

GENERAL NOTES

- SUBJECT PROPERTY ZONED M-2 IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- PROPERTY ADDRESS: 7645 PORT CAPITAL DRIVE
- TOTAL AREA OF PROPERTY 247,688.95 SQ. FT. OR 5.6834 AC.
- REFERENCE: LIBER 18863, FOLIO 252 PLAT 25753-25754
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

STATE HIGHWAY ADMINISTRATION	410.531.5533
BGE(CONTRACTOR SERVICES)	410.850.4620
BGE(UNDERGROUND DAMAGE CONTROL)	410.787.9088
MISS UTILITY	800.257.7777
COLONIAL PIPELINE COMPANY	410.795.1390
HOWARD COUNTY, DEPT. OF PUBLIC WORKS, BUREAU OF UTILITIES	410.313.4900
HOWARD COUNTY HEALTH DEPARTMENT	410.313.2640
AT&T	800.252.1133
VERIZON	800.743.0033/410.224.9210
- THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 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.
- PUBLIC WATER AND SEWER TO BE UTILIZED. (CONTRACT NO. 14-4852, CONTRACT NO. 44-2027-D)
- THE EXISTING TOPOGRAPHY IS BASED ON A FIELD RUN SURVEY BY SHANBERGER AND LANE, DATED OCTOBER 2011 AND HOWARD COUNTY, MARYLAND MARCH/APRIL 2011.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAYS, PAVING OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY IN ADDITION TO MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS TO VERIFY THEIR LOCATION AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF LOCATION OF UTILITIES IS OTHER THAN SHOWN.
- APPROXIMATE LOCATIONS OF EXISTING UTILITIES ARE BASED SOLELY ON AVAILABLE RECORDS AND FIELD SURVEYS. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ANY UTILITIES WHICH MAY BE IMPACTED BY THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- ALL PLAN DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED. NUMERICALLY WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALE DIMENSIONS.
- ALL FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED AND VERIFIED IN ACCORDANCE WITH AASHTO T-180.
- THE PROJECT SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- ALL HYDRAULIC DATA FOR THE 100-YEAR STORM UNLESS OTHERWISE NOTED.
- STORM WATER MANAGEMENT IS PROVIDED BY ENVIRONMENTAL SITE DESIGN (BIORETENTION). 100-YEAR QUANTITY MANAGEMENT IS PROVIDED BY OVER SIZING THE BIORETENTION FACILITIES (M-6) TO ACCOUNT FOR THE 100-YEAR STORM (8.51"). MAINTAINED BY HOWARD COUNTY, MD (PUBLIC).
- ELECTRIC, GAS, CABLE AND TELEPHONE LINES DESIGNED BY OTHERS.
- EXISTING WETLANDS ARE SHOWN WITH ASSOCIATED WETLAND BUFFER. WETLANDS DELINEATION WAS PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC. ON 6-17-13 AND RE-CERTIFIED AUGUST 2017.
- THERE ARE NO KNOWN CEMETERIES OR BURIAL GROUNDS ON THIS SITE.
- A FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS DATED 8-17-13 AND A RE-CERTIFICATION WAS DONE AUGUST 2017.
- THIS PROJECT COMPLETES WITH THE REQUIREMENT OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR THE FOREST CONSERVATION WITH ON-SITE RETENTION AND OFF-SITE BANKING. FOREST CONSERVATION OBLIGATIONS WILL BE FULFILLED BY ON-SITE RETENTION OF 0.8 ACRES, 0.7 ACRES RETENTION CREDIT AND THE REMAINING OBLIGATION WILL BE FULFILLED BY OFF-SITE PLANTING OF 2.2 ACRES TO A FOREST MITIGATION BANK AT ROSHAN PROPERTY, SDP 16-041.
- THE LANDSCAPING SHALL BE IN ACCORDANCE WITH SECTION 16.1224 OF THE HOWARD COUNTY DESIGN MANUAL. LANDSCAPING SHALL BE IN ACCORDANCE WITH SECTION 16.1224 OF THE HOWARD COUNTY DESIGN MANUAL. PROPOSED PLANTING CALCULATIONS CAN BE FOUND ON SHEET 28. THIS IS A COUNTY PROJECT; LANDSCAPING SURETY IS NOT REQUIRED.
- NO 100 YEAR FLOODPLAINS, STEEP SLOPES, OR STREAMS EXIST ON-SITE.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OF TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS, OR THEIR BUFFERS, FOREST EASEMENT AREAS AND 100 YEAR FLOODPLAIN, EXCEPT AS APPROVED BY HOWARD COUNTY AND THE MARYLAND DEPARTMENT OF THE ENVIRONMENT.
- THE SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING ANALYSIS FOR THIS PROJECT IS CONTAINED IN REPORTS PREPARED BY HERBST BENSON & ASSOCIATES DATED FEBRUARY 14, 2012.
- THE PROPOSED BUILDING WILL HAVE AN AUTOMATIC SPRINKLER SYSTEM AND AN INSIDE WATER METER.
- SIGNAGE AT THE STREET AND ON THE BUILDING IDENTIFYING THE ADDRESS IS REQUIRED.
- NO LANDSCAPING SHALL BE PLANTED WITHIN 7.5 FEET OF EACH SIDE OF THE FIRE DEPARTMENT CONNECTION (FDC).
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE), - 3" LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- ON-SITE PARKING LOT AND PATHWAY LIGHTING SHALL BE 14" HIGH, 100W HIGH PRESSURE SODIUM. ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS ON-SITE AWAY FROM ALL ADJOINING PUBLIC ROADS IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- WAIVER PETITION WP-14-048 WAS APPROVED 11/14/13 TO WAIVE SECTION 16.1205(A)(7) REQUIRING RETENTION OF SPECIMEN TREES TO ALLOW REMOVAL OF THREE (3) SPECIMEN TREES.
- THE PROJECT IS SUBJECT TO THE HOWARD COUNTY GREEN BUILDINGS LAW SET FORTH IN TITLE 3, SUBTITLE 10 OF THE HOWARD COUNTY CODE.
 - REGISTRATION FEE WAS PAID TO THE GREEN BUILDING COUNCIL ON 06/06/2012
 - LEED CHECKLIST REVIEW MEETING WAS HELD ON 04/02/2020
- THIS PROJECT HAS BEEN REGISTERED WITH THE USGBC AS WATERLOO FIRE STATION PROJECT ID 1000130290-LEED v4-BD+C-NC, APRIL 2, 2020.
- THIS SDP IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE AMENDED ZONING REGULATIONS PER COUNCIL BILL NO. 15-2003. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, OR AS APPROVED BY THE HOWARD COUNTY COUNCIL.
- DESIGN MANUAL WAIVER WAS APPROVED ON 04/15/14 FOR DESIGN MANUAL VOLUMES III/IV SECTION 2.6C, DETAIL R6.09 AND DESIGN MANUAL VOLUME 1, SECTION 5.1.1 A & C, AND SECTION 5.32A. WAIVER TO DESIGN MANUAL III/IV ALLOWS A 5' WIDE COMMERCIAL ENTRANCE INSTEAD OF THE MAXIMUM 3' ALLOWED. DESIGN MANUAL WAIVERS TO VOLUME 1 ALLOWS THE USE OF THE CHANGE IN CURVE NUMBER TO ANALYZE THE 10 YEAR AND 100 YEAR STORMWATER MANAGEMENT REQUIREMENTS AND TO ALLOW 2:1 SIDE SLOPES ADJACENT TO ROADS AND DRIVEWAYS FOR STORMWATER MANAGEMENT FACILITIES.
- ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES.
- THE SOILS SHOWN HAVE BEEN TAKEN FROM THE US DEPARTMENT OF AGRICULTURE, NATURAL RESOURCE CONSERVATION SERVICE, WEB SOIL SURVEY WEBSITE. HOWARD COUNTY SOILS MAP, GRID 2, SUBGRID 29B.
- EXISTING UTILITIES ARE LOCATED BY THE USE OF ANY OR ALL OF THE FOLLOWING: ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER PLANS AND OTHER AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF THE EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTOR'S INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- SOIL COMPACTION SPECIFICATIONS, REQUIREMENTS, METHODS AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER. ASPHALT PAVING TO BE HOWARD COUNTY STANDARD P-2 PAVING SECTION (SEE DETAILS ON SHEET 9). CONCRETE PAVING TO BE PER DETAILS ON SHEET 7. GEOTECHNICAL ENGINEER TO CONFIRM ACCEPTABILITY OF PROPOSED PAVING SECTION, BASED ON SOIL TEST, PRIOR TO CONSTRUCTION.
- ALL PROPOSED SPOT ELEVATIONS ALONG CURBS AND GUTTER ARE SHOWN TO THE FLOW LINE UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL MATCH EXISTING PAVING AND CURB ELEVATIONS AT ENTRANCE RILLETTS.
- A KNOX BOX (FIRE DEPARTMENT ACCESS BOX) IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE ALARM SYSTEM).
- ALL SWALES TO HAVE EROSION CONTROL MATTING.
- HOWARD COUNTY, MD IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE PROPOSED STORMWATER MANAGEMENT FACILITIES SHOWN HEREON.
- A WAIVER OF THE REQUIREMENTS OF THE DESIGN MANUAL VOLUMES III/IV SECTION 2.6 C, AND DESIGN MANUAL VOLUME I, SECTION 5.1.1 A & C, AND SECTION 5.3.2 A, WAS GRANTED BY JAMES M. IRVIN, DIRECTOR OF PUBLIC WORKS BY LETTER DATED APRIL 15, 2014.
- ON MARCH 5, 2016 A REQUEST TO WAIVE SECTION 16.1205(A)(7) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, TO ALLOW FOR THE REMOVAL OF TWO (2) SPECIMEN TREES, WAS APPROVED BY THE DIRECTOR OF PLANNING AND ZONING SUBJECT TO THE FOLLOWING CONDITIONS, REFER TO WAIVER PERMIT WP-18-077.
 - INDICATE THIS ALTERNATIVE COMPLIANCE FILE NUMBER (WP-18-077), ON SHEET 1 OF SITE DEVELOPMENT PLAN (SDP-18-014), INCLUDING SECTION NUMBERS, CONDITIONS OF APPROVAL AND DATE OF DECISION.
 - MITIGATE AT 2:1 THE REMOVAL OF TWO SPECIMEN TREES. THE REPLACEMENT TREES SHALL BE A TOTAL OF A NATIVE SHADE TREES OF 2.5 CALIPER AND PLANTED IN THE OPEN AREA (THE NORTH-WEST PROPERTY CORNER) OF THE PROPOSED FOREST CONSERVATION EASEMENT.
- CONSTRUCTION OF PORT CAPITAL DRIVE PROVIDES THE REQUIRED 50' PUBLIC ROAD FRONTAGE.
- ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME 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.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NUMBERS 43BB AND 43BC ARE USED FOR THIS PROJECT.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- PARKING ANALYSIS

FLOOR SPACE OF PROPOSED USE ON SITE:	
FLOOR AREA	14,871 SF
MAXIMUM NUMBER OF EMPLOYEES ON THE LARGEST SHIFT: 12	
PARKING REQUIRED:	
1 SHIFT (12 X 1)	= 12 SPACES
PARKING PROVIDED:	
REGULAR PARKING SPACES	= 21 SPACES
3 HC SPACES (INCLUDING 1 VAN ACCESSIBLE HC)	= 3 SPACES
TOTAL PARKING SPACES PROVIDED:	= 24 SPACES

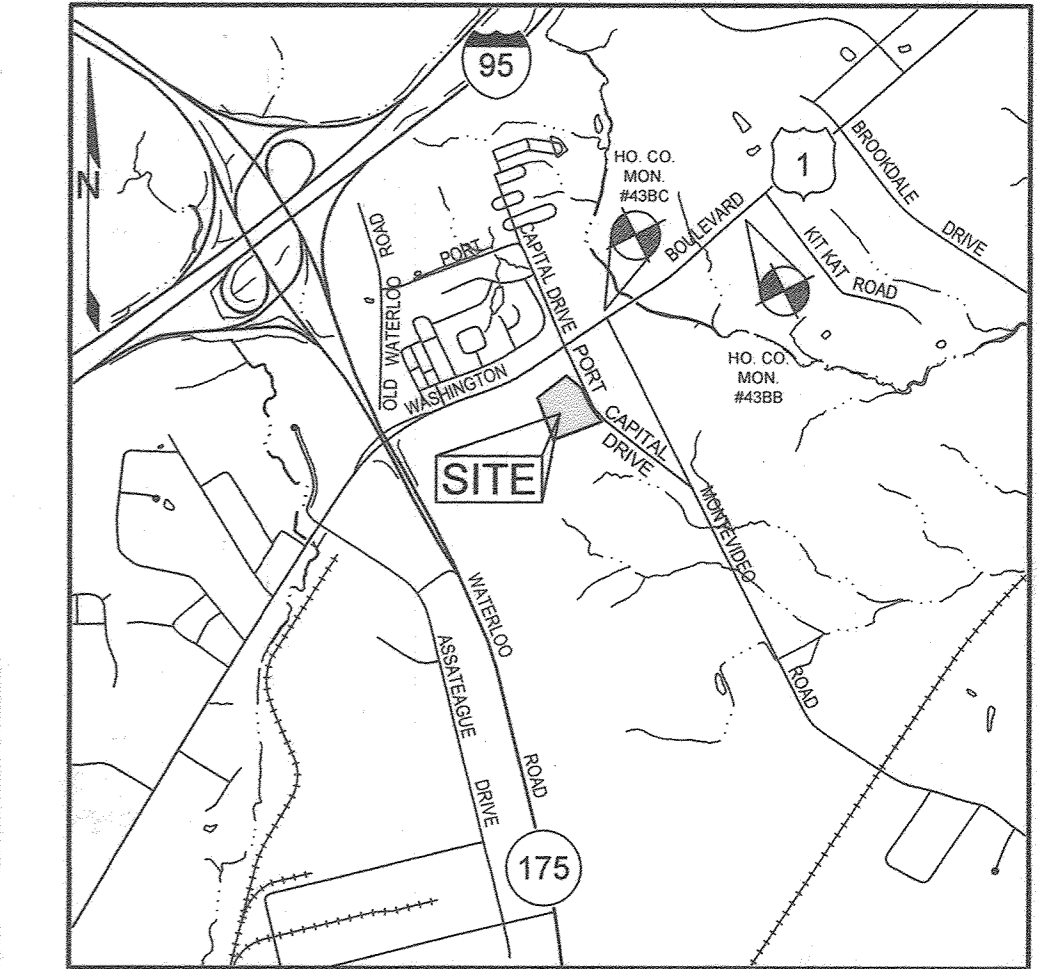
SITE DEVELOPMENT PLAN

WATERLOO FIRE STATION

HOWARD COUNTY, MARYLAND

CAPITAL PROJECT NO. F-5975

SITE ANALYSIS DATA CHART	
TOTAL AREA	5.6834 AC.
NET AREA	5.6834 AC.
FLOODPLAIN AREA	0.00 AC.
STEEP SLOPES	0.00 AC.
PROP. FOREST	0.800 AC.
EXISTING FOREST	5.6834 AC.
LIMIT OF DISTURBANCE	4.43 AC.
PROP. IMPERVIOUS	1.77 AC.
GREEN SPACE	2.66 AC.
ERODIBLE SOILS	0.00 AC.
BUILDING COVERAGE	14,871 SF, 6.0% OF NET AREA

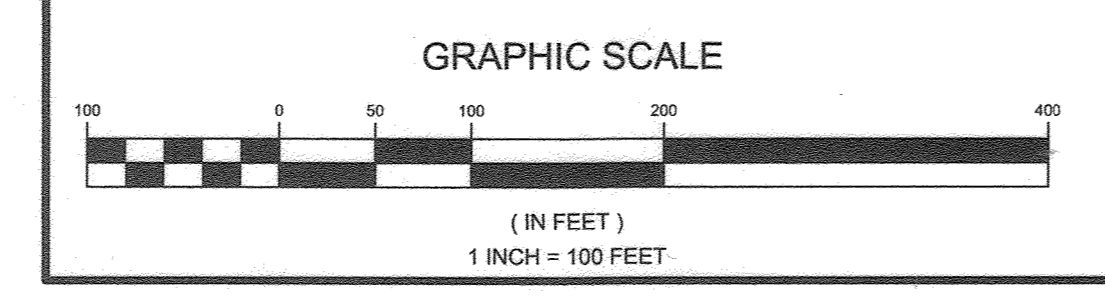
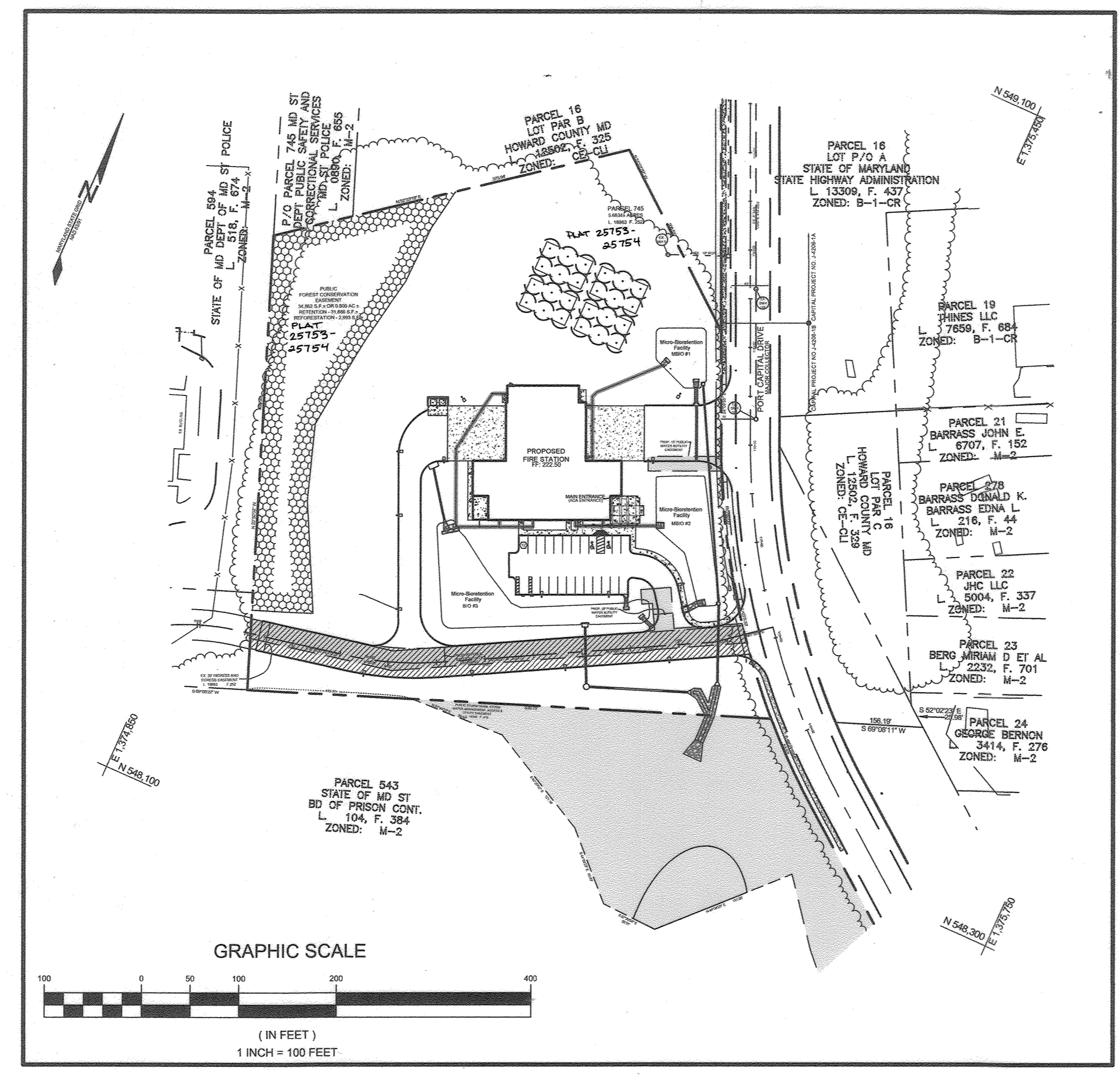


BENCHMARKS					
NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION	
43BC	549,592.106	1,375,496.623	214.07	SOUTH SIDE OF US ROUTE 1 AND MONTEVIDEO ROAD INTERSECTION	
43BB	550,534.212	1,376,905.353	208.87	SOUTH SIDE OF US ROUTE 1 AND 320 FEET SOUTH OF KIT KAT ROAD	

PERMIT INFORMATION CHART					
SUBDIVISION NAME		SECTION	PARCEL # / LOT #		
N/A		NA	745		
PLAT NO. OR L/F	GRID #	ZONING	TAX MAP #	ELECT. DIS.	CENSUS TRACT
L 18863 F. 252	09	M-2	43	1ST	6012.03

PLAT 25753-25754
 HORIZONTAL DATUM FOR THIS AS-BUILT SURVEY IS BASED ON THE MARYLAND STATE REFERENCE SYSTEM NAD '83 FEB. 2014. AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 43BB AND 43BC. VERTICAL DATUM FOR THIS AS-BUILT SURVEY IS NORTH AMERICAN VERTICAL DATUM (NAVD) 1985 AS PROJECTED BY THE ABOVE MENTIONED HOWARD COUNTY GEODETIC CONTROL STATIONS OR HOWARD COUNTY VERTICAL CONTROL BENCHMARKS 43BB AND 43BC. THIS AS-BUILT SURVEY WAS PERFORMED BY SILL ENGINEERING GROUP, LLC.

ADDRESS CHART	
PARCEL	STREET ADDRESS
745	7645 PORT CAPITAL DRIVE



LOCATION MAP
SCALE: 1"=100'

LEGEND	
EXISTING TREELINE	[Symbol]
PROPOSED TREELINE	[Symbol]
WETLANDS	[Symbol]
WETLAND BUFFER	[Symbol]
EXISTING FENCE	[Symbol]
PROPOSED POLE LAMP	[Symbol]
PROPOSED FLAG POLE	[Symbol]
FOREST CONSERVATION AREA	[Symbol]
PROPOSED SIDEWALK	[Symbol]
PROPOSED CONCRETE	[Symbol]
EXISTING WETLANDS	[Symbol]
EXISTING ACCESS, WATER & UTILITY EASEMENT	[Symbol]

THE INSTRUMENTS USED IN PERFORMING THIS AS-BUILT SURVEY: 5-SECOND SOKKIA IX ROBOTIC TOTAL STATION, TOPCON RC-5 RECEIVER, AND SOKKIA 360 PRISM.

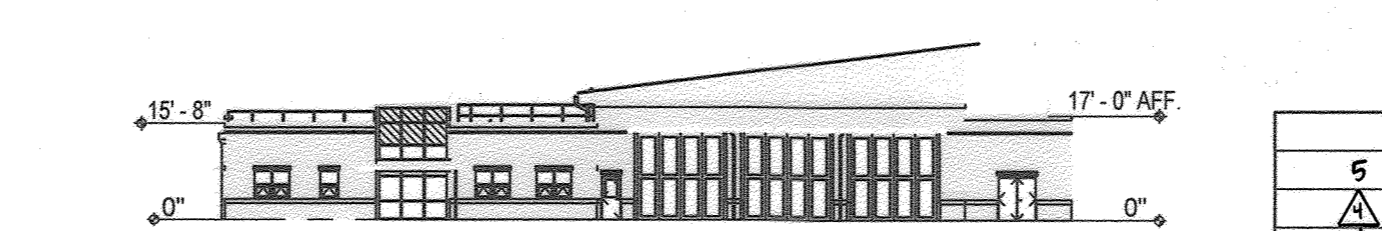
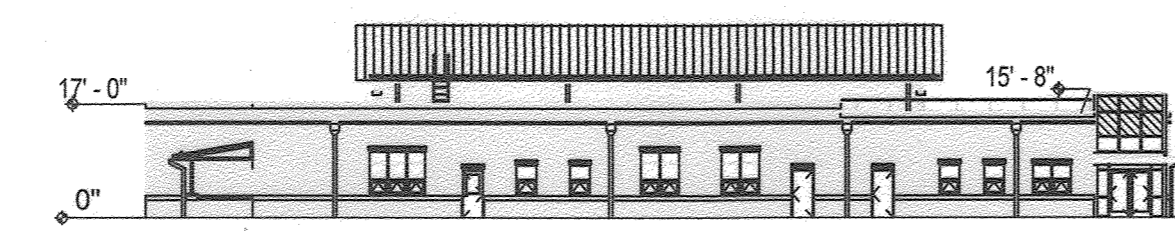
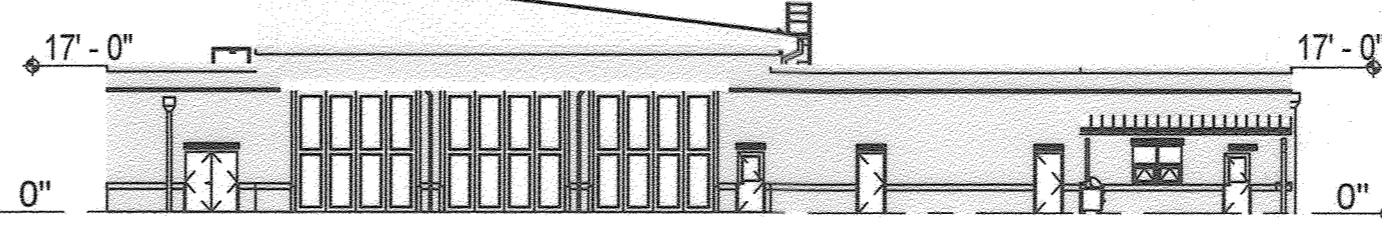
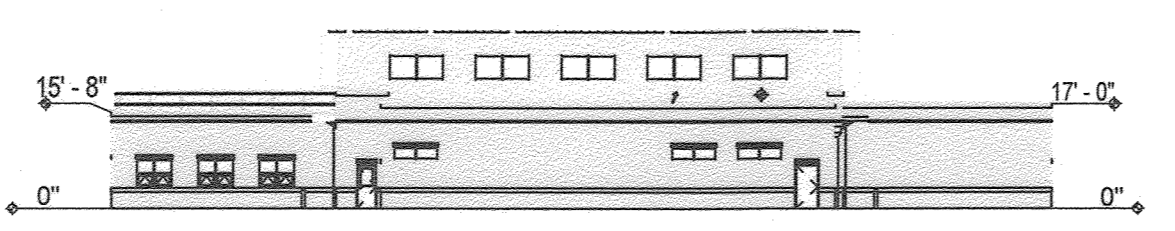
AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION IN THIS SHEET.
 PAUL M. SILL, PROFESSIONAL ENGINEER DATE: 05/23/2021
 LICENSE NO. 32225

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	REVISED COVER SHEET
2	EXISTING CONDITIONS
3	REVISED SITE AND LAYOUT PLAN (BLANK)
4	REVISED GRADING PLAN
5	REVISED GRADING PLAN
6	REVISED SITE DETAILS
7	REVISED SITE DETAILS
8	REVISED SEDIMENT AND EROSION CONTROL PLAN
9	REVISED SEDIMENT AND EROSION CONTROL AREA MAPS
10	REVISED SEDIMENT AND EROSION CONTROL DETAILS
11	REVISED SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
12	BORINGS LOGS
13	REVISED STORM DRAIN DRAINAGE AREA MAP
14	REVISED STORM DRAIN PROFILES
15	REVISED STORM DRAIN DETAILS
16	REVISED WATER AND SEWER PLAN
17	REVISED WATER AND SEWER PROFILE AND DETAILS
18	REVISED STORMWATER MANAGEMENT ESD DRAINAGE AREA MAP
19	REVISED STORMWATER MANAGEMENT DRAINAGE AREA MAP
20	(BLANK)
21	REVISED STORMWATER MANAGEMENT NOTES AND DETAILS FACILITY 1 & 2
22	REVISED STORMWATER MANAGEMENT NOTES AND DETAILS FACILITIES 3
23	REVISED STORMWATER MANAGEMENT NOTES AND DETAILS
24	REVISED STORMWATER MANAGEMENT LANDSCAPE PLAN AND DETAILS
25	REVISED LANDSCAPE PLAN
26	REVISED FOREST CONSERVATION PLAN
27	

STORMWATER MANAGEMENT PRACTICES			
PARCEL #	FACILITY NAME & NUMBER	PRACTICE TYPE	PUBLIC/PRIVATE
745	BIORETENTION FACILITY # 1	M-6	PRIVATE
745	BIORETENTION FACILITY # 2	M-6	PRIVATE
745	BIORETENTION FACILITY # 3	M-6	PRIVATE

OWNER
 PARCEL 745
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV

DEVELOPER
 HOWARD COUNTY, MD
 C/O MARK STROMDAHL
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV



LAND COVER	
IMPERVIOUS ADDED	TOTAL COVER IN SQUARE FEET
ADDED ON 3/28/2023	1,223 SF
TOTAL TO DATE	1,223 SF

NOTE: STORMWATER MANAGEMENT WILL BE ADDRESSED UNCE THE CUMULATIVE AREA OF ADDED IMPERVIOUS EXCEEDS 5000 SF.

NO.	DESCRIPTION	DATE
5	ASBUILT PLAN BY SILL ENGINEERING GROUP	8/23/2023
1	ADDED LAND COVER CHART	3/30/23
2	REVISE THE PLAN TO SHOW THE INSTALLATION OF ROOFTOP SOLAR PANELS	11-16-21
1	REDLINE REVISIONS	1/8/2020
2	REDLINE REVISIONS	6/25/2020
NO.	DESCRIPTION	DATE

REVISED COVER SHEET
 WATERLOO FIRE STATION
 ZONED: M-2
 "GREEN BUILDING"

TAX MAP 43 GRID 9
 1ST ELECTION DISTRICT PLAT 25753-25754
 PARCEL 745
 HOWARD COUNTY, MARYLAND

DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 26/03/2021
 PROJECT #: 18-019
 SHEET #: 1 of 27

SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

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. 21760, EXPIRATION DATE 08, 2021.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DATE: 5-3-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 5-17-21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 5-17-21
 DIRECTOR



SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR WHOLE SOIL	AREA
FBA	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D	0.14	0.14
FUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RUC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

PRE-DEMOLITION PROCEDURES AND ON-SITE MEETING.

BEFORE COMMENCING SITE CLEARING OR INSTALLATION OF SEDIMENT CONTROL MEASURES, THE CONTRACTOR SHALL:
 (I) FIELD VERIFY THE COORDINATES AND ELEVATIONS OF KEY BOUNDARY CORNERS AND TOPOGRAPHIC FEATURES.
 (II) FIELD VERIFY EXISTING CONDITIONS, HAVE MISS UTILITY AND PRIVATE UTILITY LOCATING SERVICES LOCATE EXISTING UTILITIES, AND CONFIRM THE STATUS (LIVE OR ABANDONED) OF ALL UTILITIES.
 (III) AS REQUIRED BY THE SEDIMENT CONTROL PLANS, INSTALL TREE PROTECTION AND DELINEATE THE LIMIT OF DISTURBANCE (WITH FLAGGING OR ORANGE SAFETY FENCE).
 (IV) DELINEATE THE LIMITS OF DEMOLITION AND CLEARING BY MARKING PAVEMENT, CURBS, WALKS, WALLS, FENCES, UTILITY STEPS AND APPURTENANCES, TREES AND VEGETATION, AND OTHER EXISTING IMPROVEMENTS TO BE REMOVED, AND PAVEMENT TO BE MILLED.
 (V) FLAG ANY OTHER VEGETATION, IMPROVEMENTS, OR OBSTRUCTIONS THAT THE CONTRACTOR BELIEVES ARE NECESSARY TO REMOVE (IN WHOLE OR PART) IN ORDER TO FACILITATE CONSTRUCTION.
 (VI) FLAG ITEMS TO BE SALVAGED (IF ANY), AND
 (VII) AFTER COMPLETING THE REQUIREMENTS LISTED ABOVE, ARRANGE AND CONDUCT AN ON-SITE MEETING WITH THE ARCHITECT, SILL ENGINEERING GROUP, LLC, AND/OR OWNER TO OBSERVE THE DELINEATION, FLAGGING, STAKE-OUT AND OTHER ITEMS REQUIRED ABOVE. REQUEST THE MEETING AT LEAST THREE DAYS IN ADVANCE OF THE DESIRED MEETING DATE.

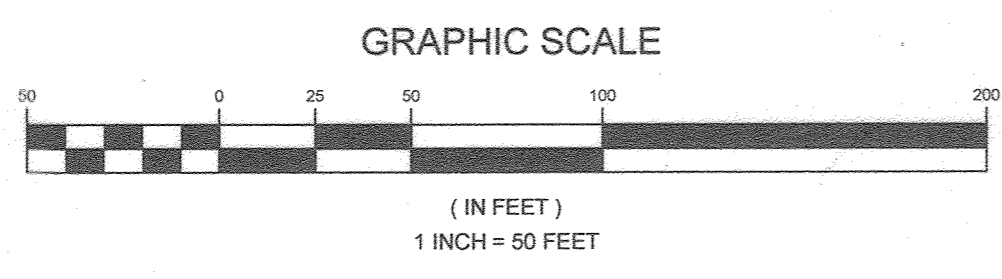
PROTECTION AND OPERATION OF EXISTING UTILITIES:
 • EXISTING UTILITIES NOT DESIGNATED TO BE DEMOLISHED OR ABANDONED SHALL BE PROTECTED FROM DAMAGE, AND UTILITY SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS SHALL NOT BE INTERRUPTED WITHOUT PRIOR WRITTEN AUTHORIZATION OF THE OWNER, AND PROVISION OF ACCEPTABLE TEMPORARY UTILITY SERVICES. PROVIDE A MINIMUM 48-HOURS NOTICE TO THE OWNER AND RECEIVE WRITTEN NOTICE TO PROCEED BEFORE INTERRUPTING ANY UTILITY.
 PROTECTION OF EXISTING IMPROVEMENTS:
 • PROVIDE PROTECTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING IMPROVEMENTS, ANY DAMAGE TO THE EXISTING PUBLIC RIGHT-OF-WAY, OR ANY EXISTING PAVING, CURB & GUTTER, UTILITIES, SIDEWALKS, TREES, SHRUBS, LAWNS, OR ANY OTHER EXISTING CONDITIONS (NOT INDICATED TO BE DEMOLISHED), OR ANY NEWLY INSTALLED PROPOSED IMPROVEMENT. SHALL BE REPAIRED OR REPLACED, TO OWNER'S SATISFACTION, AT CONTRACTOR'S SOLE COST AND EXPENSE.
 TRAFFIC:
 • CONDUCT SITE-CLEARING OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, OR OTHER OCCUPIED OR USED FACILITIES WITHOUT PERMISSION FROM AUTHORITIES HAVING JURISDICTION.

PROTECTION OF EXISTING VEGETATION:
 • PROTECT EXISTING TREES AND OTHER VEGETATION (UNLESS CLEARLY SHOWN TO BE REMOVED) FROM: (I) CUTTING, BREAKING OR SKIPPING OF BRANCHES AND ROOTS; (II) SKIPPING OR BRUISING OF BARK AND (III) DAMAGE TO ROOTS AND ROOT ENVIRONMENT. DO NOT USE TREES FOR SURVEYING PURPOSES.
 • WITHIN THE DRIPLINE OF TREES DO NOT PERMIT: GRADING, STOCKPILING OF EARTH OR CONSTRUCTION DEBRIS, STORAGE OF MATERIALS OR EQUIPMENT, OR VEHICULAR TRAFFIC OR PARKING OF VEHICLES.
 • INSTALL TREE PROTECTION FENCE IN AREAS SHOWN ON PLAN.
 • IN THE EVENT A TREE OR SHRUB IS DAMAGED BY CONSTRUCTION, THE OWNER HAS THE OPTION OF REQUIRING THE CONTRACTOR TO EMPLOY A LICENSED ARBORIST TO REPAIR DAMAGE TO TREES AND SHRUBS, OR OF REQUIRING THE CONTRACTOR TO REMOVE THE DAMAGED PLANT AND REPLACE IT WITH THE SAME SIZE AND SPECIES. IF THE SIZE OR SPECIES OF THE PLANT CANNOT BE MATCHED, THE LOCAL AUTHORITY SHALL BE CONTACTED TO APPROVE A SUBSTITUTE. THE CONTRACTOR DOES NOT HAVE THE RIGHT TO PRUNE TREES AND SHRUBS MERELY TO MAKE CONSTRUCTION MORE EFFICIENT OR ACCESSIBLE.

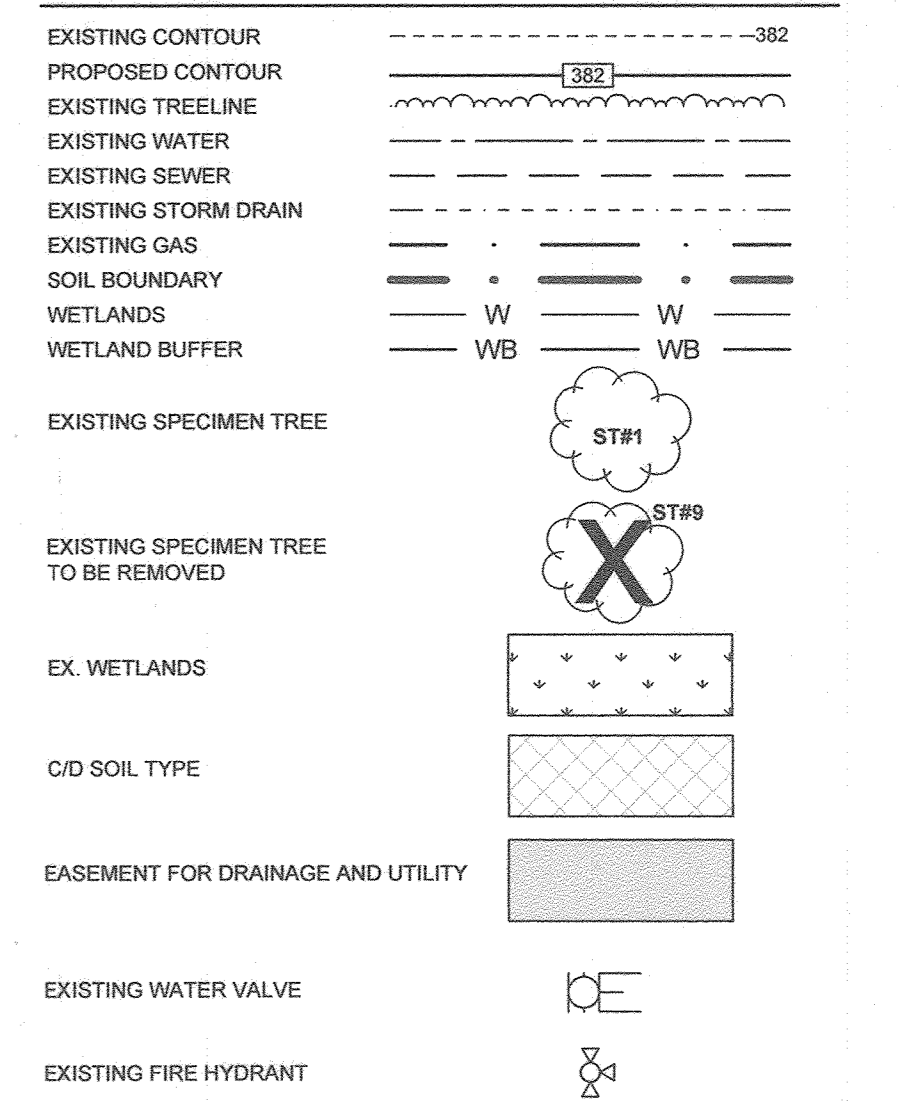
LAWN MAINTENANCE:
 • MAINTAIN LAWNS (EXISTING TO REMAIN AND NEWLY ESTABLISHED) WITHIN THE LIMIT OF DISTURBANCE AND WITHIN ADJACENT RIGHT-OF-WAYS THROUGHOUT CONSTRUCTION; PROTECT LAWNS FROM EXCESSIVE FOOT TRAFFIC, FERTILIZE AND WATER LAWNS AS REQUIRED TO ESTABLISH A THICK STAND OF TURF; PROVIDE REGULAR MOWING TO KEEP GRASS BETWEEN 2 1/2" TO 4" HIGH.
 MILLING AND SAW CUTTING OF ASPHALT PAVEMENT:
 • WHERE THE SURFACE COURSE OF ASPHALT TO BE REMOVED ADJUTS EXISTING ASPHALT TO REMAIN, REMOVAL SHALL BE BY MILLING DONE IN AREAS AND ALONG LINES APPROVED BY THE OWNER. WHERE ASPHALT TO BE REMOVED WILL ADJUT PROPOSED CONCRETE, SAW CUTTING OR MILLING IS PERMITTED. WHERE REMOVAL OF NON-SURFACE ASPHALT LAYERS IS REQUIRED, MILL OR SAW CUT THOSE LAYERS.

REMOVAL OF CONCRETE CURBS, CURB & GUTTER, AND PAVEMENTS TO NEAREST JOINT:
 • WHEN REMOVAL OF CONCRETE CURB, CURB & GUTTER, SIDEWALK, AND OTHER CONCRETE PAVEMENT IS EXPRESSLY REQUIRED BY THE DRAWINGS OR IS REQUIRED TO CONSTRUCT OR INSTALL UTILITIES OR ANY OTHER SITE IMPROVEMENT, REMOVE THE ENTIRE SECTION OF CONCRETE TO THE CLOSEST EXPANSION JOINT BEYOND THE REQUIRED WORK. THE BASE CONTRACT SHALL INCLUDE SAID REMOVAL AND REPLACEMENT AT NO ADDITIONAL COST TO THE OWNER.
 STRIPING AND STOCKING TOPSOIL:
 • STRIP TOPSOIL IN ALL AREAS BENEATH PROPOSED BUILDINGS, STRUCTURES, PAVEMENTS AND IN ALL AREAS OF CUT OR FILL WHERE EXISTING TREES ARE INDICATED TO REMAIN. LEAVE EXISTING TOPSOIL IN PLACE WITHIN DRIP LINES TO PREVENT DAMAGE TO ROOT SYSTEM.
 • STRIP TOPSOIL TO WHATEVER DEPTHS ARE ENCOUNTERED IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER OBJECTIONABLE MATERIAL. REMOVE HEAVY GROWTHS OF GRASS AND WEEDS FROM AREAS BEFORE STRIPPING.
 • THE CONTRACTOR MAY ELECT TO PURCHASE TOPSOIL IN LIEU OF STRIPPING AND STOCKPILING TOPSOIL (AT NO ADDITIONAL COST TO THE OWNER), BUT IN ANY CASE, SHALL STOCKPILE AND/OR PURCHASE SUFFICIENT TOPSOIL TO PLACE TOPSOIL ON ALL DISTURBED AREAS NOT TO BE PAVED SO THAT AFTER FINE GRADING THERE IS A LAYER OF TOPSOIL NO LESS THAN 4 INCHES THICK.
 • STOCKPILE TOPSOIL IN STORAGE PILES IN AREAS INDICATED ON PLANS OR AS DIRECTED BY A REPRESENTATIVE OF THE OWNER. CONSTRUCT STORAGE PILES TO PROVIDE FREE DRAINAGE OF SURFACE WATER. COVER STORAGE PILES AS REQUIRED TO PREVENT WIND EROSION.
 REMOVAL OF WASTE FROM OWNER'S PROPERTY:
 • REMOVE ALL DEMOLISHED MATERIALS, CLEARED VEGETATION, AND CONSTRUCTION DEBRIS FROM THE OWNER'S PROPERTY IN A LAWFUL MANNER AND AT NO ADDITIONAL COST TO THE OWNER.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF DEVELOPMENT ENGINEERING DIVISION
 DATE: 1/23/20
 DATE: 2/3/20
 DATE: 2/3/2020
 DATE:



LEGEND



EXISTING INFORMATION AND CONDITIONS NOT GUARANTEED. VERIFY CONDITIONS AND TEST PIT EXISTING UTILITIES.

THE CORRECTNESS AND COMPLETENESS OF THE INFORMATION SHOWING EXISTING CONDITIONS IS NOT GUARANTEED. BEFORE BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL PERFORM THE FOLLOWING TASKS:

- a. AT LEAST SEVEN DAYS PRIOR TO INSTALLING SEDIMENT CONTROL MEASURES, MARK/PAINT ALL UTILITIES, AND MAINTAIN MARKINGS THROUGHOUT CONSTRUCTION. THIS REQUIREMENT INCLUDES MARKING OF UTILITIES BY MISS UTILITY (1-800-257-7777) AND THE MARKING OF ON-SITE UTILITIES THAT MIGHT NOT BE MARKED BY MISS UTILITY; THE CONTRACTOR SHALL EITHER MARK THESE ON-SITE UTILITIES HIMSELF OR BY SUBCONTRACTING WITH A PRIVATE UTILITY LOCATING FIRM.
- b. VERIFY THE GENERAL ACCURACY OF THE EXISTING CONDITIONS SHOWN ON THE SITE DRAWINGS BY VISUAL INSPECTION OF THE SURFACE OF THE SITE AND ALL EXISTING STRUCTURES, PAVING AND UTILITY APPURTENANCES VISIBLE THEREON.
- c. WITH REGARD TO THE STRUCTURES AND APPURTENANCES OBSERVED AS REQUIRED PER ITEM (B) ABOVE, DETERMINE THE TYPE, SIZE, LOCATION AND ELEVATION OF ALL THOSE EXISTING UTILITIES (INCLUDING BUT NOT LIMITED TO ALL WELLS, STORM DRAINS, SANITARY LINES, WATER LINES, GAS LINES, STEAM LINES, ELECTRIC LINES, TELEPHONE LINES, AND COMMUNICATION DUCTS, AND ALL MANHOLES, INLETS, CLEAN-OUTS, VALVES, HANDHOLES, ETC. RELATED THERETO) WITHIN THE LIMITS OF CONSTRUCTION IN ORDER TO (I) AVOID DAMAGING OR DISRUPTING SERVICE, AND (II) TO COORDINATE AND FACILITATE CONSTRUCTION OF PROPOSED UTILITIES AND OTHER IMPROVEMENTS. IN ADDITION TO THE CONTRACTOR'S VISUAL OBSERVATION AND THE UTILITY MARKING, AS REQUIRED ABOVE, THE CONTRACTOR SHALL SCHEDULE AND COMPLETE TEST PITTING OF ALL EXISTING UTILITIES (FOR THE PURPOSES SET FORTH ABOVE) AND SHALL DO SO IN A TIMELY MANNER IN ORDER TO ALLOW TIME FOR ANALYSIS AND REDESIGN BY SILL ENGINEERING GROUP, LLC AND/OR OTHER CONSULTANTS, WITHOUT DELAYING THE PROJECT SCHEDULE.

IMMEDIATELY REPORT TO ARCHITECT AND SILL ENGINEERING GROUP, LLC THE RESULTS OF STEPS (A), (B), AND (C) WHICH MIGHT INDICATE ANY DISCREPANCY BETWEEN ACTUAL CONDITIONS AND THOSE SHOWN ON THE PLAN, AND ANY POTENTIAL CONFLICTS BETWEEN PROPOSED IMPROVEMENTS AND EXISTING CONDITION.

TEST PITTING DEFINED:

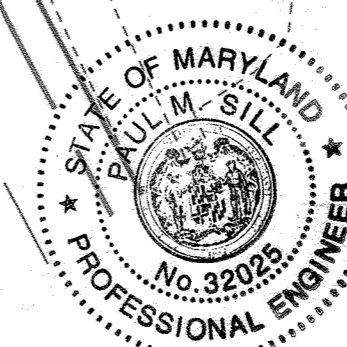
FOR THE PURPOSES OF THIS CONTRACT, EXCAVATION OF UTILITY TRENCHES DOES NOT CONSTITUTE TEST PITTING. TEST PITTING IS A SEPARATE OPERATION COMPLETED AT LEAST SEVEN DAYS BEFORE UTILITY INSTALLATION IS SCHEDULED TO BEGIN. TEST PITTING MEANS EXCAVATION TO EXPOSE EXISTING UTILITIES IN TWO SITUATIONS: (I) WHERE PROPOSED IMPROVEMENTS CROSS EXISTING UTILITIES (PIPES, LINES, STRUCTURES, APPURTENANCES) WHETHER SHOWN ON THE PLAN OR MARKED BY MISS UTILITY AND THE CONTRACTOR IN THE FIELD (AS REQUIRED ABOVE), AND (II) WHERE PROPOSED UTILITIES ARE DESIGNED TO CONNECT TO EXISTING UTILITIES. TEST PITTING INCLUDES RECORDING THE TYPE, SIZE, LOCATION AND ELEVATION OF THE EXPOSED UTILITIES, AND EMAILING THE RECORD TO THE ARCHITECT, SILL ENGINEERING GROUP, LLC AND THE OWNER. THE RECORD MAY BE A LEGIBLE HAND-WRITTEN FIELD SKETCH.

COORDINATE WITH ELECTRIC, GAS, & TELECOMMUNICATIONS COMPANIES. IN ADDITION TO THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL COORDINATE WITH LOCAL PRIVATE UTILITY COMPANIES WHERE TEMPORARY DISCONNECTION, RELOCATION OR REMOVAL OF UTILITIES IS REQUIRED FOR THE CONTRACTOR TO CONSTRUCT THE PROPOSED BUILDINGS AND SITE IMPROVEMENTS.

