

WATER TREATMENT PLANT CLARIFIER

FOR TOWN OF EMMITSBURG, MARYLAND

C.I.P. (4-1600-40-160-1)
TAX MAP 007, GRID 012, PARCEL 043

GENERAL NOTES:

1. THE PROPOSED PROJECT IS TO ADD A WATER CLARIFICATION FACILITY TO PROVIDE PRE-TREATMENT SYSTEM FOR THE TOWN OF EMMITSBURG'S DRINKING WATER. THE PROPOSED FACILITIES SHALL INCLUDE A PREFAB METAL BUILDING, CONCRETE VALVE VAULT AND HOLDING TANK, GRAVEL PARKING LOT AND SECURITY FENCE. MINIMAL CLEARING SHALL BE FOLLOWED TO MINIMIZE IMPACTS TO SENSITIVE ENVIRONMENTAL FEATURES SUCH AS WETLANDS, STEEP SLOPES AND TREES.
2. SURVEY CONDUCTED BY RF. GAUSS & ASSOCIATES, INC. ON MAY 24, 2021. HORIZONTAL DATUM IS MSP NAD83/2011. VERTICAL DATUM IS NAVD 88.
3. PROPERTY IS ZONE: RESOURCE CONSERVATION (RC) AND IS LOCATED WITHIN UNINCORPORATED FREDERICK COUNTY.
4. THIS PROJECT WILL TEMPORARILY IMPACT WETLAND BUFFERS AND THE 100-YR FLOODPLAIN. WETLANDS DELINEATION PERFORMED BY WATERSHED ENVIRONMENTAL, LLC. ON APRIL 23, 2021. THE 100-YEAR FLOODPLAIN IS DELINEATED FROM FEMA'S NATIONAL FLOOD HAZARD LAYER DATASET, MAP PANEL 24021C0035D EFFECTIVE SEPTEMBER 19, 2007. A MDE WETLAND/WATERWAY LETTER OF AUTHORIZATION HAS BEEN ISSUED FOR THIS PROJECT. LOA#: 22-NT-3177/202261204

MDE NOTES - NOI REQUIREMENTS:

1. SOIL EROSION AND SEDIMENT CONTROL - THIS PROJECT HAS BEEN DESIGNED TO MINIMIZE DISTURBANCE AND MAXIMIZE THE AMOUNT OF GREEN SPACE. PROJECT SHALL DISTURB LESS THAN 1 AC. THEREFORE NOI IS NOT REQUIRED.
2. ESD DOCUMENTATION AND DESIGN - ALL ESD DOCUMENTATION IS AVAILABLE AND THE DESIGN IS IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
3. PROTECTION OF NATURAL AREAS - SILT FENCE AND ORANGE SAFETY BARRIER FENCE WILL BE INSTALLED AT THE ONSET OF CONSTRUCTION ACTIVITIES, WHICH WILL MAINTAIN THE LIMIT OF DISTURBANCE. AFTER COMPLETION THE CLARIFIER BUILDING SHALL ALSO BE ENCLOSED BY A SECURITY FENCE TO PROVIDE FUTURE PROTECTION TO SURROUNDING AREAS.
4. CONSTRUCTION EQUIPMENT CONTROL - THE CONSTRUCTION EQUIPMENT WILL BE LIMITED TO THE CONSTRUCTION AREA BY SILT FENCE AND THE ORANGE SAFETY BARRIER FENCE.
5. SITE CLEARING EVALUATION - SITE CLEARING WILL BE LIMITED TO THE LIMIT OF DISTURBANCE WHICH HAS A FENCE AND SILT FENCE LOG PERIMETER.
6. PHASING FOR SITE AREA - THE PROPOSED WORK HAS BEEN PROPERLY SEQUENCED BY THESE PLANS FOR ALL WORK TO BE COMPLETED IN PROPER ORDER.
7. HIGH RISK SOIL IDENTIFICATION - THERE ARE NO HIGH RISK SOILS WITHIN THE LIMIT OF DISTURBANCE.
8. STEEP SLOPES - NO EXCESSIVELY STEEP SLOPES EXIST ON SITE.
9. DESIGNATION OF STABILIZATION - STABILIZE ALL DISTURBED AREA IN ACCORDANCE WITH THE NOTES PROVIDED ON SHEETS ESC-05 AND ESC-06.

STANDARD COUNTY NOTES:

1. A COMPLETE SET OF APPROVED PLANS AND A COPY OF THE GRADING PERMIT MUST BE ON SITE AND AVAILABLE FOR USE BY THE INSPECTOR, OR OTHER REPRESENTATIVES OF TOWN OF EMMITSBURG DIVISION OF PUBLIC WORKS.
2. THIS PROJECT WILL REQUIRE A THIRD PARTY QUALIFIED PROFESSIONAL TO BE PRESENT AT THE PRE-CONSTRUCTION MEETING SCHEDULED WITH TOWN OF EMMITSBURG PUBLIC WORKS AND THE FREDERICK COUNTY SOIL CONSERVATION DISTRICT.
3. ALL GRADING FOR THIS PROJECT SHALL BE THE FULL RESPONSIBILITY OF THE PROJECT OWNER.

ENGINEER'S CERTIFICATION:

I hereby certify that the plans have been designed in accordance with local ordinances, COMAR 26.17.01, and 2021 Maryland Standards and Specification for Soil Erosion and Sediment Control.

John C. Moore 20566
ENGINEER'S SIGNATURE P.E. NO.
JOHN C. MOORE 05/31/2023
PRINT NAME DATE

OWNER/ DEVELOPER'S CERTIFICATION:

I/We hereby certify that any clearing, grading, construction and/or development will be done pursuant to this plan and that any responsible personnel involved in this construction project will have a Certificate of Attendance at a Maryland Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I/We also certify that the site will be inspected at the end of each working day, and that any needed maintenance will be completed so as to ensure that all sediment control practices are left in operational condition. I/We authorize the right of entry for periodic onsite evaluation by the Catocini/ Frederick Soil Conservation District Board or their authorized agents.

Najila Ahsan 11/20/2023
SIGNATURE OWNER/ DEVELOPER DATE
NAJILA AHSAN TOWN PLANNER
PRINT NAME TITLE

CERTIFICATION OF THE DISTURBED AREA QUANTITY

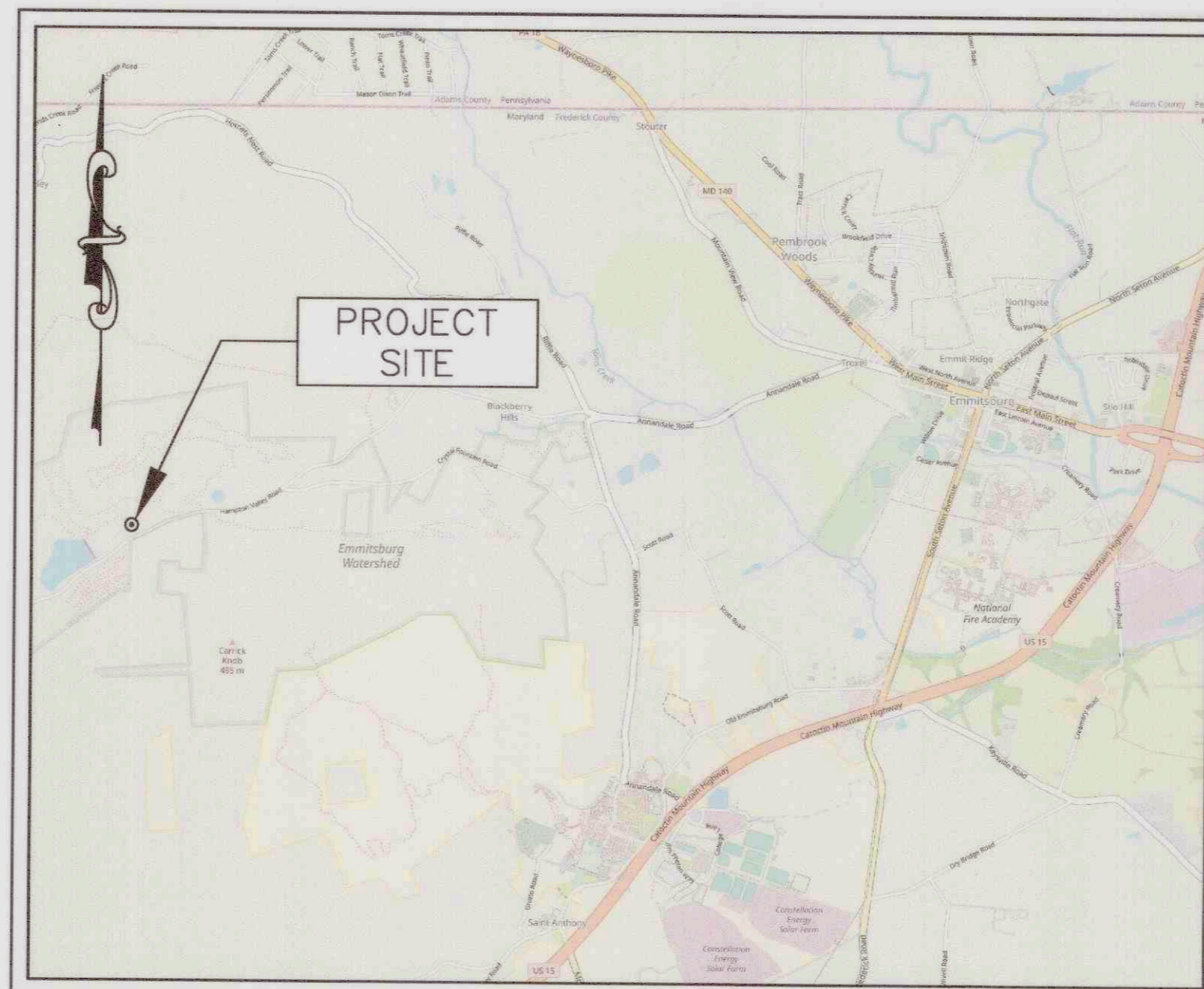
I hereby certify that the estimated total amount of area to be disturbed shown on these plans has been computed to 300 c.y. of excavation, 150 c.y. of fill and the total area to be disturbed as shown on these plans has been determined to be 11,090 square feet, or 0.26 acres.

John C. Moore 20566
ENGINEER'S SIGNATURE P.E. NO.
JOHN C. MOORE 05/31/2023
PRINT NAME DATE

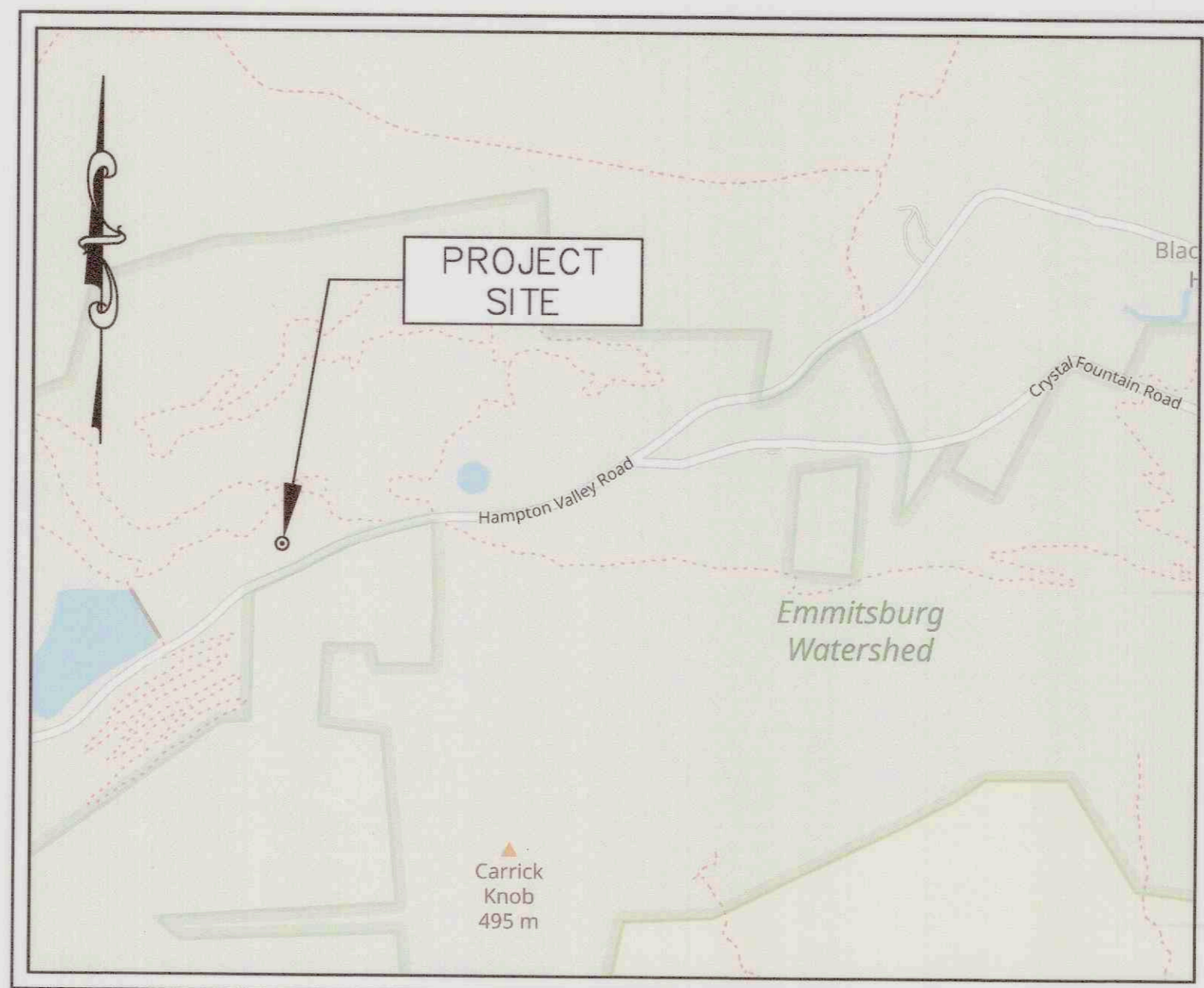
APPROVED
EMMITSBURG MAYOR
[Signature] 11/20/23
MAYOR SIGNATURE DATE

PUBLIC WATER NOTES:

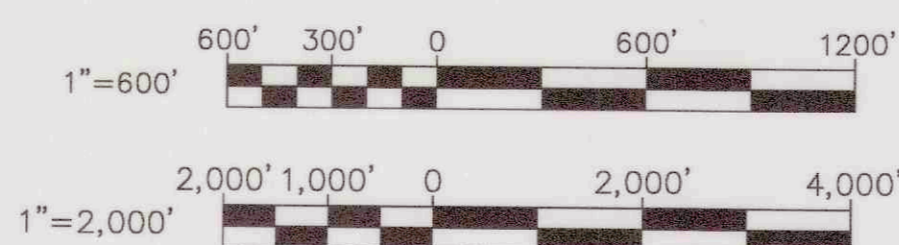
1. IN ACCORDANCE WITH CODE OF MARYLAND REGULATIONS (COMAR) 26.04.01.33, DIRECT AND INDIRECT ADDITIVES, SUPPLIERS OF WATER SHALL ONLY USE PRODUCTS (ANY MATERIALS THAT COME IN CONTACT WITH WATER INTENDED FOR USE IN PUBLIC WATER SUPPLY) THAT MEET THE APPLICABLE AMERICAN NATIONAL STANDARDS INSTITUTE/NSF INTERNATIONAL (ANSI/NSF) STANDARDS FOR DIRECT OR INDIRECT DRINKING WATER ADDITIVES. THE PRODUCTS CAN ALSO BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY THE ANSI FOR SUCH TESTING (I.E. INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS RESEARCH AND TESTING, ONTARIO CA, UNDERWRITERS LABORATORY, NORTHBROOK IL, AND WATER QUALITY ASSOCIATION, LISLE IL).
2. IN COMPLIANCE WITH COMAR 09.20.01.03 AND THE SAFE DRINKING WATER ACT (SECTION 1417(A)(4)(B)), MATERIALS THAT COME IN CONTACT WITH WATER INTENDED FOR USE IN PUBLIC WATER SUPPLY SHALL COMPLY WITH THE REDUCTION OF LEAD IN DRINKING WATER ACT, WHICH WENT INTO EFFECT IN MARYLAND IN JANUARY 2012.



VICINITY MAP
SCALE: 1"=2,000'



LOCATION MAP
SCALE: 1"=600'



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STORMWATER MANAGEMENT NOTES:

1. ANTICIPATED STORMWATER MANAGEMENT WILL BE PROVIDED BY STRUCTURAL (RAIN GARDEN/GRAVEL WETLAND) AND NON-STRUCTURAL METHODS (DISCONNECTED ROOFTOPS AND NON-ROOFTOP AREAS)

SITE SWM SUMMARY TABLE		
PARCEL AREA	AC	90.55
SITE AREA	AC	0.26
DISTURBANCE AREA	AC	0.21
EXISTING IMPERVIOUS	AC	0.0
PROPOSED IMPERVIOUS	AC	0.09
TOTAL IMPERVIOUS	AC	0.09
SITE Pe	INCHES	1.6
DEVELOPMENT TYPE	NEW DEVELOPMENT	
ESDv REQUIRED	CF	518
ESDv PROVIDED	CF	535
Pe ACHIEVED	INCHES	1.65

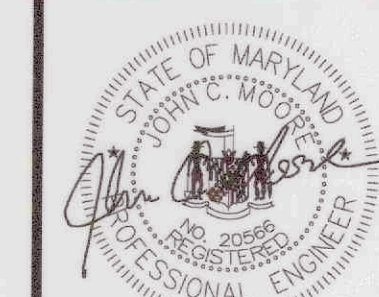
2. MDE WATERSHED: UPPER MONACOY RIVER (MDE-8: 02140303)

Frederick Soil Conservation District
Erosion and Sediment Control Plan Approval

By: *[Signature]*
District Manager or Designee
Date: 12/17/2023
Plan is valid for 2 years from date of approval

SCD approval for sediment and erosion control is in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control and is contingent upon issuance of all applicable regulatory permits.

FILE #:
A/P #:
DUE DATE:



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AS A PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 20566 EXPIRATION DATE 09/08/2024
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

ENGINEER	CHECKED BY
DD	JCM
DRAWN BY	DATE
WJG	2023
PROJECT NUMBER	20119

DRAWING NUMBER
G-01
SHEET NO. 01 OF 42

ABBREVIATIONS

Table of abbreviations and their corresponding terms, including AB (ANCHOR BOLT), AC (ACRE), ADJ (ADJUSTABLE, ADJACENT), AFF (ABOVE FINISHED FLOOR), ALT (ALTERNATE, ALTERNATIVE), ALUM (ALUMINUM), ANC (ANCHOR), APPROX (APPROXIMATE), ARCH (ARCHITECTURAL), ARV (AIR RELEASE VALVE), ASSY (ASSEMBLY), ATS (AUTOMATIC TRANSFER SWITCH), AUTO (AUTOMATIC), AUX (AUXILIARY), AWG (AMERICAN WIRE GAUGE), B (BEAM, BORING), BTOB (BACK TO BACK), BF (BLIND FLANGE), BHP (BRAKE HORSEPOWER), BITUM (BITUMINOUS), BK (BACK), BLDG (BUILDING), BLK (BLOCK), BLKG (BLOCKING), BLT(S) (BOLT(S)), BM (BENCHMARK), BMP (BEST MANAGEMENT PRACTICES), BOF (BOTTOM OF FOOTING), BOT (BOTTOM), BRG (BEARING), BRK (BRICK), BS (BOTH SIDES), BSMT (BASEMENT), B&S (BELL AND SPIGOT), BTU (BRITISH THERMAL UNIT), BTUH (BRITISH THERMAL UNIT-HOUR), BTWN (BETWEEN), CAV (COMBINATION AIR VALVE), C/EJ (CONTRACTION/EXPANSION JOINT), C/M (CIVIL/MECHANICAL), CFM (CUBIC FEET PER MINUTE), C&G (CURB AND GUTTER), CHB (CHORD BEARING), CHKD (CHECKERED), CHKDPL (CHECKERED PLATE), CHL (CHORD LENGTH), CI (CAST IRON), CIMH (CAST IRON MANHOLE), CIMHS (CAST IRON MANHOLE STEPS), CIP (CAST IRON PIPE), C.I.P. (CAST IN PLACE), CISP (CAST IRON SOIL PIPE), CJ (CONTRACTION JOINT), CJT (CONTROL JOINT), CL (CLASS, CLEARANCE, CLEAR), CLG (CEILING), CLR (CLEAR, CLEARANCE), CMP (CORRUGATED METAL PIPE), CMU (CONCRETE MASONRY UNIT), CO (CLEAN OUT, COMPANY), COL (COLUMN), COMB (COMBINATION), COMP (COMPRESSOR, COMPRESSED), CONC (CONCRETE), CONN (CONNECTION), CONST (CONSTRUCTION), CONT (CONTINUOUS, CONTINUATION, CONTROL), COR (CORNER), CORR (CORRIDOR, CORRUGATED), COV (COVER), CPLG (COUPLING), CRS (COURSES, CORROSION-RESISTANT STEEL), CSJ (CONSTRUCTION JOINT), CSK (COUNTERSUNK), CTOC (CENTER TO CENTER), CTR(S) (CENTER(S)), CU (CUBIC), CV (CHECK VALVE), CUYD (CUBIC YARD), D (DOOR, DRAIN, DAMPER), DBL (DOUBLE), DEG (DEGREE), DEPT (DEPARTMENT), DH (DOOR HEIGHT), DI (DROP INLET, DUCTILE IRON), DIA (DIAMETER), DIM (DIMENSION), DIP (DUCTILE IRON PIPE), DISCH (DISCHARGE), DIV (DIVISION), DN (DOWN), DO (DOOR OPENING), DPR (DAMPER), DR (DRAIN), DSP (DOWNSPOUT), DWG(S) (DRAWING(S)), DWL(S) (DOWEL(S))

ABBREVIATIONS (CONTINUED)

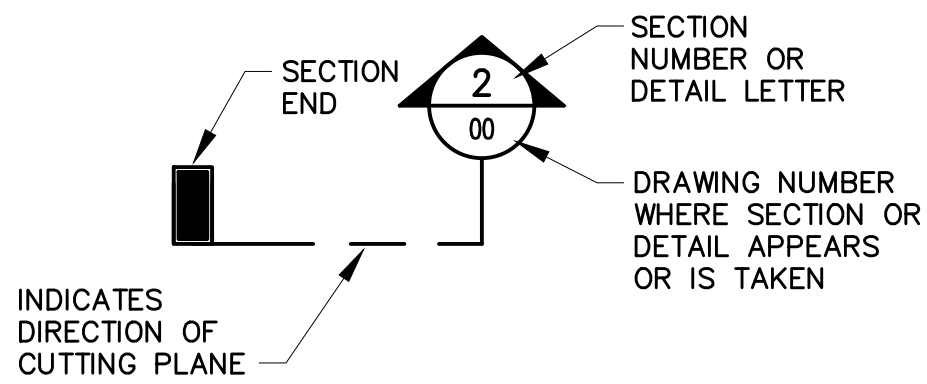
Table of abbreviations and their corresponding terms, including E (EAST), EA (EACH), ECC (ECCENTRIC), EF (EACH FACE, EXHAUST FAN), EJ (EXPANSION JOINT), EL (ELEVATION), ELEV (ELEVATION), ELL (ELBOW), EMER (EMERGENCY), ENCL (ENCLOSURE), ENT (ENTRANCE), EOP (EDGE OF PAVEMENT), EP (ELECTRIC POLE), EQ (EQUAL), EQUIP (EQUIPMENT), EW (EACH WAY), EWEF (EACH WAY EACH FACE), EXH (EXHAUST), EX (EXISTING), EXP (EXPANSION, EXPOSED), EXPJT (EXPANSION JOINT), EXT (EXTENSION, EXTERIOR, EXTERNAL), FB (FACE BRICK), FCA (FLANGED COUPLING ADAPTER), FCO (FLOOR CLEANOUT), FD (FLOOR DRAIN), FE (FIRE EXTINGUISHER), FEC (FIRE EXTINGUISHER CABINET), FF (FINISHED FLOOR), FTOF (FACE TO FACE), FIG (FIGURE), FIN (FINISH), FINOR (FINISH GRADE), FL (FLOOR, FLOW LINE), FLASH (FLASHING), FLEX (FLEXIBLE), FLG (FLANGE, FLASHING), FM (FORCE MAIN, FLOW METER), FND (FOUNDATION), FOM (FACE OF MASONRY), FRP (FIBERGLASS REINFORCED PLASTIC OR POLYESTER), FT (FEET, FOOT), FTG (FOOTING), FWD (FORWARD), F&F (FLANGE & FLARE), G (GAUGE), GAB (GRADED AGGREGATE BASE), GAL (GALLON), GALV (GALVANIZED), GEN (GENERAL, GENERATOR), GPM (GALLONS PER MINUTE), GR (GRADE), GV (GATE VALVE, GRAVITY VENTILATOR), GWB (GYPSUM WALLBOARD), GYP (GYPSUM), H (ACCESS HATCH), HA (HYDRAULIC ACTUATOR), HALCP (HYDRAULIC ACTUATOR LOCAL CONTROL PANEL), HAMCP (HYDRAULIC ACTUATOR MAIN CONTROL PANEL), HB (HOSE BIBB), HD (HEAD), HF (HOSE FAUCET), HGT (HEIGHT), HLU (HAND LAY-UP), HMA (HOT MIX ASPHALT), HMC (HARNESSED MECHANICAL COUPLING), HMJ (HARNESSED MECHANICAL JOINT), HOA (HAND OFF AUTO), HORZ (HORIZONTAL), HP (HIGH POINT, HORSEPOWER), HR (HOUR, HANDRAIL), HSS (HOLLOW STRUCTURAL STEEL), HV (HOSE VALVE), HVAC (HEATING, VENTILATING AND AIR CONDITIONING), HW (HOT WATER), HWY (HIGHWAY), ID (INSIDE DIAMETER, INLET DAMPER), IF (INSIDE FACE), IN (INCH, INCHES), INC (INCORPORATED), INCL (INCLUDING), INCR (INCREASE, INCREASING, INCREASER), INSUL (INSULATE, INSULATION, INSULATING), INV (INVERT), K (KIPS), KSI (KIPS PER SQUARE INCH), KW (KILOWATT), KWH (KILOWATT HOUR), L (LOUVER, LENGTH), LB(S) (POUND(S)), LF (LINEAR FEET), LG (LENGTH, LONG), LIC (LICENSE), LIN (LINEAL, LINEAR), LO (LOUVER OPENING), LOC (LIMIT OF CONTRACT), LP (LOW POINT, LIGHT POLE)

ABBREVIATIONS (CONTINUED)

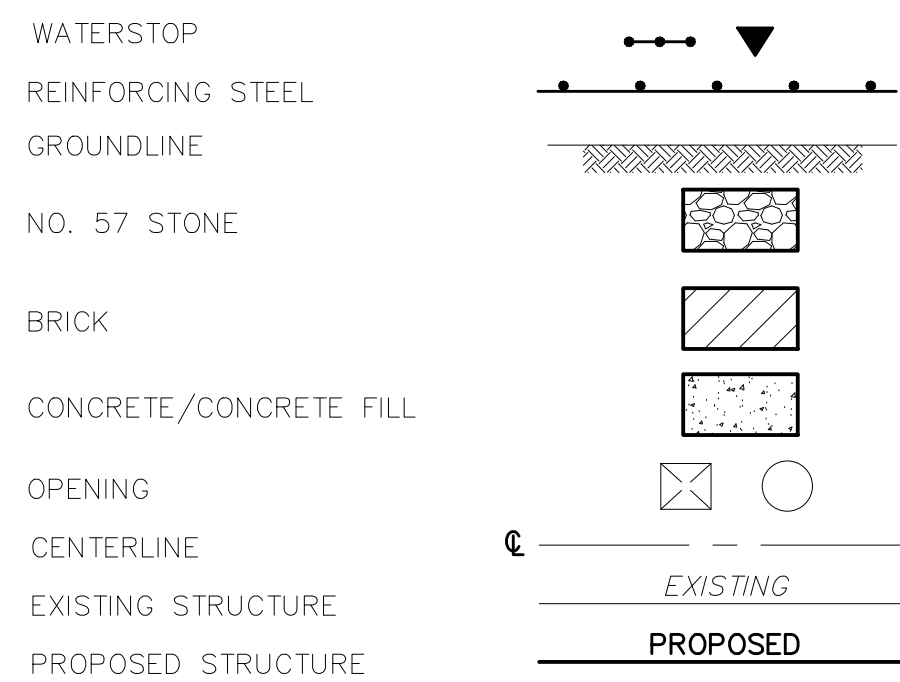
Table of abbreviations and their corresponding terms, including M (MOTOR), MAN (MANUAL), MAS (MASONRY), MATL (MATERIAL), MAX (MAXIMUM), MC (MECHANICAL COUPLING), MCC (MOTOR CONTROL CENTER), MECH (MECHANICAL), MED (MEDIUM), MFR(S) (MANUFACTURER(S)), MG (MILLION GALLONS), MGD (MILLION GALLONS PER DAY), MH (MANHOLE), MIN (MINIMUM, MINUTE), MISC (MISCELLANEOUS), MJ (MECHANICAL JOINT), MJRG (MECHANICAL JOINT RETAINER GLAND), MJTR (MECHANICAL JOINT WITH TIE ROD), MK (MARK NUMBER), MO (MASONRY OPENING, MOTOR OPERATED MATERIAL), MTL (MEDIUM VOLTAGE MOTOR CONTROL CENTER), N (NORTH), NA (NOT APPLICABLE), NC (NORMALLY CLOSED), N.C (NOT IN CONTRACT), NO (NORMALLY OPEN), NO.(S) (NUMBER(S)), NOM (NOMINAL), NPT (NATIONAL PIPE THREAD), NPW (NONPOTABLE WATER), NTS (NOT TO SCALE), OC (ON CENTER), OH (OVERHEAD), OPER (OPERATING), OPNG (OPENING), OPP (OPPOSITE, OPPOSING), P (PUMP), PAV (PAVEMENT), PCCP (PRESTRESSED CONCRETE CYLINDER PIPE), PCF (POUNDS PER CUBIC FOOT), PE (PLAIN END), PH (PIPE HANGER), PK (PK NAIL), PL (PLATE), PLYWD (PLYWOOD), PNL(S) (PANEL(S)), POL (POINT ON LINE), PR (PAIR), PREFAB (PREFABRICATED), PROP (PROPOSED), PS (PIPE SUPPORT), PSF (POUNDS PER SQUARE FOOT), PSI (POUNDS PER SQUARE INCH), PT (POINT), PVC (POLYVINYL CHLORIDE), P.V.C (POINT OF VERTICAL CURVE), P.V.I (POINT OF VERTICAL INTERSECTION), P.V.T (POINT OF VERTICAL TANGENT), PW (POTABLE WATER), QTR (QUARTER), R (RADIUS, RISER), R&C (REBAR AND CAP), RCP (REINFORCED CONCRETE PIPE), RCCP (REINFORCED CONCRETE CYLINDER PIPE), RED (REDUCER, REDUCING), REF (REFERENCE), REINF (REINFORCED, REINFORCING), REM (REMOVABLE), REQD (REQUIRED), REV (REVISION, REVISED), RFF (REINFORCED FABRIC FENCE), RG (RETAINER GLAND), RM (ROOM), ROW (RIGHT-OF-WAY), RPM (REVOLUTIONS PER MINUTE), R/W (RIGHT-OF-WAY), S (SOUTH, SPEAKER), SAN (SANITARY), SCADA (SUPERVISORY CONTROL AND DATA ACQUISITION), SCE (STABILIZED CONSTRUCTION ENTRANCE), SCH (SCHEDULE), SD (STORM DRAIN), SEC (SECOND), SECT (SECTION), SF (SQUARE FOOT, SUPPLY FAN), SG (SLUICE GATE), SHT (SHEET), SIM (SIMILAR), SPA (SPACING, SPACES), SPEC(S) (SPECIFICATION(S)), SQ (SQUARE), SS (STAINLESS STEEL, SANITARY SEWER), STA (STATION), STD (STANDARD), STL (STEEL), STOR (STORAGE)

ABBREVIATIONS (CONTINUED)

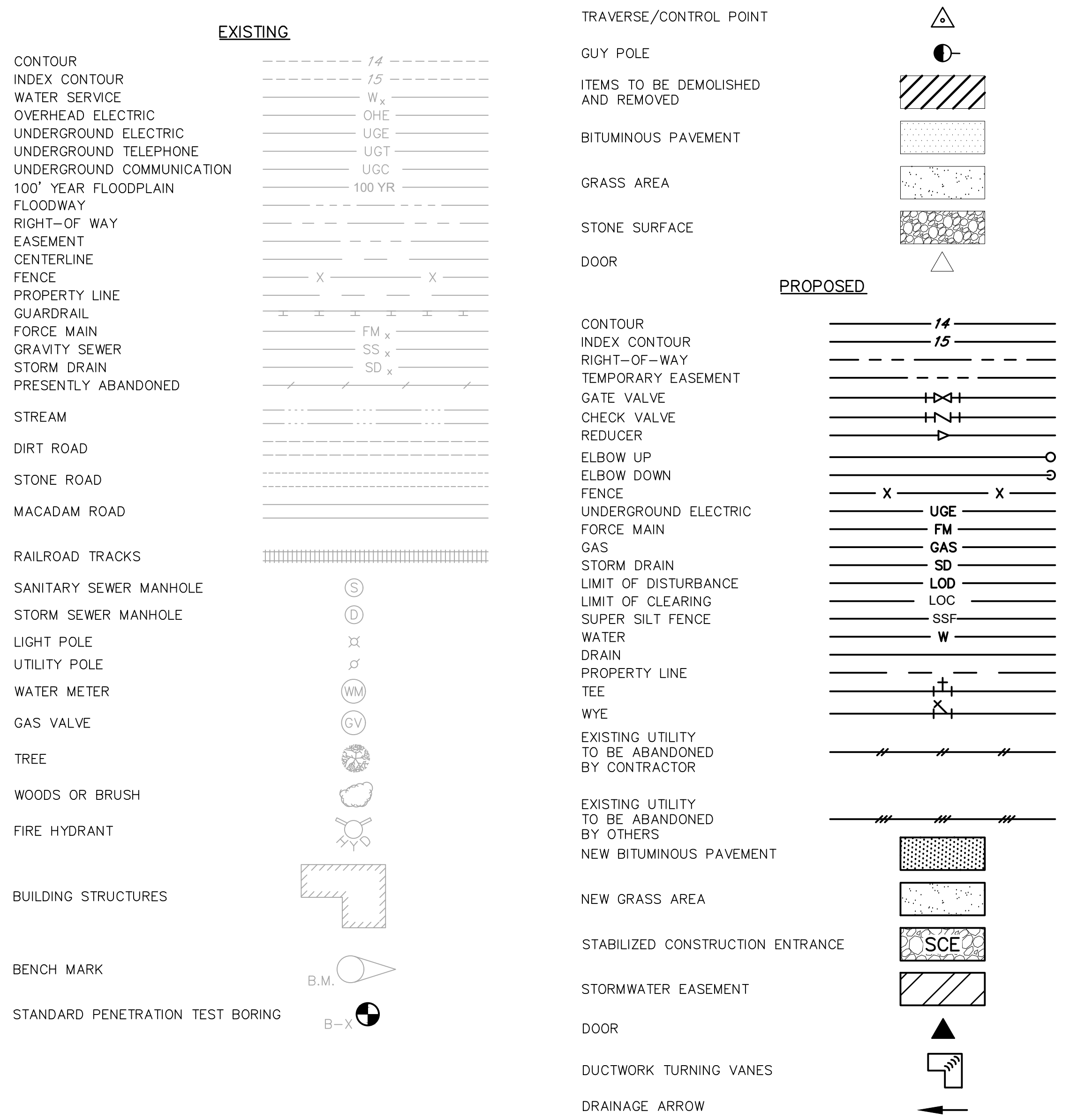
Table of abbreviations and their corresponding terms, including STR (STRUCTURAL), SUP (SUPPLY), SUSP (SUSPENDED), SV (SHUTOFF VALVE), SYS (SYSTEM), T&B (TOP AND BOTTOM), TBM (TEMPORARY BENCH MARK), TDH (TOTAL DYNAMIC HEAD), TEL (TELEPHONE), TEMP (TEMPERATURE, TEMPORARY), THK (THICK, THICKNESS), TOC (TOP OF CONCRETE), TOG (TOP OF GRATE), TOM (TOP OF MASONRY), TOR (TOP OF RIM), TOS (TOP OF STEEL), TRAV (TRAVERSE), TS (TUBE STEEL), TYP (TYPICAL), UH (UNIT HEATER), UNO (UNLESS NOTED OTHERWISE), UNREINF (UNREINFORCED), UP (UTILITY POLE), USGS (UNITED STATES GEOLOGICAL SURVEY), V (VALVE, VOLT), VAC (VACUUM), VCP (VITRIFIED CLAY PIPE), VERT (VERTICAL), VT (VITRIFIED TERRA COTTA), VTR (VENT THROUGH ROOF), W (WEST, WIDTH, WATER), W/ (WITH), WI (WROUGHT IRON), WL (WATER LEVEL), WM (WATER METER), W/O (WITHOUT), WT (WATERTIGHT), WV (WATER VALVE), WWF (WELDED WIRE FABRIC), WZTC (WORK ZONE TRAFFIC CONTROL), X (BY, TIMES), YD (YARD), & (AND), L (ANGLE (STEEL)), AT (AT), CL (CENTERLINE), CHANNEL (STEEL), # (NUMBER), % (PERCENT), WATERSTOP, REINFORCING STEEL, GROUNDLINE, NO. 57 STONE, BRICK, CONCRETE/CONCRETE FILL, OPENING, CENTERLINE, EXISTING STRUCTURE, PROPOSED STRUCTURE



STRUCTURAL LEGEND



GENERAL LEGEND



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
EXPIRATION DATE 09/06/2024
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

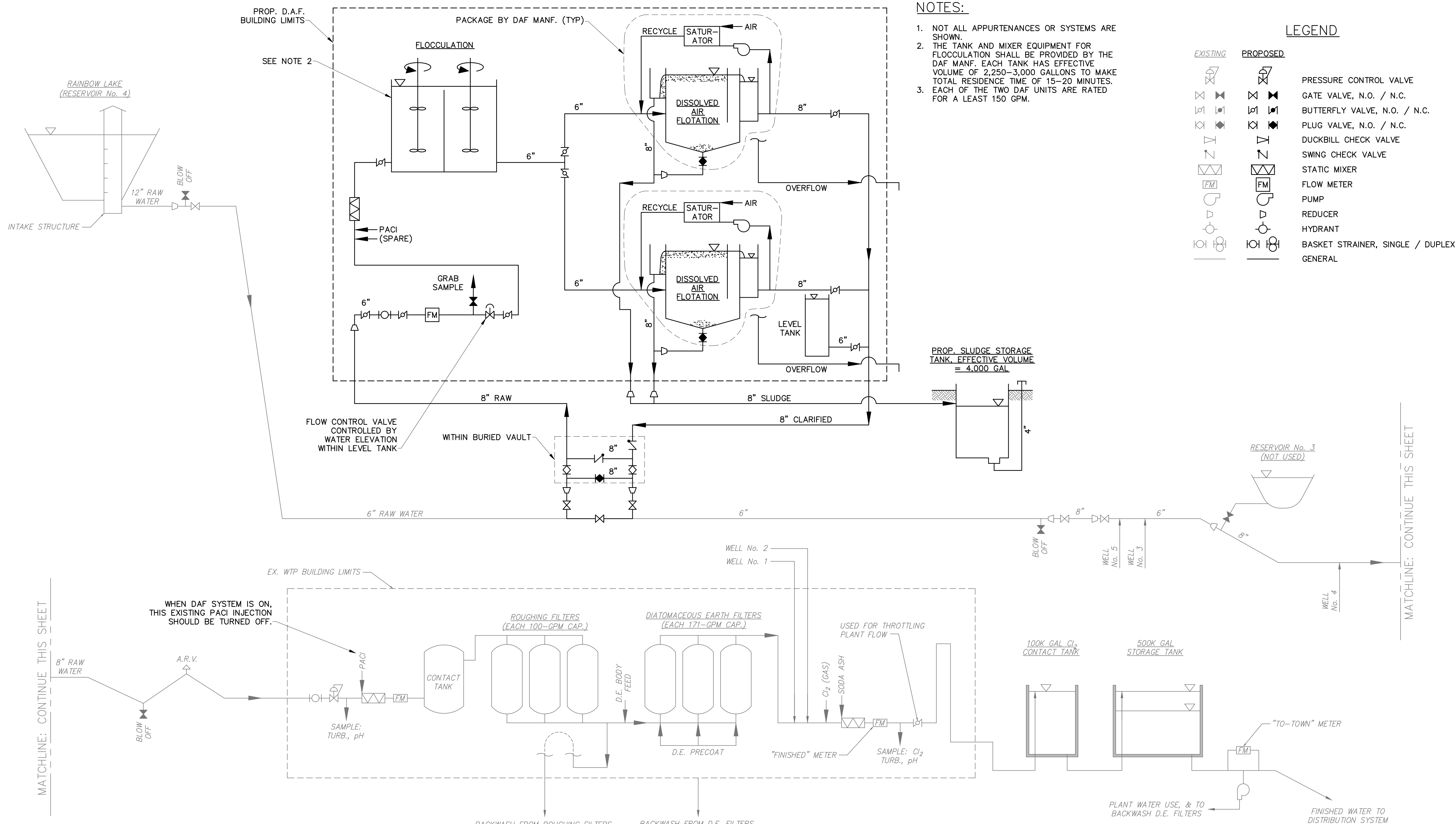
Table with columns for NO., DESCRIPTION, REVISIONS, BY, and DATE.

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND
ABBREVIATIONS AND LEGEND

Table with columns for ENGINEER (DD), CHECKED BY (JCM), DRAWN BY (DD), DATE (2023), and RK&K PROJECT NUMBER (20119).

DRAWING NUMBER
G-02
SHEET NO. 02 OF 42

\\prod.hok.com\prod\Chief\Projects\2020\2019_Emmitzburg\CADD\PLANS\G-03.dwg Oct 17, 2023 10:55am Plot Scale: 1:1



NOTES:

1. NOT ALL APPURTENANCES OR SYSTEMS ARE SHOWN.
2. THE TANK AND MIXER EQUIPMENT FOR FLOCCULATION SHALL BE PROVIDED BY THE DAF MANF. EACH TANK HAS EFFECTIVE VOLUME OF 2,250-3,000 GALLONS TO MAKE TOTAL RESIDENCE TIME OF 15-20 MINUTES.
3. EACH OF THE TWO DAF UNITS ARE RATED FOR A LEAST 150 GPM.

LEGEND

EXISTING	PROPOSED	
		PRESSURE CONTROL VALVE
		GATE VALVE, N.O. / N.C.
		BUTTERFLY VALVE, N.O. / N.C.
		PLUG VALVE, N.O. / N.C.
		DUCKBILL CHECK VALVE
		SWING CHECK VALVE
		STATIC MIXER
		FLOW METER
		PUMP
		REDUCER
		HYDRANT
		BASKET STRAINER, SINGLE / DUPLEX
		GENERAL



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. 20566 EXPIRATION DATE 09/06/2024

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

ENGINEER	CHECKED BY
DD	JCM
DRAWN BY	DATE
DD	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
G-03
 SHEET NO. 03 OF 42



700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755



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. 20566 EXPIRATION DATE 09/06/2024

RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

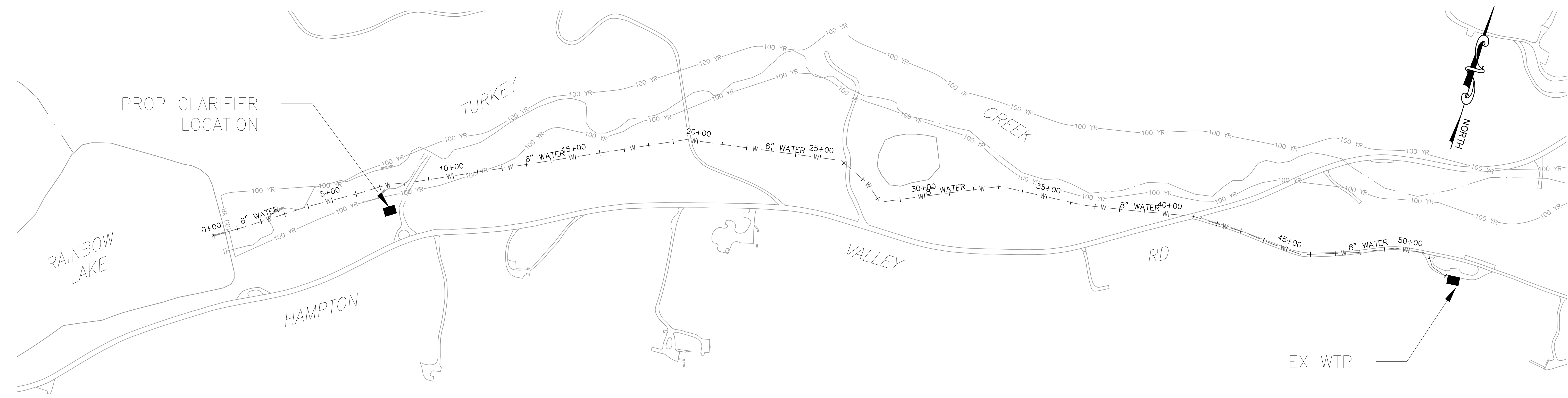
NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

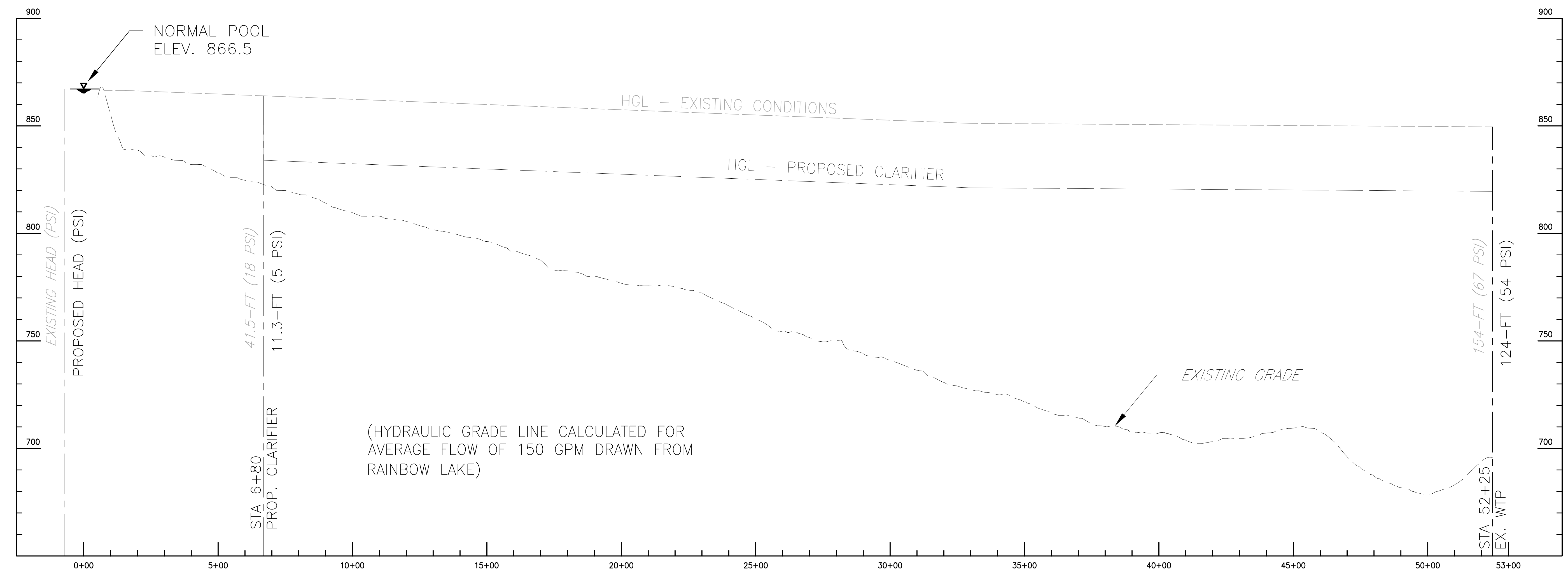
HYDRAULIC PROFILES

ENGINEER WJG	CHECKED BY WJG
DRAWN BY KMR	DATE 2023
RK&K PROJECT NUMBER 20119	

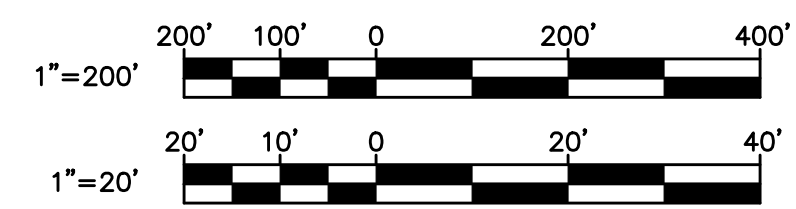
DRAWING NUMBER
G-04
 SHEET NO. 04 OF 42



RAW WATER MAIN
 SCALE: 1" = 200'



HYDRAULIC PROFILE
 SCALE: 1" = 20' V : 1" = 200' H



R:\2023\Projects\2023\20119_Emmitsburg\Drawings\G-04.dwg Oct 17, 2023 10:56am Plot Scale: 1:1



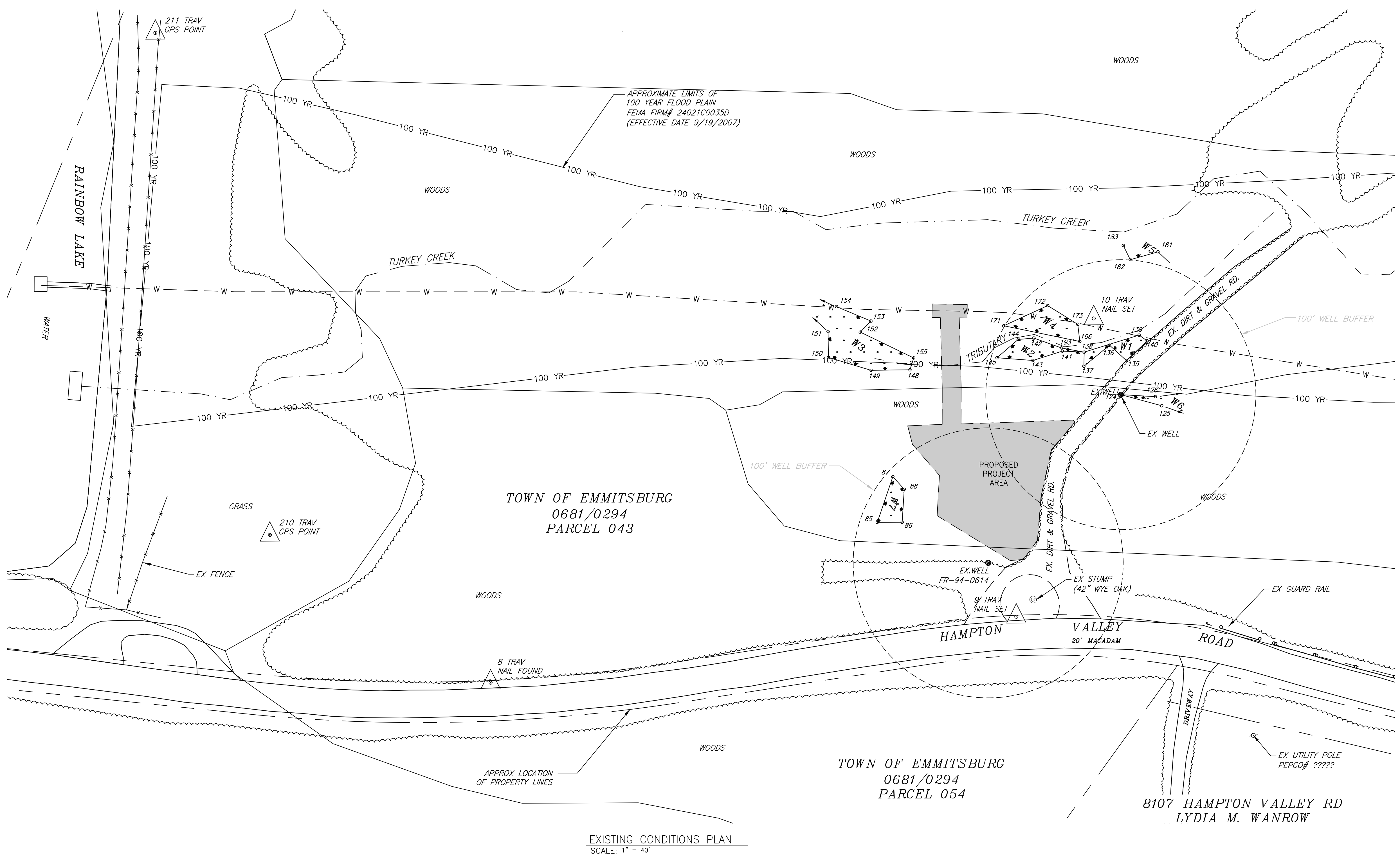
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 20566 EXPIRATION DATE 09/06/2024

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

ENGINEER: WJG
 CHECKED BY: JCM
 DRAWN BY: WJG
 DATE: 2023
 R&K PROJECT NUMBER: 20119

DRAWING NUMBER: C-01
 SHEET NO. 05 OF 42



SURVEY & PLAT BY
R.F. GAUSS & ASSOC., INC.
 PROFESSIONAL LAND SURVEYORS
 103 E. MAIN ST., P.O. BOX 128
 EMMITSBURG, MARYLAND 21727
 301-447-2222 FAX 301-447-3158

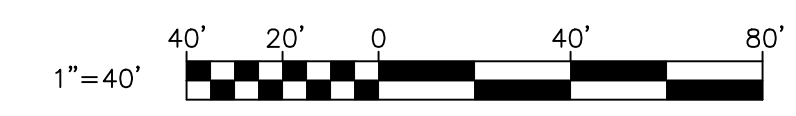
TRAVERSE COORDINATES				
TRAV	NORTHING	EASTING	ELEVATION	DESCRIPTION
8	739,276.55	1,203,344.80	861.32'	NAIL FOUND
9	739,539.89	1,203,635.75	835.80'	NAIL SET
10	739,753.78	1,203,555.98	818.54'	NAIL SET
210	739,272.46	1,203,148.10	859.50'	TRAV
211	739,528.45	1,202,865.35	865.97'	TRAV

- NOTES:
- SURVEY CONDUCTED BY R.F. GAUSS & ASSOCIATES ON MAY 24, 2021.
 - HORIZONTAL DATUM: MARYLAND STATE GRID NORTH NAD 83, 2011 BY GPS OBSERVATION NGS OPUS STATIC SOLUTION AT TRAVERSE STATION #210
 VERTICAL DATUM: NAVD 88 (GEOID 18) BY GPS OBSERVATION NGS OPUS STATIC SOLUTION AT TRAVERSE STATION #210
 - NON-TIDAL WETLANDS DELINEATED BY WATERSHED ENVIRONMENTAL, LLC ON APRIL 23, 2021.
 - THE LOCATIONS OF PROPERTY LINES SHOWN ARE APPROXIMATE AND ARE BASED ON PARCEL DATA FROM THE FREDERICK COUNTY GIS DATABASE UPDATED APRIL 2022. PARCEL NUMBER, OWNER NAME AND LIBER/FOLIO ARE BASED ON MARYLAND DEPARTMENT OF ASSESSMENTS AND TAXATION REAL PROPERTY DATA (SDAT) AS OF APRIL 2022.
 - THE LOCATIONS OF UNDERGROUND UTILITIES ARE BASED ON ABOVEGROUND FIELD OBSERVATIONS AND RECORD DRAWINGS. ADDITIONAL BURIED UTILITIES OR STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS WERE MADE TO LOCATE BURIED UTILITIES/STRUCTURES. ALL SUBSURFACE UTILITIES/STRUCTURES SHOWN ARE TO BE CONSIDERED APPROXIMATE LOCATIONS ONLY. UNDERGROUND UTILITIES MUST BE VERIFIED BY TEST PITS.

