

WASHINGTON COUNTY DEPARTMENT OF WATER QUALITY

SMITHSBURG WWTP ENR UPGRADE AND EXPANSION

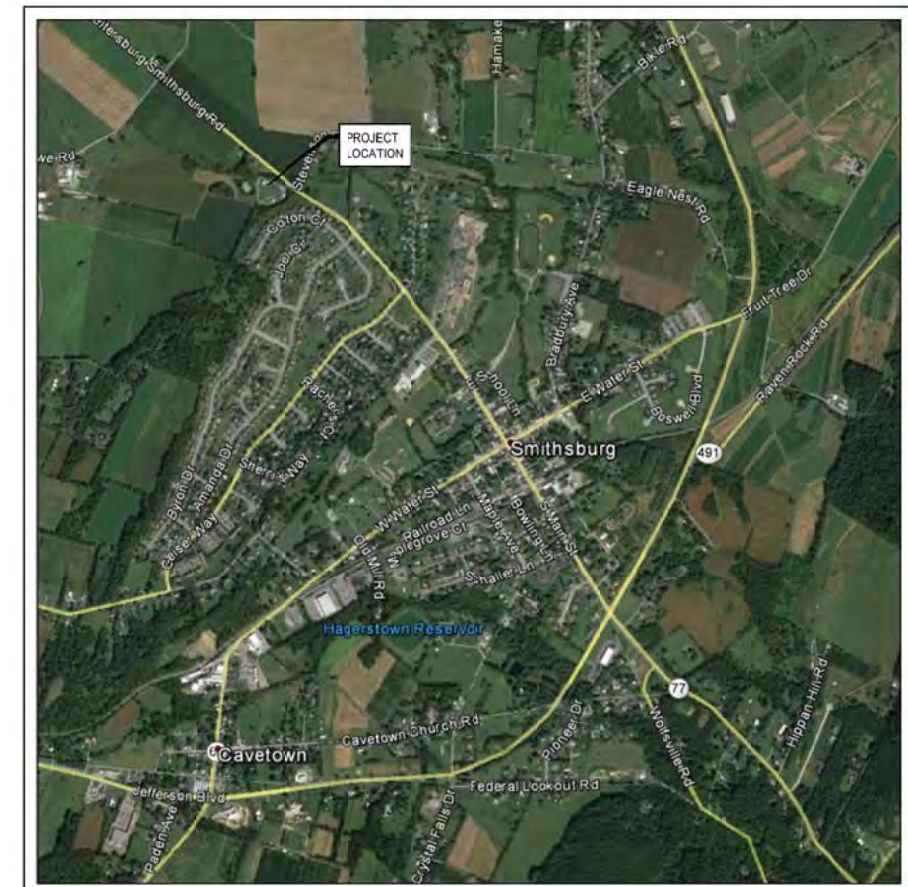
76436-03
PUR-977

WASHINGTON COUNTY
MARYLAND

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PROJECT LOCATION MAP
NOT TO SCALE



100% SUBMITTAL
AUGUST 2021

FLOWS

DESIGN INFLUENT FLOW	0.45	MGD
RAS FLOW	0.288	MGD
FILTER BACKWASH FLOW	0.027	MGD
PEAK INFLUENT FLOW	2.26	MGD
PEAK INFLUENT + INTERNAL RECYCLE FLOW	2.58	MGD

INFLUENT LOADS

	AVG	PEAK	
BOD	844	1351	LBS/D
TSS	638	1407	LBS/D
TKN	267	364	LBS/D
NH3	178	242	LBS/D
TP	22	50	LBS/D

EQUIVALENT EXISTING INFLUENT CONCENTRATIONS

	AVG	PEAK	
BOD	225	360	MG/L
TSS	170	375	MG/L
TKN	71	97	MG/L
NH3	47	64	MG/L
TP	6	13	MG/L

EFFLUENT PERMIT REQUIREMENTS

	AVG (MONTHLY)	AVG (WEEKLY)	MAX (DAILY)	
BOD	10	15		MG/L
TSS	22	33		MG/L
AMMONIA (MAY-OCT)	1.3		5.6	MG/L
AMMONIA (NOV-APR)	2.6		6.8	MG/L
TOTAL NITROGEN	6092	LBS/YR		
TOTAL PHOSPHORUS	457	LBS/YR		
E. COLI	92	MPN/100 ML MAX		
pH	6.5-8.5	MAY-OCT.		
pH	6.5-7.5	NOV-APRIL		
DISSOLVED OXYGEN	6	MG/L MIN		

EXISTING INFLUENT SCREENING

TYPE	SHAFTLESS SPIRAL SCREEN
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NEW INFLUENT EQUALIZATION PUMP STATION

NO. OF PUMPS	2	
TYPE	WET PIT SUBMERSIBLE CHOPPER	
DESIGN FLOW (PEAK)	1181	GPM EACH
DESIGN HEAD	30.5	FT
MOTOR SIZE	20	HP
SPEED		VARIABLE

NEW INFLUENT EQUALIZATION TANK

EQUALIZATION TANK WIDTH	50	FT
EQUALIZATION TANK LENGTH	62	FT
WORKING DEPTH	9.5	FT
	669.52	LWL
	674.00	HWL
EQUALIZATION TANK WORKING VOLUME	0.220	MG
NO. OF MIXERS	2	
MIXER TYPE		SUBMERSIBLE
MIXER IMPELLER SIZE	23.6	INCHES
MIXER SIZE	5	HP
EQUALIZATION TANK DISCHARGE CONTROL VALVE		ELECTRIC PINCH VALVE
MAX FLOW	417	GPM
SIZE	6	INCH

NEW PRE-ANOXIC

VOLUME	18000	GAL
RAS FLOW	200	GPM MAX
RAS FLOW SOURCE		SBR WITH INFLUENT VALVE OPEN
MIXER TYPE		SUBMERSIBLE
MIXER SIZE	3	HP

NEW INFLUENT PUMPING STATION EQUIPMENT

NO. OF PUMPS	2	
TYPE		WET PIT SUBMERSIBLE CHOPPER
DESIGN FLOW (PEAK)	1792	GPM EACH
DESIGN HEAD	61	FT
MOTOR SIZE	50	HP
SPEED		VARIABLE

EXISTING SBR SYSTEM

NO. OF BASINS	2	
CYCLE TYPE		TRUE BATCH
DIAMETER	57	FT
NO. OF MIXERS PER BASIN	1	
MIXER TYPE		FLOATING SURFACE MIXER
MIXER SIZE	7.5	HP EACH
NO. OF BLOWERS	3	(1 PER BASIN, 1 STANDBY)
BLOWER TYPE		POSITIVE DISPLACEMENT
BLOWER SIZE	25	HP EACH
NO. DIFFUSERS PER BASIN	50	(25 PER RACK, 2 RACKS)
DIFFUSER TYPE		FINE BUBBLE, RETRIEVABLE

NEW SBR EQUIPMENT

NO. OF BLOWERS	3	(1 PER BASIN, 1 STANDBY)
BLOWER TYPE		POSITIVE DISPLACEMENT
BLOWER SIZE	75	HP EACH
AIRFLOW PER BLOWER	1370	SCFM
NO. DIFFUSERS PER BASIN	100	(25 PER RACK, 4 RACKS)
DIFFUSER TYPE		FINE BUBBLE, RETRIEVABLE
NO. DECANTERS PER BASIN	1	
DECANTER FLOW	1852	GPM

SBR SYSTEM

AVERAGE DAILY FLOW	0.45	MGD	*AT 20 C
PEAK DAILY FLOW	0.6	MGD	
MAX WATER DEPTH	15.5	FT	
MIN WATER DEPTH	12	FT	
AIRFLOW PER BASIN (AVERAGE)	1500	SCFM	
AIRFLOW PER BASIN (MAXIMUM)	1820	SCFM	*AT 20 C
MAX. DISCHARGE PRESSURE	8.3	PSIG	*AT 20 C
DESIGN MLSS (BIOLOGICAL)	8000	MG/L	
DESIGN SRT	48.5	DAYS	
AVERAGE WAS PRODUCTION	570	LBS/DAY	

EXISTING POST-EQUALIZATION (EQ) BASIN

ACTIVE VOLUME	95,300	GAL
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NEW POST-EQ BASIN EQUIPMENT

NO. OF PUMPS	2	
TYPE		WET PIT SUBMERSIBLE
DESIGN FLOW (PEAK)	1615	GPM EACH
DESIGN FLOW (AVERAGE)	600	GPM EACH
DESIGN HEAD (MAX)	45.9	FT
DESIGN HEAD (MIN)	16	FT
MOTOR SIZE	30	HP
SPEED		VARIABLE

NEW UV EQUIPMENT

TYPE		LOW-PRESSURE, HIGH-INTENSITY, SELF-CLEANING
NO. OF BANKS	2	
LAMPS PER BANK	18	
TREATMENT CAPACITY PER BANK	1.8	MGD

NEW MICRO-C STORAGE AND FEED

STORAGE TANK TYPE		VERTICAL SINGLE-WALLED
INSULATION		ELECTRONIC HEAT JACKET
STORAGE TANK VOLUME	1500	GAL
NO. OF MICRO-C PUMPS	3	2 DUTY, 1 STANDBY
MICRO-C FEED POINTS		SBR NO. 1
		SBR NO. 2
MICRO-C PUMP FLOW (MAX.)	37.8	GPD
PUMP TYPE		PERISTALTIC

NEW ALUM STORAGE AND FEED

STORAGE TANK TYPE		VERTICAL SINGLE-WALLED
INSULATION		ELECTRONIC HEAT JACKET
STORAGE TANK VOLUME	2500	GAL
NO. OF ALUM PUMPS	4	3 DUTY, 1 STANDBY
ALUM FEED POINTS		SBR NO. 1
		SBR NO. 2
ALUM PUMP FLOW (MAX.)	72	GPH
PUMP TYPE		PERISTALTIC

SODIUM HYDROXIDE, STORAGE AND FEED (FUTURE)

STORAGE TANK TYPE		TOTE
USE		ALKALINITY CONTROL
NO. OF NAOH PUMPS	2	FUTURE
NAOH CONCENTRATION	25%	
NAOH FEED POINT		INFLUENT PUMP STATION
PUMP TYPE		PERISTALTIC

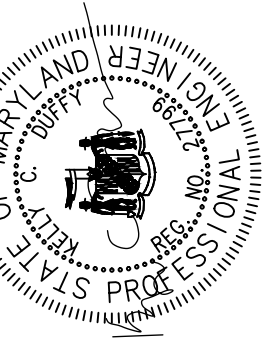
UTILITY WATER SYSTEM

NO. OF PUMPS	2	1 DUTY, 1 STANDBY
TYPE OF PUMPS		WET PIT SUBMERSIBLE
DESIGN FLOW AT 174 FT OF HEAD	60	GPM
DESIGN HEAD - MAX	180	FT
DESIGN HEAD - MIN	159	FT
MOTOR SIZE	10	HP
WORKING VOLUME	3000	GALLONS
STORAGE TIME	6	HOURS

DESIGN CRITERIA



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SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
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SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	ENV DRAFTERS
CHECKED BY:	KCD
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SHEET TITLE:
DESIGN CRITERIA

\\BAL-SRV\02\2007\0712_1\DCENR\SMITHSBURG DESIGN-ENR TO 0456\ADD\04 CONTRACT DRAWINGS\G-02 0712_EXHD_DWG-G-28 08/20/2021 2:38 PM\Bama.Dave

ABBREVIATIONS/TEXT SYMBOLS/PROCESS MECHANICAL LEGEND/REFERENCE SYMBOLS

ACCESS	ACCESSORIES	IN, INS	INCH, INCHES
ADPT	ADAPTER	INF	INFLEUNT
AFF	ABOVE FINISHED FLOOR	INSP	INSPECTION
ALT	ALTERNATE	INV	INVERT
ALUM	ALUMINUM	IP	IRON PIN
ANC	ANCHOR	JT	JOINT
APPROX	APPROXIMATE	L	LENGTH
ARCH	ARCHITECTURAL	LB	POUND
ASSOC	ASSOCIATED	LF	LINEAR FEET
ASSY	ASSEMBLY	LG	LONG
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	LOC	LIMIT OF CONTRACT
AT	AIR TEST	LOW	LIMIT OF WORK
AUTO	AUTOMATIC	LP	LIGHT POST
AVG	AVERAGE	MAC	MACADAM
B	BOTTOM	MAG	MAGNETIC
BALL V, BV	BALL VALVE	MAX	MAXIMUM
BSMT	BASEMENT	MCC	MOTOR CONTROL CENTER
BFLY V, BFLV	BUTTERFLY VALVE	MFR	MANUFACTURER
BIT	BITUMINOUS	MH	MANHOLE
BLDG	BUILDING	MIN	MINIMUM
BLK	BLOCK	MJ	MECHANICAL JOINT
BM	BENCH MARK	MRAS	MAGNETITE ENMESHED RETURN ACTIVATED SLUDGE
BOT	BOTTOM	MTD	MOUNTED
BRG	BEARING	MTG	MOUNTING
C, CNTR	CENTER	N	NORTH
C/C	CENTER TO CENTER	NO.	NUMBER
CAP	CAPACITY	NPT	NATIONAL PIPE THREAD
CH	CHANNEL	NTS	NOT TO SCALE
CI	CAST IRON	OC	ON CENTER
CIP	CAST IRON PIPE	OPER	OPERATING, OPERATOR
CL	CLEARANCE	OPNG	OPENING
CMP	CORRUGATED METAL PIPE	PE	PLAIN END
CO	CLEAN OUT	PL	PLATE
COL	COLUMN	POLY	POLYETHYLENE
CON	CONCENTRIC	PM	PROCESS MECHANICAL
CONC	CONCRETE	POT	POTABLE
CONN	CONNECTION	PRESS	PRESSURE
CONSTR	CONSTRUCTION	PROCESS	PROCESSING
CONT	CONTINUOUS, CONTINUATION	PRV	PRESSURE REDUCING VALVE
CONTR	CONTRACTOR	PS	PIPE SUPPORT
Cu	COPPER	PSI	POUNDS PER SQUARE INCH
CPLG	COUPLING	PLUG V, PV	PLUG VALVE
CHEK V, CV	CHECK VALVE	PVC	POLYVINYL CHLORIDE
DET, DETS	DETAILS	RAD, R	RADIUS
DIA	DIAMETER	RAS	RETURN ACTIVATED SLUDGE
DIG	DIGESTER	RCP	REINFORCED CONCRETE PIPE
DIM, DIMS	DIMENSION, DIMENSIONS	RECT	RECTANGULAR
DI	DUCTILE IRON	RED	REDUCER, REDUCING
DIP	DUCTILE IRON PIPE	REINF	REINFORCEMENT
DISC	DISCONNECT	REQD	REQUIRED
DISCH	DISCHARGE	RD	ROAD
DIST	DISTRIBUTION	ROW	RIGHT OF WAY
DN	DOWN	RELIEF V, RV	RELIEF VALVE
DO	DISSOLVED OXYGEN	S	SOUTH
DP	DEEP	SAN	SANITARY
DWG	DRAWING	SBR	SEQUENCING BATCH REACTOR
E	EAST	SCH	SCHEDULE
EA	EACH	SDR	STANDARD DIAMETER RATIO
ECC	ECCENTRIC	SECT	SECTION
EFF	EFFLUENT	SHT	SHEET
ELB	ELBOW	SIM	SIMILAR
ELEC	ELECTRIC	SOL	SOLUTION
EL, ELEV	ELEVATION	SP	SPACED, SPACING, STATIC PRESSURE
EMB	EMBEDMENT	SPEC	SPECIFICATION
EMER	EMERGENCY	SQ	SQUARE
EQ	EQUAL, EQUALIZATION	STD	STANDARD
EQUIP	EQUIPMENT	STL	STEEL
EST	ESTIMATED	SS	STAINLESS STEEL
EXIST	EXISTING	STA	STATION
EXP	EXPANSION	STRUCT	STRUCTURAL
F	DEGREE FAHRENHEIT, FUSE	SYM	SYMMETRICAL
FC	FINAL CLARIFIER	T	TOP
FD	FLOOR DRAIN	TDH	TOTAL DYNAMIC HEAD
FH	FIRE HYDRANT	TEMP	TEMPERATURE
FIN	FINISHED	TC	TOP GRATE
FLEX	FLEXIBLE	THD	THREAD, THREADED
FLG, FLGD	FLANGE, FLANGED	THK	THICK
FL, FLR	FLOOR	TRANS	TRANSITION
FM	FORCE MAIN, FEMALE	TOW	TOP OF WALL
FND	FOUND	TYP	TYPICAL
FRP	FIBERGLASS REINFORCED PLASTIC OR PIPE	UNO	UNLESS NOTED OTHERWISE
FT	FOOT, FEET	UTIL	UTILITY
FTG	FOOTING	UV	ULTRAVIOLET
FVE	FIBERGLASS VINYL ESTER PIPE	V	VALVE
GA	GAUGE/GAGE	VAR	VARIABLES
GAL	GALLON	VCP	VITRIFIED CLAY PIPE
GALV	GALVANIZED	VERT	VERTICAL
GEN	GENERATOR	VIF	VERIFY IN FIELD
GPM	GALLONS PER MINUTE	VMD	VERIFY MANUFACTURER'S DIMENSION
GRD	GRADE	W	WEST
GATE V, GV	GATE VALVE	W/	WITH
H	HIGH, HEIGHT	W/O	WITHOUT
HORIZ	HORIZONTAL	WAS	WASTE ACTIVATED SLUDGE
HP	HORSEPOWER	WL	WATER LEVEL
HW	HOT WATER	WM	WATER METER
		WT	WEIGHT
		WV	WATER VALVE
		YR	YEAR

PROCESS MECHANICAL LEGEND

	PRESSURE REDUCING VALVE
	AUTOMATIC DRAIN VALVE
	BALL VALVE
	CHECK VALVE
	GATE VALVE
	BUTTERFLY VALVE
	PLUG VALVE
	ELECTRIC ACTUATED PLUG VALVE
	PNEUMATIC ACTUATED PLUG VALVE
	SOLENOID VALVE
	PRESSURE RELIEF VALVE
	BACK PRESSURE VALVE
	DIAPHRAGM VALVE
	FLOW METER
	ROTOMETER
	UNION
	TEE
	90° ELBOW
	45° ELBOW
	REDUCER
	COUPLING
	CAP
	FLEXIBLE CONNECTOR
	ADAPTER
	HOSE BIBB
	PRESSURE GAUGE
	FLOW

GENERAL LEGEND

	SECTION CUT REFERENCE SYMBOL
	DETAIL REFERENCE SYMBOL
	CROSS HATCHING INDICATES EXISTING STRUCTURE, EQUIPMENT OR PIPING TO BE REMOVED
	SLANT LETTERING INDICATES EXISTING ITEMS
	VERTICAL LETTERING INDICATES PROPOSED ITEMS.

GENERAL NOTES:

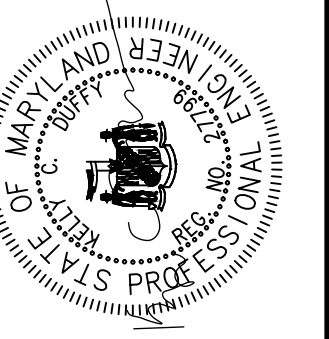
- THE UTILITIES SHOWN HAVE BEEN PLOTTED FROM FIELD DATA AND ARE APPROXIMATE IN LOCATION AND DEPTH. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION, DEPTH, AND CONDITIONS IN THE FIELD WITH THE REPRESENTATIVE OF THE UTILITY IN QUESTION. THE ENGINEER AND OWNER DO NOT ASSUME ANY RESPONSIBILITY FOR ACCURACY OR SUFFICIENCY OF THE DATA PROVIDED ON EXISTING UTILITIES, AND FURTHERMORE WILL ASSUME NO RESPONSIBILITY FOR ANY COST OR CONDITION RESULTING FROM ANY INACCURACY OR INSUFFICIENCY IN THIS REGARD. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING UTILITIES FOR THE ACTUAL LOCATION OF THEIR FACILITIES BEFORE ANY WORK IS BEGUN ON THIS PROJECT. CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) DAYS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR'S NOTIFICATION SHALL INCLUDE (A) THE NATURE OF THE WORK TO BE DONE; (B) LOCATION OF THE JOB AND CONTRACT NUMBER AND (C) TIME AND DATE WORK WILL BE STARTED. FURTHERMORE, THE CONTRACTOR IS ADVISED TO EXERCISE EXTREME CAUTION WHEN DIGGING ADJACENT TO AND/OR CROSSING EXISTING UTILITIES. THE CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO MAINTAIN EXISTING UTILITIES SERVICE AND SHALL REPAIR DAMAGE TO THEM IMMEDIATELY AT HIS OWN EXPENSE.
- THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO MAINTAIN EXISTING UTILITY SERVICES AND SHALL REPAIR DAMAGE TO THEM IMMEDIATELY AT HIS OWN EXPENSE.
- MINIMUM DEPTH OF COVER TO CROWN OF PIPE FOR ALL UTILITIES AND SERVICES SHALL BE FOUR FEET, UNLESS OTHERWISE INDICATED.
- PIPE LENGTHS ARE BASED ON HORIZONTAL DISTANCES.
- ALL VALVES SHALL BE PROVIDED WITH VALVE BOXES TO GRADE.
- THE CONTRACTOR SHALL PROVIDE ALL FITTINGS AND THRUST BLOCKS NECESSARY FOR A COMPLETE SYSTEM.
- PROVIDE PIPING WITH THRUST BLOCKING OR RESTRAINED JOINTS FITTINGS AT ALL BENDS, TEES, VALVES AND CHANGE IN DIRECTION 1 1/2" OR GREATER.
- ALL ELEVATIONS ARE BASED ON NATIONAL GEODETIC VERTICAL DATUM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEST PITTING EXISTING UTILITIES AT CROSSING POINTS PRIOR TO THE INSTALLATION OF PROPOSED FACILITIES.
- THE LOCATION OF ANY PROPERTY LINES OR RIGHT-OF-WAY LINES ARE SHOWN ON THE DRAWINGS FOR INFORMATIONAL PURPOSES ONLY AND THEIR ACCURACY IS NOT GUARANTEED.
- DIMENSIONS AND ELEVATIONS ARE CONTINGENT UPON EQUIPMENT FURNISHED. CONTRACTOR SHALL MODIFY STRUCTURES IN ACCORDANCE WITH APPROVED SHOP DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL COORDINATE ARCHITECTURAL, EQUIPMENT, MECHANICAL AND ELECTRICAL DRAWINGS FOR THE LOCATION OF PIPE SLEEVES, ANCHOR BOLTS, INSERTS, ETC. BEFORE PLACING CONCRETE.
- UNLESS OTHERWISE NOTED, DETAILS SHOWN ON ANY DRAWING ARE TYPICAL FOR ALL SIMILAR CONDITIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ROADWAYS, CURBS, GUTTER, SIDEWALK, AND OTHER EXISTING FACILITIES DAMAGED DURING CONSTRUCTION TO THEIR ORIGINAL CONDITION AND IN ACCORDANCE WITH AGENCY PERMITS AND AS REQUIRED BY THE DETAIL DRAWINGS.
- TOPOGRAPHICAL SURVEY WAS PERFORMED MAY 2019.

GENERAL DEMOLITION NOTES:

- ELEVATION GIVEN ON DEMOLITION DRAWINGS MAY NOT BE CORRECT, CONTRACTOR TO VERIFY EXISTING ELEVATIONS.
- REMOVE ALL CONCRETE PADS AND SUPPORTS NOT BEING REUTILIZED FLUSH WITH THE FLOOR. PATCH SMOOTH WITH CONCRETE REPAIR MORTAR.
- REMOVE ALL HANGERS, CLAMPS, BRACKETS, ETC THAT ATTACH REMOVED EQUIPMENT TO WALLS OR CEILING. PATCH ALL HOLES CREATED BY REMOVAL.
- SEAL ALL FLOOR, WALLS AND ROOF OPENINGS LEFT AFTER EQUIPMENT IS REMOVED WITH NON-SHRINK GROUT.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ALL ELECTRICAL CONDUIT BACK TO THE ELECTRICAL SOURCE THAT SERVICES EQUIPMENT HE IS REMOVING. THE CONTRACTOR SHALL ALSO REMOVE ALL JUNCTION BOXES, CONTROL PANELS, DISCONNECT SWITCHES, ETC. ASSOCIATED WITH THE EQUIPMENT BEING REMOVED UNLESS MARKED BY ELECTRICAL SUB-CONTRACTOR TO REMAIN. COORDINATE ALL DEMOLITION WORK AND MARKING SYSTEM WITH ELECTRICAL SUB-CONTRACTOR.
- THE ELECTRICAL SUB-CONTRACTOR IS RESPONSIBLE FOR TURNING OFF AND LOCKING OUT POWER TO EACH PIECE OF EQUIPMENT, MOTOR CONTROL CENTERS, CONTROL PANELS, ETC., TO MAKE REMOVAL SAFE. HE SHALL VERIFY THAT THERE IS NO VOLTAGE ON THE WIRING PRIOR TO REMOVAL.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF LIGHT FIXTURES AND RECEPTACLES AND ASSOCIATED CONDUIT AND WIRING WHERE REQUIRED.
- IF ELECTRICAL SWITCHGEAR PANELS OR MOTOR CONTROL CENTERS ARE BEING RENOVATED, THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF BREAKERS, MOTOR STARTERS, ETC, REQUIRED BY THE RENOVATION.
- WHERE CONCRETE REMOVAL EXPOSES ENDS OF REBAR, OR WHERE ANCHOR BOLTS ARE CUT OFF, GRIND REBAR OR BOLT TO 1/4" BELOW SURFACE & PATCH SMOOTH WITH CONC REPAIR MORTAR.



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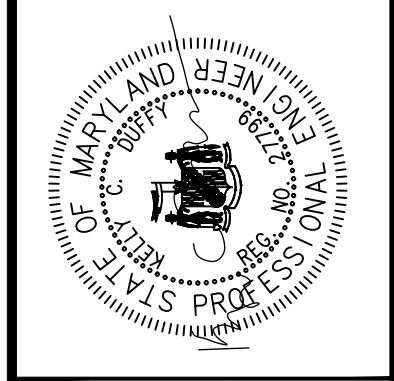
SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22623 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
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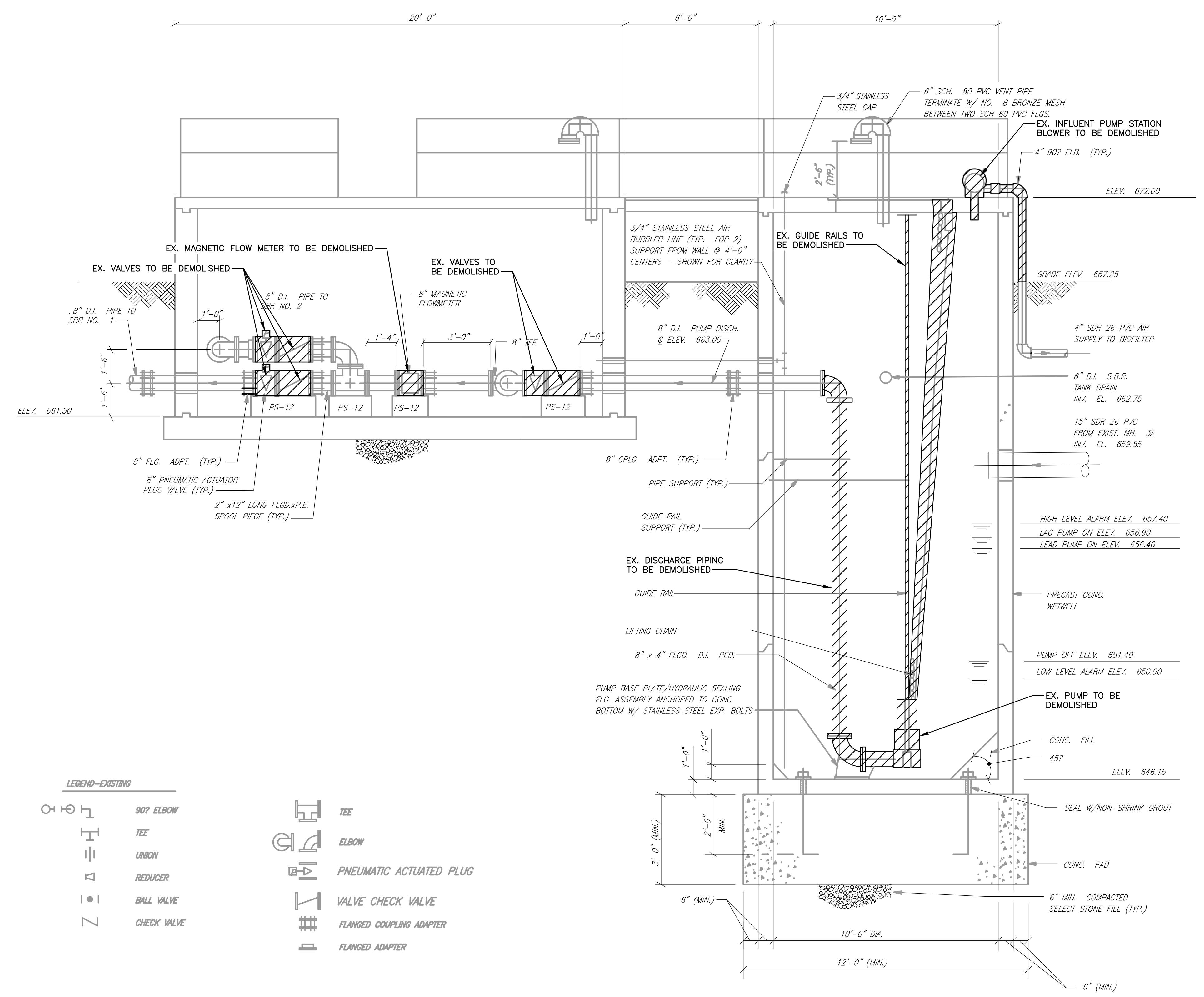
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ABBREVIATIONS LEGENDS AND NOTES

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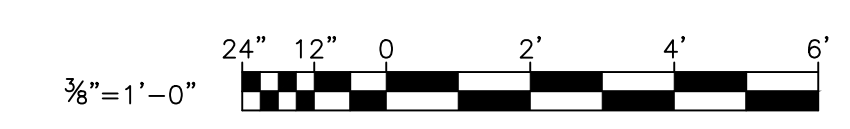
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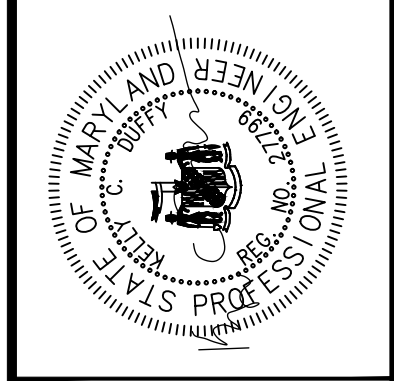
LEGEND-EXISTING

	90° ELBOW		TEE
	TEE		ELBOW
	UNION		PNEUMATIC ACTUATED PLUG
	REDUCER		VALVE CHECK VALVE
	BALL VALVE		FLANGED COUPLING ADAPTER
	CHECK VALVE		FLANGED ADAPTER

EXISTING INFLUENT PUMP STATION AND VALVE VAULT SECTION DEMOLITION PLAN
 SCALE: 3/8"=1'-0"



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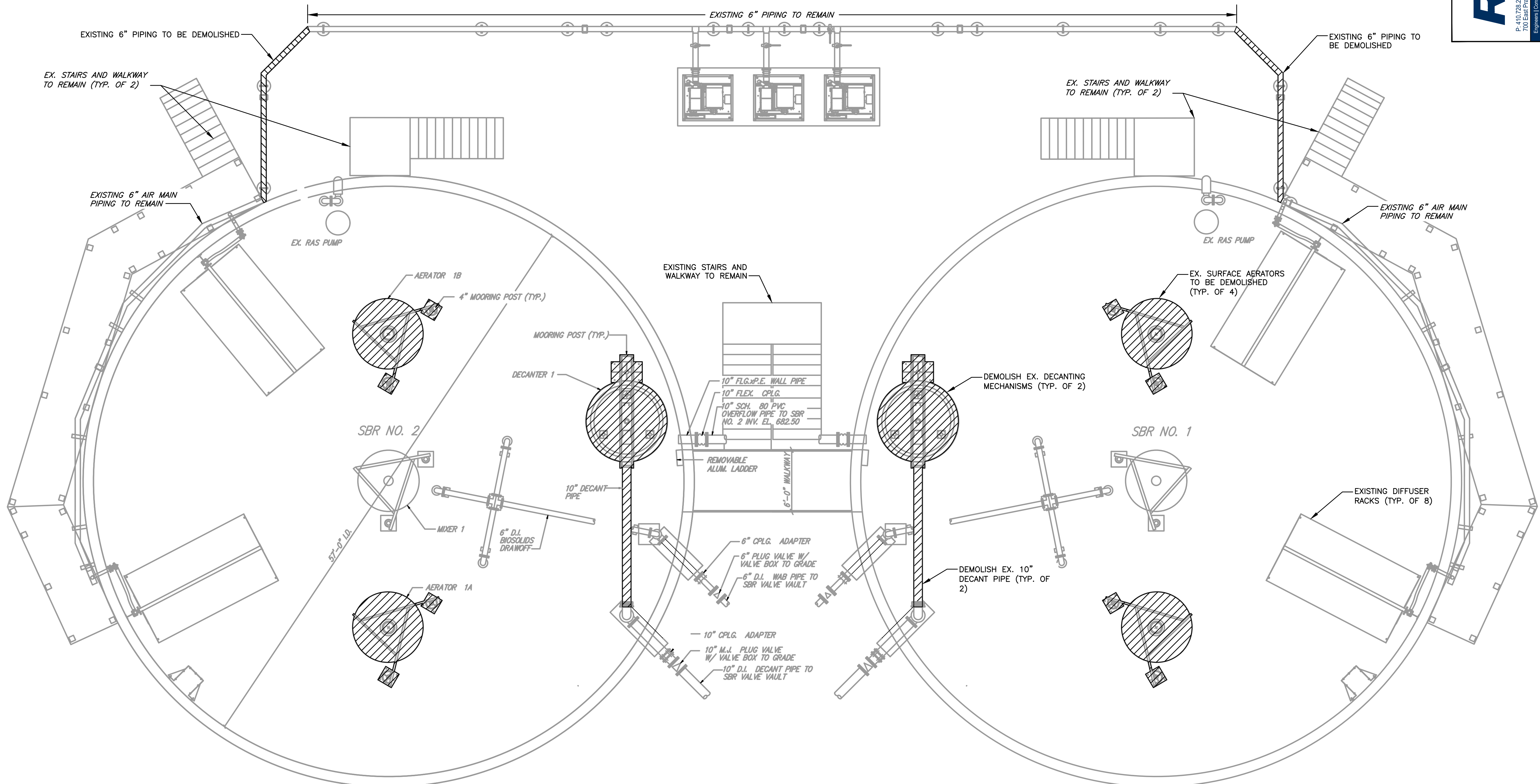
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
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SHEET TITLE: **DEMOLITION SBR PLAN**

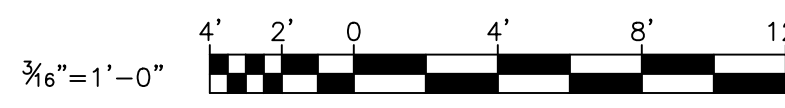
PROJECT STATUS: **100% SUBMITTAL**

SHEET NO: **D-3**

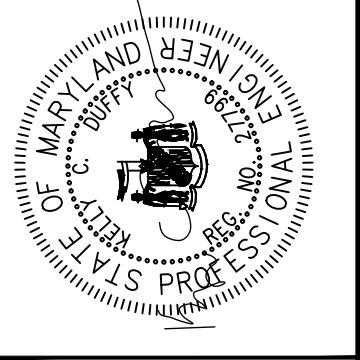


DEMOLITION-SBR PLAN
 SCALE: 3/16" = 1'-0"

- NOTES:**
- EXISTING DIFFUSER RACKS, MIXERS, AND RAS PUMPS TO REMAIN.
 - AIR PIPING DEMOLITION TO FOLLOW INSTALLATION TESTING AND SUCCESSFUL STARTUP OF NEW BLOWERS, AIR PIPING, AND DIFFUSER RACKS.

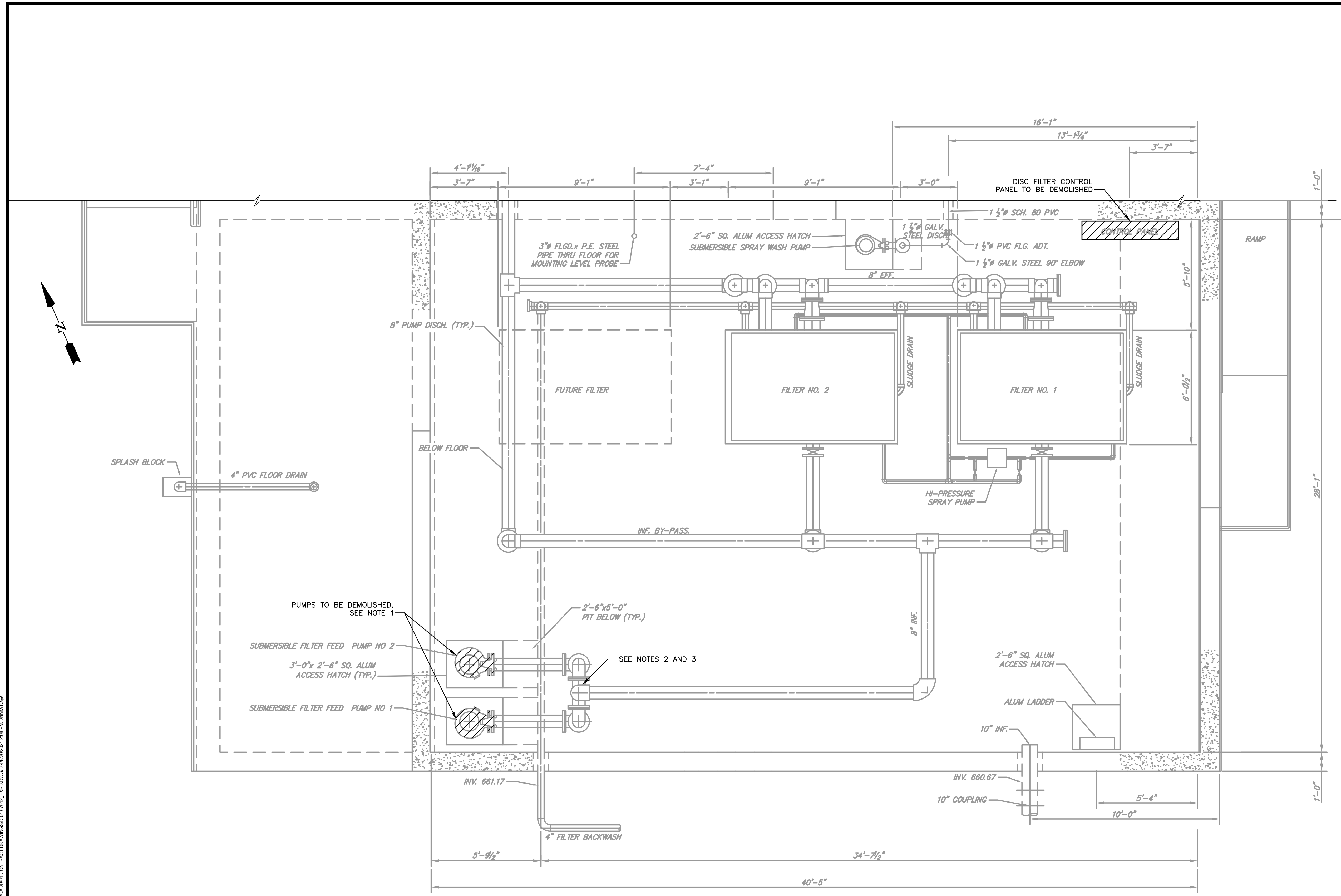


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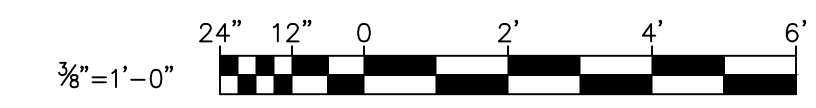
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POST EQUALIZATION BASIN DEMOLITION PLAN
 SCALE 3/8"=1'-0"

- NOTES:**
- CONTRACTOR TO COMPLETE WORK WHILE MAINTAINING TANK IN SERVICE. EXISTING RAILS AND BASE ELBOWS TO REMAIN. CONTRACTOR TO MAINTAIN ONE PUMP IN SERVICE AT ALL TIMES.
 - EXISTING DISCHARGE VALVES IN VERTICAL DISCHARGE PIPING TO BE DEMOLISHED.
 - EXISTING FLOW METER TO BE DEMOLISHED. FLOW METER IN VERTICAL SECTION.

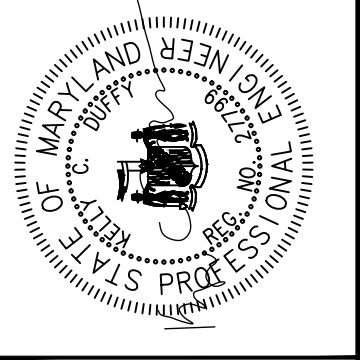


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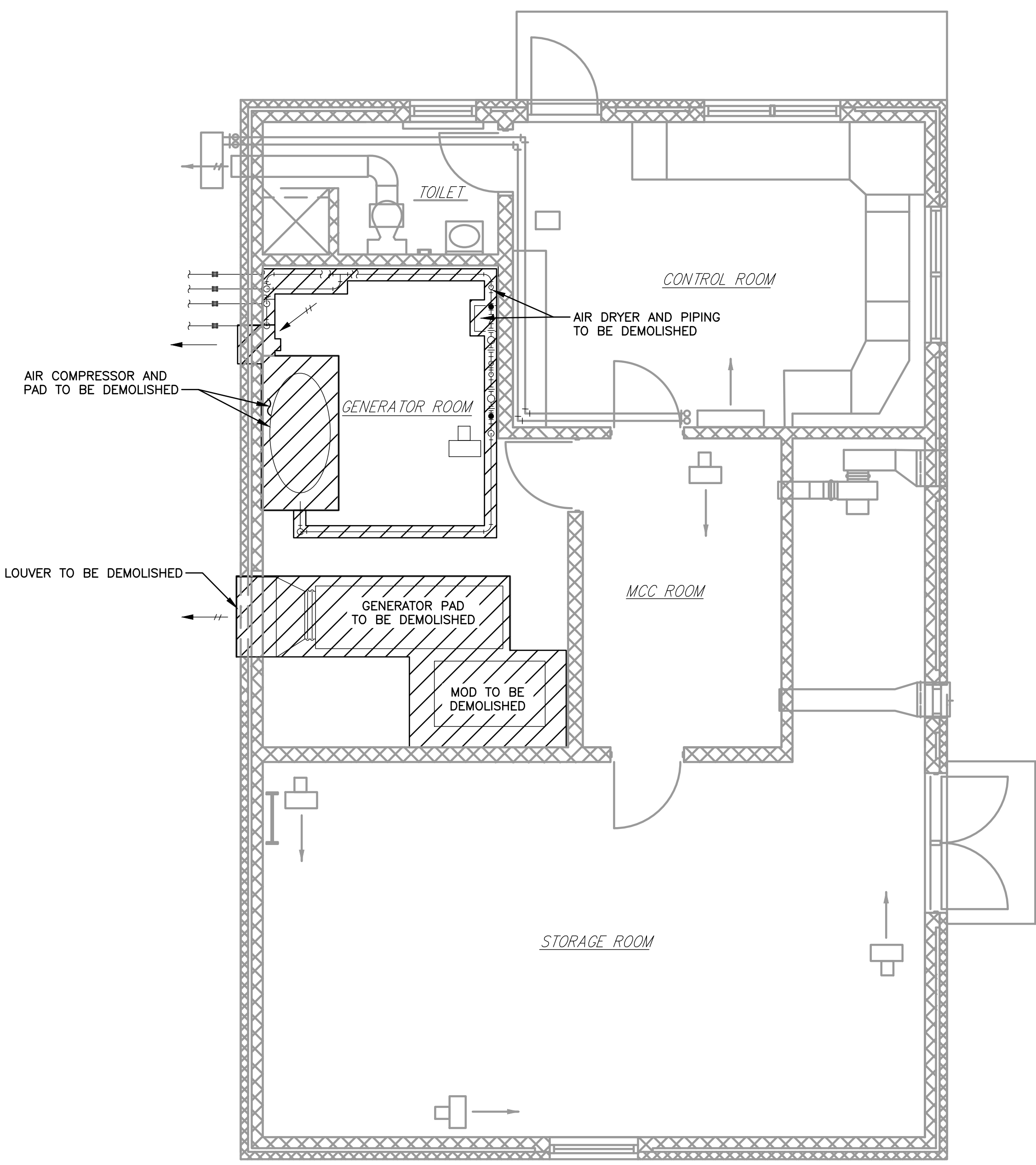
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SHEET TITLE:
POST EQUALIZATION BASIN DEMOLITION PLAN

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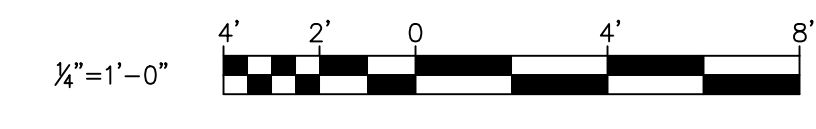
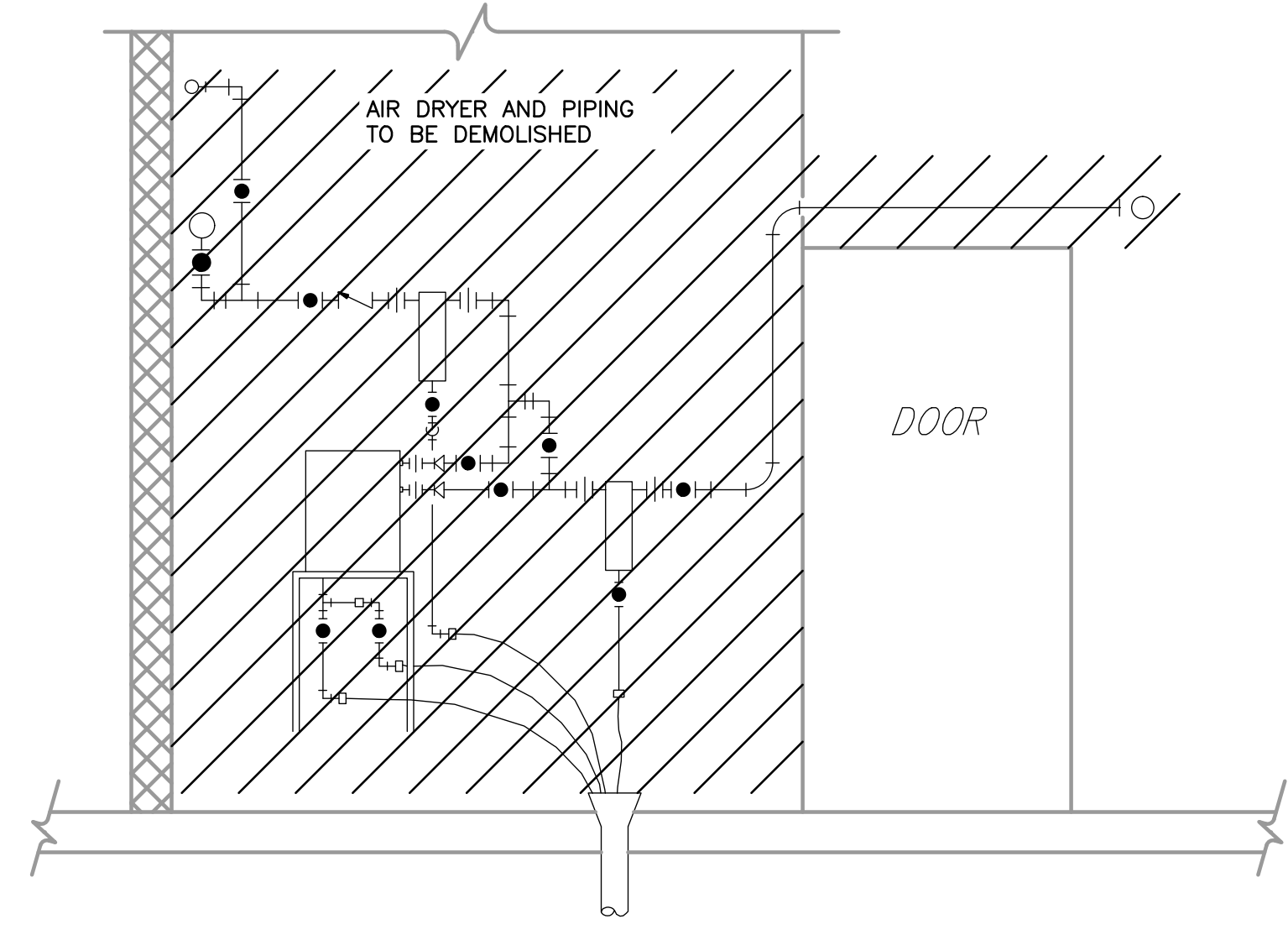
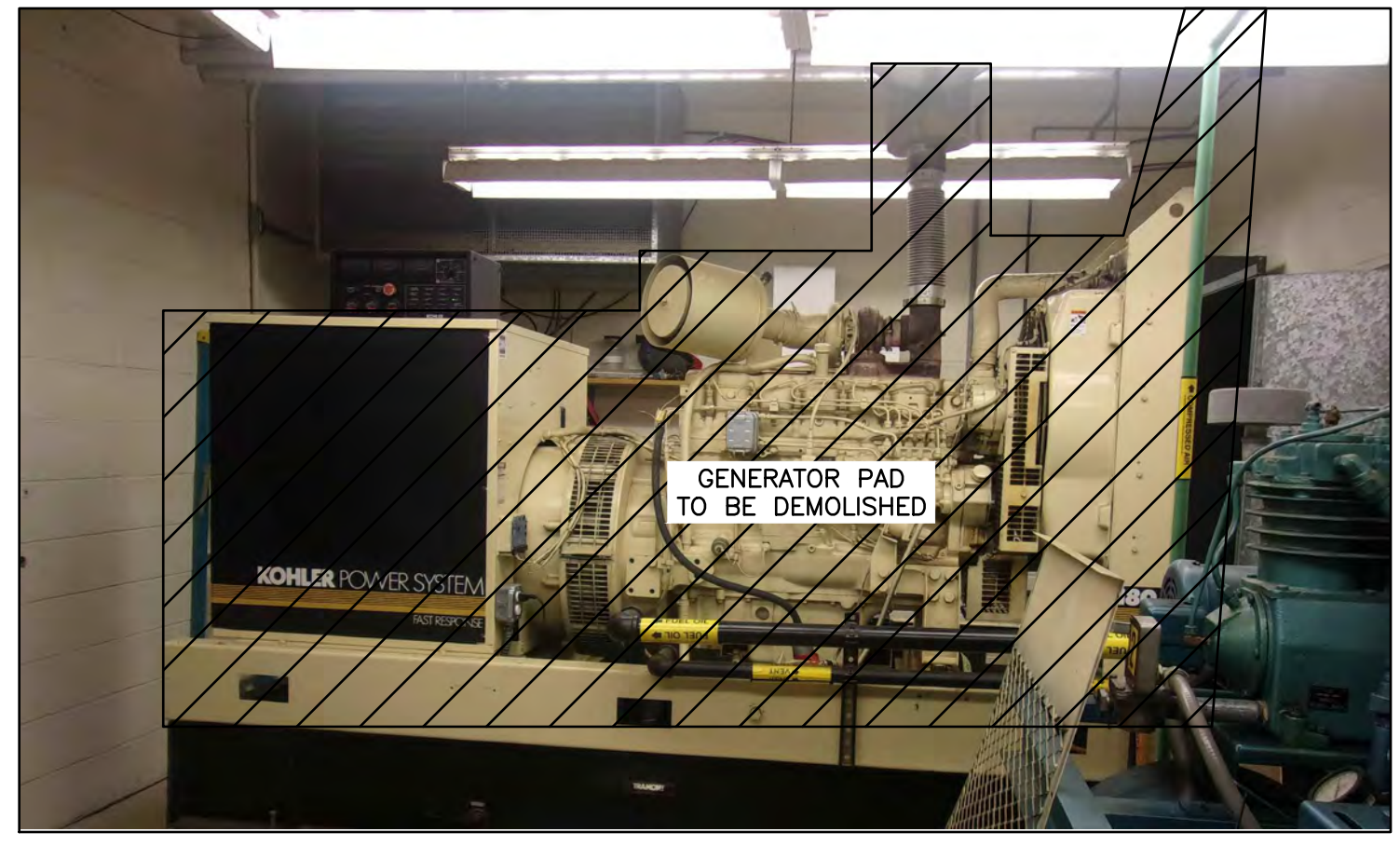
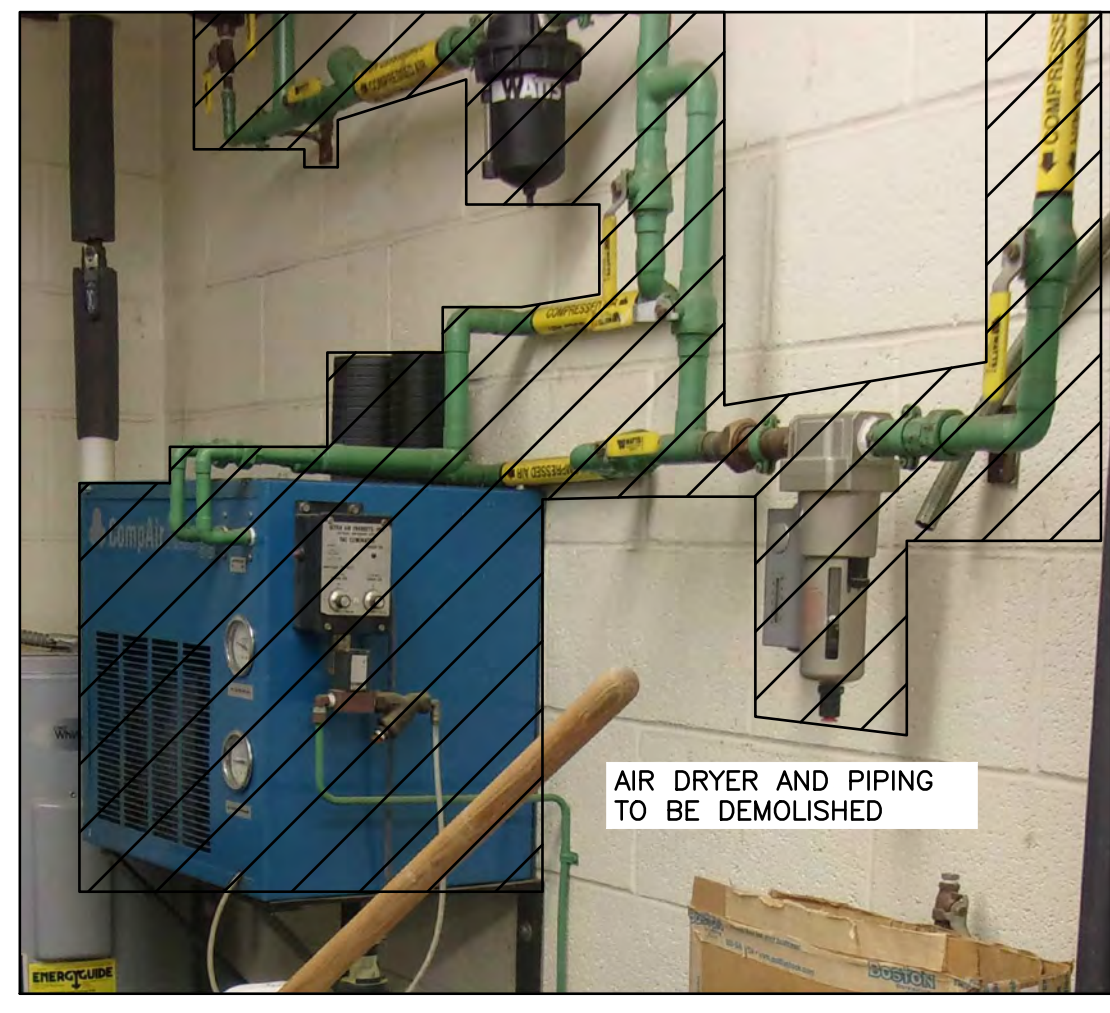
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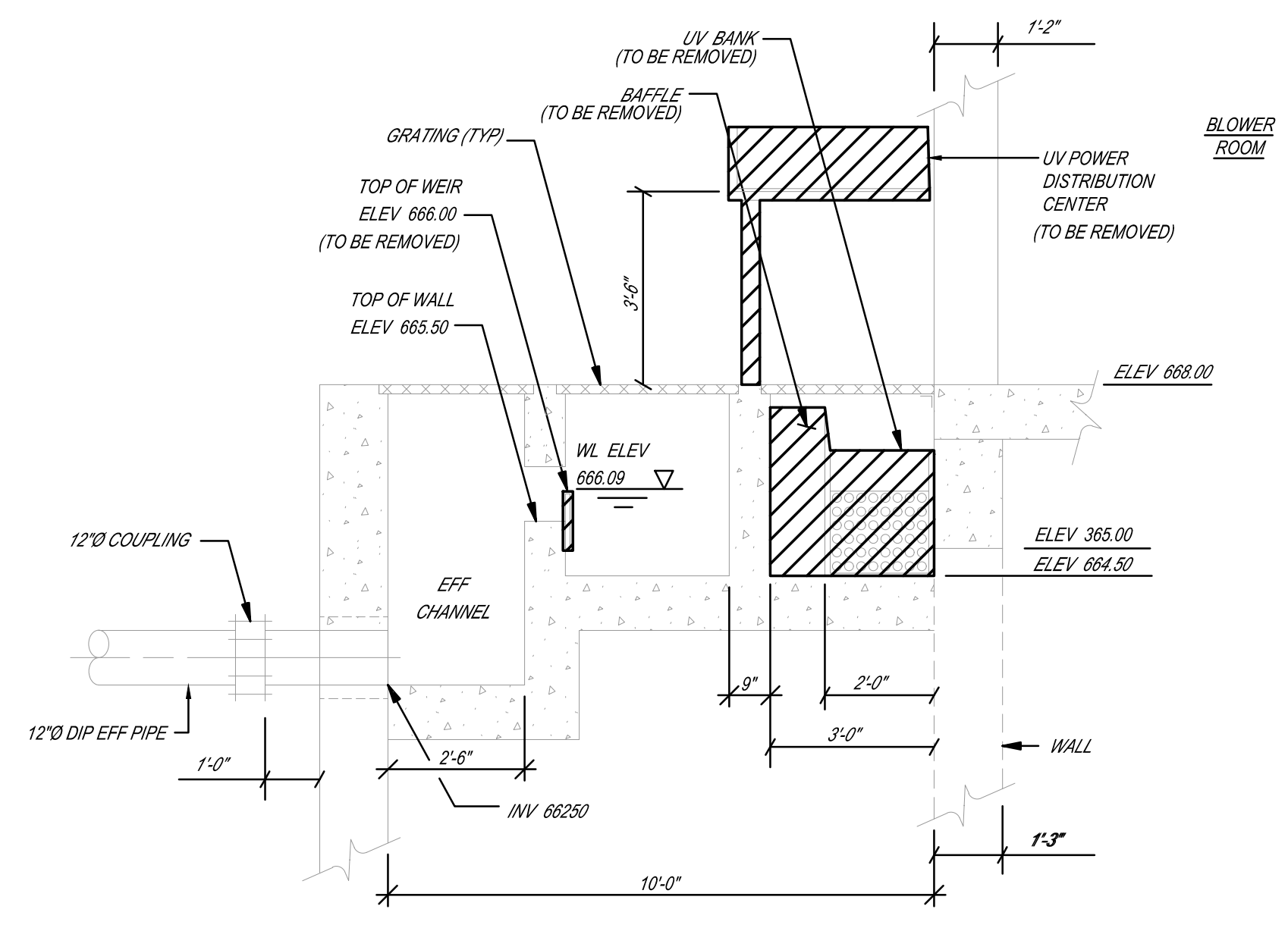
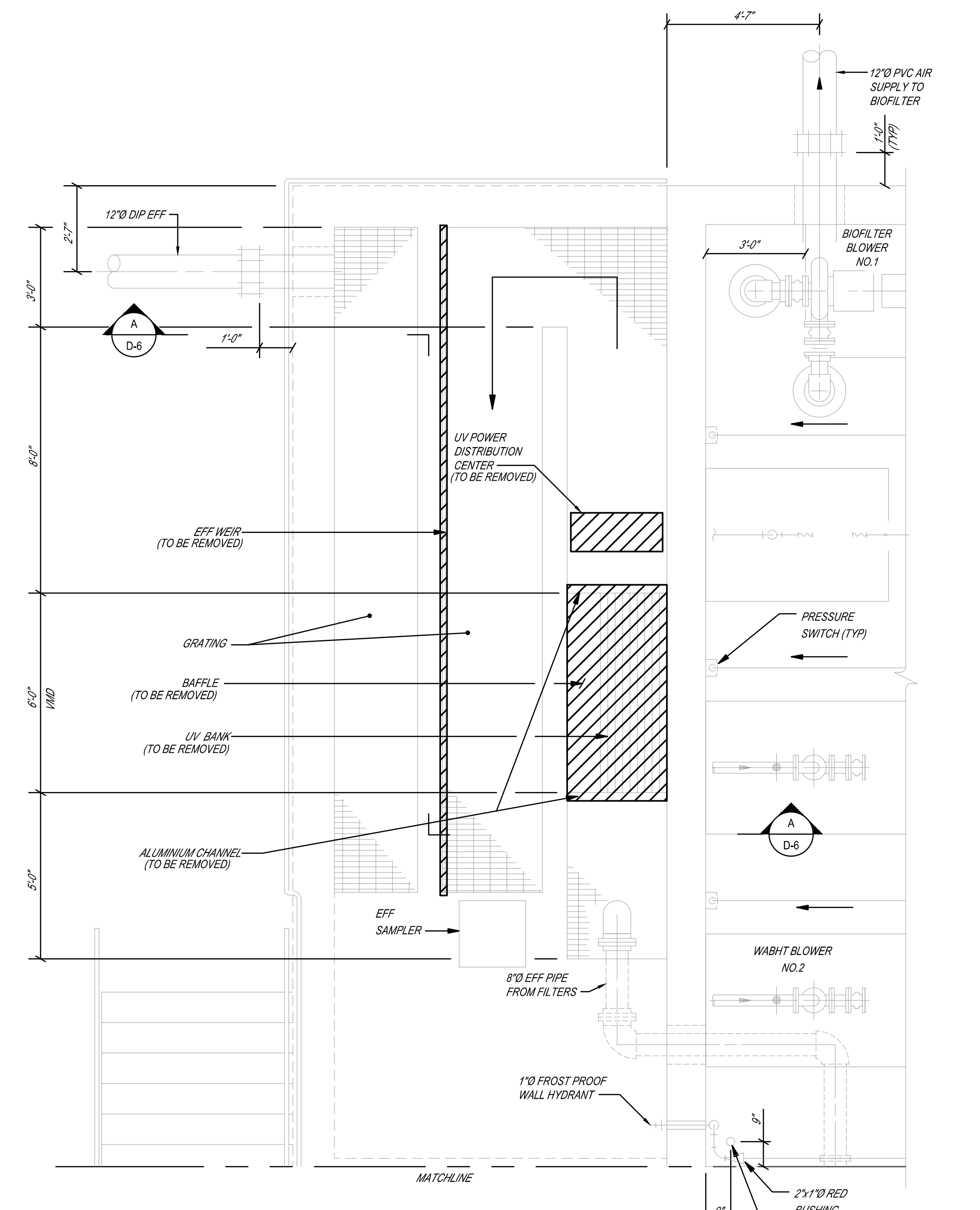
CONTROL BUILDING — DEMOLITION PLAN
 SCALE 1/4"=1'-0"

NOTES:

1. THE EXISTING MOTOR OPERATED DAMPER REGULATES FLOW TO THE VENTILATOR LOCATED ON THE ROOF. MOD AND VENTILATOR ARE TO BE DEMOLISHED, AND CONTROL BUILDING ROOF TO BE REPAIRED.
2. AFTER THE GENERATOR IS REMOVED, THE EXISTING GENERATOR LOUVERS SHALL BE BRICKED UP.



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

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

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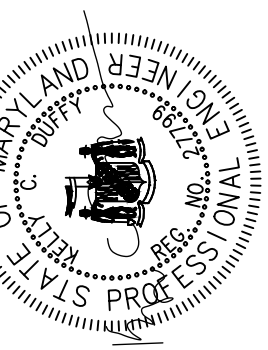
PROJECT NO:	76436-03
ISSUED DATE:	05/2023
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CHECKED BY:	JC

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SHEET TITLE:
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DEMO PLAN & SECTION**



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SECRETARY OF VETERANS AFFAIRS
 LIBER NO. 04565
 FOLIO NO. 0308

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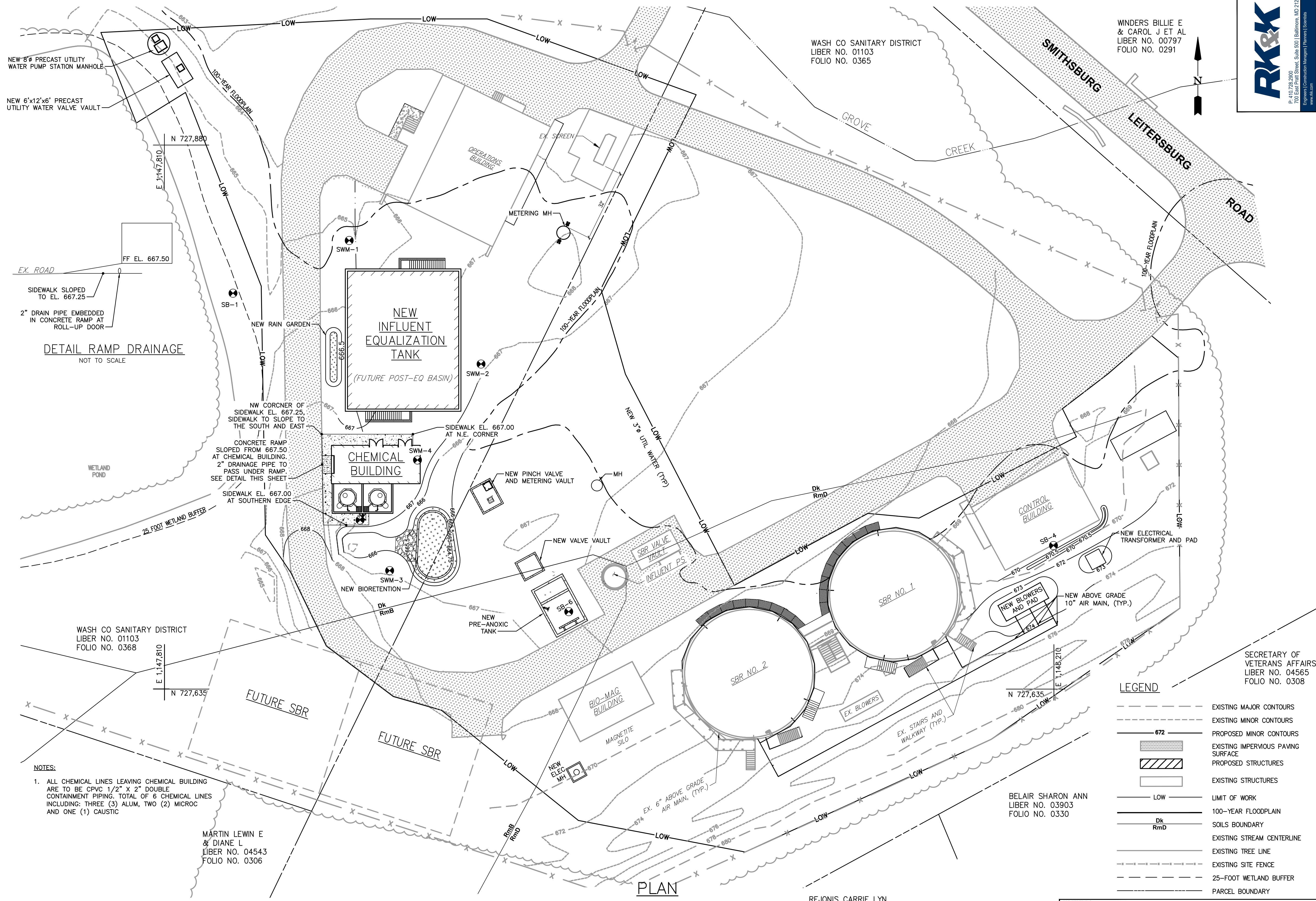
PROPOSED GRADING

SHEET NO:

C-1

WASH CO SANITARY DISTRICT
 LIBER NO. 01103
 FOLIO NO. 0365

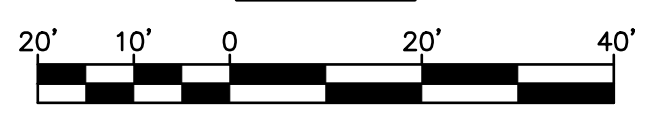
WINDERS BILLIE E
 & CAROL J ET AL
 LIBER NO. 00797
 FOLIO NO. 0291



DETAIL RAMP DRAINAGE
 NOT TO SCALE

NOTES:
 1. ALL CHEMICAL LINES LEAVING CHEMICAL BUILDING ARE TO BE CPVC 1/2" X 2" DOUBLE CONTAINMENT PIPING, TOTAL OF 6 CHEMICAL LINES INCLUDING: THREE (3) ALUM, TWO (2) MICRO AND ONE (1) CAUSTIC

MARTIN LEWIN E
 & DIANE L
 LIBER NO. 04543
 FOLIO NO. 0306



PLAN

REJONIS CARRIE LYN
 LIBER NO. 04004
 FOLIO NO. 0366

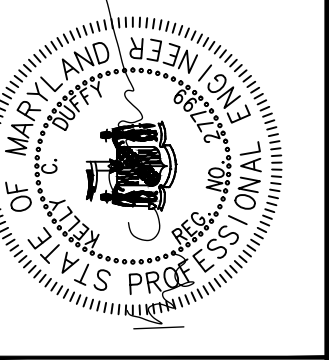
BELAIR SHARON ANN
 LIBER NO. 03903
 FOLIO NO. 0330

LEGEND

- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- 672- PROPOSED MINOR CONTOURS
- [Hatched Box] EXISTING IMPERVIOUS PAVING SURFACE
- [Hatched Box] PROPOSED STRUCTURES
- [Solid Box] EXISTING STRUCTURES
- LOW --- LIMIT OF WORK
- 100-YEAR FLOODPLAIN ---
- Dk RmD- SOILS BOUNDARY
- EXISTING STREAM CENTERLINE ---
- EXISTING TREE LINE ---
- EXISTING SITE FENCE ---
- 25-FOOT WETLAND BUFFER ---
- PARCEL BOUNDARY ---

100% SUBMITTAL

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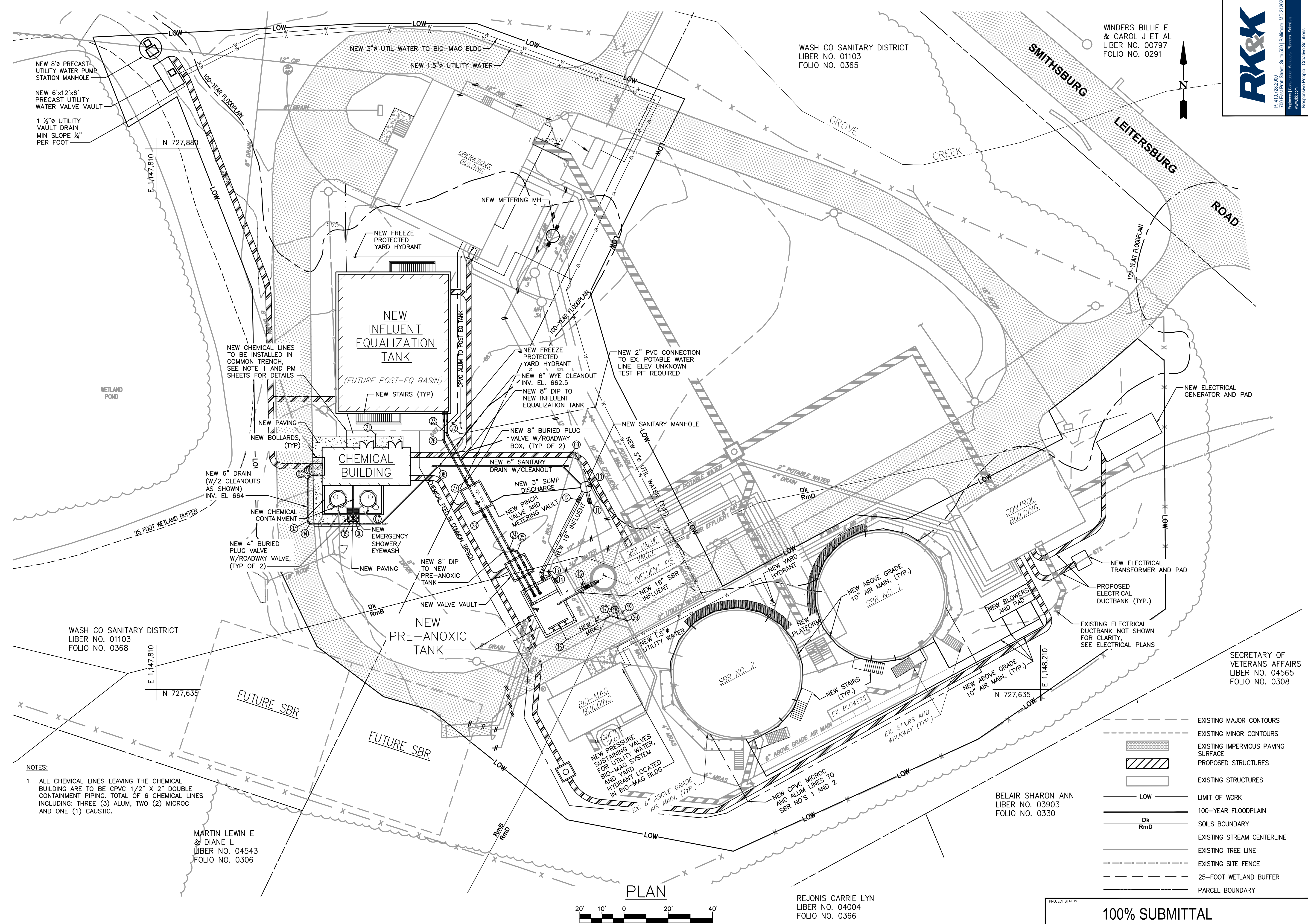
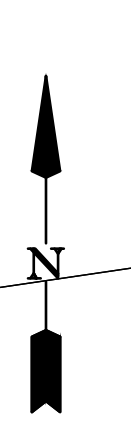


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WILMINGTON, MARYLAND 21785

WINDERS BILLIE E
& CAROL J ET AL
LIBER NO. 00797
FOLIO NO. 0291

WASH CO SANITARY DISTRICT
LIBER NO. 01103
FOLIO NO. 0365



NEW 8" PRECAST
UTILITY WATER PUMP
STATION MANHOLE

NEW 6"x12"x6"
PRECAST UTILITY
WATER VALVE VAULT

1 1/2" UTILITY
VAULT DRAIN
MIN SLOPE 1/4"
PER FOOT

**NEW
INFLUENT
EQUALIZATION
TANK**
(FUTURE POST-EQ BASIN)

**CHEMICAL
BUILDING**

**NEW
PRE-ANOXIC
TANK**

**NEW ABOVE GRADE
10" AIR MAIN, (TYP.)
SBR NO. 1**

SBR NO. 2

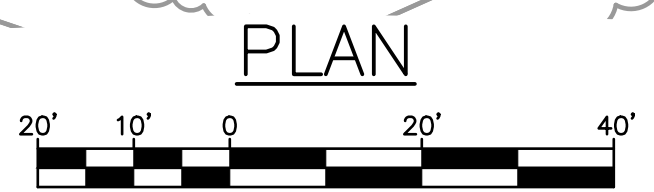
**CONTROL
BUILDING**

NOTES:
1. ALL CHEMICAL LINES LEAVING THE CHEMICAL BUILDING ARE TO BE CPVC 1/2" X 2" DOUBLE CONTAINMENT PIPING. TOTAL OF 6 CHEMICAL LINES INCLUDING: THREE (3) ALUM, TWO (2) MICROC AND ONE (1) CAUSTIC.

MARTIN LEWIN E
& DIANE L
LIBER NO. 04543
FOLIO NO. 0306

BELAIR SHARON ANN
LIBER NO. 03903
FOLIO NO. 0330

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LIBER NO. 04565
FOLIO NO. 0308



PLAN

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**YARD
PIPING PLAN
STRUCTURES**

SHEET NO:
C-2

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6" DRAIN			
NO.	DESCRIPTION	COORDINATES	
①	6" 45° WYE CLEANOUT	N 727,732.25	E 1,147,880.09
②	6" 45° HORIZ. BEND	N 727,730.69	E 1,147,878.54
③	6" 45° HORIZ. BEND	N 727,711.44	E 1,147,878.54
④	6" 45° HORIZ. BEND	N 727,710.45	E 1,147,879.57
⑤	4" X 6" WYE	N 727,710.45	E 1,147,897.72
⑥	4" X 6" WYE	N 727,710.45	E 1,147,900.47
⑦	6" 45° WYE CLEANOUT	N 727,710.45	E 1,147,911.64
⑧	6" 45° WYE CLEANOUT	N 727,710.45	E 1,147,911.64
⑨	6" 45° WYE CLEANOUT	N 727,736.45	E 1,147,993.85
⑩	SANITARY MANHOLE	N 727,726.39	E 1,148,003.90

16" INFLUENT			
NO.	DESCRIPTION	COORDINATES	
①	16" PLUG VALVE	N 727,720.64	E 1,148,006.00
②	16" PLUG VALVE	N 727,721.29	E 1,148,001.33
③	16" 11.25° HORIZ. BEND	N 727,688.61	E 1,147,984.51
④	16" 45° HORIZ. BEND	N 727,687.33	E 1,147,984.14

16" SBR INFLUENT			
NO.	DESCRIPTION	COORDINATES	
⑤	16" PLUG VALVE	N 727,681.73	E 1,148,004.82

4" MRAS AT PRE-ANOXIC			
NO.	DESCRIPTION	COORDINATES	
⑥	4" 90° HORIZ. BEND	N 727,657.89	E 1,147,995.72
⑦	4" 45° HORIZ. BEND	N 727,668.73	E 1,148,015.72
⑧	4" PLUG VALVE	N 727,667.65	E 1,148,019.31
⑨	4" PLUG VALVE	N 727,670.39	E 1,148,020.84
⑩	4" WYE ON EX. 4" MRAS	N 727,666.58	E 1,148,022.90

NEW 2" PVC CONN. TO EX. POTABLE WATER LINE			
NO.	DESCRIPTION	COORDINATES	
⑪	2" 90° HORIZ. BEND	N 727,751.03	E 1,147,909.23
⑫	2" 11.25° HORIZ. BEND	N 727,751.02	E 1,147,947.19

NEW 8" TO NEW INFLUENT EQUALIZATION TANK			
NO.	DESCRIPTION	COORDINATES	
⑬	8" 11.25° HORIZ. BEND	N 727,750.98	E 1,147,941.50
⑭	8" WYE	N 727,698.87	E 1,147,969.79
⑮	8" 45° HORIZ. BEND	N 727,697.82	E 1,147,973.39

NEW 8" FROM INFLUENT EQUALIZATION TO PRE-ANOXIC TANK			
NO.	DESCRIPTION	COORDINATES	
⑯	8" 11.25° HORIZ. BEND	N 727,478.01	E 1,147,940.09
⑰	8" WYE	N 727,729.68	E 1,147,950.04
⑱	8" 45° HORIZ. BEND	N 727,713.93	E 1,147,958.58

NEW PRE-ANOXIC TANK			
DESCRIPTION		COORDINATES	
NW CNR PRE-ANOXIC TANK		N 727,678.32	E 1,147,974.54
NE CNR PRE-ANOXIC TANK		N 727,685.92	E 1,147,988.54

NEW INFLUENT EQUALIZATION BASIN			
DESCRIPTION		COORDINATES	
NW CNR EQUALIZATION BASIN		N 727,823.34	E 1,147,886.67
NE CNR EQUALIZATION BASIN		N 727,823.34	E 1,147,936.67

NEW CHEMICAL BLDG			
DESCRIPTION		COORDINATES	
NW CNR OF CHEMICAL BLDG		N 727,751.34	E 1,147,919.17
NE CNR OF CHEMICAL BLDG		N 727,751.34	E 1,147,904.17

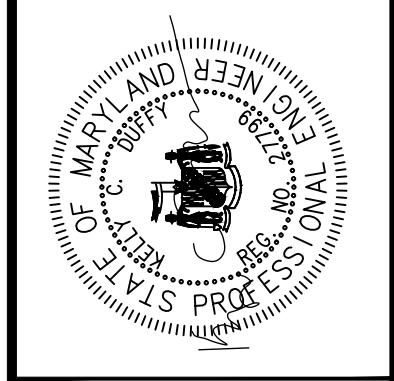
NEW BLOWER PAD			
DESCRIPTION		COORDINATES	
NW CNR OF STRUCTURE		N 727,673.00	E 1,147,890.60
NE CNR OF STRUCTURE		N 727,683.33	E 1,148,203.87

NEW GENERATOR PAD			
DESCRIPTION		COORDINATES	
NW CNR OF STRUCTURE		N 727,747.32	E 1,148,235.36
NE CNR OF STRUCTURE		N 727,760.60	E 1,148,260.30

NEW TRANSFORMER PAD			
DESCRIPTION		COORDINATES	
NW CNR OF STRUCTURE		N 727,695.19	E 1,148,223.96
NE CNR OF STRUCTURE		N 727,698.50	E 1,148,230.12



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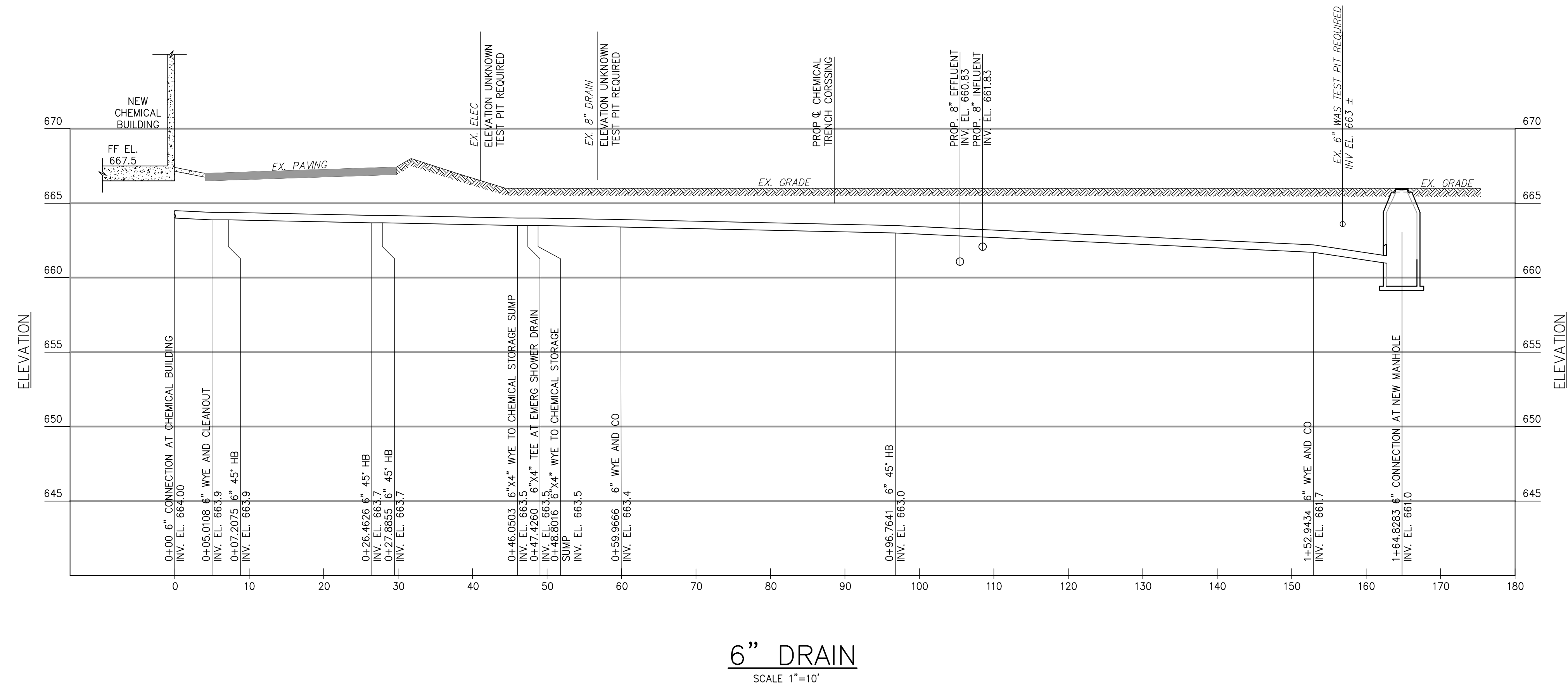
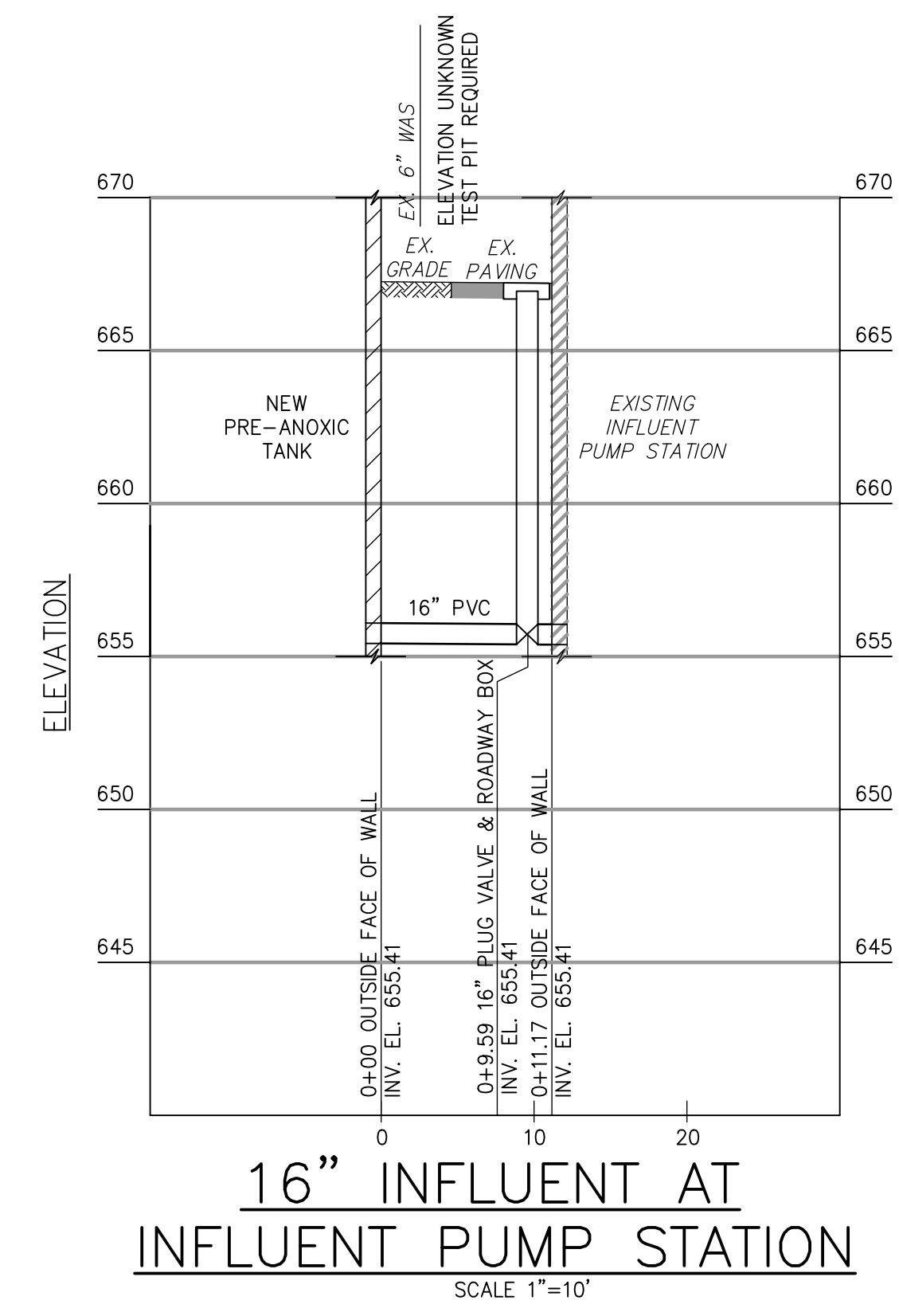
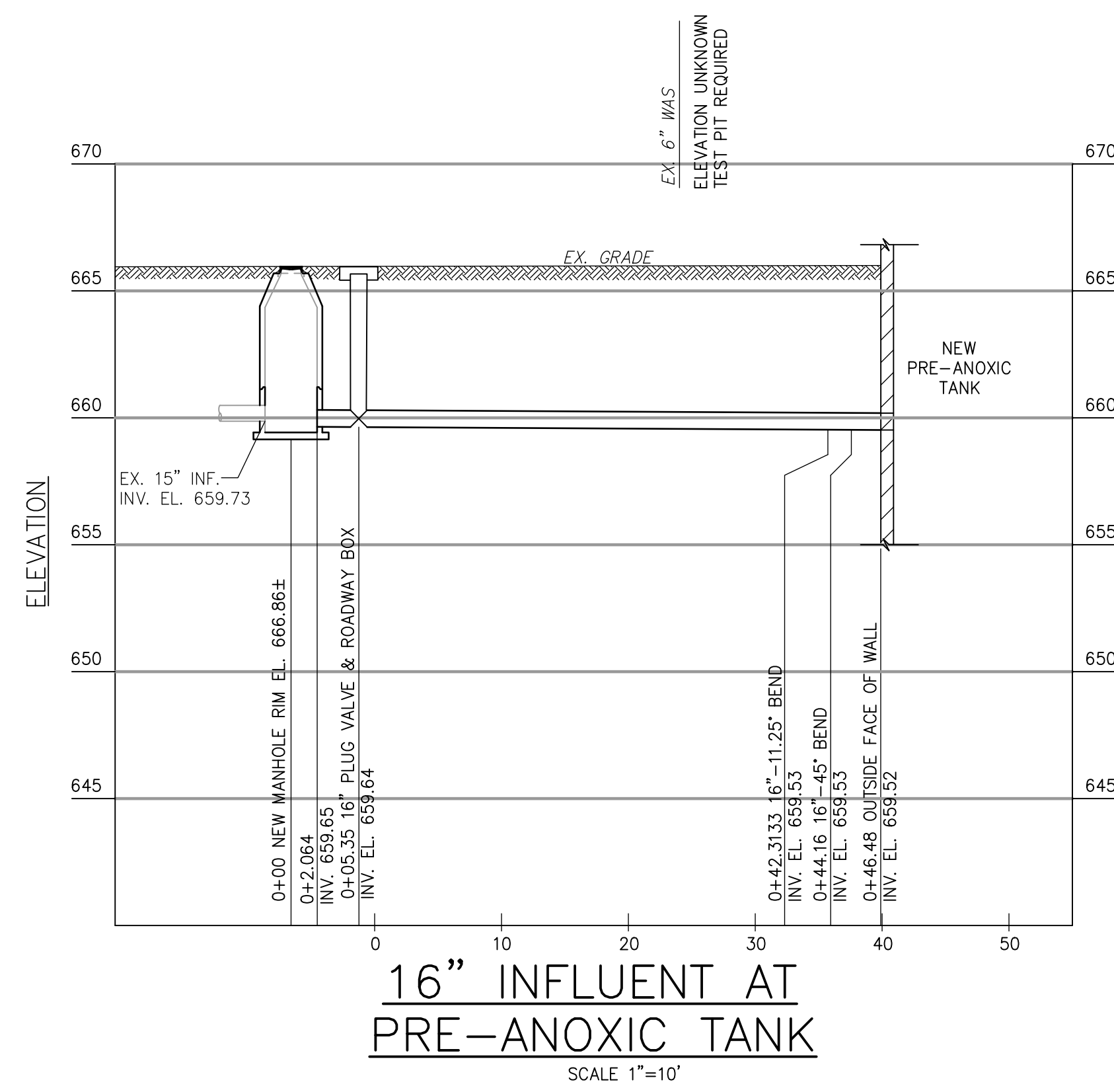
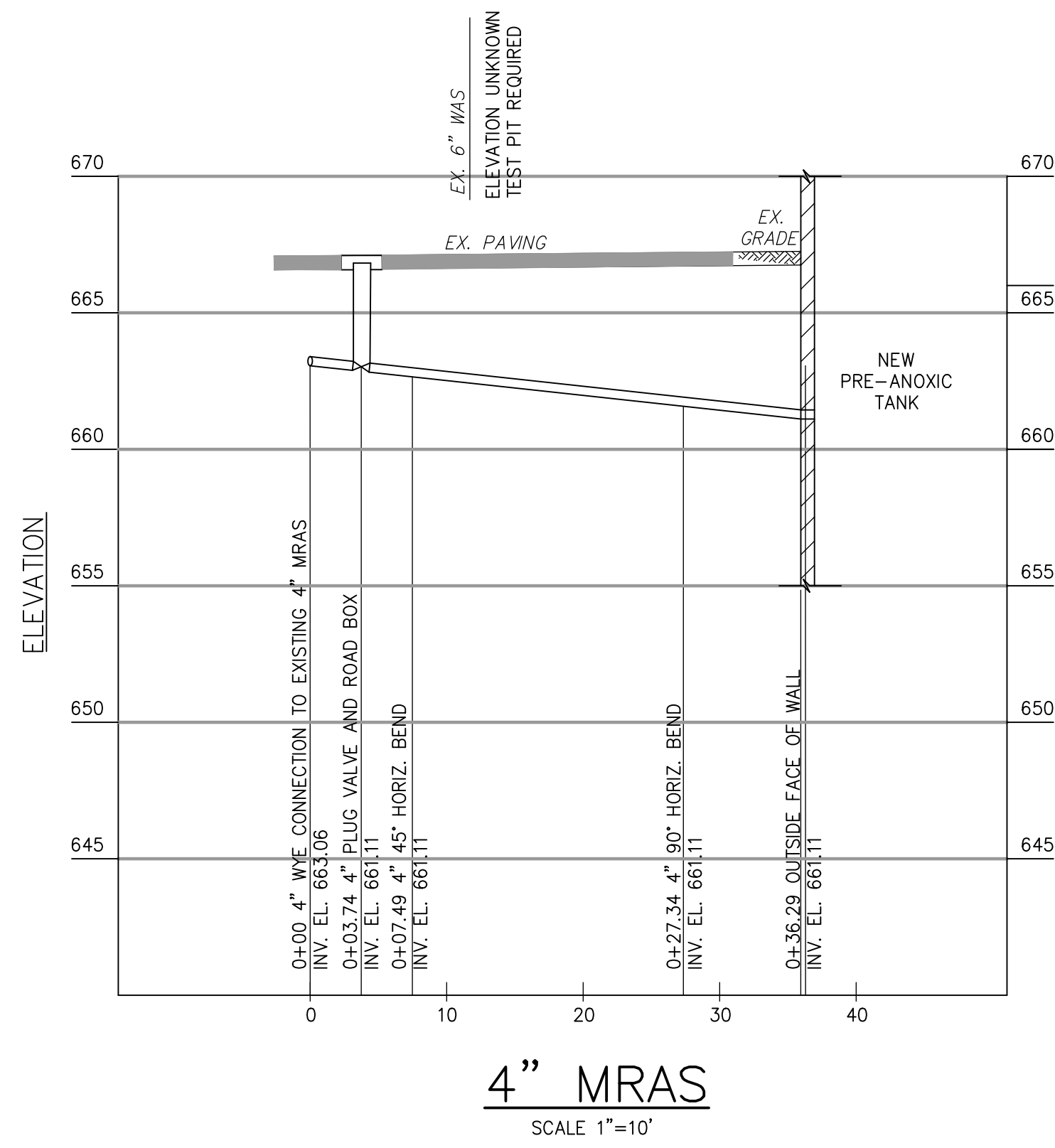


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SHEET TITLE:
STRUCTURE AND YARD PIPING STAKE OUT DATA



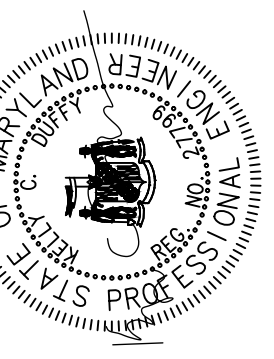
NOTE:
ELEVATION OF MRAS AND WAS PIPING UNKNOWN.
CONTRACTOR IS RESPONSIBLE FOR TEST PITTING AT MRAS AND WAS PIPE CROSSINGS.



