

**A Engineering, Science, and
Technology, Inc., PBC**

1200 Racetrack Road, Unit A101
Ocean Pines, Maryland 21811
(410) 641-5341

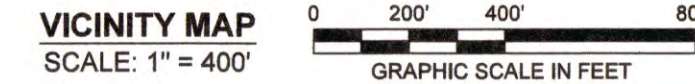
www.eaest.com



LOCATION MAP
SCALE: 1" = 3 mi

0 1.5mi 3mi 6mi

GRAPHIC SCALE IN FEET



DRAWING NO.	SHEET NO.	DRAWING TITLE
G-001	1	TITLE SHEET
G-002	2	ABBREVIATIONS, NOTES, LEGEND, AND SITE DATA
C-101	3	EXISTING CONDITIONS AND DEMOLITION PLAN
C-102	4	PROPOSED SITE AND STORMWATER MANAGEMENT PLAN
C-103	5	PROPOSED PLANTING PLAN
C-201	6	PROFILES
C-202	7	PROFILES
C-501	8	DETAIL SHEET I
C-502	9	DETAIL SHEET II
C-503	10	DETAIL SHEET III
C-504	11	DETAIL SHEET IV
C-701	12	EROSION AND SEDIMENT CONTROL PLAN
C-702	13	EROSION AND SEDIMENT CONTROL NOTES
C-703	14	EROSION AND SEDIMENT CONTROL DETAILS

DEMOLITION OF TWO EXISTING STORMWATER FACILITIES, STORM DRAINAGE OUTFALL PIPING, AND STRUCTURES FOR THE CREATION OF TWO ENVIRONMENTAL SITE DESIGN SUBMERGED GRAVEL WETLAND STORMWATER FACILITIES.

1. DEMOLITION OF EXISTING POND/WETLAND SYSTEM AT WESTMINSTER DRIVE AND ABBEY LANE.
2. DEMOLITION OF EXISTING DRY POND AT END OF UPSHUR DRIVE.
3. DEMOLITION OF ASPHALT ROADWAY, CONCRETE CURB AND GUTTER, CONCRETE HEADWALL, WOOD PICKET AND CHAINLINK FENCE, STORM DRAIN PIPING, STORM DRAIN INLETS, AND OTHER ANCILLARY WORK IDENTIFIED IN THE DRAWINGS.
4. RELOCATION OF EXISTING WATERMAIN.
5. INSTALLATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROLS.
6. VEGETATION/TREE REMOVAL AS NECESSARY OR AS IDENTIFIED ON PLANS.
7. EXCAVATION AND REMOVAL OF SOILS.
8. INSTALLATION OF SUBMERGED GRAVEL WETLANDS, INCLUSIVE OF GRAVEL, PLANTING MEDIA, VEGETATION, UNDERDRAIN, CLEANOUTS, OBSERVATION WELLS, CONCRETE OUTFALL STRUCTURES, OUTFALL PIPING, FENCING AND PLANTINGS.
9. INSTALLATION OF STORM DRAIN INLETS, CONFLICT BOXES AND STORM DRAIN PIPES.
10. GRASSED AND ASPHALT TRENCH REPAIR FOR WATERMAIN, STORM DRAIN REMOVAL AND STORM DRAIN INSTALLATION.
11. ASPHALT ROADWAY MILL AND OVERLAY.

Sediment Control Plan Approval
Worcester Soil Conservation District
Snow Hill, MD 21863

Approved by
Date 4/24/24

I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICABLE AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF APPLICABLE SOIL EROSION AND SEDIMENT CONTROL CODES. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER.


STEVEN LEMASTERS, P.E.
MD P.E. NO. 55422

I HEREBY CERTIFY THAT I HAVE INSPECTED THIS SITE AND THAT DRAINAGE ONTO THIS SITE FROM OTHER UPGRADE PROPERTIES, AND FROM THIS SITE ONTO OTHER DOWNGRADE PROPERTIES HAS BEEN ADDRESSED IN SUBSTANTIAL ACCORDANCE WITH APPLICABLE CODES.


STEVEN LEMASTERS, P.E.
MD P.E. No. 55422

"CERTIFICATION BY THE OWNER OR DEVELOPER THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THE APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO THE BEGINNING OF CONSTRUCTION. ADDITIONALLY, THE OWNER OR DEVELOPER SHALL CERTIFY RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE APPROPRIATE ENFORCEMENT AUTHORITY AND/OR MDE."

Mary Bohlen
OWNER/APPLICANT:
TOWN OF BERLIN
10 WILLIAM STREET
BERLIN, MARYLAND 21811
CONTACT: MARY BOHLEN
PHONE: (410) 641-4314

MARY BOHLEN
TOWN ADMINISTRATOR


JAMEY LATCHUM
DIRECTOR OF WATER RESOURCES

DRAWING INFORMATION

DRAWN BY: SCL/NWH/JAP DESIGNED BY: SCL/NWH
CHECKED BY: DOK PROJECT MANAGER: SCL
PROJECT NUMBER: 61470410

DRAWING NO.

G-001

DATE: APRIL 2024 SHEET: 1 OF 14

HORIZONTAL DATUM:
NORTH PER PLAT 137/39

VERTICAL DATUM:
MVD 29
CG DISC G-10 (EL. 38.27)

SCALE AS SHOWN

FULL SIZE PLOT: 24" x 36"

REVISIONS

SEAL



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. 55422
EXPIRATION DATE: DECEMBER 16, 2025

PROJECT NAME

WESTMINSTER, ABBEY, AND UPSHUR STORMWATER MANAGEMENT UPGRADES

PROJECT ADDRESS

TOWN OF BERLIN, MARYLAND

DRAWING TITLE

TITLE SHEET

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FILE PATH: \\OCEANPINES\PROJECTS\DOC\TOWN OF BERLIN\61470410 - WESTMINSTER, ABBEY, UPSHUR SWM\CAD\PRODUCTION\DESIGN SET\61470410 - 00 - TITLE SHEET.DWG [G-001] LEMASTERS, STEVEN 4/23/2024 3:15 PM

100% PLANS - FOR CONSTRUCTION

P:\E-PA\1\CG\ANNE\PROJECT\03\TOWN OF BERLIN\AUGUST 10, WESTMINSTER, ABBEY, UPSHUR STORMWATER PRODUCTION\DESIGN SET\147010_03_TITL SHEET.DWG (P-03) LAMASTER, STEVEN 4/23/2024 3:15 PM

LEGEND		ABBREVIATIONS	
DESCRIPTION	EXISTING	PROPOSED	AC
COMM CATV PEDESTAL	□ C	□ C	ACRES
COMM TELEPHONE PEDESTAL	□ T	□ T	ACCOMP ARCH CORRUGATED METAL PIPE
ELECTRIC UTILITY POLE	—○— #		APPROX APPROXIMATELY
ELECTRIC GUY WIRE	→		BLDG BUILDING
ELECTRIC OVHD LINE	— OHE — OHE —		BOT BOTTOM
PROPERTY BOUNDARY	— — — — —		CL - CIL CENTER LINE
PROPERTY BOUNDARY ADJOINER	— — — — —		CY CUBIC YARDS
PROPERTY EASEMENT	— — — — —		CMP CORRUGATED METAL PIPE
PROPERTY RIGHT-OF-WAY	— — — — —		CATV CABLE TELEVISION
SANITARY SEWER MANHOLE	(S)		CONC CONCRETE
SANITARY SEWER LINE	— SS — CS — SS —		DIA DIAMETER
SITE BENCHMARK	◆ BM	◆ BM	EL - ELEV ELEVATION
SITE SOIL BORING	◆ SB	◆ SB	ELEC ELECTRIC
SITE WATER LEVEL MARKER	▽	▽	EX - EXST EXISTING
SITE SIGN	+		ESC SOIL EROSION AND SEDIMENT CONTROL
SITE FENCE POST	○	○	ESD ENVIRONMENTAL SITE DESIGN
SITE GATE POST	♂	♂	FT FEET
SITE SPOT ELEVATION	+ EL	+ EL	GAL GALLON
SITE CONTOUR	-#-#-#-	-#-#-#-	HDPE HIGH DENSITY POLYETHYLENE
SITE FENCE	-X-X-X-X-	-X-X-X-X-X-	HERCP HORIZONTAL ELLIPTICAL REINFORCED CONCRETE PIPE
SITE GRAVEL			HSG HYDROLOGIC SOIL GROUP
SITE SOIL BOUNDARY			INV INVERT
SITE SOIL CLASSIFICATION	HSG B		MH MANHOLE
SITE TREE/BRUSH LINE	SIB		NGVD 29 NATIONAL GEODETIC VERTICAL DATUM 1929
SITE LIMIT OF FIELD RUN SURVEY	---	---	PED PEDESTAL
STORM DRAIN MANHOLE	(D)	(D)	PERF PERFORATED
STORM DRAIN CATCH BASIN	(CB)	(CB)	PIP POURED IN PLACE
STORM DRAIN LINE	--- SD --- SD --- SD ---	SD SD SD	PR - PROP PROPOSED
WATER VALVE	(V)	(V)	PVC POLYVINYL CHLORIDE
WATER FIRE HYDRANT	(H)	(H)	QT QUART
WATER LINE	- W - - - W - - - W - - -	W W W	RCP REINFORCED CONCRETE PIPE
PLAN NORTH ARROW			R/W RIGHT-OF-WAY
PLAN KEYNOTE CALLOUT			SD STORM DRAIN
PLAN REVISION CALLOUT			SF - SQ FT SQUARE FEET
PLAN STRUCTURE NAME/NUMBER			SWM STORMWATER MANAGEMENT
PLAN SECTION CUT VIEW BEGIN			TC TOP OF CURB
PLAN SECTION CUT VIEW END			TW TOP OF WALL
PLAN POINT OF INVESTIGATION			TYP TYPICAL
ESC LIMIT OF DISTURBANCE			UG - UGND UNDERGROUND
ESC STABILIZED CONSTRUCTION			W/ WITH
ESC SILT FENCE			WSEL WATER SURFACE ELEVATION
ESC STANDARD INLET PROTECTION			
ESC AT-GRADE INLET PROTECTION			
ESC SUMP PIT			
ESC FILTER BAG			

GENERAL NOTES:

- FIELD RUN SURVEY SHOWN HEREON WAS PERFORMED BY BENCHMARK LAND SURVEYING, INC. IN SEPTEMBER AND OCTOBER 2023. ELEVATIONS SHOWN ARE IN FEET ABOVE MEAN SEA LEVEL (NGVD 1929) BASED ON USGS BENCHMARK DISC G-10 (ELEVATION 38.27').
- AREAS OUTSIDE OF THE LIMITS OF SURVEY SUCH AS, ADJACENT PROPERTY LINES, ROAD LINES, ETC. SHOWN HEREIN WERE PROVIDED FROM GIS DATA FROM THE TOWN OF BERLIN.
- CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, AND PROCEDURES, UTILIZED FOR THE CONSTRUCTION UNDER THE SCOPE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY OF THE PUBLIC AND CONTRACTOR'S EMPLOYEES. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND STANDARD CONSTRUCTION PRACTICES.
- FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR FROM PERFORMING SUCH WORK.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH BY THE TOWN OF BERLIN ENTITLED "CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR WATER, SEWER AND STREETS" DATED JULY 2016. REVISIONS THEREOF OR ADDITIONS THERETO ARE INCLUDED ON THE CONTRACT DRAWINGS.
- WHERE REFERENCE IS MADE TO STANDARDS IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO HAVE IN HIS OR HER POSSESSION THE TOWN OF BERLIN STANDARDS WITH THE LATEST UP-TO-DATE TOWN OF BERLIN STANDARDS AS OF THE DATE OF ADVERTISEMENT OF THIS PROJECT.
- ALL DIMENSIONS, LOCATIONS, AND ELEVATIONS OF EXISTING STRUCTURES AND UTILITIES SHOWN ON THE CONTRACT DRAWINGS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH WORK.
- ALL ASPECTS OF CONSTRUCTION AND EQUIPMENT INSTALLATION SHALL BE PERFORMED / INSTALLED PLUM AND TRUE AND SHALL CONFORM TO THE PRACTICES OF GOOD WORKMANSHIP.
- MATERIAL DEMOLISHED/SALVAGED DURING CONSTRUCTION SHALL BECOME THE CONTRACTOR'S PROPERTY UNLESS OTHERWISE NOTED ON THE PLANS AND SPECIFICATIONS.
- LOCATIONS OF THE EXISTING UTILITIES SHOWN ON SITE PLANS ARE ACCORDING TO THE BEST AVAILABLE INFORMATION, AND ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL LOCATE, TEST PIT, AND TAKE THE NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING UTILITIES. THE CONTRACTOR SHALL PERFORM TEST PITTING PRIOR TO ORDERING MATERIALS FOR THE PROJECT. CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT LEAST THREE DAYS BEFORE INITIATING ANY SITE IMPROVEMENT WORK, (1-800-257-7777).
- THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS CONCERNING SAFETY AND PRESERVATION OF EXISTING UTILITIES ADJACENT TO ANY WORK AND IS RESPONSIBLE FOR THE PROTECTION OF EXISTING STRUCTURES (BELOW GRADE AND ABOVE GRADE) DURING THE COURSE OF DEMOLITION AND CONSTRUCTION. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED IMMEDIATELY AND THE COSTS OF SUCH REPAIR SHALL BE BORNE BY THE CONTRACTOR.
- CONTRACTOR SHALL TAKE EVERY MEASURE TO PREVENT ANY AND ALL DAMAGE TO NEIGHBORING PROPERTIES. CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL SUCH DAMAGE AND WILL REPAIR AND / OR REPLACE ANY OBJECT, PLANT OR PIECE OF PROPERTY TO ORIGINAL STATE ON ADJACENT PROPERTIES THAT IS DAMAGED IN ANY WAY DUE TO THIS CONSTRUCTION.
- ALL WORK SHALL BE COORDINATED WITH TOWN OF BERLIN DEPARTMENT OF PUBLIC WORKS. CONTRACTOR SHALL PROVIDE FOR AND MAINTAIN TRAFFIC ACCESS TO THE SITE AT ALL TIMES.
- THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE CONSTRUCTION SITE SECURE AT ALL TIMES.
- JOB SITE SAFETY SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK IN ACCORDANCE WITH STATE AND FEDERAL CONFINED SPACE SAFETY REGULATIONS AS REQUIRED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF SURFACES IN ALL DISTURBED AREAS.
- ANY AND ALL IMPROVEMENTS, SUCH AS ASPHALT OR CONCRETE PAVEMENT, SOD, ETC., IF DAMAGED, SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, BY THE CONTRACTOR.
- THE CONTRACTOR SHALL EXECUTE DEMOLITION AND DISMANTLING WORK IN A MANNER TO ENSURE SAFETY OF PERSONS AND ADJACENT PROPERTY AGAINST DAMAGE BY SETTLEMENT, FALLING DEBRIS, OR OTHER CAUSES IN CONNECTION WITH THIS WORK.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE SURVEY CONSTRUCTION STAKEOUT FOR ALL NECESSARY LINE, GRADES, AND ELEVATIONS OF THE PROPOSED FACILITIES.
- THE CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" DRAWING RECORD OF THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL RECORD ALL DEVIATIONS FROM THE CONTRACT DOCUMENTS AS THEY OCCUR, TO CLEARLY DEPICT HOW WORK WAS ACTUALLY CONSTRUCTED. PARTICULAR ATTENTION SHALL BE GIVEN TO ACCURATE RECORDINGS OF CONCEALED WORK. THE "AS-BUILT" RECORD SHALL INCLUDE DESCRIPTIONS, DRAWINGS, SKETCHES, MARKED PRINTS, AND SIMILAR DATA SHALL BE MAINTAINED AT THE JOB SITE AND SHALL BE KEPT CURRENT ON A DAILY BASIS AS WORK PROGRESSES. ALL "AS-BUILT" DRAWINGS AND RELATED DATA SHALL BE SUBJECT TO REGULAR SURVEILLANCE BY THE OWNER'S ON-SITE REPRESENTATIVE.
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT SEDIMENT LADEN DISCHARGE DOES NOT ENTER THE DOWNSTREAM CONVEYANCE SYSTEM, ULTIMATELY DISCHARGING TO BOTTLE BRANCH. CONTRACTOR SHALL PUMP ALL ACCUMULATED WATER WITHIN THE PIPE TRENCH, BASINS, OR OTHER DISTURBANCE LAND AREAS THROUGH A SEDIMENT FILTER BAG.
- TOWN OF BERLIN TO ACQUIRE ALL NECESSARY EASEMENTS FOR CONSTRUCTION AND MAINTENANCE OF PROPOSED IMPROVEMENTS.
- AT NO TIME SHALL THE CONTRACTOR OPERATE WATER SYSTEM VALVING. THE CONTRACTOR SHALL CONTACT THE TOWN OF BERLIN DEPARTMENT OF PUBLIC WORKS TO OPEN/CLOSE ANY VALVING.

PROJECT AND SITE DATA

APPLICANT:

TOWN OF BERLIN
10 WILLIAM STREET
BERLIN, MARYLAND 21811
CONTACT: MARY BOHLEN
EMAIL: MBOHLEN@BERLINMD.GOV
PHONE: 410-641-4313

SURVEYOR:

BENCHMARK LAND SURVEYING, INC.
24 BROAD STREET
BERLIN, MARYLAND 21811
CONTACT: CAL HALLOWAY
EMAIL: CAL@BENCHMARKMD.COM
PHONE: 410-641-3313

ENGINEER:

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC. PBC
11200 RACETRACK ROAD, UNIT 101A
OCEAN PINES, MARYLAND 21811
CONTACT: STEVEN LEMASTERS, P.E.
EMAIL: SLEMASTERS@EAEST.COM
PHONE: 410-641-5341

SITE ADDRESS:

INTERSECTION OF ABBEY LANE AND WESTMINSTER DRIVE
BERLIN, MARYLAND 21811

OWNER :

TOWN OF BERLIN
TAX MAP 302,
PARCELS 1001 AND 1096
PARCEL 1001 AREA: 7,057 S.F.
PARCEL 1005 AREA: 15,460 S.F.
UPSHUR LANE EXTENDED (PAPER STREET): 6,145 S.F.
TOTAL PARCEL AREA = 28,662 S.F. (0.658 AC)

FLOODPLAIN:

ZONE X - AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD (100-YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD PER FIRM PANEL 24047C0153H LAST REVISED JULY 16, 2015.

SOILS PRESENT:

O1A - OHELLO SILT LOAMS,
0 TO 2 PERCENT SLOPES
(HSG C/D)

PROPOSED LIMITS OF DISTURBANCE:

TOTAL AREA = 41,234 S.F (0.947 AC)



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NORTH PER PLAT 137/39
"BUCKINGHAM ESTATES"

VERTICAL DATUM:
NGVD 29
USCG DISC G-10 (EL. 38.27)

SCALE AS SHOWN

FULL SIZE PLOT: 24" x 36"

REVISIONS

NO.	DESCRIPTION

SEAL



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT
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LICENSE NO. 55422
EXPIRATION DATE: DECEMBER 16, 2025

PROJECT NAME

WESTMINSTER, ABBEY, AND
UPSHUR STORMWATER
MANAGEMENT UPGRADES

PROJECT ADDRESS

TOWN OF BERLIN, MARYLAND

DRAWING TITLE

ABBREVIATIONS, NOTES,
LEGEND, AND SITE DATA

DRAWING INFORMATION

DRAWN BY: SCL/NWH/JAP DESIGNED BY: SCL/NWH

CHECKED BY: DOK PROJECT MANAGER: SCL

PROJECT NUMBER: 61470410

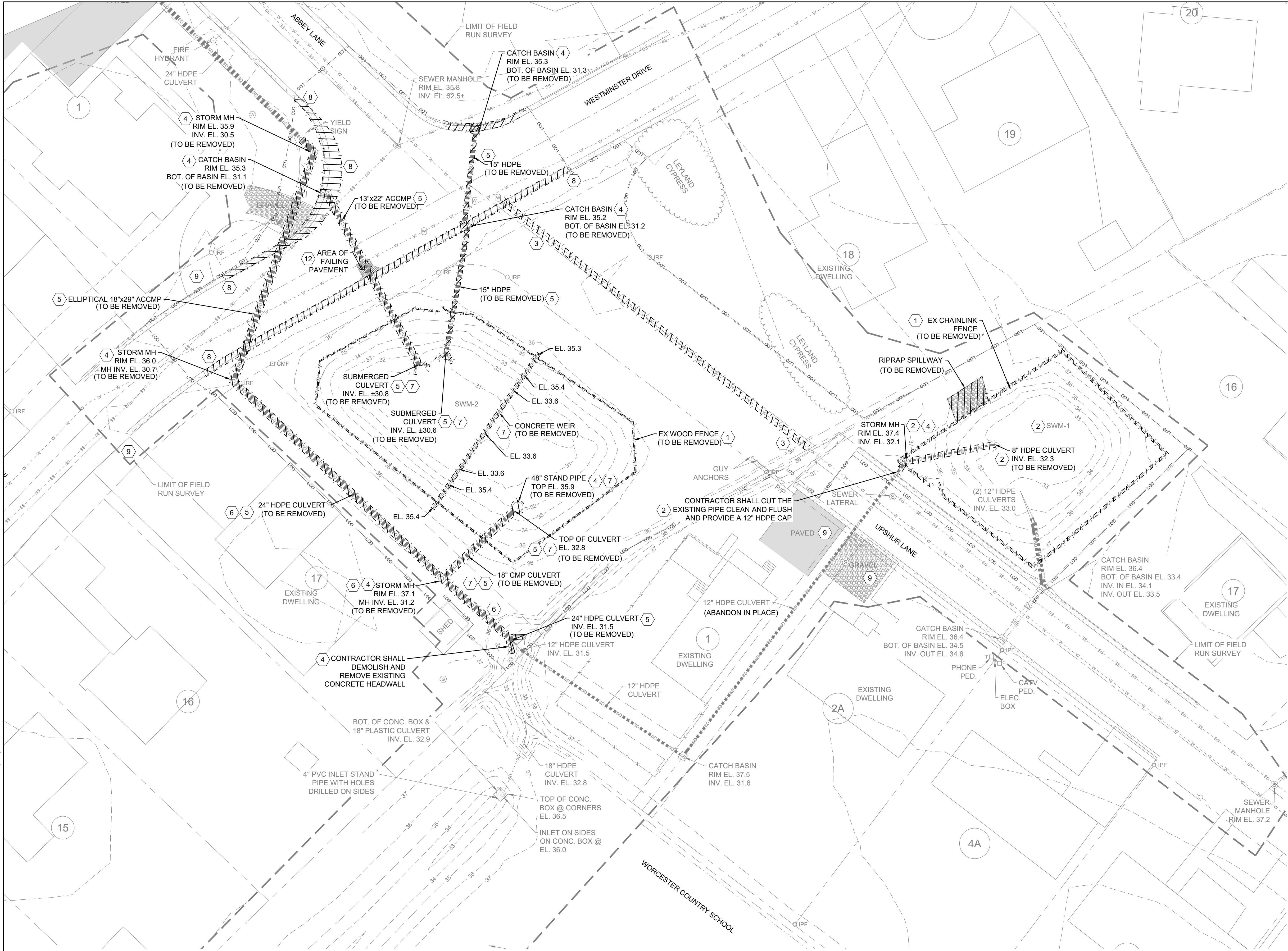
DRAWING NO.