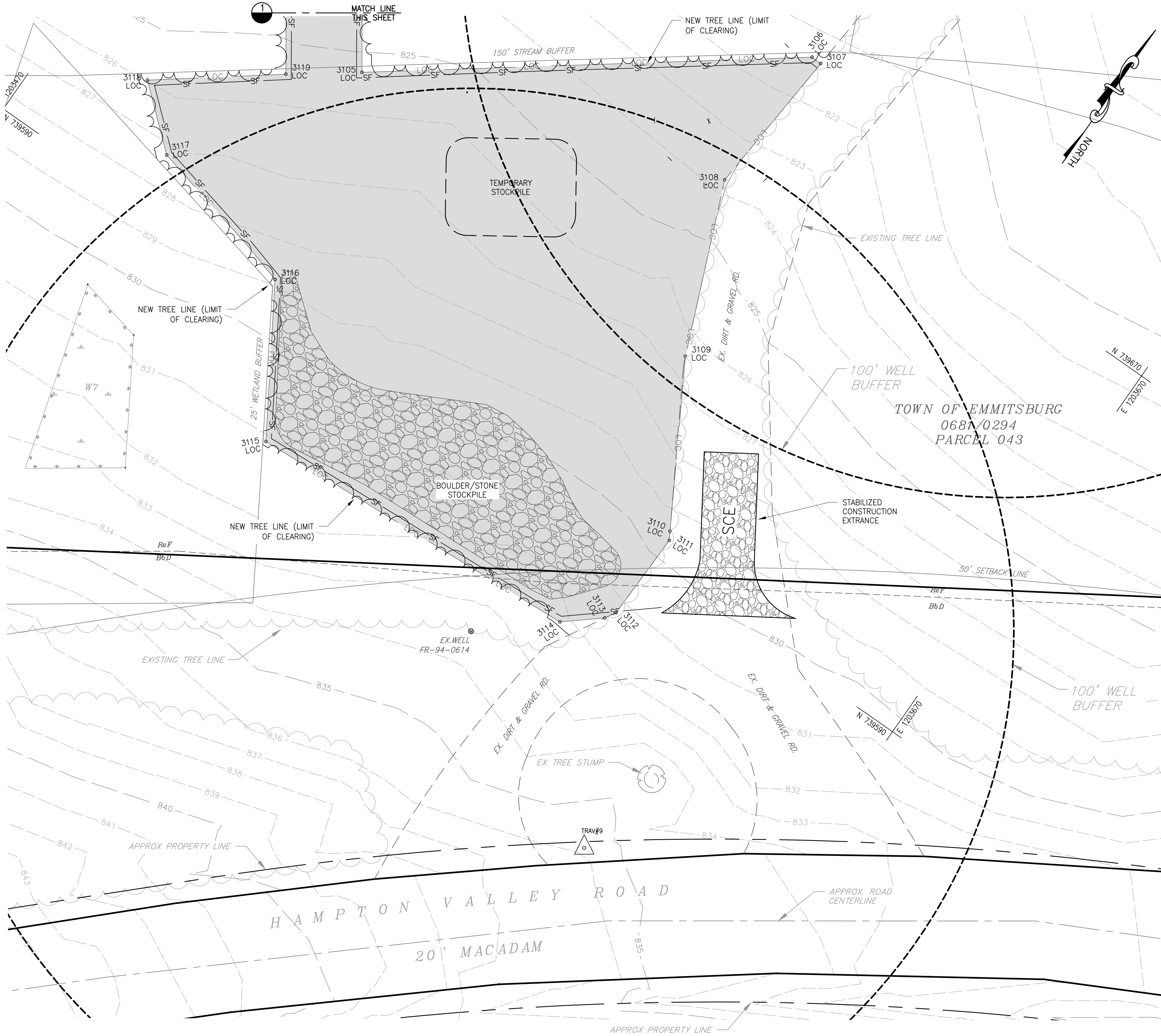
NON-TIDAL WETLAND DELINEATION				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
140	739,762.8861	1,203,597.8674	817.33'	W1
139	739,762.9495	1,203,590.5622	817.30'	W1
138	739,729.2814	1,203,564.4530	818.83'	W1
137	739,720.5846	1,203,570.2846	818.50'	W1
136	739,744.2640	1,203,576.8953	818.30'	W1
135	739,742.1224	1,203,593.6972	818.10'	W1
145	739,688.8469	1,203,513.9414	819.22'	W2
144	739,708.9511	1,203,519.0279	818.87'	W2
142	739,716.4811	1,203,527.9929	818.74'	W2
143	739,702.4561	1,203,536.9133	819.30'	W2
141	739,720.6669	1,203,550.8108	818.52'	W2
155	739,653.3535	1,203,463.5317	822.99'	W3
154	739,651.6976	1,203,394.9066	824.06'	W3
153	739,657.5508	1,203,421.8732	823.27'	W3
151	739,632.9934	1,203,400.3397	824.54'	W3
150	739,617.4317	1,203,411.5906	824.51'	W3
149	739,627.7436	1,203,442.9231	823.27'	W3
148	739,644.5988	1,203,466.2782	822.26'	W3
152	739,646.3146	1,203,420.1026	823.77'	W3

NON-TIDAL WETLAND DELINEATION				
Point #	Northing	Easting	Elevation	Description
173	739743.4572	1203548.7692	818.24	W4
172	739742.0399	1203522.5714	818.36	W4
171	739711.1468	1203504.4832	819.69	W4
166	739733.9088	1203557.2894	818.19	W4
183	739810.6170	1203542.9143	815.53	W5
182	739804.9818	1203553.0459	816.00	W5
181	739821.5245	1203566.6449	815.14	W5
126	739732.5082	1203626.5270	816.93	W6
125	739729.7115	1203634.2739	816.97	W6
124	739719.0737	1203604.7831	818.95	W6/EX WELL
88	739569.6509	1203513.5628	831.09	W7
87	739572.4184	1203501.3133	830.63	W7
86	739548.7642	1203526.3221	832.21	W7
85	739538.0966	1203511.2857	833.06	W7

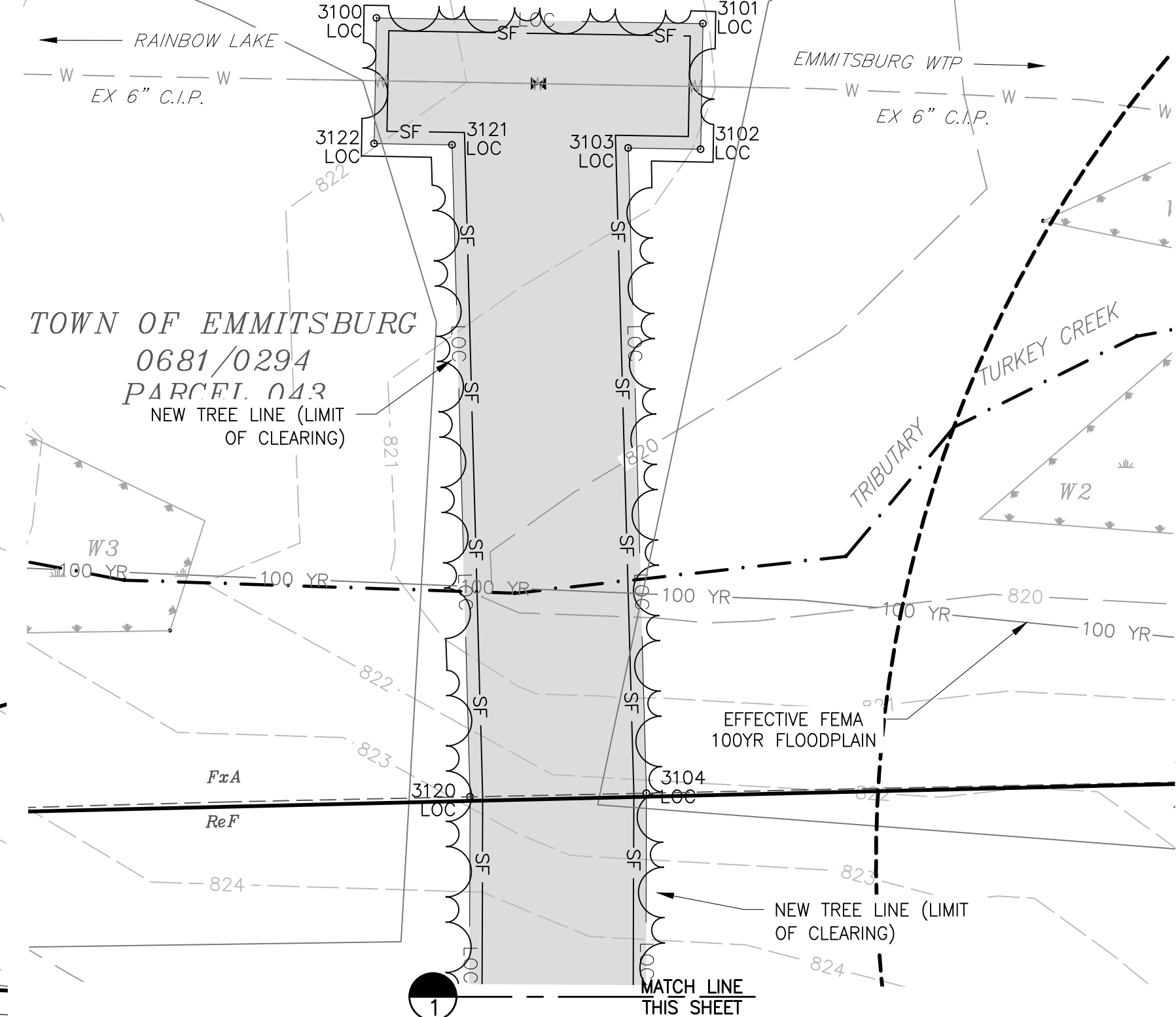
WETLANDS DELINEATION BY
WATERSHED ENVIRONMENTAL, LLC.
 NATURAL RESOURCE CONSULTING • WETLANDS • FORESTS • STREAMS
 1306 KNOPP ROAD., P.O. BOX 562
 JARRETTSVILLE, MARYLAND 21084
 PH: 410-260-0290 MOBILE: 410-459-9522



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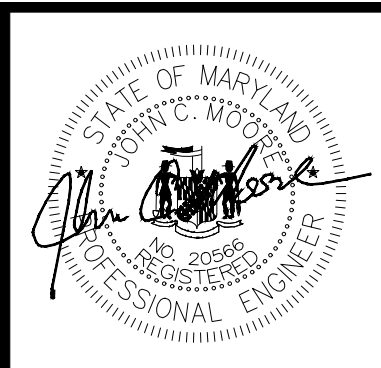
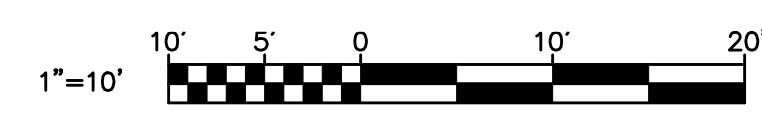
NOTE:
CONTRACTOR TO LIMIT TREE CLEARING WITHIN THE 100YR FLOODPLAIN TO ONLY AREA NECESSARY FOR ADDITIONAL PIPING AND CONNECTION TO EXISTING 6" RAW WATER MAIN. SEE C-03 FOR DETAILS



HORIZONTAL COORDINATES LIMITS OF CLEARING		
PT	NORTHING	EASTING
3100	739,693.97	1,203,451.76
3101	739,708.49	1,203,473.31
3102	739,700.20	1,203,478.90
3103	739,696.98	1,203,474.12
3104	739,655.75	1,203,504.74
3105	739,633.43	1,203,520.27
3106	739,683.30	1,203,586.60
3107	739,683.21	1,203,588.58
3108	739,655.54	1,203,586.37
3109	739,624.77	1,203,599.09
3110	739,596.76	1,203,615.23
3111	739,595.29	1,203,616.10
3112	739,578.78	1,203,615.69
3113	739,576.77	1,203,614.56
3114	739,571.44	1,203,608.21
3115	739,567.57	1,203,544.76
3116	739,592.99	1,203,529.02
3117	739,600.32	1,203,499.53
3118	739,609.59	1,203,488.71
3119	739,625.11	1,203,508.97
3120	739,647.47	1,203,493.42
3121	739,689.14	1,203,462.49
3122	739,685.68	1,203,457.35

- NOTES:
- ALL EXISTING FEATURES ARE GRAYED OUT AND DENOTED BY SLANTED TEXT.
 - PROJECT SITE HORIZONTAL CONTROL IS BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM AND 83(2011). VERTICAL CONTROL IS BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). HORIZONTAL AND VERTICAL CONTROL ARE REFERENCED TO THE LISTED BENCH MARK:
STATION: TRAVERSE SPIKE 9
NORTHING: 739,539.89
EASTING: 1,203,635.75
ELEVATION: 835.80
DESCRIPTION: TRAVERSE SPIKE ALONG SHOULDER OF HAMPTON VALLEY ROAD
 - THE LOCATIONS OF UNDERGROUND UTILITIES ARE BASED ON ABOVEGROUND FIELD OBSERVATIONS AND RECORD DRAWINGS. ADDITIONAL BURIED UTILITIES OR STRUCTURES MAY BE ENCOUNTERED. NO EXCAVATIONS WERE MADE TO LOCATE BURIED UTILITIES/STRUCTURES. ALL SUBSURFACE UTILITIES/STRUCTURES SHOWN ARE TO BE CONSIDERED APPROXIMATE LOCATIONS ONLY. UNDERGROUND UTILITIES MUST BE VERIFIED BY TEST PITS.
 - PROVIDE TEN (10) DAYS' NOTICE TO THE TOWN PRIOR TO THE START OF CLEARING SO THAT AREAS OF CONCERN CAN BE IDENTIFIED AND LOCATED.
 - EXISTING IMPERVIOUS AREA = 0 SF (0.0 AC.), NONE IDENTIFIED.
 - EXISTING BOULDERS AND STONES SHALL BE MOVED AND STOCKPILED, AREA DESIGNATED ON THE PLANS, IN PREPARATION FOR THE NEW STRUCTURES AND PARKING AREA. ADDITIONAL STONES TO BE REMOVED FROM THE SITE SHALL BE COORDINATED WITH THE TOWN. TOTAL AREA OF STONE REMOVAL = 6,190 SF (0.14 AC.).
 - BLASTING IS NOT PERMITTED UNDER ANY CIRCUMSTANCES FOR EXCAVATION.
 - EXISTING TREE REMOVAL AND CLEARING AND GRUBBING SHALL BE DONE IN PREPARATION FOR NEW STRUCTURES, PARKING AREA AND WATER LINES. CONTRACTOR TO USE AREA DESIGNATED "TEMPORARY STOCKPILE" WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. TOTAL AREA OF REMOVAL = 9,095 SF (0.21 AC.).

CLEARING AND GRUBBING PLAN
SCALE: 1" = 10'



PROFESSIONAL CERTIFICATION
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LICENSE NO. 20566
EXPIRATION DATE 09/06/2024

NO.	DESCRIPTION	REVISIONS	BY	DATE

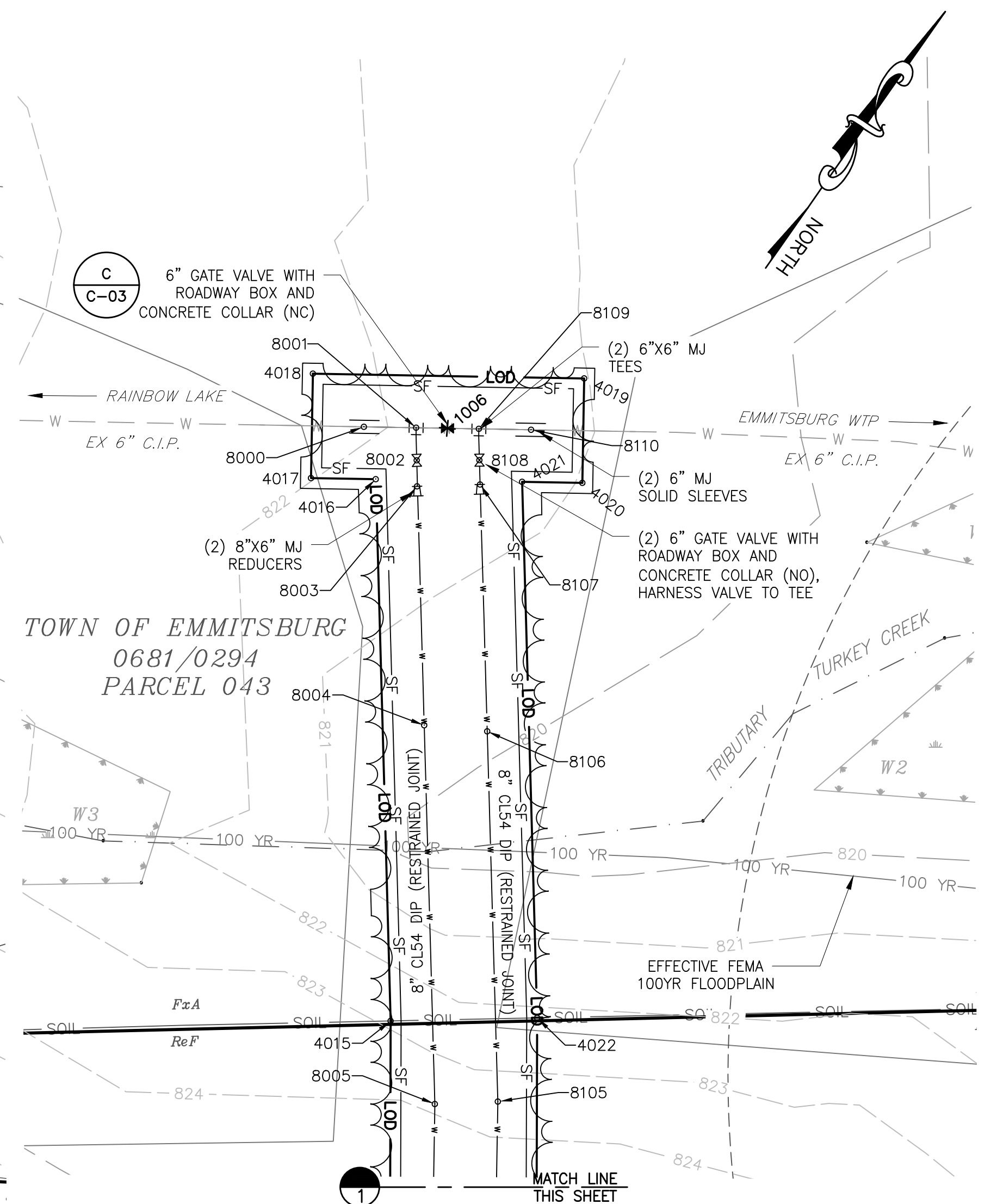
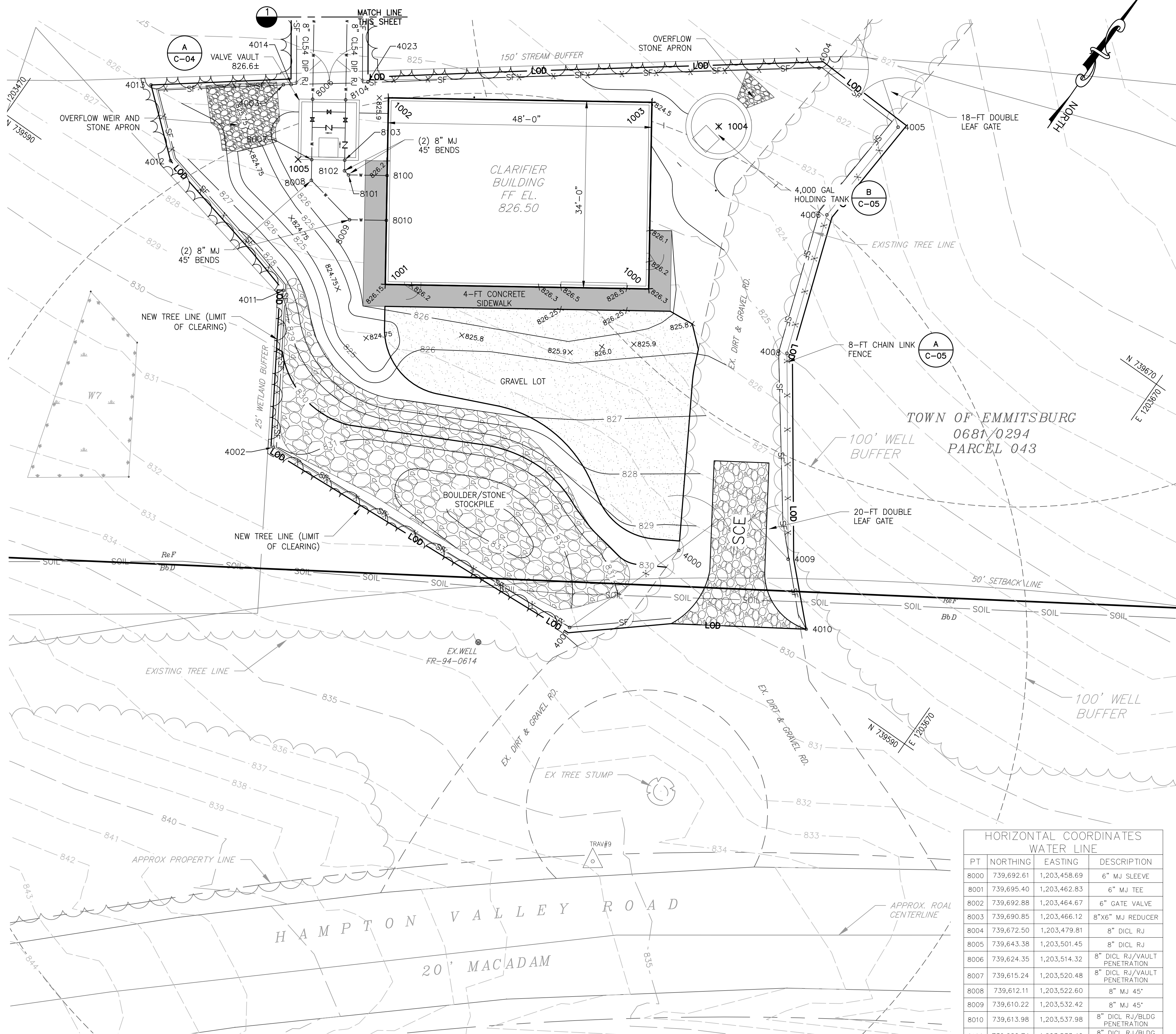
TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

CLEARING AND GRUBBING

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
WJG	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
C-02
SHEET NO. 06 OF 42

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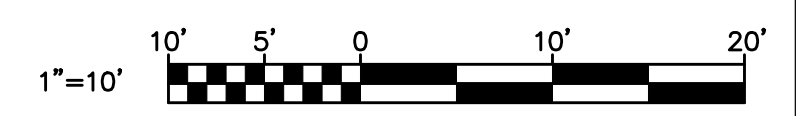
- NOTE:**
- TEST PIT LOCATION TO DETERMINE LOCATION AND DEPTH OF EXISTING CIP RAW WATER LINE PRIOR TO COMMENCING WORK/MAKING TIE-IN.
 - INSTALLATION OF TIE-IN CONNECTION MUST BE COMPLETED WITHIN A MAXIMUM 8-HOUR SHUT-DOWN OF EXISTING 6" CIP.

PT	NORTHING	EASTING	DESCRIPTION
4000	739,595.29	1,203,616.10	FENCE/GATE POST
4001	739,572.37	1,203,607.86	FENCE/LOD
4002	739,568.31	1,203,544.84	FENCE/LOD
4003	739,623.46	1,203,508.43	FENCE
4004	739,681.93	1,203,586.63	FENCE/GATE POST/LOD
4005	739,681.36	1,203,604.62	FENCE/GATE POST/LOD
4006	739,660.83	1,203,603.15	FENCE/LOD
4008	739,636.00	1,203,611.65	FENCE/LOD
4009	739,605.40	1,203,633.35	FENCE/GATE POST/LOD
4010	739,596.84	1,203,643.36	LOD
4011	739,592.74	1,203,529.91	FENCE/LOD
4012	739,600.32	1,203,499.53	LOD
4013	739,609.59	1,203,488.71	LOD
4014	739,624.31	1,203,509.57	FENCE/LOD
4015	739,647.47	1,203,493.42	LOD
4016	739,689.14	1,203,462.49	LOD
4017	739,685.68	1,203,457.35	LOD
4018	739,693.97	1,203,451.76	LOD
4019	739,708.49	1,203,473.31	LOD
4020	739,700.20	1,203,478.90	LOD
4021	739,696.98	1,203,474.12	LOD
4022	739,655.75	1,203,504.74	LOD
4023	739,632.70	1,203,520.77	FENCE/LOD

PT	NORTHING	EASTING	DESCRIPTION
8000	739,692.61	1,203,458.69	6" MJ SLEEVE
8001	739,695.40	1,203,462.83	6" MJ TEE
8002	739,692.88	1,203,464.67	6" GATE VALVE
8003	739,690.85	1,203,466.12	8"x6" MJ REDUCER
8004	739,672.50	1,203,479.81	8" DICL RJ
8005	739,643.38	1,203,501.45	8" DICL RJ
8006	739,624.35	1,203,514.32	8" DICL RJ/VAULT PENETRATION
8007	739,615.24	1,203,520.48	8" DICL RJ/VAULT PENETRATION
8008	739,612.11	1,203,522.60	8" MJ 45°
8009	739,610.22	1,203,532.42	8" MJ 45°
8010	739,613.98	1,203,537.98	8" DICL RJ/BLDG PENETRATION
8100	739,620.74	1,203,533.40	8" DICL RJ/BLDG PENETRATION
8101	739,616.80	1,203,527.57	8" MJ 45°
8102	739,617.00	1,203,526.55	8" MJ 45°
8103	739,618.60	1,203,525.47	8" DICL RJ/VAULT PENETRATION
8104	739,627.71	1,203,519.31	8" DICL RJ/VAULT PENETRATION
8105	739,647.02	1,203,506.26	8" DICL RJ
8106	739,675.48	1,203,485.09	8" DICL RJ
8107	739,694.46	1,203,470.97	8"x6" MJ REDUCER
8108	739,696.33	1,203,469.58	6" GATE VALVE
8109	739,698.76	1,203,467.81	6" MJ TEE
8110	739,701.55	1,203,471.96	6" MJ SLEEVE

PT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1000	739,631.158	1,203,584.29	826.5/826.3	PREFAB BLG COR/GR
1001	739,604.305	1,203,544.51	826.5/826.1	PREFAB BLG COR/GR
1002	739,632.487	1,203,525.49	826.5/825.8	PREFAB BLG COR/GR
1003	739,659.339	1,203,565.27	826.5/824.5	PREFAB BLG COR/GR
1004	739,662.739	1,203,592.76	815/823.1	CENTER OF SLUDGE TANK
1005	739,613.845	1,203,518.42	827/826.7	VALVE VAULT/S COR
1006	739,697.079	1,203,465.32	821.7	TIE-IN EX 6" CIP RAW WATER/GATE VALVE

SITE IMPROVEMENT AND PIPING PLAN
SCALE: 1" = 10'



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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. 20266 EXPIRATION DATE 09/06/2024

NO.	DESCRIPTION	REVISIONS	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

SITE IMPROVEMENTS AND PIPING PLAN

ENGINEER: WJG
CHECKED BY: JCM
DRAWN BY: WJG
DATE: 2023
RK&K PROJECT NUMBER: 20119

DRAWING NUMBER:
C-03
SHEET NO. 07 OF 42

RK&K
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755



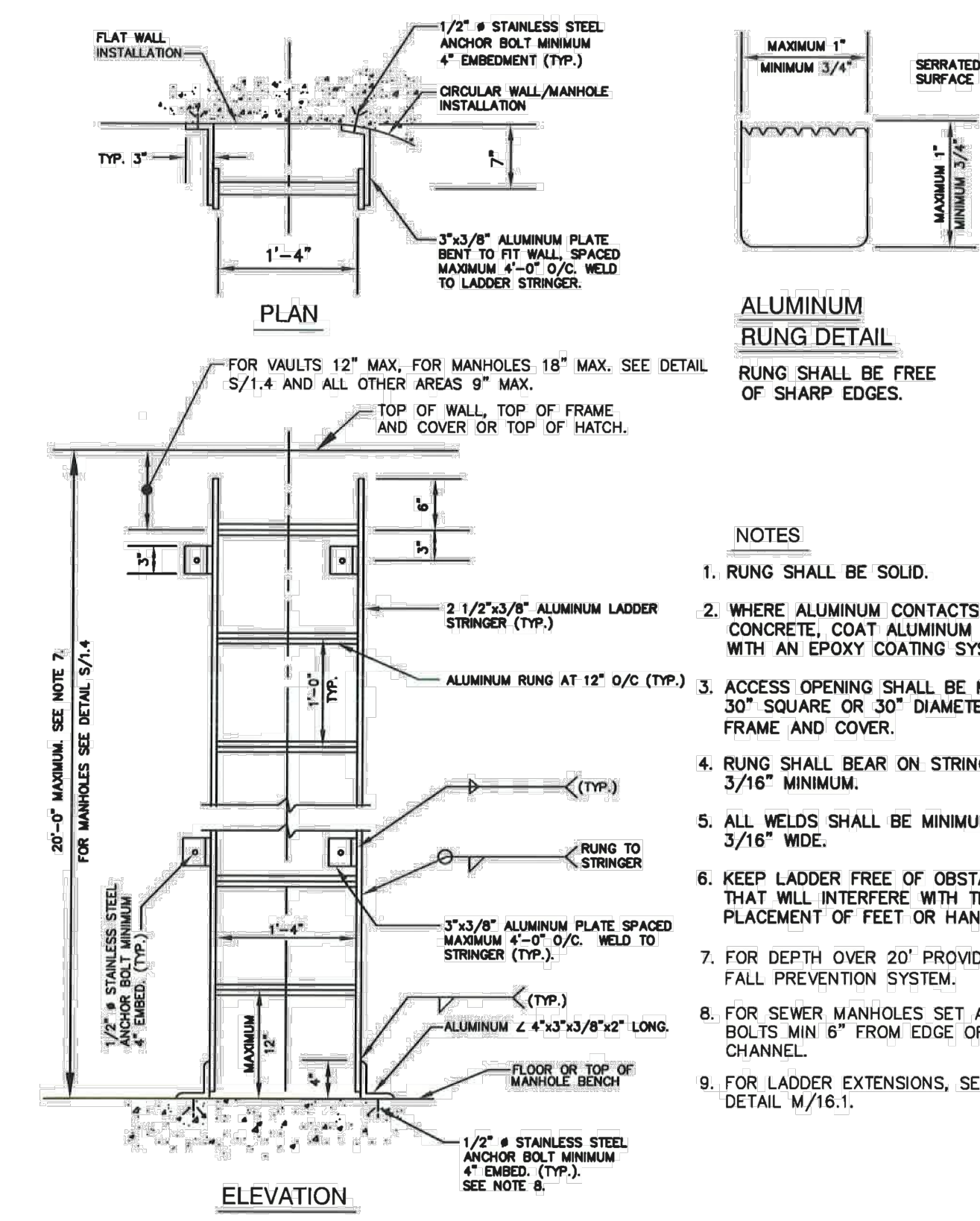
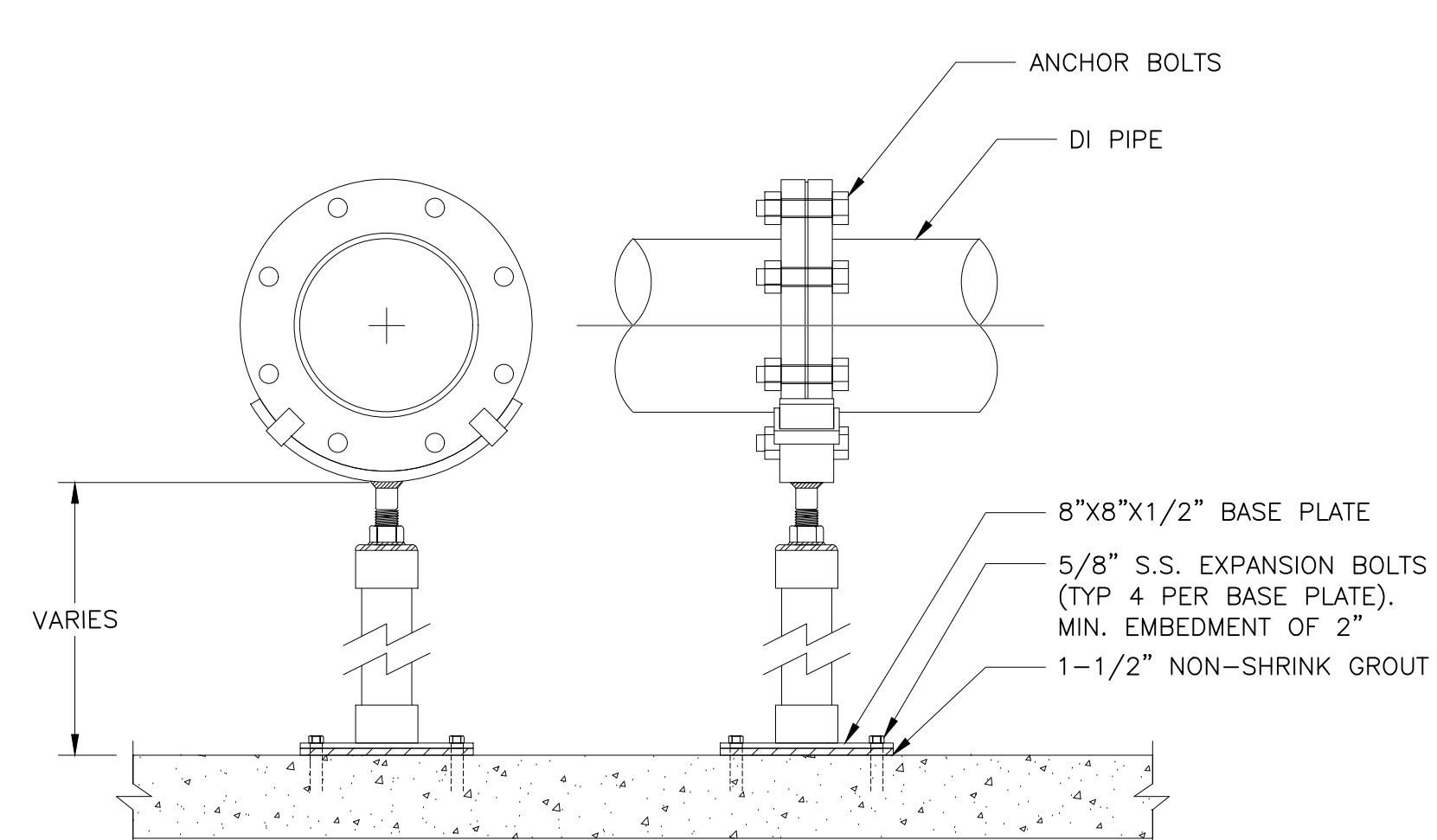
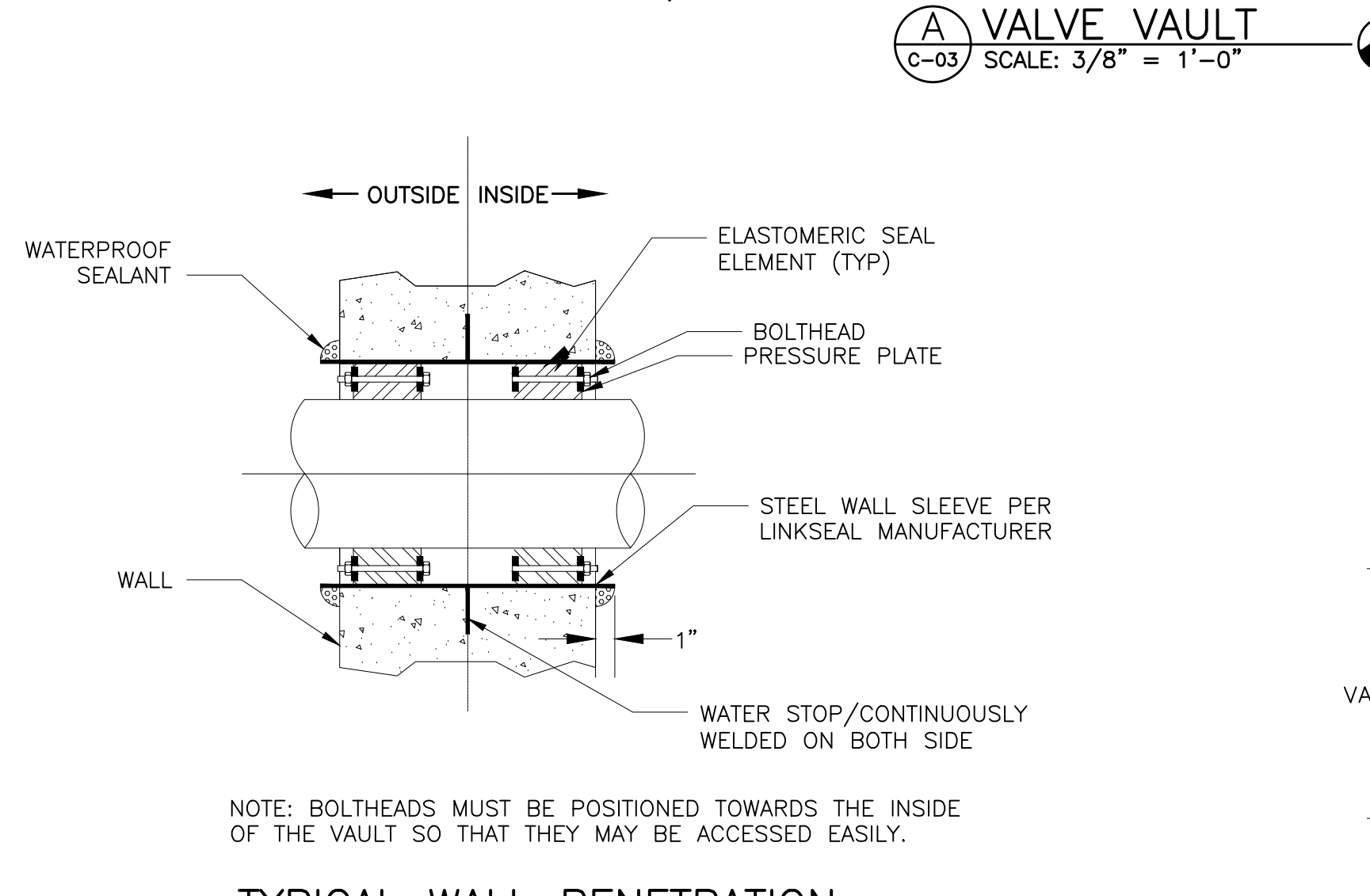
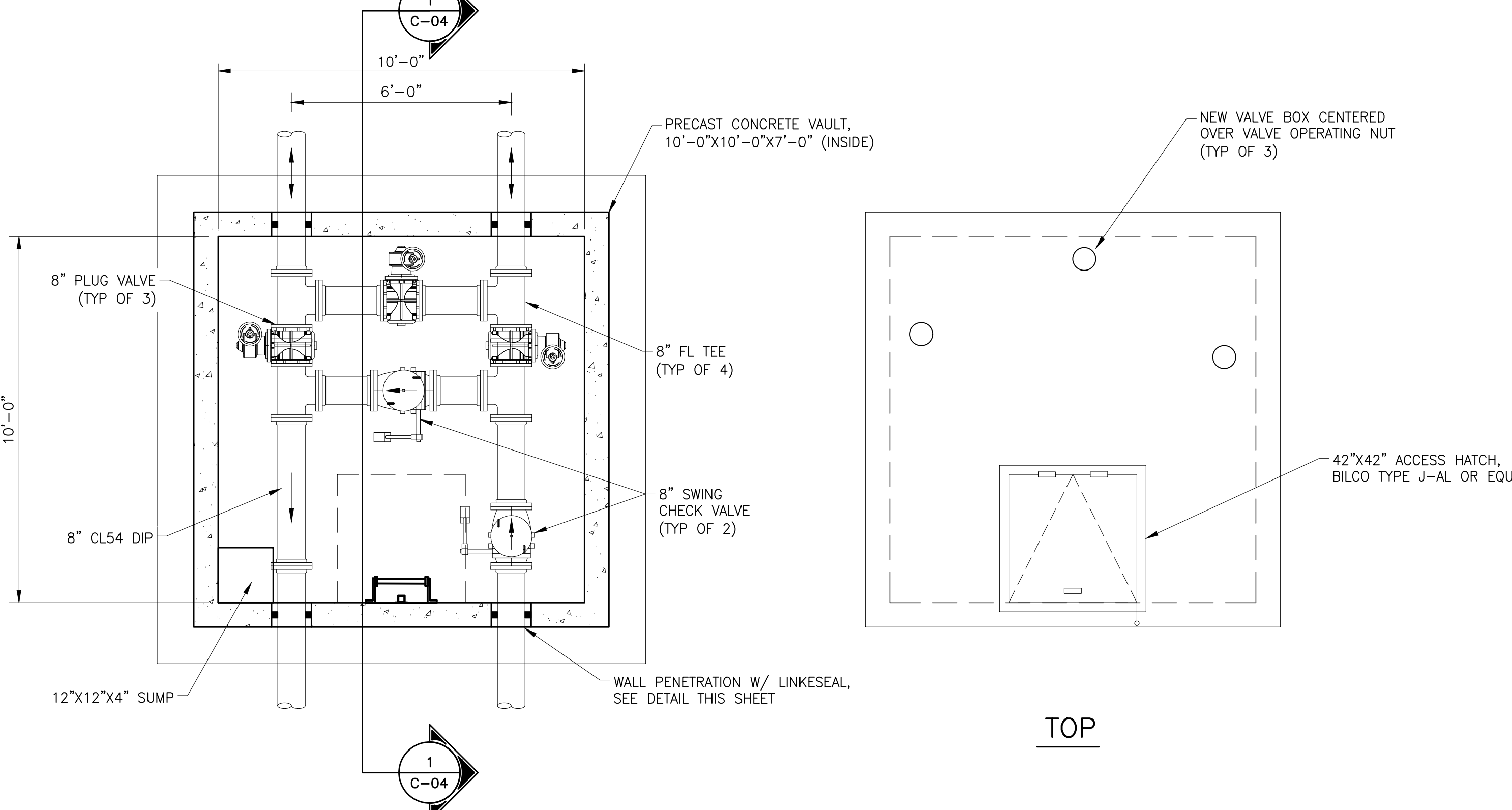
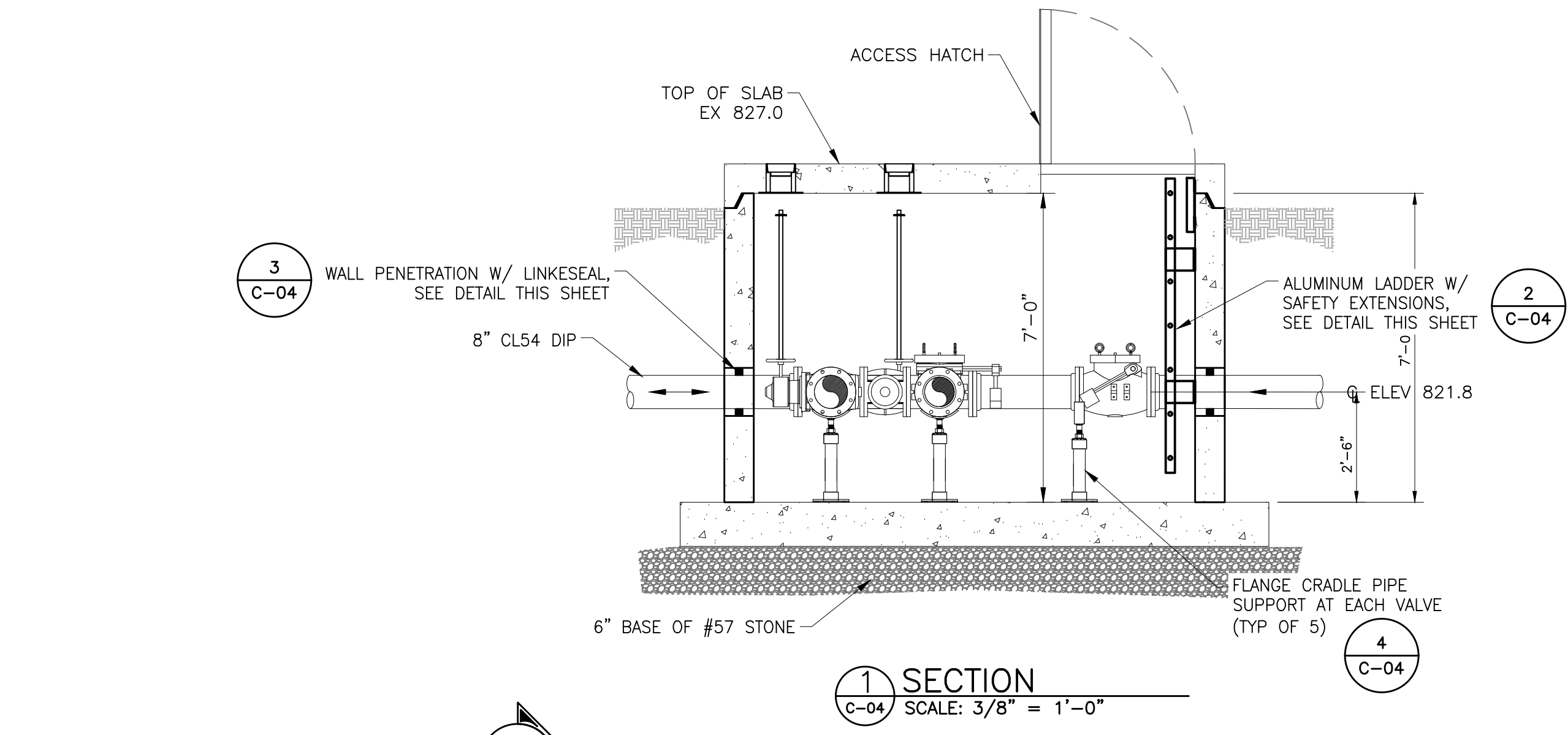
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 20866 EXPIRATION DATE 09/06/2024
RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

