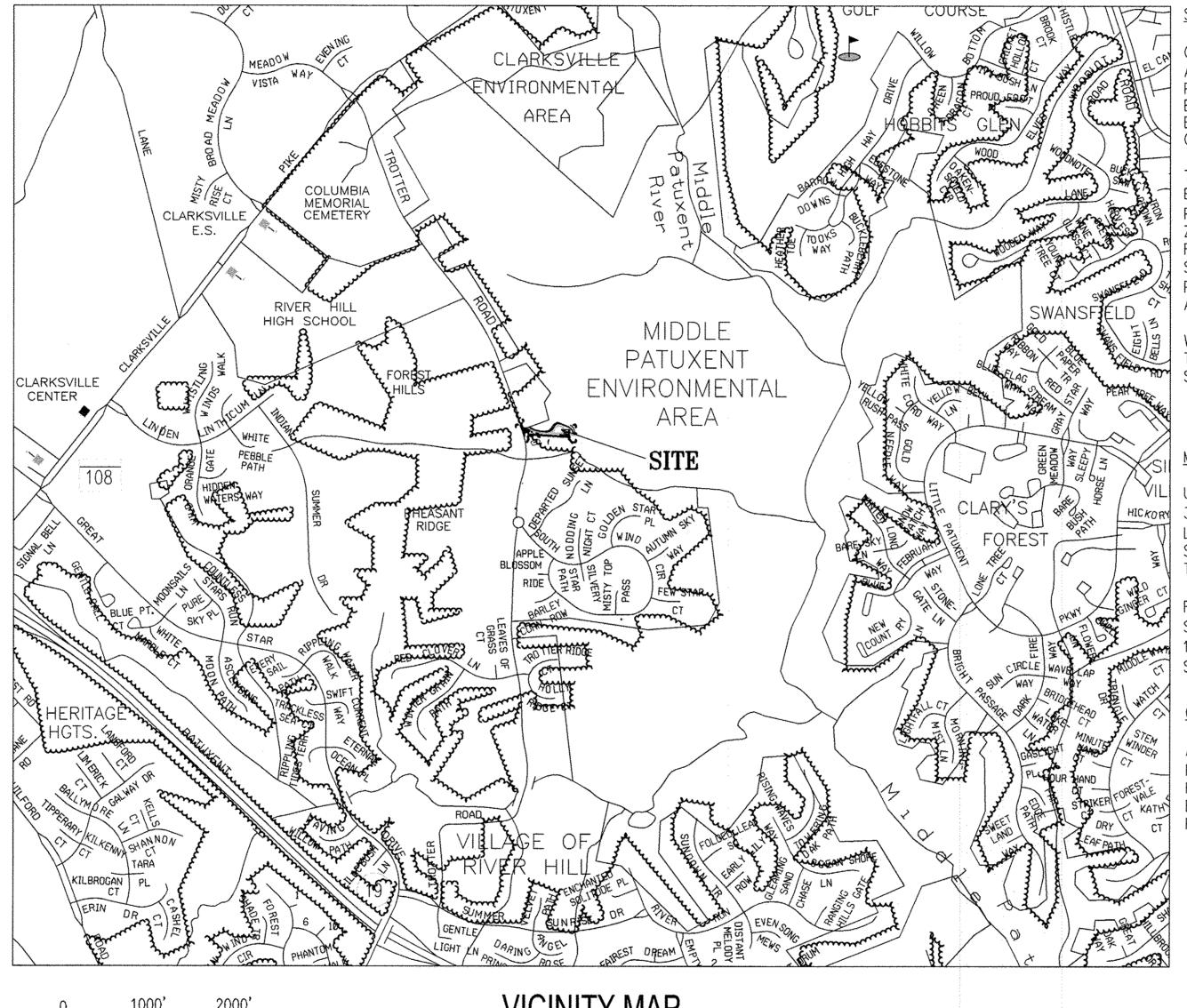
Soil Map Unit	Soil Name	Whole Soll	Hydric Soils	c Soil Group	Drainage Class
GbC	Gladstone loam, 8-15% slopes	0.24	Not Hydric	В	Well drained
GmB	Glenville silt loam, 3-8% slopes	0.43	Partially Hydric (5%)	С	Moderately well drained
GnB	Glenville-Baile silt loams, 0-8% slopes	0.43	Partially Hydric (35%)	C/D	Moderately well drained
Ha	Hatboro-Codorus silt loam, 0-3% slopes	0.37	Dominantly Hydric (60%)	D/C	Poorly drained
MaD	Manor loam, 15-25% slopes	0.28	Not Hydric	В	well drained

SPECIMEN TREE CHART

TREE#	SPECIES	SIZE (inches)	CONDITION
1	TULIP POPLAR (LIRIODENDRON TULIPIFERA)	30 dbh	GOOD
2	WHITE OAK (QUERCUS ALBA)	33 dbh	GOOD
3	SCARLET OAK (QUERCUS COCCINEA)	37 dbh	GOOD
4	SCAPLET OAY LOLIEDCILS COCCINEA	32 4hh	BOOD