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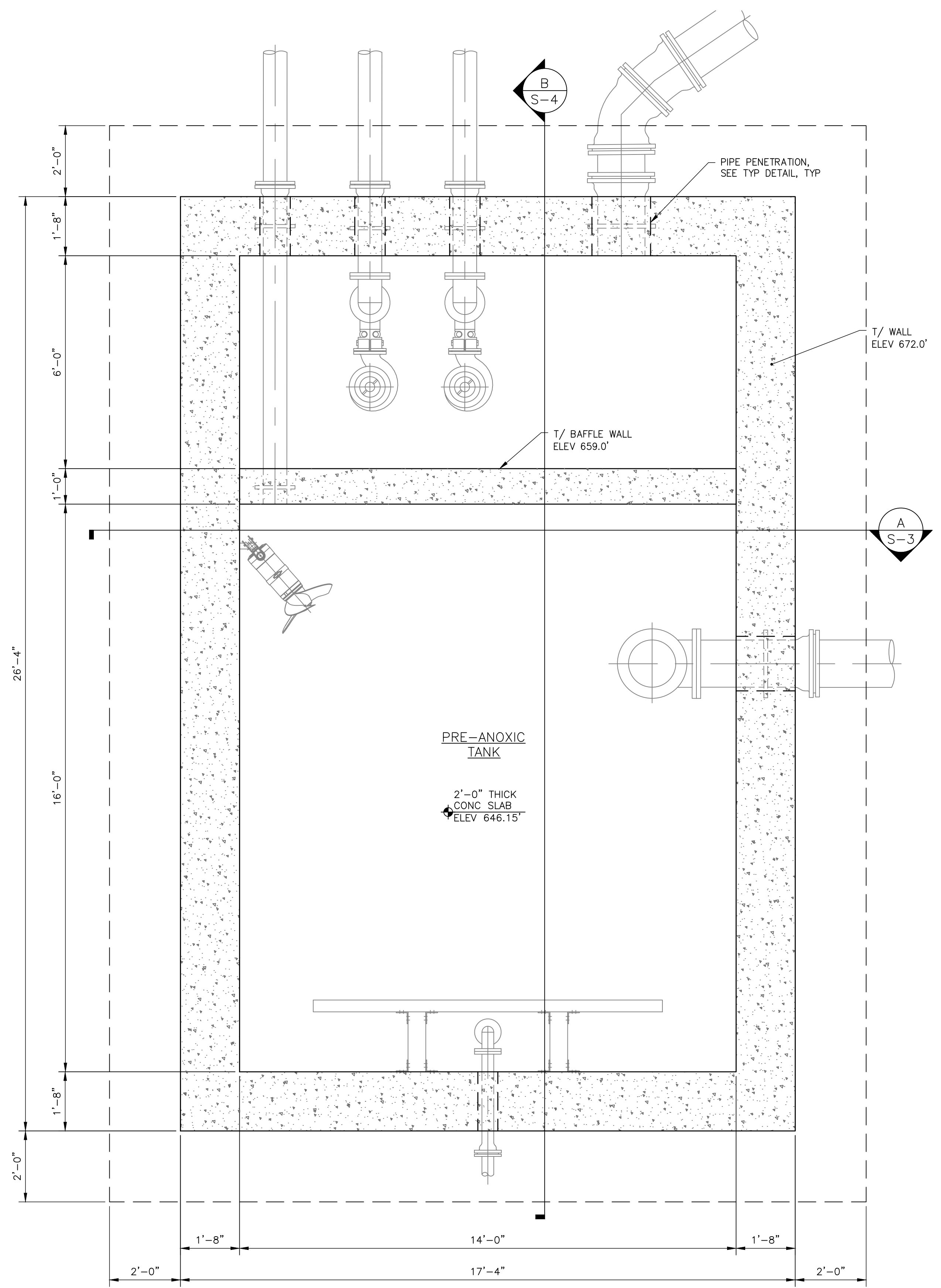
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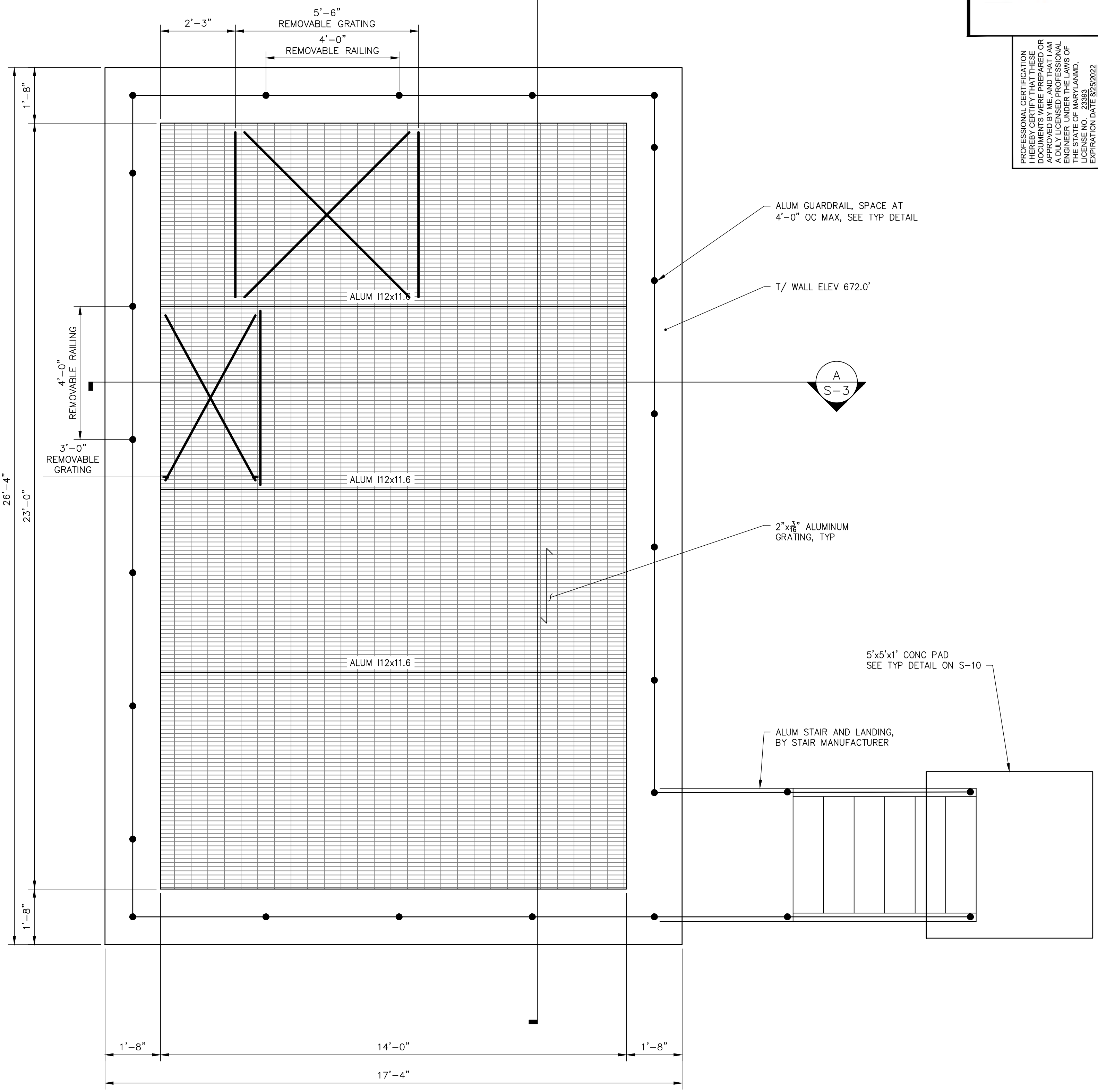
YARD PIPING PROFILES

I:\BA_S\10\20\2007\07012_MCHENR\SMITHSBURG DESIGN-ENR TO 0456\ADD04 CONTRACT DRAWING\SC4\07012_EXHD_DWG-C-4820201 2-10 P\Bama Daye

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PRE-ANOXIC TANK BOTTOM PLAN
SCALE: 1/2"=1'-0"



PRE-ANOXIC TANK TOP PLAN
SCALE: 1/2"=1'-0"

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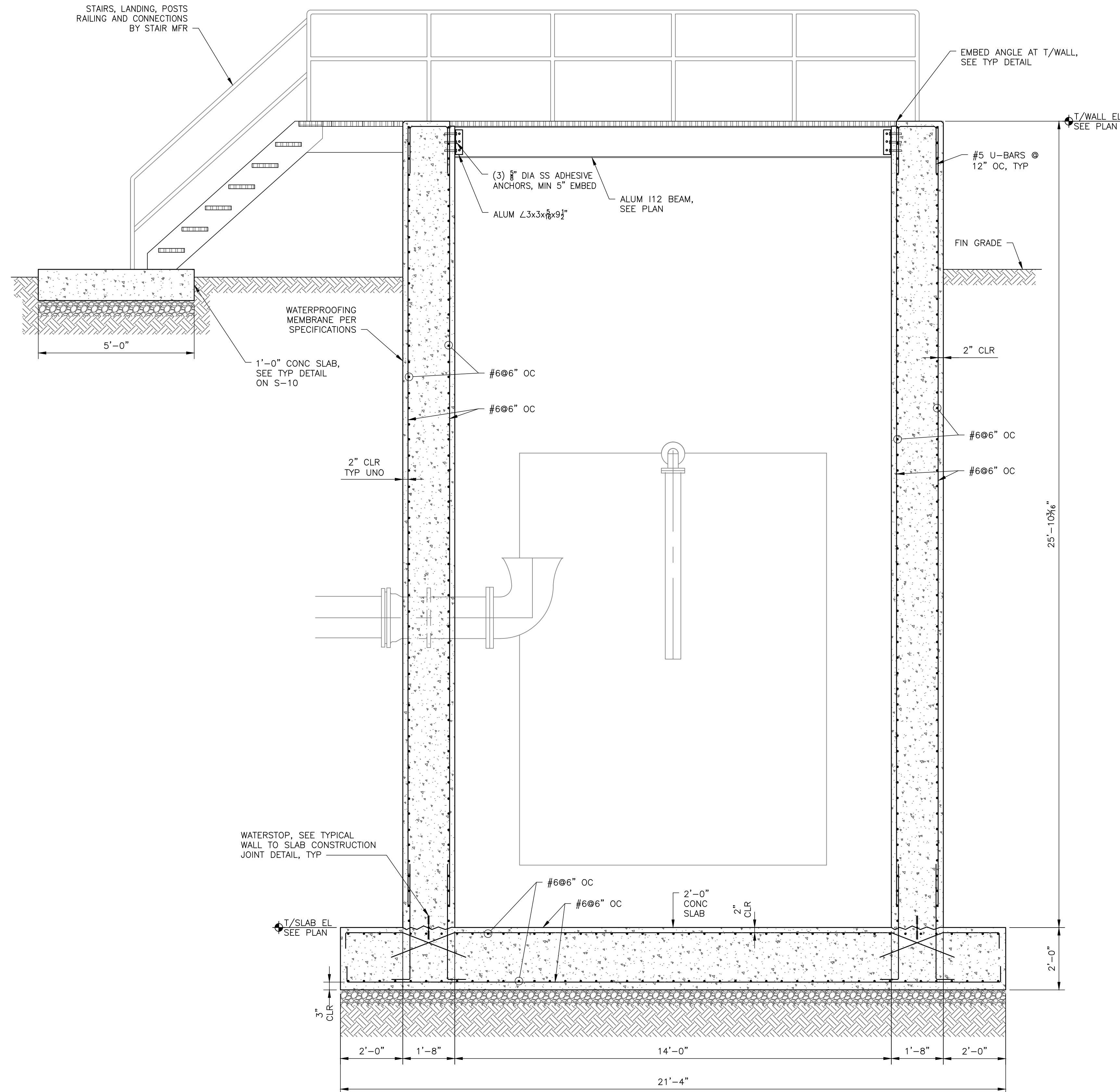


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NOTES:
1. CONTRACTOR SHALL EPOXY COAT THE PRE-ANOXIC TANK PER SPECIFICATIONS.

A
SECTION
SCALE: 1/2" = 1'-0"

PROJECT STATUS
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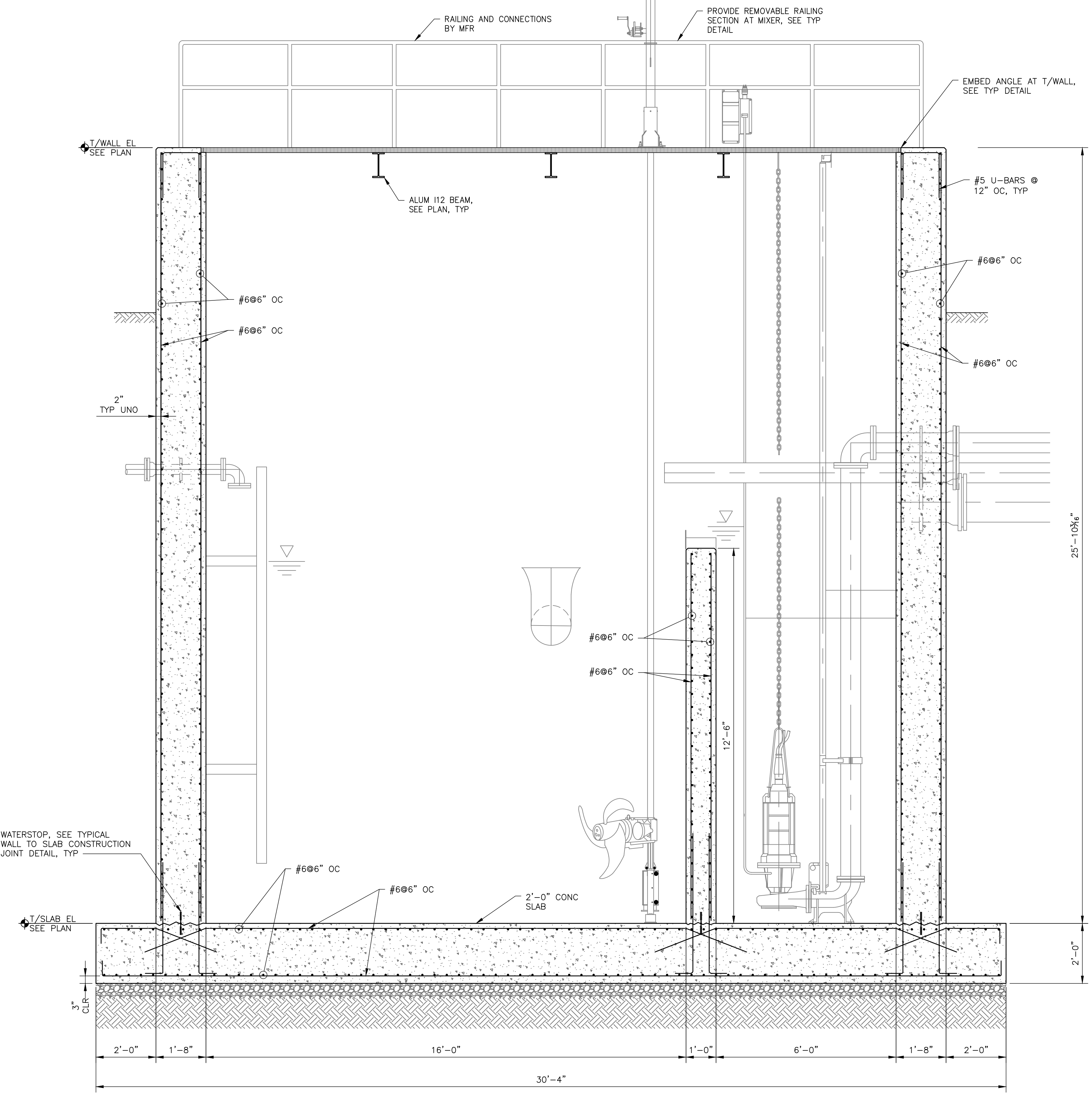
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PROJECT NO: 76436-03
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PRE-ANOXIC TANK
SECTION A

SHEET NO.
S-3

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NOTES:
1. CONTRACTOR SHALL EPOXY COAT THE PRE-ANOXIC TANK PER SPECIFICATIONS.

SECTION
SCALE: 1/2" = 1'-0"

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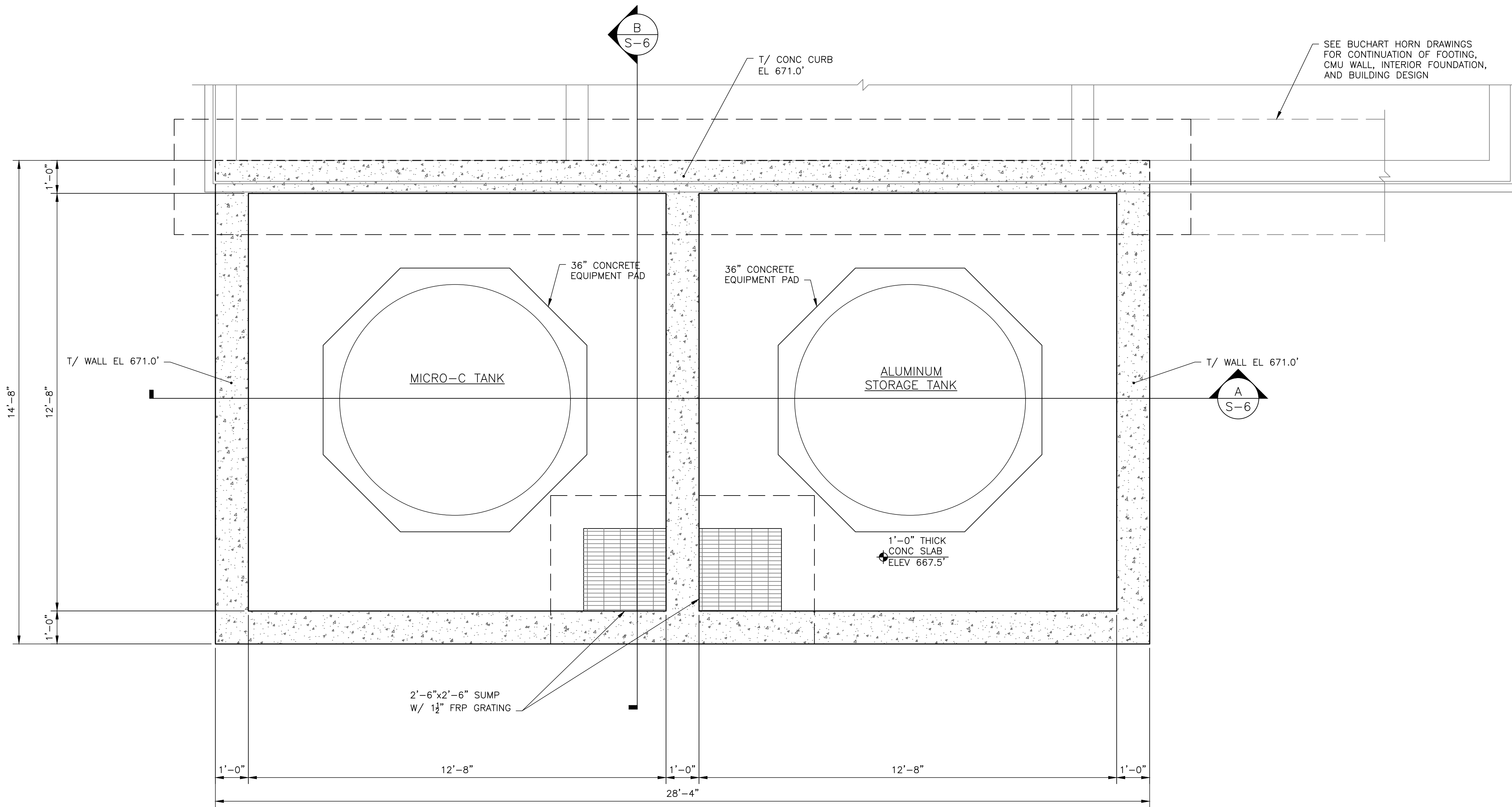
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SHEET TITLE:
PRE-ANOXIC TANK SECTION B

PROJECT STATUS:
100% SUBMITTAL

SHEET NO:
S-4

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SEE BUCHART HORN DRAWINGS FOR CONTINUATION OF FOOTING, CMU WALL, INTERIOR FOUNDATION, AND BUILDING DESIGN

- NOTE:**
1. SEE TYPICAL DETAIL FOR CONCRETE EQUIPMENT PAD SUPPORT.
 2. FLOOR TO BE 1'-0" THICK CONCRETE SLAB ON GRADE WITH #6 @ 12" O/C TOP AND BOTTOM, EACH WAY.
 3. COORDINATE WITH PROCESS MECHANICAL AND ARCHITECTURAL DRAWINGS FOR ALL OPENINGS.

CHEMICAL TANK CONTAINMENT PLAN

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

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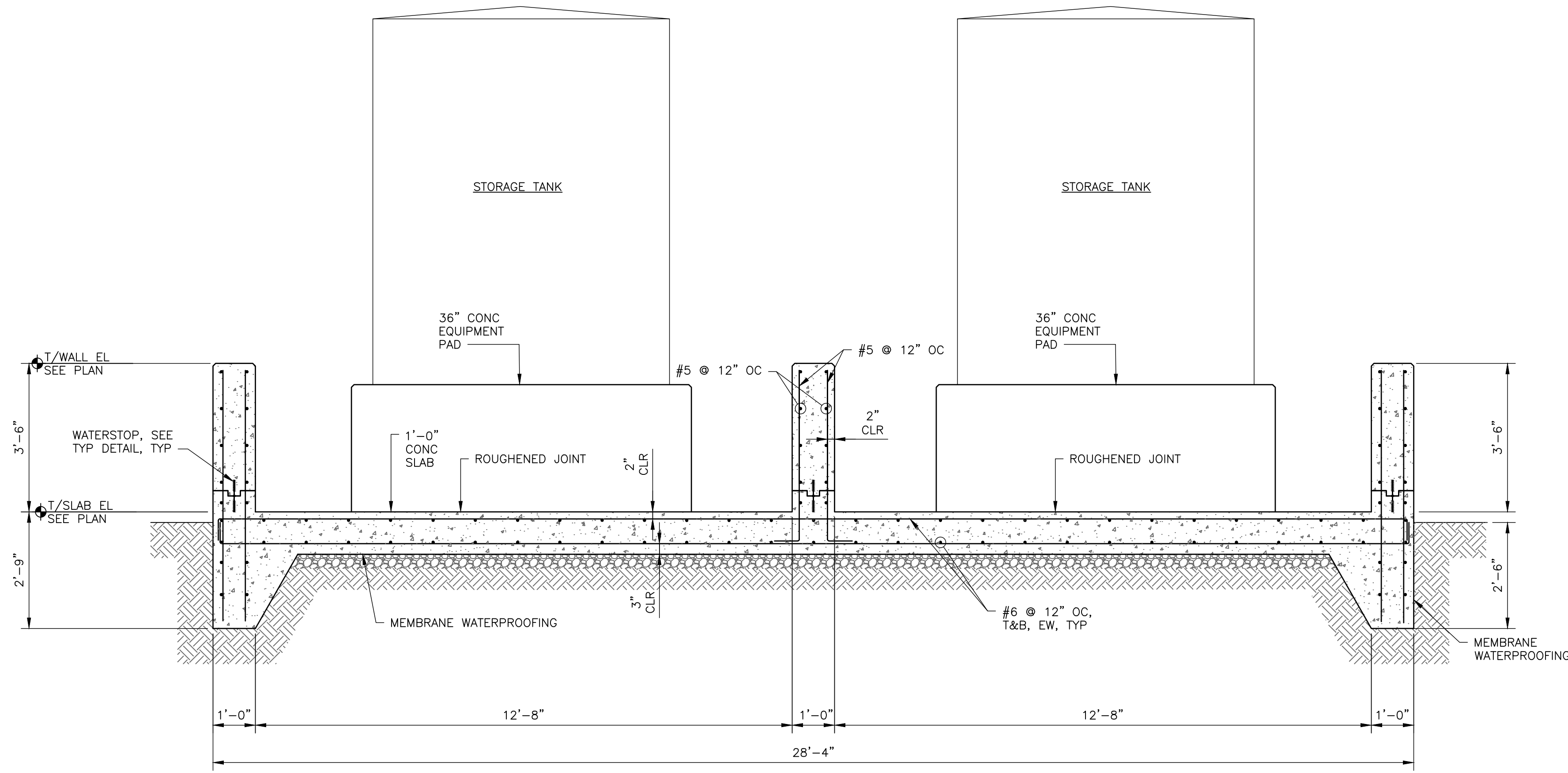
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CHEMICAL TANK CONTAINMENT PLAN

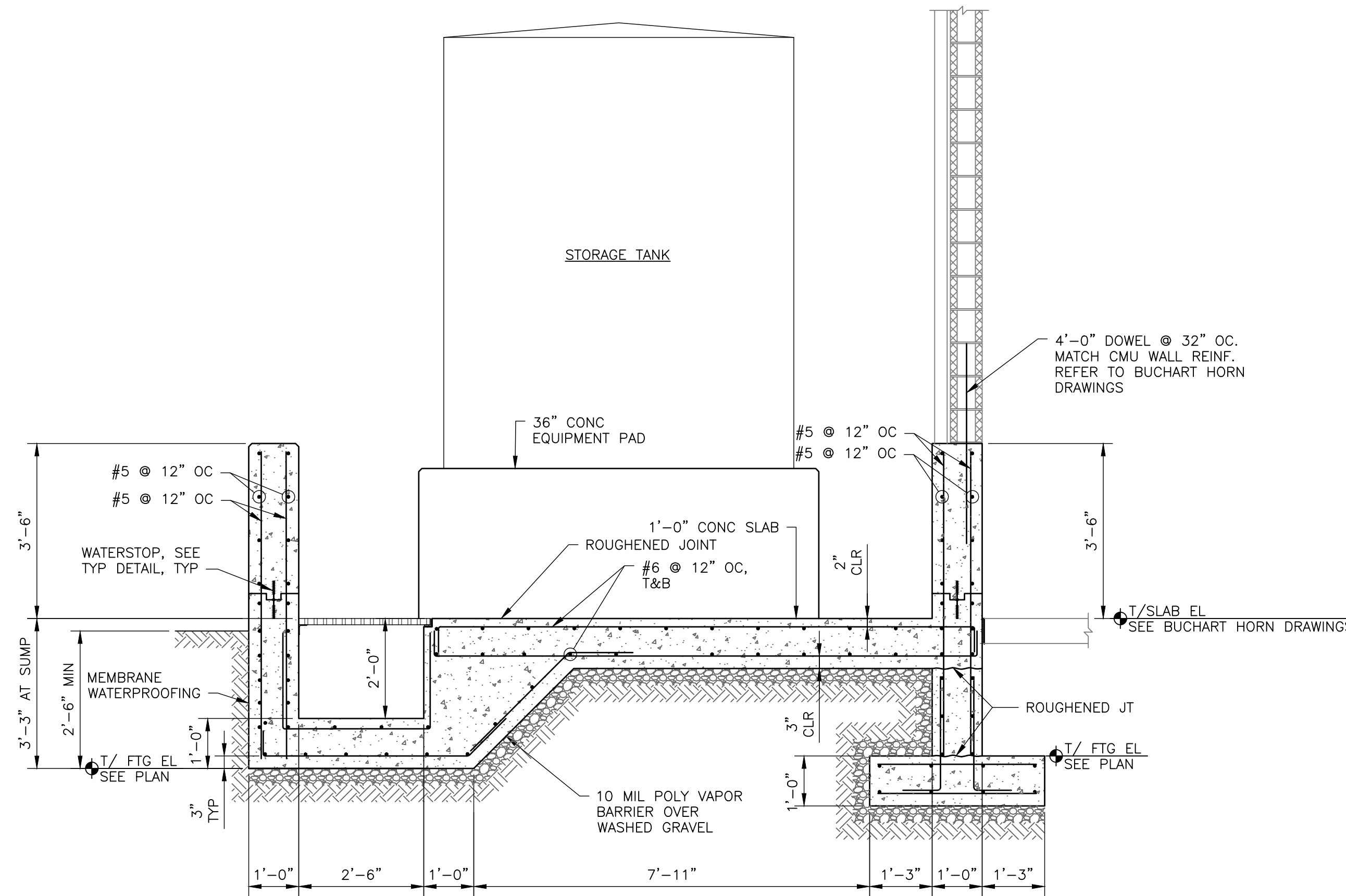
PROJECT STATUS:
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S-5

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SECTION A-5-5
SCALE: 1/2"=1'-0"



SECTION B-5-5
SCALE: 1/2"=1'-0"

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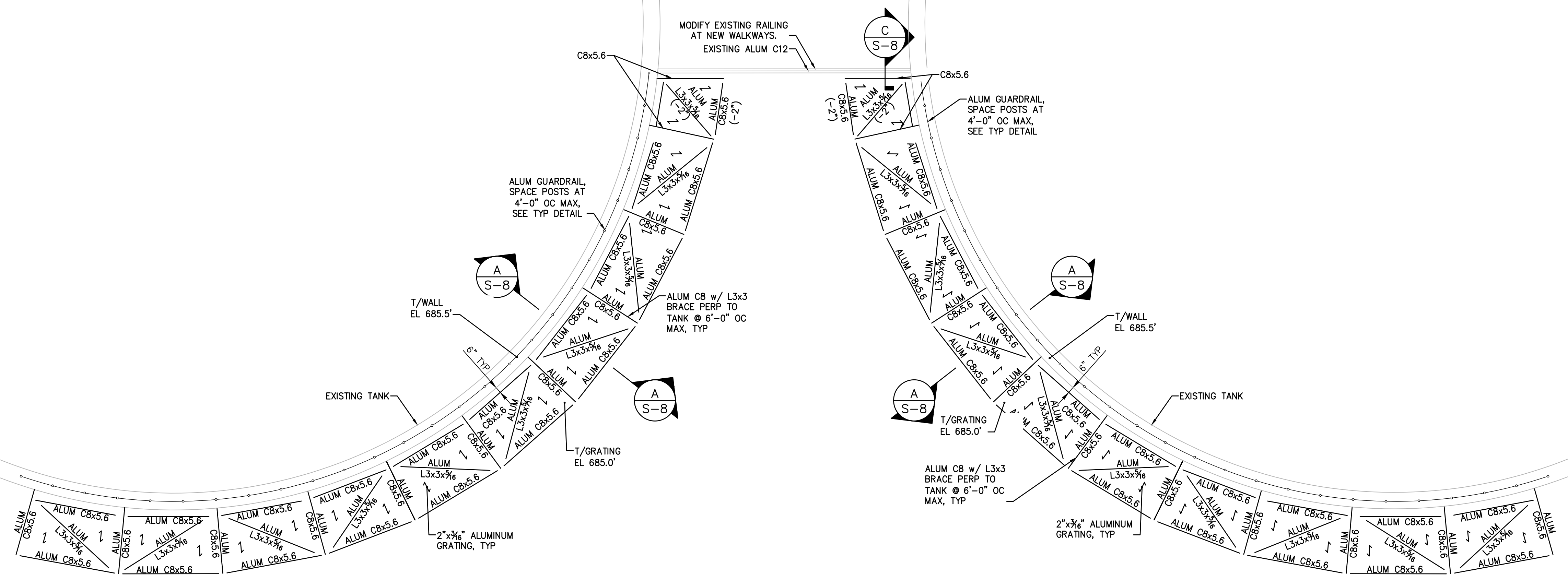
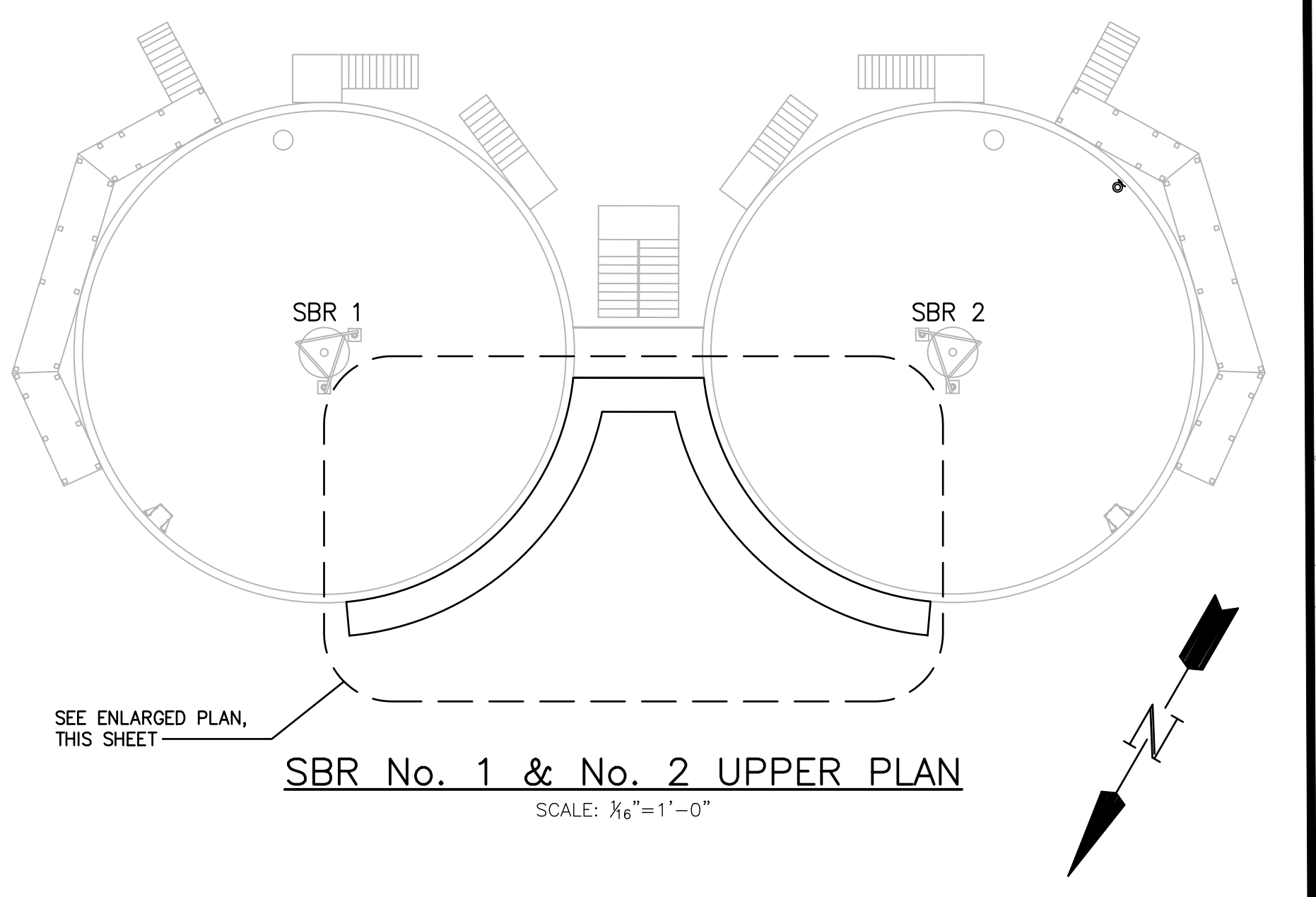
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SHEET TITLE:
**CHEMICAL TANK
CONTAINMENT
SECTIONS**

PROJECT STATUS:
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SHEET NO:
S-6

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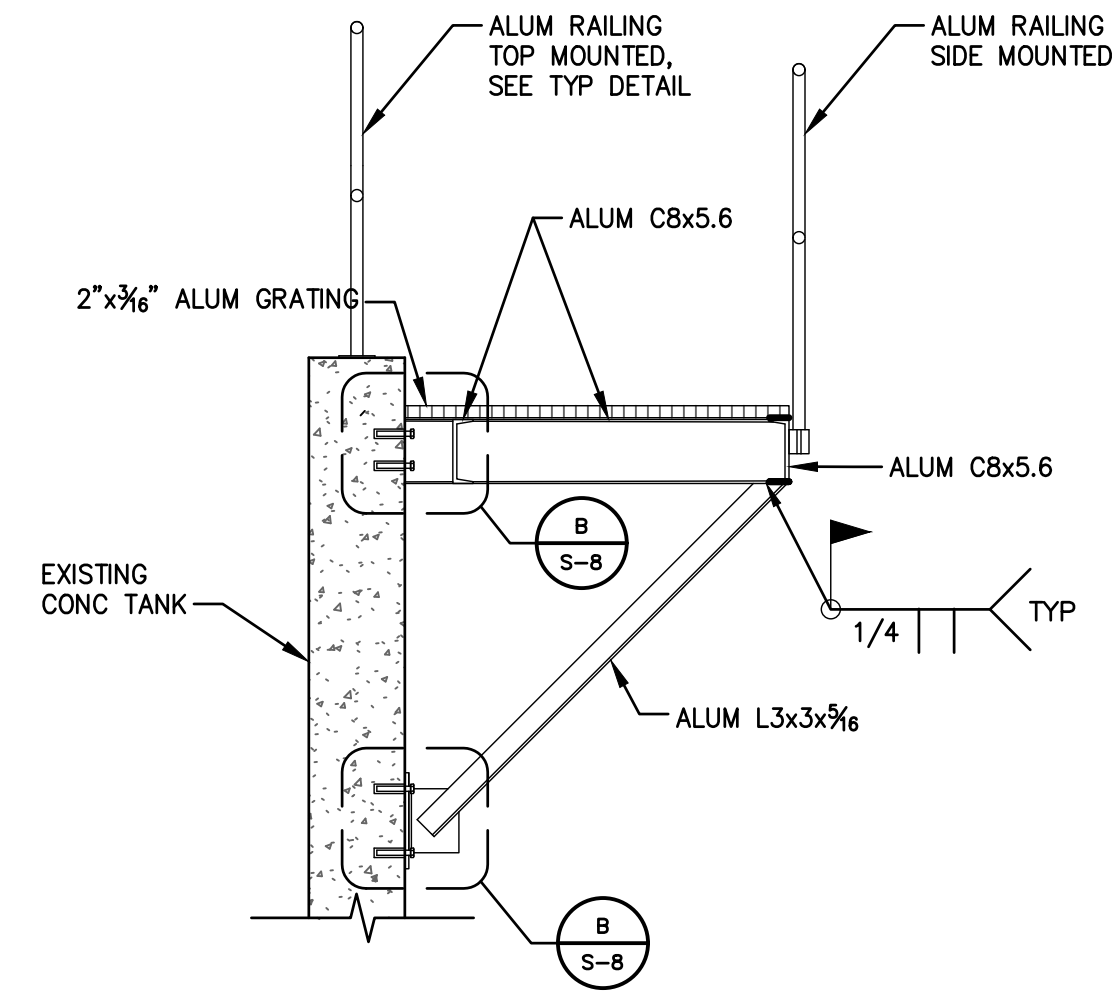
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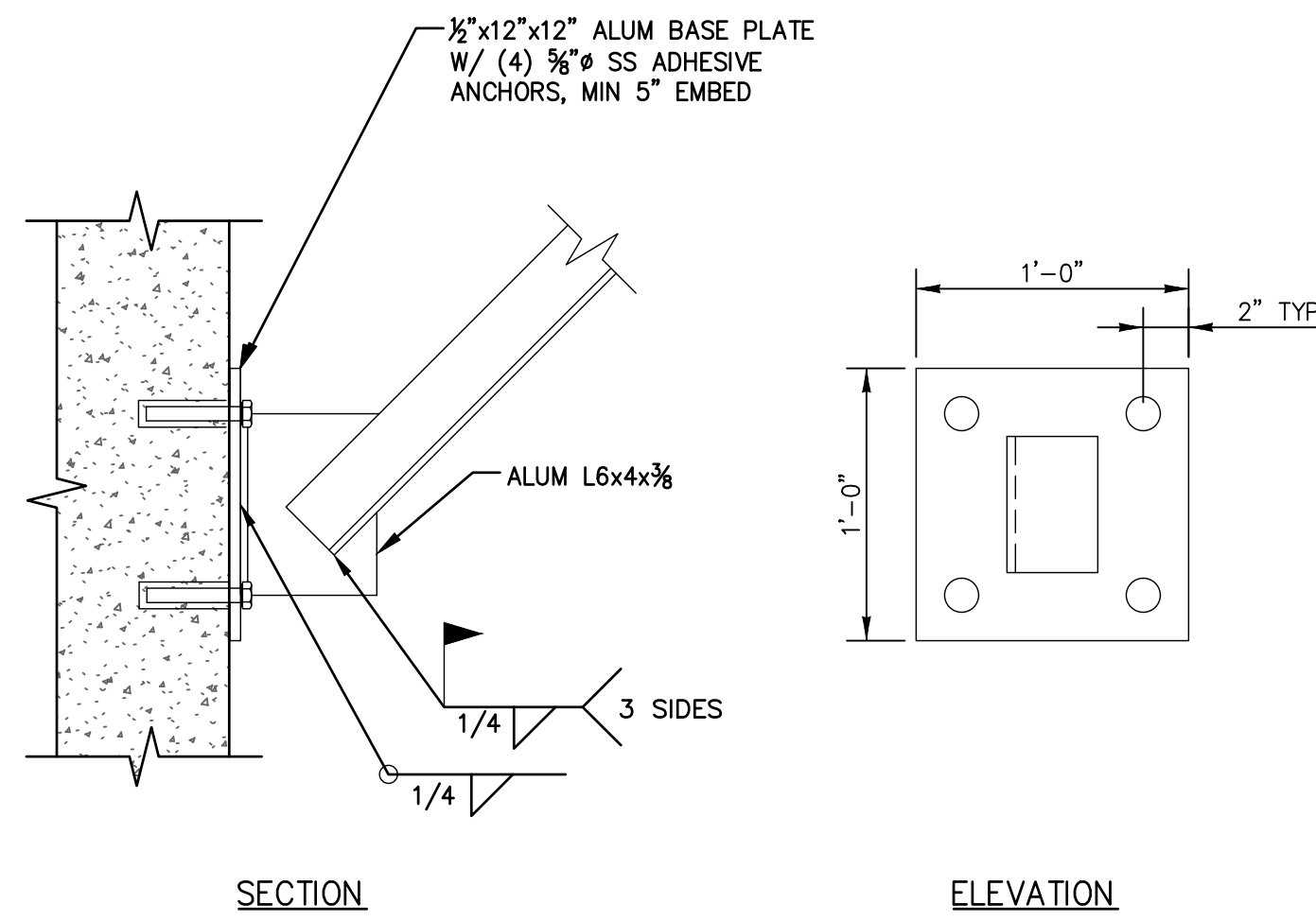
SHEET TITLE:
WALKWAY FRAMING PLAN

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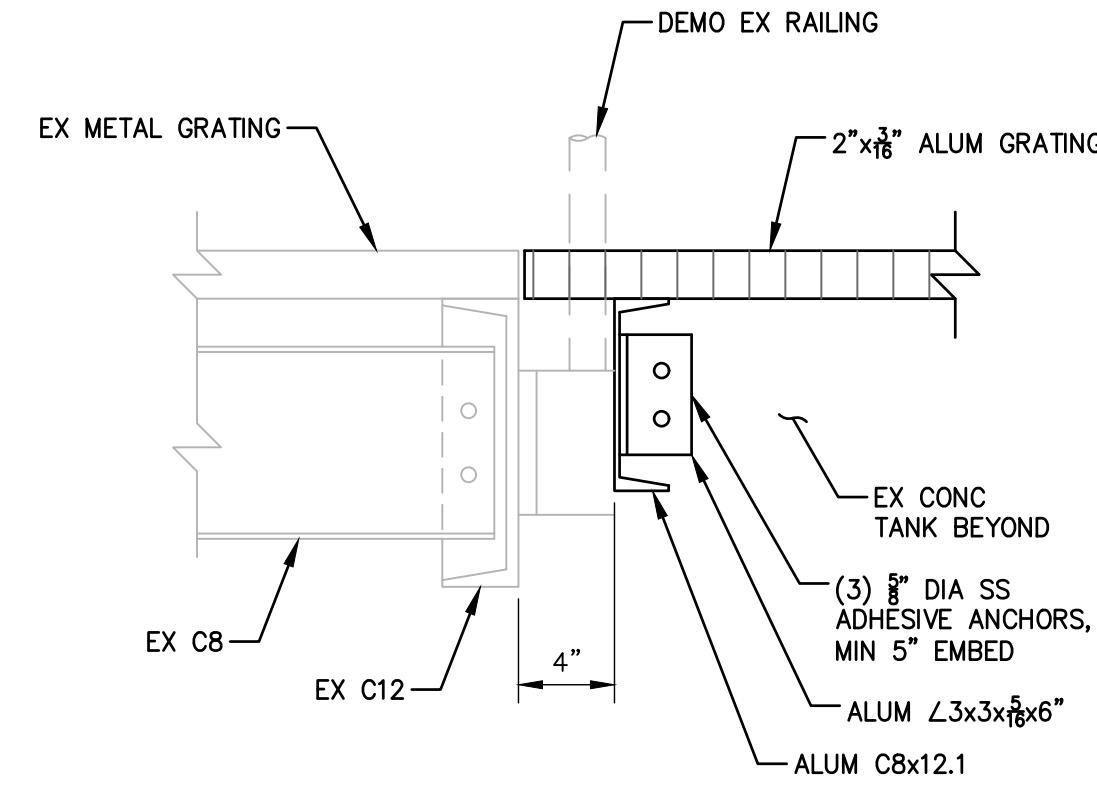
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A
SECTION
SCALE: 1/2"=1'-0"



B
SECTION
SCALE: 1/2"=1'-0"



C
SECTION AT LANDING
SCALE: 1/2"=1'-0"

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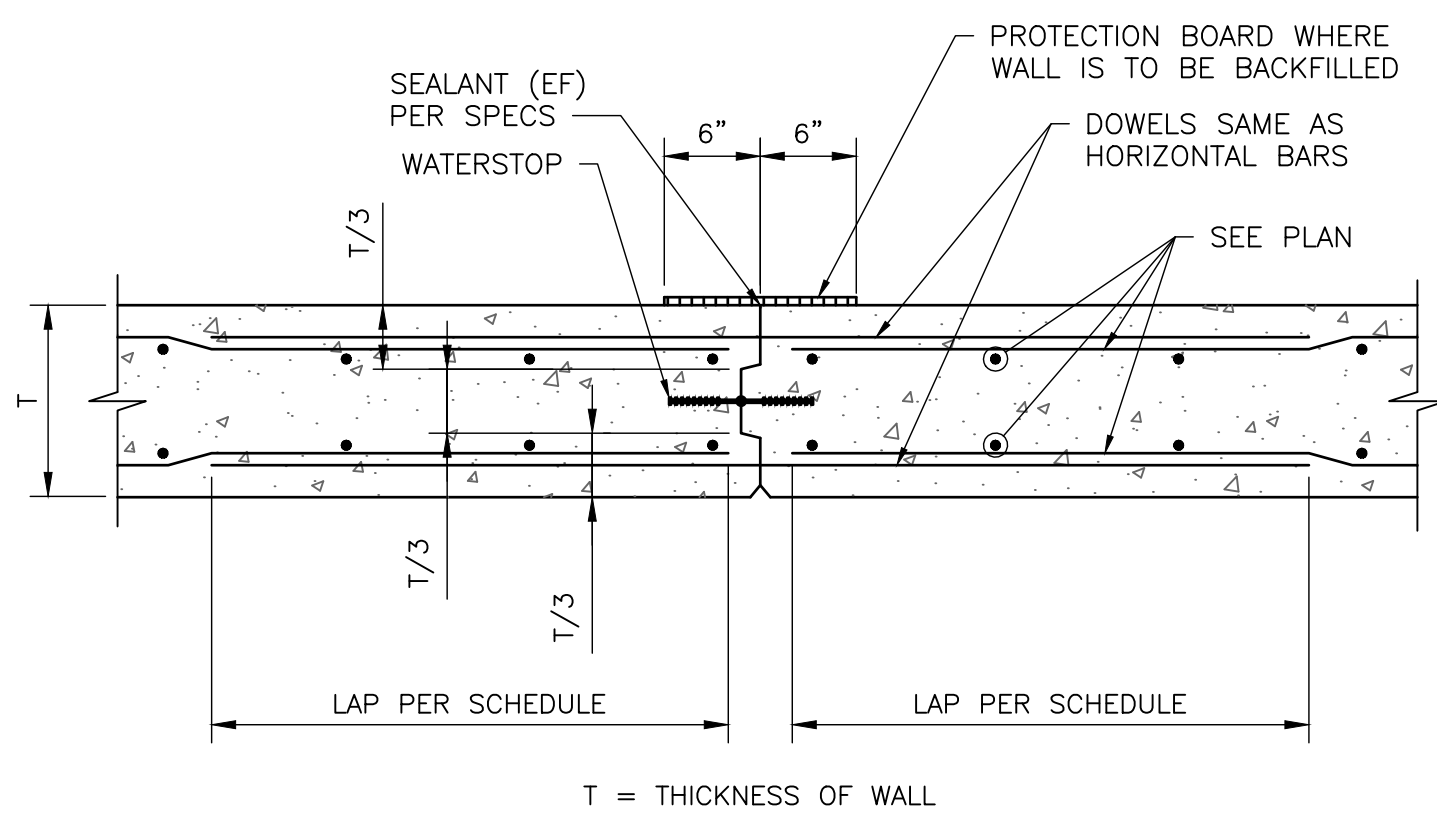
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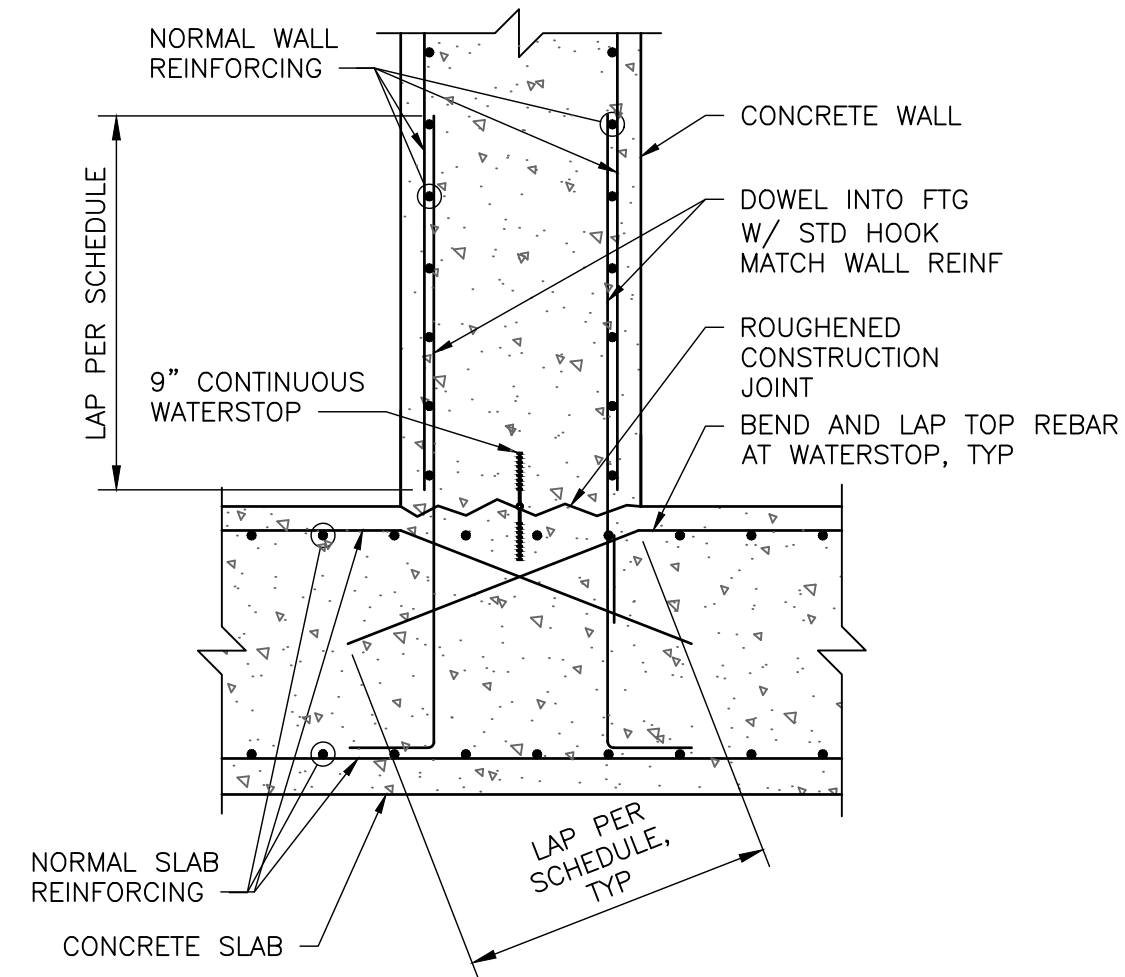
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SHEET TITLE:
**WALKWAY
SECTIONS &
DETAILS**



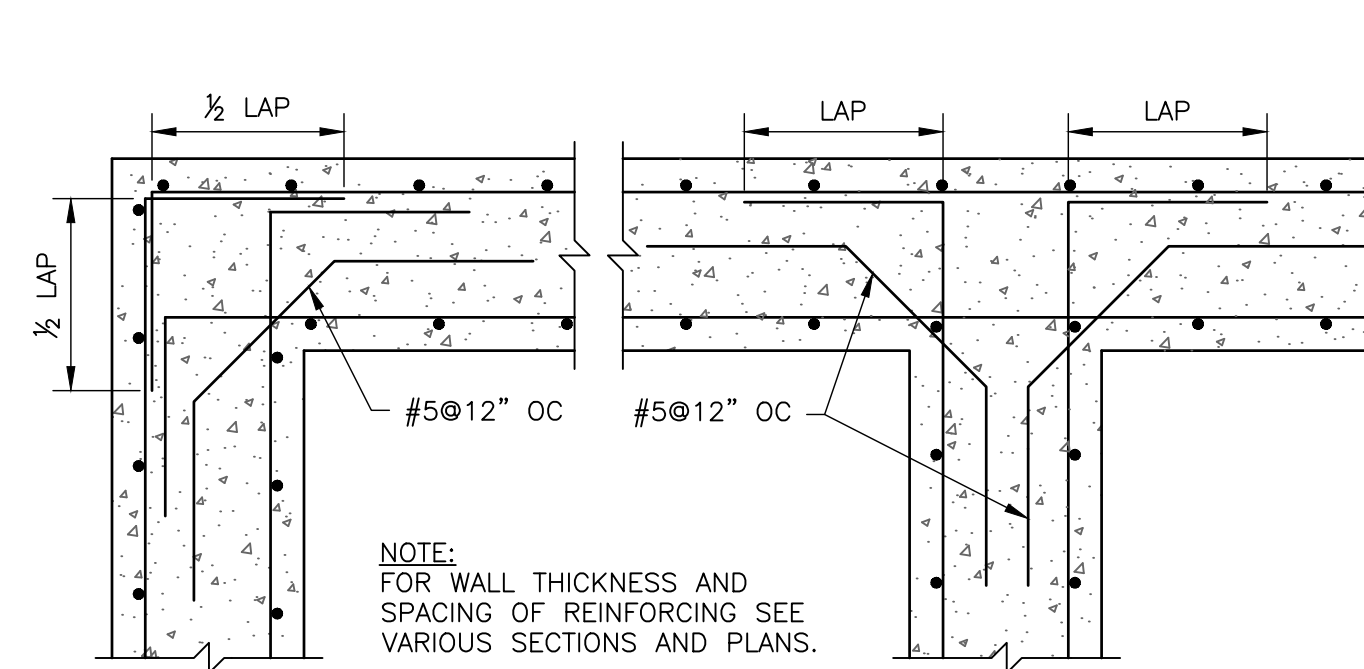
WALL CONSTRUCTION JOINT

SCALE: NONE



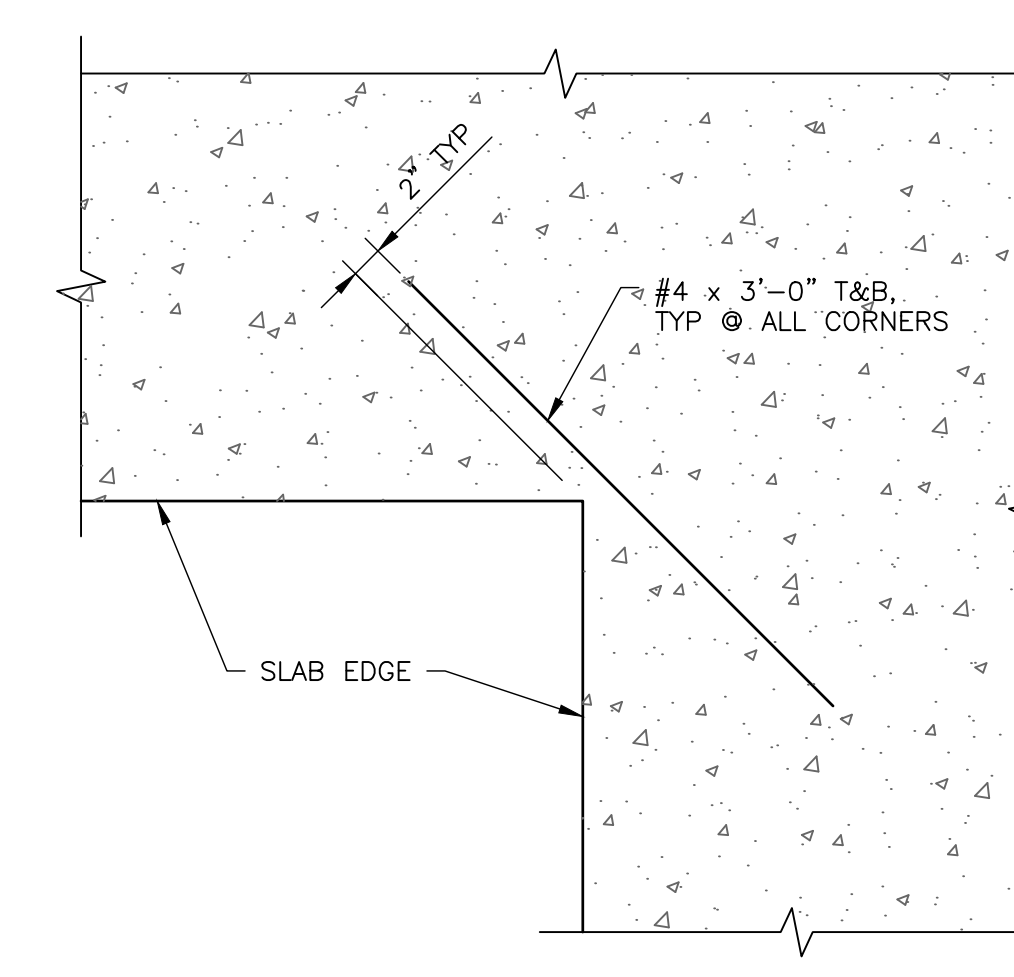
WALL TO SLAB CONSTRUCTION JOINT

SCALE: NONE



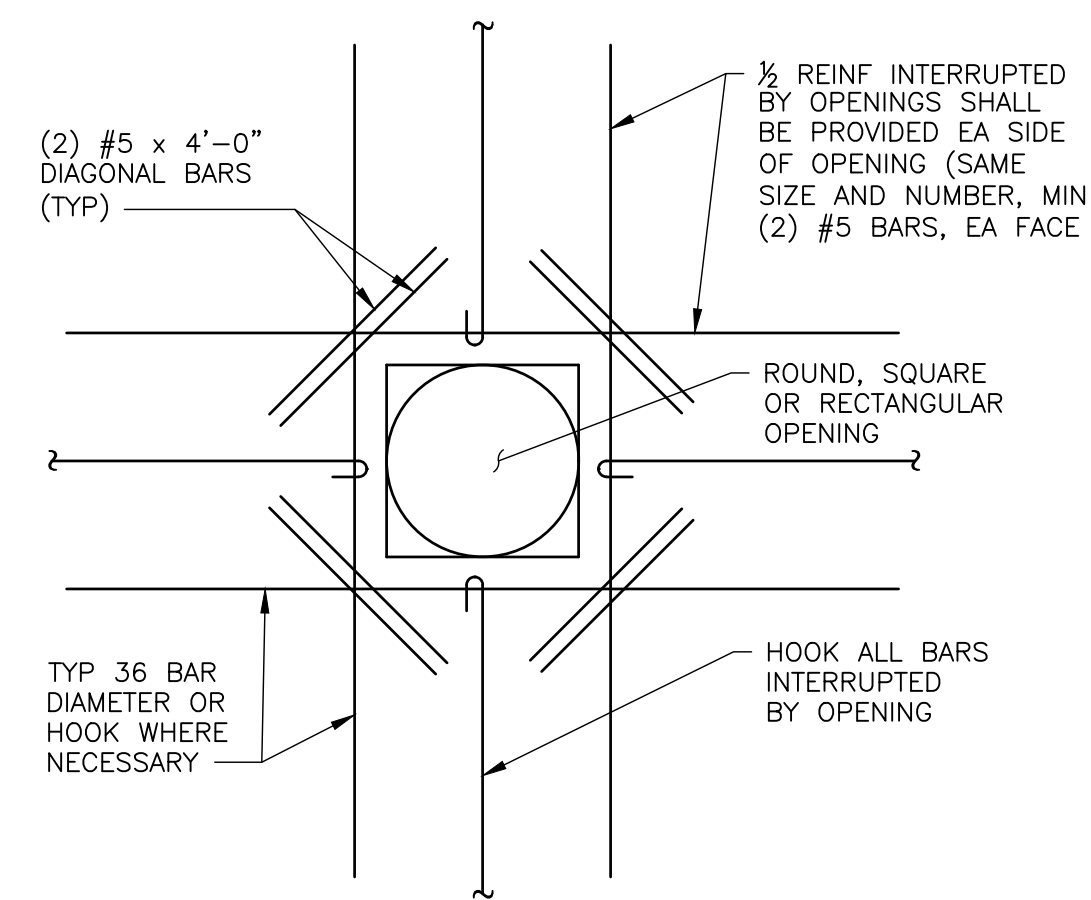
REINFORCEMENT AT INTERSECTIONS

SCALE: NONE



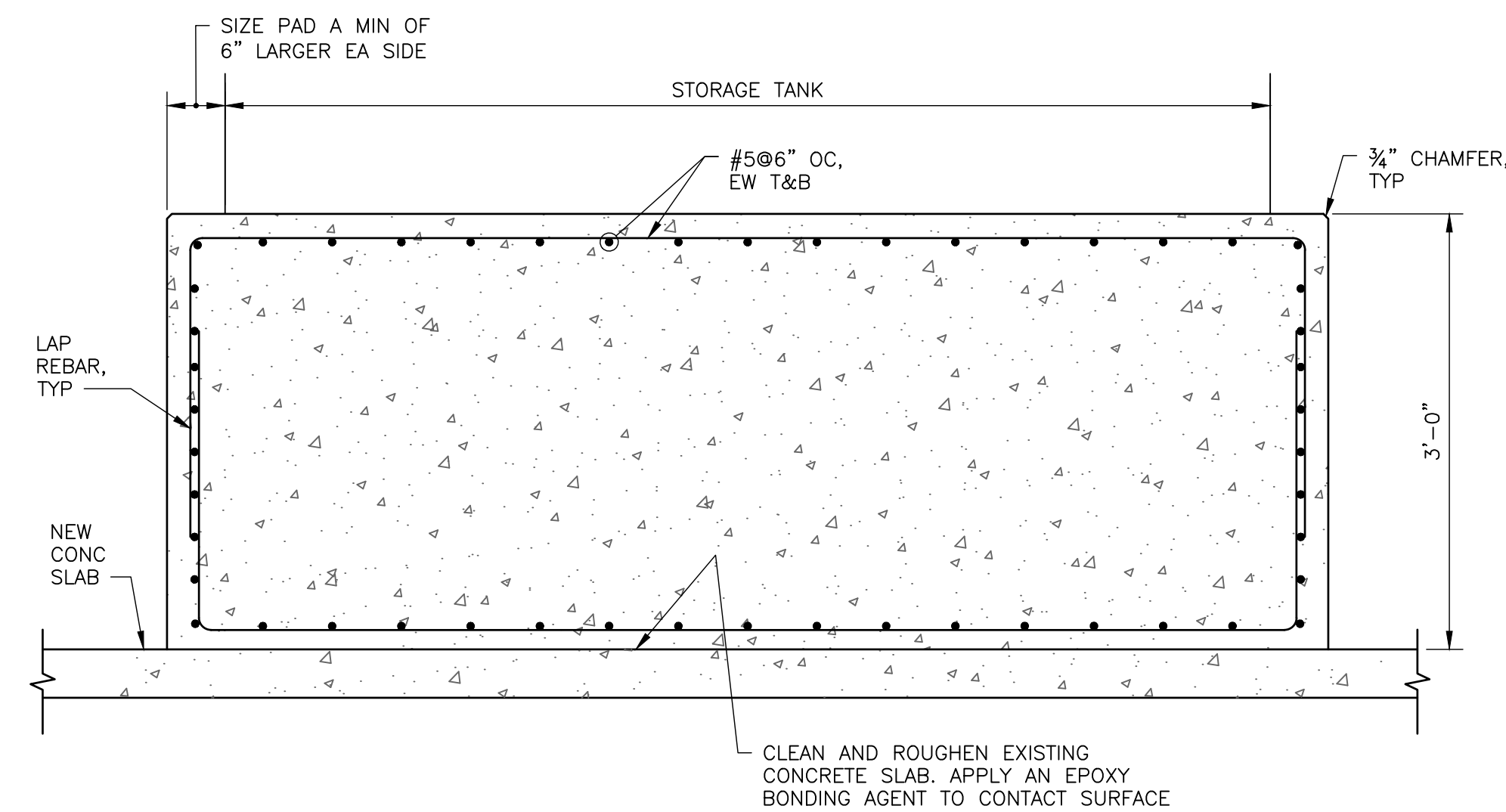
ADDITIONAL REINFORCEMENT AT CORNERS

SCALE: NONE



SLAB/WALL OPENING REINFORCEMENT

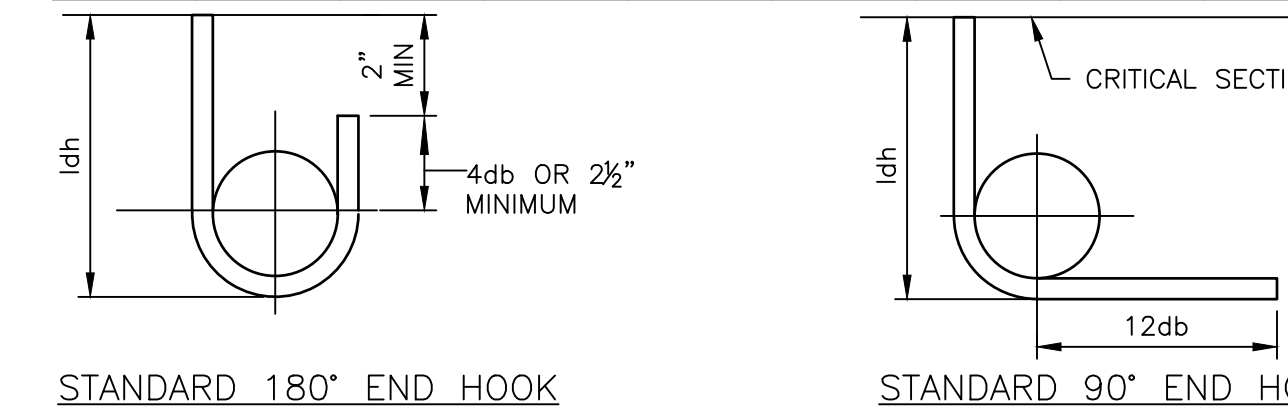
SCALE: NONE



CHEMICAL TANK PAD SUPPORT

SCALE: NONE

BAR SIZE	LAP SPLICE LENGTH				MINIMUM TENSION EMBEDMENT			
	SLAB AND WALL		BEAM		STD 90 HOOK		STD 180 HOOK	
ENGLISH	OTHER BARS	TOP BARS	OTHER BARS	TOP BARS	ldh	12db	ldh	4db
#3	12"	13"	12"	13"	6"	5"	6"	3"
#4	14"	18"	17"	22"	6"	6"	6"	3"
#5	17"	22"	25"	32"	8"	8"	8"	3"
#6	20"	26"	34"	44"	9"	9"	9"	3"
#7	33"	43"	49"	63"	11"	11"	11"	4"
#8	42"	54"	56"	72"	12"	12"	12"	4"
#9	53"	69"	63"	81"	14"	14"	14"	5"
#10	67"	87"	71"	92"	16"	16"	16"	6"
#11	78"	102"	78"	102"	17"	17"	17"	6"



STANDARD 180° END HOOK

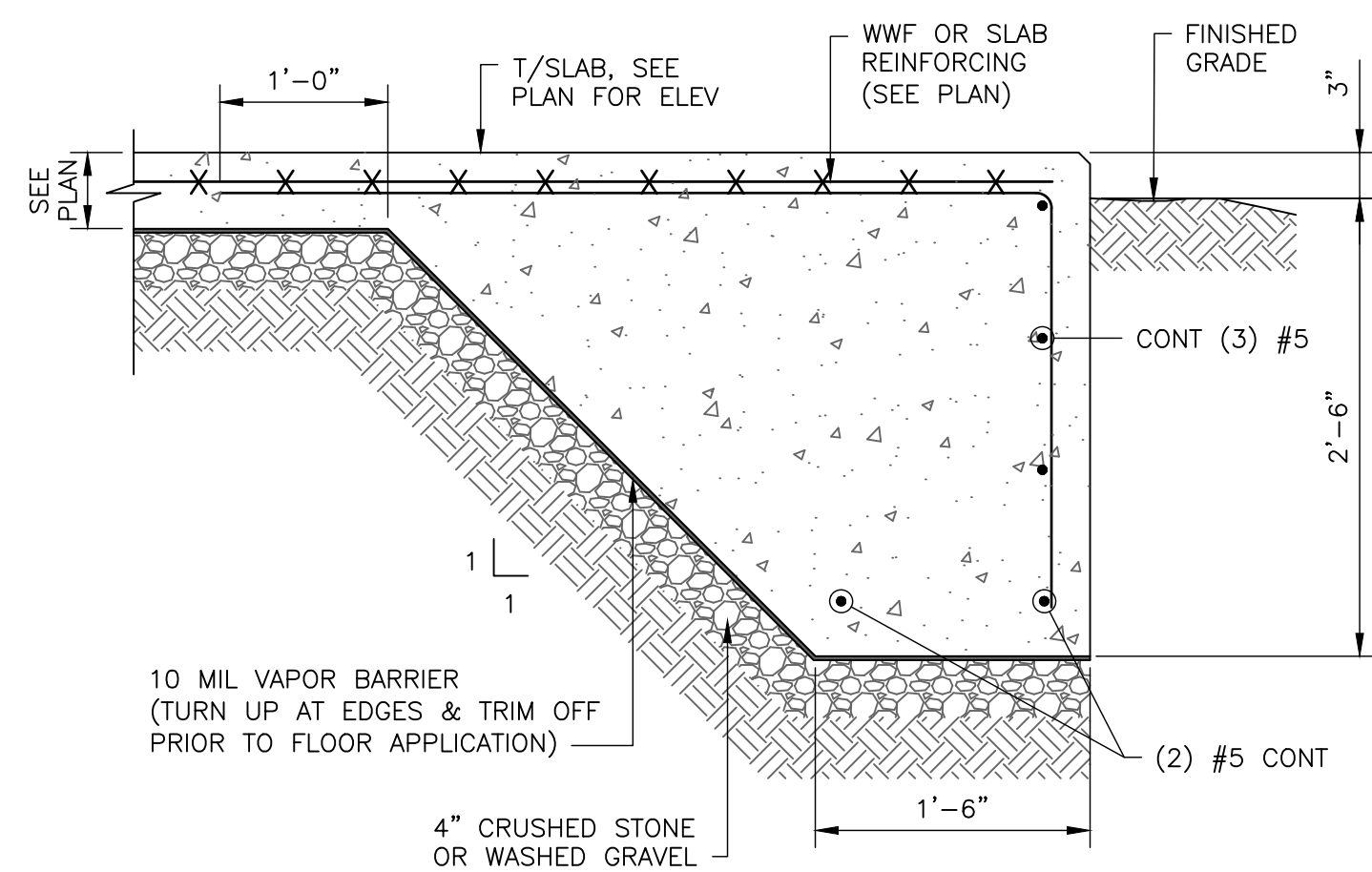
STANDARD 90° END HOOK

STANDARD HOOK ASSUMPTIONS:
 SIDE COVER SHALL NOT BE LESS THAN 2 1/2".
 END COVER ON 90 DEGREE HOOK SHALL NOT BE LESS THAN 2".

LAP SPLICE ASSUMPTIONS:
 5000 PSI COMPRESSIVE STRENGTH (NORMAL WEIGHT CONCRETE).
 4" MINIMUM REBAR SPACING WITH CONCRETE COVER = 2" CLEAR.
 BEAM: MINIMUM CLEAR SPACING BETWEEN BARS = 1 1/2".
 MINIMUM CONCRETE COVER = 3" CLEAR.
 MINIMUM STIRRUP #4@12" OC PROVIDED.
 TOP BAR FOR SLAB AND BEAM SHALL BE DEFINED AS REINFORCEMENT SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST BELOW THE SPLICE.

REINFORCEMENT LAP SPLICE AND STANDARD HOOK LENGTHS

SCALE: NONE



TURN-DOWN SLAB

SCALE: NONE

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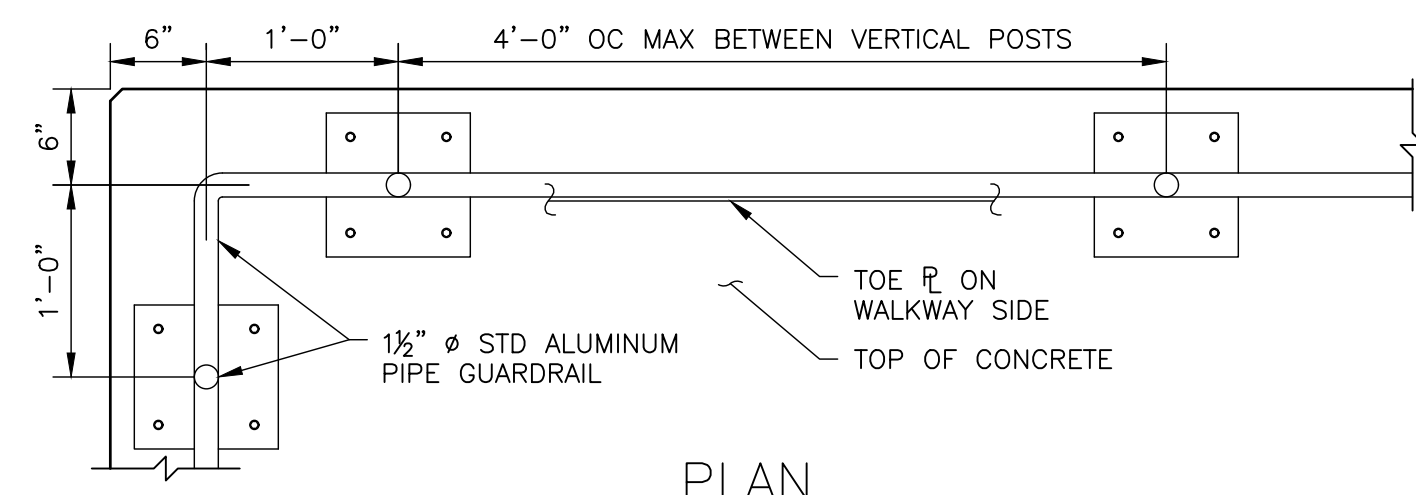
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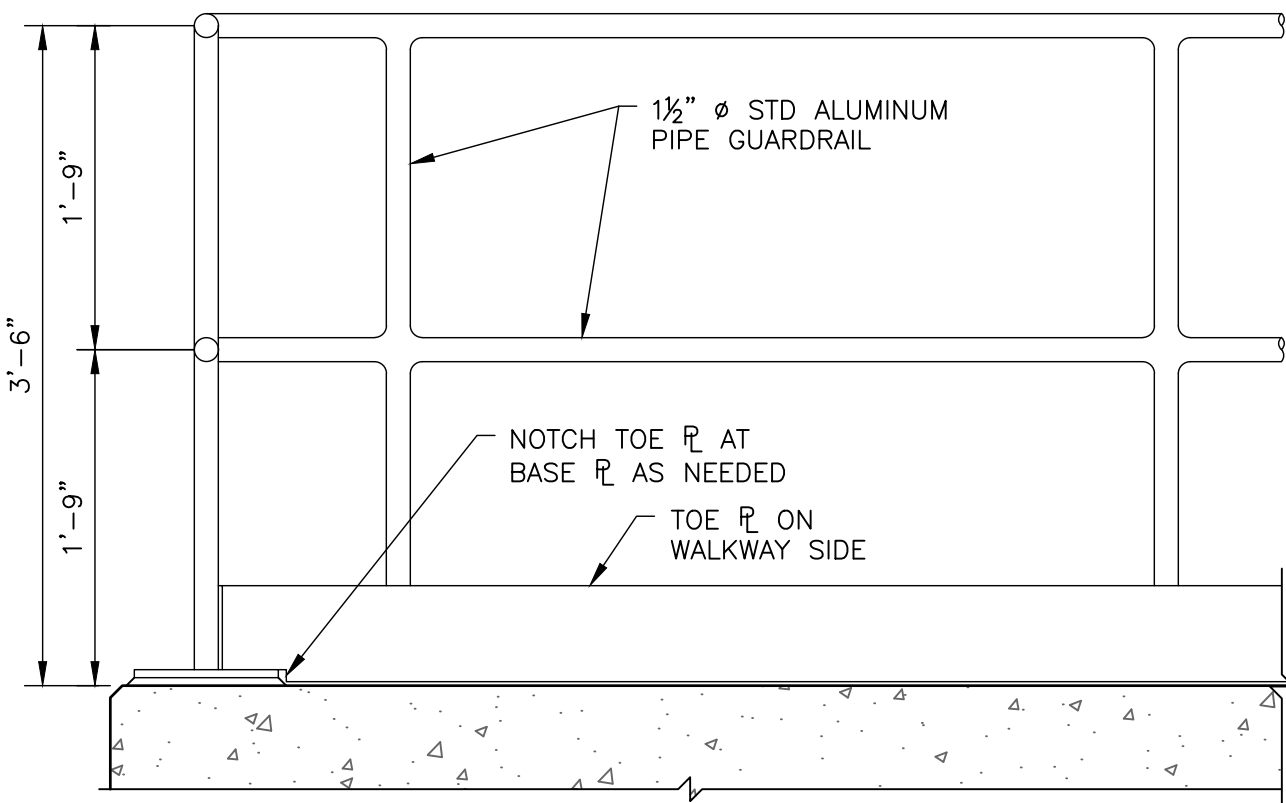
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TYPICAL DETAILS

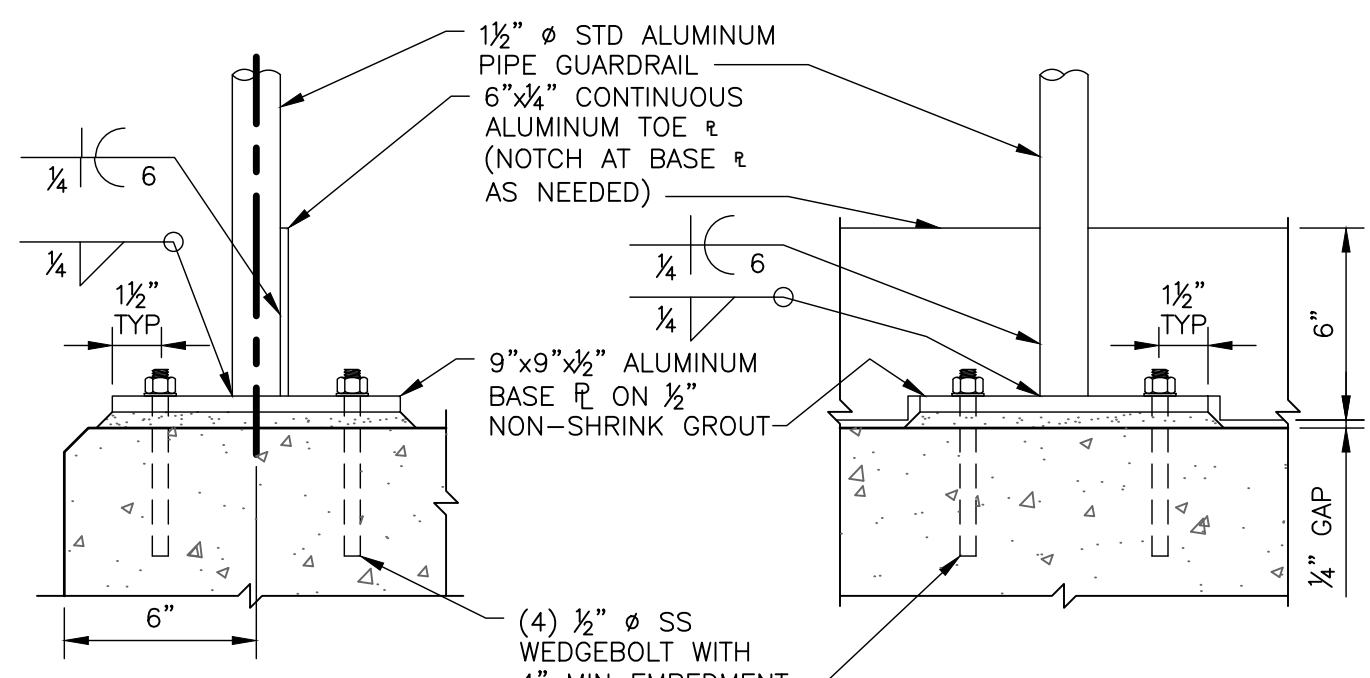
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PLAN



ELEVATION

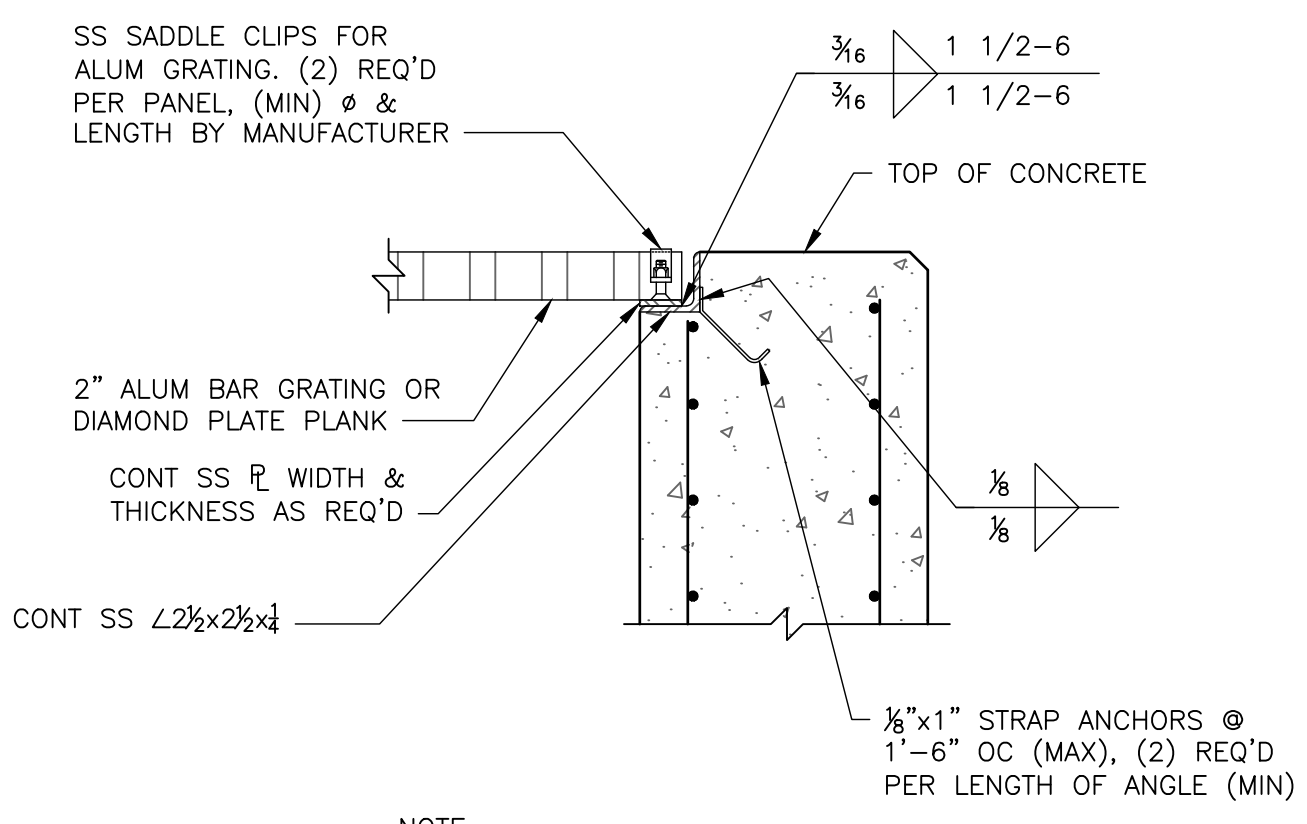


SECTION

ELEVATION

ALUMINUM GUARDRAIL

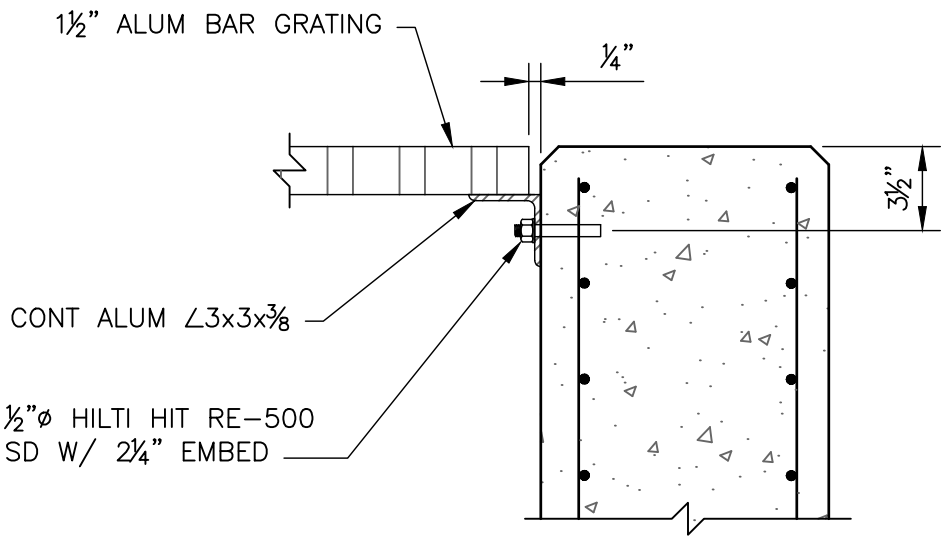
SCALE: NONE



EMBEDDED ANGLE IN WALL CONNECTION

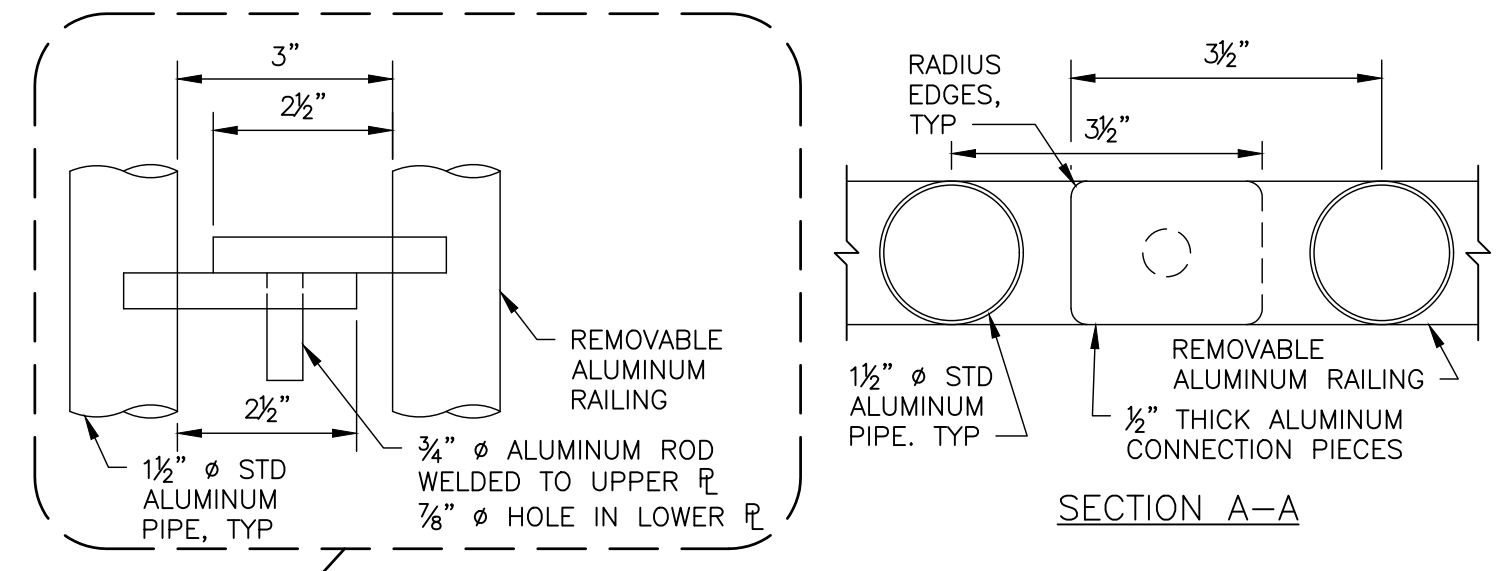
SCALE: NONE

- NOTE:
1. ALL DIMENSIONS ARE TO BE COORDINATED WITH GRATING MANUFACTURER
 2. PROVIDE REMOVABLE CLIPS AT SECTIONS NOTED ON PLAN