OWNER
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 410-313-5751
 MKAMINETZ@HOWARDCOUNTYMD.GOV

AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8/23/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 92225

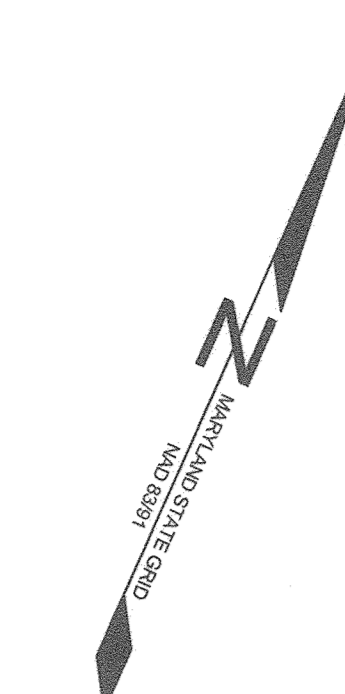


EXISTING CONDITIONS
WATERLOO FIRE STATION
 ZONED: M-2
 "GREEN BUILDING"
 TAX MAP 43 GRID 9
 1ST ELECTION DISTRICT
 PARCEL 745
 HOWARD COUNTY, MARYLAND

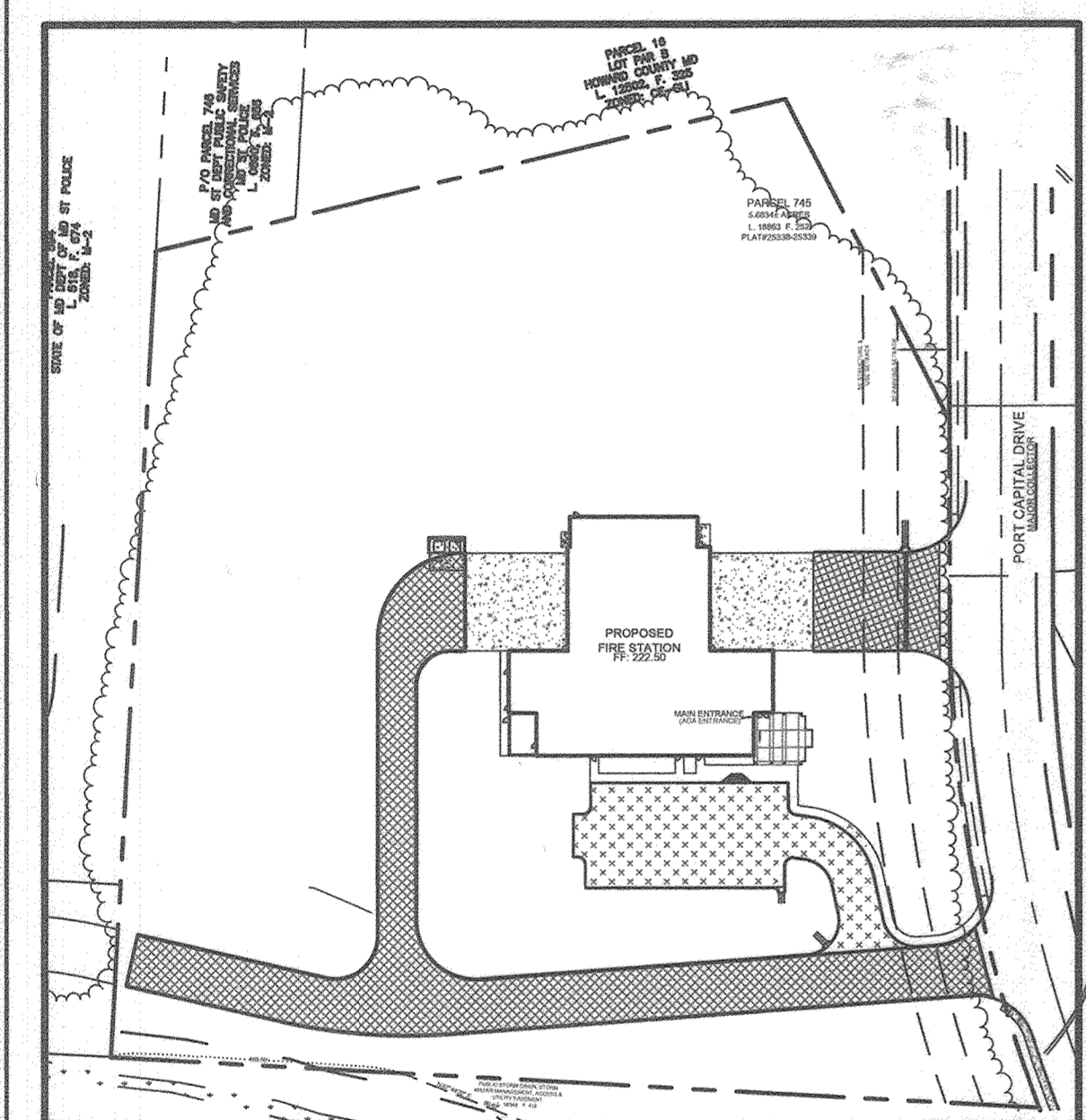
NO.	DESCRIPTION	DATE
3	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
2	REVISE EX. WATER MAIN AND EASEMENT	1/4/2024
1	REVISE EX. WATER MAIN AND EASEMENT	6/19/2020
NO.	DESCRIPTION	DATE

SILL ENGINEERING GROUP, LLC
 1130 Dovecote Court, Suite 200
 Manassasville, Maryland 21044
 Phone: 443.325.9076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: PS
 DRAWN BY: JC
 CHECKED BY: PS
 SCALE: 1"=50'
 DATE: DECEMBER 24, 2019
 PROJECT #: 16-019
 SHEET #: 2 of 27



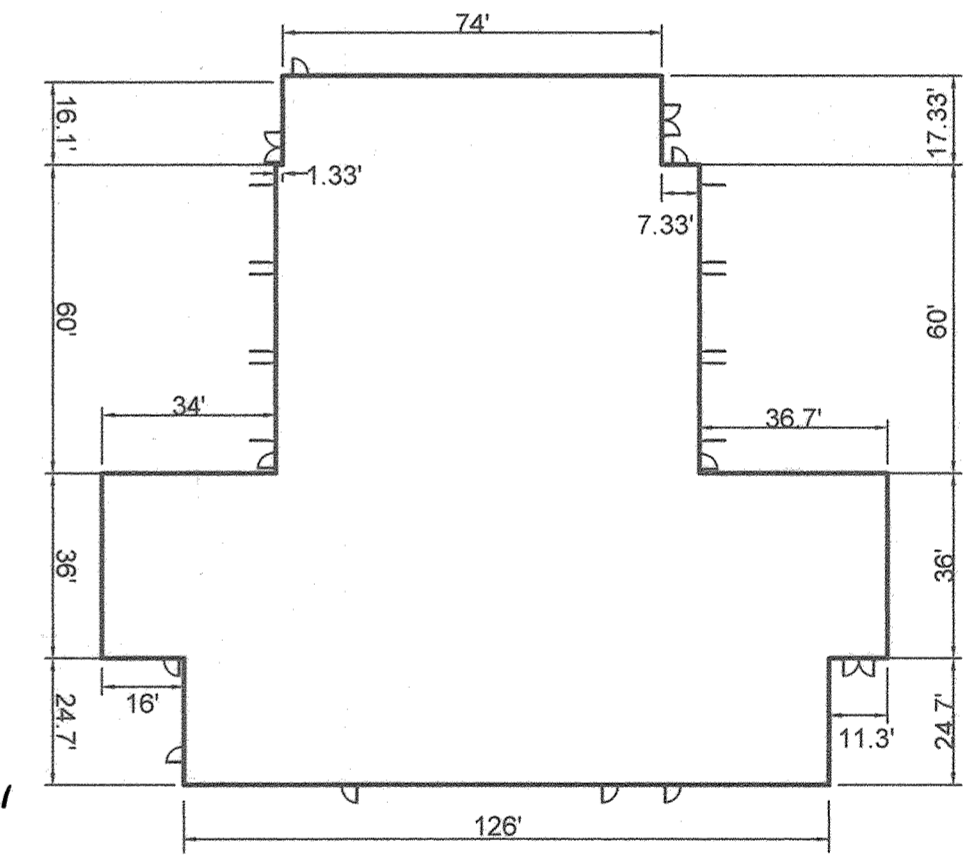
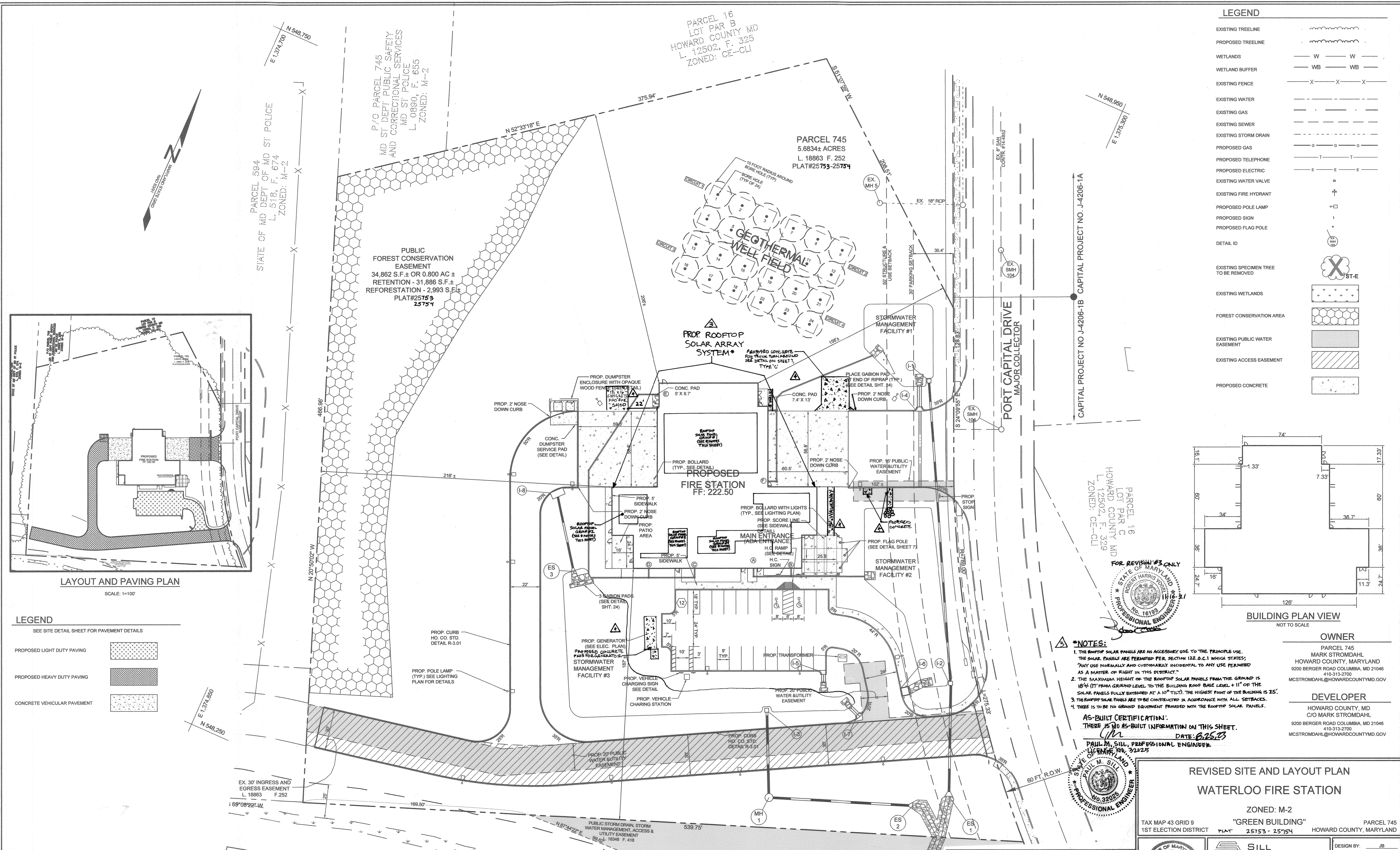
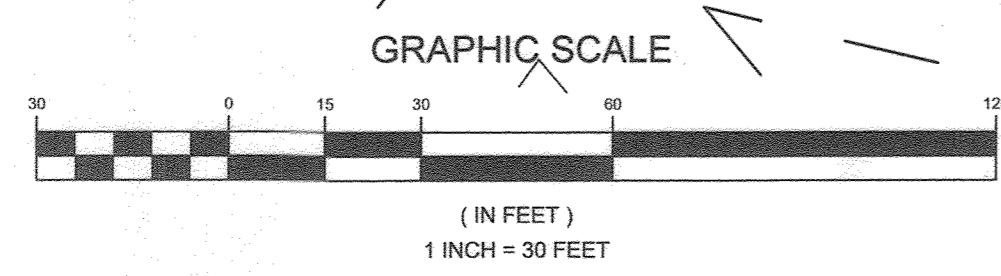
LEGEND	
EXISTING TREELINE	
PROPOSED TREELINE	
WETLANDS	
WETLAND BUFFER	
EXISTING FENCE	
EXISTING WATER	
EXISTING GAS	
EXISTING SEWER	
EXISTING STORM DRAIN	
PROPOSED GAS	
PROPOSED TELEPHONE	
PROPOSED ELECTRIC	
EXISTING WATER VALVE	
EXISTING FIRE HYDRANT	
PROPOSED POLE LAMP	
PROPOSED SIGN	
PROPOSED FLAG POLE	
DETAIL ID	
EXISTING SPECIMEN TREE TO BE REMOVED	
EXISTING WETLANDS	
FOREST CONSERVATION AREA	
EXISTING PUBLIC WATER EASEMENT	
EXISTING ACCESS EASEMENT	
PROPOSED CONCRETE	



LAYOUT AND PAVING PLAN
SCALE: 1/4"=1'-0"

LEGEND	
PROPOSED LIGHT DUTY PAVING	
PROPOSED HEAVY DUTY PAVING	
CONCRETE VEHICULAR PAVEMENT	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief Development Engineering Division
 Date: 5-3-21
 Date: 5/17/21
 Date: 5-17-21



BUILDING PLAN VIEW
NOT TO SCALE

***NOTES:**
 1. THE ROOFTOP SOLAR PANELS ARE AN ACCESSORY USE TO THE PRINCIPLE USE. THE SOLAR PANELS ARE PERMITTED PER SECTION 122.0.C.1 WHICH STATES: "ANY USE INHERENTLY AND CONSTRUCTIONALLY INCIDENTAL TO ANY USE PERMITTED AS A MATTER OF RIGHT IN THIS DISTRICT."
 2. THE MAXIMUM HEIGHT OF THE ROOFTOP SOLAR PANELS FROM THE GROUND IS 18'4" (11' FROM GROUND LEVEL TO THE BUILDING ROOF BASE LEVEL + 11" OF THE SOLAR PANELS FULLY EXTENDED AT A 10° TILT). THE HIGHEST POINT OF THE BUILDING IS 25'.
 3. THE ROOFTOP SOLAR PANELS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH ALL SETBACKS.
 4. THERE IS TO BE NO GROUND EQUIPMENT PROVIDED WITH THE ROOFTOP SOLAR PANELS.

AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.

PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32025

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REVISED SITE AND LAYOUT PLAN
 WATERLOO FIRE STATION
 ZONED: M-2
 TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
 1ST ELECTION DISTRICT PLAT 25753 - 25754 HOWARD COUNTY, MARYLAND

NO.	DESCRIPTION	DATE
5	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
4	REVISE BIO'S & ADD CONCRETE PAVEMENT AND WALKS	03/28/2025
3	REVISE THE PLAN TO SHOW THE INSTALLATION OF ROOFTOP SOLAR PANELS	11-16-21
2	REDLINE REVISIONS	6/25/2020

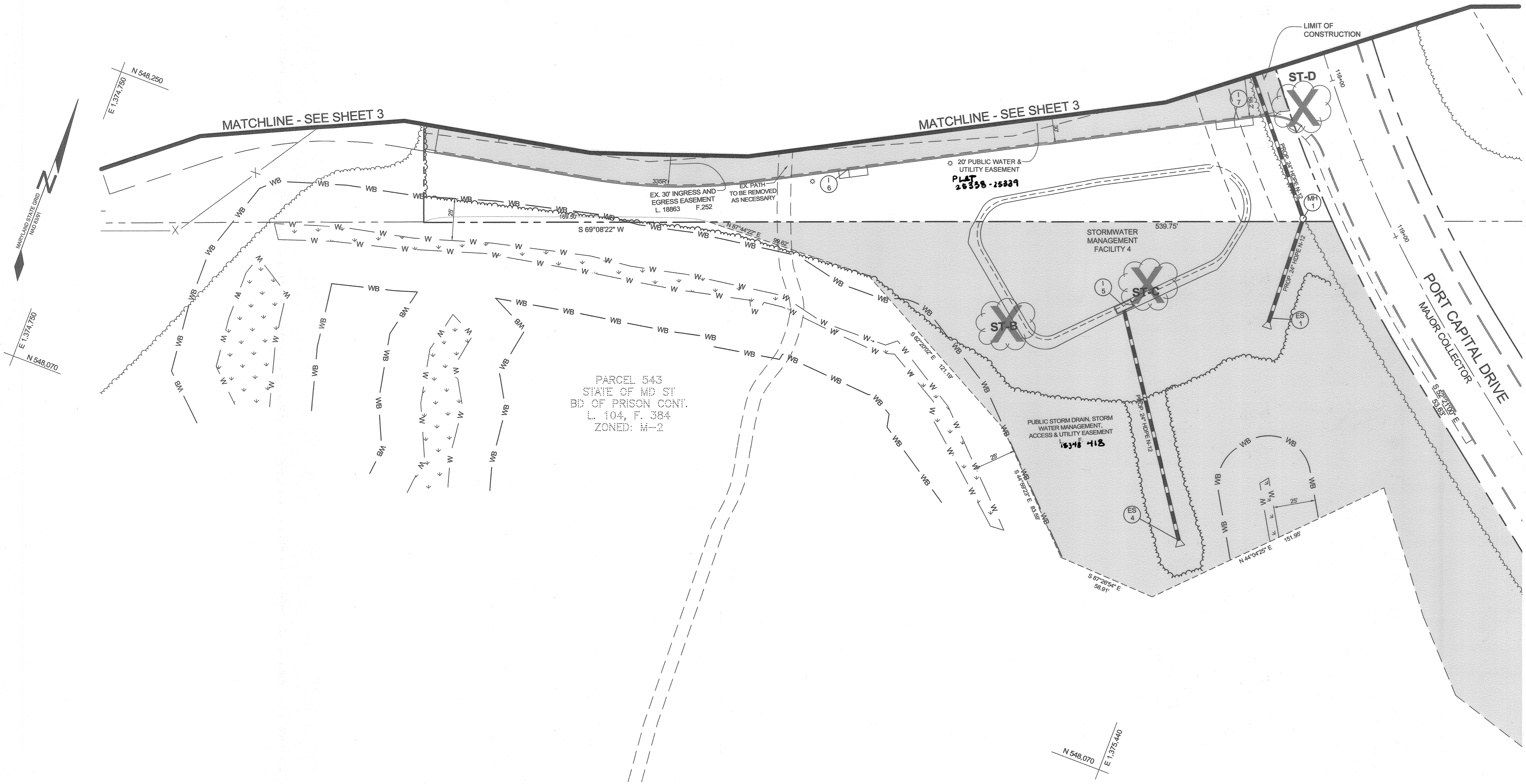
DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 2/20/2021
 PROJECT #: 16-019
 SHEET #: 3 of 27

SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

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. 21740, EXPIRATION DATE OCT. 06, 2021

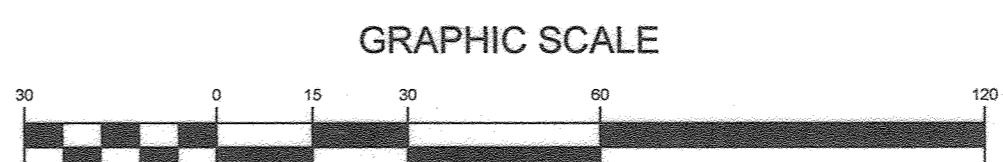
LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DIRECTION OF FLOW
- EXISTING WATER
- EXISTING SEWER
- EXISTING STORM DRAIN
- PROPOSED GAS
- PROPOSED ELECTRIC
- PROPOSED TELEPHONE
- EXISTING TREELINE
- PROPOSED TREELINE
- SOIL BOUNDARY
- WETLANDS
- WETLAND BUFFER
- EXISTING SPECIMEN TREE
- EXISTING SPECIMEN TREE TO BE REMOVED
- EX WETLANDS
- CID SOIL TYPE
- EASEMENT FOR DRAINAGE AND UTILITY
- PROPOSED STREET LIGHT



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AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8.25.23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32025



NO.	DESCRIPTION	DATE
1	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23

SITE AND LAYOUT PLAN
WATERLOO FIRE STATION
 ZONED: M-2
 "GREEN BUILDING"
 TAX MAP 43 GRID 9
 1ST ELECTION DISTRICT
 PARCEL 745
 HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
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 Marriottsville, Maryland 21104
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 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: PS
 DRAWN BY: JC
 CHECKED BY: PS
 SCALE: 1"=30'
 DATE: DECEMBER 24, 2019
 PROJECT #: 16-019
 SHEET #: 4 of 27

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Paul M. Sill
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 1-23-20

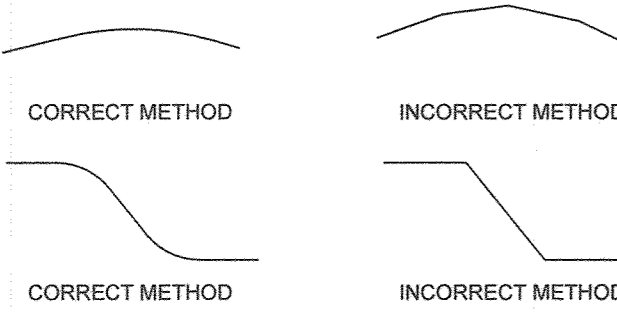
John Williams
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 2/3/20

John G. ...
 DIRECTOR
 DATE: 2/3/2020

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. 32025, EXPIRATION DATE: JUNE 20, 2021

EXCAVATION:
 ALL EXCAVATION IS UNCLASSIFIED, ACHIEVING PROPOSED GRADES IS PART OF LUMP SUM. THE LUMP SUM CONTRACT PRICE INCLUDES: EXCAVATION OF REQUIRED SUBGRADE OF ALL MATERIALS, WHETHER WET OR DRY, NATURAL OR MAN-MADE, REGARDLESS OF THE CHARACTER; ALL STRIPPING AND STOCKPILING OF TOPSOIL, GRADING; HAUL-OFF OF EXCESS EARTH, TOPSOIL AND UNSUITABLE MATERIALS; ON-SITE AND OFF-SITE BORROW, PROTECTING SOILS FROM MOISTURE AND DRYING SOILS; AND PLACEMENT AND COMPACTION, ALL ASPECTS OF EARTHWORK SHALL BE COMPLETED AS NECESSARY TO ACHIEVE THE FINAL GRADES INDICATED BY THE CONTOURS AND SPOT ELEVATIONS SHOWN ON THE GRADING PLANS.

GENERAL REQUIREMENTS:
 GRADING SHALL ACHIEVE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND TOWARD DRAINAGE FACILITIES (SWALES, GUTTERS, INLETS, ETC.) AND AESTHETICALLY PLEASING VERTICAL CURVES AND LINES. TRANSITIONS BETWEEN EXISTING AND PROPOSED PAVEMENT SHALL BE SMOOTH AND JOINTS FLUSH. THE PROFILE SLOPE (LONGITUDINAL SLOPE) OF ROADS, CURBS, AND WALKS SHALL BE FORMED BY SERIES OF STRAIGHT LINES AND PARABOLIC VERTICAL CURVES THAT TRANSITION SMOOTHLY INTO THE NEXT LINE; A SERIES OF BROKEN TANGENTS (LINES WITH DIFFERING SLOPES) IS NOT AN ACCEPTABLE METHOD OF FORMING ROADS, CURBS OR WALKS. LIKEWISE, THE GRADED SLOPES SHALL BE ROUNDED AT TOP AND BOTTOM.



MINIMUM & MAXIMUM SLOPES ON UNPAVED AREAS:
 UNLESS EXPRESSLY NOTED OTHERWISE ON THE PLAN, UNPAVED AREAS SHALL HAVE A MINIMUM SLOPE OF 2% AND A MAXIMUM SLOPE OF 3:1.

MINIMUM SLOPES ON PAVEMENT:
 UNLESS OTHERWISE EXPRESSLY NOTED ON THE PLAN (BY ARROW WITH THE PERCENT SLOPE LABELED), ALL PROPOSED ASPHALT PAVEMENT SHALL HAVE A MINIMUM SLOPE OF 1.1% AND ALL CONCRETE PAVEMENT SHALL HAVE A MINIMUM SLOPE OF 1% IN THE DIRECTION INDICATED BY PROPOSED CONTOURS.

MAXIMUM SLOPES FOR WALKS AND PATHS:
 THE LONGITUDINAL SLOPES OF WALKS, PATHS AND OTHER PEDESTRIAN SURFACES SHALL NOT EXCEED 5% AND THE CROSS SLOPE OF ALL PATHS SHALL BE 2.0%.

GRADING TOLERANCES:
 WHILE ACHIEVING THE DESIGN INTENT (AESTHETIC AND FUNCTIONAL) OF THE GRADING REQUIRED BY THE GRADING PLANS & THESE NOTES, UNPAVED AREAS SHALL BE WITHIN 0.1' ELEVATION, AND CURBS & PAVEMENTS IS 0.05' ELEVATION.

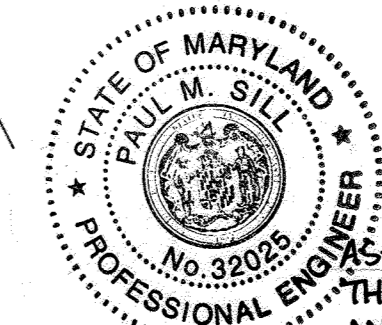
LEGEND

EXISTING CONTOUR	--- 382
PROPOSED CONTOUR	--- 382
EXISTING TREELINE	--- W --- W
PROPOSED TREELINE	--- W --- W
WETLANDS	--- W --- W
WETLAND BUFFER	--- WB --- WB
EXISTING FENCE	--- X --- X --- X
EXISTING WATER	---
EXISTING GAS	---
EXISTING SEWER	---
EXISTING STORM DRAIN	---
PROPOSED GAS	---
PROPOSED TELEPHONE	---
PROPOSED ELECTRIC	---
EXISTING WATER VALVE	○
EXISTING FIRE HYDRANT	+
PROPOSED POLE LAMP	○ □
PROPOSED SIGN	+
PROPOSED FLAG POLE	+
PROPOSED ROOF DRAIN	⊙
EXISTING SPECIMEN TREE TO BE REMOVED	⊙
EXISTING WETLANDS	⊙
FOREST CONSERVATION AREA	⊙
EXISTING PUBLIC WATER EASEMENT	⊙
EXISTING ACCESS EASEMENT	⊙
PROPOSED CONCRETE	⊙

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K' FACTOR WHOLE SOIL	AREA
FsA	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	CD		0.14
RUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.



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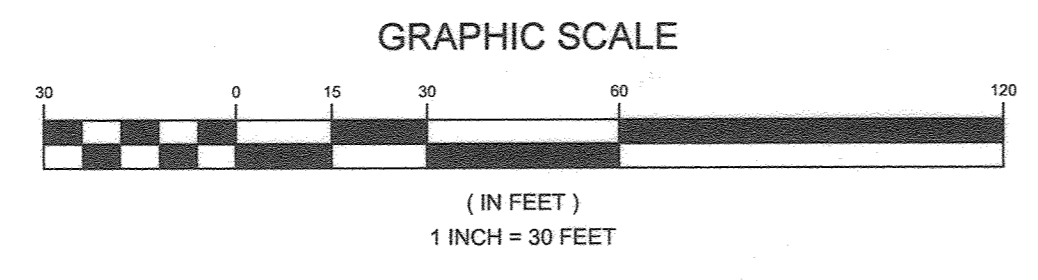
AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8/25/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32025

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* 5-3-21 DATE

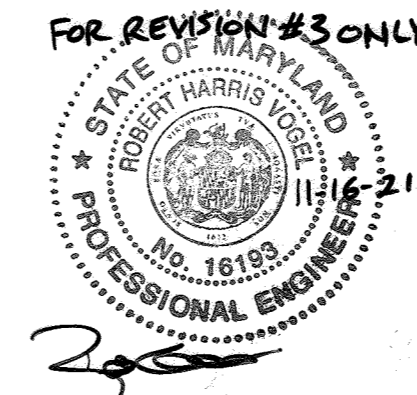
Chief, Division of Land Development: *[Signature]* 5/17/21 DATE

Director: *[Signature]* 5-17-21 DATE



PLAN VIEW
 SCALE: 1"=30'

MATCHLINE SEE SHEET 6



REVISIONS

NO.	DESCRIPTION	DATE
5	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
4	REVISE BID 3 & SHOW GAS LINE LOCATION	03/29/23
3	ADD CONCRETE PADS AND WALKS	11-16-21
2	REVISE THE PLAN TO SHOW THE INSTALLATION OF ROOFTOP SOLAR PANELS	6/25/2020
1	REDLINE REVISIONS	

REVISED GRADING PLAN
WATERLOO FIRE STATION

ZONED: M-2
 "GREEN BUILDING"

TAX MAP 43 GRID 9
 1ST ELECTION DISTRICT

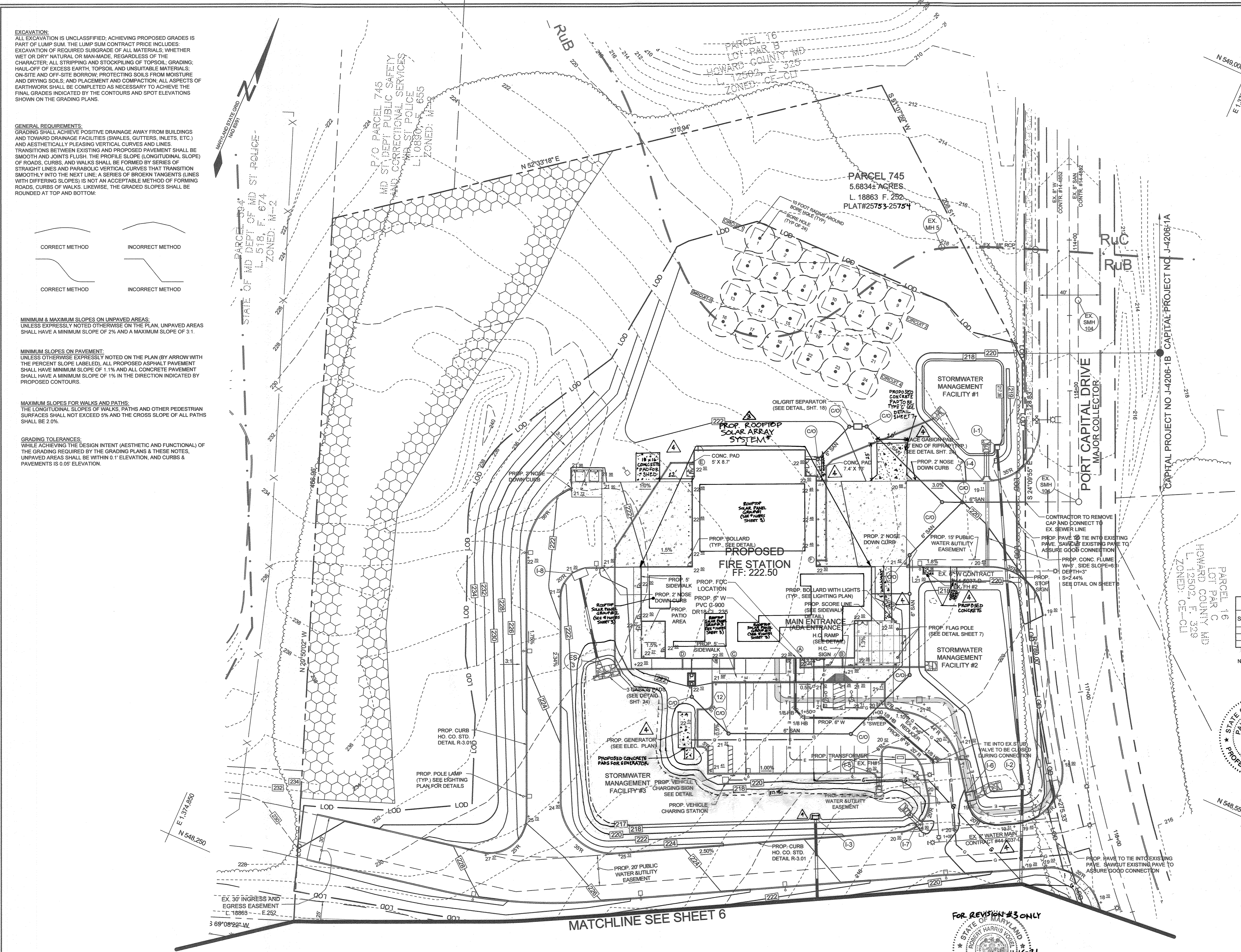
PARCEL 745
 HOWARD COUNTY, MARYLAND

PLAT: 25753 - 25753

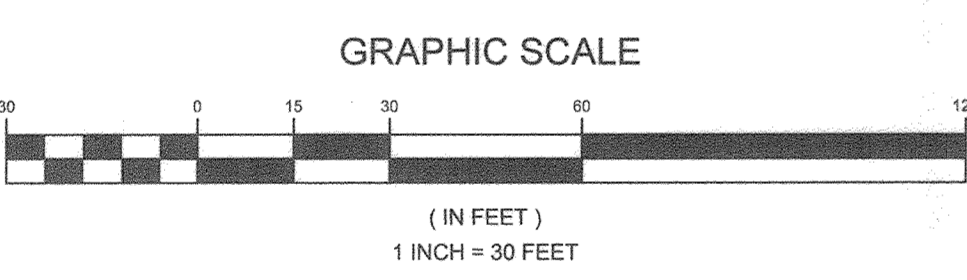
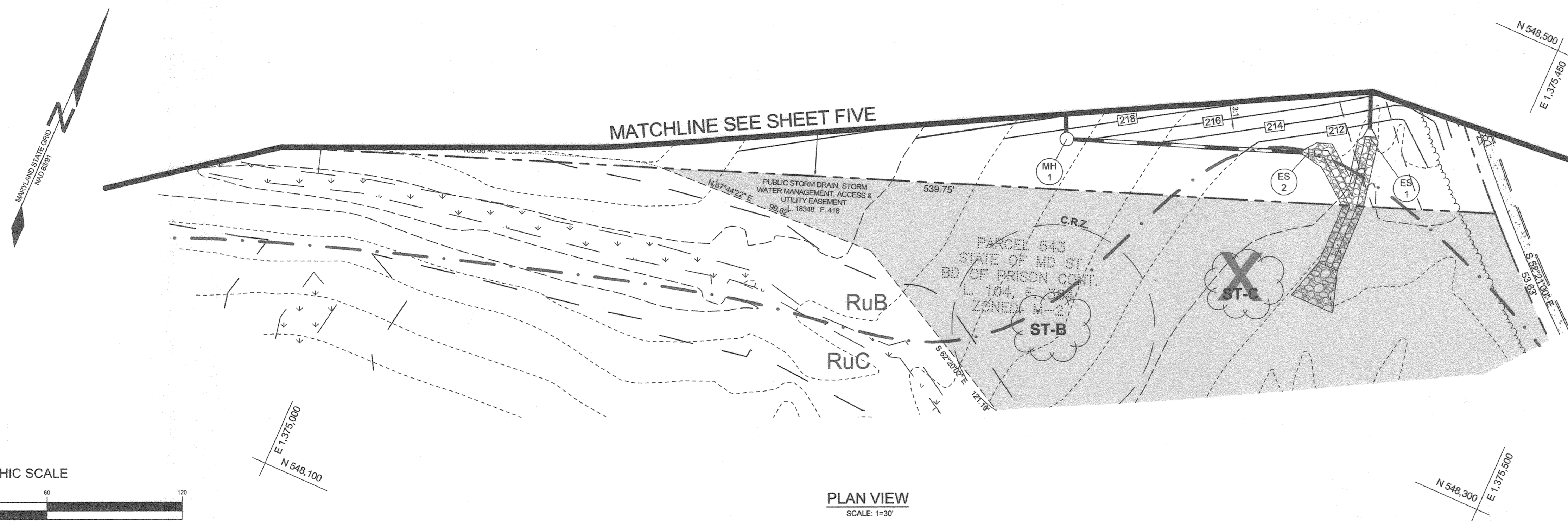
SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 27/03/2021
 PROJECT #: 16-019
 SHEET #: 5 of 27

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21746, EXPIRATION DATE OCT. 08, 2021.



LEGEND	
EXISTING CONTOUR	--- 382 ---
PROPOSED CONTOUR	--- 382 ---
EXISTING TREELINE	~~~~~
PROPOSED TREELINE	~~~~~
WETLANDS	--- W --- W ---
WETLAND BUFFER	--- WB --- WB ---
EXISTING FENCE	--- X --- X --- X ---
EXISTING WATER	-----
EXISTING GAS	-----
EXISTING SEWER	-----
EXISTING STORM DRAIN	-----
PROPOSED GAS	--- G --- G --- G ---
PROPOSED TELEPHONE	--- T --- T --- T ---
PROPOSED ELECTRIC	--- E --- E --- E ---
EXISTING WATER VALVE	○
EXISTING FIRE HYDRANT	⊕
PROPOSED POLE LAMP	○
PROPOSED SIGN	⋮
PROPOSED FLAG POLE	⋮
DETAIL ID	○
EXISTING SPECIMEN TREE TO BE REMOVED	⊗
EXISTING WETLANDS	⊕
FOREST CONSERVATION AREA	⊕
EXISTING PUBLIC WATER EASEMENT	⊕
EXISTING ACCESS EASEMENT	⊕
PROPOSED CONCRETE	⊕



PLAN VIEW
SCALE: 1"=30'

OWNER
 PARCEL 745
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV

DEVELOPER
 HOWARD COUNTY, MD
 C/O MARK STROMDAHL
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV



AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8/25/23
 PAUL M. GILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32025

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR WHOLE SOIL	AREA
FbaA	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D		0.14
RuB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	1/24/22
	REDLINE REVISIONS	6/25/2020

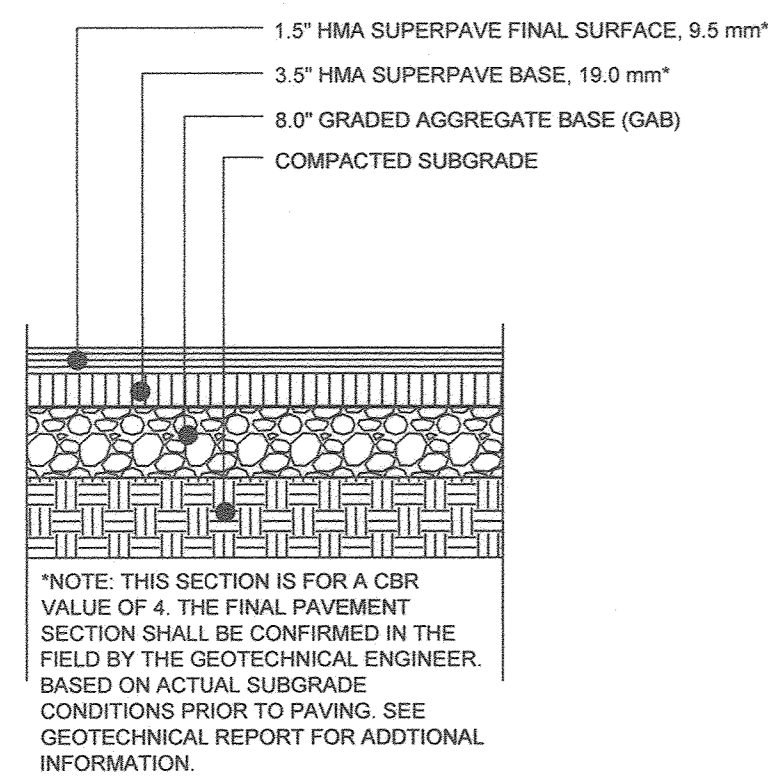
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director
 DATE: 5-3-21
 DATE: 5/17/21
 DATE: 5-17-21

REVISED GRADING PLAN
WATERLOO FIRE STATION
 ZONED: M-2
 "GREEN BUILDING"
 TAX MAP 43 GRID 9
 1ST ELECTION DISTRICT PLAT 25753-25754
 PARCEL 745
 HOWARD COUNTY, MARYLAND

SILL ENGINEERING GROUP, LLC
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 Woodbine, Maryland 21797
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 Email: info@sillengineering.com
 Civil Engineering for Land Development

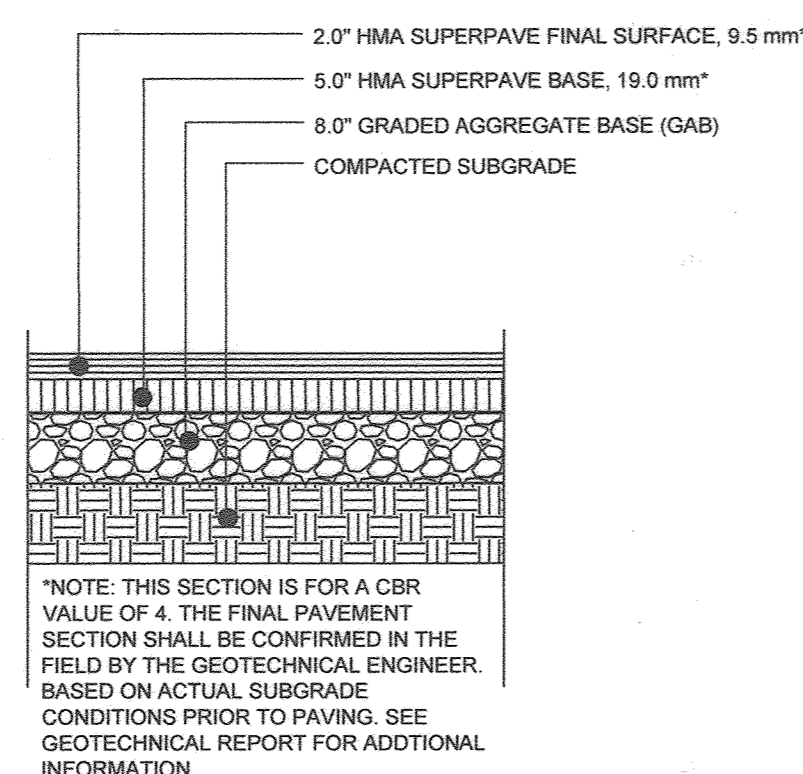
DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 26/03/2021
 PROJECT #: 18-019
 SHEET #: 6 of 27

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 21740, EXPIRATION DATE OCT. 08, 2021



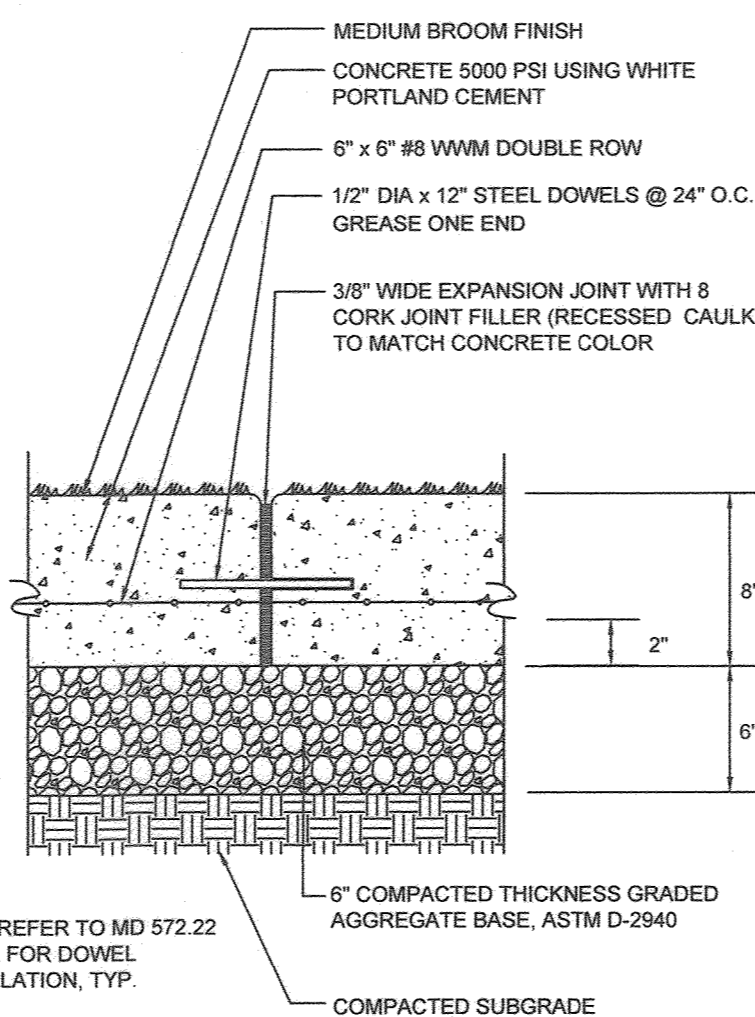
COMPACTION LEVEL 1
BINDER TYPE PG 64-22

A LIGHT DUTY PAVING SECTION
NOT TO SCALE



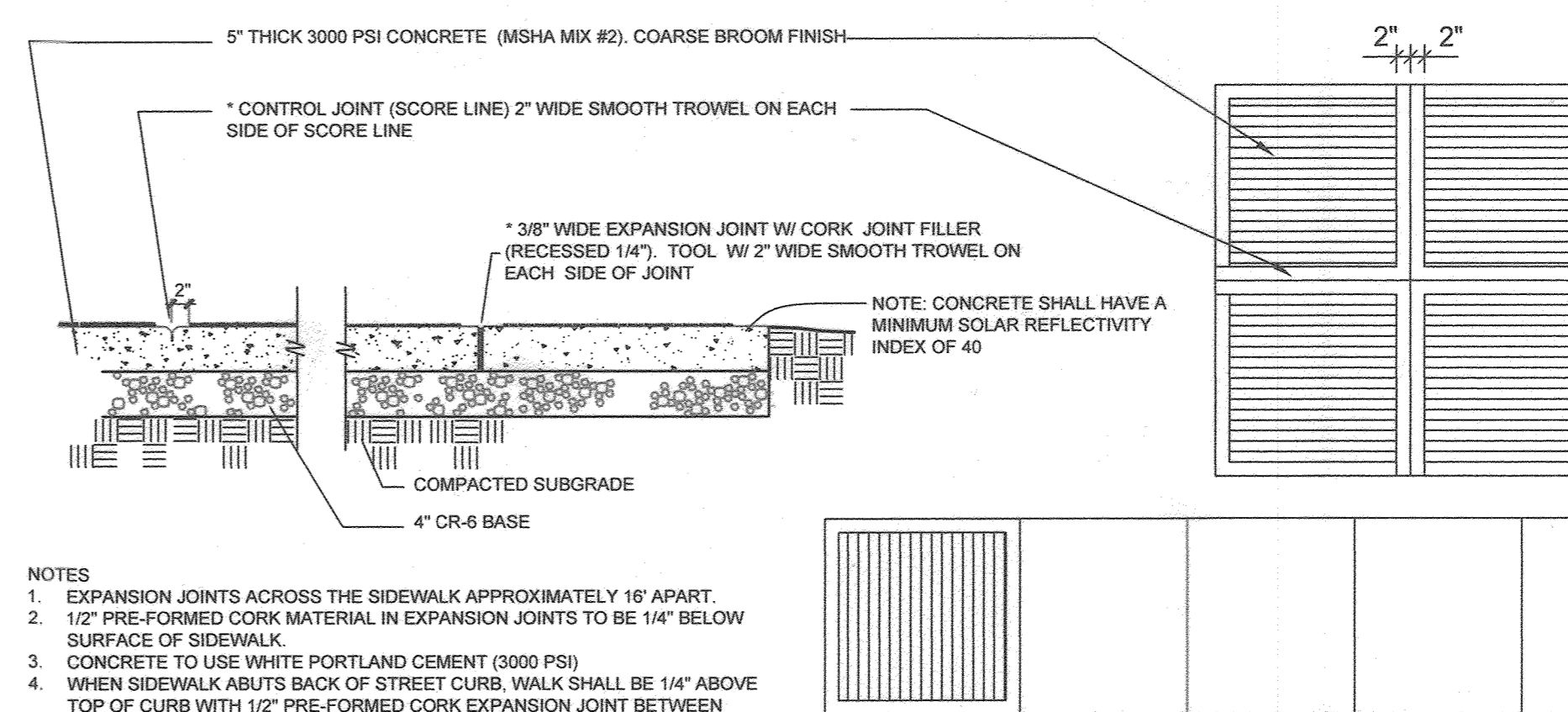
COMPACTION LEVEL 1
BINDER TYPE PG 64-22

B HEAVY DUTY PAVING SECTION (P4)
NOT TO SCALE



NOTE: REFER TO MD 572.22
DETAIL FOR DOWEL
INSTALLATION, TYP.

C CONCRETE VEHICULAR PAVEMENT
NOT TO SCALE
NOTE: CONTRACTOR SHALL INSTALL TEST PANEL OF CONCRETE PAVING
AND SHALL MEASURE SRI 6 MONTHS AFTER INSTALLATION. A MINIMUM SRI
OF 40 SHALL BE OBTAINED.

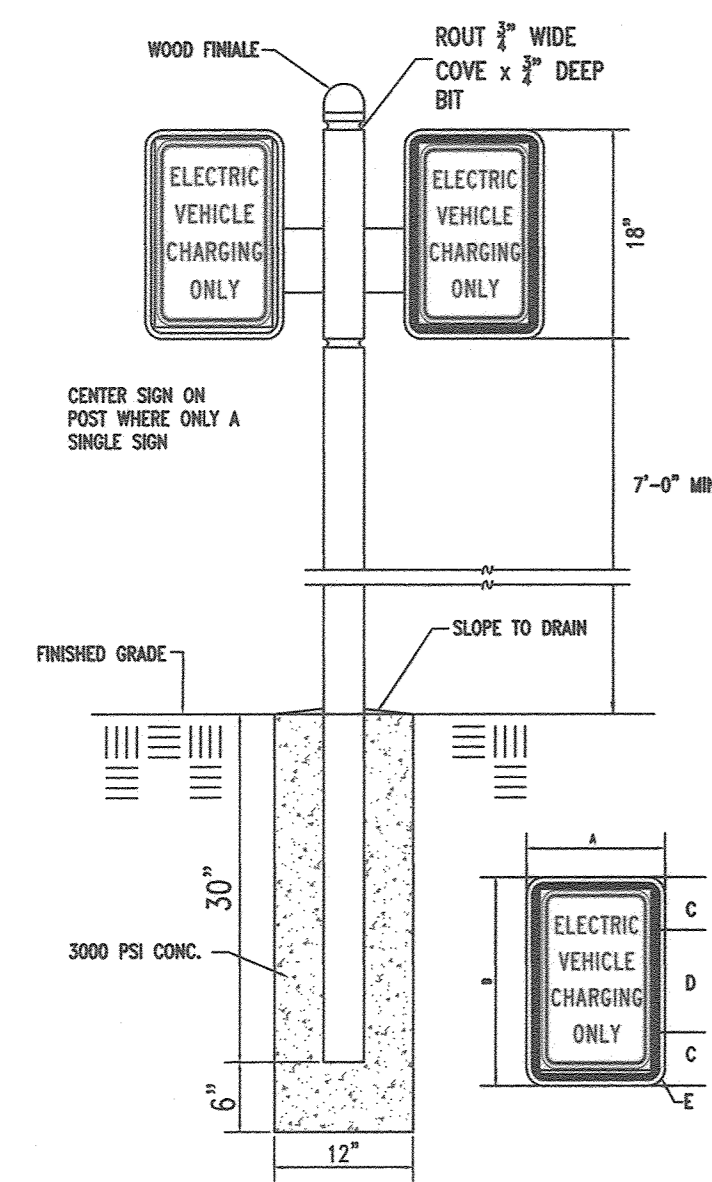


- NOTES
- EXPANSION JOINTS ACROSS THE SIDEWALK APPROXIMATELY 16' APART.
 - 1/2" PRE-FORMED CORK MATERIAL IN EXPANSION JOINTS TO BE 1/4" BELOW SURFACE OF SIDEWALK.
 - CONCRETE TO USE WHITE PORTLAND CEMENT (3000 PSI).
 - WHEN SIDEWALK ABUTS BACK OF STREET CURB, WALK SHALL BE 1/4" ABOVE TOP OF CURB WITH 1/2" PRE-FORMED CORK EXPANSION JOINT BETWEEN THEM.
 - WHERE INTEGRAL COLOR IS CALLED FOR ON THE PLANS, CONTRACTOR SHALL SUBMIT FULL RANGE SAMPLES FROM THE SELECTED PIGMENT SUPPLIER FOR COLOR SELECTION AND APPROVAL BY THE ARCHITECT.

* BEFORE POURING CONCRETE, CONFIRM SCORING PATTERN TO SILL ENGINEERING GROUP, LLC. THE SCORING PLAN SHALL SHOW EXPANSION JOINTS HIGHLIGHTED IN RED AND CONTROL JOINTS HIGHLIGHTED IN YELLOW.