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION



VICINITY MAP
SCALE: 1"=1000'

TOTAL TRACT AREA

AREA IN THE NT ZONE

NET TRACT AREA

FOREST IN NET TRACT

FOREST CLEARING

FOREST RETENTION

AFFORESTATION REQUIREMENT

2.46 ACRES

0.80 ACRES

0.00 ACRES

0.00 ACRES

0.00 ACRES

CITE DESCRIPTION

ON BEHALF OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS (DPW), WHITMAN, REQUARDT & ASSOCIATES, LLP (WR&A) IS PROVIDING DESIGN SERVICES FOR THE DESIGN PHASE OF THE MIDDLE PATUXENT ENVIRONMENTAL AREA SITE IMPROVEMENTS PROJECT. HOWARD COUNTY IS PLANNING TO EXPAND THE TROTTER ROAD PARKING LOT AND PARK ENTRANCE ROAD TO THE MIDDLE PATUXENT ENVIRONMENTAL AREA INCLUDING SITE AMENITIES TO ADDRESS THE EXPANDING OUTREACH PROGRAMS OFFERED BY THE COUNTY.

THE STUDY AREA FOR THIS PROJECT HAS BEEN EXTENDED BEYOND THE LIMIT OF DISTURBANCE (LOD) TO ENSURE THE MAPPING OF ALL ENVIRONMENTAL FEATURES WITHIN AND IN CLOSE PROXIMITY TO THE PROJECT AREA. THE PROJECT AREA CONSISTS OF TWO ZONING DESIGNATIONS. THE NEWTOWN (NT) ZONING DESIGNATION IS EXEMPT FROM FOREST CONSERVATION REQUIREMENTS AND ONLY REQUIRES A FOREST STAND DATA SUMMARY, WHICH INCLUDES A BRIEF DESCRIPTION OF THE FOREST ON—SITE AND SPECIMEN TREE MAPPING. THE NEWTOWN ZONING IS LOCATED ON THE NORTHERN PORTION OF THE PROJECT AREA IS ZONED RESIDENTIAL 20 (R—20) AND IS SUBJECT TO STANDARD FOREST CONSERVATION REGULATIONS.

WITHIN THE STUDY AREA THERE ARE 2 FOREST STANDS AND 3 HEDGEROWS. THE DESCRIPTIONS OF THESE AREAS CAN BE FOUND ON SHEETS FCP-2 THROUGH FCP-6 AS THEY APPEAR ON EACH PLAN SHEET. THE STUDY AREA ALSO CONTAINS 3 NON-TIDAL WETLANDS AND A 100-YEAR FLOODPLAIN.

METHODOLOGY

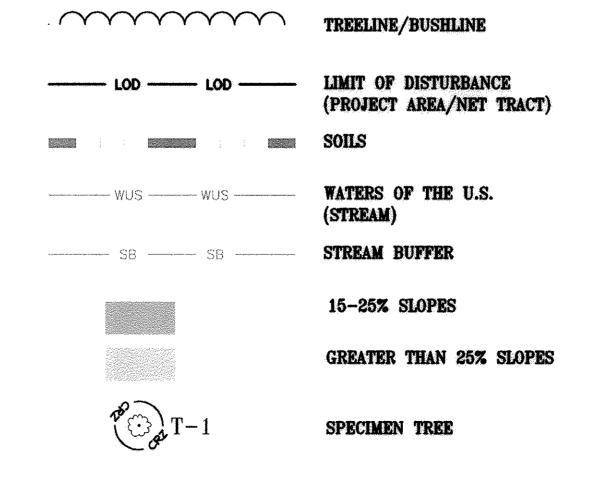
USING THE SAMPLE PLOT METHOD AS DEFINED IN THE STATE FOREST CONSERVATION TECHNICAL MANUAL AND AREA, WITH A MINIMUM OF TWO SAMPLE PLOTS FOR EACH FOREST STAND AND A MINIMUM OF THREE PLOTS TOTAL.

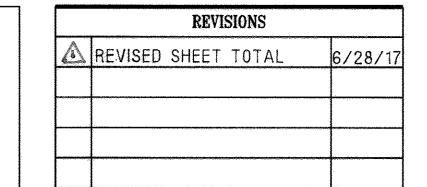
FOR EACH PLOT, DATA WAS RECORDED USING THE "FOREST SAMPLING DATA WORKSHEET" FROM THE STATE FOREST CONSERVATION TECHINICAL MANUAL (DNR, 1997). BASAL AREA WAS CALCULATED USING A 10-FACTOR WEDGE PRISM. FOREST STAND SUMMARY INFORMATION WAS RECORDED ON THE "FOREST STAND SUMMARY WORKSHEET" FROM THE STATE FOREST CONSERVATION TECHNICAL MANUAL.