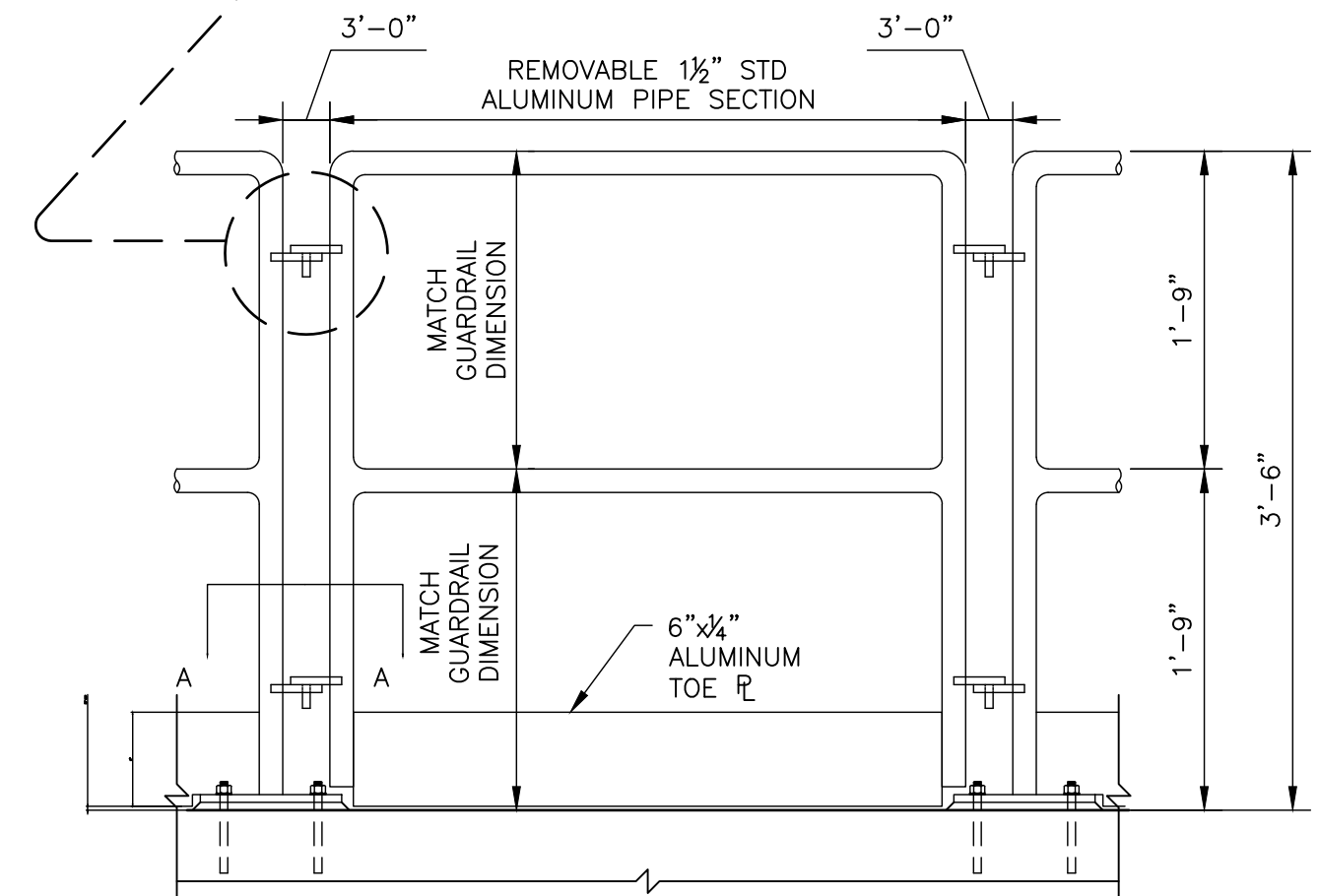


CONTINUOUS ANGLE TO WALL CONNECTION

SCALE: NONE

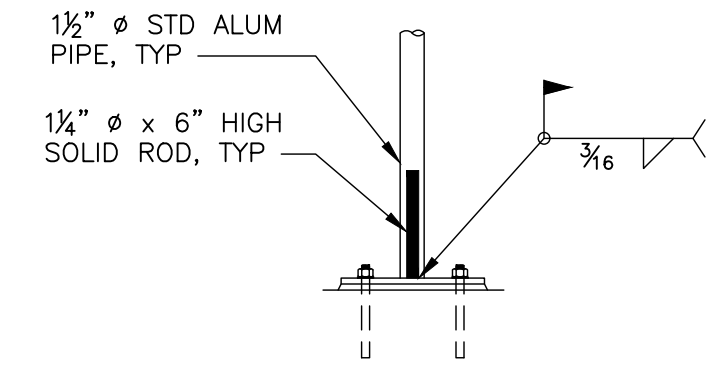


SECTION A-A



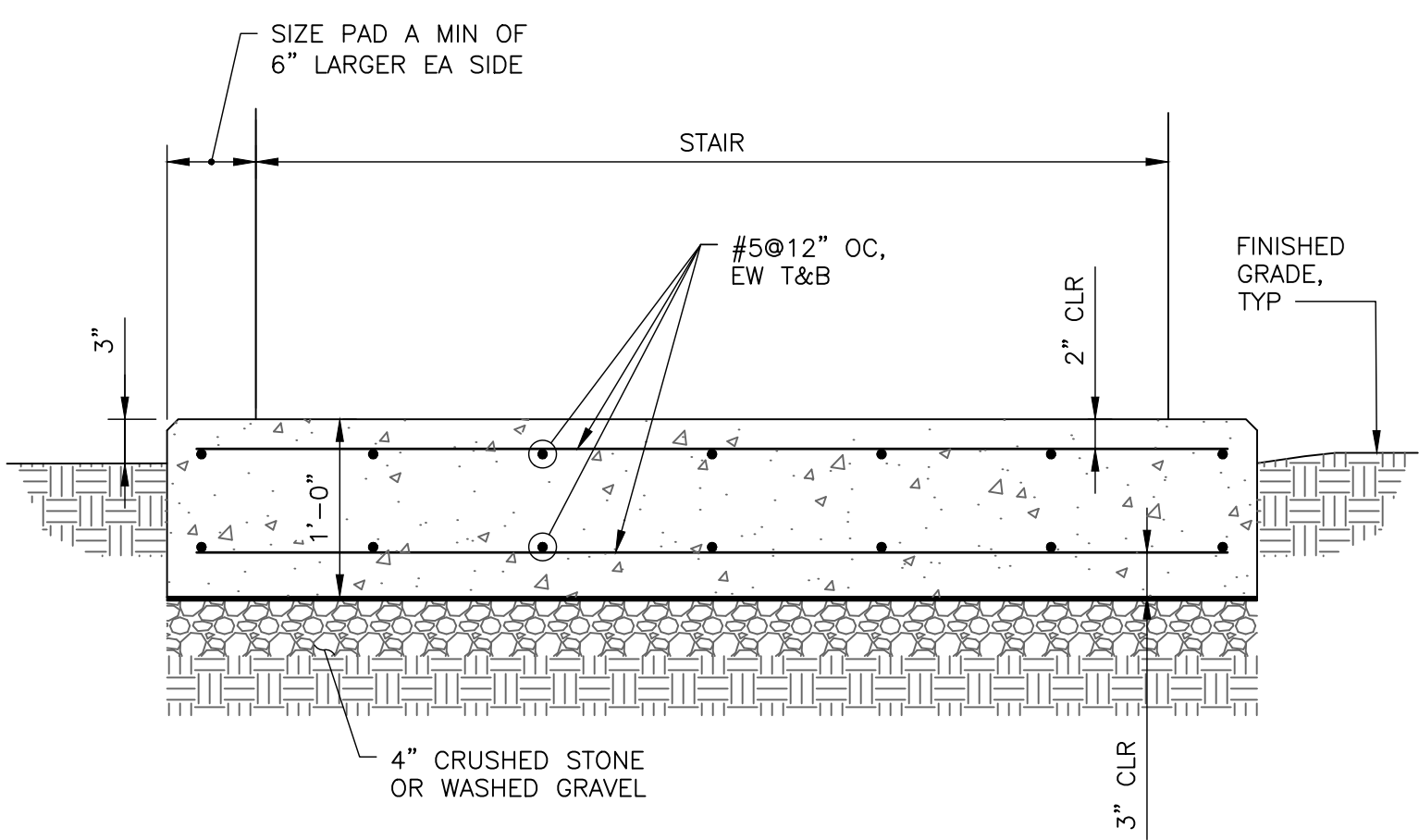
REMOVABLE GUARDRAIL SECTION

SCALE: NONE



REMOVABLE GUARDRAIL POST CONNECTION

SCALE: NONE



EXTERIOR CONCRETE PAD

SCALE: NONE

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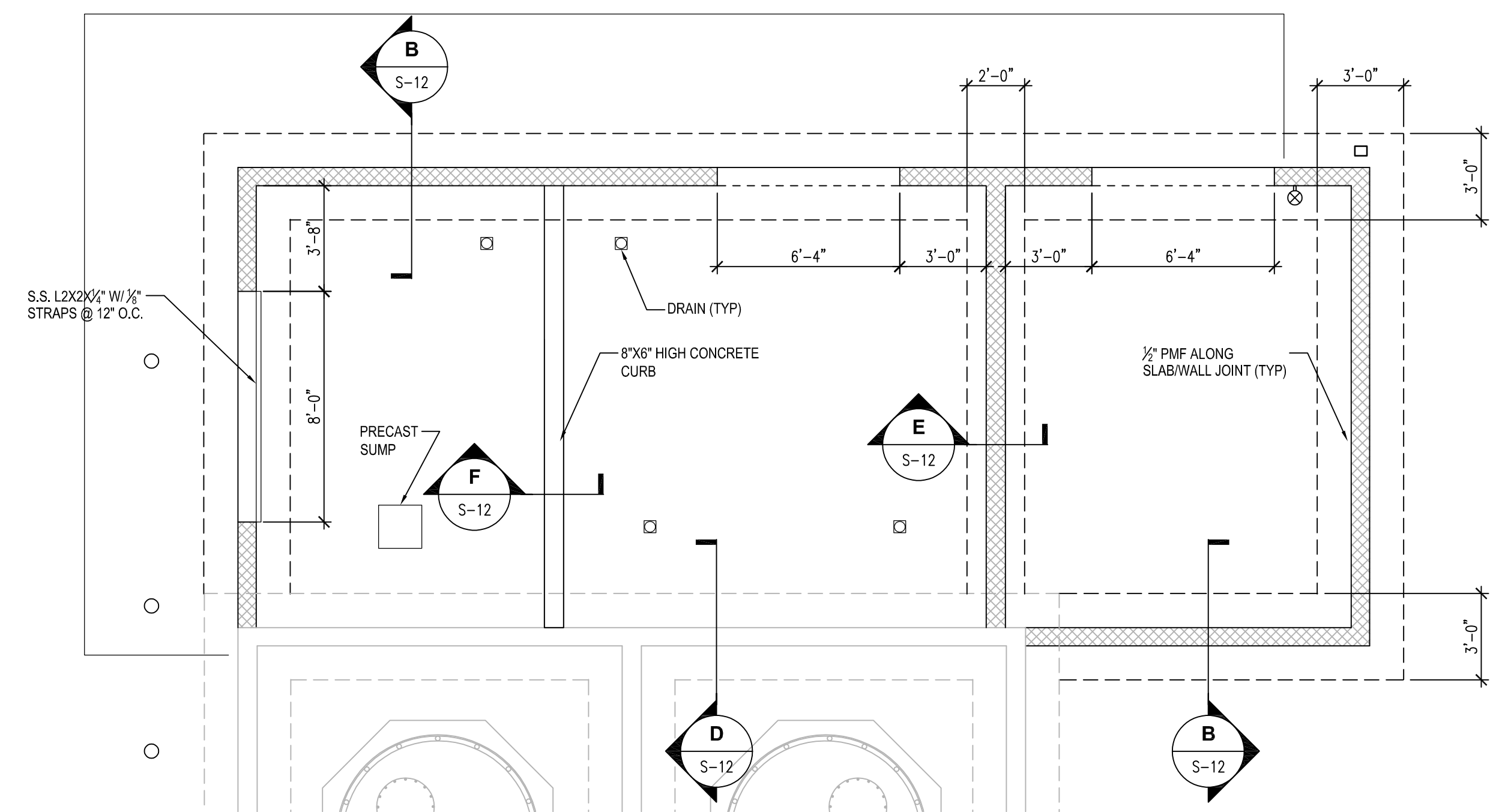
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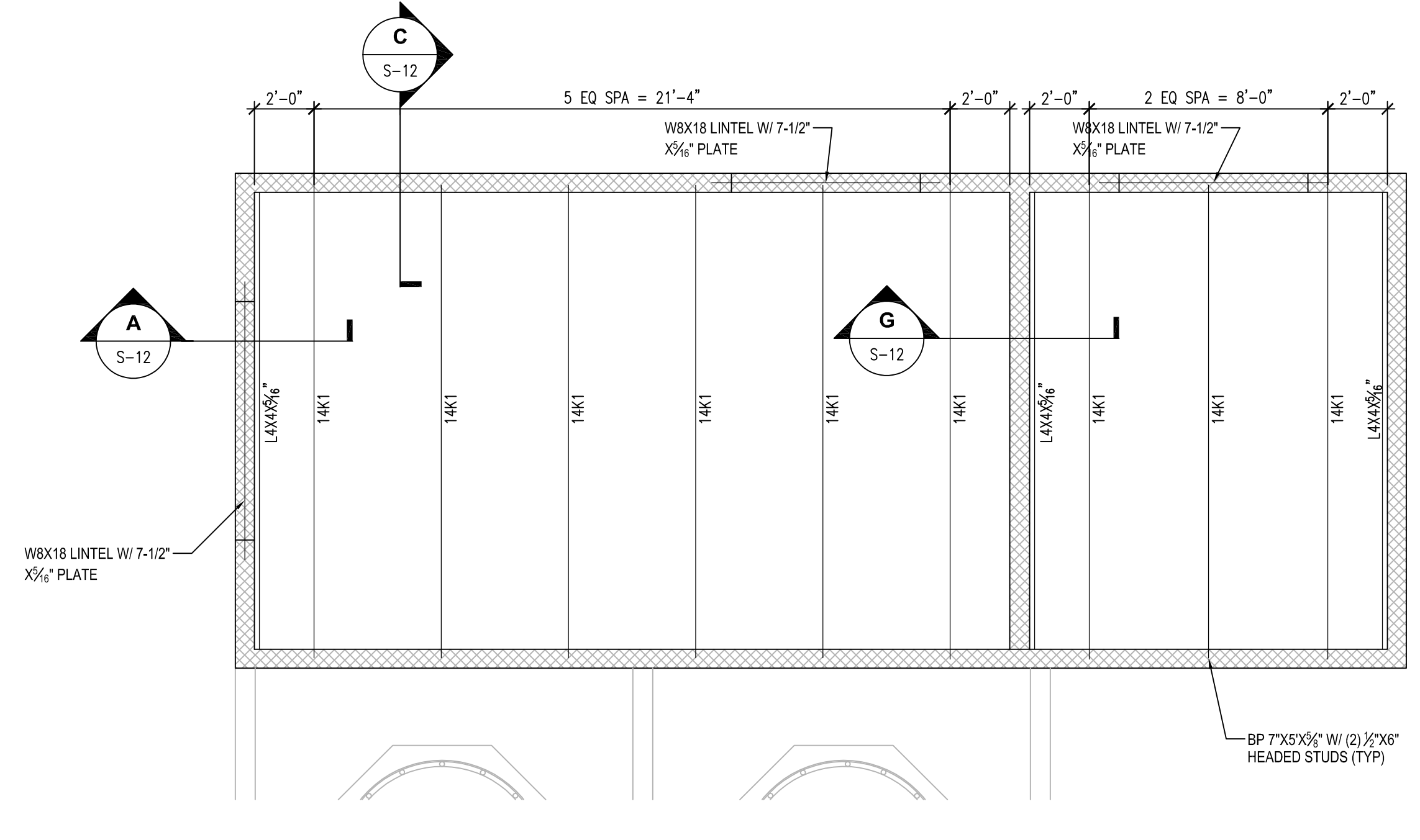
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SHEET TITLE:	

TYPICAL DETAILS

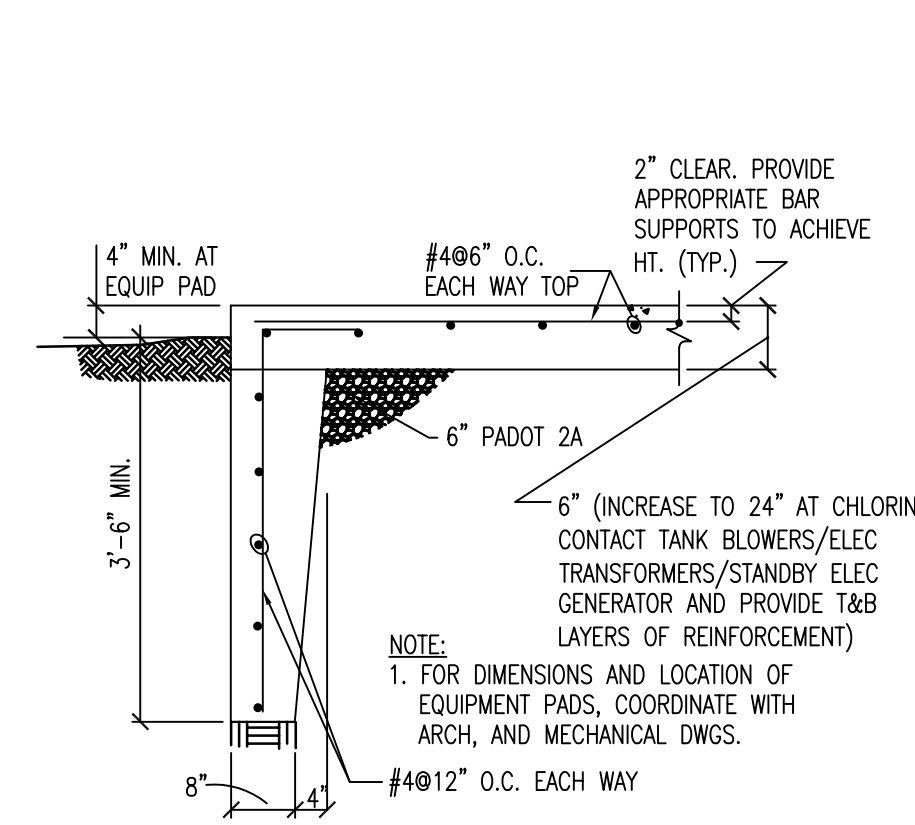
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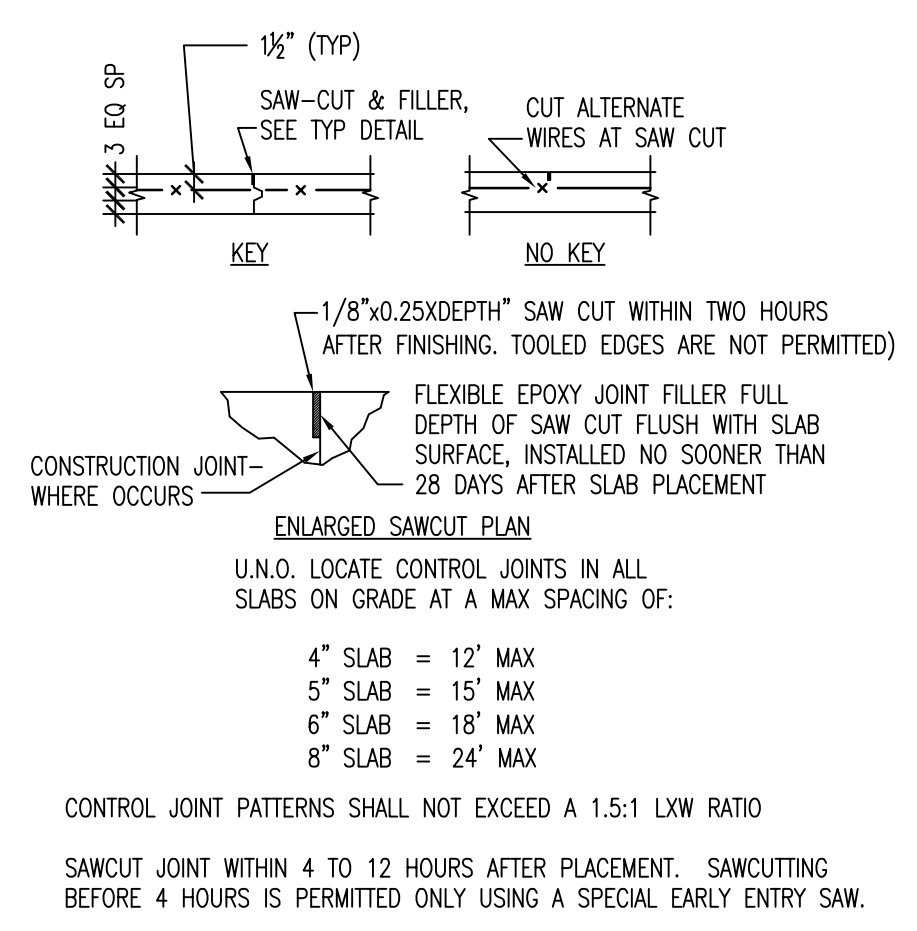
1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"



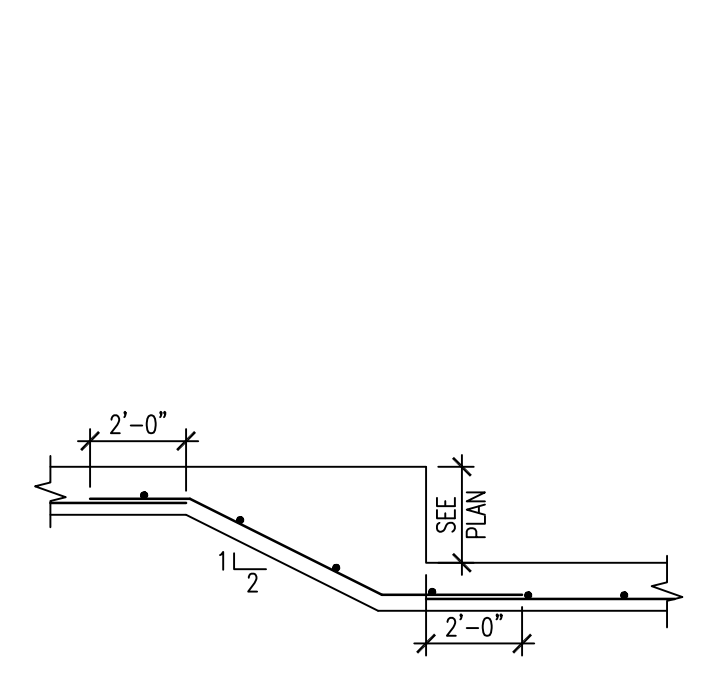
2 ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"



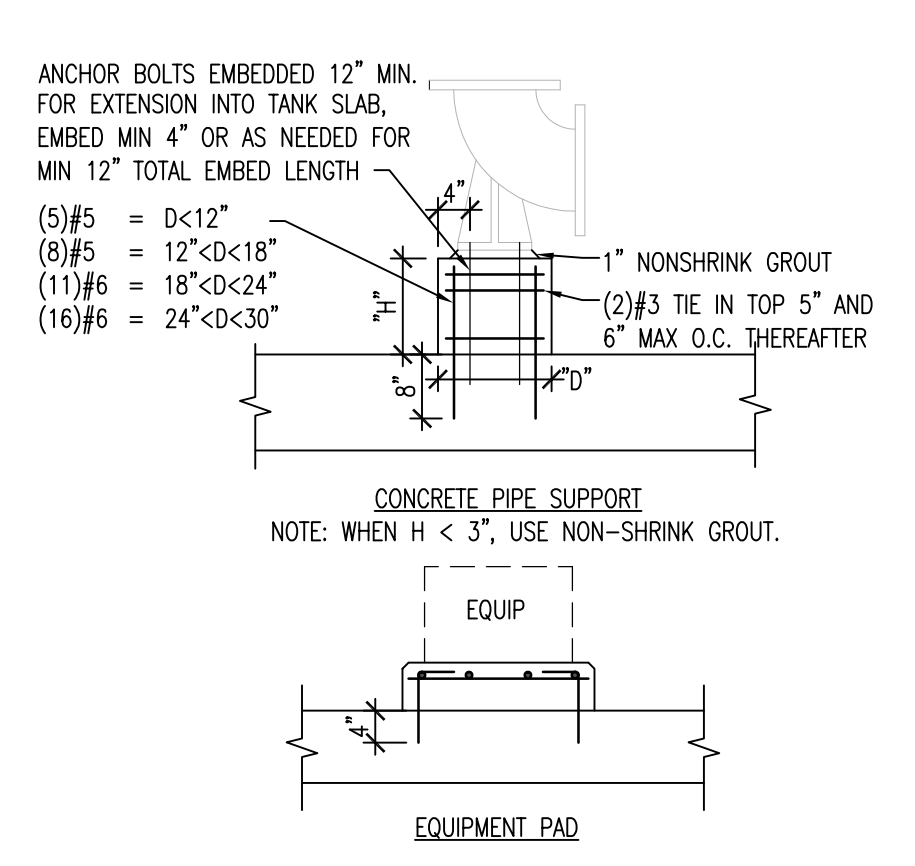
TYPICAL EXTERIOR PAD



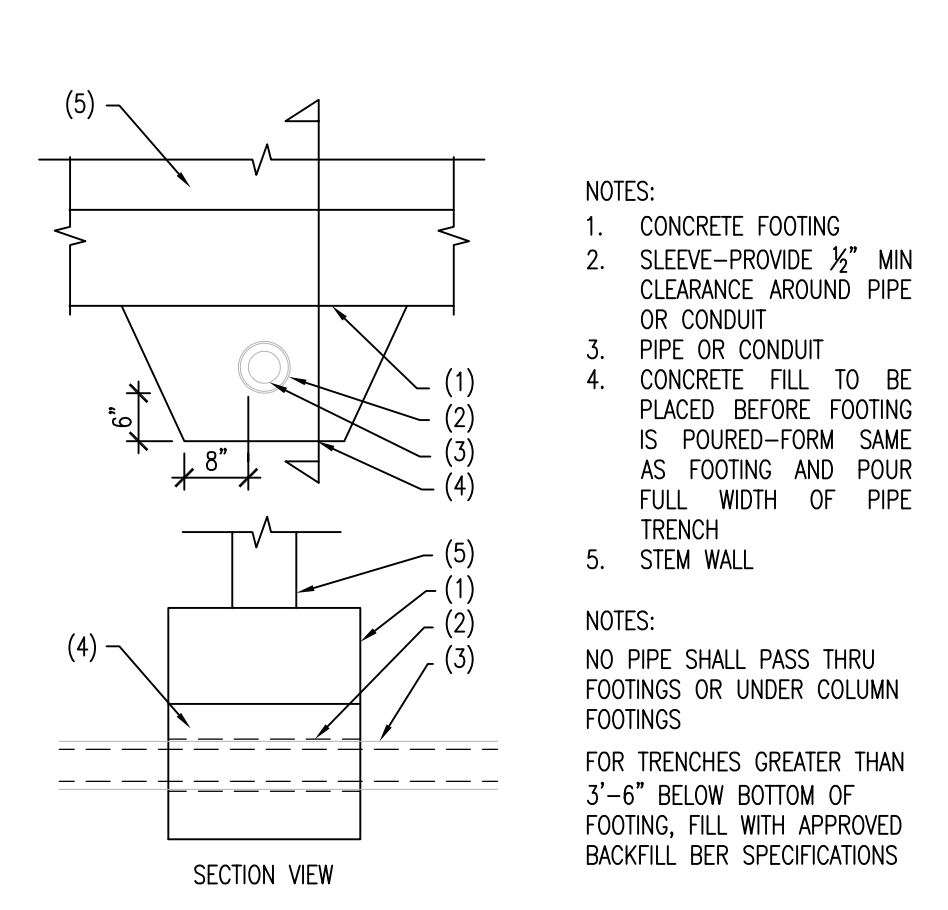
TYPICAL CONTROL JOINTS



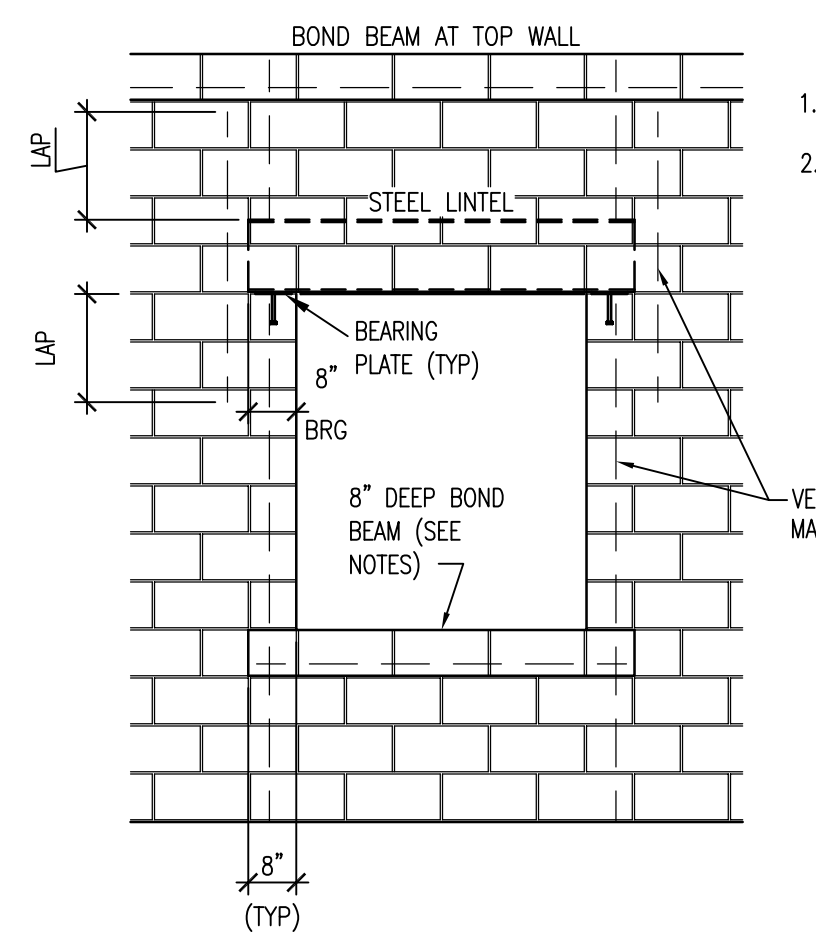
TYPICAL STEPPED FOOTING



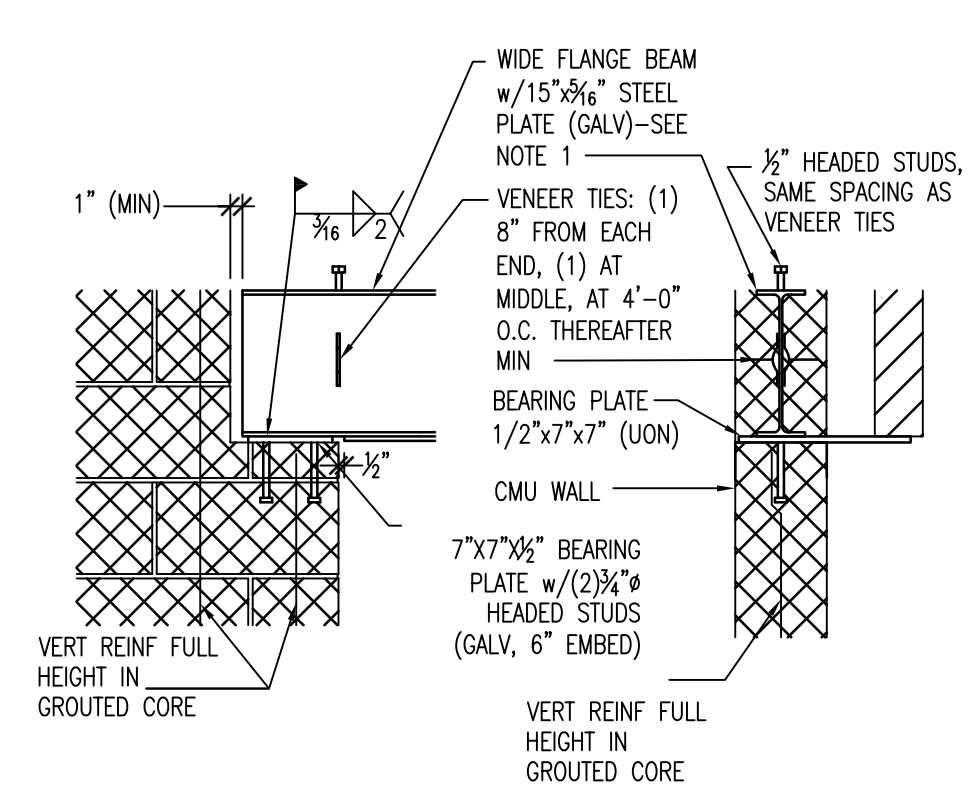
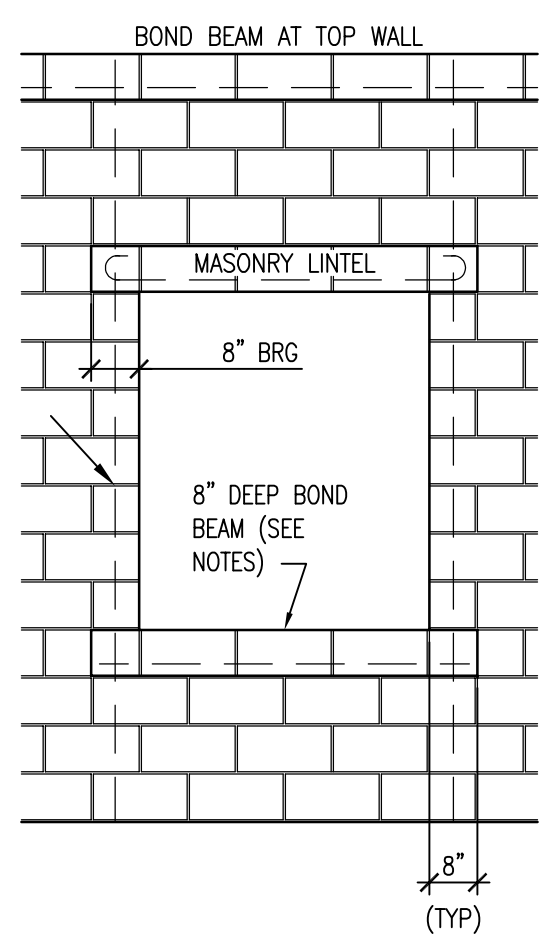
TYPICAL CONCRETE PAD



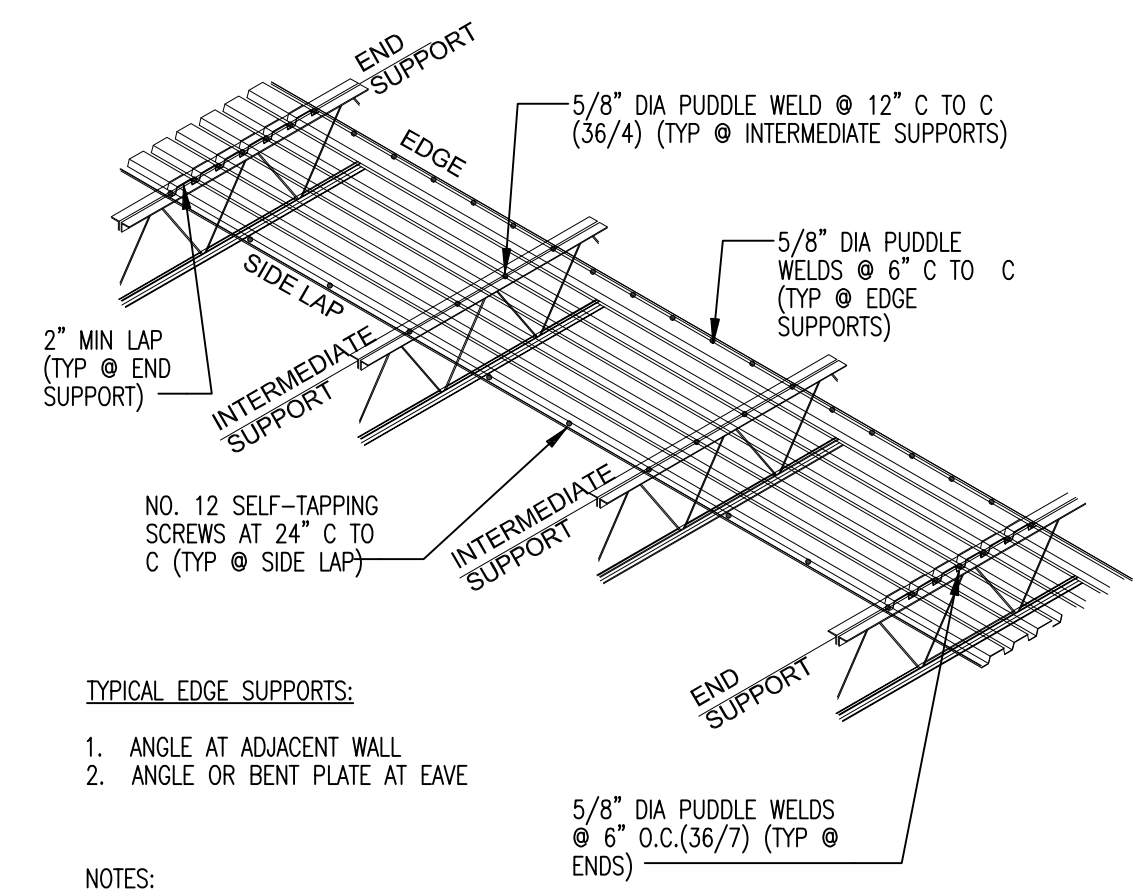
TYPICAL SHALLOW TRENCH



TYPICAL MASONRY WALLS



TYPICAL STEEL LINTEL

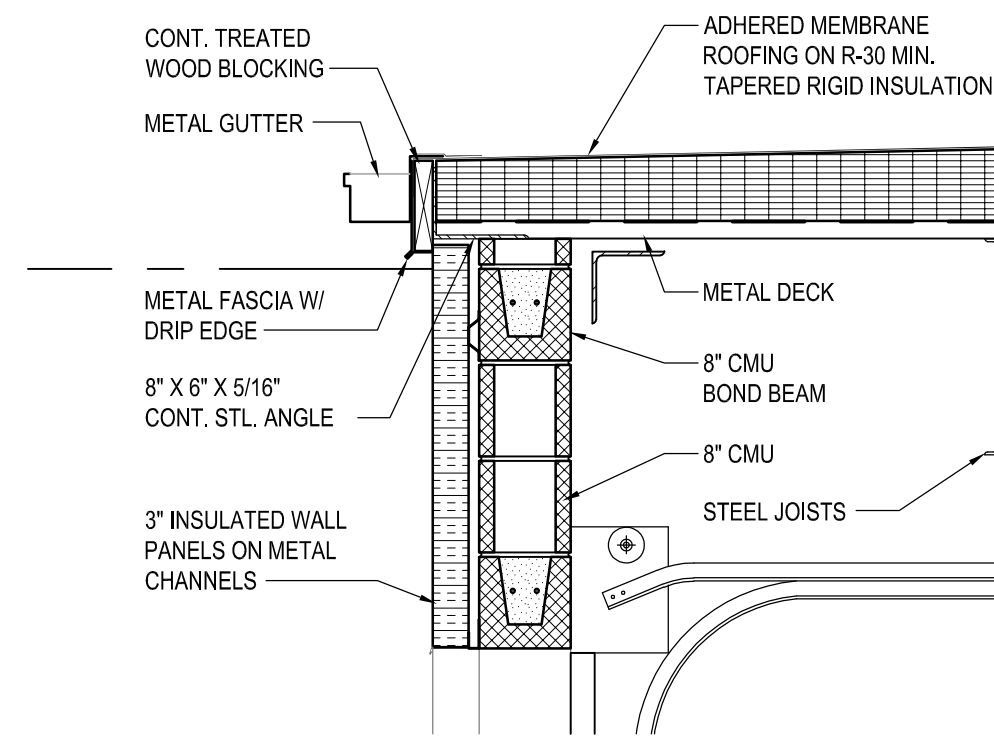


TYPICAL METAL DECK

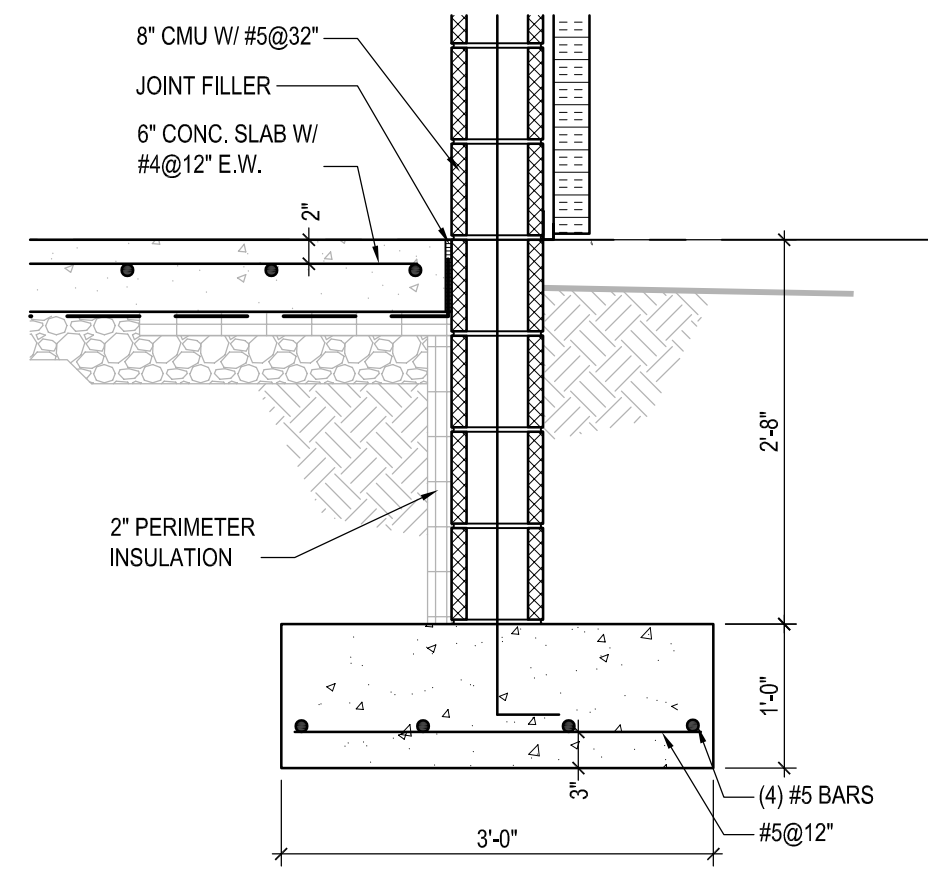
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: JTK
CHECKED BY: JTK
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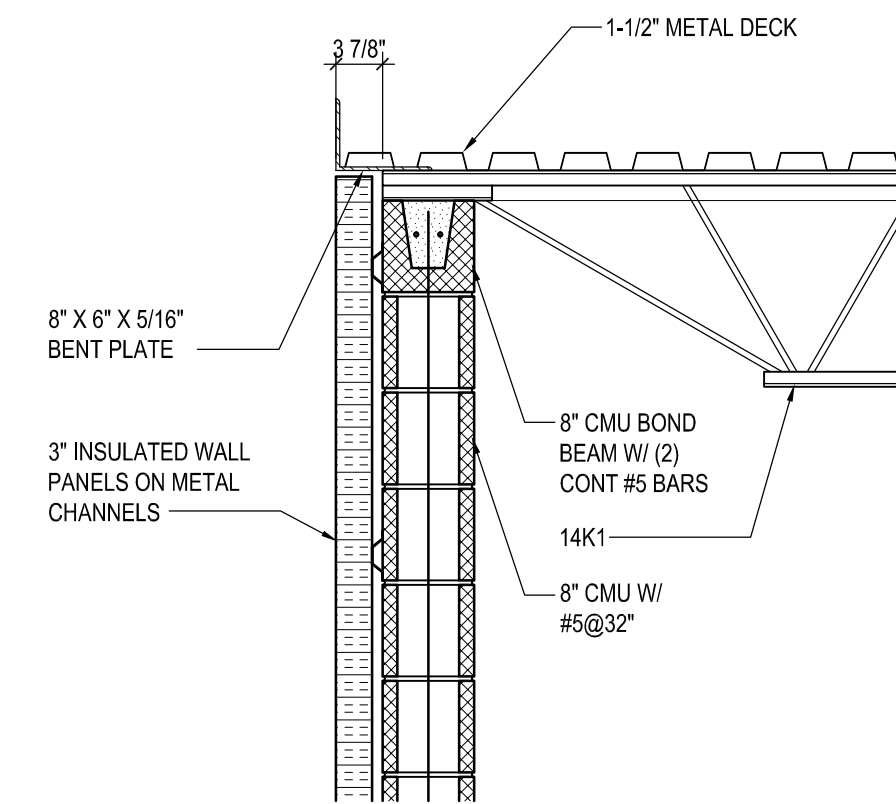
PLANS AND TYPICAL DETAILS



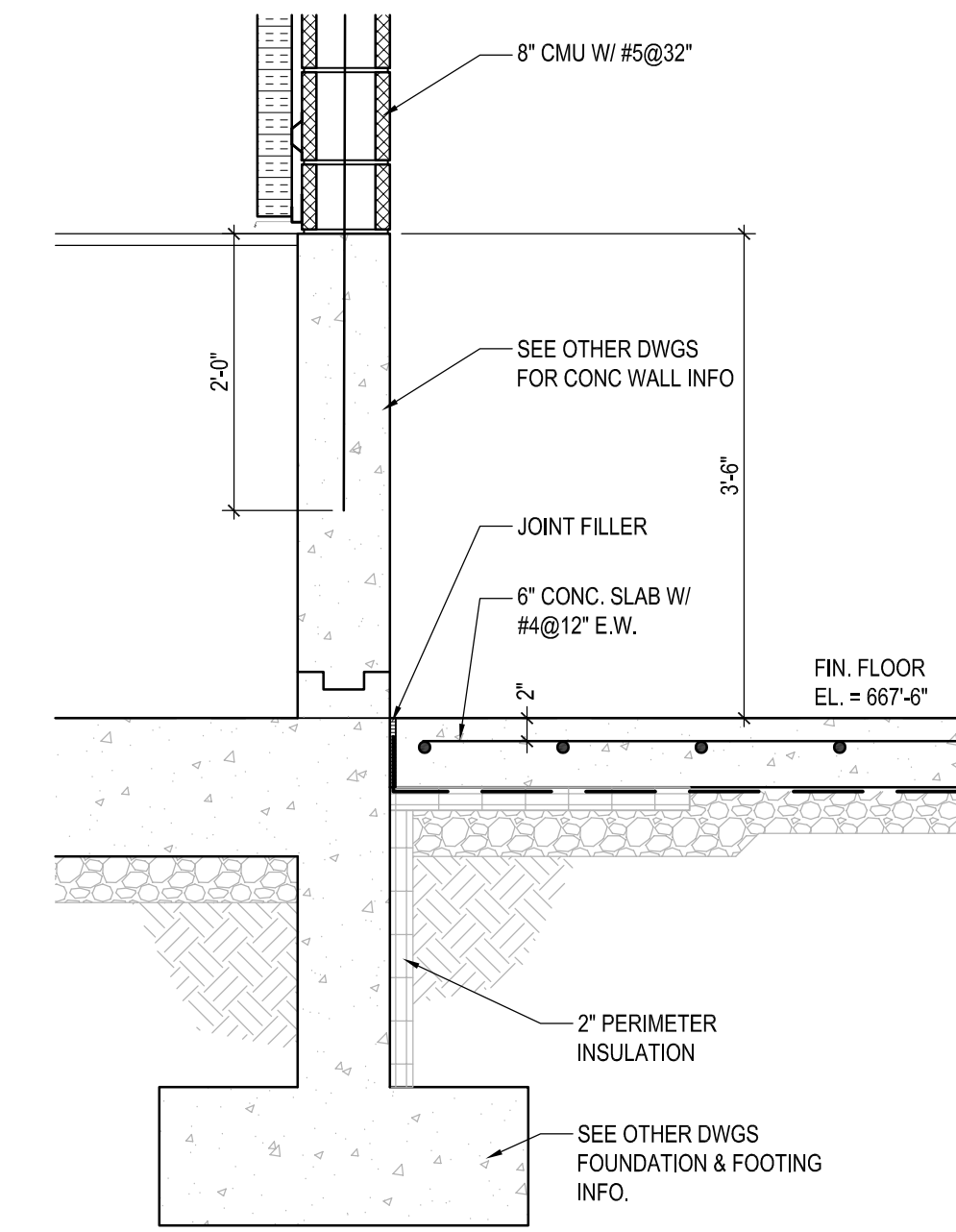
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SCALE: 3/4" = 1'-0"
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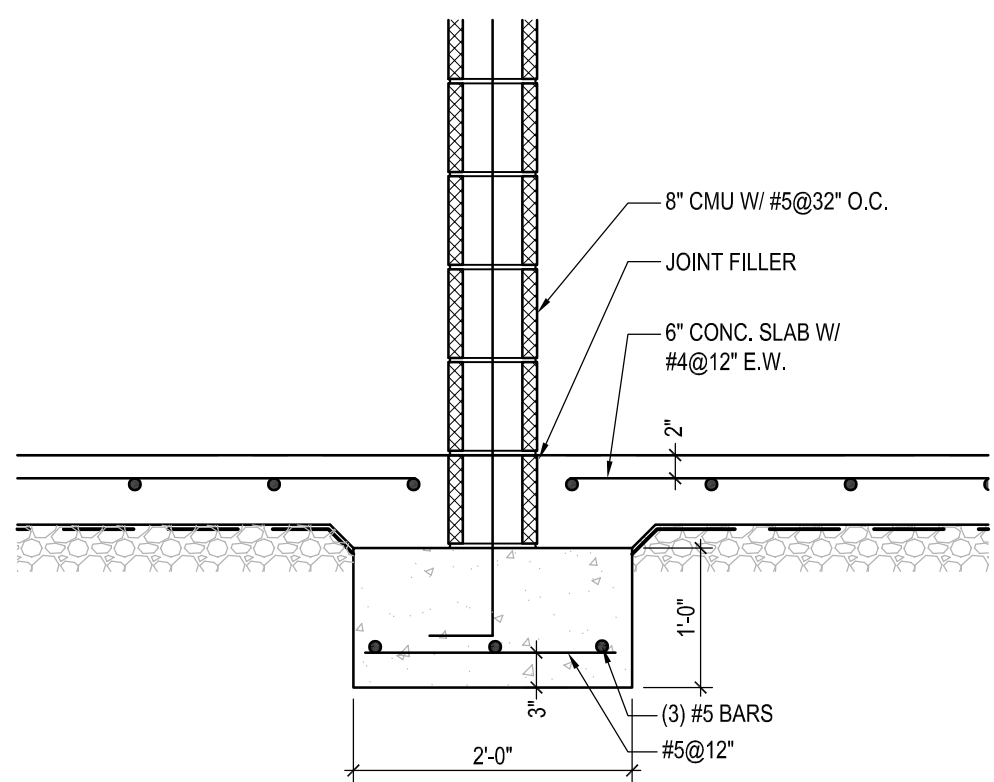
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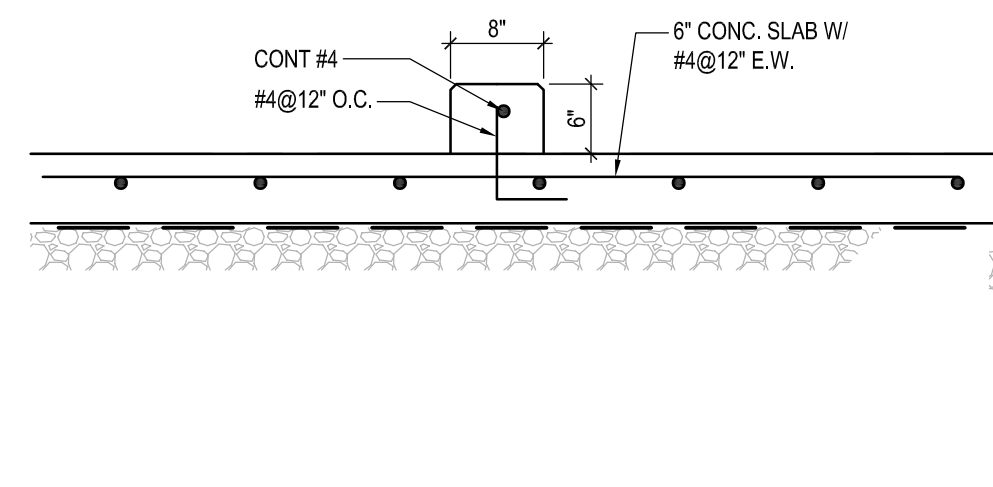
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SCALE: 3/4" = 1'-0"
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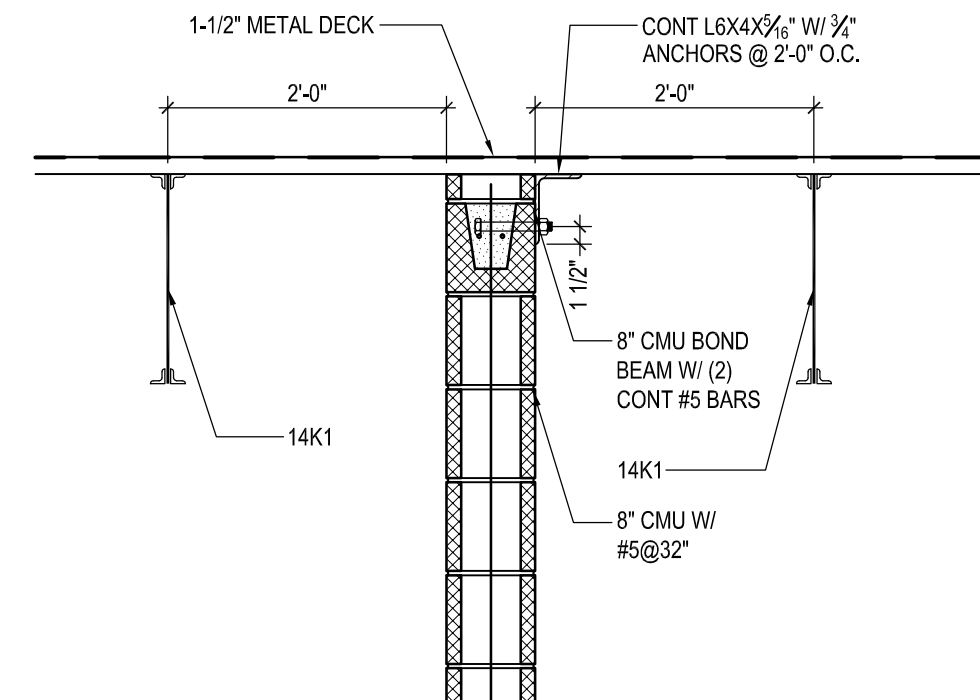
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SCALE: 3/4" = 1'-0"
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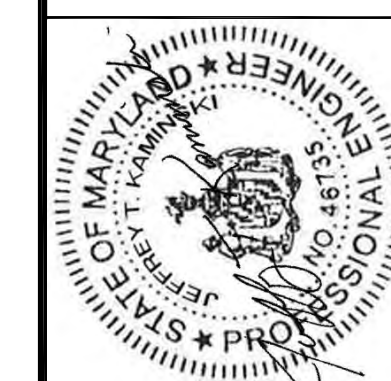
E SECTION
SCALE: 3/4" = 1'-0"
0 1 2 3



F SECTION
SCALE: 3/4" = 1'-0"
0 1 2 3



G SECTION
SCALE: 3/4" = 1'-0"
0 1 2 3

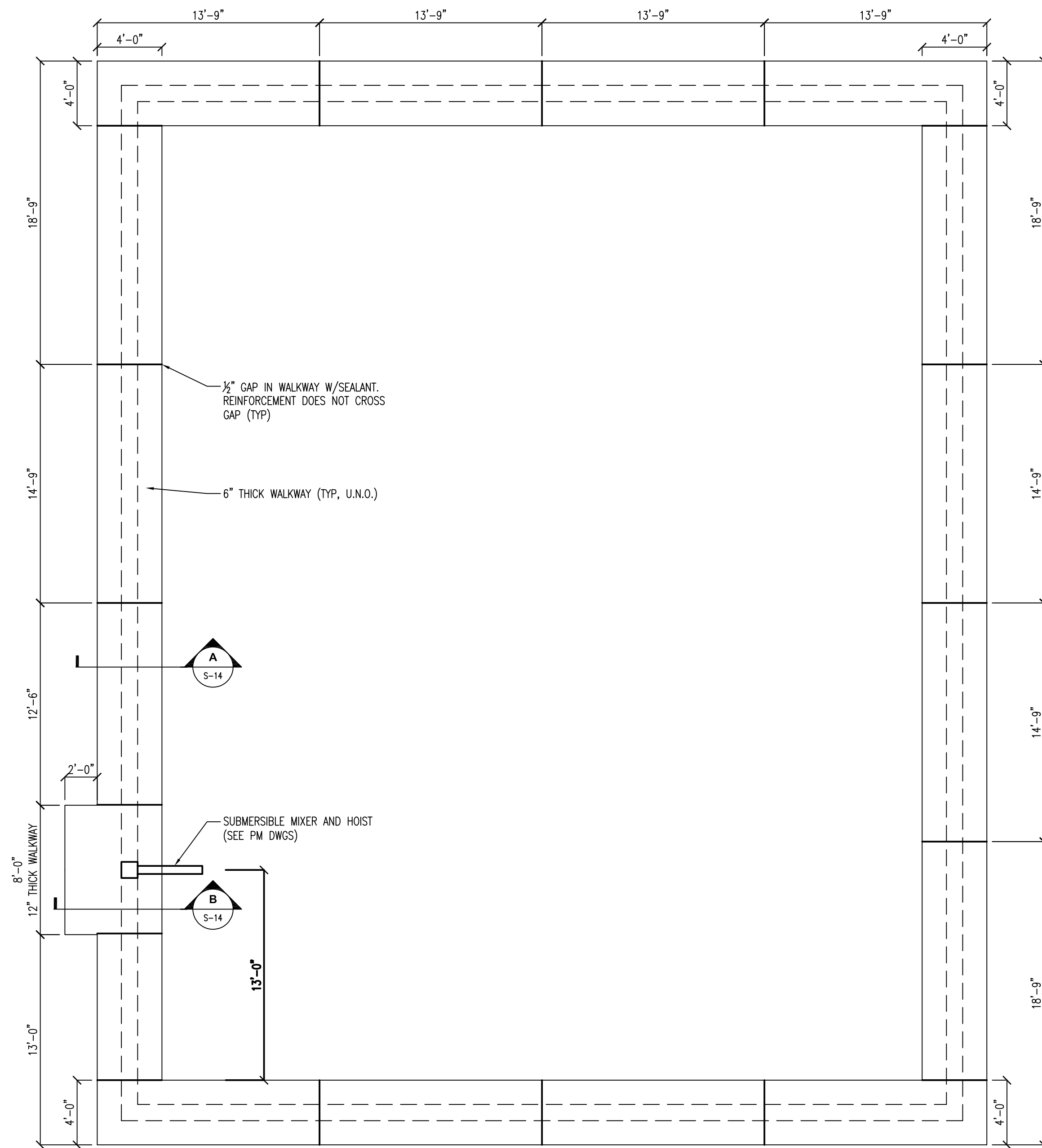


REVISIONS	MARK	ISSUED DATE	DESCRIPTION

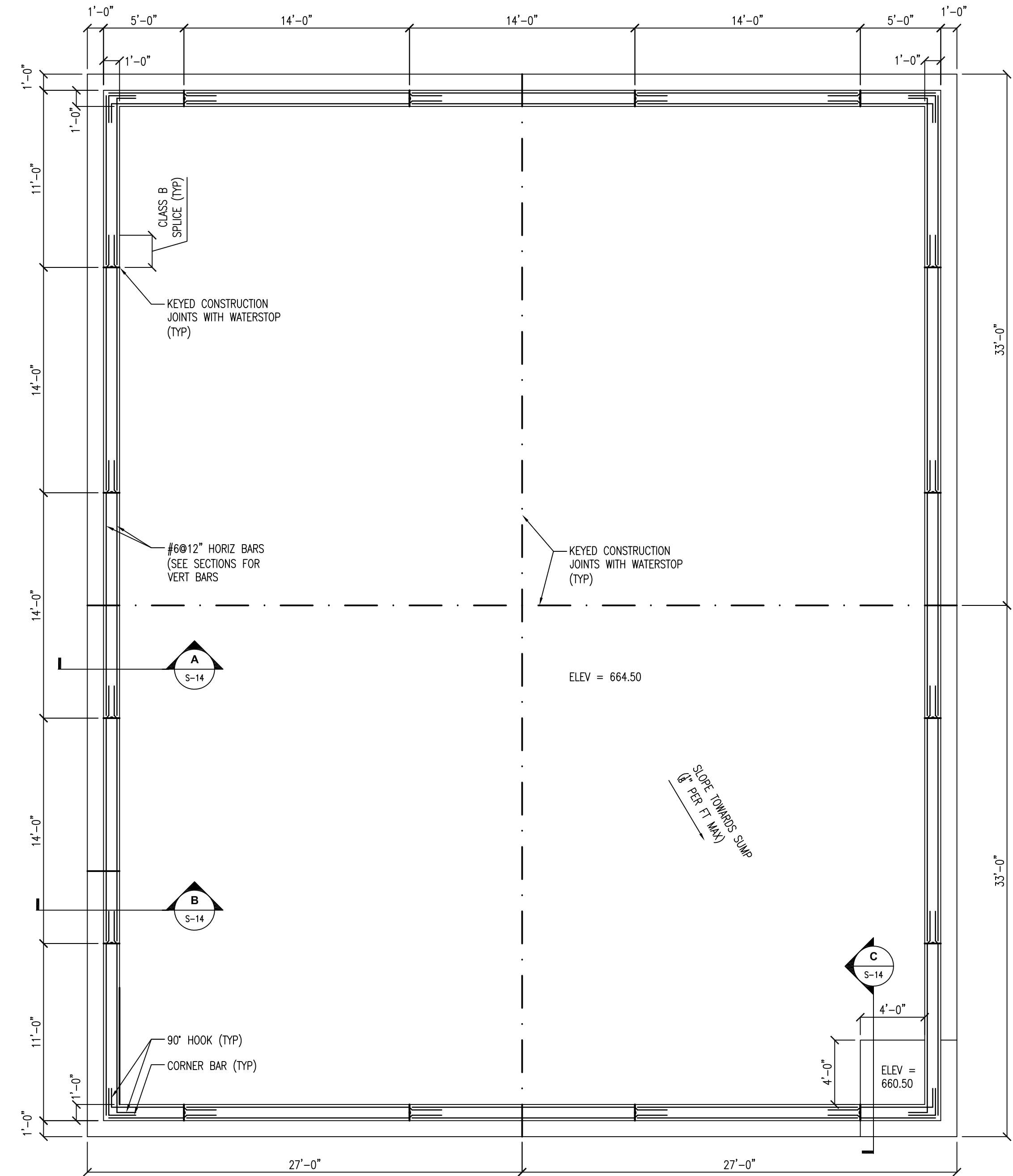
PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	JTK
CHECKED BY:	JTK
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SHEET TITLE:
SECTIONS

P:\PROJECTS\2020\SMITHSBURG WWTP ENR UPGRADE AND EXPANSION\DWG\20210810\20210810_S12_SECTION.dwg



1 UPPER WALL PLAN
SCALE: 1/4" = 1'-0"



1 LOWER WALL/SLAB PLAN
SCALE: 1/4" = 1'-0"



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION

22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY

1632 ELLIOT PARKWAY
WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	JTK
CHECKED BY:	JTK
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SHEET TITLE:
**INFLUENT
EQUALIZATION
TANK PLANS**



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION

22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY

1632 ELLIOT PARKWAY
WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: JTK
CHECKED BY: JTK
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SHEET TITLE:

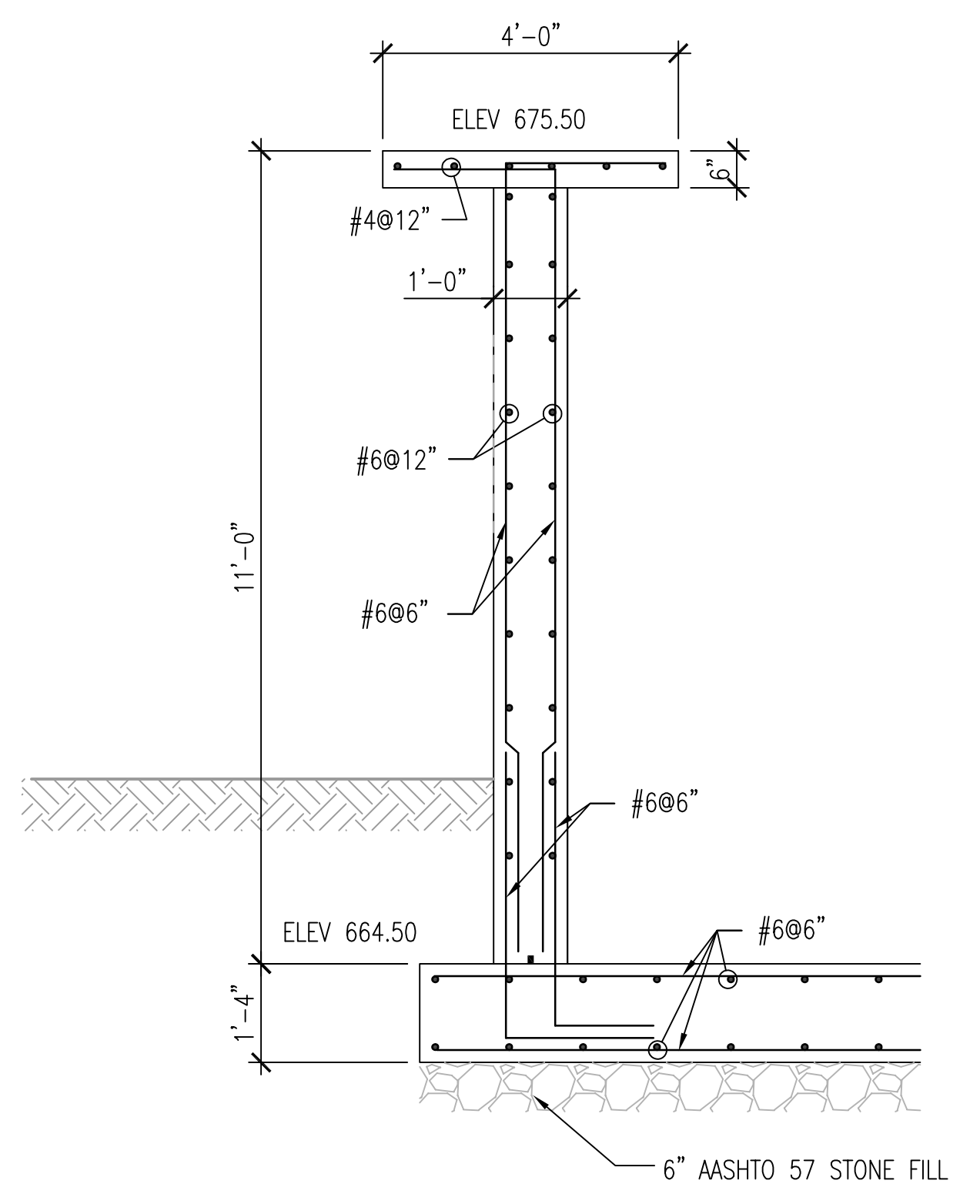
**INFLUENT
EQUALIZATION
SECTIONS**

SHEET NO:

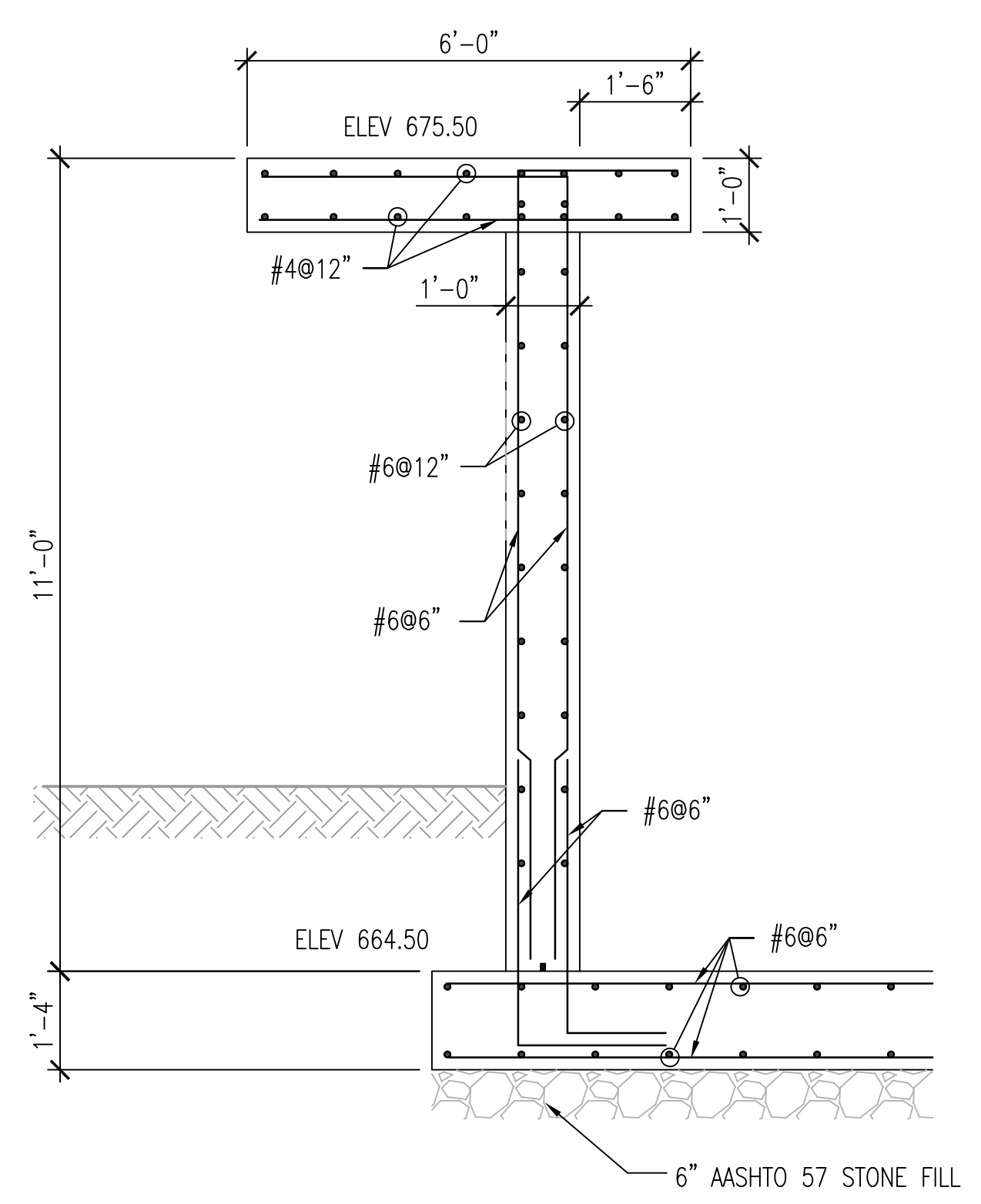
S-14

PROJECT STATUS:

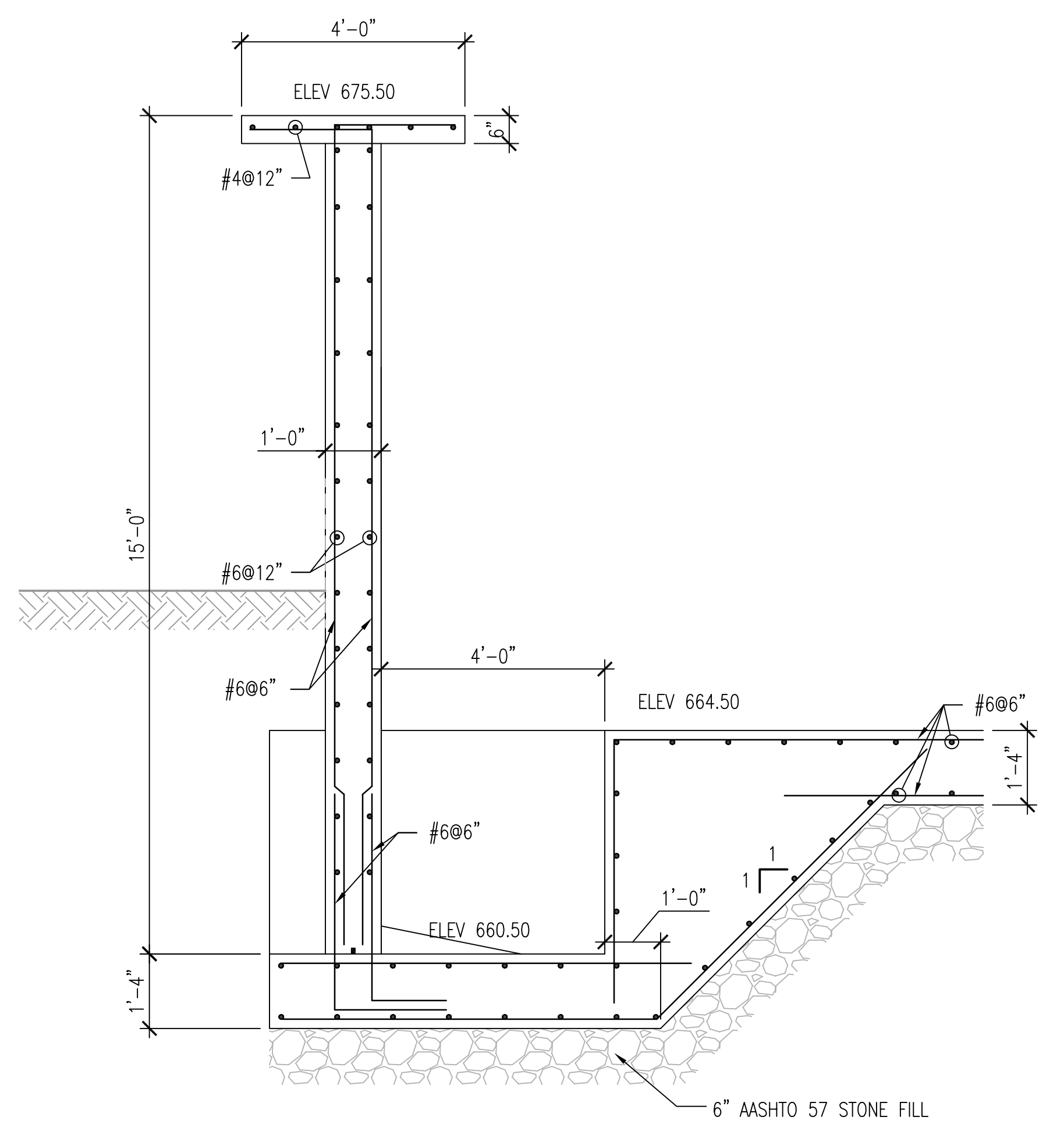
100% SUBMITTAL



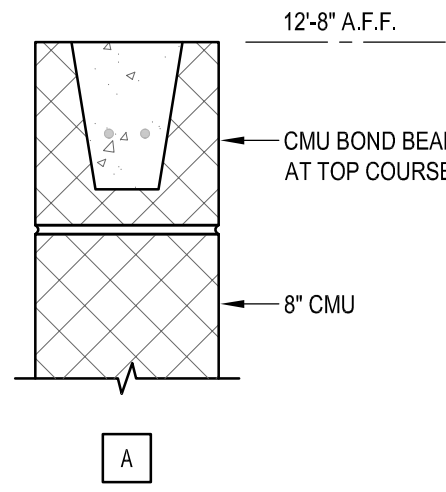
A SECTION
SCALE: 1/2" = 1'-0"
0 1' 2' 4'



B SECTION
SCALE: 1/2" = 1'-0"
0 1' 2' 4'

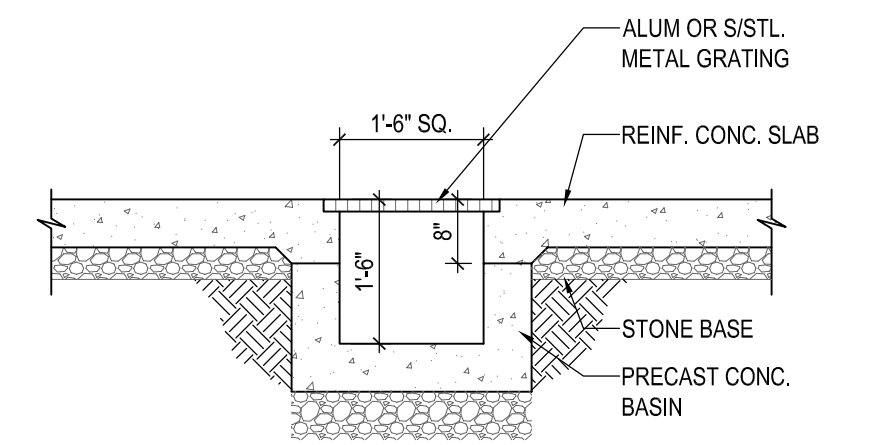
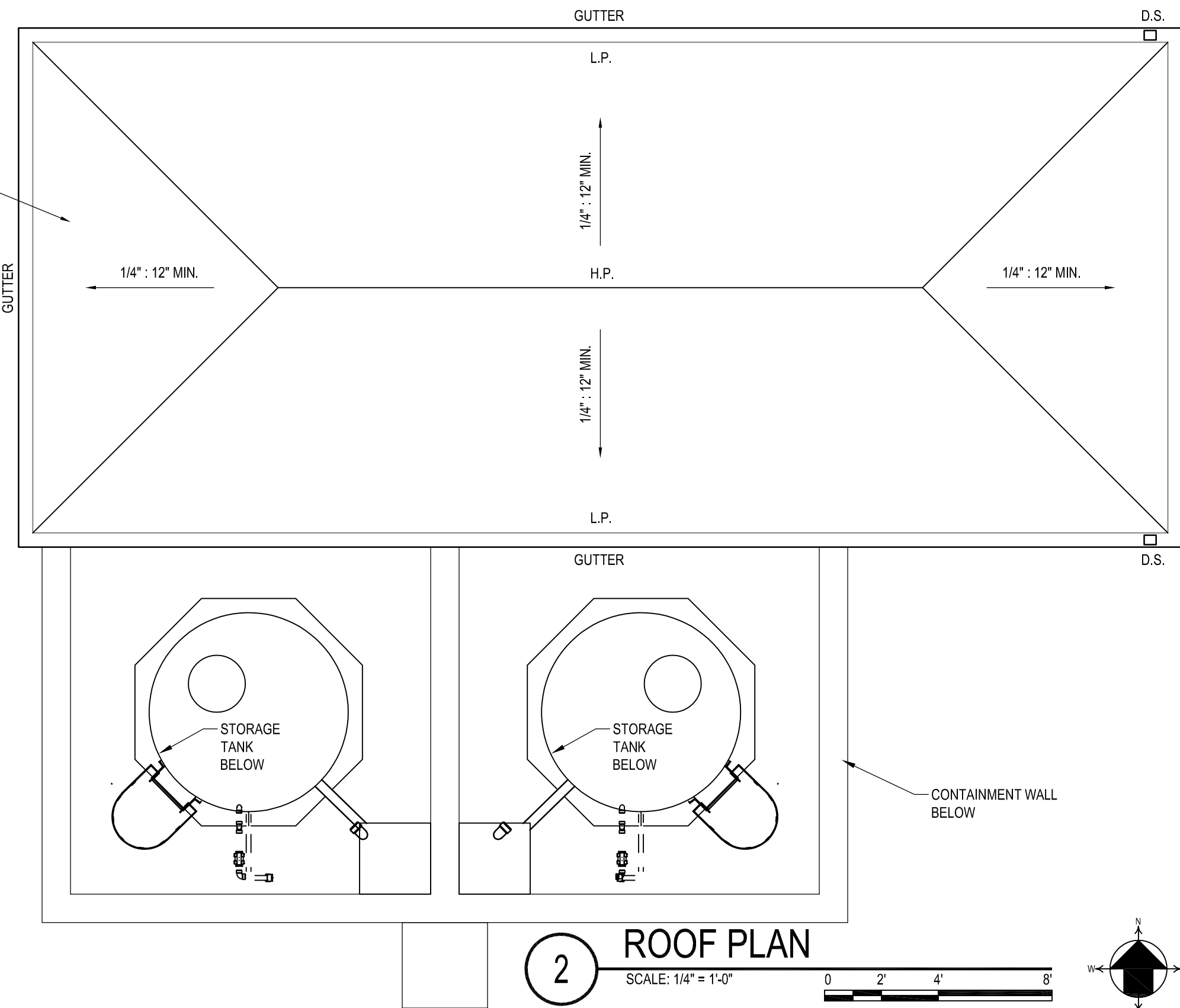


C SECTION
SCALE: 1/2" = 1'-0"
0 1' 2' 4'

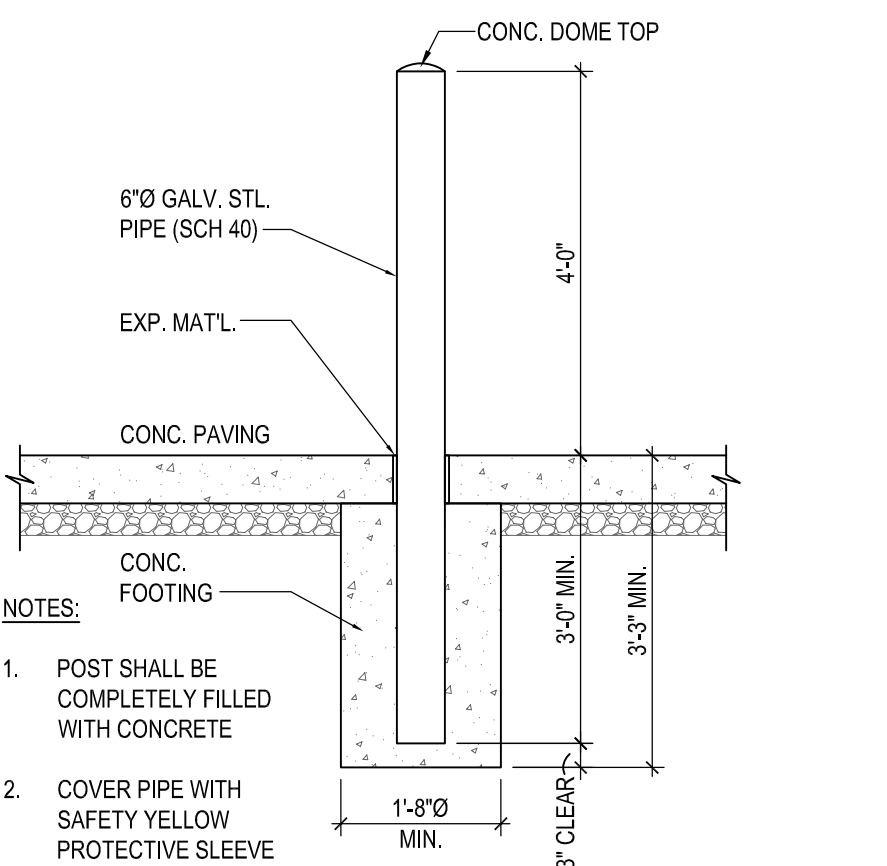


PARTITION TYPES
SCALE: 1 1/2" = 1'-0"

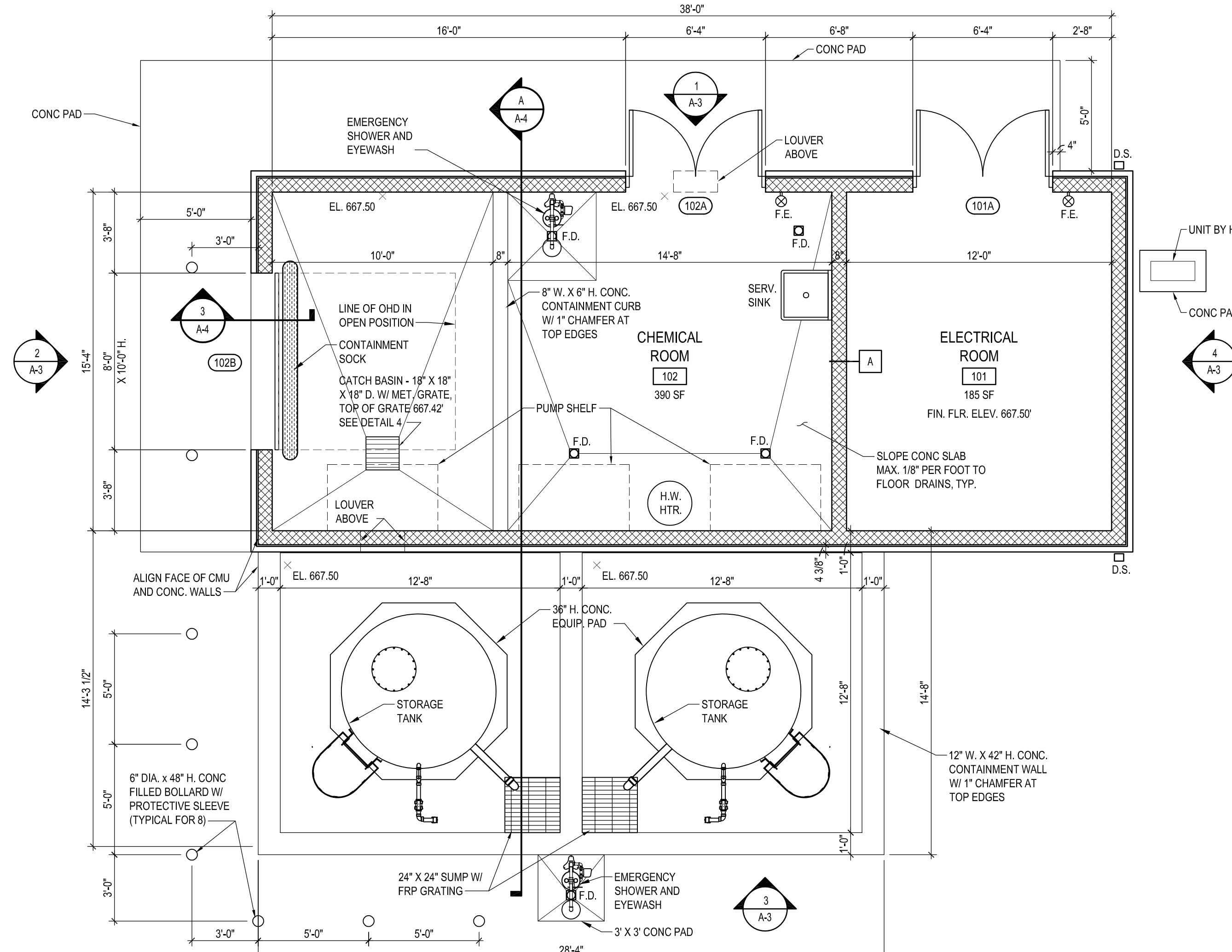
ADHERED MEMBRANE ROOFING ON 1/2" COVER BOARD ON R-30 MIN. TAPERED RIGID INSULATION ON METAL DECK



4 CATCH BASIN DETAIL
SCALE: 1/2" = 1'-0"



3 PIPE BOLLARD DETAIL
SCALE: 1/2" = 1'-0"



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

FLOOR & ROOF PLAN GENERAL NOTES

- A. DO NOT SCALE THE DRAWINGS. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO THE START OF WORK.
- B. FOR SIZE, DEPTH, AND REINFORCING OF NEW FOOTINGS AND FOUNDATION WALLS SEE STRUCTURAL DRAWINGS.
- C. ALL DIMENSIONS OF INTERIOR WALLS ON THE FLOOR PLAN ARE TO MASONRY AND ARE NOMINAL.
- D. ALL INTERIOR PARTITIONS SHALL EXTEND TO THE UNDERSIDE OF THE ROOF DECK.
- E. PROVIDE POSITIVE SLOPE TO ALL FLOOR DRAINS.
- F. D.S. INDICATES DOWNSPOUT
- G. ALL DOWNSPOUTS TO SPILL TO GRADE AND BE PROVIDED WITH SPLASH BLOCK.
- H. CONTRACTOR SHALL VERIFY EXACT SIZE, LOCATION, AND QUANTITY OF ALL HVAC, PLUMBING, AND ELECTRICAL EQUIPMENT AND PENETRATIONS ON THE ROOF PLAN AND PROVIDE FLASHING AS PER THE ROOFING MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.
- I. ROOFING MATERIALS AND ACCESSORIES SHALL BE INSTALLED AS PER THE ROOFING MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS.
- J. PAINT ALL INTERIOR CMU WALLS, EXPOSED STEEL ROOF FRAMING, AND METAL ROOF DECK.

ROOF PLAN LEGEND

- ROOF TOP EQUIPMENT FOR HVAC, PLUMBING AND/OR ELECTRICAL. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION
- DIRECTION OF TAPERED INSULATION ROOF SLOPE (DOWN)
- D.S. □ - DOWNSPOUT
- V ○ - VENT PIPE
- H.P. - HIGH POINT OF ROOF
- L.P. - LOW POINT OF ROOF

CODE INFORMATION

APPLICABLE CODES

- 2015 INTERNATIONAL BUILDING CODE
- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 INTERNATIONAL PLUMBING CODE
- 2015 INTERNATIONAL FIRE CODE
- 2015 INTERNATIONAL ENERGY CONSERVATION CODE
- 2015 INTERNATIONAL FUEL GAS CODE
- 2009 ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

GENERAL BUILDING INFORMATION

302, 312.1	USE GROUP	U - UTILITY
504.3, 504.4	BLDG HEIGHT, STORIES	55'-0", 2 STORIES ALLOWED, 12'-0", 1 STORY PROPOSED
506.2	BUILDING AREA	8,500 SF ALLOWED (NON-SPRINKLER), 580 SF PROPOSED

601 CONSTRUCTION TYPE 2B, NON-COMBUSTIBLE (NON-SPRINKLERED)

903 SPRINKLER SYSTEM NOT REQUIRED

907 FIRE ALARM NOT REQUIRED

TABLE 601 FIRE RESISTANCE RATINGS

PRIMARY STRUCTURAL FRAME	0 HOURS
BEARING WALLS - EXTERIOR	0 HOURS
BEARING WALLS - INTERIOR	0 HOURS
NONBEARING WALLS AND PARTITIONS - EXTERIOR	0 HOURS
NONBEARING WALLS AND PARTITIONS - INTERIOR	0 HOURS
FLOOR CONSTRUCTION AND SECONDARY MEMBERS	0 HOURS
ROOF CONSTRUCTION AND SECONDARY MEMBERS	0 HOURS

1004.1 OCCUPANT LOAD FOR EGRESS = 2 FOR FIXTURES = N/A

1005.1 EGRESS WIDTH PER OCCUPANT - STAIRWAYS = 0.3 INCHES PER OCC. EGRESS WIDTH PER OCCUPANT - OTHER EGRESS ELEMENTS = 0.2 INCHES PER OCC.

1017.2 MAX. EXIT TRAVEL DISTANCE 300' (NON-SPRINKLERED), SEE PLAN FOR ACTUAL

PORTABLE FIRE EXTINGUISHERS

906 REFER TO PLAN FOR LOCATIONS

ENERGY CONSERVATION (2015 IECC)

301.1 CLIMATE ZONE 4A (WASHINGTON COUNTY, MARYLAND)

402.1.3 BUILDING ENVELOPE REQUIREMENTS

ROOF INSULATION

ENTIRELY ABOVE DECK R-30 REQ'D., R-30ci PROVIDED

WALLS ABOVE GRADE

MASS WALLS R-9.5ci REQ'D., R-23.58ci PROVIDED (INSULATED METAL PANEL)

UNHEATED SLAB ON GRADE R-10 REQ'D., R-10 PROVIDED (FOR 24" BELOW)

NON-SWINGING OPAQUE DOORS R-4.75 REQ'D.