G-002

DATE: APRIL 2024

SHEET: 2 OF 14

FILE PATH: \\C:\G:\PROJECTS\TOWN OF BERLIN\42010 - WESTMINSTER, ABBEY, UPSHUR\BIRAC\PROJECT\CONSTRUCTION SET\42010_01 - EX COND AND DEMO PLANS.DWG (C:\U1\BAMSTER, STEVEN 4/23/2024 3:15 PM)



EXISTING CONDITIONS PLAN
SCALE: 1" = 20'

EXISTING CONDITIONS AND DEMOLITION NOTES

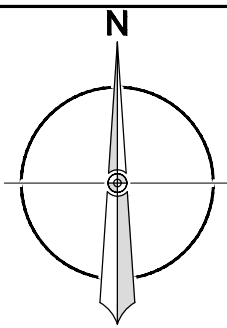
1. CONTRACTOR SHALL DEMOLISH AND REMOVE EXISTING 4" CHAINLINK AND WOOD PICKETS FENCES AS INDICATED ON THE DRAWING.
2. CONTRACTOR SHALL DEMOLITION AND REMOVE EXISTING FEATURES FOUND WITHIN STORMWATER MANAGEMENT FACILITY SWM-1 INCLUDING, BUT NOT LIMITED TO, 8" HDPE AND MANHOLE, RIPRAP SPILLWAY, VEGETATION, AND ACCUMULATED SEDIMENT. CONTRACTOR SHALL CUT THE EXISTING OUTFALL PIPE CLEAN AND FLUSH AND INSTALL A 12" HDPE CAP ONTO THE EXISTING 12" HDPE PIPE.
3. CONTRACTOR SHALL DEMOLISH AND REMOVE THE EXISTING WATERMAIN ONLY AFTER THE PROPOSED RELOCATION HAS BEEN COMPLETED.
4. CONTRACTOR SHALL REMOVE THE STORM DRAIN STRUCTURES AS INDICATED ON THE DRAWING
5. CONTRACTOR SHALL REMOVE THE STORM DRAIN PIPES AS INDICATED ON THE DRAWING.
6. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS DURING THE EXCAVATION AND REMOVAL OF THE EXISTING PIPING ALONG LOT 17 TO ENSURE STRUCTURAL DAMAGE DOES NOT OCCUR TO THE DWELLING, SHED, AND ANY OTHER STRUCTURE PRESENT AT THE TIME OF CONSTRUCTION. IF NECESSARY, THE CONTRACTOR SHALL COORDINATE WITH THE HOMEOWNER AND MOVE THE SHED BEYOND THE LIMIT OF DISTURBANCE.
7. CONTRACTOR SHALL DEMOLISH AND REMOVE EXISTING FEATURES FOUND WITHIN STORMWATER MANAGEMENT FACILITY SWM-2 INCLUDING, BUT NOT LIMITED TO, CMP OUTFALL STRUCTURE, OUTFALL PIPING, CONCRETE WEIR STRUCTURE, FENCING, INFLOW PIPING, VEGETATION AND SEDIMENT.
8. CONTRACTOR SHALL DEMOLISH AND REMOVE EXISTING CURBING TO NEAREST JOINT AND PAVEMENT TO THE LIMITS SHOWN.
9. CONTRACTOR SHALL MAINTAIN ACCESS TO EXISTING RESIDENCES THROUGHOUT CONSTRUCTION. IF NECESSARY, CONTRACTOR SHALL INSTALL OR PROVIDE A TEMPORARY PARKING AND/OR WALKING PATH TO THE DWELLING UPON THE RESIDENCE'S REQUEST. UPON CONSTRUCTION COMPLETION, THE CONTRACTOR SHALL RESTORE THE EXISTING DRIVEWAY AND TEMPORARY FACILITIES BACK TO PRE-CONSTRUCTION CONDITIONS.
10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND REINSTALL ANY SIGNAGE THAT IS IMPACTED DURING CONSTRUCTION. SIGNAGE SHALL BE INSTALLED BACK TO PRE-CONSTRUCTION CONDITIONS.
11. CONTRACTOR SHALL LIMIT TREE CLEARING TO THE GREATEST EXTENT PRACTICABLE TO INSTALL THE PROPOSED FEATURES.
12. CONTRACTOR SHALL EXCAVATION AND REMOVE ASPHALT, STONE BASE, AND SOFT UNDERLYING SOILS IN AREAS OF FAILING PAVEMENT. CONTRACTOR SHALL PERFORM FULL DEPTH PAVEMENT RESTORATION WITHIN FAILING AREAS IDENTIFIED.



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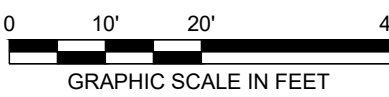
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PROJECT ADDRESS
TOWN OF BERLIN, MARYLAND

DRAWING TITLE
EXISTING CONDITIONS AND
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DRAWING INFORMATION

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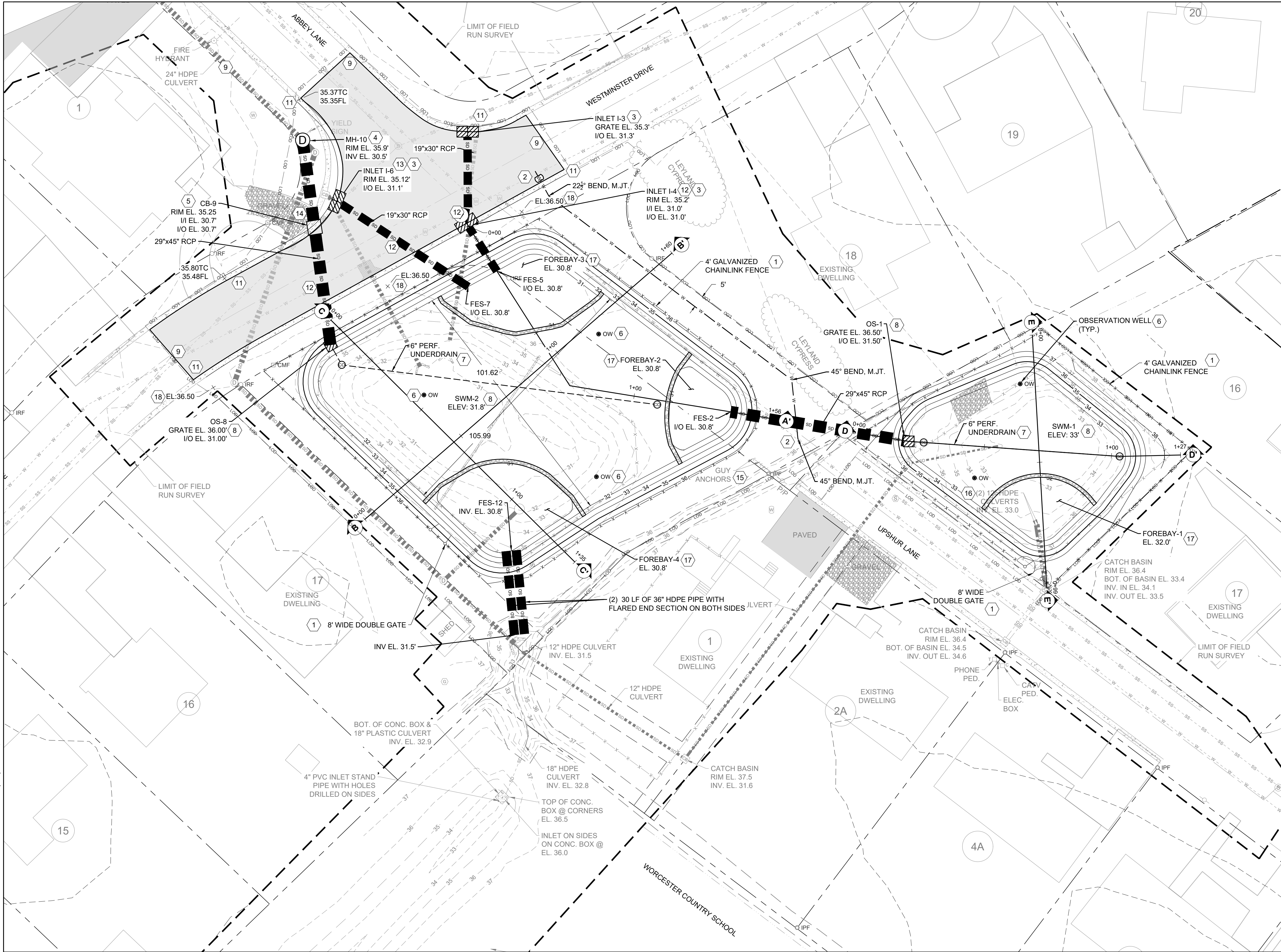
PROJECT NUMBER: 61470410

DRAWING NO.

C-101

DATE: APRIL 2024 SHEET: 3 OF 14

FILE PATH: \\C:\G:\PROJECTS\TOWN OF BERLIN\42010 - WESTMINSTER, ABBEY, UPSHUR\BIRAC\PRODUCT\CONSTRUCTION\SET\42010_03_10\PROP SITE PLANS\DWG 1001\DWG1001.dwg, 11/11/2024 1:14 PM



PROPOSED SITE AND STORMWATER MANAGEMENT PLAN
SCALE: 1" = 20'

STORMWATER STRUCTURE SCHEDULE					
NAME	STRUCTURE TYPE	DETAIL REFERENCE	RIM ELEVATION	INVERT ELEVATION IN	INVERT ELEVATION OUT
OS-1	CUSTOM CONCRETE OUTFALL STRUCTURE	OS-1 C-503	36.50	SEE DETAIL, DRAWING C-503	31.50
FES-2	FLARED END SECTION	---	---	---	30.80
I-3	STANDARD WR INLET	TOWN STANDARDS 7.01, 7.11	35.50	---	31.30
I-4	STANDARD WR INLET	TOWN STANDARDS 7.01, 7.11	35.20	31.00	31.00
FES-5	FLARED END SECTION	---	---	---	30.80
I-6	STANDARD WR INLET	TOWN STANDARDS 7.01, 7.11	35.12	---	31.10
FES-7	FLARED END SECTION	---	---	---	30.80
OS-8	CUSTOM CONCRETE OUTFALL STRUCTURE	OS-2 C-503	36.00	SEE DETAIL, DRAWING C-503	31.00
CB-9	54" SQ. CONFLICT BOX	MD SHA STANDARD	35.35	30.70	30.70
MH-10	DOGHOUSE MANHOLE	MD SHA 386.11, TOWN STANDARD 5.31	35.90	30.50	30.50
FES-11	FLARED END SECTION	---	---	31.50	---
FES-12	FLARED END SECTION	---	---	---	30.80

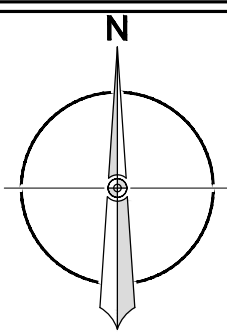
- GENERAL NOTES**
- 4" GALVANIZED CHAINLINK FENCE WITH 8' DOUBLE GATE INSTALLED TO MANUFACTURER'S RECOMMENDATION
 - CONTRACTOR SHALL COORDINATE WITH THE TOWN OF BERLIN TO ISOLATE THE WATERMAIN TO PERFORM THE WATERMAIN RELOCATION. INSTALL NEW 6"x6"x6" TEE AND INSTALL 155 LF OF 6" PVC C-909 WATERMAIN AND 6" GATE VALVE, M.J.T. PROVIDE BENDS AS SHOWN ON THE DRAWING AND CONNECT BACK TO EXISTING WATERMAIN PRIOR TO CROSSING THE EXISTING WATERCOURSE.
 - CONTRACTOR SHALL INSTALL STANDARD WR INLET PER DETAIL ON DRAWING C-501.
 - CONTRACTOR SHALL INSTALL DOGHOUSE MANHOLE PER DETAIL ON DRAWING C-504.
 - CONTRACTOR SHALL INSTALL SANITARY/STORM CONFLICT BOX PER DETAIL ON DRAWING C-504.
 - CONTRACTOR SHALL INSTALL OBSERVATION WELLS AT LOCATIONS SHOWN ON THE DRAWING AND PER DETAIL ON DRAWING C-502.
 - CONTRACTOR SHALL INSTALL 6" PERFORATED PVC UNDERDRAIN AT THE HORIZONTAL AND VERTICAL ELEVATION SHOWN ON THE DRAWINGS. PROVIDE CLEANOUTS ON THE UNDERDRAIN AT LOCATIONS SHOWN AND PER DETAIL ON DRAWING C-502.
 - CONTRACTOR SHALL EXCAVATE AND INSTALL SUBMERGED GRAVEL WETLANDS PER THE LINES AND GRADES SHOWN ON THE PLANS. SEE DRAWINGS C-201 FOR FACILITY CROSS SECTIONS, C-503 FOR OUTFALL STRUCTURE, AND C-202 FOR OUTFALL PIPING PROFILES.
 - CONTRACTOR SHALL PERFORM A 1.5" ASPHALT MILL AND OVERLAY ON WESTMINSTER DRIVE AND ABBEY LANE TO THE LIMITS SHOWN.
 - CONTRACTOR SHALL PERFORM TRENCH RESTORATION FOR ALL PROPOSED PIPING AND REMOVAL OF EXISTING PIPING PER THE DETAIL ON DRAWING C-501.
 - CONTRACTOR SHALL INSTALL CONCRETE CURBING TO THE LIMITS SHOWN AND PER DETAIL ON C-501.
 - IF NECESSARY, THE CONTRACTOR SHALL DEFLECT THE EXISTING WATERMAIN(S) TO MAINTAIN A MINIMUM OF 12" OF VERTICAL SEPARATION BETWEEN THE WATER AND STORM PIPES FOR THE INSTALLATION OF THE PROPOSED 19"x30" STORM DRAIN PIPE.
 - PROPOSED INLET STRUCTURE TO BE UTILIZED A CONFLICT BOX. THE CONTRACTOR SHALL CUT THE EXISTING GRAVITY SANITARY PIPE A MINIMUM OF 5' BEYOND THE LIMIT OF INLET STRUCTURE. CONTRACTOR SHALL CORE DRILL PENETRATIONS (2) INTO THE PROPOSED INLET FOR ACCEPTANCE OF LINKED SEALED DUCTILE IRON GRAVITY SANITARY SEWER PIPE.
 - CONTRACTOR SHALL EXTEND AND/OR RESTORE DRIVEWAY BACK TO EXISTING CONDITIONS PRIOR TO DEMOBILIZATION.
 - CONTRACTOR SHALL COORDINATE WITH THE BERLIN ELECTRIC UTILITY COMPANY FOR PROTECTION OF THE GUY WIRES AND THE BRACING OF THE UTILITY POLE.
 - CONTRACTOR SHALL CUT EXISTING 12" HDPE PIPES AND INSTALL FLARED END SECTIONS ADHERING TO PROPOSED GRADE.
 - CONTRACTOR SHALL INSTALL 1.5'Wx3'H GABION BASKETS BETWEEN THE FOREBAYS AND SWM-1/SWM-2. BASKETS SHALL FOLLOW THE COUTOURING LINE AND BE APPROXIMATELY FLUSH WITH THE TOP OF SWM-1 AND SWM-2.
 - CONTRACTOR SHALL PERFORM MICRO-GRADING TO OBTAIN A BERM ELEVATION OF 36.5 ALONG WESTMINSTER DRIVE.



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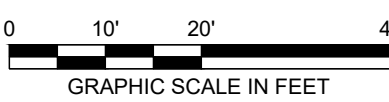
11200 Racetrack Road, Unit A101
Ocean Pines, Maryland 21811
(410) 641-5341

www.eaest.com



HORIZONTAL DATUM:
NORTH PER PLAT 137/39
"BUCKINGHAM ESTATES"

VERTICAL DATUM:
NGVD 29
USCG DISC G-10 (EL. 38.27)



FULL SIZE PLOT: 24" x 36"

REVISIONS

NO.	DESCRIPTION	DATE

SEAL



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. 55422
EXPIRATION DATE: DECEMBER 16, 2025

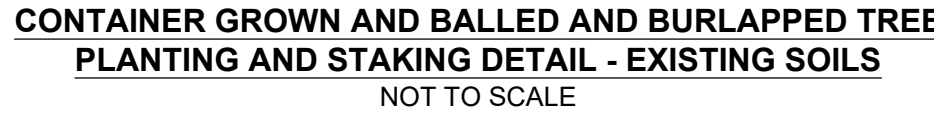
PROJECT NAME
WESTMINSTER, ABBEY, AND
UPSHUR STORMWATER
MANAGEMENT UPGRADES

PROJECT ADDRESS
TOWN OF BERLIN, MARYLAND

DRAWING TITLE
PROPOSED SITE AND
STORMWATER MANAGEMENT
PLAN

DRAWING INFORMATION
DRAWN BY: SCL/NWH/JAP DESIGNED BY: SCL/NWH
CHECKED BY: DOK PROJECT MANAGER: SCL
PROJECT NUMBER: 61470410

DRAWING NO.
C-102
DATE: APRIL 2024 SHEET: 4 OF 14



1. TO BE USED WHEN BALLED STOCK IS SUBSTITUTED FOR CONTAINERIZED.
2. TO BE USED FOR LARGE CALIPER, HIGH-VISIBILITY PLANTINGS.



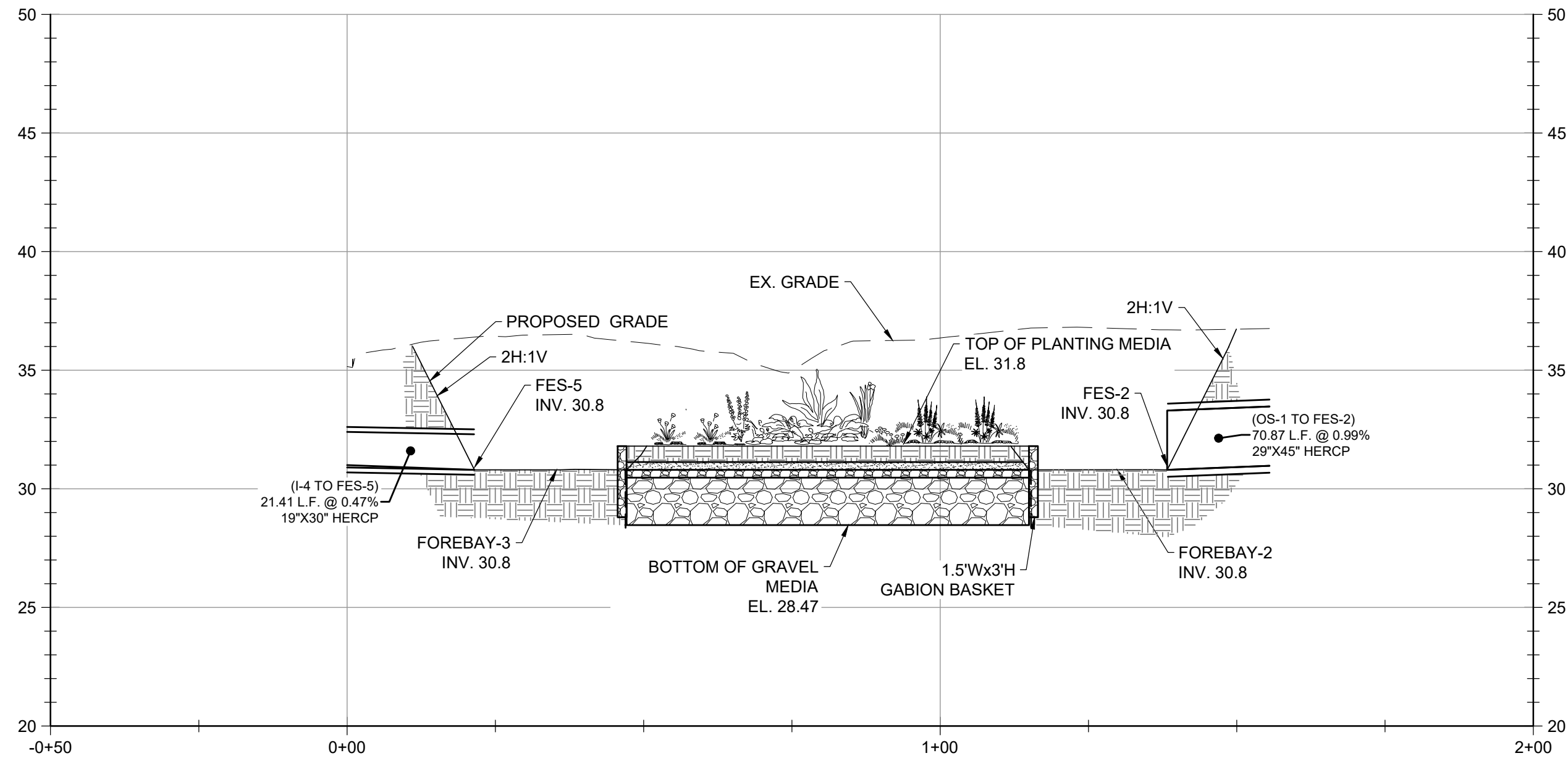
1. SHRUB PIT DIMENSIONS SHALL BE PER THE NURSERY RECOMMENDATIONS FOR THE PLANT SPECIES.
2. PRUNE SHRUBS ONLY AFTER INSTALLED AND AFTER THE PLANT HAS BEEN SUFFICIENTLY WATERED.
3. MULCH DIAMETER OF PLANTING HOLE, MINIMUM 2" DEPTH, WITH COMPOST.