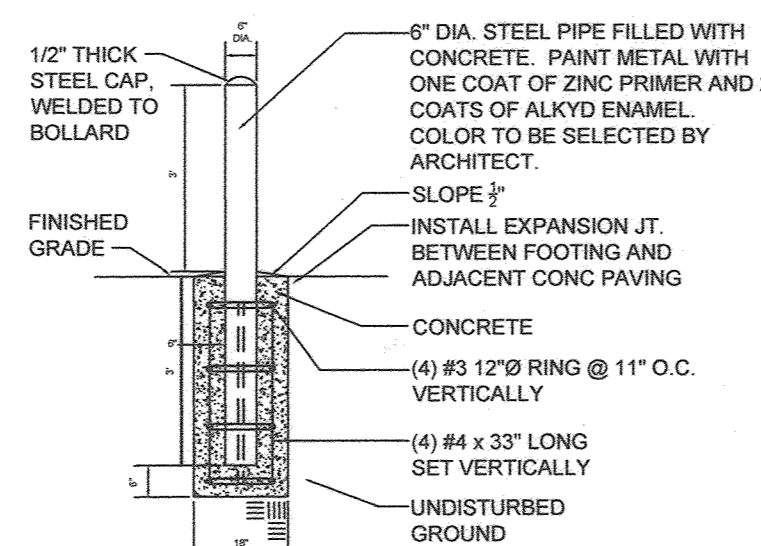
CONSTRUCTION JOINTS: THE EDGE OF EACH CONCRETE POUR SHALL COINCIDE WITH AND BECOME AN EXPANSION JOINT. NO OTHER CONSTRUCTION JOINT IS PERMITTED.

D CONCRETE SIDEWALK - WINDOWPANE
NOT TO SCALE

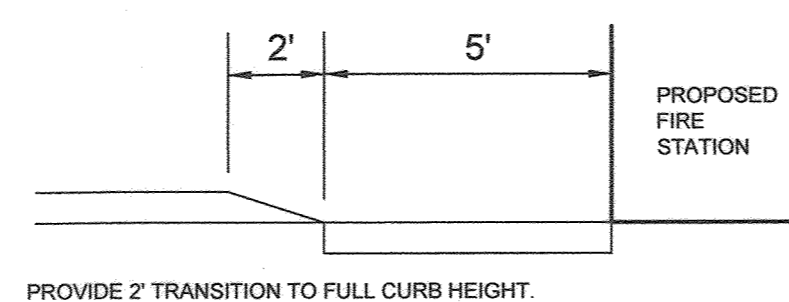


SIGN SIZE	DIMENSIONS (INCHES)				
	A	B	C	D	E
STD.	12	18	1.5	15	1.5

REINFORCEMENT	QUANTITY	SIZE	DIMENSION	SPACING
HORIZONTAL	4	#3	12" RING	11"
VERTICAL	4	#4	33" LONG	EQUAL

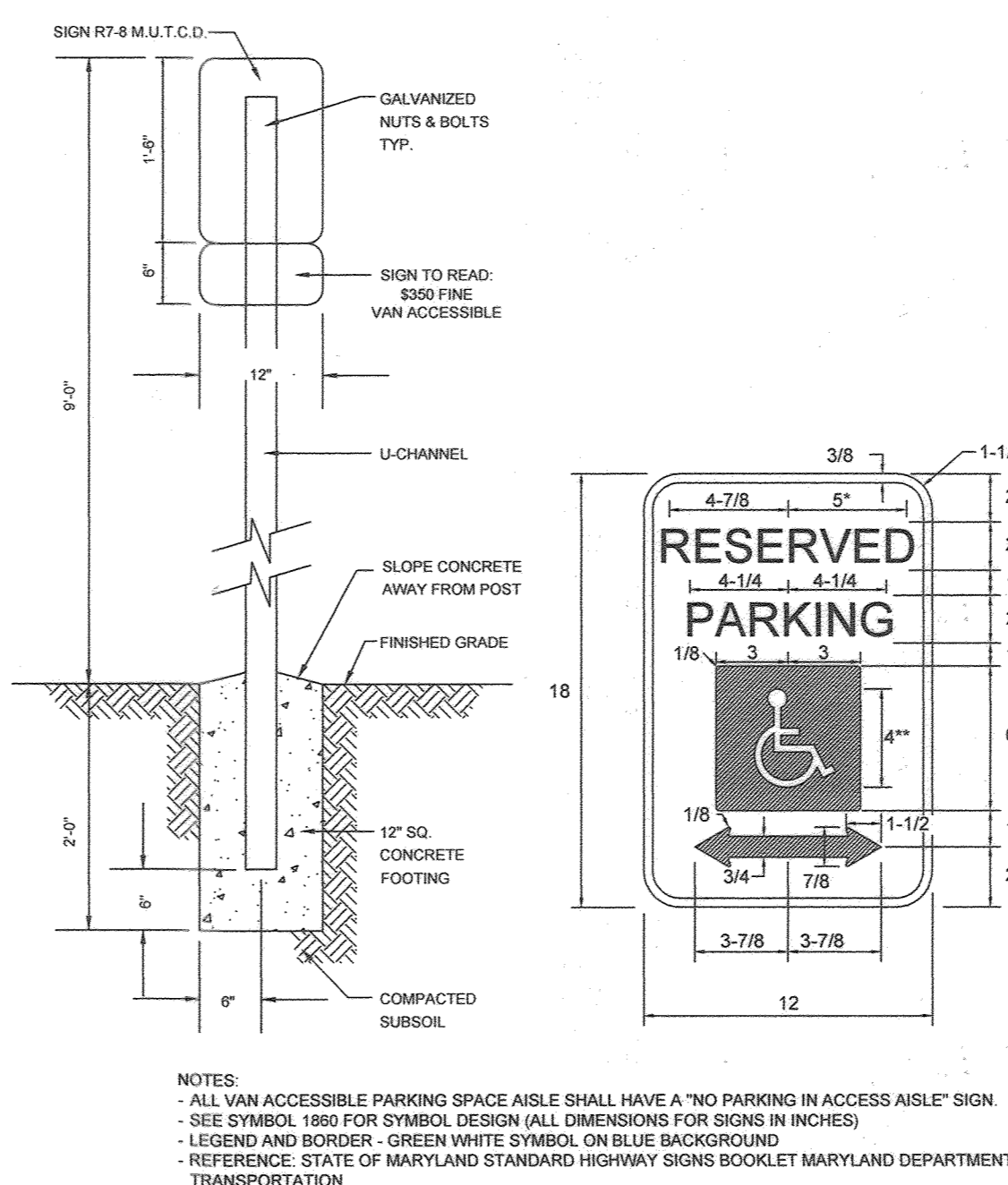


F BOLLARD
NOT TO SCALE



PROVIDE 2' TRANSITION TO FULL CURB HEIGHT.

G CURB NOSE DOWN
NOT TO SCALE



- NOTES
- ALL VAN ACCESSIBLE PARKING SPACE AISLE SHALL HAVE A "NO PARKING IN ACCESS AISLE" SIGN.
 - SEE SYMBOL 1800 FOR SYMBOL DESIGN (ALL DIMENSIONS FOR SIGNS IN INCHES)
 - LEGEND AND BORDER - GREEN/WHITE SYMBOL, ON BLUE BACKGROUND
 - REFERENCE: STATE OF MARYLAND STANDARD HIGHWAY SIGNS BOOKLET MARYLAND DEPARTMENT OF TRANSPORTATION.

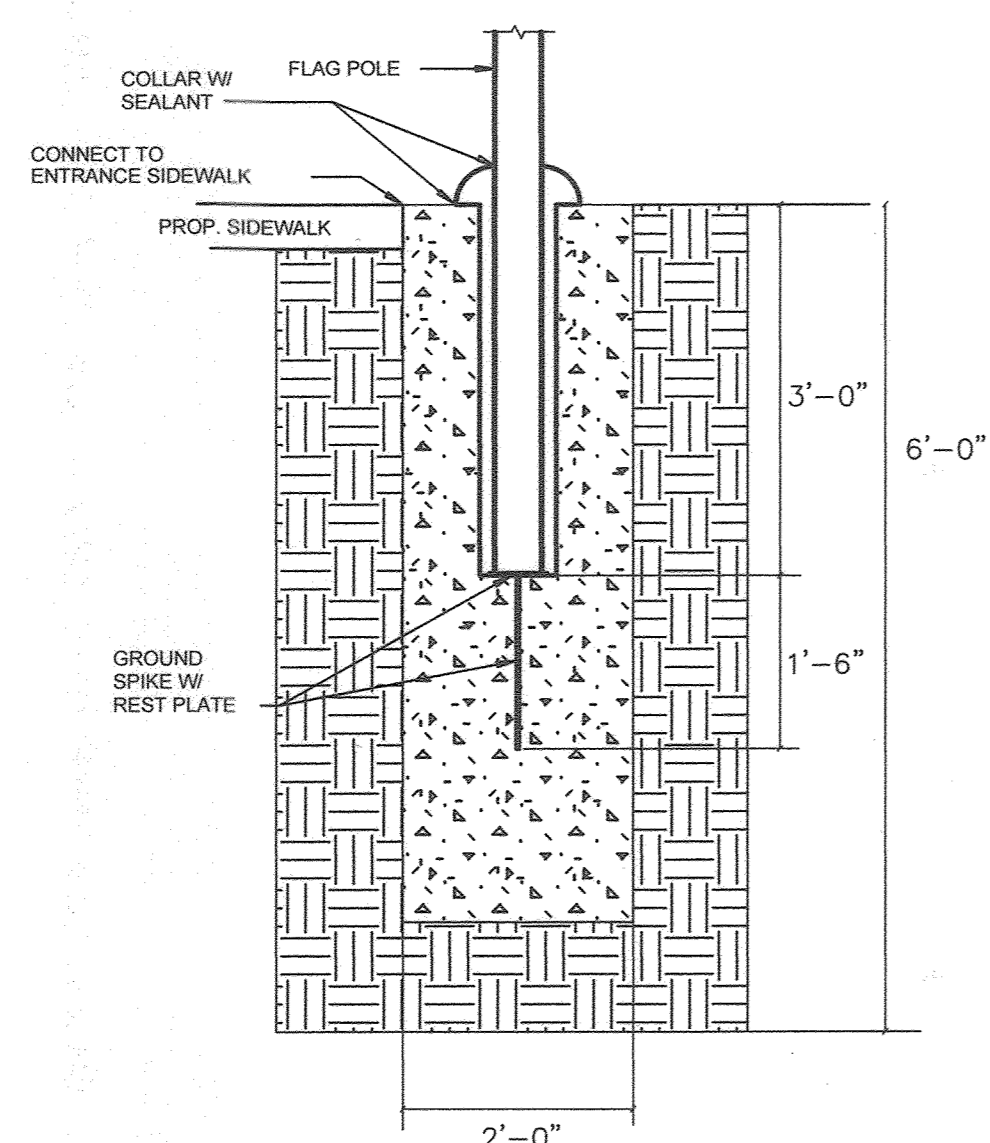
HANDICAPPED PARKING SPACE NOTES

- HANDICAPPED PARKING SPACE LAYOUT, GRADING, MATERIALS, SIGNAGE AND ALL ASSOCIATED FEATURES SHALL BE IN ACCORDANCE WITH THE STATE OF MARYLAND ACCESSIBILITY CODE, AND THE U.S. DEPARTMENT OF JUSTICE AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS, AS AMENDED TO DATE. CONTRACTOR SHALL REVIEW AND RECEIVE APPROVAL OF PROPOSED SIGNAGE LOCATIONS FROM THE APPROPRIATE LOCAL INSPECTOR PRIOR TO INSTALLATION.
- THE MAXIMUM FINE (NOTED ON SIGNAGE) FOR VIOLATIONS SHALL BE \$350. VERIFY PRIOR TO ORDERING SIGNS.
- THE COLOR OF HANDICAPPED SYMBOLS, PARKING SPACE AND AISLE LINE STRIPING SHALL BE IN ACCORDANCE WITH THE LOCAL JURISDICTION, AND SELECTED BY THE INSPECTOR.
- ALL PAINT FOR SYMBOLS AND STRIPING SHALL BE TRAFFIC PAINT IN ACCORDANCE WITH LOCAL JURISDICTION SPECIFICATIONS.
- THE SLOPE OF ALL HANDICAPPED PARKING SPACES AND AISLES SHALL NOT EXCEED 2.00% IN ANY DIRECTION, TYP.

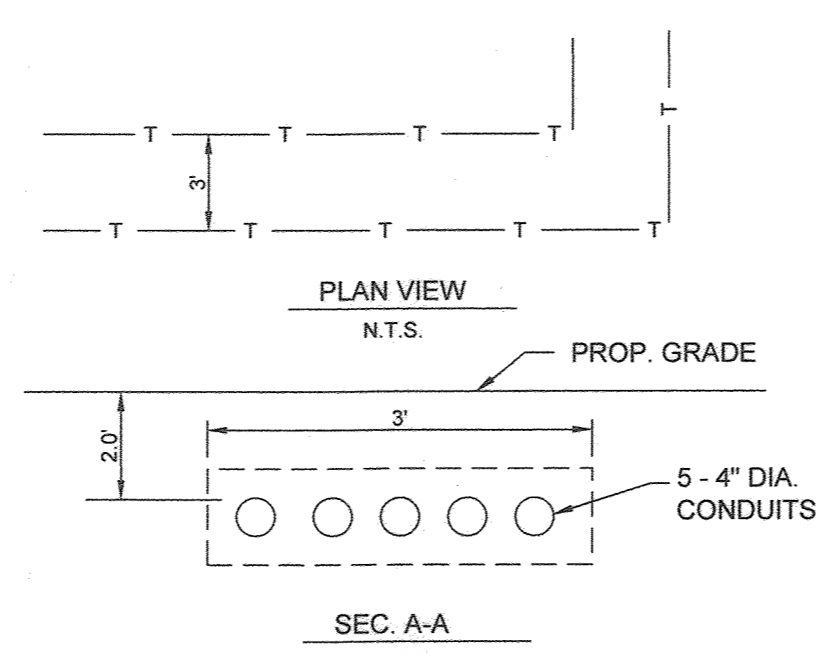
CROSSWALK MARKINGS

SEE SHEET 8, HOWARD COUNTY DETAIL T-7.03, FOR ALL CROSSWALK MARKINGS.

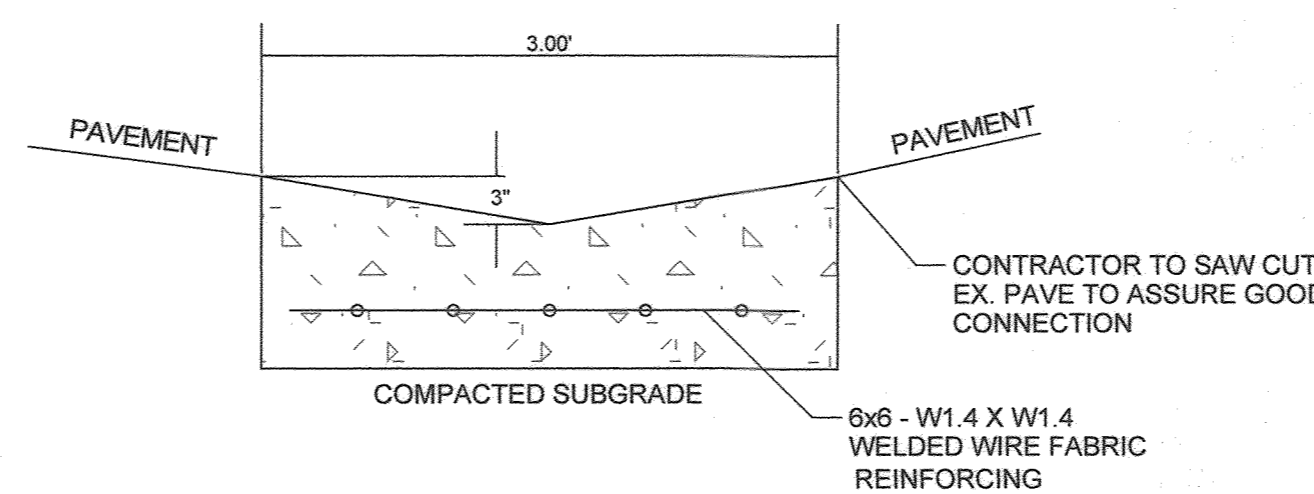
H HANDICAP PARKING SIGN
NOT TO SCALE



I FLAG POLE BASE
NOT TO SCALE



J TELE-COMMUNICATION DUCT BANK
NOT TO SCALE



- EXPANSION JOINTS ACROSS CHANNEL NOT TO BE LESS THAN 16 FEET APART.
- 1/2" PRE-FORMED BITUMINOUS EXPANSION JOINT FILLER IN THE EXPANSION JOINTS TO BE 1/4" BELOW THE SURFACE OF THE CHANNEL.
- CONCRETE TO BE 3,000 PSIMINIMUM.

K CONCRETE FLUME DETAIL
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 9 DATE 5-3-21
Chief, Division of Land Development DATE 5/12/21
Director DATE 5-12-21

OWNER
PARCEL 745
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

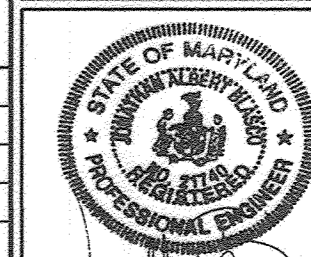
DEVELOPER
HOWARD COUNTY, MD
C/O MARK STROMDAHL
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

STATE OF MARYLAND
PAUL M. SILL
PROFESSIONAL ENGINEER
NO. 32025
DATE 5/25/23
AS-BUILT CERTIFICATION:
THERE IS NO AS-BUILT INFORMATION
ON THIS SHEET.
PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32025

**SITE DETAILS
WATERLOO FIRE STATION**

ZONED: M-2

TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
1ST ELECTION DISTRICT PLAT 25753-25754 HOWARD COUNTY, MARYLAND

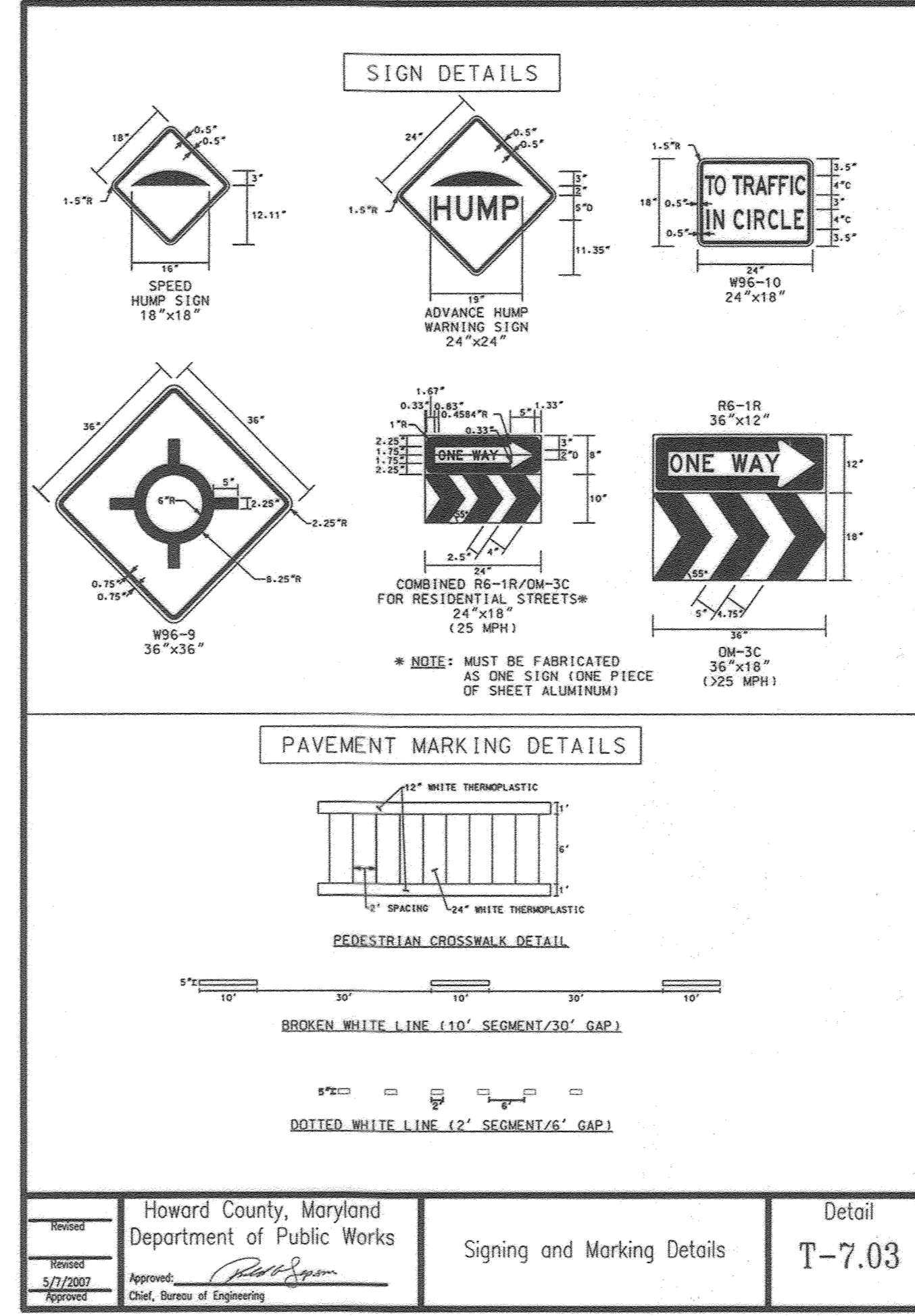
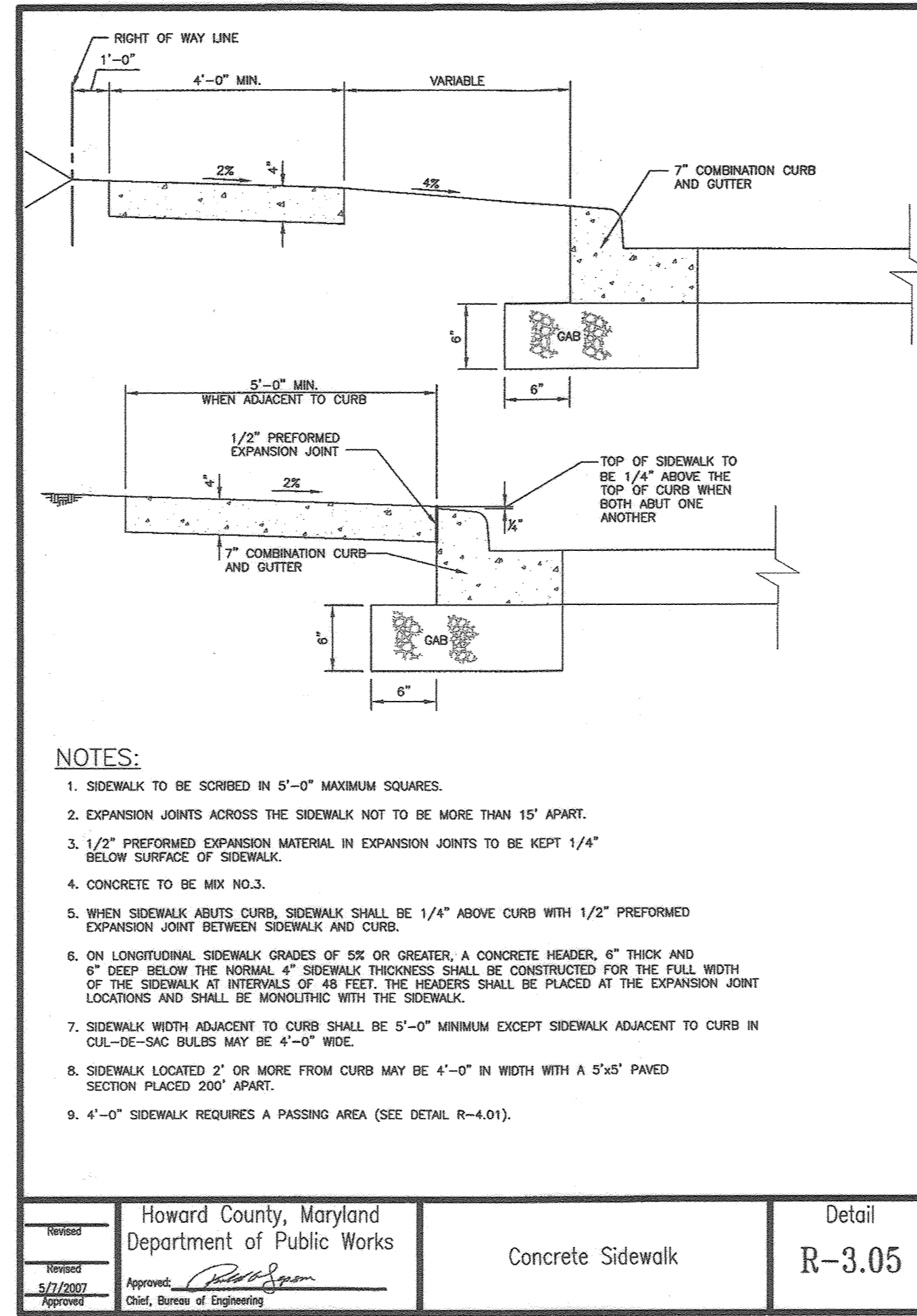
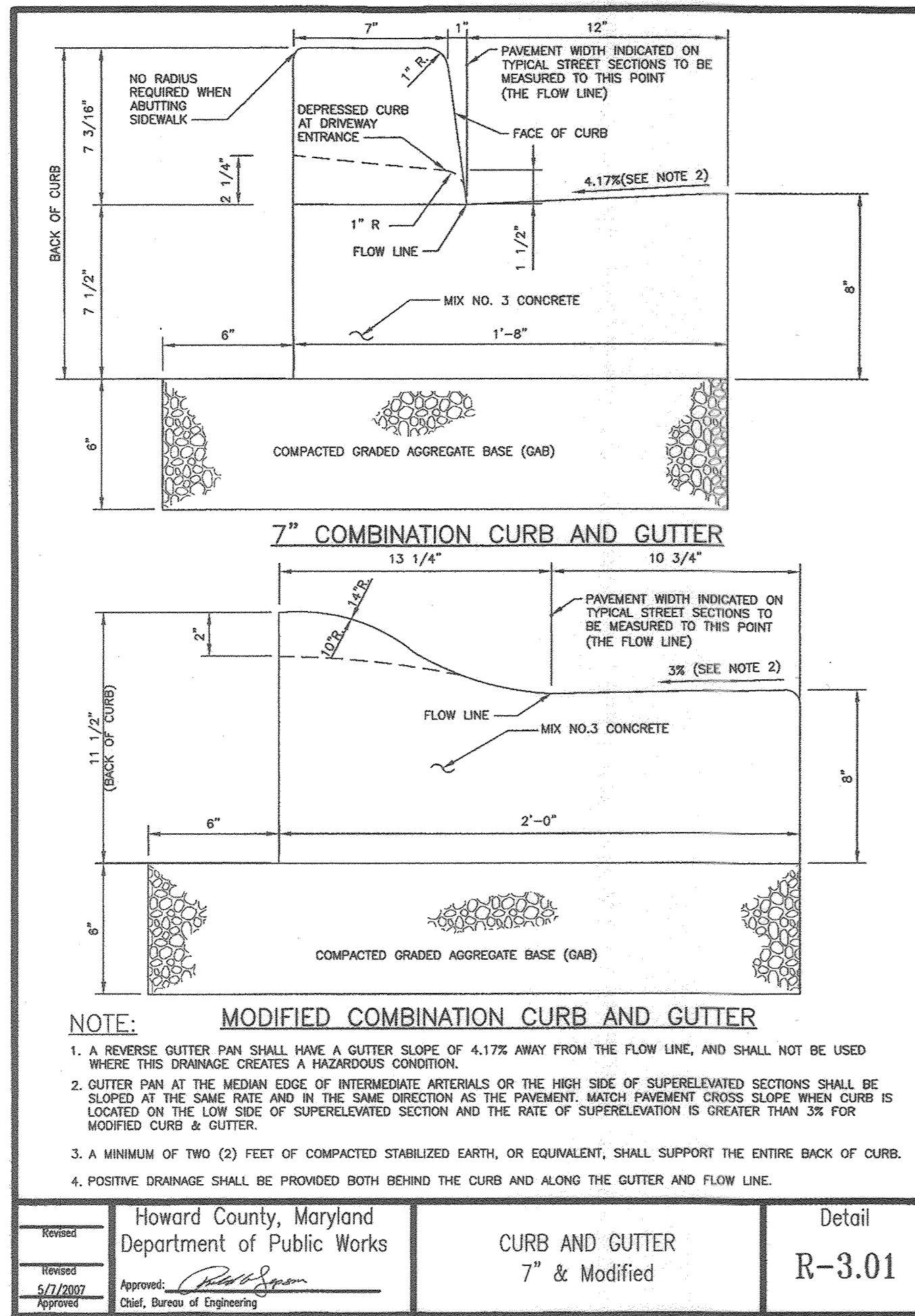


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DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 26/03/2021
PROJECT #: 18-019
SHEET #: 7 of 27

NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	5/23/23
	REDLINE REVISIONS	6/25/2020

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. 21740, EXPIRATION DATE OCT. 08, 2021.



chargepoint

CT4000 Level 2 Commercial Charging Station

Specifications and Ordering Information

Ordering Information

Specify model number followed by the applicable code(s). The order code sequence is: Model-Options. Software, Services and Misc are ordered as separate line items.

Hardware		Description	Order Code
Model	1830 mm (6 ft) Single Port Bollard Mount	1830 mm (6 ft) Single Port Bollard Mount	CT4001-GW1
	1830 mm (6 ft) Single Port Wall Mount	1830 mm (6 ft) Single Port Wall Mount	CT4002-GW1
	2440 mm (8 ft) Dual Port Bollard Mount	2440 mm (8 ft) Dual Port Bollard Mount	CT4025-GW1
	2440 mm (8 ft) Dual Port Wall Mount	2440 mm (8 ft) Dual Port Wall Mount	CT4027-GW1
Included	Integral Modem - North America	Integral Modem - North America	-GW1
Misc	Power Management Kit	Bollard Concrete Mounting Kit	CT4000-PMGMT CT4001-CCM

Note: All CT4000 stations include Integral Modem-GW1.

Software & Services

Description	Order Code
ChargePoint Commercial Service Plan	CPCLD-COMMERCIAL-n
ChargePoint Enterprise Plan	CPCLD-ENTERPRISE-n
ChargePoint Assure	CT4000-ASSURE-n
Station Activation and Configuration	CPSUPPORT-ACTIVE
ChargePoint Station Installation and Validation	CT4000-INSTALLVALD

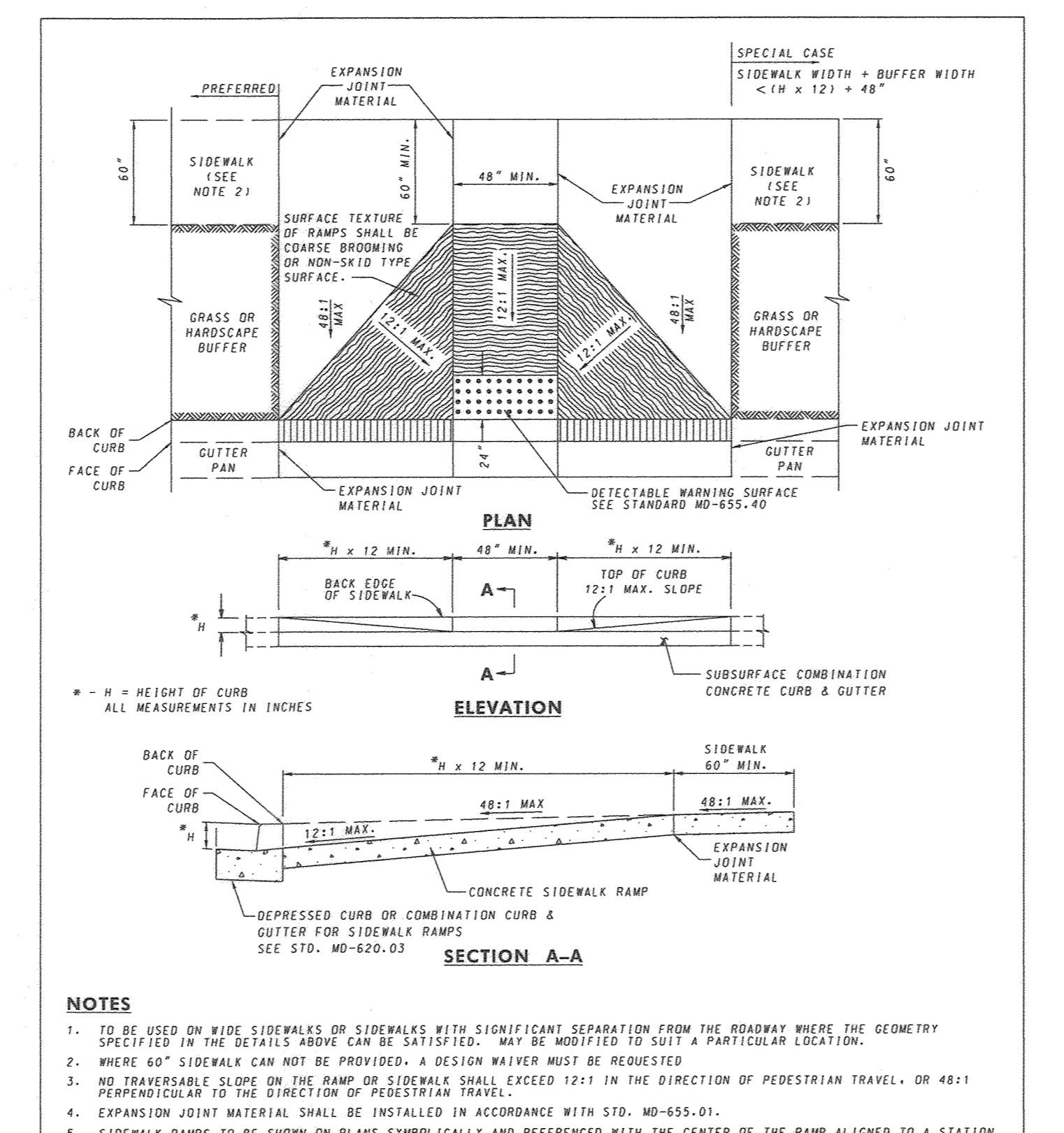
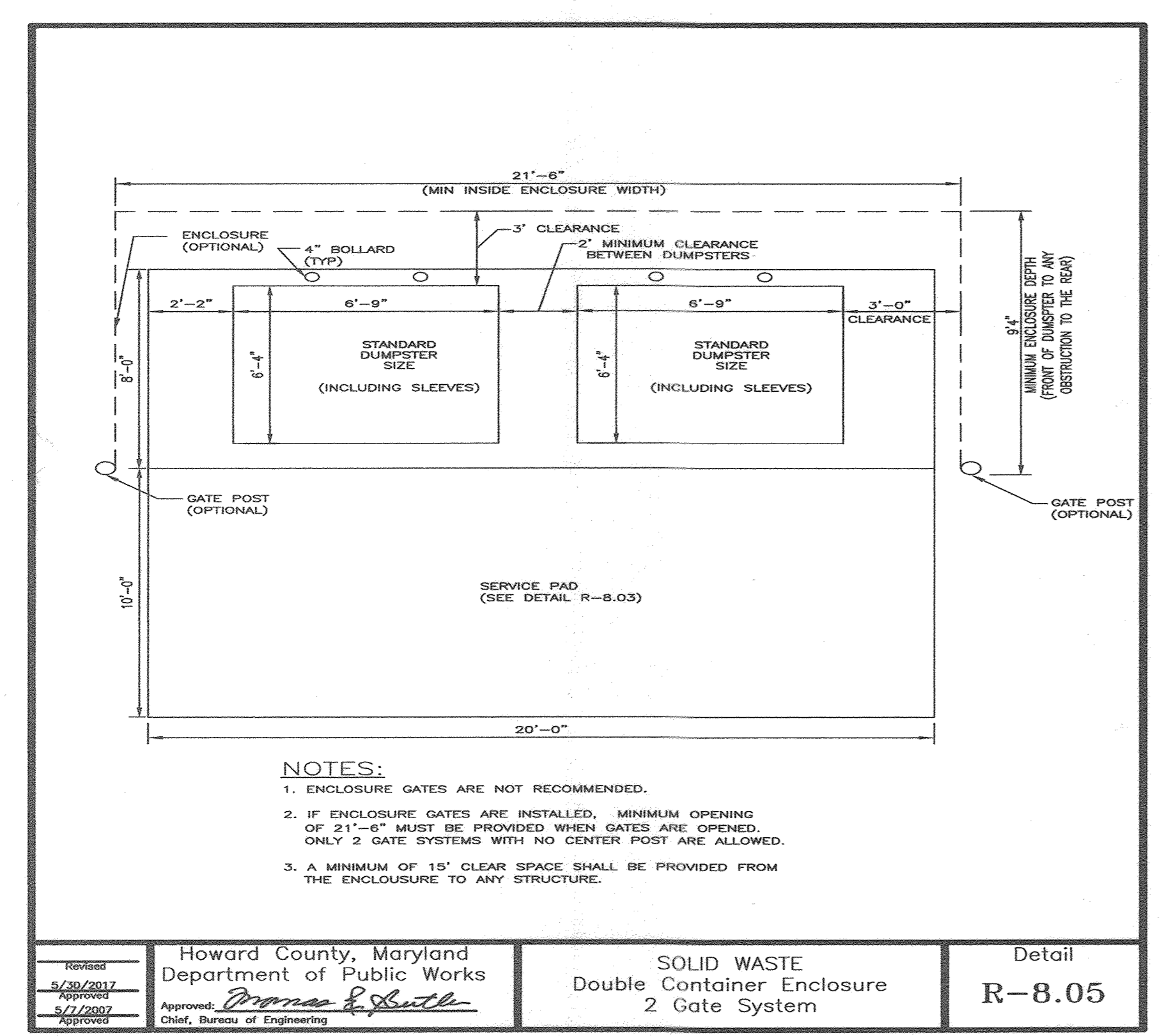
Note: All CT4000 stations require a network service plan per port.
*Substitute n for desired years (1, 2, 3, 4, or 5 years).

Order Code Examples

If ordering this	the order code is
1830 mm (6 ft) Dual Port Bollard Networked Station with Concrete Mounting Kit	CT4025-GW1
ChargePoint Commercial Service Plan, 3 Year Subscription	CPCLD-COMMERCIAL-5
ChargePoint Station Installation and Validation, 3 Years of Assurance Coverage	CT4000-INSTALLVALD CT4000-ASSURES
1830 mm (6 ft) Single Port Wall Mount Networked Station	CT4002-GW1
ChargePoint Commercial Service Plan, 5 Years of Assurance Coverage	CPCLD-COMMERCIAL-5 CT4000-ASSURES
Station Activation and Configuration	CPSUPPORT-ACTIVE

CT4021

ENERGY STAR The First Certified EV Charger



PCA243636-00006 PCX POLYMER CONCRETE ASSEMBLY

newbasis

Polymer Concrete Assembly, Straight Sides, No Floor, WJJC 3.6, ANSISCTE 77 - T15/20K, 3/8" Hex Bolts, Standard Nameplate (Specify at time of order) installed

24" x 36" x 36" For actual dimensions, see drawing on front side.

AVAILABLE OPTIONS

- Tier 22 Load Rating
- Peris Bolts
- Telephone/EMS
- Power EMS
- Custom Nameplate Installed
- Custom Nameplate Shipped Separately
- Standard Nameplate Installed
- Standard Nameplate Shipped Separately

NAMEPLATES

One standard nameplate included with each assembly, installed at the factory or easily installed in the field. Custom nameplates are available. Contact customer service.

Standard Nameplates

- Telephone
- Fiber Optic
- Water
- Street Lighting
- Broadcast
- Traffic
- Traffic Signal
- Communications

MATERIAL PROPERTIES AND ATTRIBUTES

Compressive Strength
Polymer Concrete - 11500 PSI
Per ASTM C695

Flexural Strength
Polymer Concrete - 4000 PSI
Per ASTM C1098

Coefficient of Friction (Dry)
1.065
Per ASTM C1028

Polymer Concrete
Advanced composite. Very high strength to weight ratio.
- Non-metallic
- Non-conductive
- UV Resistant
- High impact resistant
- Impervious to chemicals and moisture

Materials tested in accordance with ASTM D-543 and ASTM D-570

WEIGHTS AND SHIPPING

COVER WEIGHT: 98.0 lbs.
BOX WEIGHT: 330.1 lbs.
ASSEMBLY WEIGHT: 428.1 lbs.
LOADED PALLET WEIGHT: 1,775 lbs.

Standard shipping includes van delivery of pallet quantities to the lower 48 states. Partial pallet quantities and flat bed shipping available at an additional cost.

PACKAGING (Steel Banding, Edge Protection)

PALLET QUANTITY: 4

76 1/2"

35"

40"

Rev. C.2

HANDHOLD BOX DETAIL

N.T.S.

AS-BUILT CERTIFICATION:
THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.

DATE: 6/25/23

PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32025

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 5-2-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 5/10/21
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 5-17-21
DIRECTOR

APPROVED: *[Signature]*
Chief, Bureau of Engineering

APPROVED: *[Signature]*
Chief, Bureau of Engineering

SPECIFICATION 603 & 611

CATEGORY CODE ITEMS

APPROVED: *[Signature]*

DIRECTOR - OFFICE OF PUBLIC DEVELOPMENT

APPROVAL - SHA

APPROVAL - FEDERAL PERMITS

APPROVAL - HIGHWAY ADMINISTRATOR

APPROVAL - 2-10-04

APPROVAL - 3-31-04

REVISION - 3-25-09

REVISION - 4-3-09

REVISION - 6-2-14

REVISION - 8-20-14

Maryland Department of Transportation

STATE HIGHWAY ADMINISTRATION

STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SIDEWALK RAMPS PERPENDICULAR

STANDARD NO. MD 655.11

STATE OF MARYLAND

PAUL M. SILL

PROFESSIONAL ENGINEER

NO. 32025

REVISIONS

NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	6/23/23
	REDLINE REVISIONS	

REVISED SITE DETAILS

WATERLOO FIRE STATION

ZONED: M-2

"GREEN BUILDING"

TAX MAP 43 GRID 9 1ST ELECTION DISTRICT

PARCEL 745 HOWARD COUNTY, MARYLAND

25153 - 25154

DESIGN BY: JB

DRAWN BY: TB

CHECKED BY: PS

SCALE: AS SHOWN

DATE: 26/03/2021

PROJECT #: 16-019

SHEET #: 8 of 27

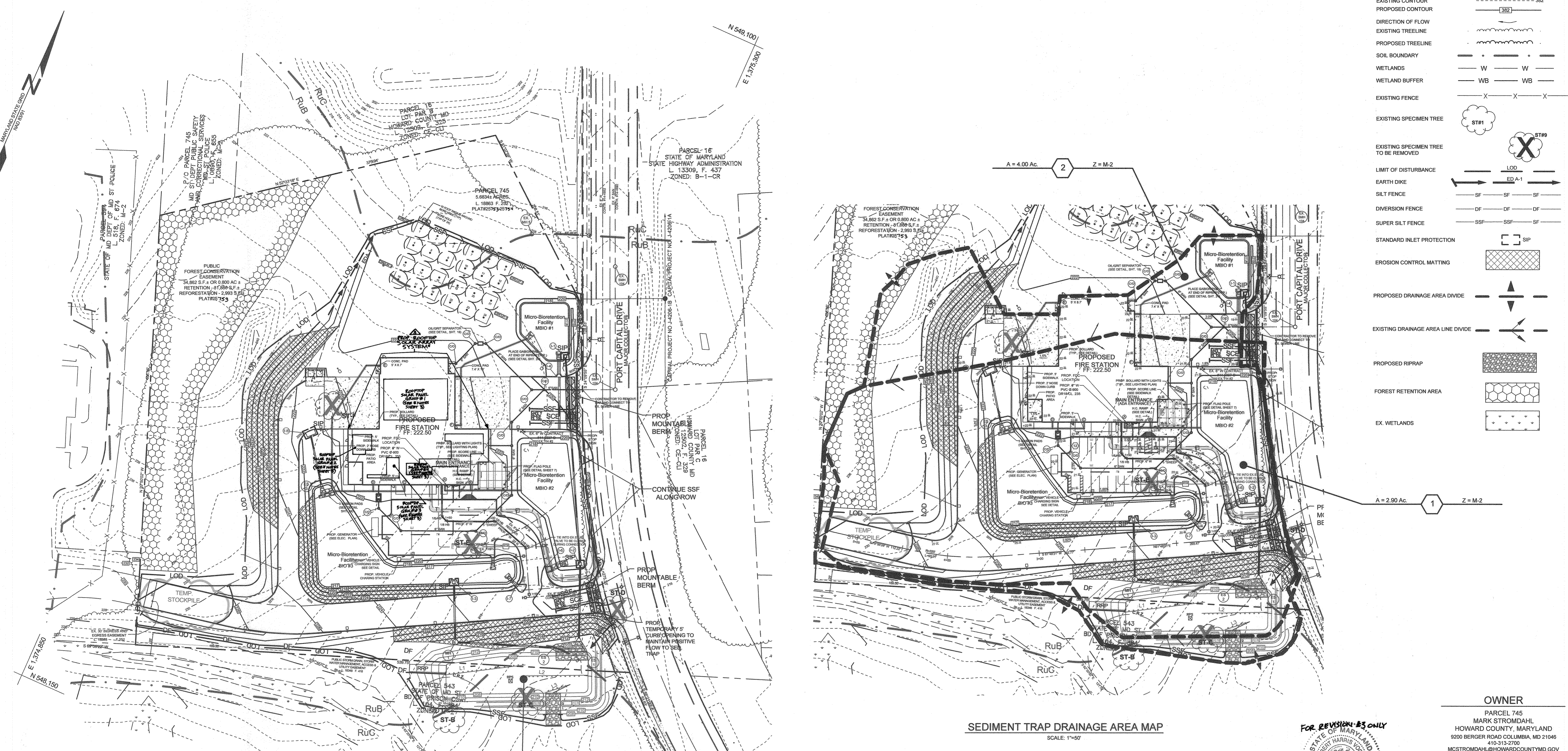
SILL ENGINEERING GROUP, LLC

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Civil Engineering for Land Development

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LEGEND

EXISTING CONTOUR	---	882
PROPOSED CONTOUR	---	382
DIRECTION OF FLOW	---	---
EXISTING TREELINE	---	---
PROPOSED TREELINE	---	---
SOIL BOUNDARY	---	---
WETLANDS	---	---
WETLAND BUFFER	---	---
EXISTING FENCE	---	---
EXISTING SPECIMEN TREE	---	ST#1
EXISTING SPECIMEN TREE TO BE REMOVED	---	ST#9
LIMIT OF DISTURBANCE	---	LOD
EARTH DIKE	---	ED A-1
SILT FENCE	---	SF
DIVERSION FENCE	---	DF
SUPER SILT FENCE	---	SSF
STANDARD INLET PROTECTION	---	SIP
EROSION CONTROL MATTING	---	---
PROPOSED DRAINAGE AREA DIVIDE	---	---
EXISTING DRAINAGE AREA LINE DIVIDE	---	---
PROPOSED RIPRAP	---	---
FOREST RETENTION AREA	---	---
EX. WETLANDS	---	---



SEDIMENT TRAP DRAINAGE AREA MAP
SCALE: 1"=50'

PLAN VIEW
SCALE: 1"=50'

SEDIMENT TRAP (ST-II)
EXISTING DRAINAGE AREA: 2.9 AC±
PROPOSED DRAINAGE AREA: 4.00 AC±
Q(1) = 6 cfs
TOTAL STORAGE REQUIRED: 14,400 CF
TOTAL STORAGE PROVIDED: 28,022 CF
WET STORAGE REQUIRED: 7,200 CF
WET STORAGE PROVIDED: 14,011 CF
WET STORAGE ELEVATION: 210.00
DRY STORAGE REQUIRED: 7,200 CF
DRY STORAGE PROVIDED: 14,011 CF
DRY STORAGE ELEVATION: 211.70
EXISTING GROUND AT OUTLET: 208.70
TRAP BOTTOM ELEVATION: 208.00
TRAP BOTTOM DIMENSIONS: 155' x 40'
WEIR LENGTH: 16.0'
WEIR CREST ELEVATION: 211.70
SIDE SLOPE: 2:1
EMBANKMENT TOP WIDTH: 4.0'
EMBANKMENT ELEVATION: 212.70
CLEANOUT ELEVATION: 209.03

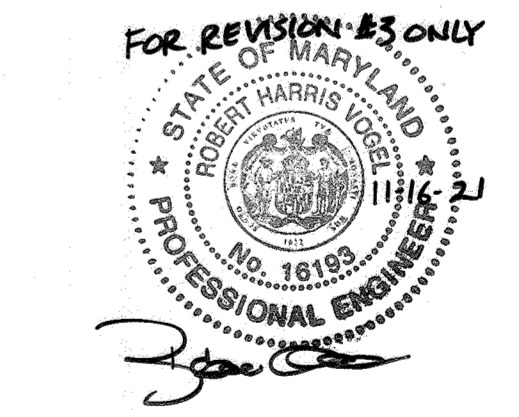
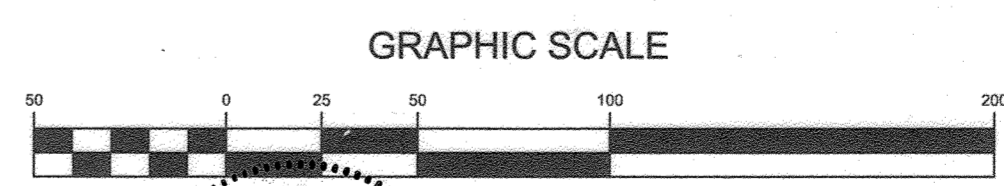
BAFFLE DESIGN

BAFFLE BOARD DESIGN
1. A = SURFACE AREA AT WET STORAGE ELEVATION = 7700 FT²
2. EFFECTIVE WIDTH, WE = (A/2)^{0.5} = 62 FT
3. FLOW LENGTH FROM INFLOW POINT TO OUTLET = 40 FT
4. IF LINE 3 IS LESS THAN WE X 2, PROVIDE BAFFLE BOARDS TO LENGTHEN FLOW PATH
5. EFFECTIVE FLOW LENGTH, LE = L1 + L2 + L3 = 180 FT (MUST BE ≥ WE X 2 = 124 FT)

REQUIRED LENGTH: 124'
PROVIDED LENGTH: 185'
L1 = 88'
L2 = 72'
L3 = 27'
TOTAL = 185'

SURFACE AREA DESIGN

1. Q10 = 11.95 CFS (SEE HYDROLOGIC REPORT)
2. MINIMUM BASIN SURFACE AREA REQUIRED = 0.0035 X Q10
Q10 = 11.95 CFS AREA REQUIRED = 0.0418 AC
AREA PROVIDED = 0.1380 AC



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HOWARD COUNTY, MD
C/O MARK STROMDAHL
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K _f FACTOR WHOLE SOIL	AREA
FmA	FALL SINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D	0.28	0.14
RUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEBB SOIL SURVEY.
2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
5-3-21
DATE
5/17/21
DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
4/23/21
DATE

ENGINEER'S CERTIFICATE
"I 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."
4-9-21
DATE

DEVELOPER'S CERTIFICATE
"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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."
4-08-21
DATE

REVISIONS

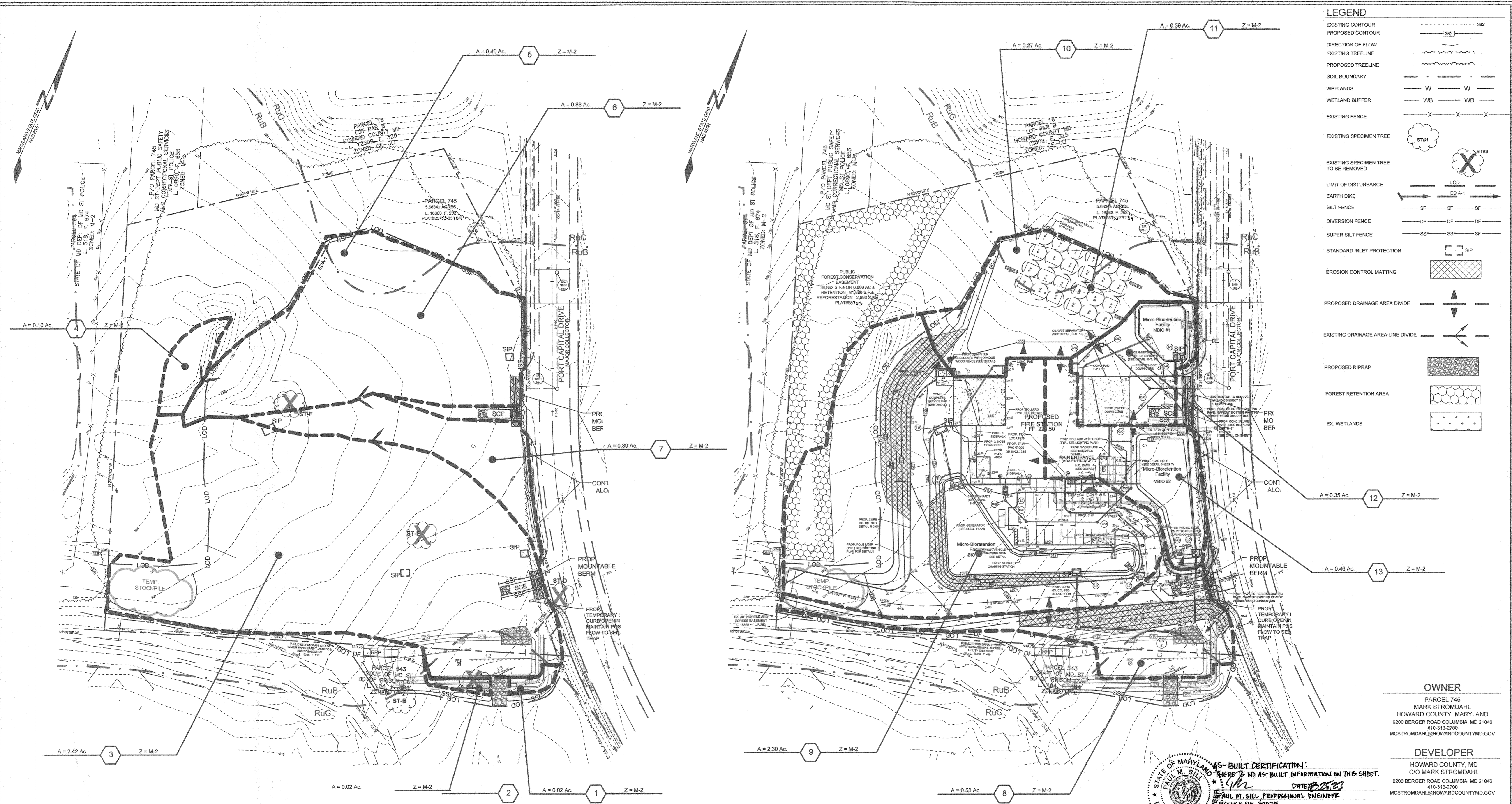
NO.	DESCRIPTION	DATE
4	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
3	REVISE THE PLAN TO SHOW THE INSTALLATION OF ROOFTOP SOLAR PANELS	11-16-23
2	REDLINE REVISIONS	6/25/2020

REVISED SEDIMENT AND EROSION CONTROL PLAN
WATERLOO FIRE STATION
ZONED: M-2
"GREEN BUILDING"
TAX MAP 43 GRID 9
1ST ELECTION DISTRICT
PLAT 25753-25754
HOWARD COUNTY, MARYLAND
PARCEL 745

DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 27/03/2021
PROJECT #: 16-019
SHEET #: 9 of 27

16005 Frederick Road, 2nd Floor
Woodbine, Maryland 21797
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

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. 21760, EXPIRATION DATE OCT. 08, 2021



LEGEND

- EXISTING CONTOUR: --- 382
- PROPOSED CONTOUR: --- 382
- DIRECTION OF FLOW: [Symbol]
- EXISTING TREELINE: [Symbol]
- PROPOSED TREELINE: [Symbol]
- SOIL BOUNDARY: [Symbol]
- WETLANDS: W W
- WETLAND BUFFER: WB WB
- EXISTING FENCE: X X X
- EXISTING SPECIMEN TREE: ST#1
- EXISTING SPECIMEN TREE TO BE REMOVED: ST#9
- LIMIT OF DISTURBANCE: LOD
- EARTH DIKE: ED A-1
- SILT FENCE: SF SF SF
- DIVERSION FENCE: DF DF DF
- SUPER SILT FENCE: SSF SSF SF
- STANDARD INLET PROTECTION: SIP
- EROSION CONTROL MATTING: [Symbol]
- PROPOSED DRAINAGE AREA DIVIDE: [Symbol]
- EXISTING DRAINAGE AREA LINE DIVIDE: [Symbol]
- PROPOSED RIPRAP: [Symbol]
- FOREST RETENTION AREA: [Symbol]
- EX. WETLANDS: [Symbol]

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR WHOLE SOIL	AREA
F&A	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D	0.14	
RUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
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NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5-3-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 5/17/21
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 5-17-21
 DIRECTOR

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 [Signature] 4/23/21
 HOWARD SCD

ENGINEER'S CERTIFICATE
 "I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 [Signature] 4-9-21
 JONATHAN BLASCO, P.E.