LEARING NARRATIVE

ALL FOREST STAND CLEARING IS GOING TO TAKE PLACE IN THE NEWTOWN (NT) ZONE WHICH IS EXEMPT FROM FOREST CONSERVATION. CLEARING IN THE RESIDENTIAL (R-20) ZONE IS BEING LIMITED TO HEDGEROWS AND OPEN MEADOW. THE PROJECT WAS SOMEWHAT CONSTRAINED BY THE LOCATION OF THE EXISTING PATH, GATE AND PARKING AREA. THERE HAS BEEN AN EFFORT TO AVOID AND MINIMIZE REMOVAL OF SPECIMEN TREES AND WOODED STREAM BUFFER.

LEGEND





HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



WHITMAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

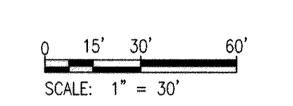
PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

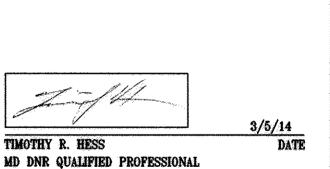
GRAPHIC SCALES

ZONING: NEWTOWN & R-20

ELECTION DISTRICT 05



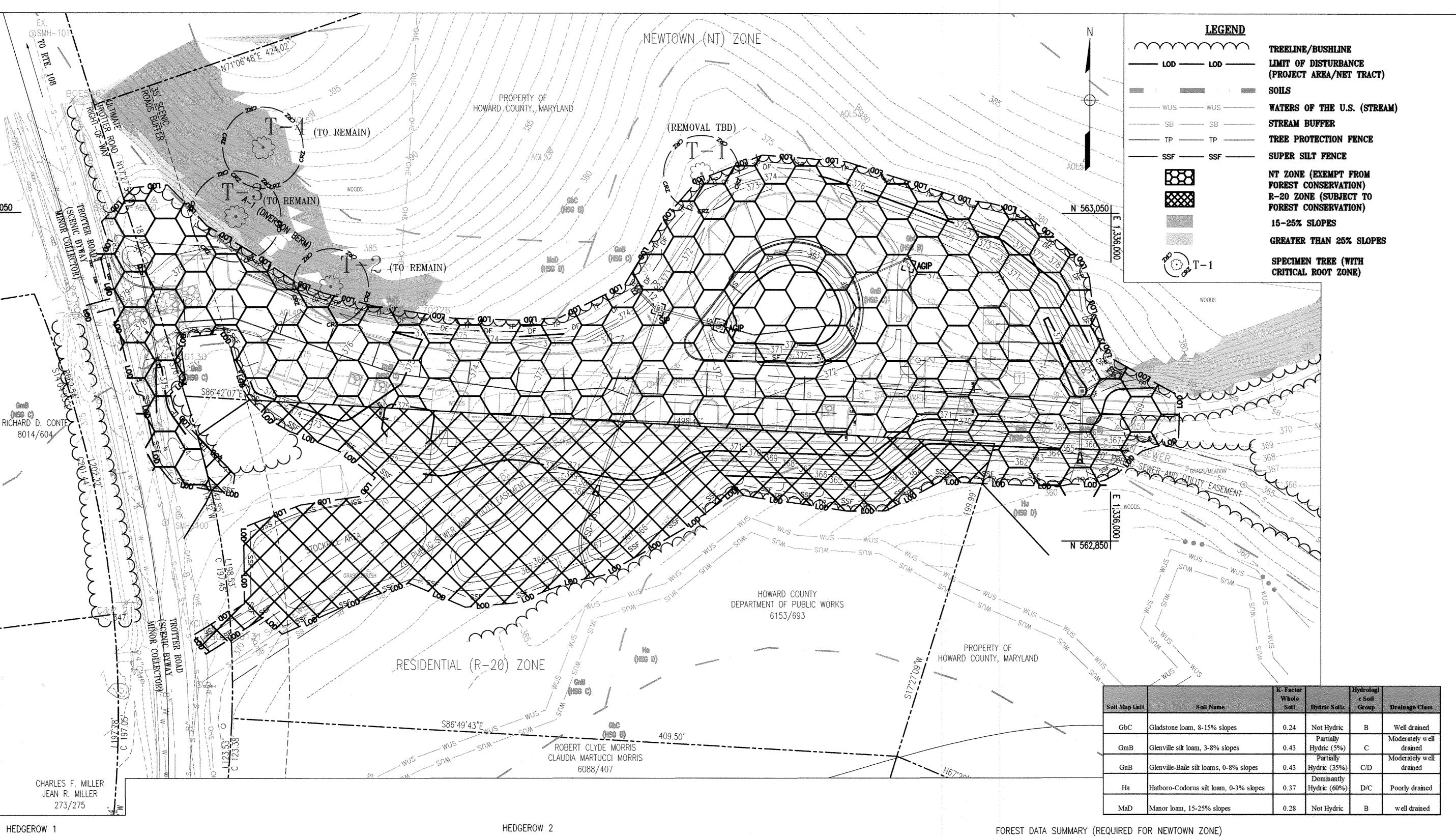
SIGNATURE



MPEA – SITE IMPROVEMENTS

TO 1		rawing No.
# 1 · · · /// #	 T	
ra.i	H	7.1

Des: TRH Drawn: TRH Check: JNA



HEDGEROW 1 IS LOCATED IN BOTH THE NEWTOWN (NT) AND RESIDENTIAL (R-20) ZONES. THIS AREA IS DOMINATED BY RED MAPLE (Acer rubrum), BLACK LOCUST (Robinia pseudoacacia), NORTHERN SPICEBUSH (Lindera benzoin), MULTIFLORA ROSE (Rosa multiflora) AND ALLEGHENY BLACKBERRY (Rubus allegheniensis). THE AVERAGE SIZE FOR THE DOMINANT TREES IN THIS AREA IS APPROXIMATELY 8-10"dbh. THERE ARE NO SPECIMEN TREES WITHIN THE STUDY AREA OF HEDGEROW 1. WHILE HEDGEROW 1 DOES CONTAIN A 100 FT STREAM BUFFER THERE ARE NO OTHER ENVIRONMENTAL CONSTRAINS (STREAMS, WETLANDS, OR FLOODPLAINS). THERE ARE SEVERAL INVASIVES SPECIES PRESENT INCLUDING JAPANESE HONEYSUCKLE (Lonicera japonica) AND MULTIFLORA ROSE (Rosa multiflora). HEDGEROW 1 IS PRIMARILY LOCATED IN THE GNB SOIL TYPE, WHICH IS ASSOCIATED WITH THE WOODLAND SUSTAINABILITY GROUPS 1 AND 12. THESE TWO GROUPS TYPICALLY ARE OCCUPIED BY A VARIETY OF PINES, SWEET GUM AND YELLOW POPLAR. SEASONAL WETNESS AND FLOODING CAN SEVERELY LIMIT THE USE OF EQUIPMENT IN THESE AREAS. GIVEN THE PRESENCE OF THE STREAM BUFFER THIS AREA IS DETERMINED TO HAVE A HIGH RETENTION VALUE.