PLANTING LIST - SWM-2						
PLANTING TYPE	COMMON NAME	SCIENTIFIC NAME	FORM	SPACING	INDICATOR STATUS	QUANTITY
SHRUBS						
	SERVICEBERRY	AMELANCHIOR CANADENSIS	3 GAL.	RANDOM	FACW	6
	BUTTON BUSH	CEPHALANTHUS OCCIDENTALIS	3 GAL.	RANDOM	OBL	10
	SUMMERSWEET	CLETHRA ALNIFOLIA	1 GAL.	RANDOM	FACW	6
	SWEET SPIRE	ITEA VIRGINICA	1 GAL.	RANDOM	FACW	6
	ELDERBERRY	SAMBUCUS CANADENSIS	1 GAL.	RANDOM	FACW	6
	ARROWWOOD	VIBURNUM DENTATUM	1 GAL.	RANDOM	FACW	5
	SWAMP ROSE	ROSA PALUSTRIS	1 QT.	RANDOM	OBL	25
	FRINGE TREE	CHIONANTHUS VIRGINICUS	1 GAL.	RANDOM	---	5
TREES						
	RED CHOKECHERRY	ARONIA ARBUTIFOLIA	2 GAL.	RANDOM	FACW	10
	RIVER BIRCH	BETULA NIGRA	2 GAL.	RANDOM	---	5
	EASTERN RED BUD	CERCIS CANADENSIS	2 GAL.	RANDOM	---	5
HERBACEOUS SPECIES						
	SWEET JOE JOE WEED	EUPATORIUM PURPUREUM	1 QT.	RANDOM	FAC	6
	BLAZING STAR	LIATRIS SPICATA	1 QT.	RANDOM	FAC	6
	SWITCHGRASS	PANICUM VIRGATUM	1 QT.	RANDOM	FAC	6
	ORANGE CONE FLOWER	RUDBECKIA FULGIDA	1 QT.	RANDOM	FAC	6
	WILD BERGAMONT	MINARDA FISTULOSA	1 QT.	RANDOM	FACW	6
	SNEEZEWEED	HELENIUM AUTUMNALE	1 QT.	RANDOM	FACW	6
	CARDINAL FLOWER	LOBELIA CARDINALIS	1 QT.	RANDOM	FACW	6
	GOLDENROD	SOLIDAGO SEMPERVIRENS	1 QT.	RANDOM	FACW	6
	SWAMP MILKWEED	ASCLEPIAS INCATNATA	1 QT.	3FT. O.C.	OBL	25
	PURPLE ASTER	ASTER NOVI-BELIGII	1 QT.	3FT. O.C.	OBL	25
	SALLOW SEDGE	CAREX LURIDA	1 QT.	3FT. O.C.	OBL	275
	BLUEFLAG IRIS	IRIS VERSICOLOR	1 QT.	3FT. O.C.	OBL	25
	SOFT RUSH	JUNCUS EFFUSUS	1 QT.	3FT. O.C.	OBL	275
	ROYAL FERN	OSMUNDA REGALIS	1 QT.	3FT. O.C.	OBL	25
	POVERTY RUSH	JUNCUS TENUIS	1 QT.	3FT. O.C.	OBL	50
	TUSSOCK SEDGE	CAREX STRICTA	1 QT.	3FT. O.C.	OBL	225

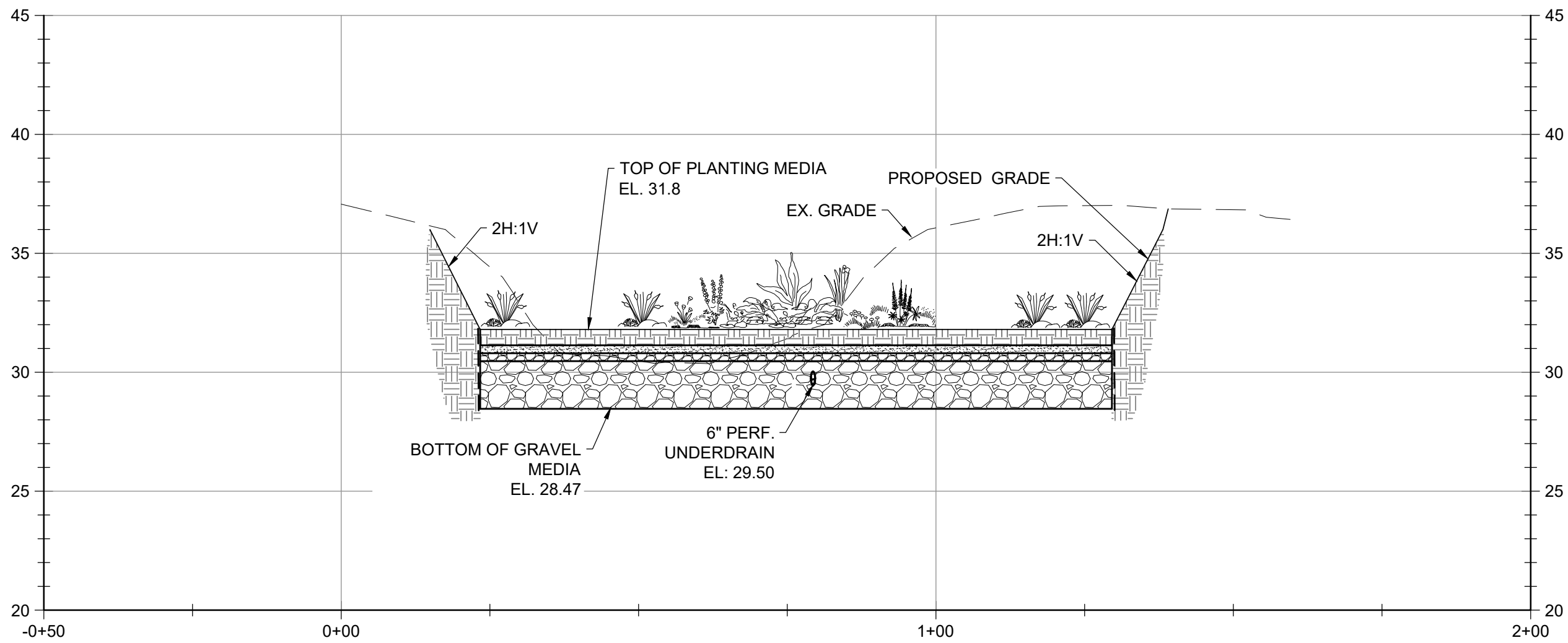
PLANTING LIST - SWM-2						
PLANTING TYPE	COMMON NAME	SCIENTIFIC NAME	FORM	SPACING	INDICATOR STATUS	QUANTITY
SHRUBS						
	SERVICEBERRY	AMELANCHIOR CANADENSIS	3 GAL.	RANDOM	FACW	6
	BUTTON BUSH	CEPHALANTHUS OCCIDENTALIS	3 GAL.	RANDOM	OBL	10
	SUMMERSWEET	CLETHRA ALNIFOLIA	1 GAL.	RANDOM	FACW	6
	SWEET SPIRE	ITEA VIRGINICA	1 GAL.	RANDOM	FACW	6
	ELDERBERRY	SAMBUCUS CANADENSIS	1 GAL.	RANDOM	FACW	6
	ARROWWOOD	VIBURNUM DENTATUM	1 GAL.	RANDOM	FACW	5
	SWAMP ROSE	ROSA PALUSTRIS	1 QT.	RANDOM	OBL	25
	FRINGE TREE	CHIONANTHUS VIRGINICUS	1 GAL.	RANDOM	---	5
TREES						
	RED CHOKECHERRY	ARONIA ARBUTIFOLIA	2 GAL.	RANDOM	FACW	10
	RIVER BIRCH	BETULA NIGRA	2 GAL.	RANDOM	---	5
	EASTERN RED BUD	CERCIS CANADENSIS	2 GAL.	RANDOM	---	5
HERBACEOUS SPECIES						
	SWEET JOE JOE WEED	EUPATORIUM PURPUREUM	1 QT.	RANDOM	FAC	6
	BLAZING STAR	LIATRIS SPICATA	1 QT.	RANDOM	FAC	6
	SWITCHGRASS	PANICUM VIRGATUM	1 QT.	RANDOM	FAC	6
	ORANGE CONE FLOWER	RUDBECKIA FULGIDA	1 QT.	RANDOM	FAC	6
	WILD BERGAMONT	MINARDA FISTULOSA	1 QT.	RANDOM	FACW	6
	SNEEZEWEED	HELENIUM AUTUMNALE	1 QT.	RANDOM	FACW	6
	CARDINAL FLOWER	LOBELIA CARDINALIS	1 QT.	RANDOM	FACW	6
	GOLDENROD	SOLIDAGO SEMPERVIRENS	1 QT.	RANDOM	FACW	6
	SWAMP MILKWEED	ASCLEPIAS INCAENATA	1 QT.	3FT. O.C.	OBL	25
	PURPLE ASTER	ASTER NOVI-BELIGII	1 QT.	3FT. O.C.	OBL	25
	SALLOW SEDGE	CAREX LURIDA	1 QT.	3FT. O.C.	OBL	275
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	POVERTY RUSH	JUNCUS TENUIS	1 QT.	3FT. O.C.	OBL	50
	TUSSOCK SEDGE	CAREX STRICTA	1 QT.	3FT. O.C.	OBL	225

1. SPECIES SUBJECT TO AVAILABILITY. SUBSTITUTIONS ARE ACCEPTABLE BUT SHALL BE APPROVED BY THE ENGINEER/OWNER.
2. OBL SPECIES INSTALLED AT ELEVATIONS 30-03.5 SWM-1 AND 31-8-32.3 IN SWM-2.
3. ALL OTHER SPECIES SHALL BE INSTALLED IN RANDOMIZED NON-GRD PLANTING.
4. PLANTS INSTALLED IN RANDOMIZED PLANTING ARE TO BE INSTALLED ON FACILITY SLOPES. DETAILS ON THIS SHEET DEPICT SUGGESTED PLANTING PROCEDURES.
5. PLANTS SHOULD BE SPACED AT A MINIMUM DISTANCE SPECIFIED IN THE TABLE, AND IN A RANDOM OR CLUMPING PATTERN.
6. MINOR ADJUSTMENTS TO PLANT MATERIAL PLACEMENT MAY BE DIRECTED IN THE FIELD BASED ON EXISTING PLANT COMMUNITY SPECIES.
7. THE CONTRACTOR SHALL PURCHASE ALL PLANTS FROM A LOCAL NURSERY, WITHIN APPROXIMATELY 50 MILES, OF THE PROJECT SITE TO ENSURE NATIVE ECOTYPES.

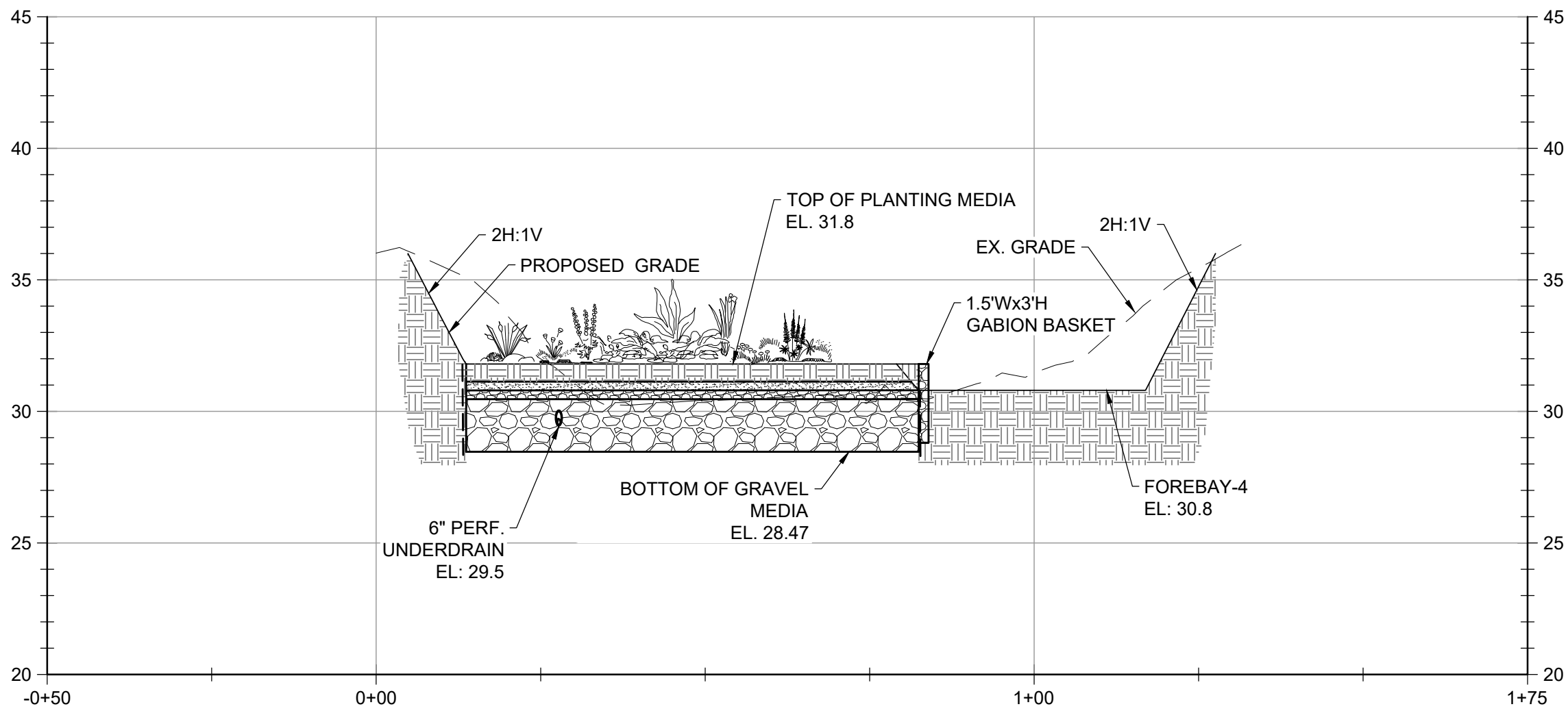
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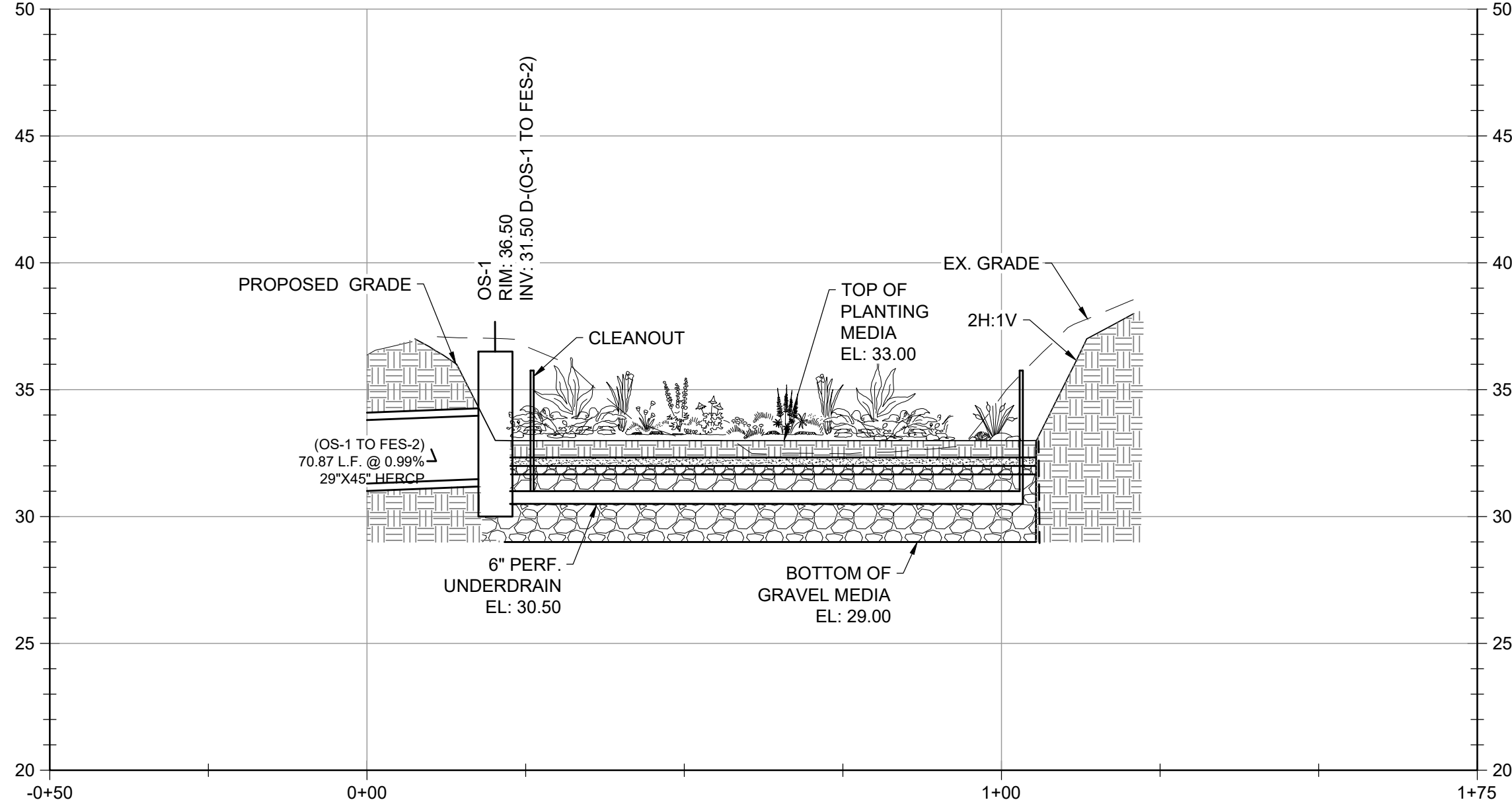
PROFILE A-A' (SWM-2)
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



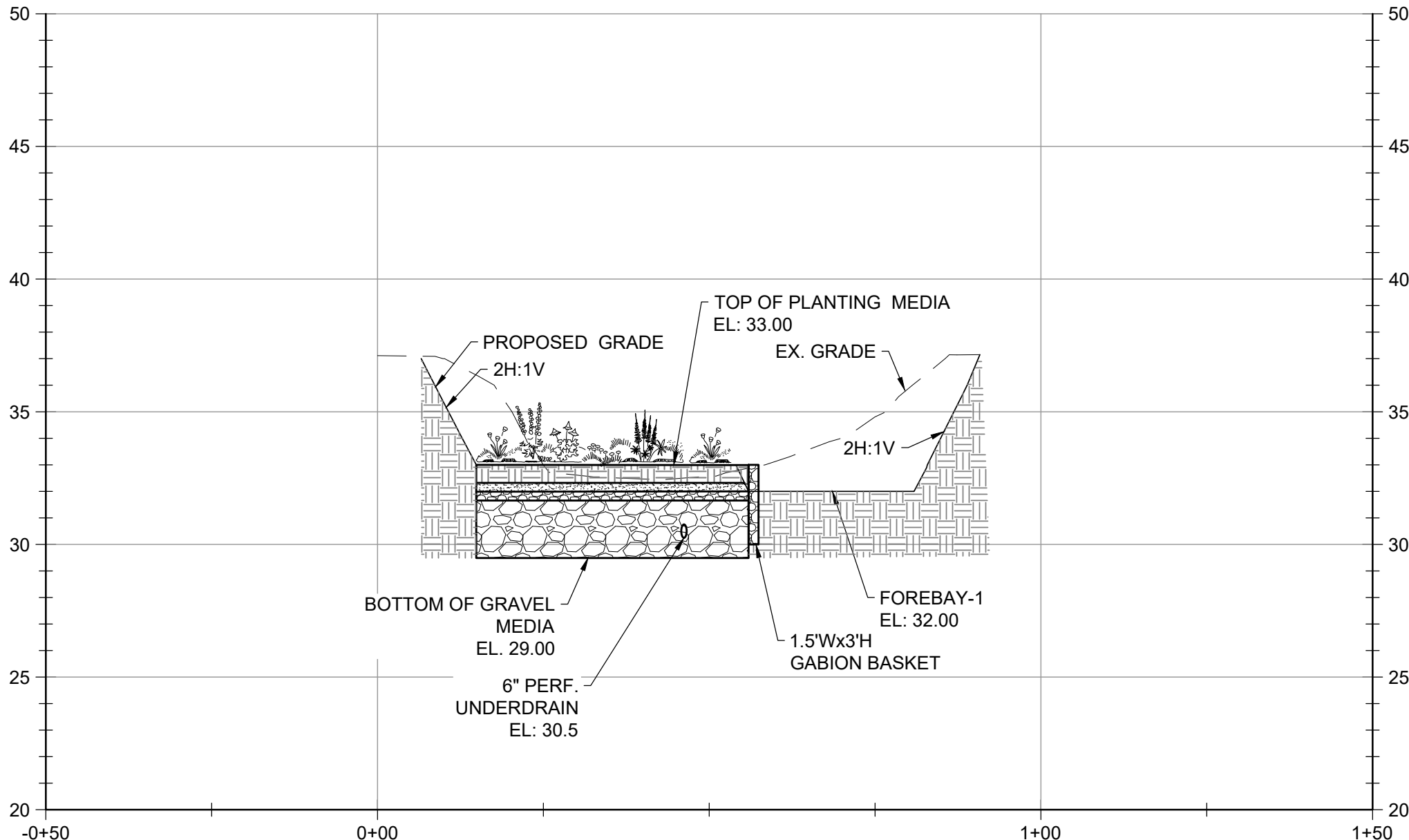
PROFILE B-B' (SWM-2)
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE C-C' (SWM-2)
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE D-D' (SWM-1)
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE E-E' (SWM-1)
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'

NOTES

- PROVIDE PE TYPE 1 NONWOVEN GEOTEXTILE ON ALL VERTICAL SIDES OF ALL FACILITIES.
- GEOTEXTILE SHALL NOT BE PLACED BETWEEN MEDIA LAYER OR AT THE BOTTOM OF THE FACILITY.
- ONLY LOW GROUND PRESSURE EQUIPMENT SHALL BE UTILIZED WITHIN THE FOOTPRINT OF THE FACILITIES.