NO.	DESCRIPTION	BY	DATE

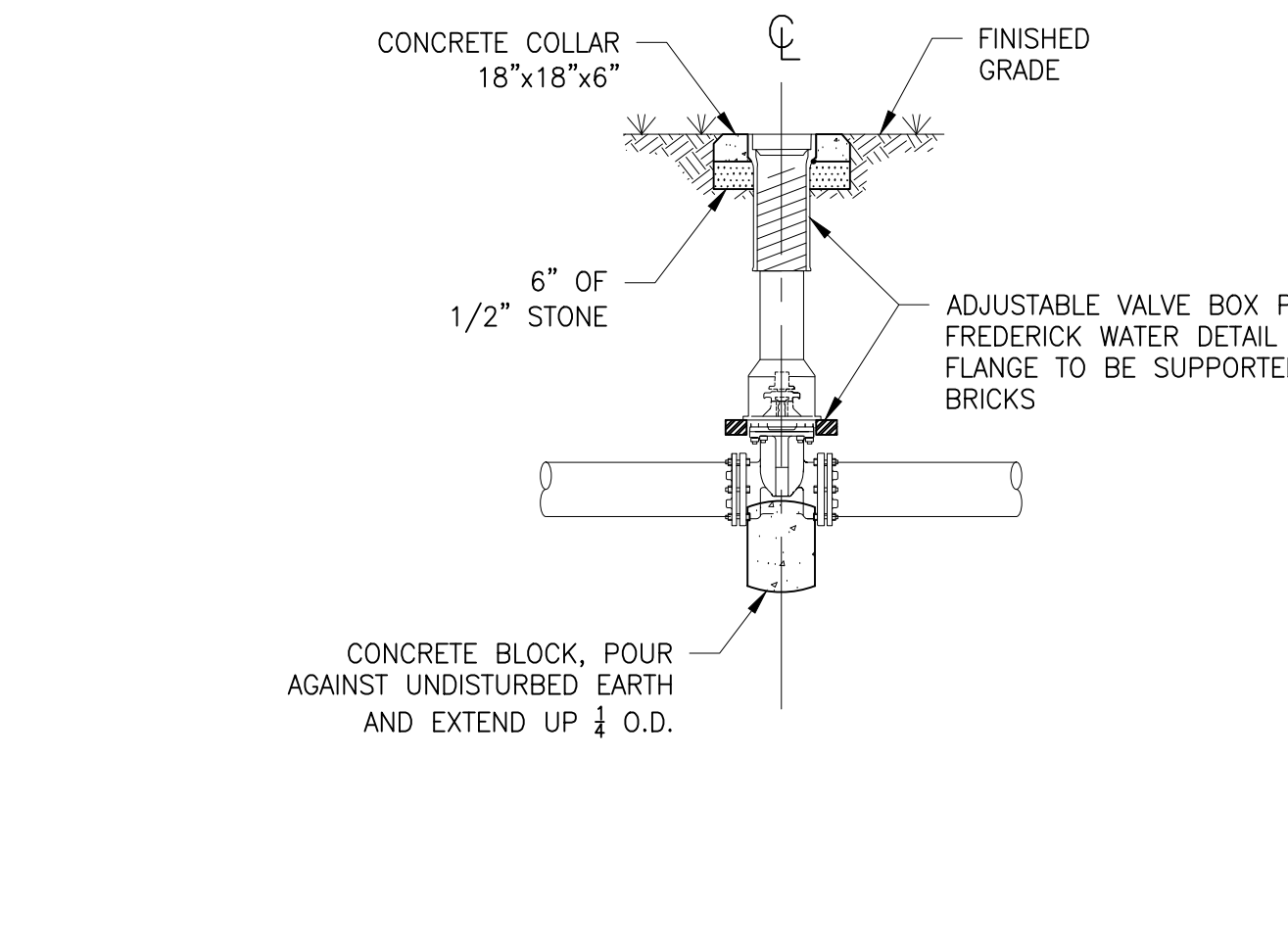
TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
WJG	2023
RK&K PROJECT NUMBER	
20119	

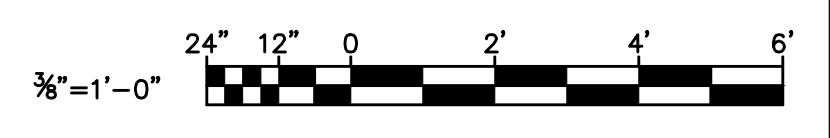
DRAWING NUMBER
C-04
 SHEET NO. 08 OF 42



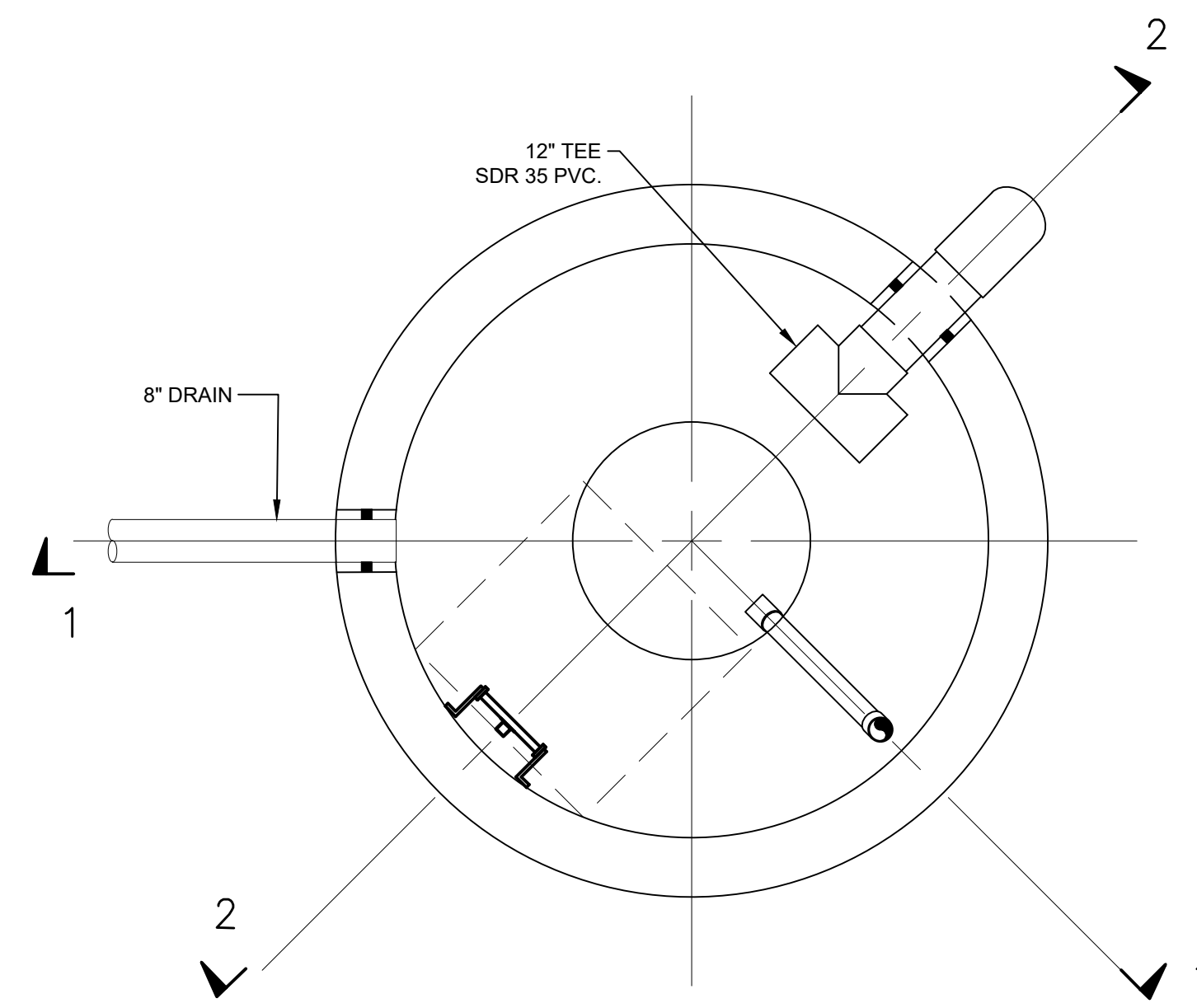
2 ALUMINUM LADDER & SAFETY EXTENSION
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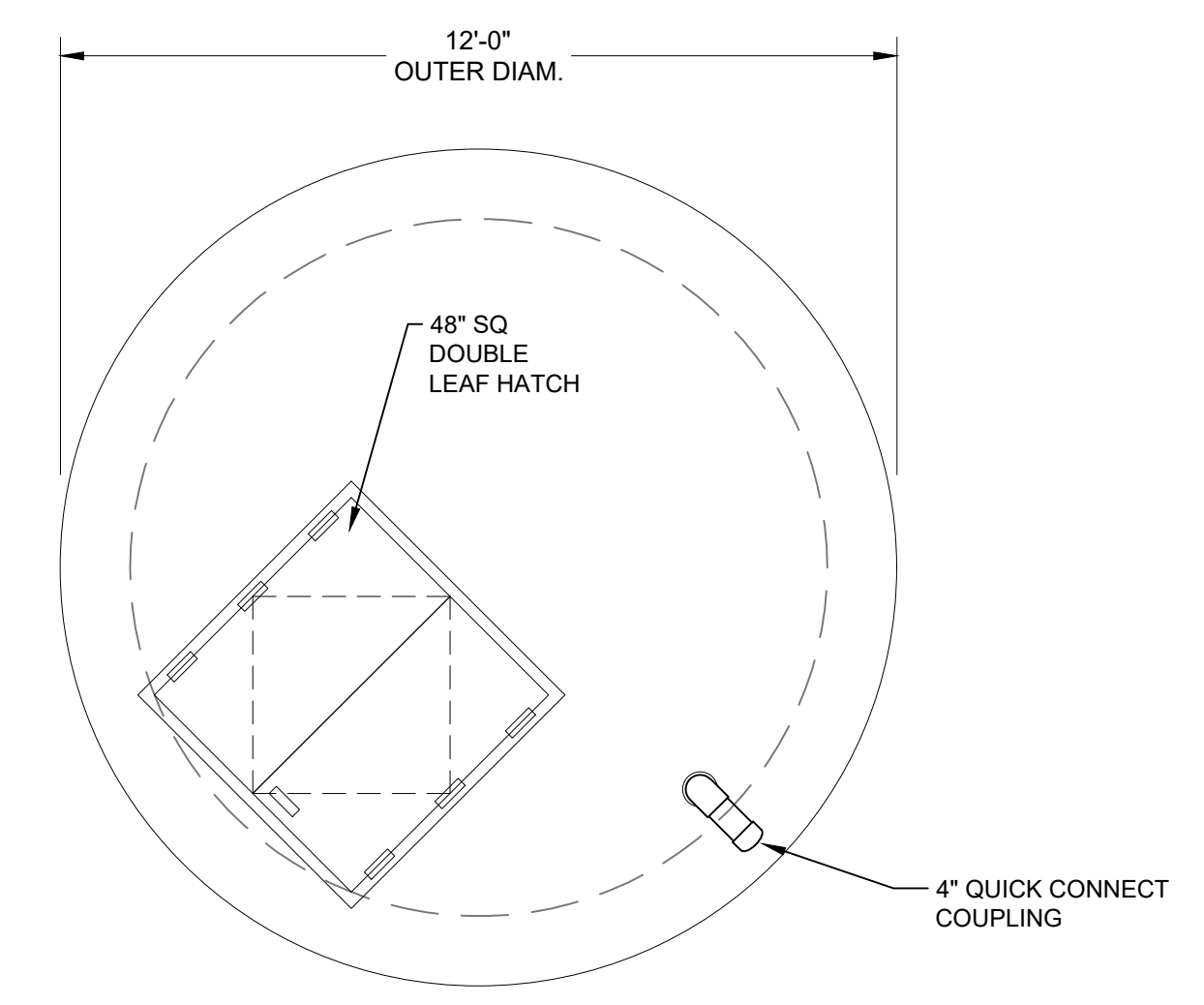
C VALVE BOX WITH CONCRETE COLLAR
 SCALE: N.T.S.



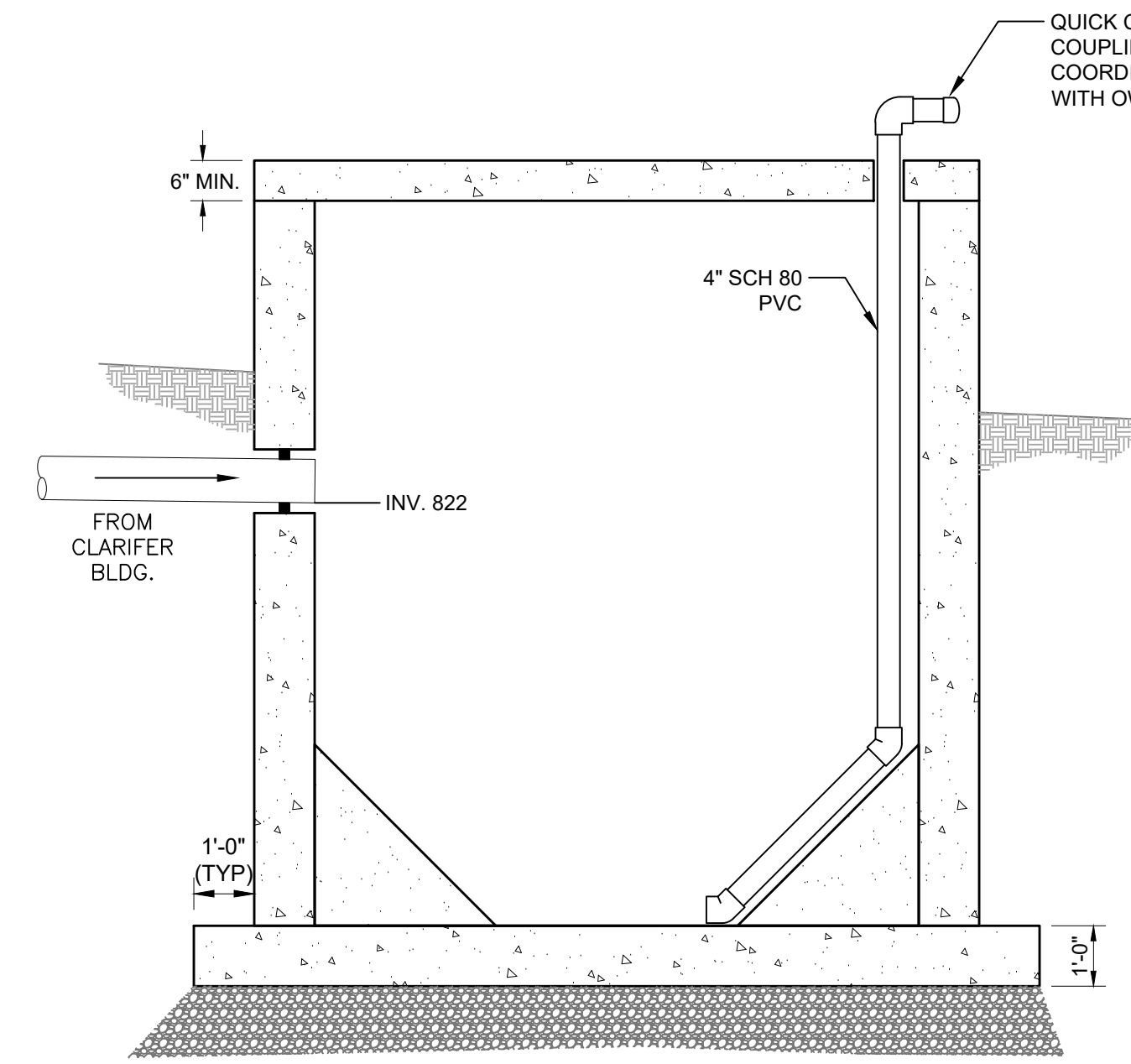
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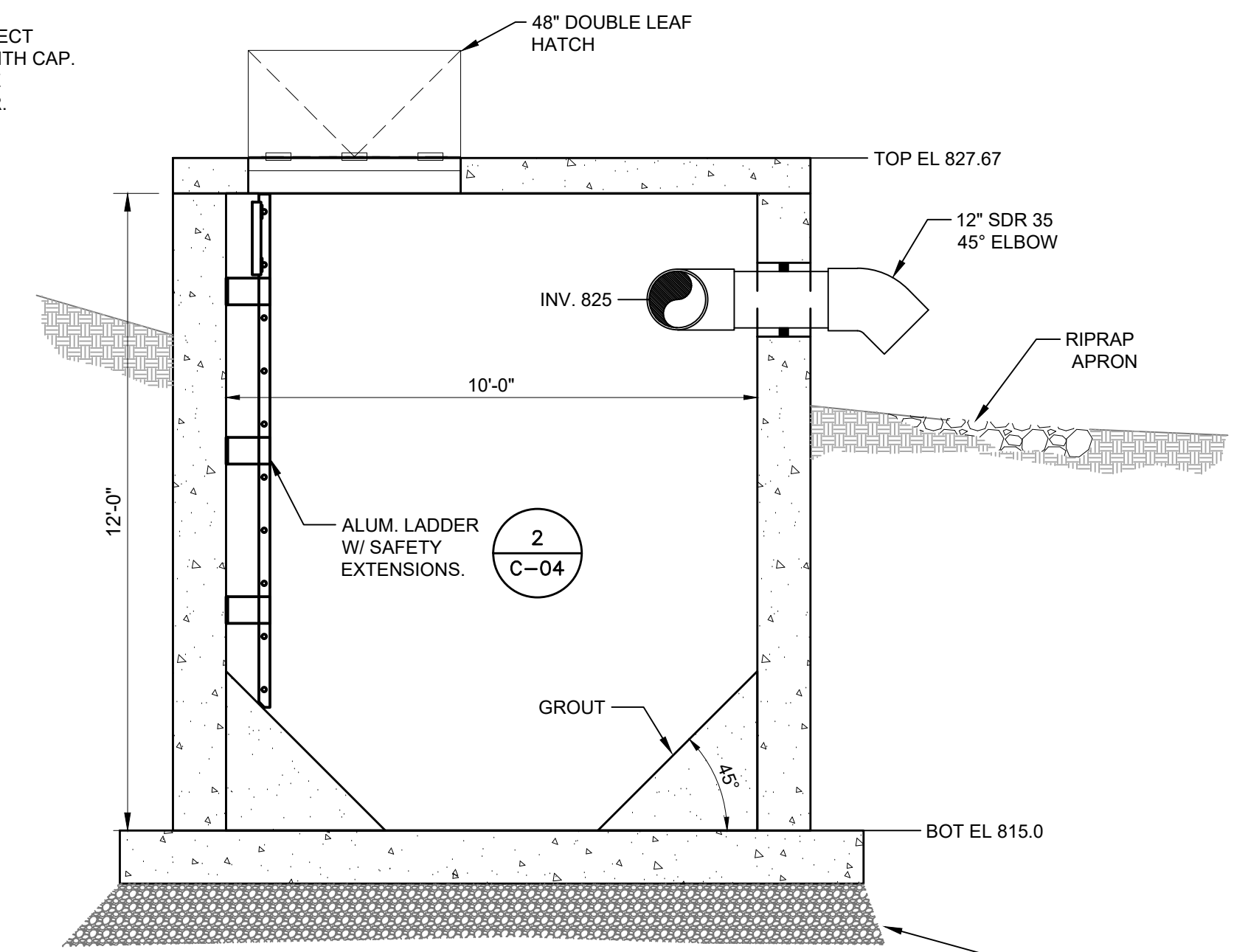
PLAN



TOP ELEV.

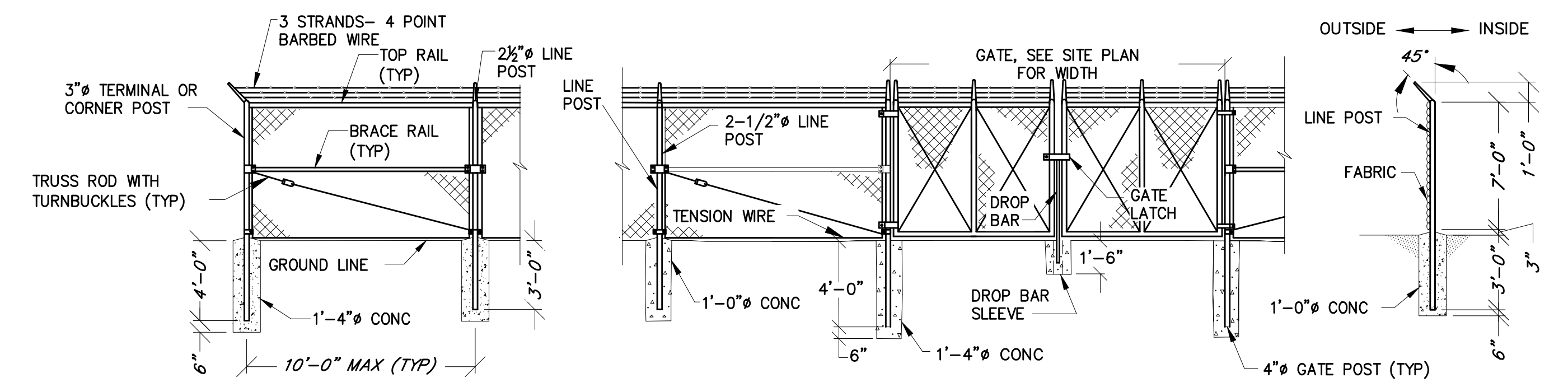


SECTION 1



SECTION 2

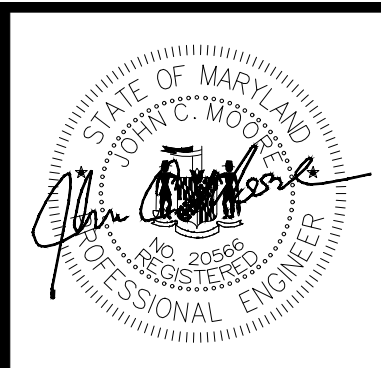
B SLUDGE HOLDING TANK
C-03/ SCALE: 3/8" = 1'-0"



NOTE:
1. THE BOTTOM OF THE FABRIC SHALL BE TO FINISHED GRADE, BUT NOT MORE THAN 2" ABOVE THE GROUND.

A CHAIN-LINK FENCE DETAIL
C-03/ SCALE: NTS

R:\21\1515 - \1\of\ok.com\1\Chief\Projects\2020\2019_Emmitsburg\CAD\21\1515\1515-C-05.dwg Jan 05, 2024 - 2:10pm Plot Scale: 1:1



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 20986 EXPIRATION DATE 09/06/2024

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
KMR	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
C-05
SHEET NO. 09 OF 42



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 20566 EXPIRATION DATE 09/09/2024

RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

NO.	DESCRIPTION	REVISIONS	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1000-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 6, FREDERICK COUNTY, MARYLAND

GRADING AND SEDIMENT CONTROL NOTES

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
KMR	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
ESC-01
 SHEET NO. 10 OF 42

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

DEFINITION
 THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

PURPOSE
 TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES
 WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

CRITERIA

- A. SOIL PREPARATION**
- TEMPORARY STABILIZATION
 - SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENEED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - PERMANENT STABILIZATION
 - A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - SOIL PH BETWEEN 6.0 AND 7.0.
 - SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENEED TO A DEPTH OF 3 TO 5 INCHES.
 - APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

- B. 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, LOW NUTRIENT LEVELS, LOW PH, MATERIALS 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 PUBLISHED BY USDA-NRCS.
 - TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT 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 SPECIFICATIONS: 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 AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
 - TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS 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.

- 6. 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 SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL 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 TRADEMARK 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 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 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 THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

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

DEFINITION

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

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

TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CONDITIONS WHERE PRACTICE APPLIES

CRITERIA

- A. SEEDING**
- SPECIFICATIONS
 - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.
 - APPLICATION
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.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 SEEDING AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - CULTIPACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER 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 NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

- B. MULCHING**
- MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
 - APPLICATION
 - APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
 - WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - ANCHORING
 - PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AK OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

SOIL EROSION AND SEDIMENT CONTROL NOTES:

- REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN.
- WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, MINOR FIELD ADJUSTMENTS CAN AND WILL BE MADE TO INSURE THE CONTROL OF ANY SEDIMENT. CHANGES IN SEDIMENT CONTROL PRACTICES REQUIRE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE CATOCTIN & FREDERICK SOIL CONSERVATION DISTRICTS.
- AT THE END OF EACH WORKING DAY, ALL SEDIMENT CONTROL PRACTICES WILL BE INSPECTED AND LEFT IN OPERATIONAL CONDITION.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN: A.) THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), AND B.) SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.
- ANY CHANGE TO THE GRADING PROPOSED ON THIS PLAN REQUIRES RE-SUBMISSION TO CATOCTIN & FREDERICK COUNTY SOIL CONSERVATION DISTRICTS FOR APPROVAL.
- DUST CONTROL WILL BE PROVIDED FOR ALL DISTURBED AREAS. REFER TO "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", PG H.22, FOR ACCEPTABLE METHODS AND SPECIFICATIONS FOR DUST CONTROL.
- ANY VARIATIONS FROM THE SEQUENCE OF OPERATIONS STATED ON THIS PLAN REQUIRES THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR AND THE CATOCTIN & FREDERICK SOIL CONSERVATION DISTRICTS PRIOR TO THE INITIATION OF THE CHANGE.
- EXCESS CUT OR BORROW MATERIAL SHALL GO TO, OR COME FROM, RESPECTIVELY, A SITE WITH AN OPEN GRADING PERMIT AND APPROVED SEDIMENT AND CONTROL PLAN.
- THE FOLLOWING ITEM MAY BE USED AS APPLICABLE: REFER TO "MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION" BY THE WATER MANAGEMENT ADMINISTRATION OF THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, REVISED NOVEMBER 2000, FOR STANDARD DETAILS AND DETAILED SPECIFICATIONS OF EACH PRACTICE SPECIFIED HEREIN FOR WATERWAY CONSTRUCTION.
- PUMPING SEDIMENT-LOADED WATER INTO WATERS OF THE STATE IS STRICTLY PROHIBITED. ANY PORTABLE DEWATERING DEVICE MUST BE LOCATED WITHIN THE LIMIT OF DISTURBANCE.
- NOTHING HEREIN RELIEVES THE CONTRACTOR FROM COMPLYING WITH ANY AND ALL OTHER FEDERAL, STATE OR MUNICIPAL REGULATIONS.
- NO PUMPING FROM FOUNDATION EXCAVATIONS WILL BE ALLOWED DIRECTLY INTO THE TOWN SYSTEM UNLESS IT IS FILTERED BY WAY OF SEDIMENT TRAPS OR DEWATERING DEVICE.
- ALL EXCAVATION MATERIAL SHALL BE PLACED ON THE HIGH SIDE WHENEVER POSSIBLE AND CONFINED TO AN AREA WHERE IT WILL NOT OBSTRUCT THE NORMAL FLOW OF DRAINAGE COURSES.
- CONTINUOUS INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL DEVICES WILL BE REQUIRED.
- THE CONTRACTOR SHALL NOT DEVIATE FROM THE APPROVED SEDIMENT AND EROSION CONTROL PLANS WITHOUT PRIOR APPROVAL OF THE CATOCTIN & FREDERICK SOIL CONSERVATION DISTRICTS. VARIATIONS TO THE PLAN MUST BE SUBMITTED IN WRITING, ACCOMPANIED BY A COPY OF THE ORIGINALLY APPROVED PLAN MODIFIED TO SHOW THE REQUESTED CHANGES, FOR THIS APPROVAL. SUBSTANTIAL CHANGES WILL NECESSITATE AMENDING THE BUILDING AND/OR GRADING PERMIT IF APPLICABLE.

UTILITY NOTES:

- CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE OF) THE TRENCH.
- PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
- ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.

SECTION I - CERTIFICATIONS:

A. OWNER'S/DEVELOPER'S CERTIFICATION:

"I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A MARYLAND DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I/WE ALSO CERTIFY THAT THE SITE WILL BE INSPECTED AT THE END OF EACH WORKING DAY, AND THAT ANY NEEDED MAINTENANCE WILL BE COMPLETED SO AS TO INSURE THAT ALL SEDIMENT CONTROL PRACTICES ARE LEFT IN OPERATIONAL CONDITION. I/WE AUTHORIZE THE RIGHT OF ENTRY FOR PERIODIC ON-SITE EVALUATION BY THE CATOCTIN & FREDERICK SOIL CONSERVATION DISTRICTS BOARD OF SUPERVISORS OR THEIR AUTHORIZED AGENTS."

SIGNATURE OF OWNER/DEVELOPER _____ DATE _____
 PRINT NAME _____ TITLE _____

B. CONSULTANT'S CERTIFICATION:

"I CERTIFY THAT THIS PLAN OF EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE CATOCTIN & FREDERICK SOIL CONSERVATION DISTRICTS AND THE CURRENT STATE OF MARYLAND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL. I HAVE REVIEWED THIS EROSION AND SEDIMENT CONTROL PLAN WITH THE OWNER/DEVELOPER."

SIGNATURE _____ DATE _____
 JOHN C. MOORE, PE 20566
 PRINT NAME _____ MD LICENSE NUMBER _____

Frederick Soil Conservation District
 Erosion and Sediment Control Plan Approval

By: *[Signature]*
 District Manager or Designee
 Date: 12/13/2023
 Plan is valid for 2 years from date of approval

SCD approval for sediment and erosion control is in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control and is contingent upon issuance of all applicable regulatory permits.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE

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

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA

A. SEED MIXTURES

1. GENERAL USE

- a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
- b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
- c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
- d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 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.

2. TURFGRASS MIXTURES

- a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
- b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - i. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - iii. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - iv. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:

SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND"

CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE

c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)

- d. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1/2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
- e. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY

HARDINESS ZONE: 7A SEEDING MIXTURE TABLE B.3					FERTILIZER RATE (10-20-20)			LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	* SEEDING DATES	SEEDING DEPTHS	N	P2O5	K2O	
9	TALL FESCUE (LOLIUM ARUNDINACEUM)	60	2/15-4/30 8/15-10/31	1/2-3/4 IN	45 LB/AC (1.0 LB/1,000 SF)	90 LB/AC (2 LB/1,000 SF)	90 LB/AC (2 LB/1,000 SF)	2 TONS/AC (90 LB/1,000 SF)
	KENTUCKY BLUEGRASS (POA PRATENSIS)	40						
	PERENNIAL RYEGRASS (LOLIUM PERENNE)	20						

* FOR SEEDING DATES 5/1-8/14, PLEASE ADD 6.0 LBS PER ACRE OF FOXTAIL MILLET TO SEED MIXTURE NO. 9.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE

TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES

EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA

- 1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
- 2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
- 3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE: 7A SEEDING MIXTURE TABLE B.1					FERTILIZER RATE (10-20-20)	LIME RATE
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	436 LB/AC (10 LB/1,000 SF)	2 TONS/AC (90 LB/1,000 SF)
	BARLEY (HORDEUM VULGARE)	96	FEB 15 TO APR 30; AUG 15 TO NOV 30	1.0"		
	CEREAL RYE (SECALE CEREALE)	112	FEB 15 TO APR 30; AUG 15 TO DEC 15	1.0"		
	FOXTAIL MILLET (SETARIA ITALICA)	30	MAY 1 TO AUG 14	0.5"		

NOTES:

- 1. SEEDING RATES FOR THE WARM-SEASON GRASSES ARE IN POUNDS OF PURE LIVE SEED (PLS). ACTUAL PLANTING RATES SHALL BE ADJUSTED TO REFLECT PERCENT SEED GERMINATION AND PURITY, AS TESTED. ADJUSTMENTS ARE USUALLY NOT NEEDED FOR THE COOL-SEASON GRASSES.

SEEDING RATES LISTED ABOVE ARE FOR TEMPORARY SEEDINGS, WHEN PLANTED ALONE. WHEN PLANTED AS A NURSE CROP WITH PERMANENT SEED MIXES, USE 1/3 OF THE SEEDING RATE LISTED ABOVE FOR BARLEY, OATS, AND WHEAT. FOR SMALLER-SEEDED GRASSES (ANNUAL RYEGRASS, PEARL MILLET, FOXTAIL MILLET), DO NOT EXCEED MORE THAN 5% (BY WEIGHT) OF THE OVERALL PERMANENT SEEDING MIX. CEREAL RYE GENERALLY SHOULD NOT BE USED AS A NURSE CROP, UNLESS PLANTING WILL OCCUR IN VERY LATE FALL BEYOND THE SEEDING DATES FOR OTHER TEMPORARY SEEDINGS. CEREAL RYE HAS ALLELOPATHIC PROPERTIES THAT INHIBIT THE GERMINATION AND GROWTH OF OTHER PLANTS. IF IT MUST BE USED AS A NURSE CROP, SEED AT 1/3 OF THE RATE LISTED ABOVE.

OATS ARE THE RECOMMENDED NURSE CROP FOR WARM-SEASON GRASSES.

- 2. FOR SANDY SOILS, PLANT SEEDS AT TWICE THE DEPTH LISTED ABOVE.
- 3. THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE AND MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY NEAR THE BOUNDARIES OF THE ZONE.

B: SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

1. GENERAL SPECIFICATIONS

- a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- b. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
- c. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10 PERCENT OF THE SECTION.
- d. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- e. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

- a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
- b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
- c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- d. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

- a. 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 SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 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.

SEDIMENT CONTROL/STORM WATER MANAGEMENT REQUIRED INSPECTIONS

YOU MUST NOTIFY THE SEDIMENT CONTROL AND STORMWATER MANAGEMENT OFFICE AT 301-694-1679 BEFORE 9:00 AM - 24 HOURS PRIOR TO THE REQUIRED INSPECTION. FAILURE TO NOTIFY THIS OFFICE WILL RESULT IN A STOP WORK ORDER OR OTHER PENALTIES AS OUTLINED IN FREDERICK COUNTY CODES.

*****NOTICE*****

THIS LIST IS FOR SEQUENCE OF CONSTRUCTION ONLY. THIS OFFICE ASSUMES NO RESPONSIBILITY OR LIABILITY FOR IMPROPER INSTALLATION OF ANY ITEMS ON THIS CHECKLIST, THIS OFFICE RECOMMENDS THAT A PROFESSION

TYPE OF INSPECTION	MISC. COMMENTS/INITIALS
1. PRECONSTRUCTION MEETING	
2. COMPLETION OF SEDIMENT CONTROL MEASURE (IF USING BASIN SEE #6 BELOW)	
3. PRIOR TO MODIFICATION OR REMOVAL OF SED CONTROL.	
4. INFILTRATION SYSTEMS A. SITE READINESS PER SEQUENCE OF CONSTRUCTION B. INFILTRATION AREA. PROTECTED FROM SEDIMENTATION C. DIMENSIONS D. FILTERING MATERIAL E. FILL MATERIAL F. SIZE, PLACEMENT, TYPE OF PIPING G. OBSERVATION WELL H. COVER/STABILIZATION	
5. OPEN CHANNEL FLOW ATTENUATION A. SITE READINESS PER SEQUENCE OF CONSTRUCTION B. CROSS SECTION CONFORMANCE C. MATERIAL (TYPE/SIZE) D. STABILIZATION	
6. RETENTION/DETENTION STRUCTURES (BASIN/PONDS) A. SUBGRADE PREPARATION 1. CORE TRENCH 2. SUITABLE MATERIAL/COMPACTION B. EMBANKMENT CONSTRUCTION 1. SUITABLE MATERIAL/COMPACTION 2. SLOPE GRADE 3. DIMENSIONS C. BARREL AND RISER ASSEMBLY 1. CORRECT MATERIAL ONSITE 2. SIZING 3. ANTI-SEEP COLLARS 4. ANTI-FLOTATION DEVICE 5. CONCRETE GRADLE (RCP ONLY) 6. INSTALLATION/BACKFILL/COMPACTION D. CONCRETE STRUCTURES 1. FOOTER DIMENSIONS 2. REINFORCING MATERIAL (SIZE, TYPE, PLACEMENT) 3. WEIR POUR/MATERIAL/SLUMP TEST 4. FORM STRIP AND FINISHING E. IMPOUNDING AREA 1. LOW FLOW CHANNELS/STABILIZATION 2. DEWATERING DEVICE 3. EMERGENCY SPILLWAY 4. EXTENDED DETENTION DEVICE F. OUTFALL AREA (LEVEL SPREADER RIPRAP CHANNEL ETC...) G. VEGETATIVE STABILIZATION H. MISCELLANEOUS	

Frederick Soil Conservation District
Erosion and Sediment Control Plan Approval

By: [Signature]
District Manager or Designee

Date: 12/13/2023

Plan is valid for 2 years from date of approval

SCD approval for sediment and erosion control is in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control and is contingent upon issuance of all applicable regulatory permits.



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. EXPIRATION DATE: 09/09/2024. LICENSE NO. 20968

700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-00-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

GRADING AND SEDIMENT CONTROL NOTES

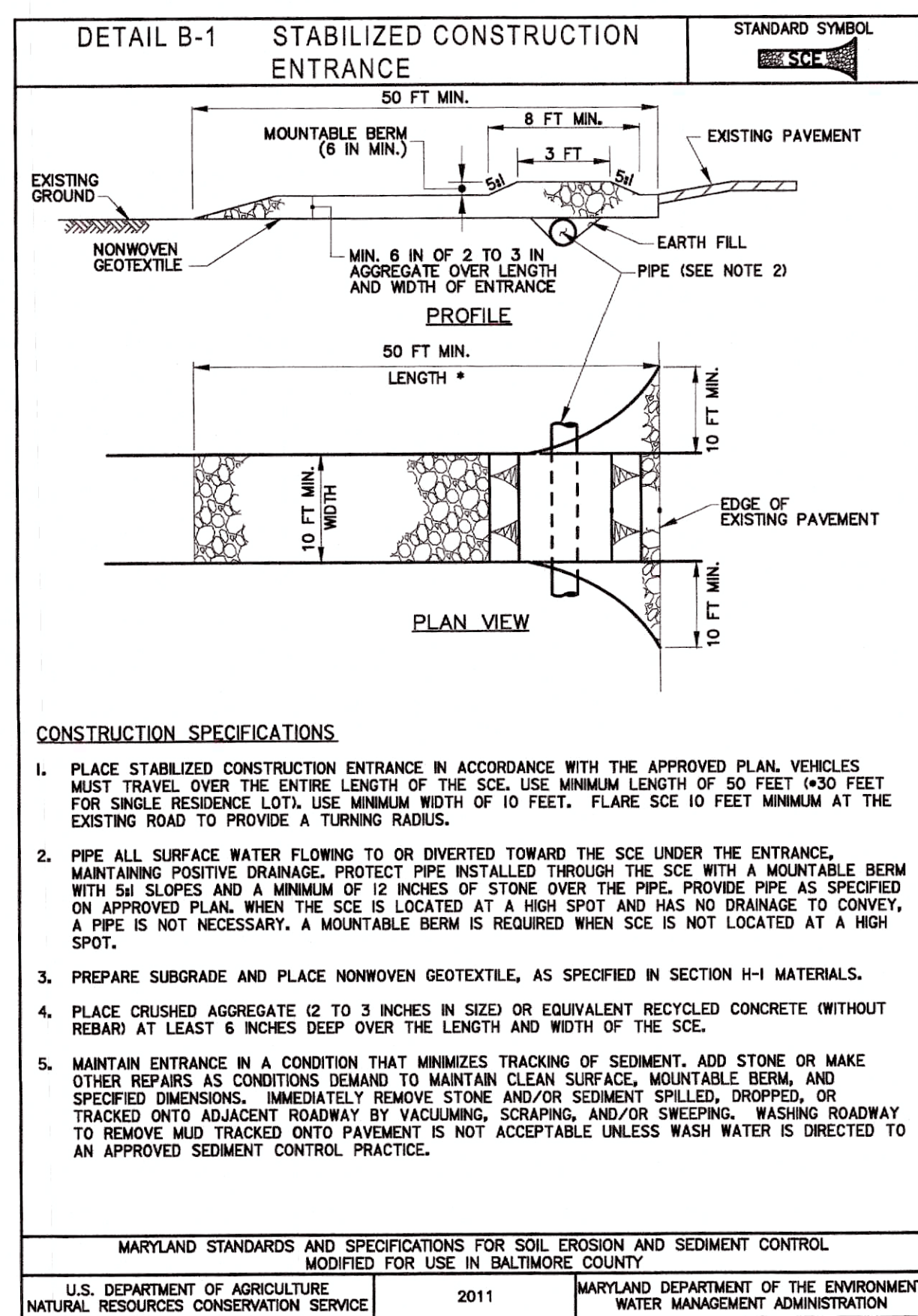
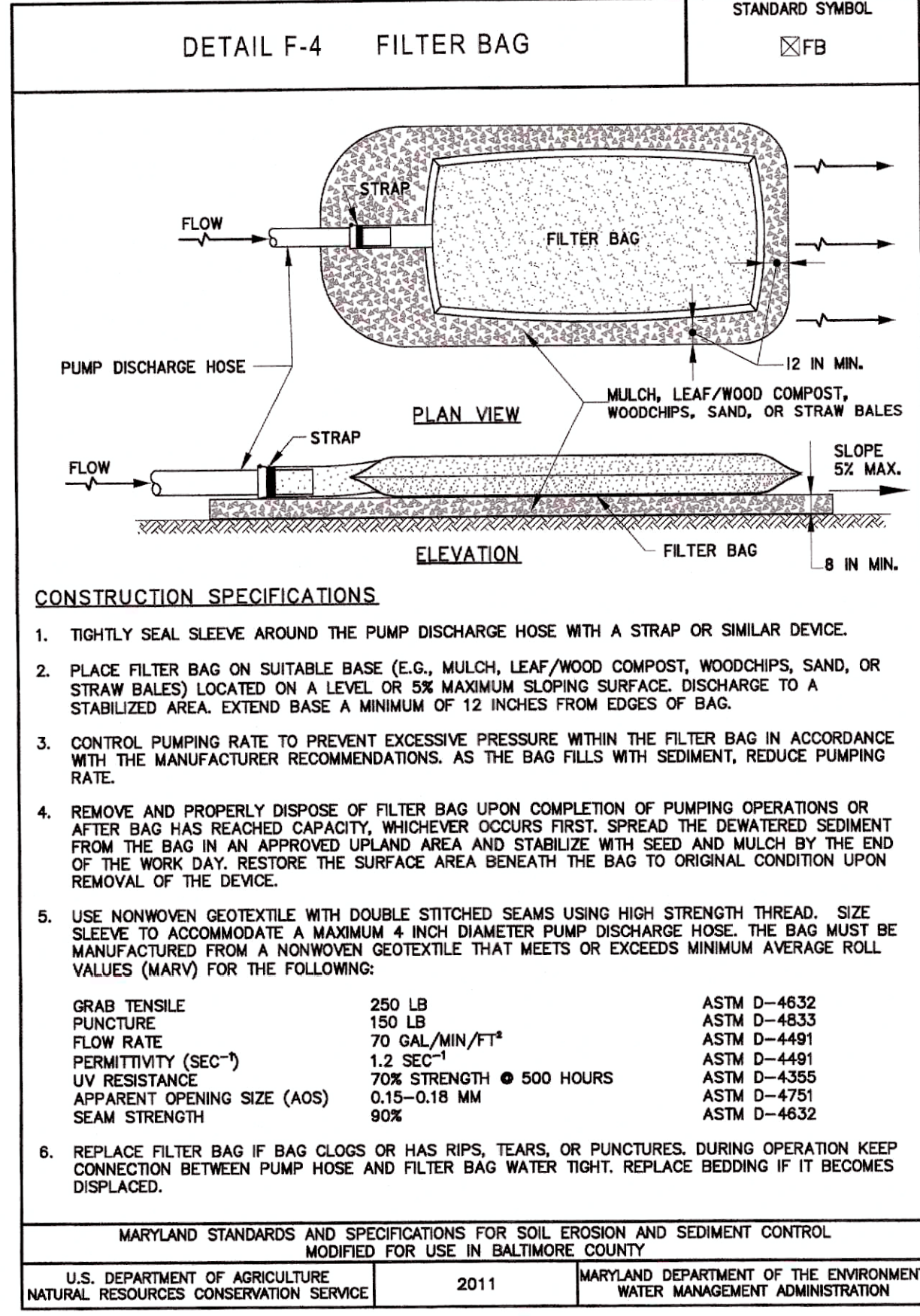
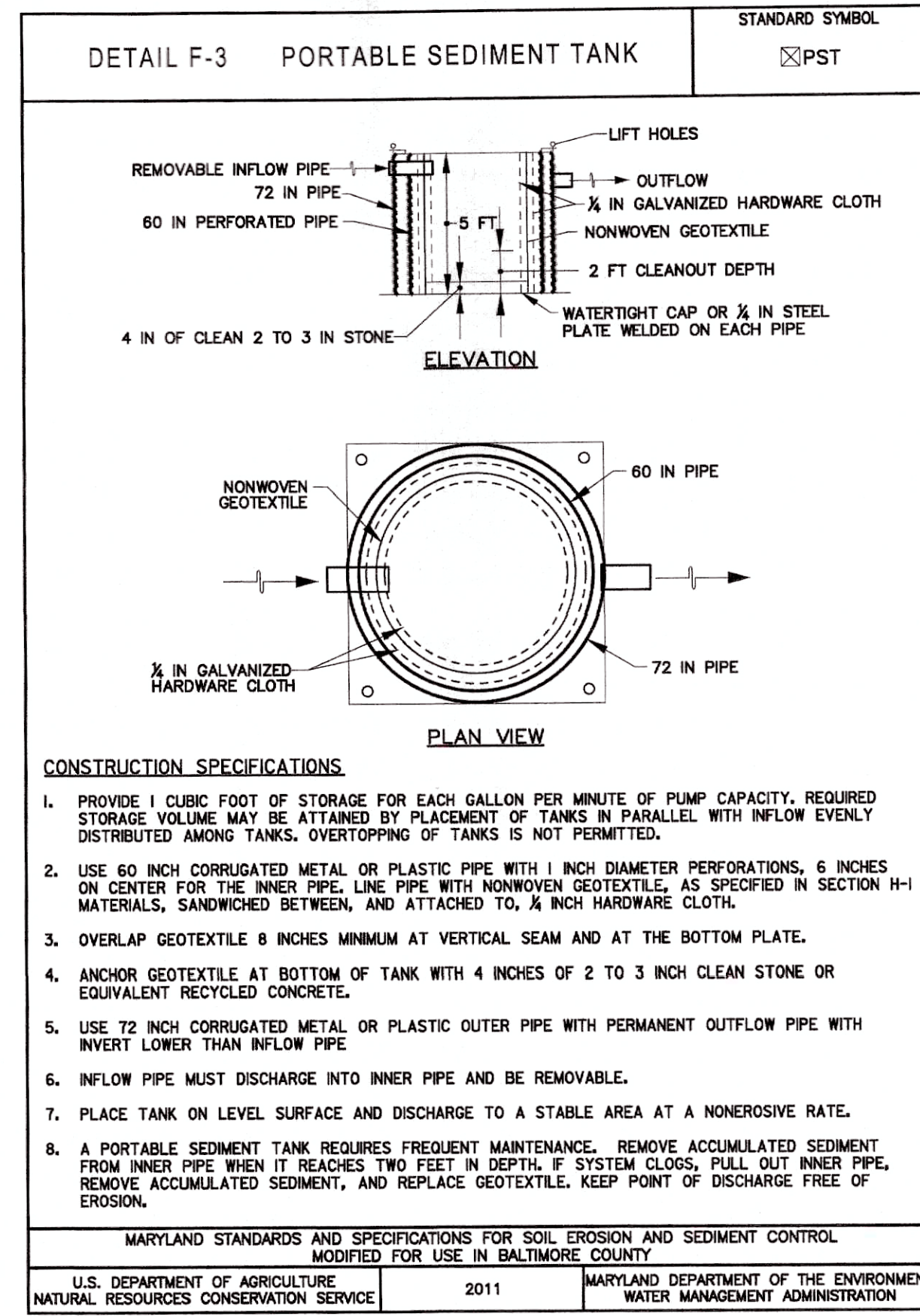
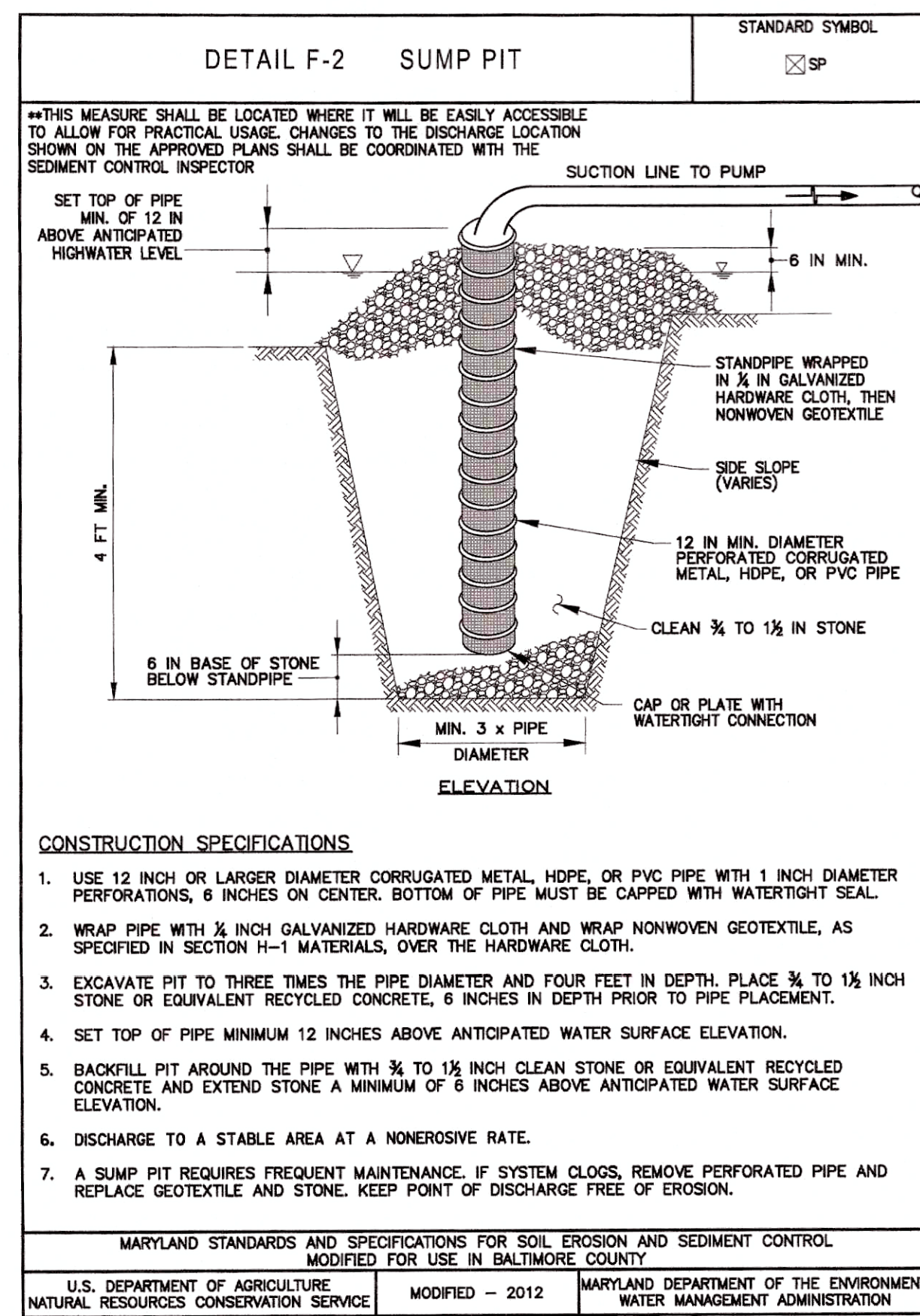
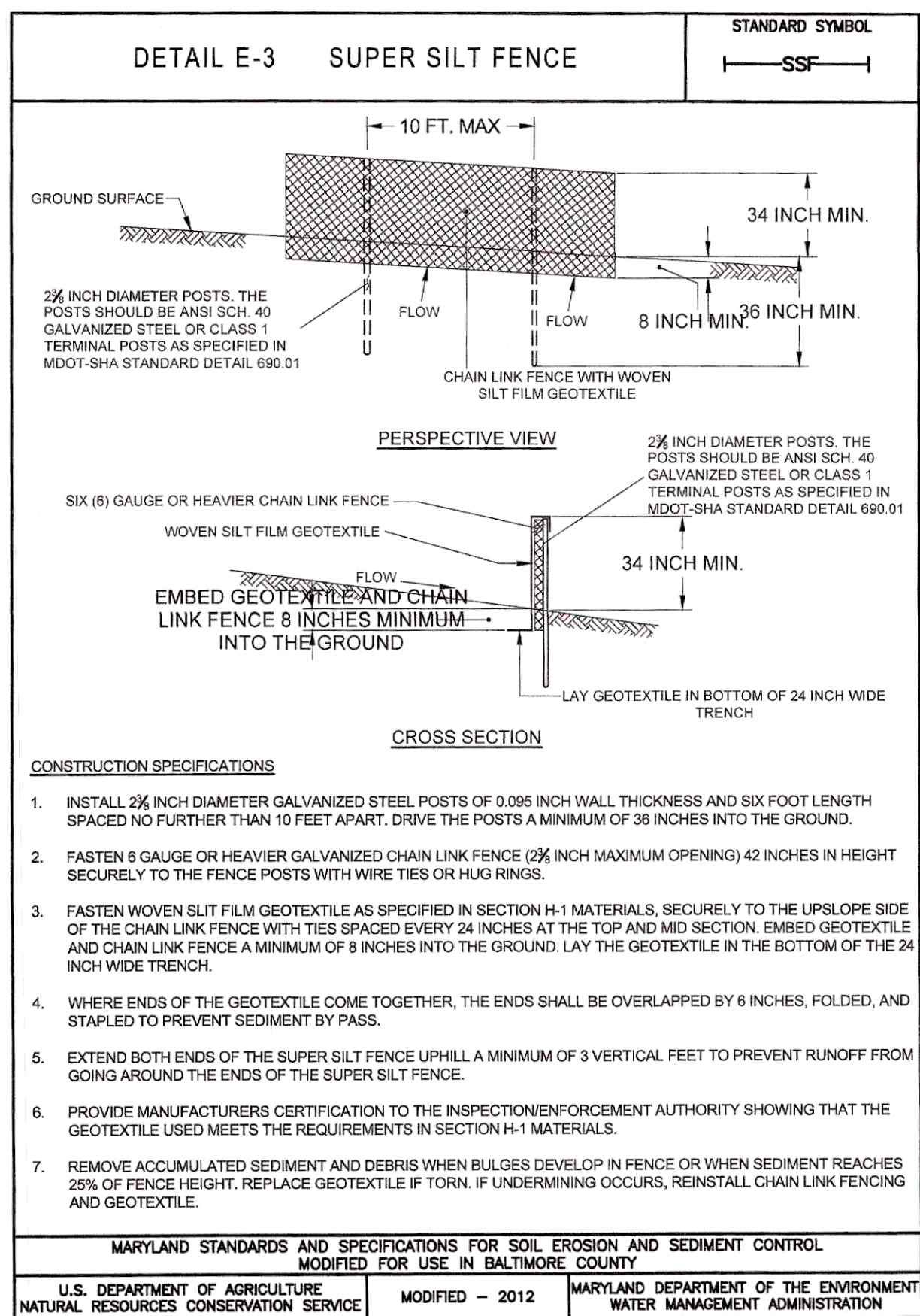
ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
KMR	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER

ESC-02

SHEET NO. 11 OF 42

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H-1 STANDARDS AND SPECIFICATIONS FOR MATERIALS

TABLE H.1: GEOTEXTILE FABRICS

PROPERTY	TEST METHOD	MINIMUM AVERAGE ROLL VALUE ¹					
		WOVEN SLIT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MD	CD	MD	CD	MD	CD
GRAB TENSILE STRENGTH	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb
GRAB TENSILE ELONGATION	ASTM D-4632	15%	10%	15%	15%	50%	50%
TRAPEZOIDAL TEAR STRENGTH	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
PUNCTURE STRENGTH	ASTM D-6241	450 lb		900 lb		450 lb	
APPARENT OPENING SIZE ²	ASTM D-4751	U.S. SIEVE 30 (0.59 mm)		U.S. SIEVE 70 (0.21 mm)		U.S. SIEVE 70 (0.21 mm)	
PERMITTIVITY	ASTM D-4491	0.05 SEC ⁻¹		0.28 SEC ⁻¹		1.1 SEC ⁻¹	
ULTRAVIOLET RESISTANCE RETAINED AT 500 HOURS	ASTM D-4355	70% STRENGTH		70% STRENGTH		70% STRENGTH	

¹ ALL NUMERIC VALUES EXCEPT APPARENT OPENING SIZE (AOS) REPRESENT MINIMUM AVERAGE ROLL VALUES (MARV). MARV IS CALCULATED AS THE TYPICAL MINUS TWO STANDARD DEVIATIONS. MD IS MACHINE DIRECTION; CD IS CROSS DIRECTION.