HEDGEROW 2 IS LOCATED IN BOTH THE NEWTOWN (NT) AND RESIDENTIAL (R-20) ZONES. THIS AREA IS DOMINATED BY RED MAPLE (Acer rubrum), BLACK LOCUST (Robinia pseudoacacia), BOXELDER (Acer negundo), MULTIFLORA ROSE (Rosa multiflora) AND ALLEGHENY BLACKBERRY (Rubus allegheniensis). THE AVERAGE SIZE FOR THE DOMINANT TREES IN THIS AREA IS APPROXIMATELY 10-12"dbh. THERE ARE NO SPECIMEN TREES WITHIN THE STUDY AREA OF HEDGEROW 2. WHILE HEDGEROW 2 DOES CONTAIN A 100 FT STREAM BUFFER THERE ARE NO OTHER ENVIRONMENTAL CONSTRAINS WITHIN THE PROPOSED LIMIT OF DISTURBANCE (STREAMS, WETLANDS, OR FLOODPLAINS). THERE ARE SEVERAL INVASIVES SPECIES PRESENT INCLUDING JAPANESE HONEYSUCKLE (Lonicera japonica) AND MULTIFLORA ROSE (Rosa multiflora). HEDGEROW 2 IS PRIMARILY LOCATED IN THE GNB AND Ha SOIL TYPES, WHICH IS ASSOCIATED WITH THE WOODLAND SUSTAINABILITY GROUPS 1, 2 AND 12. THESE THREE GROUPS TYPICALLY ARE OCCUPIED BY A VARIETY OF PINES, OAKS, SWEET GUM AND YELLOW POPLAR. SEASONAL WETNESS AND FLOODING CAN SEVERELY LIMIT THE USE OF EQUIPMENT IN THESE AREAS. GIVEN THE PRESENCE OF THE STREAM BUFFER THIS AREA IS DETERMINED TO HAVE A HIGH RETENTION VALUE.

OPEN MEADOW 1

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CLL CLLL

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT

DATE

DIRECTOR

OPEN MEADOW 1 IS LOCATED IN BOTH THE NEWTOWN (NT) AND RESIDENTIAL (R-20) ZONES BETWEEN HEDGEROW 1 AND HEDGEROW 2. THIS AREA IS DOMINATED BY BLACK CHERRY (), JAPANESE HONEYSUCKLE (Lonicera japonica), MULTIFLORA ROSE (Rosa multiflora) AND MILE—A—MINUTE (Polygonum perfoliatum). WHILE OPEN MEADOW 1 DOES CONTAIN A 100 FT STREAM BUFFER THERE ARE NO OTHER ENVIRONMENTAL CONSTRAINS WITHIN THE PROPOSED LIMIT OF DISTURBANCE (STREAMS, WETLANDS, OR FLOODPLAINS). THERE ARE SEVERAL INVASIVES SPECIES PRESENT INCLUDING JAPANESE HONEYSUCKLE (Lonicera japonica), MILE—A—MINUTE (Polygonum perfoliatum) AND MULTIFLORA ROSE (Rosa multiflora). OPEN MEADOW 1 IS PRIMARILY LOCATED IN THE GnB SOIL TYPE, WHICH IS ASSOCIATED WITH THE WOODLAND SUSTAINABILITY GROUPS 1 AND 12. THESE TWO GROUPS TYPICALLY ARE OCCUPIED BY A VARIETY OF PINES, SWEET GUM AND YELLOW POPLAR. SEASONAL WETNESS AND FLOODING CAN SEVERELY LIMIT THE USE OF EQUIPMENT IN THESE AREAS. GIVEN THE PRESENCE OF THE STREAM BUFFER THIS AREA IS DETERMINED TO HAVE A HIGH RETENTION VALUE.