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11200 Racetrack Road, Unit A101
Ocean Pines, Maryland 21811
(410) 641-5341

www.eaesl.com

HORIZONTAL DATUM:
NORTH PER PLAT 137/39
"BUCKINGHAM ESTATES"

VERTICAL DATUM:
NGVD 29
USCG DISC G-10 (EL. 38.27)



FULL SIZE PLOT: 24" x 36"

REVISIONS

NO.	DESCRIPTION	DATE

SEAL



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. 55422 EXPIRATION DATE: DECEMBER 16, 2025

PROJECT NAME
WESTMINSTER, ABBEY, AND
UPSHUR STORMWATER
MANAGEMENT UPGRADES

PROJECT ADDRESS
TOWN OF BERLIN, MARYLAND

DRAWING TITLE
PROFILES

DRAWING INFORMATION

DRAWN BY: SCL/NWH/JAP DESIGNED BY: SCL/NWH

CHECKED BY: DOK PROJECT MANAGER: SCL

PROJECT NUMBER: 61470410

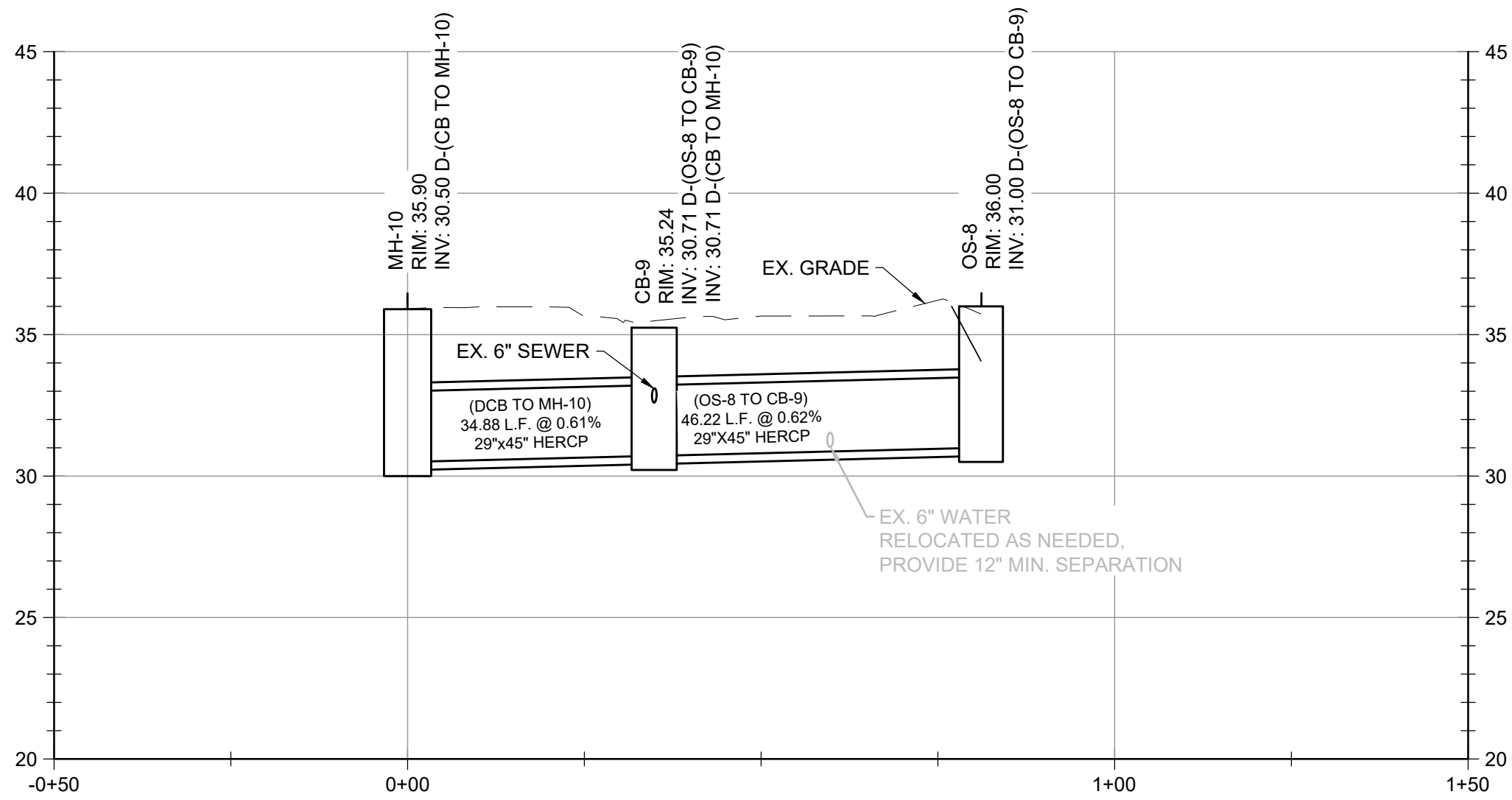
DRAWING NO.

C-201

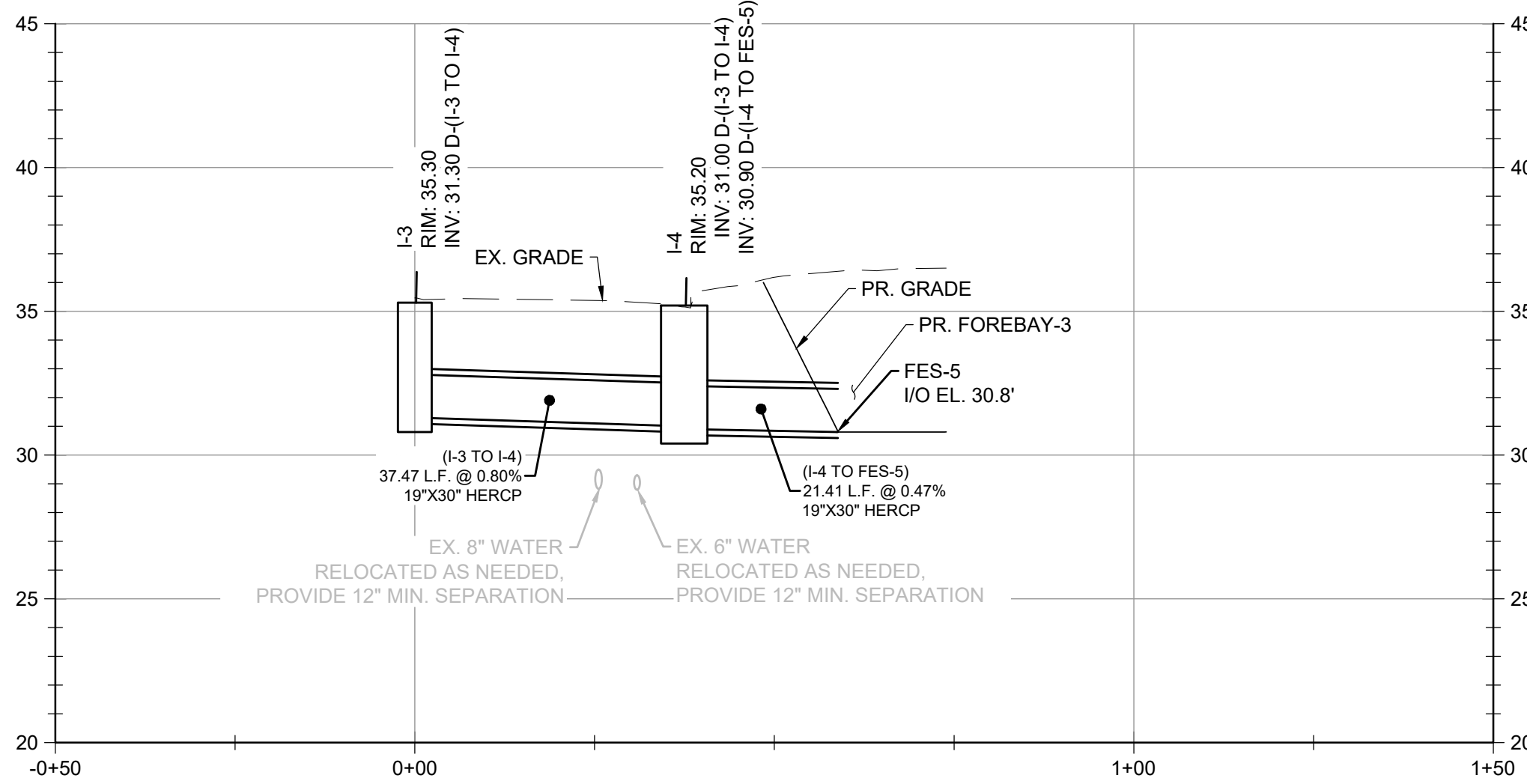
DATE: APRIL 2024

SHEET: 6 OF 14

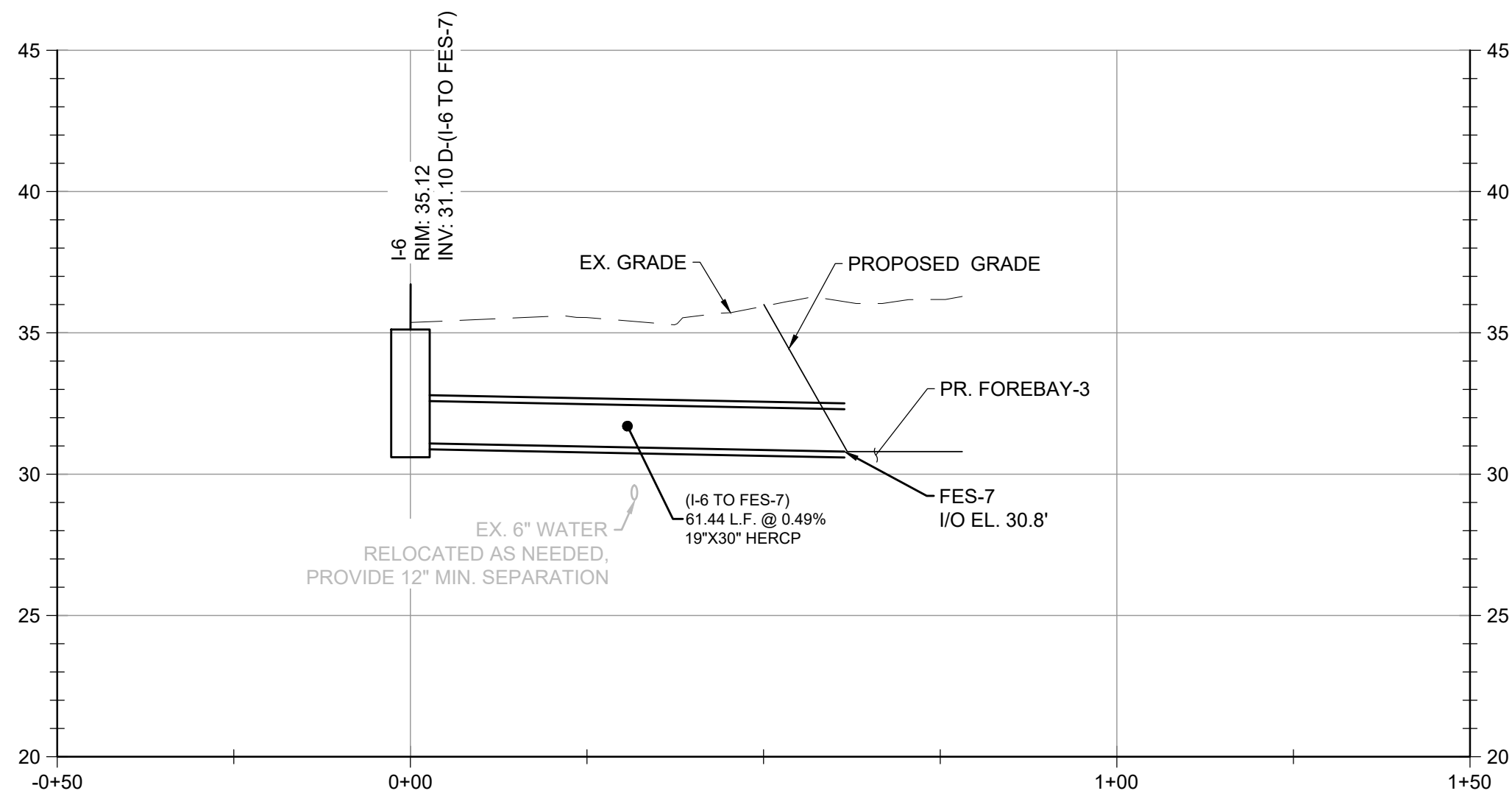
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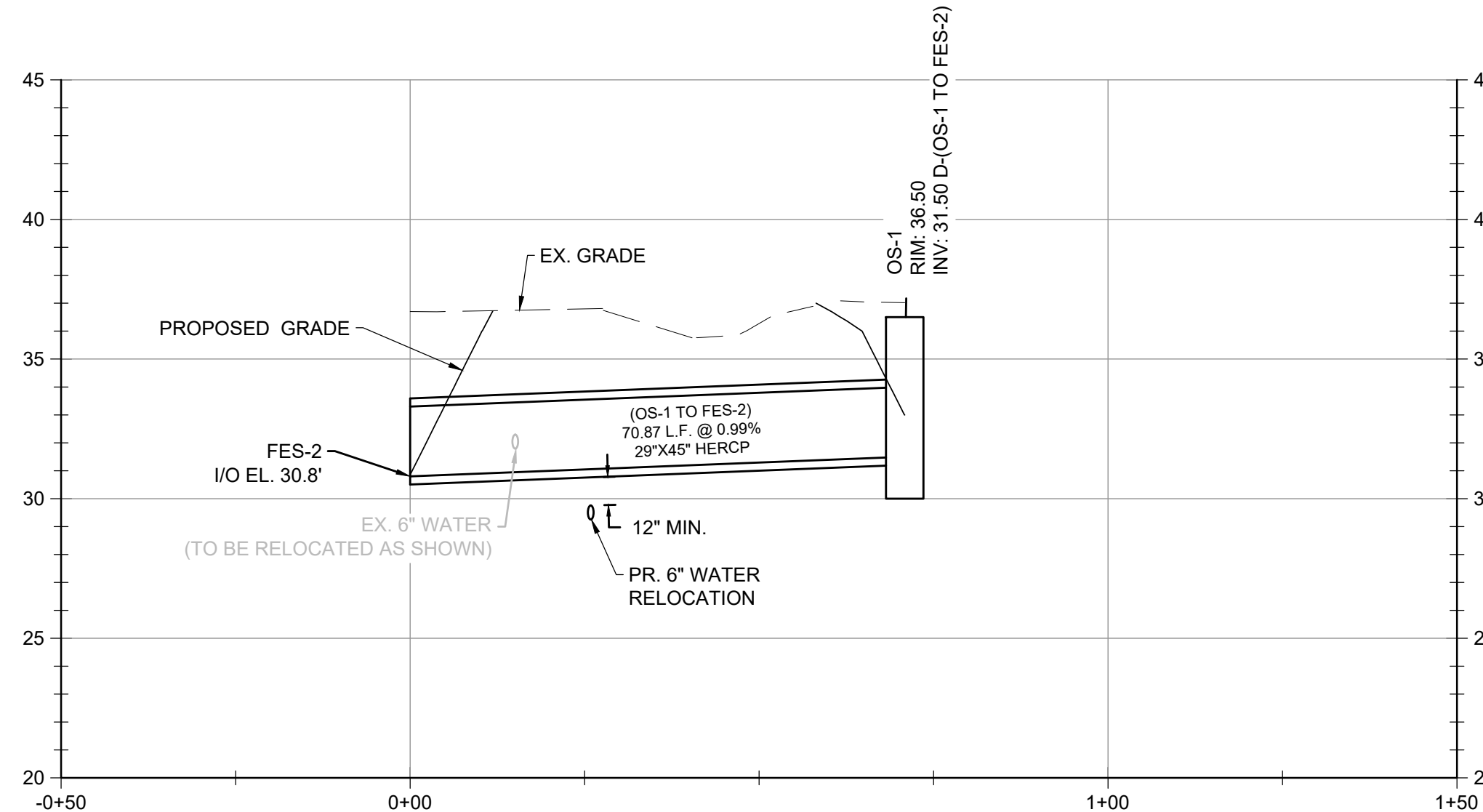
PROFILE MH-10 TO OS-8
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE I-3 TO I-4
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE I-6 TO FES-7
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



PROFILE OS-1 TO FES-2
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 5'



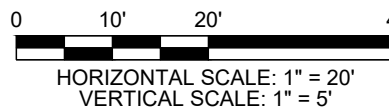
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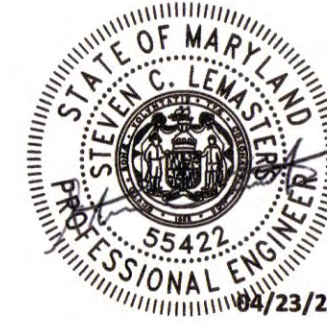


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PROJECT ADDRESS

TOWN OF BERLIN, MARYLAND

DRAWING TITLE

PROFILES

DRAWING INFORMATION

DRAWN BY: SCL/NWH/JAP DESIGNED BY: SCL/NWH
CHECKED BY: DOK PROJECT MANAGER: SCL
PROJECT NUMBER: 61470410

DRAWING NO.