² VALUES FOR AOS REPRESENT THE AVERAGE MAXIMUM OPENING.

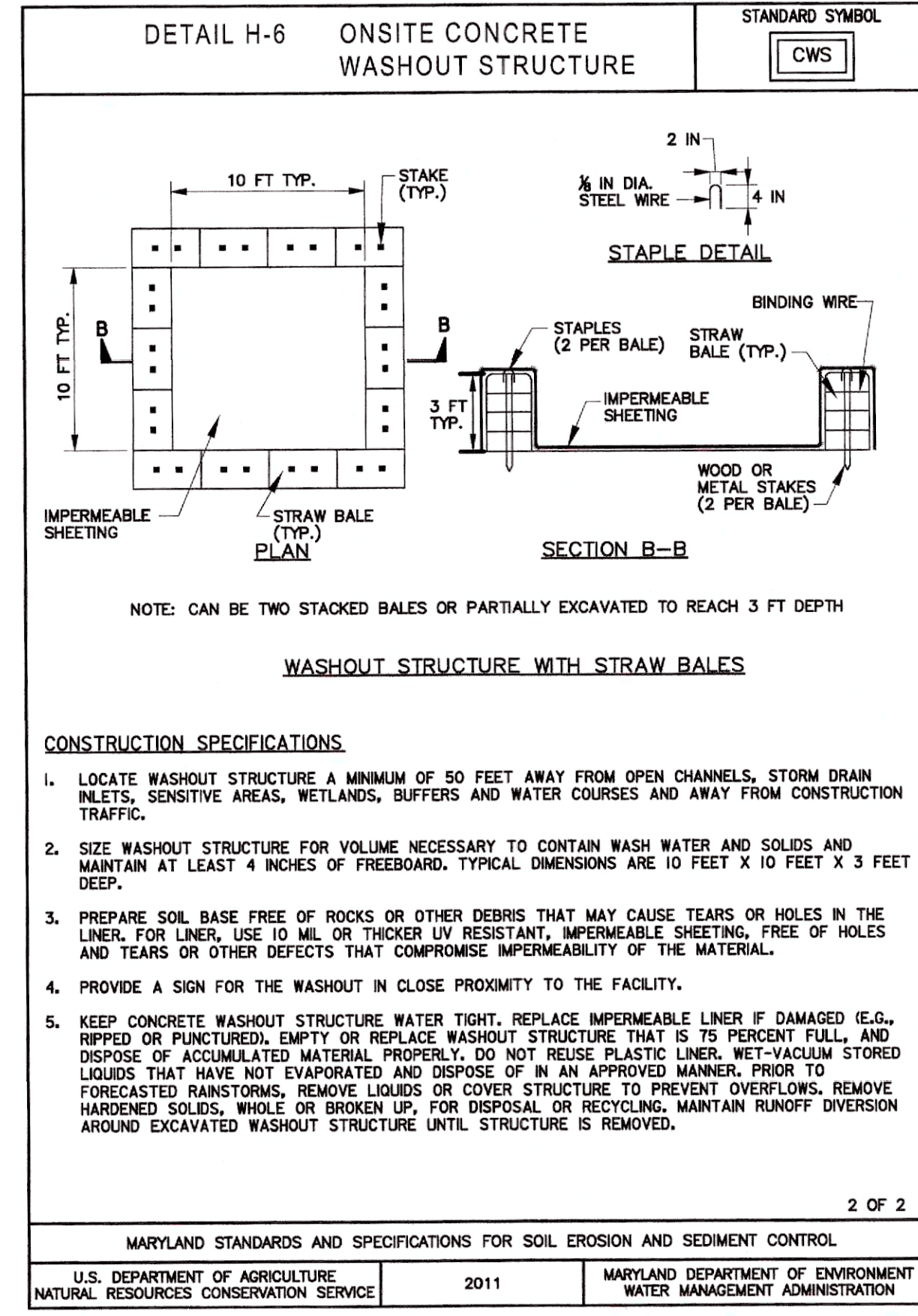
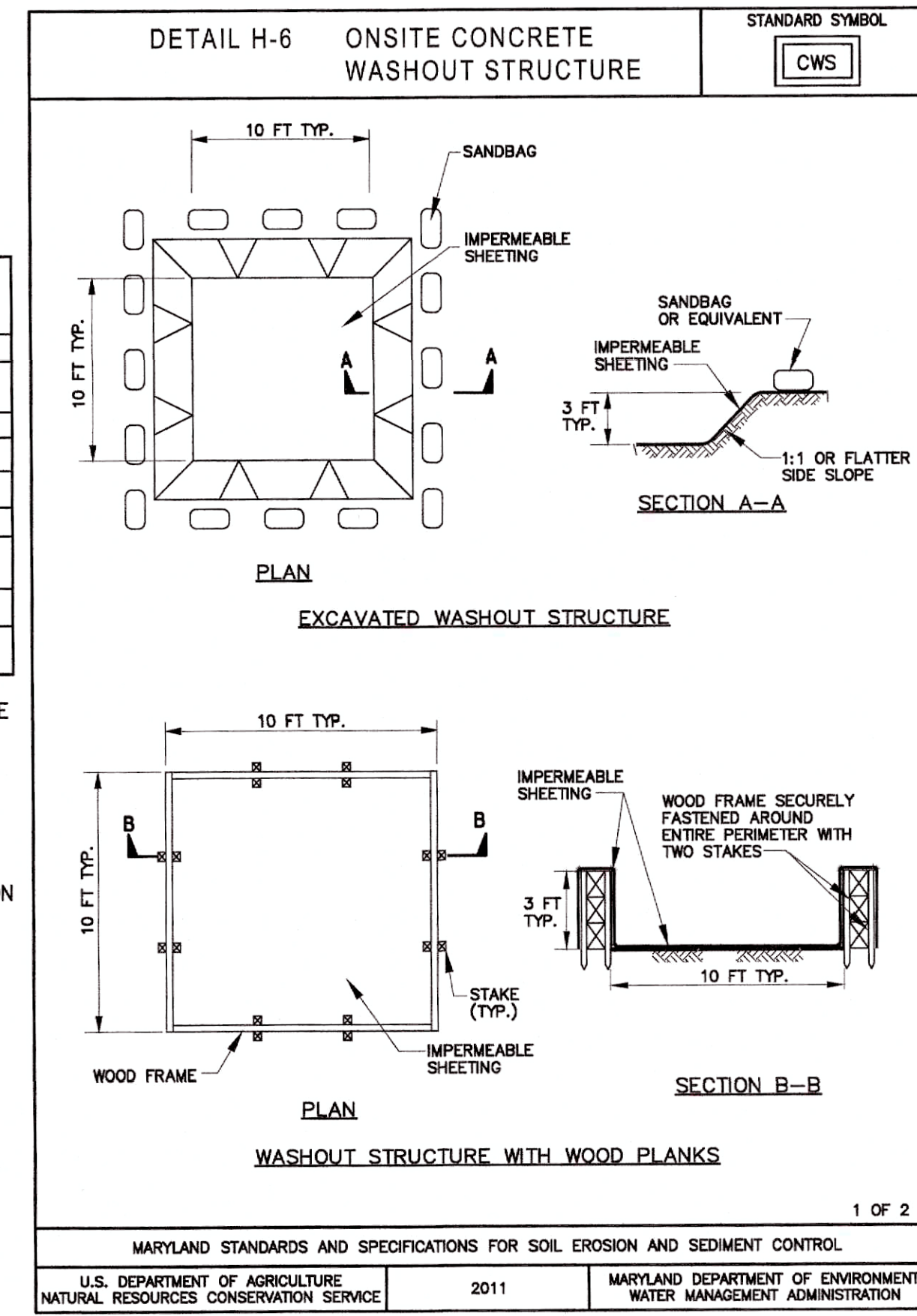
GEOTEXTILES MUST BE EVALUATED BY THE NATIONAL TRANSPORTATION PRODUCT EVALUATION PROGRAM (NTPPEP) AND CONFORM TO THE VALUES IN TABLE H.1.

THE GEOTEXTILE MUST BE INERT TO COMMONLY ENCOUNTERED CHEMICALS AND HYDROCARBONS AND MUST BE ROT AND MILDEW RESISTANT. THE GEOTEXTILE MUST BE MANUFACTURED FROM FIBERS CONSISTING OF LONG CHAIN SYNTHETIC POLYMERS AND COMPOSED OF A MINIMUM OF 95 PERCENT BY WEIGHT OF POLYOLEFINS OR POLYESTERS, AND FORMED INTO A STABLE NETWORK SO THE FILAMENTS OR YARNS RETAIN THEIR DIMENSIONAL STABILITY RELATIVE TO EACH OTHER, INCLUDING SELVAGES.

WHEN MORE THAN ONE SECTION OF GEOTEXTILE IS NECESSARY, OVERLAP THE SECTIONS BY AT LEAST ONE FOOT. THE GEOTEXTILE MUST BE PULLED TAUT OVER THE APPLIED SURFACE. EQUIPMENT MUST NOT RUN OVER EXPOSED FABRIC. WHEN PLACING RIPRAP ON GEOTEXTILE, DO NOT EXCEED A ONE FOOT DROP HEIGHT.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
MODIFIED FOR USE IN BALTIMORE COUNTY

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR CHECKED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE 09/06/2024

LICENSE NO. 20596

700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

PK&K

NO.	DESCRIPTION	DATE	BY

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

GRADING AND SEDIMENT CONTROL DETAILS

Frederick Soil Conservation District
Erosion and Sediment Control Plan Approval

By: *[Signature]*
District Manager or Designee

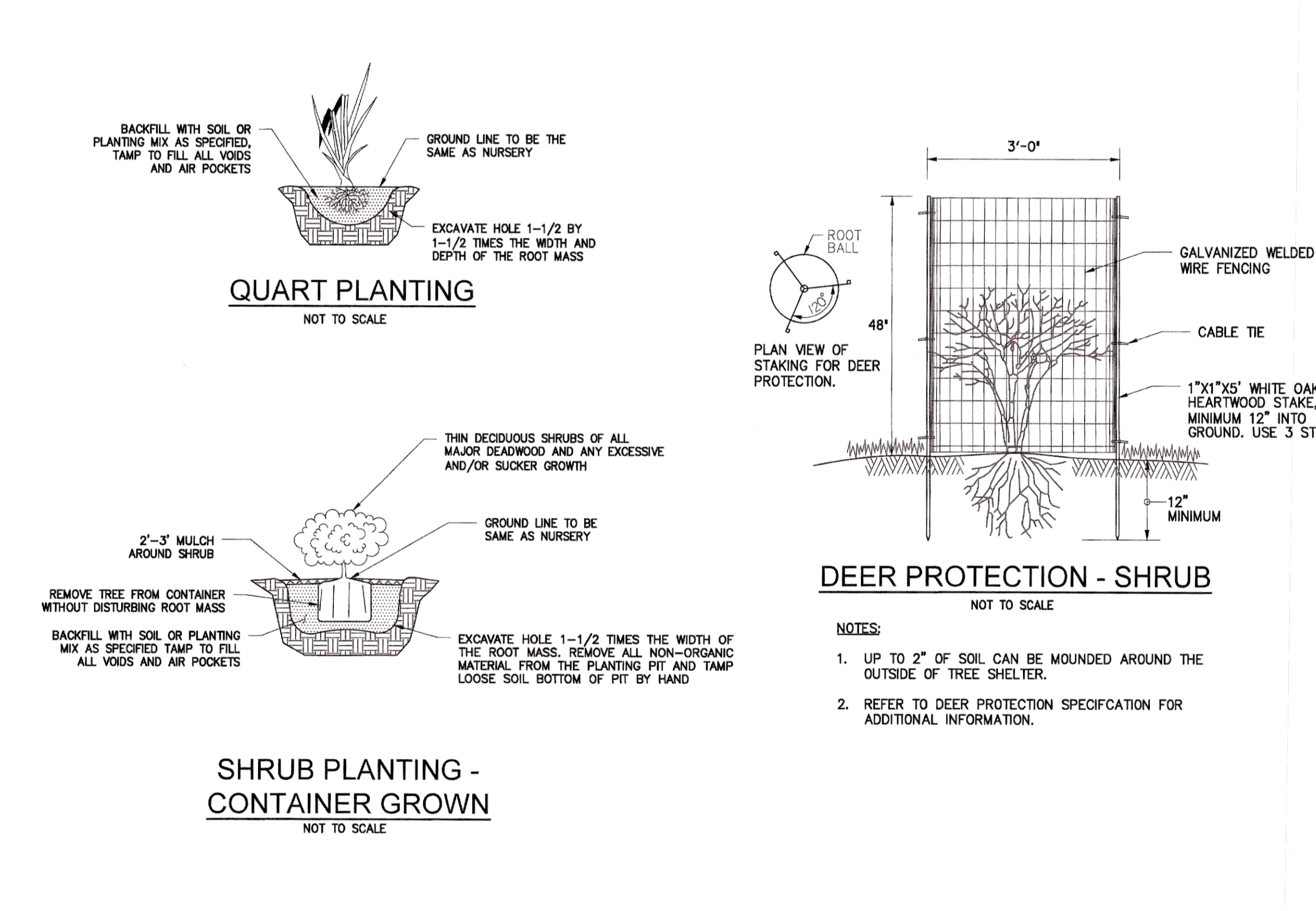
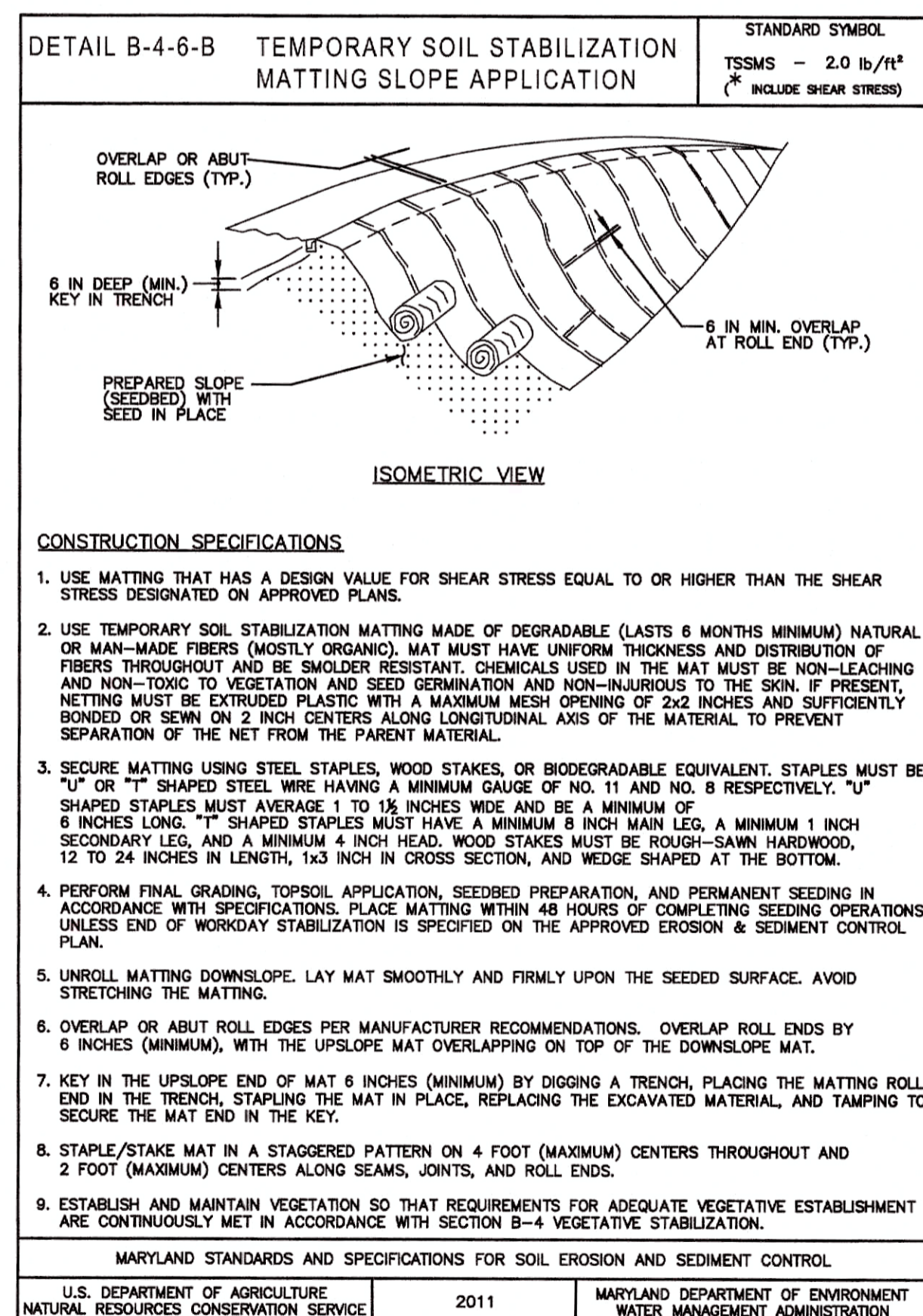
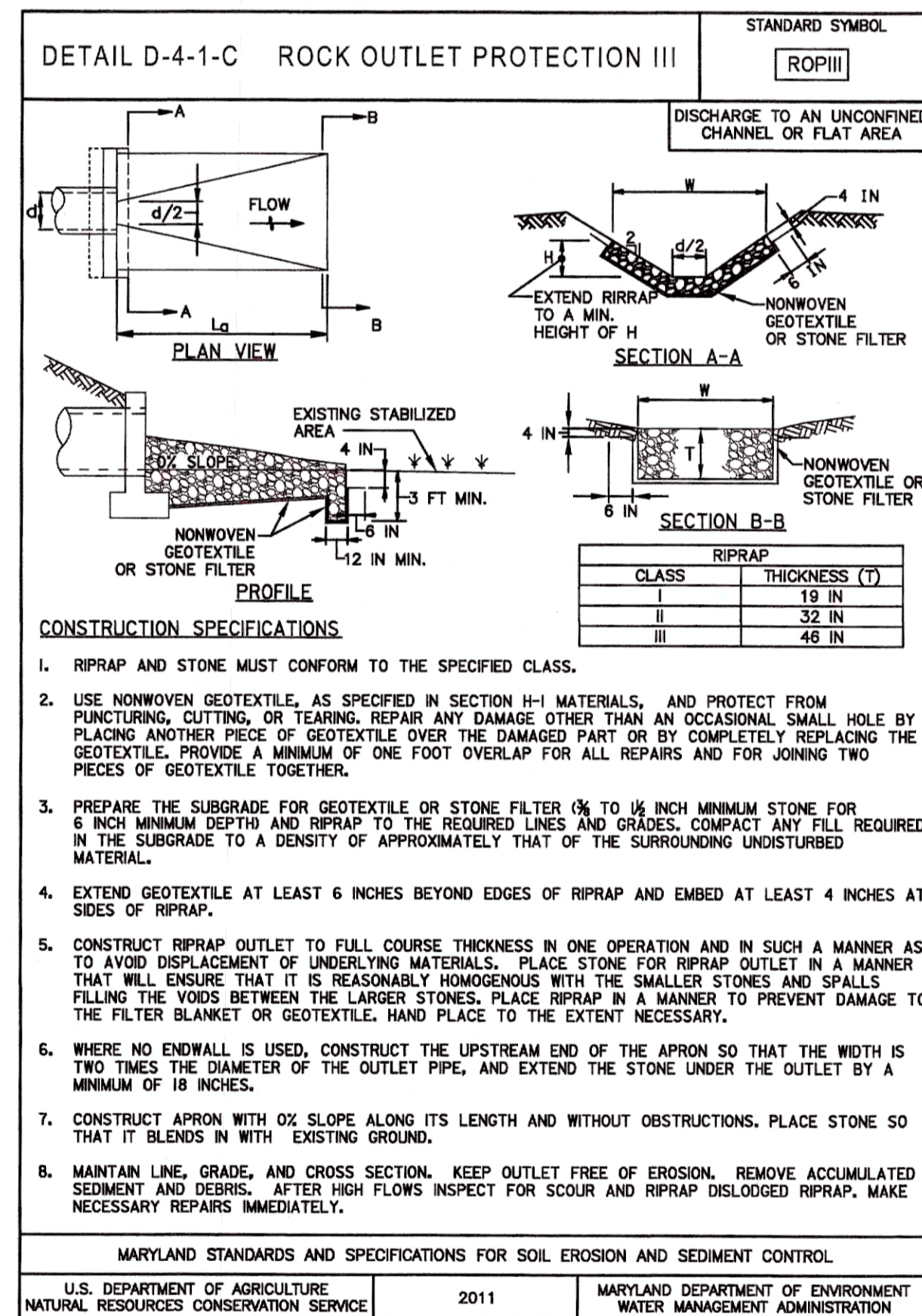
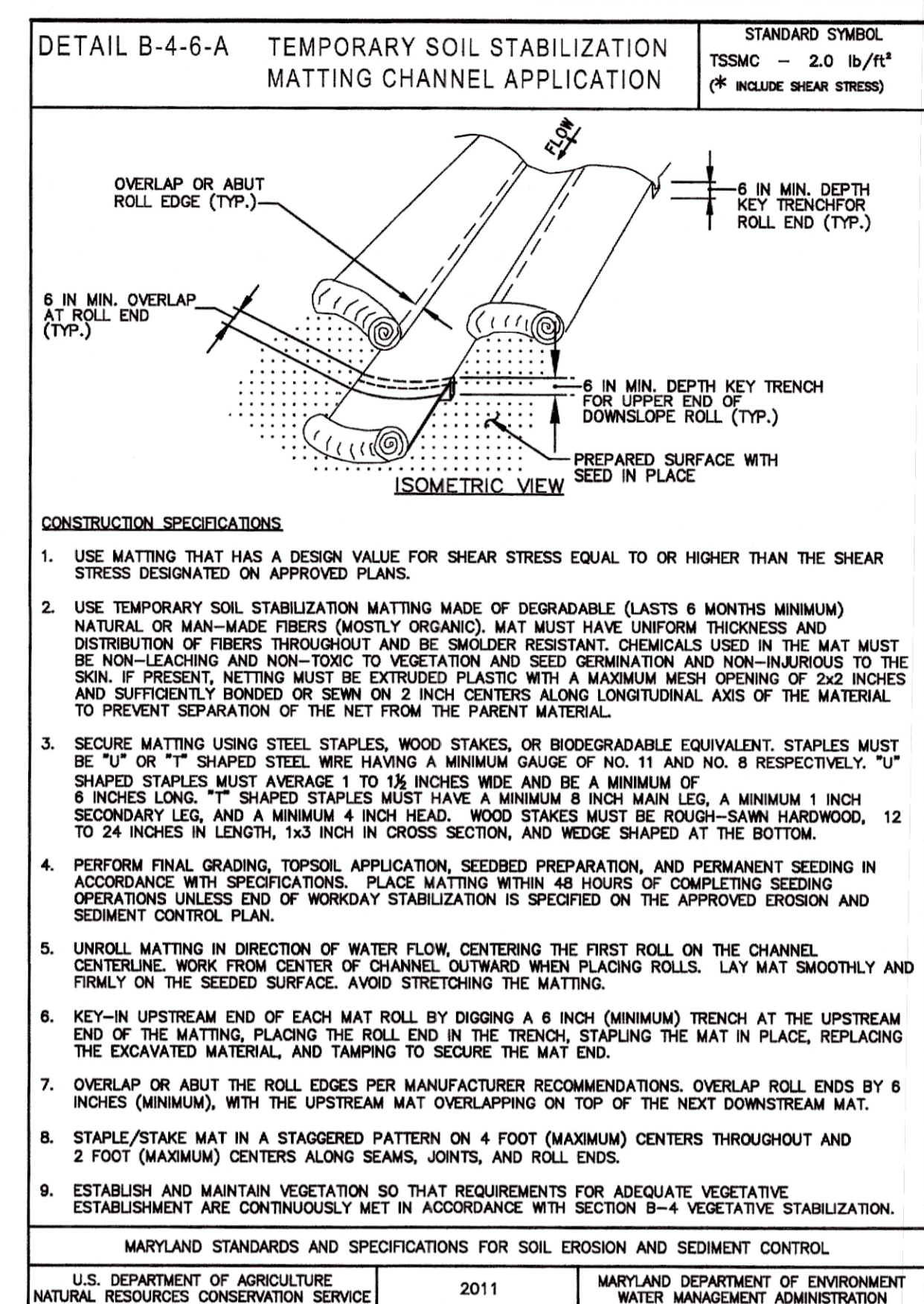
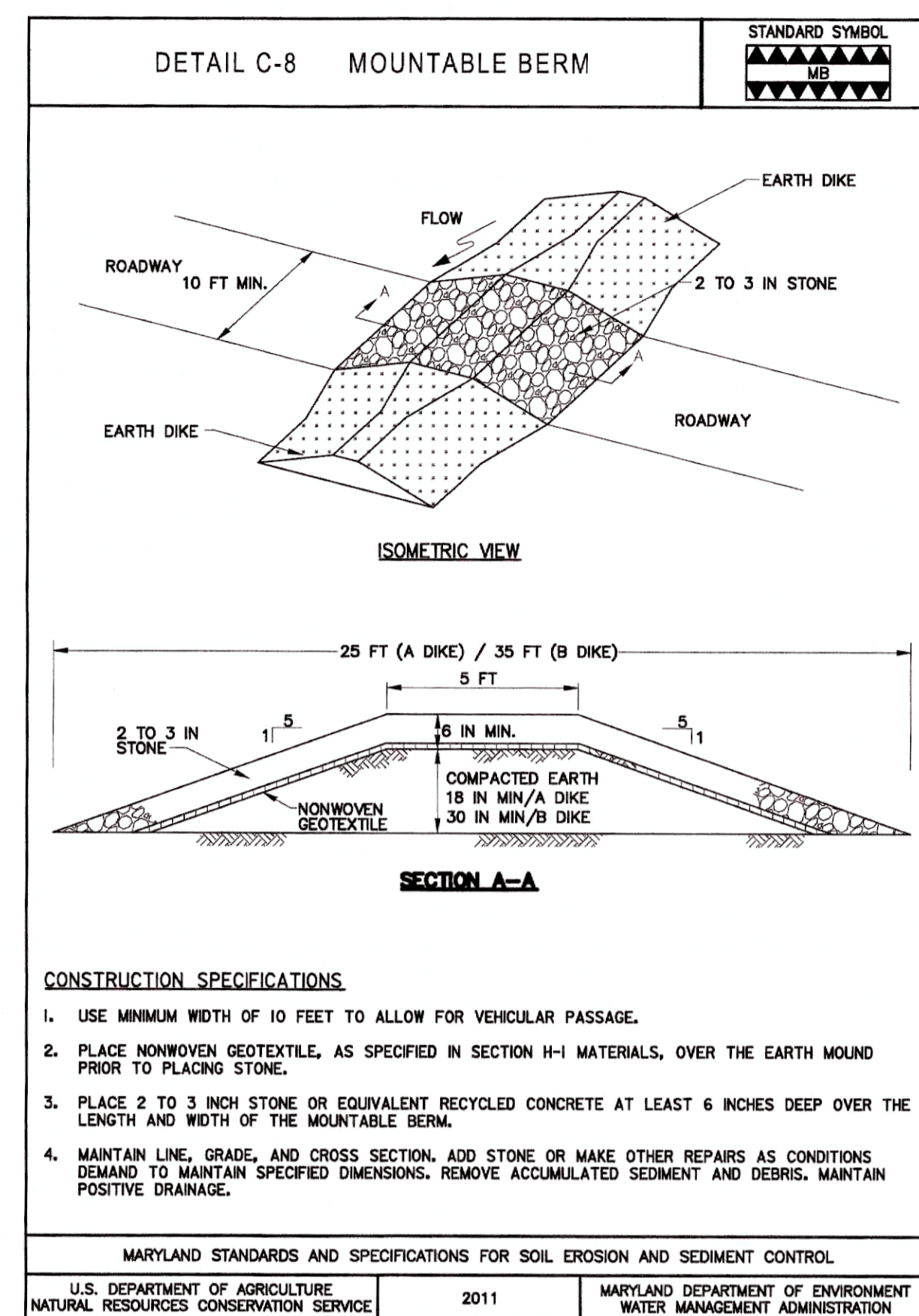
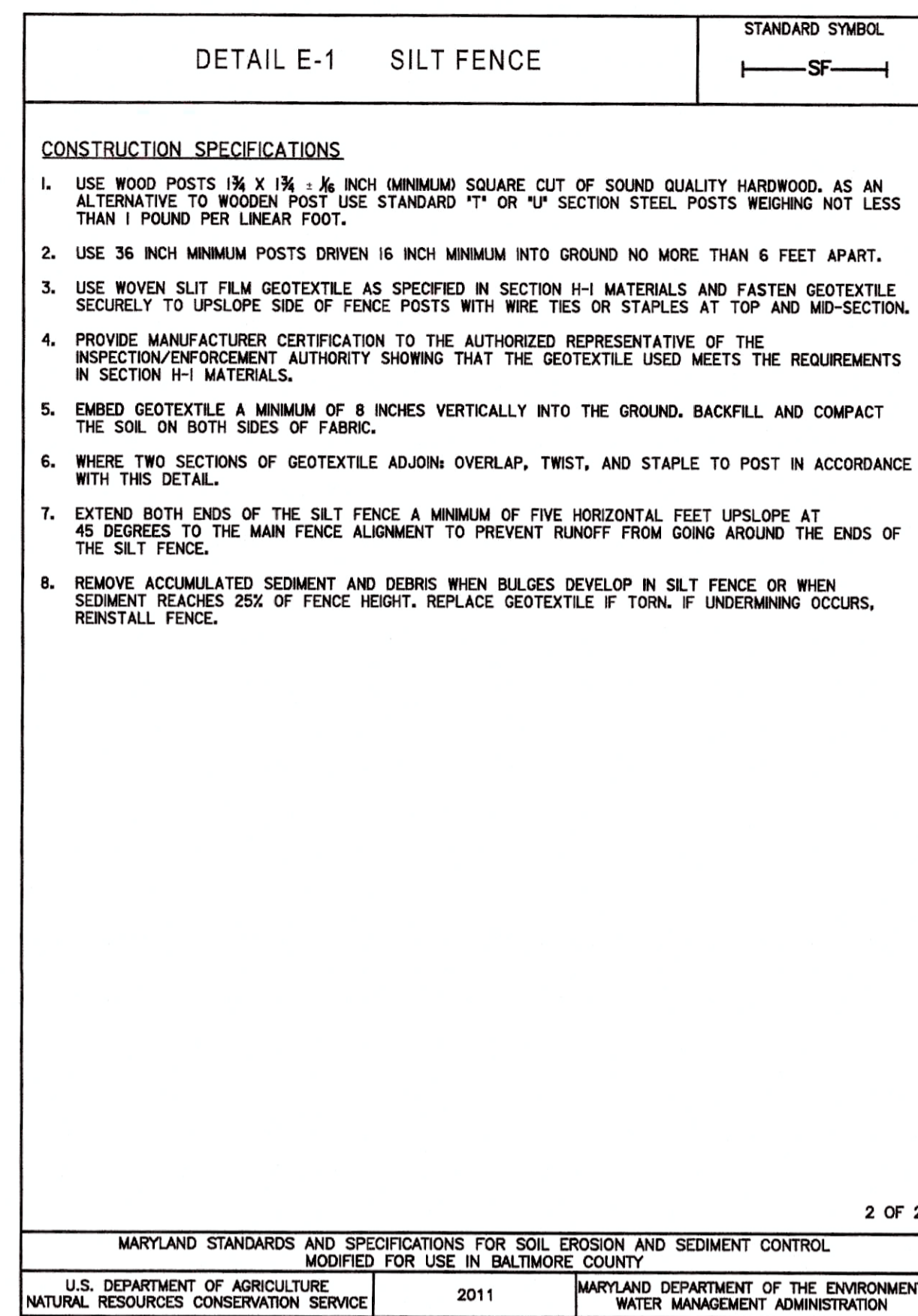
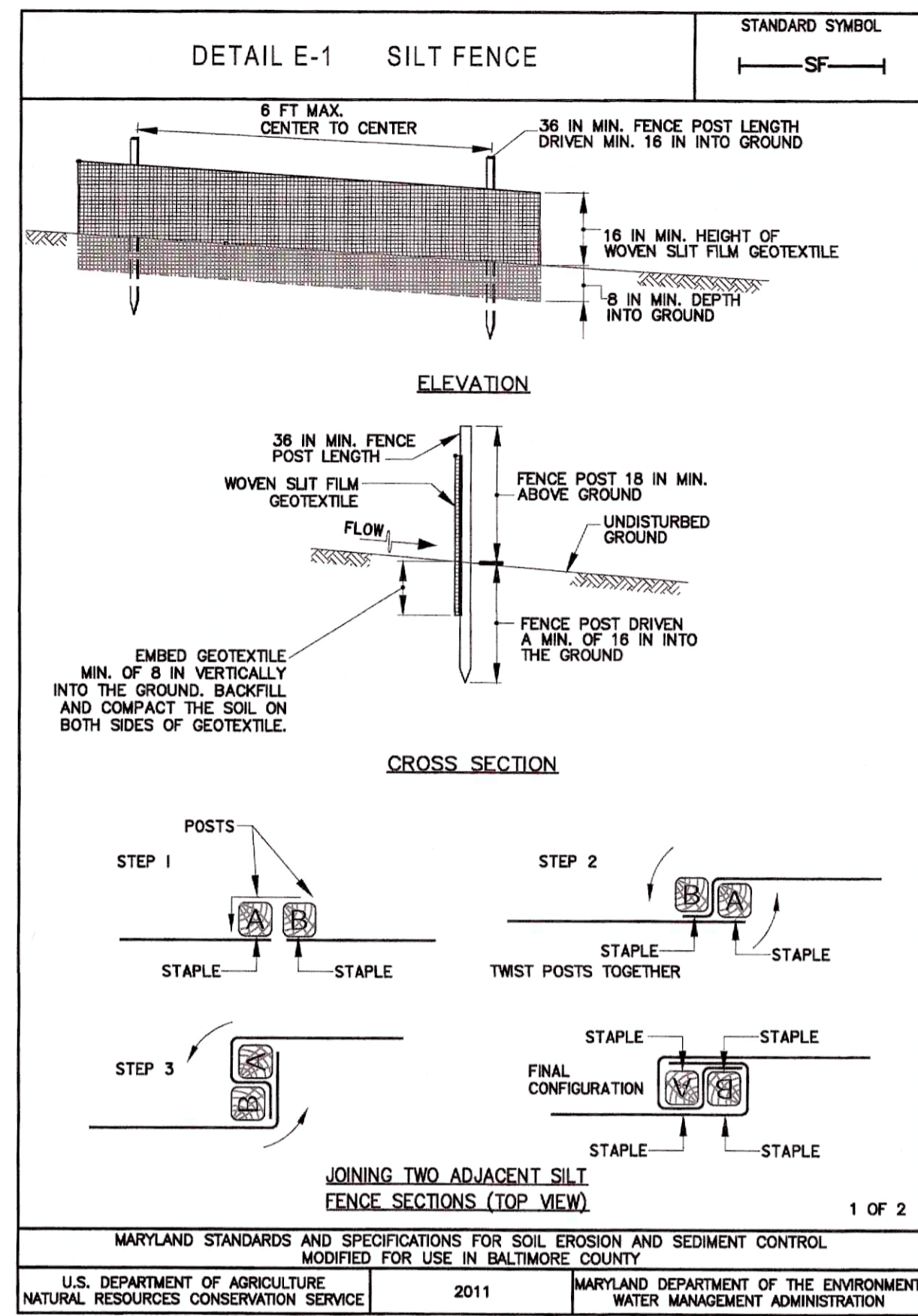
Date: 12/13/2023
Plan is valid for 2 years from date of approval

SCD approval for sediment and erosion control is in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control and is contingent upon issuance of all applicable regulatory permits.

ENGINEER	CHECKED BY
WJG	JCM
KMR	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
ESC-03

SHEET NO. 12 OF 42



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. EXPIRATION DATE 09/08/2024

700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.767.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG, ELECTRIC DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

GRADING AND SEDIMENT CONTROL DETAILS

Frederick Soil Conservation District
Erosion and Sediment Control Plan Approval

By:

District Manager or Designee

Date: 12/13/2023

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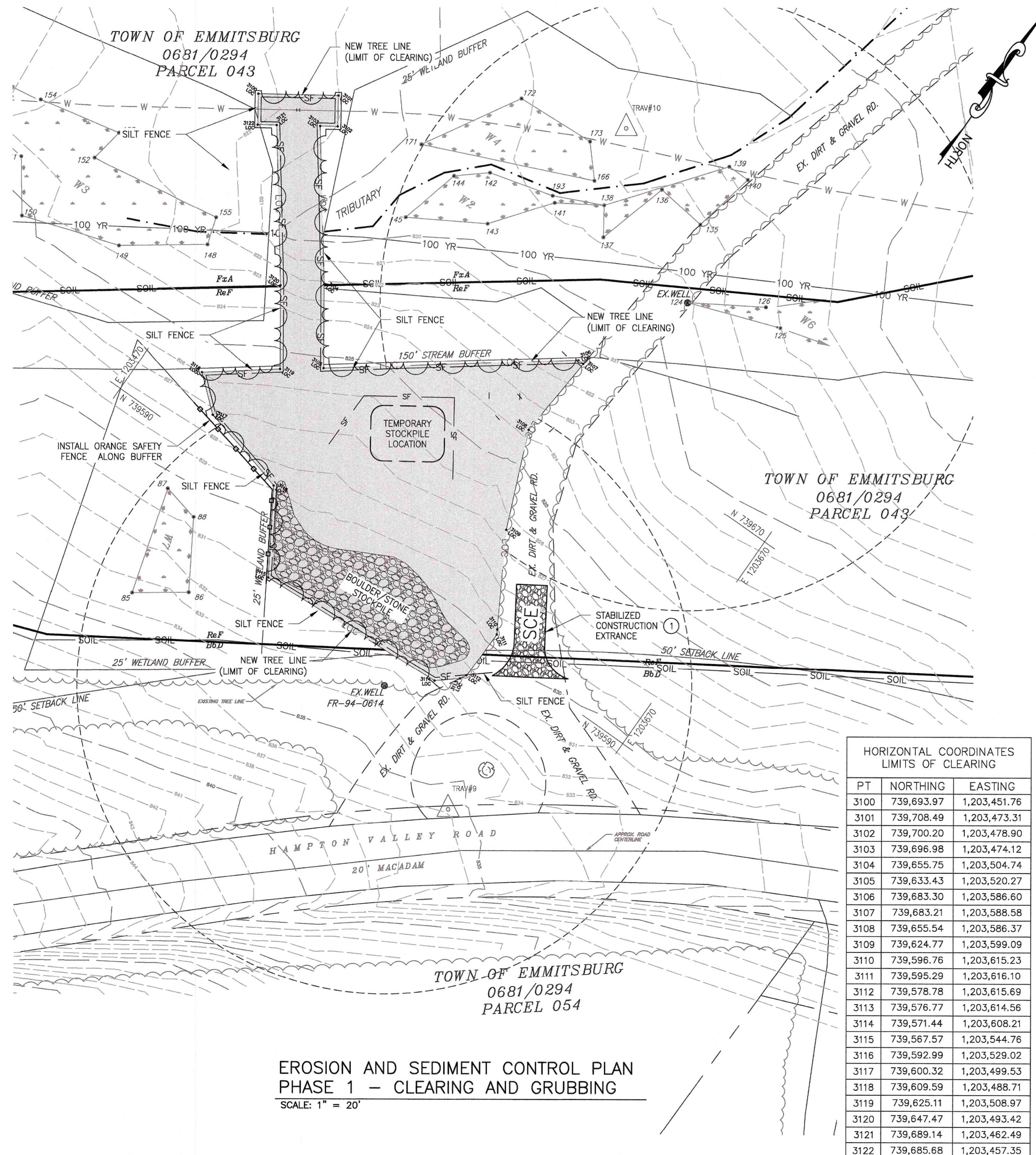
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WJG	JCM
DRAWN BY	DATE
KMR	2023
RR&K PROJECT NUMBER	
20119	

DRAWING NUMBER

ESC-04

SHEET NO. 13 OF 42

TRAVERSE COORDINATES				
TRAV	NORTHING	EASTING	ELEVATION	DESCRIPTION
8	739,276.55	1,203,344.80	861.32'	NAIL FOUND
9	739,539.89	1,203,635.75	835.80'	NAIL SET
10	739,753.78	1,203,555.98	818.54'	NAIL SET
210	739,272.46	1,203,148.10	859.50'	TRAV
211	739,528.45	1,202,865.35	865.97'	TRAV



**EROSION AND SEDIMENT CONTROL PLAN
PHASE 1 - CLEARING AND GRUBBING**

SCALE: 1" = 20'

**HORIZONTAL COORDINATES
LIMITS OF CLEARING**

PT	NORTHING	EASTING
3100	739,693.97	1,203,451.76
3101	739,708.49	1,203,473.31
3102	739,700.20	1,203,478.90
3103	739,696.98	1,203,474.12
3104	739,655.75	1,203,504.74
3105	739,633.43	1,203,520.27
3106	739,683.30	1,203,586.60
3107	739,683.21	1,203,588.58
3108	739,655.54	1,203,586.37
3109	739,624.77	1,203,599.09
3110	739,596.76	1,203,615.23
3111	739,595.29	1,203,616.10
3112	739,578.78	1,203,615.69
3113	739,576.77	1,203,614.56
3114	739,571.44	1,203,608.21
3115	739,567.57	1,203,544.76
3116	739,592.99	1,203,529.02
3117	739,600.32	1,203,499.53
3118	739,609.59	1,203,488.71
3119	739,625.11	1,203,508.97
3120	739,647.47	1,203,493.42
3121	739,689.14	1,203,462.49
3122	739,685.68	1,203,457.35

SEQUENCE OF OPERATIONS:

1. NOTIFY FREDERICK COUNTY DIVISION OF PLANNING AND PERMITTING 301-600-3507 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM, (410) 537-3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK. SCHEDULE A PRE-CONSTRUCTION MEETING.
2. IF APPLICABLE, ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED ALONG THE LIMIT OF DISTURBANCE, WHERE THE LIMIT IS WITHIN 50 FEET OF THE WETLAND BUFFER. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRE-CONSTRUCTION MEETING.
3. TURKEY CREEK IS A USE IV-P WATERWAY, IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
4. STOCKPILING OF MATERIAL AND A CONCRETE WASHOUT AREA SHALL BE DISCUSSED WITH THE SEDIMENT CONTROL INSPECTOR DURING THE PRE-CONSTRUCTION MEETING.
5. CLEAR AND GRUB (INCLUDING REMOVAL OF EXISTING PAVING) TO ALLOW FOR INSTALLATION OF EROSION & SEDIMENT CONTROL MEASURES OR DEVICES.
6. INSTALL ALL EROSION & SEDIMENT CONTROL MEASURES AND DEVICES IN ACCORDANCE WITH DRAWING ESC-05 IF NECESSARY TO ENSURE PRACTICAL USAGE. ADJUSTMENTS CAN BE MADE TO THE SCE WITH COORDINATION WITH THE SC INSPECTOR.
7. INSTALL ALL ADDITIONAL EROSION & SEDIMENT CONTROL MEASURES AND DEVICES AROUND STOCKPILE AREA IN COORDINATION WITH THE SC INSPECTOR.
8. NOTIFY FREDERICK COUNTY DIVISION OF PLANNING AND PERMITTING UPON COMPLETION OF SAID INSTALLATION.
9. WITH APPROVAL OF FREDERICK COUNTY DIVISION OF PLANNING AND PERMITTING AND THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE.
10. REMOVE TREES AND ROCK TO LIMITS OF CLEARING AS SHOWN, REFER TO DRAWING C-02 FOR LIMITS OF WORK AND AS SHOWN IN THE TABLE ON THIS SHEET.
11. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.
12. AS CLEARING AND SITE WORK IS COMPLETED, REPAIR SEDIMENT CONTROL MEASURES AS REQUIRED PRIOR TO CONTINUING ONTO NEXT PHASE.