FOREST STAND 1 IS LOCATED ENTIRELY WITHIN THE NEWTOWN (NT) ZONE. FULL DATA SHEETS ARE NOT REQUIRED FOR THE NT ZONED AREA, HOWEVER THE CANOPY IS DOMINATED BY WHITE OAK (Quercus alba). NORTHERN RED OAK (Quercus rubra), TULIP POPLAR (Liriodendron tulipifera), AND BLACK LOCUST (Robinia pseudoacacia). THE AVERAGE SIZE FOR THE DOMINANT TREES IN THIS AREA IS APPROXIMATELY 12-15"dbh. THE UNDERSTORY AND HERBACEOUS LAYERS ARE DOMINATED BY JAPANESE HONEYSUCKLE (Lonicera japonica). LOWBUSH BLUEBERRY (Vaccimium angustifolium), AMERICAN HORNBEAM (Carpinus caroliniana), POISON IVY (Toxicodendron radicans), BLACK CHERRY (Prunus serotina), VIRGINIA CREEPER (Parthenocissus quinquefolia) AND AMERICAN BEECH (Fagus grandifolia). THERE ARE 4 SPECIMEN TREES WITHIN THE STUDY AREA. OTHER THAN A SMALL SECTION OF 100 FT STREAM BUFFER THERE ARE NO OTHER ENVIRONMENTAL CONSTRAINS (STREAMS. WETLANDS, OR FLOODPLAINS) WITHIN FOREST STAND 1. THERE ARE SEVERAL INVASIVES SPECIES PRESENT INCLUDING JAPANESE HONEYSUCKLE (Lonicera japonica), SERICEA LESPEDEZA (Lespedeza cuneata), MILE-A-MINUTE (Polygonum perfoliatum), AND MULTIFLORA ROSE (Rosa multiflora). EDGEROW 2 IS PRIMARILY LOCATED IN THE GnB, GbC, Mad and Ha soil types, which is associated with the woodland sustainability GROUPS 1, 2, 12, 44 AND GbC IS NOT LISTED IN THE SOIL SURVEY. THESE FOUR GROUPS TYPICALLY ARE OCCUPIED BY A VARIETY OF PINES, OAKS, SWEET GUM AND YELLOW POPLAR. SEASONAL WETNESS, SLOPES AND FLOODING CAN SEVERELY LIMIT THE USE OF EQUIPMENT IN THESE AREAS. GIVEN THE PRESENCE OF SPECIMEN TREES AND THE STREAM BUFFER THIS AREA IS DETERMINED TO HAVE A HIGH RETENTION VALUE.

IKEE#	SPECIES	SIZE (Inches)	CONDITION
1	TULIP POPLAR (LIRIODENDRON TULIPIFERA)	31 dbh	GOOD
2	WHITE OAK (QUERCUS ALBA)	33 dbh	GOOD
3	SCARLET OAK (QUERCUS COCCINEA)	37 dbh	GOOD
4	SCARLET OAK (QUERCUS COCCINEA)	33 dbh	POOR

REVISIONS	
REVISED SHEET TOTAL	6/28/1

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



WHITMAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
TAX MAP 35, GRID 3, PARCEL 5: TAX MAP 35, GRID 2, PARCEL 4: ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05	
 GRAPHIC SCALES	
0 15' 30' 60' SCALE: 1" = 30'	
SIGNATURE	
TIMOTHY R. HESS MD DNR QUALIFIED PROFESSIONAL	14 Da'i

MPEA - SITE IMPROVEMENTS

	FOREST CONSERVATION PLAN Drawing No.						
	F2.2						
	Scale: 1" = 30'						
-	Date: 09/12/2014 She	et 25 of 27					
	Des: TRH Drawn: TRH	Check: JNA					

NET TRACT AREA:

A. Total tract area=	2.46
B. Area within NT Zone=	1.66
C. Area to remain in agricultural production=	0.00
D. Net tract area=	0.80

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

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

ARA MDR IDA HDR MPD CIA 0 0 1 0 0 0

E. Afforestation Threshold	15% x D =	
F. Conservation Threshold	20% x D =	0.16

EXISTING FOREST COVER:

G. Existing forest cover (excluding Critical Area)=	0.00
H. Area of forest above afforestaion threshold=	0.00
l. Area of forest above conservation threshold=	0.00

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation=	0.0
K. Clearing permitted without mitigation	0.0

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared=	0.00
M. Total area of forest to be retained=	0.00