C-202

DATE: APRIL 2024 SHEET: 7 OF 14

FILE PATH: \\CGA\NWHP\PROJECTS\TOWN OF BERLIN\4010 - WESTMINSTER, ABBEY, UPSHUR\BIM\CONSTRUCTION\SET\14010_04_DETAL_SHEET\3.DWG (2-03) LHM:STB:EL: STB:EN: 4/23/2024 3:17 PM

- CONSTRUCTION SPECIFICATIONS
FOR SUBMERGED GRAVEL WETLANDS
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 SUBMERGED GRAVEL WETLAND PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

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

- SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
- ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35%-40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
- CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
- pH RANGE - SHOULD BE BETWEEN 5.5-7.0. AMENDMENTS 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 SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. PLANT MATERIAL
- RECOMMENDED PLANT MATERIAL IS INCLUDED IN THE PLANT LIST ON DRAWING C-103.
4. PLANT INSTALLATION
- ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/2 OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.
- TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
- GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

5. UNDERDRAINS
- UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
- PIPE - SHOULD BE 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER.
 - PERFORATIONS - PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/2" (No. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.
 - GRAVEL - THE GRAVEL LAYER SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 - THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM OF 0.50% SLOPE.
 - AN OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
6. MISCELLANEOUS
- THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

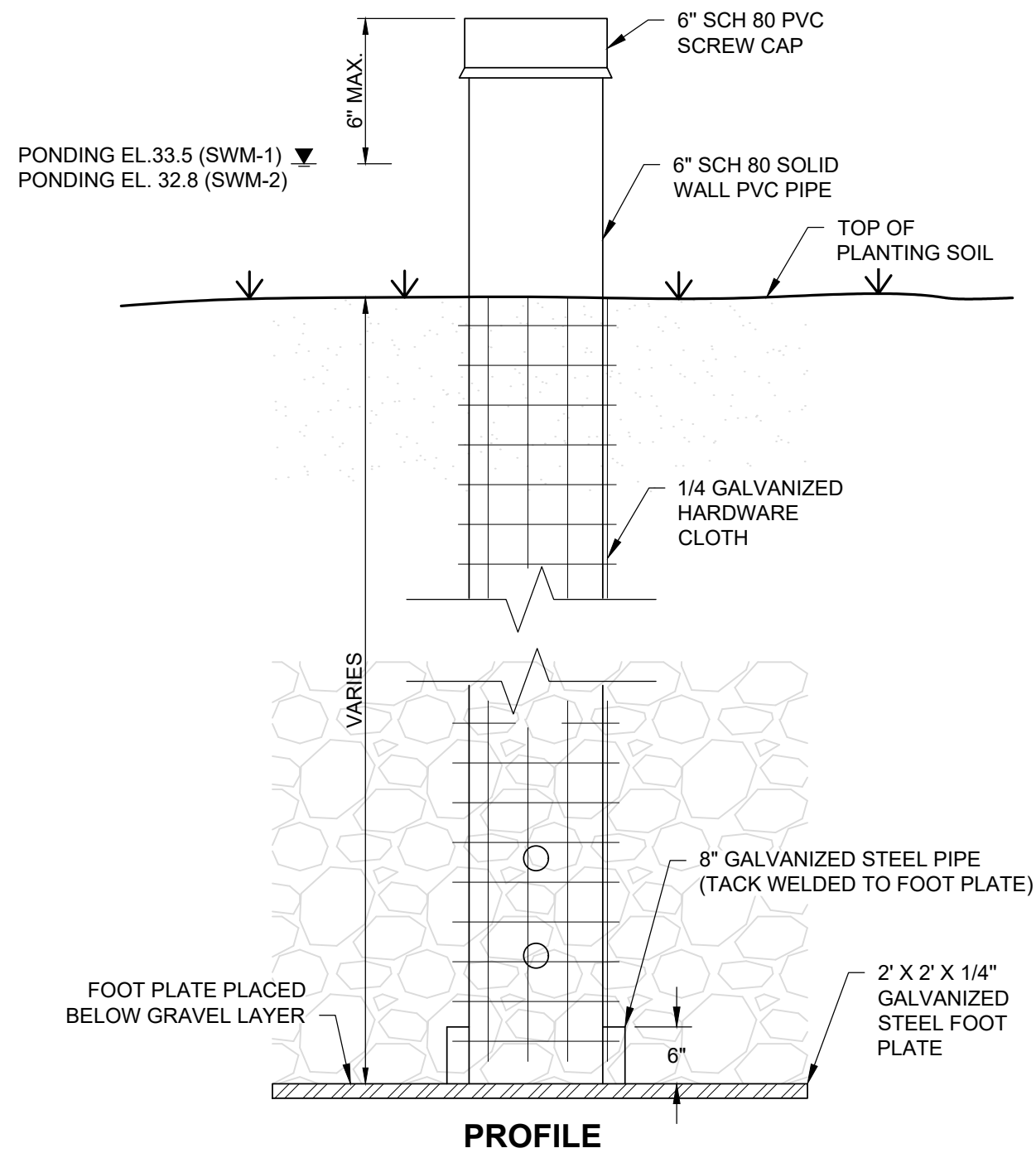
AS-BUILT CERTIFICATION	
I HEREBY CERTIFY THAT THE STORMWATER MANAGEMENT FACILITIES (BOTH BMPS AND ESD PRACTICES) SHOWN ON THE PLANS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS APPROVED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, EXCEPT AS NOTED IN RED ON THE "AS-BUILT" DRAWINGS.	
NAME	SIGNATURE
MARYLAND REGISTRATION NUMBER (PE OR LS)	DATE

MDE NO.	
FACILITIES BEING CERTIFIED: (LIST EACH INDIVIDUALLY USING FACILITY ID NUMBER AND/OR DESCRIPTION)	
SUBMERGED GRAVEL WETLAND #1	
SUBMERGED GRAVEL WETLAND #2	
	ATTACH ADDITIONAL FORM(S) IF NECESSARY.
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED ON SUFFICIENT AND APPROPRIATE ONSITE INSPECTIONS AND MATERIAL TESTS CONDUCTED DURING CONSTRUCTION.	

STORMWATER MAINTENANCE SCHEDULE - SUBMERGED GRAVEL WETLANDS		
FREQUENCY OF INSPECTION	PREVENTATIVE MAINTENANCE	MAINTENANCE REQUIREMENTS
SEASONALLY (AND AFTER A MAJOR STORM)		REMOVE AND DEAD OR DYING VEGETATION AND REVEGETATE.
		REMOVE ACCUMULATED SEDIMENT FROM SURFACE OF FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH
		CLEAN INLETS AND OUTLETS OF SEDIMENT, DEBRIS, AND TRASH.
		REPAIR EROSION AT INFLOW POINTS AND SIDE SLOPES
		SIGNS OF UNEVEN FLOW DISTRIBUTION MAY INDICATE THAT THE GRAVEL OR UNDERDRAIN IS CLOGGED. REMOVE, CLEAN AND REPLACE GRAVEL.

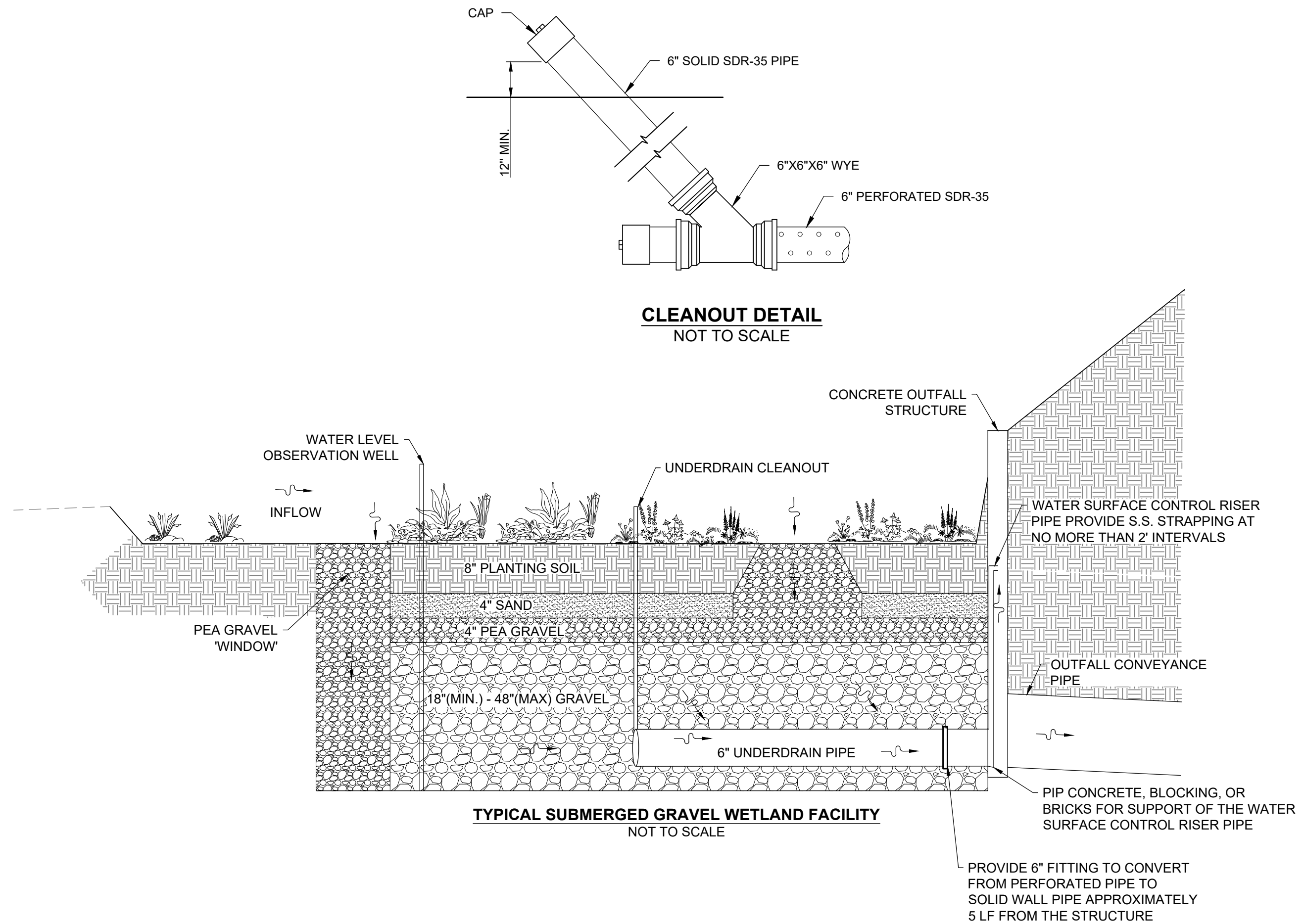
PROJECT NAME: WESTMINSTER, ABBEY, AND UPSHUR STORMWATER MANAGEMENT UPGRADES				
NOTE: "AS-BUILT FEATURE" DATA TO BE COMPLETED BY THE CERTIFYING ENGINEER				
SUBMERGED GRAVEL WETLANDS SUMMARY TABLE				
FEATURE	SWM-1	SWM-2	SWM-1 AS-BUILT	SWM-2 AS-BUILT
BOTTOM ELEVATION	29.00	28.47		
SURFACE ELEVATION	33.00	31.80		
PONDING ELEVATION	33.50	32.8		
TOP OF EMBANKMENT	37.00	36.20		
SURFACE AREA (SF)	3570	11360		
THICKNESS OF PLANTING SOIL (IN)	8	8		
THICKNESS OF BEDDING SAND (IN)	4	4		
THICKNESS OF PEA GRAVEL (IN)	4	4		
THICKNESS OF GRAVEL (IN)	32	24		
FOREBAY BOTTOM ELEVATION	32.00	30.80		
FOREBAY VOLUME (CF)	629	688(FB-2), 1086(FB-3), 1,225(FB-4)		
FOREBAY WEIR ELEVATION	33.00	31.80		
WEIR LENGTH (FT)	47	42(FB-2), 67(FB-3), 55(FB-4)		
UNDERDRAIN SIZE (IN)	6	6		
UNDERDRAIN ELEVATION	30.5	29.50		

TABLE B.4.1 MATERIALS SPECIFICATIONS FOR SUBMERGED GRAVEL WETLAND			
MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE PLANT LIST ON THIS SHEET	N/A	PLANTINGS ARE SITE-SPECIFIC
PLANTING SOIL	LOAMY SAND (60-65%) AND COMPOST (35-40%) OR SANDY LOAM (30%), COARSE SAND (30%) AND COMPOST (40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM-D-2974)		
PEA GRAVEL	PEA GRAVEL: ASTM-D-448	NO. 8 OR NO.9 (1/8" TO 3/8")	
GRAVEL (UNDERDRAINS AND INFILTRATION BERMS)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (1/8" TO 3/8")	
UNDERDRAIN PIPING	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; NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4-INCH GALVANIZED HARDWARE CLOTH
SAND	AASHTO-M-6 OR ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND



OBSERVATION WELL DETAIL
NOT TO SCALE

- NOTES:
1. CONTRACTOR SHALL MARK DEPTH TO THE BOTTOM OF THE FACILITY ON THE TOP OF THE OBSERVATION WELL.
 2. PERFORATED PIPE SHALL END WITHIN THE GRAVEL LAYER. SOLID PIPE SHALL BE USED OUTSIDE OF THE GRAVEL LAYER.



CLEANOUT DETAIL
NOT TO SCALE

TYPICAL SUBMERGED GRAVEL WETLAND FACILITY
NOT TO SCALE



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VERTICAL DATUM:
NGVD 29
USCG DISC G-10 (EL. 38.27)

SCALE AS SHOWN

FULL SIZE PLOT: 24" x 36"

REVISIONS

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PROJECT NAME
WESTMINSTER, ABBEY, AND
UPSHUR STORMWATER
MANAGEMENT UPGRADES

PROJECT ADDRESS
TOWN OF BERLIN, MARYLAND

DRAWING TITLE
DETAIL SHEET II

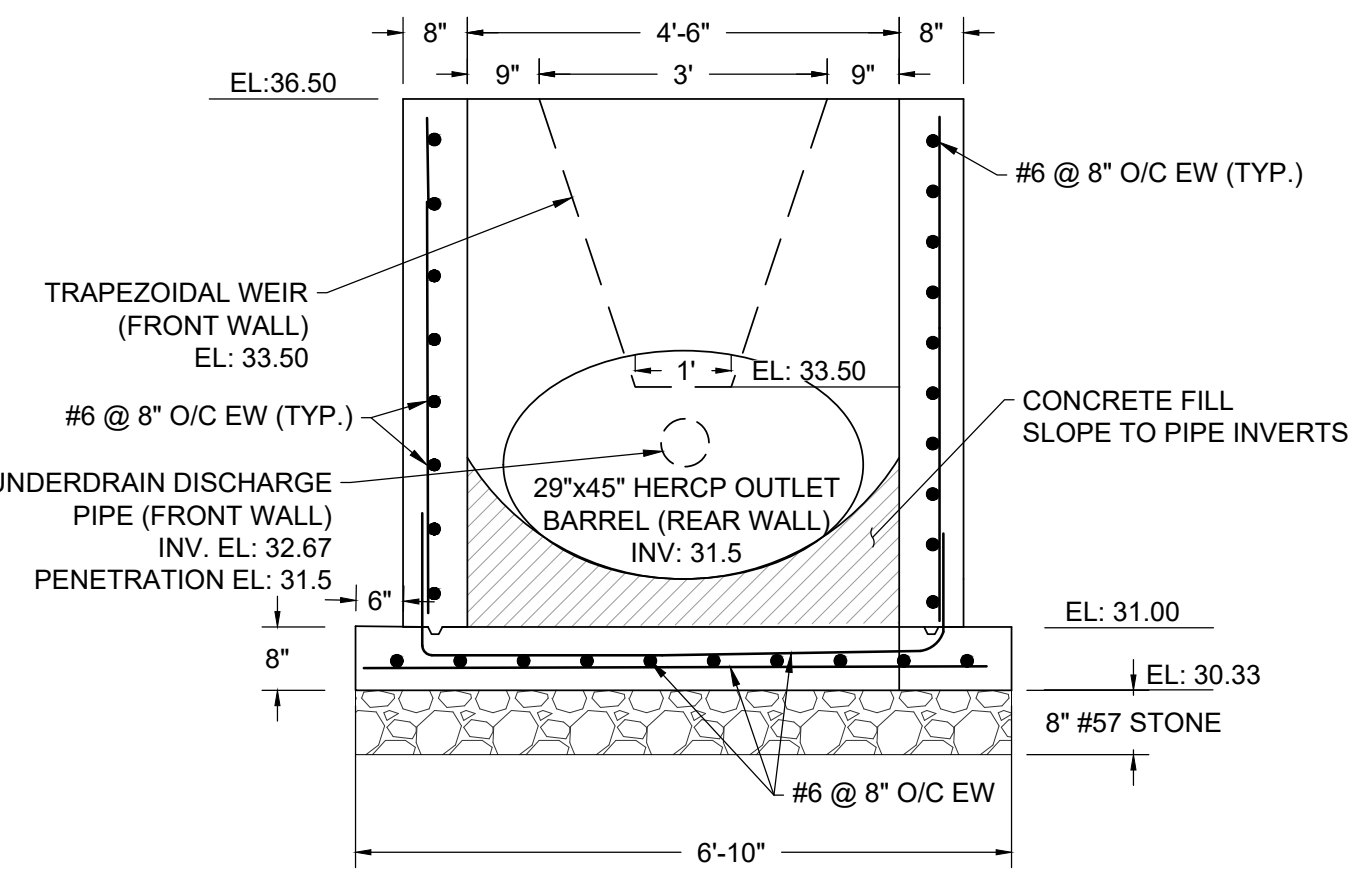
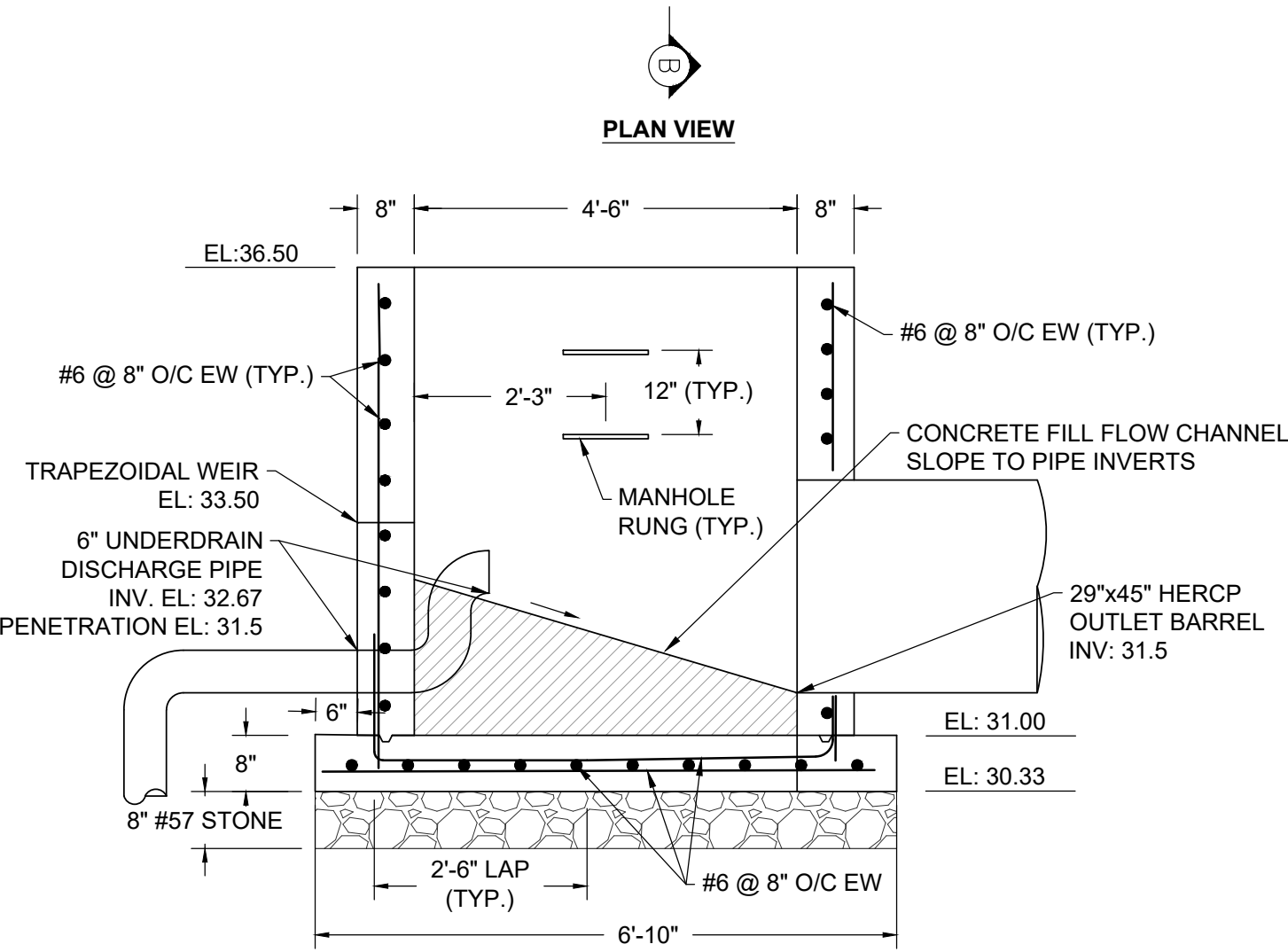
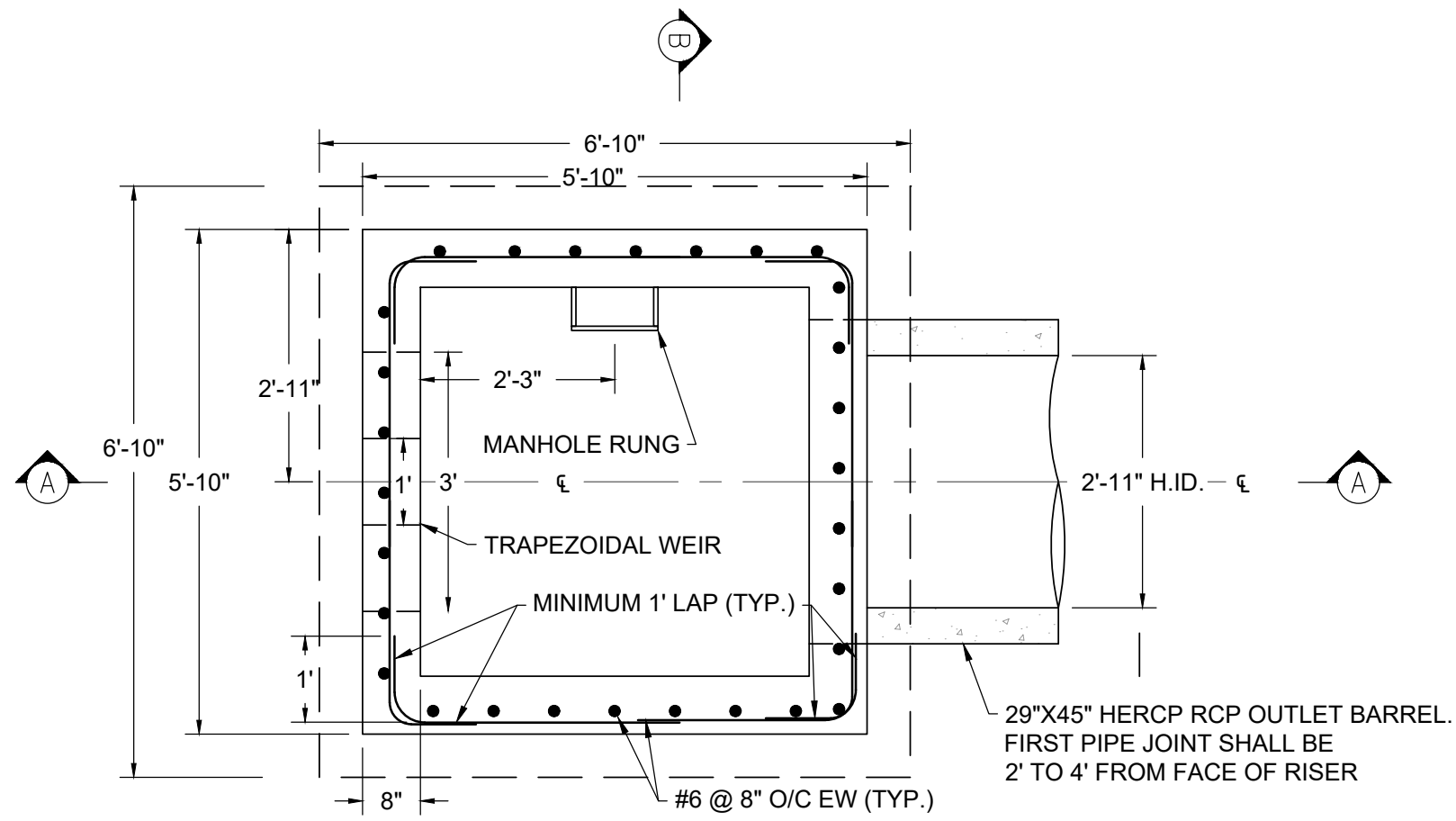
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PROJECT NUMBER: 61470410