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	ALH
CHECKED BY:	ALH

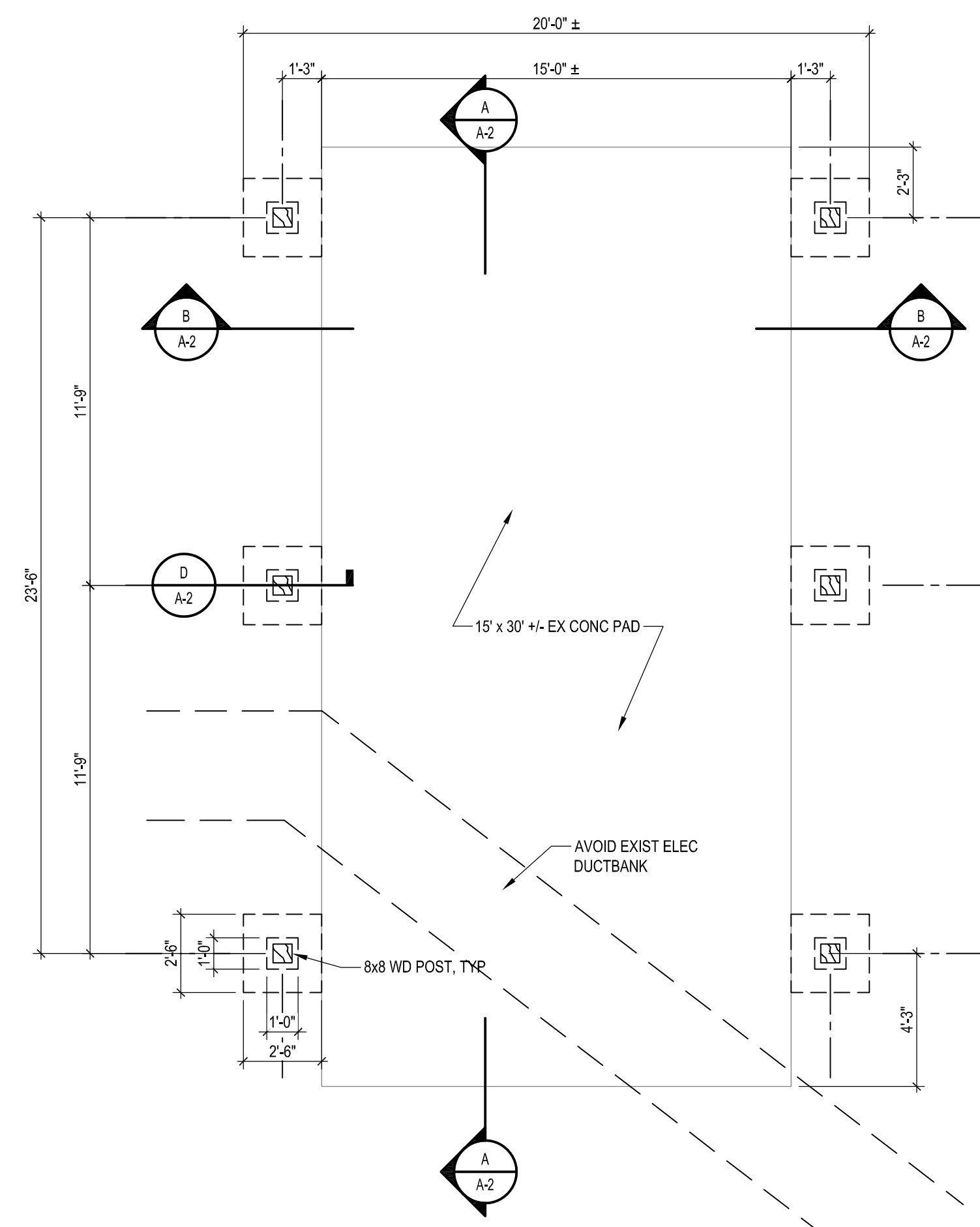
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SHEET TITLE:

FLOOR AND ROOF PLANS

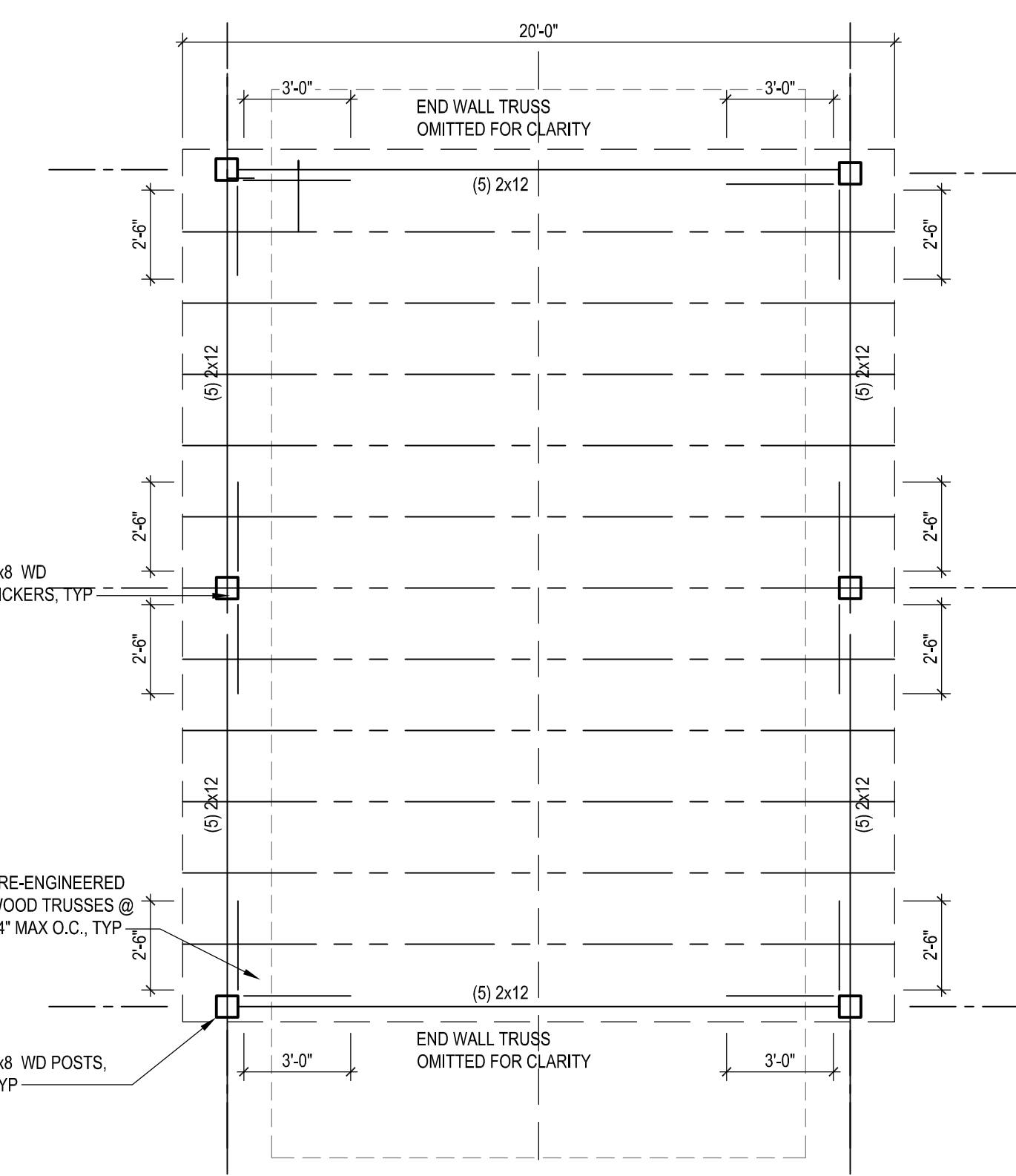
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	ALH
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SHEET TITLE:	

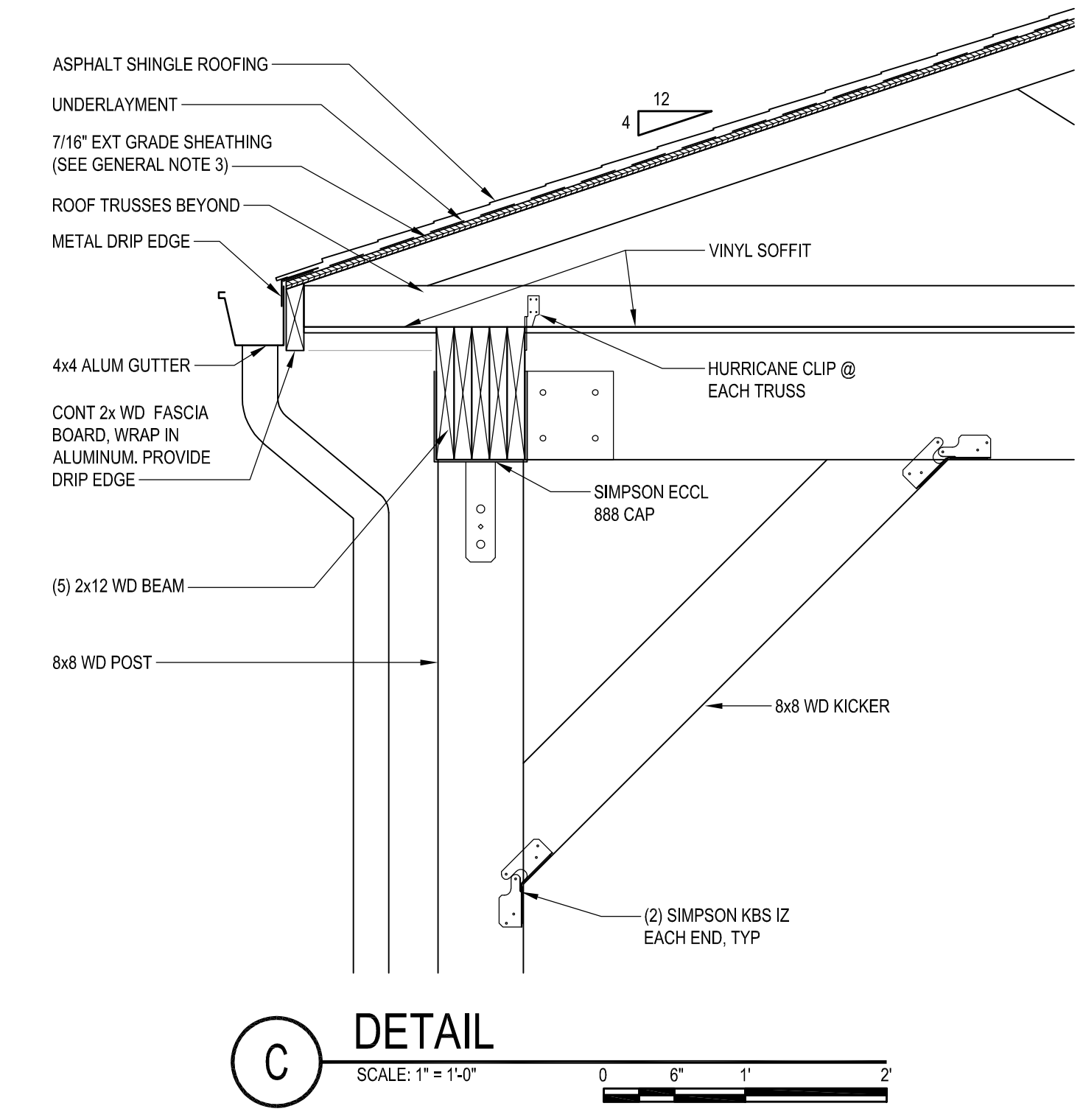
BAR SCREEN PAVILION PLANS, SECTIONS, AND DETAILS



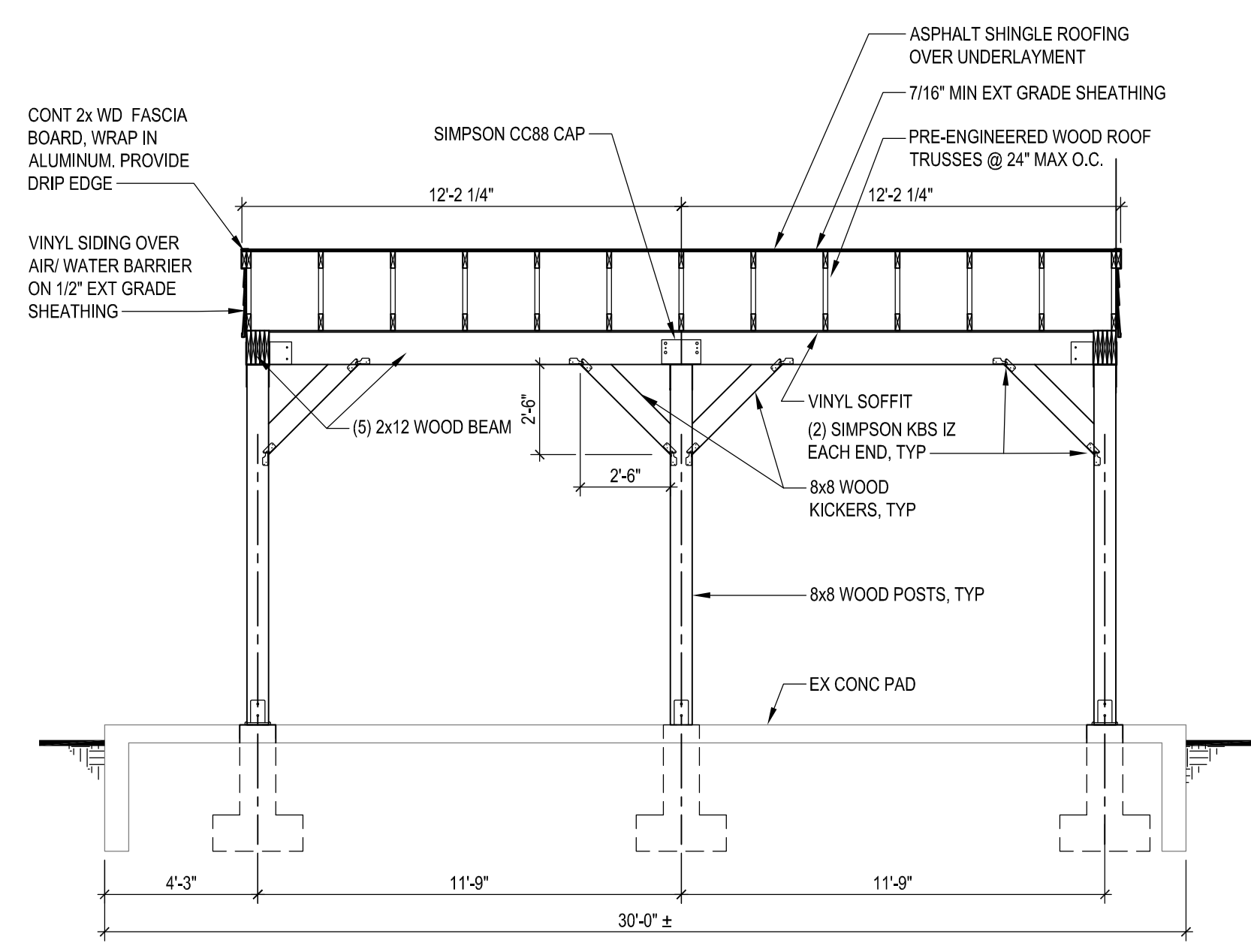
1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



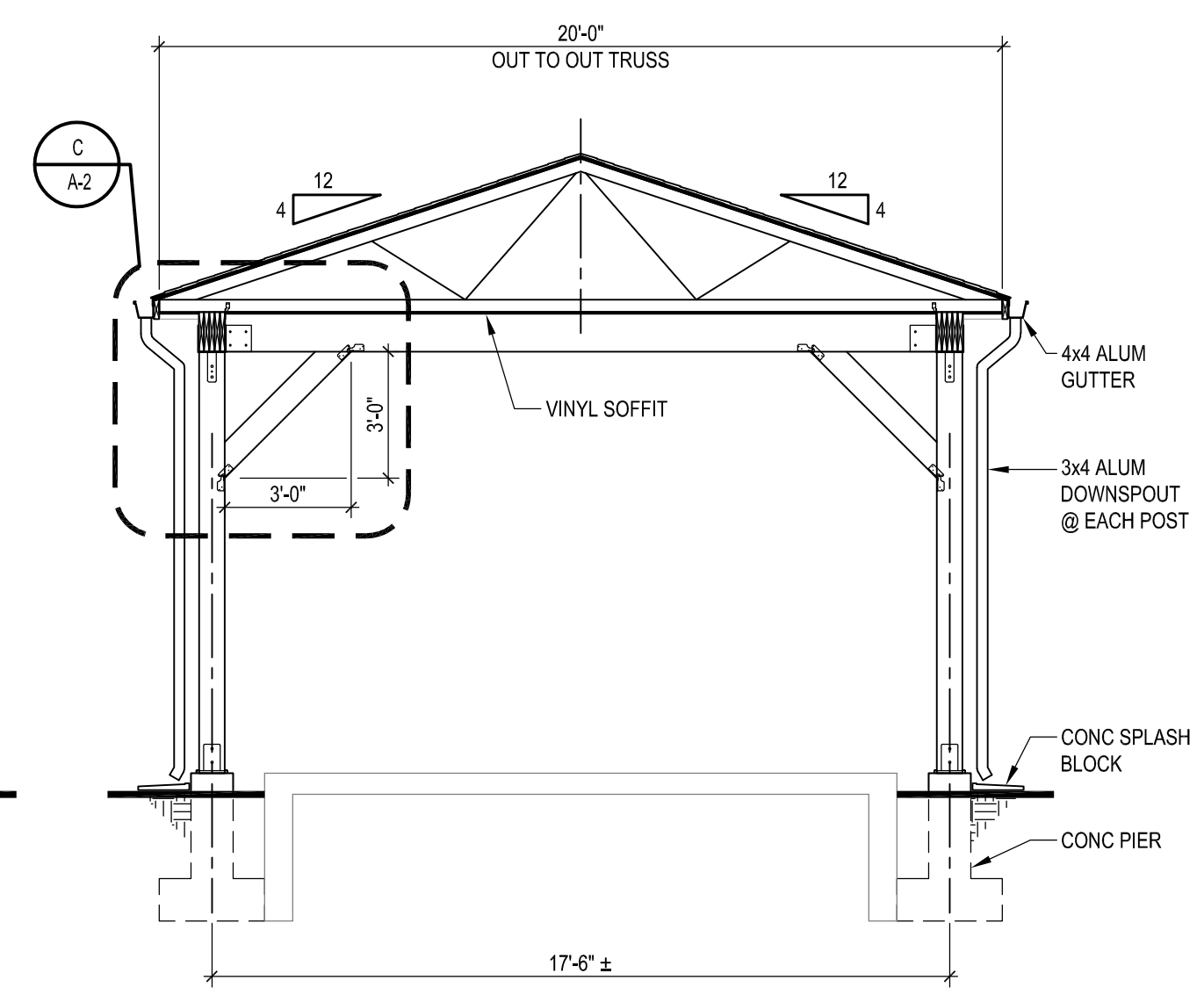
2 FRAMING PLAN
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



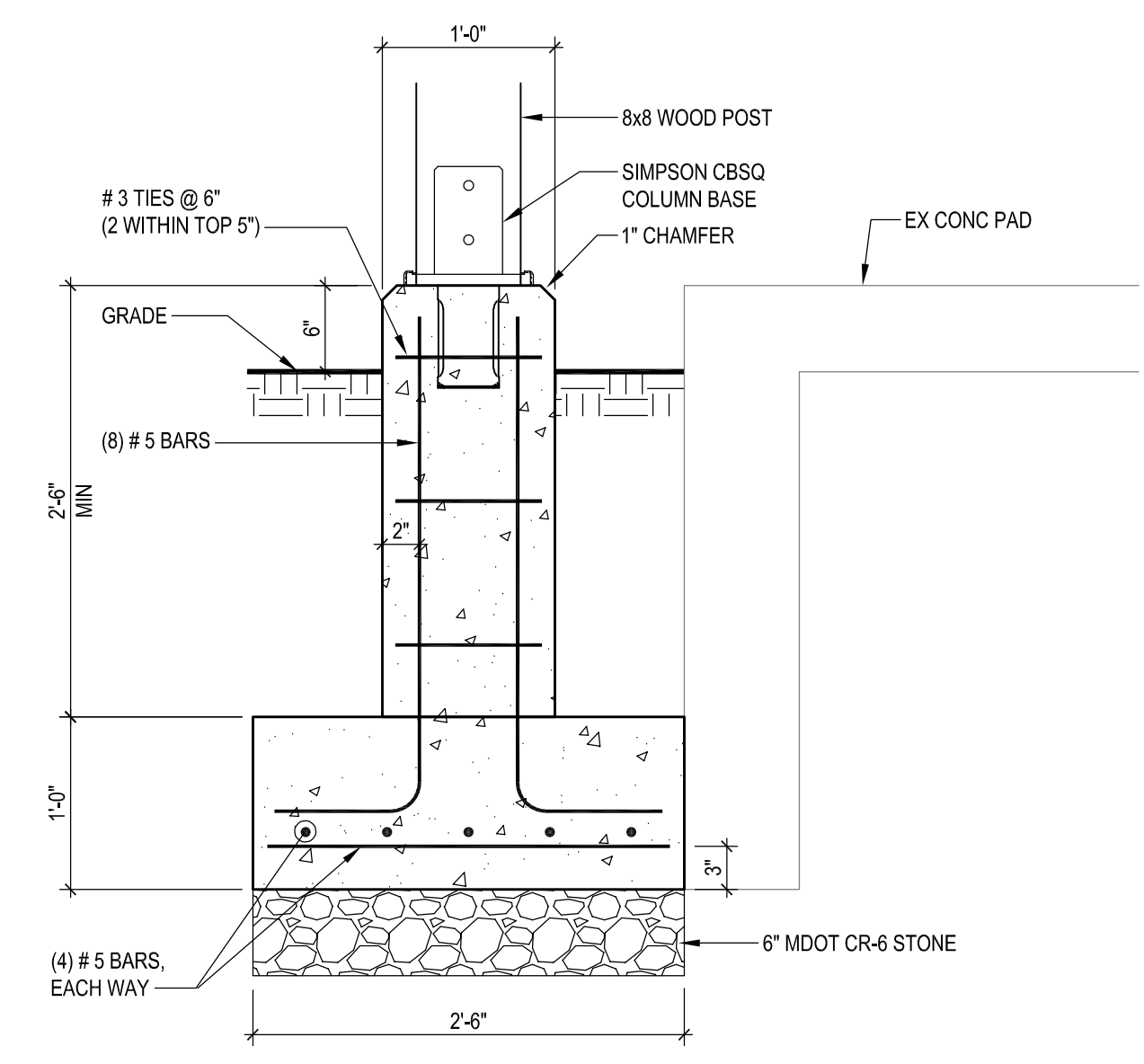
C DETAIL
SCALE: 1" = 1'-0"
0 6" 1' 2'



A SECTION
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



B SECTION
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



D FOOTING DETAIL
SCALE: 1" = 1'-0"
0 6" 1' 2'

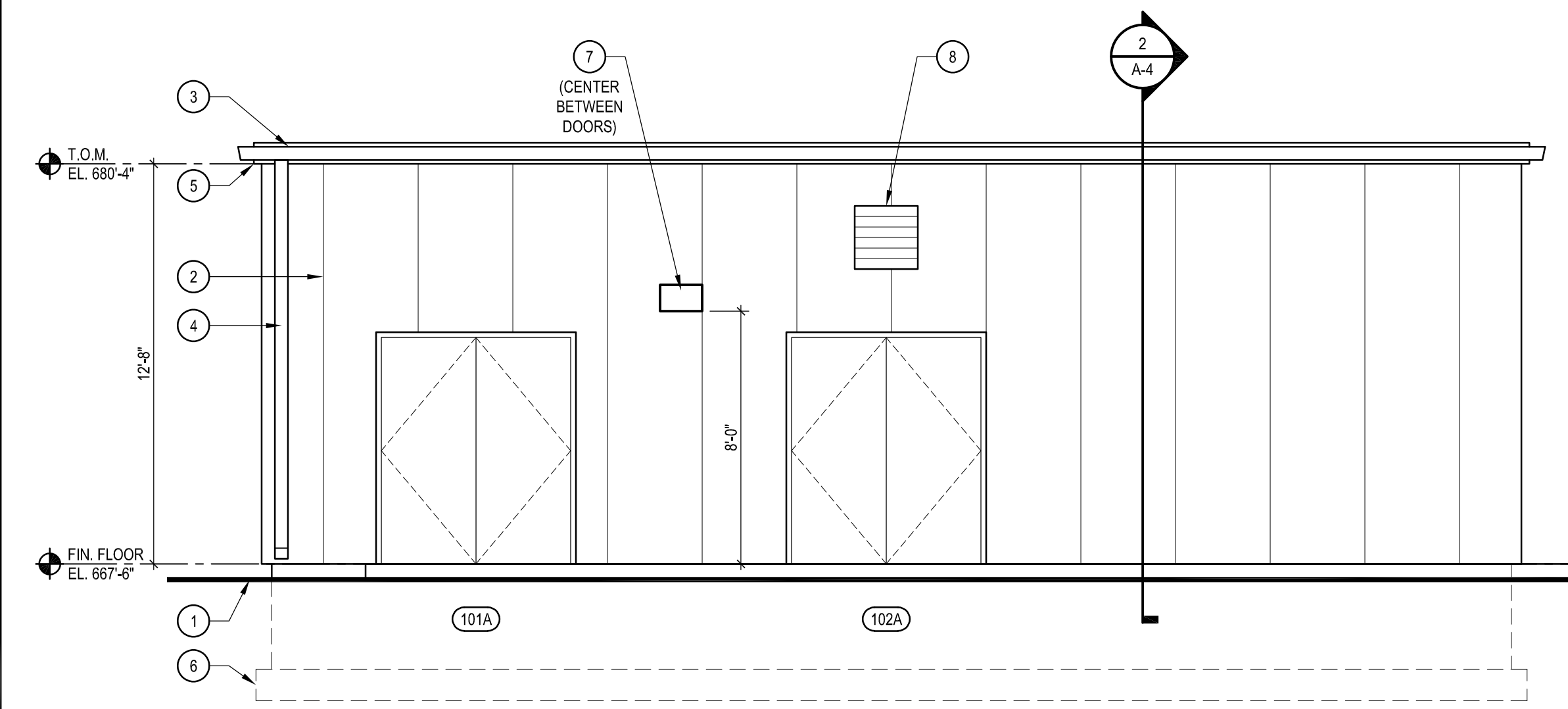
- GENERAL NOTES:**
- ALL WOOD FRAMING SHALL BE PRESSURE TREATED EXCLUDING TRUSSES.
 - ALL SIMPSON WOOD CONNECTORS INCLUDING SCREWS, NAILS FOR ATTACHMENT SHALL BE GALVANIZED.
 - ANCHOR ROOF SHEATHING USING 0.131 MIN DIA SCREWS @ 6" O.C. AT EDGES AND 12" O.C. @ INTERMEDIATE SUPPORTS

EXTERIOR ELEVATION GENERAL NOTES

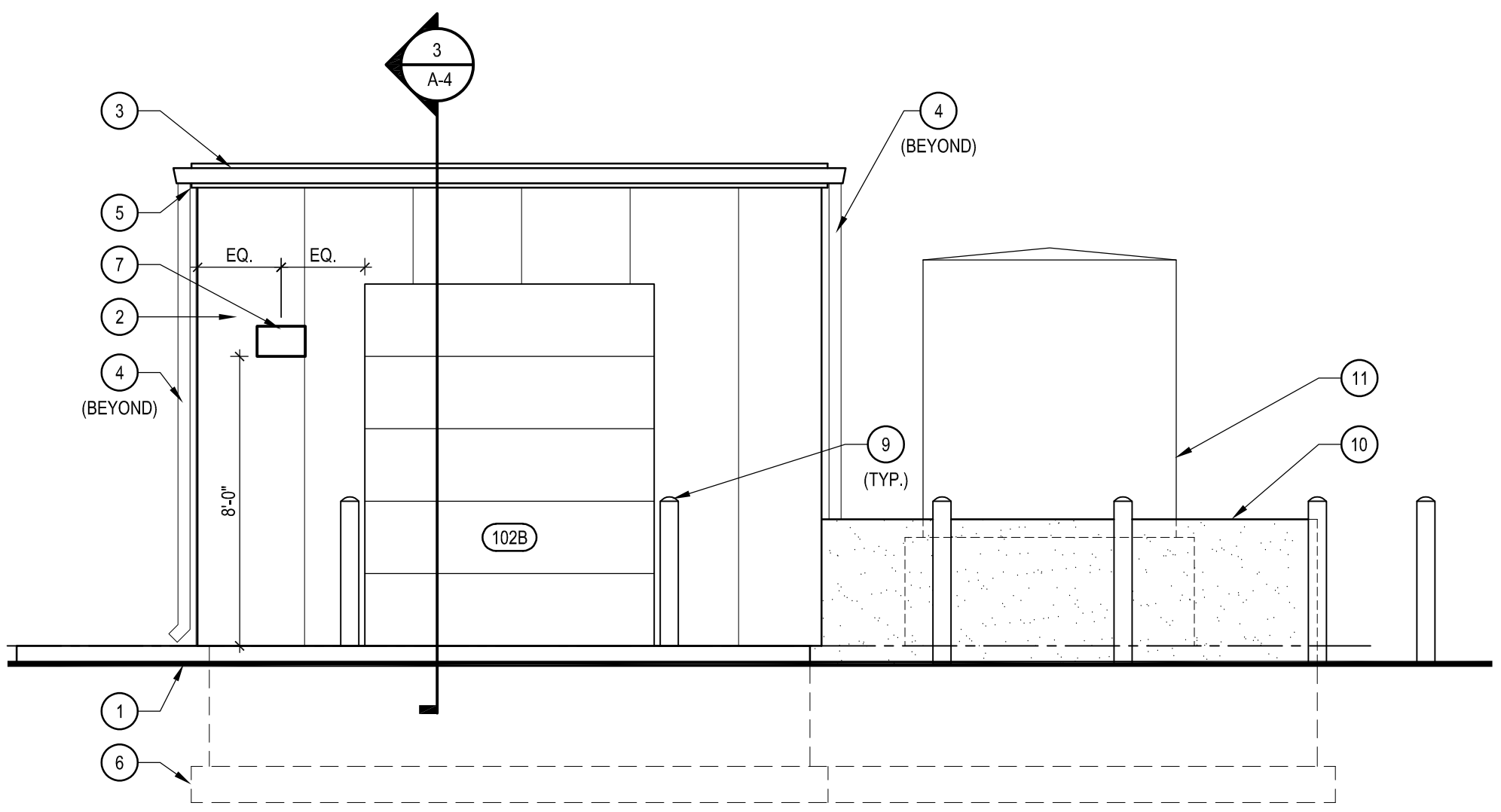
- A. DO NOT SCALE THE DRAWINGS. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS PRIOR TO THE START OF WORK.
- B. FOR SIZE, DEPTH, AND REINFORCING OF NEW FOOTINGS AND FOUNDATION WALLS SEE STRUCTURAL DRAWINGS.
- C. ALL DOWNSPOUTS TO SPILL TO GRADE AND BE PROVIDED WITH SPLASH BLOCK.

EXTERIOR ELEVATION KEY NOTES

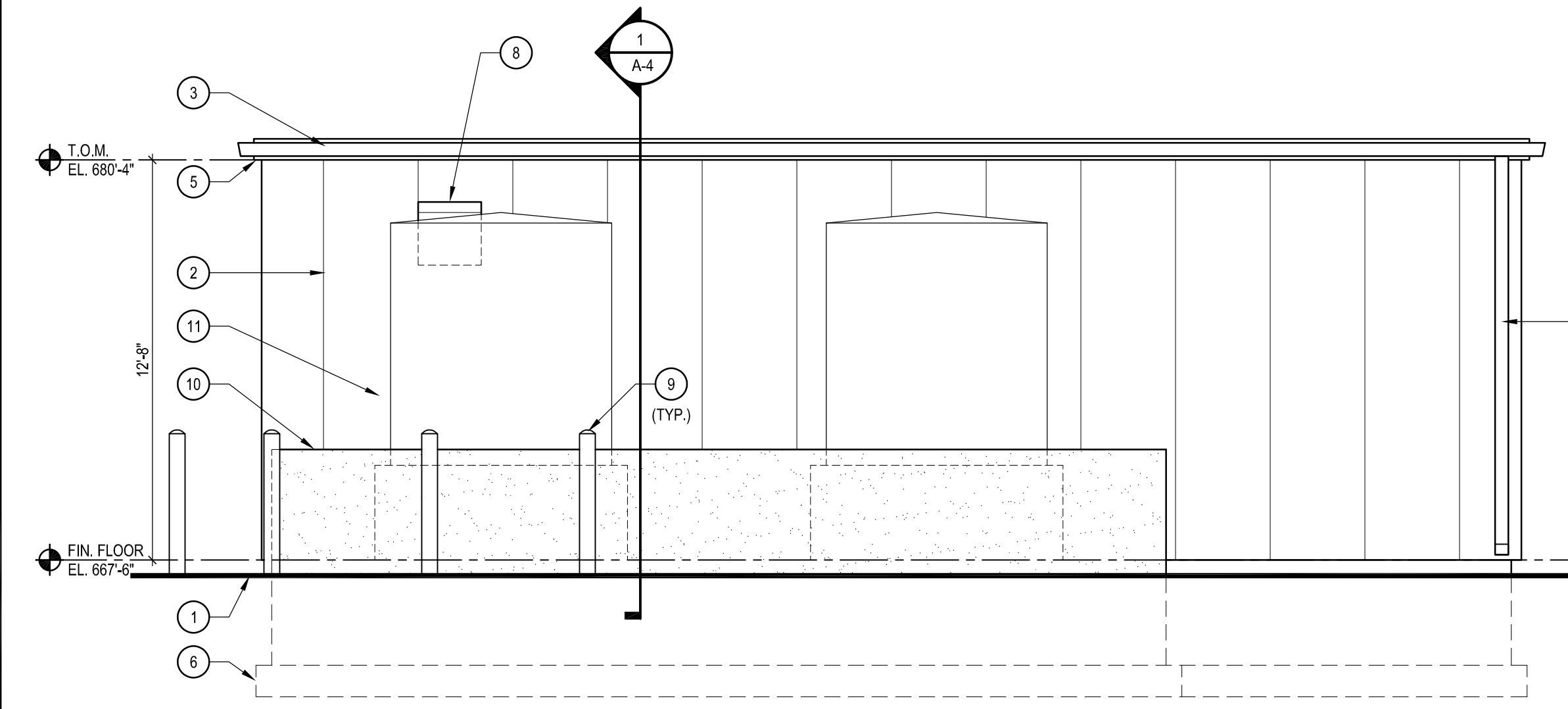
- 1. FINISHED GRADE - SEE SITE DRAWINGS
- 2. INSULATED METAL PANEL WALL SYSTEM
- 3. METAL GUTTER
- 4. METAL DOWNSPOUT
- 5. METAL FASCIA
- 6. CMU FOUNDATION WALL AND CONCRETE FOOTING, SEE STRUCTURAL DRAWINGS
- 7. SURFACE MOUNTED LIGHT FIXTURE BY E.C. SEE ELECTRICAL DRAWINGS
- 8. ALUMINUM LOUVER W/ BIRD SCREEN, COORDINATE W/ MECHANICAL DRAWINGS
- 9. 6" Ø X 48" H. CONCRETE FILLED BOLLARD W/ PROTECTIVE SLEEVE
- 10. 12" W. X 42" H. CONCRETE CONTAINMENT WALL W/ 1" CHAMFER AT TOP EDGES
- 11. STORAGE TANK



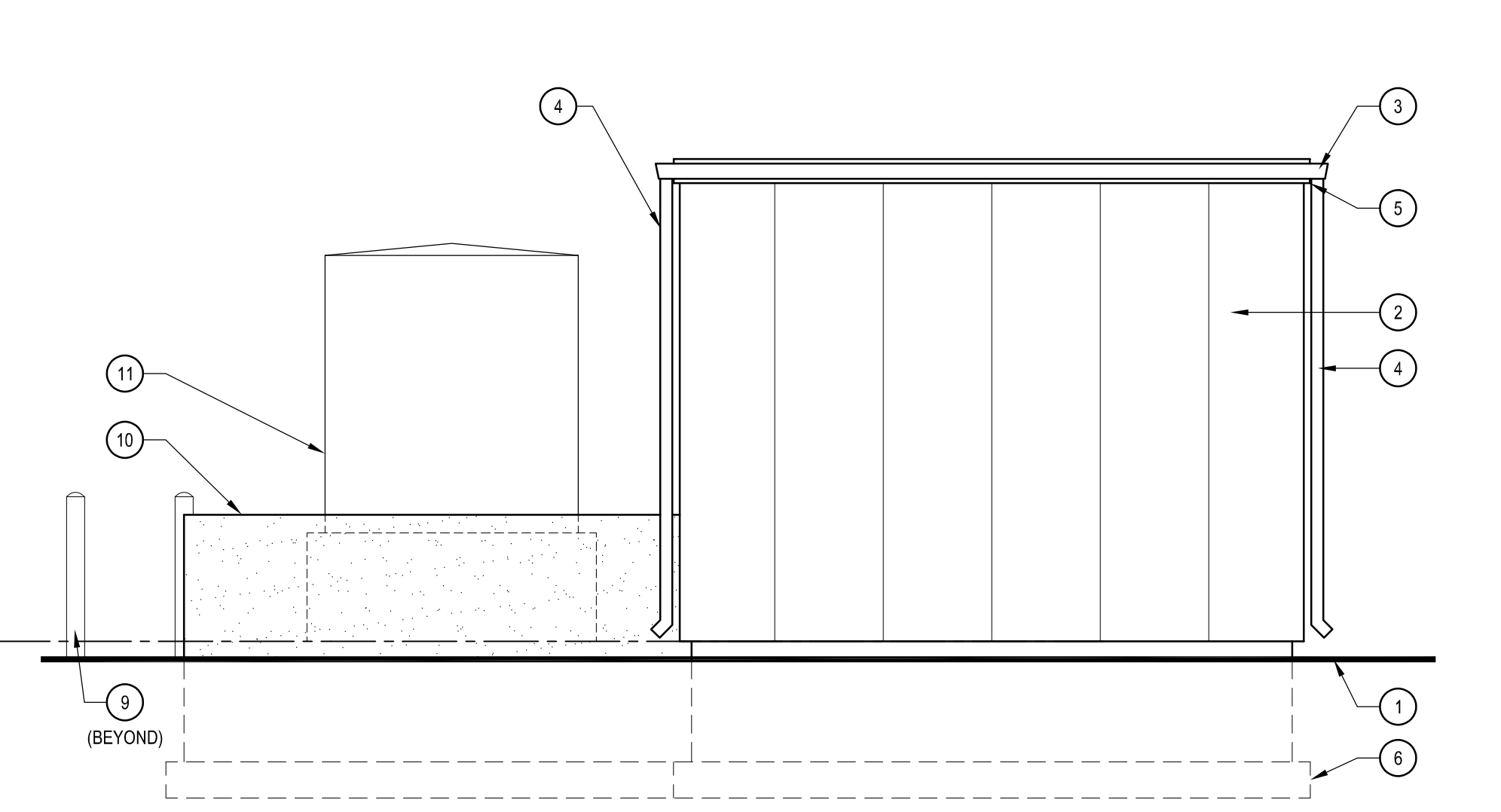
1 NORTH ELEVATION
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



2 WEST ELEVATION
SCALE: 1/4" = 1'-0"
0 2' 4' 8'

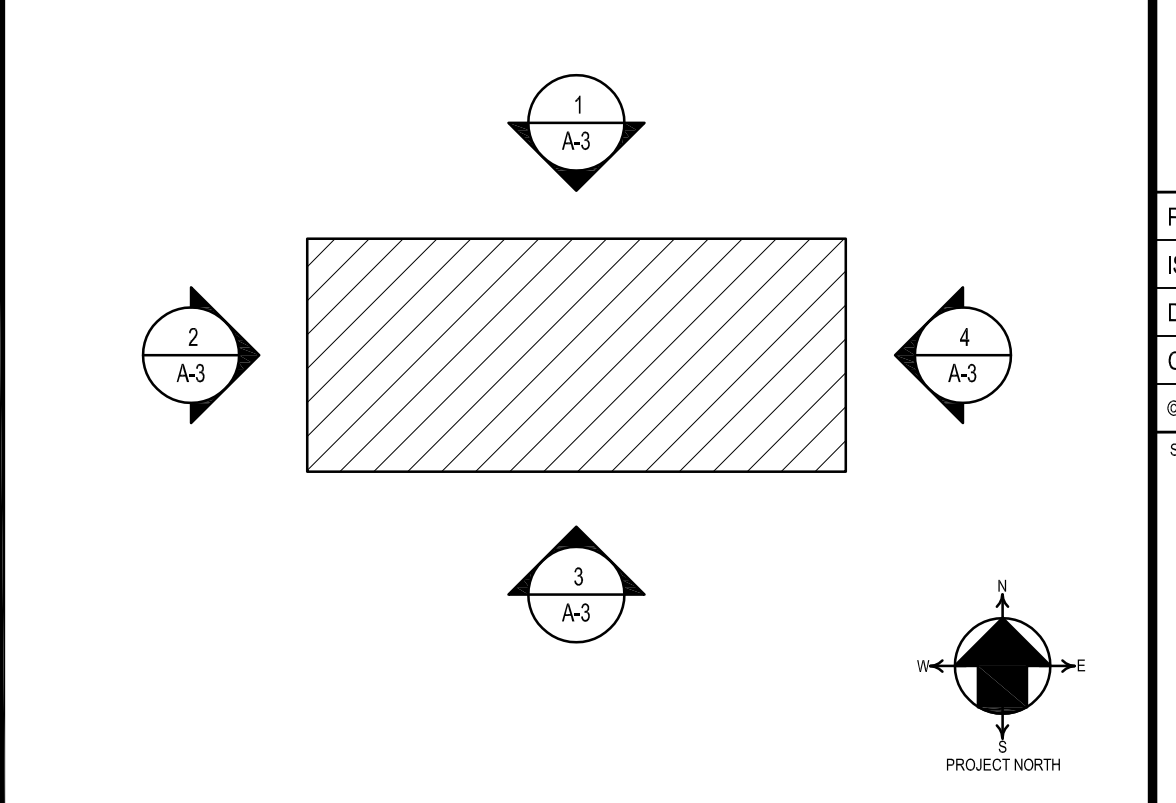


3 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"
0 2' 4' 8'



4 EAST ELEVATION
SCALE: 1/4" = 1'-0"
0 2' 4' 8'

KEY PLAN



REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: ALH
CHECKED BY: ALH
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SHEET TITLE:

EXTERIOR ELEVATIONS

PROJECT STATUS: **100% SUBMITTAL**

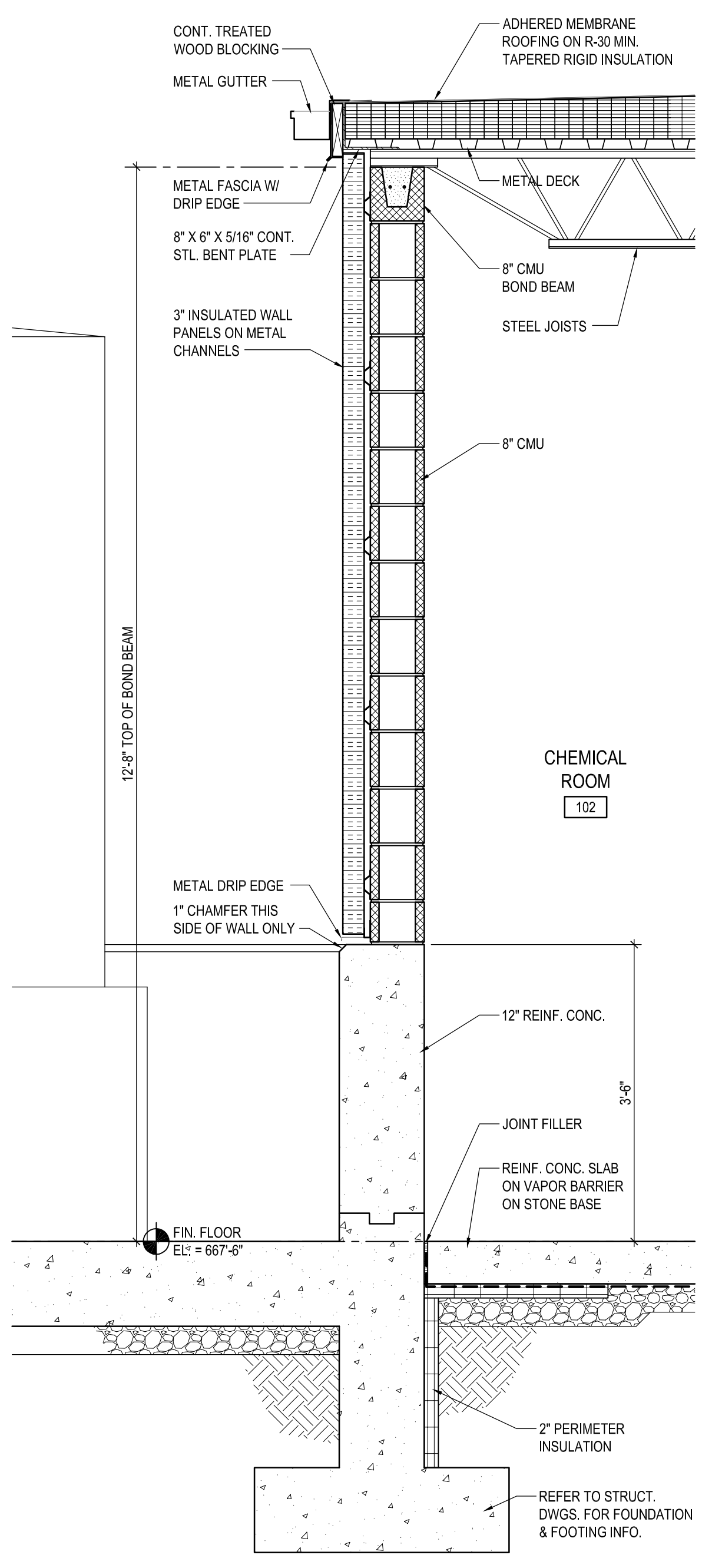
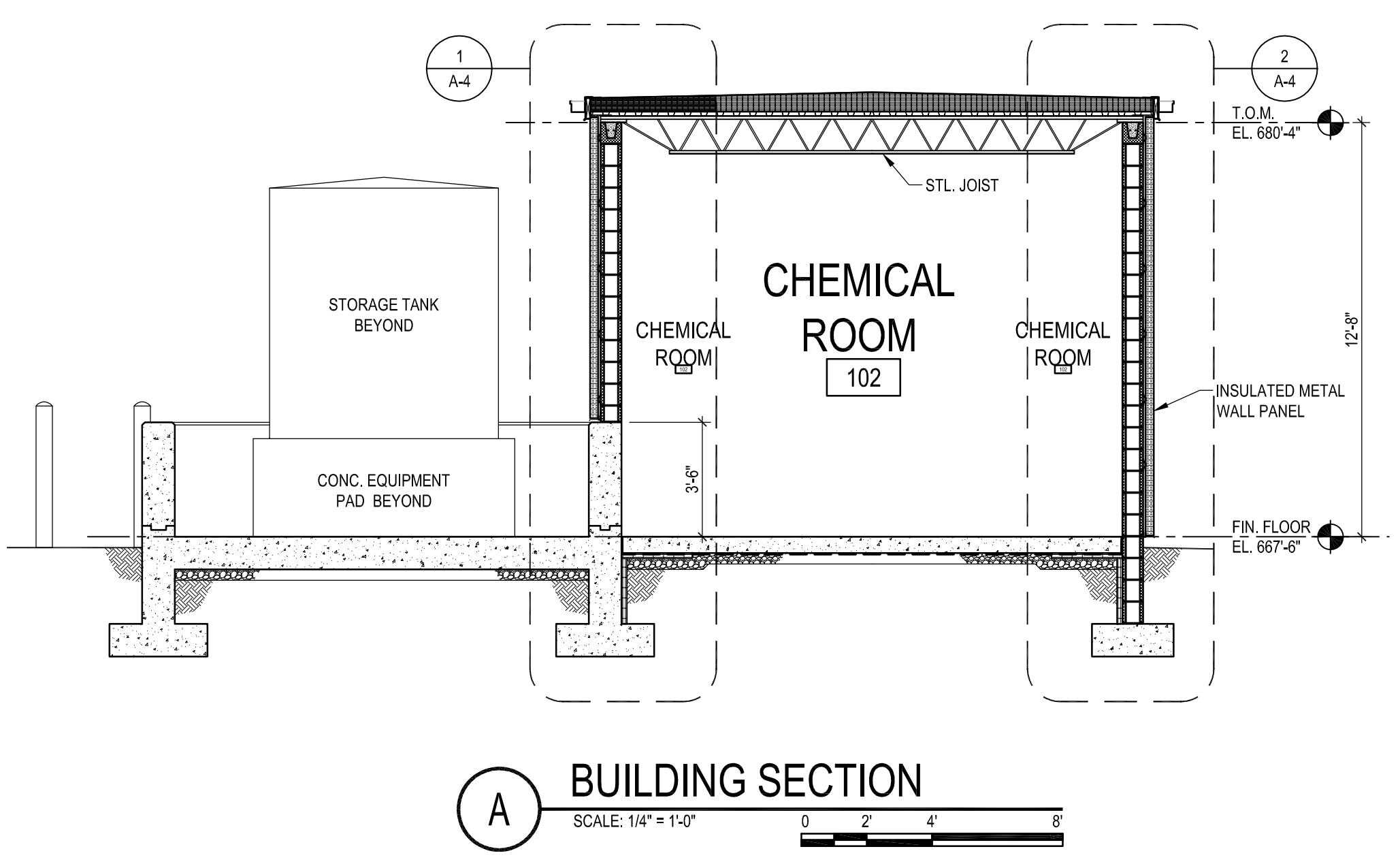
SHEET NO: **A-3**

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

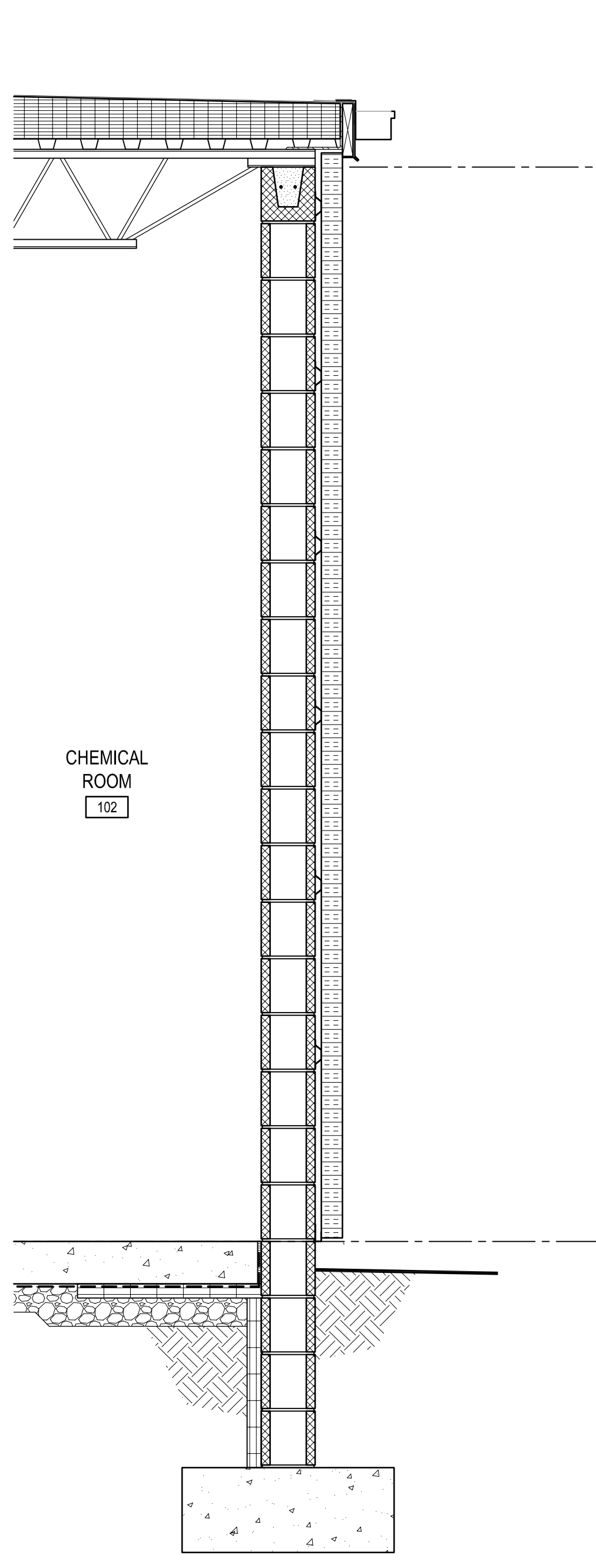
PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: ALH
CHECKED BY: ALH
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SHEET TITLE:

PROJECT STATUS: **100% SUBMITTAL**

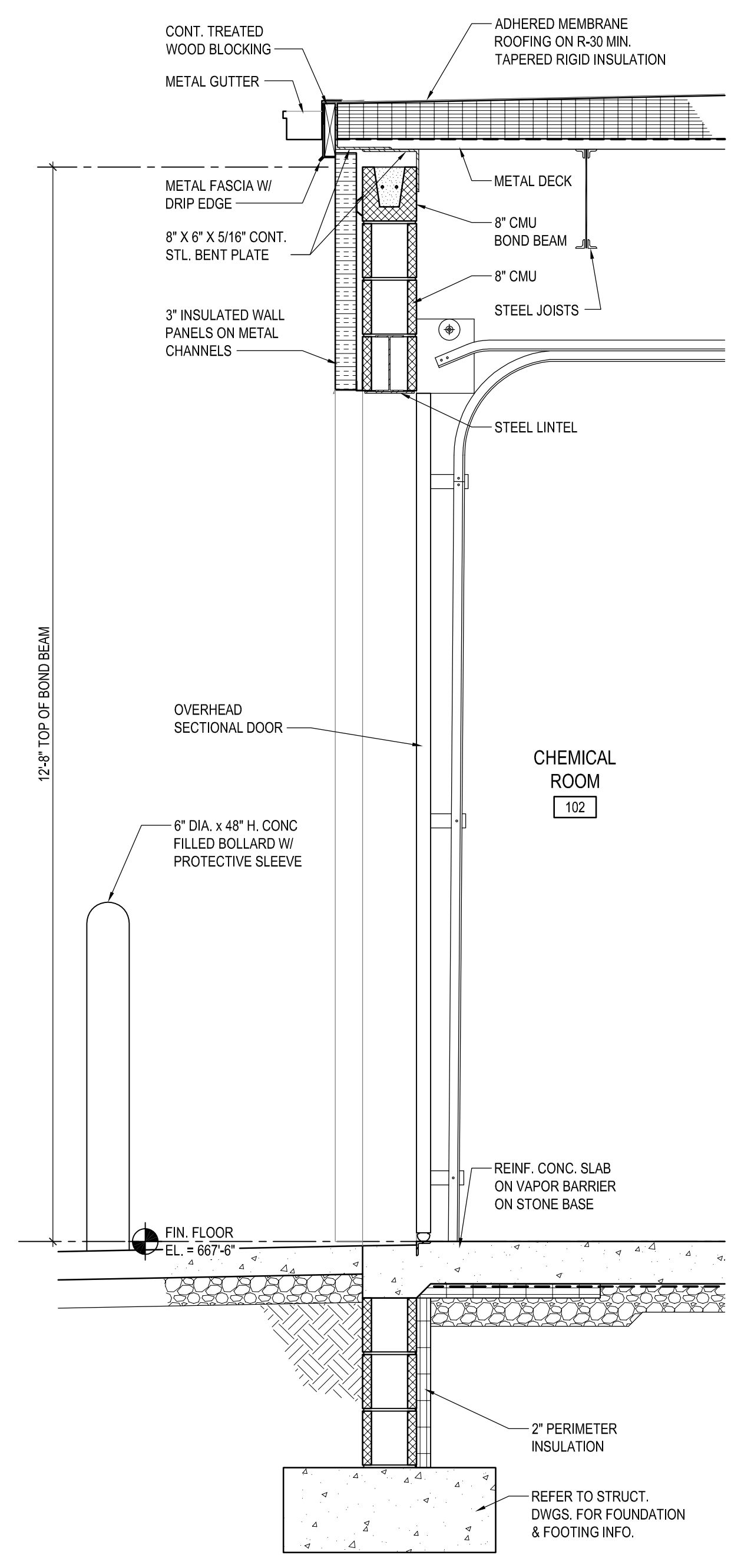
SHEET NO: **A-4**



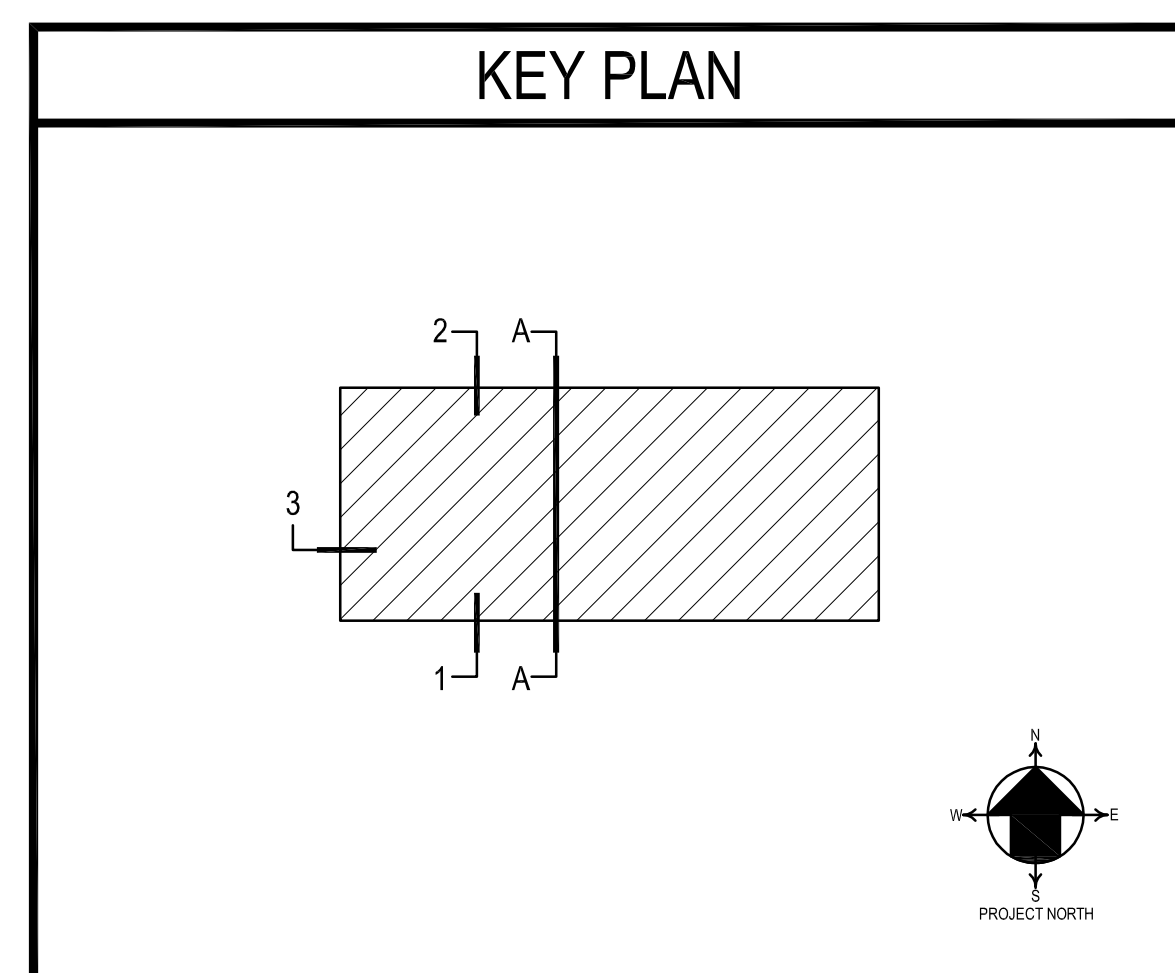
1 WALL SECTION
SCALE: 3/4" = 1'-0"



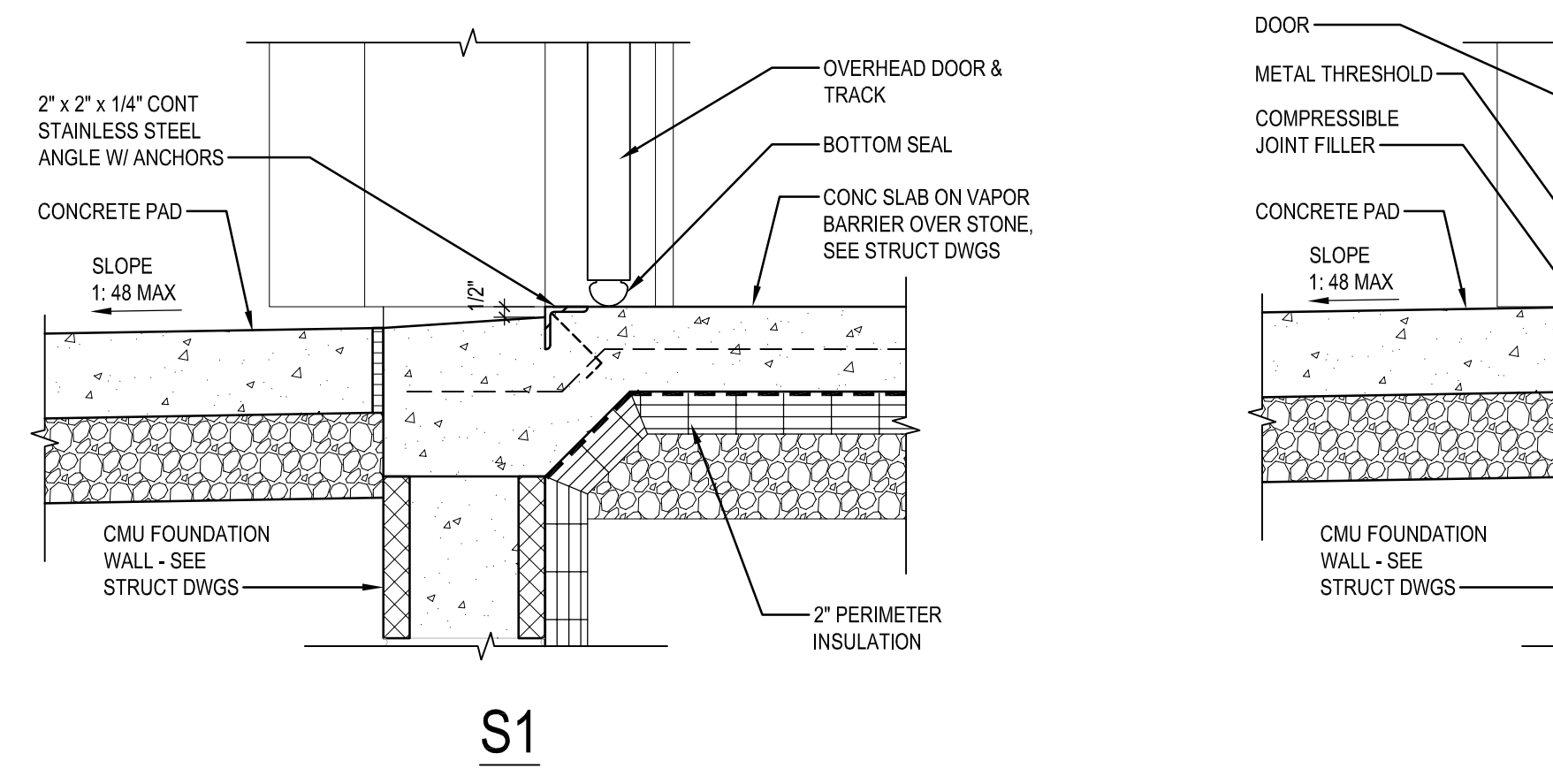
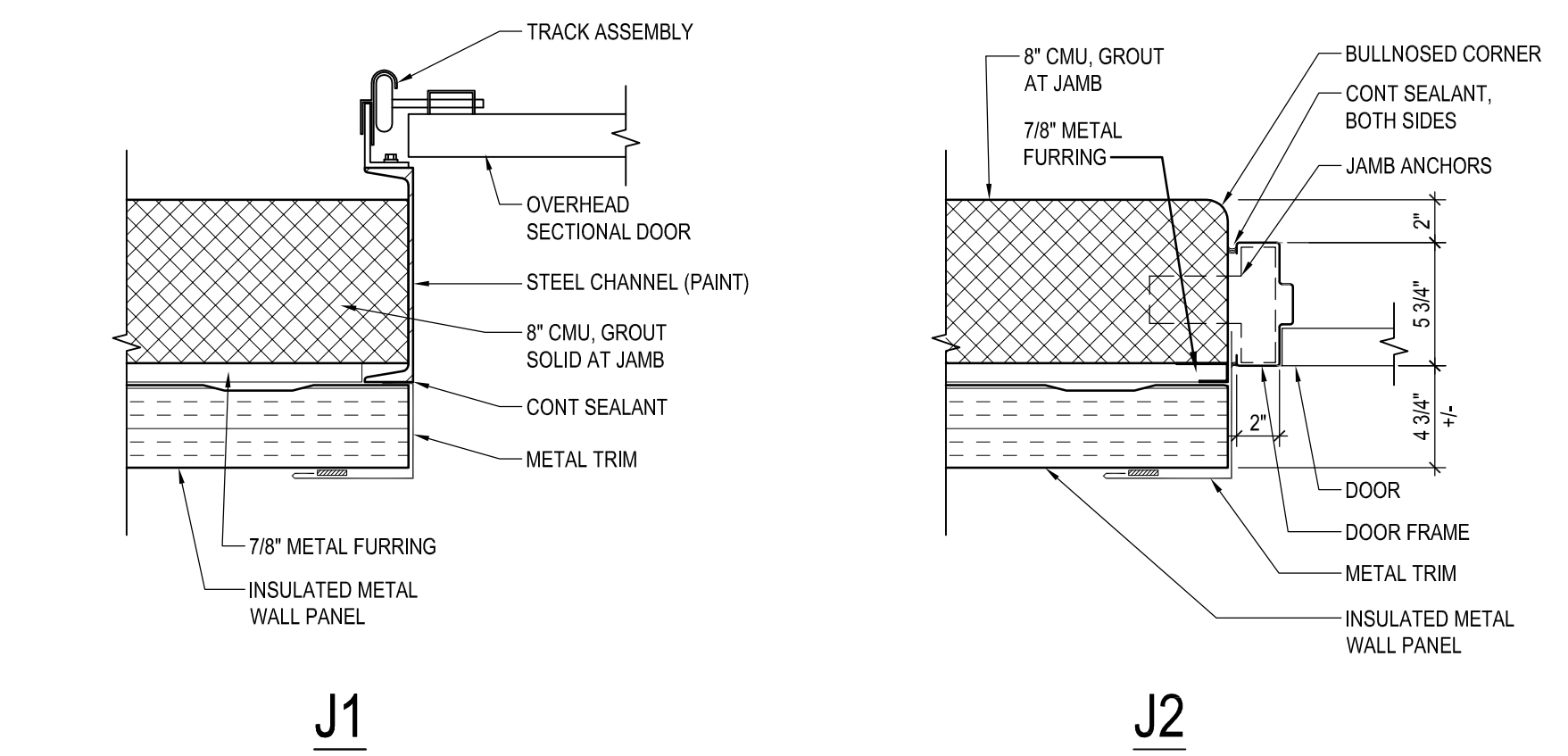
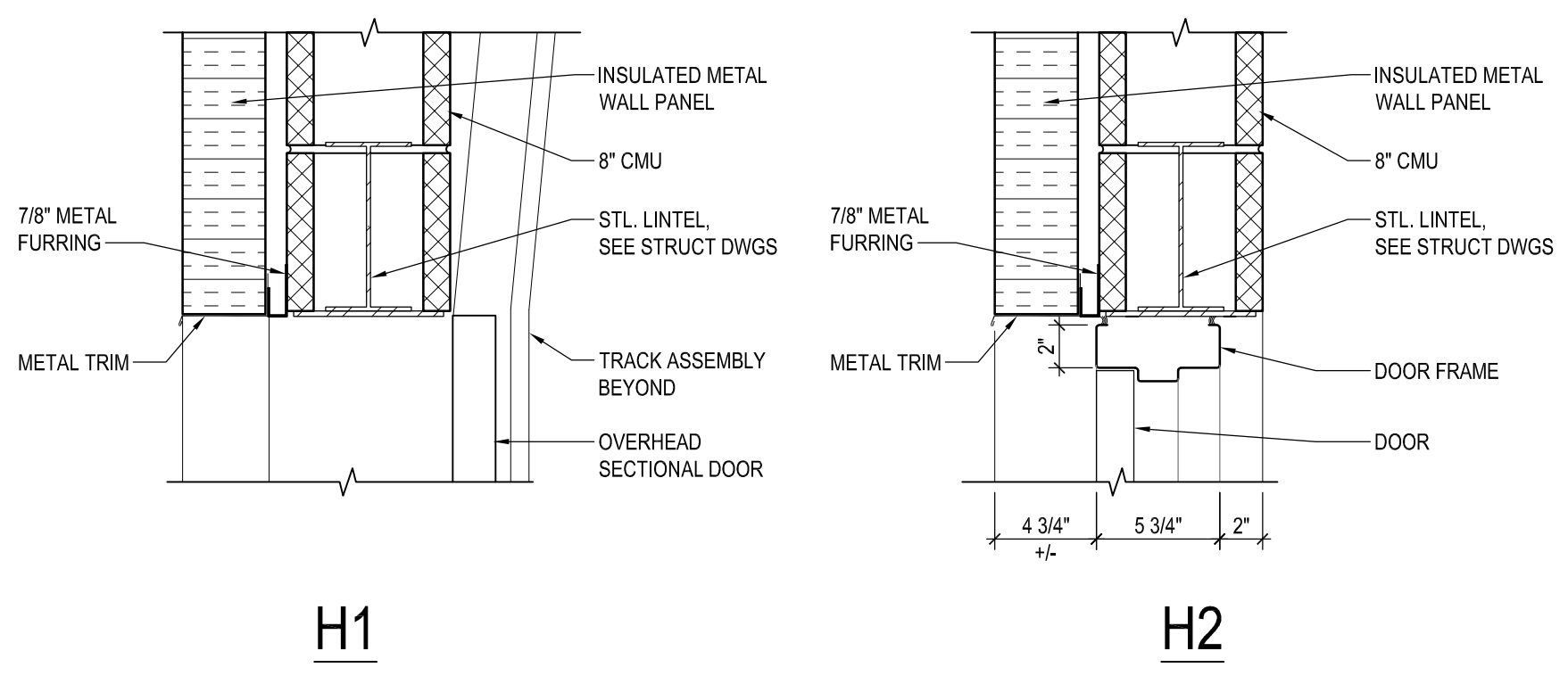
2 WALL SECTION
SCALE: 3/4" = 1'-0"



3 WALL SECTION
SCALE: 3/4" = 1'-0"



P:\PROJECTS\2021\SMITHSBURG WWTP ENR UPGRADE AND EXPANSION\DWG\A-4.dwg



DOOR / FRAME DETAILS
SCALE: 1 1/2" = 1'-0"

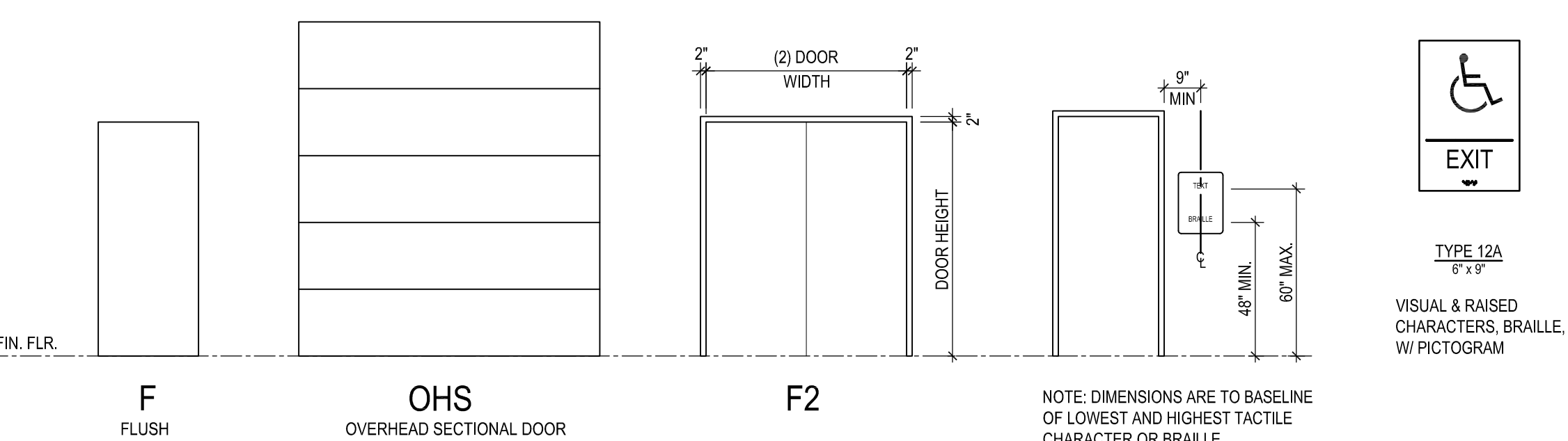
DOOR SCHEDULE

DOOR NO	ROOM NAME	DOOR			FRAME		DETAILS			FIRE RATING	GLZ	HDW SET	FOOT NOTES	SIGN TYPE		
		TYPE	MAT	WIDTH	HEIGHT	THICK	TYPE	MAT	HEAD						JAMB	SILL
101A	ELECTRICAL ROOM	F	FRP	(2) 3'-0"	7'-2"	1'-3/4"	F2	FRP	H2	J2	S2	--	--	1	--	12A
102A	CHEMICAL ROOM	F	FRP	(2) 3'-0"	7'-2"	1'-3/4"	F2	FRP	H2	J2	S2	--	--	1	--	12A
102B	CHEMICAL ROOM	OHS	STL	8'-0"	10'-0"	2"	--	STL	H1	J1	S1	--	--	2	1	--

DOOR SCHEDULE GENERAL NOTES:
A. ALL FRP DOORS AND FRAMES TO BE FACTORY FINISHED.
B. ALL OVERHEAD DOORS SHALL BE INSULATED AND FACTORY FINISHED.

DOOR SCHEDULE FOOTNOTES:
1. MANUAL OPERATED

ABBREVIATIONS:
EX EXISTING
FRP FIBERGLASS REINFORCED PLASTIC
GLZ GLAZING
HDW HARDWARE
HR HOUR
HM HOLLOW METAL
MAT MATERIAL
SIM SIMILAR
STL STEEL
THICK THICKNESS



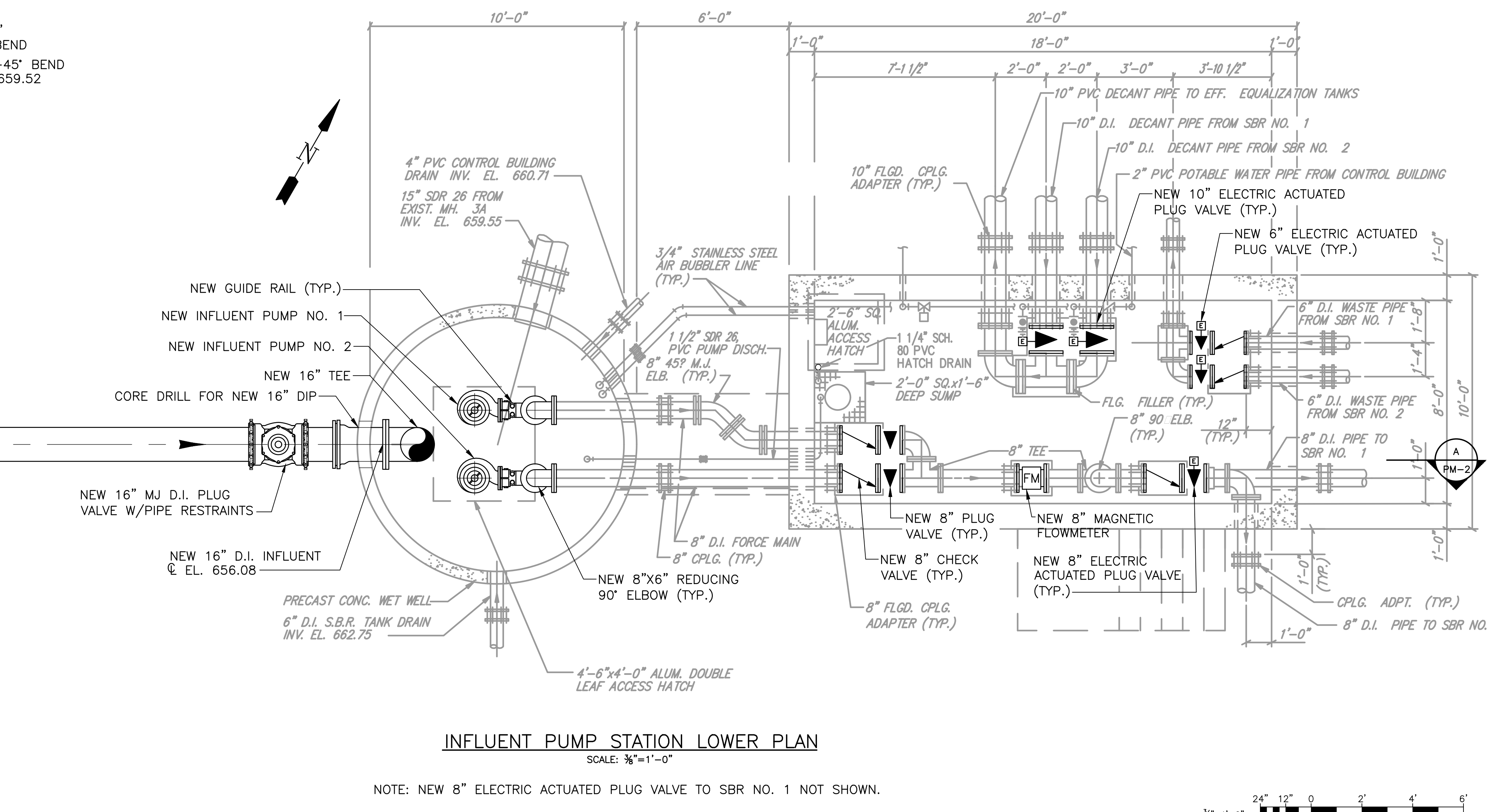
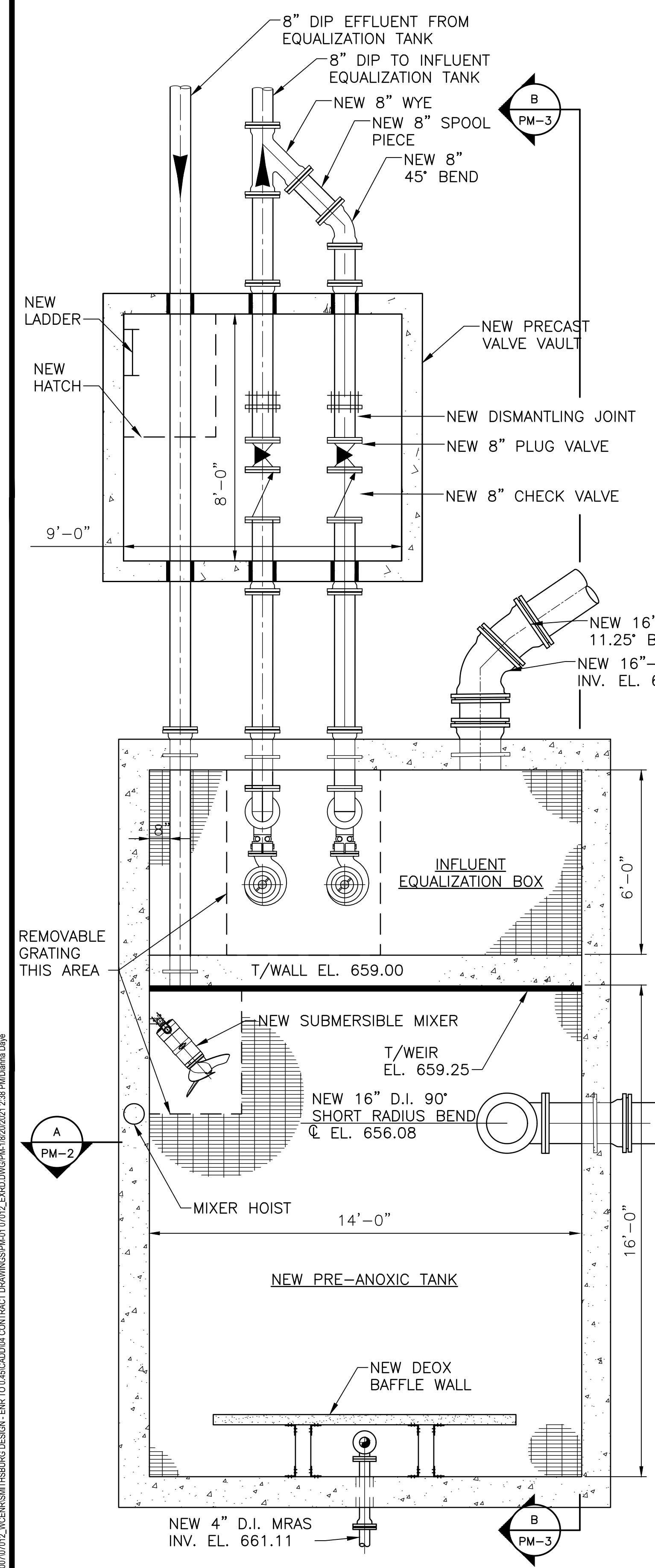
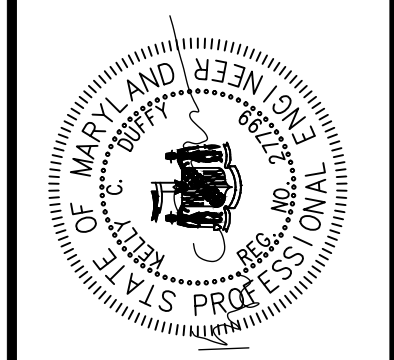
DOOR TYPES SCALE: 1/4" = 1'-0"
FRAME TYPES SCALE: 1/4" = 1'-0"
SIGNAGE AT DOOR SCALE: 1/4" = 1'-0"
SIGN TYPES SCALE: 1/4" = 1'-0"

SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22623 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
1632 ELLIOT PARKWAY
WILLIAMSPORT, MARYLAND 21795

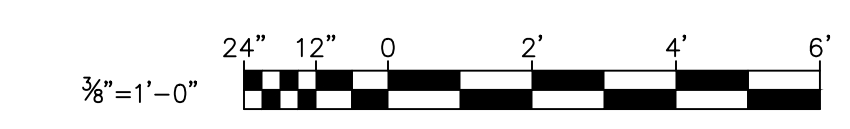
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: ALH
CHECKED BY: ALH
© BUCHART HORN, INC.
SHEET TITLE:



INFLUENT PUMP STATION LOWER PLAN
 SCALE: 3/8"=1'-0"

NOTE: NEW 8" ELECTRIC ACTUATED PLUG VALVE TO SBR NO. 1 NOT SHOWN.



I:\04_S\05\2007\07012_L\ENR\SMITHSBURG DESIGN - ENR TO 045\CAD\04 CONTRACT DRAWINGS\PL01 07012_L\ERD.DWG\PM 10/20/2012 2:38 PM\Drawn.dwg

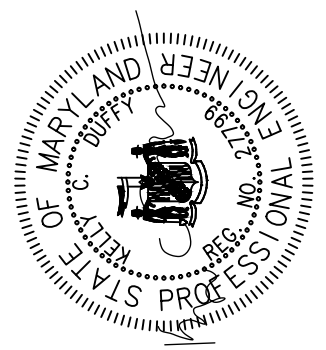
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/20/21
 DRAWN BY: ENV DRAFTERS
 CHECKED BY: KCD
 © BUCHART HORN, INC.
 SHEET TITLE:

PRE-ANOXIC TANK, INFLUENT PUMP STATION AND VALVE VAULT PLAN

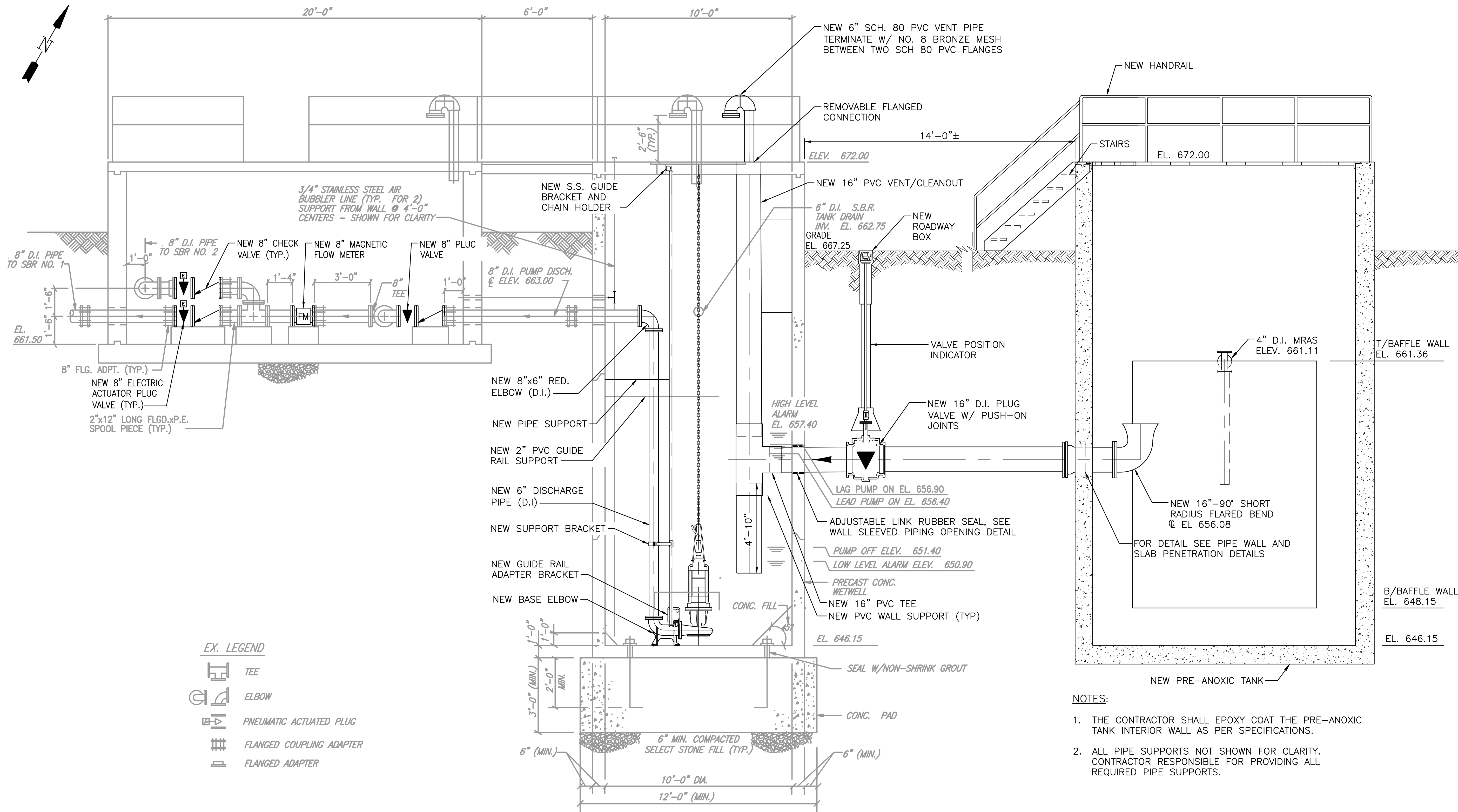
SHEET NO: **PM-1**

100% SUBMITTAL



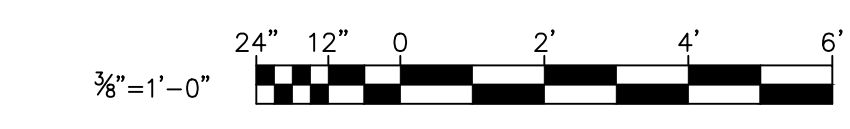
SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
2263 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
1632 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21785



I:\BA_S\0207\2021\0712_MCCENR\SMITHSBURG DESIGN - ENR TO 045CAD\04 CONTRACT DRAWINGS\PL42_0712_EXHD.DWG (PL42_0712_EXHD.DWG) 2:39 PM 08/20/21

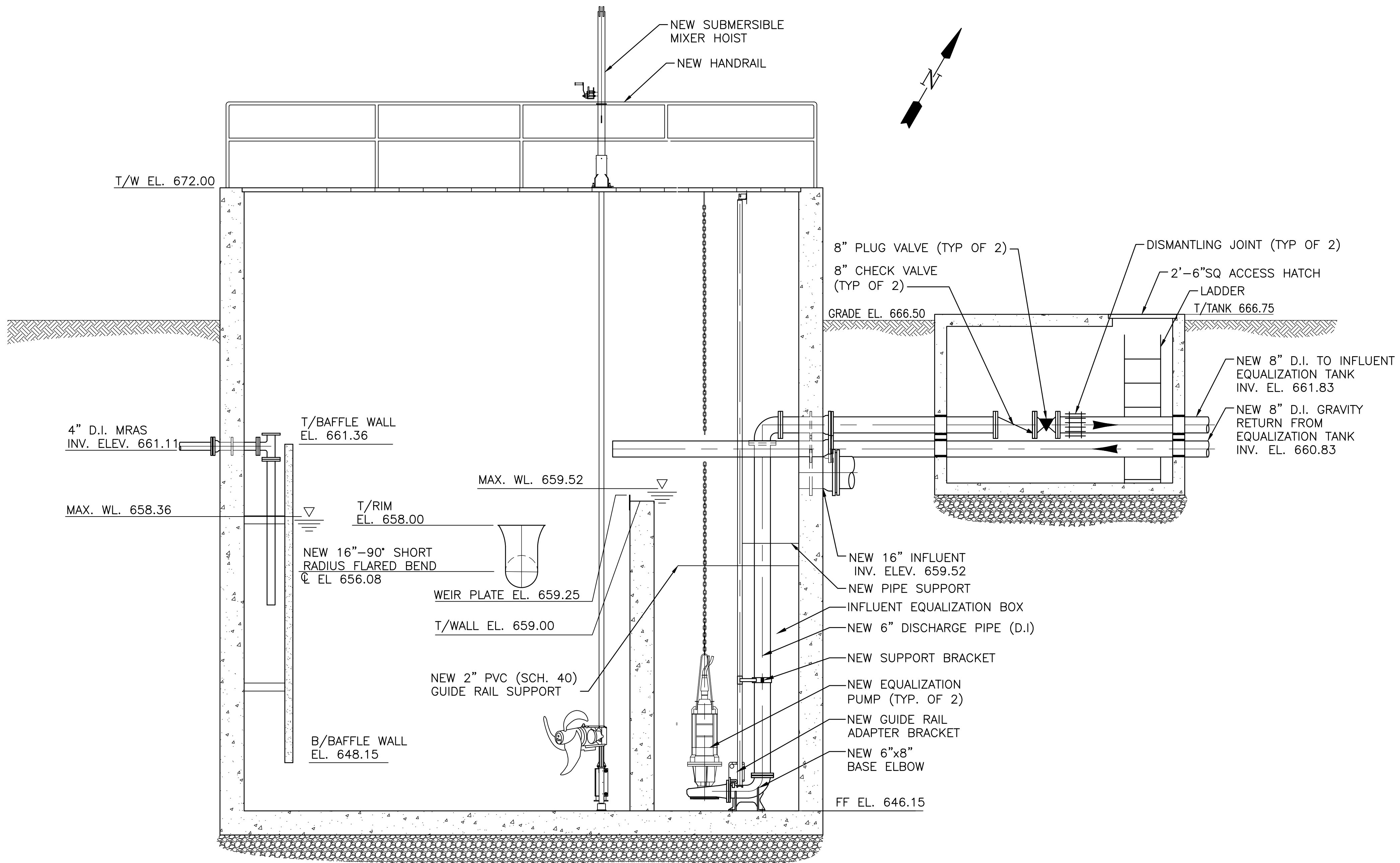
PRE-ANOXIC TANK, INFLUENT PUMP STATION, AND VALVE VAULT SECTION
SCALE: 3/8" = 1'-0"





SMITHSBURG WWTPL ENR UPGRADE AND EXPANSION
 22323 LETTERSBURG SMITHSBURG ROAD
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WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILMINGTON, MARYLAND 21785



PRE-ANOXIC TANK, INFLUENT PUMP STATION, AND VALVE VAULT SECTION
 SCALE: 3/8" = 1'-0"



PROJECT STATUS: **100% SUBMITTAL**

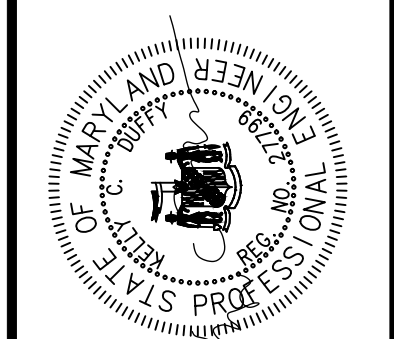
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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
 DRAWN BY: ENV DRAFTERS
 CHECKED BY: KCD
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SHEET TITLE: **PRE-ANOXIC TANK, INFLUENT PUMP STATION, AND VALVE VAULT SECTION**

SHEET NO: **PM-3**

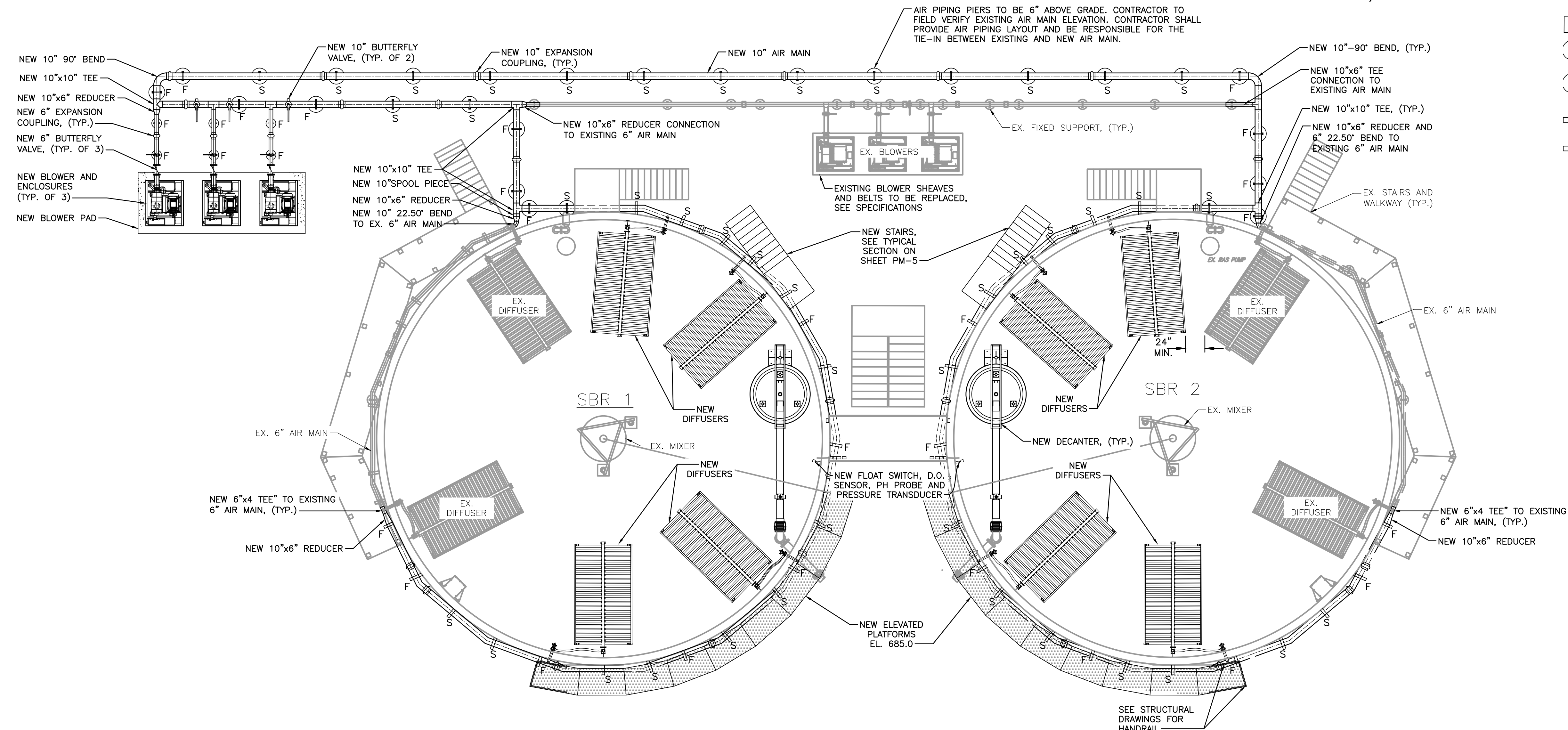


SMITHSBURG WWTp ENR UPGRADE AND EXPANSION
 22823 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

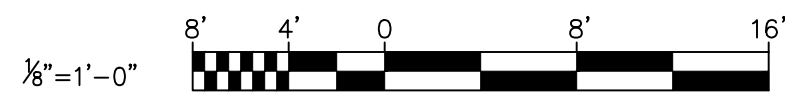
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILMINGTON, MARYLAND 21786

LEGEND

- EXPANSION COUPLING
- SLIDING SUPPORT
- FIXED SUPPORT
- SLIDING SUPPORT
- FIXED SUPPORT



SBR NO.'s 1 AND 2 PLAN
 SCALE: 1/8"=1'-0"



PROJECT STATUS: **100% SUBMITTAL**

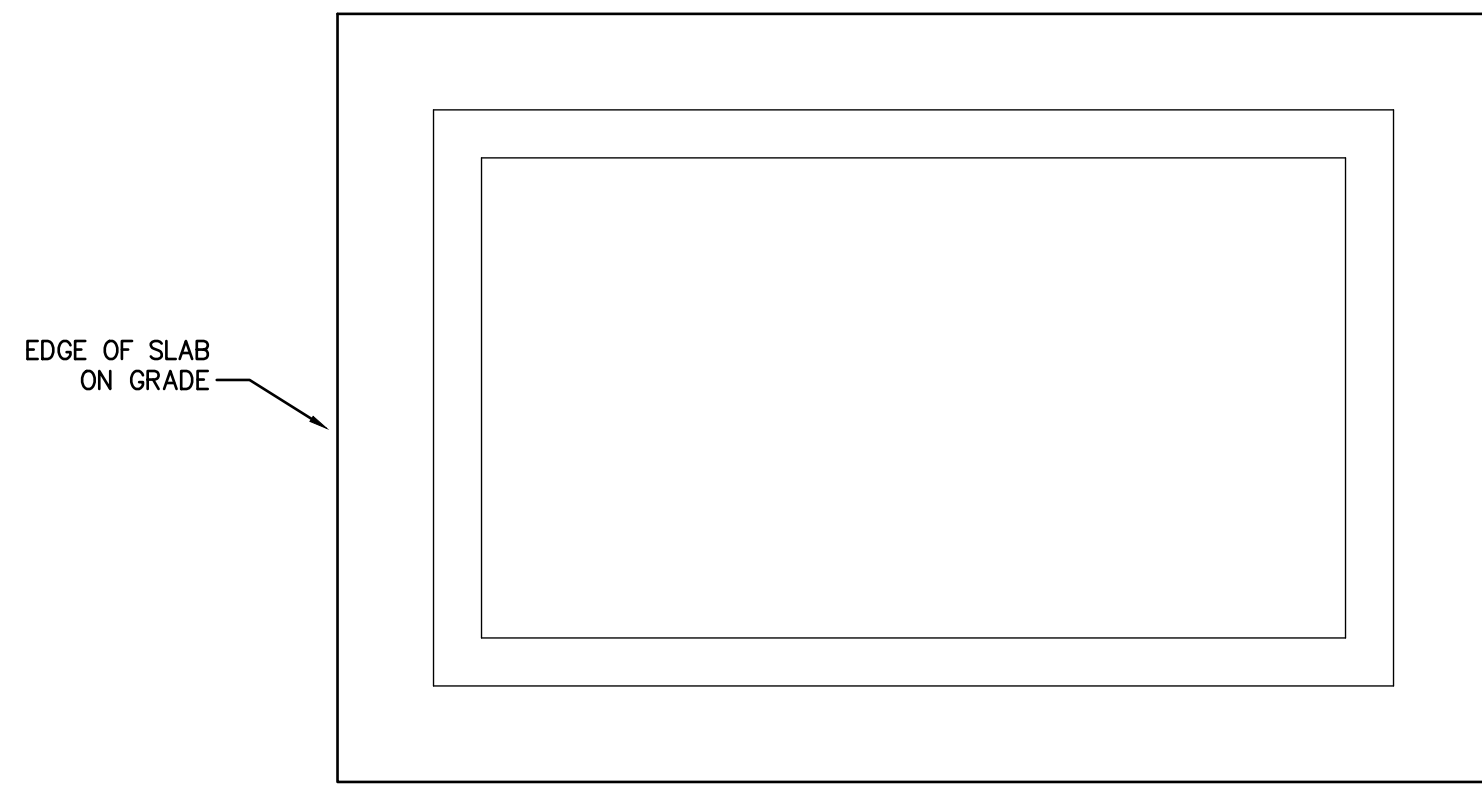
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	ENV DRAFTERS
CHECKED BY:	KCD
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SHEET TITLE: **SBR'S NO.'s 1 & 2 PLAN**

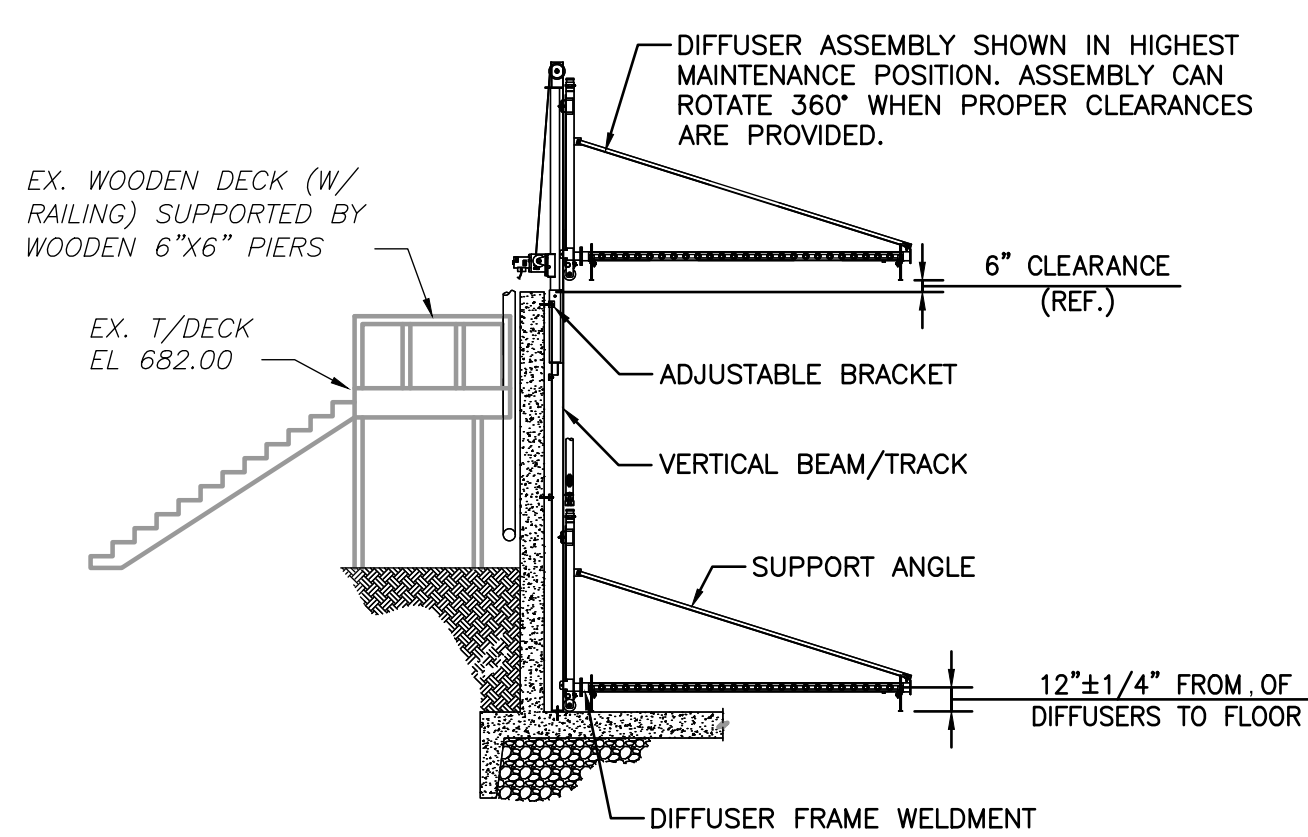
SHEET NO.: **PM-4**

I:\BLSR\0207\0207\0712_WCENR\SMITHSBURG DESIGN - ENR TO H&C\ADD\CONTRACT DRAWINGS\PLAN_0712_LBR.DWG (P&ID) 2/40 PM/Barbara Daye



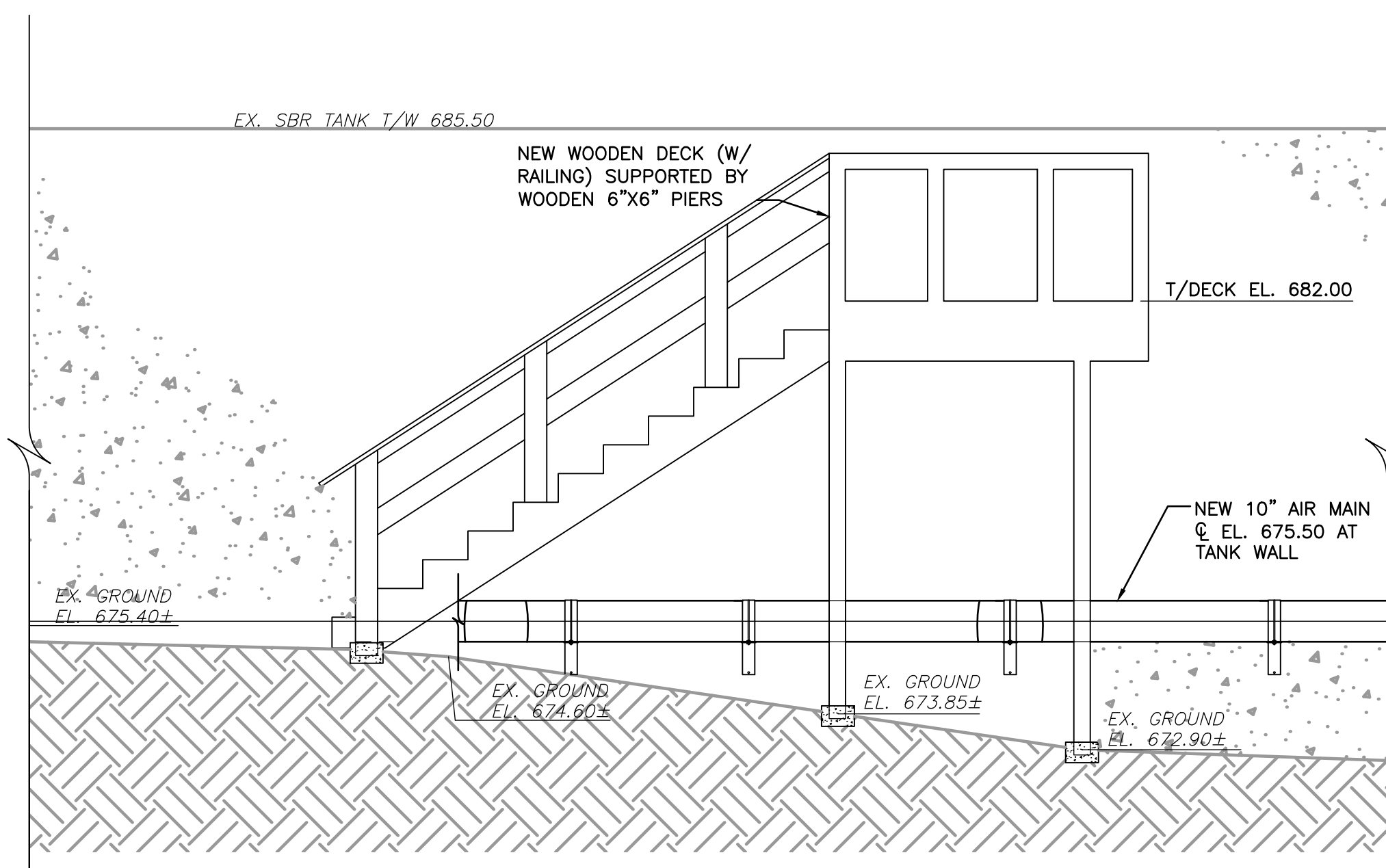
NOTE:
CONTRACTOR TO COORDINATE EQUIPMENT PAD DIMENSIONS WITH EQUIPMENT MANUFACTURER AND PROVIDE MINIMUM CLEARANCE REQUIRED BY MANUFACTURER FOR EQUIPMENT ACCESS

PLAN - EQUIPMENT PAD
NOT TO SCALE

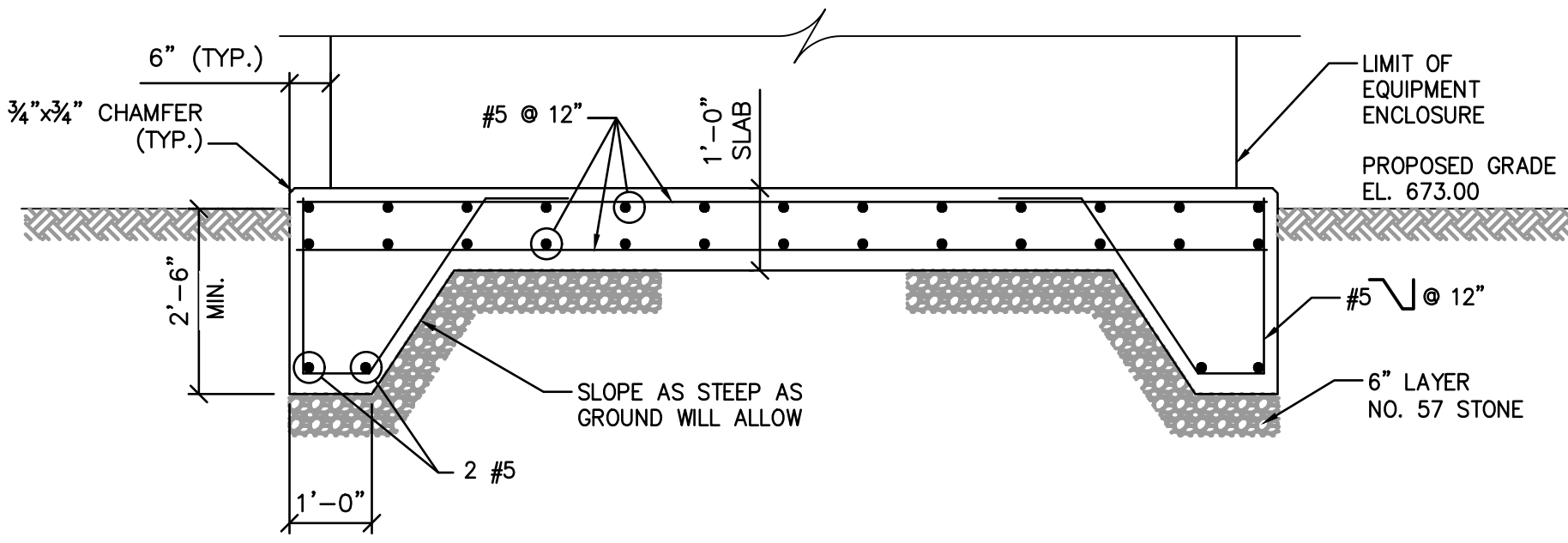


NOTE:
DIFFUSER RACK SHOWN ROTATED IN THE ACCESS POSITION.