PLANTING REQUIREMENTS:

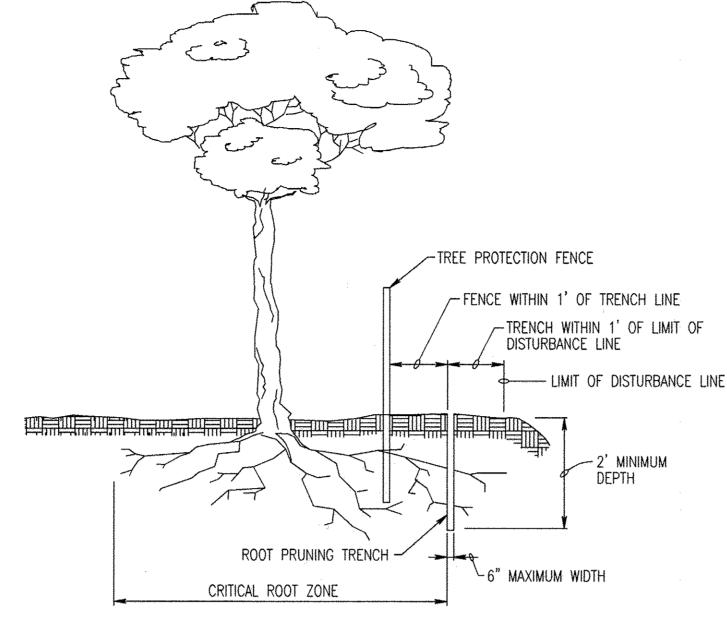
N. Reforestation for clearing above conservation threshold=	0.00
P. Reforestation for clearing below conservation threshold=	0.00
Q. Credit for retention above conservation threshold=	0.00
R. Total reforestation required=	0.00
S. Total afforestation required=	0.12
T. Total reforestation and afforestation required=	0.12

FOREST MITIGATION OBLIGATION

DUE TO THE MINIMAL AFFORESTATION OBLIGATION AND TO PREVENT RESTRICTION FOR FUTURE EXPANSION HOWARD COUNTY HAS ELECTED TO FULFILL THE REFORESTATION OBLIGATION FOR THIS PROJECT VIA THE FEE-IN-LIEU PROGRAM. AT A REQUIREMENT OF 0.12 ACRES (5,227 SQ. FT.) AND A FOREST CONSERVATION FEE-IN-LIEU OF \$0.75 A SQUARE FOOT HOWARD COUNTY WILL HAVE A FOREST CONSERVATION OBLIGATION OF \$3,920.

SURFTY

BY COMPLETING THE FOREST MITIGATION OBLIGATION VIA THE FEE-IN-LIEU PROGRAM A SURETY DEPOSIT IS NOT REQUIRED.

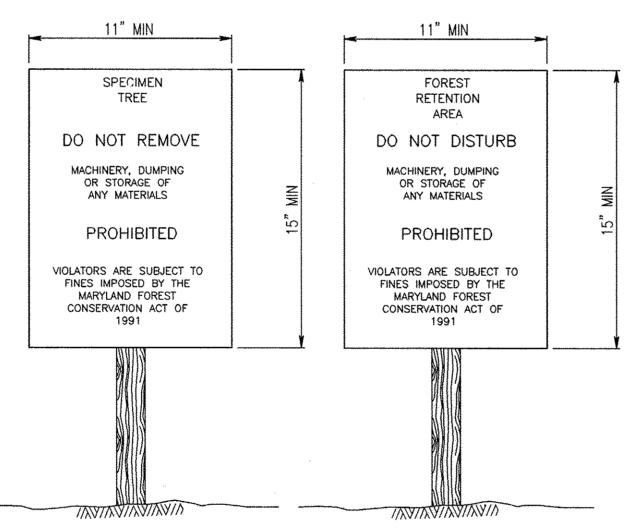


NOTES:

- 1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
- 2. BOUNDARIES OF RETENTION AREAS TO BE STAKED AND FLAGGED PRIOR TO TRENCHING.
- 3. EXACT LOCATION OF TRENCH SHALL BE IDENTIFIED.
- 4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.
- 5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT

ROOT PRUNING

NO SCALE



NOTES:

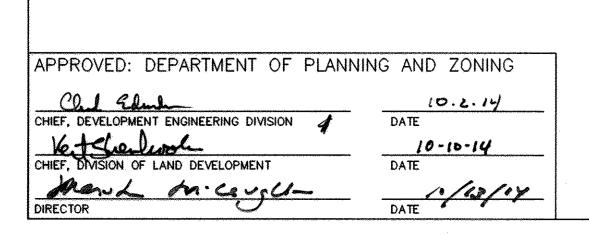
- 1. BOTTOM OF SIGN TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
- 2. SIGNS TO BE PLACED APPROXIMATELY 50' APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART.
- PLACING SIGNS CLOSER OR FARTHER APART.