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C-502

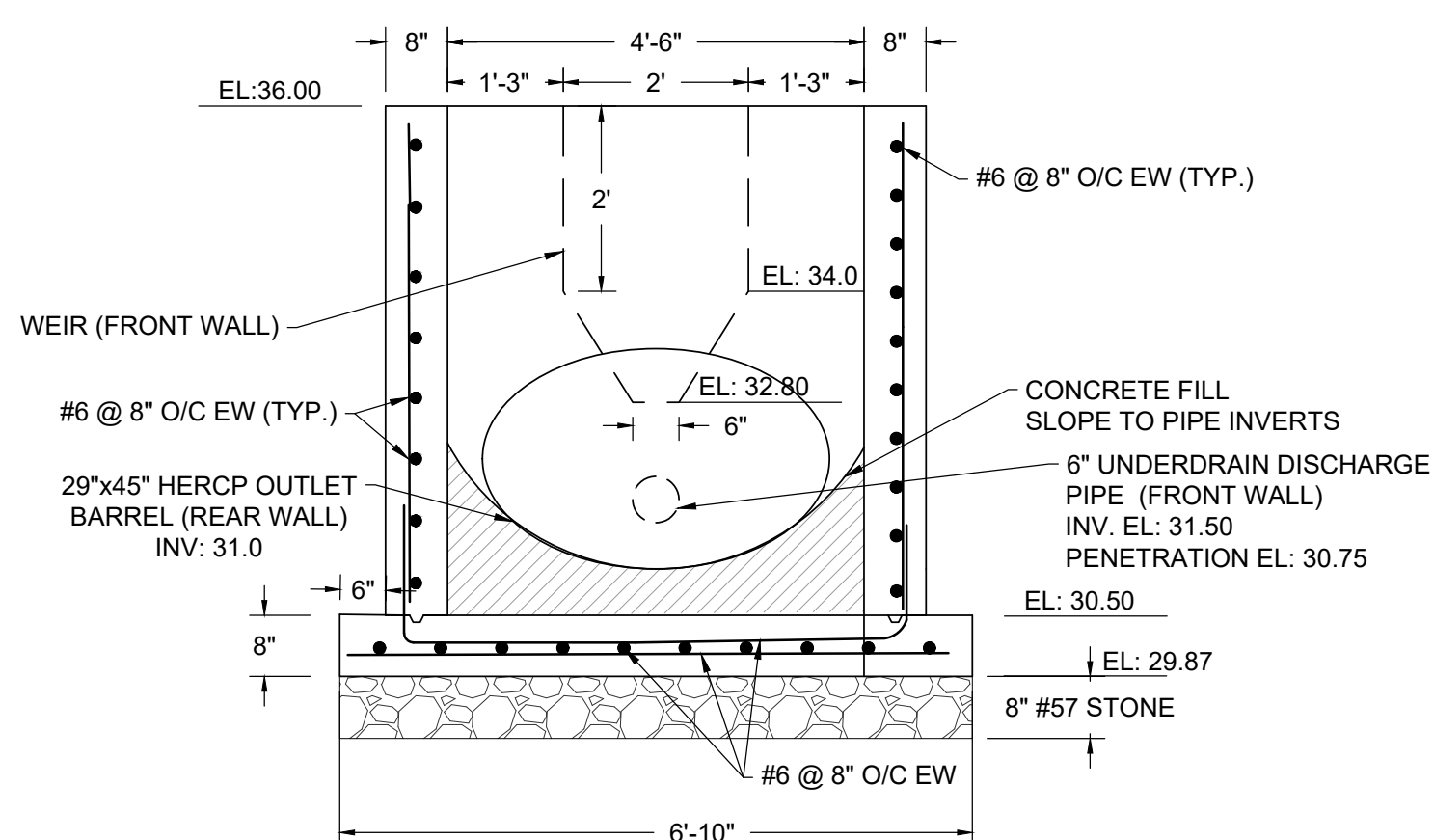
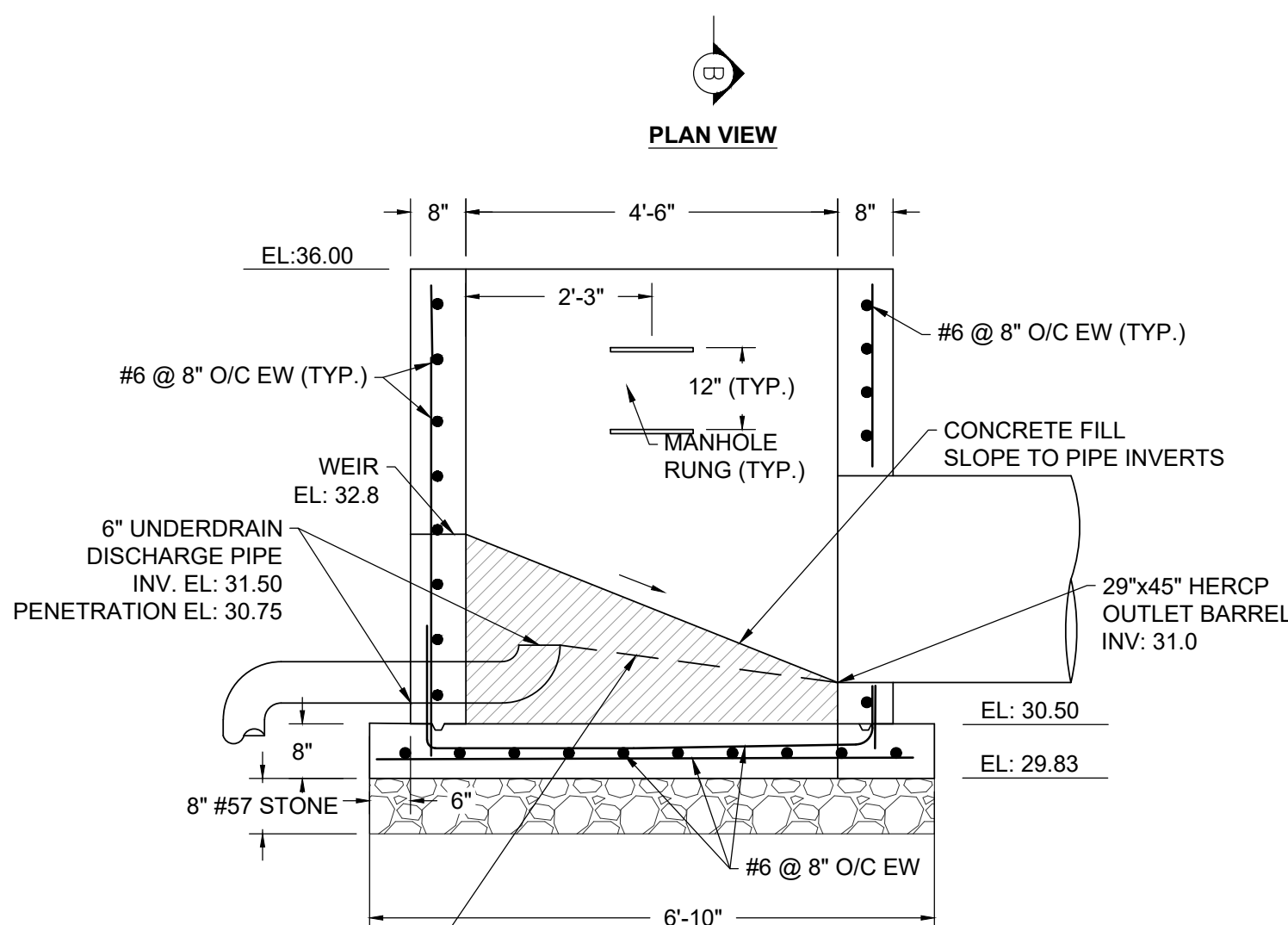
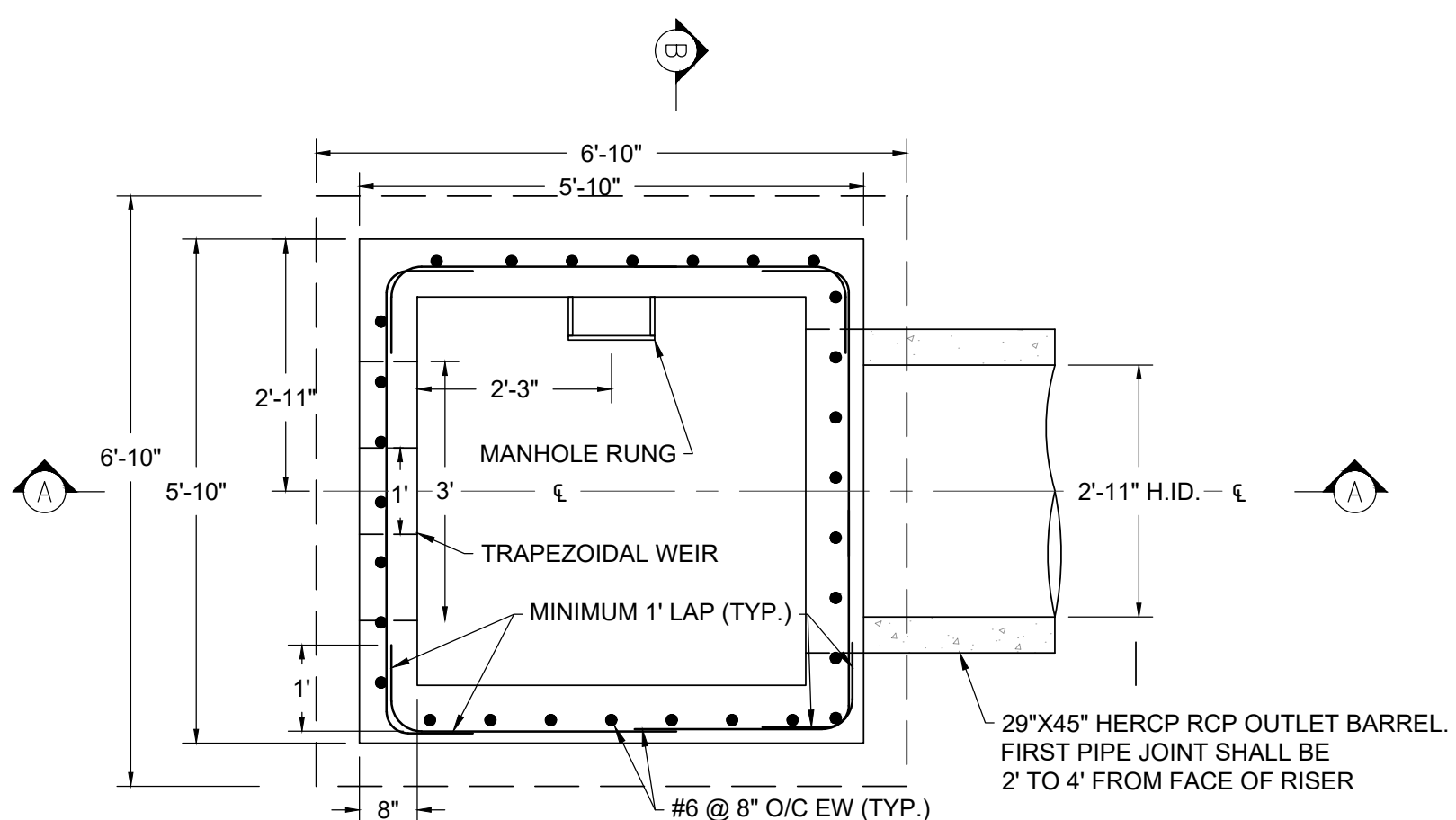
DATE: APRIL 2024 SHEET: 9 OF 14



SECTION B-B
SWM-1 OUTFALL STRUCTURE (OS-1)
SCALE: 1" = 2'

NOTES:

- RISER STRUCTURE SHALL BE CAST-IN-PLACE CONCRETE WITH A SINGLE POUR AND SHALL ADHERE TO SECTION 305 OF MD SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS OR BE PRECAST THROUGH A QUALIFIED PRECAST CONCRETE MANUFACTURER. FOR PRECAST STRUCTURES, A SHOP DRAWING SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. STRUCTURAL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI IN 28 CALENDAR DAYS.
- LADDER RUNGS TO BE IN ACCORDANCE WITH THE PLASTIC STEP DETAIL, SEE DRAWING C-502.
- ALL REINFORCING SHALL BE ASTM A-615 GRADE 60.
- PROVIDE 3/4" CHAMFER TO ALL EXPOSED EDGES OF CONCRETE.
- DIAGONAL REINFORCEMENT AROUND ORIFICE OPENING SHALL BE INSTALLED IN ACCORDANCE REINFORCING AROUND CIRCULAR OPENING DETAIL, SEE DETAIL THIS DRAWING.
- FIRST BARREL PIPE JOINT SHALL BE 2' TO 4' FROM THE FACE OF RISER STRUCTURE.
- REINFORCED CONCRETE BARREL PIPE SHALL COMPLY WITH ASTM C 361.
- CONTRACTOR SHALL INSTALL TRASH RACK ON TOP OF STRUCTURE. LFG-60 GALVANIZED AS MANUFACTURED BY TRASHRACKS.COM OR ENGINEER/OWNER APPROVED EQUAL. CONTRACTOR MAY ELECT TO FABRICATE AN APPROVED EQUAL SUBJECT TO THE APPROVAL OF ENGINEER/OWNER.
- CONTRACTOR SHALL INSTALL TRASH RACK ON THE FRONT TRAPEZOIDAL WEIR. LFG-36 GALVANIZED AS MANUFACTURED BY TRASHRACKS.COM OR ENGINEER/OWNER APPROVED EQUAL. CONTRACTOR MAY ELECT TO FABRICATE AN APPROVED EQUAL SUBJECT TO THE APPROVAL OF ENGINEER/OWNER.



SECTION B-B
SWM-2 OUTFALL STRUCTURE (OS-8)
SCALE: 1" = 2'

NOTES:

- RISER STRUCTURE SHALL BE CAST-IN-PLACE CONCRETE WITH A SINGLE POUR AND SHALL ADHERE TO SECTION 305 OF MD SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS OR BE PRECAST THROUGH A QUALIFIED PRECAST CONCRETE MANUFACTURER. FOR PRECAST STRUCTURES, A SHOP DRAWING SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION. STRUCTURAL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI IN 28 CALENDAR DAYS.
- LADDER RUNGS TO BE IN ACCORDANCE WITH THE PLASTIC STEP DETAIL, SEE DRAWING C-502.
- ALL REINFORCING SHALL BE ASTM A-615 GRADE 60.
- PROVIDE 3/4" CHAMFER TO ALL EXPOSED EDGES OF CONCRETE.
- DIAGONAL REINFORCEMENT AROUND ORIFICE OPENING SHALL BE INSTALLED IN ACCORDANCE REINFORCING AROUND CIRCULAR OPENING DETAIL, SEE DETAIL THIS DRAWING.
- FIRST BARREL PIPE JOINT SHALL BE 2' TO 4' FROM THE FACE OF RISER STRUCTURE.
- REINFORCED CONCRETE BARREL PIPE SHALL COMPLY WITH ASTM C 361.
- CONTRACTOR SHALL INSTALL TRASH RACK ON TOP OF STRUCTURE. LFG-60 GALVANIZED AS MANUFACTURED BY TRASHRACKS.COM OR ENGINEER/OWNER APPROVED EQUAL. CONTRACTOR MAY ELECT TO FABRICATE AN APPROVED EQUAL SUBJECT TO THE APPROVAL OF ENGINEER/OWNER.
- CONTRACTOR SHALL INSTALL TRASH RACK ON FRONT WEIR. LFG-48 GALVANIZED AS MANUFACTURED BY TRASHRACKS.COM OR ENGINEER/OWNER APPROVED EQUAL. CONTRACTOR MAY ELECT TO FABRICATE AN APPROVED EQUAL SUBJECT TO THE APPROVAL OF ENGINEER/OWNER.



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HORIZONTAL DATUM:
NORTH PER PLAT 137/39
"BUCKINGHAM ESTATES"

VERTICAL DATUM:
NGVD 29
USCG DISC G-10 (EL. 38.27)

SCALE AS SHOWN

FULL SIZE PLOT: 24" x 36"

REVISIONS

NO.	DESCRIPTION	DATE

SEAL



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LICENSE NO. 55422
EXPIRATION DATE: DECEMBER 16, 2025

PROJECT NAME
WESTMINSTER, ABBEY, AND
UPSHUR STORMWATER
MANAGEMENT UPGRADES

PROJECT ADDRESS
TOWN OF BERLIN, MARYLAND

DRAWING TITLE
DETAIL SHEET III

DRAWING INFORMATION

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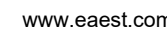
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PROJECT NUMBER: 61470410

DRAWING NO.

C-503

DATE: APRIL 2024 SHEET: 10 OF 14



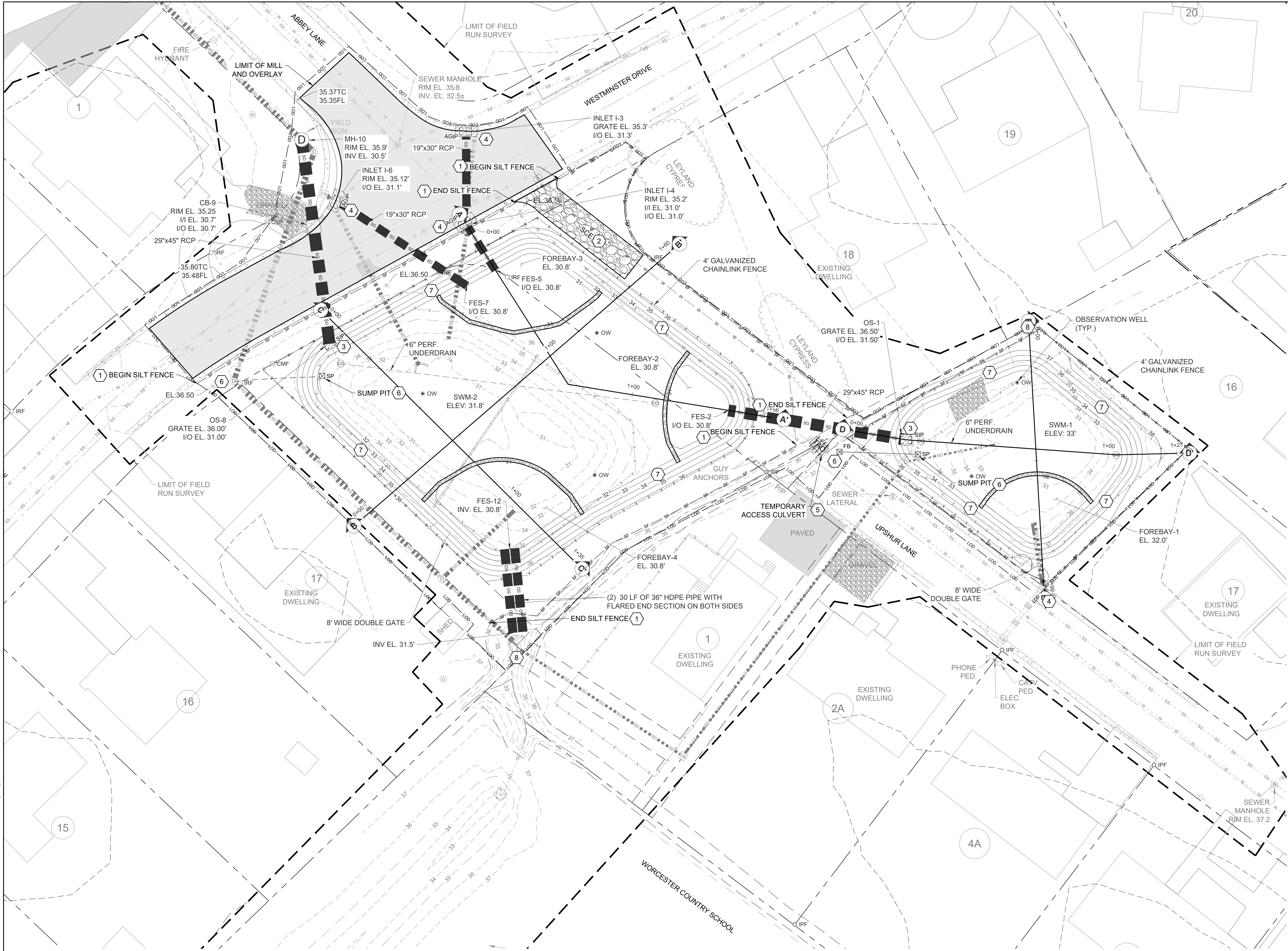
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DATE: APRIL 2024 SHEET: 11 OF 1



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PROPOSED EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1" = 20'

GENERAL NOTES:

- SEE DRAWINGS C-101 EXISTING CONDITIONS AND DEMOLITION PLAN FOR THE REMOVAL OF EXISTING FEATURES.
- SHOULD IT BECOME NECESSARY TO DEWATER AN OPEN TRENCH OR OTHER EXCAVATED PIT, A SUMP PIT AND/OR APPROVED FILTER BAG SHALL BE UTILIZED PER DETAILS ON DRAWING C-703.
- SILT FENCE MAY OFFSET FOR CLARITY. SHALL BE LOCATED AT AND ALONG PROPERTY LINE, BACK OF SIDEWALK, BACK OF CURB, TOP OF DITCH, OR OTHER LIMITING FEATURE.
- THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER OF RECORD SHOULD THEY WISH TO REVISE THE SEQUENCE OF CONSTRUCTION. REVISION OF SEQUENCE OF CONSTRUCTION REQUIRES PLAN REVISION AND APPROVAL WITH THE MDE EROSION AND SEDIMENT CONTROL INSPECTOR.
- THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF ALL EROSION AND SEDIMENT CONTROL DEVICES FOR THE DURATION OF THE PROJECT.
- THE CONTRACTOR SHALL UTILIZE A WATER TRUCK TO DOUSE DISTURBED EARTH AT ANY AND ALL TIMES THAT SEDIMENT PARTICLES BECOME AIRBORNE.
- THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHALL BE CHECKED DAILY AND ADJUSTED OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENT FROM LEAVING THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR ALTER MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
- THE CONTRACTOR SHALL PERFORM STREET SWEEPING WITHIN ROADWAYS AT THE END OF EACH WORKING AT, AT A MINIMUM. ACCUMULATION AND RELEASE OF SEDIMENT INTO INLETS AND STORMWATER CONVEYANCES SHALL NOT OCCUR.