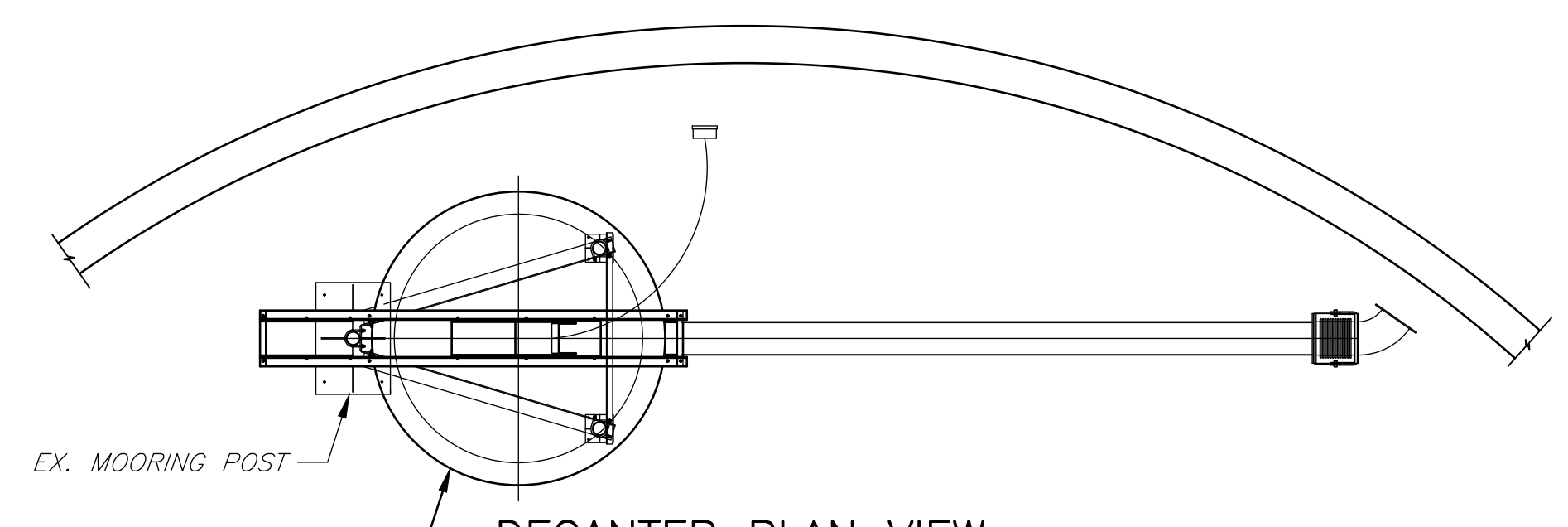
SECTION - TYPICAL DIFFUSER RACK
 $\frac{1}{8}'' = 1'-0''$



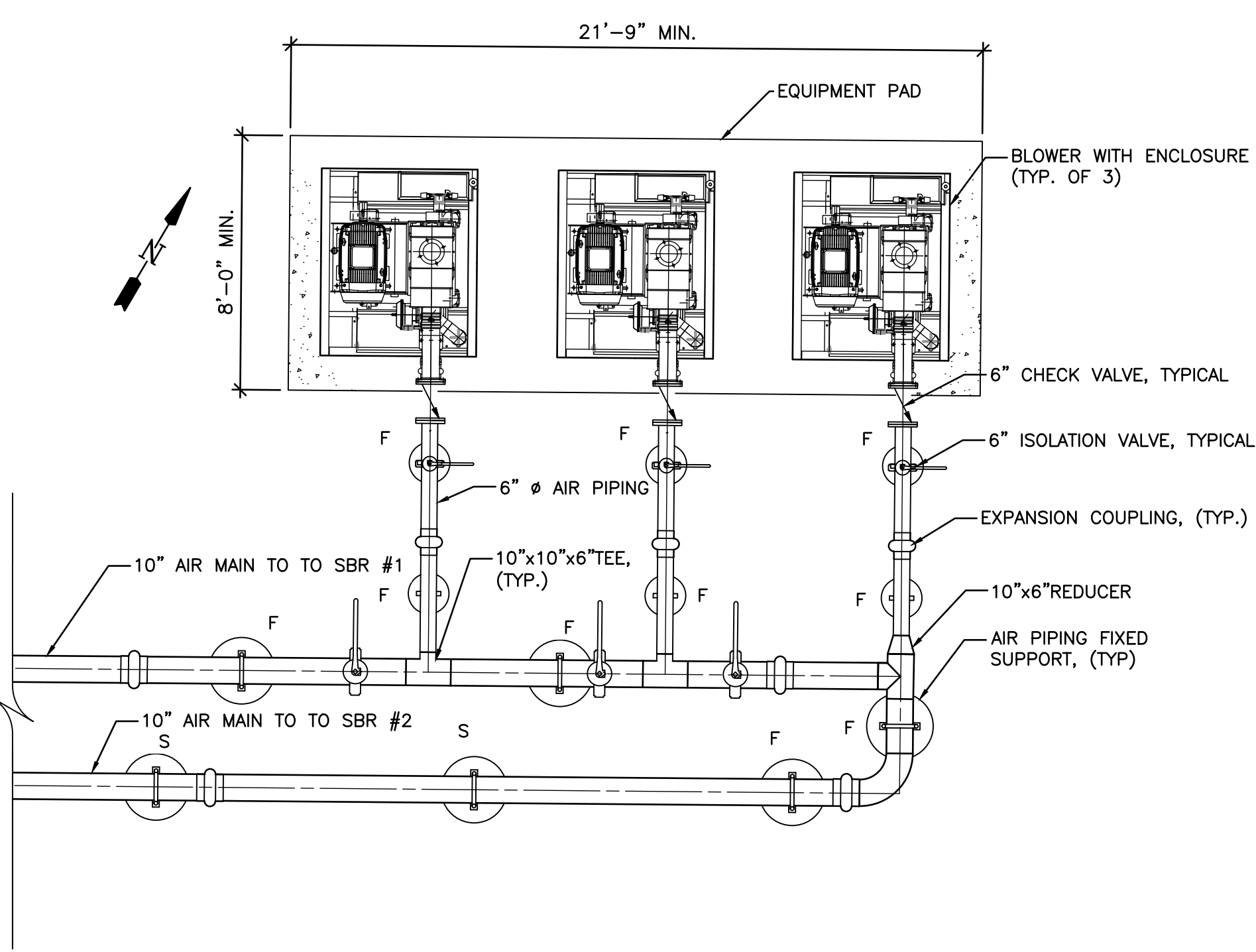
SECTION - TYPICAL NEW STAIRS
 $\frac{1}{8}'' = 1'-0''$



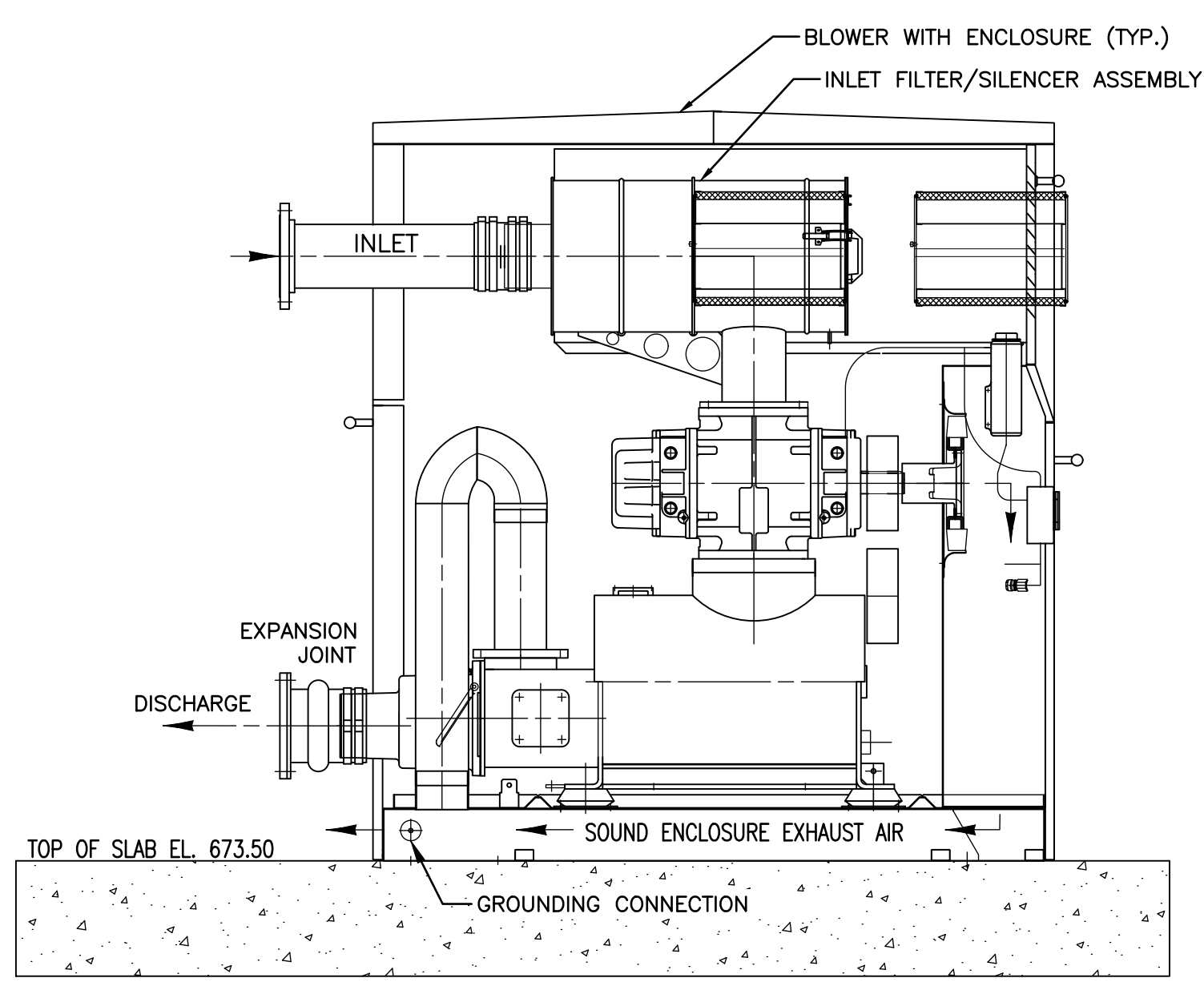
EQUIPMENT PAD TYPICAL SECTION
NOT TO SCALE



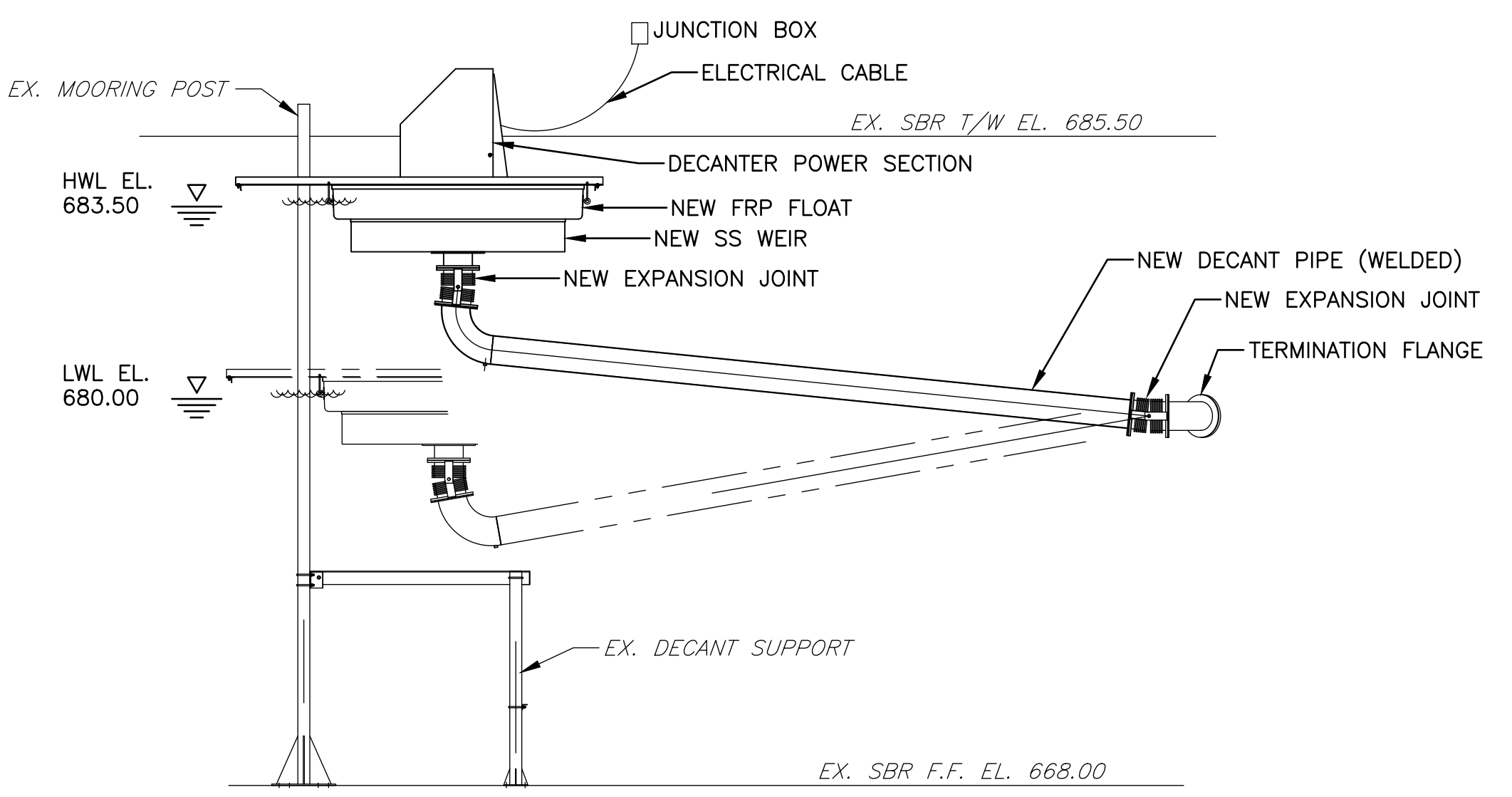
DECANTER PLAN VIEW
NOT TO SCALE



NEW BLOWER PLAN
 $\frac{1}{4}'' = 1'-0''$

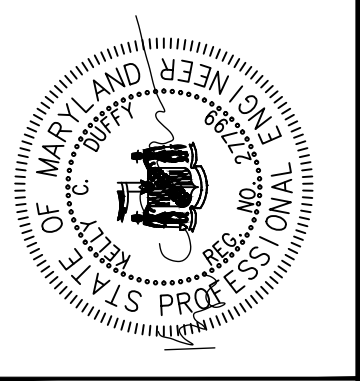


BLOWER TYPICAL SECTION
 $\frac{3}{4}'' = 1'-0''$



DECANTER TYPICAL SECTION
NOT TO SCALE

NOTE:
NEW HIGH AND LOW WATER LEVELS OF SBR SYSTEM SHOWN ON DECANTER SECTION. REFER TO DESCRIPTION OF OPERATION IN THE PROJECT MANUAL FOR FURTHER INFORMATION.



SMITHSBURG WWTPL ENR UPGRADE AND EXPANSION
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SMITHSBURG, MARYLAND 21783

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16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21785

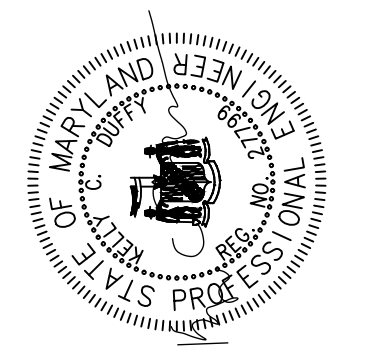
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: ENV DRAFTERS
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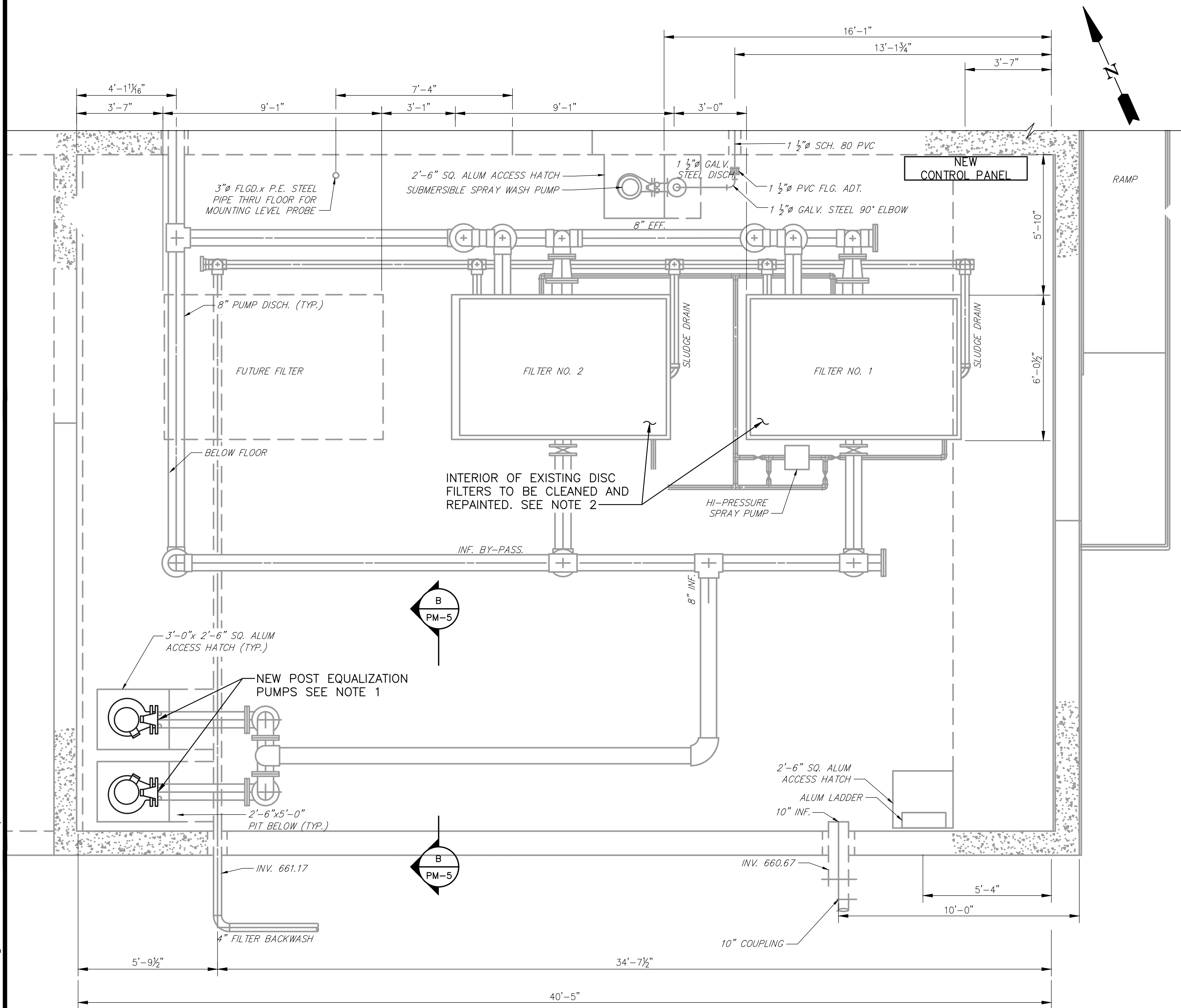
SBR BLOWERS AND DECANTER PLANS, SECTIONS AND DETAILS

100% SUBMITTAL

PM-5



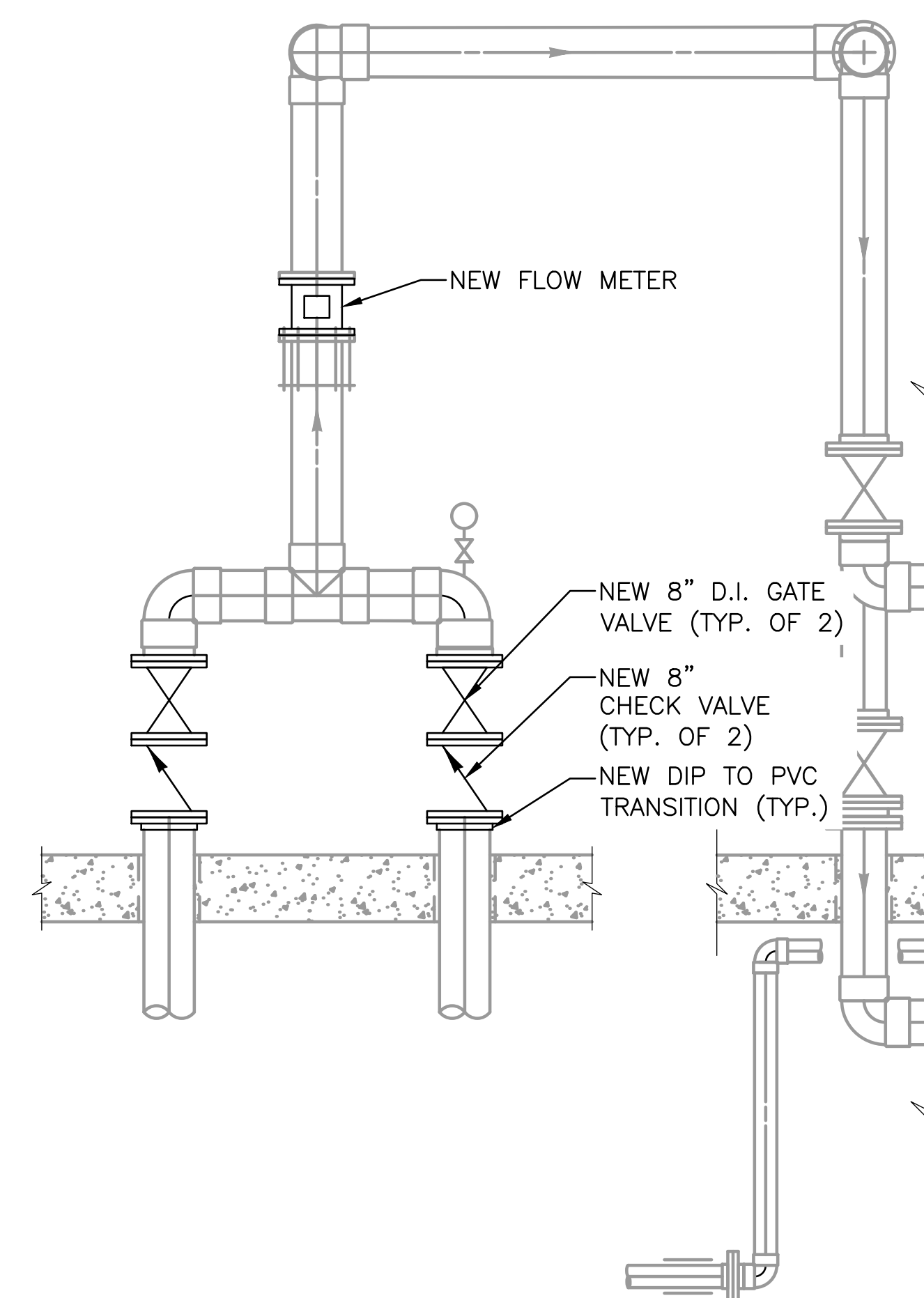
I:\BAL SRV\2021\20210720\0712_MCEENR\SMITHSBURG DESIGN-ENR TO UACAD\004 CONTRACT DRAWINGS\PL06_0712_EXRD.DWG (PM-5) 2:40 PM 08/26/2021



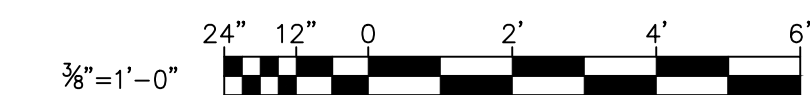
POST EQUALIZATION BASIN PARTIAL PLAN
SCALE: 3/8" = 1'-0"

NOTES:

1. NEW POST EQUALIZATION PUMPS TO REUSE EXISTING RAILS AND SUCTION ELBOWS - SEE PROJECT MANUAL FOR CONSTRUCTION SEQUENCING.
2. INTERIOR OF EXISTING DISC FILTERS TO BE CLEANED AND RECOATED BY CONTRACTOR - SEE PROJECT MANUAL FOR CLEANING REQUIREMENTS AND ACCEPTABLE COATINGS.
3. EXISTING FILTER PIPING AND VALVES TO REMAIN, PUMP DISCHARGE VALVES TO BE REPLACED.



SECTION B-B
SCALE: 1/2" = 1'-0"



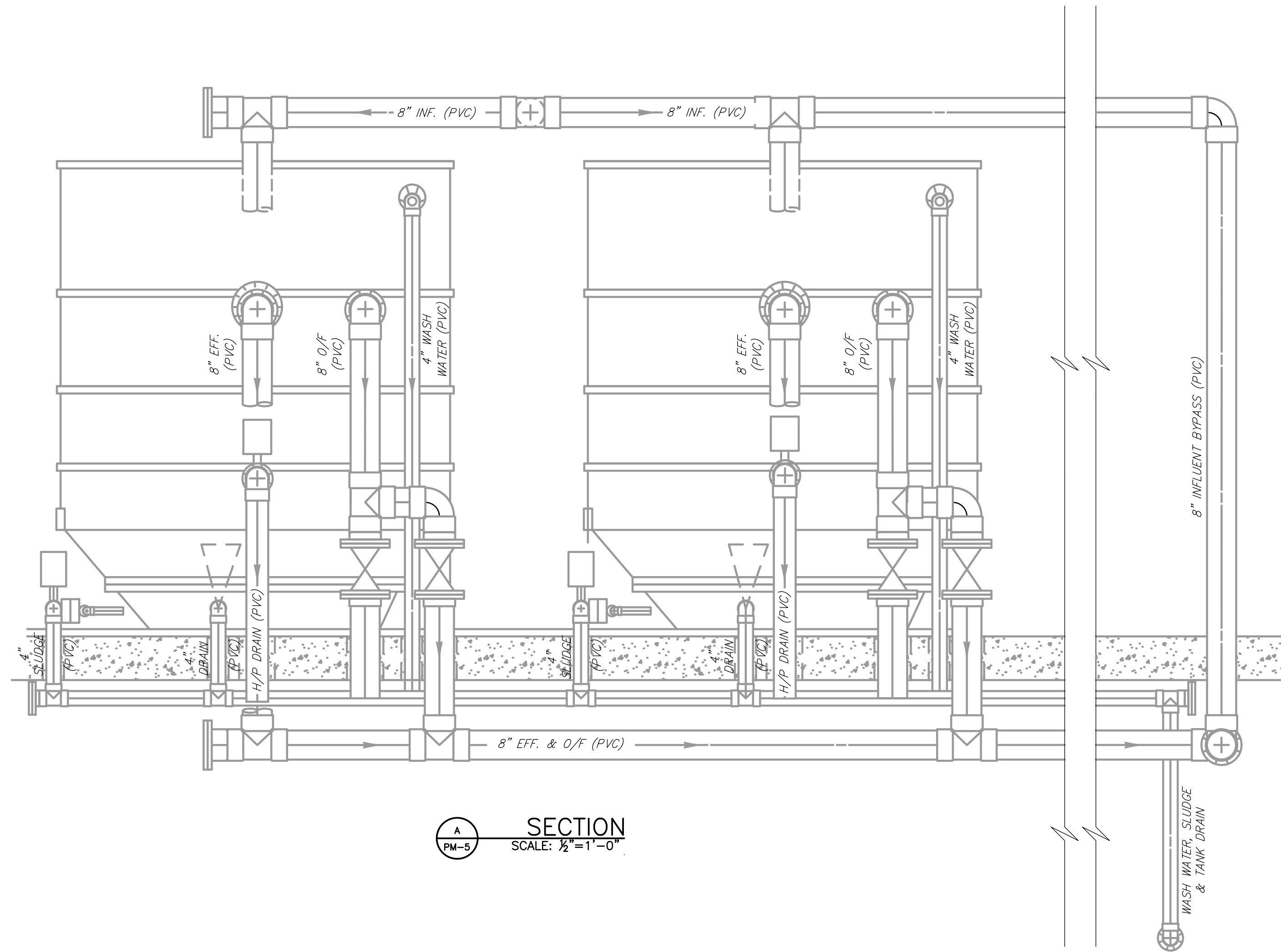
PROJECT STATUS
100% SUBMITTAL

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

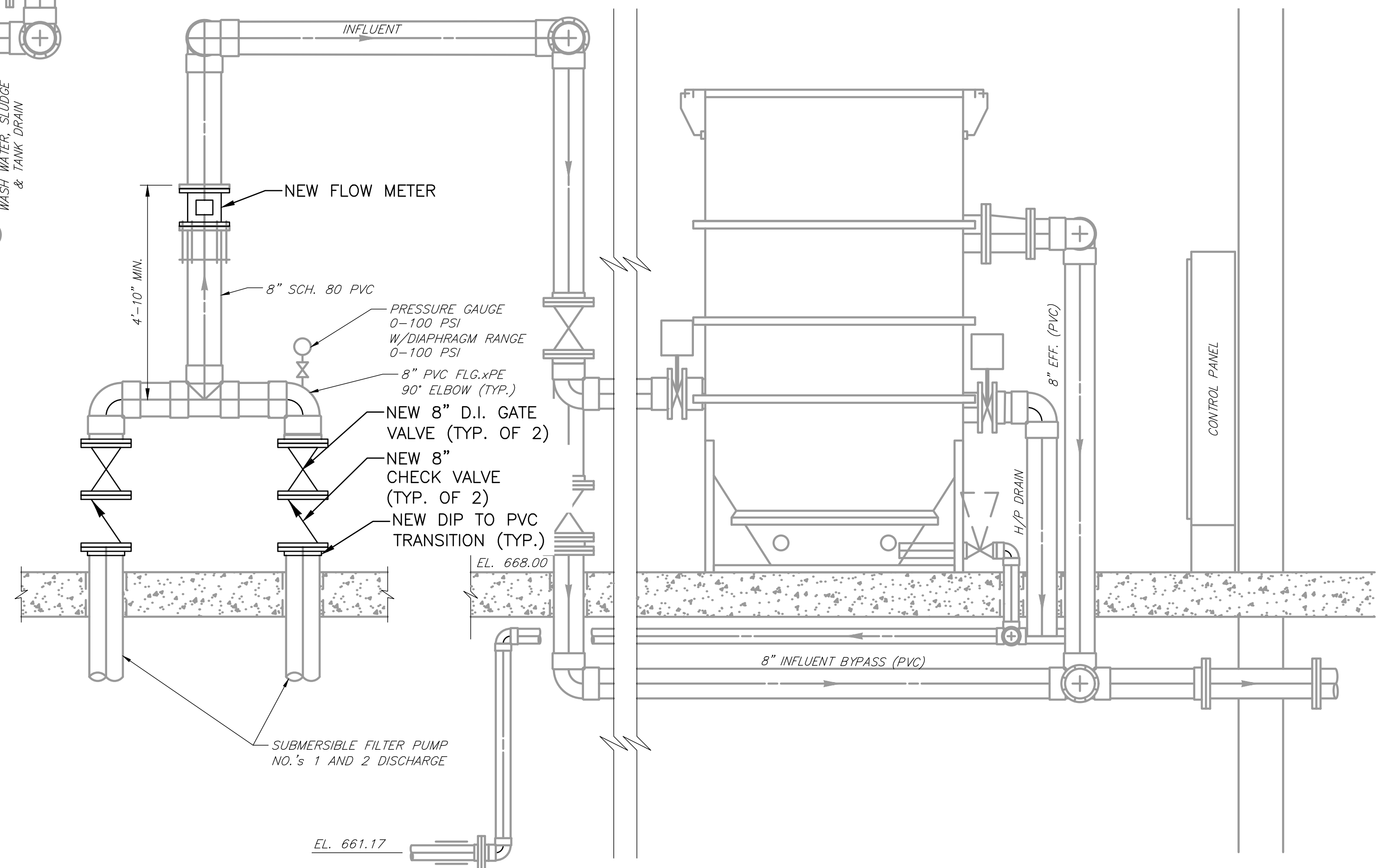
PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: ENV DRAFTERS
CHECKED BY: KCD
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SHEET TITLE:
POST EQUALIZATION BASIN PARTIAL PLAN
SHEET NO:
PM-6

\\BLSRV001\2007\070712_MCCENR\SMITHSBURG DESIGN - ENR TO 0456\ADD\4 CONTRACT DRAWINGS\PA07 07012_LBRD.DWG\PM-7B20201 2-14 PM\DWG.dwg

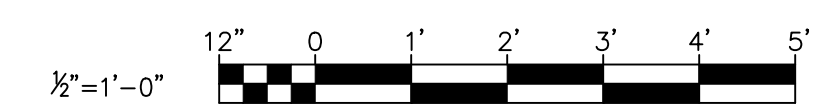


SECTION A
SCALE: 1/2" = 1'-0"



NOTE:
THE CONTRACTOR SHALL CLEAN AND RE-COAT ALL INTERIOR SURFACES OF THE EXISTING DISC FILTER STEEL TANKS.

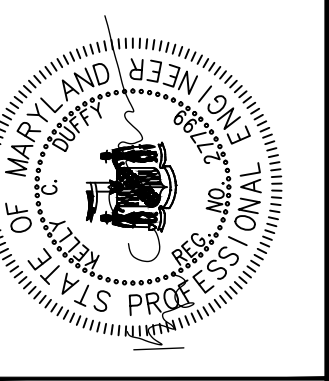
SECTION B
SCALE: 1/2" = 1'-0"



PROJECT STATUS
100% SUBMITTAL



P: 410.726.2300
730 Eastcott Street, Suite 600 | Baltimore, MD 21202
Division of Construction Management | Planning | Consulting
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SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22623 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: ENV DRAFTERS
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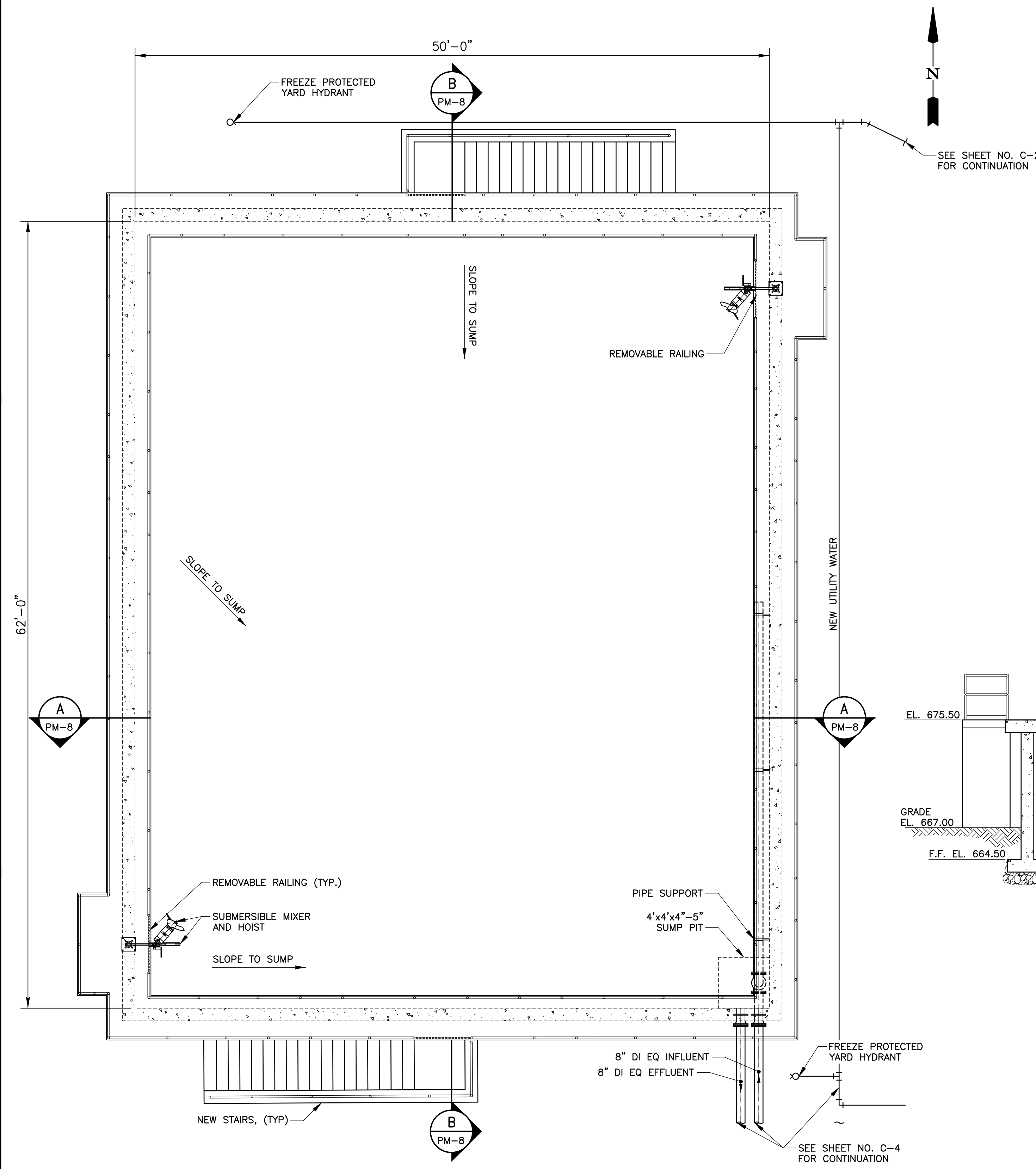
SHEET TITLE
POST EQUALIZATION BASIN SECTIONS

SHEET NO.
PM-7

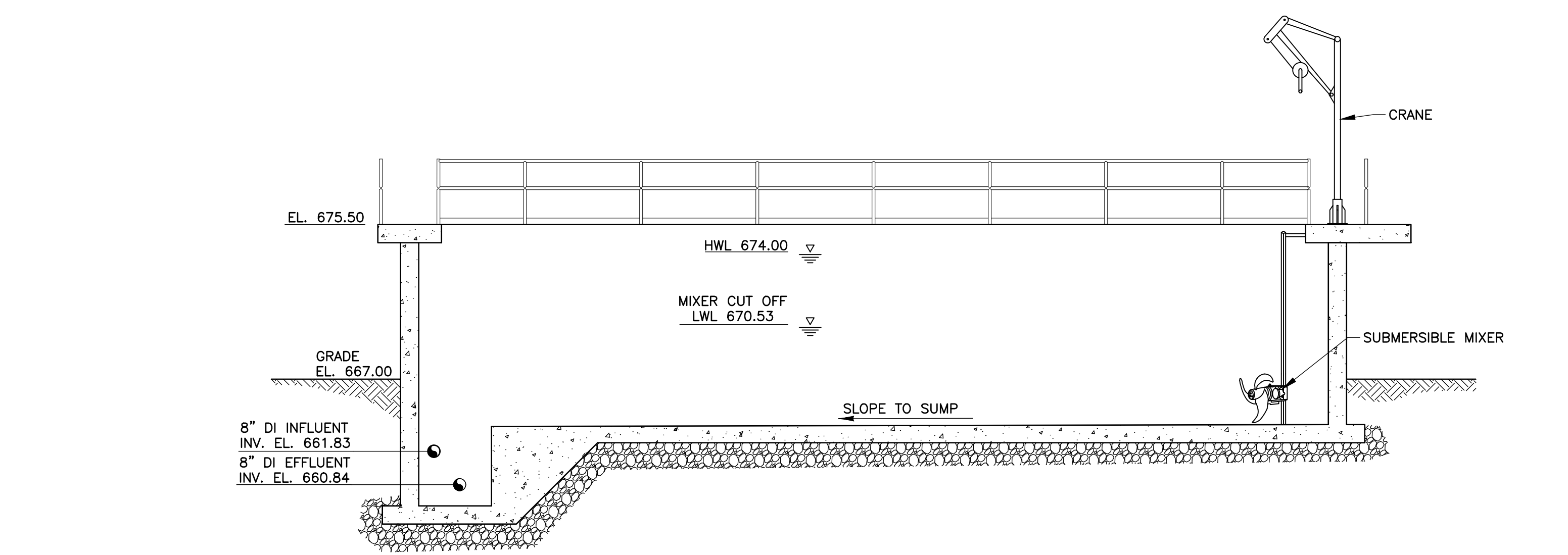


SMITHSBURG WWTp ENR UPGRADE AND EXPANSION
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 SMITHSBURG, MARYLAND 21783

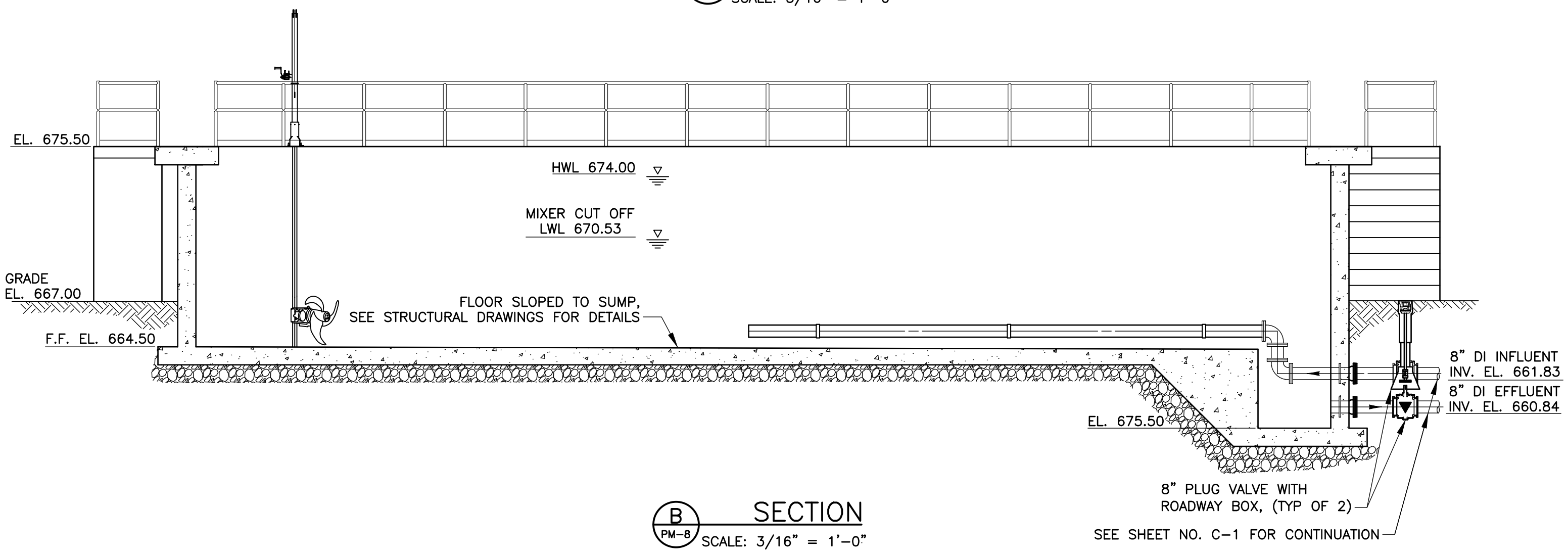
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLIOTT PARKWAY
 WILMINGTON, MARYLAND 21785



INFLUENT EQUALIZATION TANK— PLAN
 SCALE: 3/16" = 1'-0"



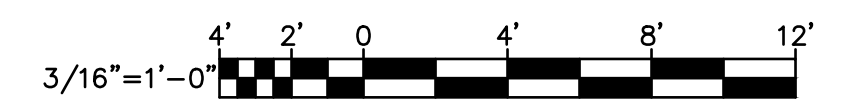
SECTION A
 SCALE: 3/16" = 1'-0"



SECTION B
 SCALE: 3/16" = 1'-0"

NOTES:

1. ALL FASTENERS SHALL BE 316 STAINLESS STEEL.
2. ALL HARDWARE COMPONENTS SHALL BE 316 STAINLESS STEEL.
3. CONTRACTOR TO VERIFY ALL FIELD DIMENSIONS PRIOR TO ANY FABRICATION.
4. SEE STRUCTURAL DRAWINGS FOR DETAILS OF CONSTRUCTION FOR THE TANK.
5. CONCRETE SURFACES SHALL BE SMOOTH AND FREE OF CRACKS AND VOIDS.



PROJECT STATUS: **100% SUBMITTAL**

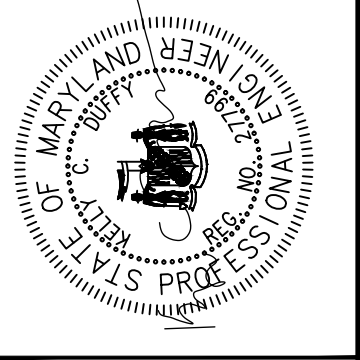
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
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INFLUENT EQUALIZATION TANK PLAN AND SECTIONS

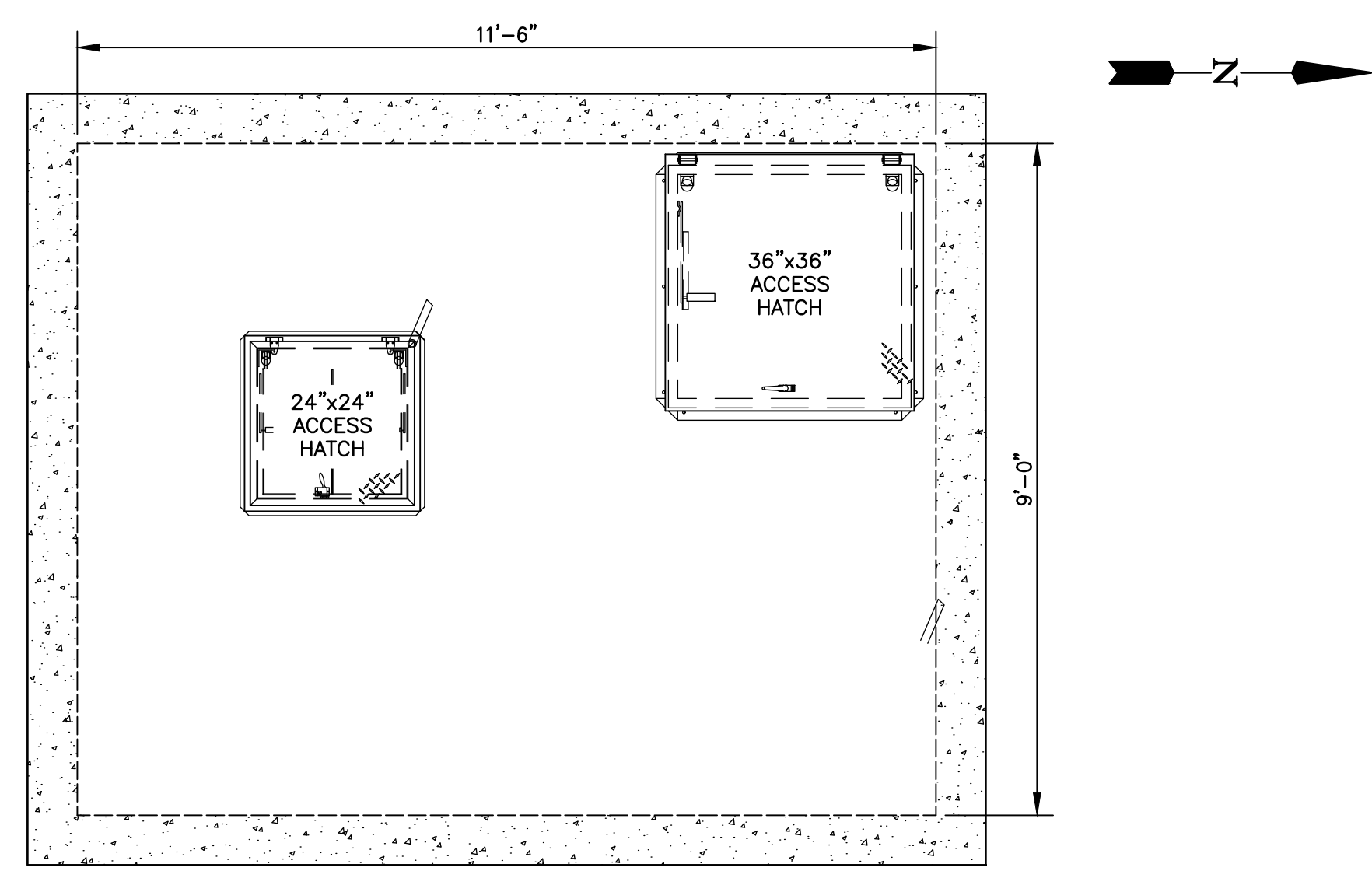
SHEET NO: **PM-8**

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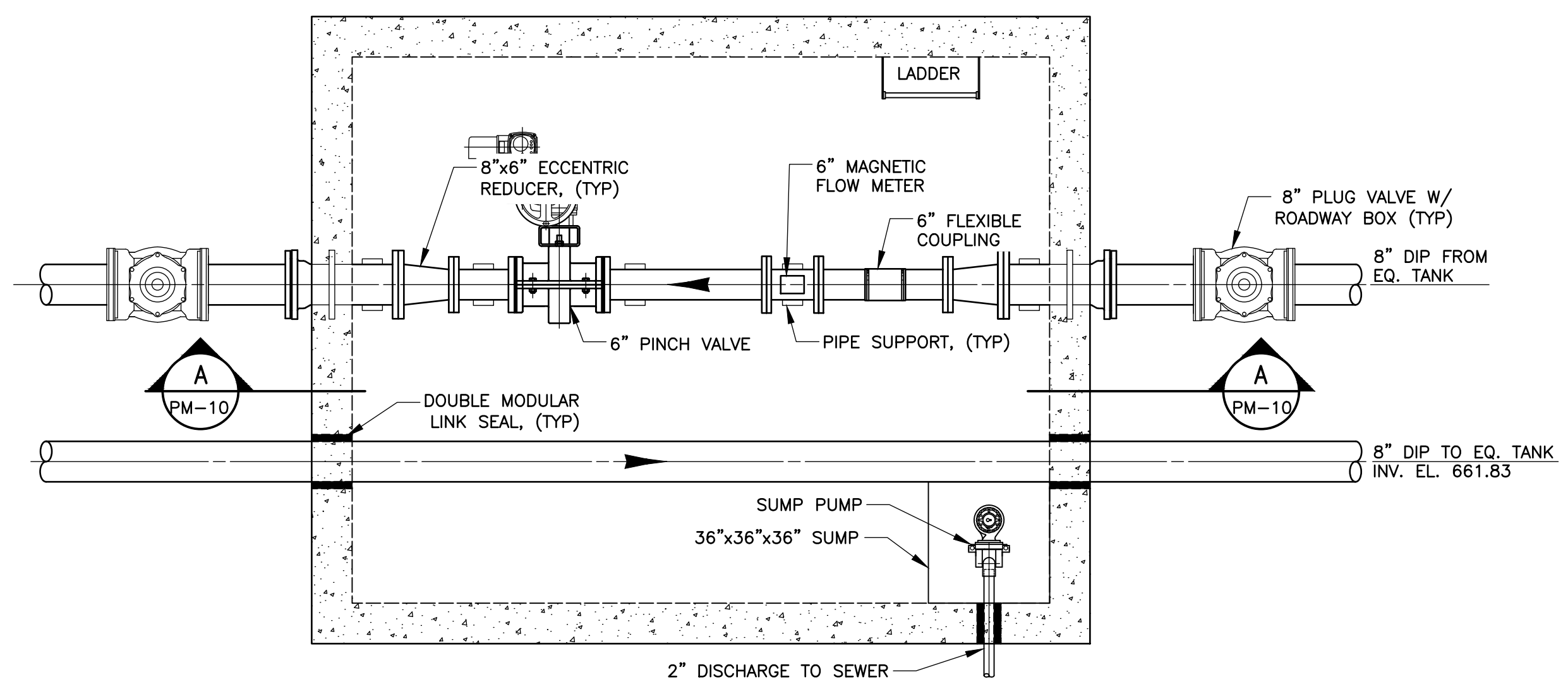


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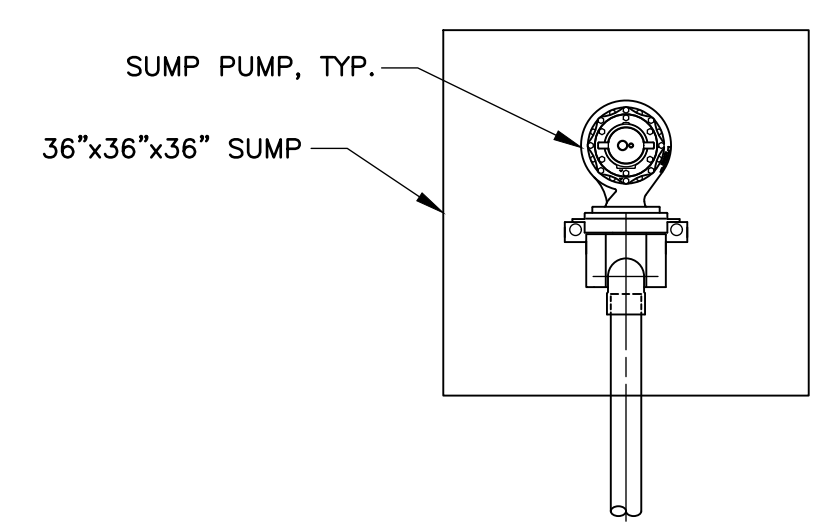
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILMINGTON, MARYLAND 21785



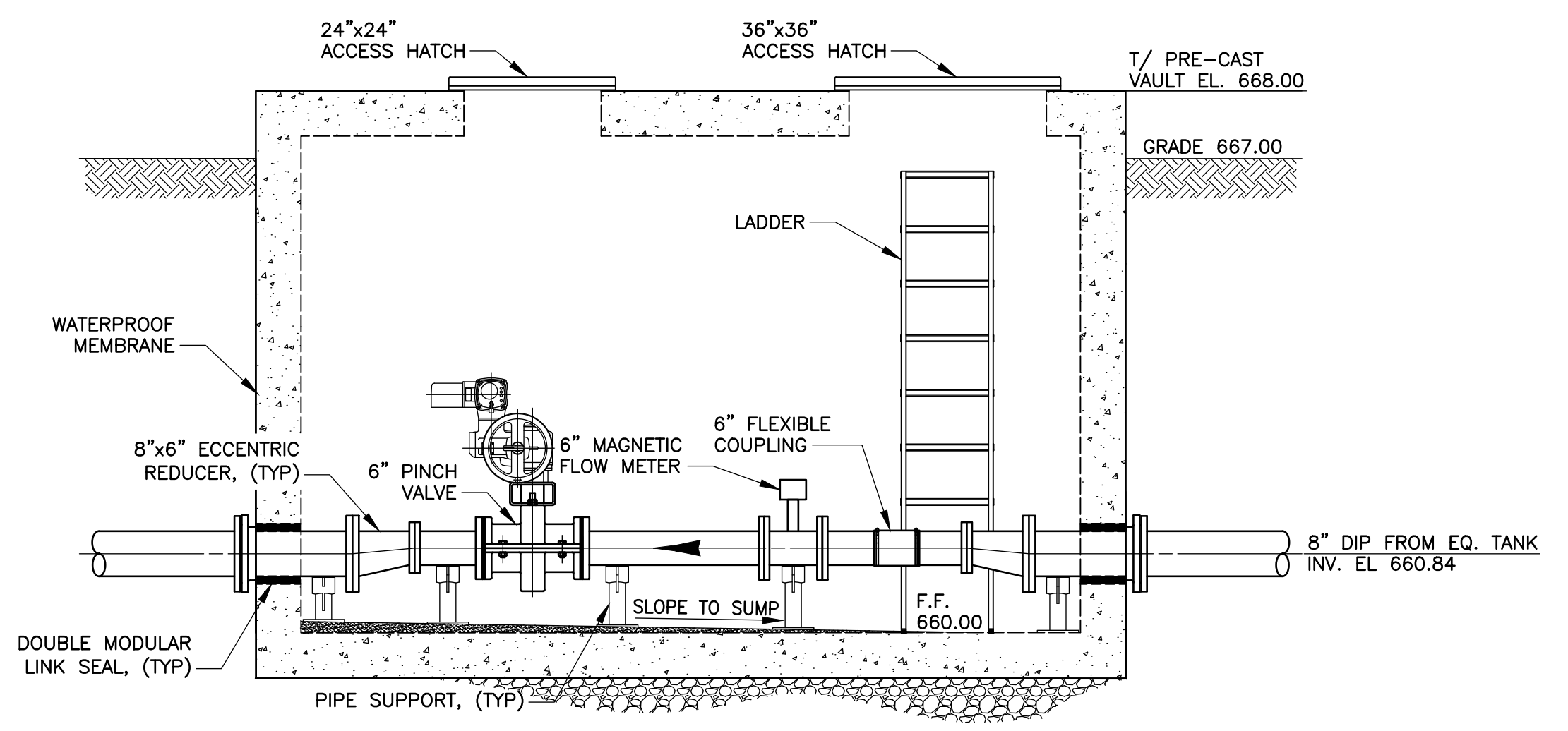
PLAN - TOP VIEW
 SCALE: 1/2" = 1'-0"



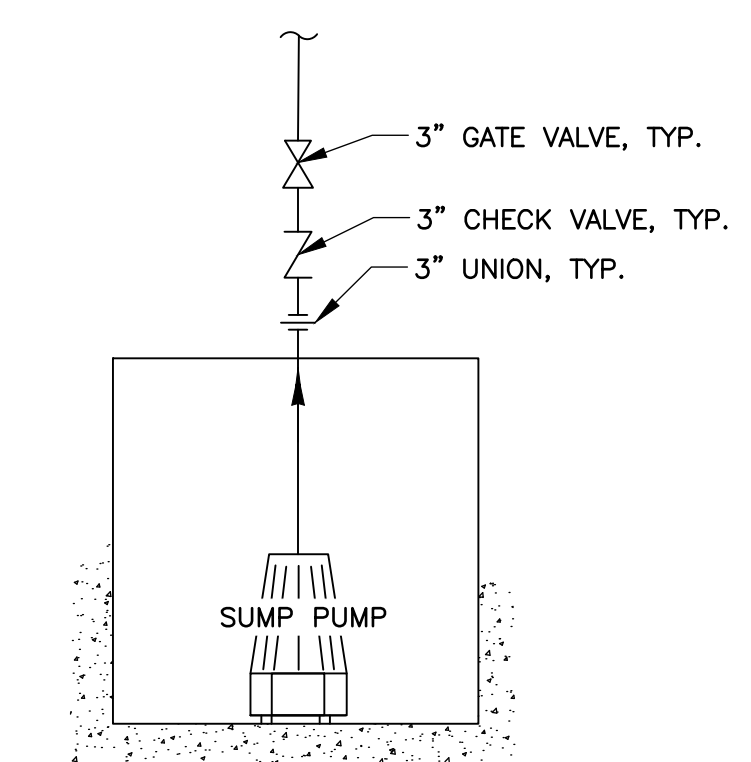
PLAN - TOP SLAB REMOVED
 SCALE: 1/2" = 1'-0"



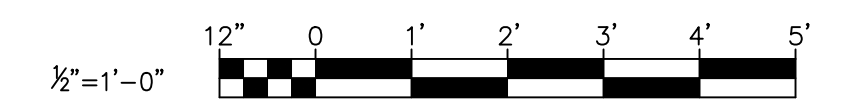
SUMP PUMP PLAN
 NOT TO SCALE



SECTION
 SCALE: 1/2" = 1'-0"



SUMP PUMP SECTION
 NOT TO SCALE



PROJECT STATUS: **100% SUBMITTAL**

I:\BLS\100\20210701\0712_MCHENR\SMITHSBURG DESIGN-ENR TO 1450\ADD\04 CONTRACT DRAWINGS\PLANS\0712_L&RD\DWG\PLANS\2021.2.42_PN\09.dwg

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
 DRAWN BY: ENV DRAFTERS
 CHECKED BY: KCD
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PINCH VALVE AND METERING VAULT PLAN AND SECTION

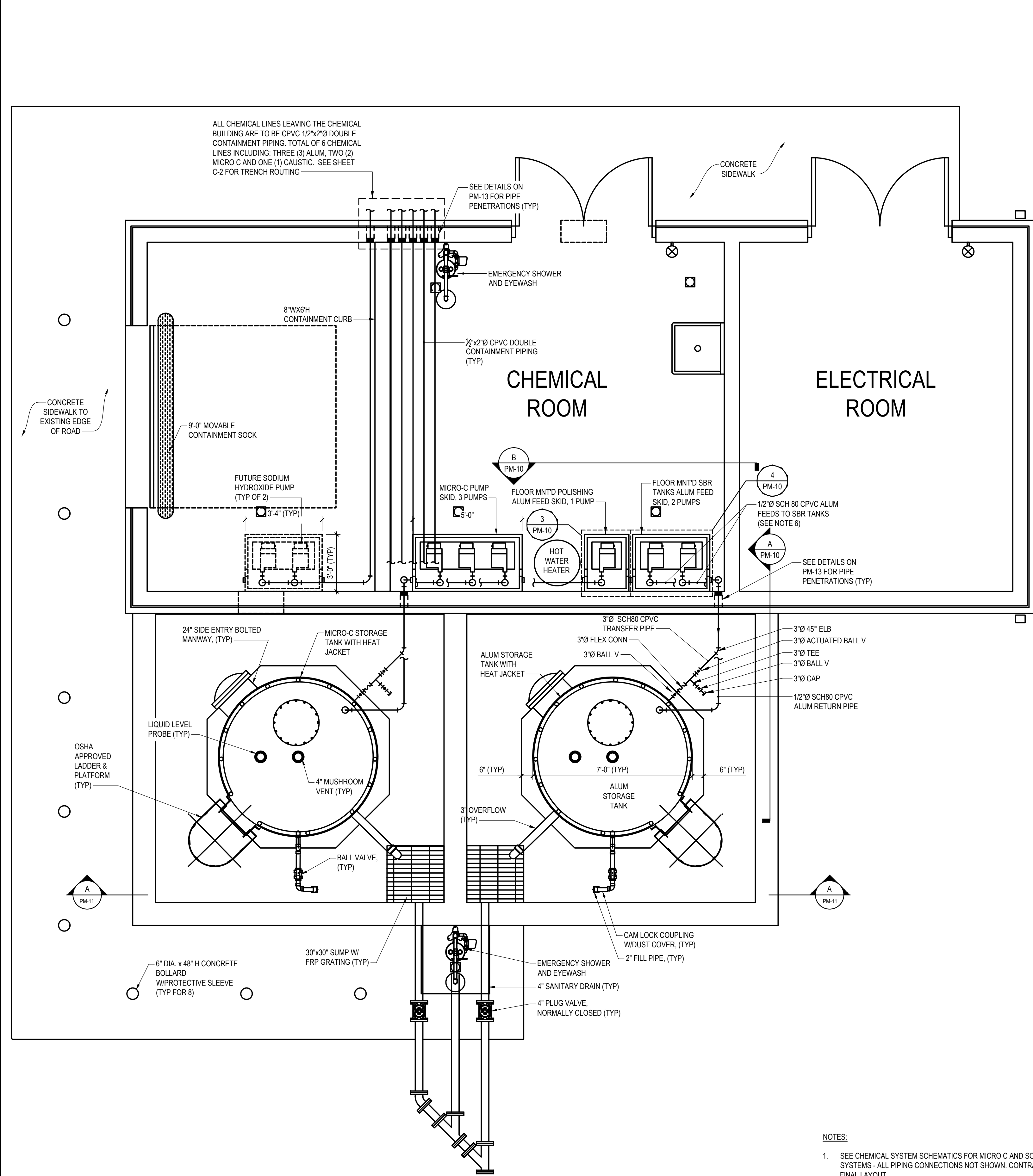
SHEET NO: **PM-9**

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 05/20/23
DRAWN BY: KS
CHECKED BY: AEC
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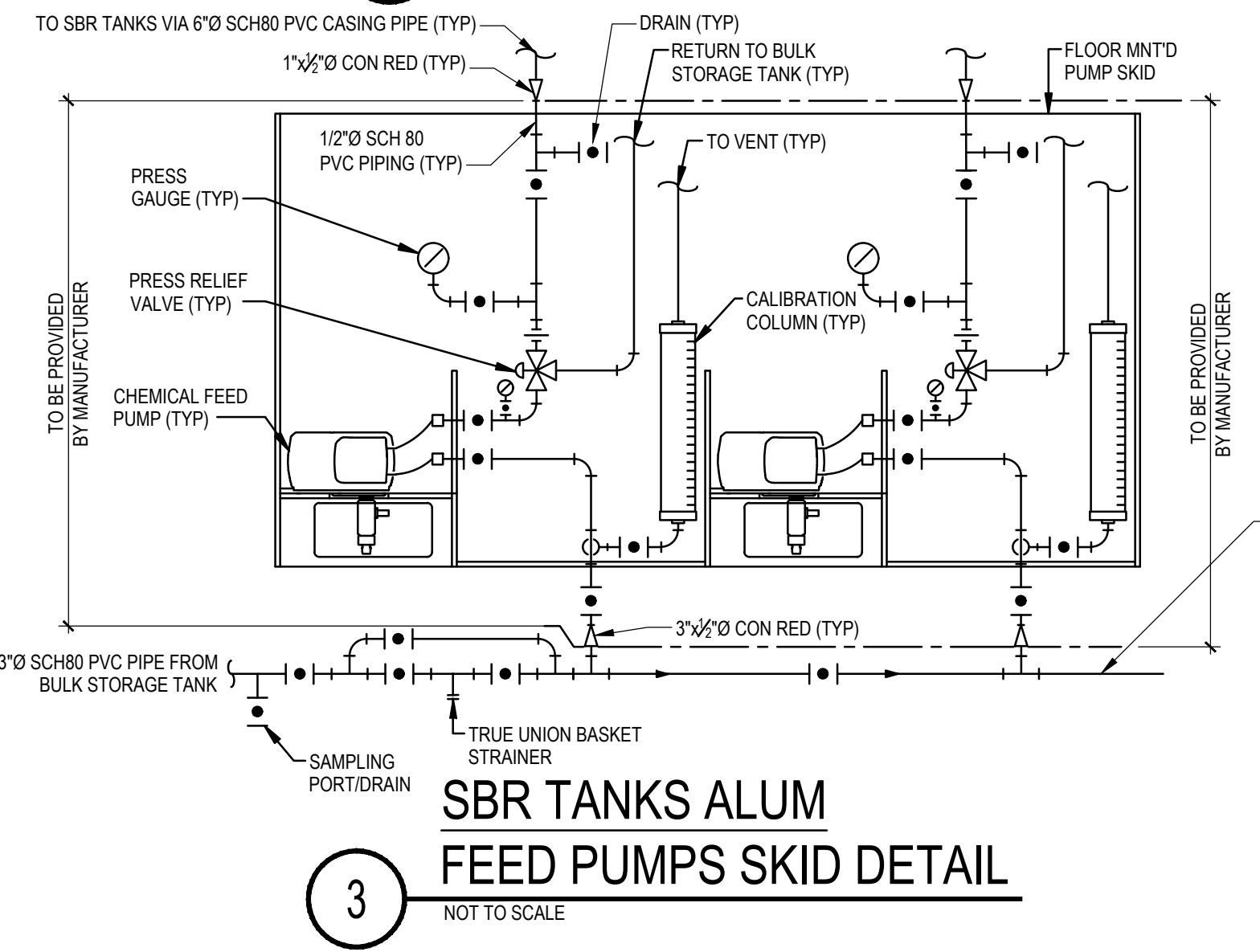
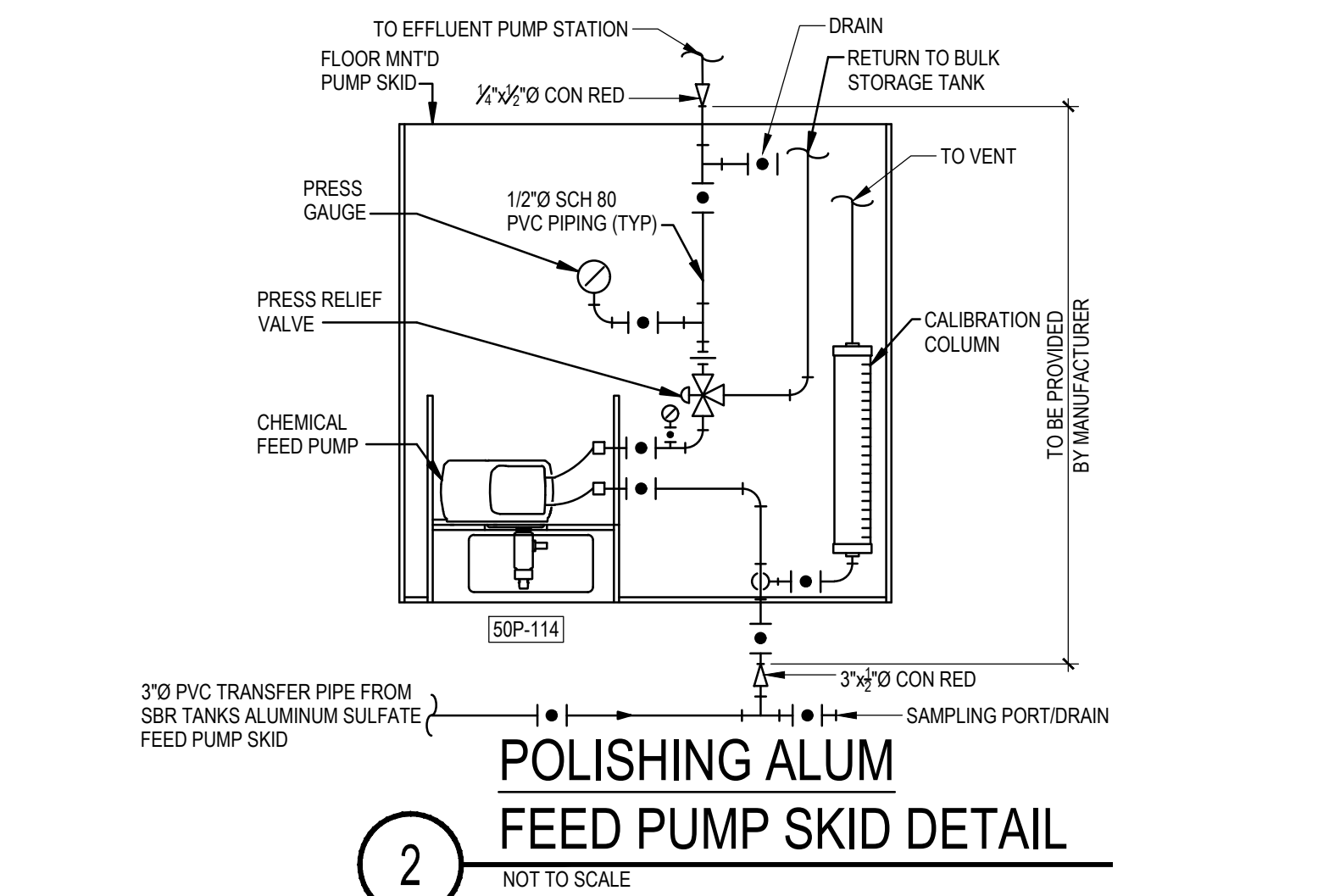
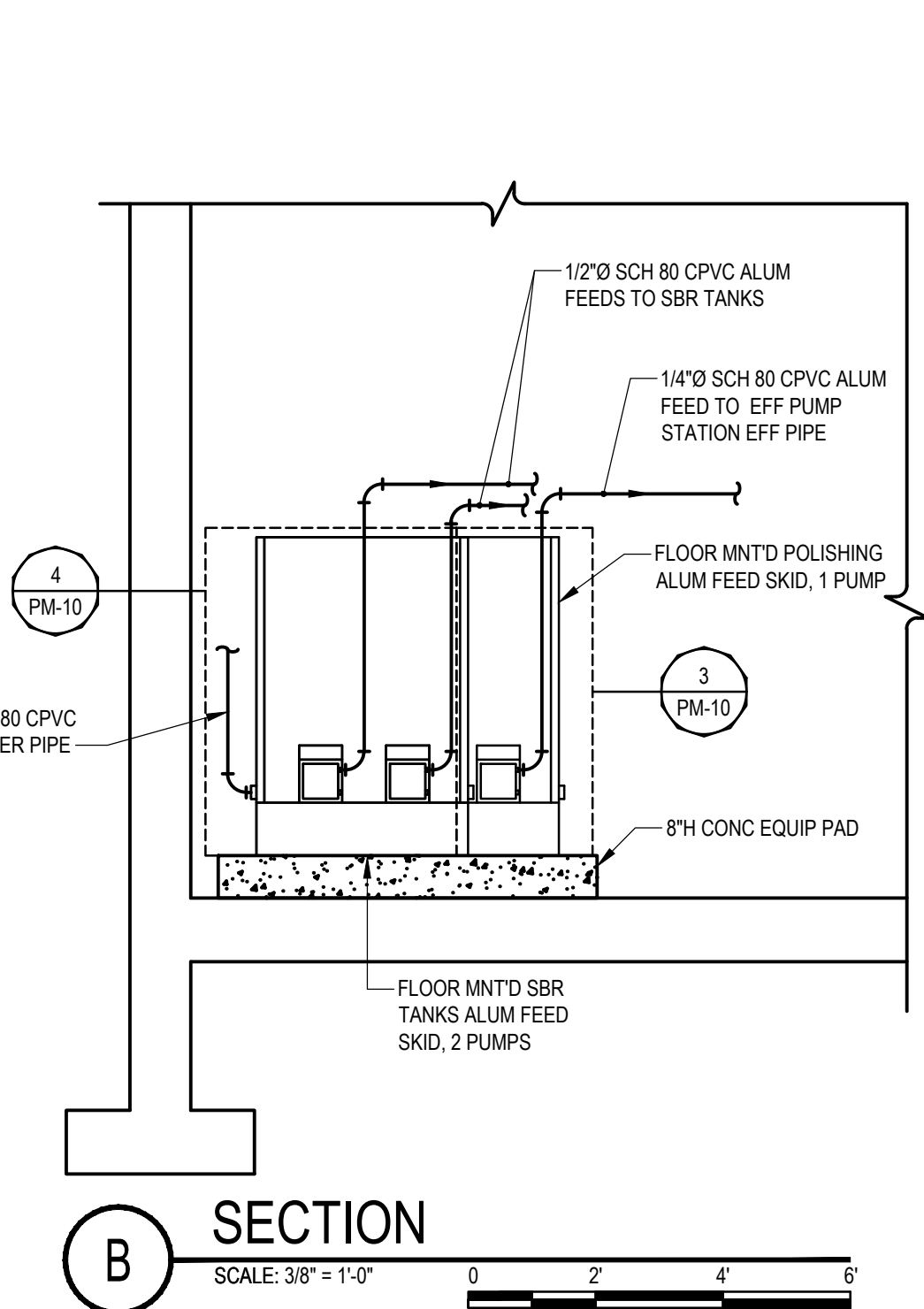
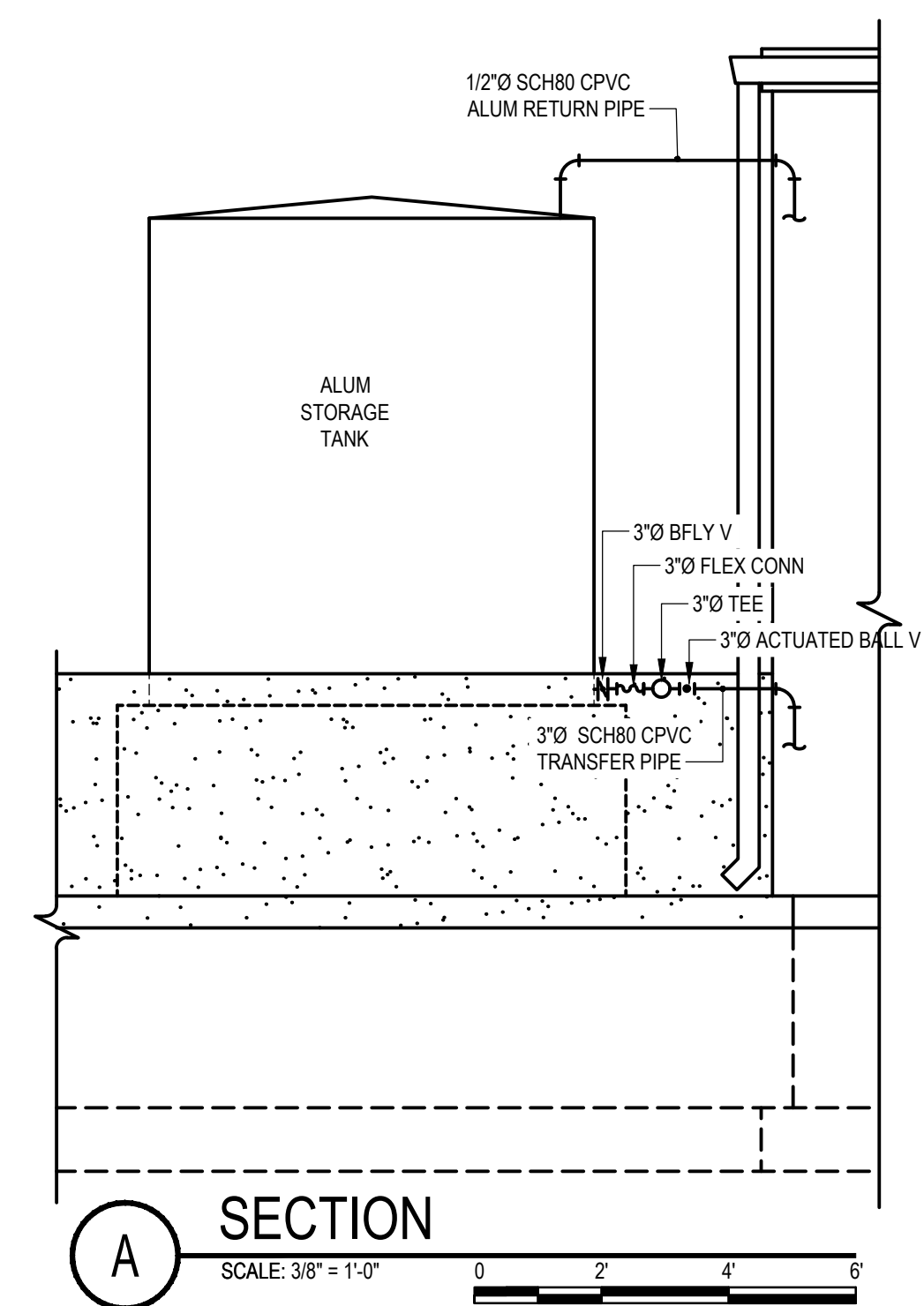
SHEET TITLE:
CHEMICAL BUILDING AND CHEMICAL CONTAINMENT PLAN

SHEET NO:
PM-10



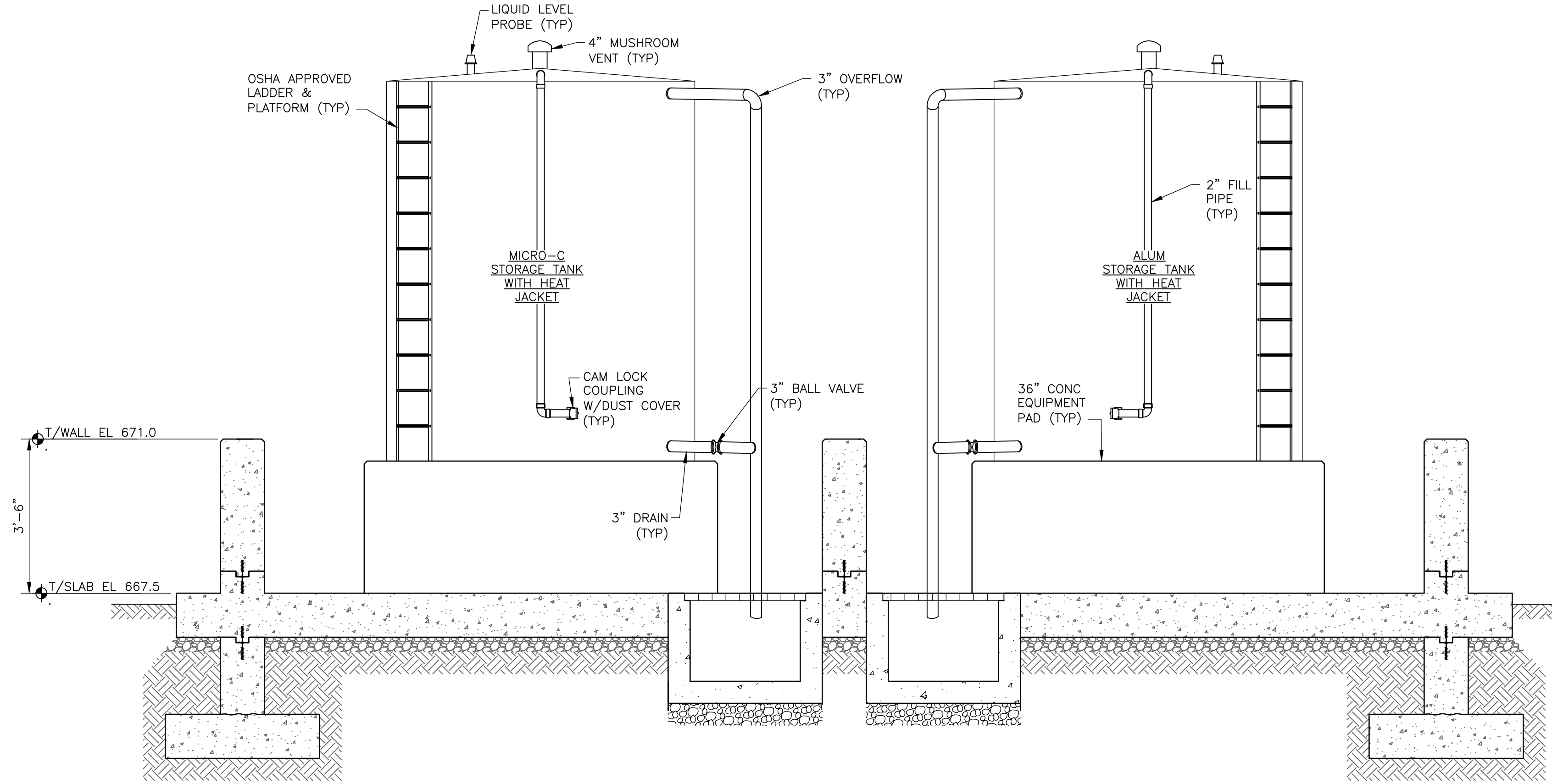
1 FLOOR PLAN
SCALE: 3/8" = 1'-0"
0 2 4 6
PROJECT NORTH

- NOTES:**
- SEE CHEMICAL SYSTEM SCHEMATICS FOR MICRO C AND SODIUM HYDROXIDE SYSTEMS - ALL PIPING CONNECTIONS NOT SHOWN. CONTRACTOR RESPONSIBLE FOR FINAL LAYOUT.
 - SEE POTABLE WATER RISER DIAGRAM FOR POTABLE WATER SYSTEM REQUIREMENTS. CONTRACTOR RESPONSIBLE FOR FINAL LAYOUT.
 - ALL DRAIN PIPING SHALL HAVE A MINIMUM SLOPE OF 1/8-INCH PER FOOT.
 - ALL EXTERIOR PIPING SHALL BE INSULATED AND HEAT TRACED. SEE ELECTRICAL SHEETS FOR DETAIL.
 - UNLESS OTHERWISE NOTED, SUPPORT ALL PIPING ALONG WALLS WITH THE APPROPRIATE PIPE SUPPORT.
 - SLOPE ALL CHEMICAL FEED LINES 1/8" PER FOOT TOWARDS RESPECTIVE FEED PUMP.



PROJECT STATUS: **100% SUBMITTAL**

J:\AL\SRV\2021\0712_MICENR\SMITHSBURG DESIGN-ENR TO 045CAD\04 CONTRACT DRAWINGS\PM-11\0712_L&RD.DWG\PM-11\0712_2.42 PM-11.dwg Date



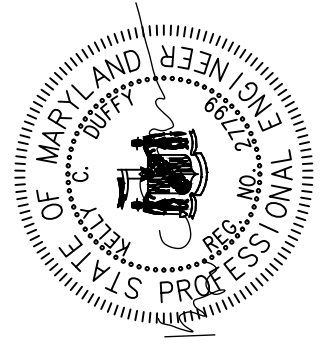
SECTION
SCALE: 1/2" = 1'-0"



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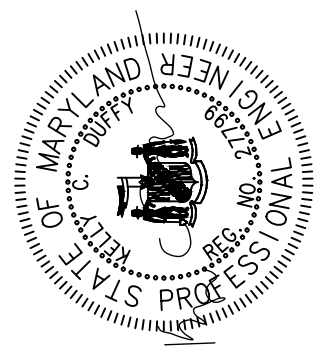
SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22323 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLIOTT PARKWAY
WILMINGTON, MARYLAND 21786

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	CMB
CHECKED BY:	KCD
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SHEET TITLE:
CHEMICAL TANK CONTAINMENT SECTION



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

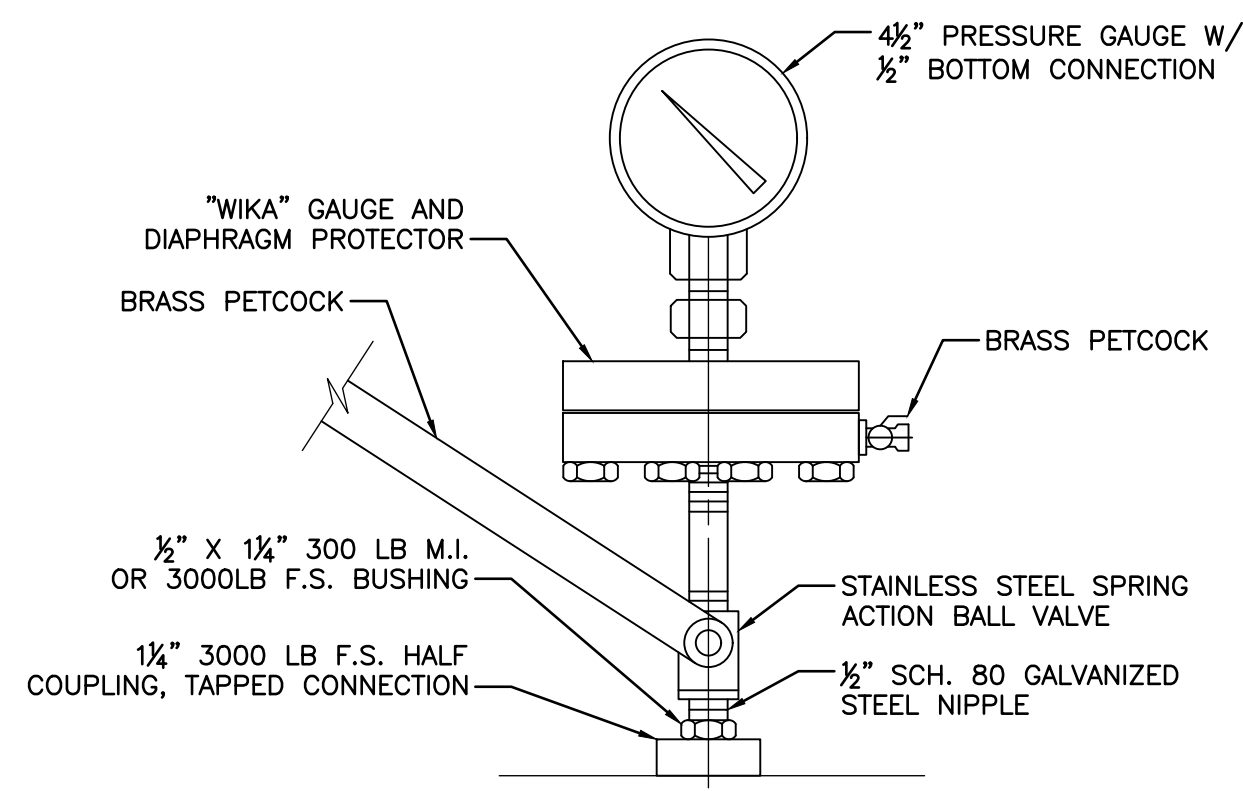
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	ENV DRAFTERS
CHECKED BY:	KCD
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SHEET TITLE:	

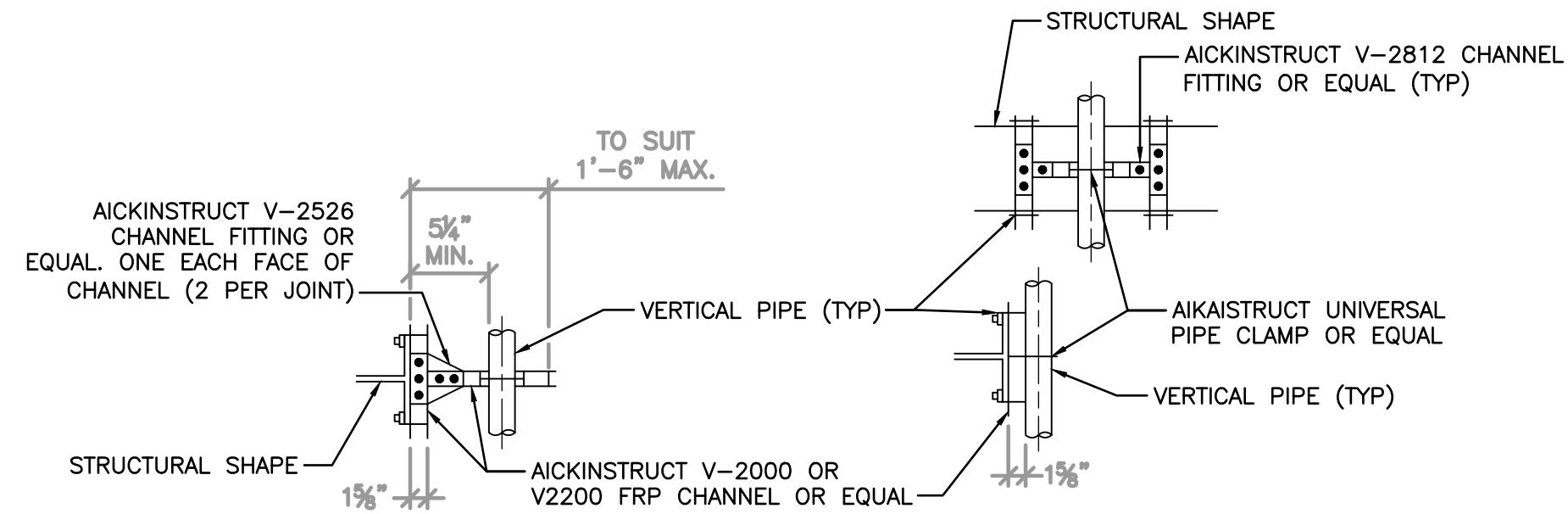
STANDARD
DETAILS

SHEET NO:
PM-12



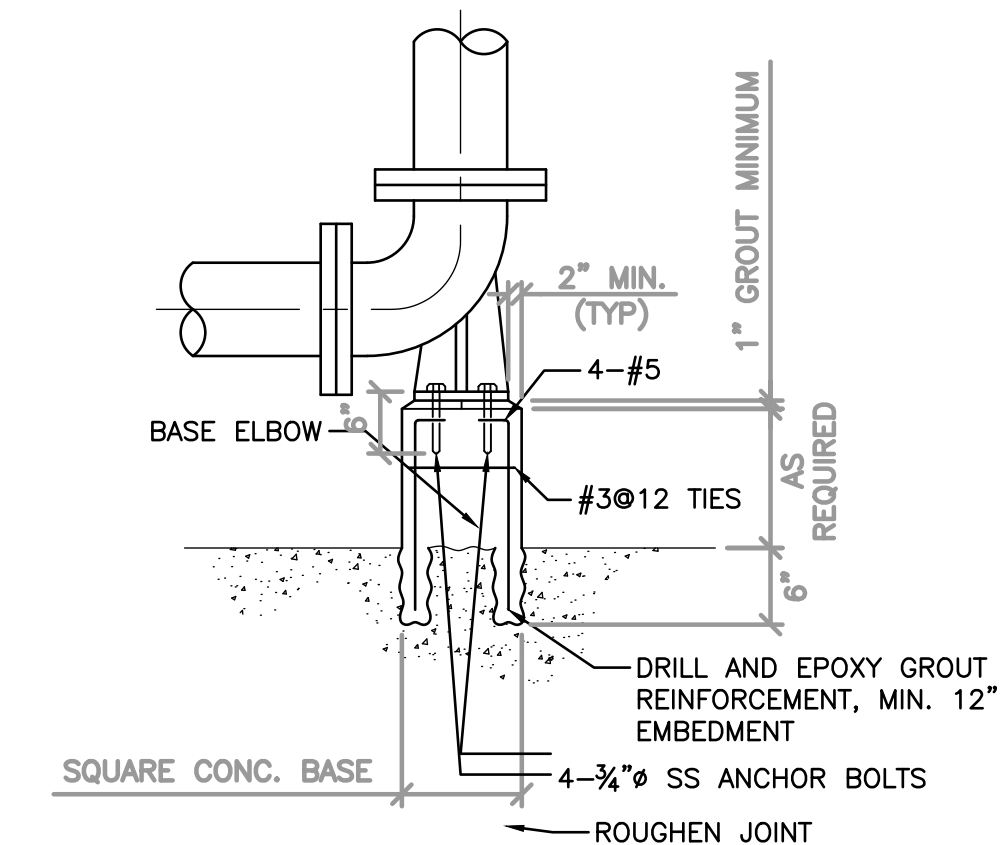
NOTE:
1. ALL MATERIAL TO BE STAINLESS STEEL (304 OR 316) UNLESS SHOWN OTHERWISE.