DEVELOPER'S CERTIFICATE
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN 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."
 [Signature] 4-08-21
 DEAN RULLER (actg)

REVISIONS

NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP 8/23/23	
	REDLINE REVISIONS	6/25/2020

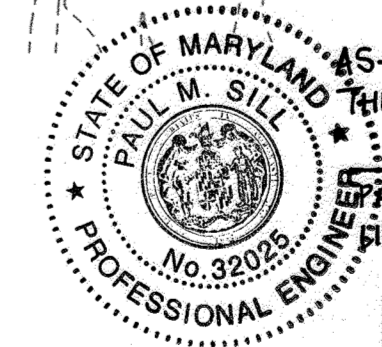
SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 28/03/2021
 PROJECT #: 16-019
 SHEET #: 10 of 27

REVISED SEDIMENT AND EROSION DRAINAGE AREA MAPS WATERLOO FIRE STATION
 ZONED: M-2
 TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
 1ST ELECTION DISTRICT PLAT 25753-25751 HOWARD COUNTY, MARYLAND

OWNER
 PARCEL 745
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
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DEVELOPER
 HOWARD COUNTY, MD
 C/O MARK STROMDAHL
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV



AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 [Signature] 8/23/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32025

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

DEFINITION
THE PREPARATION OF SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

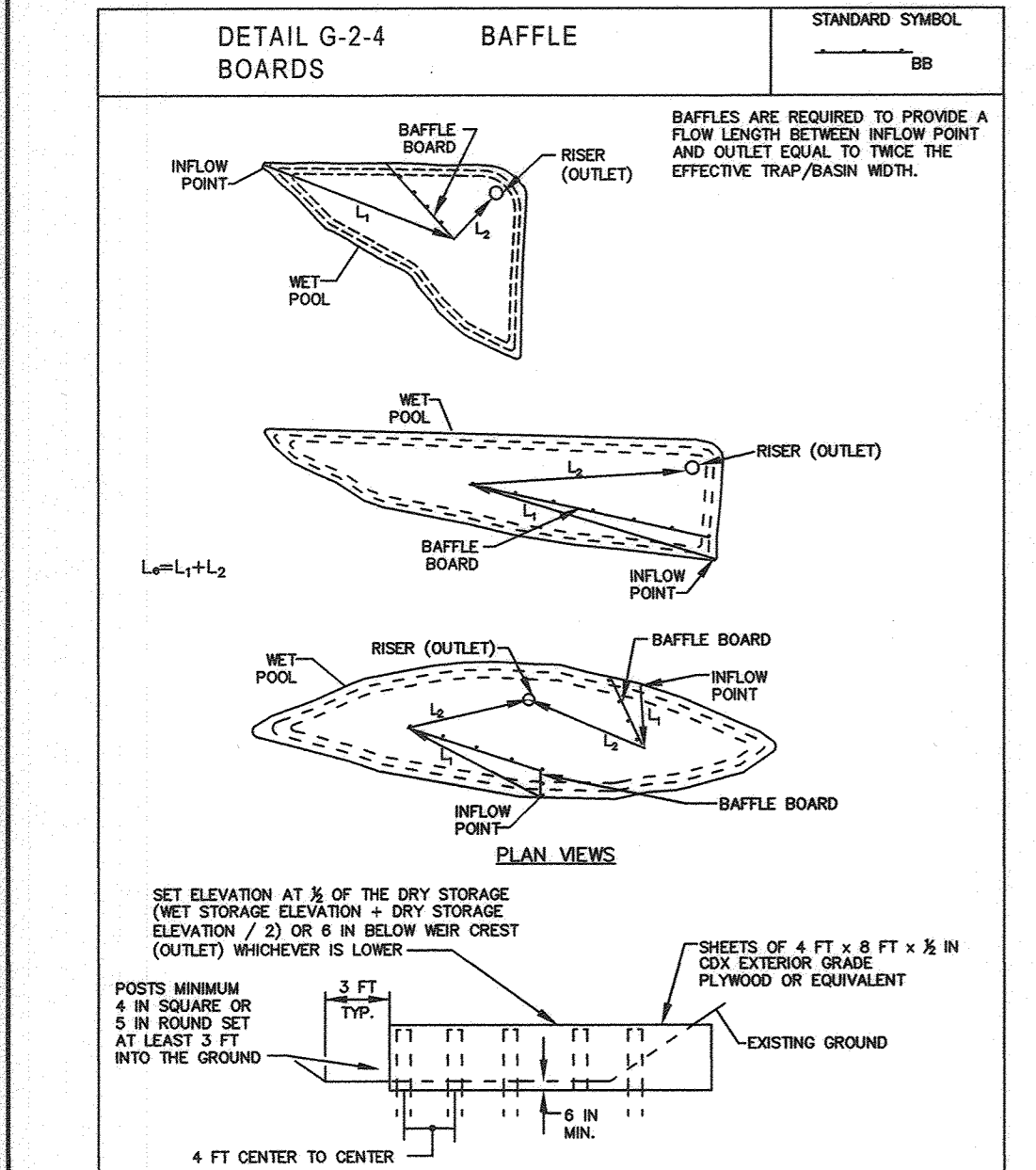
CRITERIA
WHERE PRACTICE APPLIES TO THE SURFACE OF ALL PERMETER CONTROL SLOPES, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

SOIL PREPARATION

- TEMPORARY STABILIZATION
 - SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SPECIALIZED AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS DISBURSED, IT MUST NOT BE ROLLED OR GRADED OR OTHERWISE COMPACTED. THE QUALITY OF SEED BEDS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - SOIL 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 IS FROZEN.
 - INCULCANTS: THE INCULCANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INCULCANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INCULCANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INCULCANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURE ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN KILL BACTERIA AND MAKE THE INCULCANT LESS EFFECTIVE.
 - SOIL 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.
- PERMANENT STABILIZATION
 - APPLICABLE TO THIS INCLUDES USE OF CONVENTIONAL DROPPY OR BROADCAST SPREADERS.
 - PERMANENT SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROPPY OR BROADCAST SPREADERS. TABLE 1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WHEELED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - DRILL OR CULTIVATOR SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL. CULTIVATOR SEEDING: MECHANIZED SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVER. SEEDING MUST BE FIRM AFTER PLANTING.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD EXCEED THE FOLLOWING: NITROGEN: 100 POUNDS PER ACRE (200 POUNDS PER ACRE); PHOSPHORUS: 200 POUNDS PER ACRE; POTASSIUM: 200 POUNDS PER ACRE. LIMES: 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, MOLLY, GAKED, OR EXCESSIVELY DUSTY. NOTE: USE OF MIXED SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

TOPSOILING

- 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, HIGH pH, LOW PHOSPHORUS, LOW NITROGEN, HIGH TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
- 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 FLUSHED BY USDA NRCS.
- TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOILING MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - 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.
 - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.
- AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
- TOPSOIL APPLICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
 - 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 A REGISTERED PROFESSIONAL ENGINEER 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 CONCRETE, STONES, SLAG, CONCRETE FRAGMENTS, GRASS, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/4 INCH IN DIAMETER.
 - TOPSOIL MUST BE FREE OF NOXIOUS WEEED SEEDS OR PLANTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, SPURGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - 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.
- TOPSOIL APPLICATION
 - EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - 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 SOODING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS A FROZEN OR MUDDY CONDITION. TOPSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
 - TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS A FROZEN OR MUDDY CONDITION. TOPSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.
- SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 - TOPSOIL 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 REGISTERED PROFESSIONAL ENGINEER, SOIL SCIENTIST, OR SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 - 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 TRADE MARK AND WARRANTY OF THE PRODUCER.
 - LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 90 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 90 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
 - 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.
 - WHERE OTHER LIME OR FERTILIZER COMPOUNDS 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.



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. U.S. DEPARTMENT OF AGRICULTURE, NATIONAL RESOURCES CONSERVATION SERVICE, 2011.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 5-3-21

CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 5-17-21

DIRECTOR: [Signature] DATE: 5-17-21

HOWARD SCD

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

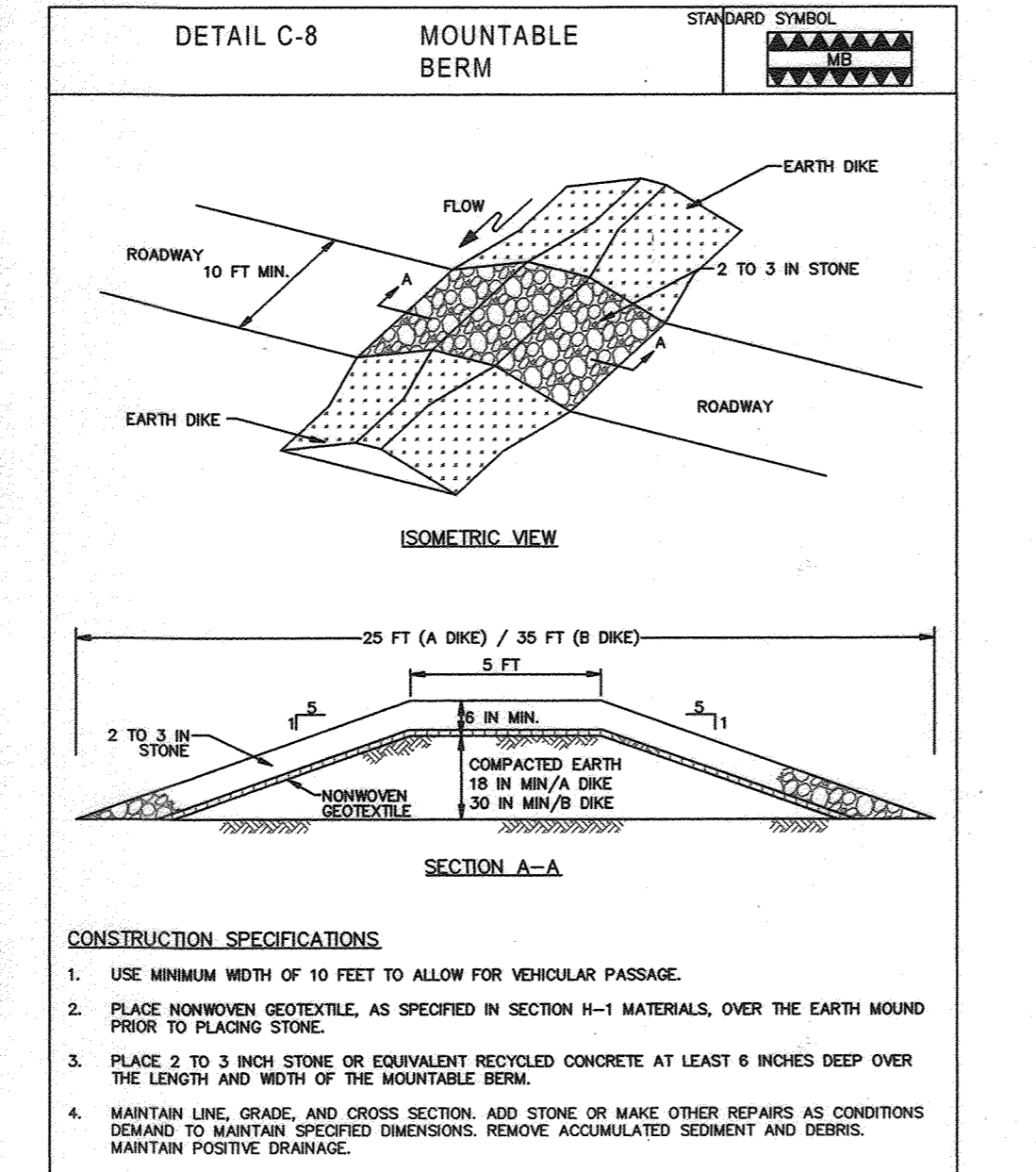
DEFINITION
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CRITERIA
WHERE PRACTICE APPLIES TO THE SURFACE OF ALL PERMETER CONTROL SLOPES, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

SEEDING

- SPECIFICATIONS
 - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 9 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIALS MUST BE IDENTIFIED BY LABEL OR TAG. ALL SEED MUST BE IDENTIFIED BY LABEL OR TAG MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - 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 IS FROZEN.
 - INCULCANTS: THE INCULCANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INCULCANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INCULCANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INCULCANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURE ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN KILL BACTERIA AND MAKE THE INCULCANT LESS EFFECTIVE.
 - SOIL 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.
- APPLICATION
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROPPY OR BROADCAST SPREADERS. TABLE 1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WHEELED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - DRILL OR CULTIVATOR SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL. CULTIVATOR SEEDING: MECHANIZED SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVER. SEEDING MUST BE FIRM AFTER PLANTING.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD EXCEED THE FOLLOWING: NITROGEN: 100 POUNDS PER ACRE (200 POUNDS PER ACRE); PHOSPHORUS: 200 POUNDS PER ACRE; POTASSIUM: 200 POUNDS PER ACRE. LIMES: 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, MOLLY, GAKED, OR EXCESSIVELY DUSTY. NOTE: USE OF MIXED SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. U.S. DEPARTMENT OF AGRICULTURE, NATIONAL RESOURCES CONSERVATION SERVICE, 2011.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 5-3-21

CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 5-17-21

DIRECTOR: [Signature] DATE: 5-17-21

HOWARD SCD

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE
TO USE LONG-LEIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CRITERIA
WHERE PRACTICE APPLIES TO THE SURFACE OF ALL PERMETER CONTROL SLOPES, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

SEEDING MIXTURES

- GENERAL USE
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SEED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY.
 - 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 USNRCS'S TECHNICAL FIELD GUIDE, SECTION M2 - CRITICAL AREA PLANTING.
 - FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING LABORATORY.
 - FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 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.
- TURF GRASS MIXTURES
 - AREAS WHERE TURF GRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITION OR PURPOSE, ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - KENTUCKY BLUEGRASS: FULL SUN MIXTURE FOR USE IN AREAS THAT RECEIVE FULL SUN. 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.
 - KENTUCKY BLUEGRASS/PENNSYLVANIA FULL SUN MIXTURE FOR USE IN FULL SUN AREAS WHERE B.2 RATIO ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MAINTENANCE. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE 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.
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 - IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SO DURING THE HEAT OF THE DAY TO PREVENT WILTING.
 - AFTER THE FIRST WEEK, SOIL WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
 - DO NOT MOW UNTIL THE SOIL IS FIRMLY ROOTED. NO MORE THAN 3/4 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.



MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. U.S. DEPARTMENT OF AGRICULTURE, NATIONAL RESOURCES CONSERVATION SERVICE, 2011.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 5-3-21

CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 5-17-21

DIRECTOR: [Signature] DATE: 5-17-21

HOWARD SCD

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

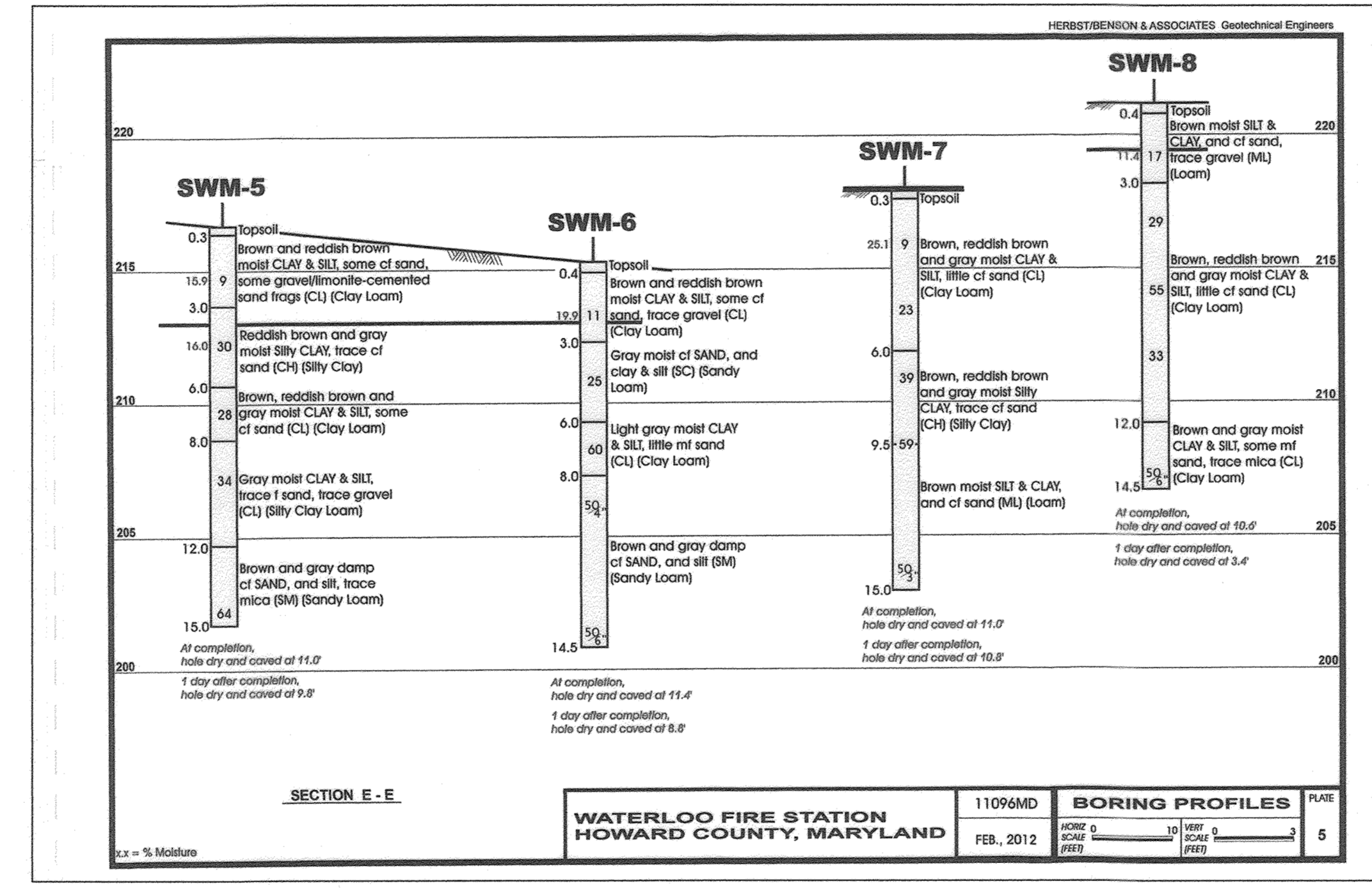
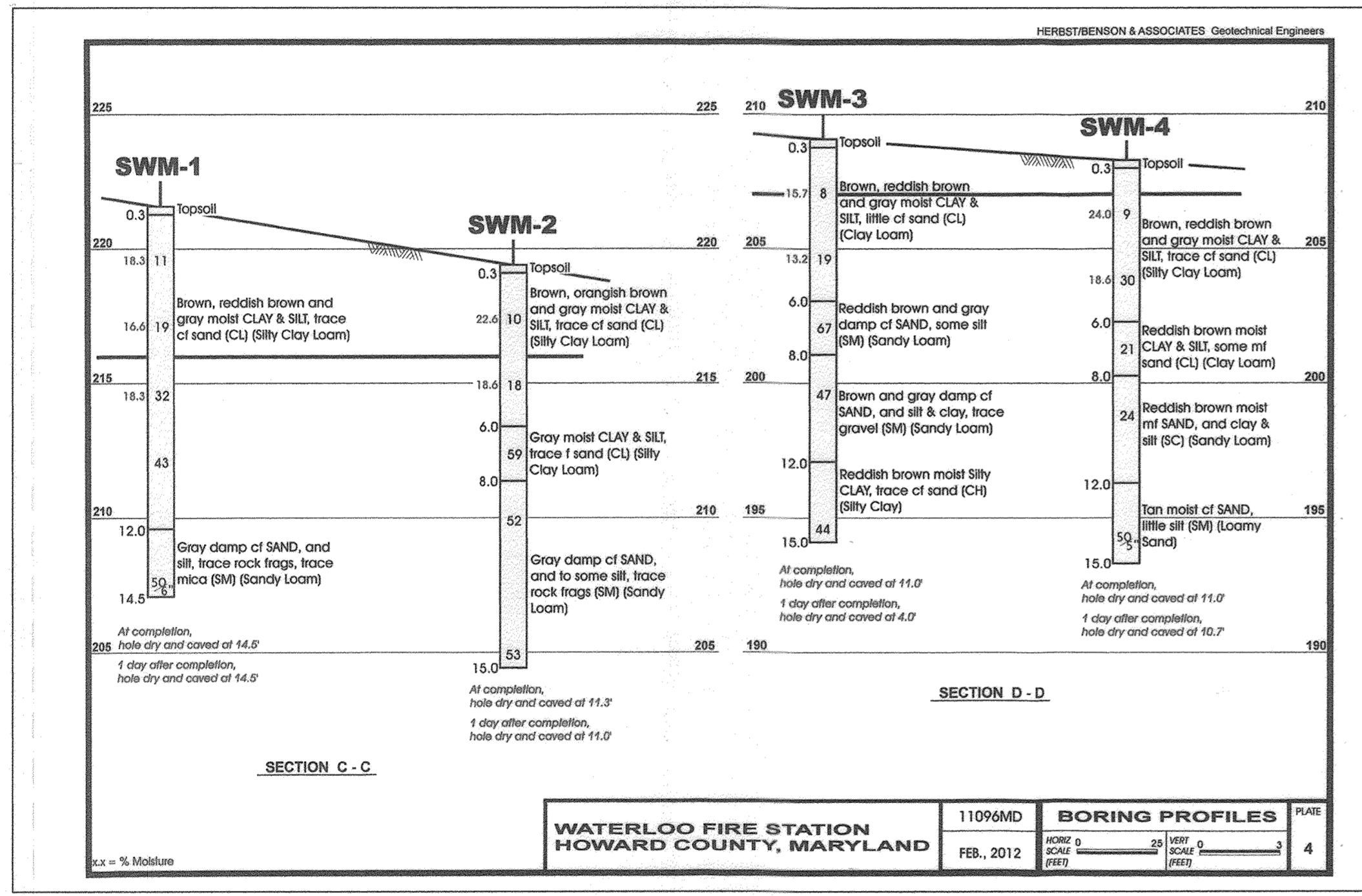
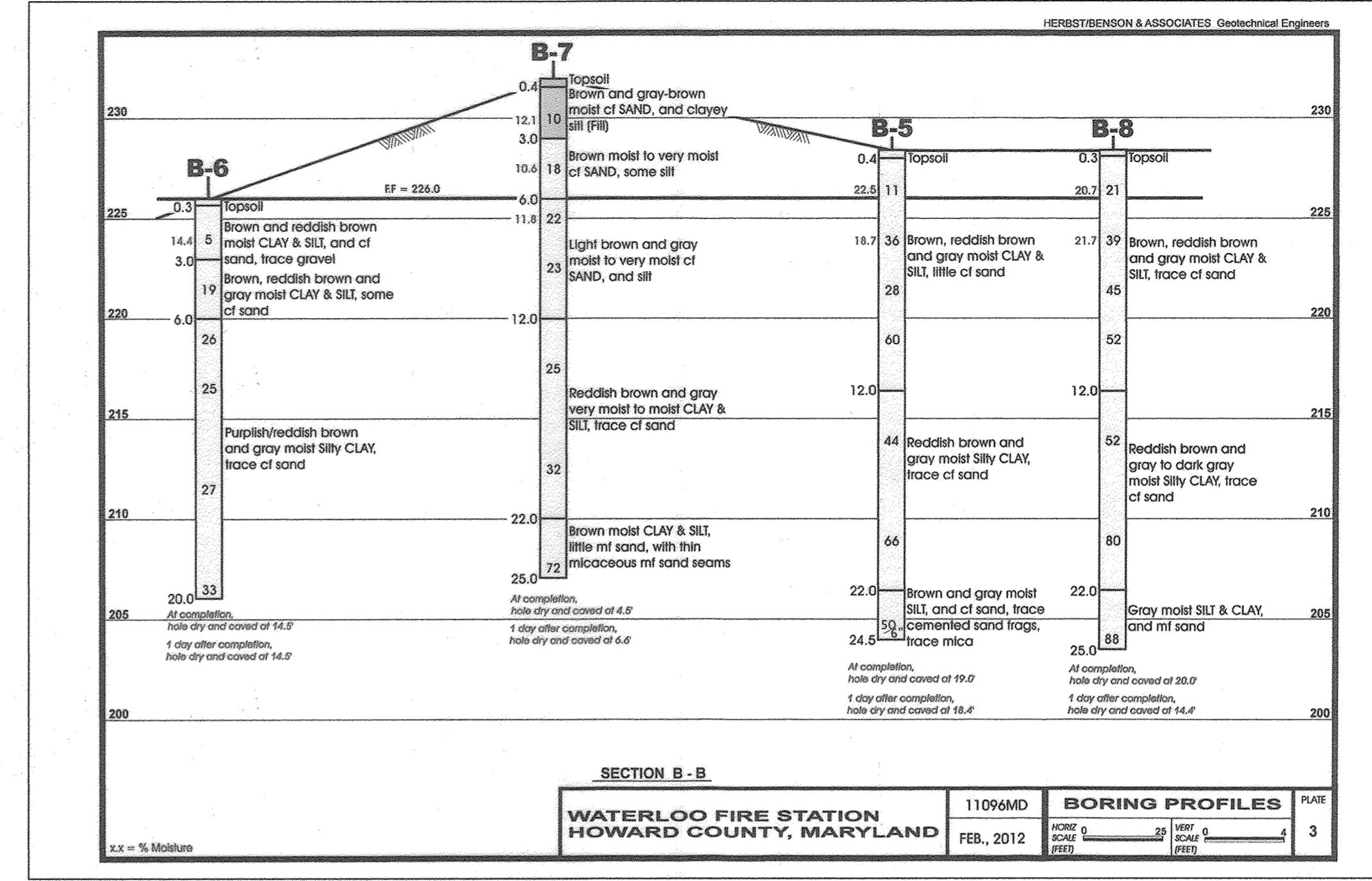
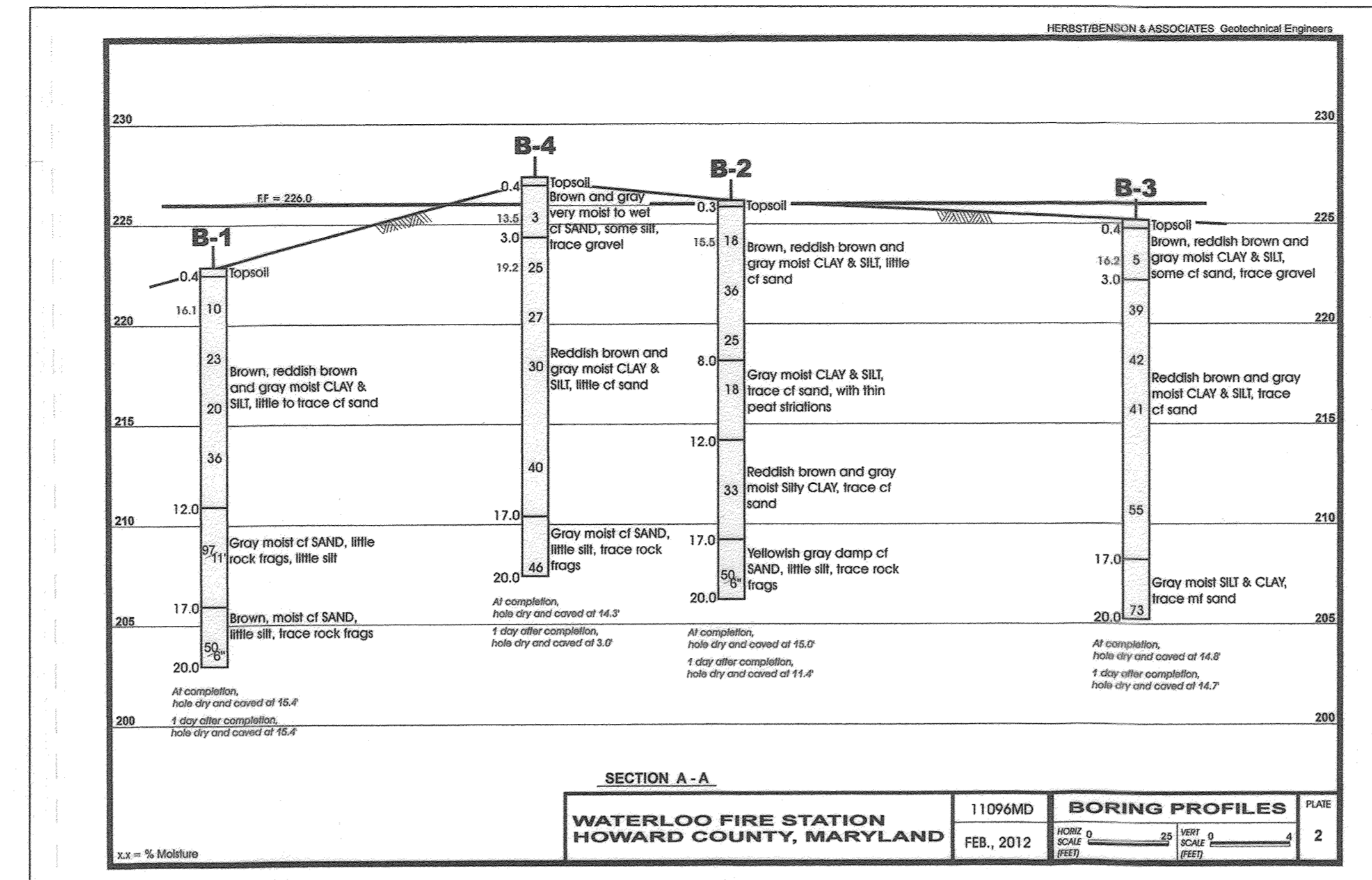
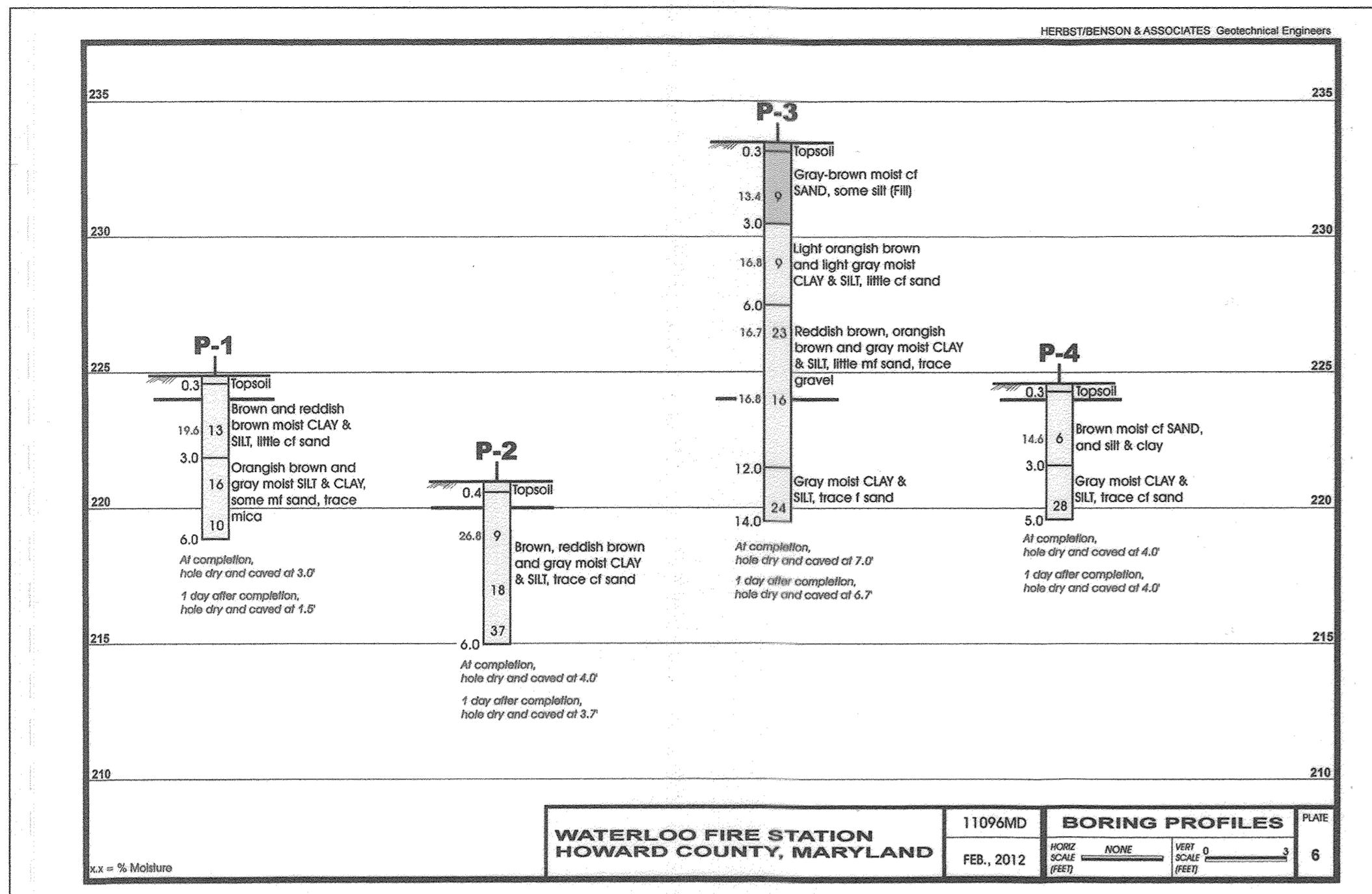
DEFINITION
A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL MEASURES.

PURPOSE
TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL FOR EROSION, SEDIMENTATION AND CHANGES TO DRAINAGE PATTERNS.

CRITERIA
WHERE PRACTICE APPLIES TO THE SURFACE OF ALL PERMETER CONTROL SLOPES, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

SEEDING MIXTURES

- GENERAL USE
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE HARDNESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SEED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY.
 - 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 USNRCS'S TECHNICAL FIELD GUIDE, SECTION M2 - CRITICAL AREA PLANTING.
 - FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING LABORATORY.
 - FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 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.
- TURF GRASS MIXTURES
 - AREAS WHERE TURF GRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITION OR PURPOSE, ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - KENTUCKY BLUEGRASS: FULL SUN MIXTURE FOR USE IN AREAS THAT RECEIVE FULL SUN. 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.
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

David E. Church 5-3-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Steve Gove 5-17-21
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

Steve Gove
DIRECTOR DATE

NO.	DESCRIPTION	DATE
1	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23



AS-BUILT CERTIFICATION:
THERE IS NO AS-BUILT INFORMATION
ON THIS SHEET.
DATE: 8/23/23
PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32029

OWNER
PARCEL 745
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

DEVELOPER
HOWARD COUNTY, MD
C/O MARK STROMDAHL
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

**BORINGS LOGS
WATERLOO FIRE STATION**

ZONED: M-2
"GREEN BUILDING"

TAX MAP 43 GRID 9
1ST ELECTION DISTRICT PLAT 25153-25154

PARCEL 745
HOWARD COUNTY, MARYLAND

STATE OF MARYLAND PROFESSIONAL ENGINEER
SILL ENGINEERING GROUP, LLC
16005 Frederick Road, 2nd Floor
Woodbine, Maryland 21797
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 26/03/2021
PROJECT #: 16-019
SHEET #: 13 of 27

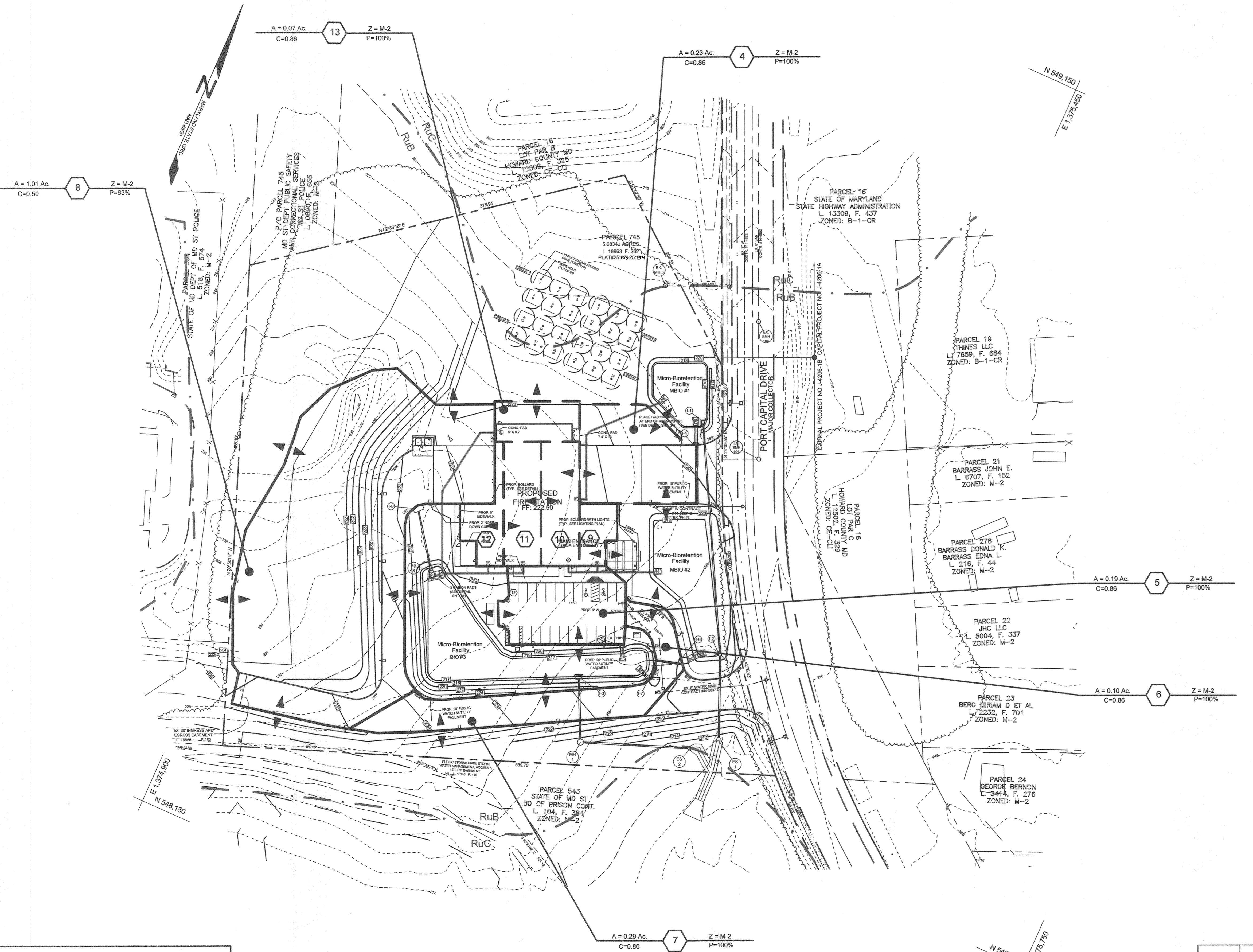
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21760, EXPIRATION DATE OCT. 08, 2021.