NON-TIDAL WETLAND DELINEATION

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
140	739,762.8861	1,203,597.8674	817.33'	W1
139	739,762.9495	1,203,590.5622	817.30'	W1
138	739,729.2814	1,203,564.4530	818.83'	W1
137	739,720.5846	1,203,570.2846	818.50'	W1
136	739,744.2640	1,203,576.8953	818.30'	W1
135	739,742.1224	1,203,593.6972	818.10'	W1
145	739,688.8469	1,203,513.9414	819.22'	W2
144	739,708.9511	1,203,519.0279	818.87'	W2
142	739,716.4811	1,203,527.9929	818.74'	W2
143	739,702.4561	1,203,536.9133	819.30'	W2
141	739,720.6669	1,203,550.8108	818.52'	W2
155	739,653.3535	1,203,463.5317	822.99'	W3
154	739,651.6976	1,203,394.9066	824.06'	W3
153	739,657.5508	1,203,421.8732	823.27'	W3
151	739,632.9934	1,203,400.3397	824.54'	W3
150	739,617.4317	1,203,411.5906	824.51'	W3
149	739,627.7436	1,203,442.9231	823.27'	W3
148	739,644.5988	1,203,466.2782	822.26'	W3
152	739,646.3146	1,203,420.1026	823.77'	W3
173	739743.4572	1203548.7692	818.24	W4
172	739742.0399	1203522.5714	818.36	W4
171	739711.1468	1203504.4832	819.69	W4
166	739733.9088	1203557.2894	818.19	W4
183	739810.6170	1203542.9143	815.53	W5
182	739804.9818	1203553.0459	816.00	W5
181	739821.5245	1203566.6449	815.14	W5
126	739732.5082	1203626.5270	816.93	W6
125	739729.7115	1203634.2739	816.97	W6
124	739719.0737	1203604.7831	818.95	W6
88	739569.6509	1203513.5628	831.09	W7
87	739572.4184	1203501.3133	830.63	W7
86	739548.7642	1203526.3221	832.21	W7
85	739538.0966	1203511.2857	833.06	W7

NOTES:

1. TOTAL LIMITS OF CLEARING = 9,029 SF (0.21 AC)
- AREA OF STONE REMOVAL = 6,190 SF (0.14 AC)
2. ALL EXISTING FEATURES DENOTED BY SLANTED TEXT.
3. SURVEY PERFORMED BY R.F. GAUSS & ASSOCIATES INC. ON MAY 24, 2021. REFER TO DRAWING C-01 FOR DETAILS.
4. WETLANDS DELINEATION PERFORMED BY WATERSHED ENVIRONMENTAL, LLC. ON APRIL 23, 2021.
5. NO EXCAVATED MATERIAL SHALL BE STOCKPILED ON-SITE FOR LONGER THAN ONE DAY. ALL EXCAVATED MATERIAL SHALL BE HAULED OFF-SITE FOR DISPOSAL OR STORAGE TO A SITE WITH AN OPEN GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN.
6. THE 100-YEAR FLOODPLAIN IS DELINEATED FROM FEMA'S NATIONAL FLOOD HAZARD LAYER DATASET, MAP PANEL 24021C0035D EFFECTIVE SEPTEMBER 19, 2007.
7. THIS PROJECT WILL TEMPORARILY IMPACT WETLAND BUFFERS AND THE 100-YR FLOODPLAIN. A MADE WETLAND/WATERWAY LETTER OF AUTHORIZATION HAS BEEN ISSUED FOR THIS PROJECT.
LOA# 22-NT-3177/202261204
8. EXISTING SITE IS FORESTED WITH ERATIC BOULDERS AND STONES (STONE RIVER) WITH AN EXISTING DIRT AND GRAVEL ROAD, NO CURRENT IMPERVIOUS AREA - 0.0 AC.

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN CONTINUOUS COMPLIANCE WITH THE LATEST VERSION OF THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
2. ALL UTILITIES, SUCH AS STORM DRAIN, PUBLIC WATER, SANITARY SEWER, ELECTRICAL POWER, TELEPHONE CABLE AND GAS LINES THAT ARE NOT IN PAVED AREAS AND ARE NOT UNDERGOING ACTIVE GRADING SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 3 DAYS OF INITIAL DISTURBANCE.
3. THE OWNER/DEVELOPER OR THEIR DESIGNATE IS RESPONSIBLE FOR CONDUCTING ROUTINE INSPECTIONS AND REQUIRED MAINTENANCE. THE SITE AND CONTROLS SHOULD BE INSPECTED WEEKLY AND THE NEXT DAY AFTER EACH RAIN EVENT. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN A SUITABLE AREA AND SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED.

STANDARD STABILIZATION NOTES:

1. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTRIBUTION, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
 - A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
 - B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON PROJECT SITE NOT UNDER ACTIVE GRADING.

FOR UTILITY WORK ONLY OR FOR OFF-SITE UTILITY WORK:

1. PLACE ALL EXCAVATED MATERIAL ON HIGH SIDE OF TRENCH.
2. ONLY DO AS MUCH WORK AS CAN BE DONE IN ONE DAY SO BACKFILLING, FINAL GRADING, SEEDING AND MULCHING CAN OCCUR.
3. ANY SEDIMENT CONTROL MEASURES DISTURBED BY CONSTRUCTION WILL BE REPAIRED THE SAME DAY.

STOCKPILE NOTES:

1. NO STOCKPILING ALLOWED ON ASPHALT.
2. ALL STOCKPILES LEFT AT THE END OF THE DAY NEED TO BE STABILIZED UNTIL THE NEXT REDISTURBANCE.

REVISED UTILITY NOTE FOR SECONDARY UTILITY WORK:

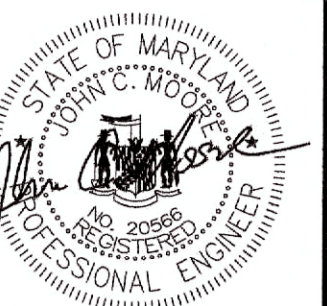
1. ALL DISTURBANCES FROM SECONDARY UTILITIES SUCH AS PHONE CABLE, ELECTRIC CABLE, TV CABLE, ETC. WILL BE THE CONTRACTOR'S RESPONSIBILITY TO BRING WORK AREA BACK TO GRADE LEVEL THAT WAS EXISTING AND SEED AND MULCH ANY DISTURBANCE FROM INSTALLATION OF LINES OR CONDUIT.
2. CONTRACTOR WILL BE RESPONSIBLE FOR RE-INSTALLING OR REPAIRING ANY SILT FENCE OR SEDIMENT CONTROLS THAT WERE EXISTING TO MAINTAIN PROPER SEDIMENT CONTROL THAT MIGHT HAVE BEEN DAMAGED.

Frederick Soil Conservation District
Erosion and Sediment Control Plan Approval

By: *[Signature]*
District Manager or Designee

Date: 12/13/2023
Plan is valid for 2 years from date of approval

SCD approval for sediment and erosion control is in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control and is contingent upon issuance of all applicable regulatory permits.



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR SUPERVISED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 08/08/2024
LICENSE NO. 202666
R&K&K
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

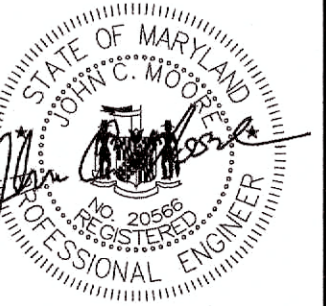
NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1500-00-1E0-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND
EROSION AND SEDIMENT CONTROL PLAN
PHASE 1 - CLEARING AND GRUBBING

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
WJG	2023
RR&K PROJECT NUMBER	20119

DRAWING NUMBER
ESC-05
SHEET NO. 14 OF 42

RR&K\GIS - \Vest\rrk.com\VA\GIS\Proj\2020\0118_Emmitsburg\CA00\Plans\ESC-05.dwg Oct 17, 2023 - 11:07am Plot Scale 1:1



PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR REVIEWED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE: 09/09/2024
 LICENSE NO. 20592

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND
 EROSION AND SEDIMENT CONTROL PLAN
 PHASE 2 - FINAL GRADING

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
WJG	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
ESC-06
 SHEET NO. 15 OF 42

NOTES:

- TOTAL AREA WITHIN LIMITS OF DISTURBANCE = 11,090 SF (0.26 AC.)
 - AREA OF EXISTING GRAVEL ROAD = 1,784 SF (0.042 AC.)
 - AREA OF STONE STOCKPILE = 1,265 SF (0.038 AC.)
 TOTAL DISTURBED AREA = 9,950 SF (0.21 AC.)
 - AREA OF NEW GRAVEL LOT = 1,830 SF (0.043 AC.)
 - AREA OF NEW STRUCTURES = 245 SF (0.006 AC.)
 - AREA OF NEW BUILDING = 1,632 SF (0.038 AC.)
 TOTAL EARTHWORK VOLUME = 275 CY
 - CUT VOLUME = 234 CY
 - FILL VOLUME = 41 CY
- TOTAL IMPERVIOUS AREA = 4,427 (0.10 AC.).
 EXISTING IMPERVIOUS AREA = 0 SF (0.00 AC.).
 PROPOSED IMPERVIOUS AREA (STRUCTURES) = 1,877 SF (0.044 AC.)
 PROPOSED IMPERVIOUS AREA (SIDEWALK) = 720 SF (0.017 AC.)
 PROPOSED IMPERVIOUS AREA (GRAVEL LOT) = 1,830 SF (0.042 AC.)
- WETLANDS DELINEATION PERFORMED BY WATERSHED ENVIRONMENTAL, LLC. ON APRIL 23, 2021.
- NO EXCAVATED MATERIAL SHALL BE STOCKPILED ON-SITE FOR LONGER THAN ONE DAY. ALL EXCAVATED MATERIAL SHALL BE HAULED OFF-SITE FOR DISPOSAL OR STORAGE TO A SITE WITH AN OPEN GRADING PERMIT AND APPROVED SEDIMENT CONTROL PLAN.
- THE 100-YEAR FLOODPLAIN IS DELINEATED FROM FEMA'S NATIONAL FLOOD HAZARD LAYER DATASET, MAP PANEL 24021C0035D EFFECTIVE SEPTEMBER 19, 2007.
- THIS PROJECT WILL TEMPORARILY IMPACT WETLAND BUFFERS AND THE 100-YR FLOODPLAIN. A MDE WETLAND/WATERWAY LETTER OF AUTHORIZATION HAS BEEN ISSUED FOR THIS PROJECT. LOA#: 22-NT-3177/202261204

EROSION AND SEDIMENT CONTROL NOTES:

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- ** ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF IN A SUITABLE AREA AND SHALL BE TEMPORARILY OR PERMANENTLY STABILIZED.

STANDARD STABILIZATION NOTES:

- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTRIBUTION, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
 - THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
 - SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON PROJECT SITE NOT UNDER ACTIVE GRADING.

FOR UTILITY WORK ONLY OR FOR OFF-SITE UTILITY WORK:

- PLACE ALL EXCAVATED MATERIAL ON HIGH SIDE OF TRENCH.
- ONLY DO AS MUCH WORK AS CAN BE DONE IN ONE DAY SO BACKFILLING, FINAL GRADING, SEEDING AND MULCHING CAN OCCUR.
- ANY SEDIMENT CONTROL MEASURES DISTURBED BY CONSTRUCTION WILL BE REPAIRED THE SAME DAY.

STOCKPILE NOTES:

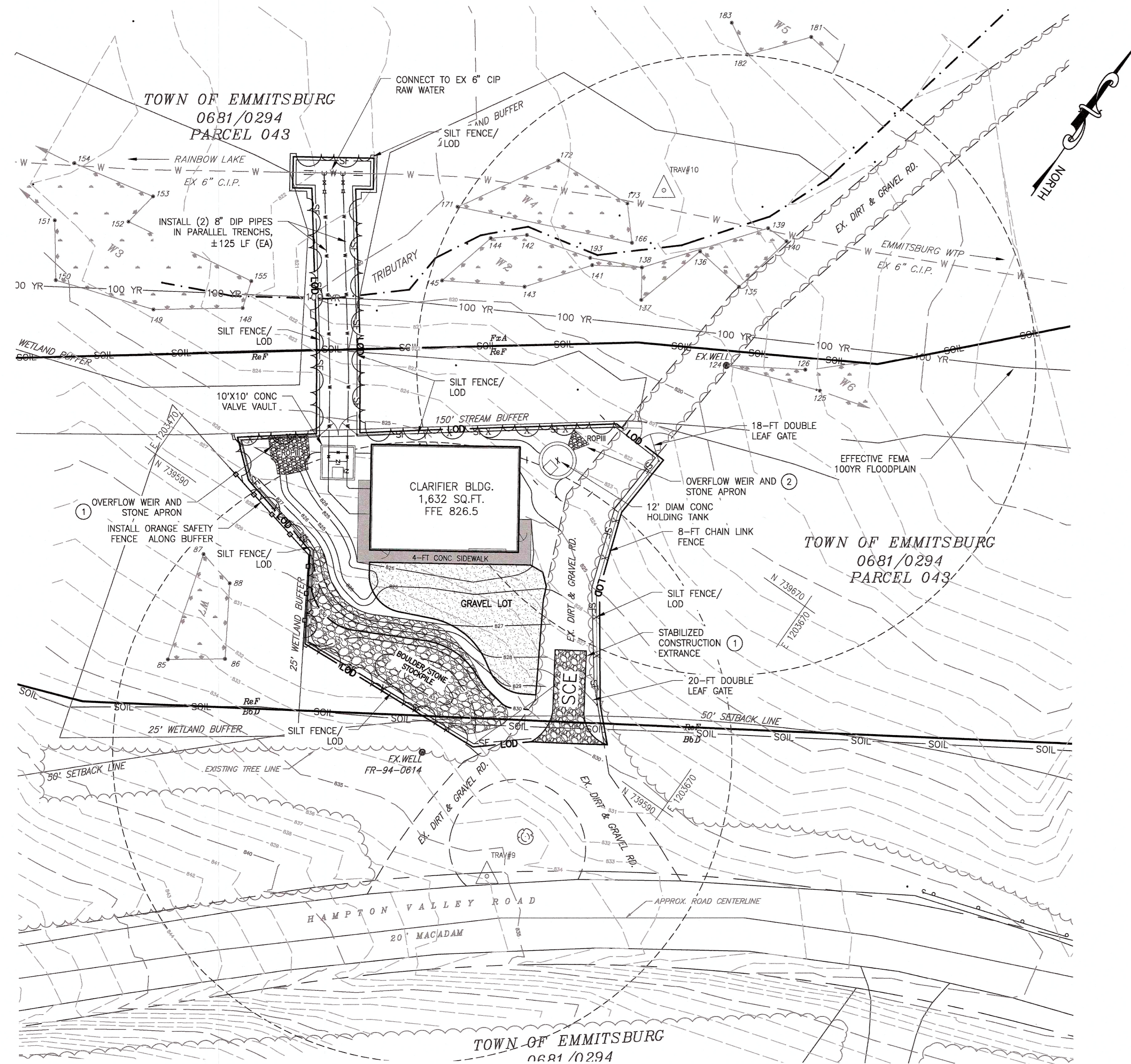
- NO STOCKPILING ALLOWED ON ASPHALT.
- ALL STOCKPILES LEFT AT THE END OF THE DAY NEED TO BE STABILIZED UNTIL THE NEXT REDISTURBANCE. REVISED UTILITY

NOTE FOR SECONDARY UTILITY WORK:

- ALL DISTURBANCES FROM SECONDARY UTILITIES SUCH AS PHONE CABLE, ELECTRIC CABLE, TV CABLE, ETC. WILL BE THE CONTRACTOR'S RESPONSIBILITY TO BRING WORK AREA BACK TO GRADE LEVEL THAT WAS EXISTING AND SEED AND MULCH ANY DISTURBANCE FROM INSTALLATION OF LINES OR CONDUIT.
- CONTRACTOR WILL BE RESPONSIBLE FOR RE-INSTALLING OR REPAIRING ANY SILT FENCE OR SEDIMENT CONTROLS THAT WERE EXISTING TO MAINTAIN PROPER SEDIMENT CONTROL THAT MIGHT HAVE BEEN DAMAGED.

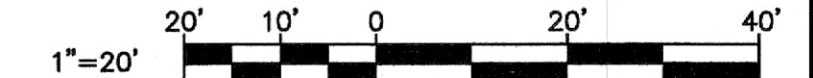
SEQUENCE OF OPERATIONS:

- NOTIFY FREDERICK COUNTY DIVISION OF PLANNING AND PERMITTING 301-600-3507 AT LEAST 48 HOURS PRIOR TO BEGINNING WORK. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, INSPECTION AND COMPLIANCE PROGRAM, (410) 537-3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK.
- IF APPLICABLE, ORANGE HIGH VISIBILITY FENCE SHALL BE MANUALLY INSTALLED ALONG THE LIMIT OF DISTURBANCE, WHERE THE LIMIT IS WITHIN 50 FEET OF THE WETLAND BUFFER. THIS SHALL BE COMPLETED BY AND INSPECTED AT THE PRE-CONSTRUCTION MEETING.
- TURKEY CREEK IS A USE IV-P WATERWAY, IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
- STOCKPILING OF MATERIAL AND A CONCRETE WASHOUT AREA SHALL BE DISCUSSED WITH THE SEDIMENT CONTROL INSPECTOR DURING THE PRE-CONSTRUCTION MEETING.
- CLEAR AND GRUB (INCLUDING REMOVAL OF EXISTING PAVING) TO ALLOW FOR INSTALLATION OF EROSION & SEDIMENT CONTROL MEASURES OR DEVICES.
- NOTIFY FREDERICK COUNTY DIVISION OF PLANNING AND PERMITTING UPON COMPLETION OF SAID INSTALLATION.
- WITH APPROVAL OF FREDERICK COUNTY DIVISION OF PLANNING AND PERMITTING AND THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB REMAINDER OF SITE.
- IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.
- COORDINATE ALL UTILITY DEMOLITION AND CONSTRUCTION WITH APPROPRIATE AGENCIES.
- EXCAVATE WITHIN THE 100-YR FLOODPLAIN FOR CONNECTION TO EXISTING 6-INCH RAW WATER PIPING AND INSTALLATION OF NEW 8-INCH WATER PIPING. BLASTING IS NOT PERMITTED UNDER ANY CIRCUMSTANCES FOR EXCAVATION.
- INSTALL NEW NEW 8-INCH WATER PIPING TO LOCATION OF VALVE VAULT, REFER TO DRAWING C-02. RE-GRADE AREA WITHIN THE LOD, AS SHOWN, TO PROVIDE ADEQUATE DRAINAGE OF THE SITE.
- AS SITE WORK WITHIN THE 100-FLOODPLAIN IS COMPLETED, STABILIZE ACCORDINGLY (VEGETABLE STABILIZATION, ETC.).
- EXCAVATE FOR INSTALLATION OF VALVE VAULT, HOLDING TANK, CLARIFIER BUILDING FOUNDATION AND ADDITIONAL 8-INCH WATER MAIN PIPING IN ACCORDANCE WITH DRAWING C-02. INSTALL SUPPORT OF EXCAVATION DEVICES AND DEWATER EXCAVATION AS NECESSARY. BLASTING IS NOT PERMITTED UNDER ANY CIRCUMSTANCES FOR EXCAVATION.
- INSTALL NEW VALVE VAULT, HOLDING TANK, BUILDING AND ASSOCIATED PIPING, ELECTRICAL DUCTBANKS, BOLLARDS AND FENCING AND RE-GRADE AREA WITHIN THE LOD, AS SHOWN, TO PROVIDE ADEQUATE DRAINAGE OF THE SITE.
- AS SITE WORK IS COMPLETED, STABILIZE ACCORDINGLY (STONE SUBBASE, GRAVEL PAVING, VEGETABLE STABILIZATION, ETC.). REFER TO DRAWING C-02 FOR LIMITS OF NEW WORK.
- UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

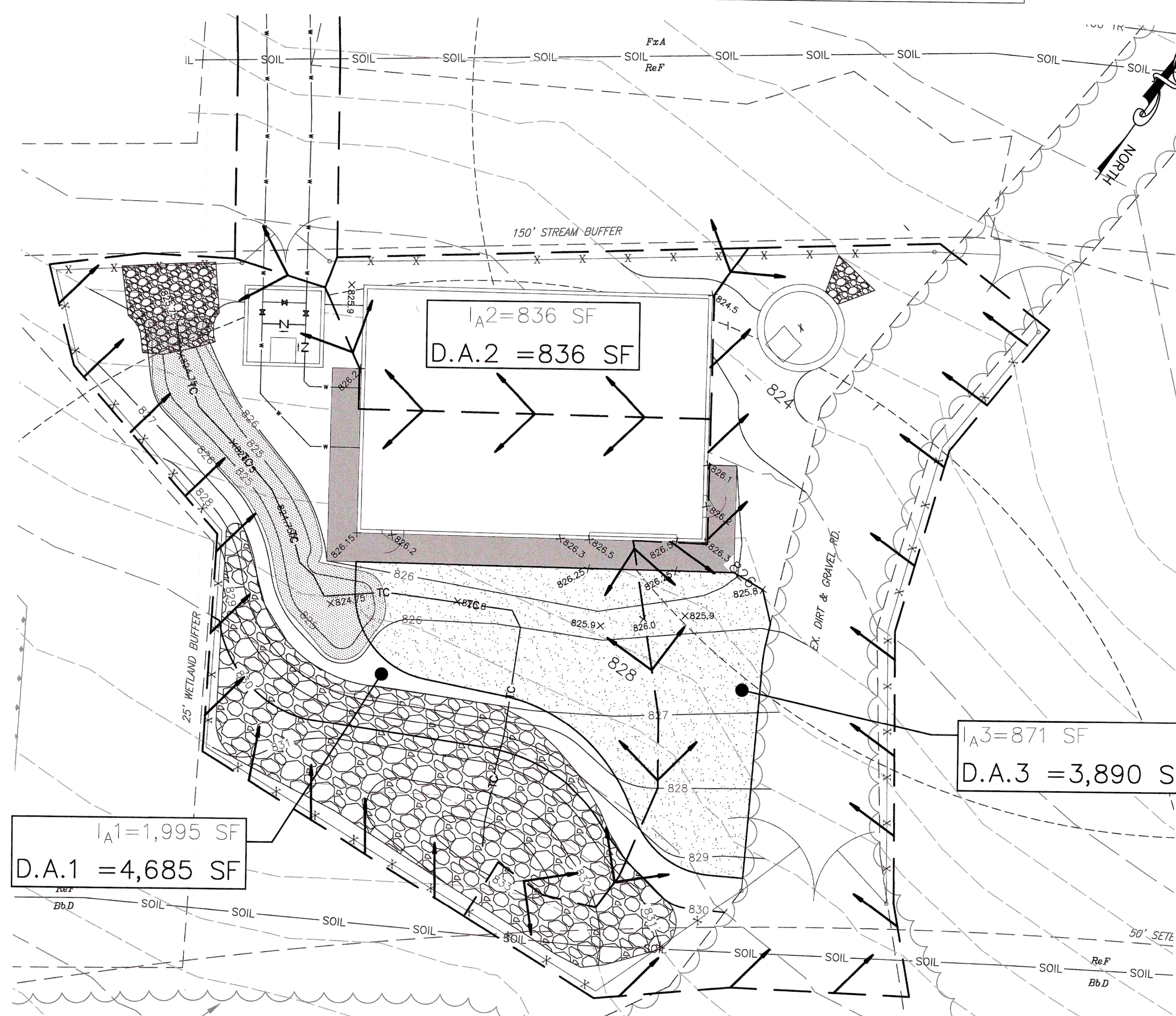


**EROSION AND SEDIMENT CONTROL PLAN
 PHASE 2 - FINAL GRADING**

SCALE: 1" = 20'

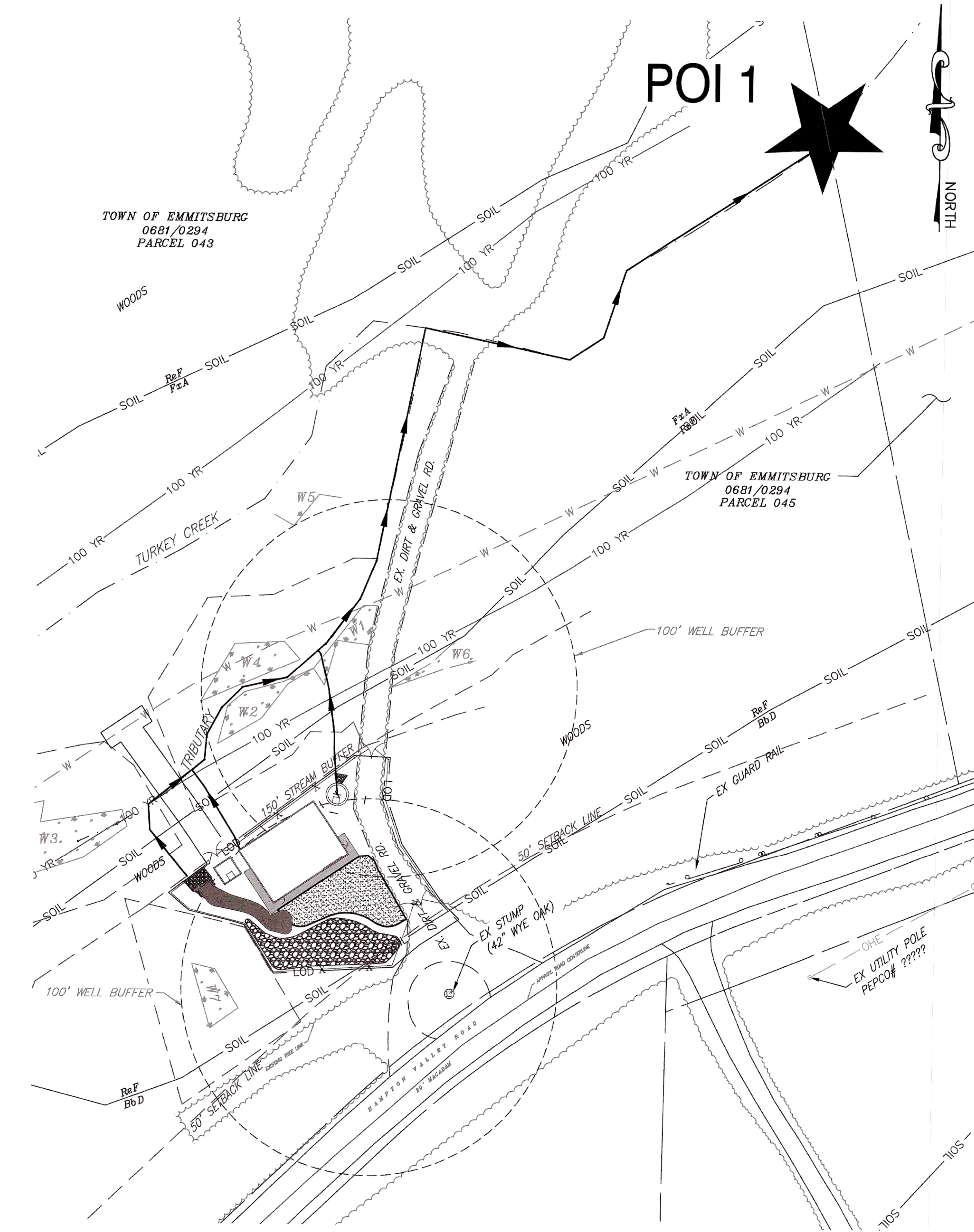


EXISTING SOILS	
SYMBOL	SERIES
BbD	BAGTOWN COBBLY LOAM, 15-25% SLOPES, RUBBLY
FxA	FOXVILLE AND HATBORO SOILS, 0-3% SLOPES
ReF	RAVENROCK-HIGHFIELD-ROCK OUTCROP COMPLEX, 25-65% SLOPES



NOTE:
EX WELLS SHOWN ARE FOR OBSERVATION ONLY AND ARE NOT CONNECTED TO THE TOWN OF EMMITSBURG WATER SYSTEM. EX WELLS ARE NOT FOR WATER SUPPLY PRODUCTION.

SWM PROPOSED DRAINAGE PLAN
SCALE: 1" = 10'



DRAINAGE MAP PLAN
SCALE: 1" = 40'

SITE SWM SUMMARY TABLE		
SITE AREA	AC	0.25
DISTURBANCE AREA	AC	0.25
EXISTING IMPERVIOUS	AC	0.0
PROPOSED IMPERVIOUS	AC	0.085
TOTAL IMPERVIOUS	AC	0.085
SITE Pe	INCHES	1.6
DEVELOPMENT TYPE	NEW DEVELOPMENT	
ESDv REQUIRED	CF	518
ESDv PROVIDED	CF	535
Pe ACHIEVED	INCHES	1.65

ESD Practices (Chapter 5 - Structural & Non-Structural)														
TYPE	NO.	DA (ACRES) (To Structure)	IMPERVIOUS DA (ACRES) (To Structure)	TARGET Pe (INCHES)	ACHIEVED Pe (INCHES)	ESDv REQUIRED	ESDv PROVIDED	WQv (CF)	CPv (CF)	CPv (cfs) (Discharge)	Rev (CF)	TIME OF CONCENTRATION (HR)	Q10 (CFS)	
RAIN GARDEN	1	0.108	0.046	1.6	2.29	518	387	169	N/A	N/A	N/A	0.1	0.69	
ROOF DISCONNECT	2	0.019	0.019		1.0		66	66	N/A	N/A	N/A	N/A	N/A	N/A
NON-ROOF DISCONNECT	3	0.09	0.02		1.0		82	82	N/A	N/A	N/A	N/A	N/A	N/A

GENERAL NOTES:

- STORMWATER MANAGEMENT REQUIREMENTS AT THE SITE HAVE BEEN ADDRESSED THROUGH USE OF THE PROPOSED RAIN GARDEN FACILITY, DISCONNECTED ROOFTOP AND NON-ROOFTOP AREAS.
- 88% OF SOILS ON SITE ARE ReF, 9% OF SOILS ON THE SITE ARE FxA AND THE REMAINING 3% OF SOILS ON SITE ARE BbD. THE SOILS ON THE SITE ARE CLASSIFIED AS BEING 91% HYDROLOGIC SOIL GROUP TYPE C AND 9% HYDROLOGIC SOIL GROUP TYPE D.
- QUANTITY CONTROL FOR THE PROJECT SITE HAS BEEN ACHIEVED THROUGH MINIMIZING THE AMOUNT OF IMPERVIOUS COVER. THE SITE IS CATEGORIZED AS NEW DEVELOPMENT IN ACCORDANCE WITH THE MDE 2009 STORMWATER DESIGN MANUAL.

Frederick Soil Conservation District
Erosion and Sediment Control Plan Approval
By: [Signature]
District Manager or Designee
Date: 12/13/23
Plan is valid for 2 years from date of approval

SCD approval for sediment and erosion control is in accordance with the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control and is contingent upon issuance of all applicable regulatory permits.



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME OR UNDER MY SUPERVISION AS A PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRATION DATE 09/09/2024
LICENSE NO. 20566
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.767.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

STORM WATER MANAGEMENT PLAN

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
WJG	2023
RKS&K PROJECT NUMBER	
20119	

DRAWING NUMBER
SWM-01
SHEET NO. 16 OF 42

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STRUCTURAL GENERAL NOTES

DESIGN CRITERIA

A. SPECIFICATIONS

- 1. FOR MATERIAL SPECIFICATIONS, SEE CONTRACT SPECIFICATIONS AND SPECIAL PROVISIONS.

B. DESIGN CODES

- 1. FREDERICK COUNTY BUILDING CODE, 2020
- 2. MARYLAND STATE BUILDING CODE, 2018
- 3. INTERNATIONAL BUILDING CODE, 2018
- 4. ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
- 5. ASCE 7-16 "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES"
- 6. ADM1-2015 "ALUMINUM DESIGN MANUAL: PART 1 - A SPECIFICATION FOR ALUMINUM STRUCTURES"
- 7. TMS 402-2016 "BUILDING CODE FOR MASONRY STRUCTURES"
- 8. BUILDING DESIGN IS BASED ON THE SHORED CONSTRUCTION METHOD

DESIGN LOADING

A. DEAD LOADS

- REINFORCED CONCRETE 150 PCF
- CONCRETE MASONRY 135 PCF
- BUILDING MATERIALS ACTUAL WEIGHT OF MATERIALS

B. FLOOR LIVE LOADS

- STAIRS 100 PSF
- EQUIPMENT PLATFORMS 250 PSF (UNO)
- STORAGE AREAS 250 PSF (UNO)
- FLUID 65 PCF
- HANDRAIL 200 LBS IN ANY DIRECTION OR 50 PLF

C. ROOF LIVE LOAD 30 PSF

D. SNOW LOAD DATA

- GROUND SNOW LOADS, Pg 30 PSF
- FLAT ROOF SNOW LOAD, Pf XX PSF
- SNOW EXPOSURE FACTOR, Ce 1.0
- SNOW LOAD IMPORTANCE FACTOR, Is 1.00
- THERMAL FACTOR, Ct 1.2
- SLOPE FACTOR(S), Cs 1.0
- DRIFT SURCHARGE LOAD(S), Pd XX PSF
- WIDTH OF SNOW DRIFT(S), w XX FT

E. WIND DESIGN DATA

- BASIC DESIGN WIND SPEED, V 120 MPH
- ALLOWABLE STRESS DESIGN WIND SPEED, V_{asd} 93 MPH
- RISK CATEGORY III
- WIND EXPOSURE OPEN-
- INTERNAL PRESSURE COEFFICIENT, C_{pi} N/A
- DESIGN WIND PRESSURE, C&C 31.2 PSF

F. EARTHQUAKE DESIGN DATA

- RISK CATEGORY III
- SEISMIC IMPORTANCE FACTOR, I_e 1.50
- MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS
 - S_s 0.334g
 - S₁ 0.110g
- SITE CLASS E
- DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS
 - SDS 0.497g
 - SD1 0.255g
- SEISMIC DESIGN CATEGORY D
- BASIC SEISMIC FORCE RESISTING SYSTEM XX
- DESIGN BASE SHEAR XX
- SEISMIC RESPONSE COEFFICIENT
 - C_i XX
 - C_c XX

- RESPONSE MODIFICATION COEFFICIENT

R _i	XX
R _c	XX

- ANALYSIS PROCEDURE USED ELF

G. GEOTECHNICAL INFORMATION

- SOIL DESIGN LOAD-BEARING CAPACITY XXXX PSF

H. FLOOD DESIGN DATA

- FLOOD DESIGN CLASS X
- ELEVATION OF XXXXX XXX.XX'

I. ROOF RAIN LOAD DATA

- RAIN INTENSITY, I XX IN/HR

CONCRETE

- A. ALL CONCRETE CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ACI 318 AND ACI 301, EXCEPT AS MODIFIED BY THE CONTRACT DOCUMENTS.

- B. ALL CONCRETE SHALL BE NORMAL-WEIGHT WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF F'_c = 4,500 PSI.

- C. ALLOW 48 HOURS MINIMUM CURING TIME BETWEEN PLACEMENT OF ADJACENT CONCRETE POURS.

- D. CHAMFER ALL EXPOSED EDGES 3/4" X 3/4". CHAMFER REQUIRED UNLESS NOTED OTHERWISE IN DRAWINGS.

E. JOINTS

- 1. UNLESS OTHERWISE NOTED ON THE DRAWINGS, JOINTS SHOWN SHALL BE CONSTRUCTION JOINTS.
- 2. CONSTRUCTION JOINTS SHALL BE AS DETAILED, AND NO ADDITIONAL JOINTS SHALL BE USED NOR ANY OMITTED EXCEPT BY WRITTEN AUTHORIZATION OF THE ENGINEER.
- 3. CONTRACTOR SHALL SUBMIT THE LOCATION OF PROPOSED CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWINGS FOR APPROVAL. ENGINEER APPROVED ADDITIONAL CONSTRUCTION JOINTS SHALL NOT RESULT IN ADDITIONAL EXPENSE TO THE OWNER.
- 4. CONTRACTOR SHALL COORDINATE LOCATION OF JOINTS SHOWN WITH PIPE OPENINGS, EQUIPMENT, AND REINFORCING STEEL LAP REQUIREMENTS. NUMBER OF JOINTS SHOWN IS A MINIMUM.
- 5. INTENTIONALLY ROUGHEN SURFACE OF HORIZONTAL CONSTRUCTION JOINTS IN WALLS AND AT BASE OF WALL TO 1/4" AMPLITUDE.
- 6. PROVIDE A ROUGHENED CONSTRUCTION JOINT WHERE INDICATED IN THESE DRAWINGS AND FOR SURFACES WHERE NEW CONCRETE WILL BE PLACED AGAINST EXISTING CONCRETE.
 - i) CONCRETE SURFACES SHALL BE ROUGHENED TO A FULL 1/4" AMPLITUDE AND AN EPOXY BONDING COMPOUND APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

F. EMBEDDED ITEMS

- 1. SEE ARCHITECTURAL, CIVIL, MECHANICAL, PROCESS MECHANICAL, AND ELECTRICAL DRAWINGS FOR ALL EMBEDDED ITEMS SUCH AS SCREWS, ANCHORS, ELECTRICAL CONDUITS, OPENINGS, ETC. WHICH MAY INTERFERE WITH CONCRETE CONSTRUCTION.
- 2. CONDUITS AND EMBEDDED PIPES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318 AND ACI 350.

G. SLABS-ON-GRADE

- 1. ALL CONCRETE SLABS-ON-GRADE SHALL HAVE THICKENINGS, DEPRESSIONS, OPENINGS, ETC. AS SHOWN OR AS REQUIRED BY VARIOUS TRADES.
- 2. INTERIOR SLABS-ON-GRADE SHALL CONTAIN AN UNDERSLAB VAPOR RETARDER AS SPECIFIED IN SECTION 03 30 00, UNLESS NOTED OTHERWISE.

H. FINISHES

- 1. BROOM FINISH EXTERIOR CONCRETE PLATFORMS, STAIRS AND LOADING DOCKS UNLESS OTHERWISE INDICATED OR SPECIFIED.

- I. THE EXTERIOR OF ALL BURIED WALLS SHALL BE WATERPROOFED AND DAMPROOFED IN ACCORDANCE WITH SPECIFICATION SECTION 07100.

REINFORCING STEEL

- A. MATERIALS SHALL CONFORM TO THE FOLLOWING AND AS SPECIFIED:

- 1. REINFORCING STEEL BARS SHALL CONFORM TO ASTM A615, GRADE 60.
- 2. WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A1064 AND BE FURNISHED IN FLAT SHEETS.

- B. CONCRETE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE ON THE DRAWINGS:

- 1. UNFORMED CONCRETE BOTTOM BARS IN FOOTINGS AND SLABS ON EARTH, GRAVEL OR CRUSHED STONE.....3"
- 2. SLABS AND WALLS EXPOSED TO GROUND, WEATHER OR PROCESS LIQUID AFTER REMOVAL OF FORMS.....2"

C. LAP SPLICES

- 1. ALL SPLICES SHALL BE CLASS B, TENSION LAPS UNLESS OTHERWISE NOTED ON THE PLANS.
- 2. LAP SPlice LENGTHS SHALL BE AS SHOWN IN THESE PLANS.
- 3. FOUNDATION MATS AND BASE SLABS: LAP CONTINUOUS BOTTOM REINFORCEMENT AT THE CENTER OF A SPAN AND CONTINUOUS TOP REINFORCEMENT AT SUPPORTS
- 4. ALL WELDED WIRE REINFORCEMENT SHALL BE SPLICED SO THAT THE OVERLAP OF THE OUTERMOST CROSS WIRES OF EACH ADJOINING SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRES PLUS TWO INCHES, UNLESS NOTED OTHERWISE.

- D. DO NOT WELD OR TACK REINFORCING STEEL.

- E. REINFORCING STEEL, BAR SUPPORTS, AND SPACERS SHALL BE DETAILED IN ACCORDANCE WITH ACI 315-LATEST EDITION, "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", EXCEPT WHERE SHOWN OTHERWISE.

- F. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF REINFORCING STEEL PRIOR TO PROCEEDING WITH FABRICATION.

UNIT MASONRY

- A. ALL MASONRY CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH TMS 402-2016 AND TMS 602-2016.

- B. MASONRY COMPRESSIVE STRENGTH, f'_m, SHALL BE 2,000 PSI UNO. THE MINIMUM 28-DAY COMPRESSIVE STRENGTHS OF INDIVIDUAL MASONRY COMPONENTS SHALL BE AS NOTED BELOW:

f'm	MORTAR	BLOCK	GROUT
2,000 PSI	TYPE S - 1,800 PSI	2,000 PSI	2,000 PSI
2,000 PSI	TYPE M - 2,500 PSI	2,000 PSI	2,000 PSI

- C. MATERIALS SHALL CONFORM TO THE FOLLOWING AND AS SPECIFIED:

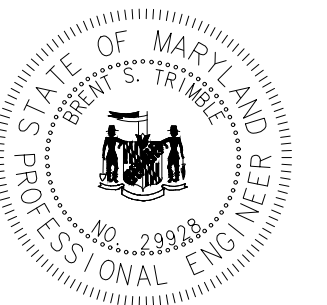
- 1. HOLLOW UNITS: ASTM C90, NORMAL WEIGHT
- 2. MORTAR: ASTM C270, TYPE M OR S, 3/8" FULL BEDDING
 - i) REMOVE MORTAR PROTRUDING INTO CELL CAVITIES TO BE REINFORCED AND GROUTED.
 - ii) TYPE "M" MORTAR SHALL BE USED FOR ALL MASONRY CONSTRUCTION BELOW GRADE, TYPE "S" ABOVE GRADE.
- 3. GROUT: ASTM C476, MIN. 2,000 AT 28 DAYS, 3/8" AGGREGATE MAX., 8" - 10" SLUMP.
 - i) CELLS TO BE GROUTED SHALL BE GROUTED FOR FULL WALL HEIGHT.

D. REINFORCEMENT:

- 1. HORIZONTAL JOINTS: PROVIDE TRUSS-TYPE OR LADDER-TYPE JOINT REINFORCEMENT AT 16" OC.
 - i) USE PREFABRICATED CORNERS AND TEES AT WALL INTERSECTIONS, OVERLAP DISCONTINUED ENDS, AND EXTEND INTO COLUMNS 6" MIN.
- 2. VERTICAL AND HORIZONTAL REINFORCEMENT: ASTM A615, GRADE 60.
 - i) PROVIDE MINIMUM #4 BARS TYP AT WALL INTERSECTIONS, EACH SIDE OF OPENINGS, AND AT WALL ENDS.
 - ii) HOOK TOP OF ALL DISCONTINUED BARS, LAP CONTINUOUS REINFORCEMENT 48 BAR DIAMETERS UNLESS NOTED OTHERWISE.
 - iii) USE BAR SPACERS IN EVERY 4TH COURSE WHERE CELLS ARE TO BE GROUTED.

- E. CONTRACTOR IS RESPONSIBLE FOR LATERAL BRACING OF MASONRY WALLS DURING CONSTRUCTION.

- F. WHERE EXPANSION ANCHOR BOLTS ARE SET IN MASONRY WALLS, FILL BLOCK CELLS WITH GROUT FOR BOLTED COURSE AND TWO COURSES ABOVE AND BELOW ANCHOR ELEVATION.



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. 28928 EXPIRATION DATE 01/11/2028
RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND
STRUCTURAL GENERAL NOTES

ENGINEER GG	CHECKED BY BST
DRAWN BY MBP	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
S-01
 SHEET NO. 18 OF 42

ALUMINUM

A. MATERIALS SHALL CONFORM TO THE FOLLOWING:

- 1. SHAPES AND PLATES: ALLOY TYPE 6061-T6.
2. BOLTED CONNECTIONS: ASTM F593, TYPE 304, CONDITION SH1 OR SH2 STAINLESS STEEL
3. WELDED CONNECTIONS: PER AWS D1.2 "STRUCTURAL WELDING CODE - ALUMINUM".
4. GRATING: ALLOY TYPE 6063-T6.

B. CONNECTIONS SHALL BE BOLTED UNLESS WELDING IS INDICATED. FIELD WELDING OF STRUCTURAL MEMBERS IS NOT PERMITTED UNLESS SPECIFICALLY INDICATED.

C. BAND ALL EDGES AND OPENINGS IN GRATINGS.

- 1. PROVIDE GALVANIC SEPARATION WHERE ALUMINUM IS IN CONTACT WITH CONCRETE OR STEEL.
2. PROVIDE DISSIMILAR METAL PROTECTION AT LOCATIONS WHERE DISSIMILAR METALS ARE IN CONTACT. PROTECT WITH A MINIMUM 4-MIL DRY THICKNESS COAT OF ZINC CHROMATE PRIMER ON THE ALUMINUM SURFACES AND A MINIMUM 2-MIL DRY THICKNESS COAT OF ALL-METAL PRIMER FOLLOWED BY ONE COAT OF MINIMUM 3-MIL DRY THICKNESS ALUMINUM PAINT TO THE DISSIMILAR METAL.

E. ALL ALUMINUM SHALL BE ANODIZED, INCLUDING ALUMINUM LADDERS AND LADDER COMPONENTS.

POST-INSTALLED ANCHORS AND POST-INSTALLED REINFORCING STEEL

A. EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AS PROVIDED BY HILTI, INC. CONTACT HILTI AT (800) 879-8000 FOR PRODUCT RELATED QUESTIONS.

- 1. FOR ANCHORING INTO CRACKED AND UNCRACKED CONCRETE:
i) ADHESIVE ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 308.1 AND/OR ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. ADHESIVE ANCHORS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER WHERE DESIGNATED ON THE CONTRACT DOCUMENTS. PREAPPROVED PRODUCTS INCLUDE:
(1) ADHESIVES FOR USE:
(a) HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT AND VACUUM WITH HAS THREADED ROD (ICC-ES ESR-3187)
(b) HILTI HIT-RE 500v3 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT AND VACUUM WITH HAS THREADED ROD (ICC-ES ESR-3814)
(c) HILTI HIT-RE 500v3 SAFE SET SYSTEM WITH HILTI ROUGHENING TOOL (HIT RT) WITH HAS THREADED ROD (ICC-ES ESR-3814) FOR DIAMOND CORED HOLES
(2) STEEL ELEMENTS FOR USE WITH ADHESIVE:
(a) HILTI HAS-R-316 STAINLESS STEEL ROD
ii) MECHANICAL ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 308.2 AND/OR ICC-ES AC108 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. PREAPPROVED PRODUCTS INCLUDE:
(1) HILTI KWIK BOLT-TZ EXPANSION ANCHOR SAFE SET SYSTEM WITH HOLLOW DRILL BIT AND VACUUM AND SI-AT-A22 TOOL WITH ADAPTIVE TORQUE FOR APPLICABLE SIZES (ICC-ES ESR-1917)
2. FOR REBAR DOWELING INTO CRACKED AND UNCRACKED CONCRETE:
i) PREAPPROVED ADHESIVE SYSTEMS INCLUDE:
(1) HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT AND VACUUM WITH CONTINUOUSLY DEFORMED REBAR (ICC-ES ESR-3187)
(2) HILTI HIT-HY 500v3 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT AND VACUUM WITH CONTINUOUSLY DEFORMED REBAR (ICC-ES ESR-3814)
(3) HILTI HIT-RE 500v3 SAFE SET SYSTEM WITH HILTI ROUGHENING TOOL (HIT RT) WITH CONTINUOUSLY DEFORMED REBAR IN DIAMOND CORED HOLES (ICC-ES ESR-3814)
3. FOR ANCHORAGE TO SOLID GROUTED CONCRETE MASONRY UNITS:
i) ADHESIVE ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC08. PREAPPROVED PRODUCTS INCLUDE:
(1) ADHESIVE(S) FOR USE:
(a) HILTI HIT-HY 270 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT AND VACUUM (ICC-ES ESR-4143)
(2) STEEL ELEMENT(S) FOR USE WITH ADHESIVE:
(a) HILTI HAS CONTINUOUSLY THREADED ROD OR CONTINUOUSLY DEFORMED STEEL REBAR
ii) MECHANICAL ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ICC-ES AC101 OR ICC-ES AC106. PREAPPROVED PRODUCTS INCLUDE:
(1) HILTI KWIK BOLT-3 EXPANSION ANCHOR (ICC-ES ESR-1385)

B. POST-INSTALLED REINFORCING STEEL BAR CONNECTIONS SHALL CONSIST OF THE FOLLOWING EPOXY SYSTEMS AS PROVIDED BY HILTI, INC. CONTACT HILTI AT (800) 879-8000 FOR PRODUCT RELATED QUESTIONS.

- 1. THE EPOXY SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE ICC-ES ACCEPTANCE CRITERIA FOR POST-INSTALLED EPOXY ANCHORS IN CONCRETE ELEMENTS (AC308), TABLE 3.8. TECHNICAL DATA SHALL BE PUBLISHED IN AN ICC-ES EVALUATION SERVICE REPORT SHOWING COMPLIANCE WITH THE IBC. PREAPPROVED PRODUCTS INCLUDE:
i. HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT (TE-CD OR TE-YD) AND VC 20/40 VACUUM (VC 20-U OR VC 40-U) SYSTEM WITH CONTINUOUSLY DEFORMED REINFORCING STEEL (ICC-ES ESR-3187)

- ii. HILTI HIT-HY 500 V3 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT (TE-CD OR TE-YD) AND VC 20/40 VACUUM (VC 20-U OR VC 40-U) SYSTEM WITH CONTINUOUSLY DEFORMED REINFORCING STEEL (ICC-ES ESR-3814)
iii. HILTI HIT-RE 500 V3 SAFE SET SYSTEM WITH HILTI ROUGHENING TOOL (YE-YRT) WITH CONTINUOUSLY DEFORMED REINFORCING STEEL IN DIAMOND CORED HOLES (ICC-ES ESR-3814)

C. THE ABOVE LISTED PRODUCTS ARE THE DESIGN BASIS FOR THIS PROJECT. SUBSTITUTION REQUESTS FOR PRODUCTS OR DRILLING METHODS OTHER THAN THOSE LISTED ABOVE MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. SUBSTITUTION REQUESTS SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER OF RECORD AND SHALL MEET THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS.

D. USE OF DIAMOND CORE BIT WITH ROUGHENING TOOL FOR ANCHOR HOLES REQUIRES APPROVAL FROM ENGINEER OF RECORD PRIOR TO DRILLING. UNLESS OTHERWISE SHOWN IN THE DRAWINGS, ALL HOLES SHALL BE DRILLED PERPENDICULAR TO THE CONCRETE SURFACE.