1 PRESSURE GAUGE OR PRESSURE SWITCH
NOT TO SCALE

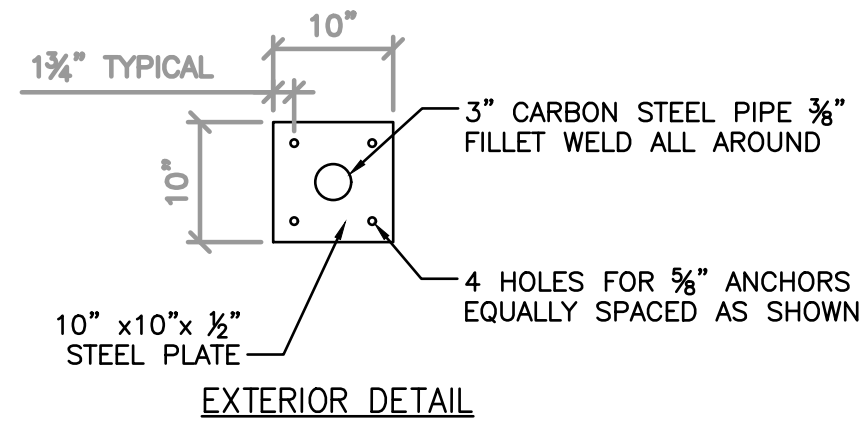


NOTES:
1. SEAL ALL CUT ENDS OF FRP CHANNEL W/ AICKINSEAL OR FIELD CUTTING SEALANT.
2. ALL FITTING TO CHANNEL FASTENERS SHALL BE 3/4" 316 STAINLESS STEEL OR VINYLESTER FRP NUTS, BOLTS, WASHERS, ETC. USE FRP SPACER WITH EACH CHANNEL FASTENERS FOR 2500 SERIES AICKINSTRUCT CHANNEL FITTINGS. USE CHANNEL NUTS AND HARDWARE FOR 2800 SERIES CHANNEL FITTINGS.
3. ROTATE FRP CHANNEL TO ALIGN CHANNEL SLOT PERPENDICULAR TO PIPE CENTERLINE.

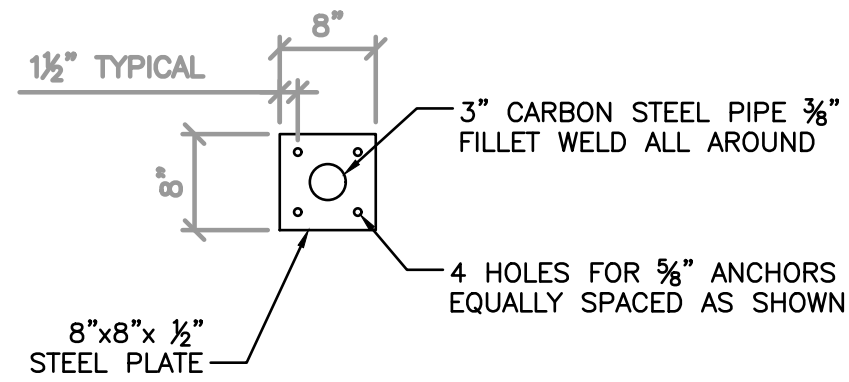
2 VERTICAL PIPE SUPPORT DETAIL
NOT TO SCALE



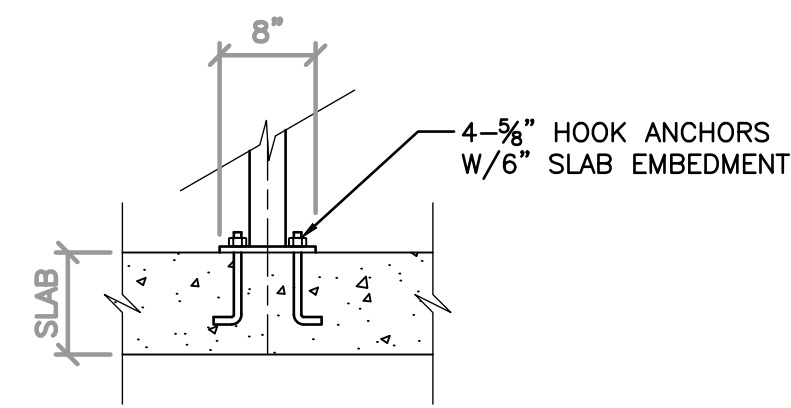
5 BASE ELBOW SUPPORT
NOT TO SCALE



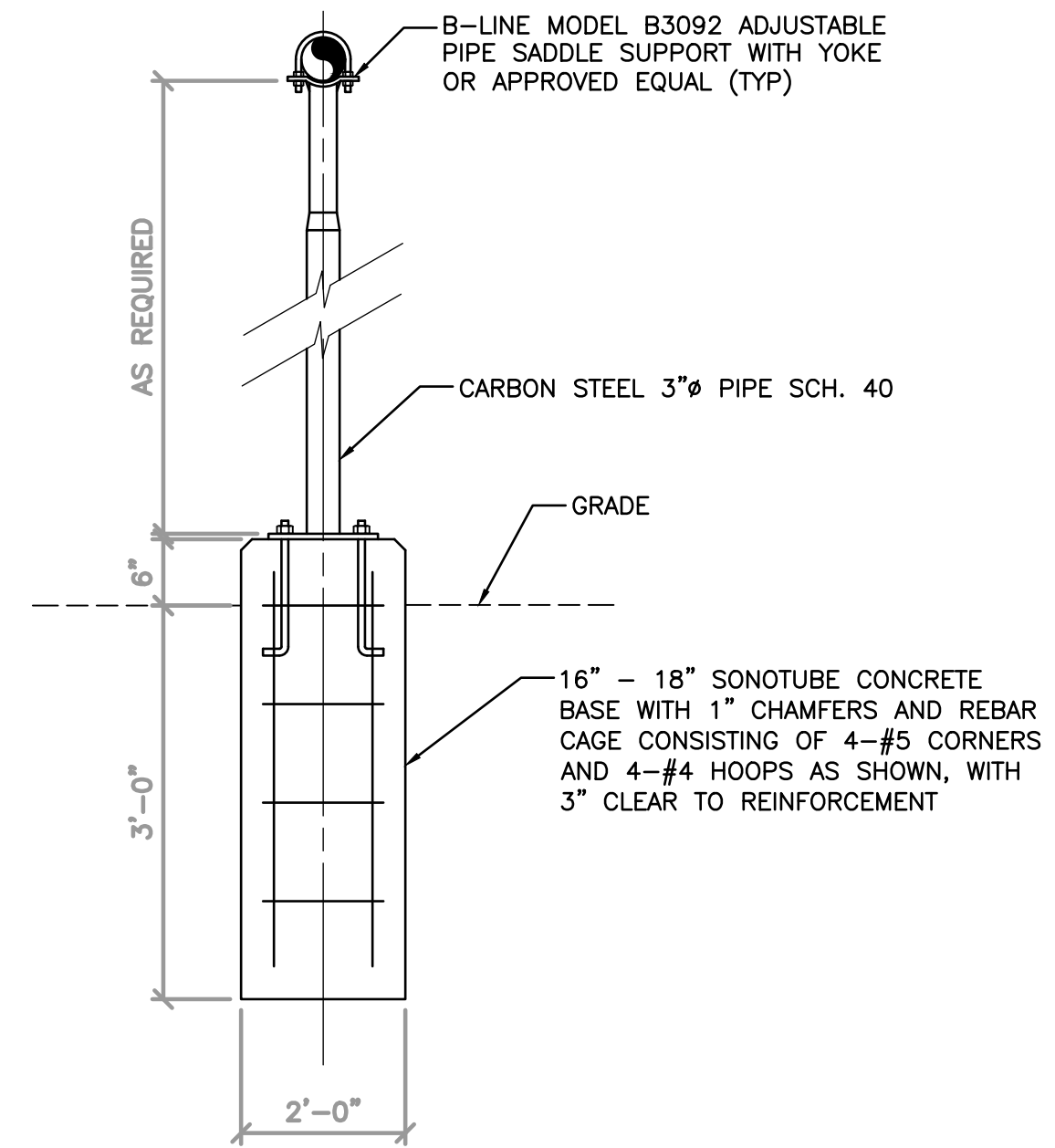
EXTERIOR DETAIL



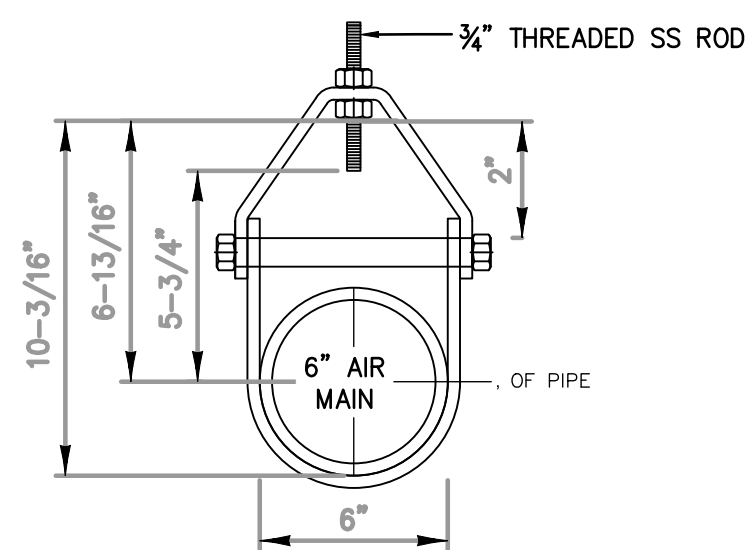
INTERIOR DETAIL



INTERIOR MOUNTING DETAIL

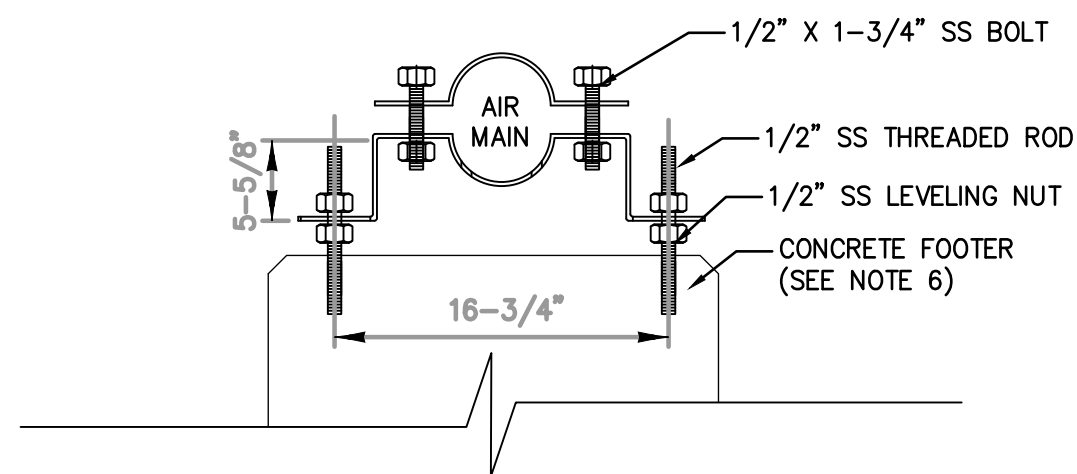


4 SINGLE PIPE SUPPORT DETAIL
NOT TO SCALE



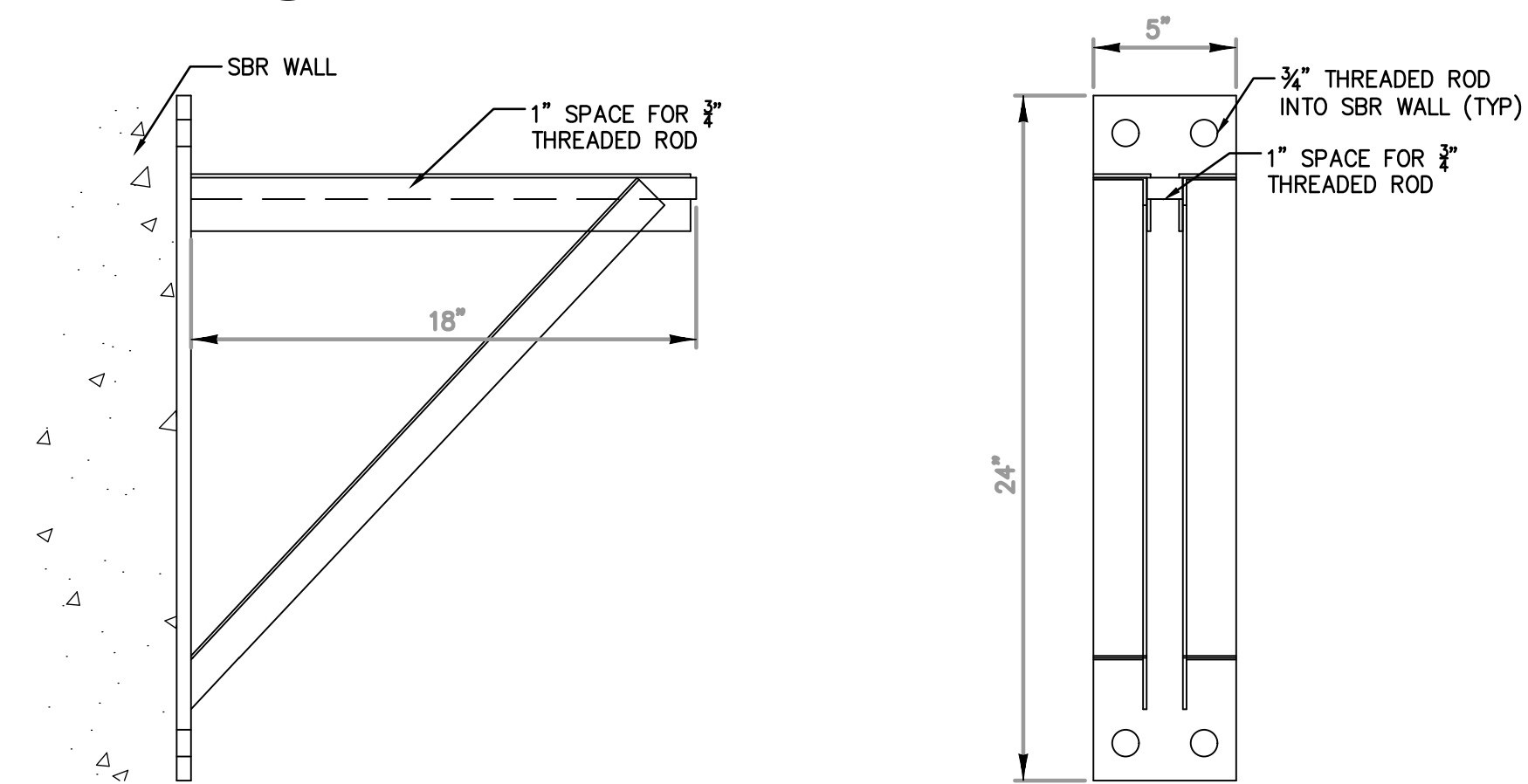
AIR MAIN CLEVIS HANGER
NOT TO SCALE

NOTES:
1. AIR MAIN CLEVIS HANGER SHALL BE USED IN CONJUNCTION WITH THE WALL BRACKET TO SUPPORT PIPING OFF OF THE EXTERIOR OF THE SBR WALL.
2. BASIS OF DESIGN FOR THE CLEVIS HANGER IS FM STAINLESS FIG. 60.
3. CLEVIS HANGER SHALL BE CONSTRUCTED OF 304 SS.



HORIZONTAL AIR MAIN SUPPORT
NOT TO SCALE

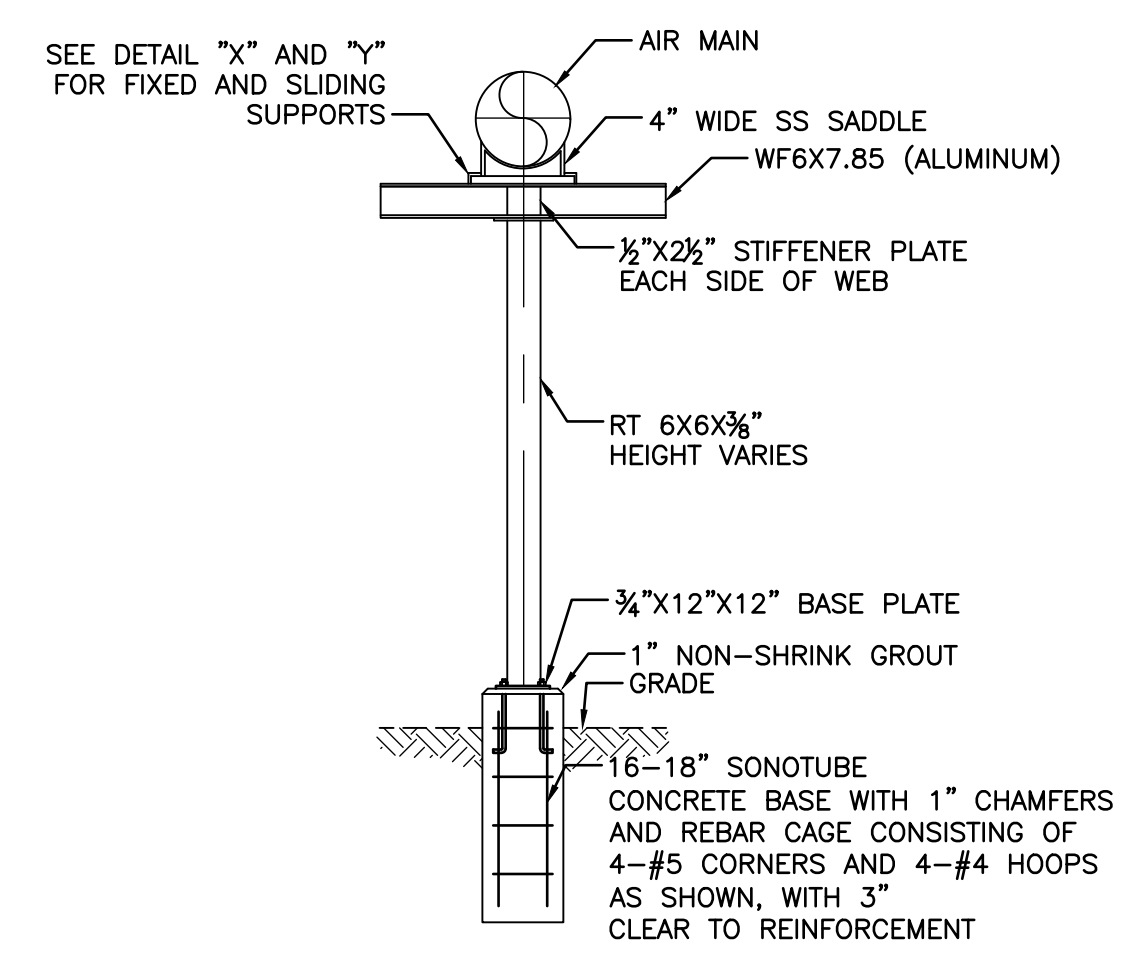
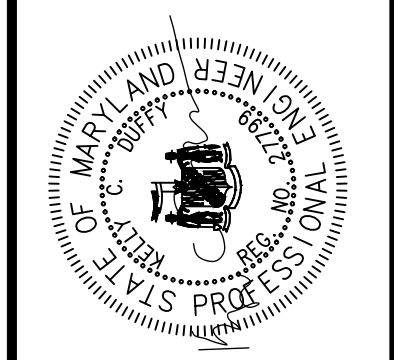
NOTES:
1. HORIZONTAL AIR MAIN SUPPORT SHALL BE USED TO SUPPORT THE AIR PIPING FROM THE GROUND IN CONJUNCTION WITH A CONCRETE FOOTER.
2. BASIS OF DESIGN FOR THE HORIZONTAL AIR MAIN SUPPORT IS FM STAINLESS FIG. 63-6.
3. HANGER SHALL BE CONSTRUCTED OF 304 SS.
4. HANGER SHALL BE 3/8" THICK AND 2" WIDE.
5. THREADED ROD SHALL BE EMBEDDED NO LESS THAN 3" INTO THE CONCRETE FOOTER AND SECURED USING A HILTI ANCHORING SYSTEM.
6. TOP OF CONCRETE FOOTER SHALL BE ELEVATION 677.50 AND SHALL BE DESIGNED IN ACCORDANCE WITH DETAIL 4 ABOVE.



AIR MAIN WALL BRACKET
NOT TO SCALE

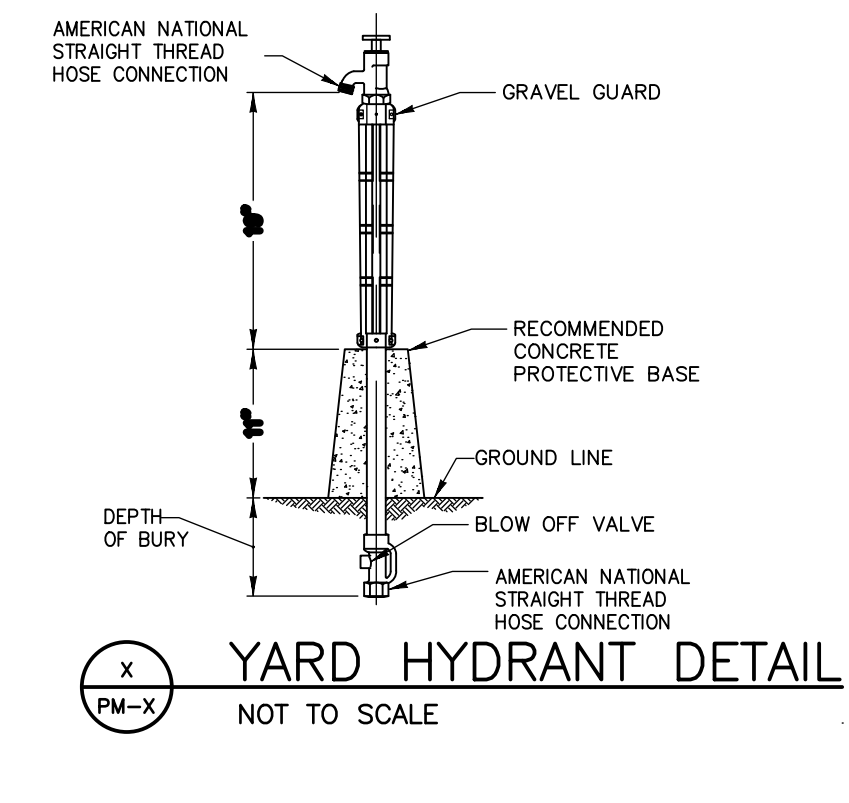
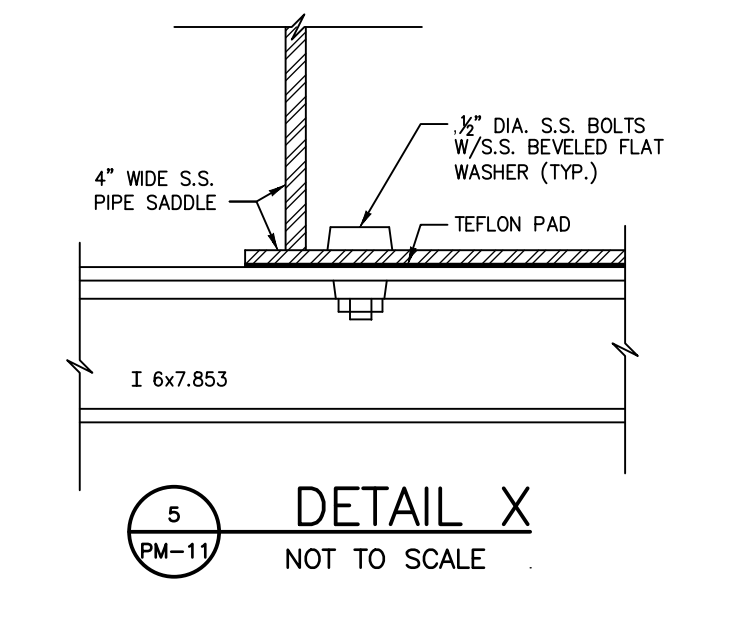
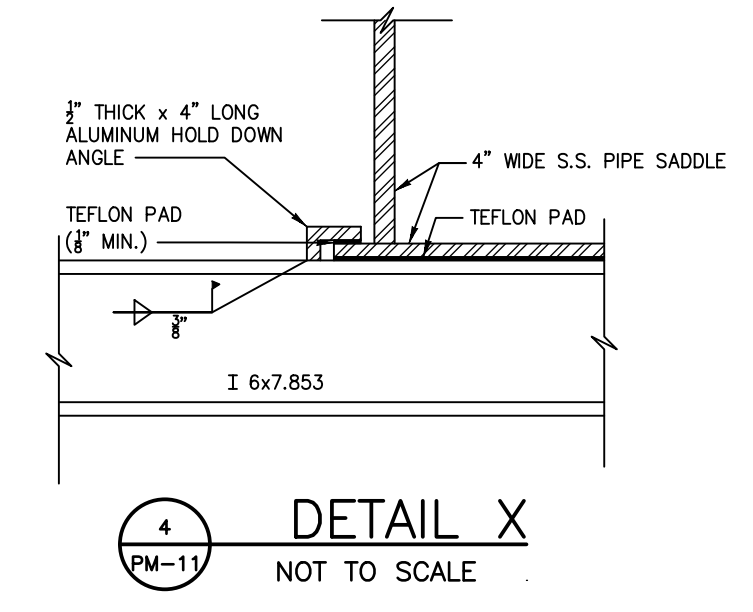
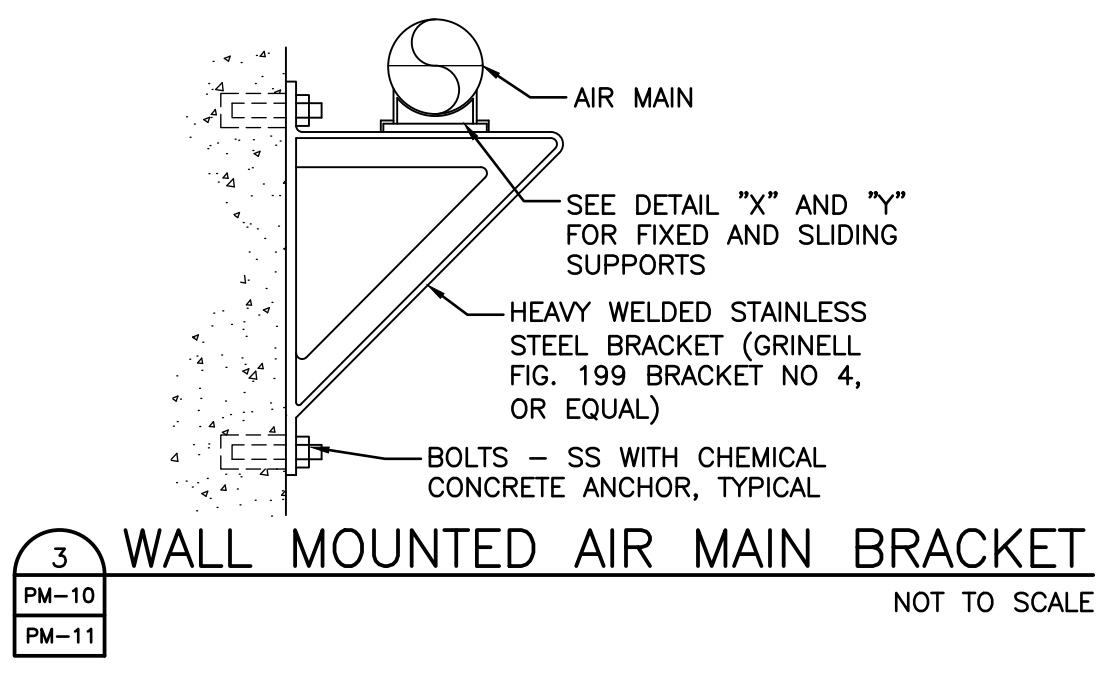
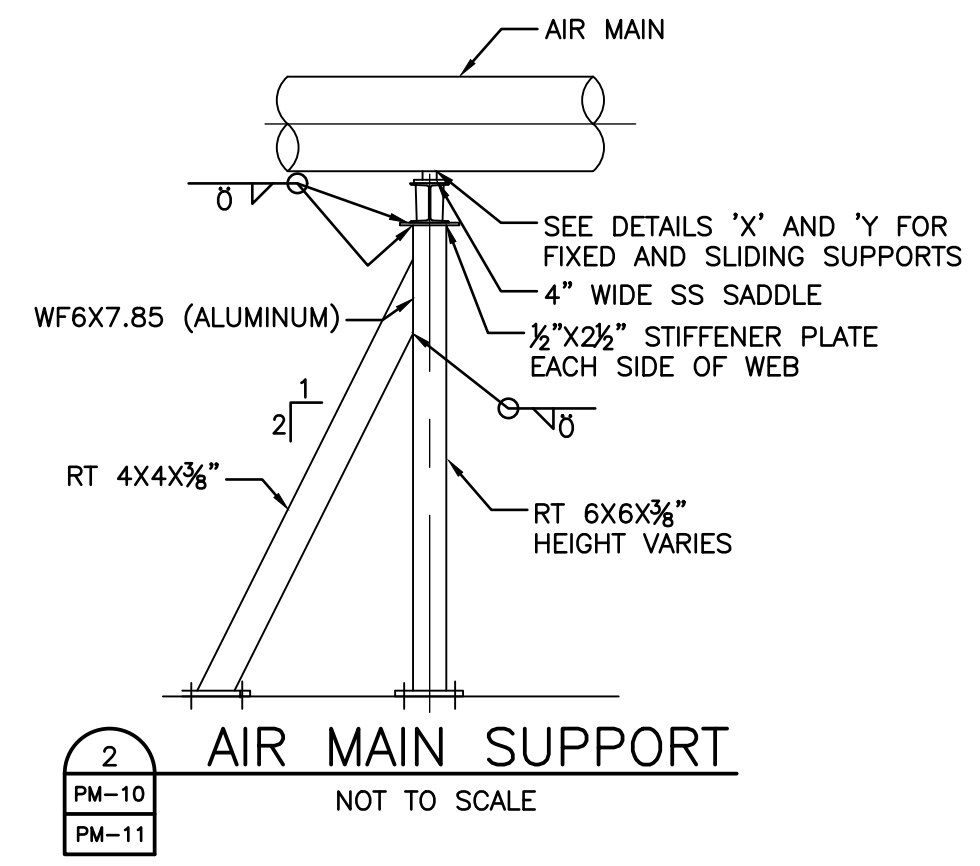
NOTES:
1. AIR MAIN WALL BRACKET SHALL BE USED IN CONJUNCTION WITH THE AIR MAIN CLEVIS HANGER TO SUPPORT PIPING OFF OF THE EXTERIOR OF THE SBR WALL.
2. BASIS OF DESIGN FOR THE WALL HANGER IS FM STAINLESS FIG. 239-1.
3. WALL HANGER SHALL BE CONSTRUCTED OF 304 SS.

100% SUBMITTAL

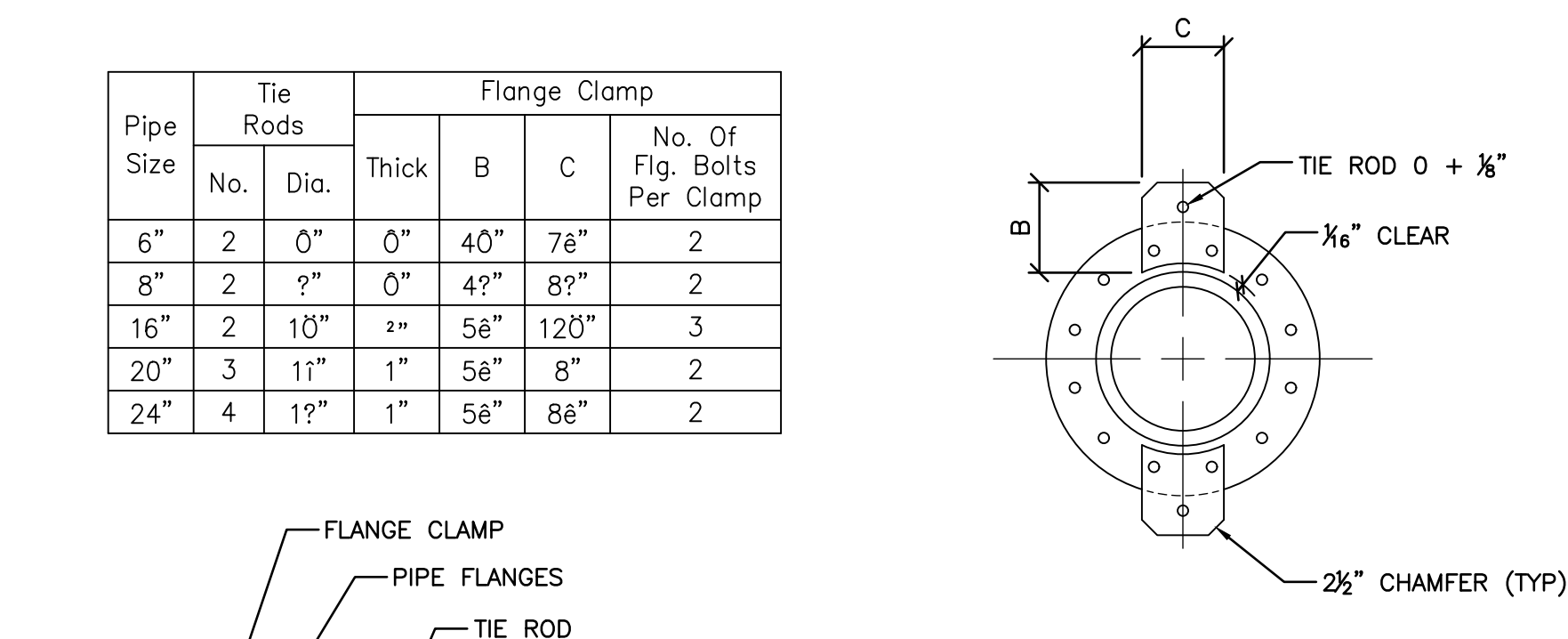


NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR SADDLE DESIGN.
2. SADDLE SHALL BE WELDED TO THE PIPING.

1
PM-10
PM-11
AIR MAIN SUPPORT
NOT TO SCALE

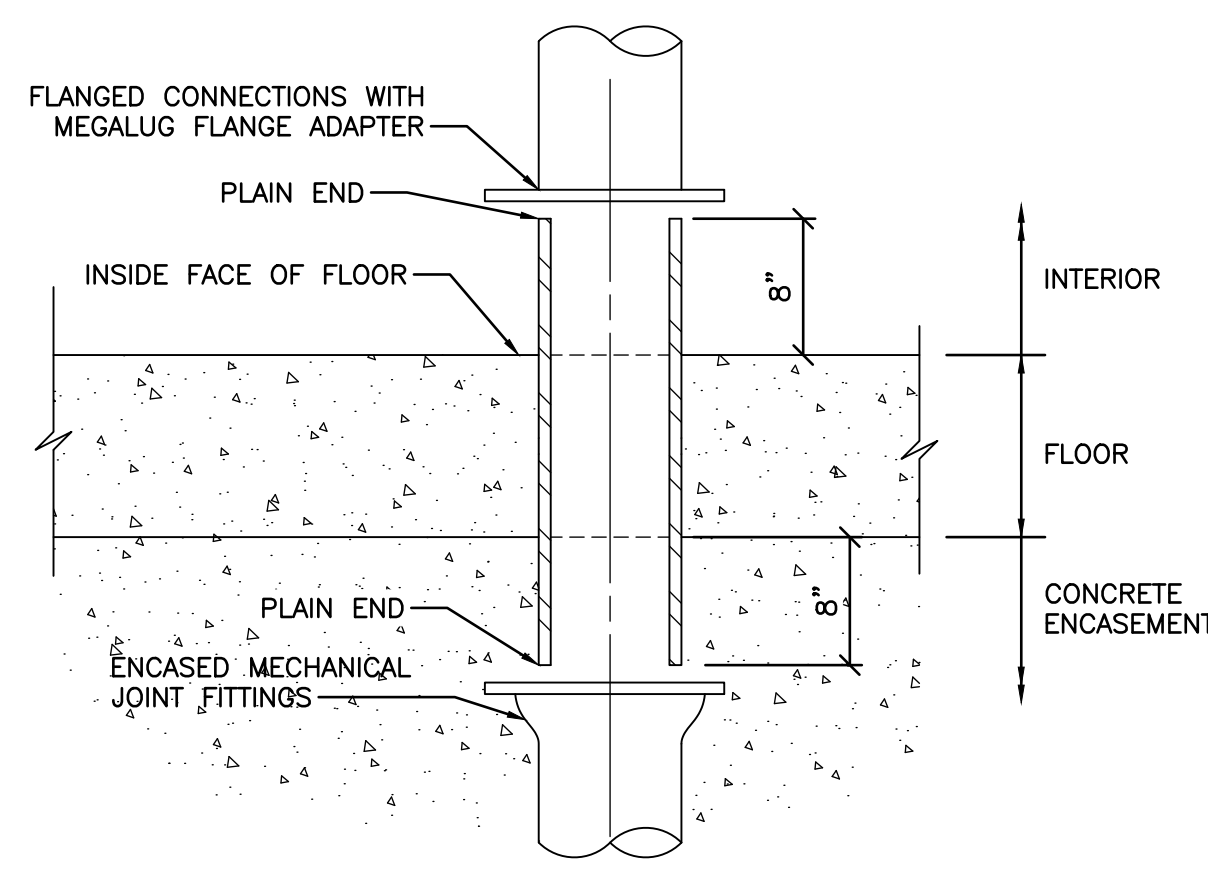


Pipe Size	Tie Rods		Flange Clamp				No. Of Flg. Bolts Per Clamp
	No.	Dia.	Thick	B	C		
6"	2	0"	0"	40"	7e"	2	
8"	2	?	0"	4?"	8?"	2	
16"	2	10"	2"	5e"	120"	3	
20"	3	11"	1"	5e"	8"	2	
24"	4	12"	1"	5e"	8e"	2	



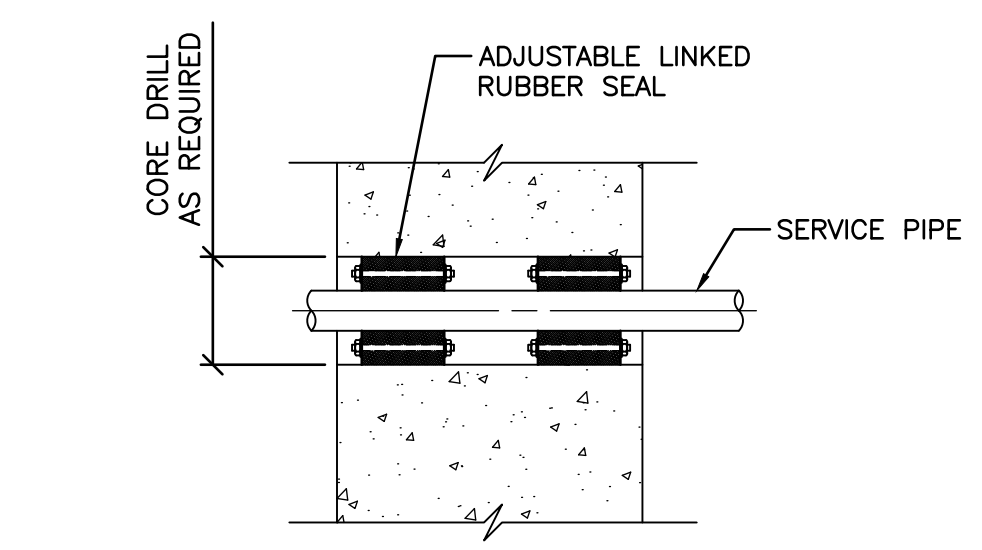
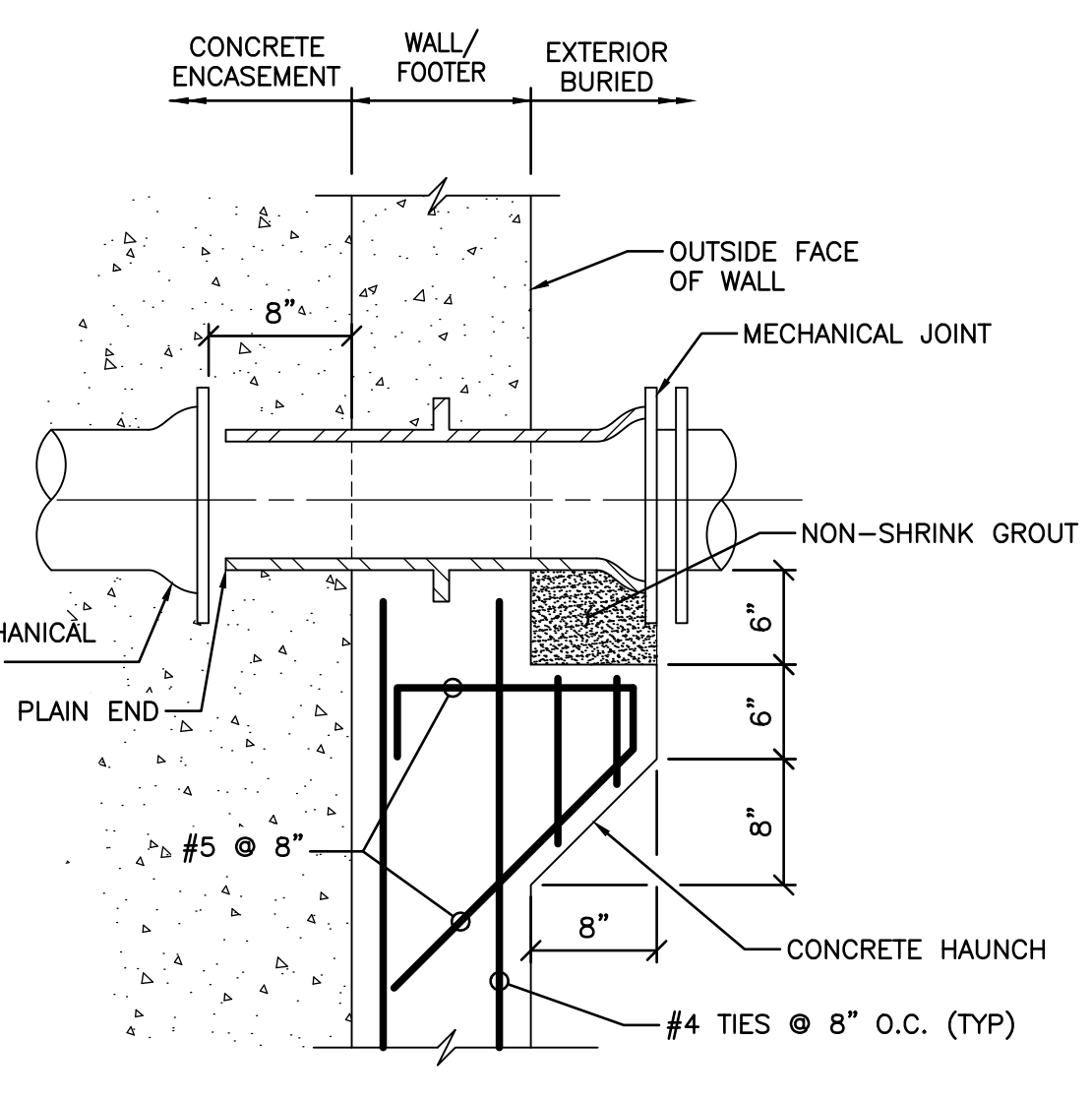
NOTES:
1. ONE TIE ROD PER FLANGE CLAMP, FLANGE CLAMPS EQUALLY SPACED AROUND PIPES.
2. ALL FLEXIBLE COUPLINGS AND FLANGE ADAPTERS TO HAVE TIE RODS IN ACCORDANCE WITH THE TABLE ABOVE.

2
PM-
SLEEVE TYPE COUPLING AND TIE ROD ASSEMBLY
NOT TO SCALE



NOTES:
1. TYPICAL AT ALL DUCTILE IRON WALL AND BASE SLAB PIPE PENETRATIONS.

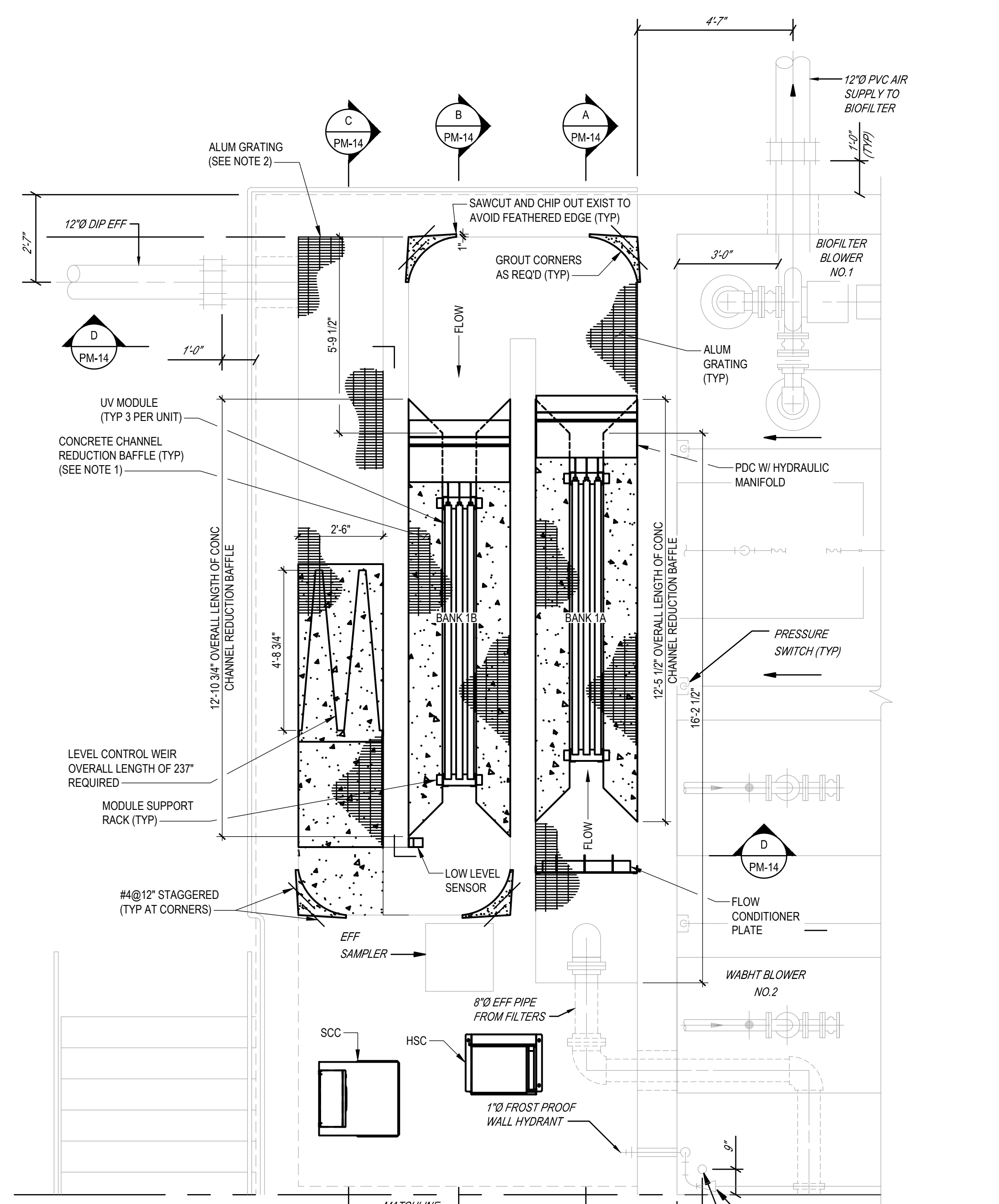
4
PM-
TYPICAL DUCTILE IRON PIPE PENETRATIONS
NOT TO SCALE



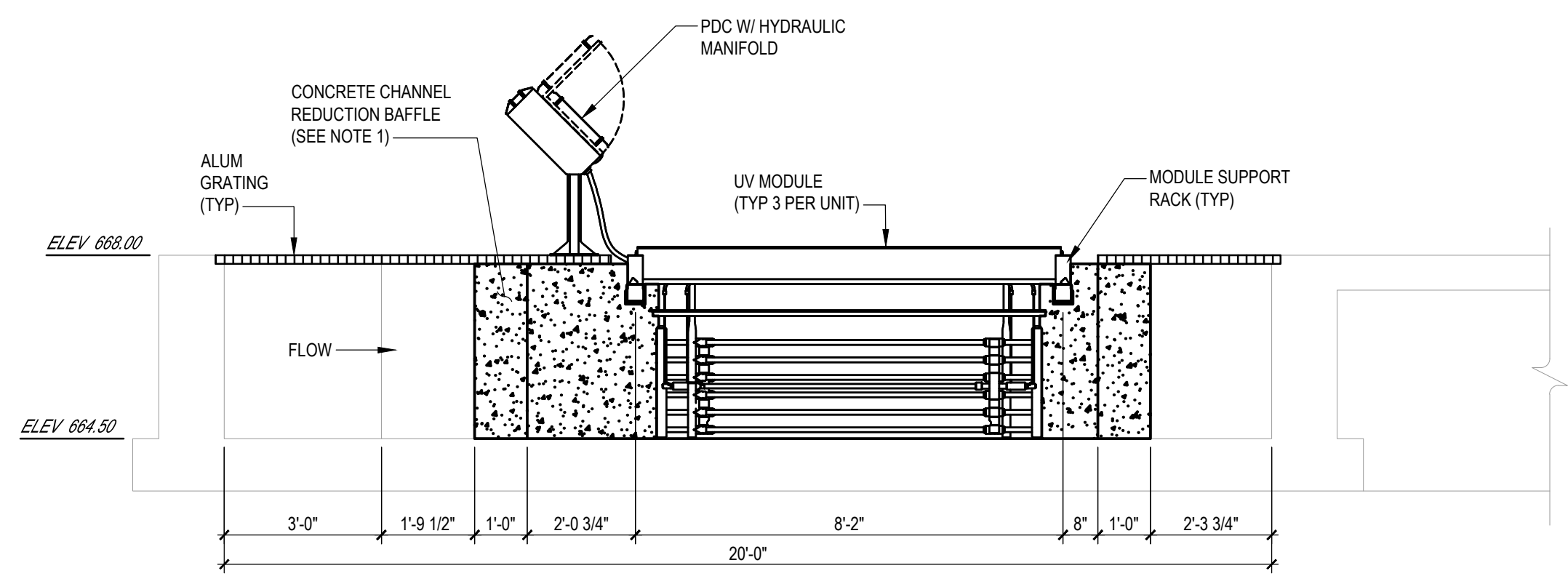
3
PM-
PIPE WALL PENETRATION
NOT TO SCALE

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WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
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WILLIAMSPORT, MARYLAND 21785

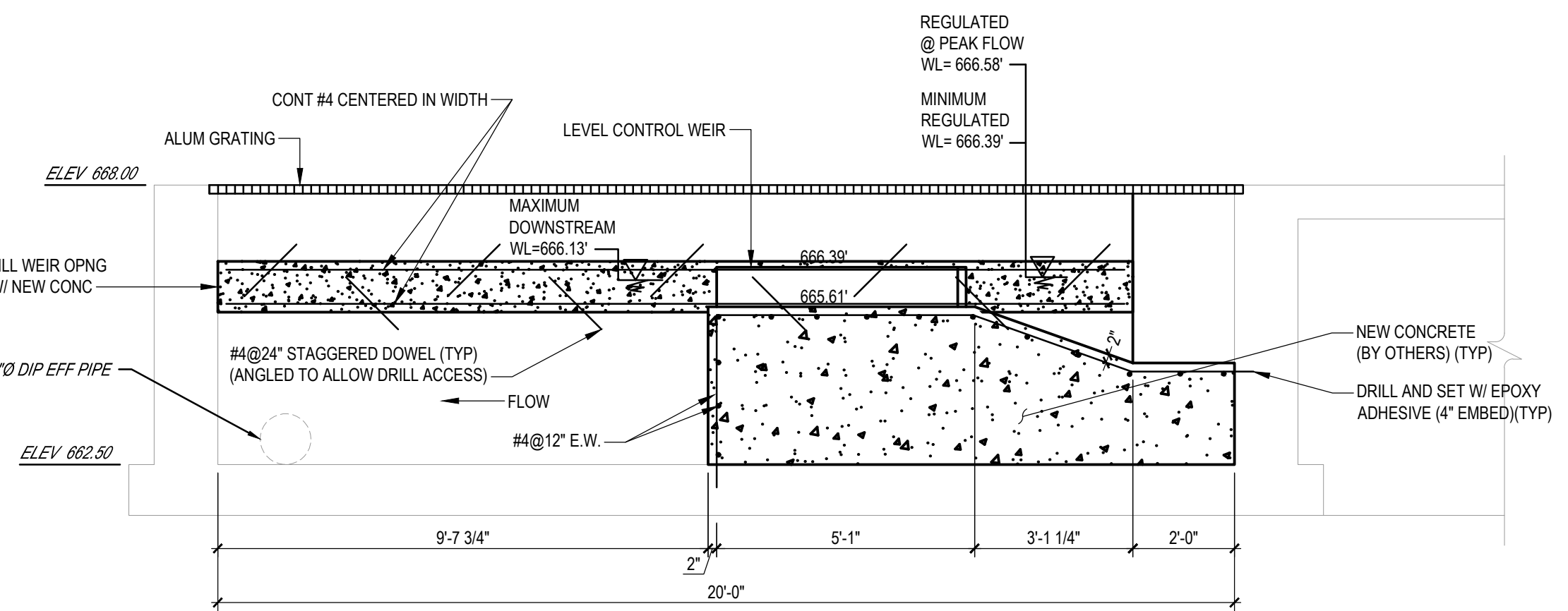
UGAL_Srv/02/2021/07012_MCCENRS/SMITHSBURG DESIGN - ENR TO 045CAD/DIV CONTRACT DRAWING/SP4.1/07012_EXP/DWG/SP4.13/02/2021_2.43_PMD/ama.Dwg



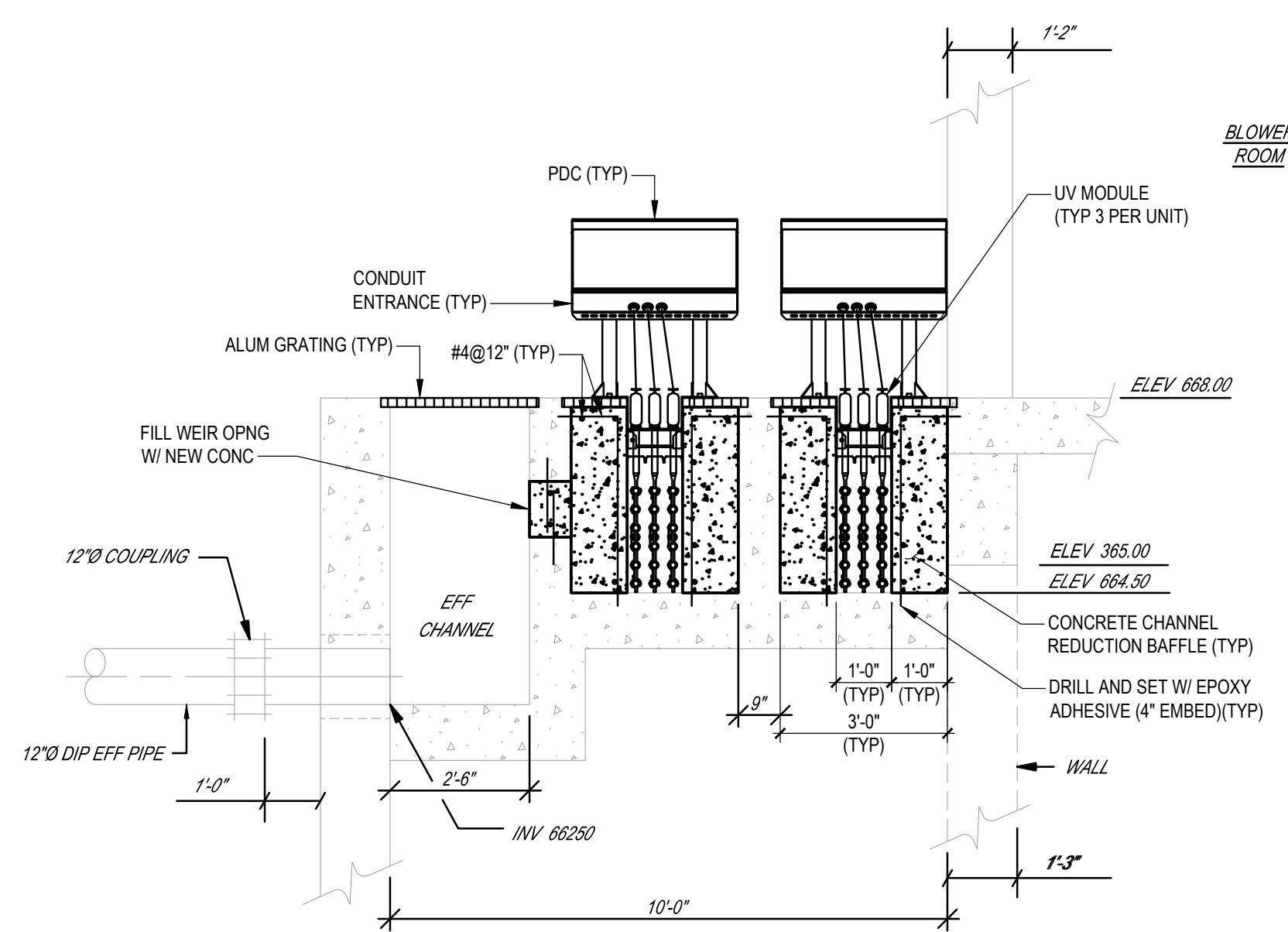
1 FLOOR PLAN
SCALE: 3/8" = 1'-0"
0 2 4 6



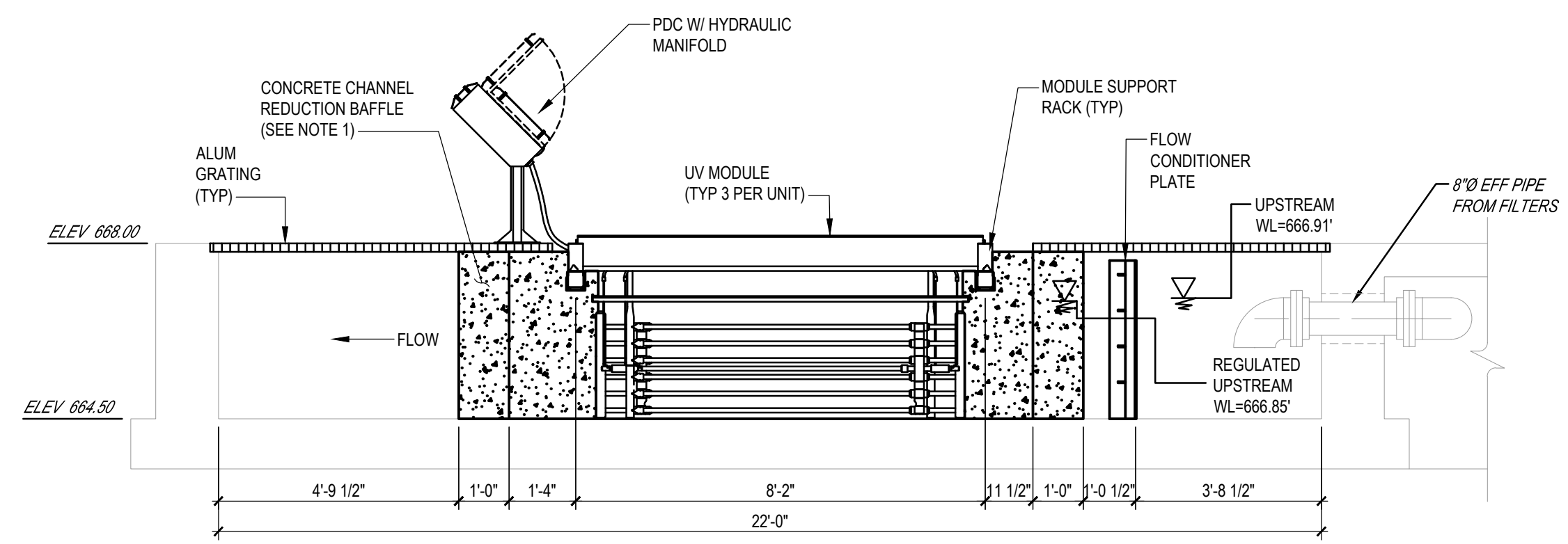
B SECTION
SCALE: 3/8" = 1'-0"
0 2 4 6



C SECTION
SCALE: 3/8" = 1'-0"
0 2 4 6



D SECTION
SCALE: 3/8" = 1'-0"
0 2 4 6



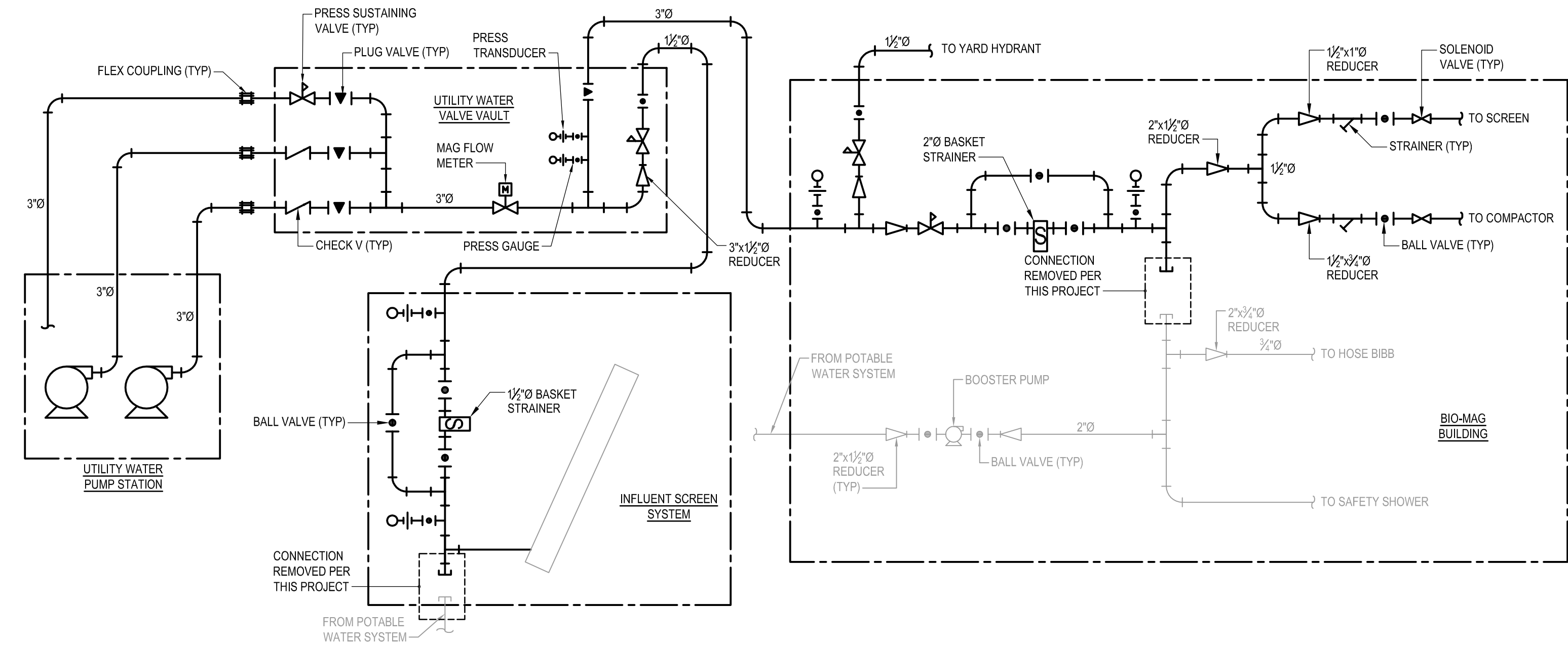
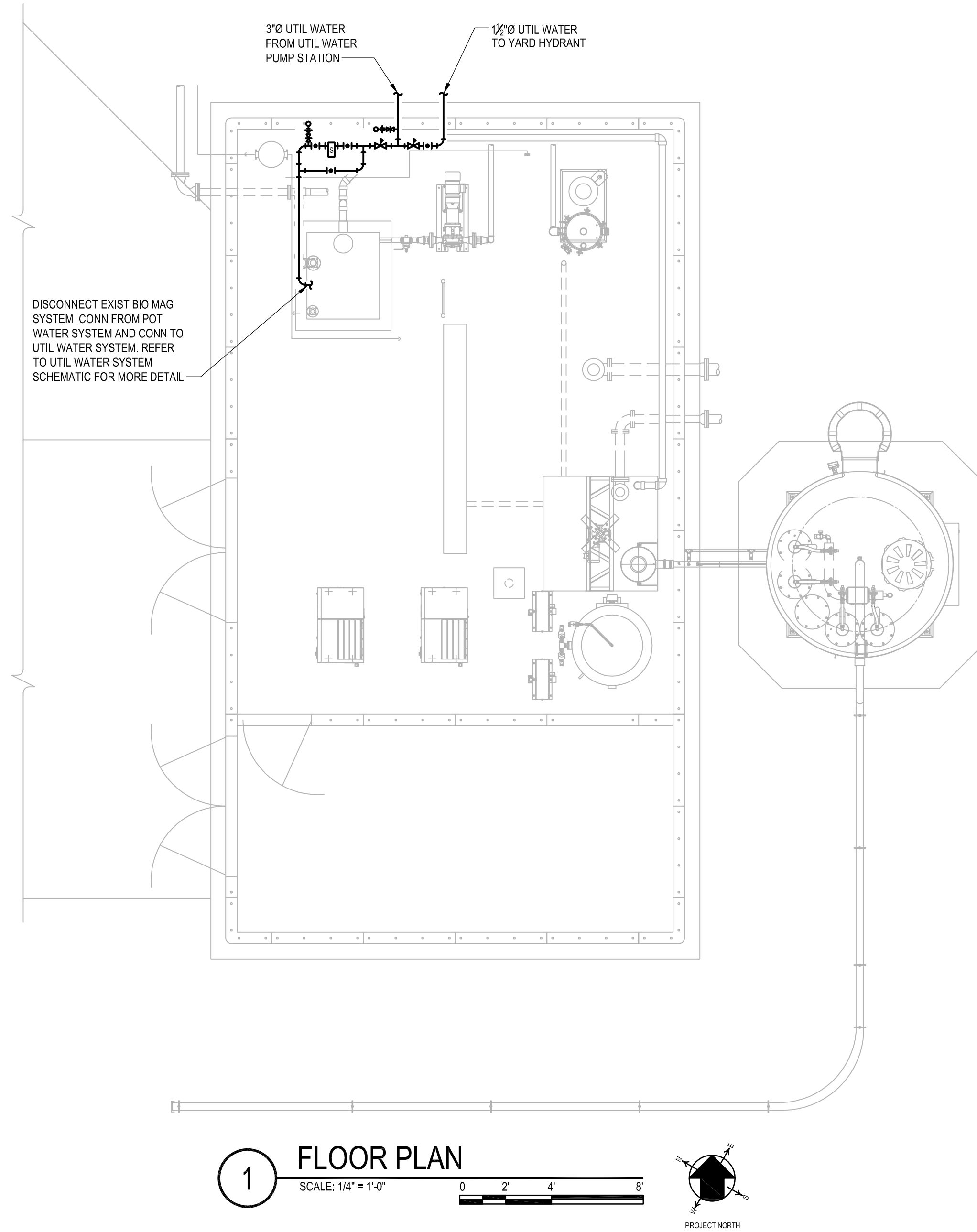
A SECTION
SCALE: 3/8" = 1'-0"
0 2 4 6

- NOTES:**
- COORDINATE CONCRETE CHANNEL REDUCTION BAFFLE WITH UV MANUFACTURER.
 - WHERE ABLE, MAINTAIN EXISTING ALUMINUM GRATING. PROVIDE NEW ALUMINUM GRATING AS NEEDED.

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 05/20/23
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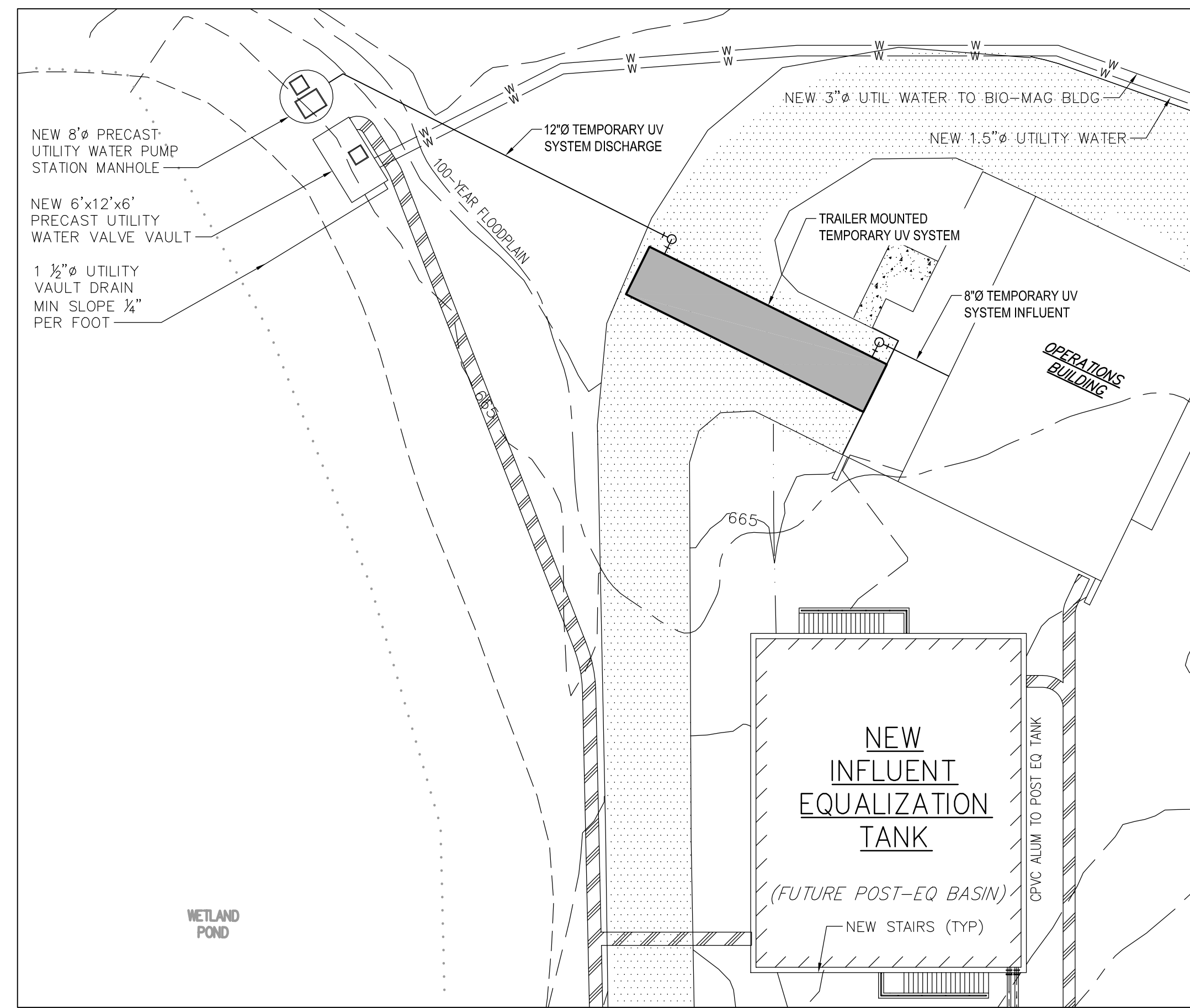
SHEET TITLE:
OPERATIONS BUILDING
NEW UV SYSTEM PLAN AND SECTIONS



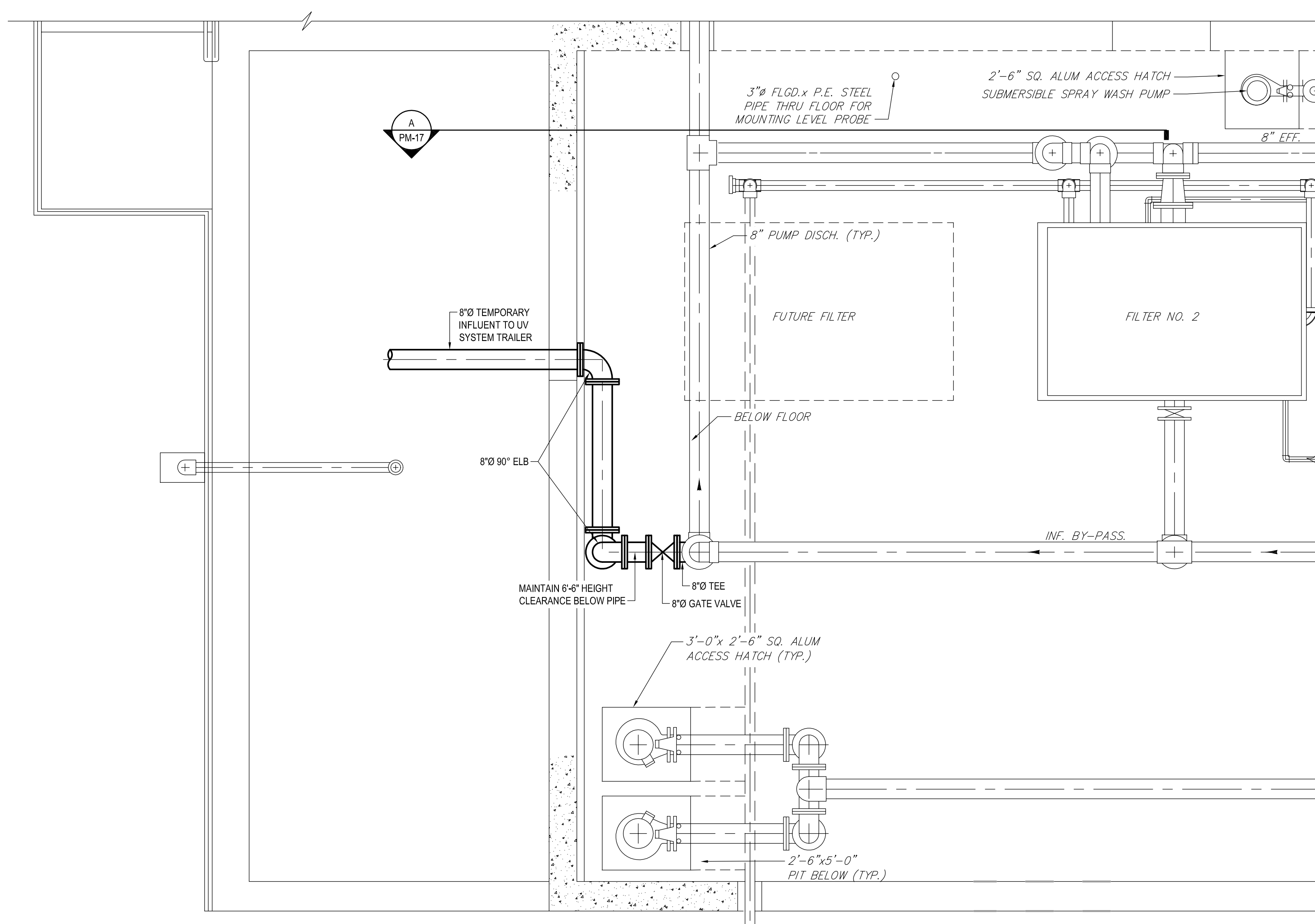
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	KS
CHECKED BY:	DH

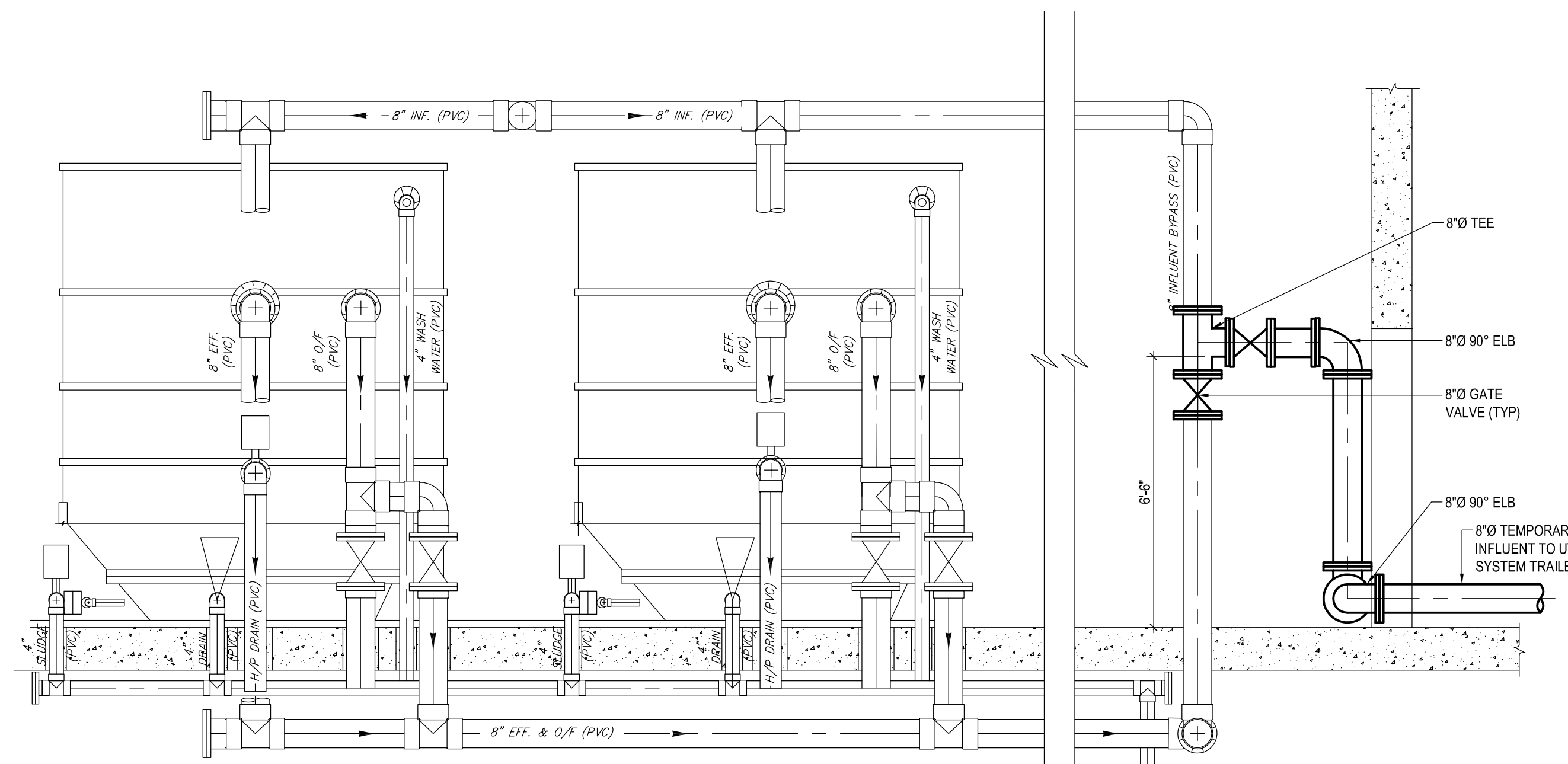
SHEET TITLE:
BIO-MAG BUILDING UTILITY WATER SYSTEM PLAN & SCHEMATIC



1 SITE PLAN
SCALE: 1" = 20'
0 20' 40'



2 OPERATIONS BUILDING FILTER AREA PLAN
SCALE: 3/8" = 1'-0"
0 2' 4' 6'



A SECTION
SCALE: 3/8" = 1'-0"
0 2' 4' 6'

- LEGEND**
- - - - - EXISTING MAJOR CONTOURS
 - - - - - EXISTING MINOR CONTOURS
 - [Hatched Box] EXISTING IMPERVIOUS PAVING SURFACE
 - [Diagonal Lines Box] PROPOSED STRUCTURES
 - [Solid Box] EXISTING STRUCTURES
 - - - - - EXISTING STREAM CENTERLINE
 - - - - - EXISTING TREE LINE
 - - - - - EXISTING SITE FENCE
 - - - - - NEW WATER LINE



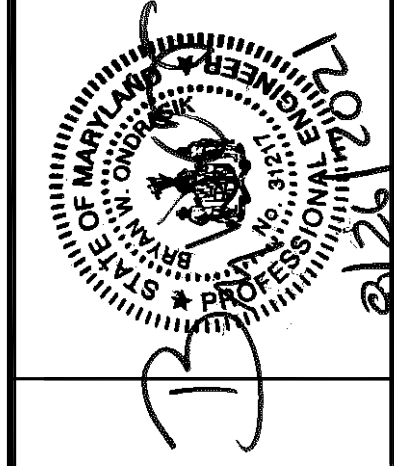
SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22523 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
1632 ELLIOT PARKWAY
WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: KS
CHECKED BY: JC
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SHEET TITLE:

TEMPORARY UV SYSTEM PLANS AND SECTIONS



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22623 LETTERSBERG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
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WILLIAMSPORT, MARYLAND 21785

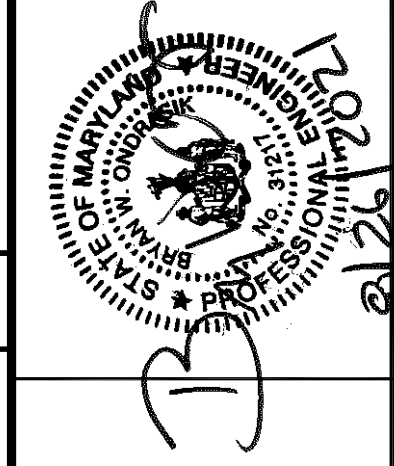
P L U M B I N G

ABBREVIATIONS		PIPING SPECIALTIES & DESIGNATIONS		PLUMBING GENERAL NOTES
<p>A</p> <p>AB ABOVE</p> <p>AFF ABOVE FINISHED FLOOR</p> <p>AFG ABOVE FINISHED GRADE</p> <p>AFLR ABOVE FLOOD LEVEL RIM</p> <p>AHU AIR HANDLING UNIT</p> <p>APPROX APPROXIMATE</p> <p>ARCH ARCHITECTURAL</p> <p>AUTO AUTOMATIC</p> <p>AV ACID VENT</p> <p>B</p> <p>BF BELOW FLOOR</p> <p>BFF BELOW FINISHED FLOOR</p> <p>BFG BELOW FINISHED GRADE</p> <p>BFP BACKFLOW PREVENTER</p> <p>BJ BETWEEN JOISTS</p> <p>BLDG BUILDING</p> <p>BLW BELOW</p> <p>BOT BOTTOM</p> <p>BTU BRITISH THERMAL UNIT</p> <p>C</p> <p>CB CATCH BASIN</p> <p>CIB CAST IRON BOOT</p> <p>CIP CAST IRON PIPE</p> <p>CLG CEILING</p> <p>CO CLEANOUT</p> <p>CONC CONCRETE</p> <p>CONN CONNECT/CONNECTION</p> <p>CONST CONSTRUCT/CONSTRUCTION</p> <p>CONT CONTINUED/CONTINUATION</p> <p>COORD COORDINATE</p> <p>CW COLD WATER</p> <p>D</p> <p>DEG DEGREE</p> <p>DEPT DEPARTMENT</p> <p>DF DRINKING FOUNTAIN</p> <p>DIA DIAMETER</p> <p>DISC DISCONNECT</p> <p>DN DOWN</p> <p>DR DRAIN</p> <p>DWG DRAWING</p> <p>E</p> <p>EC ELECTRICAL CONTRACTOR</p> <p>ECD EXTERIOR CLEANOUT</p> <p>EL ELEVATION</p> <p>ELEC ELECTRIC(AL)</p> <p>ENG ENGINEER</p> <p>EQUIP EQUIPMENT</p> <p>ERD EXISTING ROOF DRAIN</p> <p>ETR EXISTING TO REMAIN</p> <p>EW EYE WASH</p> <p>EWC ELECTRICAL WATER COOLER</p> <p>EXIST EXISTING</p> <p>EXP EXPOSED</p> <p>F</p> <p>F FAHRENHEIT</p> <p>FCO FLOOR CLEANOUT</p> <p>FD FLOOR DRAIN</p> <p>FTE FINISH FLOOR ELEVATION</p> <p>FGE FINISH GRADE ELEVATION</p> <p>FLA FULL LOAD AMPERES</p> <p>FLR FLOOR</p> <p>FLR FLOOD LEVEL RIM</p> <p>FS FLOOR SINK</p>	<p>FT FOOT/FEET</p> <p>FUT FUTURE</p> <p>FV FLUSH VALVE</p> <p>FVXF FLUSH VALVE TRANSFORMER</p> <p>G</p> <p>GA GAUGE/GAGE</p> <p>GAL GALLON</p> <p>GALV GALVANIC or GALVANIZED</p> <p>GC GENERAL CONTRACTOR</p> <p>GEN GENERAL</p> <p>GPH GALLONS PER HOUR</p> <p>GPM GALLONS PER MINUTE</p> <p>GR GRILLE</p> <p>GRD GRADE</p> <p>GV GATE VALVE</p> <p>H</p> <p>H HIGH</p> <p>HC HEATING (HVAC) CONTRACTOR</p> <p>HDCP HANDICAPPED (ACCESSIBLE)</p> <p>HORIZ HORIZONTAL</p> <p>HP HORSE POWER</p> <p>HT HEIGHT</p> <p>HTG HEATING</p> <p>HW HOT WATER</p> <p>HWR HOT WATER RECIRCULATION</p> <p>I</p> <p>ID INSIDE DIAMETER</p> <p>IN OR * INCH</p> <p>INT INTERIOR</p> <p>INV INVERT (ER)</p> <p>L</p> <p>L LAVATORY</p> <p>LB or LBS POUND(S)</p> <p>M</p> <p>MAX MAXIMUM</p> <p>MB MOP BASIN</p> <p>MB (E) MOP BASIN EXISTING</p> <p>MBF MOP BASIN FLOOR</p> <p>MBH THOUSAND BTU PER HOUR</p> <p>MC MECHANICAL CONTRACTOR</p> <p>MECH MECHANICAL</p> <p>MFR MANUFACTURER</p> <p>MIN MINIMUM</p> <p>MTD MOUNTED</p> <p>MTG MOUNTING</p> <p>N</p> <p>N/A NOT APPLICABLE</p> <p>NIC NOT IN CONTRACT</p> <p>NO NUMBER</p> <p>NTS NOT TO SCALE</p> <p>O</p> <p>OC ON CENTER</p> <p>OFD OVERFLOW DRAIN</p> <p>OPNG OPENING</p> <p>P</p> <p>PC PLUMBING CONTRACTOR</p> <p>PD PRESSURE DROP</p> <p>PH PHASE</p> <p>PLBG PLUMBING</p> <p>PR PIPE RISER</p> <p>PRESS PRESSURE</p> <p>PRV PRESSURE REDUCING VALVE/PRESSURE RELIEF VENT</p> <p>PSI POUNDS PER SQUARE INCH</p>	<p>R</p> <p>RCP REINFORCED CONCRETE PIPE</p> <p>RD ROOF DRAIN</p> <p>RF ROOF</p> <p>RI ROUGH-IN</p> <p>RM ROOM</p> <p>RPZ REDUCED PRESSURE ZONE</p> <p>RWC RAINWATER CONDUCTOR</p> <p>S</p> <p>S SINK</p> <p>S&C STUB & CAP</p> <p>S&W SOIL AND WASTE</p> <p>GR SANITARY</p> <p>SF SQUARE FEET</p> <p>SH SHOWER</p> <p>SHT SHEET</p> <p>SP SUMP PUMP</p> <p>SPEC SPECIFICATIONS</p> <p>SQ SQUARE</p> <p>SS SERVICE SINK</p> <p>SST SECONDARY STORM</p> <p>ST STORM</p> <p>STD STANDARD</p> <p>STL STEEL</p> <p>STOR STORAGE</p> <p>SUSP SUSPEND/SUSPENDED</p> <p>T</p> <p>TEMP TEMPERATURE</p> <p>THRU THROUGH</p> <p>TJ THROUGH JOISTS</p> <p>TMWV THERMOSTATIC WATER MIXING VALVE</p> <p>TW TEMPERED WATER</p> <p>TYP TYPICAL</p> <p>U</p> <p>UE UNDER ELECTRICAL</p> <p>UG UNDER GENERAL</p> <p>UH UNIT HEATER, UNDER HVAC</p> <p>UNO UNLESS NOTED OTHERWISE</p> <p>UP UNDER PLUMBING</p> <p>UR URINAL</p> <p>US UNDERSIDE OF STRUCTURE</p> <p>V</p> <p>V VENT</p> <p>VR VENT RISER</p> <p>VS VENT STACK</p> <p>VTR VENT THROUGH ROOF</p> <p>W</p> <p>W WASTE</p> <p>W/ WITH</p> <p>W/O WITHOUT</p> <p>WC WATER CLOSET</p> <p>WCO WALL CLEANOUT</p> <p>WHA WATER HAMMER ARRESTOR</p> <p>WM WATER METER</p> <p>WP WEATHERPROOF</p> <p>WPD WATER PRESSURE DROP</p> <p>WT WEIGHT</p> <p>WTD WATER TEMPERATURE DROP</p> <p>WTR WATER</p>	<p>HOSE BIBB (HB)</p> <p>WALL HYDRANT (WH)</p> <p>ROOF DRAIN (RD)</p> <p>OVERFLOW ROOF DRAIN (ORD)</p> <p>FLOOR DRAIN (FD)</p> <p>OPEN SITE DRAIN</p> <p>WATER HAMMER ARRESTOR</p> <p>PIPE ANCHOR</p> <p>STUB AND CAP</p> <p>PIPE DROP</p> <p>PIPE RISE</p> <p>PIPE TEE OFF BOTTOM</p> <p>UNION</p> <p>ALIGNMENT GUIDE</p> <p>EXPANSION JOINT W/ ALIGNMENT GUIDES</p> <p>FLEXIBLE CONNECTOR</p> <p>EXPANSION COMPENSATOR</p> <p>STRAINER W/HOSE END BLOW OFF VALVE</p> <p>STRAINER</p> <p>BALANCING VALVE</p> <p>BALL VALVE</p> <p>CHECK VALVE</p> <p>DRAIN VALVE</p> <p>SHUT OFF VALVE</p> <p>NEEDLE VALVE</p> <p>PLUG VALVE</p> <p>PRESSURE REDUCING VALVE</p> <p>PRESSURE REGULATOR VALVE</p> <p>PRESSURE RELIEF VALVE</p> <p>SOLENOID VALVE</p> <p>THERMOMETER</p> <p>PRESSURE GAUGE W/NEEDLE VALVE & SNUBBER (WATER, AIR, GAS)</p> <p>PRESSURE GAUGE WITH SIPHON</p> <p>FLOW DIRECTION</p>	<p>A. ROUGH-IN AND CONNECT HW, CW, VENT, SAN. & W LINES TO FIXTURES IN ACCORDANCE WITH SIZES INDICATED ON FIXTURE SCHEDULE.</p> <p>B. ALL DIMENSIONS AND PIPE SIZES ARE IN INCHES, UNLESS NOTED OTHERWISE.</p> <p>C. FURNISH AND INSTALL 2" MINIMUM SIZE SAN. & W PIPING BELOW GROUND INSIDE BUILDING REGARDLESS OF SIZE INDICATED ON PLUMBING FIXTURE SCHEDULE.</p> <p>D. INSTALL ALL PIPING WITHIN BUILDING THERMAL ENVELOPE, ABOVE CEILING UNDER BUILDING INSULATION AND ON BUILDING SIDE OF WALL INSULATION, UNLESS NOTED OTHERWISE.</p> <p>E. FURNISH AND INSTALL ACCESS PANELS FIRE-RATED WHERE REQUIRED FOR ACCESS TO ALL CONCEALED VALVES, TRAPS OR OTHER EQUIPMENT FURNISHED UNDER THIS CONTRACT WHERE NO OTHER MEANS IS PROVIDED. PROVIDE BEADED EDGE IN PLASTER OF GWP. WALLS & CEILING.</p> <p>F. INSTALL UNIONS ON PIPING TO PERMIT EASY DISCONNECTING. INSTALL UNIONS AT CONNECTION TO ALL EQUIPMENT.</p> <p>G. COORDINATE LOCATION OF ALL PIPING AND DEVICES WITH THE WORK OF OTHER TRADES BEFORE INSTALLATION. WHERE A CONFLICT IN AVAILABLE CLEARANCES OCCURS, OBTAIN CLARIFICATION FROM THE ARCHITECT, AND PROVIDE WHATEVER ADDITIONAL PIPING, FITTINGS, ETC., ARE REQUIRED TO INSTALL PLUMBING SYSTEM WITHOUT ANY ADDITIONAL COST TO THE CONTRACT.</p> <p>H. TEST INSTALLATION IN ACCORDANCE WITH THE APPROPRIATE CODE REQUIREMENTS AS EACH. NOTIFY THE OWNER PRIOR TO TESTING SYSTEM. SUBMIT TESTING REPORTS IN OPERATION AND MAINTENANCE MANUAL.</p> <p>I. VERIFY MOUNTING HEIGHTS OF EQUIPMENT FIXTURES W/ARCHITECT BEFORE ROUGH-IN.</p> <p>J. FOR HANDICAPPED/ACCESSIBLE PLUMBING FIXTURES, CONFIRM EXACT MOUNTING HEIGHT WITH AUTHORITY HAVING JURISDICTION AND ADJUST AS REQUIRED BEFORE INSTALLATION.</p> <p>K. PROVIDE RUBBER TRAP GUARDS AT EACH FLOOR DRAIN AND FLOOR SINK.</p> <p>L. PROVIDE WATER HAMMER ARRESTORS ON HW AND CW PIPING AT EVERY TOILET GROUP, LOCATE IN ACCESSIBLE POSITION FOR SERVICING</p> <p>M. ALL VENTS SHALL BE LOCATED A MINIMUM OF 10 FEET AWAY FROM MECHANICAL UNIT OUTSIDE AIR INTAKES AND BUILDING OPENINGS.</p> <p>N. PROTECT THE OPEN ENDS OF ALL PIPE WITH PROTECTIVE PLASTIC (ON A DAILY BASIS) TO PREVENT ANY DEBRIS OR DIRT FROM ENTERING THE SYSTEM DURING CONSTRUCTION</p> <p>O. THE CONTRACTOR SHALL PROVIDE FINAL CONNECTIONS TO EQUIPMENT CONNECTED TO THE INSTALLED SYSTEM INCLUDING COMPONENTS PROVIDED BY OTHERS.</p> <p>P. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCHEDULING ALL SYSTEM PERFORMANCE TESTING, START-UP, DEMONSTRATION AND TRAINING WITH THE OWNER. FINAL OFFICIAL COPIES OF TESTING CERTIFICATES COMPLETE WITH PROPER WITNESS VALIDATION SHALL BE RETURNED TO THE OWNER AS PART OF THE FINAL OPERATION AND MAINTENANCE MANUALS SUBMITTAL.</p>
<p>GRAPHIC SYMBOLS</p> <p>PIPE FLOW DIRECTION </p> <p>POINT OF CONNECTION EXISTING SYSTEM </p> <p>POINT OF DISCONNECTION FROM EXISTING SYSTEM </p> <p>EQUIPMENT TAG </p> <p>SHEET KEYNOTE (NEW CONSTRUCTION) </p> <p>DEMOLITION KEYNOTE </p> <p>REVISION SEQUENCE NUMBER </p> <p>ROOM TAG (ROOM NO NOT ALWAYS SHOWN) </p> <p>SECTION/ ELEVATION REFERENCE </p> <p>DETAIL / CALLOUT REFERENCE </p>				
<p>SYMBOL LEGEND GENERAL NOTES:</p> <p>A. LEGENDS ARE GENERAL. NOT ALL SYMBOLS AND/OR DESIGNATIONS MAY APPEAR ON THE DRAWINGS.</p>				
<p>GENERAL NOTE: NOT ALL ABBREVIATIONS OR TERMS INDICATED ARE USED ON THESE CONTRACT DOCUMENTS.</p>				

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
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SHEET TITLE:
PLUMBING ABBREVIATIONS AND GENERAL INFORMATION

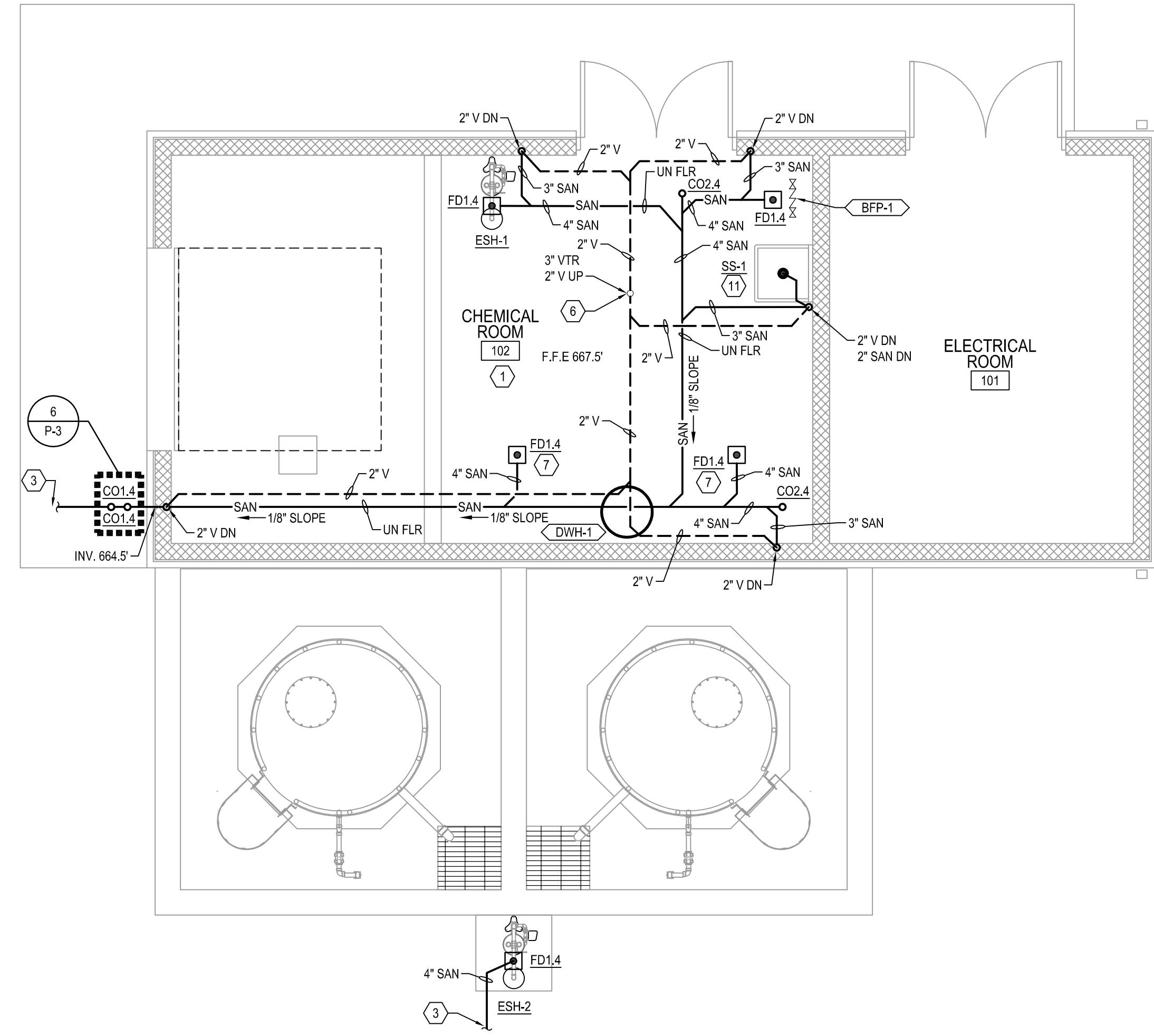


GENERAL NOTES

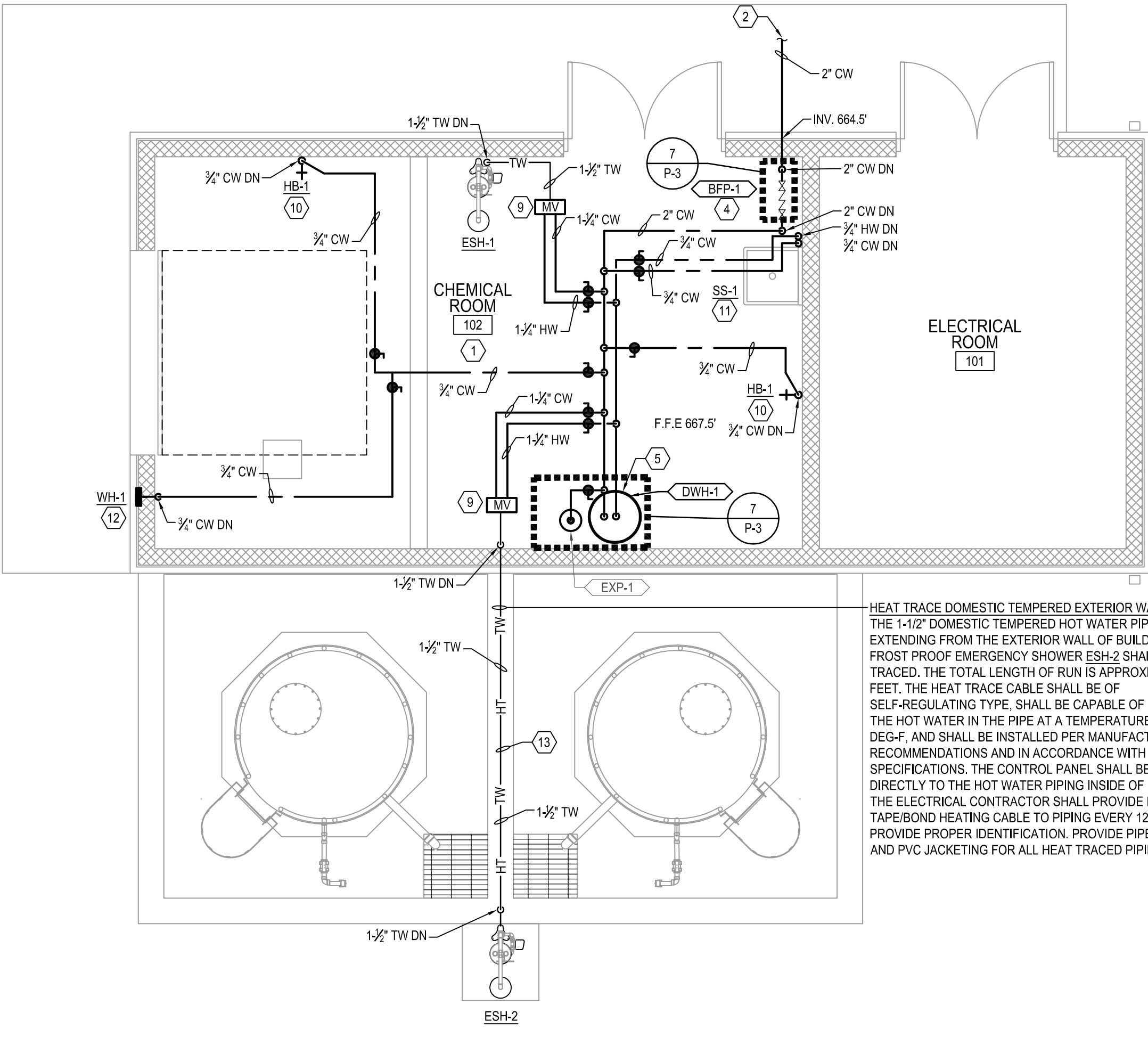
- A. MAINTAIN SPACE FOR SERVICE AND MAINTENANCE OF EQUIPMENT.
- B. PROTECT DRAINS DURING REMAINDER OF CONSTRUCTION PERIOD TO AVOID CLOGGING WITH DIRT AND DEBRIS AND TO PREVENT DAMAGE FROM TRAFFIC AND CONSTRUCTION WORK.
- C. PLACE PLUGS IN ENDS OF UNCOMPLETED PIPING AT END OF DAY AND WHEN WORK STOPS.
- D. INSTALL ISOLATION VALVES ON EACH BRANCH CONNECTION.
- E. INSTALL SANITARY SLOPED AT MAXIMUM SLOPE TO THE EXISTING INVERT CONNECTION FROM STARTING CONNECTION. MAINTAIN A MINIMUM OF 1/8" FALL PER FOOT.
- F. USE A MINIMUM OF 3" OR GREATER PIPING BELOW GRADE FOR SANITARY.
- G. ROUGH-IN PIPING SERVICES FOR FIXTURES. MOUNT FIXTURES ACCORDING TO CONTRACT DOCUMENTS, LOCAL CODES AND ADA REQUIREMENTS.
- H. COORDINATE ALL ROOF AND WALL PENETRATIONS WITH GENERAL CONTRACTOR.