AS-BUILT SDP-18-014

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K ¹ FACTOR WHOLE SOIL	AREA
F8aA	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D		0.14
RUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

LEGEND	
EXISTING CONTOUR	--- 382 ---
PROPOSED CONTOUR	--- 382 ---
PROPOSED SPOT ELEVATION	+ 82.53
EXISTING TREELINE	~~~~~
PROPOSED TREELINE	~~~~~
WETLANDS	W W
WETLAND BUFFER	WB WB
EXISTING FENCE	-X-X-
EXISTING WATER	-----
EXISTING GAS	-----
EXISTING SEWER	-----
EXISTING STORM DRAIN	-----
EXISTING WATER VALVE	□
EXISTING FIRE HYDRANT	+
PROPOSED STREET LIGHT	○
PROPOSED SIGN	!
PROPOSED FLAG POLE	•
DETAIL ID	⊙
EXISTING WETLANDS	[Pattern]
FOREST CONSERVATION AREA	[Pattern]
EXISTING ACCESS, WATER & UTILITY EASEMENT	[Pattern]
PROPOSED RIPRAP	[Pattern]



RL NO.	AREA	COEFFICIENT	PERVIOUS	ZONING
10	0.05 AC	0.86	100%	M-2
11	0.10 AC	0.86	100%	M-2
12	0.10 AC	0.86	100%	M-2
13	0.06 AC	0.86	100%	M-2

OWNER
 PARCEL 745
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV

DEVELOPER
 HOWARD COUNTY, MD
 C/O MARK STROMDAHL
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV

AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8/23/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 52425



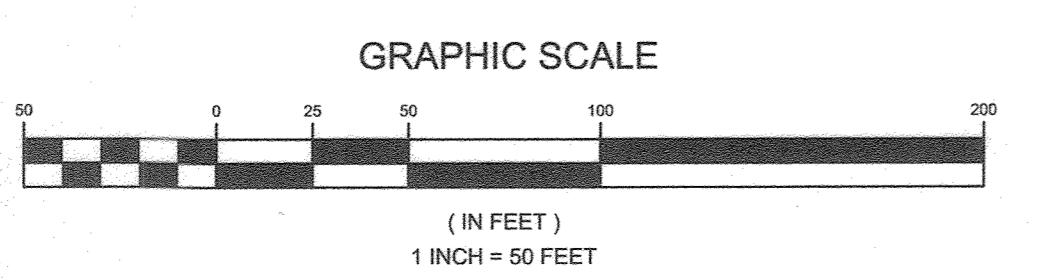
REVISED STORM DRAIN STORMWATER MANAGEMENT DRAINAGE AREA MAP WATERLOO FIRE STATION

ZONED: M-2
 TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
 1ST ELECTION DISTRICT PLAT 25753-28754 HOWARD COUNTY, MARYLAND

	SILL ENGINEERING GROUP, LLC 16005 Frederick Road, 2nd Floor Woodbine, Maryland 21797 Phone: 443.325.5076 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development	DESIGN BY: JB
		DRAWN BY: TB
		CHECKED BY: PS
		SCALE: AS SHOWN
		DATE: 26/03/2021
		PROJECT #: 16-019
		SHEET #: 14 of 27

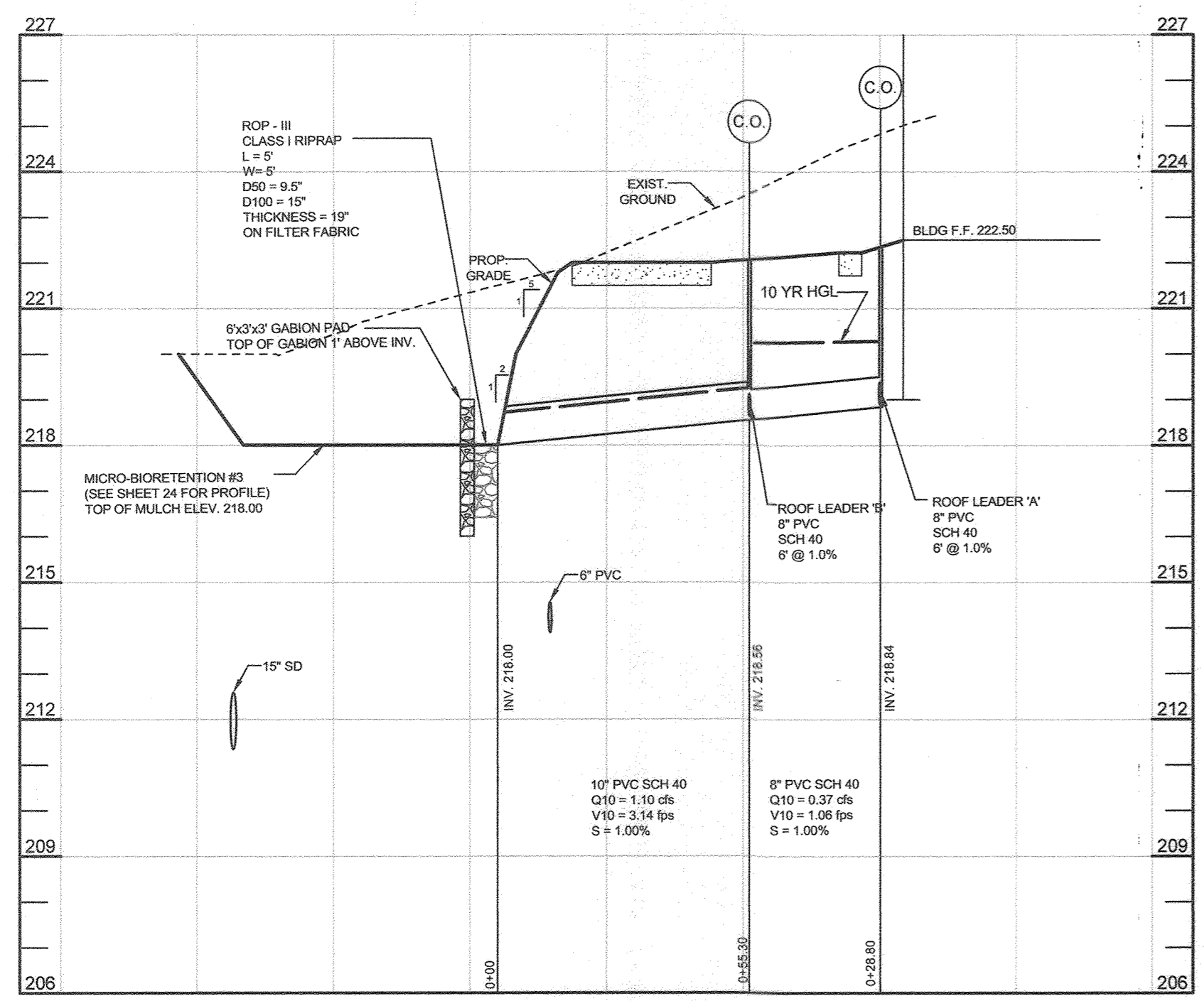
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 Director

DATE: 5-3-21
 DATE: 5/17/21
 DATE: 5-17-21

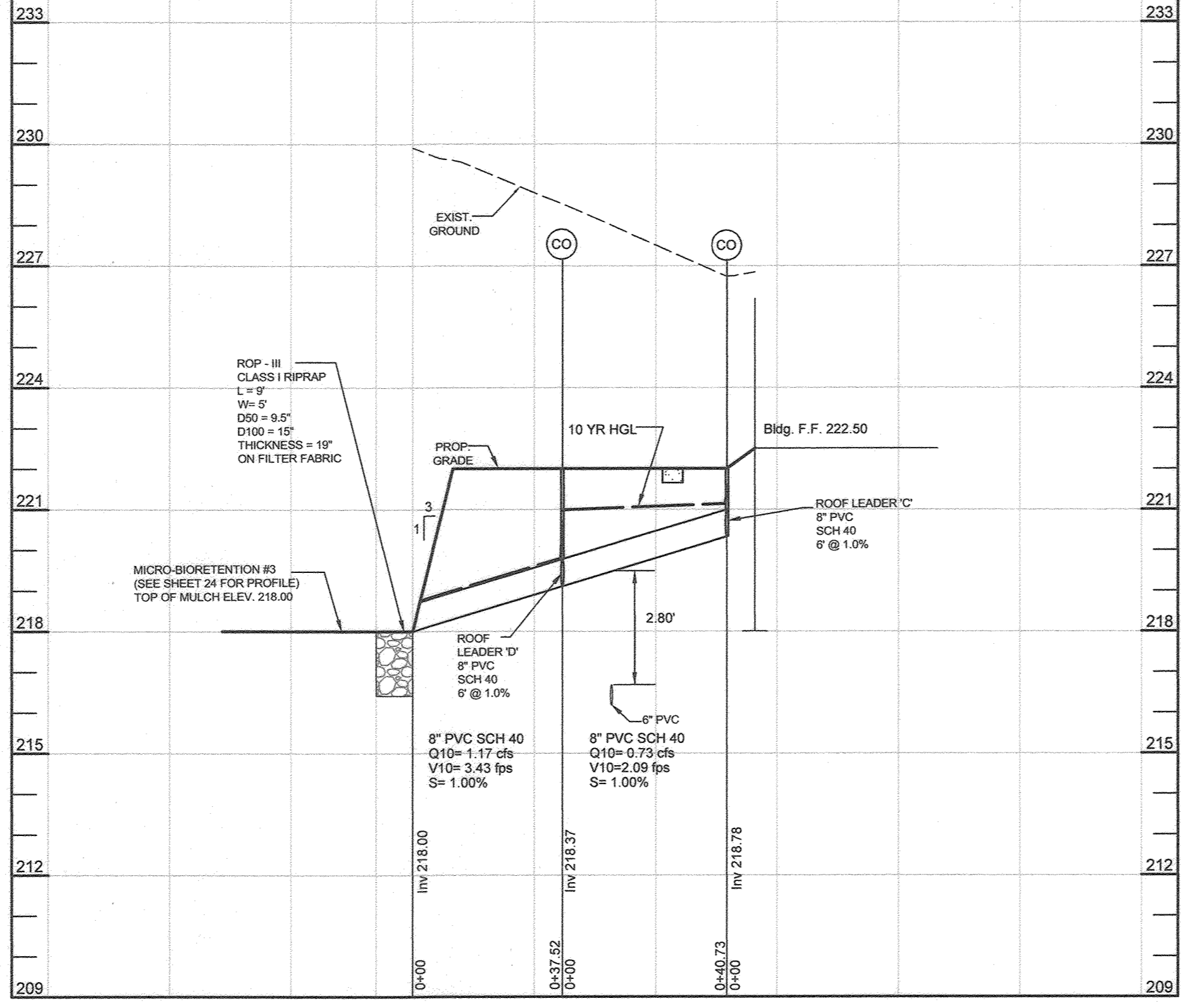


NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
	REDLINE REVISIONS	6/25/2020

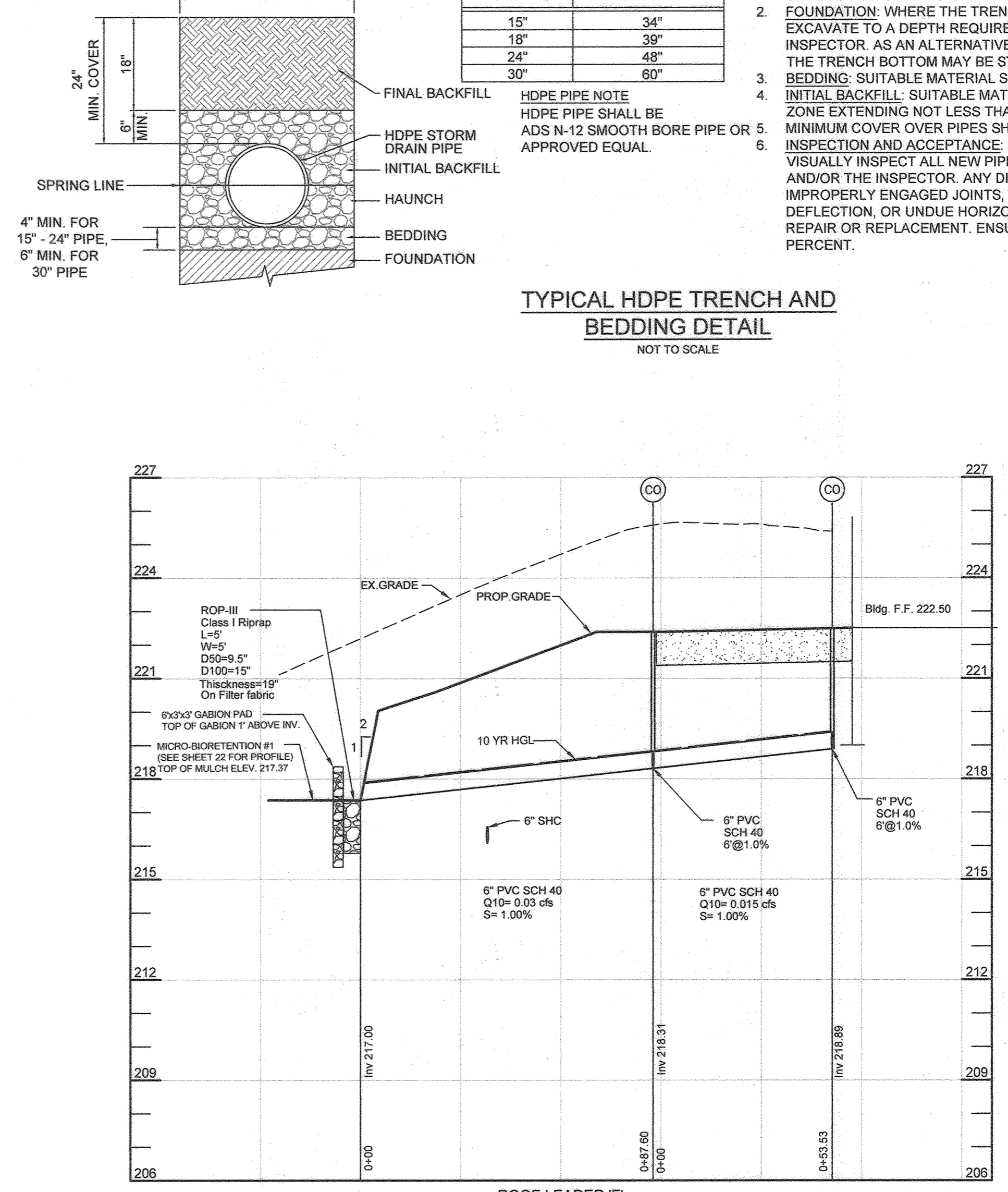
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21740, EXPIRATION DATE OCT. 08, 2021



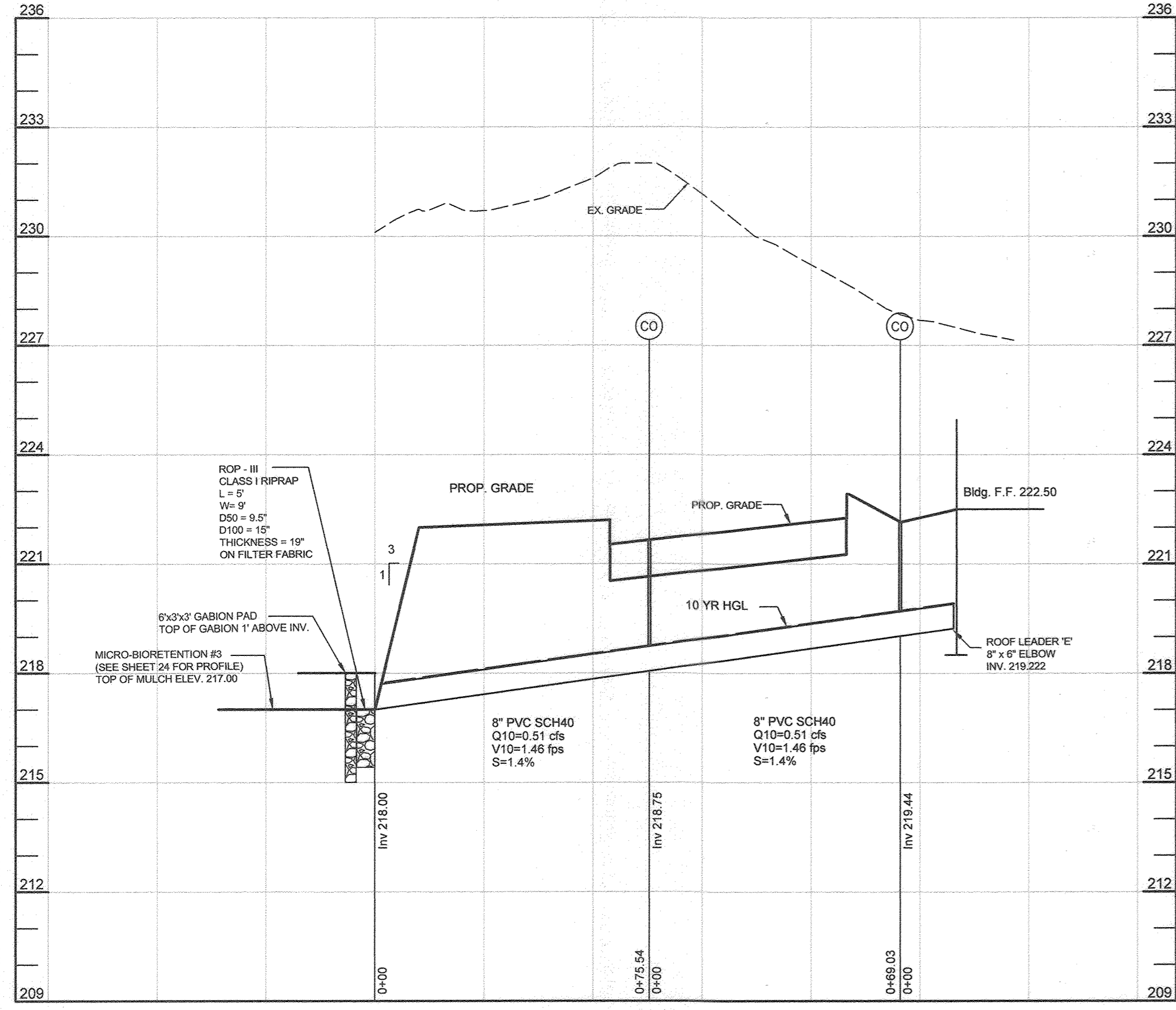
ROOF LEADER 'A' & 'B' PROFILE
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



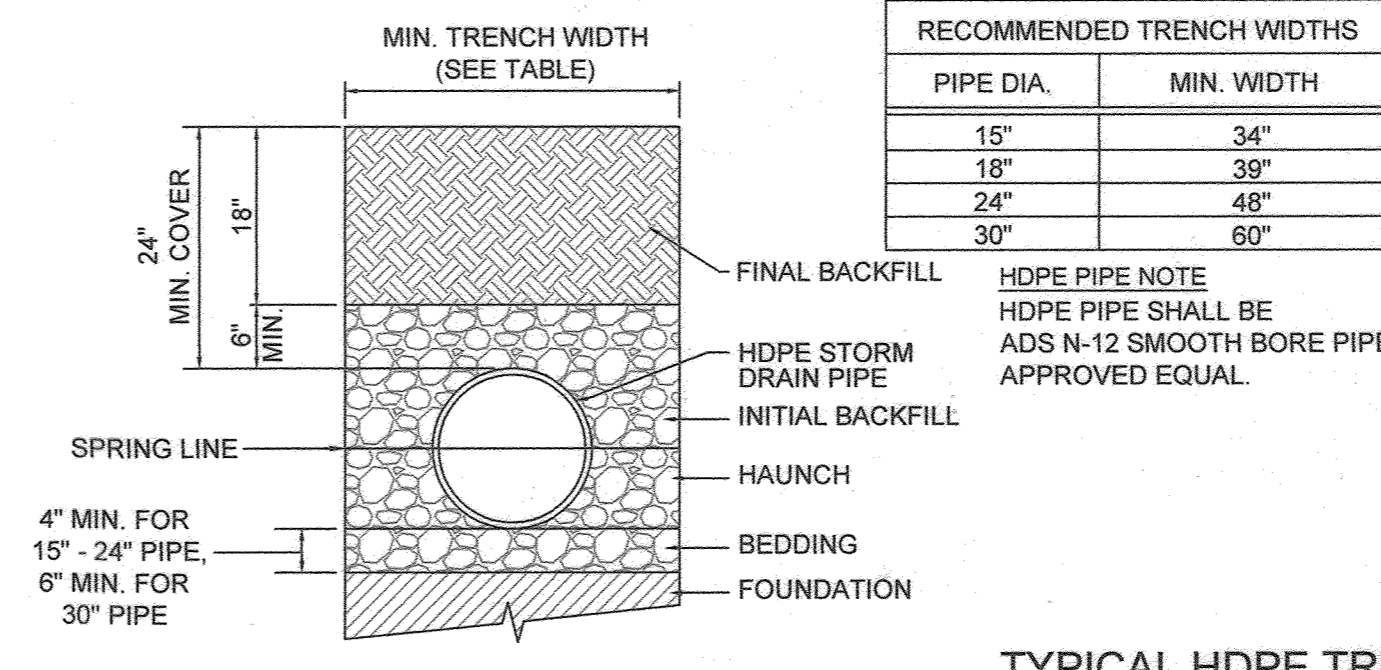
ROOF LEADER 'C' & 'D' PROFILE
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



ROOF LEADER 'E' PROFILE
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



SD PROFILE - I-8 TO ES-3
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'



TYPICAL HDPE TRENCH AND BEDDING DETAIL
NOT TO SCALE

PIPE DIA.	MIN. WIDTH
15"	34"
18"	39"
24"	48"
30"	60"

- NOTES:
- ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE ASTM D2321. "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS," LATEST EDITION.
 - FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER IN THE FIELD AND/OR THE INSPECTOR. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEO-TEXTILE MATERIAL.
 - BEDDING: SUITABLE MATERIAL SHALL BE #57 STONE (SHA TABLE 901A) IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE THE CROWN OF PIPE.
 - INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE #57 STONE (SHA TABLE 901A) IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE THE CROWN OF PIPE.
 - MINIMUM COVER OVER PIPES SHALL BE 24" INCLUDING 6" #57 STONE.
 - INSPECTION AND ACCEPTANCE: NO SOONER THAN 30 DAYS AFTER INSTALLATION, VISUALLY INSPECT ALL NEW PIPE IN THE PRESENCE OF THE ENGINEER IN THE FIELD AND/OR THE INSPECTOR. ANY DIFFERENTIAL MOVEMENT, BUCKLING, OBSTRUCTIONS, IMPROPERLY ENGAGED JOINTS, EXCESSIVE JOINT GAPS, MISALIGNED JOINTS, EXCESSIVE DEFLECTION, OR UNDUE HORIZONTAL OR VERTICAL MISALIGNMENT WILL BE CAUSE FOR REPAIR OR REPLACEMENT. ENSURE THAT HDPE PIPE DEFLECTION DOES NOT EXCEED 5 PERCENT.

NO.	TYPE & OWNERSHIP	LOCATION	RIM/GRATE ELEV.	INV. IN	INV. OUT	REMARKS
ES-1	15" HDPE	N 548,431 E 1,375,389	-	-	209.44	HANCOR OR EQUIVALENT
ES-2	18" HDPE	N 548,416 E 1,375,386	-	-	209.53	HANCOR OR EQUIVALENT
ES-3	15" HDPE	N 548,466 E 1,375,067	-	-	210.70	HANCOR OR EQUIVALENT
I-1	S INLET	N 548,707 E 1,375,249	210.12	215.90	212.65	SEE SHEET 16 FOR DETAIL
I-2	S INLET	N 548,508 E 1,375,356	210.52	215.43	210.43	SEE SHEET 16 FOR DETAIL
I-3	MODIFIED A-5 INLET	N 548,435 E 1,375,238	211.31	213.45	212.36	SEE SHEET 23 FOR DETAIL
I-4	STD. CURB OPENING MD 340.01	N548,685 E1,375,250	SEE PLAN	SEE PLAN	SEE PLAN	SEE SHEET 16 FOR DETAIL
I-5	STD. CURB OPENING MD 340.01	N548,476 E1,375,266	SEE PLAN	SEE PLAN	SEE PLAN	SEE SHEET 16 FOR DETAIL
I-6	STD. CURB OPENING MD 374.68 (MODIFIED)	N548,490 E1,375,327	SEE PLAN	SEE PLAN	SEE PLAN	SEE SHEET 16 FOR DETAIL
I-7	STD. CURB OPENING MD 340.01	N548,459 E1,375,304	SEE PLAN	SEE PLAN	SEE PLAN	SEE SHEET 16 FOR DETAIL
I-8	STANDARD A-10	N548,519 E1,375,029	221.20	217.58	217.58	SEE SHEET 16 FOR DETAIL
MH-1	STANDARD PRECAST MANHOLE (MODIFIED)	N 548,375 E 1,375,267	217.78	211.43	211.23	SEE SHEET 16 FOR DETAIL

- NOTES:
- COORDINATES FOR END SECTIONS ARE TO THE JUNCTION OF THE END SECTION WITH THE PIPE.
 - TOP ELEVATIONS FOR PRECAST MANHOLES ARE TO THE CENTER TOP OF MANHOLE COVER.
 - FLOWLINE ELEVATIONS FOR INLETS DO NOT REFLECT GUTTER PAN DEPRESSION.
 - LOCATION COORDINATES ARE CENTER OF STRUCTURE FOR MANHOLES AND CONTROL INLETS WITHIN BIORETENTION FACILITIES.
 - CLEAN-OUTS SHALL BE LOCATED ENTIRELY WITHIN A LAWN AREA, A PLANTING BED OR A PAVED AREA. CLEAN-OUTS SHALL NOT BE LOCATED PARTIALLY IN ONE AREA AND PARTIALLY IN ANOTHER.

SIZE	TYPE	LENGTH
4" PRIVATE	PVC SCH 40	210 LF
6" PRIVATE	PVC SCH 40	762 LF
8" PRIVATE	PVC SCH 40	271 LF
10" PRIVATE	PVC SCH 40	55 LF
15" PRIVATE	HDPE N-12	331 LF
24" PRIVATE	HDPE N-12	171 LF

NO.	DESCRIPTION	DATE
5	AS-BUILT PLAN BY SILL ENGINEERING GROUP	0/23/23
4	REVISE INLET-3 INFO. IN THE STRUCTURE SCH.	2/28/2023
	REDLINE REVISIONS	6/25/2020

REVISED STORM DRAIN PROFILES
WATERLOO FIRE STATION

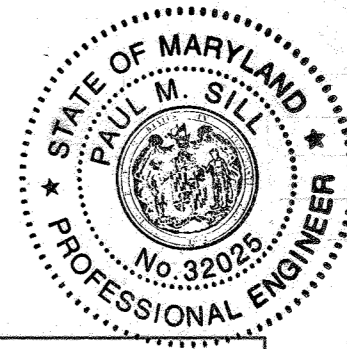
ZONED: M-2
"GREEN BUILDING"

TAX MAP 43 GRID 9
1ST ELECTION DISTRICT

PARCEL 745
HOWARD COUNTY, MARYLAND

16005 Frederick Road, 2nd Floor
Woodbine, Maryland 21797
Phone: 443.325.5076
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Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 28/03/2021
PROJECT #: 16-019
SHEET #: 15 of 27



AS-BUILT CERTIFICATION:
I, HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 6/28/23
PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32025

OWNER
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MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9200 BERGER ROAD COLUMBIA, MD 21046
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

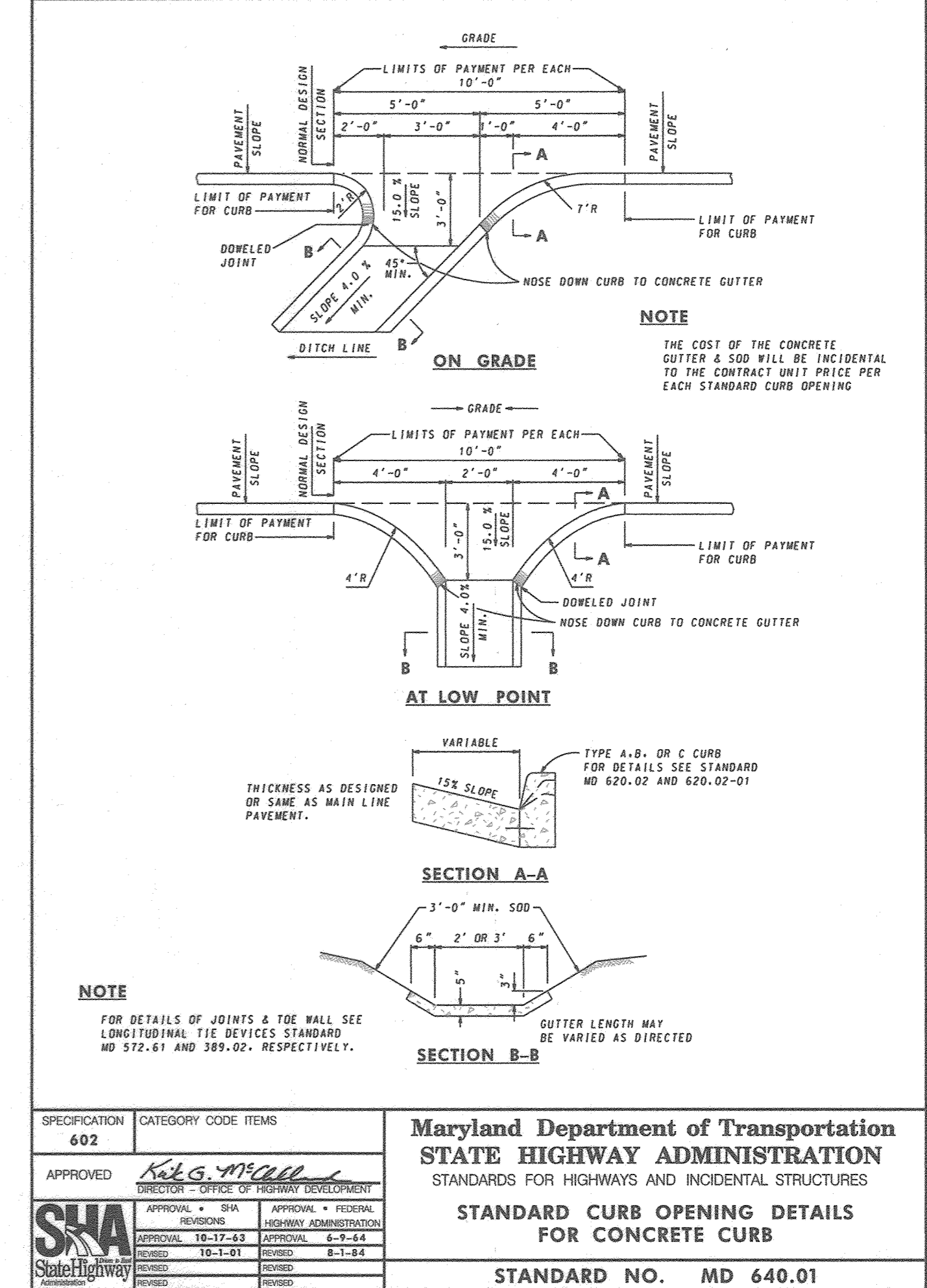
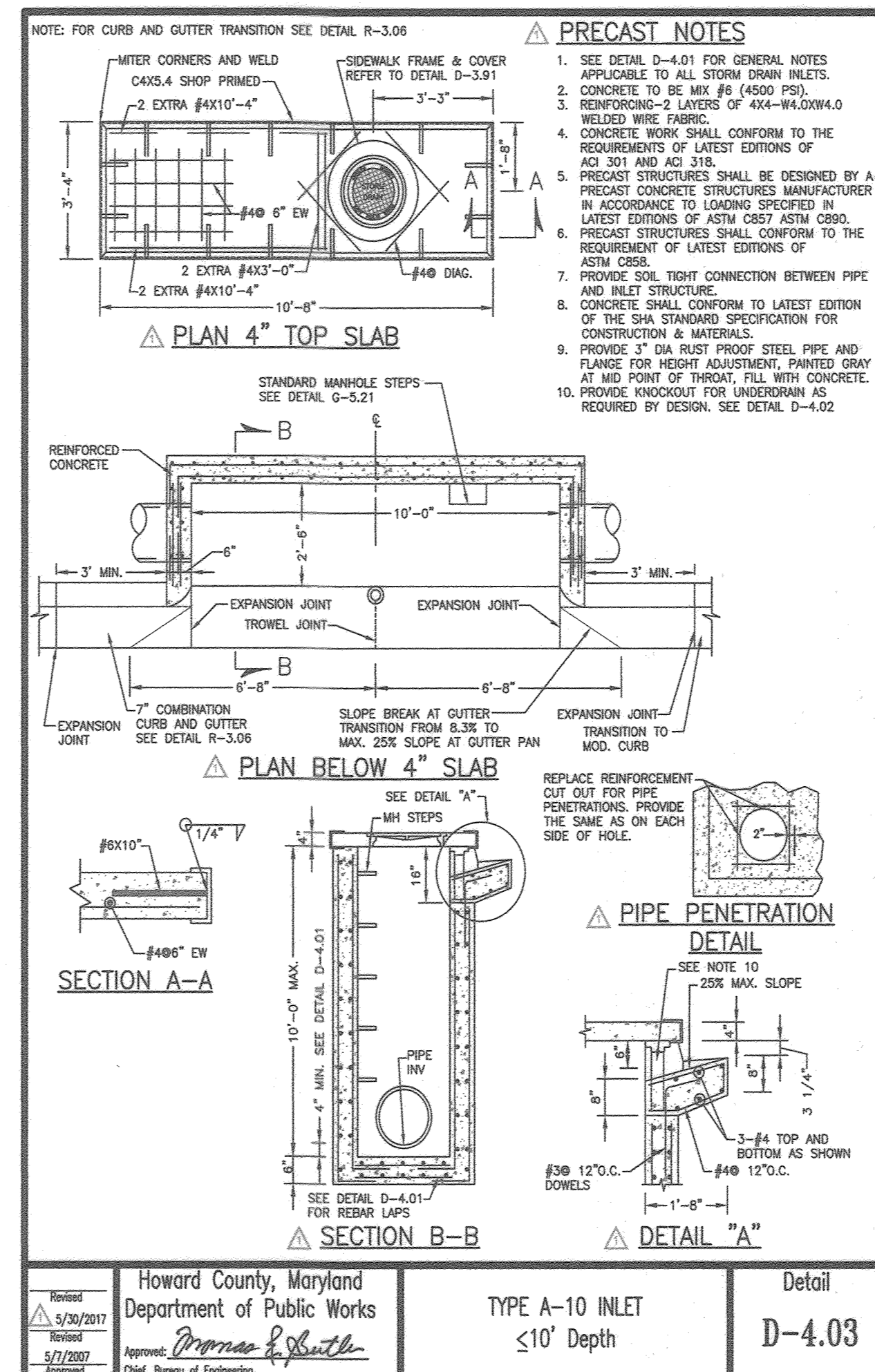
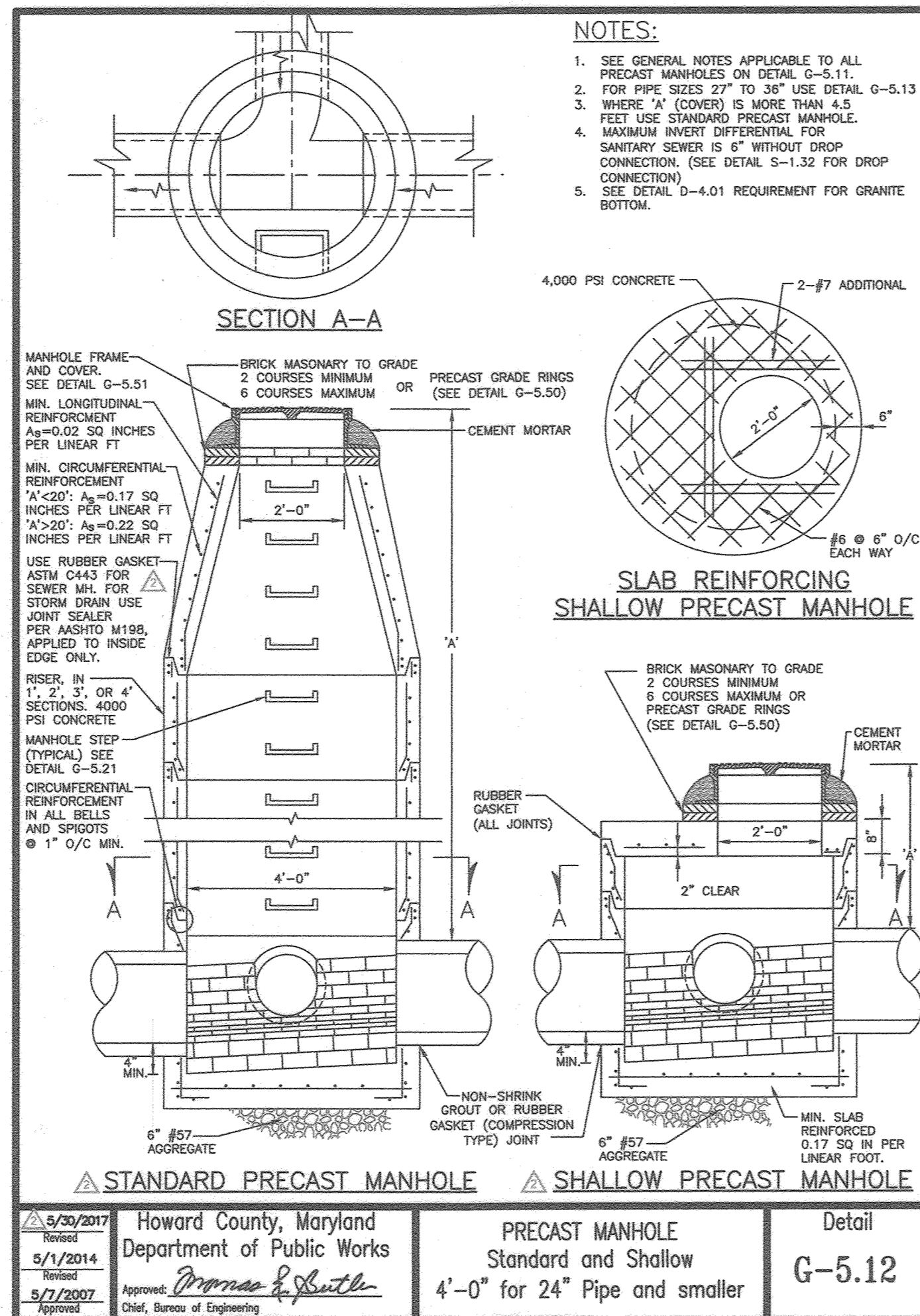
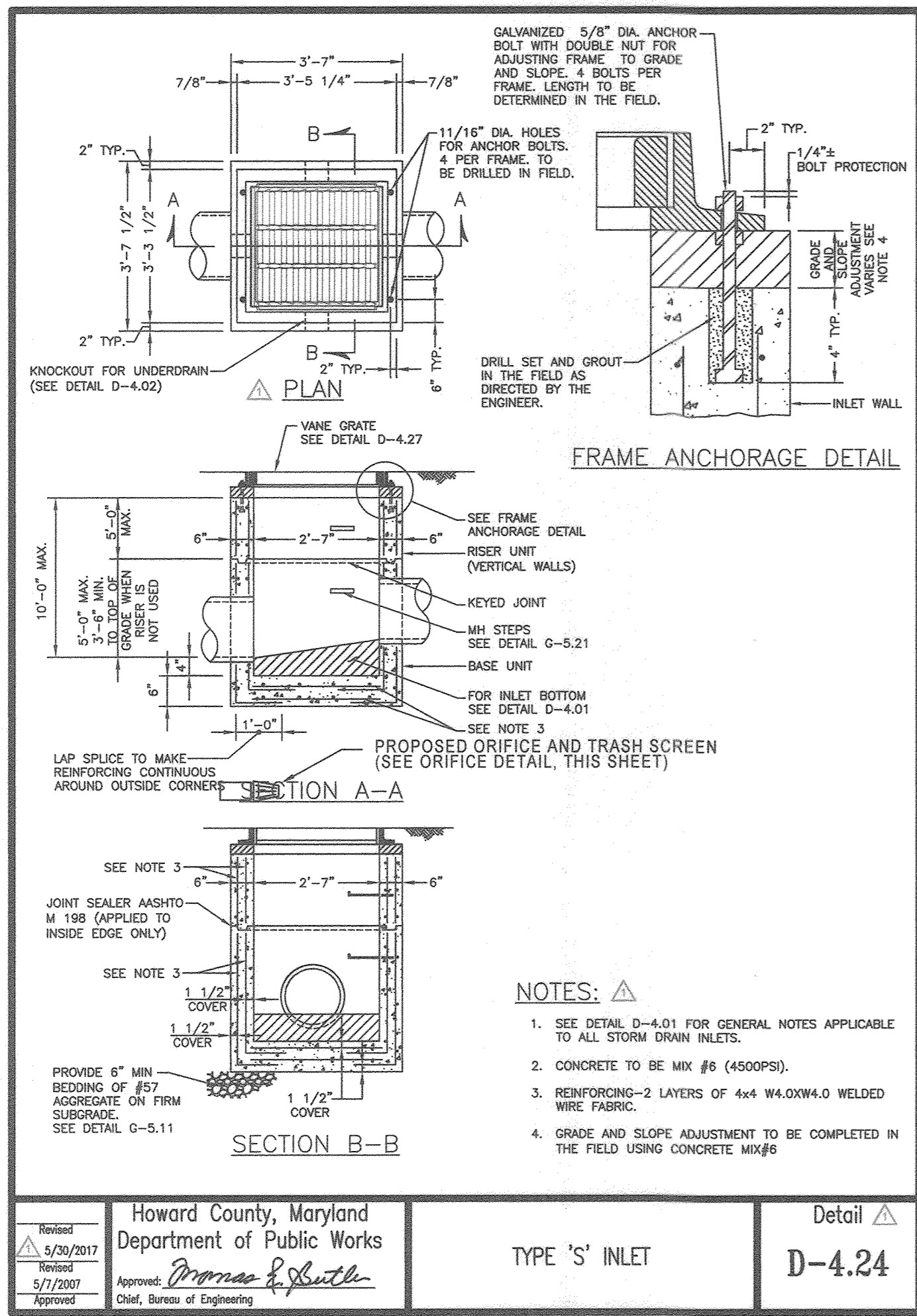
DEVELOPER
HOWARD COUNTY, MD
C/O MARK STROMDAHL
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 4
DATE: 5-3-21

Chief, Division of Land Development
DATE: 5/17/21

Director
DATE: 5-17-21

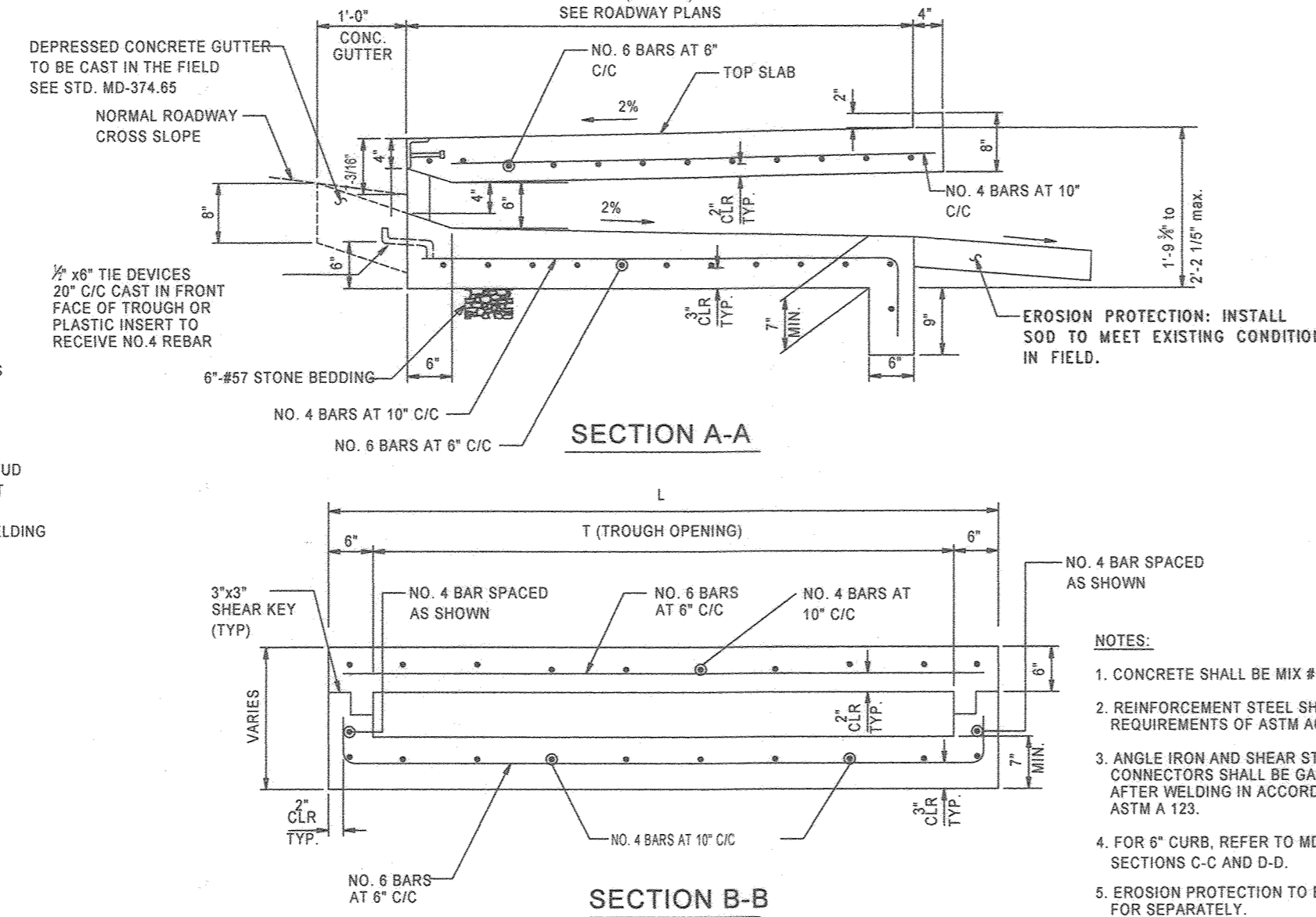
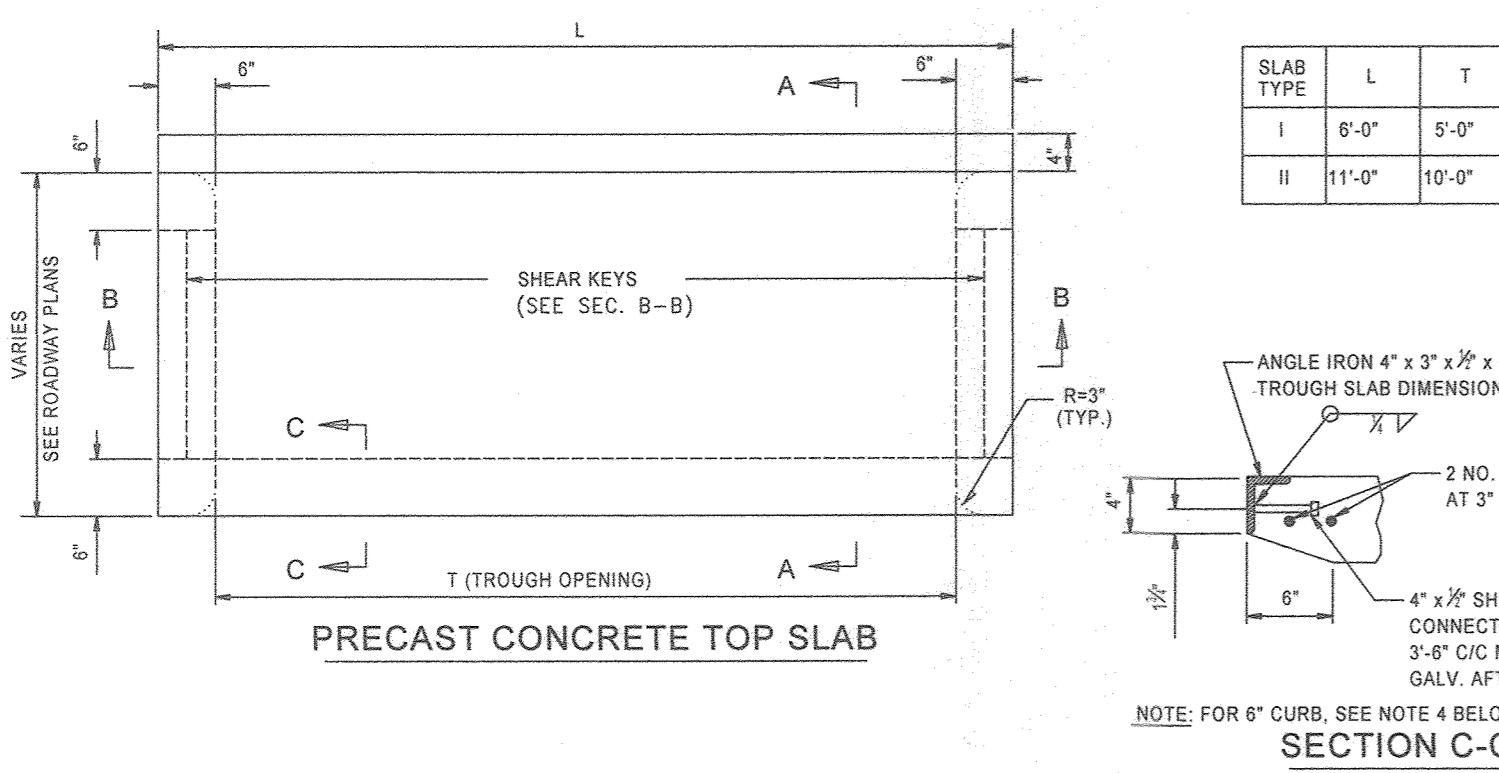


Approved: <i>Chad E. Blanton</i> Chief, Development Engineering Division 5/3/2017 Date	HOWARD COUNTY, MARYLAND Department of Public Works TYPE 'S' INLET Detail D-4.24
---	---

Approved: <i>Priscilla E. Smith</i> Chief, Bureau of Engineering 5/1/2014 Date	HOWARD COUNTY, MARYLAND Department of Public Works PRECAST MANHOLE Standard and Shallow 4'-0" for 24" Pipe and smaller Detail G-5.12
---	--

Approved: <i>Priscilla E. Smith</i> Chief, Bureau of Engineering 5/3/2017 Date	HOWARD COUNTY, MARYLAND Department of Public Works TYPE A-10 INLET ≤10' Depth Detail D-4.03
---	--

SPECIFICATION 602	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES STANDARD CURB OPENING DETAILS FOR CONCRETE CURB STANDARD NO. MD 640.01
----------------------	---------------------	---



INLET #	ORIFICE DIA.	GRATE ELEV.	ORIFICE INV.
1	4"	218.12	217.99
2	4"	218.52	217.91
3	6"	219.31	218.00

ORIFICE AND TRASH SCREEN DETAIL
N.T.S.