EROSION & SEDIMENT CONTROL NOTES:

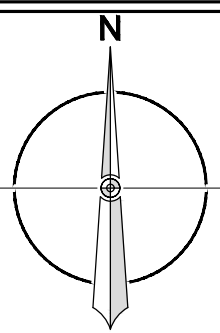
- STANDARD SILT FENCE. SEE DETAIL ON DRAWING C-703.
- STABILIZED CONSTRUCTION ENTRANCE. SEE DETAIL ON DRAWING C-703.
- STANDARD INLET PROTECTION. SEE DETAIL ON DRAWING C-703.
- AT-GRADE INLET PROTECTION. SEE DETAIL ON DRAWING C-703. CONTRACTOR MAY ELECT TO UTILIZE AN INSERTABLE FILTER BAG, SILTSACK TYPE A OR ENGINEER APPROVED EQUAL.
- CONTRACTOR MAY ELECT TO INSTALL AN 18-INCH TEMPORARY CULVERT, PER DETAIL ON DRAWING C-703, ACROSS THE DITCH FOR ACCESS BETWEEN SITES, OR ACCESS SWM-1 FROM UPSHUR ST.
- CONTRACTOR SHALL PERFORM DEWATERING OF SWM-1 AND SWM-2 AS NEEDED WITH SUMP PIT AND FILTER BAGS AS SHOWN ON THE PLANS. CONTRACTOR SHALL DISCHARGE FROM SWM-2 DIRECTLY INTO ADJACENT STORMWATER MANHOLE TO PREVENT RECIRCULATION OF PUMPED WATER.
- ALL SLOPES GREATER THAN 4H:1V SHALL BE STABILIZED WITH AN MDE-APPROVED STABILIZATION MATTING IN SLOPE APPLICATION.
- THE CONTRACTOR SHALL BE PREPARED TO, AND PERFORM CLEARWATER PUMP AROUND FROM UPGRADIENT CONTRIBUTING DRAINAGE AREAS DURING PERIODS OF INCLEMENT WEATHER.



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"BUCKINGHAM ESTATES"

VERTICAL DATUM:
NGVD 29
USCG DISC G-10 (EL. 38.27)



FULL SIZE PLOT: 24" x 36"

REVISIONS

NO.	DESCRIPTION	DATE

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LICENSE NO. 55422
EXPIRATION DATE: DECEMBER 16, 2025

PROJECT NAME
WESTMINSTER, ABBEY, AND
UPSHUR STORMWATER
MANAGEMENT UPGRADES

PROJECT ADDRESS
TOWN OF BERLIN, MARYLAND

DRAWING TITLE
EROSION AND SEDIMENT
CONTROL PLAN

DRAWING INFORMATION

DRAWN BY: SCL/NWH/JAP DESIGNED BY: SCL/NWH

CHECKED BY: DOK PROJECT MANAGER: SCL

PROJECT NUMBER: 61470410

DRAWING NO.