KEY NOTES

1. THE ENVIRONMENT IN THIS SPACE IS CORROSIVE. ALL PIPING, HANGERS, AND APPURTENANCES SHALL BE STAINLESS STEEL.
2. FURNISH AND INSTALL DOMESTIC WATER SERVICE TO 5'-0" OUTSIDE BUILDING FOUNDATION. REFER TO CIVIL DRAWINGS FOR CONTINUATION. PLUMBING CONTRACTOR SHALL MAKE FINAL CONNECTIONS.
3. FURNISH AND INSTALL SANITARY SEWER SERVICE TO 5'-0" OUTSIDE BUILDING FOUNDATION. REFER TO CIVIL DRAWINGS FOR CONTINUATION. PLUMBING CONTRACTOR SHALL MAKE FINAL CONNECTIONS.
4. FURNISH AND INSTALL BACKFLOW PREVENTER TIGHT TO WALL AS INDICATED ON SHEET AT APPROXIMATELY 24" A.F.F. SECURE BACKFLOW PREVENTER TO FLOOR AS INDICATED ON THE WATER SERVICE DETAIL. EXTEND 1" DRAIN TO FLOOR DRAIN BELOW. FURNISH AND INSTALL AIR GAP FITTING.
5. FURNISH AND INSTALL NEW ELECTRIC WATER HEATER. EXTEND DRAIN LINES TO NEARBY FLOOR DRAIN. REFER TO DOMESTIC WATER HEATER DETAIL.
6. FURNISH AND INSTALL 3" Ø VENT THROUGH ROOF. MAINTAIN 10'-0" FROM ALL BUILDING OPENING AND OUTSIDE AIR INTAKES LOUVERS.
7. COORDINATE LOCATION OF FLOOR DRAIN IN FIELD WITH GENERAL CONTRACTOR AND ARCHITECT BEFORE INSTALLATION.
8. FURNISH AND INSTALL WATER HAMMER ARRESTOR WHA-(B) ON HOT AND COLD WATER PIPING AT THIS APPROXIMATE POINT.
9. FURNISH AND INSTALL THERMOSTATIC MIXING VALVE FOR EMERGENCY COMBINATION SHOWER/EYEWASH AND CONNECT PER MANUFACTURER'S INSTRUCTIONS. CONNECT PER EMERGENCY FIXTURE DETAIL. SET WATER TEMPERATURE AT MIXING VALVE TO 80 DEG-F TO BE IN COMPLIANCE WITH THE INTERNATIONAL PLUMBING CODE AND OSHA GUIDELINES FOR EMERGENCY FIXTURES.
10. FURNISH AND INSTALL HOSE BIBB AT 18" ABOVE FINISHED FLOOR. INSTALL COLD WATER PIPING TO WALL. COORDINATE FINAL LOCATION OF HOSE BIBB WITH OTHER TRADES..
11. FURNISH AND INSTALL SERVICE SINK. COORDINATE FINAL LOCATION WITH GENERAL CONTRACTOR. SANITARY/VENT AND DOMESTIC WATER PIPING SHALL RUN EXPOSED DOWN WALL. SECURE ALL PIPING TO WALL. INSTALL THERMOSTATIC MIXING VALVE TMV-1 AS NOTED IN SERVICE SINK DETAIL. FURNISH AND INSTALL SHUT-OFF VALVES AS NOTED ON DRAWINGS.
12. FURNISH AND INSTALL NON-FREEZE WALL HYDRANT AT 24" ABOVE GRADE. COLD WATER PIPING SHALL RUN EXPOSED ON INTERIOR WALL. SECURE PIPING TO WALL FURNISH AND INSTALL SHUT-OFF VALVES AS NOTED ON DRAWINGS.
13. FURNISH AND INSTALL EXTERIOR TEMPERED WATER PIPING ON 42" HIGH STEP WALL TO EMERGENCY SHOWER ESH-2. SECURE PIPING TO WALL WITH BRACKETS. EXTERIOR WATER PIPING SHALL BE HEAT TRACED AND HAVE PVC JACKETING. SEE PIPING SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL DETAILS. PROVIDE FIRE-RATED SEALANT AT PIPE PENETRATION. COORDINATE PIPE LOCATION AND INSTALLATION WITH GENERAL CONTRACTOR.

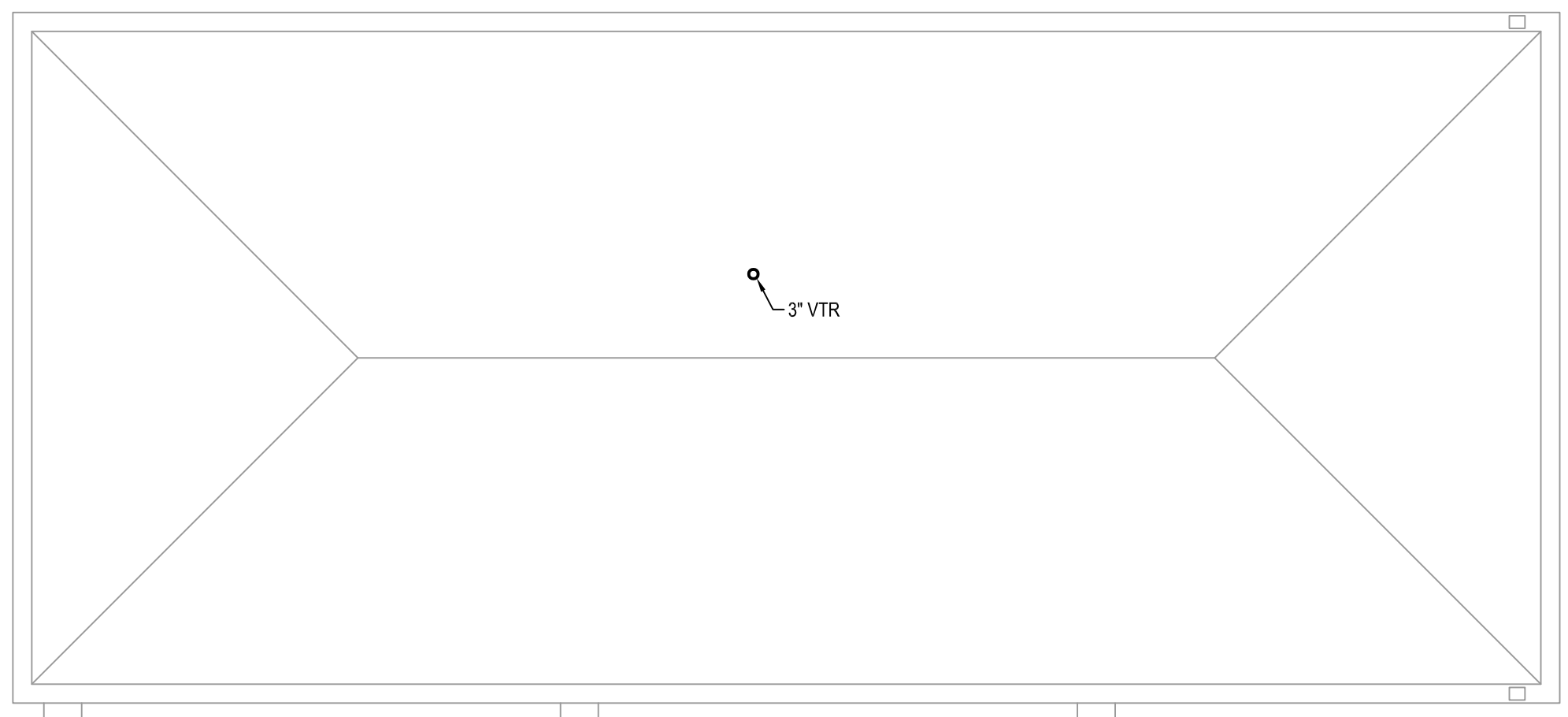


1 PLUMBING FLOOR PLAN - SANITARY & VENT
SCALE: 1/4" = 1'-0"
0 2' 4' 8'
PROJECT NORTH



2 PLUMBING FLOOR PLAN - DOMESTIC WATER
SCALE: 1/4" = 1'-0"
0 2' 4' 8'
PROJECT NORTH

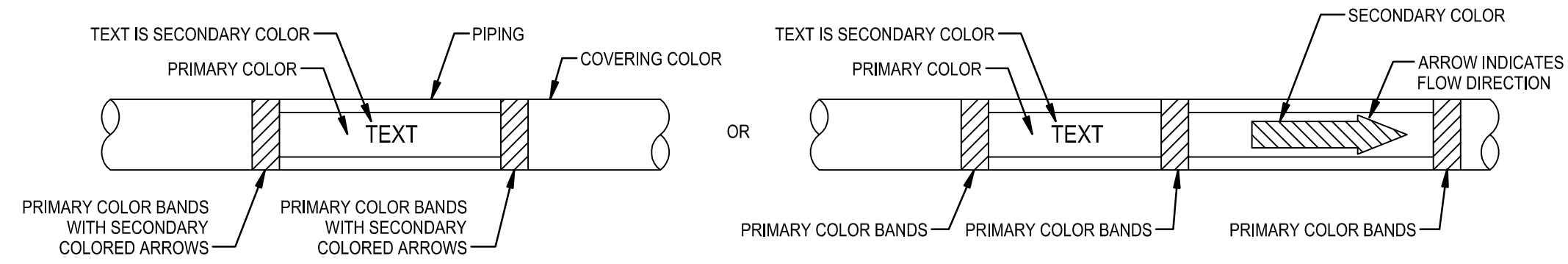
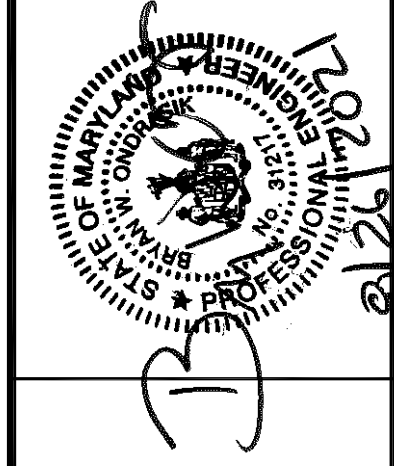
HEAT TRACE DOMESTIC TEMPERED EXTERIOR WATER PIPING:
THE 1-1/2" DOMESTIC TEMPERED HOT WATER PIPING EXTENDING FROM THE EXTERIOR WALL OF BUILDING TO THE FROST PROOF EMERGENCY SHOWER ESH-2 SHALL BE HEAT TRACED. THE TOTAL LENGTH OF RUN IS APPROXIMATELY 25 FEET. THE HEAT TRACE CABLE SHALL BE OF SELF-REGULATING TYPE. SHALL BE CAPABLE OF MAINTAINING THE HOT WATER IN THE PIPE AT A TEMPERATURE OF 80 DEG-F, AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE SPECIFICATIONS. THE CONTROL PANEL SHALL BE MOUNTED DIRECTLY TO THE HOT WATER PIPING INSIDE OF BUILDING. THE ELECTRICAL CONTRACTOR SHALL PROVIDE DISCONNECT, TAPE/BOND HEATING CABLE TO PIPING EVERY 12 INCHES AND PROVIDE PROPER IDENTIFICATION. PROVIDE PIPE INSULATION AND PVC JACKETING FOR ALL HEAT TRACED PIPING.



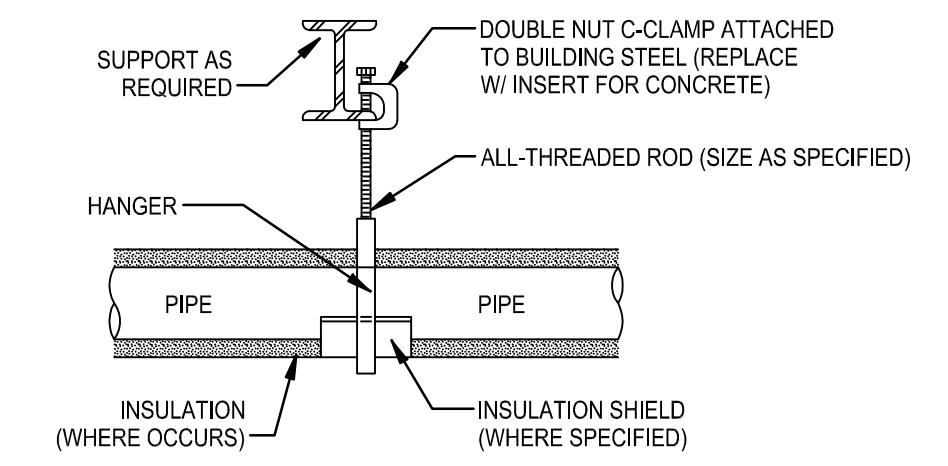
3 PLUMBING ROOF PLAN
SCALE: 1/4" = 1'-0"
0 2' 4' 8'
PROJECT NORTH

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

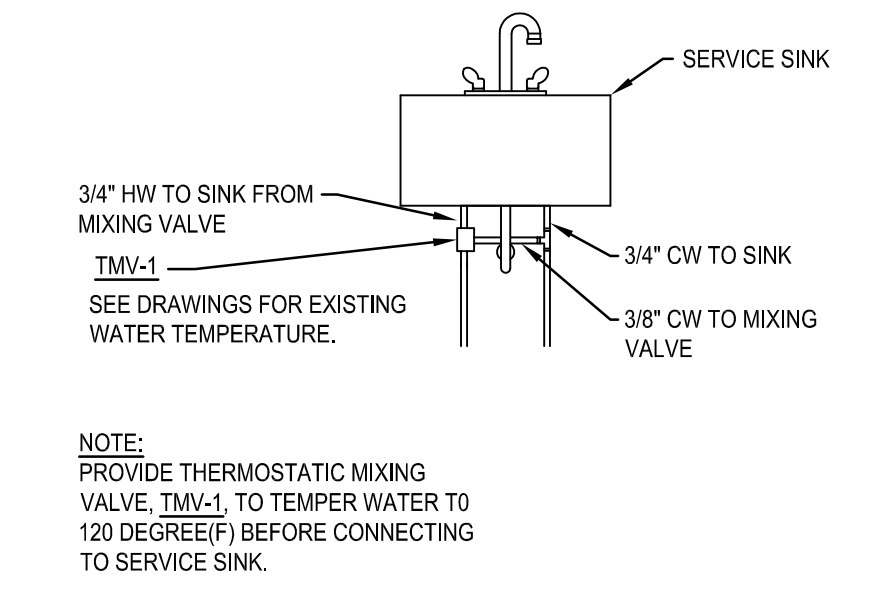
PROJECT NO: 76436-03
ISSUED DATE: 08/2021
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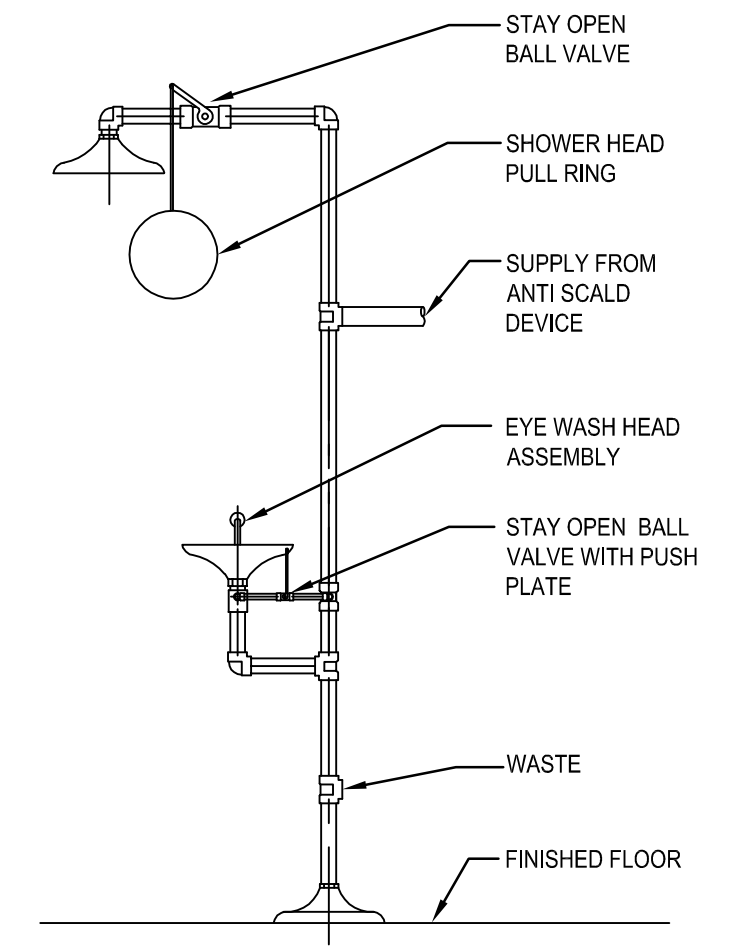
1 PIPING IDENTIFICATION - TYPICAL
NOT TO SCALE



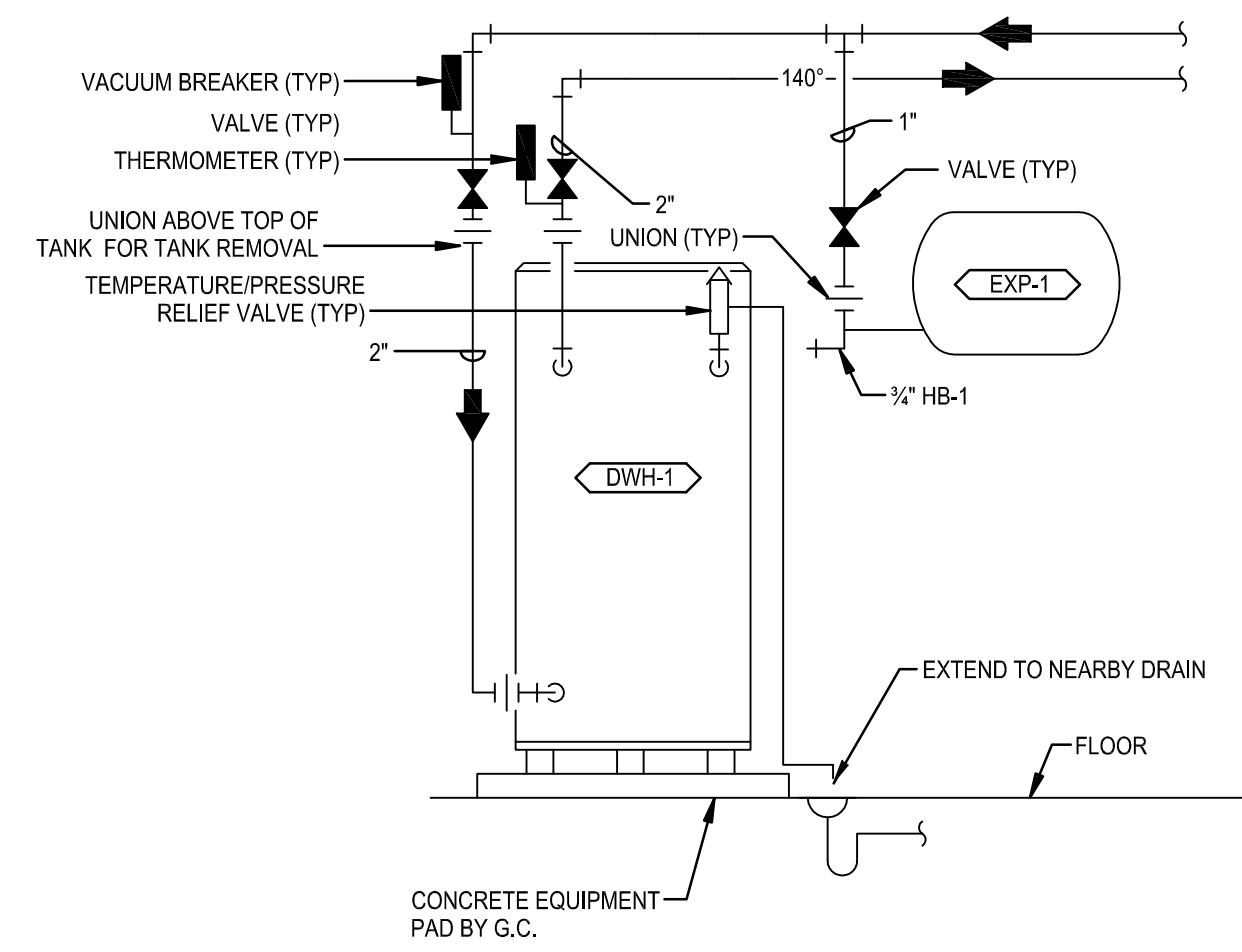
2 PIPE & HANGER SUPPORT - DETAIL
NOT TO SCALE



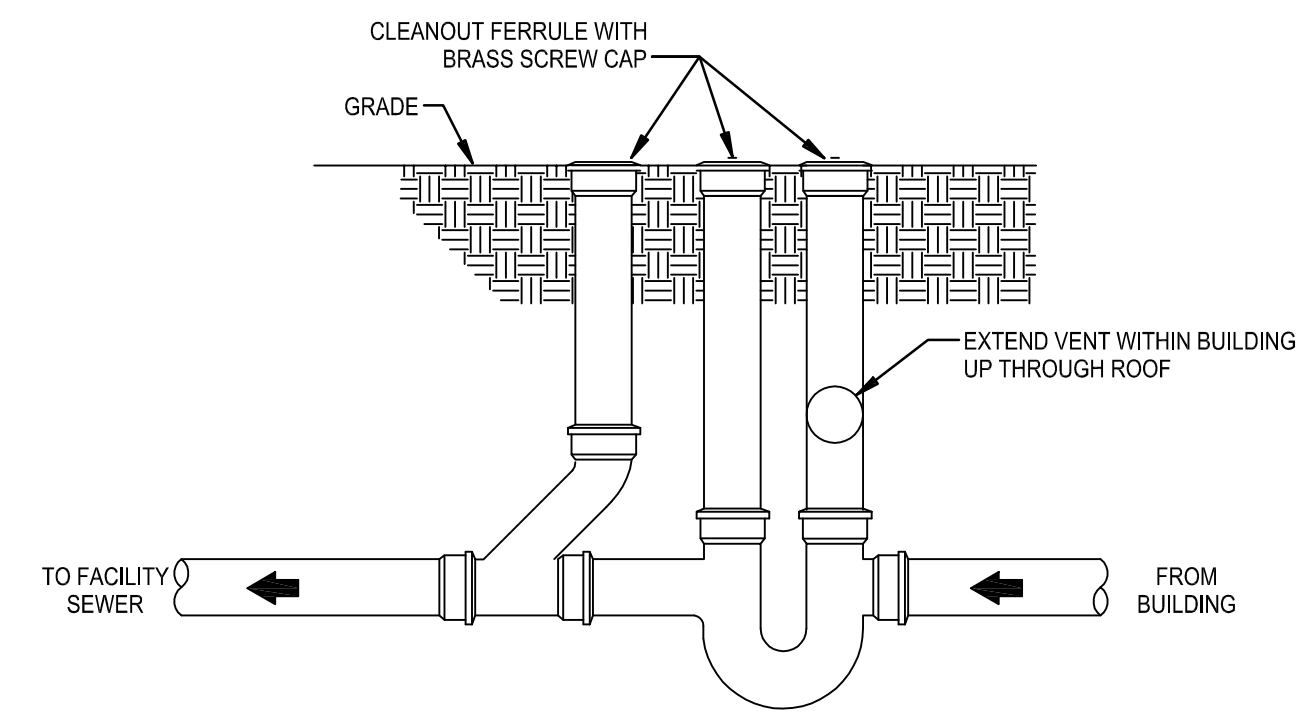
3 SINGLE SINK - DETAIL
NOT TO SCALE



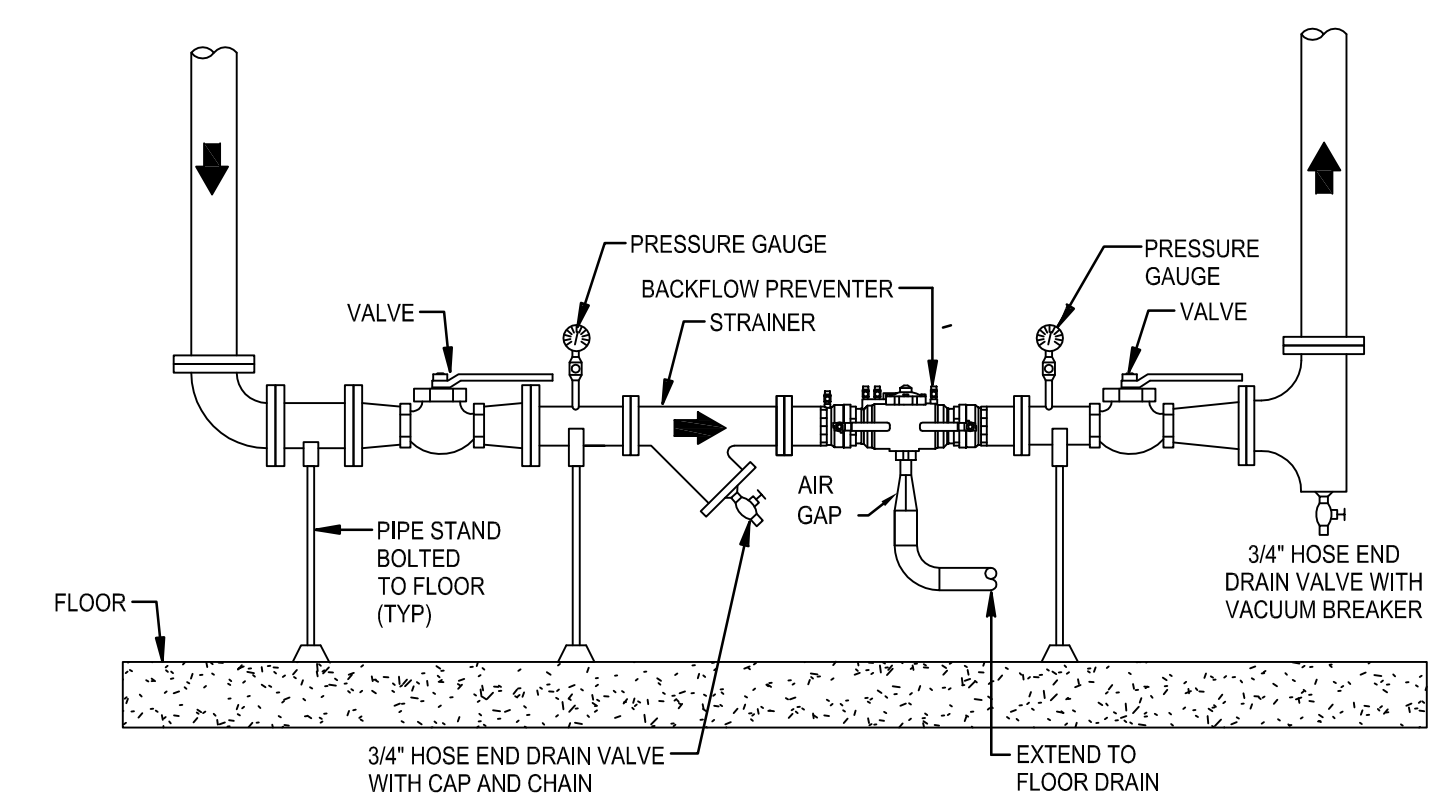
4 EMERGENCY SHOWER W/ EYEWASH - DETAIL
NOT TO SCALE



5 DOMESTIC WATER HEATER - DETAIL
NOT TO SCALE



6 HOUSE TRAP - DETAIL
NOT TO SCALE



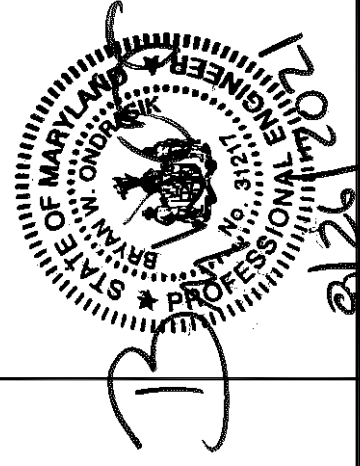
7 DOMESTIC WATER SERVICE - DETAIL
NOT TO SCALE

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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
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SHEET TITLE: **PLUMBING DETAILS**



PIPING AND FITTING ASSEMBLY SCHEDULE

DESIGNATION	SYSTEM NAME	SYSTEM TEMP RANGE	PRESSURE RANGE	MATERIAL	CONNECTION TYPE	INSULATION MATERIAL	INSULATION THICKNESS				COVERING	COVERING COLOR	IDENTIFICATION PRIMARY COLOR	IDENTIFICATION SECONDARY COLOR	IDENTIFICATION TEXT
							Ø<1"	1" < Ø < 2"	2" < Ø < 4"	4" < Ø < 8"					
---	DOMESTIC COLD WATER	ABOVE 50 DEGREES AND BELOW 100 DEGREES	20-150 PSI	ABG: CPL, DI BEG: CPK, DI	SLD, FLG, GRV SLD, FLG, GRV	ABG: ELM, FBG BEG: NONE	1/2"	1"	1"	1"	EXP: PVC, ALM, SST CCL: FSK TRACER TAPE	EXP: BLACK - NOTE 8	GREEN	WHITE	DOMESTIC COLD WATER
---	DOMESTIC HOT WATER	ABOVE 70 DEGREES AND BELOW 130 DEGREES	20-150 PSI	ABG: CPL, DI BEG: CPK, DI	SLD, FLG, GRV SLD, FLG, GRV	ABG: ELM, FBG BEG: NONE	1 1/2"	2"	2"	2"	EXP: PVC, ALM, SST CCL: FSK TRACER TAPE	EXP: BLACK - NOTE 8	GREEN	WHITE	DOMESTIC HOT WATER
---	DOMESTIC HOT WATER RECIRCULATION	ABOVE 70 DEGREES AND BELOW 130 DEGREES	20-150 PSI	ABG: CPL, DI BEG: CPK, DI	SLD, FLG, GRV SLD, FLG, GRV	ABG: ELM, FBG BEG: NONE	1 1/2"	2"	2"	2"	EXP: PVC, ALM, SST CCL: FSK TRACER TAPE	EXP: BLACK - NOTE 8	GREEN	WHITE	DOMESTIC HOT WATER RECIRCULATION
---TW---	TEMPERED HOT WATER	ABOVE 50 DEGREES AND BELOW 100 DEGREES	20-150 PSI	ABG: CPL, DI BEG: CPK, DI	SLD, FLG, GRV SLD, FLG, GRV	ABG: ELM, FBG BEG: NONE	1 1/2"	2"	2"	2"	EXP: PVC, ALM, SST CCL: FSK TRACER TAPE	EXP: BLACK - NOTE 8	GREEN	WHITE	TEMPERED HOT WATER
---HT---	HEAT TRACED	ABOVE 30 DEGREES AND BELOW 130 DEGREES	20-150 PSI	REFER TO SYSTEM MATERIAL	REFER TO SYSTEM CONNECTION	FBG, CLG	1 1/2"	2"	2"	2"	EXP: ALM, SST CCL: FSK	EXP: BLACK W/ YELLOW STRIPE - NOTE 8	YELLOW	BLACK	HEAT TRACED
---	SANITARY SEWER	LESS THAN 130 DEGREES	0-20 PSI	ABG: CPD, CIS, GST BEG: CPD, CIS	SLD, NHB, NPT SLD, PSN, GLU	NONE	--	--	--	--	NONE	EXP: BLACK - NOTE 8	GREEN	WHITE	SANITARY SEWER
---	SANITARY VENT	LESS THAN 130 DEGREES	0-20 PSI	ABG: CPD, CIS, GST BEG: CPD, CIS	SLD, NHB, NPT SLD, PSN, GLU	NONE	--	--	--	--	NONE	EXP: BLACK - NOTE 8	GREEN	WHITE	SANITARY SEWER VENT
---D---	DRAIN	LESS THAN 99 DEGREES GREATER THAN 100 DEGREES	0-20 PSI 0-20 PSI	CPL, GST CPL, GST	SLD, GLU, NPT SLD, NPT	ELM, FBG FBG	1 1/2" 1"	1" 1"	1" 1"	1" 1"	EXP: PVC, ALM, SST CCL: FSK EXP: PVC, ALM, SST CCL: FSK	EXP: BLACK - NOTE 8	GREEN GREEN	WHITE WHITE	DRAIN DRAIN

- NOTES:**
- ALL PIPING SYSTEM TYPES MAY NOT BE USED ON THESE CONTRACT DOCUMENTS.
 - FOR HEAT TRACED SYSTEMS, INCLUDE IDENTIFICATIONS FOR BOTH HEAT TRACING AND SYSTEM DESIGNATION.
 - WHERE PLASTIC PIPING IS USED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPATIBILITY OF THE INSTALLED PIPING SYSTEM WITH THE BUILDING'S HVAC SYSTEM. WHERE PLENUM RATED MATERIALS ARE REQUIRED BY ANY FEDERAL, STATE, OR MUNICIPAL AUTHORITY'S CONSTRUCTION CODES, PLASTIC PIPING SHALL BE COVERED IN ITS ENTIRETY BY AN APPROVED FIRE RETARDANT INSULATING MATERIAL. FIRE RETARDANT INSULATING SYSTEMS SHALL BE CERTIFIED TO MEET ASTM E-84 AND UL 723 STANDARDS FOR FLAME SPREAD AND SMOKE GENERATION. FIRE RETARDANT INSULATING SYSTEMS SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.
 - LABEL PIPING EVERY 25' AT EACH CONNECTION TO A TEE AND AT FLOOR PENETRATIONS.
 - COVERING COLOR APPLIES TO EXPOSED INTERIOR PIPING ONLY.
 - DO NOT PAINT PVC PIPE OR JACKET. FURNISH COLORED BANDS ON PVC PIPE. PROVIDE COLORED PVC JACKETS.
 - ALL INSULATION SHALL HAVE A COVERING. DO NOT PAINT INSULATION DIRECTLY.
 - VERIFY FINAL COVERING COLOR WITH OWNER ON A ROOM-BY-ROOM BASIS PRIOR TO ORDERING COVERINGS.
- | | | | | | |
|-----------------------------|------------------------------|--------------------------|---------------------------------|---|---------------------|
| ABG ABOVE GROUND | CCL CONCEALED | CPM COPPER TYPE M | FLG FLANGED | NHB NO HUB FITTINGS | SLD SOLDERED |
| ALM ALUMINUM | CIS CAST IRON SERVICE WEIGHT | CTL COPPER TUBING TYPE L | FSK FSK | NPT THREADED | SST STAINLESS STEEL |
| ASK WHITE KRAFT FIBER PAPER | CLG CELLULAR GLASS | DI DUCTILE IRON | GLU FOIL BACK KRAFT FIBER PAPER | PSN PUSH ON | WLD WELDED |
| BEG BELOW GROUND | CPD COPPER TYPE DWV | ELM ELASTOMERIC | GRV GROOVED | PVC POLYVINYL CHLORIDE | |
| BRZ BRAZED | CPK COPPER TYPE K | EXP EXPOSED | GSK GROOVED | RCP REINFORCED CONCRETE PIPE | |
| BST BLACK STEEL PIPE | CPL COPPER TYPE L | FBG FIBERGLASS | GST GALVANIZED STEEL | SBS SEAMLESS BLACK STEEL PIPE SCHEDULE 80 | |

PLUMBING EQUIPMENT SCHEDULE

TAG	DESCRIPTION	CAPACITY	BASIS OF DESIGN		NOTES
			MFR	SERIES	
DWH-1	DOMESTIC WATER HEATER:	ELECTRIC, 9KW SIMULTANEOUS OPERATION, 119 GALLONS, SET TO 140°F, 480V, 3 PHASE	A.O. SMITH	DEN-120	1
EXP-1	EXPANSION TANK:	2.1 GAL. TOTAL VOLUME, MAX 0.9 GAL. ACCEPTANCE VOLUME	AMTROL	ST-5-C	1
BFP-1	BACKFLOW PREVENTER:	2" RPZ, STAINLESS STEEL BODY	WATTS	909	1

NOTES:

- COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL DRAWINGS.
-

PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	CONNECTION SIZE IN				BASIS OF DESIGN		NOTES
		WASTE	VENT	HOT WATER	COLD WATER	MFR	SERIES	
SS-1	SERVICE SINK, 27x24 STAINLESS STEEL, MANUAL FAUCET	3	2	3/4	3/4	ELKAY	SS8124	
ESH-1	EMERGENCY SAFETY STATION WITH EYE/FACE WASH, BASE MOUNTED, SS SHOWER HEAD, THERMOSTATIC MIXING VALVE	--	--	1 1/2	1 1/2	BRADLEY	S19314BFS	
ESH-2	EMERGENCY SAFETY STATION WITH EYE/FACE WASH, FROST RESISTANT, BASE MOUNTED, SS SHOWER HEAD, HEAT TRACE, TOP SUPPLY INLET, THERMOSTATIC MIXING VALVE	--	--	1 1/2	1 1/2	BRADLEY	S19-304	

NOTES:

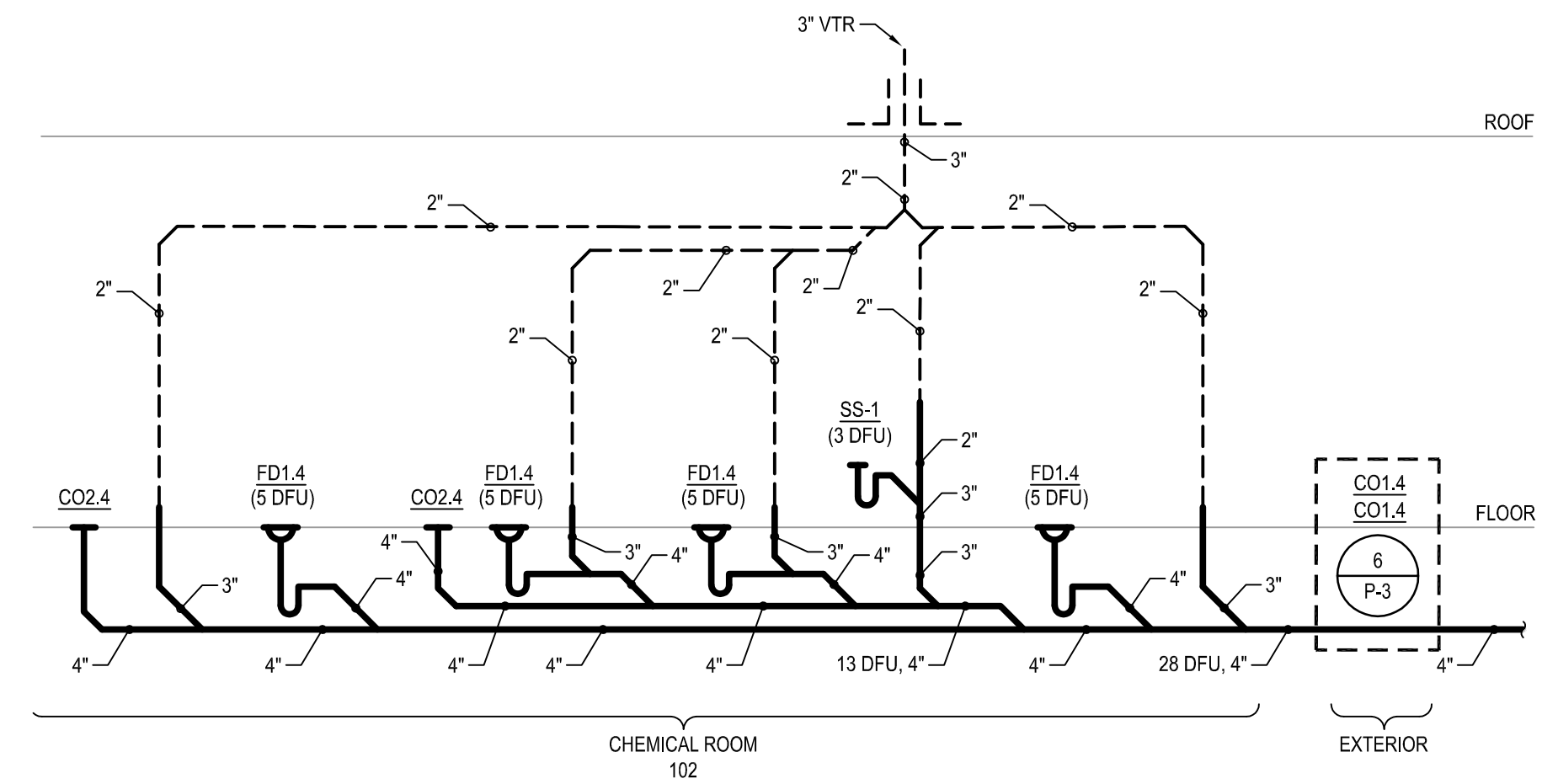
- COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL DRAWINGS.
- REFER TO PLANS TO VERIFY ALL REQUIRED SIZES AND SERVICES (I.E. CW, HW, ETC.)
- PROVIDE PROTECTIVE JACKET ON EXPOSED PIPING.

PLUMBING ACCESSORY SCHEDULE

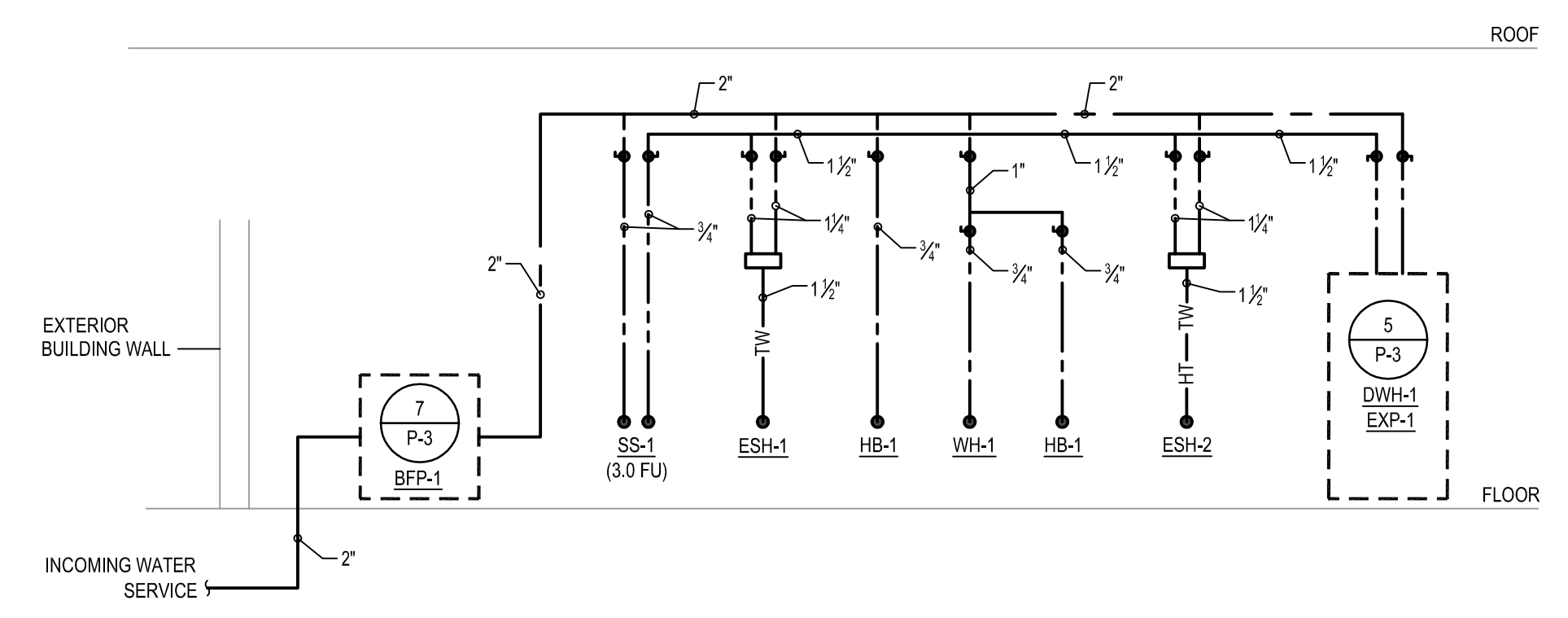
TAG	DESCRIPTION	CONNECTION SIZE IN				BASIS OF DESIGN		NOTES
		COLD WATER	HOT WATER	WASTE	VENT	MFR	SERIES	
FD1.#	FLOOR DRAIN: STAINLESS STEEL GRILL AND HOUSING	--	--	REFER TO DWG'S	--	JAY R. SMITH	3006	
CO1.#	CLEANOUT: EXTERIOR, GENERAL DUTY	--	--	REFER TO DWG'S	--	JAY R. SMITH	4318	
CO2.#	CLEANOUT: INTERIOR, GENERAL DUTY, WITH STAINLESS STEEL COVER	--	--	REFER TO DWG'S	--	JAY R. SMITH	4120	
WHA(A)	WATER HAMMER ARRESTOR - SIZE A	REFER TO DWG'S	--	--	--	WATTS	LF15M2	
WH-1	WALL HYDRANT: COLD WATER, NON-FREEZE, RECESSED, LOCKABLE COVER	3/4	--	--	--	JAY R. SMITH	5509QT	
HB-1	HOSE BIBB: RECESSED, STAINLESS STEEL, HINGED COVER	3/4	--	--	--	JAY R. SMITH	5573	
TMV-1	THERMOSTATIC MIXING VALVE	REFER TO DWG'S	REFER TO DWG'S	--	--	POWERS	LFLM495	

NOTES:

- COORDINATE MOUNTING REQUIREMENTS WITH ARCHITECTURAL DRAWINGS.
- REFER TO PLANS TO VERIFY ALL REQUIRED SIZES AND SERVICES (I.E. CW, HW, GAS, ETC.)



1 SANITARY & VENT RISER
NOT TO SCALE



2 DOMESTIC WATER RISER
NOT TO SCALE

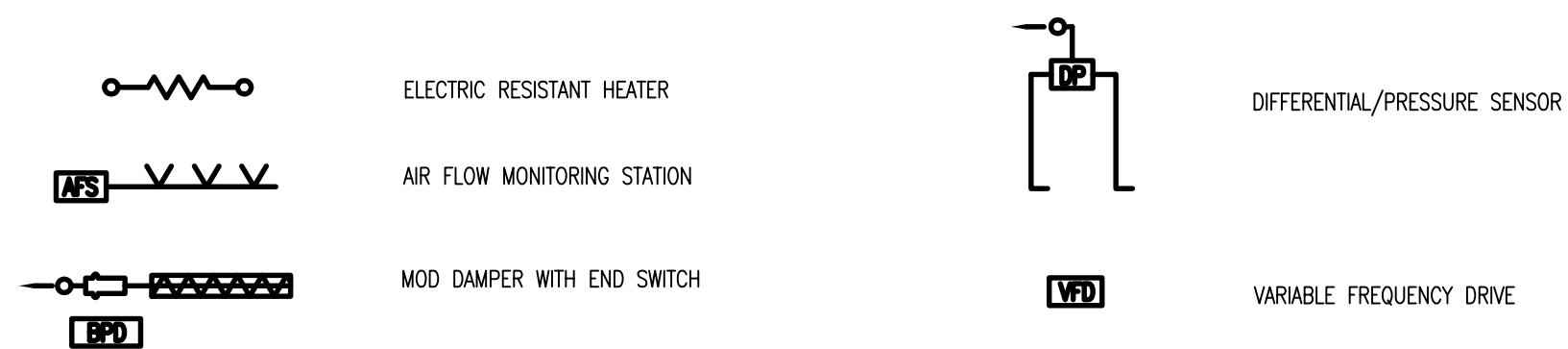
HEATING, VENTILATION AND AIR CONDITIONING

ABBREVIATIONS

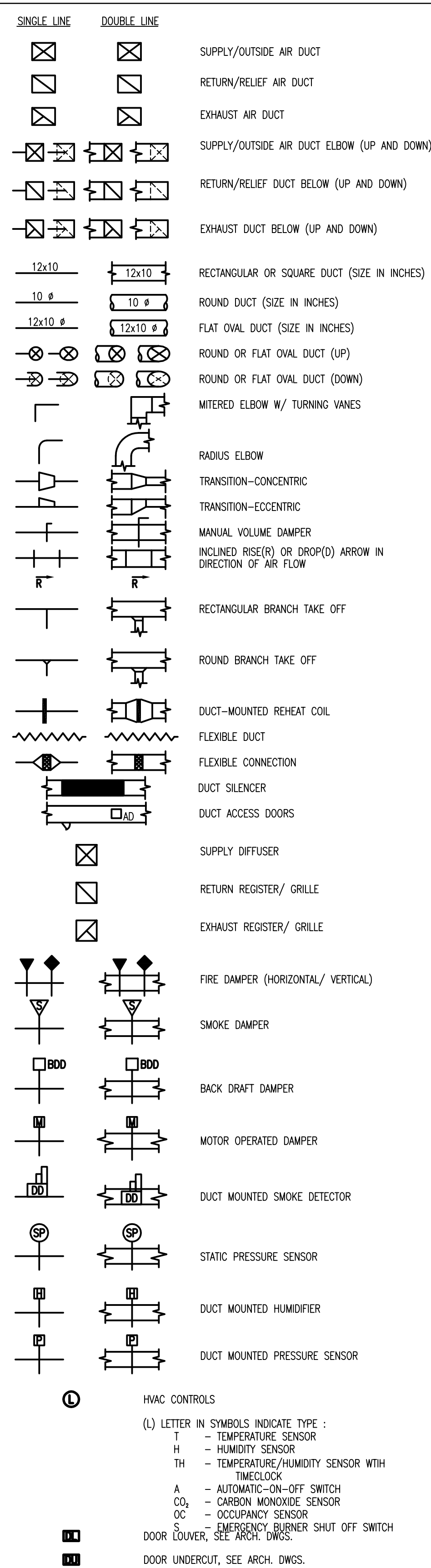
A	ABOVE	FLR	FLOOR
ACU	AIR CONDITIONING UNIT	FPM	FEET PER MINUTE
AF	ABOVE FINISHED FLOOR	FT	FOOT/FEET
AFG	ABOVE FINISHED GRADE	FT HD	FEET OF HEAD
AHU	AIR HANDLING UNIT	FUT	FUTURE
AMP	AMPERES	C	
APPROX	APPROXIMATE	G	GROUND
ARCH	ARCHITECTURAL	GA	GAUGE/GAGE
ASME	AMERICAN SOCIETY OF MECH ENG	GAL	GALLON
ATC	AUTOMATIC TEMPERATURE CONTROL	GALV	GALVANIC or GALVANIZED
AUTO	AUTOMATIC	GC	GENERAL CONTRACTOR
B		GEN	GENERAL
BDD	BACK DRAFT DAMPER	GPH	GALLONS PER HOUR
BE	BOTTOM ELEVATION	GPM	GALLONS PER MINUTE
BFG	BELOW FINISHED GRADE	GR	GRILLE
BJ	BETWEEN JOISTS	GRD	GRADE
BLDG	BUILDING	H	
BLW	BELOW	H	HIGH
BOD	BOTTOM OF DUCT	HC	HEATING (HVAC) CONTRACTOR
BOT	BOTTOM	HDAG	HEAVY DUTY ARCHITECTURAL GRILLE
BTU	BRITISH THERMAL UNIT	HGB	HOT GAS BYPASS
C		HORIZ	HORIZONTAL
C	CONNECTOR	HP	HORSE POWER
CFM	CUBIC FEET PER MINUTE	HPC	HIGH PRESSURE CONDENSATE
CLG	CEILING	HPS	HIGH PRESSURE STEAM
CO	CLEANOUT	HR	HOUR
COO	CENTER OF DUCT	HSTAT	HUMIDISTAT
CONC	CONCRETE	HT	HEIGHT
COND	CONDENSATE/CONDENSING	HTG	HEATING
CONN	CONNECT/CONNECTION	HWR	HOT WATER RETURN
CONST	CONSTRUCT/CONSTRUCTION	HWS	HOT WATER SUPPLY
COORD	COORDINATE	Hz	HERTZ (FREQUENCY)
CR	STEAM CONDENSATE RETURN	I	
CRACU	COMPUTER ROOM ACU	ID	INSIDE DIAMETER
CU	CONDENSING UNIT	IN OR "	INCH
CUH	CABINET UNIT HEATER	INT	INTERIOR
CV	CHECK VALVE	INV	INVERT(ER)
CW	COLD WATER	ISP	INTERNAL STATIC PRESSURE
CWR	CHILLED WATER RETURN	IWG	INCH WATER GAUGE
CWS	CHILLED WATER SUPPLY	K	
D		KW	KILOWATT
DB	DRY BULB	KWH	KILOWATT HOURS
DEG	DEGREE	L	
DEPT	DEPARTMENT	LAT	LEAVING AIR TEMPERATURE
DIA	DIAMETER	LB or LBS	POUND(S)
DISC	DISCONNECT	LDB	LEAVING DRY BULB TEMPERATURE
DN	DOWN	LF	LINEAR FEET
DR	DRAIN	LPC	LOW PRESSURE CONDENSATE
DR	DUCT RISER	LPS	LOW PRESSURE STEAM
DS	DUCT SILENCER	LWB	LEAVING WET BULB TEMPERATURE
DSSU	DUCTLESS SPLIT SYSTEM UNIT	LWC	LOW WATER CUT-OFF
DWG	DRAWING	LWT	LEAVING WATER TEMPERATURE
E		M	
EA	EXHAUST AIR	MAU	MAKE-UP AIR UNIT
EAT	ENTERING AIR TEMPERATURE	MAX	MAXIMUM
EC	ELECTRICAL CONTRACTOR	MBH	THOUSAND BTU PER HOUR
EDB	ENTERING DRY BULB TEMPERATURE	MC	MECHANICAL CONTRACTOR
EF	EXHAUST FAN	MCA	MINIMUM CIRCUIT AMPACITY
EL	ELEVATION	MECH	MECHANICAL
ELEC	ELECTRIC(AL)	MFR	MANUFACTURER
EMER	EMERGENCY	MH	MANHOLE
ENCL	ENCLOSURE	MIN	MINIMUM
EQUIP	EQUIPMENT	MOD	MOTOR OPERATED DAMPER (ATC)
ERU	ENERGY RECOVERY UNIT	MPC	MEDIUM PRESSURE CONDENSATE
ESP	EXTERNAL STATIC PRESSURE	MPS	MEDIUM PRESSURE STEAM
EIR	EXISTING TO REMAIN	MTD	MOUNTED
EWB	ENTERING WET BULB TEMPERATURE	MTG	MOUNTING
EWT	ENTERING WATER TEMPERATURE	MZ	MULTIZONE
EXH	EXHAUST/EXHAUSTER	N	
EXIST	EXISTING	N/A	NOT APPLICABLE
EXP	EXPOSED	NC	NOISE CRITERIA
F		NC or N/C	NORMALLY CLOSED
F	FAHRENHEIT	NE or N/E	NORMAL/EMERGENCY POWER
FD	FIRE DAMPER	NIC	NOT IN CONTRACT
FLA	FULL LOAD AMPERES	NO	NUMBER
FLEX	FLEXIBLE	NO or N/O	NORMALLY OPEN
		NTS	NOT TO SCALE

GENERAL NOTE: NOT ALL ABBREVIATIONS OR TERMS INDICATED ARE USED ON THESE CONTRACT DOCUMENTS.

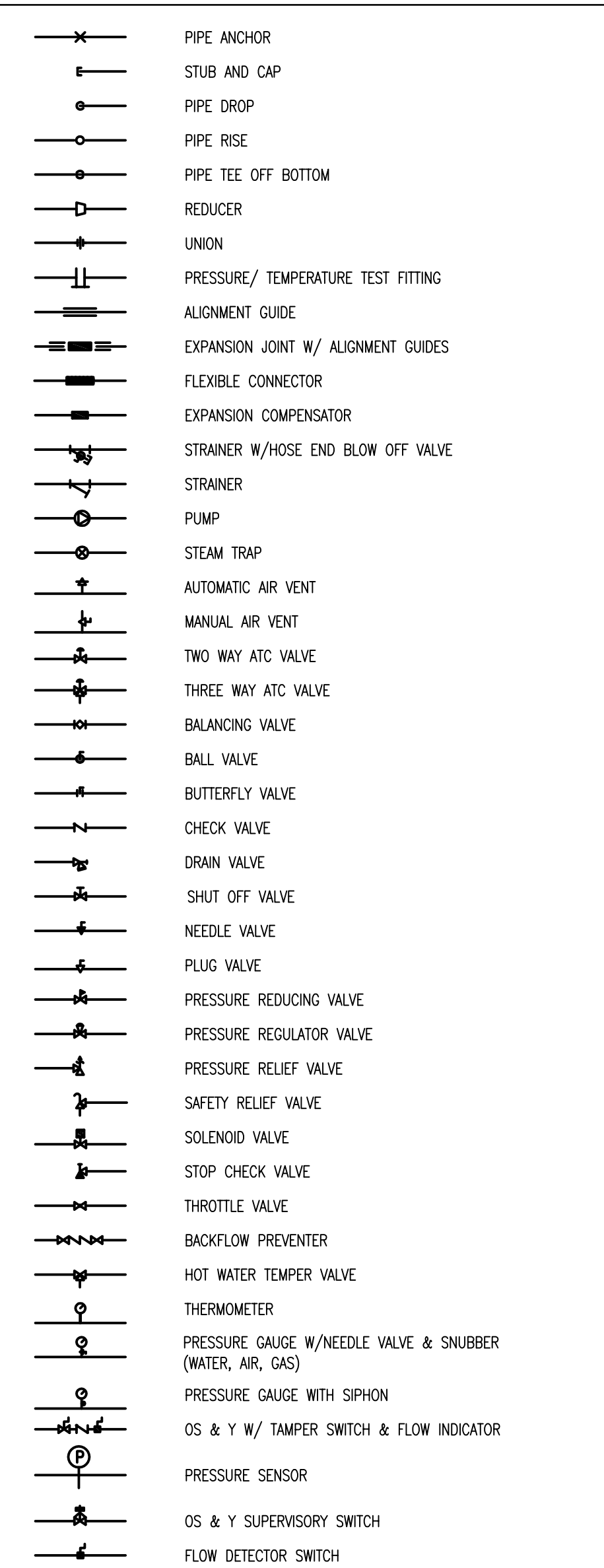
ATC SCHEMATIC COMPONENTS



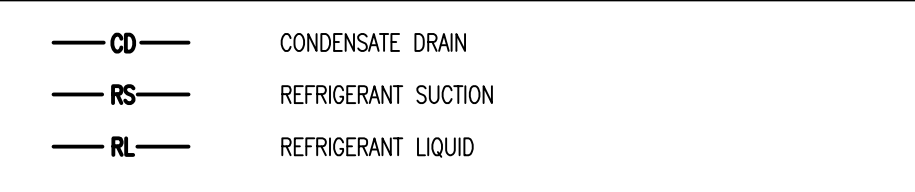
AIR DEVICES AND COMPONENTS



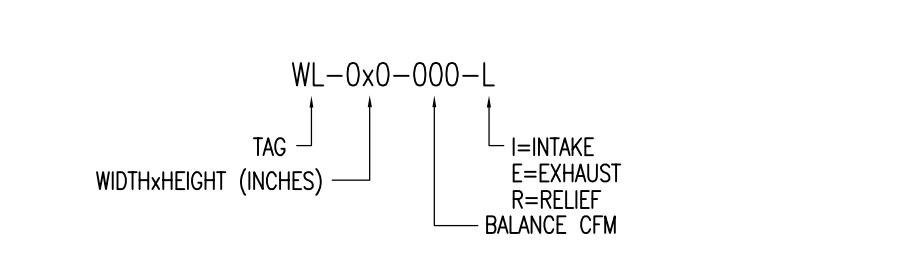
PIPING SPECIALTIES



PIPING DESIGNATIONS



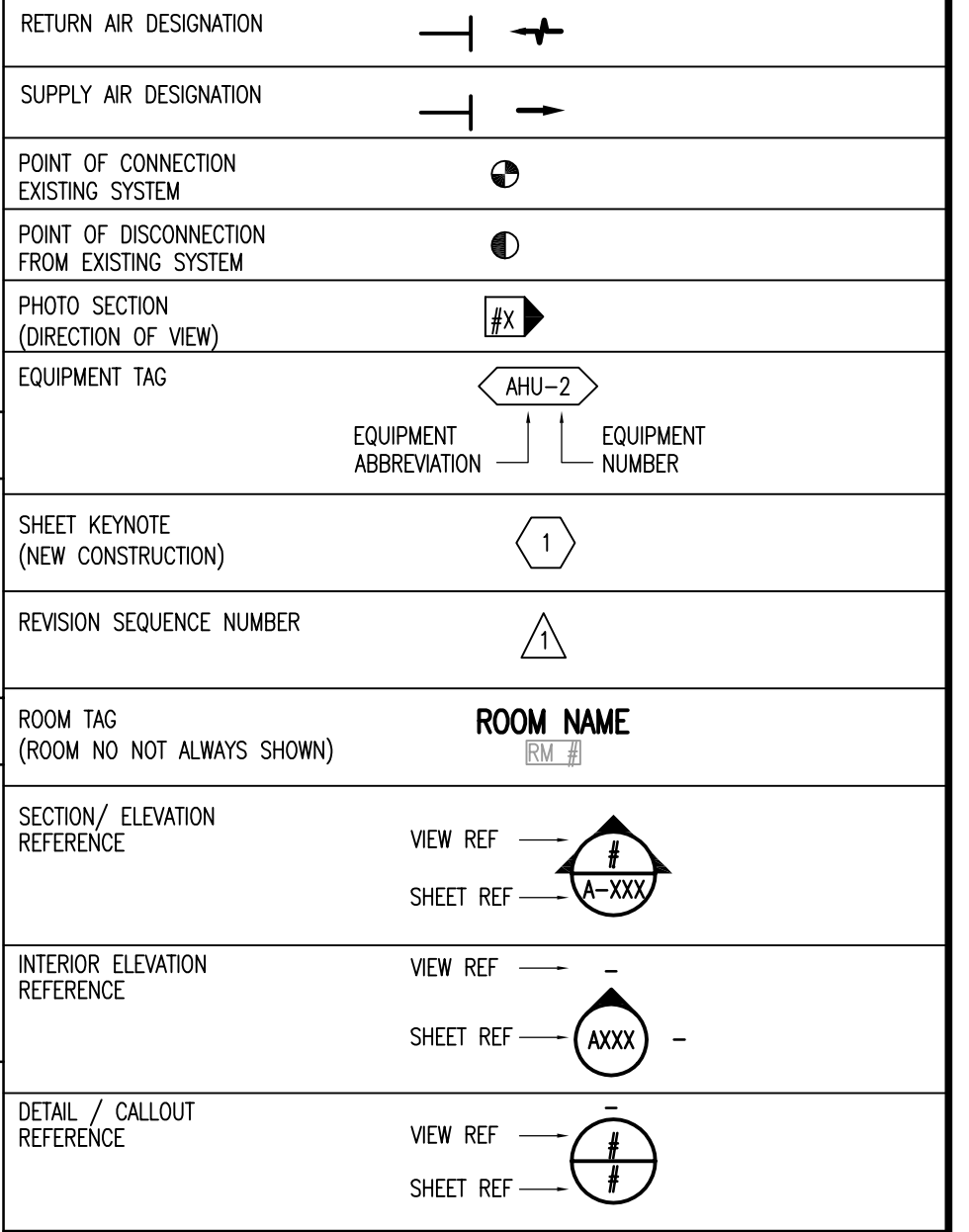
LOUVER KEY



HVAC GENERAL NOTES

- A. ALL DIMENSIONS, DUCT SIZES AND PIPE SIZES ARE IN INCHES UNLESS NOTED OTHERWISE. ALL DUCT DIMENSIONS ARE INSIDE DIMENSIONS.
- B. COORDINATE WALL, ROOF, FLOOR AND CEILING OPENINGS FOR NEW PIPE AND DUCTS THROUGH ALL FLOORS/CEILINGS/WALLS/PARTITIONS.
- C. FIELD VERIFY AND COORDINATE DUCTWORK AND PROVIDE OFFSETS TO ACCOMMODATE DUCTWORK THROUGH/BETWEEN JOISTS, BETWEEN BEAMS AND EXISTING BUILDING STRUCTURE, WALL STUDS, ETC. AT NO ADDITIONAL COST.
- D. EQUIPMENT, APPLIANCES, ETC.; STRUCTURAL JOISTS, BEAMS, ETC.; AND LIGHTING FIXTURES, ELECTRICAL EQUIPMENT, ETC. WHERE SHOWN ARE FOR REFERENCE ONLY. VERIFY AND COORDINATE IN FIELD. REFER TO RESPECTIVE DRAWINGS.
- E. ALL EQUIPMENT, PIPING AND DUCTWORK SHALL BE SUPPORTED FROM JOIST/TRUSS TOP CHORD, UNLESS OTHERWISE NOTED. DO NOT SUPPORT ANYTHING FROM ROOF DECK.
- F. ALL PIPING AND DUCTWORK IN AREAS WITH CEILINGS SHALL BE RUN CONCEALED ABOVE ACOUSTICAL OR PLASTER CEILINGS UNLESS OTHERWISE NOTED.
- G. ALL OPENINGS IN DUCTS, PIPES OR FITTINGS SHALL BE KEPT PLUGGED OR CAPPED UNTIL CONNECTED.
- H. INSTALL SUFFICIENT NUMBER OF UNIONS/FLANGES IN ALL PIPE LINES TO ALLOW REMOVAL OF PIPES WITHOUT BREAKING FITTINGS.
- I. RUNOUTS TO EQUIPMENT SHALL BE RUN IN SIZES INDICATED AND INCREASED OR REDUCED AT POINT OF FINAL CONNECTION TO EQUIPMENT.
- J. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE APPROXIMATE ARRANGEMENT OF THE SYSTEMS. THE CONTRACTOR SHALL FIELD VERIFY EXACT INFORMATION, DIMENSIONS, LOCATIONS, ETC. AS NECESSARY AND COORDINATE WORK ACCORDINGLY. NOT ALL INFORMATION IS SHOWN.
- K. CONNECT & EXTEND CONDENSATE DRAIN PIPING FROM EACH SS, DOAS, MBC, SBC, ETC. TO DESIGNATED FUNNEL DRAINS ONLY UNLESS NOTED OTHERWISE. PROVIDE MINIMUM 1" PIPE SIZE AND 2 PERCENT SLOPE FOR GRAVITY DRAINS AND 1 PERCENT SLOPE FOR PUMPED DRAINS.
- L. REFER TO ALL CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS AND COORDINATE WORK ACCORDINGLY.
- M. REFER TO STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR OPENING REINFORCEMENT, EQUIPMENT SUPPORTS, LINTELS AND CONCRETE PADS UNLESS OTHERWISE INDICATED.
- N. ALL FLOOR MOUNTED EQUIPMENT AND APPURTENANCES SHALL HAVE MINIMUM 6" THICK CONCRETE HOUSEKEEPING PAD WHETHER SHOWN OR NOT. SEE DETAILS ON MECHANICAL AND STRUCTURAL DRAWINGS.
- O. PROVIDE FULL ROOF OPENING SIZE DUCT DROP FROM EACH EXHAUST FAN, RELIEF VENTILATOR, INTAKE PENTHOUSE, ETC. WITH MOISTURE TRAP. ALL TAKE-OFFS ARE FROM SIDE OF THE DROP.
- P. DO NOT INSTALL PIPING, DUCTWORK OR EQUIPMENT OVER ELECTRICAL EQUIPMENT. PROVIDE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT PER NEC. COORDINATE LOCATIONS OF DUCTWORK, PIPING AND EQUIPMENT ABOVE CEILINGS WITH CABLE TRAYS.
- Q. WHERE DUCTWORK PASSES THROUGH FIRE RATED FLOORS OR WALLS (INCLUDING EXHAUST DUCTWORK), HVAC CONTRACTOR SHALL PROVIDE FUSIBLE LINK FIRE DAMPER. PROVIDE MINIMUM 18x18 ACCESS PANELS AT ALL FIRE DAMPERS AND FIRE/SMOKE DAMPERS.
- R. PROVIDE MINIMUM 12x12 ACCESS DOOR IN NEW DUCTWORK 20"-0" ON CENTER FOR DUCT CLEANING PURPOSE.
- S. MAXIMUM LENGTH OF FLEXIBLE DUCTWORK SHALL BE 2'-0", ONLY WHERE SHOWN.
- T. CONNECT ALL DUCTS TO MECHANICAL EQUIPMENT BY FLEXIBLE DUCT CONNECTORS WITH NOT LESS THAN 3" SPACING BETWEEN DUCT AND EQUIPMENT.
- U. COORDINATE FINAL LOCATION OF ALL CEILING GRILLES AND DIFFUSERS WITH CEILING LAYOUT, LIGHTING, SPRINKLERS AND OTHER CEILING MOUNTED ITEMS. REFER TO REFLECTED CEILING PLANS ON ARCHITECTURAL DRAWINGS.
- V. SHOULD THE DRAWINGS DISAGREE WITH ONE ANOTHER OR WITH THE SPECIFICATIONS, THE BETTER QUALITY OR GREATER QUANTITY OF WORK OR MATERIALS SHALL BE PERFORMED OR PROVIDED.

GRAPHIC SYMBOLS



SYMBOL LEGEND GENERAL NOTES:
 A. LEGENDS ARE GENERAL. NOT ALL SYMBOLS AND/OR DESIGNATIONS MAY APPEAR ON THE DRAWINGS.

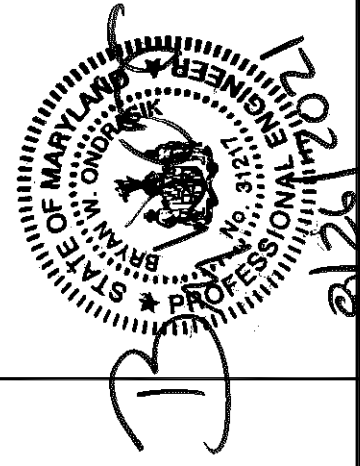


SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
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 SMITHSBURG, MARYLAND 21783
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLIOT PARKWAY
 WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
 DRAWN BY: MFG
 CHECKED BY: BWO
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 SHEET TITLE:

MECHANICAL ABBREVIATIONS AND GENERAL INFORMATION

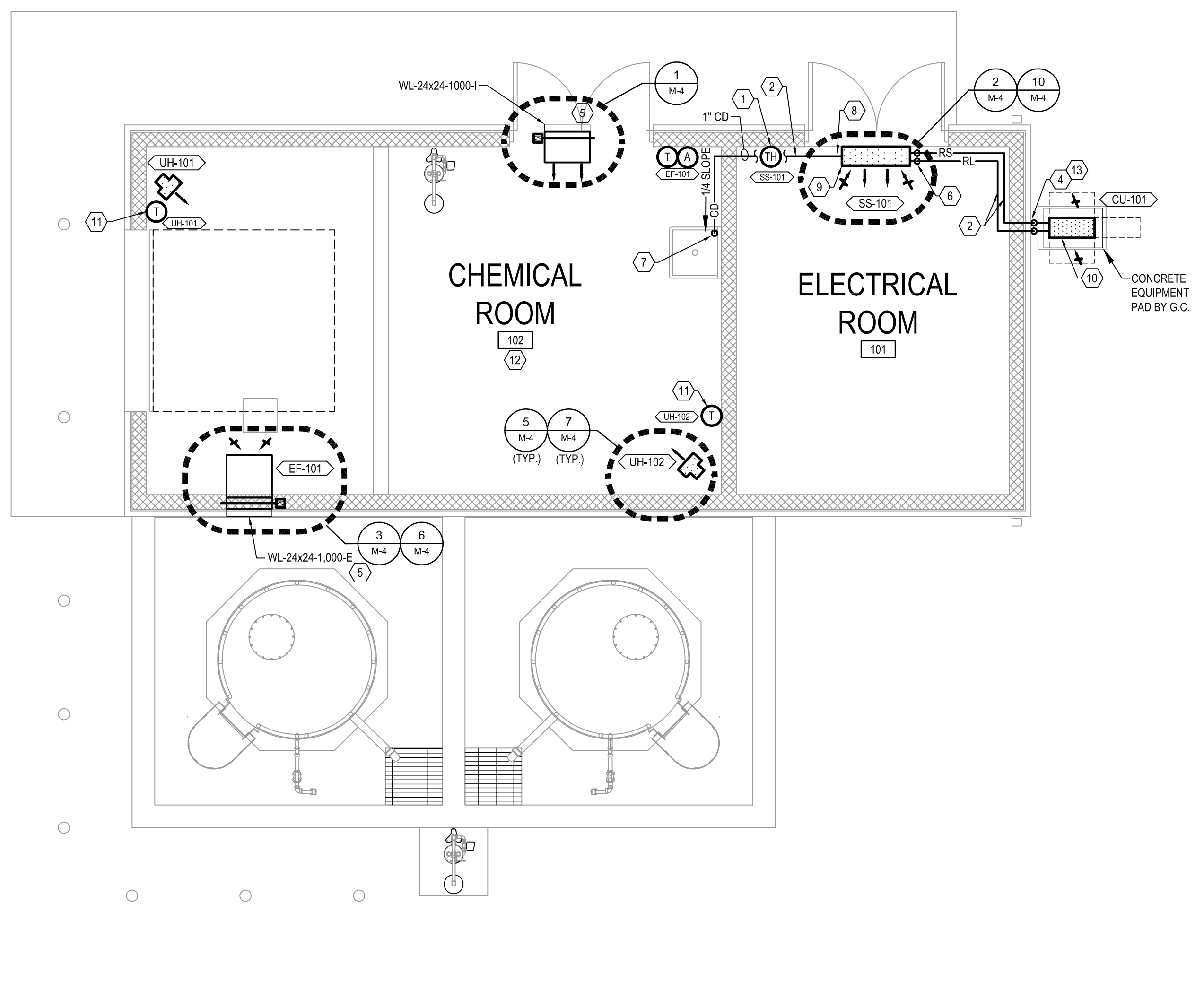


GENERAL NOTES

- A. MAINTAIN SPACE FOR SERVICE AND MAINTENANCE OF EQUIPMENT.
- B. PROVIDE A LOW-LOSS RECTANGULAR 45° TAP OR ROUND BELL-MOUTH TAP FOR EVERY RUNOUT DUCT FROM THE MAIN. INSTALL A MANUAL BALANCING DAMPER AT THE TAKE-OFF FOR USE IN BALANCING. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR BRANCH, OUTLET AND INLET, AND TERMINAL UNIT CONNECTIONS.
- C. INSTALL HINGED ACCESS DOOR AT ALL AUTOMATIC DAMPERS, FIRE DAMPERS, REHEAT COILS AND ANY APPARATUS THAT REQUIRES PERIODIC INSPECTION AND ROUTINE MAINTENANCE.
- D. TRANSITION DUCT CONNECTIONS AS REQUIRED TO CONNECT FROM DUCT SIZES SHOWN TO UNIT CONNECTION SIZES. MAKE FINAL CONNECTIONS TO EQUIPMENT WITH FLEXIBLE CONNECTION ISOLATOR.
- E. COORDINATE FINAL PLACEMENT OF HVAC EQUIPMENT TO MAINTAIN REQUIRED MAINTENANCE CLEARANCES.
- F. FLEXIBLE DUCTWORK SHALL NOT EXCEED 4 LINEAR FEET IN EXTENDED LENGTH. SUPPORT DUCTS FROM OVERHEAD STRUCTURE SO AS TO MINIMIZE KINKS AND BENDS. SECURE CONNECTIONS WITH PROPER BAND ATTACHMENTS.
- G. INSTALL FIRE DAMPERS WHERE REQUIRED BY THE INTERNATIONAL MECHANICAL CODE AND NFPA.
- H. BOTTOM OF DUCT, B.O.D. TAG REFERENCES DIMENSION FROM ASSOCIATED FLOOR LEVEL TOP OF CONCRETE. FLOOR FINISH THICKNESS IS NOT ACCOUNTED FOR.
- I. COORDINATE INSTALLATION AND FINAL LOCATION OF WALL-MOUNTED AIR DEVICES WITH ARCHITECTURAL FINISHES AND PLACEMENT OF FURNISHINGS.
- J. CONTRACTOR SHALL COORDINATE FINAL PLACEMENT OF DUCTWORK AND APPURTENANCES WITH COMPONENTS OF OTHER TRADES.

KEY NOTES

- 1. FURNISH AND INSTALL NEW MANUFACTURER THERMOSTAT/HUMIDITY SENSOR REMOTELY WIRED ON WALL FOR SPLIT SYSTEM. MOUNT AT SIMILAR HEIGHT AS LIGHT SWITCHES IN ROOM. EXPOSED WIRING ON FACE OF WALL WILL NOT BE ACCEPTED. FURNISH AND INSTALL NEW WIRING / CABLE.
- 2. FURNISH AND INSTALL PIPING TO THE BOTTOM OF STRUCTURE.
- 3. FURNISH AND INSTALL PIPING UP.
- 4. FURNISH AND INSTALL PIPING DOWN.
- 5. LOUVER AND FRAME ASSEMBLY FURNISHED AND INSTALLED BY GENERAL CONTRACTOR. MECHANICAL CONTRACTOR TO FURNISH AND INSTALL MOTOR OPERATED DAMPER, SCREEN, AND MAKE FINAL CONNECTION TO DUCTWORK. COORDINATE WITH ARCHITECT FOR FINAL LOCATION.
- 6. SIZE, TRAP, AND INSTALL REFRIGERANT PIPING BETWEEN SPLIT SYSTEM AND CONDENSING UNIT PER MANUFACTURER'S RECOMMENDATIONS.
- 7. EXTEND CONDENSATE PIPING TO SERVICE SINK. TERMINATE WITH ELBOW TURNED DOWN ABOVE FLOOD RIM OF DEVICE.
- 8. EXTEND 1" CONDENSATE PIPING FROM UNIT TO CONDENSATE TRAP. EXTEND 1" CONDENSATE PIPING FROM CONDENSATE TRAP TO CONDENSATE LIFT PUMP. ROUGH-IN AND CONNECT PER TRAP DETAIL AND MANUFACTURER'S REQUIREMENTS. SECURE PIPING TO WALL WITH BRACKETS.
- 9. INSTALL NEW INDOOR SPLIT SYSTEM ON WALL ABOVE DOOR. SECURE UNIT TO BLOCK WALL AS INDICATED BY MANUFACTURE. GROUT AND FILL BLOCK WALL AT MOUNT LOCATION.
- 10. FURNISH AND INSTALL CONDENSING UNIT ON CONCRETE EQUIPMENT PAD. COORDINATE EQUIPMENT PAD SIZE AND LOCATION WITH GENERAL CONTRACTOR.
- 11. FURNISH AND INSTALL MANUFACTURER THERMOSTAT AND MODE SELECTOR SWITCH FOR ELECTRIC UNIT HEATERS. MOUNT AT SIMILAR HEIGHT AS LIGHT SWITCHES IN ROOM. EXPOSED WIRING ON FACE OF WALL WILL NOT BE ACCEPTED. FURNISH AND INSTALL NEW WIRING / CABLE.
- 12. THE ENVIRONMENT IN THIS SPACE IS CORROSIVE. ALL DUCTWORK, HANGERS, HARDWARE, EQUIPMENT AND APPURTENANCES SHALL BE STAINLESS STEEL OR HAVE A CORROSION-RESISTANT COATING.
- 13. FURNISH AND INSTALL LINE HIDE KIT FOR REFRIGERANT PIPING ON THE EXTERIOR OF THE BUILDING.



1 MECHANICAL FLOOR PLAN - COMBINED
SCALE: 1/4" = 1'-0"
PROJECT NORTH

SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22623 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
1632 ELLIOT PARKWAY
WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

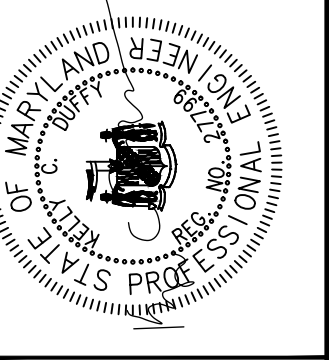
PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	MFG
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SHEET TITLE:
CHEMICAL BUILDING MECHANICAL FLOOR PLAN

PROJECT STATUS: **100% SUBMITTAL**

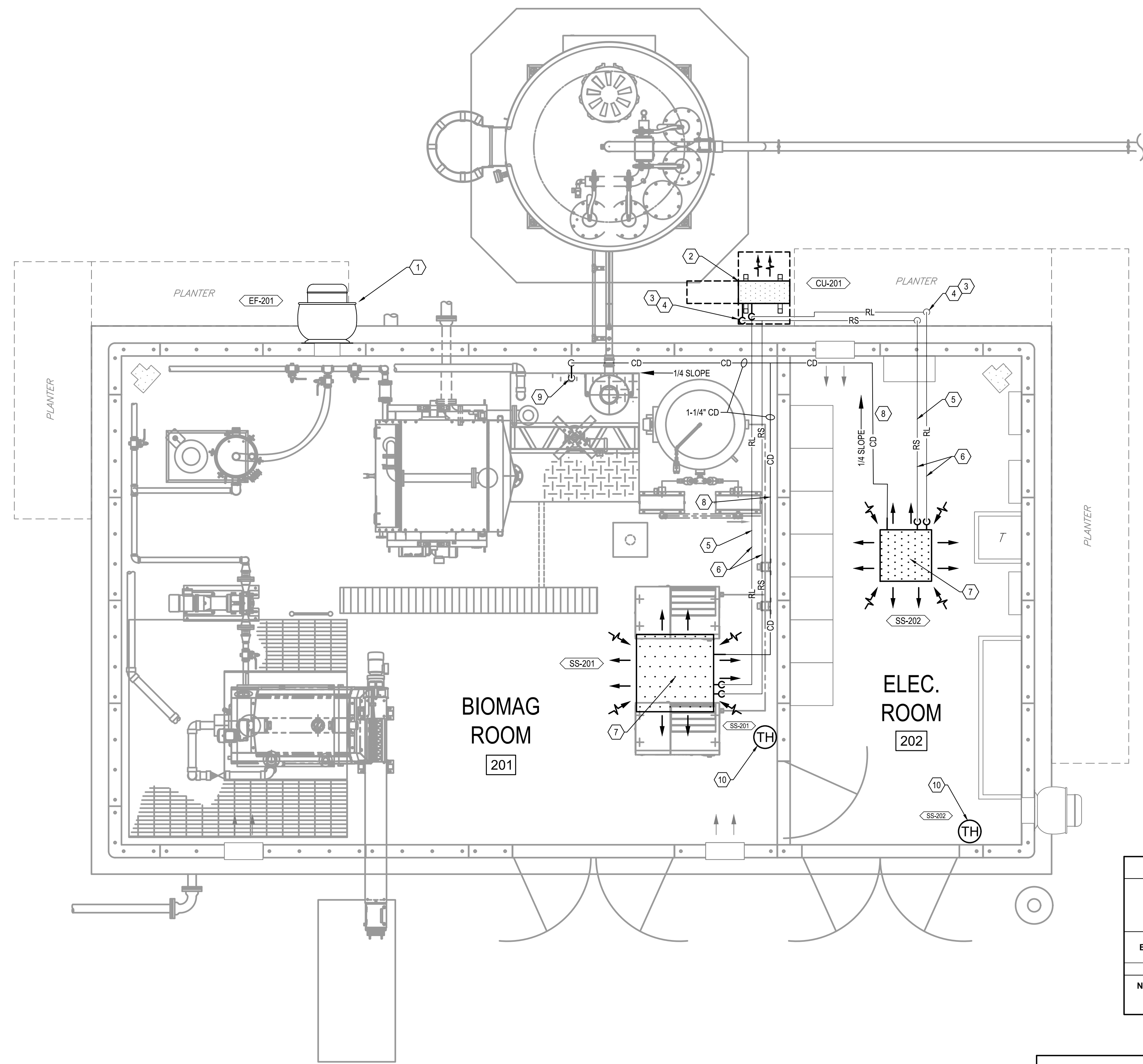
SHEET NO.: **M-2**

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 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILMINGTON, MARYLAND 21785



- ### KEY NOTES
- REMOVE EXISTING EXHAUST FAN. INSTALL NEW FAN IN SAME LOCATION AND CONNECT TO EXISTING ELECTRICAL WIRING. FURNISH AND INSTALL NEW FAN CONTROLS. EXPOSED WIRING ON FACE OF WALL WILL NOT BE ACCEPTED.
 - FURNISH AND INSTALL OUTDOOR CONDENSING UNIT ON A WALL BRACKET. COORDINATE EQUIPMENT LOCATION WITH GENERAL CONTRACTOR.
 - FURNISH AND INSTALL PIPING DOWN.
 - FURNISH AND INSTALL LINE HIDE KIT FOR REFRIGERANT PIPING ON THE EXTERIOR OF THE BUILDING.
 - FURNISH AND INSTALL PIPING TIGHT TO THE BOTTOM OF ROOF STRUCTURE.
 - SIZE, TRAP, AND INSTALL REFRIGERANT PIPING BETWEEN SPLIT SYSTEM AND CONDENSING UNIT PER MANUFACTURER'S RECOMMENDATIONS.
 - INSTALL NEW INDOOR SPLIT SYSTEMS ON CEILING SUSPENDED FROM BAR JOISTS. SECURE UNITS AS INDICATED BY MANUFACTURER. CONTRACTOR TO FIELD VERIFY BAR JOIST SPACING AND RELOCATE LIGHTS FROM EXISTING LOCATIONS AS-NEEDED FOR INSTALLATION.
 - EXTEND 1-1/4" CONDENSATE PIPING FROM UNIT CONDENSATE LIFT PUMPS, ROUGH-IN AND CONNECT CONDENSATE PIPING PER TRAP DETAIL AND MANUFACTURER'S REQUIREMENTS. SECURE PIPING TO WALL WITH BRACKETS.
 - EXTEND CONDENSATE PIPING TO BALLAST MIX TANK, EXTEND ABOVE THE DIAMOND PLATE AND TERMINATE ABOVE HIGH WATER LEVEL IN THE BALLAST TANK. COORDINATE LOCATION OF THE PENETRATION IN THE FIELD.
 - FURNISH AND INSTALL NEW MANUFACTURER THERMOSTAT/HUMIDITY SENSOR REMOTELY WIRED ON WALL FOR SPLIT SYSTEM. MOUNT AT SIMILAR HEIGHT AS LIGHT SWITCHES IN ROOM. EXPOSED WIRING ON FACE OF WALL WILL NOT BE ACCEPTED. FURNISH AND INSTALL NEW WIRING / CABLE.