PRECAST OR CAST-IN-PLACE COG/COS OPENING FOR 8" CURB
5' OR 10' ONLY AT FLOWLINE / MODIFY FOR 7 1/2" CURB
STANDARD NO. MD 374.68
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING <i>Chad E. Blanton</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION 5-3-21 DATE	APPROVED: <i>Priscilla E. Smith</i> CHIEF, DIVISION OF LAND DEVELOPMENT 5-17-21 DATE
--	---

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410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

AS-BUILT CERTIFICATION:
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.
DATE: 8/23/23
PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32025

PAUL M. SILL
PROFESSIONAL ENGINEER
No. 32025

REVISED STORM DRAIN DETAILS
WATERLOO FIRE STATION

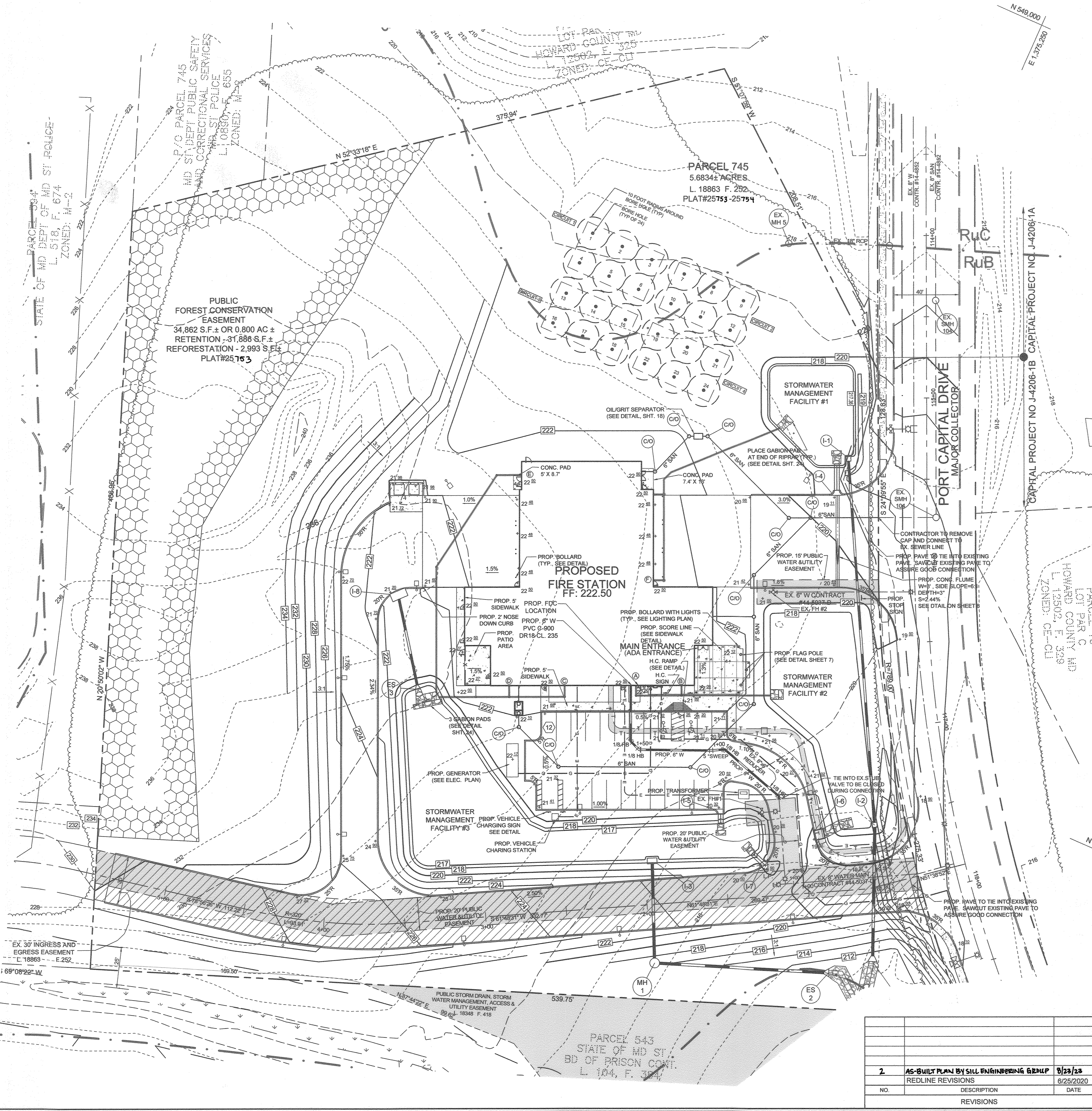
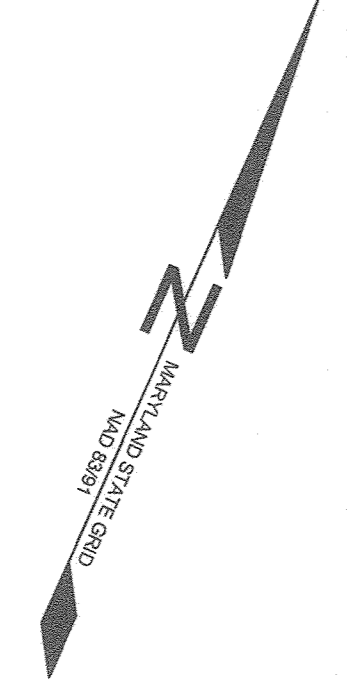
ZONED: M-2
"GREEN BUILDING"
TAX MAP 43 GRID 9
1ST ELECTION DISTRICT
PARCEL 745
HOWARD COUNTY, MARYLAND

DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 26/03/2021
PROJECT #: 16-019
SHEET #: 18 of 27

SILL ENGINEERING GROUP, LLC
16005 Frederick Road, 2nd Floor
Woodbine, Maryland 21797
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

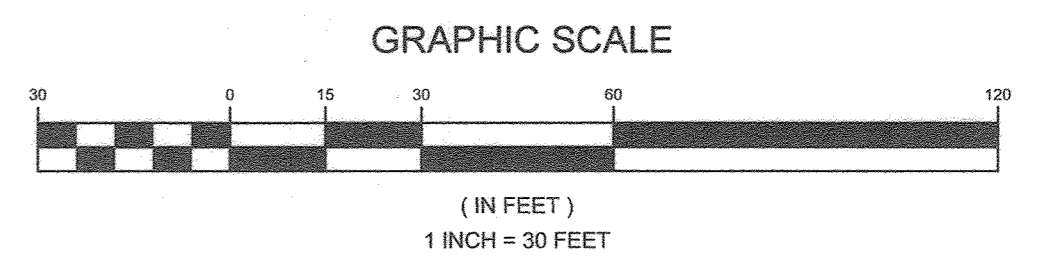
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NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
	REDLINE REVISIONS	6/25/2020
	REVISIONS	



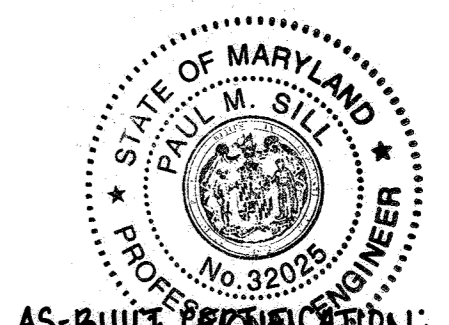
LEGEND

EXISTING CONTOUR	---	382
PROPOSED CONTOUR	---	382
PROPOSED SPOT ELEVATION		+82.53
EXISTING TREELINE	~	
PROPOSED TREELINE	~	
WETLANDS	W	W
WETLAND BUFFER	WB	WB
EXISTING FENCE	X	X
EXISTING GAS	---	
EXISTING WATER	---	
EXISTING SEWER	---	
EXISTING STORM DRAIN	---	
EXISTING WATER VALVE	o	
EXISTING FIRE HYDRANT	+	
PROPOSED POLE LAMP	o	
PROPOSED SIGN	+	
PROPOSED FLAG POLE	+	
DETAIL ID	o	
EXISTING WETLANDS	[Pattern]	
FOREST CONSERVATION AREA	[Pattern]	
EXISTING ACCESS, WATER & UTILITY EASEMENT	[Pattern]	
PROPOSED CONCRETE	[Pattern]	
PROPOSED RIPRAP	[Pattern]	



OWNER
 PARCEL 745
 MARK STROMDAHL
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 410-313-2700
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AS-BUILT INFORMATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8/23/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32025

REVISED WATER AND SEWER PLAN
WATERLOO FIRE STATION
 ZONED: M-2
 TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
 1ST ELECTION DISTRICT PLAT 25753 - 25754 HOWARD COUNTY, MARYLAND

DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 26/03/2021
 PROJECT #: 18-019
 SHEET #: 17 of 27

SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

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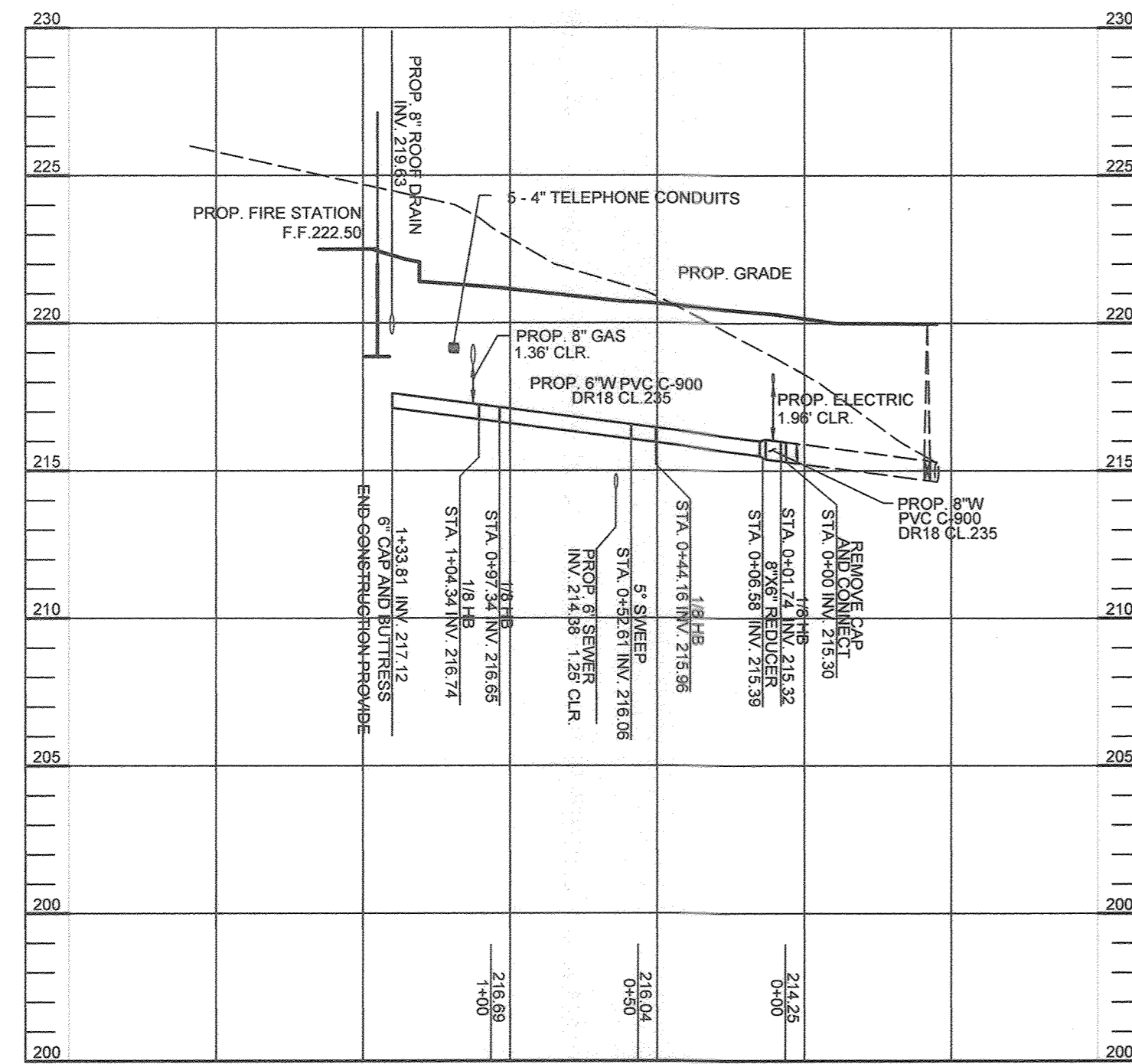
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad Clark 5-3-23
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Steve 5/17/23
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

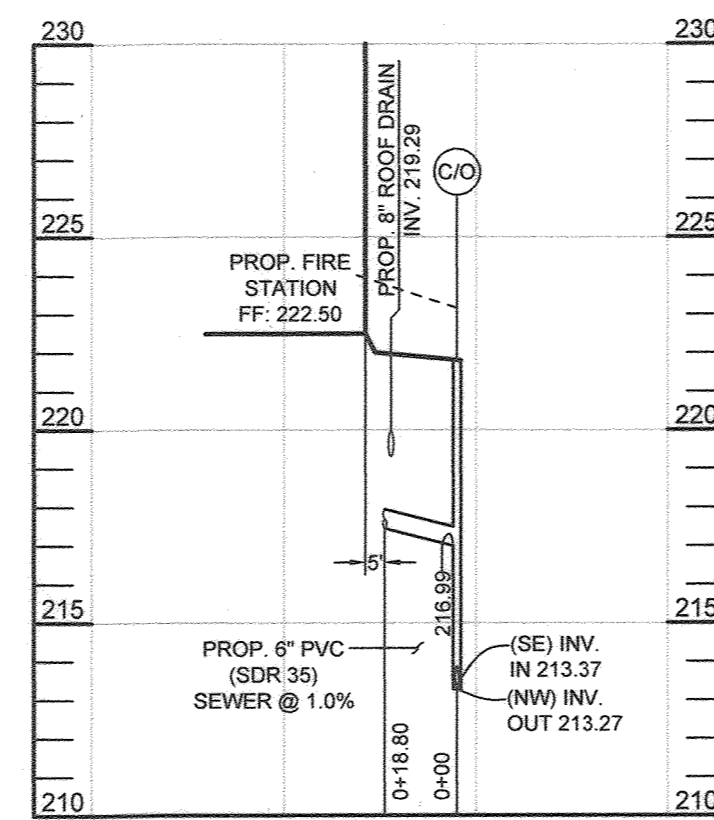
Steve 5-17-23
 DIRECTOR DATE

NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
	REDLINE REVISIONS	8/25/2020
	REVISIONS	

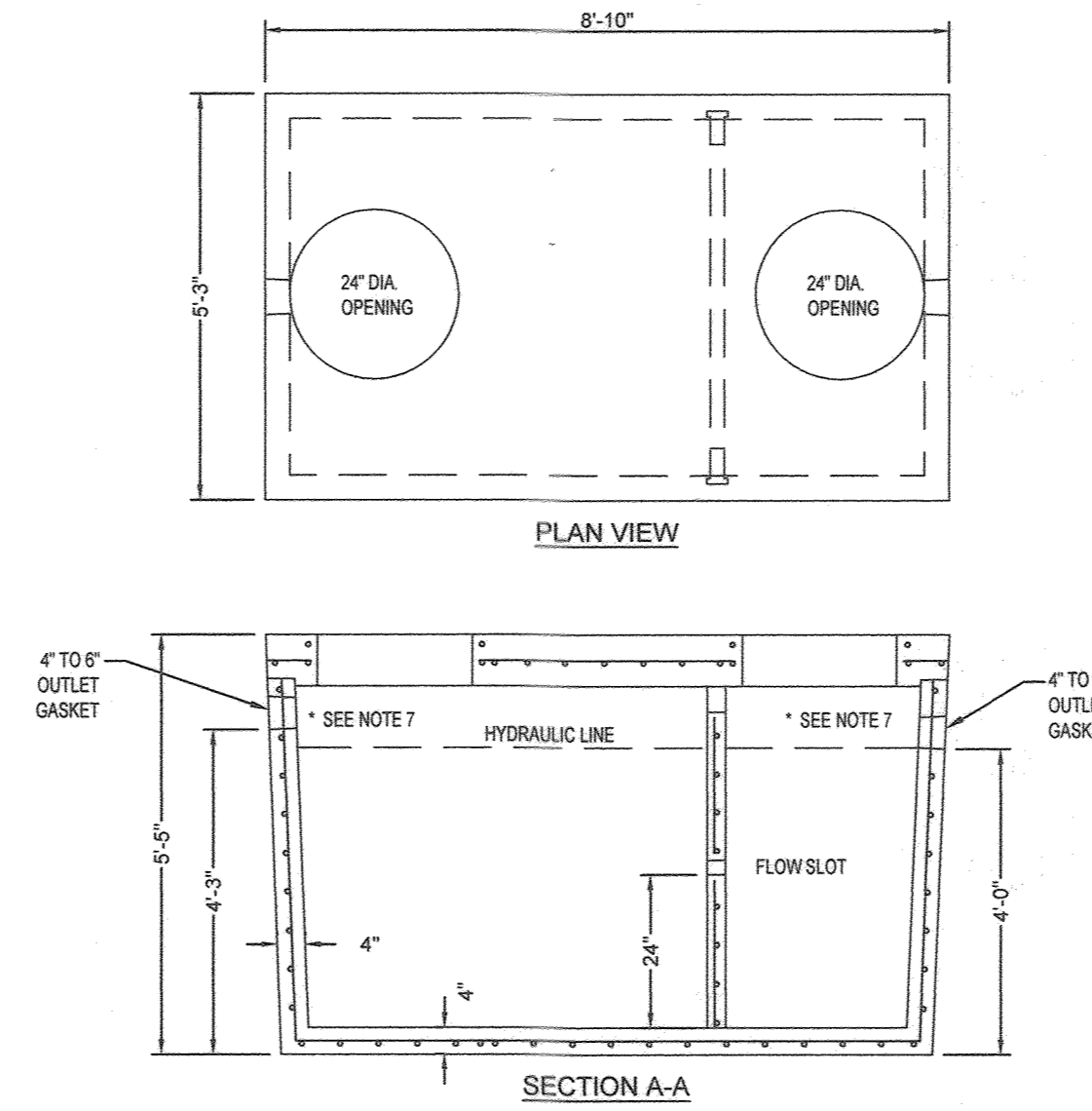


WATER PROFILE
SCALE - HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

WATER FITTING CHART				
STATION	TYPE	LOCATION	INV.	
0+01.5	1/8 HORIZONTAL BEND	N548500 E1375295	215.32	
0+07.7	8"x6" REDUCER	N548502 E1375288	215.39	
0+43.92	1/8 HORIZONTAL BEND	N548513 E1375252	215.96	
0+52.37	5" SWEEP	N548509 E1375245	216.06	
0+97.10	1/8 HORIZONTAL BEND	N548491 E1375204	216.65	
1+04.10	1/8 HORIZONTAL BEND	N548494 E1375197	216.74	
1+33.57	CAP & BUTTRESS	N548521 E1375185	217.25	

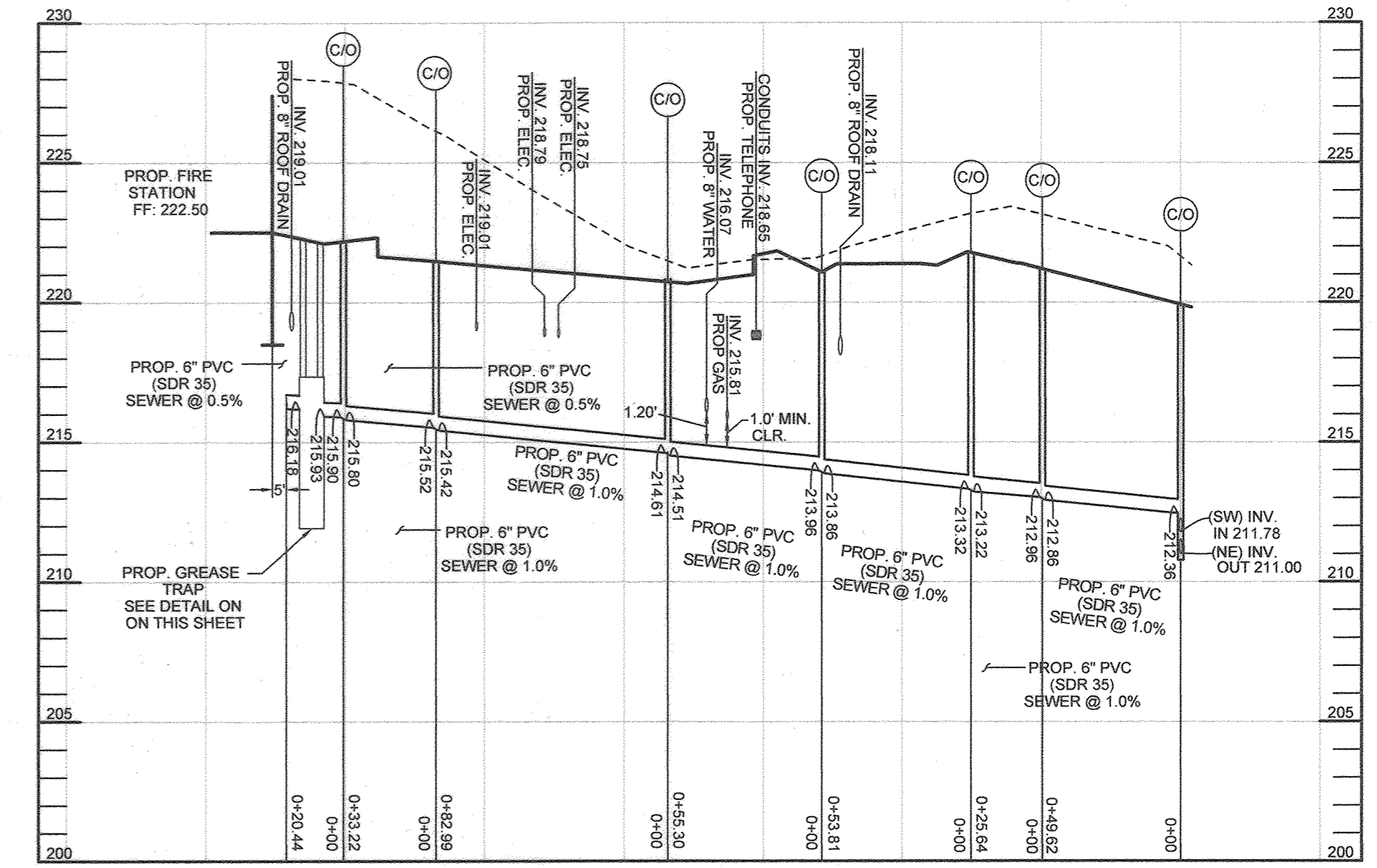


SEWER PROFILE
SCALE - HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

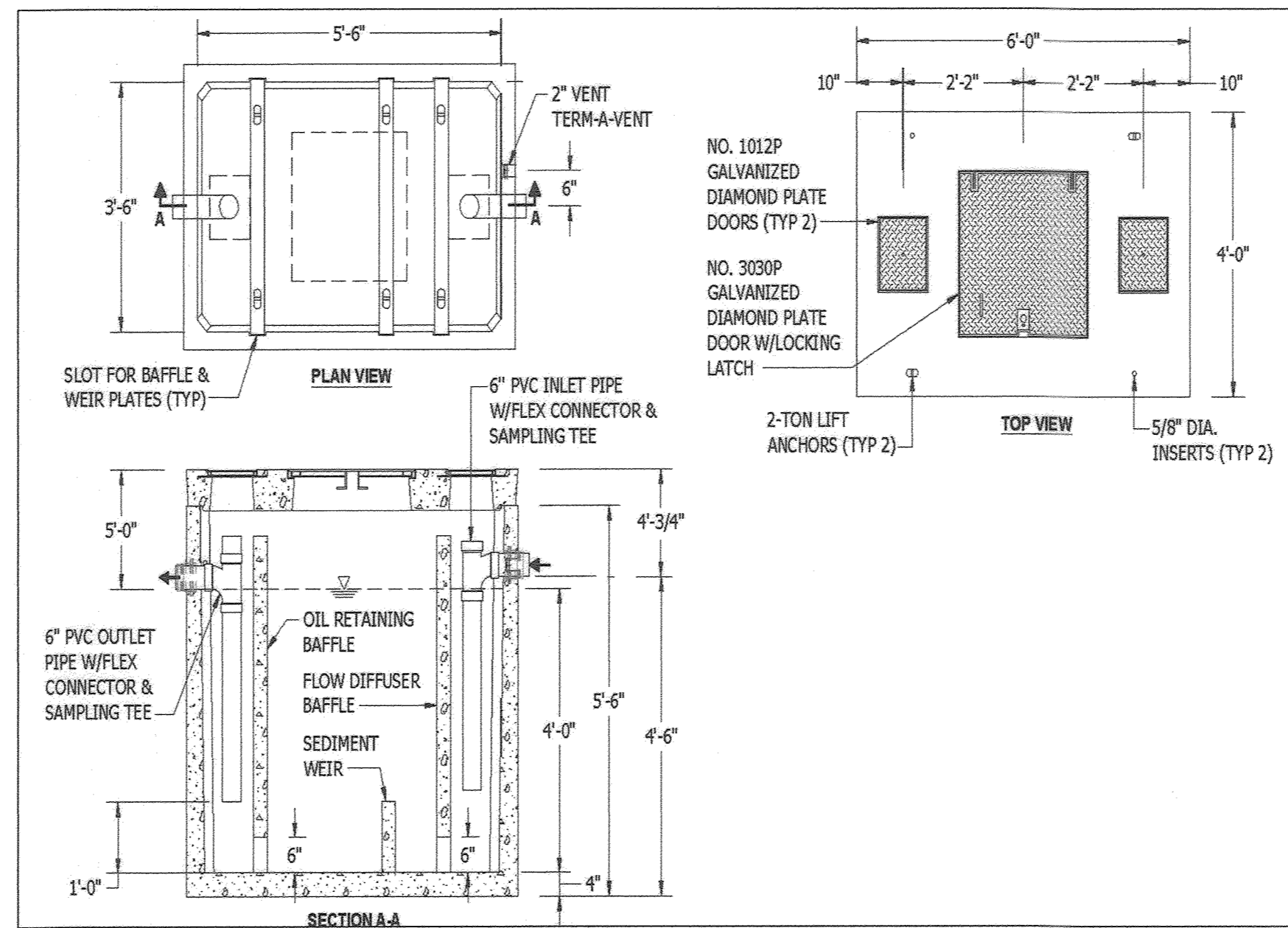


**1,000 GALLON TANK
HEAVY-TRAFFIC RELATED-H2O
GREASE TRAP**
NOT TO SCALE
DESIGN DATA AND GENERAL NOTES

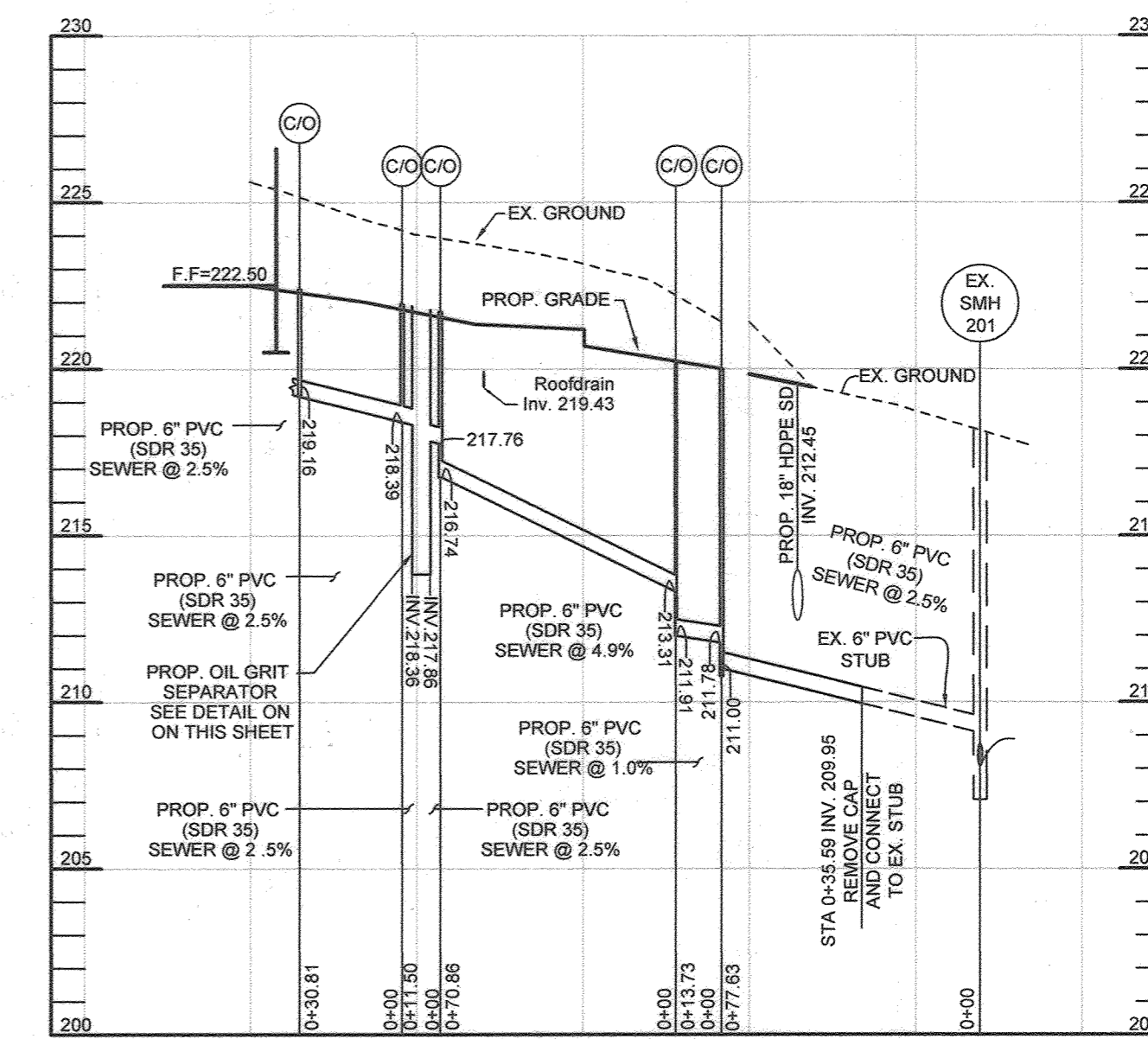
1. CONCRETE STRENGTH FC = 4,500 PSI AT 28 DAYS
2. CEMENT - PORTLAND TYPE 1/11 PER ASTM C 150-92.
3. ADMIXTURES AND PLASTIC TAPERS PER ASTM C 260-86 AND C 454-32.
4. REINFORCING PER ASTM 185, MIN. 1.5" COVER.
5. TOP SLAB SEALED WITH BUTYL ROPE MASTICS.
6. 4" WALLS AND BASE 8" TOP SLAB.
7. DEPENDING ON USE OF TANK, INLET AND OUTLET BAFFLE MAY BE REQUIRED BY CODE.



SEWER PROFILE
SCALE - HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'



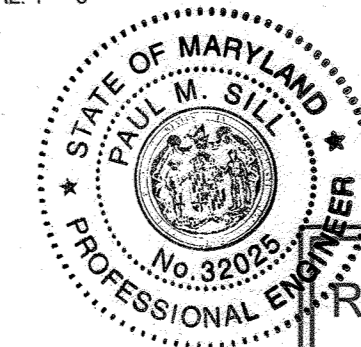
**OIL/GRIT SEPARATOR
DETAIL**
NOT TO SCALE



SEWER PROFILE
SCALE - HORIZONTAL: 1" = 50'
VERTICAL: 1" = 5'

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410-313-2700
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AS-BUILT CERTIFICATION:
THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
DATE: 6/23/23
PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32825

**REVISED WATER AND SEWER PROFILE AND DETAILS
WATERLOO FIRE STATION**

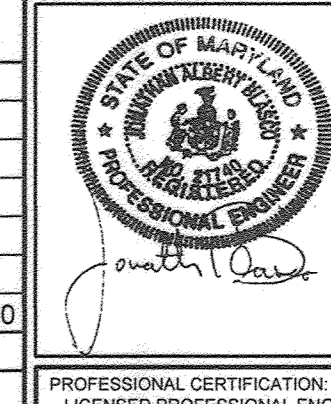
ZONED: M-2
TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
1ST ELECTION DISTRICT PLAT 25153-2.5734 HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division
Chief, Division of Land Development
Director

5-2-21
5/17/21
5-17-21
DATE

NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
	REDLINE REVISIONS	6/25/2020



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Phone: 443.325.5076
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Civil Engineering for Land Development

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PROJECT #: 18-019
SHEET #: 18 OF 27

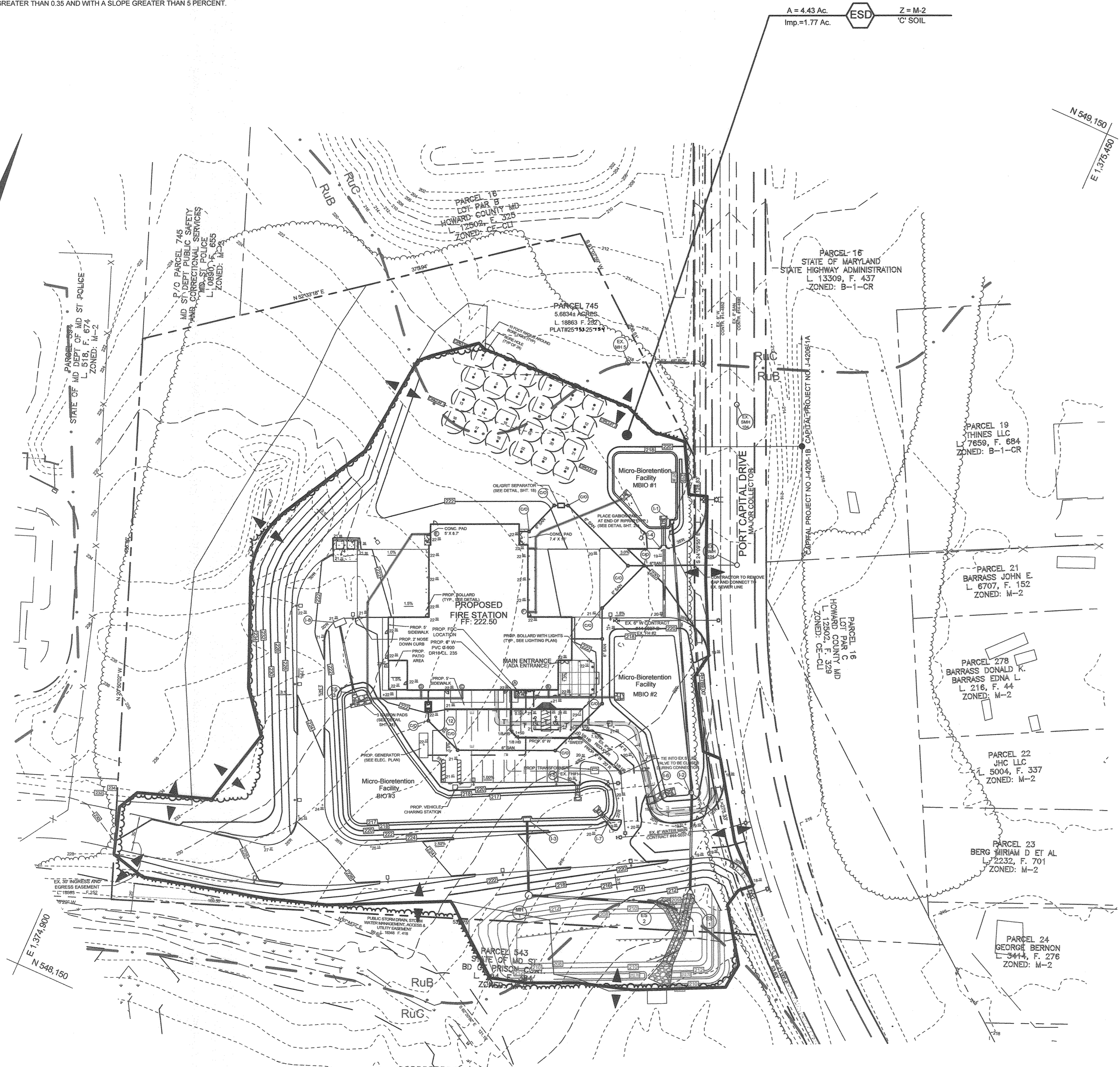
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21740, EXPIRATION DATE OCT. 08, 2021.

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K ² FACTOR WHOLE SOIL	AREA
F&A	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D	0.14	0.14
RUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

LEGEND	
EXISTING CONTOUR	--- 382 ---
PROPOSED CONTOUR	--- 382 ---
PROPOSED SPOT ELEVATION	+ 82.53
EXISTING TREELINE	~~~~~
PROPOSED TREELINE	~~~~~
WETLANDS	W W
WETLAND BUFFER	WB WB
EXISTING FENCE	-X-X-
EXISTING WATER	-----
EXISTING GAS	-----
EXISTING SEWER	-----
EXISTING STORM DRAIN	-----
EXISTING WATER VALVE	□
EXISTING FIRE HYDRANT	+
PROPOSED POLE LAMP	○
PROPOSED SIGN	
PROPOSED FLAG POLE	•
DETAIL ID	⊙
EXISTING WETLANDS	⊙
FOREST CONSERVATION AREA	⊙
PROPOSED RIPRAP	⊙

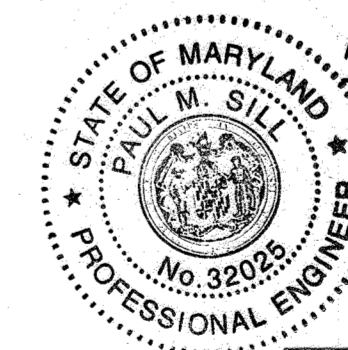
A = 4.43 Ac. Z = M-2
 Imp. = 1.77 Ac. 'C' SOIL



STORMWATER MANAGEMENT REQUIRED						
DEVELOPMENT	SITE AREA (SF)	IMPERVIOUS AREA (ac)	% OF IMPERVIOUS	REQUIRED P ₆	ESDV (cft)	Rev (sf)
DA-ESD	176,449	72,166	41%	1.8"	11,117	802
TOTAL					11,117	802

OWNER
 PARCEL 745
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV

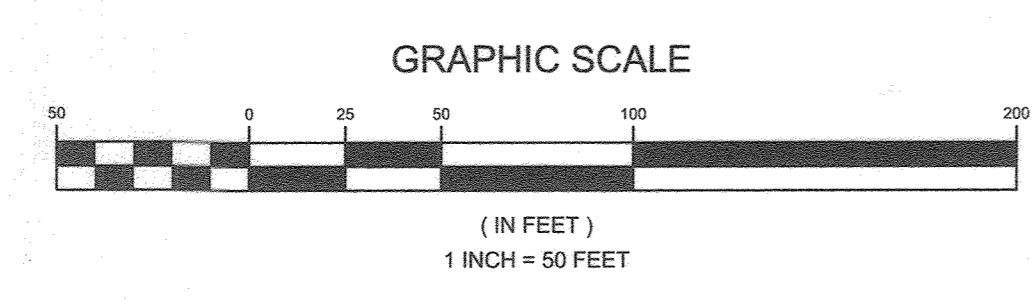
DEVELOPER
 HOWARD COUNTY, MD
 C/O MARK STROMDAHL
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV



AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8/23/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32025

REVISED ESD STORMWATER MANAGEMENT DRAINAGE AREA MAP WATERLOO FIRE STATION
 ZONED: M-2
 TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
 1ST ELECTION DISTRICT 25753-26754 HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5-3-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 [Signature] 5-17-21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 [Signature] DATE



PLAN VIEW
 SCALE: 1"=50'

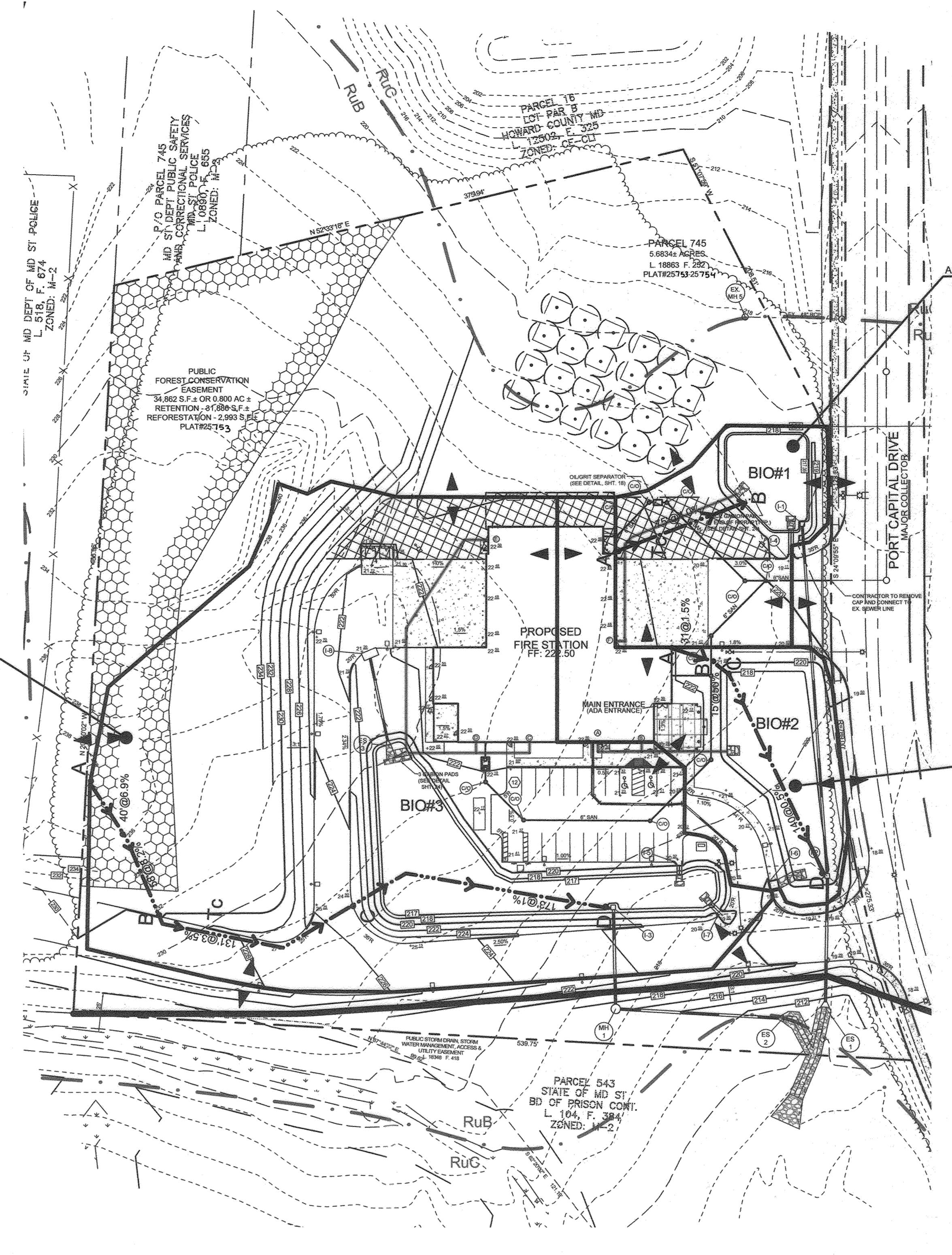
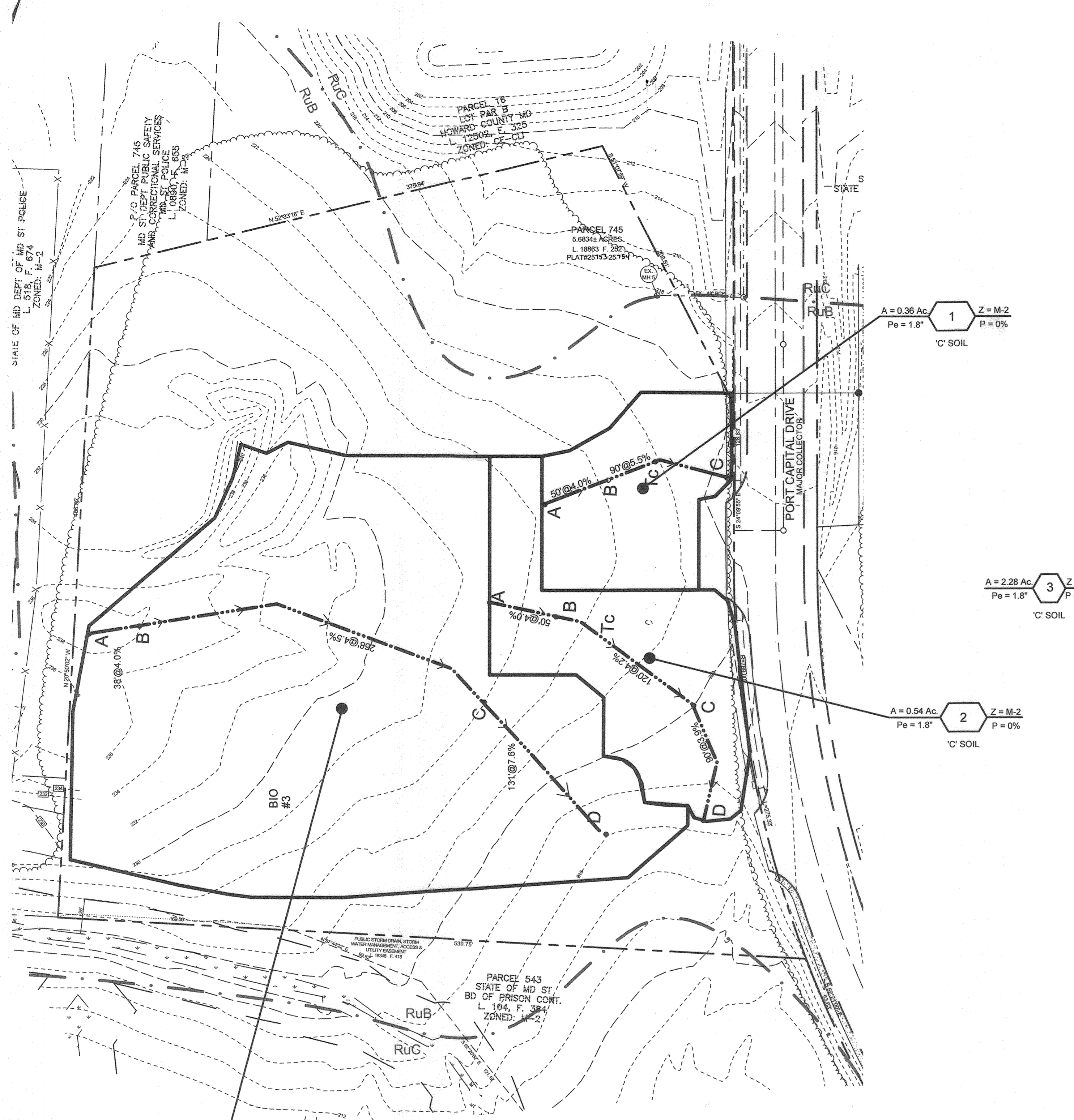
NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
	REDLINE REVISIONS	6/25/2020

	SILL ENGINEERING GROUP, LLC 16005 Frederick Road, 2nd Floor Woodbine, Maryland 21797 Phone: 443.325.5076 Fax: 410.696.2022 Email: info@sillengineering.com Civil Engineering for Land Development	DESIGN BY: JB
		DRAWN BY: TB
		CHECKED BY: PS
		SCALE: AS SHOWN
		DATE: 26/03/2021
		PROJECT #: 16-019
		SHEET #: 19 of 27

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21740, EXPIRATION DATE OCT. 08, 2021

LEGEND

EXISTING CONTOUR	---	382
PROPOSED CONTOUR	---	382
PROPOSED SPOT ELEVATION	+	82.53
EXISTING TREELINE	~	
PROPOSED TREELINE	~	
WETLANDS	W	W
WETLAND BUFFER	WB	WB
EXISTING FENCE	X	X
EXISTING WATER	---	
EXISTING GAS	---	
EXISTING SEWER	---	
EXISTING STORM DRAIN	---	
EXISTING WATER VALVE	+	
EXISTING FIRE HYDRANT	+	
PROPOSED POLE LAMP	+	
PROPOSED SIGN	+	
PROPOSED FLAG POLE	+	
DETAIL ID	+	
EXISTING WETLANDS	+	
FOREST CONSERVATION AREA	+	
PROPOSED RIPRAP	+	
FUTURE BUILDING EXPANSION	+	



A = 2.28 Ac, Z = M-2, Pe = 1.8%, P = 0%
C' SOIL

EXISTING CONDITION
SCALE: 1"=50'

DEVELOPED CONDITION
SCALE: 1"=50'

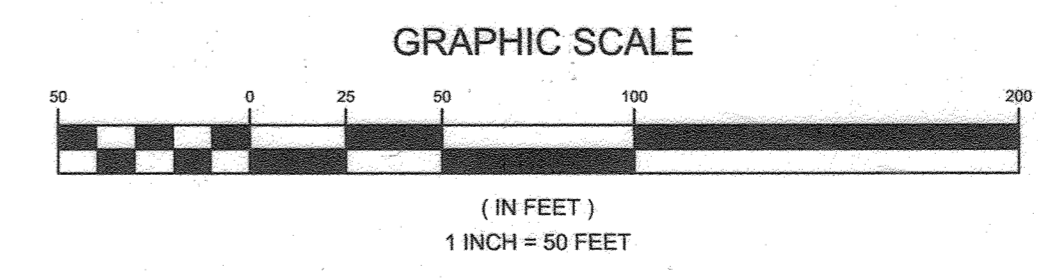
STORMWATER MANAGEMENT REQUIRED

DEVELOPMENT	SITE AREA (SF)	IMPERVIOUS AREA (ac)	% OF IMPERVIOUS	REQUIRED Pe	ESDV (cf)	Rev (sf)
DA-ESD	176,449	72,166	41%	1.8"	11,117	802
TOTAL					11,117	802

STORMWATER MANAGEMENT PROVIDED

FACILITY NO.	PE (IN.)	DA (AC)	IMPERVIOUS AREA (AC)	ESDV EL.	BOTTOM EL.	ESDV REQ'D (CF)	ESDV PROVIDED (CF)	Vtemp (CF)	Af REQ'D (SF)	Af PROVIDED (SF)	Rev REQ'D (CF)	Rev PROVIDED (CF)	10 Yr. PRE (CFS)	10 Yr. POST (CFS)	100 Yr. PRE (CFS)	100 Yr. POST (CFS)
BIO #1	1.80	0.36	0.22	218.37	213.37	1,451	2148	1,088	312	2734	105	273	0.92	0.86	2.29	0.93
BIO #2	1.80	0.54	0.27	219.00	214.00	1,803	3,893	1,352	471	5,279	131	528	1.21	1.05	3.02	1.85
BIO #3	1.80	2.29	1.02	217.70	212.75	6,848	6,170	5,136	1,985	8,393	497	839	5.44	4.42	13.47	12.92
TOTAL		3.19	2.37			11,117	12,211				802	1,840				

* SEE SWM REQUIREMENT TABLE ABOVE



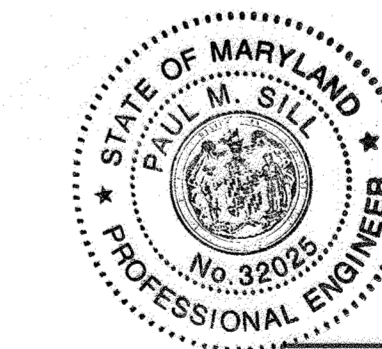
NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP 8/23/23	
	REDLINE REVISIONS	6/25/2020

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 5-3-21
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 5/17/21
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 5-17-21
DIRECTOR DATE



AS-BUILT CERTIFICATION:
THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
DATE 8/23/23
PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32025

OWNER
PARCEL 745
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

DEVELOPER
HOWARD COUNTY, MD
C/O MARK STROMDAHL
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV

REVISED STORMWATER MANAGEMENT DRAINAGE AREA MAP WATERLOO FIRE STATION

ZONED: M-2
"GREEN BUILDING"

TAX MAP 43 GRID 9
1ST ELECTION DISTRICT

PARCEL 745
HOWARD COUNTY, MARYLAND

16005 Frederick Road, 2nd Floor
Woodbine, Maryland 21797
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

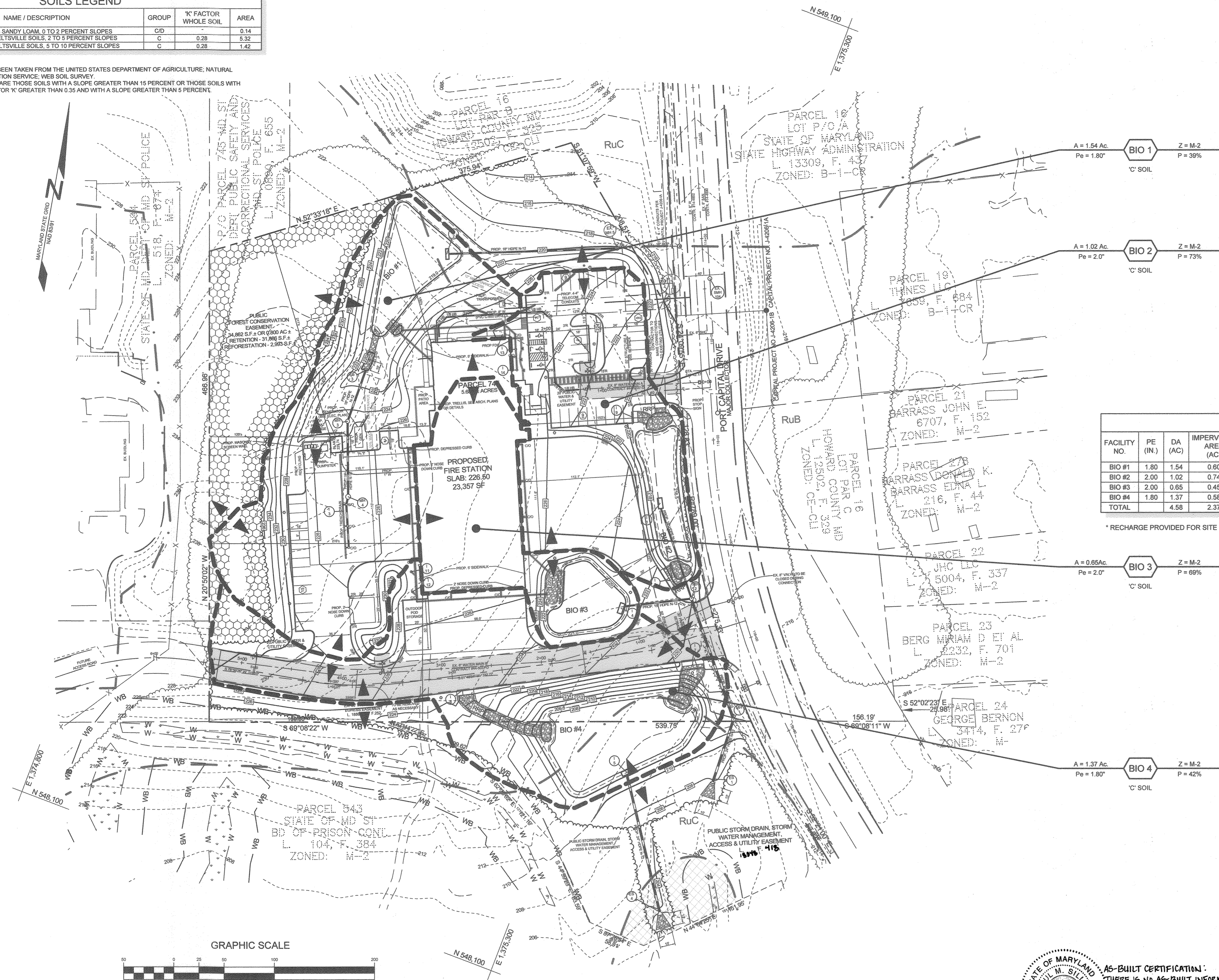
DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 31/03/2021
PROJECT #: 16-019
SHEET #: 20 of 27

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21740, EXPIRATION DATE OCT. 08, 2021

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K' FACTOR WHOLE SOIL	AREA
FsA	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D		0.14
RuB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

LEGEND	
EXISTING CONTOUR	---
PROPOSED CONTOUR	---(382)---
DIRECTION OF FLOW	→
EXISTING TRELINE	~~~~~
PROPOSED TRELINE	~~~~~
SOIL BOUNDARY	---
WETLANDS	W W
WETLAND BUFFER	WB WB
EX. WETLANDS	⊙
C/D SOIL TYPE	▨
EASEMENT FOR DRAINAGE AND UTILITY	▨
PROPOSED FLAG POLE	⊙
PROPOSED DRAINAGE DIVIDE	↑
PROPOSED STREET LIGHT	☆

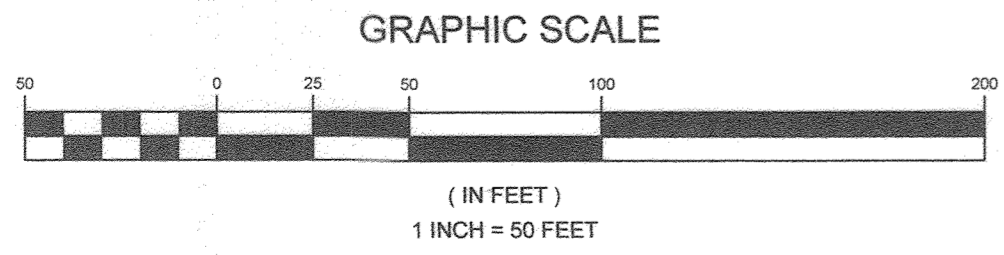


ESD SUMMARY AND SWM CALCULATIONS														
FACILITY NO.	PE (IN)	DA (AC)	IMPERVIOUS AREA (AC)	ESDv EL	BOTTOM EL	ESDv REQ'D (CF)	ESDv PROVIDED (CF)	Vtemp (CF)	Vtemp PROVIDED (CF)	Af (SF)	Af PROVIDED (SF)	Rev REQ'D (CF)	Rev PROVIDED (CF)	*TOTAL ESDv (CF)
BIO #1	1.80	1.54	0.80	219.75	219.00	4,034	7,604	3,026	3,823	1,342	4,726	291	2,836	10,439
BIO #2	2.00	1.02	0.74	218.75	218.00	5,236	6,245	3,927	3,125	889	3,900	342	3,900	10,145
BIO #3	2.00	0.65	0.45	220.83	220.00	3,167	7,075	2,375	3,686	566	4,236	206	847	7,922
BIO #4	1.80	1.37	0.58	208.50	208.00	3,833	12,707	2,875	4,949	1,194	9,697	278	1,939	14,646
TOTAL		4.58	2.37			16,270	33,630	12,203	15,583			1,116	9,522	43,152

* RECHARGE PROVIDED FOR SITE IN STONE UNDER FACILITIES #1, #2, #3, AND #4.