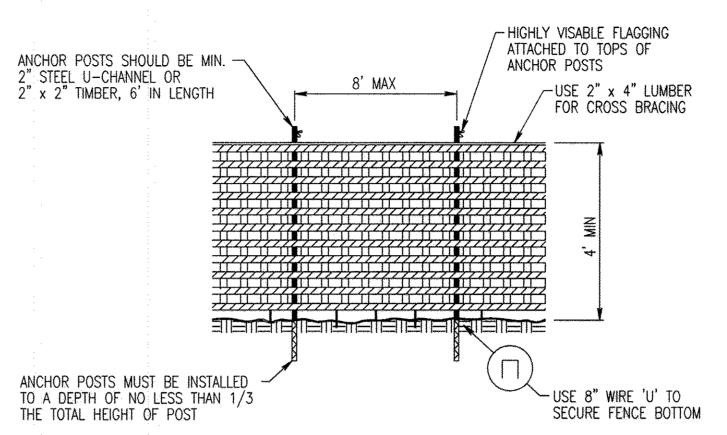
 3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.

CONSTRUCTION SIGNS

NO SCALE

AT THIS TIME IT HAS BEEN DETERMINED THAT NO SIGNS ARE NEEDED AS THERE ARE NO FOREST CONSERVATION EASEMENTS. IF DURING CONSTRUCTION IT IS DETERMINED THAT ANY ARE REQUIRED THIS DETAIL HAS BEEN INCLUDED.





MOTES.

- 1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE, ONLY.
- 2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST
- CONSERVATION PLAN REVIEW PROCESS.

 3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
- 4. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
- 5. PROTECTION SIGNAGE IS REQUIRED.
- 6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

PLASTIC MESH TREE PROTECTION FENCE

NO SCALE

CONSTRUCTION PERIOD PROTECTION PROGRAM

- 1. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD
- 2. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES, BLAZE ORANGE FENCING SHALL BE INSTALLED AS PER DETAIL THIS SHEET ALONG ALL LIMITS OF DISTURBANCE ADJACENT TO WOODLANDS AND AS INDICATED ON FOREST CONSERVATION PLAN SHEETS FCP02.
- 3. TREES TO BE REMOVED SHALL BE TAKEN OUT WITHOUT DAMAGING PROTECTED TREES.
- 4. ALL EQUIPMENT AND MACHINERY SHALL BE KEPT INSIDE THE BLAZE ORANGE FENCING AND WITHIN THE LOD.
- 5. ANY TYPE OF DISTURBANCE BEYOND THE LOD IS STRICTLY PROHIBITED.
- 6. PLACEMENT OF EXCAVATED/BACKFILL MATERIAL AND STORAGE OF EQUIPMENT/MACHINERY SHALL BE AVOIDED WITHIN THE CRITICAL ROOT ZONE AREAS OF SPECIMEN TREES IN ORDER TO MINIMIZE SOIL COMPACTION IN THESE SENSITIVE AREAS.
- 7. ROOT PRUNING AS PER DETAIL THIS SHEET SHALL BE UTILIZED FOR PROTECTION OF SPECIMEN TREES IN AREAS WHERE SPECIMEN TREE CRITICAL ROOT ZONES ARE LOCATED INSIDE THE LOD.

POST-CONSTRUCTION PERIOD PROTECTION PROGRAM

TYPICALLY A POST CONSTRUCTION PROTECTION PROGRAM IS REQUIRED TO GIVE THE FOREST RESOURCES SAVED OR PLANTED AS PART OF THE DEVELOPMENT PROPOSAL A HIGH PROBABILITY OF ACHIEVING THE SURVIVAL RATES REQUIRED FOR RELEASE OF SURETY, AS WELL AS LONG-TERM SURVIVAL. THE POST-CONSTRUCTION PROTECTION PROGRAM PERIOD TYPICALLY SHALL BE FOR A MINIMUM OF TWO GROWING SEASONS, AS SPECIFIED IN THE HOWARD COUNTY FOREST CONSERVATION MANUAL. HOWEVER THERE ARE NO PLANTING AREAS ASSOCIATED WITH THIS PROJECT AND THEREFORE NO SURETY IS REQUIRED.

REVISIONS

REVISED SHEET TOTAL 6/28/17

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



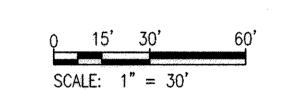
W HIT MAN, REQUARDT & ASSOCIATES, LLP 801 South Caroline Street, Baltimore, Maryland 21231 Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

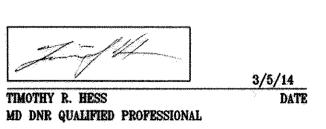
TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES



SIGNATURE



MPEA - SITE IMPROVEMENTS

FOREST CONSERVATION NOTES AND DETAILS

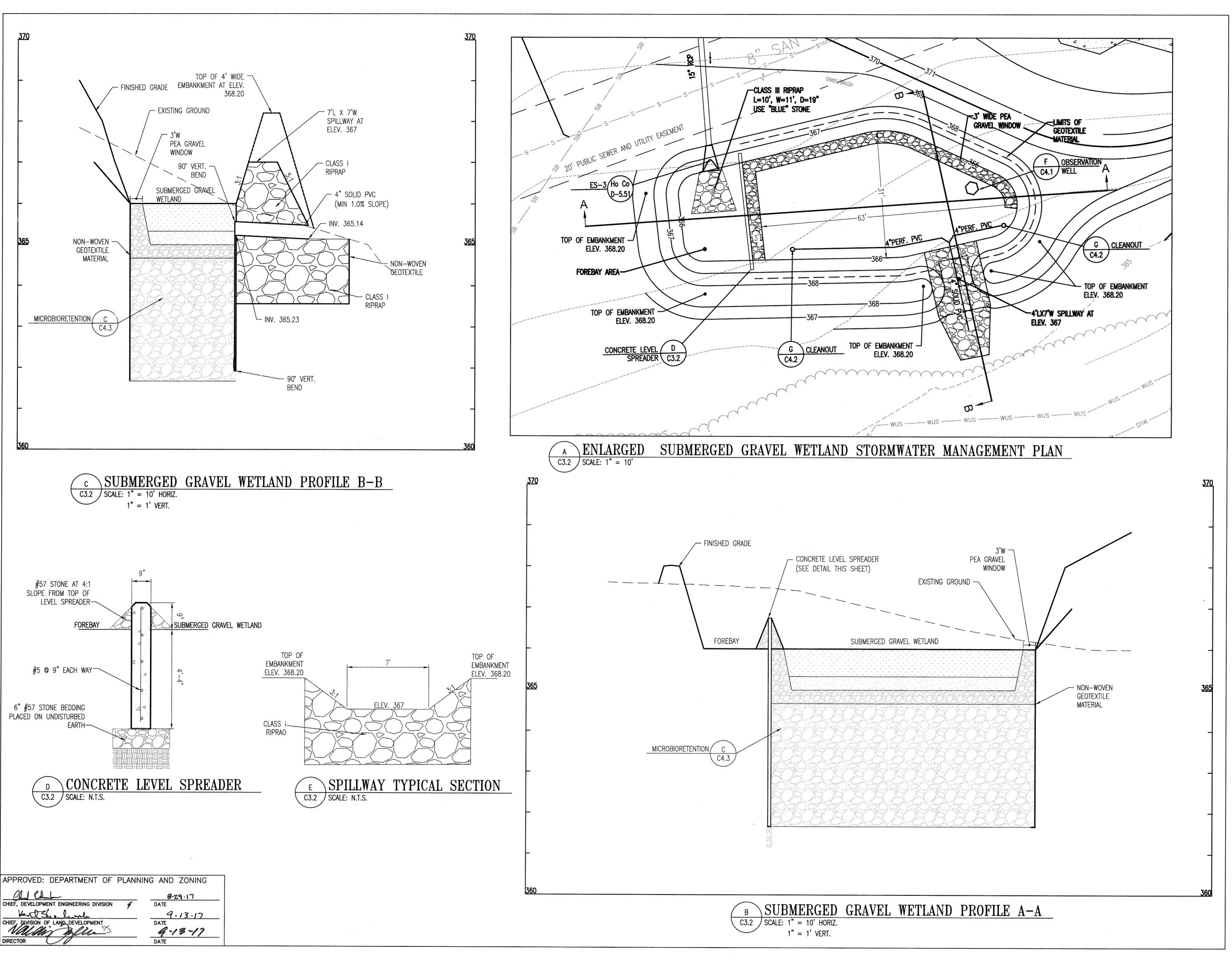
Drawing No.

F2.3

 Scale: 1" = 30'

 Date: 09/12/2014
 Sheet 26 of 27

 Des: TRH
 Drawn: TRH
 Check: JNA



REVISIONS

REVISED SITE DEVELOPMENT PLAN 6/28/17

NEW SHEET, SGW DETAILS &

PROFILES

HOWARD COUNTY

DEPARTMENT OF
RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046

DEPARTMENT OF
PUBLIC WORKS
9250 BENDIX ROAD
ELLICOTT CITY, MD 21043



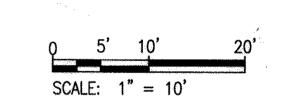
Whitman, Requardt & Associates, LLP 801 South Caroline Street, Baltimore, Maryland 21231
Phone: 410-235-3450 Fax: 410-243-5716

PROPERTY

TAX MAP 35, GRID 3, PARCEL 512 TAX MAP 35, GRID 2, PARCEL 427

ZONING: NEWTOWN & R-20 ELECTION DISTRICT 05

GRAPHIC SCALES



SIGNATURE



PROFESSIONAL CERTIFICATION.

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM A DULY
LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MARYLAND, LICENSE NO. 19376
EXPIRATION DATE: 09/22/2017

MPEA – SITE IMPROVEMENTS

ENLARGED SUBMERGED GRAVEL WETLAND PLAN

Drawing No.

C3.2

Scale: 1"=10'

Date: 09/12/2014 Sheet 27 of 27
Des: BWJ/SAD Drawn: SAD Check: AU0