E. INSTALL ANCHORS PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.

F. OVERHEAD ADHESIVE ANCHORS MUST BE INSTALLED USING THE HILTI PROFI PISTON PLUG SYSTEM.

G. POST-INSTALLED ANCHORS AND REINFORCING STEEL BAR INSTALLATIONS SHALL BE PERFORMED BY PERSONNEL TRAINED TO INSTALL THE SYSTEM PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).

- 1. THE CONTRACTOR SHALL ARRANGE FOR A MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS THAT ARE TO BE USED AS PART OF THIS PROJECT. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION PRIOR TO THE COMMENCEMENT OF INSTALLING THE POST-INSTALLED PRODUCTS THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO WILL INSTALL POST-INSTALLED ANCHORS AND REINFORCING STEEL BARS HAVE BEEN TRAINED TO INSTALL THE SYSTEM PER THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII).

I. POST-INSTALLED ANCHOR AND REINFORCING STEEL CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS/REINFORCING STEEL AND PROXIMITY OF ANCHORS/REINFORCING STEEL TO EDGE OF CONCRETE. INSTALL ANCHORS/REINFORCING STEEL IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

J. EXISTING REINFORCING STEEL IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIED POST-INSTALLED ANCHOR/REINFORCING STEEL LOCATIONS. UNLESS NOTED ON THE CONTRACT DRAWINGS THAT THE EXISTING REINFORCING STEEL BARS CAN BE CUT, THE CONTRACTOR SHALL PREVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL LOCATE THE POSITION OF THE EXISTING REINFORCING STEEL BARS IN THE VICINITY OF THE PROPOSED CONCRETE ANCHORS/REINFORCING STEEL, BY HILTI FERROSCAN, GPR, X-RAY, OR OTHER MEANS.

GENERAL REQUIREMENTS

A. ELEVATIONS ARE TO BE ACTUAL FINISH ELEVATION. SEE CIVIL DRAWINGS FOR GRADE ELEVATIONS.

B. FOR STAKE OUT DATA, SEE CIVIL DRAWINGS.

C. SHORING REQUIRED FOR THE STABILITY OF THE UNCOMPLETED STRUCTURE OR FOR INSTALLATION OR MODIFICATION OF STRUCTURAL MEMBERS, SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

D. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS FOUND IN CONTRACT DOCUMENTS AND/OR FIELD CONDITIONS.

E. EQUIPMENT PADS, PEDESTALS, AND OPENINGS

- 1. CONTRACTOR SHALL COORDINATE ALL REQUIRED OPENINGS WITH ARCHITECTURAL, MECHANICAL, PROCESS MECHANICAL, AND ELECTRICAL DRAWINGS.
2. CONTRACTOR SHALL COORDINATE FINAL SIZE AND LOCATION OF ALL OPENINGS WITH THE ACTUAL EQUIPMENT SUPPLIED, PROJECT REQUIREMENTS, AND WITH FIELD CONDITIONS.
3. THE ENGINEER PERMITS NO OPENINGS OR ALTERATIONS THROUGH BEAMS OR COLUMNS, UNLESS DETAILED ON STRUCTURAL DRAWINGS.
4. THE SIZES AND LOCATIONS OF EQUIPMENT PADS AND PEDESTALS, AS WELL AS EQUIPMENT RELATED FLOORS AND SLAB OPENINGS ARE DEPENDENT ON THE ACTUAL EQUIPMENT FURNISHED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND VERIFY ALL SUCH ITEMS. NO DIMENSIONS INDICATED ON THESE DRAWINGS SHALL BE ALTERED WITHOUT THE ENGINEER'S APPROVAL.

F. DELEGATED DESIGN

- 1. CONTRACTOR SHALL DESIGN ALL PIPE SADDLES AND CONNECTIONS TO SUPPORTING MEMBERS AS SHOWN IN THE PLANS AND IN ACCORDANCE WITH THE SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AND ELEVATIONS WITH SADDLE DESIGNS.
2. ANY ADDITIONAL PIPE SUPPORTS THAT ARE REQUIRED AND NOT SHOWN OR DETAILED SHALL BE DESIGNED BY THE CONTRACTOR. CALCULATIONS AND DETAILS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND.
3. ALL FRP GRATINGS, STAIRS, HANDRAILS, AND STRUCTURAL COMPONENTS SHALL BE DESIGNED BY THE CONTRACTOR IN ACCORDANCE WITH SPECIFICATION SECTION 06500.

4. IN ADDITION TO SUBMISSIONS AS REQUIRED BY THE SPECIFICATIONS, CONTRACTOR SHALL SUBMIT PLANS, DETAILS AND CALCULATIONS, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF MARYLAND FOR THE FOLLOWING: RAILING, GRATING, METAL STAIRS, PRE-ENGINEERED BUILDINGS, PRE-FABRICATED BUILDINGS, PRECAST BUILDINGS, AND PRECAST CONCRETE STRUCTURES.

G. ALL HANDRAIL SHALL BE ALUMINUM WITH SIZES AS SHOWN AND DETAILED IN THE PLANS AND SPECIFICATIONS.

H. PROJECT DOCUMENTS ARE INTENDED TO BE COMPLEMENTARY. ITEMS INDICATED IN ONE PLACE OR ANOTHER AMONG THE DOCUMENTS SHALL BE INTENDED AS THOUGH SHOWN IN ALL PLACES.

EXCAVATION AND EARTHWORK

A. FOR SITE, EXCAVATION, FILL, AND BACKFILL REQUIREMENTS, SEE PROJECT SPECIFICATIONS AND CONTRACT DRAWINGS.

B. REFER TO SPECIFICATIONS FOR ADDITIONAL SITE PREPARATION AND FOUNDATION SUPPORT REQUIREMENTS.

C. LOCATE ANY EXISTING UTILITY LINES OR APPURTENANCES AND ADVISE ENGINEER OF ANY CONFLICTS WITH NEW STRUCTURES PRIOR TO THEIR CONSTRUCTION.

D. DO NOT DEMOLISH ANY EXISTING STRUCTURE WITHOUT WRITTEN AUTHORIZATION.

E. ALL EXCAVATIONS SHALL BE KEPT DRY. STANDING WATER SHALL NOT BE ALLOWED IN EXCAVATIONS.

F. CONTRACTOR SHALL DESIGN AND PROVIDE SUPPORT OF EXCAVATION SYSTEM AS REQUIRED TO SUPPORT SOIL AND CONSTRUCTION LOADS.

G. CONTRACTOR SHALL DESIGN AND PROVIDE UNDERPINNING SYSTEM TO SUPPORT EXISTING ADJACENT STRUCTURES AS REQUIRED TO COMPLETE THE WORK.

FOUNDATIONS

A. FOUNDATION PREPARATION

- 1. BUILDING AREAS SHALL BE COMPLETELY STRIPPED OF VEGETATION, PAVEMENTS, WALLS AND SOFT OR MUDDY AREAS.
2. EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 95% OF MODIFIED PROCTOR DENSITY.
3. FILL ALL VOIDS AND REPLACE DISTURBED SOIL WITH LEAN CONCRETE.

B. BEFORE PLACING ANY CRUSHED STONE OR CONCRETE ON SUBGRADE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.

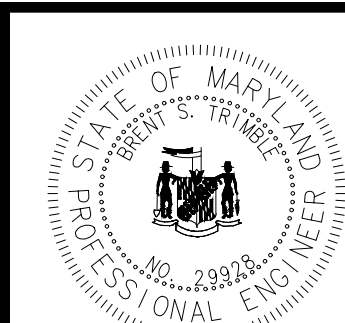
C. ALL FOUNDATIONS SHALL BEAR ON A MINIMUM OF 12" OF #57 STONE OVER UNDISTURBED SOIL WITH AN ALLOWABLE BEARING CAPACITY AS NOTED ON THE CONTRACT DRAWINGS.

D. FOR MECHANICAL OR ELECTRICAL WORK TO BE INCORPORATED IN FOUNDATION WORK, SEE MECHANICAL OR ELECTRICAL DRAWINGS.

E. CONCRETE SHALL NOT BE POURED ON FROZEN GROUND.

F. BACKFILL MATERIAL MAY NOT BE PLACED AGAINST FOUNDATION WALLS UNTIL THE UPPER BRACING FLOORS ARE IN PLACE FOR AT LEAST 7 DAYS, AND THE WALLS AND BRACING FLOORS HAVE REACHED THE MINIMUM 28-DAY COMPRESSIVE STRENGTH. WHERE BACKFILL IS REQUIRED ON BOTH SIDES OF WALL, BACKFILL BOTH SIDES SIMULTANEOUSLY.

G. REFER TO GEOTECHNICAL INVESTIGATION REPORT DATED DECEMBER 1, 2021 BY FINDLING, INC.



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.
EXPIRATION DATE 01/11/2028
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3795

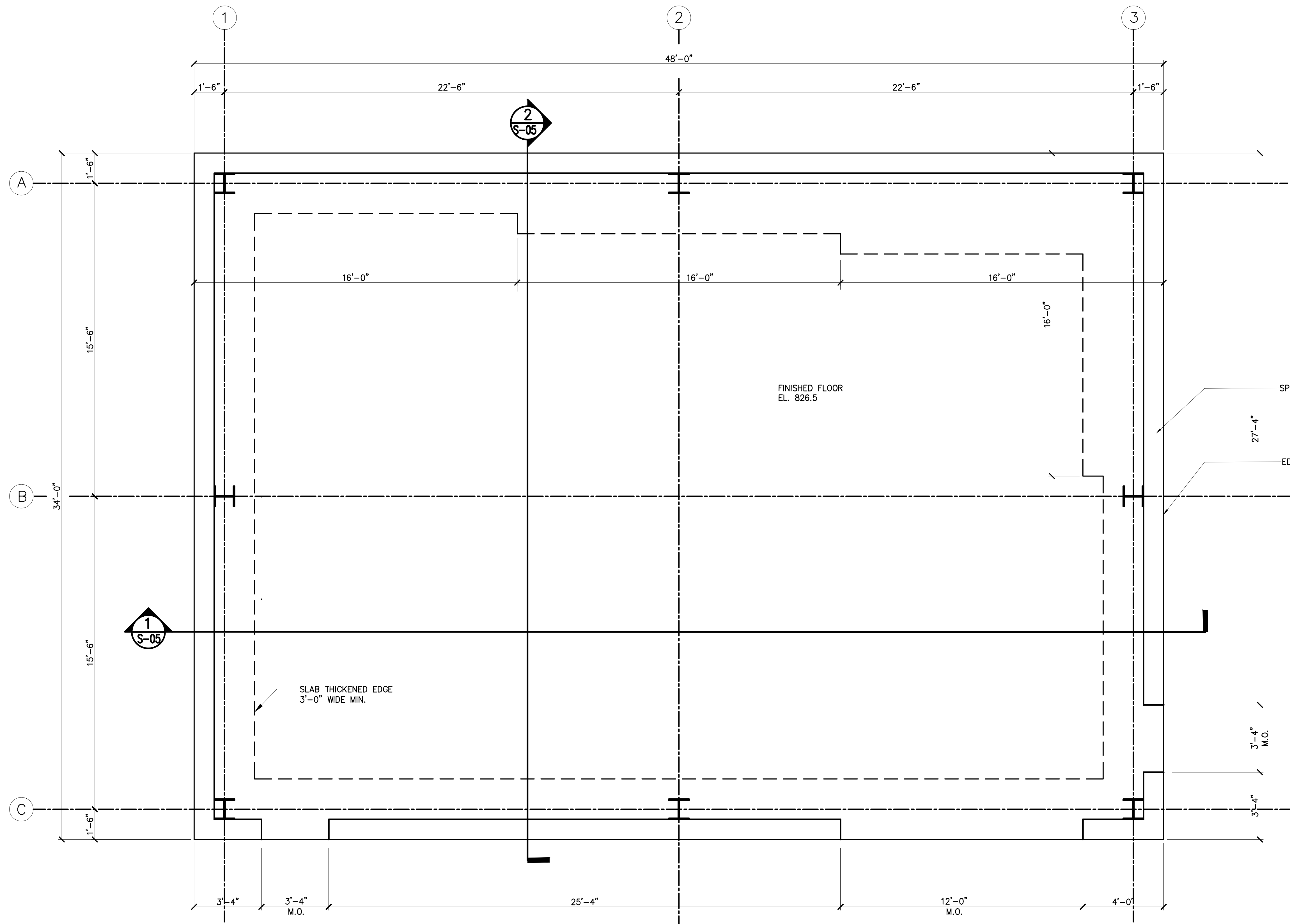
Table with columns: NO., DESCRIPTION, REVISIONS, BY, DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND
STRUCTURAL GENERAL NOTES

Table with columns: ENGINEER (GG), CHECKED BY (BST), DRAWN BY (MBP), DATE (2023), RK&K PROJECT NUMBER (20119)

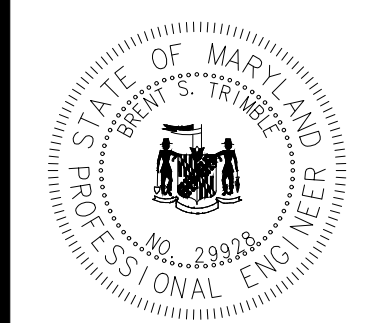
DRAWING NUMBER
S-02
SHEET NO. 19 OF 42

R:\21\2119 - \proj\hok.com\1\1\Chief\Projects\2020\2019_Emmitsburg\CD\01\1\AS\15-04.dwg Jan 05, 2024 - 8:55am Plot Scale: 1:1



1 FOUNDATION PLAN
SCALE: 3/8"=1'-0"

- NOTES:**
1. FOR STRUCTURE LOCATION, SEE DWG. XX-XX.
 2. FOR STRUCTURAL GENERAL NOTES, SEE DWGS. S-01 TO S-02.
 3. FOR STRUCTURAL STANDARD DETAILS, SEE DWGS. S-05 TO S-06.
 4. CONTRACTOR SHALL COORDINATE WITH PRE-ENGINEERED BUILDING MANUFACTURER. REFER TO ARCHITECTURAL DRAWINGS.
 5. FOR FINISHED ELEVATIONS, REFER TO ARCHITECTURAL DRAWINGS.
 6. FOR EQUIPMENT PAD DETAILS, SEE DWG. M-XX.



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. 28928 EXPIRATION DATE 01/11/2028

RK&K
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

NO.	DESCRIPTION	BY	DATE

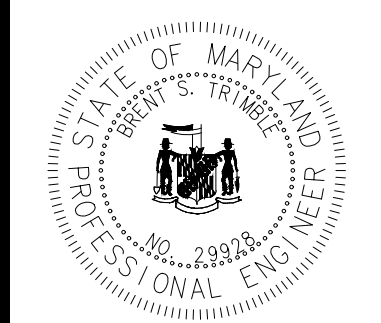
TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

FOUNDATION PLAN

ENGINEER GG	CHECKED BY BST
DRAWN BY MBP	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
S-04

SHEET NO. 21 OF 42



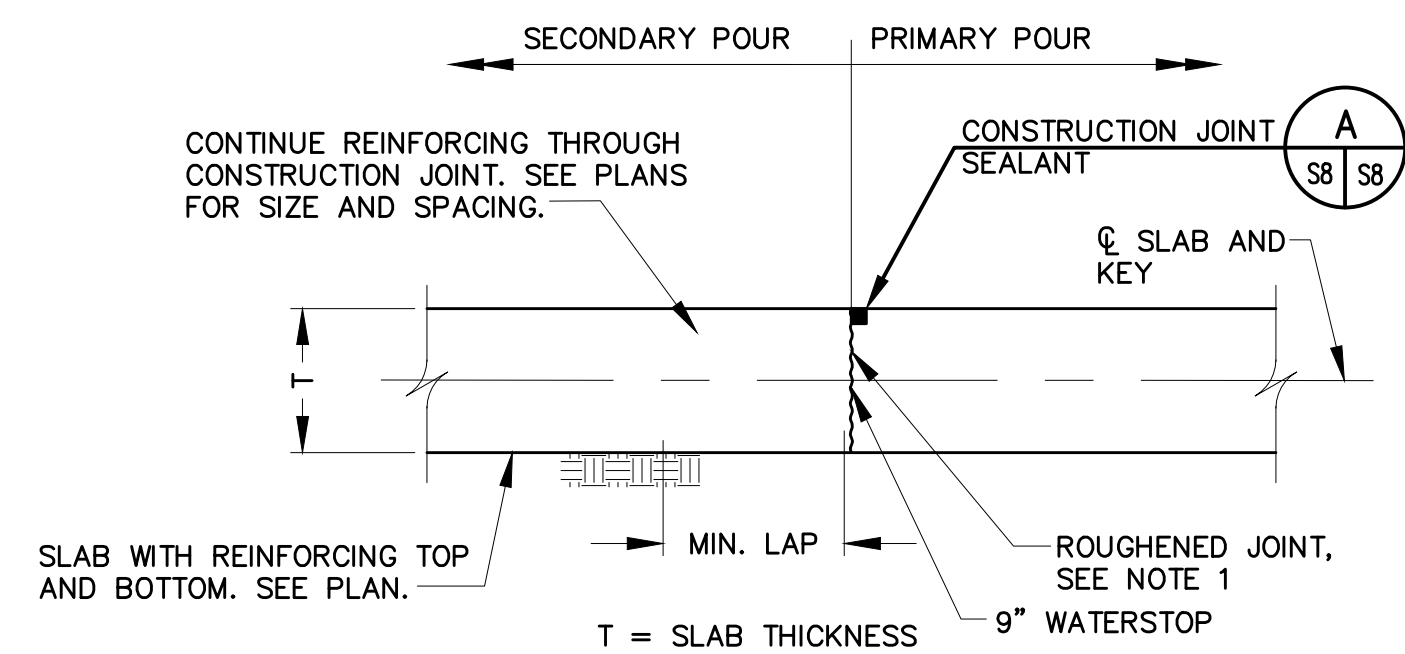
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 EXPIRATION DATE 01/11/2028
 LICENSE NO. 22828
RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND
 STRUCTURAL DETAILS

ENGINEER	CHECKED BY
GG	BST
DRAWN BY	DATE
MBP	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
S-06
 SHEET NO. 23 OF 42

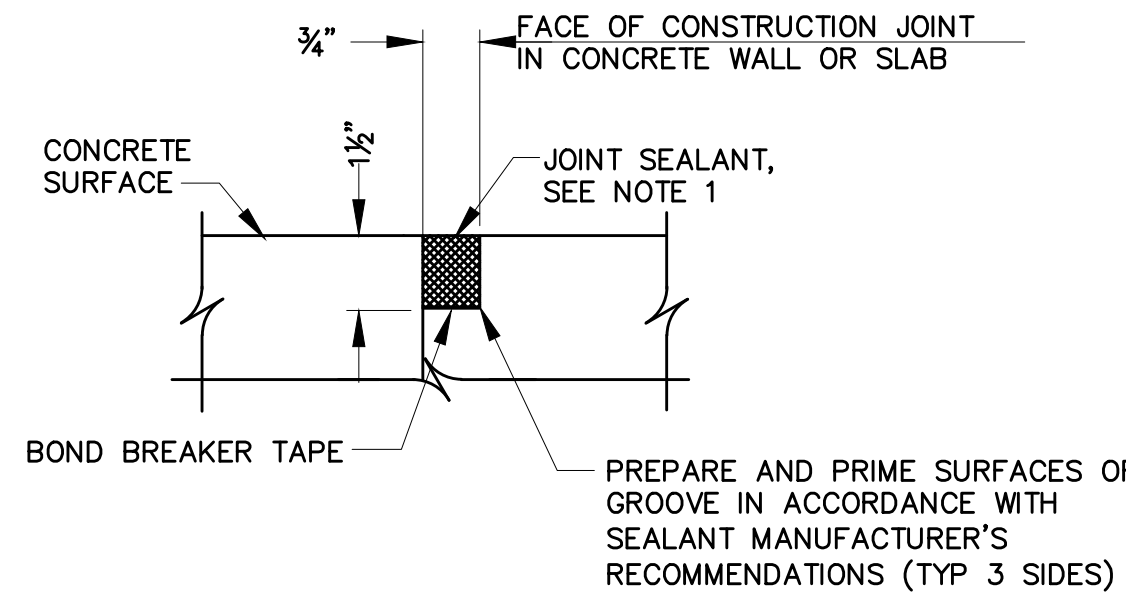


NOTE:

1. SURFACE OF CONCRETE PLACED IN THE PRIMARY POUR SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND CLEANED WITH A COARSE WIRE BRUSH AND COMPRESSED AIR TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO HARDENED CONCRETE. APPLY BONDING ADHESIVE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EPOXY BONDING ADHESIVE SHALL BE SIKADUR 32, HI-MOD, OR APPROVED EQUAL.

OPTIONAL FOUNDATION CONSTRUCTION JOINT DETAIL

NTS

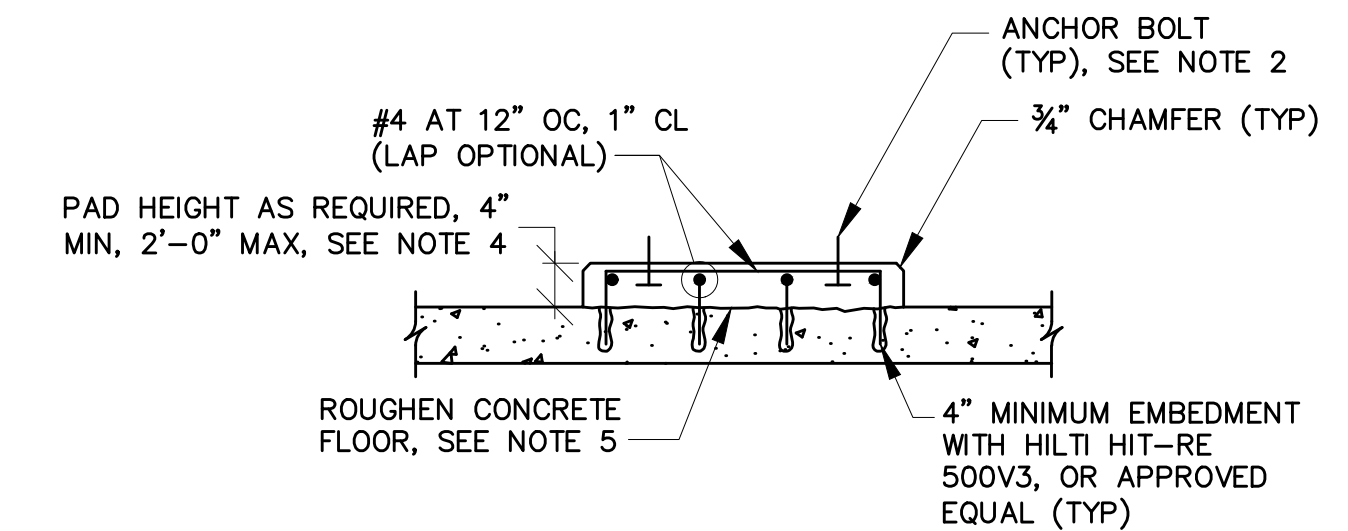


NOTE:

1. SEALANT TO BE LOCATED ON FLUID SIDE(S) OF WALL OR WEATHER SIDE, IF NO FLUID.

CONSTRUCTION JOINT SEALANT DETAIL

NTS



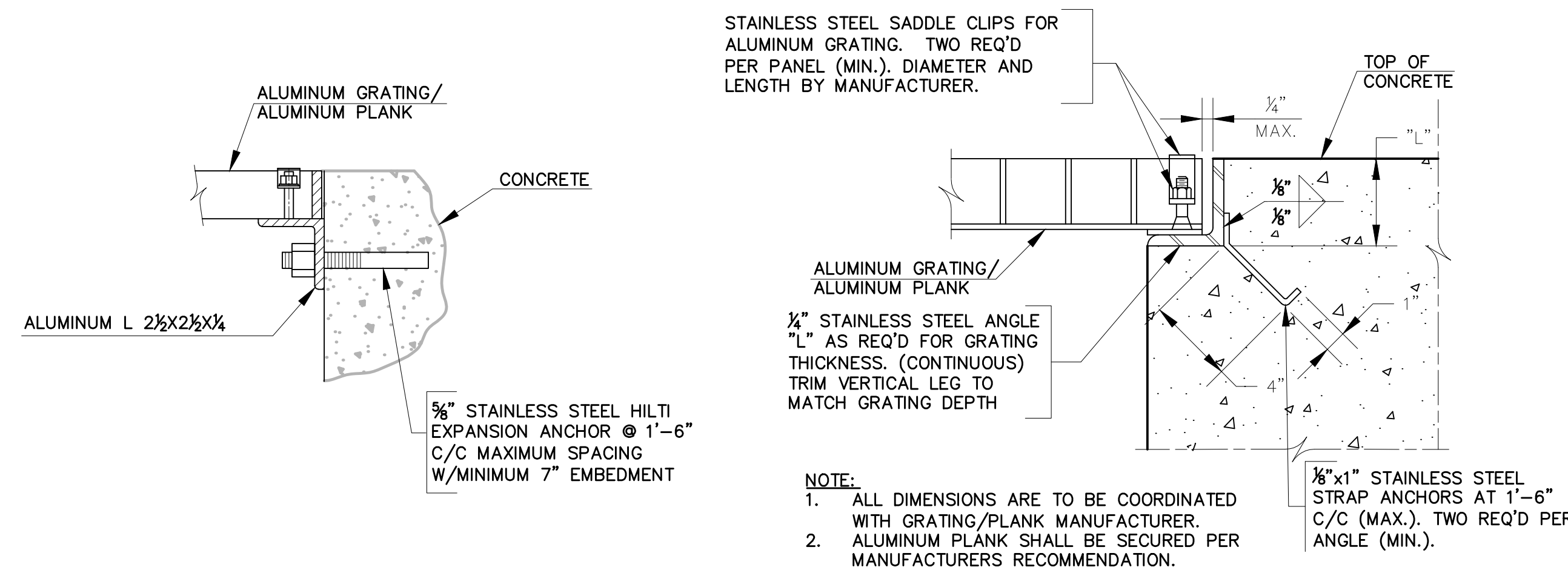
NOTES:

1. THE MINIMUM PAD SIZE SHALL BE AS INDICATED OR AS DETERMINED BY THE EQUIPMENT MANUFACTURER.
2. WHEN ANCHOR BOLTS ARE REQUIRED, THE SIZE, NUMBER, TYPE, LOCATION AND THE THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER. HOLD CONCRETE ANCHOR BOLTS IN POSITION WITH A TEMPLATE WHILE PAD IS BEING PLACED.
3. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS NOTED OTHERWISE ON THE PLANS.
4. FOR EQUIPMENT PADS WITH HEIGHT GREATER THAN 2'-0", THE CONTRACTOR SHALL DESIGN AND SUBMIT A DETAIL TO THE ENGINEER FOR APPROVAL.
5. SURFACE OF CONCRETE SHALL BE ROUGHENED TO A FULL AMPLITUDE OF 1/4" AND SCRUBBED WITH A COARSE WIRE BRUSH TO REMOVE ALL LAITANCE AND TO PROVIDE A ROUGHENED SURFACE FOR BONDING NEW CONCRETE TO EXISTING CONCRETE. APPLY BONDING ADHESIVE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. EPOXY BONDING ADHESIVE SHALL BE "SIKADUR 32, HI-MOD", OR APPROVED EQUAL.

EQUIPMENT PAD DETAIL

NTS

MX	S-06
MX	
MX	

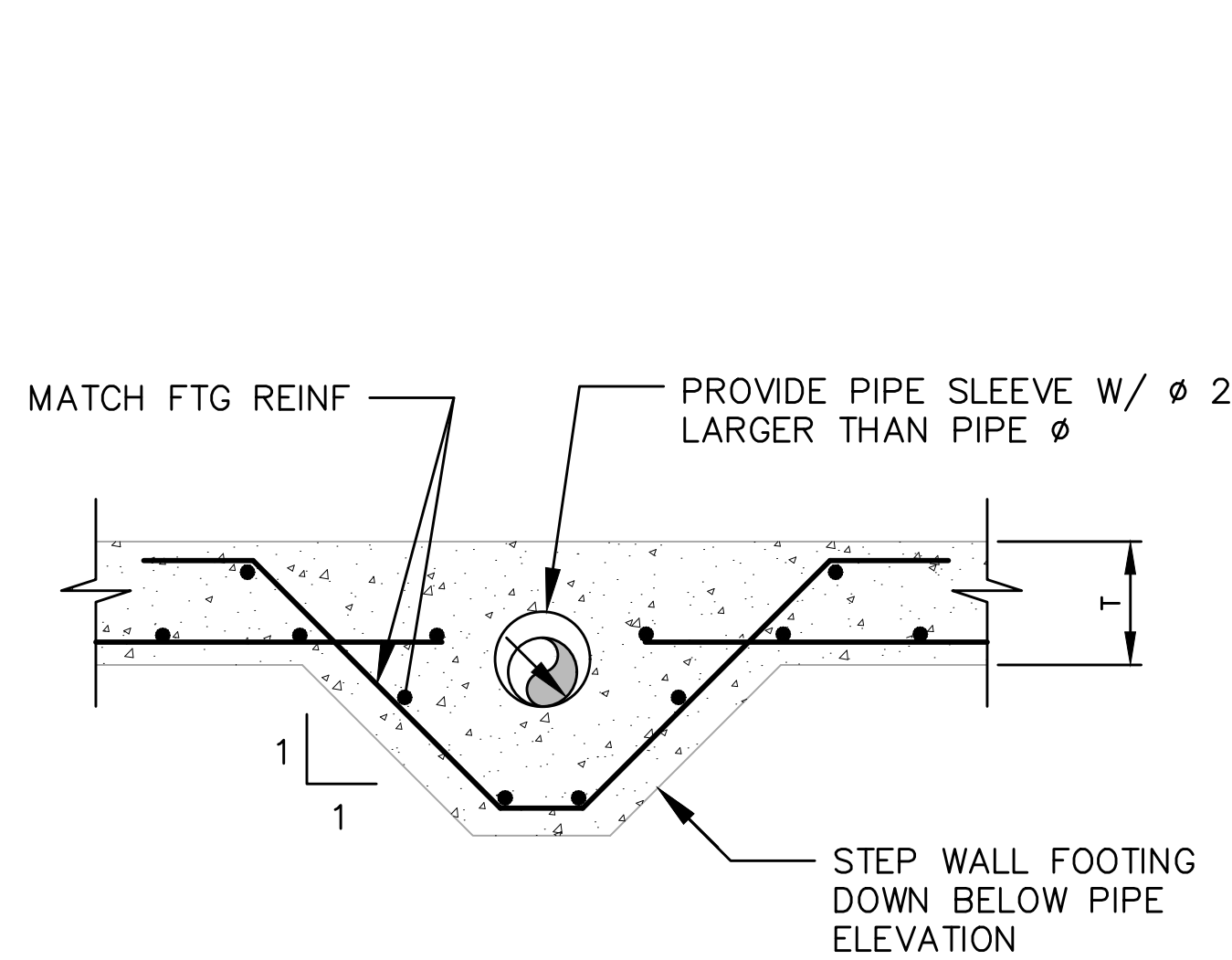


NOTE:

1. ALL DIMENSIONS ARE TO BE COORDINATED WITH GRATING/PLANK MANUFACTURER.
2. ALUMINUM PLANK SHALL BE SECURED PER MANUFACTURER'S RECOMMENDATION.

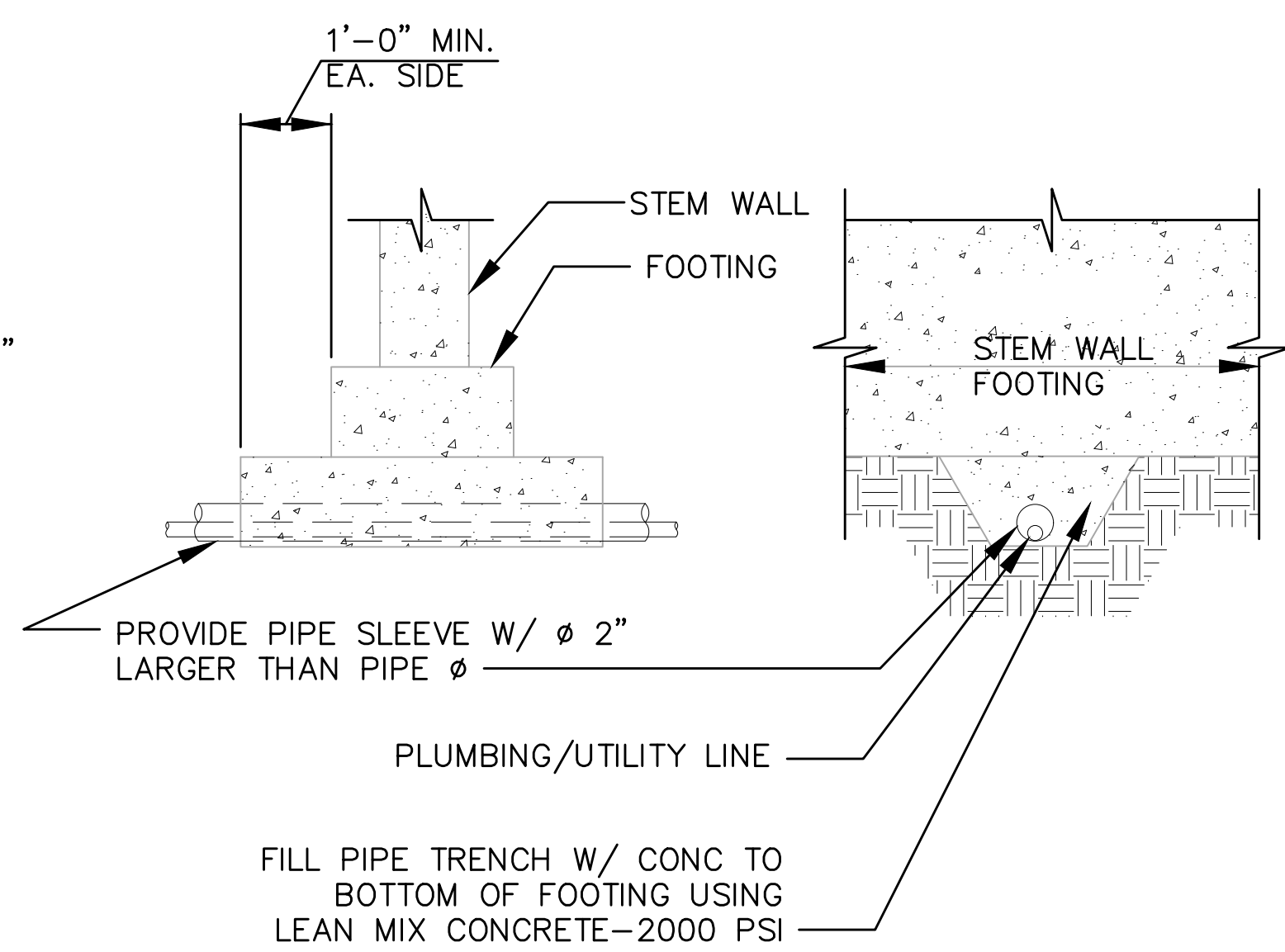
GRATING/ALUMINUM PLANK SUPPORT DETAIL

NO SCALE



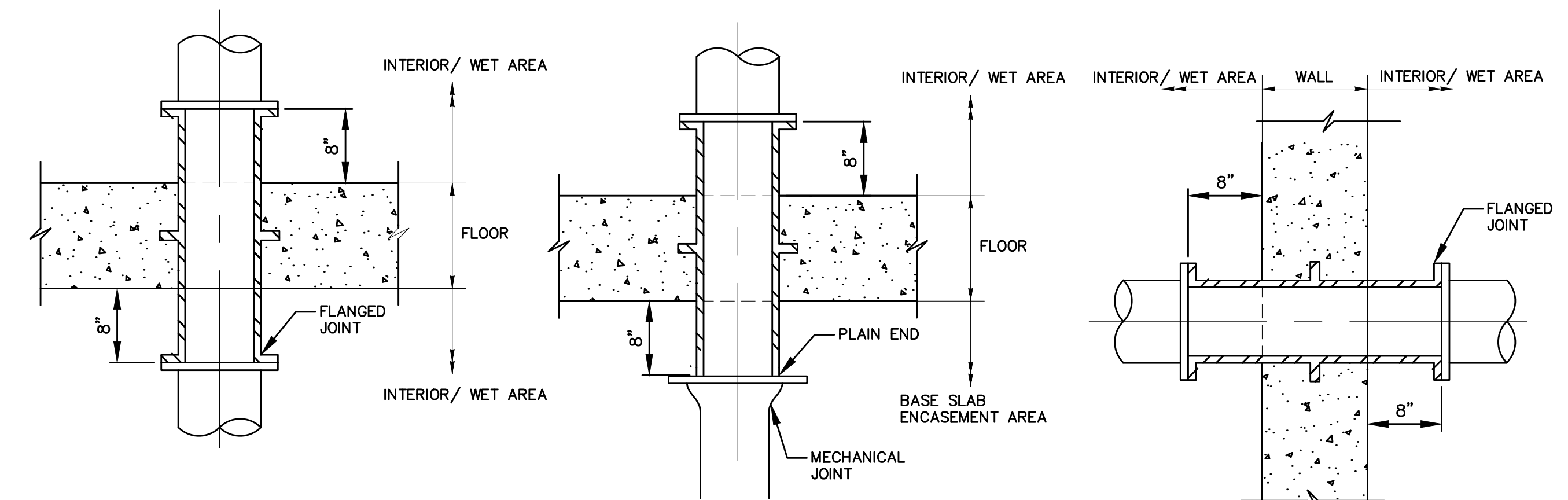
TYPICAL UTILITY PIPE THROUGH FOOTING

SCALE: NONE



TYPICAL UTILITY PIPE UNDER FOOTING

SCALE: NONE



NOTE:

TYPICAL AT ALL DUCTILE IRON PIPE FLOOR PENETRATIONS IN AN ELEVATED SLAB.

NOTE:

TYPICAL AT ALL DUCTILE IRON PIPE FLOOR PENETRATIONS THROUGH A BASE SLAB.

NOTE:

TYPICAL AT ALL DUCTILE IRON PIPE NON-BURIED WALL PENETRATIONS.

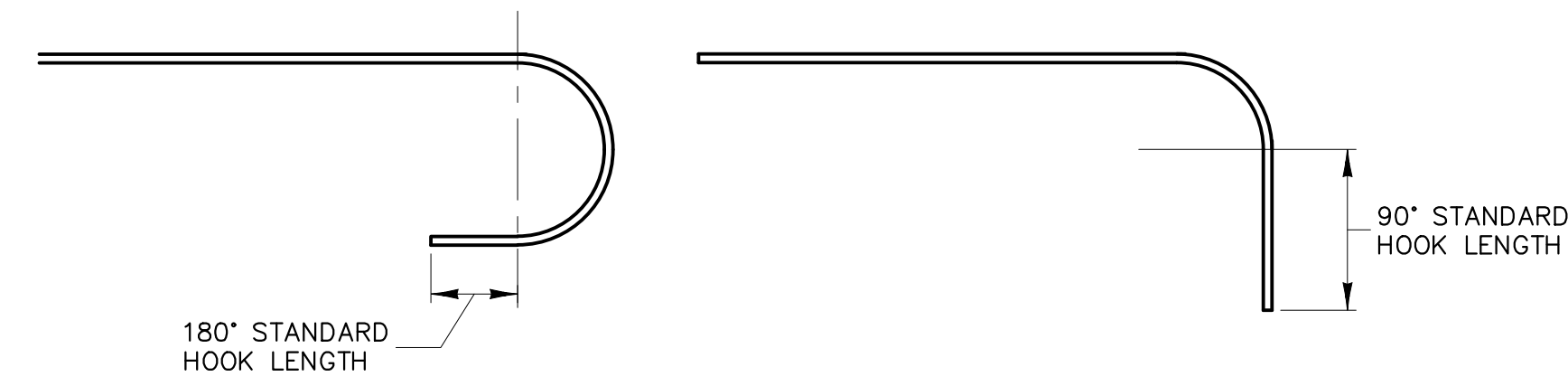
PIPE WALL AND SLAB PENETRATION DETAILS

NTS

NOTE:

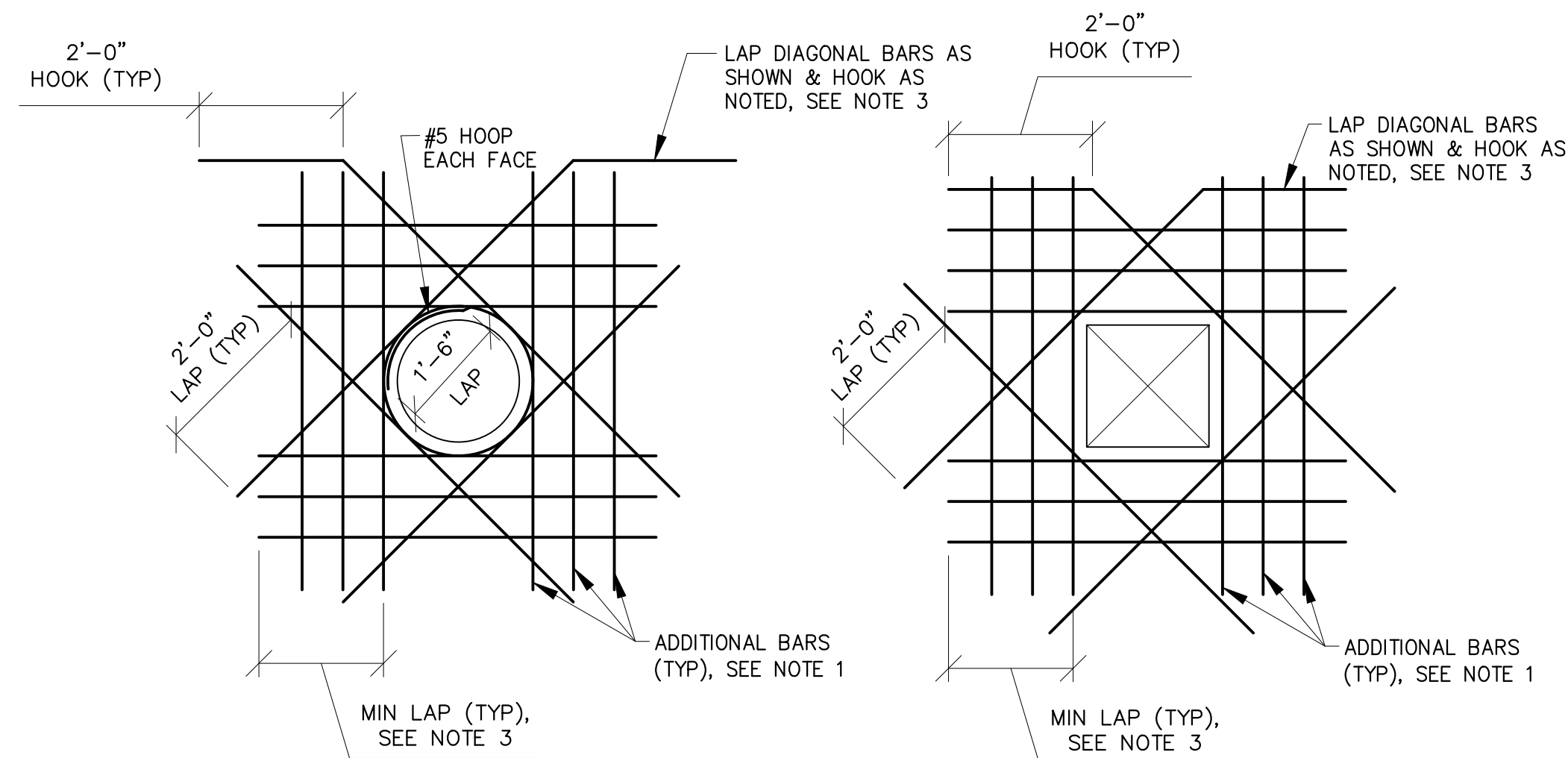
- TOP BARS ARE DEFINED AS BARS IN WALLS, SLABS AND BEAMS HAVING MORE THAN 12" OF FRESH CONCRETE CAST BELOW.

REINFORCEMENT SIZE	DEVELOPMENT LENGTH		LAP SPLICE LENGTH		HOOK DEVELOPMENT LENGTH	HOOK STRAIGHT EXTENSION	
	TOP BARS	BOTTOM BARS	TOP BARS	BOTTOM BARS		90 DEGREE	180 DEGREE
#3	1'-1"	1'-0"	1'-5"	1'-4"	9"	5"	3"
#4	1'-5"	1'-2"	1'-11"	1'-7"	11"	6"	3"
#5	1'-9"	1'-5"	2'-4"	1'-11"	1'-2"	8"	3"
#6	2'-8"	2'-1"	3'-6"	2'-9"	1'-5"	9"	3"
#7	3'-10"	3'-0"	5'-0"	3'-11"	1'-7"	11"	4"
#8	4'-5"	3'-5"	5'-9"	4'-6"	1'-10"	1'-0"	4"
#9	5'-5"	4'-2"	7'-1"	5'-4"	2'-1"	1'-2"	5"
#10	6'-9"	5'-2"	8'-10"	6'-9"	2'-4"	1'-4"	6"
#11	8'-1"	6'-2"	10'-7"	8'-1"	2'-7"	1'-5"	6"



REINFORCING DEVELOPMENT AND LAP LENGTH DETAIL

NTS

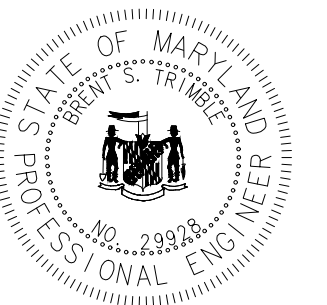


NOTES:

- NUMBER OF ADDITIONAL REINFORCING BARS AT EACH SIDE OF OPENING SHALL EQUAL HALF THE NUMBER OF INTERRUPTED BARS IN EACH LAYER OF REINFORCING.
- SIZE OF ADDITIONAL REINFORCING BARS TO EQUAL SIZE OF INTERRUPTED REINFORCING BARS.
- PROVIDE STANDARD HOOK BARS IF LAP LENGTH EXTENSION CANNOT BE OBTAINED AT JOINTS OR OTHER OBSTRUCTIONS. PLACE ADDITIONAL BARS IN SAME PLANES AS INTERRUPTED REINFORCING.
- SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINFORCING BAR CUT, UNLESS OTHERWISE NOTED. LOCATE DIAGONALS IN EACH LAYER OF REINFORCING.
- PLACE DIAGONAL BARS INSIDE NORMAL REINFORCING.
- ALL REINFORCING TO CLEAR OPENING OR FLANGE COLLARS BY 2".
- ADDITIONAL REINFORCING BARS ARE REQUIRED AT ALL LOCATIONS WHERE THE REINFORCING IS INTERRUPTED BY AN OPENING.