STORMWATER MANAGEMENT FACILITY SUMMARY TABLE										
FACILITY NO.	REQ.	PROV.	ESDv	CPv	Q10	REQ.	PROV.	REQ.	Q100	PROV.
1	1.8"	1.8"	4,034CF	3,844CF	3,945CF	11,326CF	11,359CF	14,306CF	14,678SF	
2	1.8"	1.8"	5,236CF	6,245CF	4,012CF	4,097CF	9,791CF	9,823CF	16,708CF	17,034CF
3	1.8"	1.8"	3,167CF	7,075CF	2,557CF	2,629CF	6,239CF	6,251CF	10,105CF	10,401CF
4	1.8"	1.8"	3,833CF	12,707CF	3,804CF	3,933CF	10,749CF	10,978CF	13,584CF	19,364CF

SWM OUTFALL SUMMARY TABLE		
DESIGN POINT	PRE-DEVELOPMENT PEAK FLOW	POST-DEVELOPMENT PEAK FLOW
1	Q ₁ = 1.42 CFS; Q ₁₀₀ = 16.05 CFS	Q ₁ = 0.00 CFS; Q ₁₀₀ = 15.98 CFS
2	Q ₁ = 2.01 CFS; Q ₁₀₀ = 22.37 CFS	Q ₁ = 0.00 CFS; Q ₁₀₀ = 20.60 CFS



AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 DATE: 8/23/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32225



OWNER
 PARCEL 745:
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-5757
 MCMSTROMDAHL@HOWARDCOUNTYMD.GOV

DEVELOPER
 HOWARD COUNTY MARYLAND
 C/O MICHAEL KAMINETZ, P.E.
 9200 BERGER ROAD,
 COLUMBIA, MD 21046
 410-313-5781
 MKAMINETZ@HOWARDCOUNTYMD.GOV

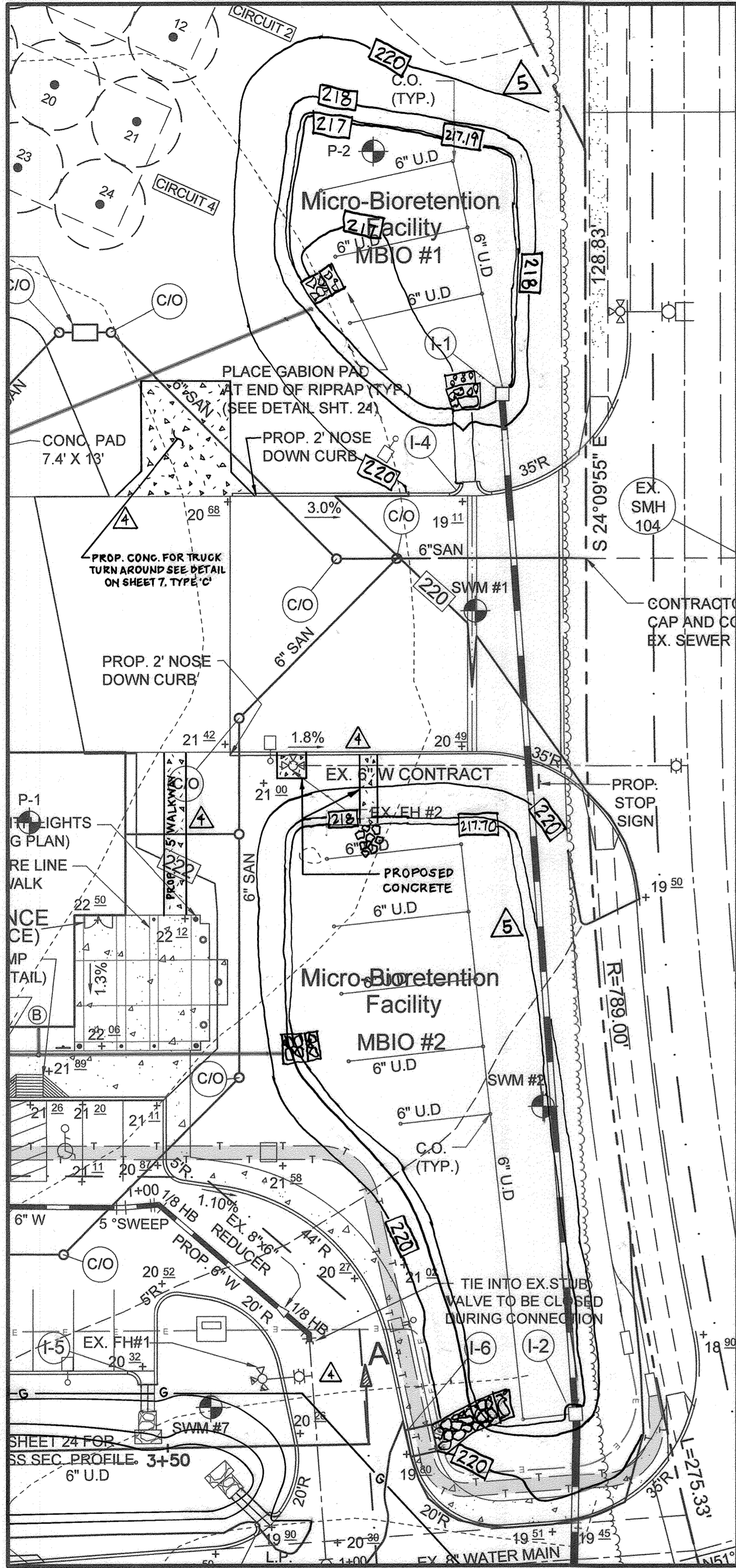
ESD STORMWATER MANAGEMENT DRAINAGE AREA MAP WATERLOO FIRE STATION
 ZONED: M-2
 "GREEN BUILDING"
 TAX MAP 43 GRID 9 1ST ELECTION DISTRICT
 PARCEL 745 HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 DATE: 1/23/20
 DATE: 2/3/20
 DATE: 2-3-2020
 DATE:

NO.	DESCRIPTION	DATE
1	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23

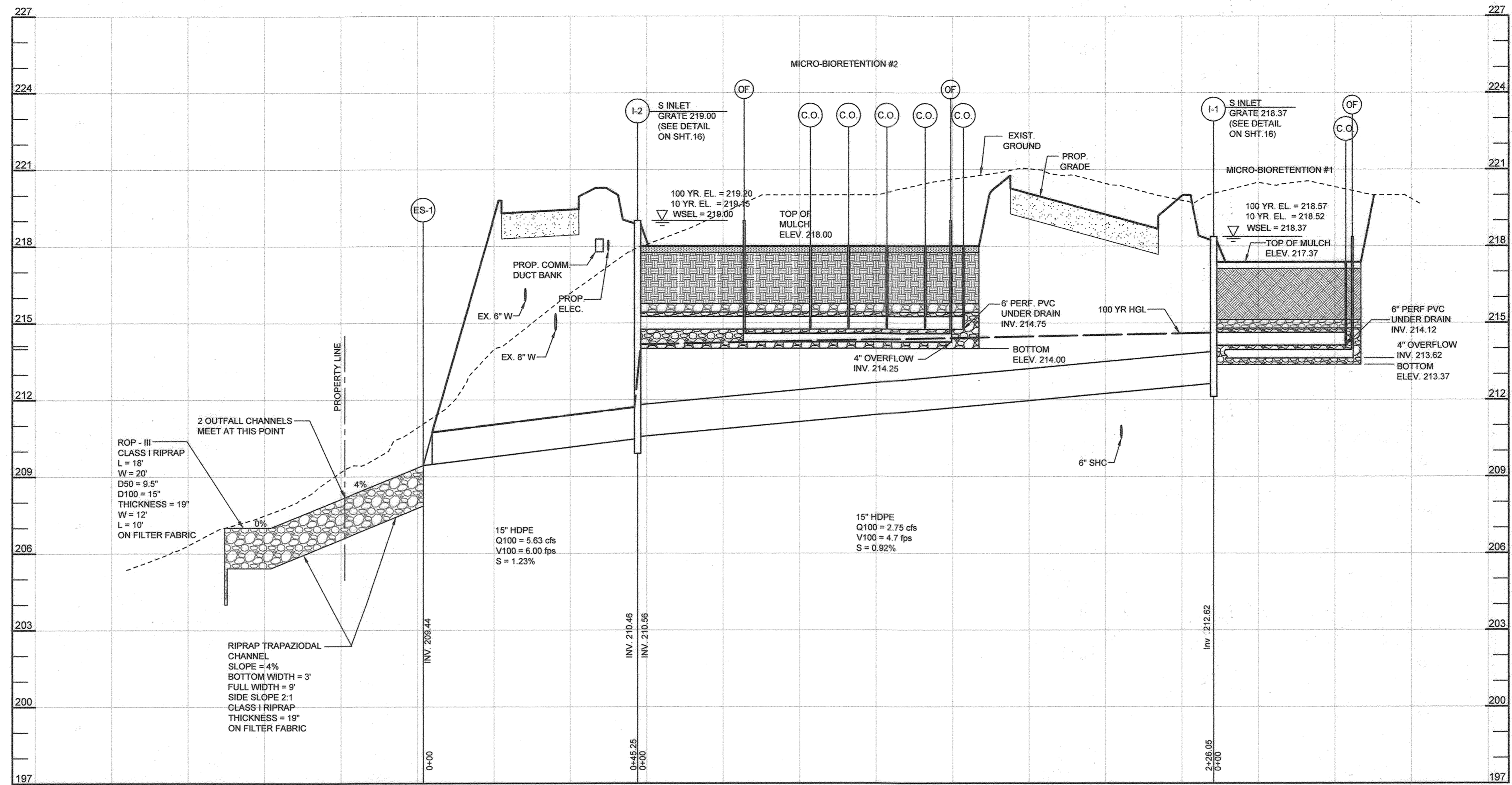
DESIGN BY: PS
 DRAWN BY: JC
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: DECEMBER 24, 2019
 PROJECT #: 16-019
 SHEET #: 21 of 27

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 32025, EXPIRATION DATE: JUNE 20, 2021



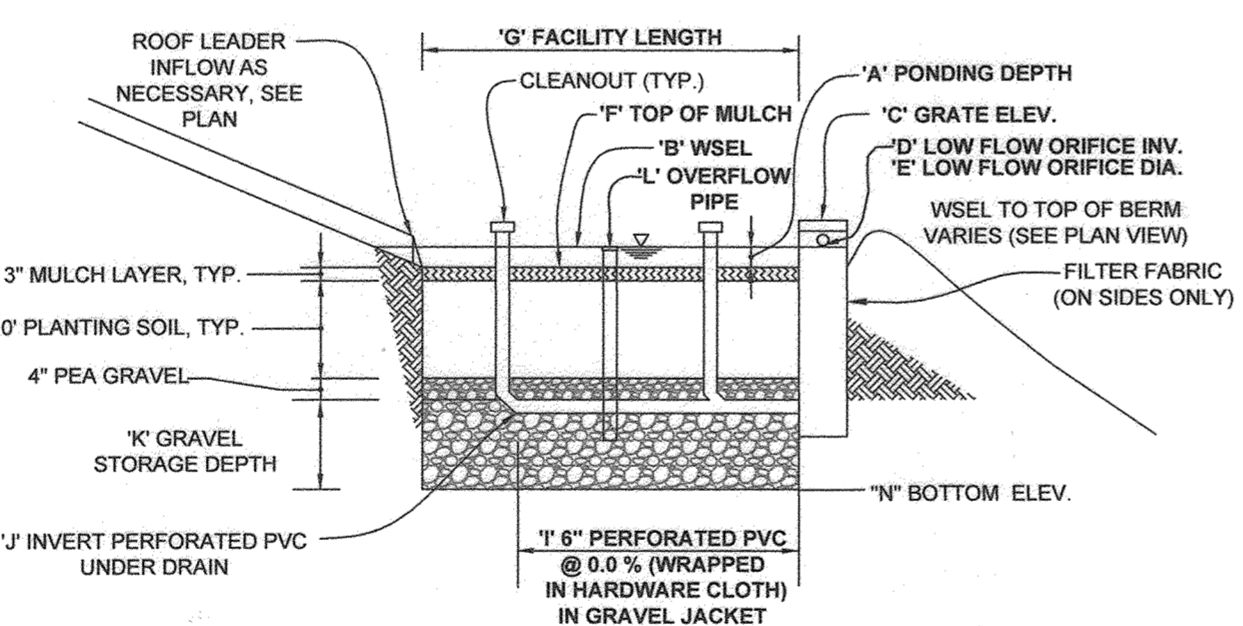
BIORETENTION FACILITY #1 & #2

SCALE: 1"=20'



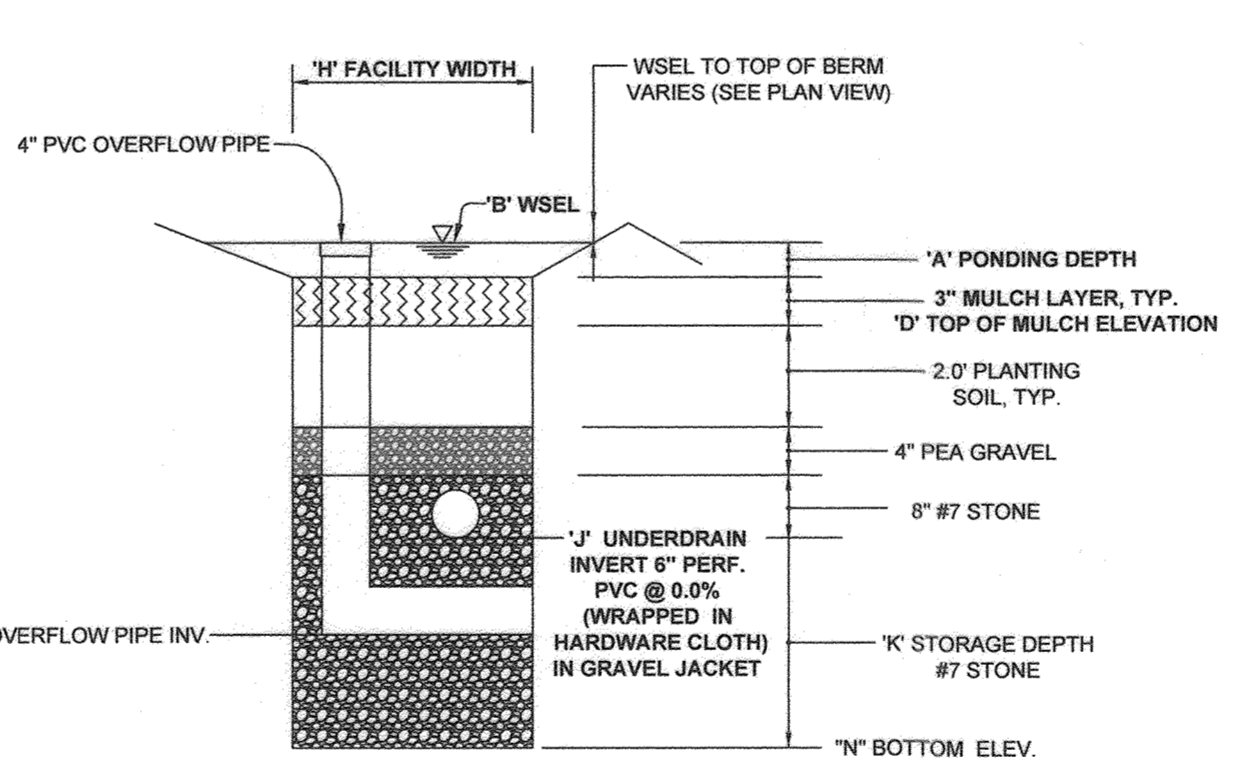
MICRO-BIORETENTION #1 & #2
INLETS 1 & 2 TO ES-1

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=3'



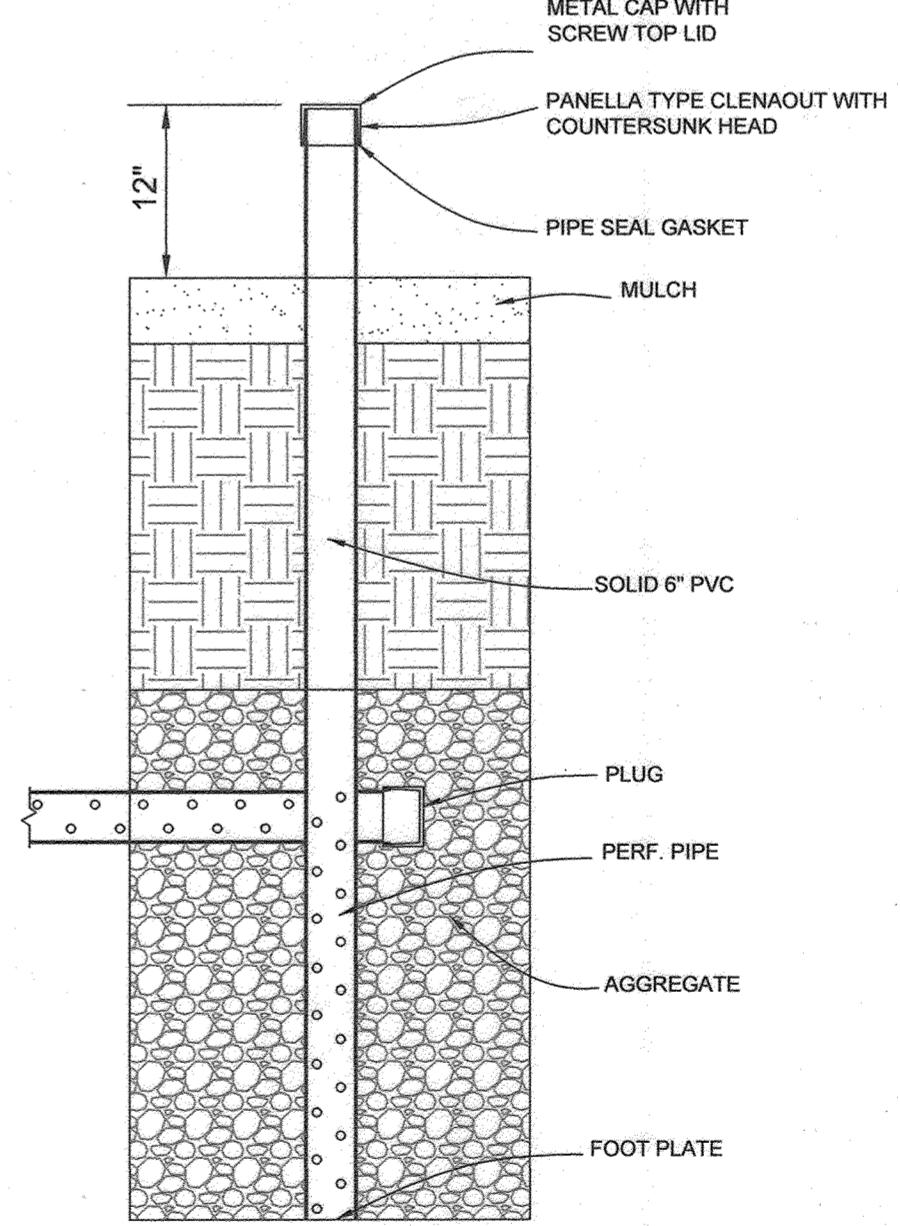
BIORETENTION FACILITY
TYPICAL PROFILE

NOT TO SCALE



BIORETENTION FACILITY
TYPICAL SECTION

NOT TO SCALE



OBSERVATION WELL / CLEANOUT DETAIL

CONTRACTOR SHALL PROVIDE TWO OBSERVATION WELLS PER FACILITY

DESCRIPTION	BIO 1	BIO 2	BIO 3
'A' PONDING DEPTH	0.75'	0.70'	0.70'
'B' WSEL	217.87	218.70	217.7
'C' GRATE ELEV.	218.12	218.92	219.31
'D' LOW FLOW ORIFICE INV.	217.87	218.70	217.70
'E' LOW FLOW ORIFICE DIAMETER	4"	4"	6"
'F' TOP OF MULCH	217.19	217.70	218.58
'G' FACILITY LENGTH	61.50'	133.50'	212.00'
'H' FACILITY WIDTH	51.80'	50.00'	105.00'
'I' PERF. UNDERDRAIN DIMENSION (6")	141"	278"	343"
'J' UNDERDRAIN INVERT (6")	213.96	214.33	218.45
'K' GRAVEL STORAGE DEPTH	0.25'	0.25'	0.25'
'L' OVERFLOW PIPE TOP	219.38	219.52	217.65
'M' OVERFLOW PIPE INV.	213.62	214.25	213.25
'N' BOTTOM ELEVATION	213.37	214.00	213.00

LEGEND

EXISTING CONTOUR	---	382
PROPOSED CONTOUR	---	382
PROPOSED SPOT ELEVATION	+	82.53
DIRECTIONAL FLOW ARROW	→	
EXISTING TREELINE	~	
PROPOSED TREELINE	~	
WETLANDS	W	W
WETLAND BUFFER	WB	WB
EXISTING FENCE	X	X
EXISTING WATER	---	
EXISTING GAS	---	
EXISTING SEWER	---	
EXISTING STORM DRAIN	---	
PROPOSED BORING	B-8	
EXISTING WATER VALVE	+	
EXISTING FIRE HYDRANT	+	
PROPOSED POLE LAMP	+	
PROPOSED SIGN	+	
PROPOSED FLAG POLE	+	
DETAIL ID	+	
PROPOSED SIDEWALK	---	
PROPOSED CONCRETE	---	
PROPOSED RIPRAP	---	

OWNER
 PARCEL 745
 MARK STROMDAHL
 HOWARD COUNTY, MARYLAND
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV

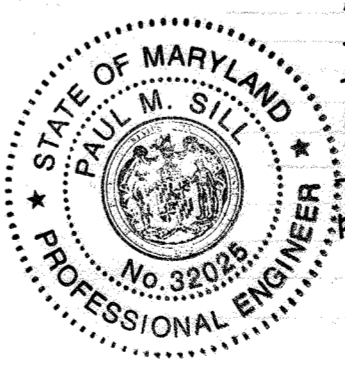
DEVELOPER
 HOWARD COUNTY, MD
 C/O MARK STROMDAHL
 9200 BERGER ROAD COLUMBIA, MD 21046
 410-313-2700
 MCSTROMDAHL@HOWARDCOUNTYMD.GOV

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief Development Engineering Division
 DATE: 5-2-21

Chief, Division of Land Development
 DATE: 5/10/21

Director
 DATE: 5-17-21



AS-BUILT CERTIFICATION:
 I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS AS-BUILT PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 6/25/23
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 32225

REVISED STORMWATER MANAGEMENT FACILITY 1 & 2 WATERLOO FIRE STATION

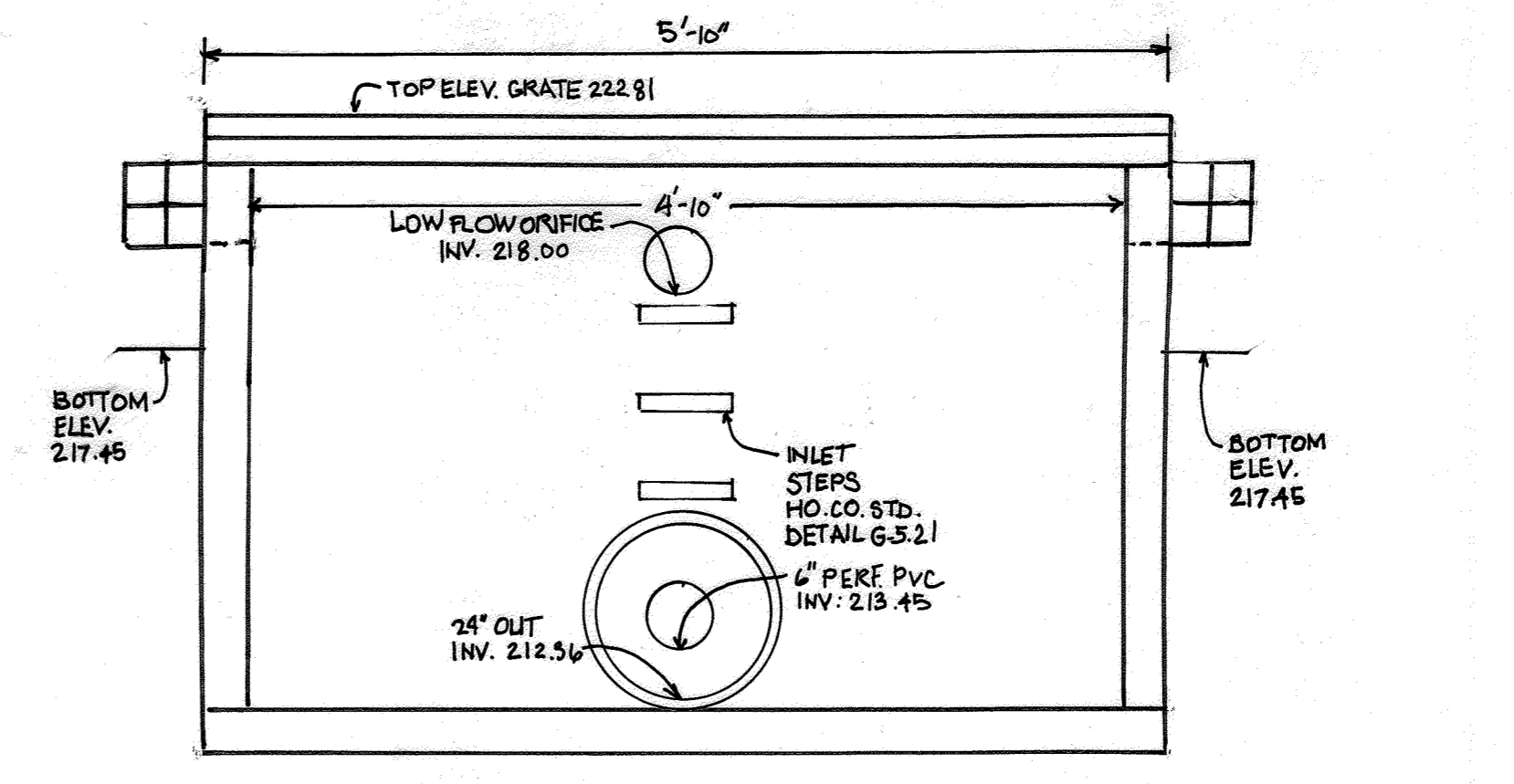
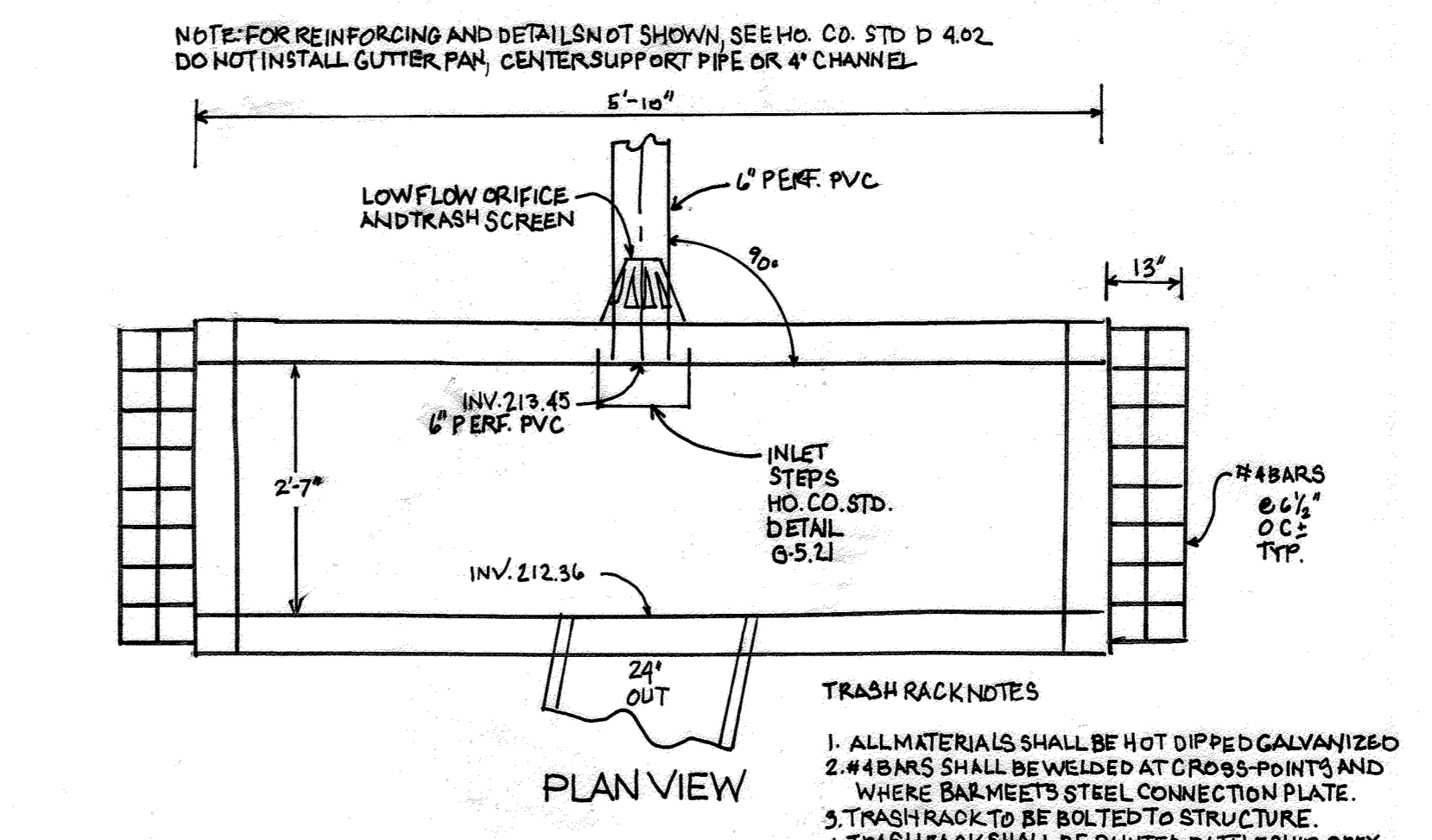
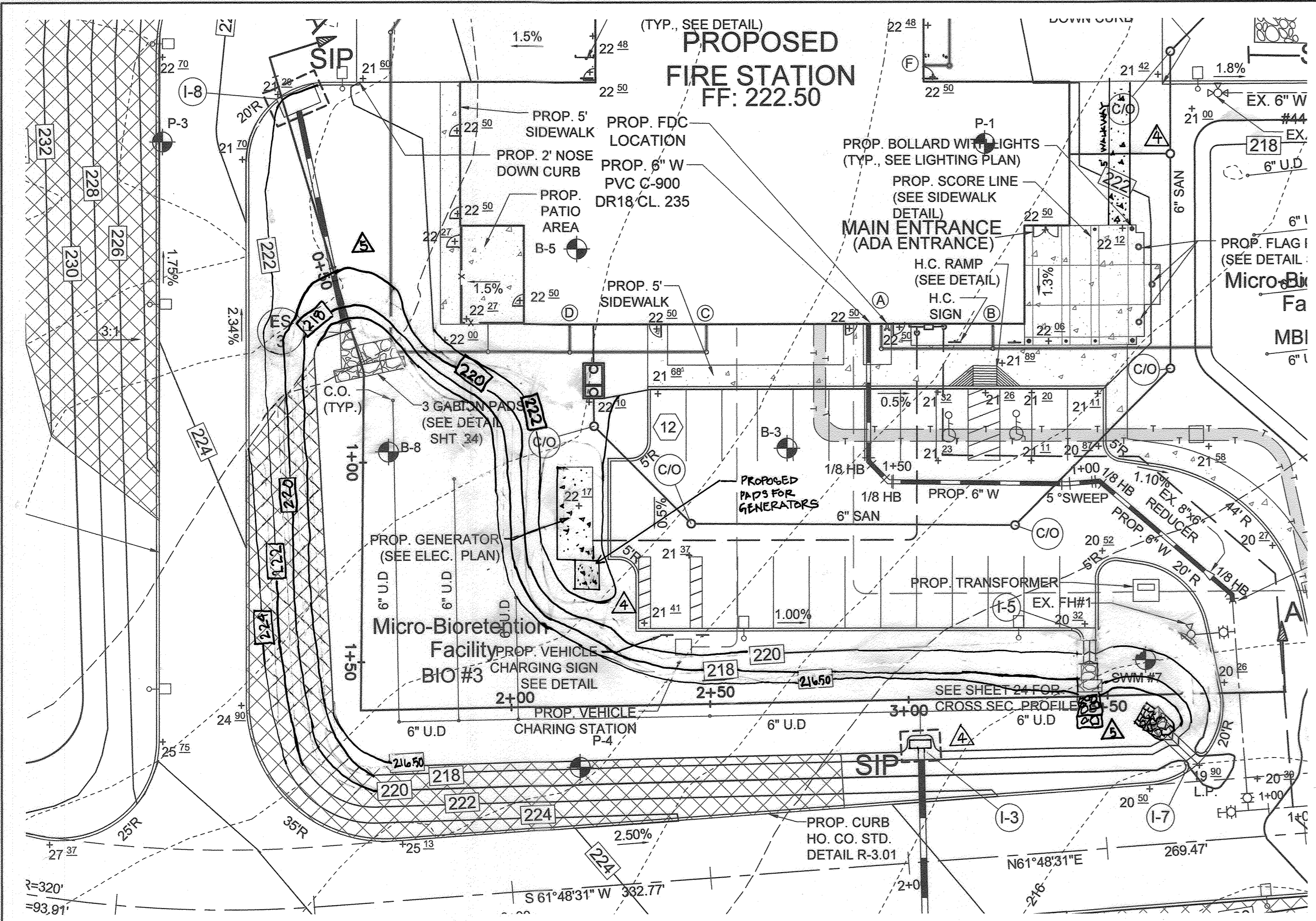
ZONED: M-2
 "GREEN BUILDING"

TAX MAP 43 GRID 9
 1ST ELECTION DISTRICT
 PARCEL 745
 HOWARD COUNTY, MARYLAND

DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 28/03/2021
 PROJECT #: 16-019
 SHEET #: 22 of 27

SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

NO.	DESCRIPTION	DATE
5	AS-BUILT PLAN BY SILL ENGINEERING GROUP	6/23/23
4	REVISE BIO 3 ELEVATIONS IN CHART & ADD CONCRETE	2/28/23
	REDLINE REVISIONS	6/25/2020



LONGITUDINAL ELEVATION VIEW
STRUCTURE I-3 MODIFIED A-5 INLET
NOT TO SCALE

LEGEND

EXISTING CONTOUR	---	382
PROPOSED CONTOUR	---	382
PROPOSED SPOT ELEVATION	+	82.53
DIRECTIONAL FLOW ARROW	→	
EXISTING TREELINE	~	
PROPOSED TREELINE	~	
WETLANDS	W	W
WETLAND BUFFER	WB	WB
EXISTING FENCE	X	X
EXISTING WATER	---	
EXISTING GAS	---	
EXISTING SEWER	---	
EXISTING STORM DRAIN	---	
DIRECTIONAL FLOW ARROW	→	
PROPOSED BORING	B-8	
EXISTING WATER VALVE	+	
EXISTING FIRE HYDRANT	+	
PROPOSED POLE LAMP	+	
PROPOSED SIGN	+	
PROPOSED FLAG POLE	+	
DETAIL ID	+	
EXISTING ACCESS, WATER & UTILITY EASEMENT	---	
PROPOSED CONCRETE	---	
PROPOSED RIPRAP	---	

NOTE: ALL STRUCTURES ARE TO BE PRECAST. ALL SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED BY A LICENSED MARYLAND PROFESSIONAL ENGINEER PRIOR TO FABRICATION.

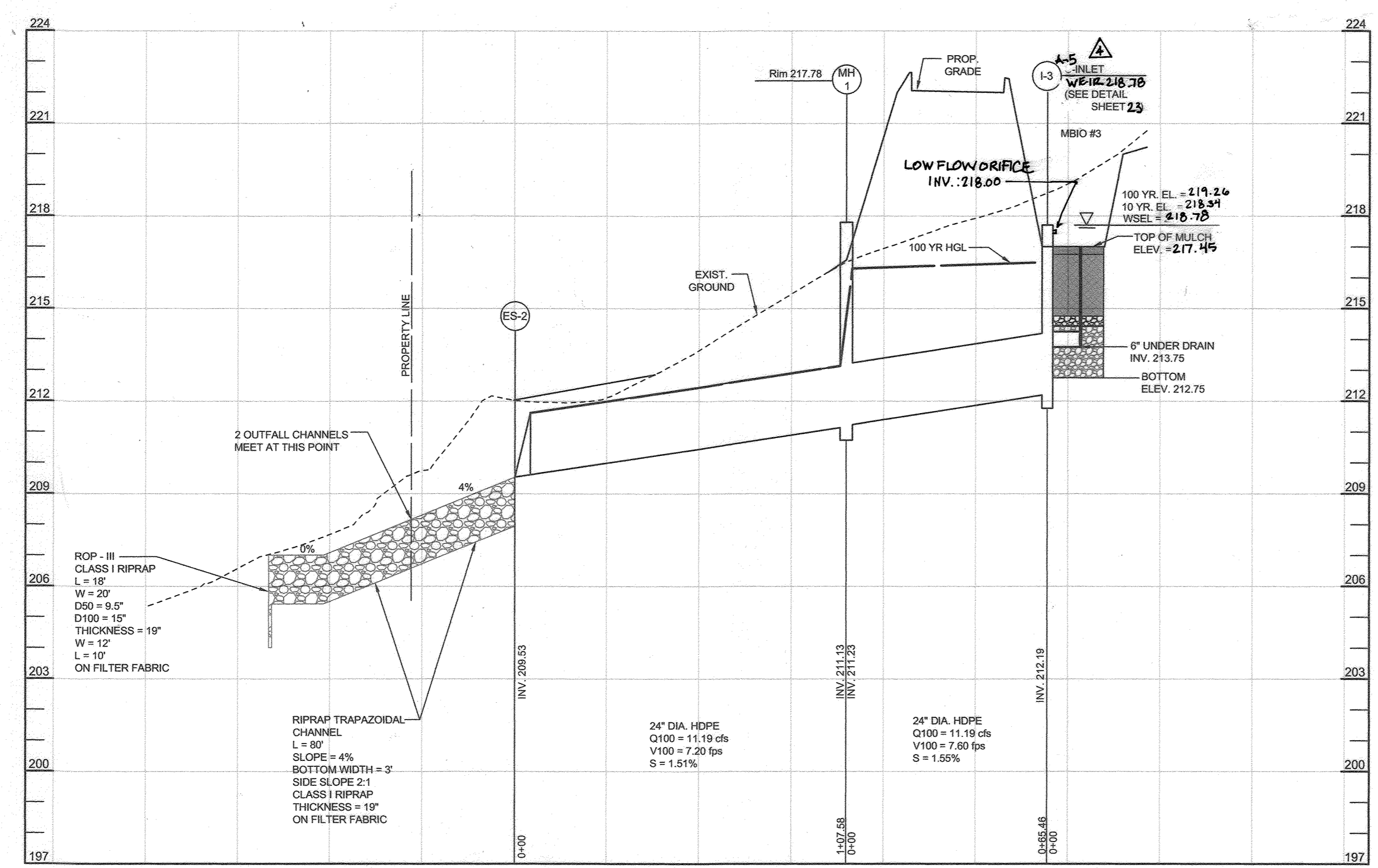


AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS AS-BUILT PLAN MEET THE APPROVED PLANS AND SPECIFICATIONS.
PAUL M. SILL, PROFESSIONAL ENGINEER, LICENSE NO. 32025, DATE 8/25/22

OWNER
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MARK STROMDAHL
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9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
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DEVELOPER
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410-313-2700
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BIORETENTION FACILITIES #3
SCALE: 1"=20'



MICRO-BIORETENTION #3
INLET 3 TO ES-2
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 3'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION 4
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

DATE: 5-3-21
DATE: 5/10/24
DATE: 5-17-21

REVISED STORMWATER MANAGEMENT FACILITY 3 WATERLOO FIRE STATION

ZONED: M-2
TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
1ST ELECTION DISTRICT PLAT 25753-25754 HOWARD COUNTY, MARYLAND

DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 28/03/2021
PROJECT #: 18-019
SHEET #: 23 of 27

SILL ENGINEERING GROUP, LLC
16005 Frederick Road, 2nd Floor
Woodbine, Maryland 21797
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

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. 21740, EXPIRATION DATE OCT. 08, 2021.

NO.	DESCRIPTION	DATE
5	AS-BUILT PLAN BY SILL ENGINEERING GROUP, LLC	08/25/22
4	REVISED TO 3 & ADD CONCRETE PADS & V-LIKS	05/28/23
	REDLINE REVISIONS	6/25/2020

B.4.C SPECIFICATIONS FOR BIORETENTION, MICRO-BIORETENTION, RAIN GARDENS, LANDSCAPE INFILTRATION & INFILTRATION BERMS

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.

3. COMPACTATION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTATION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL WHEN POSSIBLE. USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL IF PRACTICES ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF-TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTATION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTATION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
4. PLANT MATERIAL
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3 OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II.

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" THROUGH THE 12" INCH COMPACTION ZONE. SUBSTITUTE METHODS 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.
6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
• PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 758, TYPE P288, OR AASHTO M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G. PVC OR HDPE).
• PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 1/4" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (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 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
• A 4" LAYER OF PEA GRAVEL (1/4" TO 1/2" 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".

7. MISCELLANEOUS
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.
8. 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% 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.

9. 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.

10. 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.

11. 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.
12. 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.
13. 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.

14. 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, DEFECTS, 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.

15. 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).

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

OWNER
PARCEL 745
MARK STROMDAHL
HOWARD COUNTY, MARYLAND
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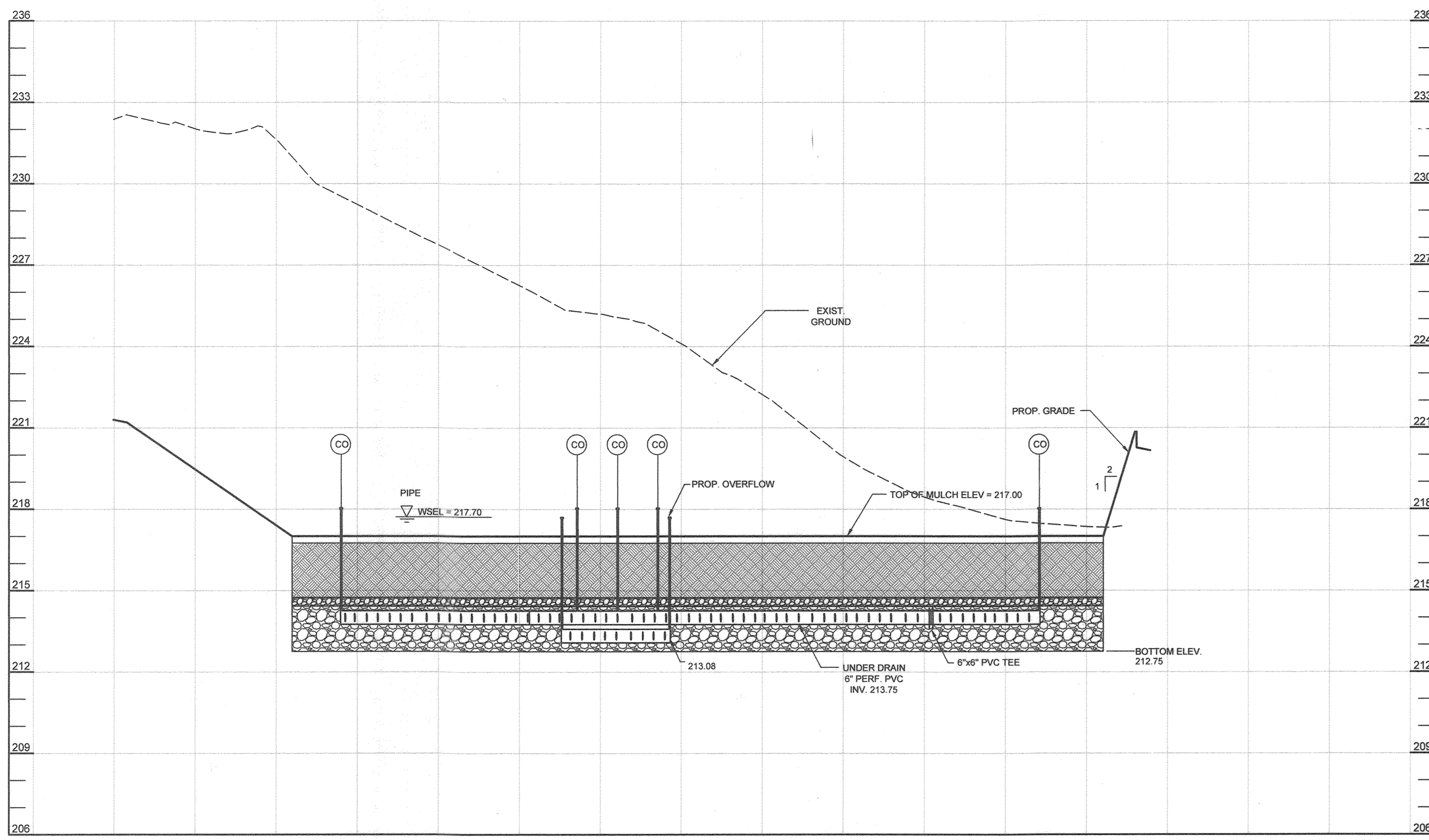
DEVELOPER
HOWARD COUNTY, MD
C/O MARK STROMDAHL
9200 BERGER ROAD COLUMBIA, MD 21046
410-313-2700
MCSTROMDAHL@HOWARDCOUNTYMD.GOV



AS-BUILT CERTIFICATION:
THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
DATE: 6/25/20
PAUL M. SILL, PROFESSIONAL ENGINEER
LICENSE NO. 32025

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED BIORETENTION FACILITIES

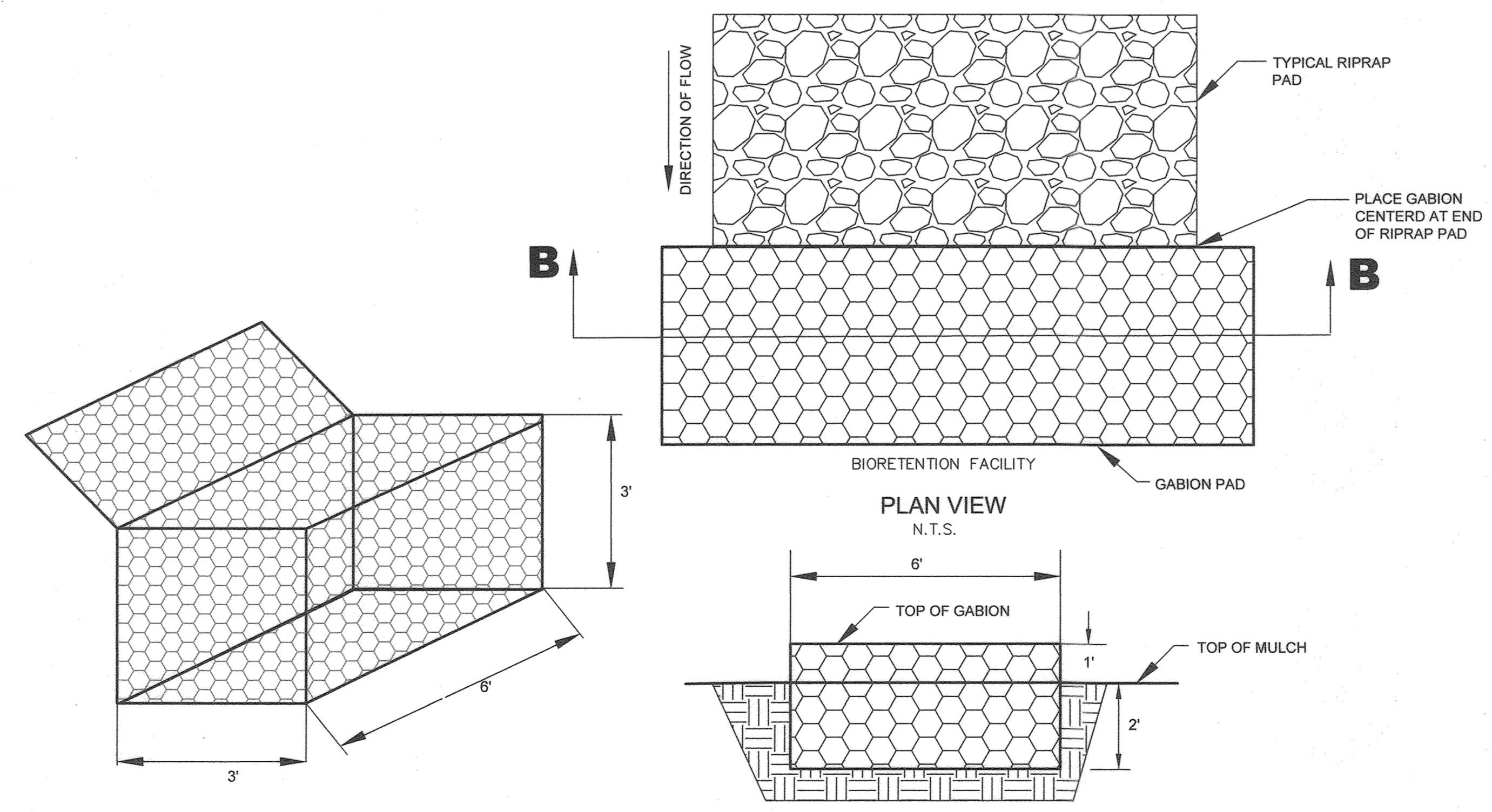
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD OR DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL, TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.



MICRO-BIORETENTION #3
SECTION A-A
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

MATERIALS SPECIFICATIONS FOR MICRO-BIORETENTION, BIORETENTION, RAIN GARDEN & LANDSCAPE INFILTRATION

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTING SOIL (2'-4" DEEP)	LOAMY SAND (60% - 65%) & COMPOST (35%-40%) OR SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)	N/A	PLANTINGS ARE SITE-SPECIFIC, SEE PLANT LIST THIS SHEET
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM-D-2974)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM, CLAY CONTENT < 5%
MULCH	SHREDDED HARDWOOD	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM, SHALL CONTAIN A MINIMUM 35-60% SAND, BY VOLUME
PEA GRAVEL DIAPHRAGM	PEA GRAVEL: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	AGED 6 MONTHS, MINIMUM. NO PINE OR WOOD CHIPS
CURTAIN DRAIN (IF REQUIRED)	ORNAMENTAL STONE: WASHED COBBLES	STONE: 2" TO 5"	
GEOTEXTILE		N/A	PE TYPE 1 NONWOVEN
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 8 AGGREGATE (3/8" TO 3/4")	
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" GALVANIZED HARDWARE CLOTH.
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MX NO. 3; F _c = 3500 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED, REINFORCING TO MEET ASTM-615-90	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRED; DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND; DESIGN TO INCLUDE MEETING ACI CODE 308.1R; VERTICAL LOADING (H-10 OR H-20); ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING.
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.