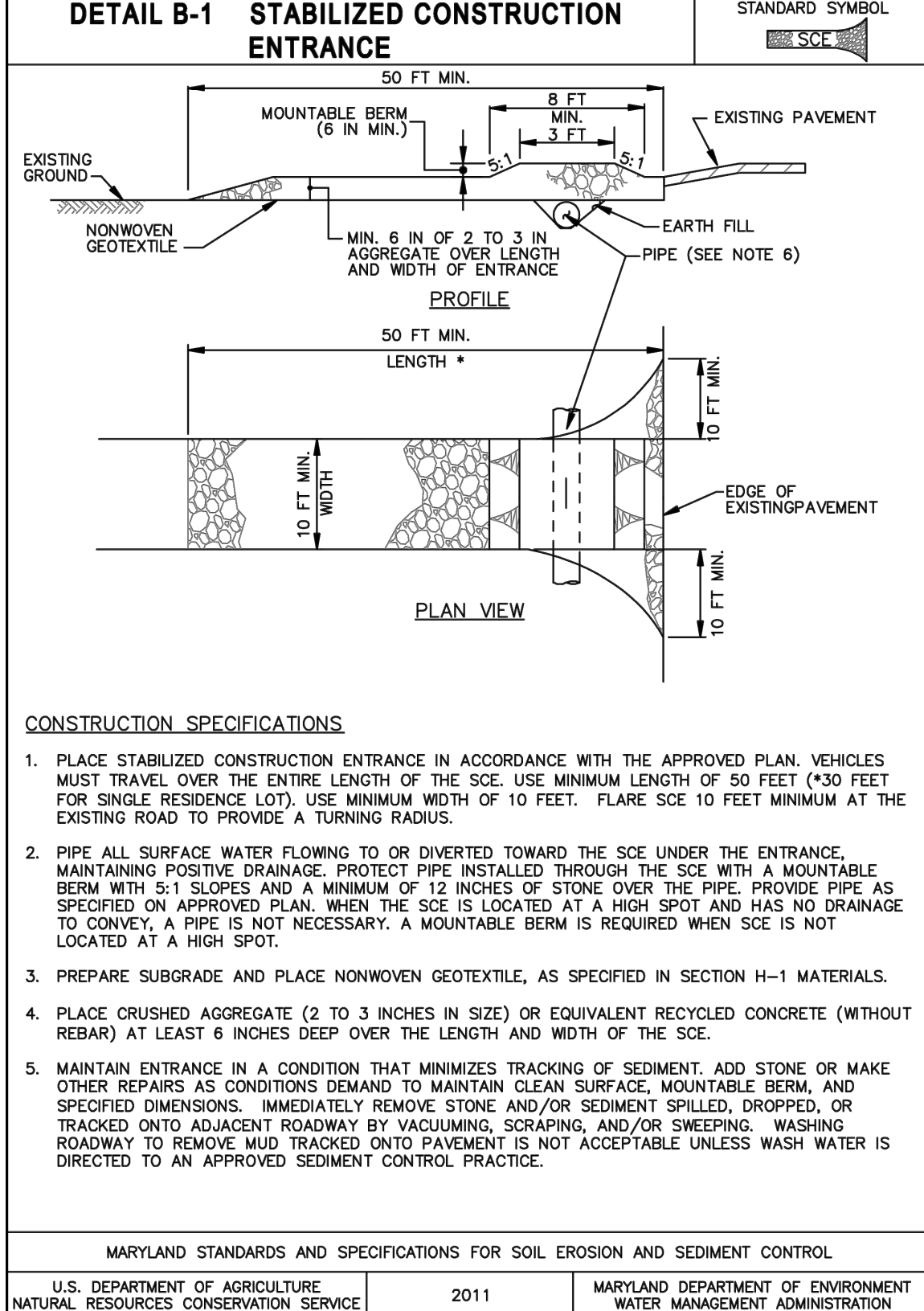
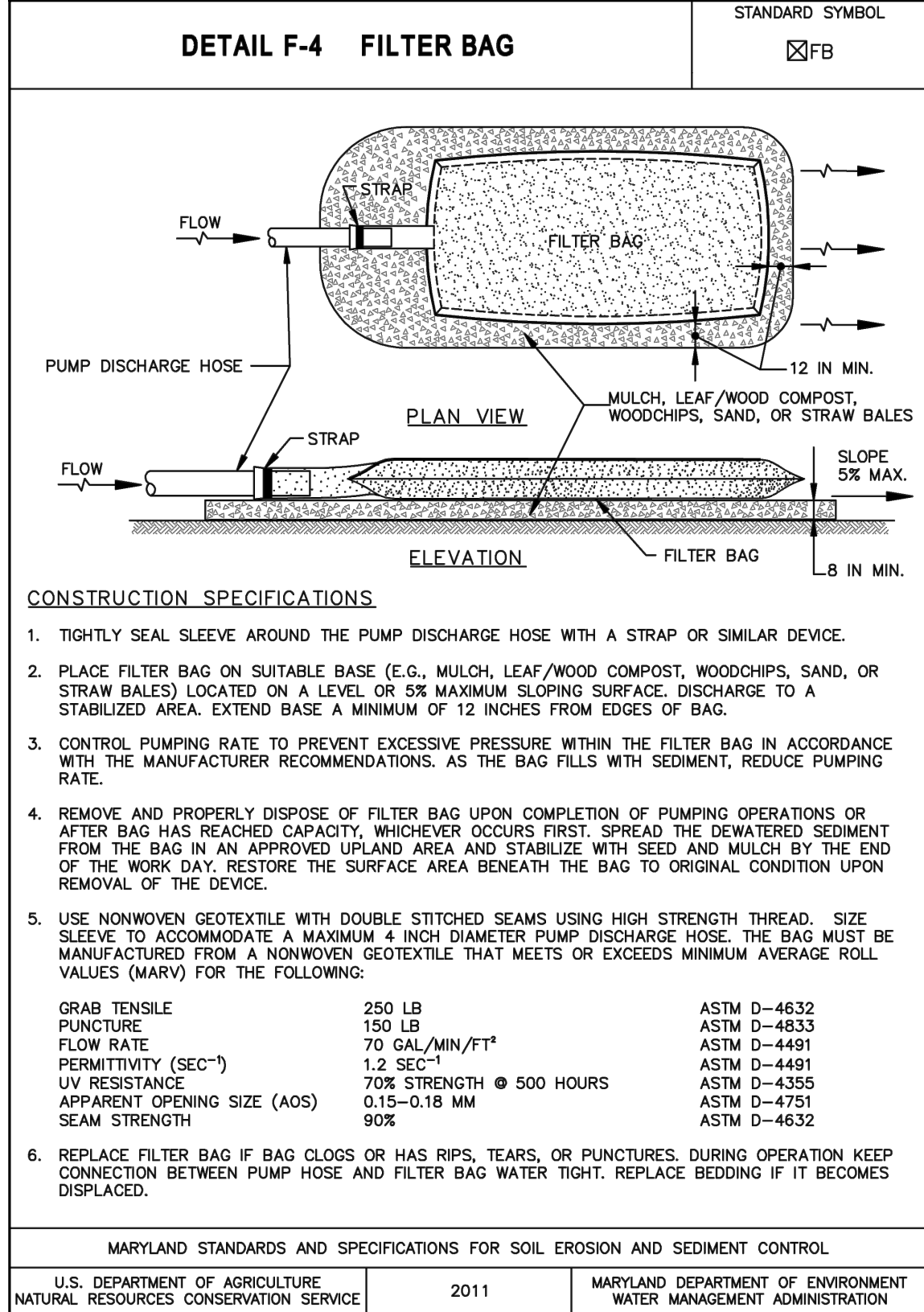
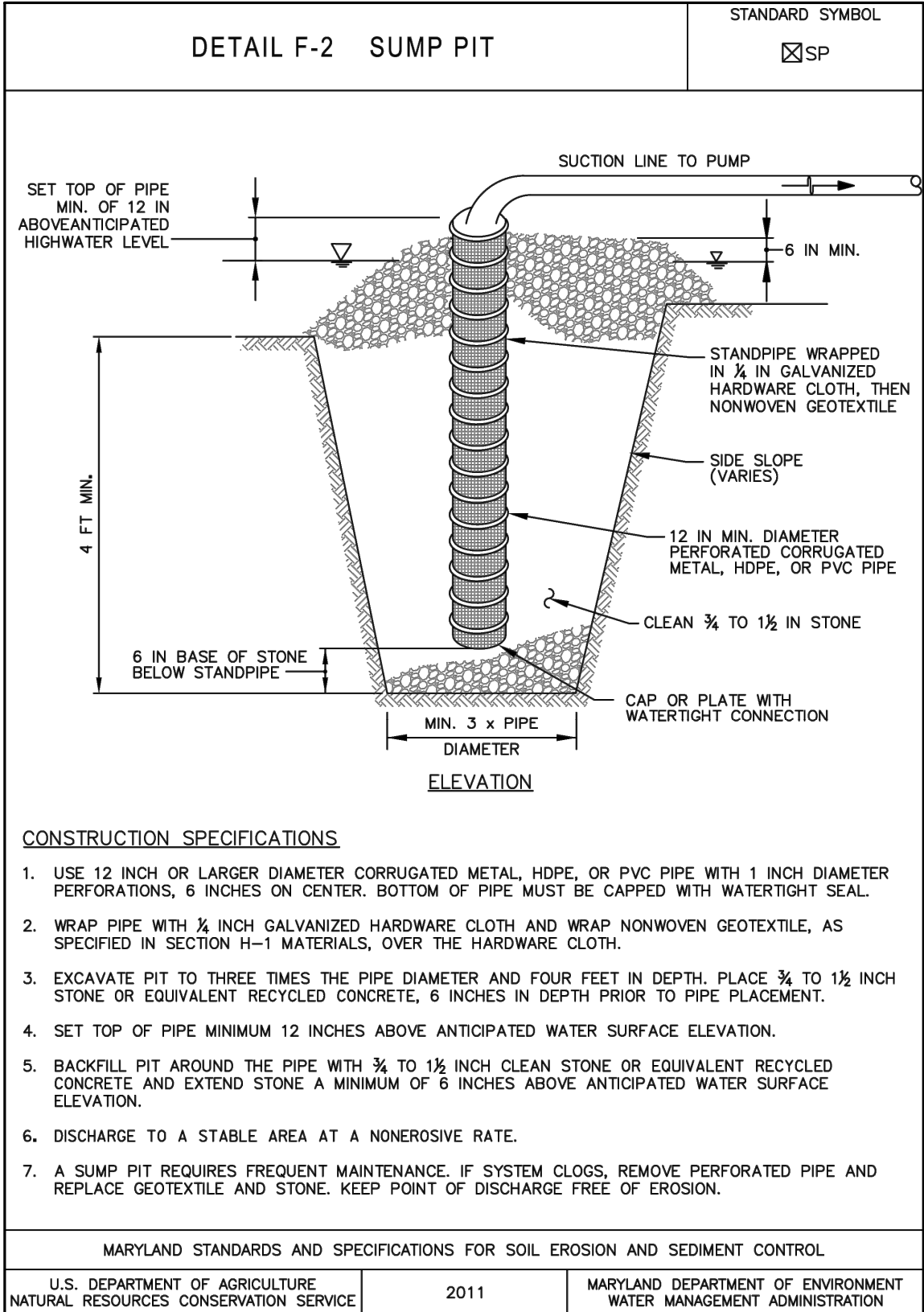
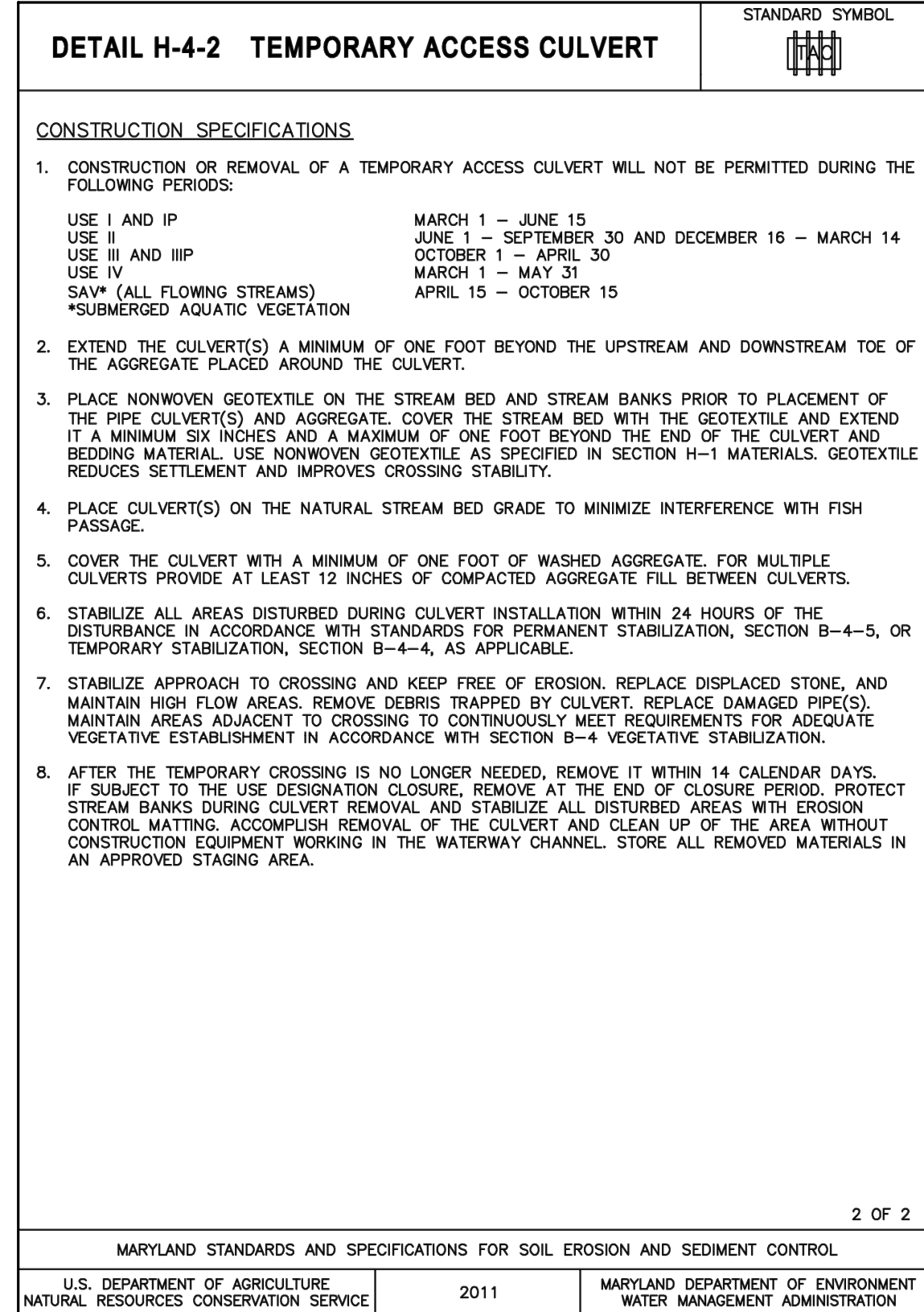
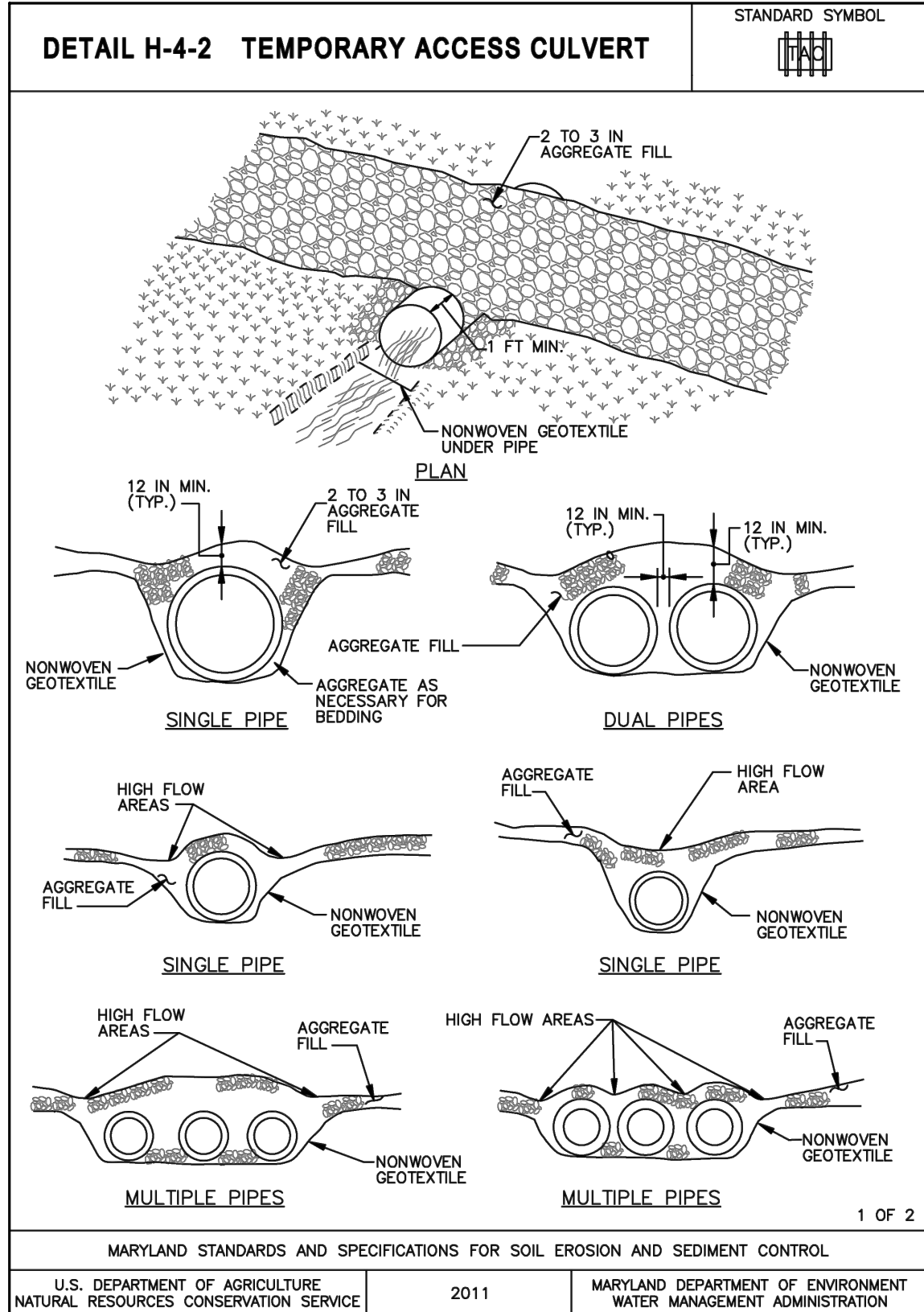
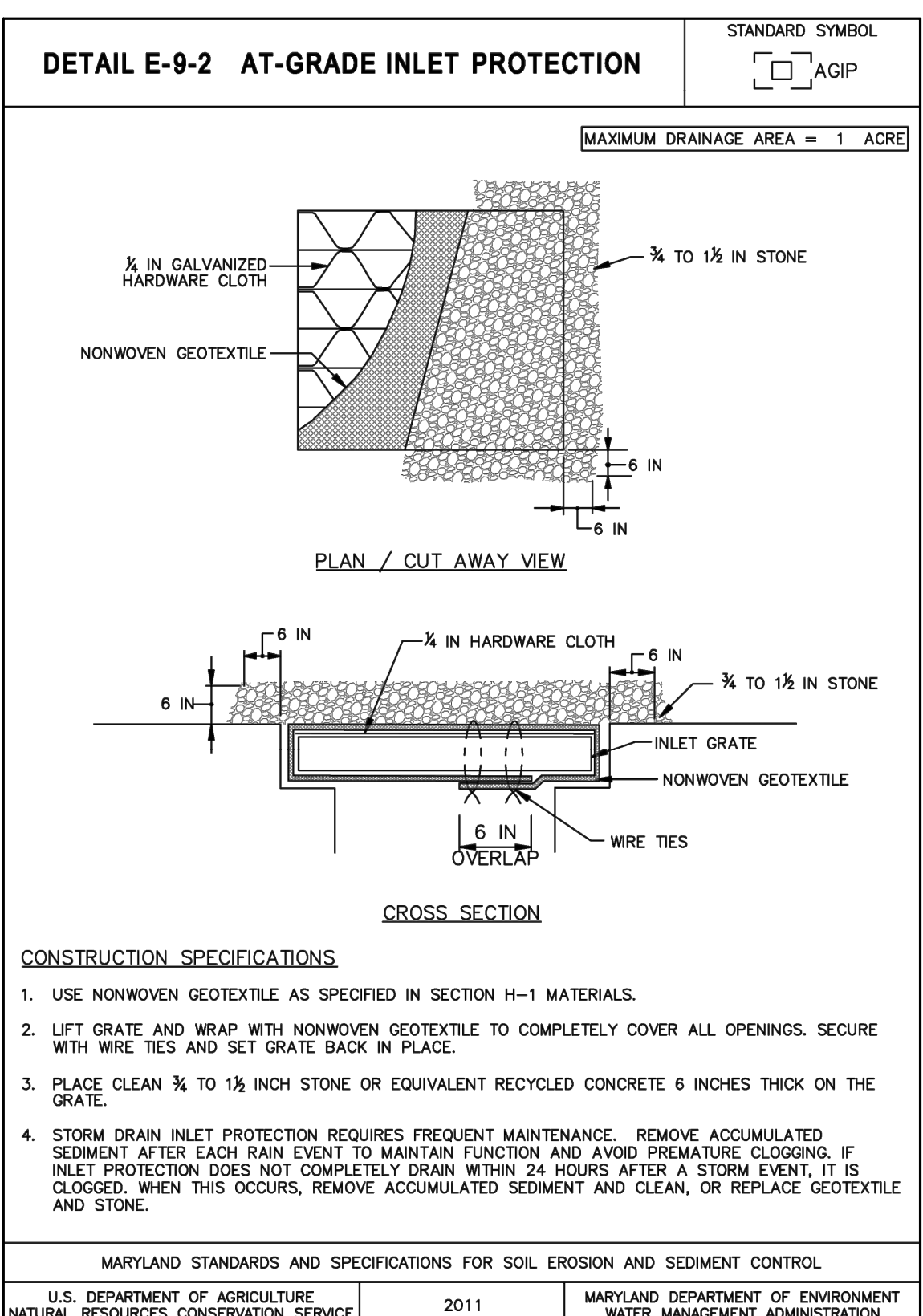
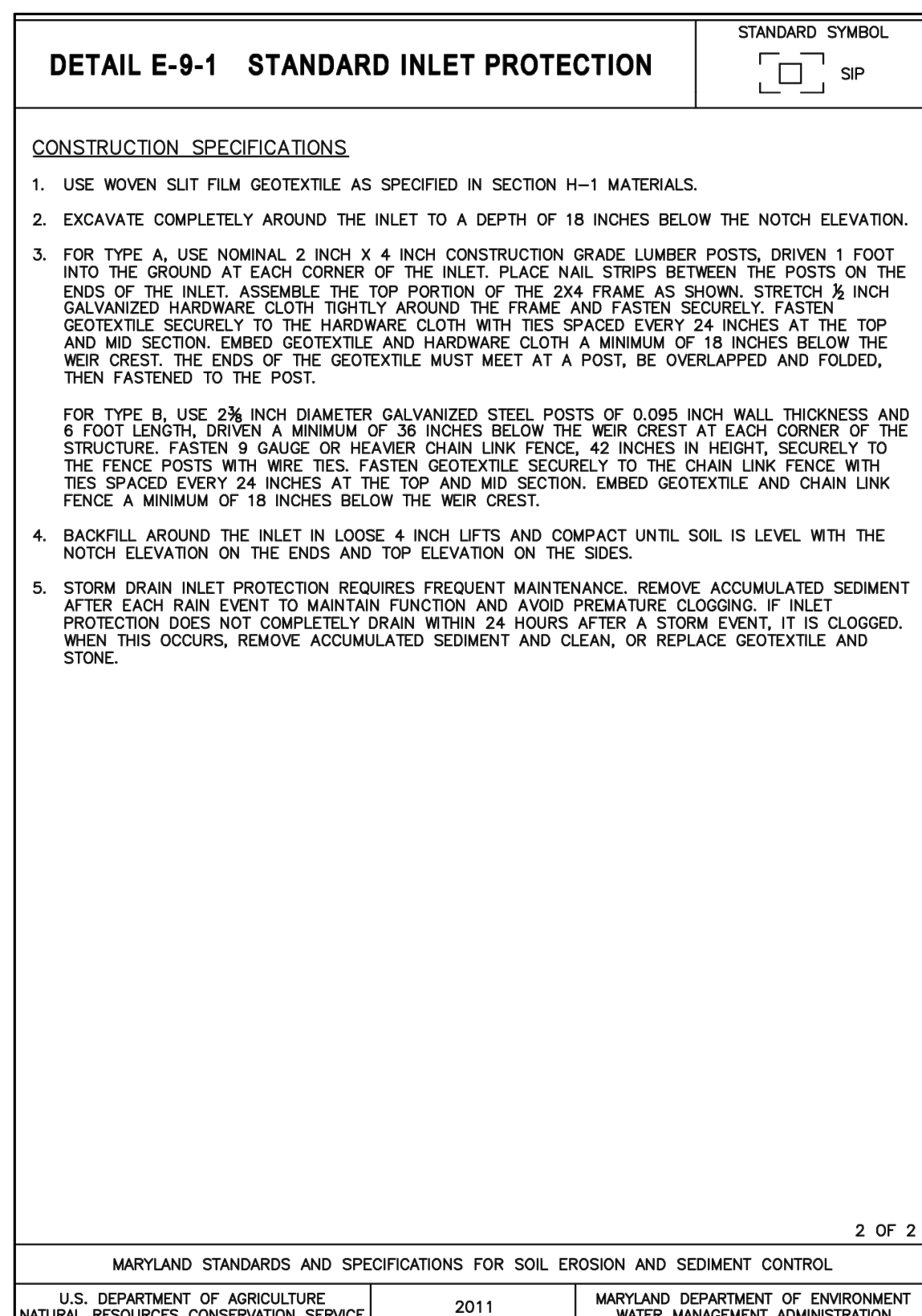
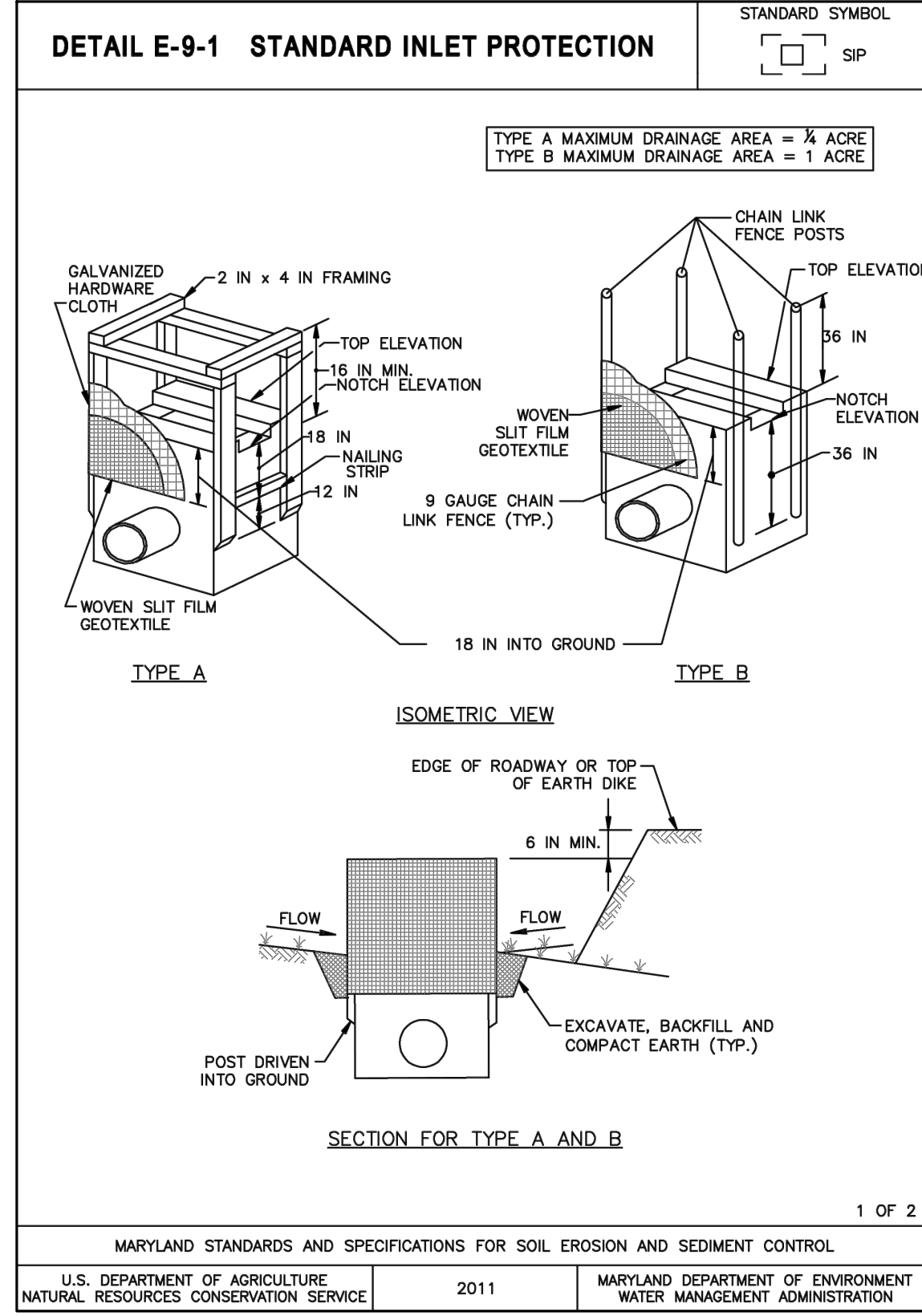
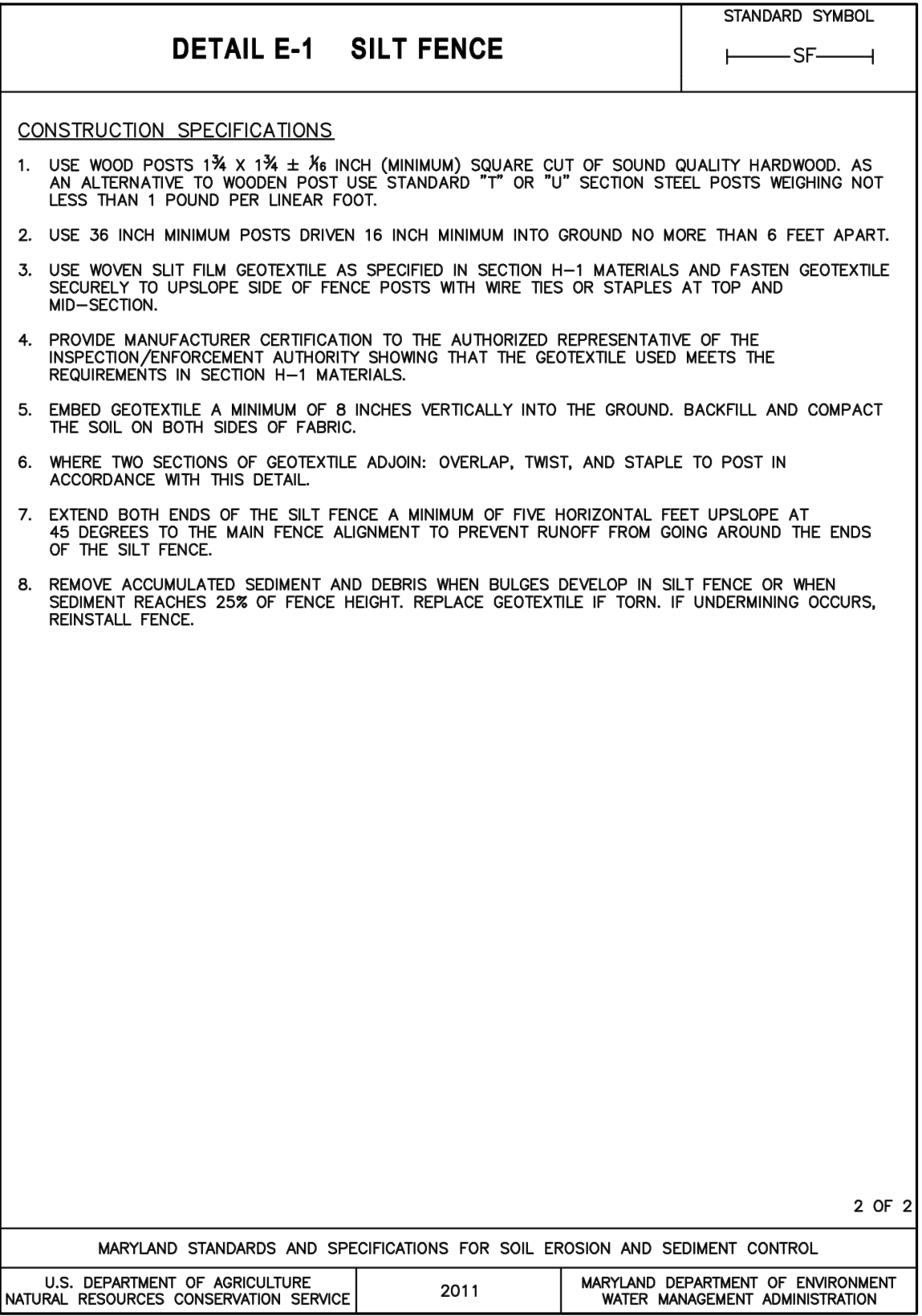
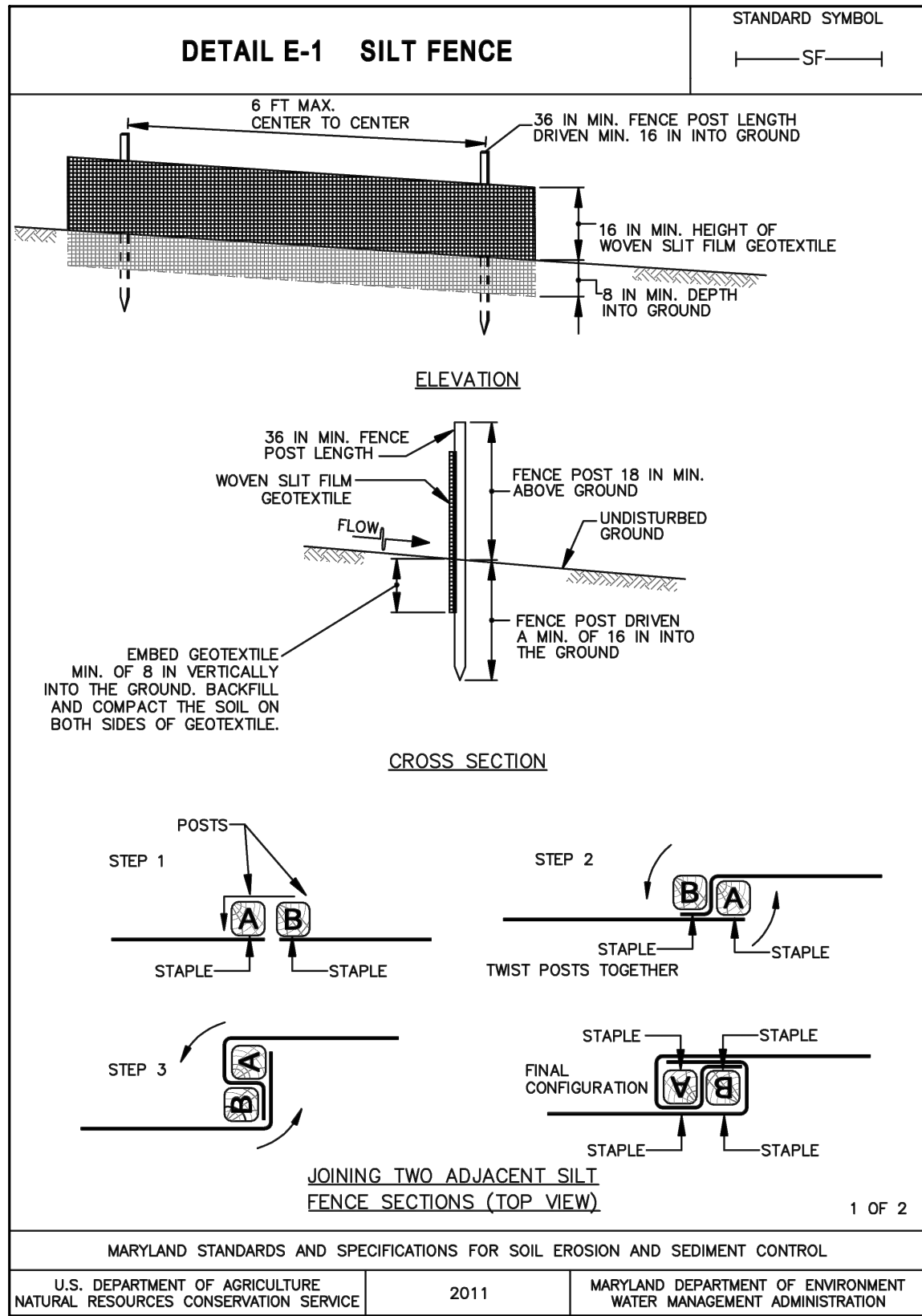
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DATE: APRIL 2024

SHEET: 12 OF 14

100% PLANS - FOR CONSTRUCTION

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STATE OF MARYLAND
JULY 25 2011
PROFESSIONAL ENGINEER
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PROJECT ADDRESS
TOWN OF BERLIN, MARYLAND

DRAWING TITLE
EROSION AND SEDIMENT
CONTROL DETAILS

DRAWING INFORMATION
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PROJECT NUMBER: 61470410
DRAWING NO.
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