TYPICAL ADDITIONAL REINFORCING BAR DETAILS

NTS



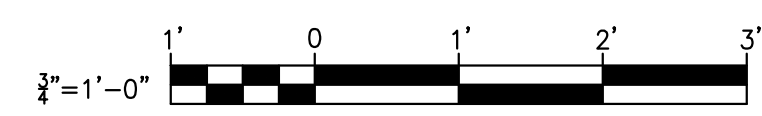
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 28928 EXPIRATION DATE 01/11/2028
RK&K 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

NO.	DESCRIPTION	BY	DATE

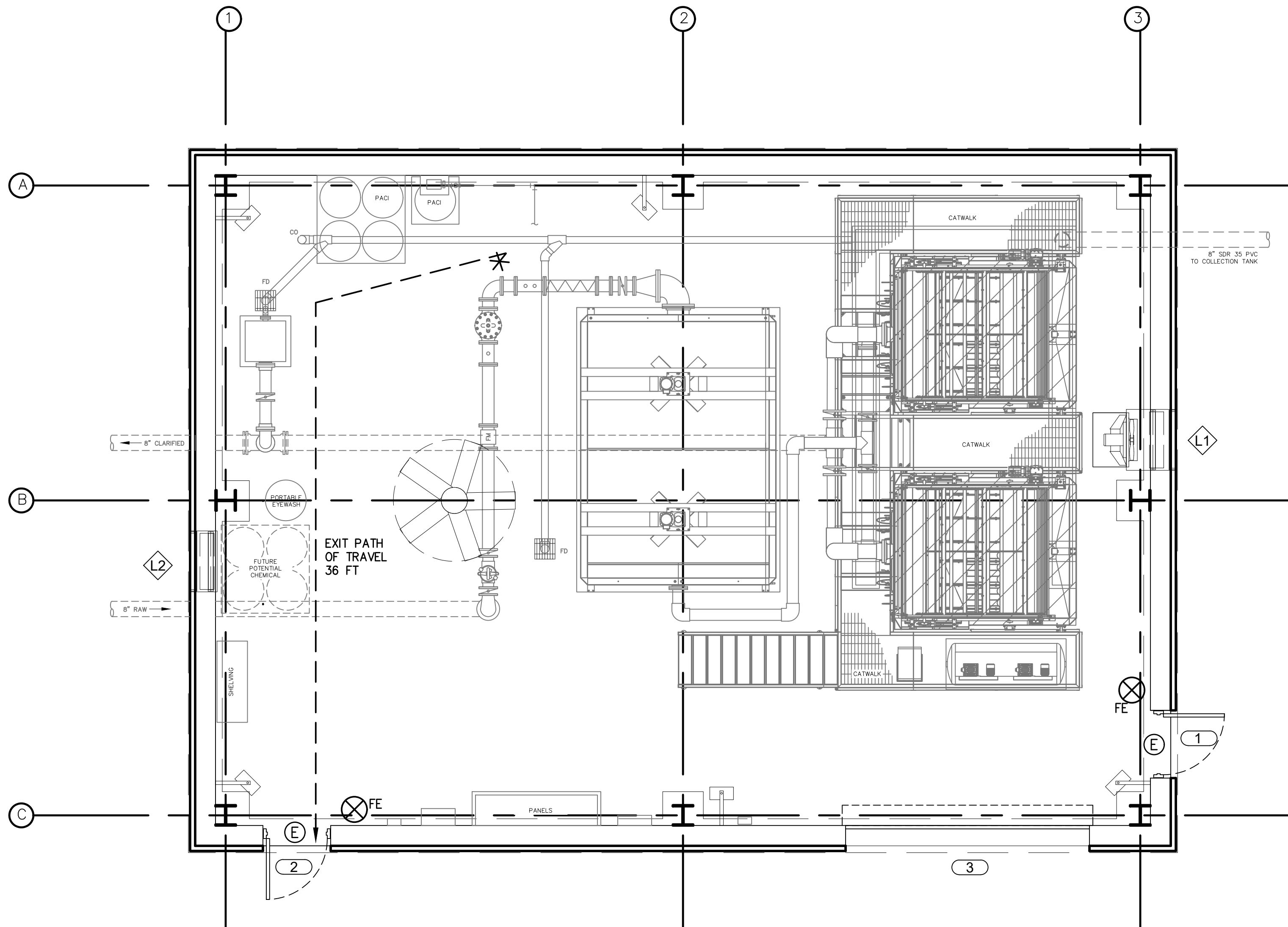
TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND
 STANDARD SECTIONS AND DETAILS

ENGINEER GG	CHECKED BY BST
DRAWN BY MBP	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
S-08
 SHEET NO. 25 OF 42



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1 FLOOR PLAN
SCALE: 1/4"=1'-0"

LIFE SAFETY CODE REVIEW

PROJECT NAME AND ADDRESS: WATER TREATMENT PLANT CLARIFIER, TOWN OF EMMITSBURG, MARYLAND
 REFERENCED CODES: 2018 INTERNATIONAL BUILDING CODE
 2018 INTERNATIONAL BUILDING CODE

USE AND OCCUPANCY CLASSIFICATION: FACTORY INDUSTRIAL GROUP F-1 (MODERATE-HAZARD FACTORY INDUSTRIAL/
 NON-SPRINKLERED: SPRINKLERS NOT REQUIRED PER 903.2.4)

CONSTRUCTION TYPE: II-B
 ALLOWABLE BUILDING HEIGHT (FT. ABOVE GRADE): ALLOWED: 55' MAX ACTUAL: 20'-0"

ALLOWABLE NUMBER OF STORIES (FT. GRADE PLANE): ALLOWED: 2 STORIES ACTUAL: 1 STORY

ALLOWABLE AREA FACTOR (SF): ALLOWED: 15,500 SF ACTUAL: 1,632 SF

MEANS OF EGRESS:
 MAX FLR AREA ALLOWANCE / OCCUPANT: 100 GROSS 16 OCCUPANTS
 MINIMUM DOOR WIDTH: 32" 36" MIN PROVIDED
 NUMBER OF EXITS REQD 1 ALLOWED (75'MAX) 2 PROVIDED
 EXIT ACCESS TRAVEL DISTANCE 150 FT MAX 36 FT

LEGEND

- Ⓔ EXIT
- * MAX EXIT PATH OF =
- DOOR NUMBER - SEE DOOR SCHEDULE
- ◇ LOUVER NUMBER - SEE MECHANICAL DRAWINGS
- ⊗ FE FIRE EXTINGUISHER

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. _____ EXPIRATION DATE _____
RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

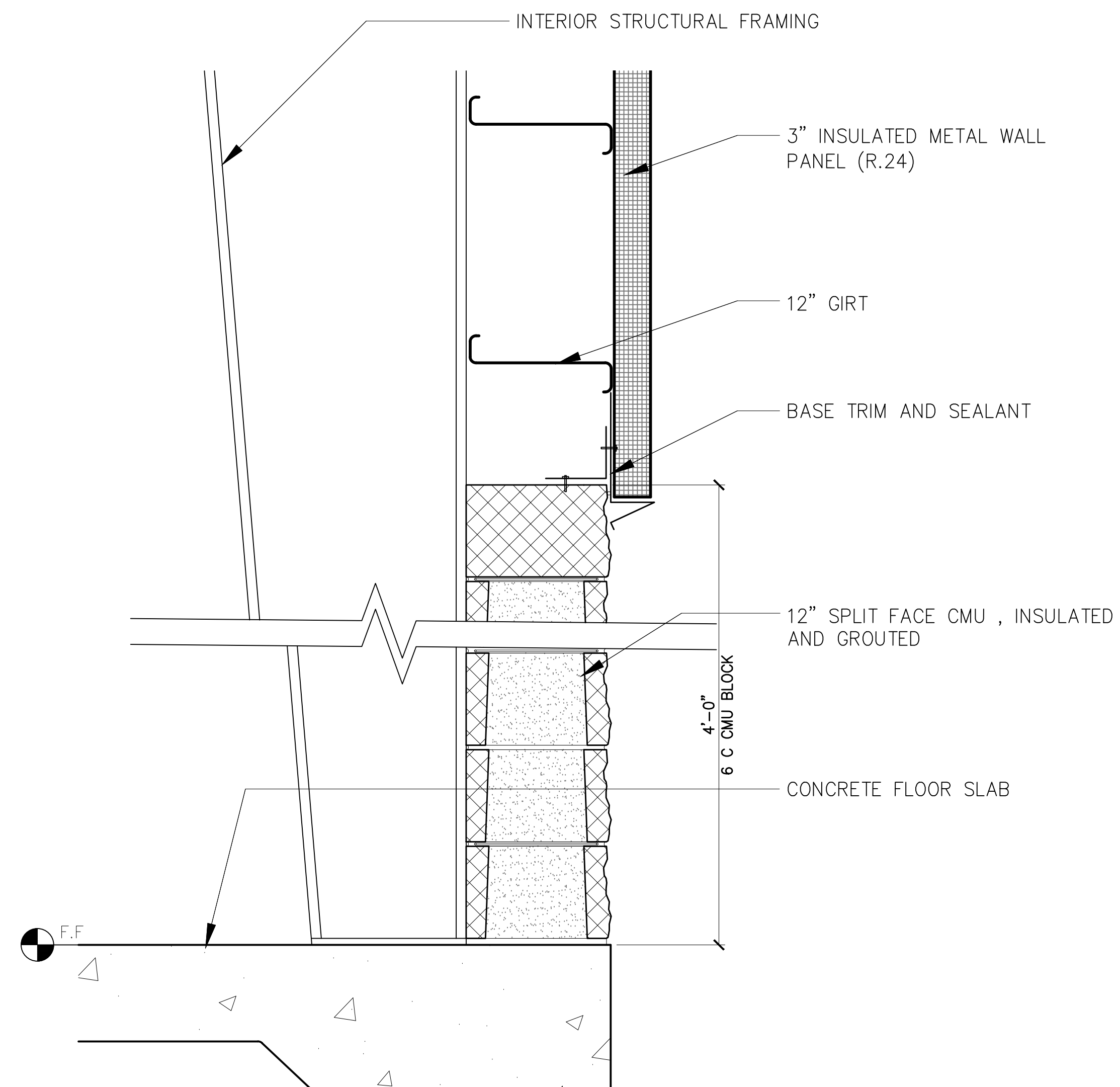
NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO: 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND
 LIFE SAFETY / CODE REVIEW

ENGINEER DW	CHECKED BY JCM
DRAWN BY SS	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
A-01
 SHEET NO. 26 OF 42

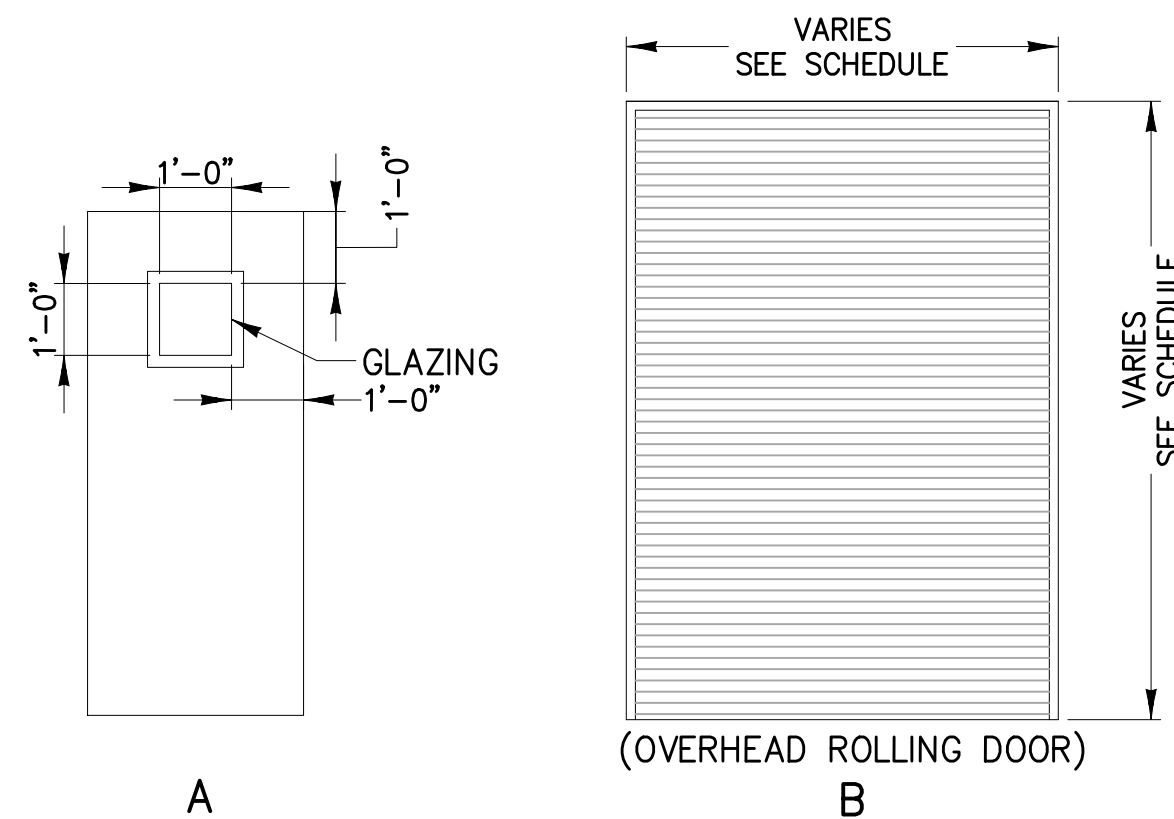
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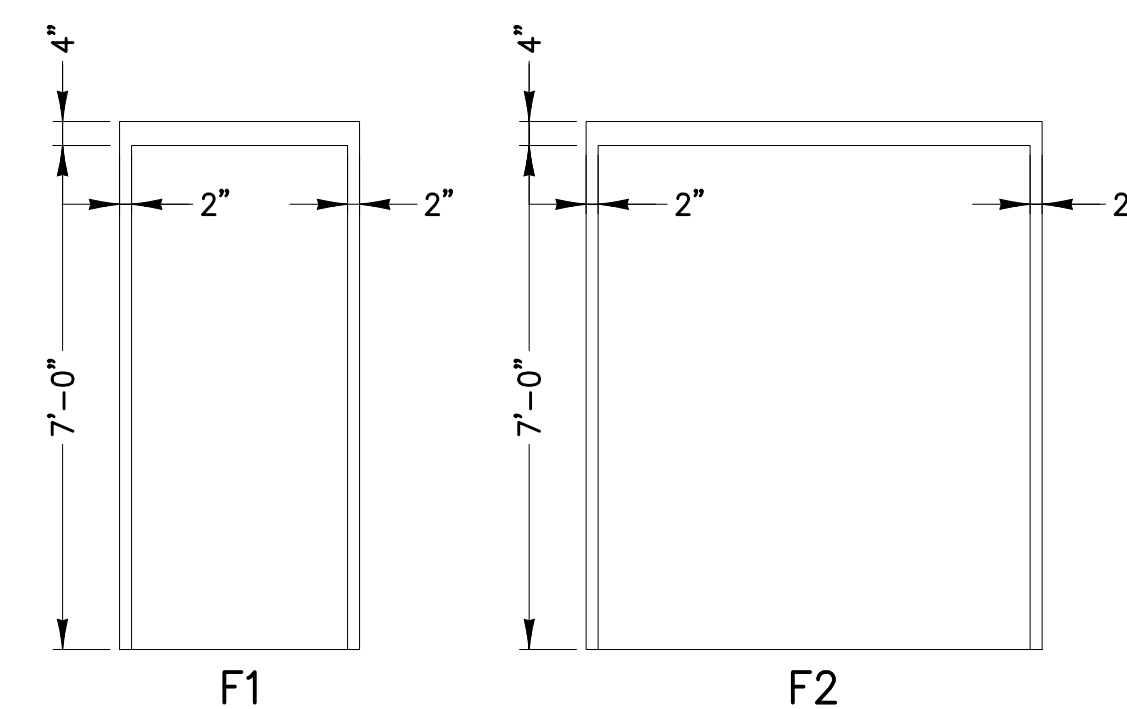
1 WALL DETAIL
SCALE: 1-1/2"=1'-0"

NEW DOOR SCHEDULE										
NO.	FRAME		DOOR					FIRE LABEL	HDWR NO	REMARKS
	TYPE	MATL	TYPE	MATL	WIDTH	HEIGHT	THICKNESS			
1	-	-	B	STL	12'-0"	12'-0"	-	-	-	HARDWARE BY OVERHEAD DOOR MANUFACTURER
2	F1	FRP	A	FRP	3'-0"	7'-0"	1-3/4"	-	-	-
3	F1	FRP	A	FRP	3'-0"	7'-0"	1-3/4"	-	-	-

DOOR/ FRAME MATERIAL	
AL	ALUMINUM
FRP	FIBERGLASS REINFORCED PLASTIC
HM	HOLLOW METAL
STL	STEEL



DOOR TYPES



FRAME TYPES

PROFESSIONAL CERTIFICATION
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LICENSE NO. _____ EXPIRATION DATE _____
RK&K 700 EAST PRATT STREET, SUITE 500 BALTIMORE, MARYLAND 21202 800.787.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND
DETAILS AND DOOR SCHEDULE

ENGINEER DW	CHECKED BY JCM
DRAWN BY SS	DATE 2023
RK&K PROJECT NUMBER 20119	

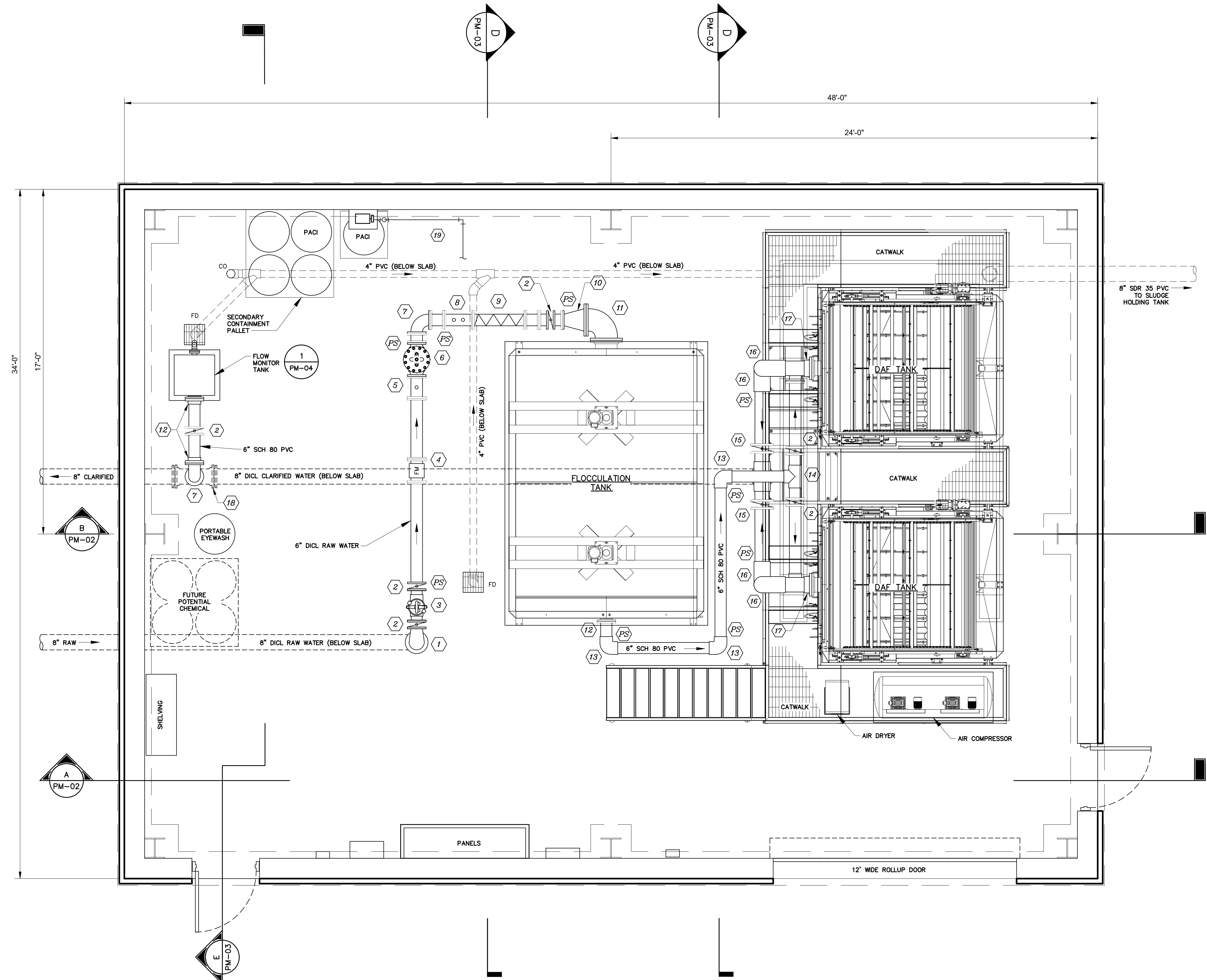
DRAWING NUMBER
A-04
SHEET NO. 29 OF 42



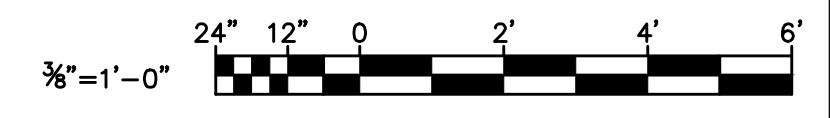
KEY NOTES:

1. 8"x6" FL DI REDUCING 90° ELBOW
2. 6" PVC WAFER TYPE BUTTERFLY VALVE
3. 6" CI SIMPLEX BASKET STRAINER
4. 6" MAGNETIC FLOWMETER
5. 1" TAP WITH (WHAT TYPE OF VALVE?) FOR GRAB SAMPLES
6. 6" FLOW CONTROL VALVE
7. 6" FL DI 90° ELBOW
8. CHEMICAL INJECTION QUILLS (2)
9. 6" STATIC MIXER
10. 6"x12" FL DI REDUCER
11. 12" FL DI 90° ELBOW
12. 6" SCH 80 PVC FLANGE
13. 6" SCH 80 PVC 90° ELBOW
14. 6"x6" SCH 80 PVC TEE
15. 8" PVC WAFER TYPE BUTTERFLY VALVE
16. 8" SCH 80 PVC 90° ELBOW
17. 8" SCH 80 PVC FLANGE
18. 8"x6" MJ DI TEE
19. 1/2" SCH 80 PVC POLYALUMINUM CHLORIDE FEED
20. 4" SCH 80 PVC 90° ELBOW
21. 4"x6" SCH 80 PVC REDUCER
22. 4" SCH 80 PVC FLANGE
23. 8" MJ 90° ELBOW
24. 8" SCH 80 PVC 45° ELBOW
25. 8"x8" FL TEE

PS. APPROXIMATE LOCATION OF PIPE SUPPORTS



PROCESS MECHANICAL FLOOR PLAN
SCALE: 3/8" = 1'-0"



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. 20896 EXPIRATION DATE 09/06/2024



700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO.: 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND

FLOOR PLAN

ENGINEER	CHECKED BY
DD	JCM
DRAWN BY	DATE
DD	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
PM-01
SHEET NO. 30 OF 42

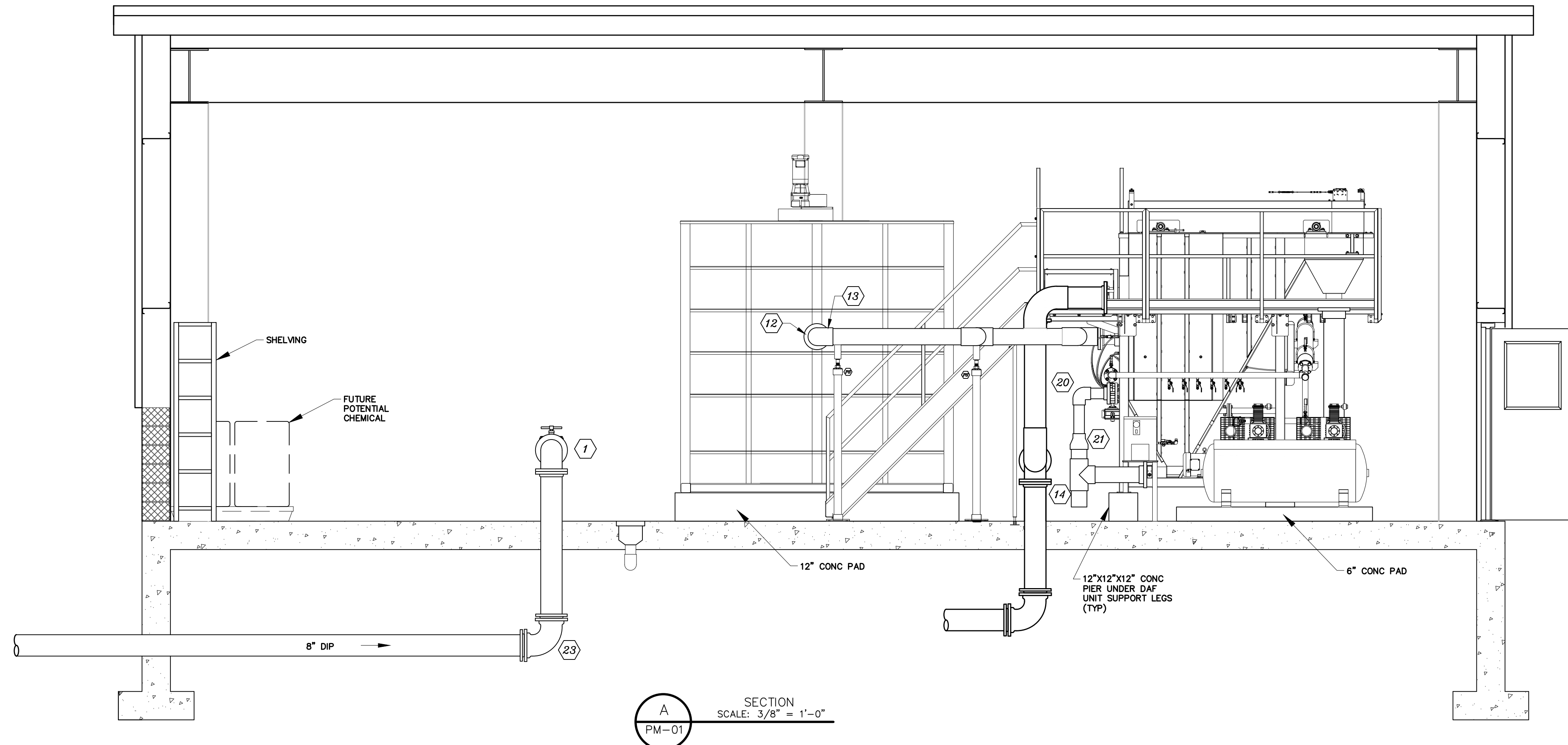
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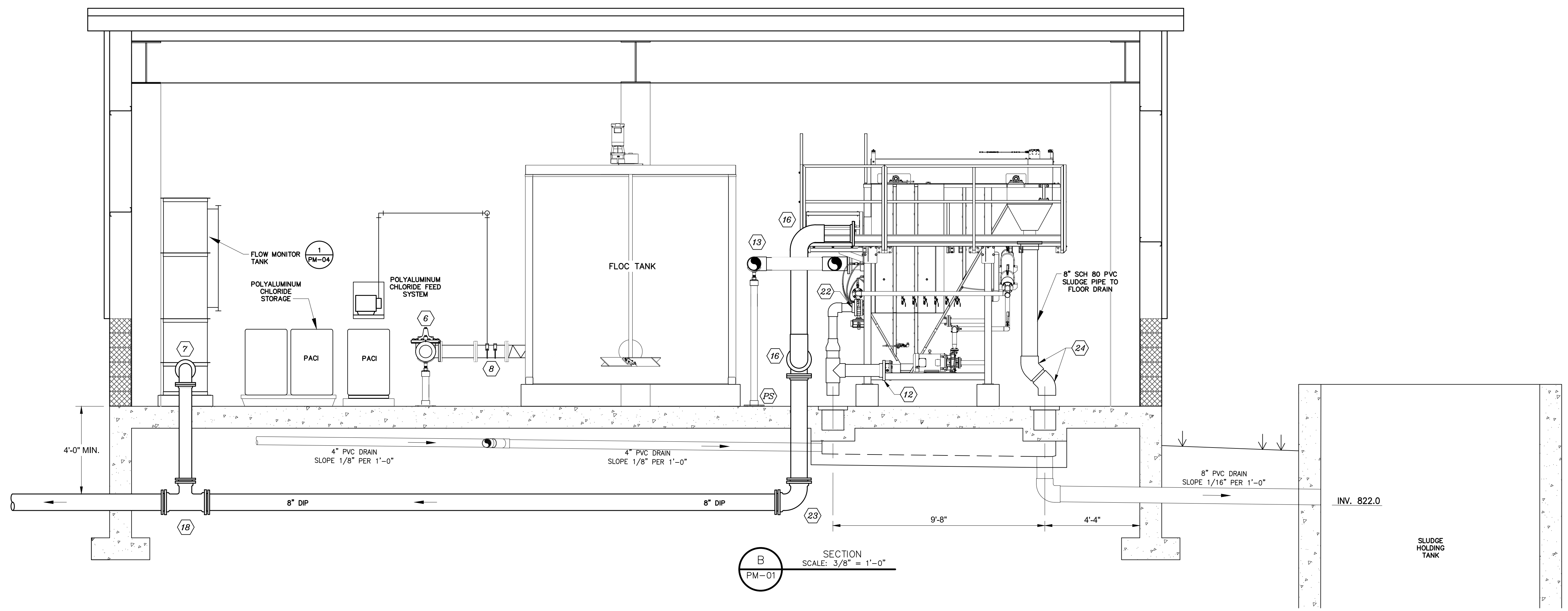
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 20586 EXPIRATION DATE 09/06/2024
RK&K
 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755

KEY NOTES:

1. 8"x6" FL DI REDUCING 90° ELBOW
 2. 6" PVC WAFER TYPE BUTTERFLY VALVE
 3. 6" CI SIMPLEX BASKET STRAINER
 4. 6" MAGNETIC FLOWMETER
 5. 1" TAP WITH (WHAT TYPE OF VALVE?) FOR GRAB SAMPLES
 6. 6" FLOW CONTROL VALVE
 7. 6" FL DI 90° ELBOW
 8. CHEMICAL INJECTION QUILLS (2)
 9. 6" STATIC MIXER
 10. 6"x12" FL DI REDUCER
 11. 12" FL DI 90° ELBOW
 12. 6" SCH 80 PVC FLANGE
 13. 6" SCH 80 PVC 90° ELBOW
 14. 6"x6" SCH 80 PVC TEE
 15. 8" PVC WAFER TYPE BUTTERFLY VALVE
 16. 8" SCH 80 PVC 90° ELBOW
 17. 8" SCH 80 PVC FLANGE
 18. 8"x6" MJ DI TEE
 19. 1/2" SCH 80 PVC POLYALUMINUM CHLORIDE FEED
 20. 4" SCH 80 PVC 90° ELBOW
 21. 4"x6" SCH 80 PVC REDUCER
 22. 4" SCH 80 PVC FLANGE
 23. 8" MJ 90° ELBOW
 24. 8" SCH 80 PVC 45° ELBOW
 25. 8"x8" FL TEE
- PS. APPROXIMATE LOCATION OF PIPE SUPPORTS



A
SECTION
SCALE: 3/8" = 1'-0"



B
SECTION
SCALE: 3/8" = 1'-0"

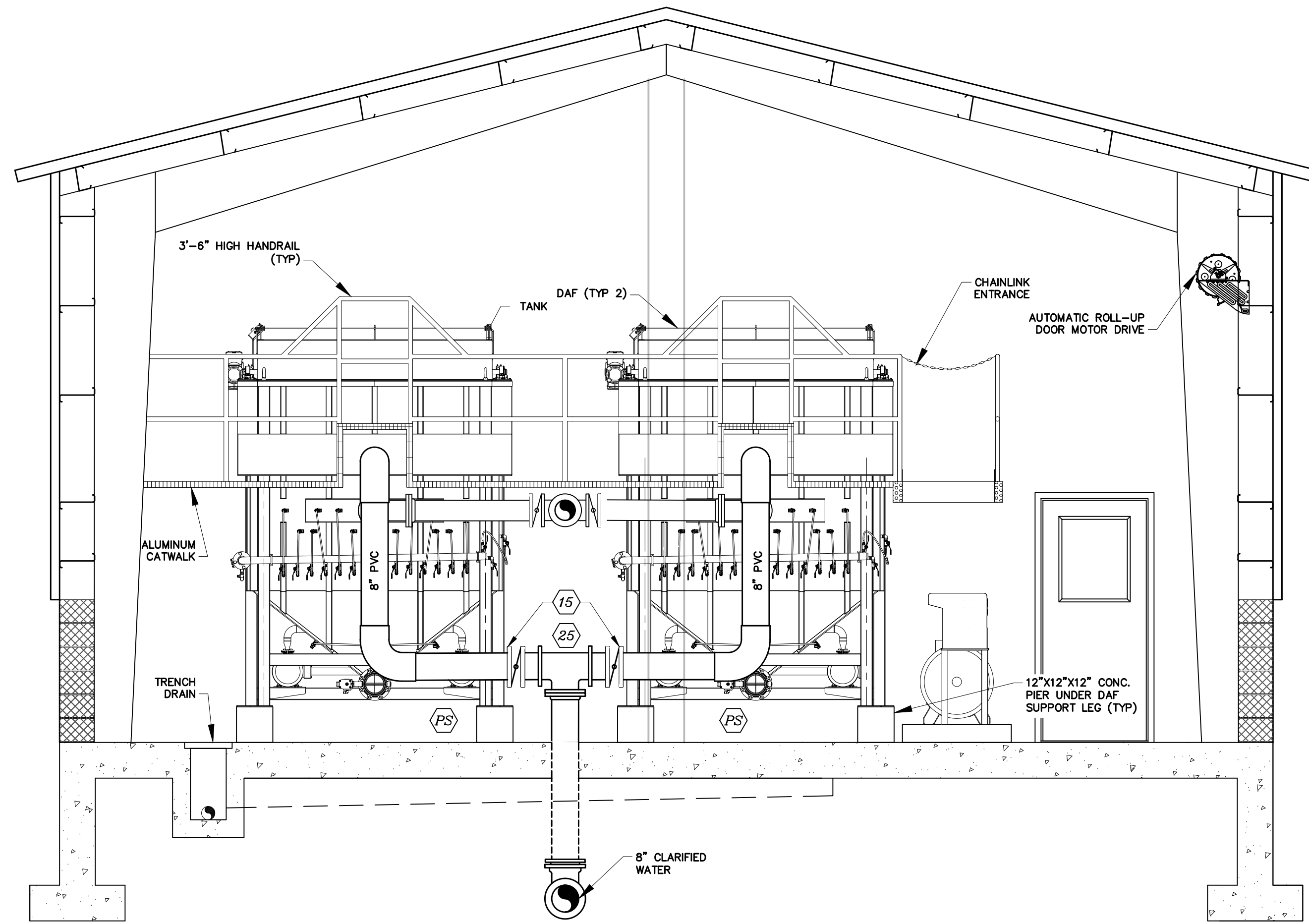
NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

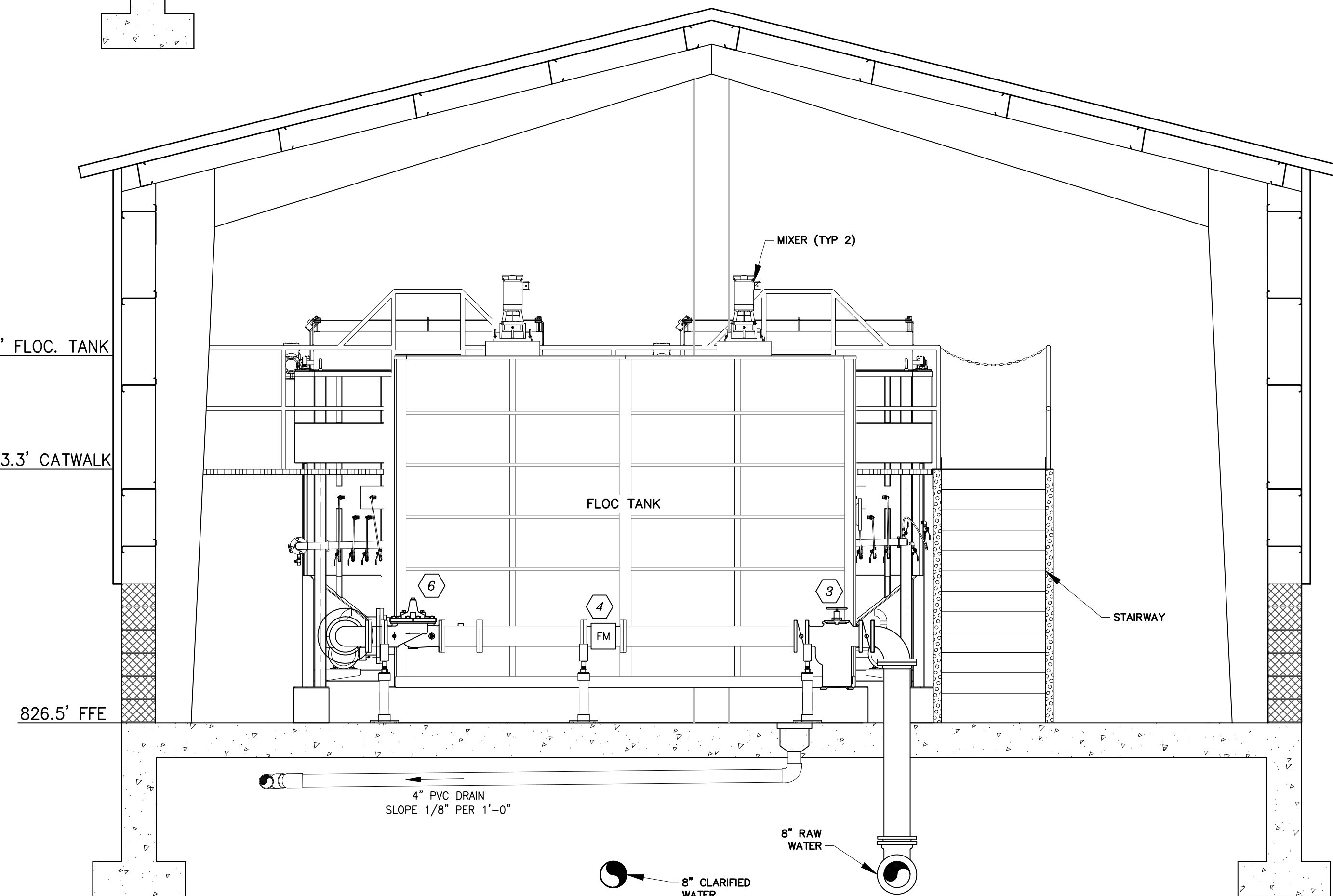
ENGINEER DD	CHECKED BY JCM
DRAWN BY DD	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
PM-02
 SHEET NO. 31 OF 42

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C SECTION
SCALE: 3/8" = 1'-0"



D SECTION
SCALE: 3/8" = 1'-0"

KEY NOTES:

1. 8"x6" FL DI REDUCING 90° ELBOW
2. 6" PVC WAFER TYPE BUTTERFLY VALVE
3. 6" CI SIMPLEX BASKET STRAINER
4. 6" MAGNETIC FLOWMETER
5. 1" TAP WITH (WHAT TYPE OF VALVE?) FOR GRAB SAMPLES
6. 6" FLOW CONTROL VALVE
7. 6" FL DI 90° ELBOW
8. CHEMICAL INJECTION QUILLS (2)
9. 6" STATIC MIXER
10. 6"x12" FL DI REDUCER
11. 12" FL DI 90° ELBOW
12. 6" SCH 80 PVC FLANGE
13. 6" SCH 80 PVC 90° ELBOW
14. 6"x6" SCH 80 PVC TEE
15. 8" PVC WAFER TYPE BUTTERFLY VALVE
16. 8" SCH 80 PVC 90° ELBOW
17. 8" SCH 80 PVC FLANGE
18. 8"x6" MJ DI TEE
19. 1/2" SCH 80 PVC POLYALUMINUM CHLORIDE FEED
20. 4" SCH 80 PVC 90° ELBOW
21. 4"x6" SCH 80 PVC REDUCER
22. 4" SCH 80 PVC FLANGE
23. 8" MJ 90° ELBOW
24. 8" SCH 80 PVC 45° ELBOW
25. 8"x8" FL TEE

PS. APPROXIMATE LOCATION OF PIPE SUPPORTS



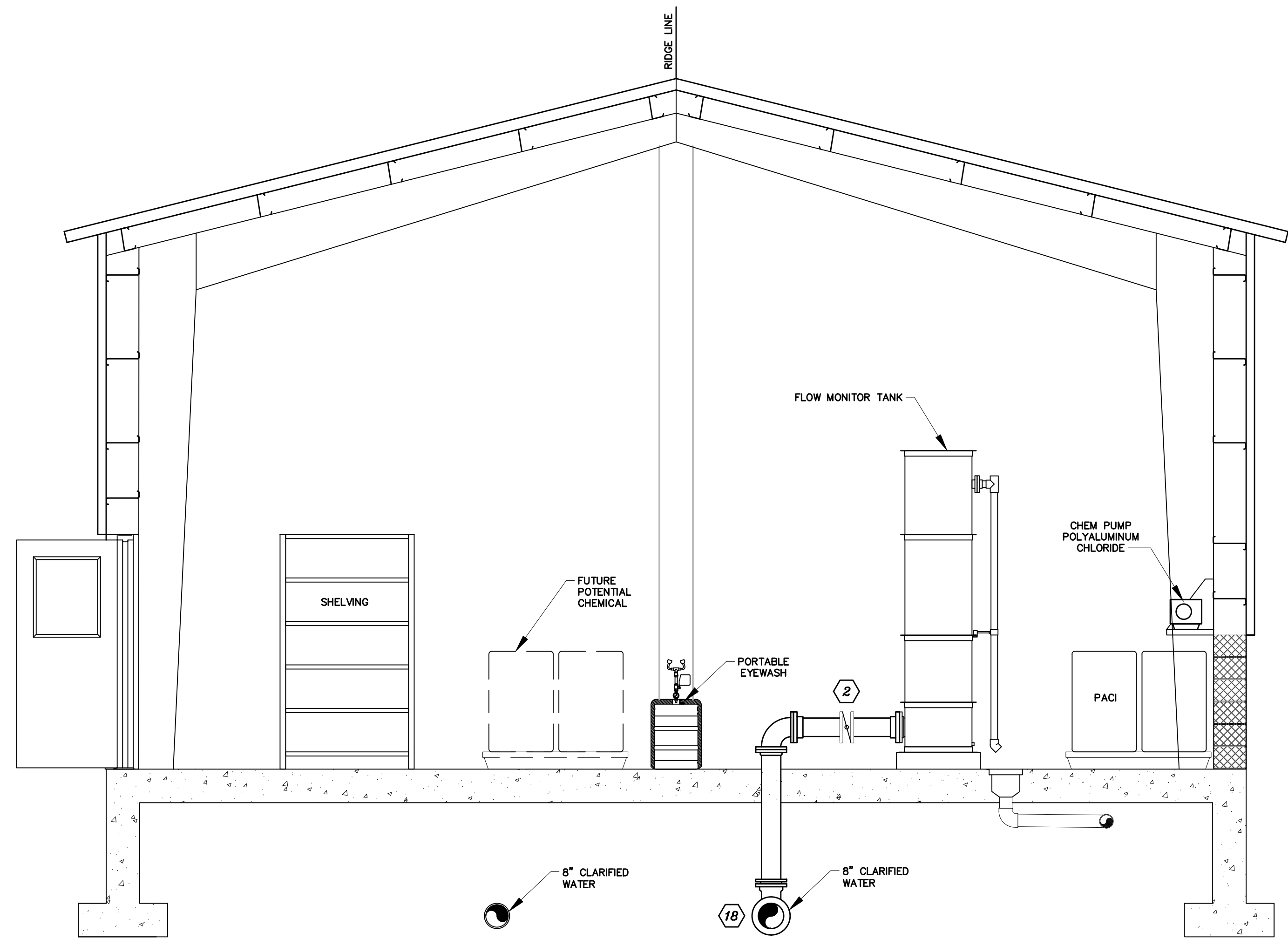
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 20566 EXPIRATION DATE 09/06/2024

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND

ENGINEER	CHECKED BY
DD	JCM
DRAWN BY	DATE
DD	2023
RK&K PROJECT NUMBER	
20119	

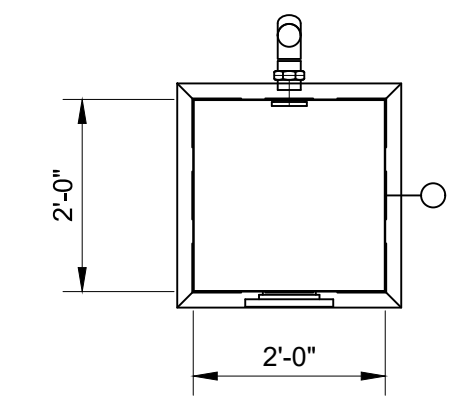
DRAWING NUMBER
PM-03
SHEET NO. 32 OF 42



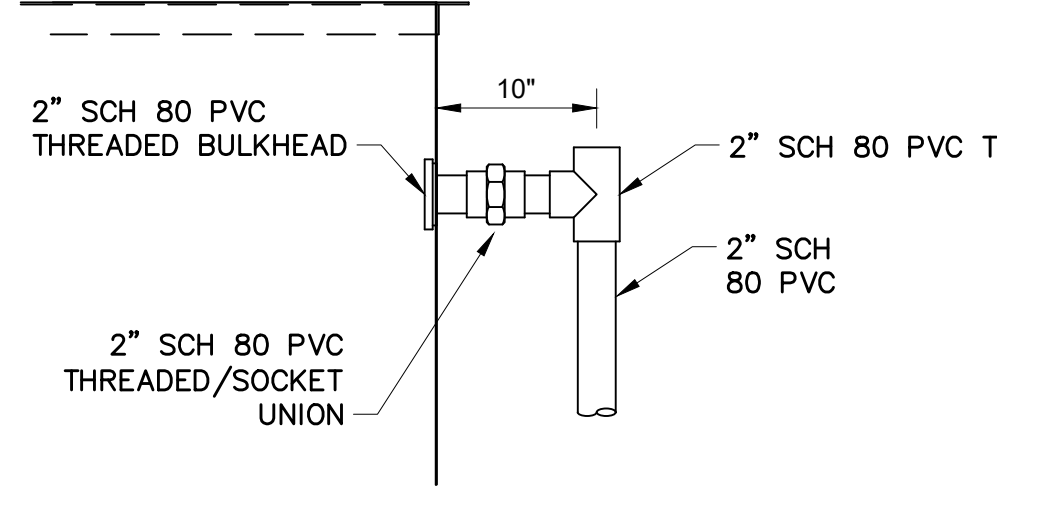
SECTION
E
PM-01
SCALE: 3/8" = 1'-0"

KEY NOTES:

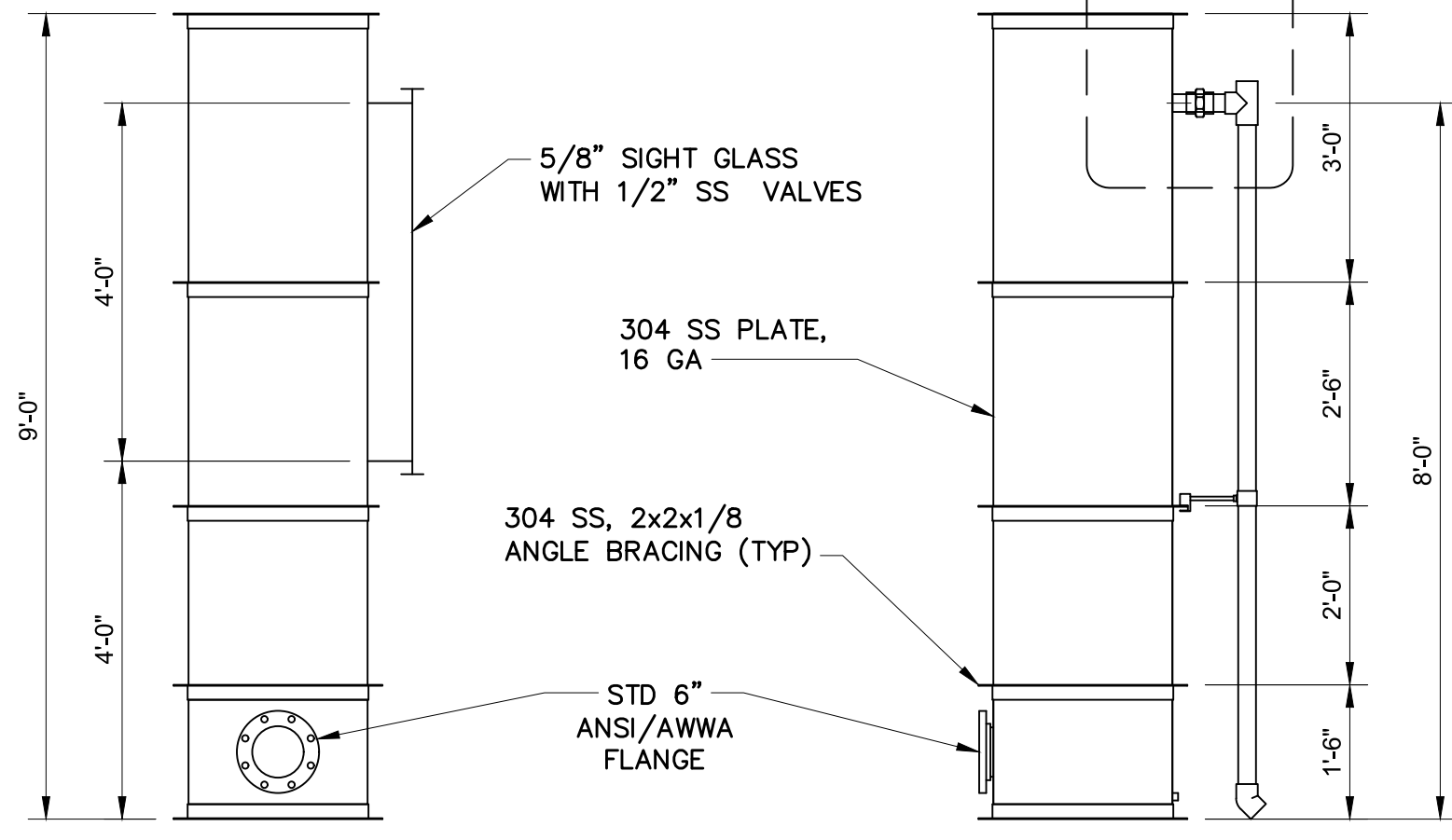
1. 8"x6" FL DI REDUCING 90° ELBOW
 2. 6" PVC WAFER TYPE BUTTERFLY VALVE
 3. 6" CI SIMPLEX BASKET STRAINER
 4. 6" MAGNETIC FLOWMETER
 5. 1" TAP WITH (WHAT TYPE OF VALVE?) FOR GRAB SAMPLES
 6. 6" FLOW CONTROL VALVE
 7. 6" FL DI 90° ELBOW
 8. CHEMICAL INJECTION QUILLS (2)
 9. 6" STATIC MIXER
 10. 6"x12" FL DI REDUCER
 11. 12" FL DI 90° ELBOW
 12. 6" SCH 80 PVC FLANGE
 13. 6" SCH 80 PVC 90° ELBOW
 14. 6"x6" SCH 80 PVC TEE
 15. 8" PVC WAFER TYPE BUTTERFLY VALVE
 16. 8" SCH 80 PVC 90° ELBOW
 17. 8" SCH 80 PVC FLANGE
 18. 8"x6" MJ DI TEE
 19. 1/2" SCH 80 PVC POLYALUMINUM CHLORIDE FEED
 20. 4" SCH 80 PVC 90° ELBOW
 21. 4"x6" SCH 80 PVC REDUCER
 22. 4" SCH 80 PVC FLANGE
 23. 8" MJ 90° ELBOW
 24. 8" SCH 80 PVC 45° ELBOW
- PS. APPROXIMATE LOCATION OF PIPE SUPPORTS



PLAN



OVERFLOW
SCALE: NTS



FRONT ELEVATION

SIDE ELEVATION

1
PM-01
FLOW MONITOR TANK DETAIL
SCALE: 1/2" = 1'-0"



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. 20566 EXPIRATION DATE 09/06/2024
RK&K
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

NO.	DESCRIPTION	BY	DATE

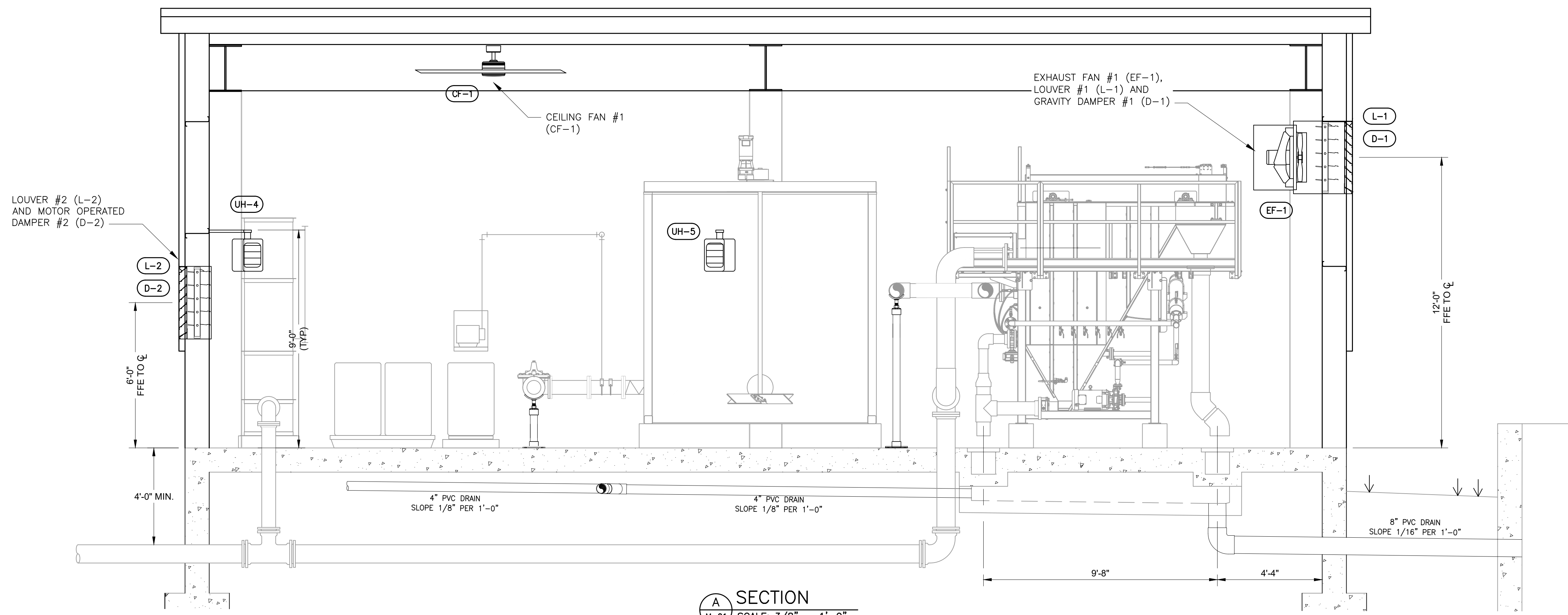
TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
CIP NO. 4-1600-40-160-1
HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT No. 5, FREDERICK COUNTY, MARYLAND
SECTIONS AND DETAILS

ENGINEER DD	CHECKED BY JCM
DRAWN BY DD	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
PM-04
SHEET NO. 33 OF 42



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. 20566 EXPIRATION DATE 09/06/2024
RK&K 700 EAST PRATT STREET, SUITE 500
 BALTIMORE, MARYLAND 21202
 800.787.3755



A SECTION
 M-01 SCALE: 3/8" = 1'-0"

FAN SCHEDULE											
MARK	LOCATION	FAN TYPE	DRIVE TYPE	CFM	STATIC PRES.	HP	RPM	VOLTAGE/PHASE/Hz	MANUFACTURER	MODEL NO.	REMARKS
EF-1	NORTHEAST WALL	PROPELLER	DIRECT	2,819	0.375	1/3	1160	115/1/60	GREENHECK	AER-E24C-609-B3	1,2,3,4,5
CF-1	BUILDING CENTER	5-BLADE	DIRECT	12,660	-	1/10	165	115/1/60	GREENHECK	DC-5-6	1,4,6,7

NOTES:
 1. SEE ELECTRICAL DRAWINGS FOR CONNECTION REQUIREMENTS
 2. WALL MOUNT, PLENUM REQUIRED
 3. MOTOR GUARD
 4. DISCONNECT SWITCH
 5. HIGH VOLUME LOW SPEED (HVLS)
 6. 12" DROP LENGTH/DOWN LEG
 7.