- GABION BASKET TO BE FILLED WITH 4-8" STONE.
- GABION TO BE PLACED ON COMPACTED SUBGRADE.

GABION PAD DETAIL

N.T.S.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 5-3-21
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 [Signature] 5-17-21
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 [Signature] 5-17-21
 DIRECTOR DATE

NO.	DESCRIPTION	DATE
2	AS-BUILT PLAN BY SILL ENGINEERING GROUP	6/25/20
	REDLINE REVISIONS	6/25/20
	REVISIONS	

REVISED STORMWATER MANAGEMENT NOTES AND DETAILS FACILITY 4 WATERLOO FIRE STATION

ZONED: M-2
 TAX MAP 43 GRID 9 "GREEN BUILDING" PARCEL 745
 1ST ELECTION DISTRICT PLAT 25153-25154 HOWARD COUNTY, MARYLAND

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 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 26/03/2021
 PROJECT #: 16-019
 SHEET #: 24 OF 27

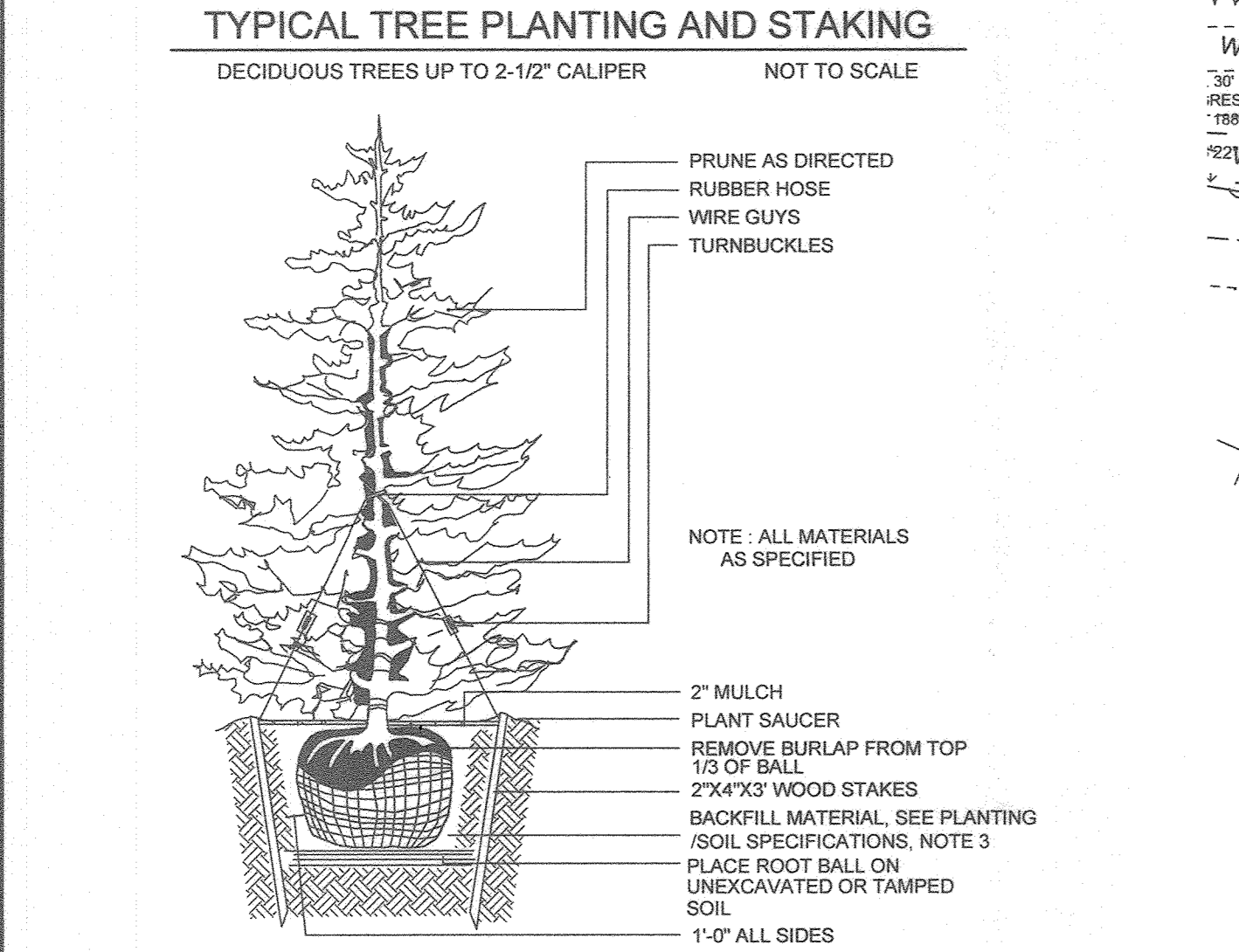
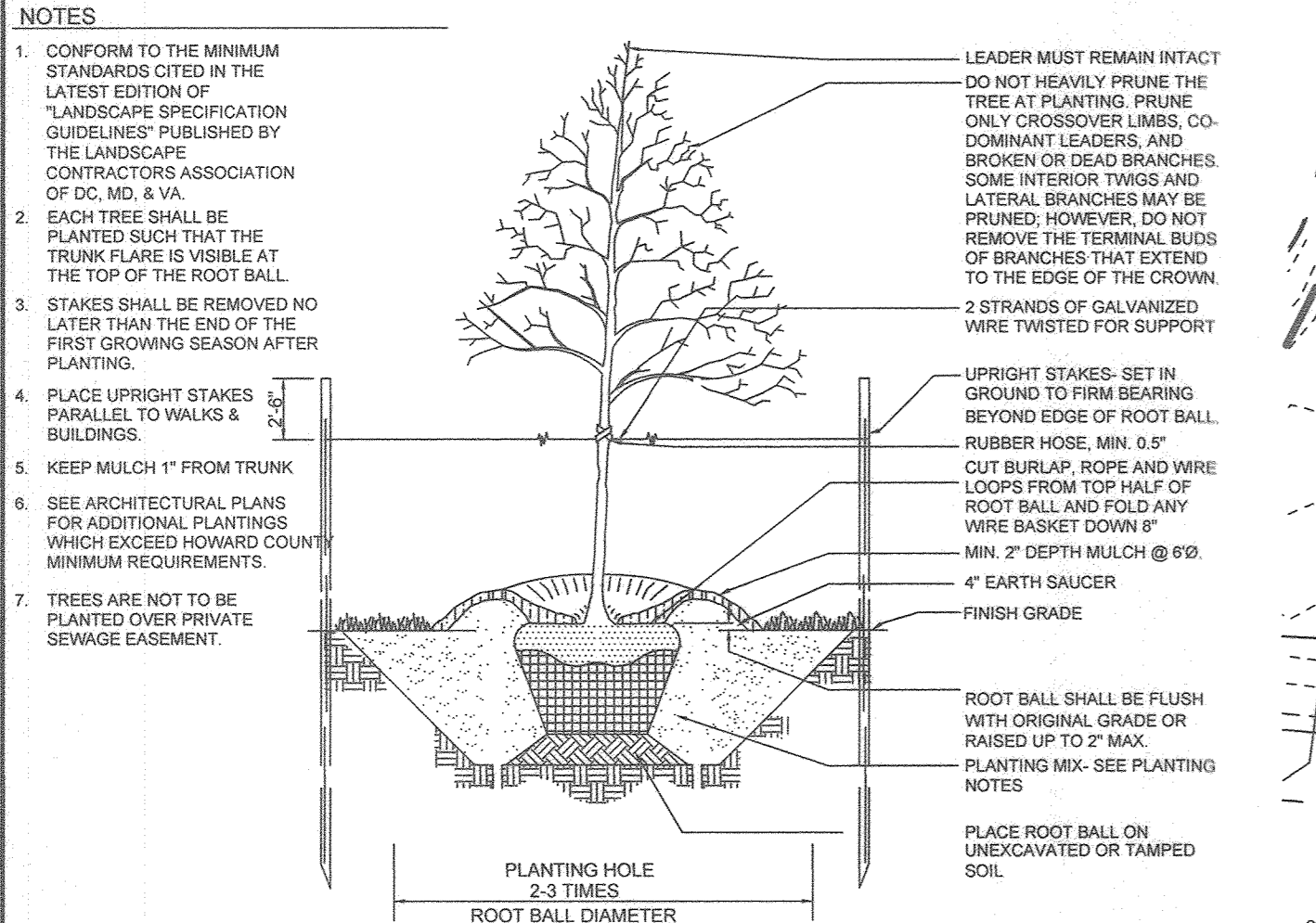
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21760, EXPIRATION DATE OCT. 08, 2021.

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K' FACTOR WHOLE SOIL	AREA
FaA	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	C/D	0.28	0.14
RUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE; NATURAL RESOURCES CONSERVATION SERVICE; WEB SOIL SURVEY
 2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

LANDSCAPE PLAN NOTES
 1. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING.
 2. THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 3. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF THREE (3) INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
 4. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.12A OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. THIS IS A COUNTY PROJECT. LANDSCAPE SURETY IS NOT REQUIRED.
 5. STREET TREES SHOULD BE PROVIDED WITH CAPITAL PROJECT 3-206-1B.

PLANTING/SOIL SPECIFICATIONS
 1. INSTALLATION OF B&B / CONTAINER STOCK SHALL BE PERFORMED MARCH 15 - MAY 30 OR SEPTEMBER 15 - NOVEMBER 15
 2. DISTURBED AREAS SHALL BE STABILIZED AS PER SEDIMENT AND EROSION CONTROL PLANS FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
 3. BAREROOT PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP EXISTING GRADE. ROOTS SHALL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL AND 1 PART FINE FINES OR EQUIVALENT.
 4. FERTILIZER SHALL CONSIST OF AGRIFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURERS' SPECIFICATIONS. FOR WOODY PLANTS, HERBACEOUS PLANTS SHALL BE FERTILIZED WITH OSMOCOTE 8-6-12.
 5. PLANTS SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
 6. ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.



TYPICAL TREE PLANTING AND STAKING
 DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE

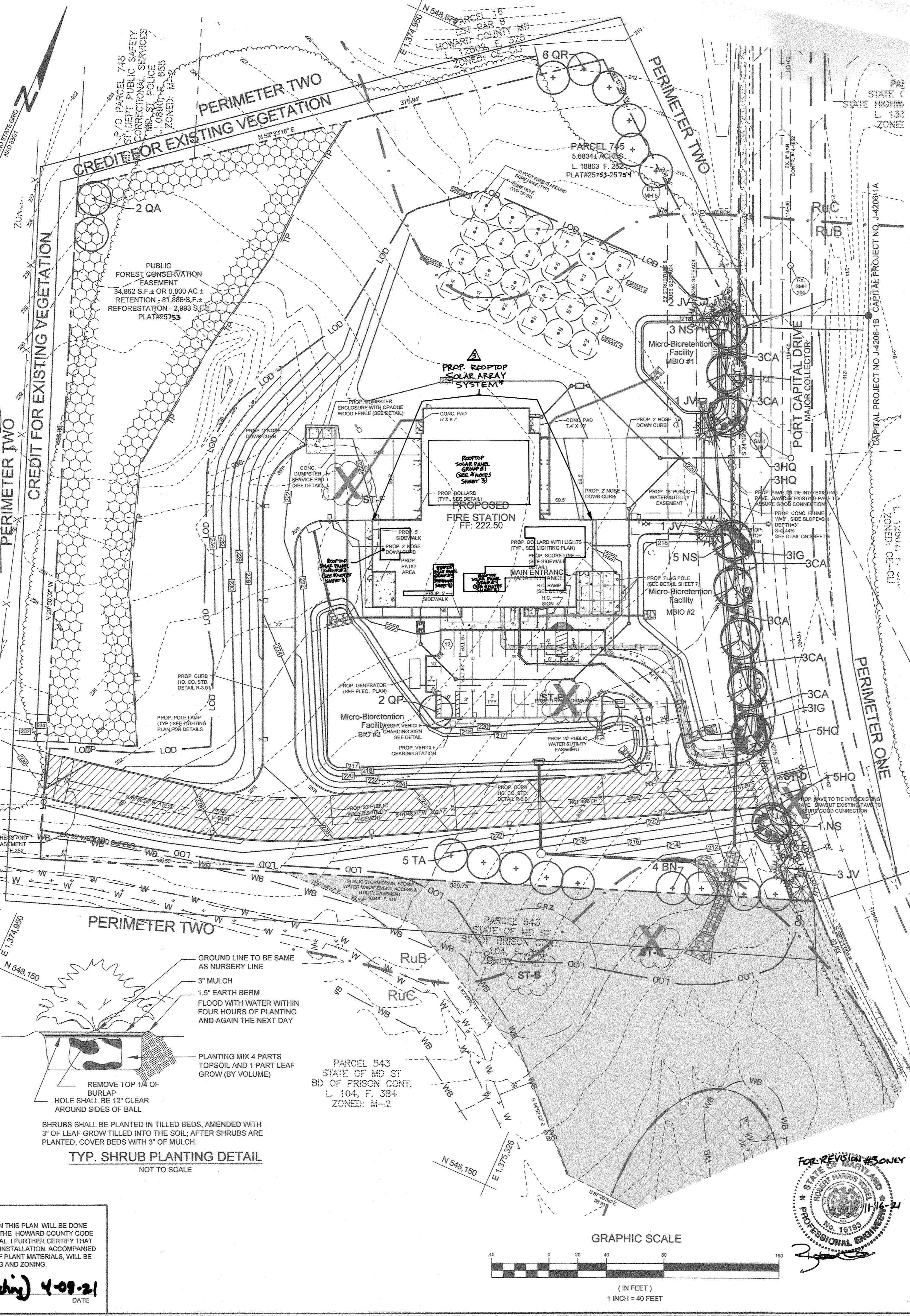
TYPICAL EVERGREEN TREE PLANTING DETAIL
 NOT TO SCALE

TYP. SHRUB PLANTING DETAIL
 NOT TO SCALE

DEVELOPER'S CERTIFICATE
 I CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.12A OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPING MANUAL. I FURTHER CERTIFY THAT UPON COMPLETION, A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: [Signature] 5/3/21
 Chief, Division of Land Development: [Signature] 5/17/21
 Director: [Signature] 5/17/21

DEVELOPER: [Signature] 4/09/21



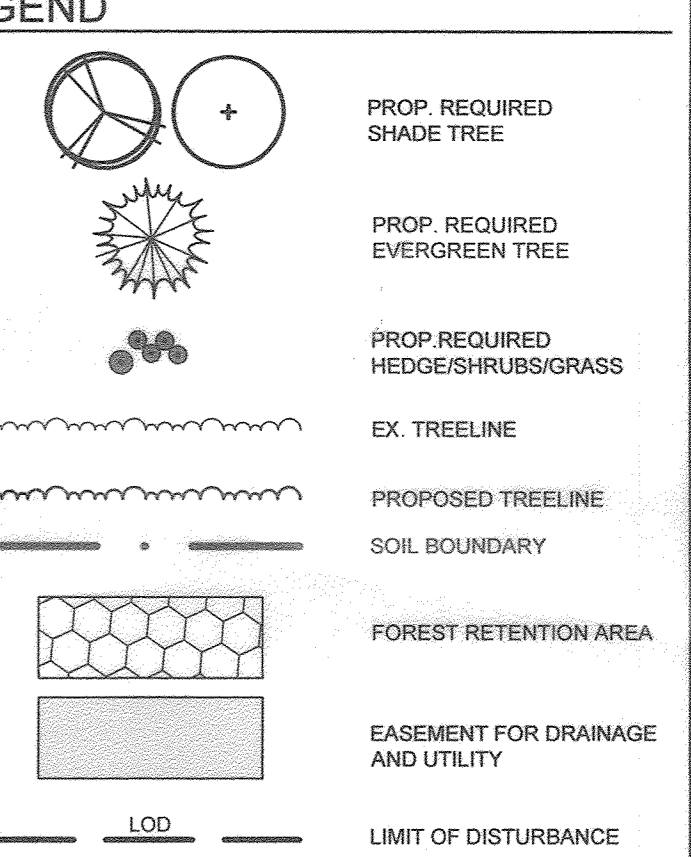
SCHEDULE A
 PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES
PERIMETER/FRONTAGE DESIGNATION	1	2
LANDSCAPE TYPE	405 (B)	1591 (A)
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	405 (B)	1591 (A)
CREDIT FOR EXISTING VEGETATION (YES, NO LINEAR FEET)	NO	YES (SEE NOTE 1) 707LF
REMAINING PERIMETER LENGTH CREDIT FOR WALL, FENCE OR BERM (YES, NO LINEAR FEET)	NO	NO
REMAINING PERIMETER LENGTH NUMBER OF PLANTS REQUIRED	1:50=9	1:50=15
SHADE TREES	1:40=11	1:40=15
EVERGREEN TREES	1:40=11	1:40=15
SHRUBS	1:40=7	1:40=15
NUMBER OF PLANTS PROVIDED	SEE NOTE 3	1:50=9
SHADE TREES	1:50=9	1:50=15
EVERGREEN TREES	1:40=7	1:40=15
SHRUBS	40	1:40=15

1. CREDIT TAKEN FOR EXISTING VEGETATION.
 2. PER WP-16-077, 2 NATIVE SHADE TREES HAVE BEEN PLACED IN THE NW CORNER OF THE PCE. PREVIOUSLY 4 NATIVE SHADE TREES WERE REQUIRED, HOWEVER, SPECIMEN TREE B IS NO LONGER BEING REMOVED, AND THEREFORE TWO OF THE REPLACEMENT TREES ARE NOT REQUIRED.
 3. FORTY SHRUBS WERE SUBSTITUTED FOR FOUR EVERGREEN TREES.

LANDSCAPE PLANT LIST

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	NOTE
SHADE TREES					
BN	4	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	2 1/2"-3" CAL.	B & B, MULTI STEM
NS	9	NYSSA SYLVATICA 'HAYMEN'S RED'	RED RAGE BLACKGUM	2 1/2"-3" CAL.	B & B
TA	5	TILIA AMERICANA 'AMERICAN SENTRY'	AMERICAN SENTRY LINDEN	2 1/2"-3" CAL.	B & B
QA	2	QUERCUS ALBA	WHITE OAK	2 1/2" CAL.	B & B
QP	2	QUERCUS PHELLOS	WILLOW OAK	2 1/2"-3" CAL.	B & B SINGLE LEADER
QR	6	QUERCUS RUBRUM	RED OAK	2 1/2"-3" CAL.	B & B FULL HEAD
EVERGREEN TREES					
JV	7	JUNIPERUS VIRGINIANA 'TAYLOR'	EASTERN REDCEDAR	5'-6" HT.	B & B, FULL
SHRUBS					
CA	18	CLETHRA ALNIFOLIA 'HUMMINGBIRD'	SUMMERSWEET	36" HT.	4' O.C.
HQ	16	HYDRANGEA QUERICIFOLIA 'PEE WEE'	DWARF OAK LEAF HYDRANGEA	36" HT.	5' O.C.
IG	6	ILEX GLABRA 'SHAMROCK'	INKBERRY	36"-48" HT.	4' O.C.



NOTE: IF THERE ARE DISCREPANCIES BETWEEN THE PLANT LIST AND THE PLAN, THE GREATER QUANTITY SHALL PREVAIL. WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT, PLANTINGS MAY BE ADJUSTED ON SITE TO ALLOW FOR FINAL LOCATIONS OF UTILITIES AND OTHER SITE CONDITIONS. PLANTING FOR THE SWM FACILITIES SHOWN ON SHEET 24 OF THIS SHEET SET.



NOTE FOR LEED CREDIT: NO IRRIGATION SYSTEM FOR THE LANDSCAPING IS BEING INSTALLED ON THE SITE.

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DEVELOPER
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REVISED LANDSCAPE PLAN
 WATERLOO FIRE STATION

ZONED: M-2
 "GREEN BUILDING"
 TAX MAP 43 GRID 9 1ST ELECTION DISTRICT
 PLAT 25753-25754
 HOWARD COUNTY, MARYLAND

DESIGN BY: JB
 DRAWN BY: TB
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: 26/03/2021
 PROJECT #: 16-019
 SHEET #: 28 of 27

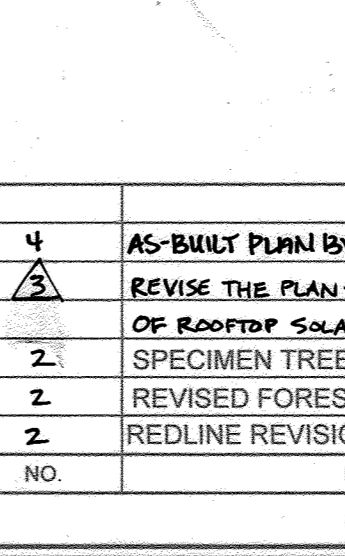
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 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

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. 21740, EXPIRATION DATE OCT. 08, 2021.

AS-BUILT CERTIFICATION:
 THERE IS NO AS-BUILT INFORMATION ON THIS SHEET.
 PAUL M. SILL, PROFESSIONAL ENGINEER
 LICENSE NO. 57225

REVISIONS

NO.	DESCRIPTION	DATE
4	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
3	REVISE THE PLAN TO SHOW THE INSTALLATION OF ROOFTOP SOLAR PANELS	11-16-21
2	SPECIMEN TREE B TO BE RETAINED	6/25/2020
2	REVISED FOREST CONSERV. ESMT.	6/25/2020
2	REDLINE REVISIONS	6/25/2020

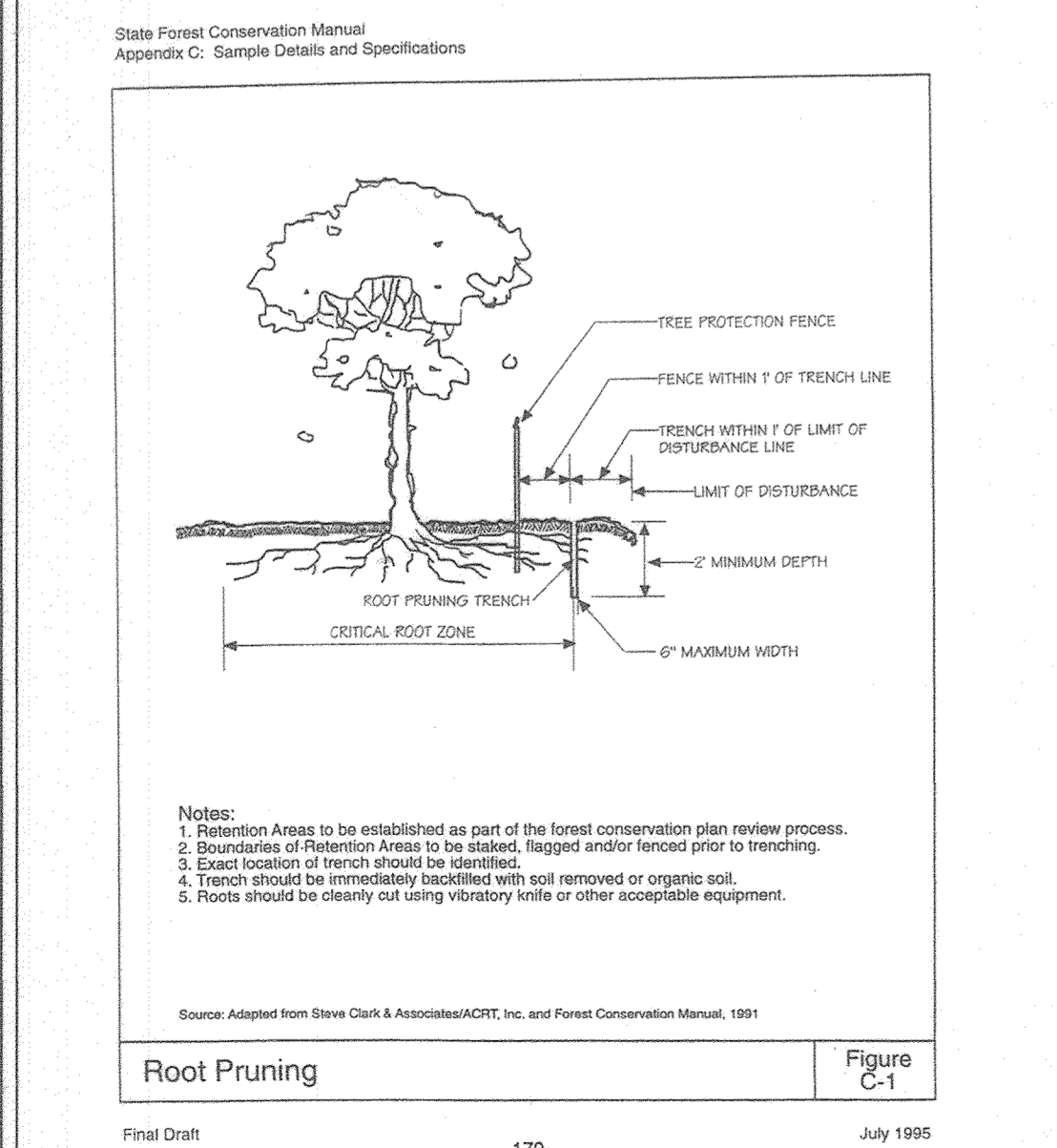
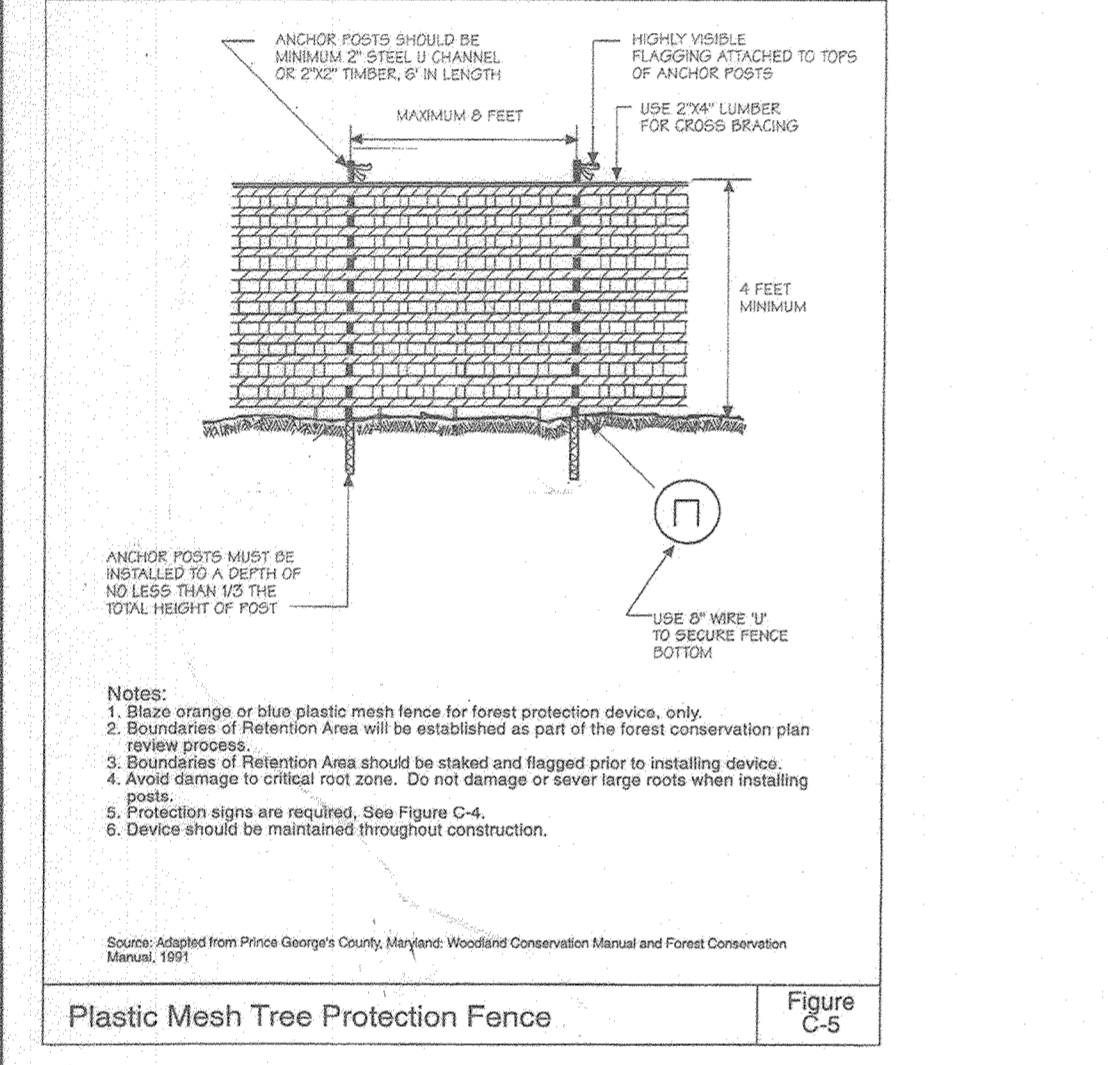


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division: [Signature] 5/3/21
 Chief, Division of Land Development: [Signature] 5/17/21
 Director: [Signature] 5/17/21

FOREST CONSERVATION WORKSHEET

NET TRACT AREA			
A	TOTAL TRACT AREA (PROJECT SITE, 6.7 AC AND LOD FOR SWM, 0.5 AC)	6.2 AC	
B	AREA WITHIN 100 YEAR FLOODPLAIN & UTILITY EASEMENT	0.0 AC	
C	AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0.0 AC	
D	NET TRACT AREA	6.2 AC	
LAND USE CATEGORY			
ARA	MDR	IDA	HDR
		X	
E	AFFORESTATION THRESHOLD (NET TRACT AREA x 15%)	0.9 AC	
F	CONSERVATION THRESHOLD (NET TRACT AREA x 20%)	1.2 AC	
EXISTING FOREST COVER			
G	EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	6.1 AC	
H	AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	5.2 AC	
I	AREA OF FOREST ABOVE CONSERVATION THRESHOLD	4.9 AC	
BREAK EVEN POINT			
J	FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	1.0 AC	
	BREAK-EVEN POINT	2.2 AC	
K	CLEARING PERMITTED WITHOUT MITIGATION	3.9 AC	
PROPOSED FOREST CLEARING			
L	TOTAL AREA OF FOREST TO BE CLEARED OR RETAINED OUTSIDE FCE	5.4 AC	
M	TOTAL AREA OF FOREST TO BE RETAINED IN FCE	0.7 AC	
PLANTING REQUIREMENTS			
N	REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD	1.2 AC	
P	REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	1.0 AC	
Q	CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD	0.0 AC	
R	TOTAL REFORESTATION REQUIRED	2.2 AC	
S	TOTAL AFFORESTATION REQUIRED	0.0 AC	
T	TOTAL REFORESTATION AND AFFORESTATION REQUIRED	2.2 AC	

SDP-18-014 WAS SIGNED BY THE PLANNING DIRECTOR FEBRUARY 3, 2020 AND IS GRANDFATHERED TO THE FOREST CONSERVATION REGULATIONS IN EFFECT PRIOR TO ENACTMENT OF CB-52-2019 PER SECTION 16.102(h) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

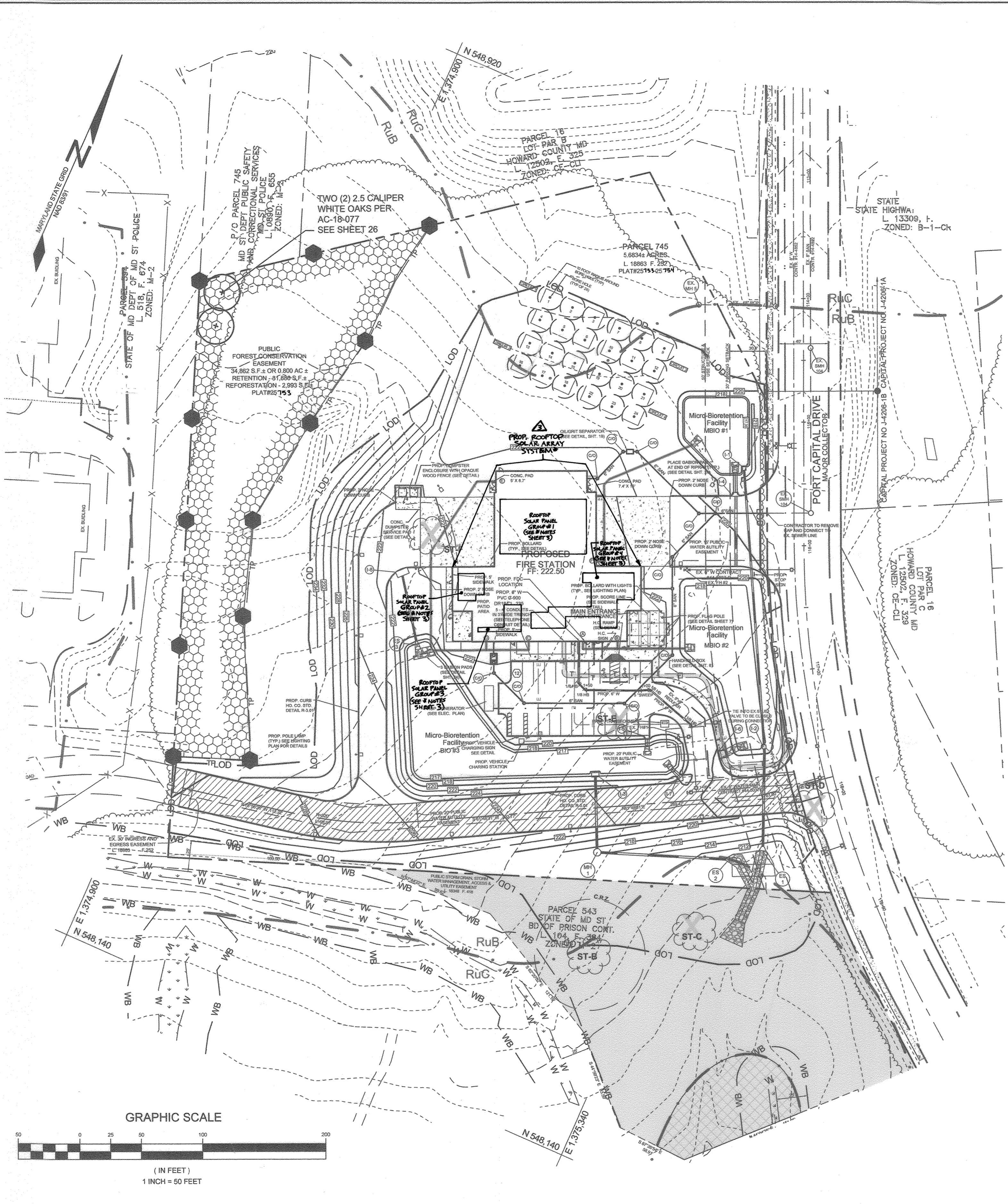


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

5-3-21
DATE

5-17-21
DATE

5-17-21
DATE



FOREST CONSERVATION PLAN NOTES

- THE NET TRACT AREA OF THE PROJECT HAS BEEN CALCULATED BASED ON THE PROJECT ACREAGE (6.7 ACRES) PLUS THE OFFSITE LOD REQUIRED TO INSTALL THE STORMWATER MANAGEMENT FACILITY AND OUTFALL (0.5 ACRES).
- THIS PROJECT COMPLIES WITH THE REQUIREMENT OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR THE FOREST CONSERVATION WITH ONSITE RETENTION AND OFFSITE BANKING. A TOTAL OF 0.7 ACRES OF FOREST WILL BE RETAINED WITHIN AN EASEMENT ONSITE AND THE REMAINING OBLIGATION OF 2.2 ACRES OF REFORESTATION WILL BE MET THROUGH THE PURCHASE OF CREDIT WITHIN EXISTING FOREST CONSERVATION BANK, ROSHAN PROPERTY, SDP-16-041.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION WITHIN AREAS DEFINED AS FOREST CONSERVATION EASEMENTS.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS NON-DISTURBANCE AREAS.
- TEMPORARY FENCING, SUPERSILT FENCE, SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. SUPER SILT FENCE SHALL BE INSTALLED ALONG LIMITS OF DISTURBANCE OCCURRING WITHIN 50 FEET OF THE PROPOSED FOREST RETENTION LIMITS. PERMANENT SIGNAGE SHALL BE INSTALLED ALONG THE FOREST CONSERVATION EASEMENT BOUNDARY TO PREVENT FUTURE ENCROACHMENT INTO THIS AREA. SIGNAGE SHALL BE PLACED AT 50-100 FOOT INTERVALS ALONG THE BOUNDARY AS NEEDED TO ADEQUATELY DEFINE THE EASEMENT LIMIT.
- ANY DEBRIS, SUCH AS TRES CONCRETE PIPE SECTION, AND OTHER DUMPED ITEMS ON SITE IN THE FOREST CONSERVATION AREA SHALL BE CLEARED FROM THE FOREST CONSERVATION EASEMENT BEFORE FCPA INSPECTION.

SPECIMEN TREE TABLE

KEY	SIZE	SPECIES	CRZ (FT. RADIUS)	REMARKS	RETAINED/REMOVED
B	30"	BLACK OAK	45	GOOD CONDITION	TO BE RETAINED
C	30"	WHITE OAK	45	GOOD CONDITION	TO BE REMOVED WP-18-077
D	35"	WHITE OAK	49.5	GOOD CONDITION	TO BE REMOVED WP-14-048
E	30"	WHITE OAK	45	GOOD CONDITION	TO BE REMOVED WP-14-048
F	30"	SYCAMORE	45	GOOD CONDITION	TO BE REMOVED WP-14-048

NOTE:
1. TREE 'A' WAS FOUND TO BE WELL OFF SITE (UNLOCATED), AND IS THEREFORE, NOT INCLUDED.
2. WANNER PETITION WP-14-048 WAS APPROVED 1/14/13 TO WAIVE SECTION 16.1205(A)(7) REQUIRING RETENTION OF SPECIMEN TREES TO ALLOW REMOVAL OF THREE (3) SPECIMEN TREES.
3. ALTERNATIVE COMPLIANCE WP-18-077 WAS APPROVED 03/05/18 TO WAIVE SECTION 16.1205(A)(7) REQUIRING RETENTION OF SPECIMEN TREES TO ALLOW REMOVAL OF (2) TWO SPECIMEN TREES.
4. REVISION OF THE FIREHOUSE AND SITE, THROUGH THE STANDARD PLAN REVISION, HAVE MADE IT SUCH THAT SPECIMEN TREE B NO LONGER IS REQUIRED TO BE REMOVED.

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	% FACTOR WHOLE SOIL	AREA
FaB	FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT SLOPES	CD	0.14	0.14
RUB	RUSSET AND BELTSVILLE SOILS, 2 TO 5 PERCENT SLOPES	C	0.28	5.32
RuC	SUSSET AND BELTSVILLE SOILS, 5 TO 10 PERCENT SLOPES	C	0.28	1.42

NOTES:
1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE; NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY.
2) HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR 'K' GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES
1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)
THE SOIL PROTECTION AREA OR CRITICAL ROOT ZONE OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF ITS ROOTS MAY BE FOUND. THE MAJORITY OF ROOTS RESPONSIBLE FOR WATER AND NUTRIENT UPTAKE ARE LOCATED JUST BELOW THE SOIL SURFACE. TEMPORARY FENCING SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.
2. FENCING AND SIGNAGE
EXISTING FOREST LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.
B. PRE-CONSTRUCTION MEETING
UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY INSPECTOR. THE PURPOSE OF THE MEETING WILL BE TO VERIFY THAT ALL SEDIMENT CONTROL IS IN ORDER, AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.
C. STORAGE FACILITIES/EQUIPMENT CLEANING
ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT WILL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT AND CRITICAL ROOT ZONE OF SPECIMEN TREES. CLEANING OF EQUIPMENT WILL BE LIMITED TO AREA WITHIN THE LOD OF THE PROPOSED BUILDING SITE. WASTEWATER RESULTING FROM EQUIPMENT CLEANING WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.
D. SEQUENCE OF CONSTRUCTION
THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR THE PROJECT.
BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION.
1. INSTALL ALL SIGNAGE AND SEDIMENT CONTROL DEVICES.
2. HOLD PRE-CONSTRUCTION MEETING BETWEEN DEVELOPER, CONTRACTOR AND COUNTY INSPECTOR.
3. PERFORM REQUIRED ROOT PRUNING. ENSURE ALL PROTECTION FENCING IS IN PLACE.
4. BUILD ACCESS ROADS, INSTALL WATER AND SEWER, AND CONSTRUCT BUILDINGS. STABILIZE ALL DISTURBED AREAS ACCORDINGLY.
5. REMOVE SEDIMENT CONTROL AND TEMPORARY FENCING.
6. HOLD POST-CONSTRUCTION MEETING WITH COUNTY INSPECTORS TO ASSURE COMPLIANCE WITH FCP. SUBMIT CERTIFICATION OF INSTALLATION.
E. CONSTRUCTION MONITORING
ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO ENSURE THAT ALL ACTIVITIES ARE IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.
F. POST-CONSTRUCTION MEETING
UPON COMPLETION OF CONSTRUCTION, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL NOTIFY THE COUNTY THAT CONSTRUCTION HAS BEEN COMPLETED AND ARRANGE FOR A POST-CONSTRUCTION MEETING TO REVIEW THE PROJECT SITE. THE MEETING WILL ALLOW THE COUNTY INSPECTOR TO VERIFY THAT FOREST RETENTION REQUIREMENTS HAVE BEEN MET.

POST-CONSTRUCTION MANAGEMENT PLAN

HOWARD COUNTY REQUIRES A TWO YEAR POST-CONSTRUCTION MANAGEMENT PLAN BE PREPARED AS PART OF THE FOREST CONSERVATION PLAN. THE PLAN GOES INTO EFFECT UPON ACCEPTANCE OF THE CONSTRUCTION CERTIFICATION OF COMPLETION BY THE COUNTY. ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THE POST-CONSTRUCTION MANAGEMENT PLAN.

THE FOLLOWING ITEMS WILL BE INCORPORATED INTO THE PLAN:
A. FENCING AND SIGNAGE
PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/REFORESTATION AREAS TO BE PLACED IN FOREST CONSERVATION EASEMENTS SHALL BE MAINTAINED.
B. GENERAL SITE INSPECTIONS
SITE INSPECTIONS WILL BE PERFORMED TO INSURE THAT RETENTION OF THE FOREST IS MET IN ACCORDANCE WITH THIS PLAN AND THAT THE FOREST EDGE REMAINS HEALTHY AND STABLE.
C. EDUCATION
THE DEVELOPER WILL PROVIDE APPROPRIATE MATERIALS TO SUBSEQUENT PROPERTY OWNERS INFORMING THEM OF THE LOCATION AND PURPOSE OF THE FOREST CONSERVATION EASEMENTS ON THE PROPERTY. MATERIALS MAY INCLUDE SITE PLANS AND INFORMATION EXPLAINING THE INTENT OF THE FOREST CONSERVATION LAW.
D. FINAL INSPECTION
AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, ECO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL, WILL SUBMIT TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM CERTIFICATION THAT ALL RETENTION/REFORESTATION REQUIREMENTS HAVE BEEN MET. UPON ACCEPTANCE OF THIS CERTIFICATION, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE DEVELOPER'S BOND.

FOREST CONSERVATION EASEMENTS

EASEMENTS ARE A LEGAL MEANS OF PROVIDING PERMANENT PROTECTION OF FORESTS, FARMLAND AND OPEN SPACE. IN ACCORDANCE WITH THE CRITERIA OUTLINED IN THE HOWARD COUNTY FOREST CONSERVATION MANUAL, A FOREST CONSERVATION EASEMENT WILL BE RECORDED FOR THE RETENTION AREA OF THE SUBJECT PROPERTY. SUBMISSION OF THE EASEMENTS FOR RECORDATION WILL OCCUR PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

FOR REVISION #3 ONLY

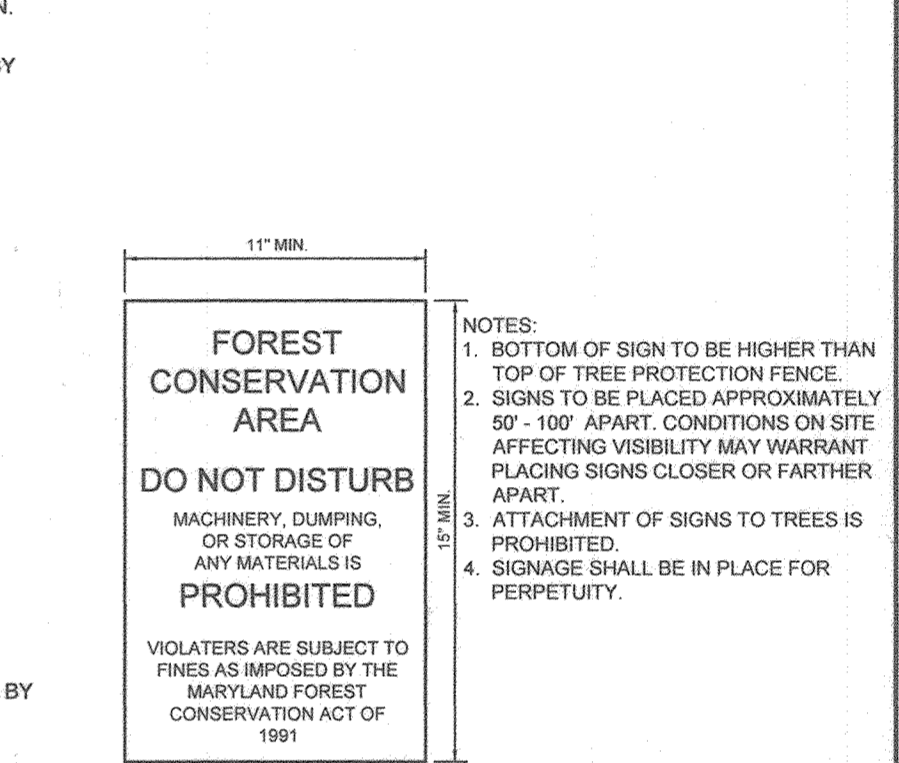
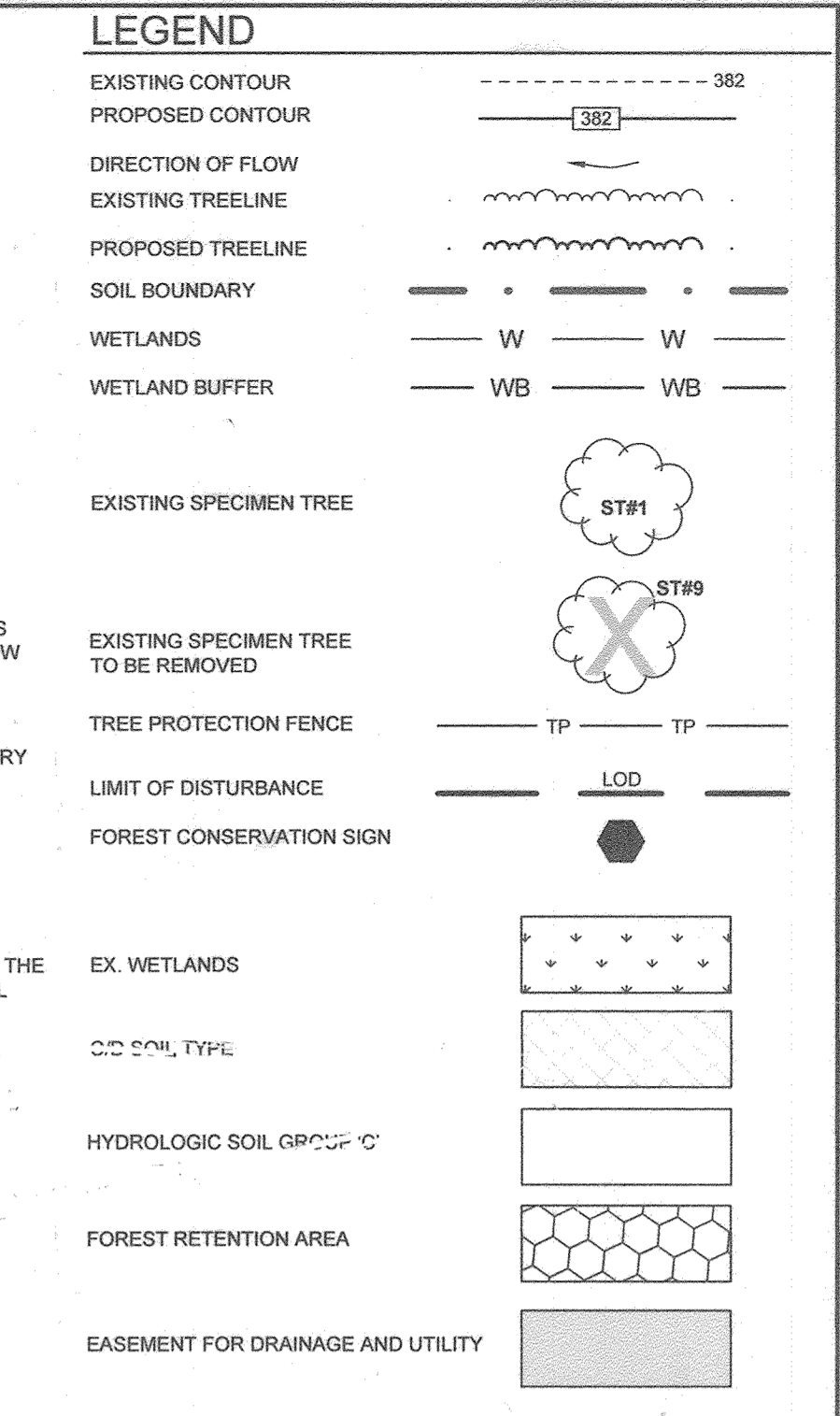
JOANNE CARLY, PLA 4148
MD DNR QUALIFIED PROFESSIONAL

PAUL M. GILL, PROFESSIONAL ENGINEER
LICENSE NO. 32025

ROOT PRUNING NOTES

- TEMPORARY TREE PROTECTION FENCING SHALL BE INSTALLED PRIOR TO INITIATION OF ANY SITE GRADING.
- ROOT PRUNING SHALL BE PERFORMED OR OVERSEEN BY A LICENSED ARBORIST.
- ROOT PRUNING SHALL NOT BE PERFORMED BY A BACK HOE.
- CARE SHOULD BE TAKEN TO AVOID ROOT ZONE COMPACTION DURING ROOT PRUNING PROCESS.

NO.	DESCRIPTION	DATE
4	AS-BUILT PLAN BY SILL ENGINEERING GROUP	8/23/23
3	REVISE THE PLAN TO SHOW THE INSTALLATION OF ROOFTOP SOLAR PANELS	11-16-24
2	REDLINE REVISIONS RETENTION OF SPECIMEN TREE B	6/25/2020



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DEVELOPER
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REVISED FOREST CONSERVATION PLAN

WATERLOO FIRE STATION

ZONED: M-2
"GREEN BUILDING"

TAX MAP 43 GRID 9
1ST ELECTION DISTRICT

PLAT 25153-25754

PARCEL 745
HOWARD COUNTY, MARYLAND

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DESIGN BY: JB
DRAWN BY: TB
CHECKED BY: PS
SCALE: AS SHOWN
DATE: 26/03/2021
PROJECT #: 18-0194
SHEET #: 27 OF 28

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. 21740, EXPIRATION DATE OCT. 09, 2021.

AS-BUILT SDP-18-014