LOUVER/DAMPER SCHEDULE											
MARK	LOCATION	WIDTH (IN)	HEIGHT (IN)	CFM	MAX PRESS LOSS	FREE AREA (SQFT)	MAT'L	STYLE	MANUFACTURER	MODEL NO.	REMARKS
L-1	NORTHEAST WALL, EXHAUST FAN #1	36	36	2,819	0.07	4.38	AL	FIXED	GREENHECK	ESJ-401	3,4,6
D-1		36	36	2,819	0.045	5.69	AL	CONTROL DAMPER	GREENHECK	EM-30	2,5
L-2	SOUTHWEST WALL, INTAKE/SUPPLY	36	36	2,819	0.07	4.38	AL	FIXED	GREENHECK	ESJ-401	3,4,6
D-2		36	36	2,819	0.055	5.69	AL	CONTROL DAMPER	GREENHECK	WD-20	1,2

NOTES:
 1. SEE ELECTRICAL DRAWINGS FOR CONNECTION REQUIREMENTS
 2. PARALLEL BLADES
 3. INSECT SCREEN
 4. INTERNAL DRAIN
 5. GRAVITY OPERATED WITH COUNTERBALANCE
 6. 16" WALL SLEEVE

HEATER SCHEDULE									
MARK	LOCATION	kW	CFM	VOLTAGE	PHASE	HERTZ	AMPS	MANUFACTURER & MODEL NO.	REMARKS
UH-1	SOUTHEAST WALL, COLUMN	5	350	240	1	60	21.0	QMARK MUH05-21 OR APPROVED EQUAL	1,2
UH-2	SOUTHEAST WALL, CENTER COLUMN	5	350	240	1	60	21.0		
UH-3	NORTHEAST WALL, COLUMN	5	350	240	1	60	21.0		
UH-4	SOUTHWEST WALL, COLUMN	5	350	240	1	60	21.0		
UH-5	NORTHWEST WALL, CENTER COLUMN	5	350	240	1	60	21.0		

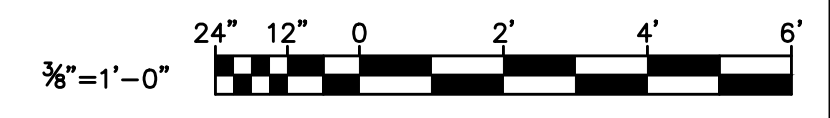
NOTES:
 1. SEE ELECTRICAL DRAWINGS FOR CONNECTION REQUIREMENTS
 2. TOP OF HEATER MOUNTED 9'-FT ABOVE FFE

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
 WATER PLANT CLARIFIER
 CIP NO. 4-1600-40-160-1
 HAMPTON VALLEY ROAD, EMMITSBURG ELECTION DISTRICT NO. 5, FREDERICK COUNTY, MARYLAND
 MECHANICAL AND HVAC SYSTEMS
 SECTION AND SCHEDULES

ENGINEER	CHECKED BY
WJG	JCM
DRAWN BY	DATE
WJG	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
M-02
 SHEET NO. 35 OF 42



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 Oct 17, 2023 - 11:45am
 Plot Scale: 1:1

ELECTRICAL ABBREVIATIONS

A	-	AMPERES
A.F.F.	-	ABOVE FINISHED FLOOR
C	-	CONDUIT
D	-	DEEP
DC	-	DIRECT CURRENT
DISC.	-	DISCONNECT
DWG.	-	DRAWING
G.F.I.	-	GROUND FAULT INTERRUPTER
GRD.	-	GROUND
H	-	HIGH
HP	-	HORSEPOWER
KW	-	KILOWATT
mA	-	MILLIAMPERE
NO.	-	NUMBER
P	-	POLE
PH	-	PHASE
PR.	-	PAIR
SHLD.	-	SHIELDED
SN	-	SOLID NEUTRAL
S.S.	-	STAINLESS STEEL
TYP.	-	TYPICAL
V	-	VOLTS
W	-	WIRE, WATT, WIDE
WP	-	WEATHERPROOF

ELECTRICAL SYMBOL SCHEDULE

	-	LED LIGHT FIXTURE
	-	20A-120V DUPLEX RECEPTACLE
	-	20A-120V SINGLE RECEPTACLE
	-	MOTOR (NUMBER INDICATES HP)
	-	JUNCTION BOX
	-	THERMOSTAT
	-	TRANSFORMER
	-	SINGLE POLE SWITCH
	-	THREE-WAY SWITCH
	-	HOME RUN TO PANEL
	-	TICKS INDICATE NUMBER OF WIRES - NOT INCLUDING GROUND CONDUCTOR
	-	WIRING CONCEALED IN CONDUIT
	-	CIRCUIT BREAKER

CONTROL WIRING LEGEND

	-	3 POSITION SELECTOR SWITCH (X INDICATES CLOSED POSITION)
	-	NORMALLY OPEN CONTACT
	-	NORMALLY CLOSED CONTACT
	-	CONTROL RELAY
	-	PUSH BUTTON
	-	SELECTOR SWITCH
	-	FUSE
	-	PILOT LIGHT - LENS COLOR IS INDICATED BY LETTER INSIDE
A	-	AMBER
B	-	BLUE
G	-	GREEN
R	-	RED
W	-	WHITE

GENERAL ELECTRICAL NOTES
(APPLICABLE TO ALL DRAWINGS)

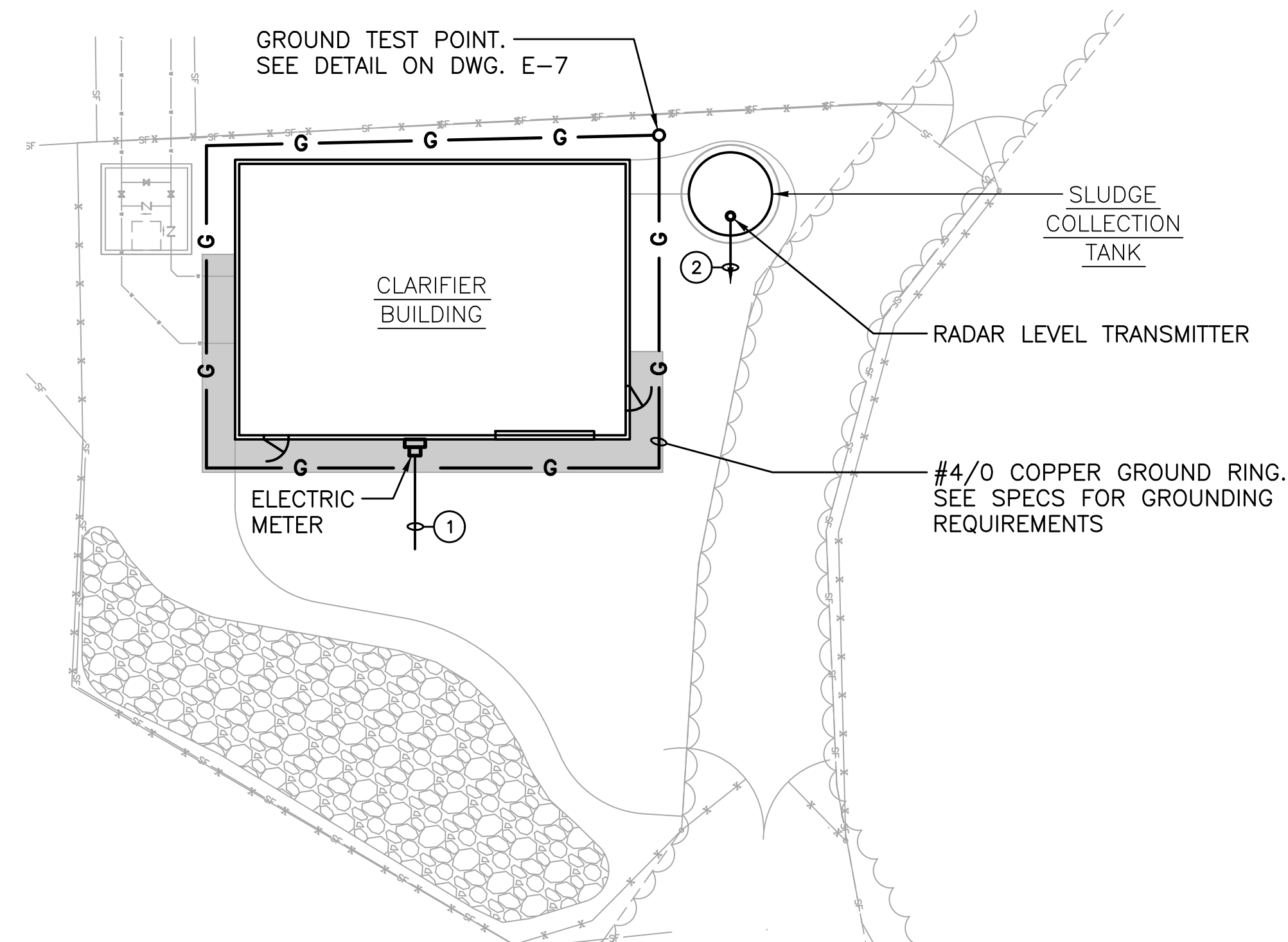
- EXISTING EQUIPMENT IS SHOWN IN A LIGHT WEIGHT AND IDENTIFIED WITH SLANTED TEXT. NEW EQUIPMENT AND WIRING IS SHOWN BOLD.
- ALL FASTENERS AND MOUNTING HARDWARE USED FOR THE INSTALLATION OF ALL ELECTRICAL ITEMS SHALL BE 316 STAINLESS STEEL.
- ALL ALUMINUM BACKBOARDS SHALL BE 3/16 INCH THICK, AND SIZED AS REQUIRED TO ACCOMMODATE EQUIPMENT. EDGES OF BACKBOARDS SHALL BE BEVELED SO THEY ARE SMOOTH.
- ALL ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED WITH TWO COATS OF ZINC CHROMATE PRIMER OR BITUMINOUS PAINT TO PREVENT A REACTION BETWEEN THE ALUMINUM AND CONCRETE.
- WHERE ELECTRICAL EQUIPMENT IS SHOWN MOUNTED ON A CONCRETE PAD, THE PAD SHALL BE 3" HIGH WITH CHAMFERED EDGES. THE PAD SHALL EXTEND 2" BEYOND THE EDGES OF THE EQUIPMENT. SEE STRUCTURAL DWGS. FOR PAD DETAIL.
- CONTRACTOR SHALL FURNISH AND INSTALL A SEPARATE INSULATED GROUND CONDUCTOR IN ALL CONDUITS. ALL GROUND CONDUCTORS SHALL BE #12 UNLESS NOTED OTHERWISE ON DRAWINGS.
- CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL UNDERGROUND CONDUITS AND DUCT BANKS TO AVOID INTERFERENCES WITH UNDERGROUND PIPING.
- ALL DUCT BANKS THAT PENETRATE BUILDING WALLS SHALL BE DOWELED INTO THE WALL USING #4 REBAR.
- ALL DUCT BANKS AND CONDUITS SHALL BE SLOPED AWAY FROM BUILDINGS AND STRUCTURES.
- WHERE A WIRING LEGEND IS SHOWN ON A DRAWING, IT ONLY PERTAINS TO THAT DRAWING.
- WIRING SHOWN TO MOTOR DISCONNECT SWITCHES SHALL CONTINUE TO THE MOTOR.
- ALL CONDUITS SHALL BE LABELED INDICATING THE VOLTAGE OF THE WIRING IN THE CONDUIT.
- PROVIDE AN ENGRAVED YELLOW NAMEPLATE ON ALL PANELS INDICATING WHERE THE PANEL IS FED FROM.

SITE PLAN NOTES

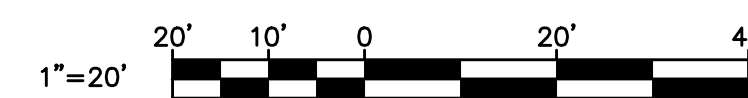
- COORDINATE INSTALLATION OF ELECTRIC SERVICE WITH POWER COMPANY.

WIRING LEGEND

- 120/240V-1PH-3W ELECTRIC SERVICE IN 4" C PLUS ONE 4" SPARE CONDUIT
- 1 PR. #18 SHLD.-3/4" C TO DAF CONTROL PANEL IN CLARIFIER BUILDING



ELECTRICAL SITE PLAN



ELECTRIC SERVICE POWER POLE
OVERHEAD ELECTRIC SERVICE

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. 59811 EXPIRATION DATE 06/14/2023

700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755



NO.	DESCRIPTION	BY	DATE

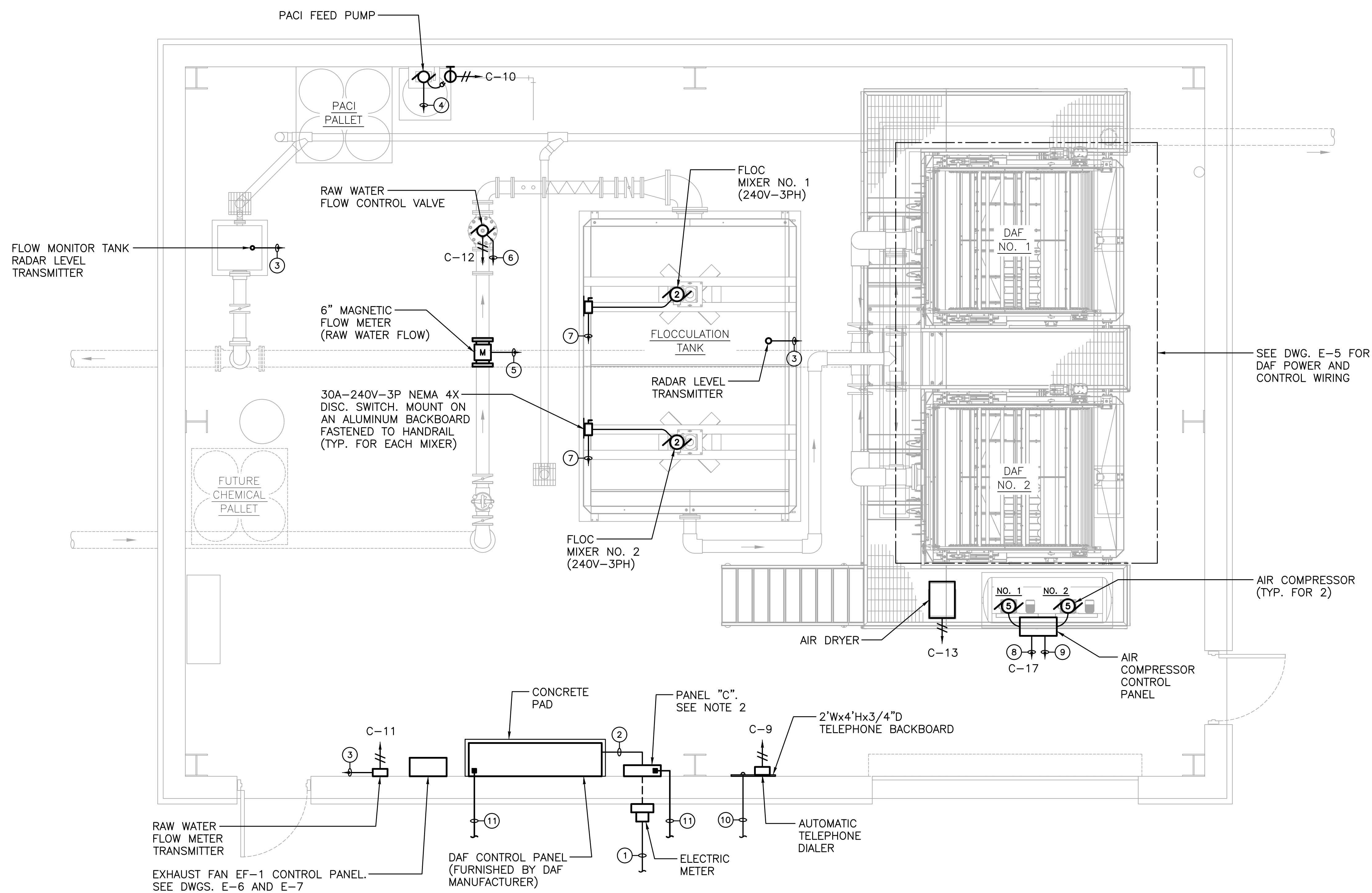
TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER

ELECTRICAL ABBREVIATIONS, SYMBOLS,
LEGEND, NOTES, AND SITE PLAN

ENGINEER SMJ	CHECKED BY DTB
DRAWN BY SMJ	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER E-01
SHEET NO. 36 OF 42

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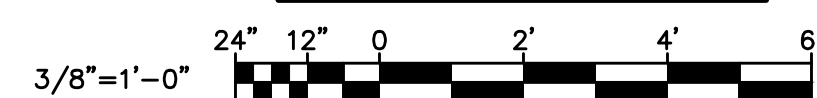
NOTES

1. ALL CONDUIT IN THE CLARIFIER BUILDING SHALL BE PVC COATED GALVANIZED RIGID STEEL.
2. MOUNT PANEL "C" IN A NEMA 4X FIBERGLASS ENCLOSURE.

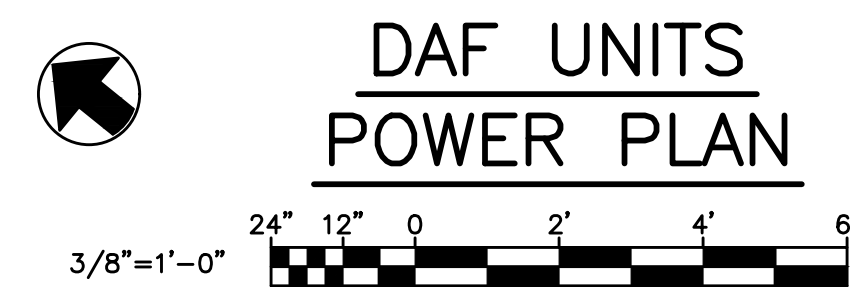
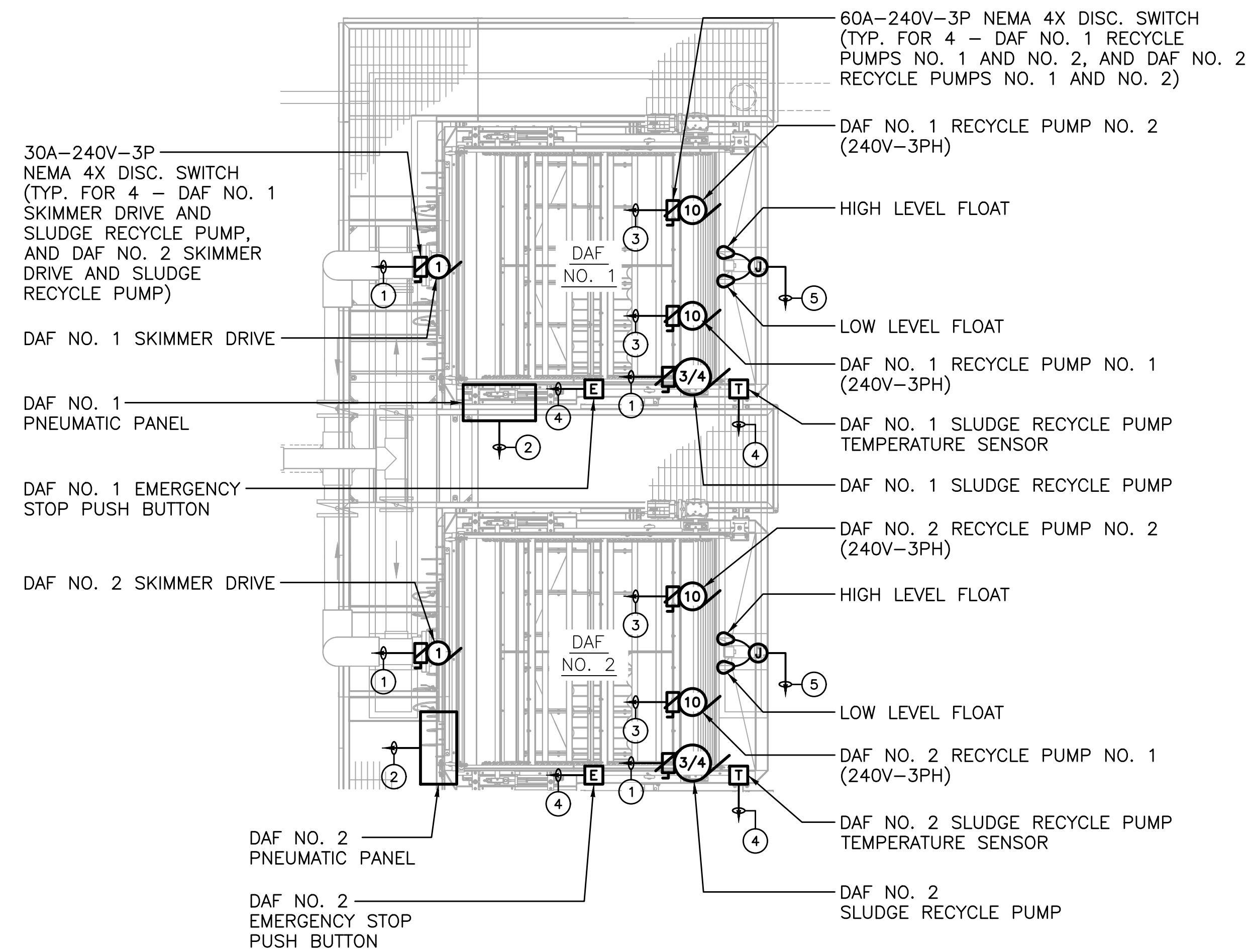
WIRING LEGEND

- ① 120/240V-1PH-3W ELECTRIC SERVICE IN 4" C PLUS ONE 4" SPARE CONDUIT
- ② 3#2/0, #6 GRD.-2"C
- ③ 1 PR. #18 SHLD.-3/4"C TO DAF CONTROL PANEL
- ④ 8#14 AND (2) 1 PR. #18 SHLD.-1/4"C TO DAF CONTROL PANEL
- ⑤ FLOW METER SIGNAL CABLES IN (2) 3/4"C TO RAW WATER FLOW METER TRANSMITTER
- ⑥ 4#14-3/4"C AND (2) 1 PR. #18 SHLD.-1"C TO DAF CONTROL PANEL
- ⑦ 3#12-3/4"C TO DAF CONTROL PANEL
- ⑧ 2#4, #8 GRD.-1/4"C TO DAF CONTROL PANEL
- ⑨ 8#14-3/4"C TO DAF CONTROL PANEL
- ⑩ TELEPHONE SERVICE-2"C
- ⑪ #2/0 GRD.-1/4"C TO GROUND RING

CLARIFIER BUILDING POWER PLAN



<p>PROFESSIONAL CERTIFICATION</p> <p style="font-size: 8px;">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. 59811 EXPIRATION DATE 06/16/2023</p>		<p>700 EAST PRATT STREET, SUITE 500 BALTIMORE, MARYLAND 21202 800.787.3755</p>
<p>TOWN OF EMMITSBURG, MARYLAND WATER PLANT CLARIFIER</p>	<p>EMMITSBURG, MARYLAND CLARIFIER BUILDING POWER PLAN</p>	
<p>ENGINEER SMJ</p>	<p>CHECKED BY DTB</p>	<p>DATE 2023</p>
<p>PROJECT NUMBER 20119</p>		
<p>DRAWING NUMBER E-04</p>		
<p>SHEET NO. 39 OF 42</p>		



NOTES

1. ALL CONDUIT IN THE CLARIFIER BUILDING SHALL BE RIGID ALUMINUM.
2. COORDINATE WIRING FOR EACH DAF WITH THE DAF MANUFACTURER.
3. THE EXACT LOCATION FOR ALL DAF EQUIPMENT DISCONNECT SWITCHES SHALL BE DETERMINED IN THE FIELD.

WIRING LEGEND

- ① 3#12-3/4" C TO DAF CONTROL PANEL
- ② 12#14-3/4" C TO DAF CONTROL PANEL
- ③ 3#8, #10 GRD.-1" C TO DAF CONTROL PANEL
- ④ 2#14-3/4" C TO DAF CONTROL PANEL
- ⑤ 4#14-3/4" C TO DAF CONTROL PANEL

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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. 59811 EXPIRATION DATE 06/14/2023
RK&K
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

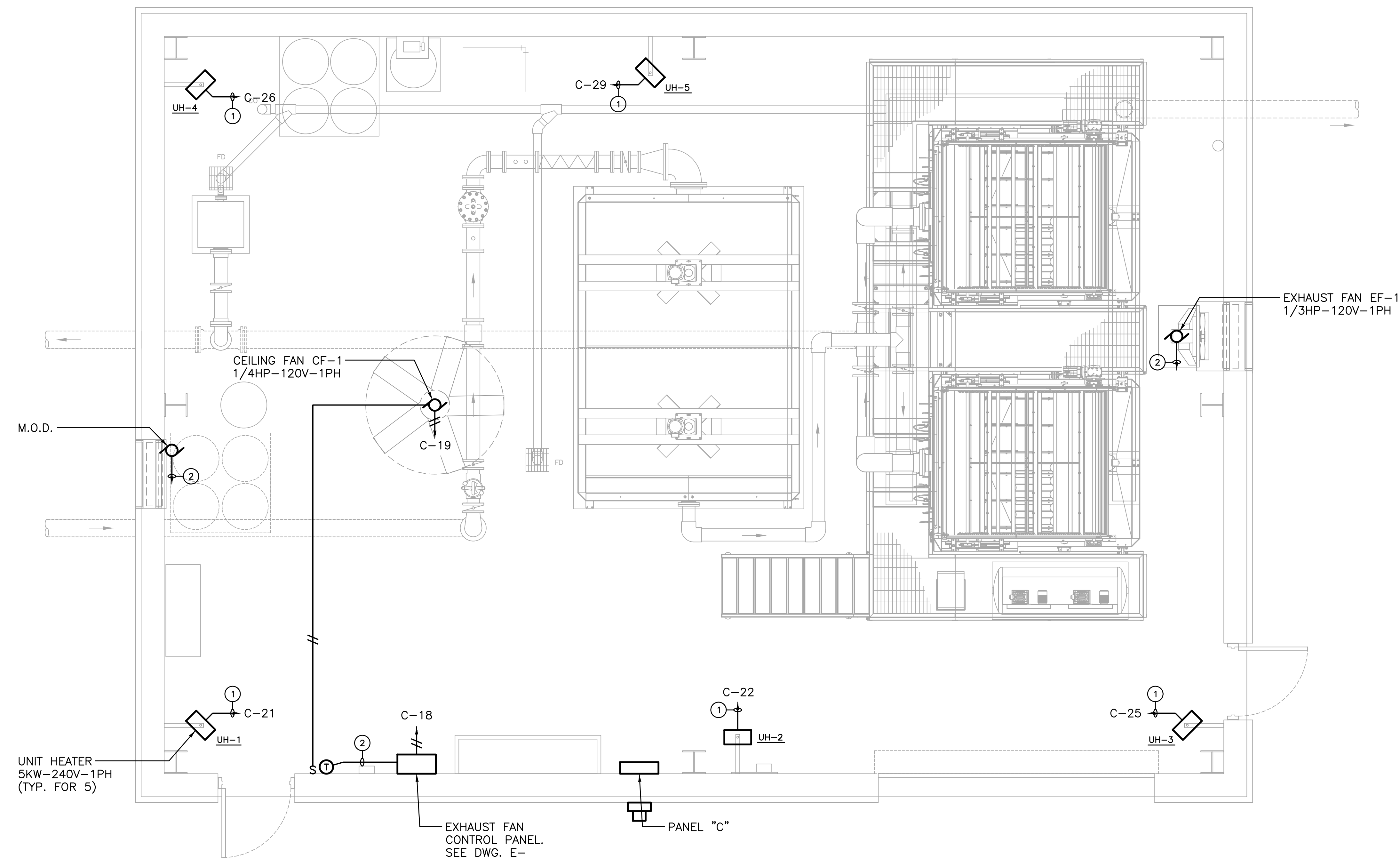
NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
EMMITSBURG, MARYLAND
DAF UNITS
POWER PLAN

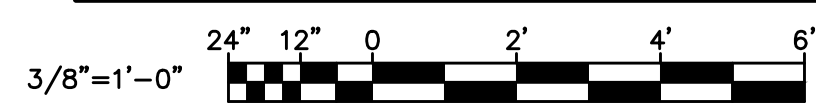
ENGINEER	CHECKED BY
SMJ	DTB
DRAWN BY	DATE
SMJ	2023
RK&K PROJECT NUMBER	
20119	

DRAWING NUMBER
E-05
SHEET NO. 40 OF 42

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**CLARIFIER BUILDING
HVAC ELECTRICAL PLAN**



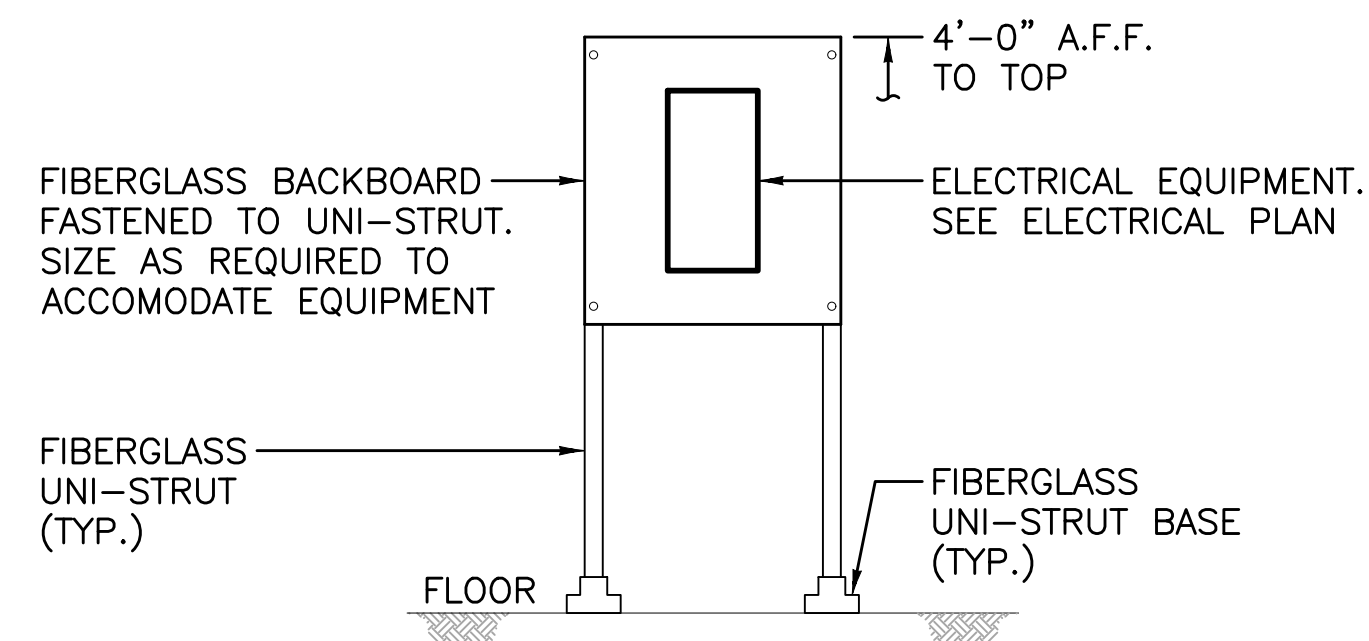
NOTES

1. ALL CONDUIT IN THE CLARIFIER BUILDING SHALL BE RIGID ALUMINUM.

WIRING LEGEND

- ① 2#10, #10 GRD.-3/4" C TO PANEL "C"
- ② 2#12-3/4" C TO EXHAUST FAN EF-1 CONTROL PANEL

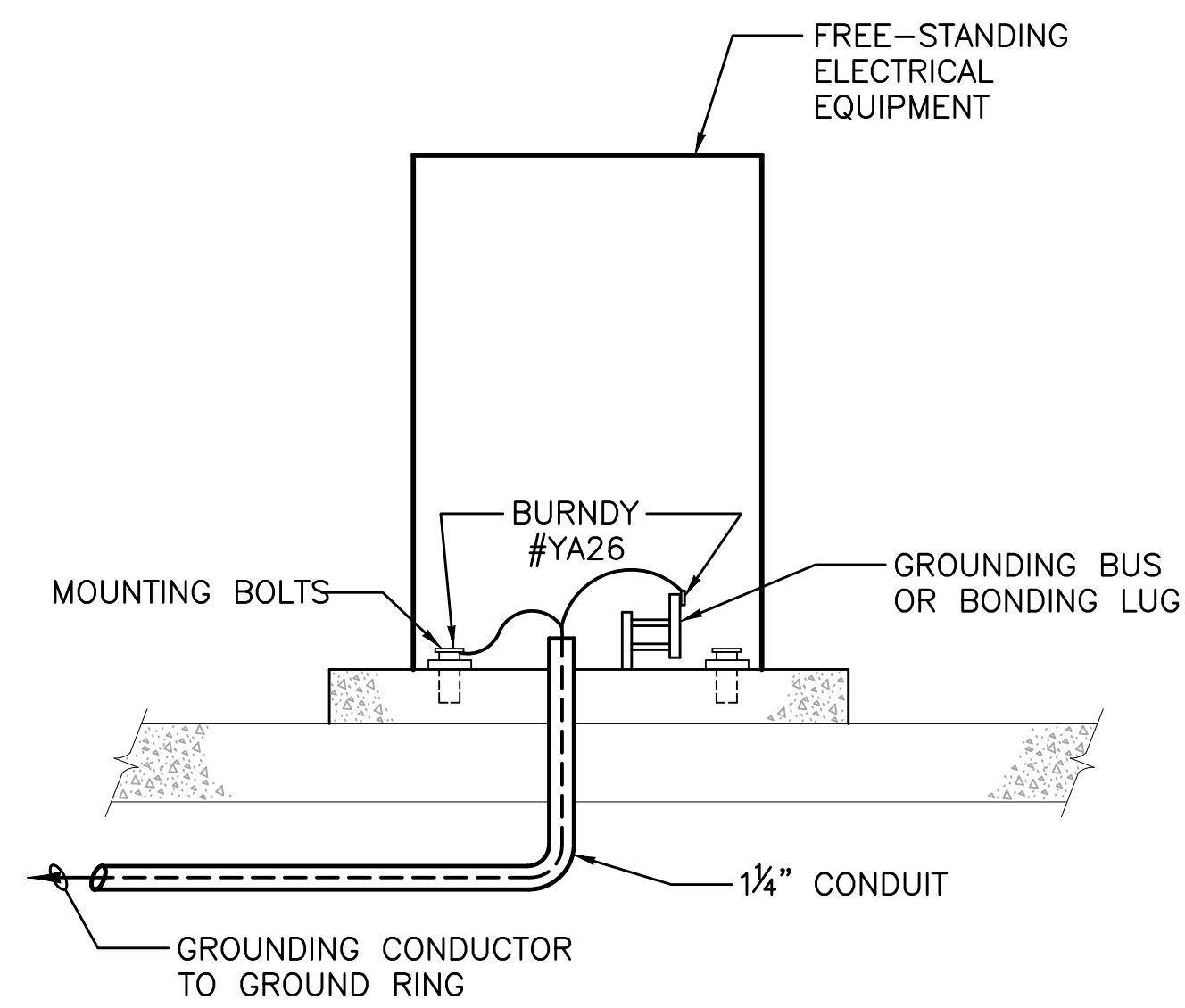
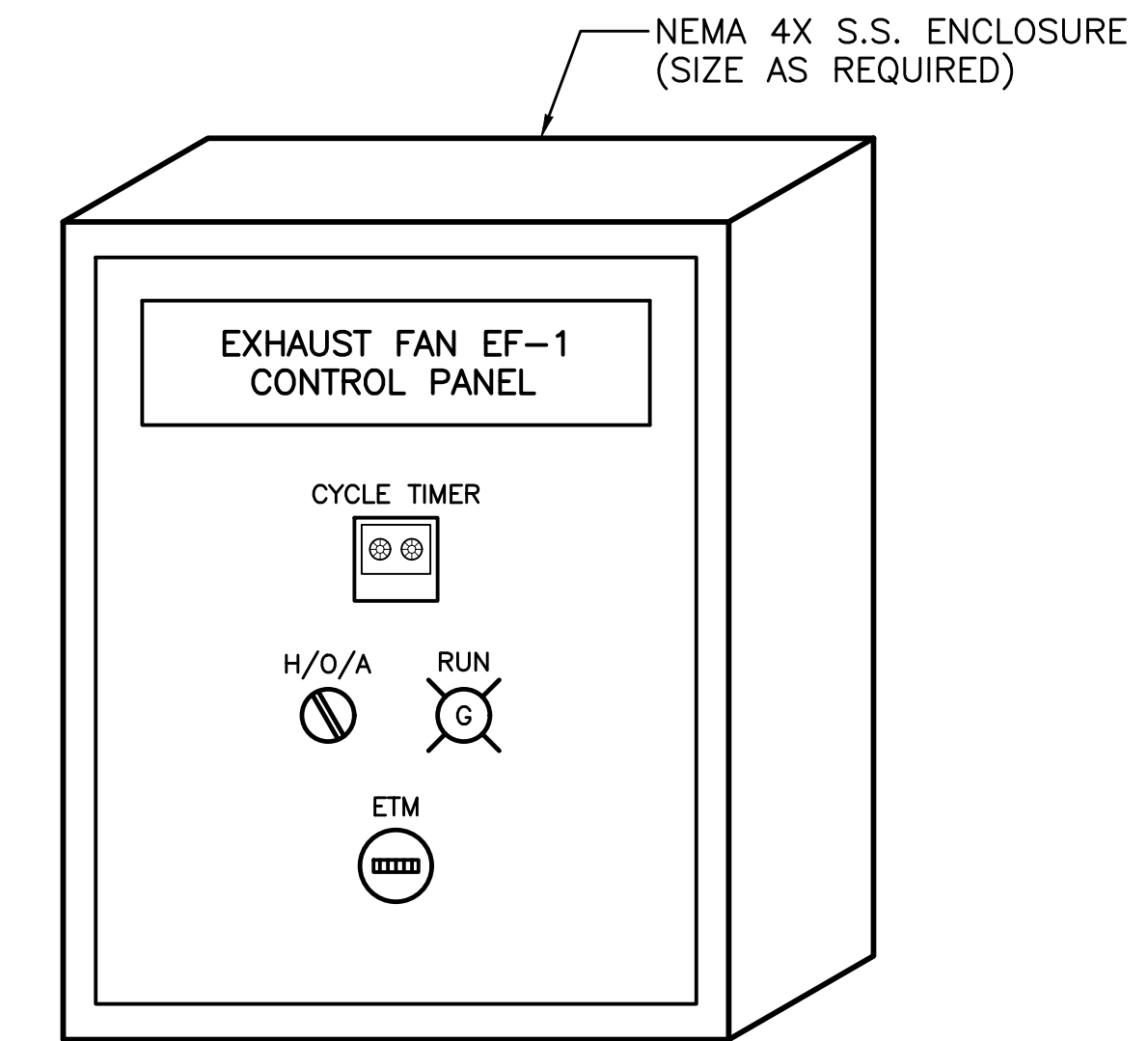
<p>PROFESSIONAL CERTIFICATION</p> <p style="font-size: 8px;">I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 59811 EXPIRATION DATE 06/17/2023</p>	
<p>RK&K</p> <p style="font-size: 8px;">700 EAST PRATT STREET, SUITE 500 BALTIMORE, MARYLAND 21202 800.787.3755</p>	
<p>TOWN OF EMMITSBURG, MARYLAND WATER PLANT CLARIFIER</p>	<p>EMMITSBURG, MARYLAND CLARIFIER BUILDING HVAC ELECTRICAL PLAN</p>
<p>ENGINEER SMJ</p>	<p>CHECKED BY DTB</p>
<p>DRAWN BY SMJ</p>	<p>DATE 2023</p>
<p>RK&K PROJECT NUMBER 20119</p>	
<p>DRAWING NUMBER E-06</p>	
<p>SHEET NO. 41 OF 42</p>	



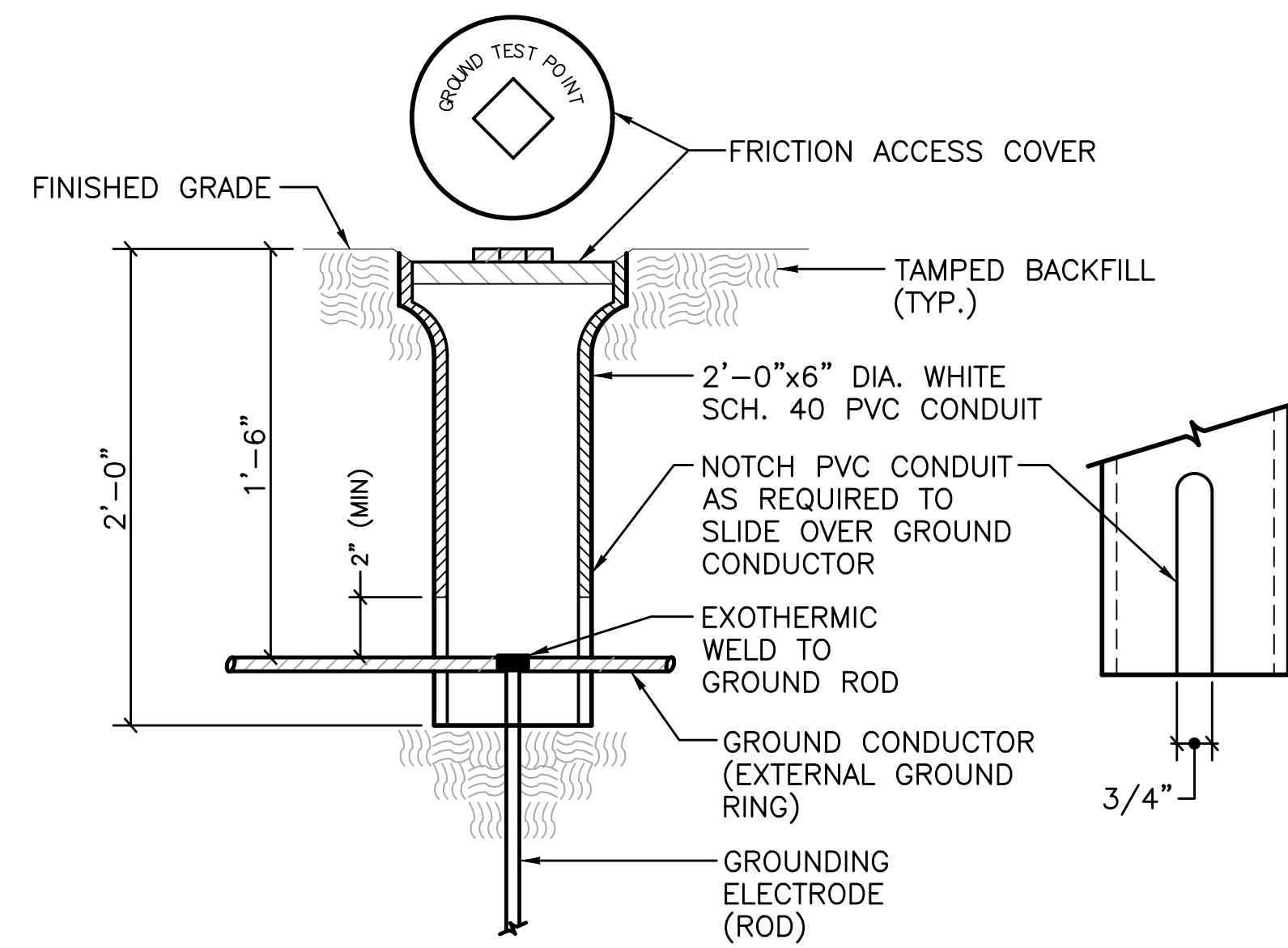
**ELECTRICAL EQUIPMENT
BACKBOARD DETAIL**
NO SCALE

NOTES

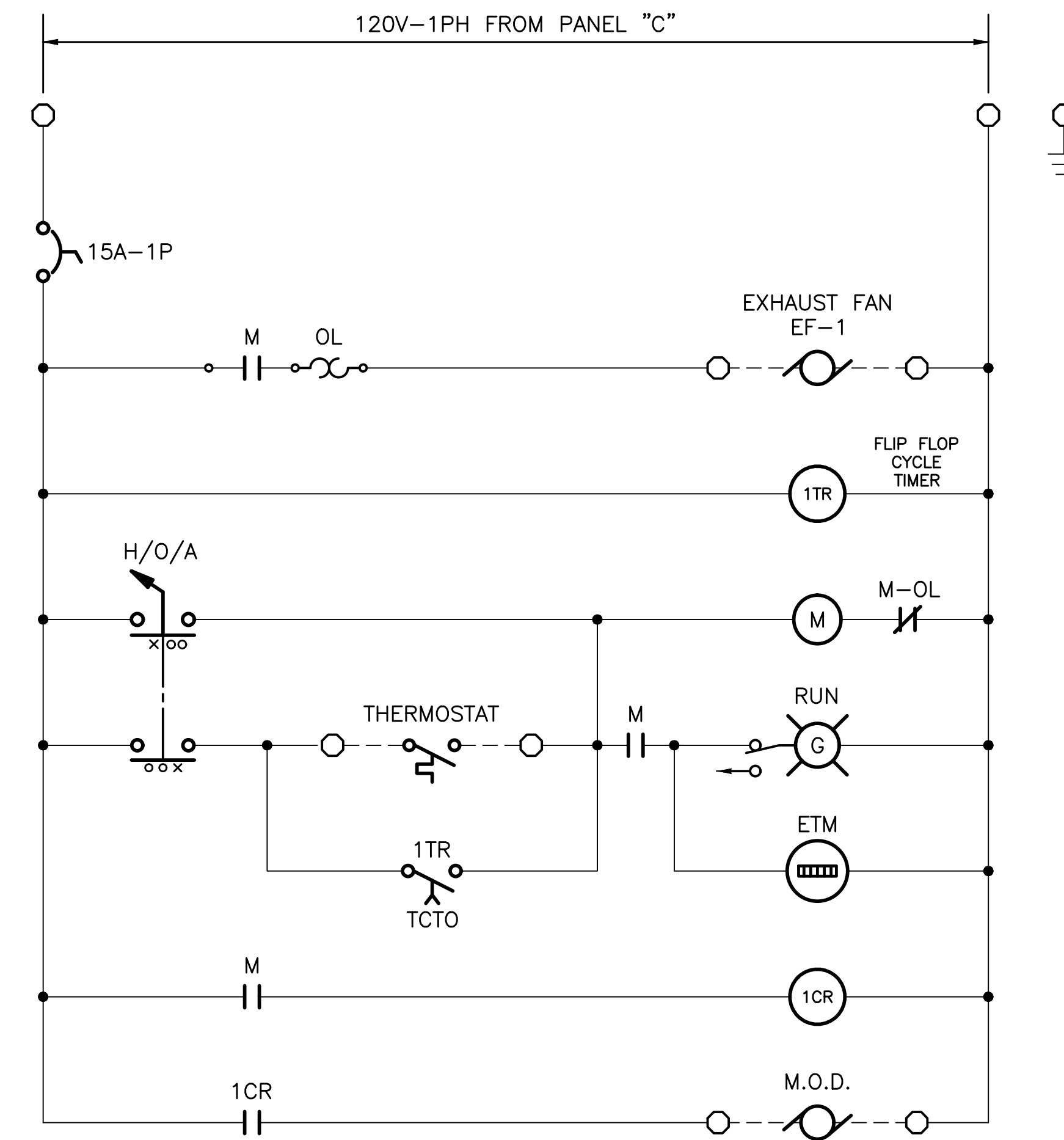
- CONTROL PANEL MAIN NAMEPLATE SHALL BE ENGRAVED WITH 1/2" HIGH LETTERS.



**TYPICAL ENCLOSURE
GROUNDING DETAIL**
NO SCALE



GROUND TEST POINT DETAIL
NO SCALE



**EXHAUST FAN EF-1 CONTROL PANEL
PANEL LAYOUT AND WIRING DIAGRAM**

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. 59811 EXPIRATION DATE 06/14/2023

RK&K
700 EAST PRATT STREET, SUITE 500
BALTIMORE, MARYLAND 21202
800.787.3755

NO.	DESCRIPTION	BY	DATE

TOWN OF EMMITSBURG, MARYLAND
WATER PLANT CLARIFIER
EMMITSBURG, MARYLAND
ELECTRICAL DETAILS AND
EXHAUST FAN EF-1 CONTROL PANEL

ENGINEER SMJ	CHECKED BY DTB
DRAWN BY SMJ	DATE 2023
RK&K PROJECT NUMBER 20119	

DRAWING NUMBER
E-07
SHEET NO. 42 OF 42