TAG	SYSTEM	LOCATION	TYPE	WEIGHT POUNDS	SONES	CFM	ESP	FAN RPM	HP	ELECTRICAL		BASIS OF DESIGN		NOTES
										VOLT/ PHASE	DISCONNECT	MFR	SERIES	
EF-201	EXHAUST	BIOMAG ROOM	CENTRIFUGAL	43	18	1950	0.500	1550	1/2	115 / 1	BY E.C.	COOK	ACWB	Cat. No. 135W15D

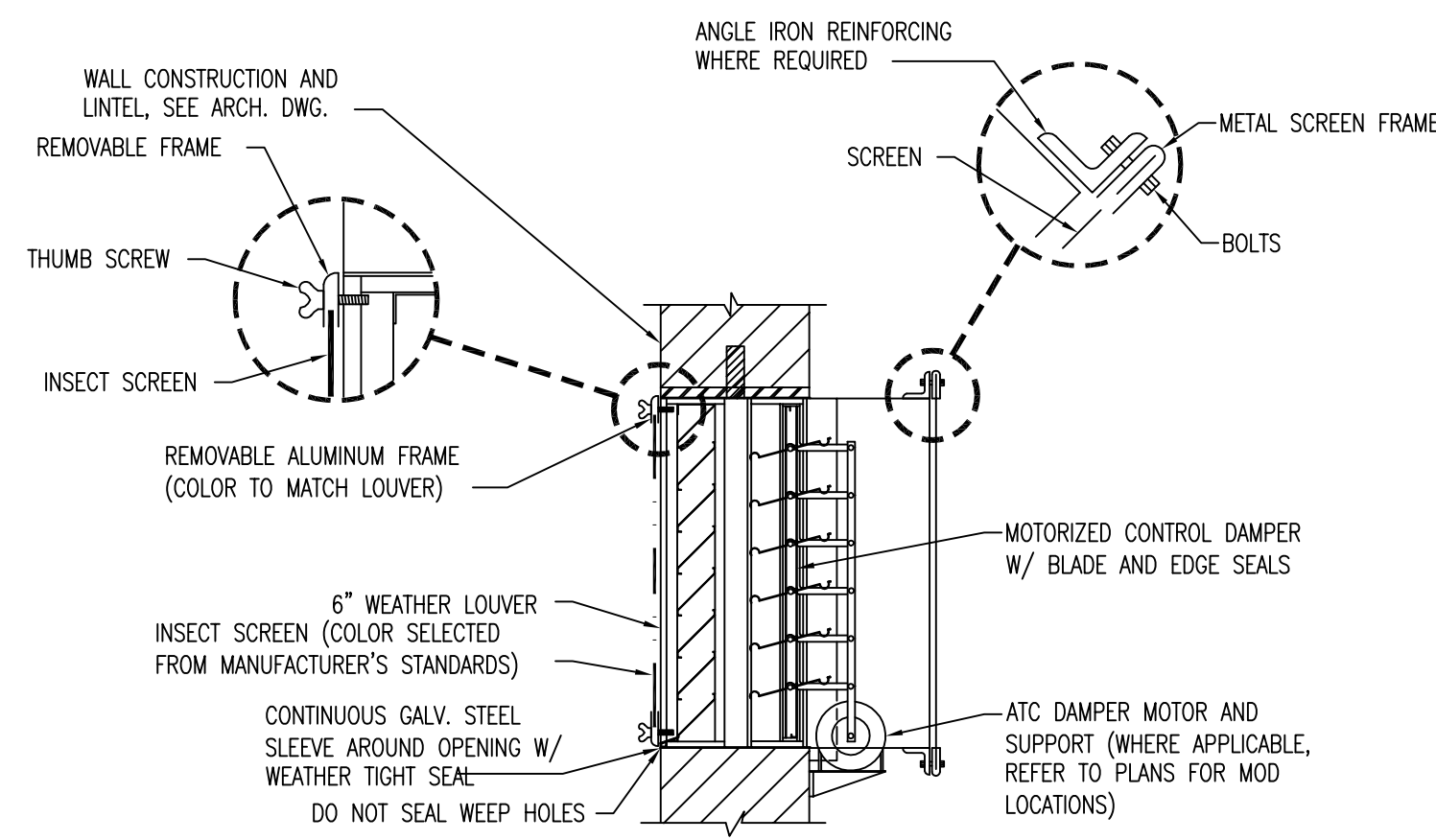
NOTES:
 1. PROVIDE CORROSION RESISTANT COATING.

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

TAG	LOCATION	TYPE	WEIGHT POUNDS	CFM	FAN RPM	HP (WATT)	COOLING		HEATING MBH	ELECTRICAL			BASIS OF DESIGN		NOTES	
							TOTAL MBH	SENSIBLE MBH		VOLT/ PHASE	MCA	MOCB	DISCONNECT	MFR		SERIES
SS-201	BIOMAG ROOM	4-WAY CEILING CASSETTE	51	640	HI	(50)	24	--	26	208 / 1	1	-	NOTE 1	mitsubishi	PLA-A24B6	1,2
SS-202	ELECTRICAL ROOM	4-WAY CEILING CASSETTE	31	390	HI	(50)	12	13.5	13	208 / 1	1	-	NOTE 1	mitsubishi	SLZ-KF12	1,2
CU-201	EXTERIOR	WALL MTD	137	--	--	--	--	--	--	208 / 1	22.1	25	MFR	mitsubishi	MXZ-4C36	3,4

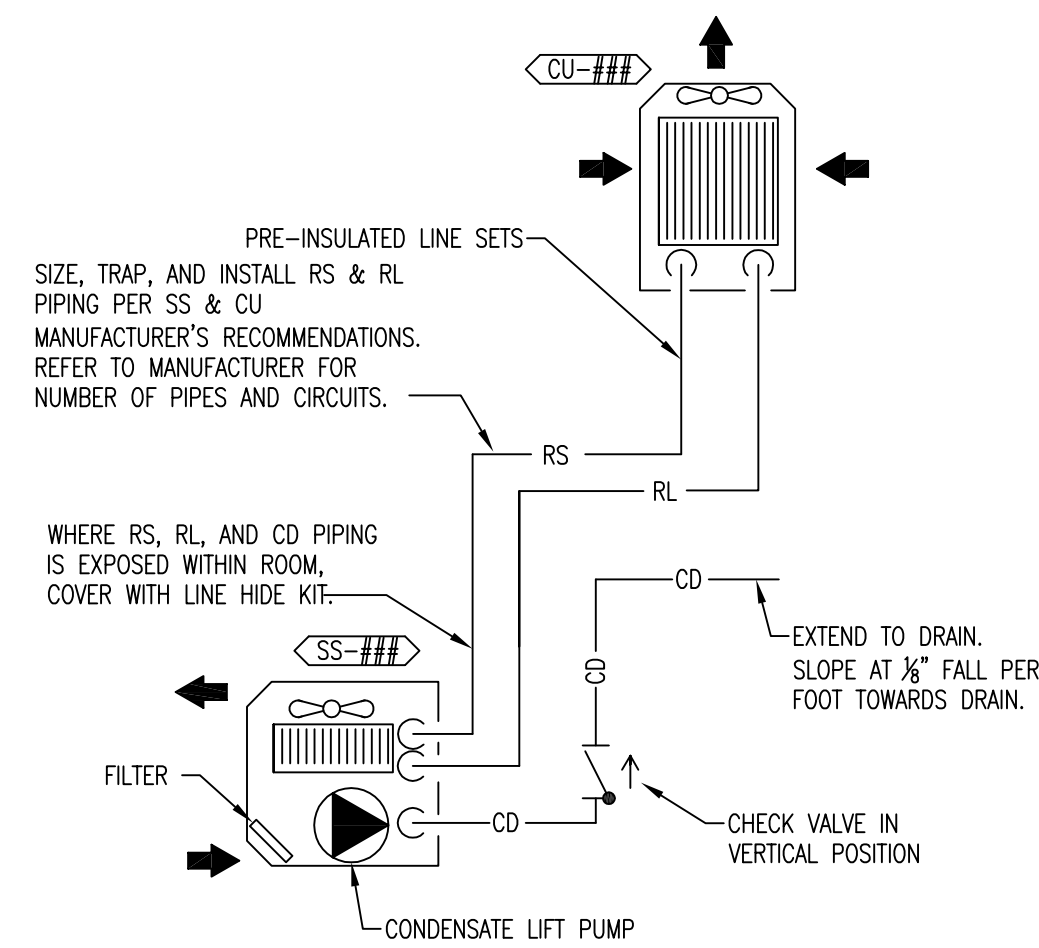
NOTES:
 1. FURNISH AND INSTALL MANUAL MOTOR STARTER WITH THERMAL OVERLOADS.
 2. CEILING MOUNT SUSPEND BETWEEN BAR JOISTS
 3. FURNISH AND INSTALL LINE HIDE KIT ON EXTERIOR REFRIGERANT PIPING.
 4. FURNISH AND INSTALL WALL BRACKET QSWB2000M-1.

I:\BLS\02072020\07012_MCCNRK\SMITHSBURG DESIGN-ENR TO 145C\ADD\04 CONTRACT DRAWINGS\3_BIOMAG MECH.DWG\4.36272021 10:05 AM\dmd\m.dwg



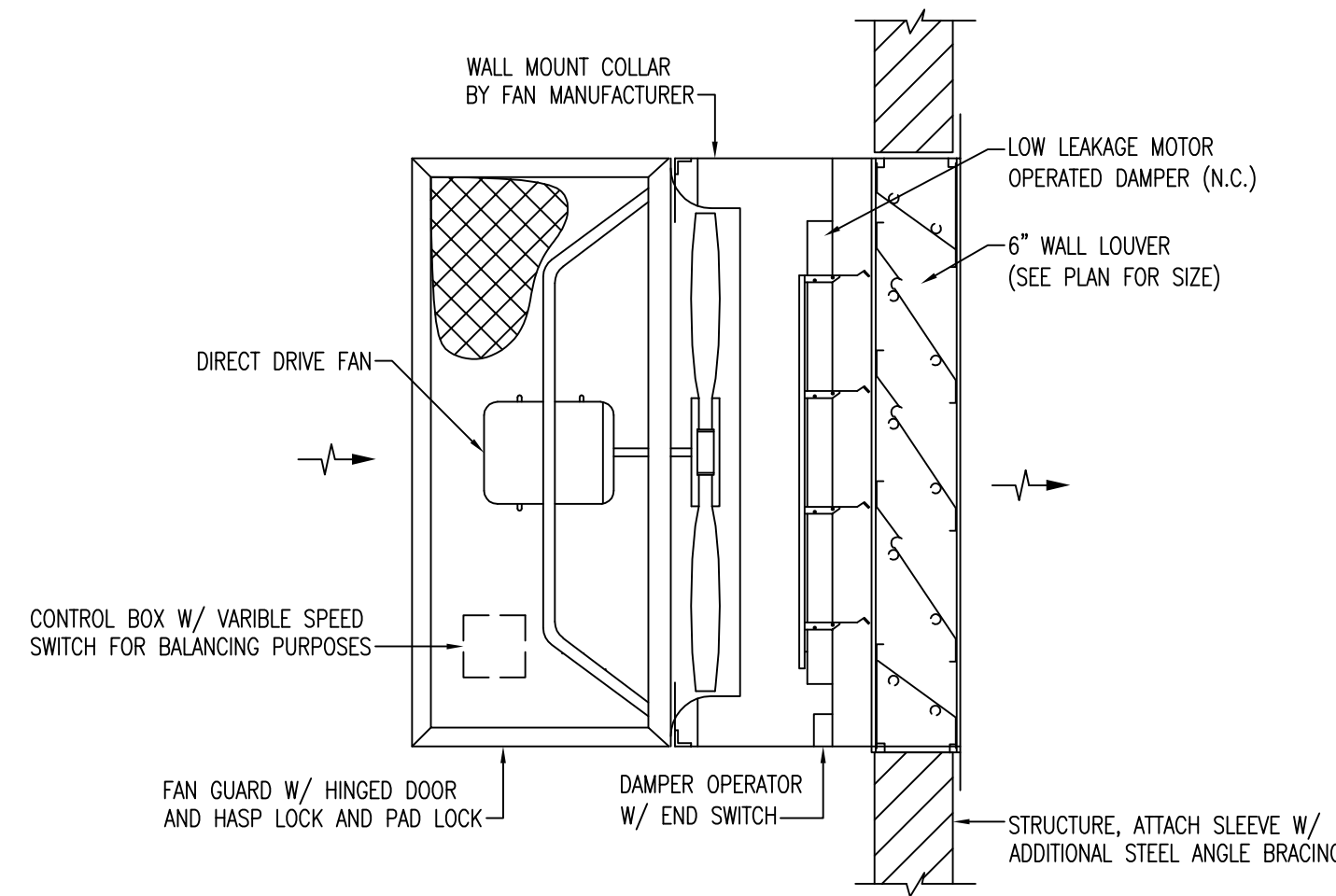
1 **FIXED BLADE LOUVER WITH
MOTORIZED DAMPER - DETAIL**

NOT TO SCALE



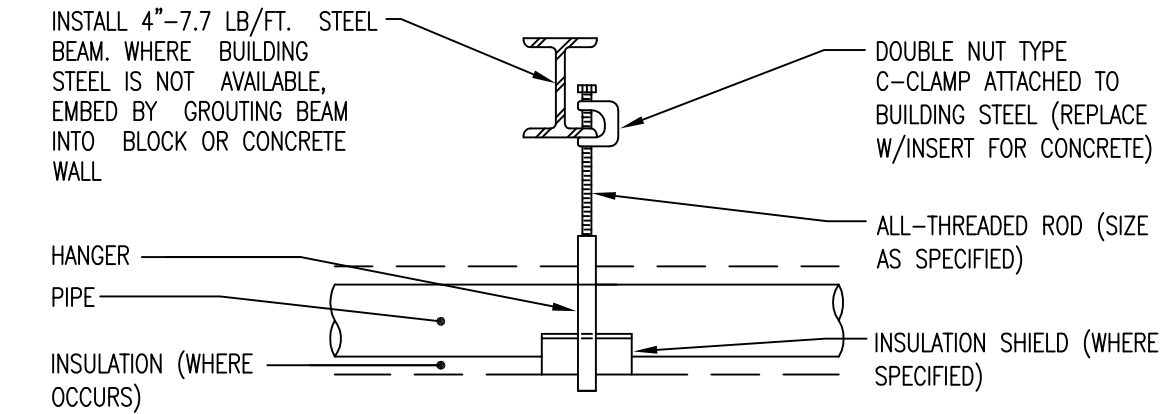
2 **SPLIT SYSTEM REFRIGERANT
PIPING - DETAIL**

NOT TO SCALE



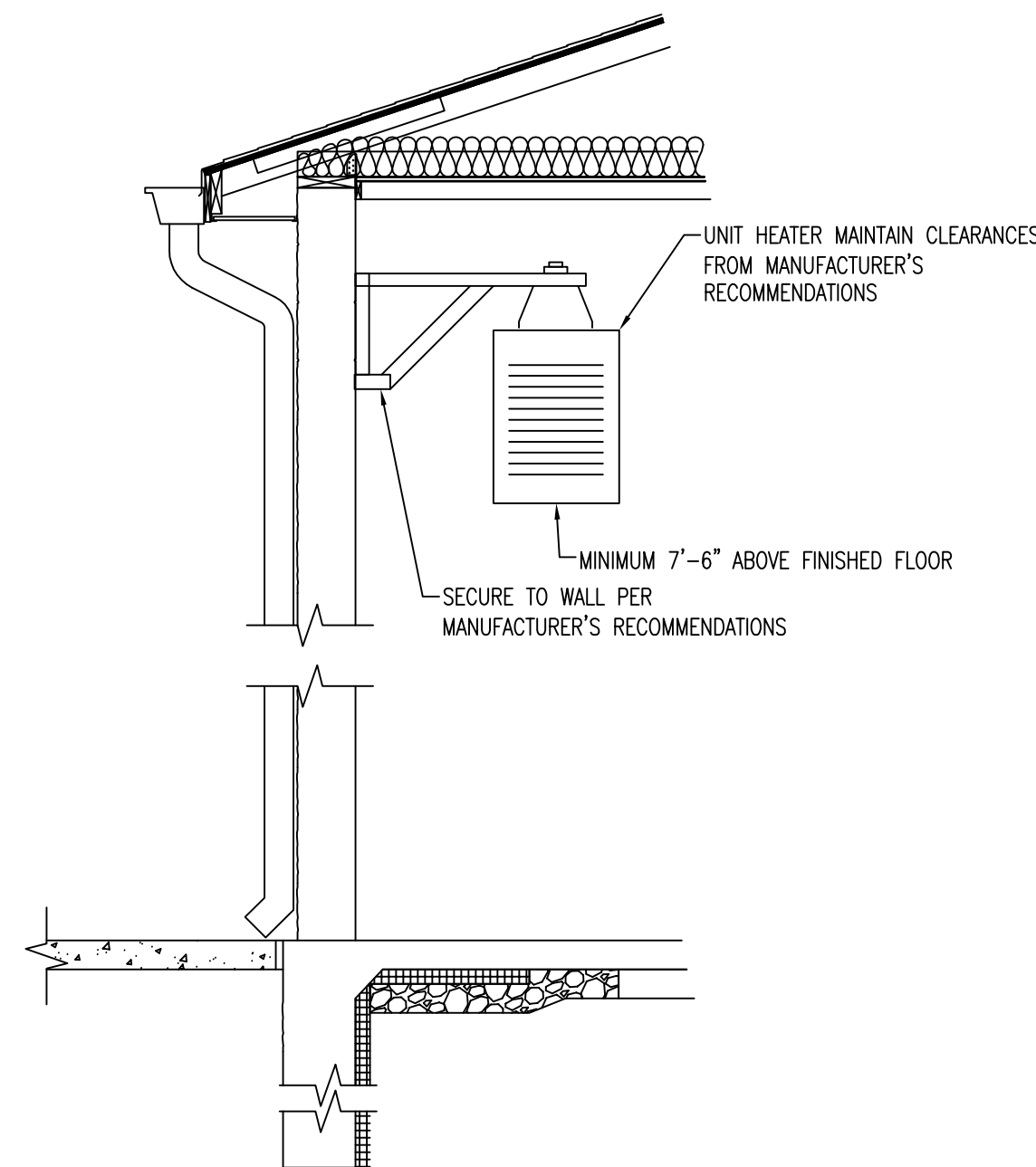
3 **PROPELLER FAN W/ MOTORIZED
DAMPER - DETAIL**

NOT TO SCALE



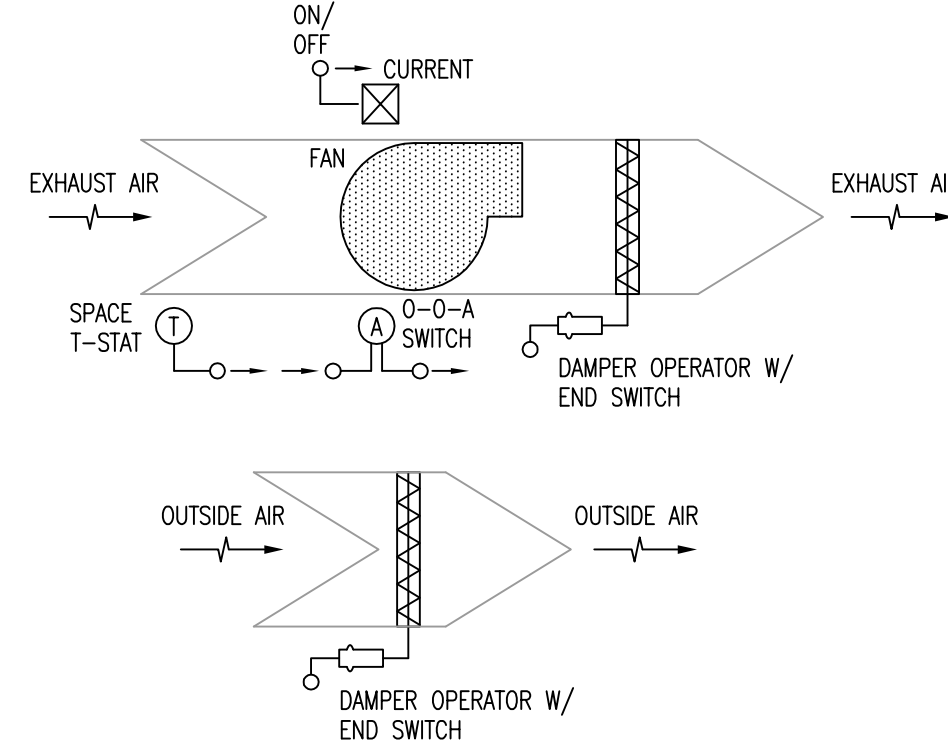
4 **PIPE HANGER & SUPPORT -
DETAIL**

NOT TO SCALE



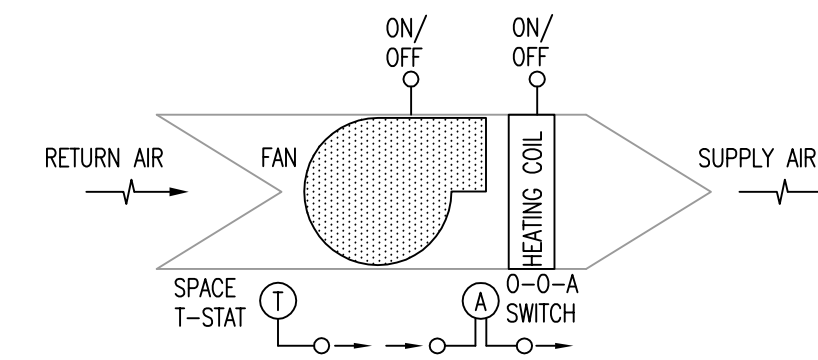
5 **UNIT HEATER MOUNTING -
DETAIL**

NOT TO SCALE



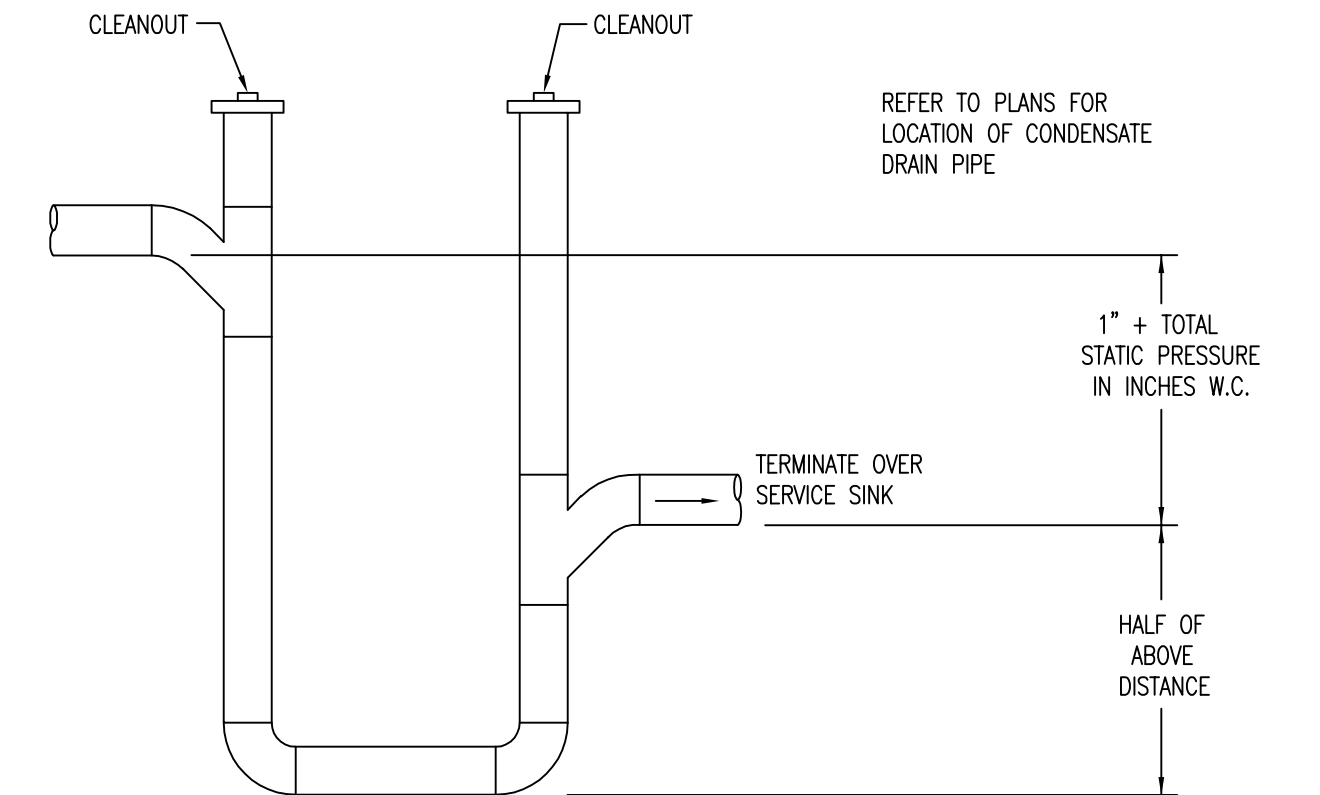
6 **EXHAUST FAN - CONTROLS**

NOT TO SCALE



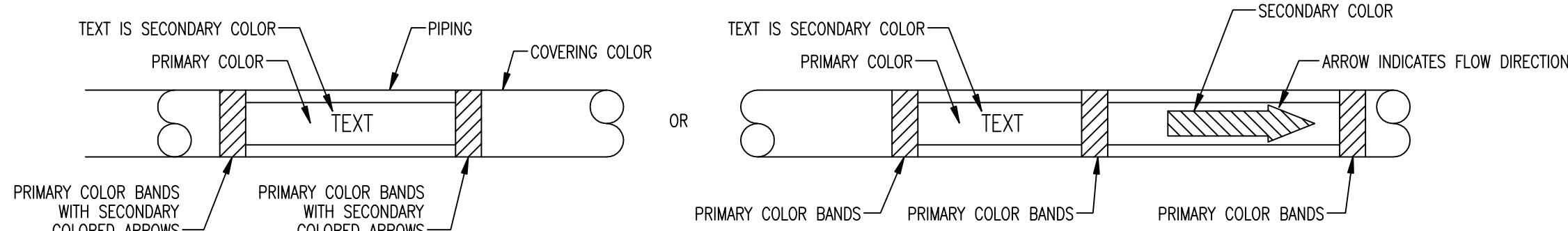
7 **UNIT HEATER (ELECTRIC HEAT) -
CONTROLS**

NOT TO SCALE



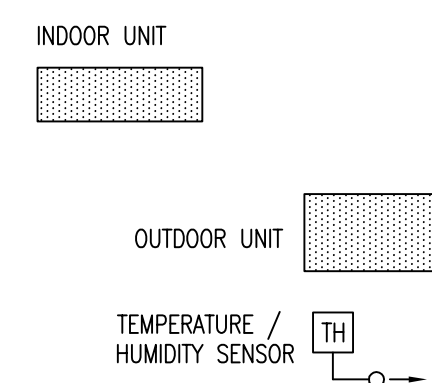
8 **CONDENSATE TRAP DRAW THRU
UNITS - DETAIL**

NOT TO SCALE



9 **PIPING IDENTIFICATION - DETAIL**

NOT TO SCALE



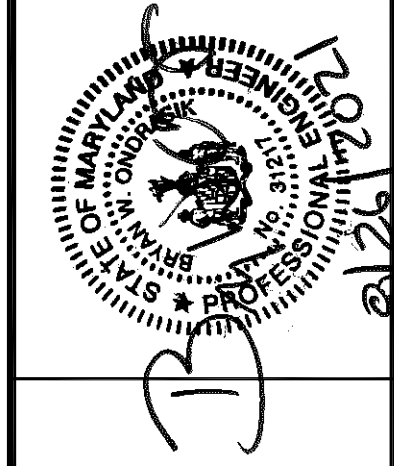
10 **SPLIT SYSTEM - CONTROLS**

NOT TO SCALE

SPLIT SYSTEM MANUFACTURER'S CONTROL SYSTEM SHALL BE PROVIDED. UNIT MOUNTED CONTROLS WITH REMOTE MOUNTED COMBINATION THERMOSTAT/HUMIDITY SENSOR. UNIT SHALL MODULATE REFRIGERANT SYSTEM AND CYCLE FAN TO MAINTAIN SET POINTS. THIS IS THE PRIMARY COOLING AND HEATING SYSTEM FOR THIS SPACE.

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	MFG
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PIPING AND FITTING ASSEMBLY SCHEDULE

DESIGNATION	SYSTEM NAME	SYSTEM TEMP RANGE	PRESSURE RANGE	MATERIAL	CONNECTION TYPE	INSULATION MATERIAL	INSULATION THICKNESS				COVERING	COVERING COLOR	IDENTIFICATION PRIMARY COLOR	IDENTIFICATION SECONDARY COLOR	IDENTIFICATION TEXT
							Ø<1"	1"-Ø<2"	2"-Ø<4"	4"-Ø<8"					
RS	REFRIGERANT SUCTION	ABOVE 30 DEGREES AND BELOW 125 DEGREES	0-240 PSI	CTL	SLD, BRZ	ELM, FBG	1 1/2"	1 1/2"	1 1/2"	1 1/2"	EXP: PVC, ALM, SST CCL: FSK	EXP: BLACK - NOTE 8	YELLOW	BLACK	REFRIGERANT SUCTION
RL	REFRIGERANT LIQUID	ABOVE 30 DEGREES AND BELOW 125 DEGREES	0-240 PSI	CTL	SLD, BRZ	ELM, FBG	1 1/2"	1 1/2"	1 1/2"	1 1/2"	EXP: PVC, ALM, SST CCL: FSK	EXP: BLACK - NOTE 8	YELLOW	BLACK	REFRIGERANT LIQUID
CD	CONDENSATE DRAIN	LESS THAN 100 DEGREES	0-20 PSI	CPD, PVC, GST	SLD, GLU, NPT	ELM, FBG	1/2"	1"	1"	1"	EXP: PVC, ALM, SST CCL: FSK	EXP: BLACK - NOTE 8	GREEN	WHITE	CONDENSATE DRAIN

NOTES:

- ALL PIPING SYSTEM TYPES MAY NOT BE USED ON THESE CONTRACT DOCUMENTS.
- FOR HEAT TRACED SYSTEMS INCLUDE IDENTIFICATIONS FOR BOTH HEAT TRACING AND SYSTEM DESIGNATION.
- WHERE PLASTIC PIPING IS USED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPATIBILITY OF THE INSTALLED PIPING SYSTEM WITH THE BUILDING'S HVAC SYSTEM, WHERE PLENUM RATED MATERIALS ARE REQUIRED BY ANY FEDERAL, STATE, OR MUNICIPAL AUTHORITY'S CONSTRUCTION CODES, PLASTIC PIPING SHALL BE COVERED IN ITS ENTIRETY BY AN APPROVED FIRE RETARDANT INSULATING MATERIAL. FIRE RETARDANT INSULATING SYSTEMS SHALL BE CERTIFIED TO MEET ASTM E-84 AND UL 723 STANDARDS FOR FLAME SPREAD AND SMOKE GENERATION. FIRE RETARDANT INSULATING SYSTEMS SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.
- LABEL PIPING EVERY 25', AT EACH CONNECTION TO A TEE, AND AT FLOOR PENETRATIONS.
- COVERING COLOR APPLIES TO EXPOSED INTERIOR PIPING ONLY.
- DO NOT PAINT PVC PIPE OR JACKET. FURNISH AND INSTALL COLORED PVC JACKET AND COLORED BANDS ON PVC PIPE.
- ALL INSULATION SHALL HAVE A COVERING. DO NOT PAINT INSULATION DIRECTLY.
- VERIFY FINAL COVERING COLOR WITH PROJECT ARCHITECT ON A ROOM-BY-ROOM BASIS PRIOR TO ORDERING COVERINGS.

ABG ABOVE GROUND	CIS CAST IRON SERVICE WEIGHT	ELM ELASTOMERIC	GSK RUBBER GASKETS	SBS SEAMLESS BLACK STEEL PIPE, SCH. 80
ALM ALUMINUM	CLG CELLULAR GLASS	EPC EPOXY COATED	GST GALVANIZED STEEL	SLD SOLDERED
AQT AQUATHERM	CPD COPPER TYPE DWV	EXP EXPOSED	MIW MINERAL WOOL	SST STAINLESS STEEL
ASJ ALL SERVICE JACKET	CPK COPPER TYPE K	FBG FIBERGLASS	NHB NO HUB FITTINGS	WLD WELDED
ASK WHITE KRAFT FIBER PAPER	CPL COPPER TYPE L	FLG FLANGED	NPT THREADED	
BEG BELOW GROUND	CPM COPPER TYPE M	FSK FOIL BACK KRAFT FIBER PAPER	PSN PUSH ON	
BRZ BRAZED	CSL CALCIUM SILICATE	FW FUSION WELDED	PRP PRO PRESS	
BST BLACK STEEL PIPE	CTL COPPER TUBING TYPE L	GLU GLUED	PVC POLYVINYL CHLORIDE	
CCL CONCEALED	DI DUCTILE IRON	GRV GROOVED	RCP REINFORCED CONCRETE PIPE	

DUCTWORK AND FITTING ASSEMBLY SCHEDULE

SINGLE LINE	DOUBLE LINE	SYSTEM NAME	SYSTEM	PRESSURE RANGE	PRESSURE CLASS	MATERIAL	CONNECTION TYPE	1" DUCT LINER	ANTIMICROBIAL COATING	INSULATION THICKNESS					COVERING	COVERING COLOR	IDENTIFICATION PRIMARY COLOR	IDENTIFICATION SECONDARY COLOR	IDENTIFICATION TEXT
										FGF	FDW	FRI	RGF	CSI					
12x10	12x10	RECTANGULAR OR SQUARE DUCT (SIZE IN INCHES)																	
		SUPPLY AIR DUCT	DOWNSTREAM OF TERMINAL UNIT	0 - 2 IN WC	1 - 2 IN WC	SST	SND, FLG	15' DOWNSTREAM OF TERMINAL UNIT	YES	1"	1 1/2"	--	1"	--	EXP: PVC, ALM, SST CCL: FSK	BLUE	GREEN	SUPPLY AIR	
		OUTSIDE AIR DUCT	UPSTREAM OF HEAT TRANSFER DEVICE	0 - 2 IN WC	1 - 2 IN WC	SST	SND, FLG	NO	YES	1"	1 1/2"	--	1"	--	EXP: PVC, ALM, SST CCL: FSK	PURPLE	GREEN	OUTSIDE AIR	
		RETURN/RELIEF DUCT	CONNECTED TO TERMINAL UNIT	0 - 2 IN WC	1 - 2 IN WC	SST	SND, FLG	15' UPSTREAM OF UNIT	YES	1"	1 1/2"	--	1"	--	EXP: PVC, ALM, SST CCL: FSK	ORANGE	GREEN	RETURN AIR	
		TRANSFER DUCT	CONNECTED TO RTU / AHU	2 - 6 IN WC	4 - 6 IN WC	SST	FLANGE	25' UPSTREAM OF UNIT	YES	1"	1 1/2"	--	1"	--	EXP: PVC, ALM, SST CCL: FSK	ORANGE	GREEN	RETURN AIR - PRIMARY	
		EXHAUST DUCT	NOT PRESSURIZED	0 - 2 IN WC	1 - 2 IN WC	SST	SND, FLG	YES	NO	--	--	--	--	--	EXP: PVC, ALM, SST CCL: FSK	YELLOW	GREEN	TRANSFER AIR	
		FLUE ELBOW (UP AND DOWN)	UPSTREAM OF FAN	0 - 2 IN WC	1 - 2 IN WC	SST	SND, FLG	NO	NO	--	--	--	--	--	EXP: PVC, ALM, SST CCL: FSK	BLUE	GREEN	EXHAUST AIR	
		KITCHEN HOOD / GREASE EXHAUST	DISCHARGE OF FAN	2 - 6 IN WC	4 - 6 IN WC	SST	FLANGE	NO	NO	--	--	--	--	--	EXP: PVC, ALM, SST CCL: FSK	GREEN	BLUE	EXHAUST AIR - POSITIVE	
		FLUE	DISCHARGE OF BOILER	2 - 6 IN WC	4 - 6 IN WC	SST	DWB	NO	NO	--	--	--	3"	SST	FSK	NONE	BLUE	WHITE	FLUE
		GREASE EXHAUST	DISCHARGE OF ENGINE	2 - 6 IN WC	4 - 6 IN WC	SST	DWB	NO	NO	--	--	ASTM E2336	--	--	FSK	BROWN	BLUE	WHITE	GREASE EXHAUST

NOTES:

- EXTERIOR DUCTWORK SHALL BE INSULATED WITH 2" THICK ELASTOMERIC INSULATION WITH ALUMINUM OR STAINLESS STEEL JACKET, ARMATUFF OR EQUAL.
- LABEL DUCTWORK EVERY 25', AT EACH CONNECTION TO A TEE AND AT FLOOR PENETRATIONS.

ALM ALUMINUM	ELM ELASTOMERIC	FSK FOIL BACK KRAFT FIBER PAPER	SLD SOLDERED
ASK WHITE KRAFT FIBER PAPER	EXP EXPOSED	FRI FIRE-RATED INSULATION	SND SLIP-N-DRIVE
CCL CONCEALED	FBG FIBERGLASS	RGF RIGID GLASS FIBER	SST STAINLESS STEEL
CLG CELLULAR GLASS	FDW FIBERGLASS DUCT WRAP	PVC POLYVINYL CHLORIDE	WLD WELDED
CSI CALCIUM SILICATE	FLG FLANGED		
DWB DOUBLE WALL BANDED	FGF FLEXIBLE GLASS FIBER		

SPLIT SYSTEM SCHEDULE

TAG	LOCATION	TYPE	WEIGHT POUNDS	CFM	FAN RPM	HP (WATT)	COOLING		HEATING MBH	ELECTRICAL			BASIS OF DESIGN		NOTES	
							TOTAL MBH	SENSIBLE MBH		VOLT/PHASE	MCA	MOCP	DISCONNECT	MFR		SERIES
SS-101	ELECTRICAL ROOM	WALL MTD	46	810	MED	(56)	34.2	25	37	208 / 1	1	-	NOTE 1	mitsubishi	PKA-A36	
CU-101	EXTERIOR GRADE	--	165	--	--	--	--	--	--	208 / 1	25	30	MFR	mitsubishi	PUZ-A36	

NOTES:

- FURNISH AND INSTALL MANUAL MOTOR STARTER WITH THERMAL OVERLOADS.
- FURNISH AND INSTALL CONDENSATE LIFT PUMP
- FURNISH AND INSTALL LINE HIDE KIT ON EXTERIOR REFRIGERANT PIPING.

UNIT HEATERS ELECTRIC SCHEDULE

TAG	LOCATION	TYPE	WEIGHT POUNDS	CFM	ELECTRICAL			BASIS OF DESIGN		NOTES
					KW	FAN HP (WATT)	VOLT/PHASE	MFR	SERIES	
UH-101	CHEMICAL ROOM	CEILING HUNG: HORIZONTAL	110	1450	15	0.25	480 / 3	QMARK	QWD	
UH-102	CHEMICAL ROOM	CEILING HUNG: HORIZONTAL	110	1450	15	0.25	480 / 3	QMARK	QWD	

NOTES:

- PROVIDE MANUFACTURER THERMOSTAT SENSOR, PILOT LIGHT, MODEL/SELECTOR SWITCH AND FACTORY MOUNTED DISCONNECT SWITCH.
- PROVIDE MANUFACTURE WALL MOUNTING HARDWARE AND BRACKET.

FAN SCHEDULE

TAG	SYSTEM	LOCATION	TYPE	WEIGHT POUNDS	SONES	CFM	ESP	FAN RPM	HP	ELECTRICAL		BASIS OF DESIGN		NOTES
										VOLT/PHASE	DISCONNECT	MFR	SERIES	
EF-101	EXHAUST	CHEMICAL ROOM	PROPELLER	70	14	1000	0.375	834	1/4	115 / 1	BY E.C.	GREENHECK	SB	

NOTES:

- PROVIDE CORROSION RESISTANT COATING.

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
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SHEET TITLE:

MECHANICAL SCHEDULES

ELECTRICAL ABBREVIATIONS

A	-	AMPERES
AC	-	ALTERNATING CURRENT
A.F.F.	-	ABOVE FINISHED FLOOR
A.F.G.	-	ABOVE FINISHED GRADE
ALUM.	-	ALUMINUM
ATS	-	AUTOMATIC TRANSFER SWITCH
C	-	CONDUIT
CP	-	CONTROL PANEL
CT	-	CURRENT TRANSFORMER
D	-	DEEP
DC	-	DIRECT CURRENT
DISC.	-	DISCONNECT
DWG.	-	DRAWING
EF	-	EXHAUST FAN
G.F.I.	-	GROUND FAULT INTERRUPTER
GRD.	-	GROUND
GRS	-	GALVANIZED RIGID STEEL
H	-	HIGH
H/O/A	-	HAND/OFF/AUTO
HP	-	HORSEPOWER
INSTR.	-	INSTRUMENTATION
KW	-	KILOWATT
MCC	-	MOTOR CONTROL CENTER
MCP	-	MOTOR CIRCUIT PROTECTOR
MH	-	MANHOLE
M.O.D.	-	MOTOR OPERATED DAMPER
MV	-	MEDIUM VOLTAGE
NO.	-	NUMBER
OIT	-	OPERATOR INTERFACE TERMINAL
P	-	POLE
PCS	-	PROCESS CONTROL SYSTEM
PLC	-	PROGRAMMABLE LOGIC CONTROLLER
PH	-	PHASE
PR.	-	PAIR
SF	-	SUPPLY FAN
SHLD.	-	SHIELDED
SN	-	SOLID NEUTRAL
SPD	-	SURGE PROTECTIVE DEVICE
S.S.	-	STAINLESS STEEL
T-M	-	THERMAL MAGNETIC
TYP.	-	TYPICAL
V	-	VOLTS
VFD	-	VARIABLE FREQUENCY DRIVE
W	-	WIRE, WATT, WIDE
WP	-	WEATHERPROOF
XFMR	-	TRANSFORMER

ELECTRICAL SYMBOL SCHEDULE

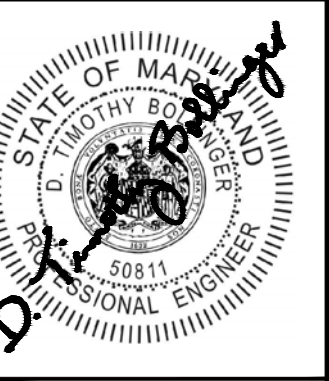
	-	1'x4' LED LIGHT FIXTURE
	-	EMERGENCY LIGHT FIXTURE
	-	EMERGENCY LIGHT FIXTURE REMOTE HEAD
	-	EXIT FIXTURE
	-	20A-120V DUPLEX RECEPTACLE
	-	20A-120V QUAD RECEPTACLE
	-	20A-120V SINGLE RECEPTACLE
	-	RECEPTACLES
	-	TELEPHONE OUTLET
	-	MOTOR (NUMBER INDICATES HP)
	-	DISCONNECT SWITCH
	-	EMERGENCY STOP PUSH BUTTON
	-	DOOR SWITCH
	-	JUNCTION BOX
	-	THERMOSTAT
	-	TRANSFORMER
	-	SECURITY CAMERA
	-	UNIT HEATER
	-	SINGLE POLE SWITCH
	-	THREE-WAY SWITCH
	-	FOUR-WAY SWITCH
	-	WEATHERPROOF SWITCH
	-	MANUAL STARTER SWITCH WITH THERMAL OVERLOAD
	-	HOME RUN TO PANEL
	-	TICKS INDICATE NUMBER OF WIRES - NOT INCLUDING GROUND CONDUCTOR
	-	WIRING CONCEALED IN CONDUIT
	-	CONDUIT CONCEALED IN FLOOR OR SLAB
	-	CIRCUIT BREAKER
	-	MOTOR STARTER
	-	THERMAL OVERLOAD
	-	CONCRETE ENCASED ELECTRICAL DUCT BANK
	-	DUCT BANK CROSS SECTION
#4/0 GROUND RING symbol"/>	-	#4/0 GROUND RING
	-	CADWELD GROUND CONNECTION

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.
- 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.
- ALL CONDUIT FOR STANCHION MOUNTED LIGHT FIXTURES SHALL BE PVC COATED GALVANIZED RIGID STEEL.

ELECTRICAL DEMOLITION NOTES (APPLICABLE TO ALL DRAWINGS)

- ALL EXISTING ELECTRICAL EQUIPMENT, CONDUIT AND WIRE BEING REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR, UNLESS NOTED OTHERWISE.
- WHERE EXISTING EQUIPMENT IS INDICATED TO BE REMOVED, ALL CONDUITS AND WIRING TO THIS EQUIPMENT SHALL BE REMOVED BACK TO THEIR SOURCE.
- CONDUITS BEING REMOVED THAT PENETRATE EXISTING FLOORS OR WALLS SHALL BE CUT OFF FLUSH WITH EXISTING SURFACE AND SEALED WITH NON-SHRINK GROUT.
- INSTALL A STAINLESS STEEL COVER PLATE OVER ALL RECESSED OUTLET BOXES WHERE WIRING DEVICE HAS BEEN REMOVED.
- PATCH HOLES IN WALLS REMAINING FROM REMOVAL OF EQUIPMENT WITH NON-SHRINK GROUT.



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22623 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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ELECTRICAL ABBREVIATIONS, SYMBOLS, AND NOTES

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SMITHSBURG WWTPL ENR UPGRADE AND EXPANSION
 22823 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
 DRAWN BY: SMJ
 CHECKED BY: DTB
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 SHEET TITLE:

ELECTRICAL SITE PLAN

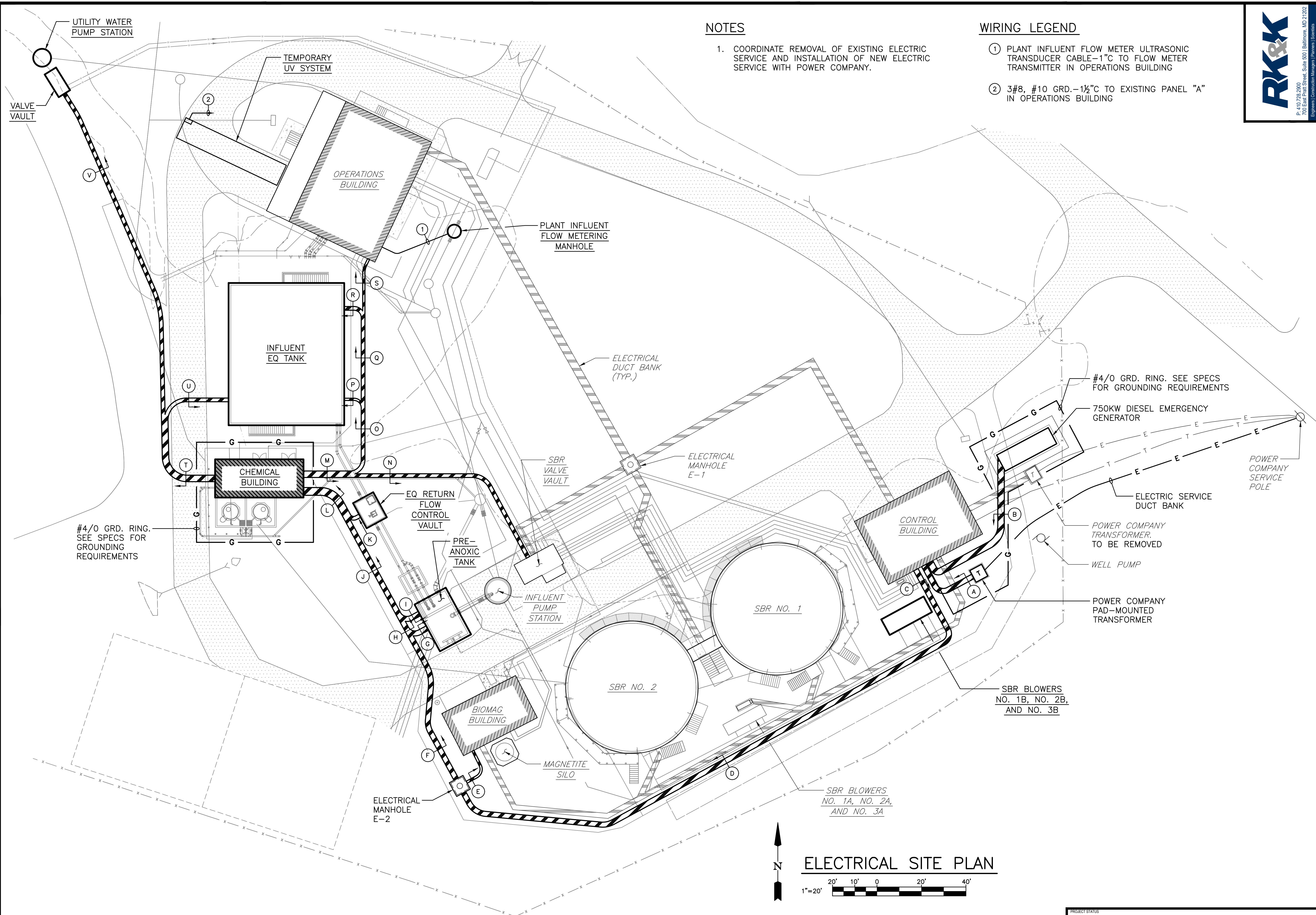
SHEET NO: **E-2**

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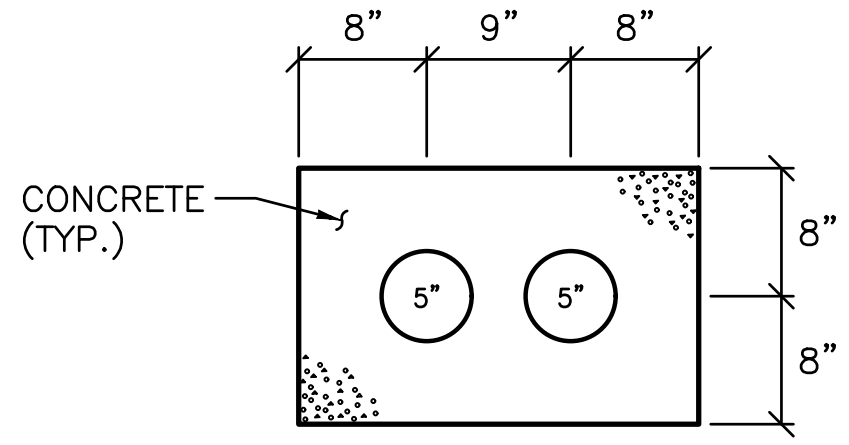
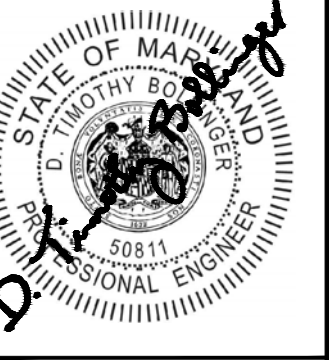
- COORDINATE REMOVAL OF EXISTING ELECTRIC SERVICE AND INSTALLATION OF NEW ELECTRIC SERVICE WITH POWER COMPANY.

WIRING LEGEND

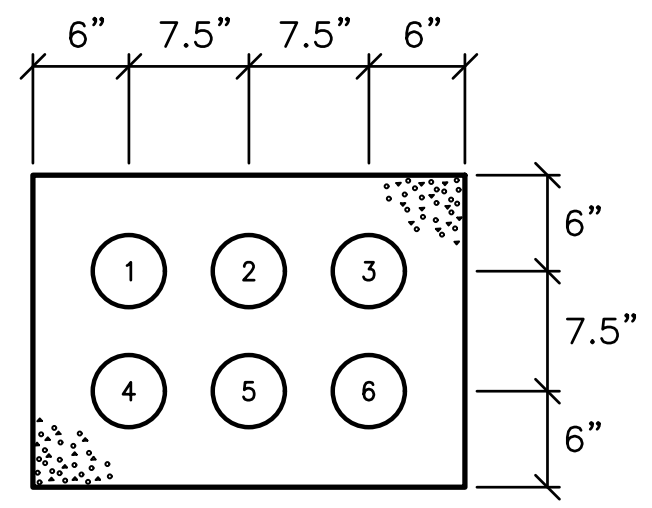
- PLANT INFLUENT FLOW METER ULTRASONIC TRANSDUCER CABLE-1" TO FLOW METER TRANSMITTER IN OPERATIONS BUILDING
- 3#8, #10 GRD.-1 1/2" TO EXISTING PANEL "A" IN OPERATIONS BUILDING



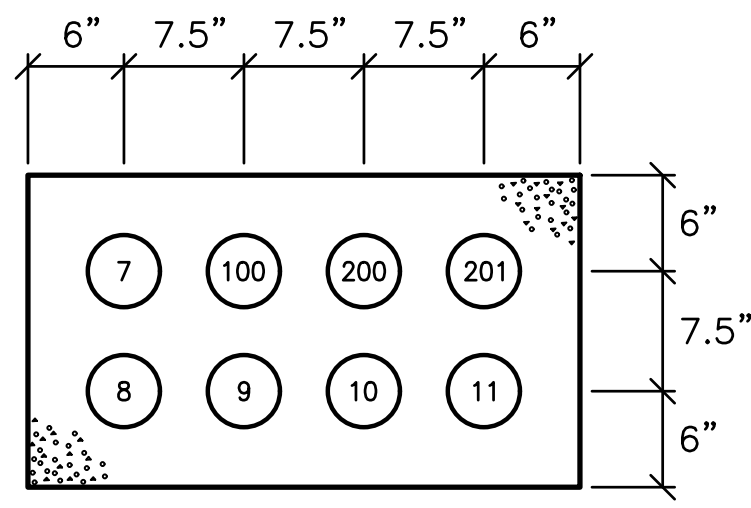
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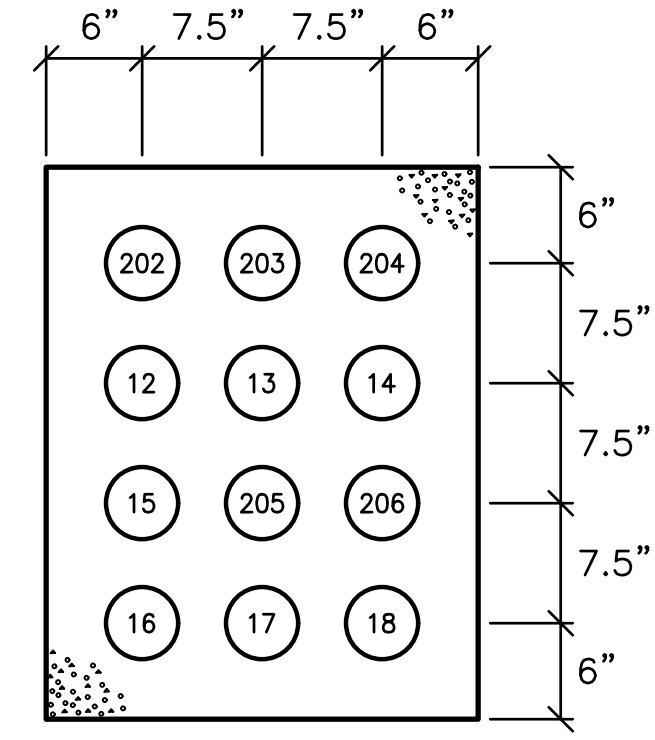
**ELECTRIC SERVICE
 DUCT BANK**



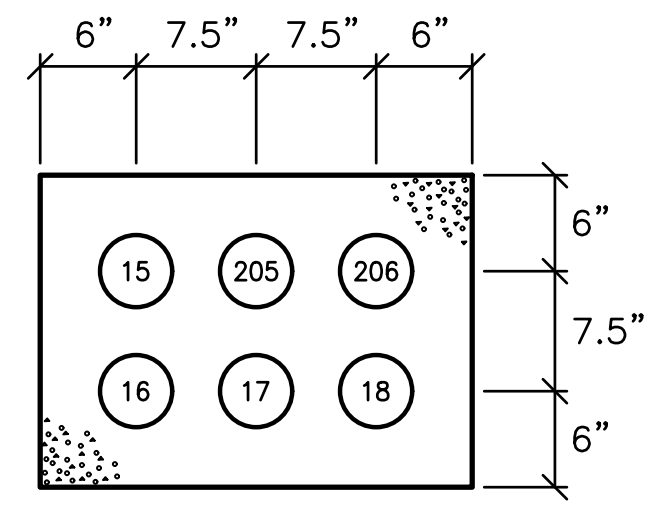
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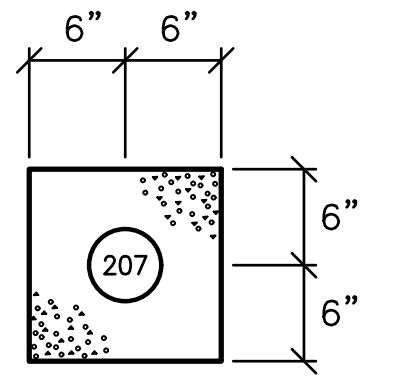
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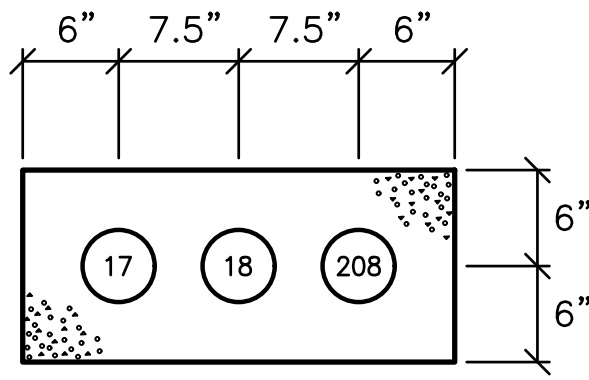
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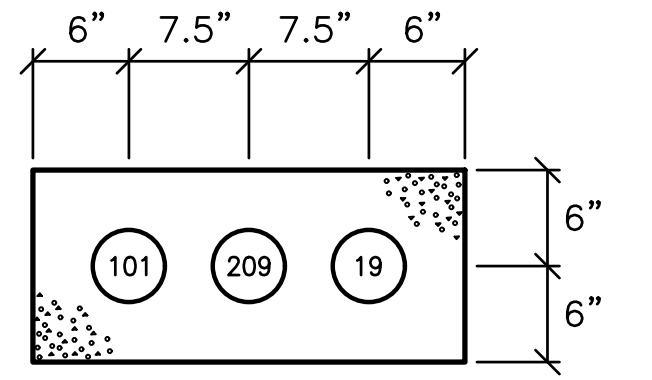
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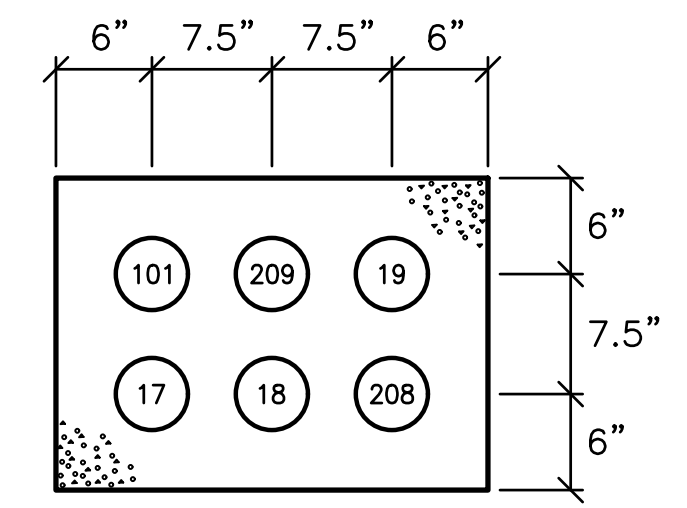
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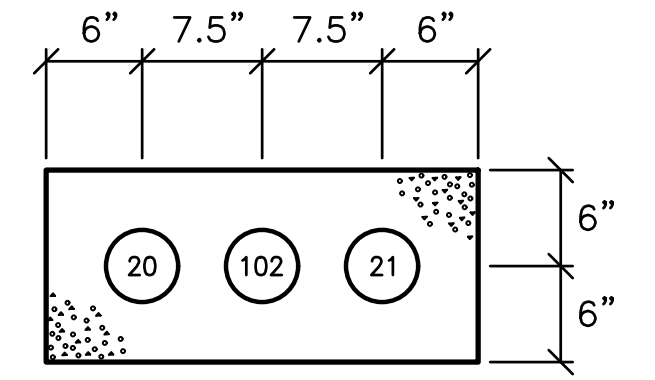
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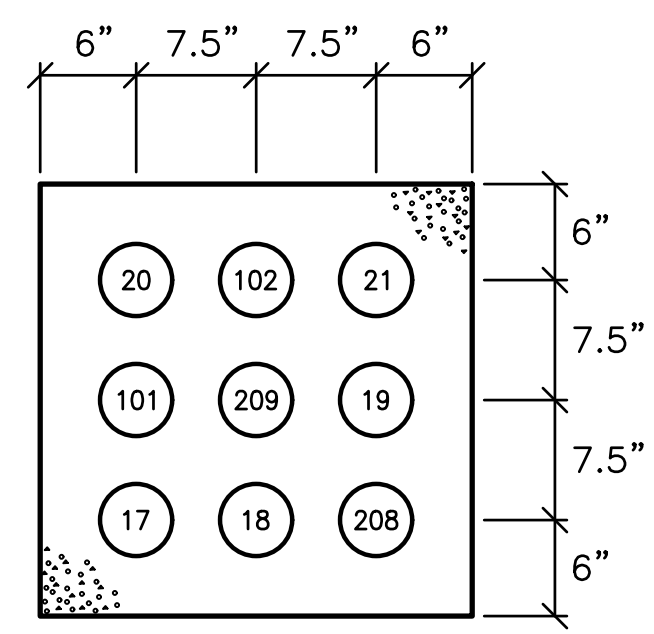
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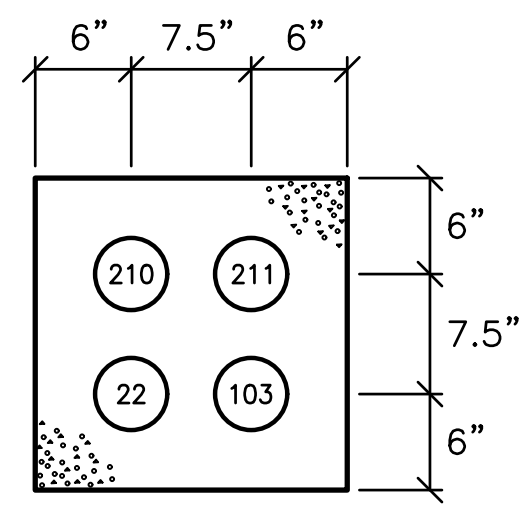
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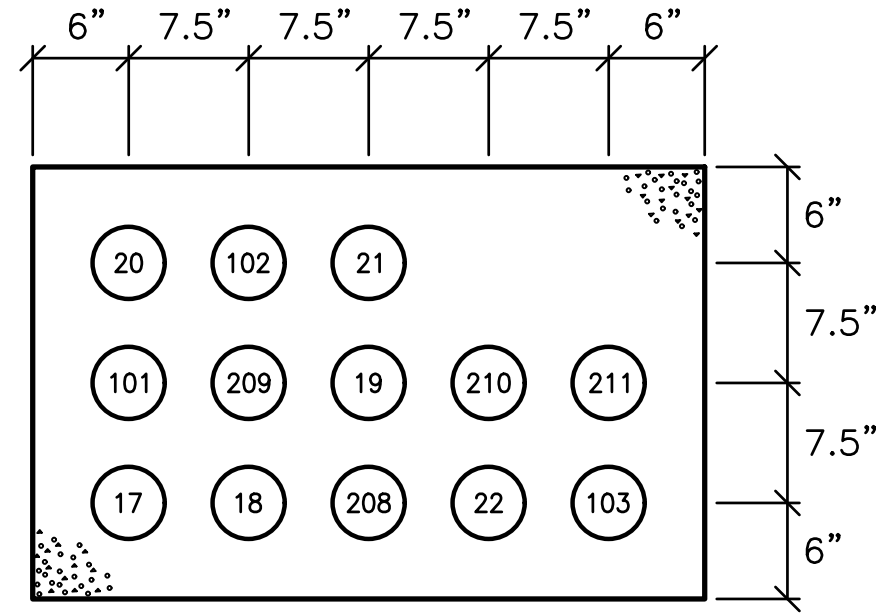
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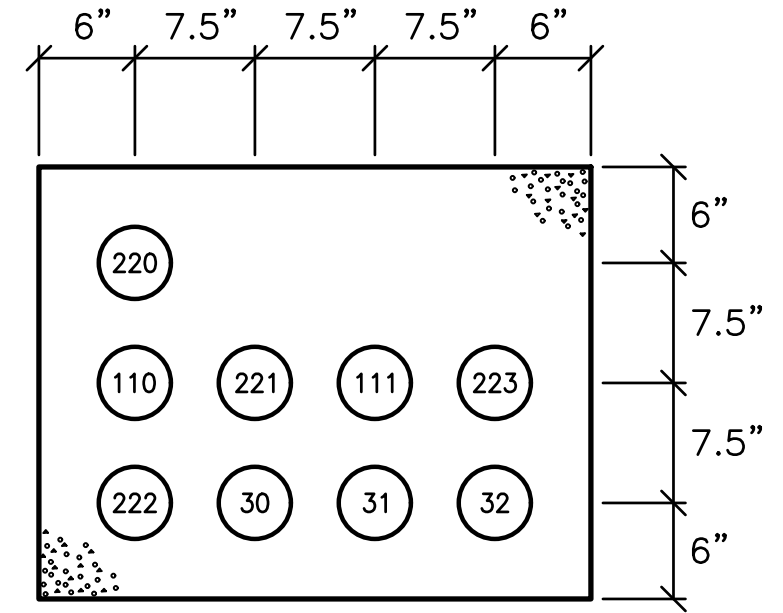
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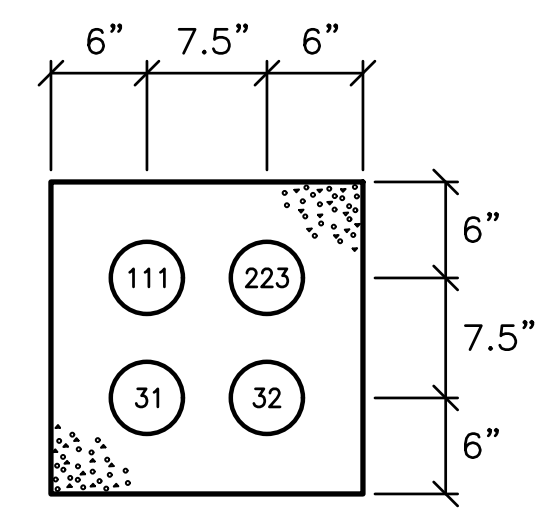
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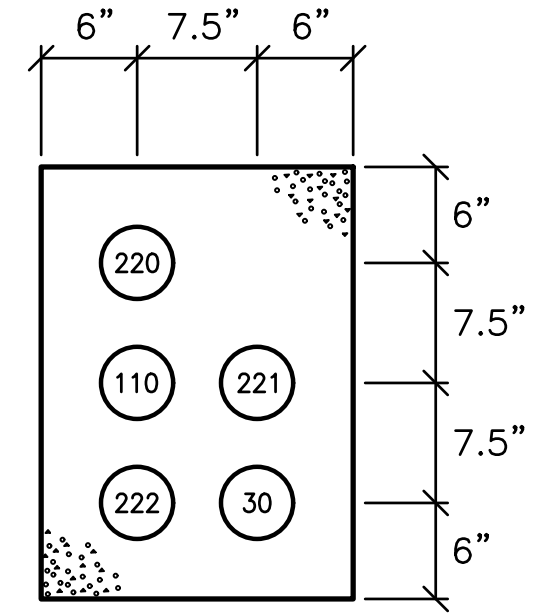
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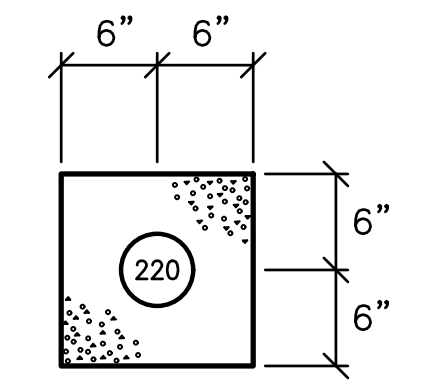
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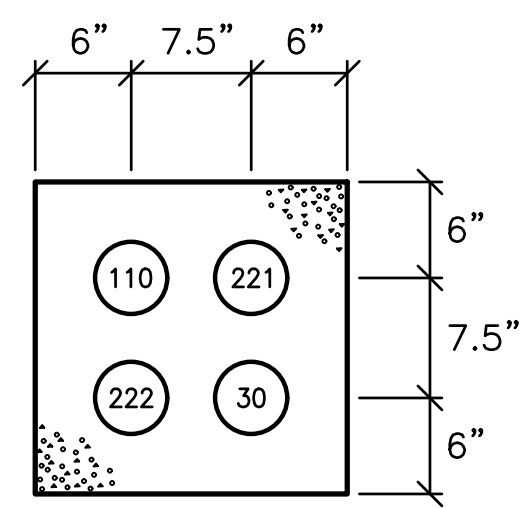
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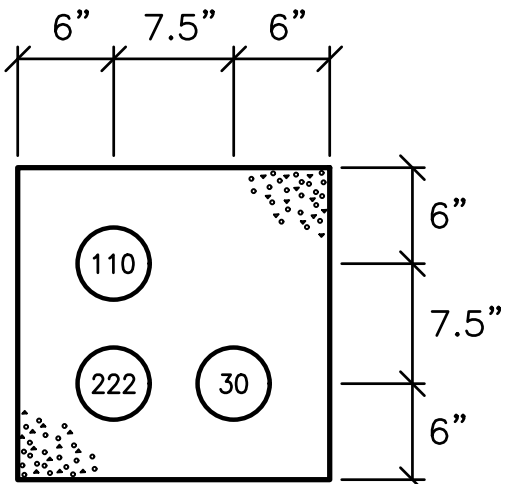
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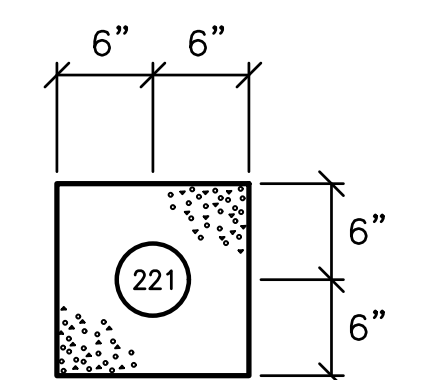
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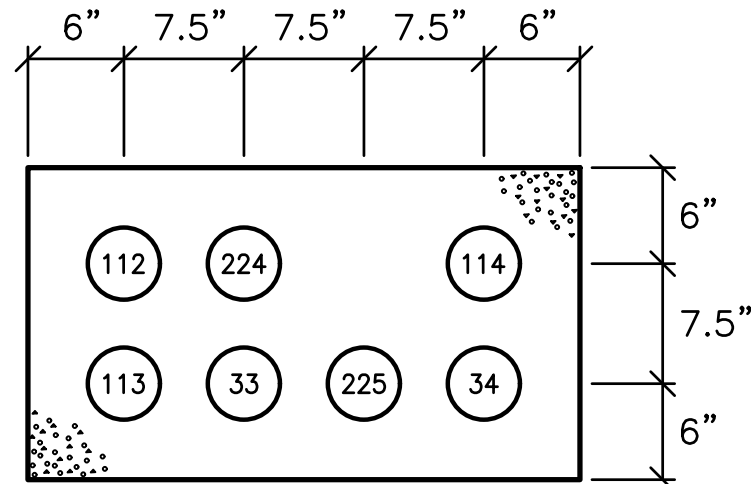
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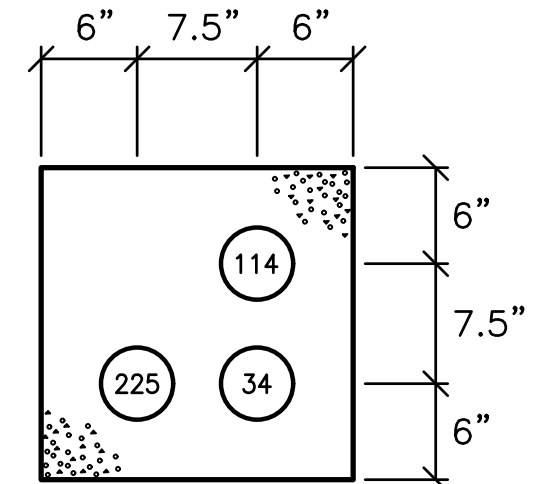
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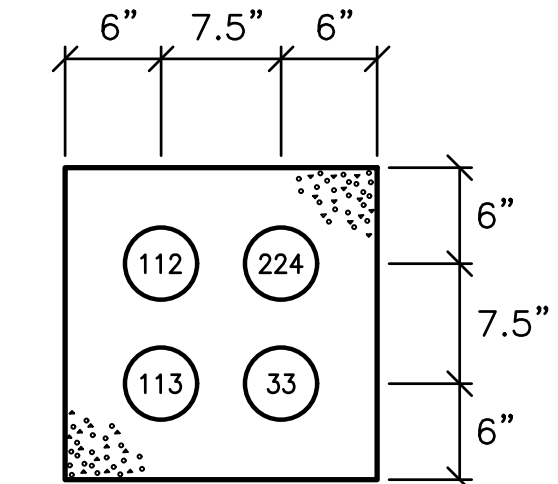
DUCT BANK (S)



DUCT BANK (T)



DUCT BANK (U)



DUCT BANK (V)

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SMITHSBURG WWTp ENR UPGRADE AND EXPANSION
 22623 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLIOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
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SHEET TITLE:
DUCT BANK SECTIONS



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480V POWER DUCT BANK CONDUIT SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CONDUIT MATERIAL	FROM	TO	VIA DUCT BANKS	CIRCUITS
1	4"	PVC	POWER COMPANY TRANSFORMER	MAIN DISTRIBUTION SWITCHBOARD	(A)	ELECTRICAL SERVICE (SET 1)
2	4"	PVC	POWER COMPANY TRANSFORMER	MAIN DISTRIBUTION SWITCHBOARD	(A)	ELECTRICAL SERVICE (SET 2)
3	4"	PVC	POWER COMPANY TRANSFORMER	MAIN DISTRIBUTION SWITCHBOARD	(A)	ELECTRICAL SERVICE (SET 3)
4	4"	PVC	POWER COMPANY TRANSFORMER	MAIN DISTRIBUTION SWITCHBOARD	(A)	ELECTRICAL SERVICE (SET 4)
5	4"	PVC	POWER COMPANY TRANSFORMER	MAIN DISTRIBUTION SWITCHBOARD	(A)	ELECTRICAL SERVICE (SET 5)
6	4"	PVC	POWER COMPANY TRANSFORMER	MAIN DISTRIBUTION SWITCHBOARD	(A)	SPARE
7	4"	PVC	EMERGENCY GENERATOR	MAIN DISTRIBUTION SWITCHBOARD	(B)	SPARE
8	4"	PVC	EMERGENCY GENERATOR	MAIN DISTRIBUTION SWITCHBOARD	(B)	GENERATOR FEEDER (SET 1)
9	4"	PVC	EMERGENCY GENERATOR	MAIN DISTRIBUTION SWITCHBOARD	(B)	GENERATOR FEEDER (SET 2)
10	4"	PVC	EMERGENCY GENERATOR	MAIN DISTRIBUTION SWITCHBOARD	(B)	GENERATOR FEEDER (SET 3)
11	4"	PVC	EMERGENCY GENERATOR	MAIN DISTRIBUTION SWITCHBOARD	(B)	GENERATOR FEEDER (SET 4)
12	2"	PVC COATED GRS	BLOWER NO. 2B VFD IN CONTROL BUILDING	BLOWER NO. 2B	(C)	BLOWER MOTOR FEEDER
13	2"	PVC COATED GRS	BLOWER NO. 3B VFD IN CONTROL BUILDING	BLOWER NO. 3B	(C)	BLOWER MOTOR FEEDER
14	2"	PVC COATED GRS	BLOWER NO. 1B VFD IN CONTROL BUILDING	BLOWER NO. 1B	(C)	BLOWER MOTOR FEEDER
15	4"	PVC	POWER PULL BOX AT CONTROL BUILDING	ELECTRICAL MANHOLE E-2	(C)(D)	SPARE
16	4"	PVC	POWER PULL BOX AT CONTROL BUILDING	ELECTRICAL MANHOLE E-2	(C)(D)	SPARE
17	4"	PVC	POWER PULL BOX AT CONTROL BUILDING	MCC-CH IN CHEMICAL BUILDING	(C)(D)	SPARE
18	4"	PVC	POWER PULL BOX AT CONTROL BUILDING	MCC-CH IN CHEMICAL BUILDING	(C)(D)	MCC-CH FEEDER
19	1½"	PVC	PRE-ANOXIC MIXER DISCONNECT SWITCH	MCC-CH IN CHEMICAL BUILDING	(G)(H)(J)(L)	MIXER MOTOR FEEDER
20	1½"	PVC	INFLUENT EQ PUMP NO. 1 DISCONNECT SWITCH	MCC-CH IN CHEMICAL BUILDING	(I)(J)(L)	PUMP NO. 1 MOTOR FEEDER
21	1½"	PVC	INFLUENT EQ PUMP NO. 2 DISCONNECT SWITCH	MCC-CH IN CHEMICAL BUILDING	(I)(J)(L)	PUMP NO. 2 MOTOR FEEDER
22	1½"	PVC	POWER PULL BOX IN EQ RETURN FLOW CONTROL VAULT	MCC-CH IN CHEMICAL BUILDING	(K)(L)	VALVE ACTUATOR FEEDER
23-29			(NOT USED)			

480V POWER DUCT BANK CONDUIT SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CONDUIT MATERIAL	FROM	TO	VIA DUCT BANKS	CIRCUITS
30	1½"	PVC	MCC-CH IN CHEMICAL BUILDING	EQ TANK MIXER NO. 2 DISCONNECT SWITCH	(M)(O)(Q)(R)	MIXER MOTOR FEEDER
31	2"	PVC COATED GRS	MCC-CH IN CHEMICAL BUILDING	INFLUENT PUMP NO. 1 DISCONNECT SWITCH	(M)(N)	PUMP NO. 1 MOTOR FEEDER
32	2"	PVC	MCC-CH IN CHEMICAL BUILDING	INFLUENT PUMP NO. 2 DISCONNECT SWITCH	(M)(N)	PUMP NO. 2 MOTOR FEEDER
33-99			(NOT USED)			

120V POWER AND CONTROL DUCT BANK CONDUIT SCHEDULE

CONDUIT NO.	CONDUIT SIZE	CONDUIT MATERIAL	FROM	TO	VIA DUCT BANKS	CIRCUITS
100	2"	PVC	EMERGENCY GENERATOR LOAD CENTER	EXISTING PANEL " " IN CONTROL BUILDING	(B)	120/208V POWER
101	1½"	PVC	RECEPTACLE AT PRE-ANOXIC TANK MIXER BACKBOARD	PANEL "CHL" IN CHEMICAL BUILDING	(G)(H)(J)(L)	120V POWER
102	1½"	PVC	TERMINAL BOX AT INFLUENT EQ PUMP BACKBOARD	MCC-CH IN CHEMICAL BUILDING	(I)(J)(L)	120V CONTROL
103	1½"	PVC	POWER PULL BOX IN EQ RETURN FLOW CONTROL VAULT	PANEL "CHL" IN CHEMICAL BUILDING	(K)(L)	120V POWER
104-109			(NOT USED)			
110	1½"	PVC	PANEL "CHL" IN CHEMICAL BUILDING	RECEPTACLE AT INFLUENT EQ TANK	(M)(O)(Q)(R)	120V POWER
111	1½"	PVC	MCC-CH IN CHEMICAL BUILDING	INFLUENT PUMP LOCAL CONTROL PANEL	(M)(N)	120V CONTROL
112	2"	PVC	PANEL "CHL" IN CHEMICAL BUILDING	UTILITY WATER PUMP STATION BACKBOARD	(T)(V)	120V POWER
113	2"	PVC	MCC-CH IN CHEMICAL BUILDING	UTILITY WATER PUMP STATION BACKBOARD	(T)(V)	120V CONTROL
114	2"	PVC	PANEL "CHL" IN CHEMICAL BUILDING	RECEPTACLE AT INFLUENT EQ TANK	(T)(U)	120V POWER
115-199			(NOT USED)			

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SHEET TITLE:
DUCT BANK CONDUIT SCHEDULES

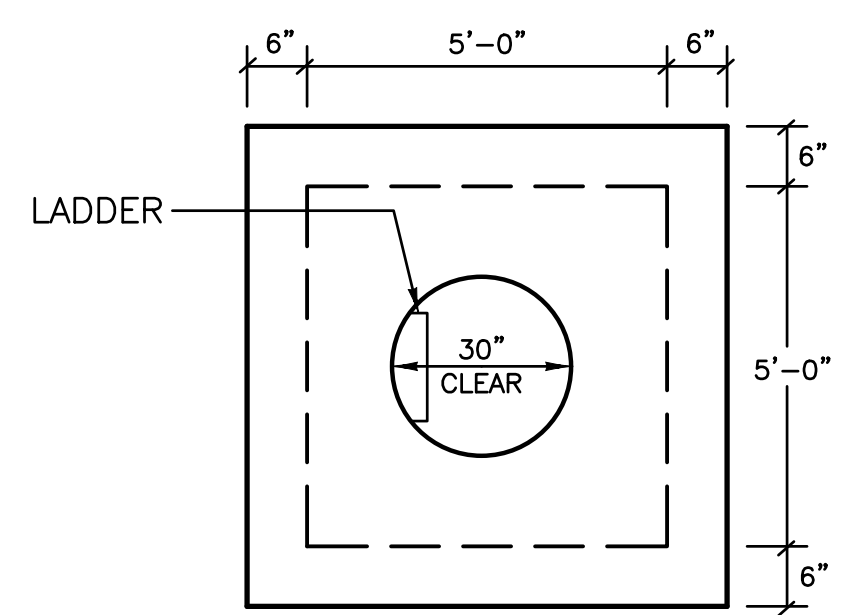


INSTRUMENTATION DUCT BANK CONDUIT SCHEDULE

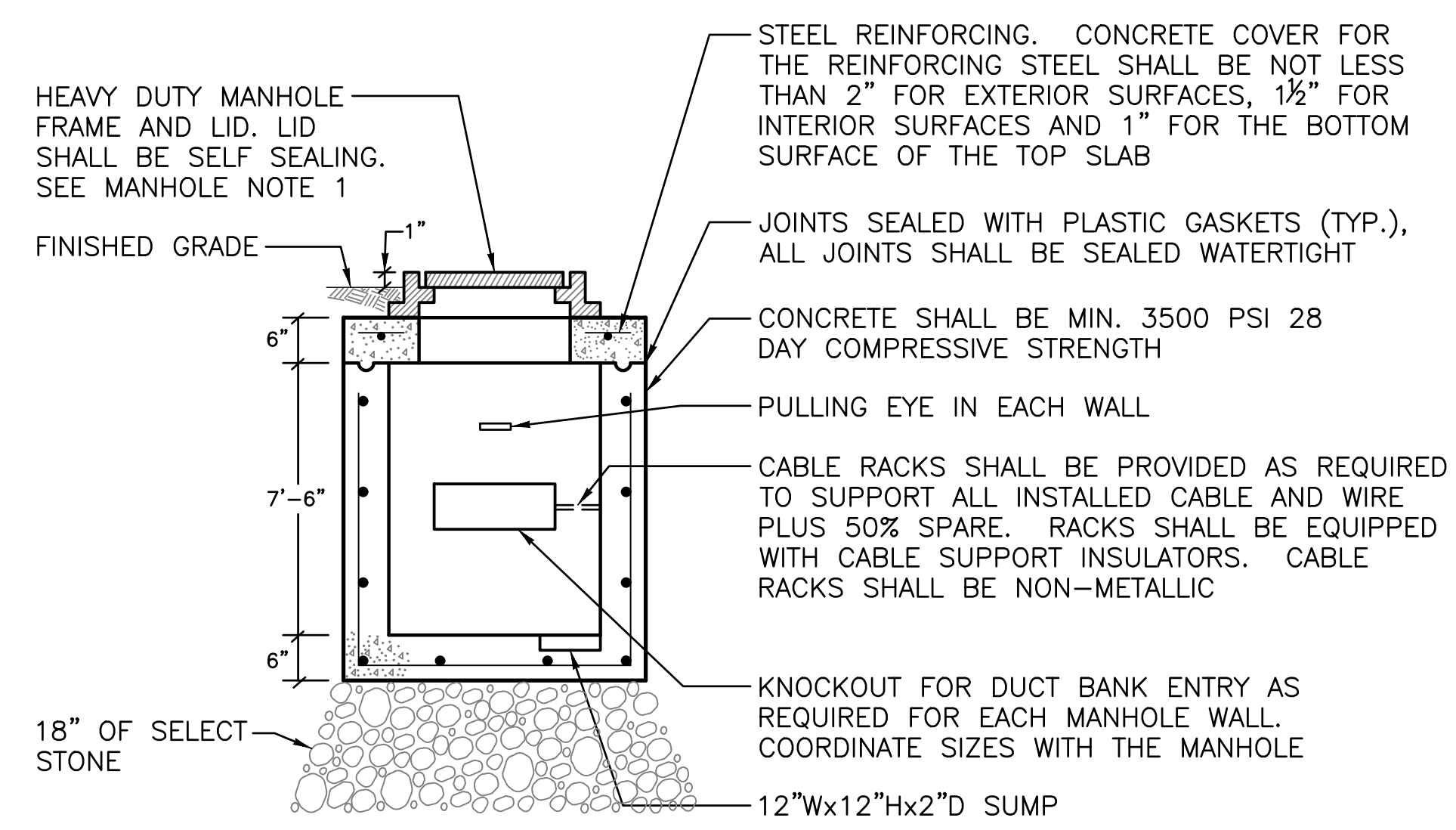
CONDUIT NO.	CONDUIT SIZE	CONDUIT MATERIAL	FROM	TO	VIA DUCT BANKS	CIRCUITS
200	1"	PVC	EMERGENCY GENERATOR	ATS IN MAIN DISTRIBUTION SWITCHBOARD	(B)	24VDC
201	1½"	PVC	EMERGENCY GENERATOR	INSTRUMENTATION PULL BOX AT CONTROL BUILDING	(B)	24VDC WIRING TO SBR CONTROL PANEL
202	1"	PVC	INSTRUMENTATION PULL BOX AT CONTROL BUILDING	SBR BLOWER NO. 2B	(C)	MOTOR THERMAL SWITCH WIRING
203	1"	PVC	INSTRUMENTATION PULL BOX AT CONTROL BUILDING	SBR BLOWER NO. 3B	(C)	MOTOR THERMAL SWITCH WIRING
204	1"	PVC	INSTRUMENTATION PULL BOX AT CONTROL BUILDING	SBR BLOWER NO. 1B	(C)	MOTOR THERMAL SWITCH WIRING
205	3"	PVC	INSTRUMENTATION PULL BOX AT CONTROL BUILDING	ELECTRICAL MANHOLE E-2	(C)(D)	FIBER OPTIC CABLE
206	3"	PVC	INSTRUMENTATION PULL BOX AT CONTROL BUILDING	ELECTRICAL MANHOLE E-2	(C)(D)	SPARE
207	2"	PVC	ELECTRICAL MANHOLE E-2	INSTRUMENTATION PULL BOX IN BIOMAG BUILDING	(E)	FIBER OPTIC CABLE
208	3"	PVC	ELECTRICAL MANHOLE E-2	INFLUENT PUMP CONTROL PANEL	(F)(H)(J)(L)	FIBER OPTIC CABLE
209	1½"	PVC	PRE-ANOXIC TANK MIXER TERMINAL BOX	MCC-CH IN CHEMICAL BUILDING	(H)(J)(L)	MIXER SENSOR WIRING
210	1½"	PVC	INSTRUMENTATION PULL BOX IN EQ RETURN FLOW CONTROL VAULT	INFLUENT PUMP CONTROL PANEL	(K)(L)	24VDC AND ANALOG
211	1½"	PVC	INSTRUMENTATION PULL BOX IN EQ RETURN FLOW CONTROL VAULT	FLOW EQ RETURN FLOW METER TRANSMITTER	(K)(L)	FLOW METER CABLE
212-219			(NOT USED)			
220	1½"	PVC COATED GRS	INFLUENT EQ TANK RADAR LEVEL TRANSMITTER	INFLUENT PUMP CONTROL PANEL	(M)(O)(P)	ANALOG
221	2"	PVC	INFLUENT PUMP CONTROL PANEL	INSTRUMENTATION PULL BOX IN OPERATIONS BUILDING	(M)(O)(Q)(S)	FIBER OPTIC CABLE
222	1½"	PVC	MCC-CH IN CHEMICAL BUILDING	EQ TANK MIXER NO. 2 TERMINAL BOX	(M)(O)(Q)(R)	MIXER SENSOR WIRING
223	1½"	PVC	INFLUENT PUMP CONTROL PANEL	INFLUENT PUMP LOCAL CONTROL PANEL	(M)(N)	24VDC
224	2"	PVC COATED GRS	INFLUENT PUMP CONTROL PANEL	UTILITY WATER PUMP STATION BACKBOARD	(T)(V)	24VDC AND ANALOG
225	1½"	PVC	MCC-CH IN CHEMICAL BUILDING	EQ TANK MIXER NO. 1 TERMINAL BOX	(T)(U)	MIXER SENSOR WIRING

MANHOLE NOTES

- ELECTRICAL MANHOLE LID SHALL BE STAMPED "ELECTRIC".
- INSTALL A PLASTIC INSERT IN EACH MANHOLE LID.
- PROVIDE A FIBERGLASS ACCESS LADDER IN EACH MANHOLE.
- ALL DUCT BANK ENTRIES INTO THE MANHOLE SHALL BE SEALED WATERTIGHT.



PLAN VIEW



SECTION

TYPICAL MANHOLE DETAIL

NO SCALE

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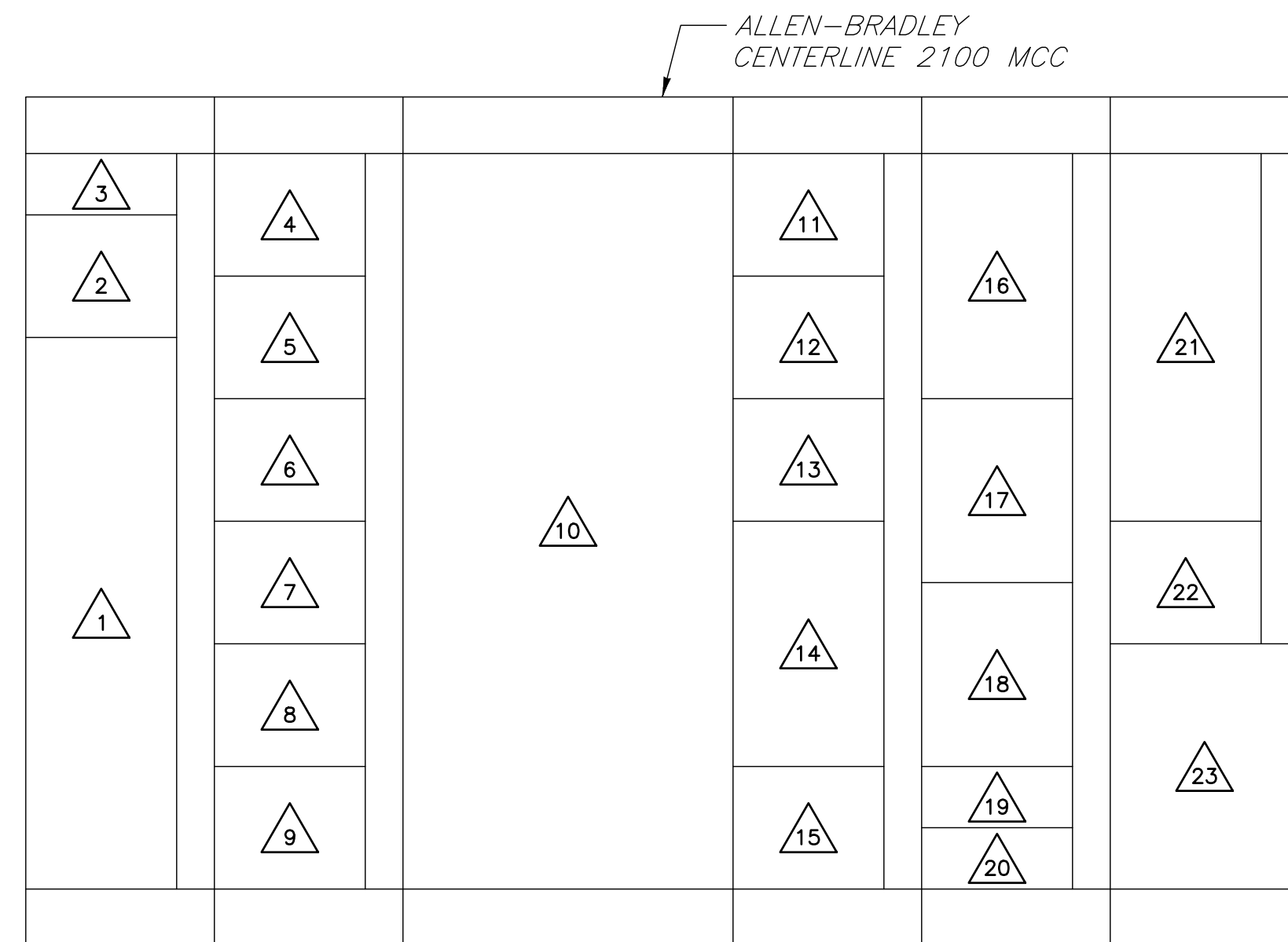
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DUCT BANK CONDUIT SCHEDULE

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E-5



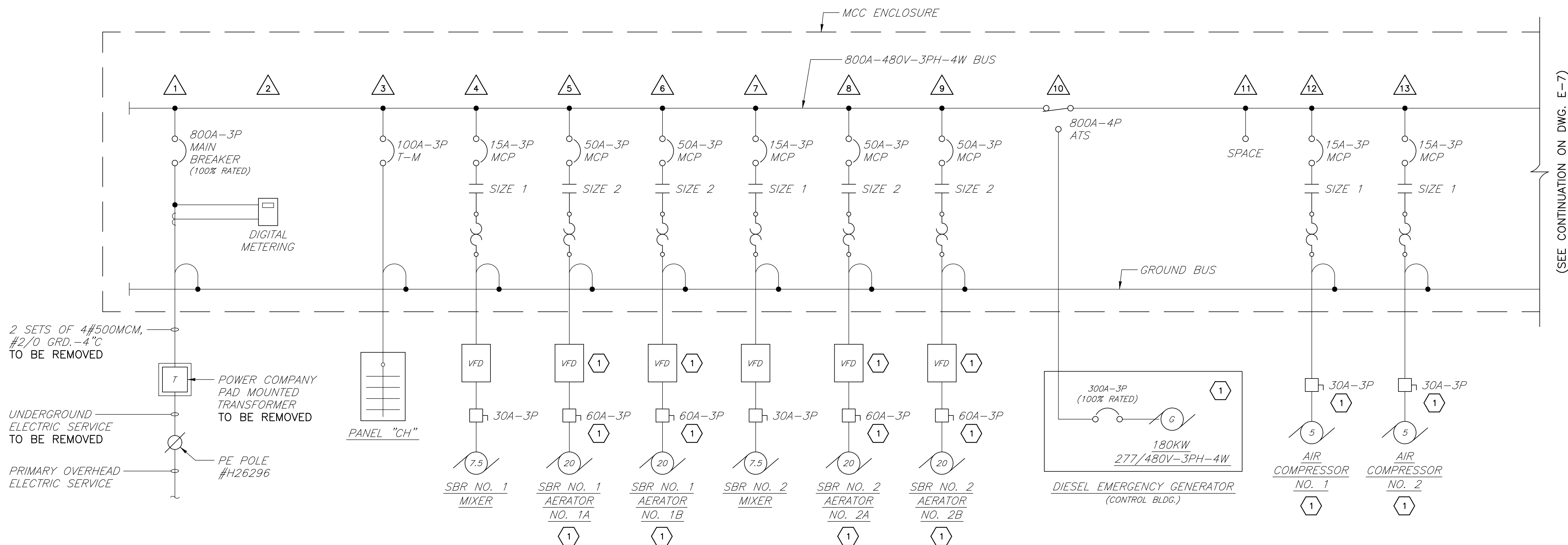
EXISTING MCC-C ELEVATION
(LOCATED IN CONTROL BUILDING)

NOTES

1. THE EXISTING ELECTRIC SERVICE TO MCC-C SHALL BE REMOVED AND MCC-C SHALL BE RE-FED FROM THE NEW MAIN DISTRIBUTION SWITCHBOARD.

DEMOLITION NOTES

- 1 EQUIPMENT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO MCC



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SHEET TITLE:
EXISTING MCC-C ELEVATION AND ONE-LINE DIAGRAM

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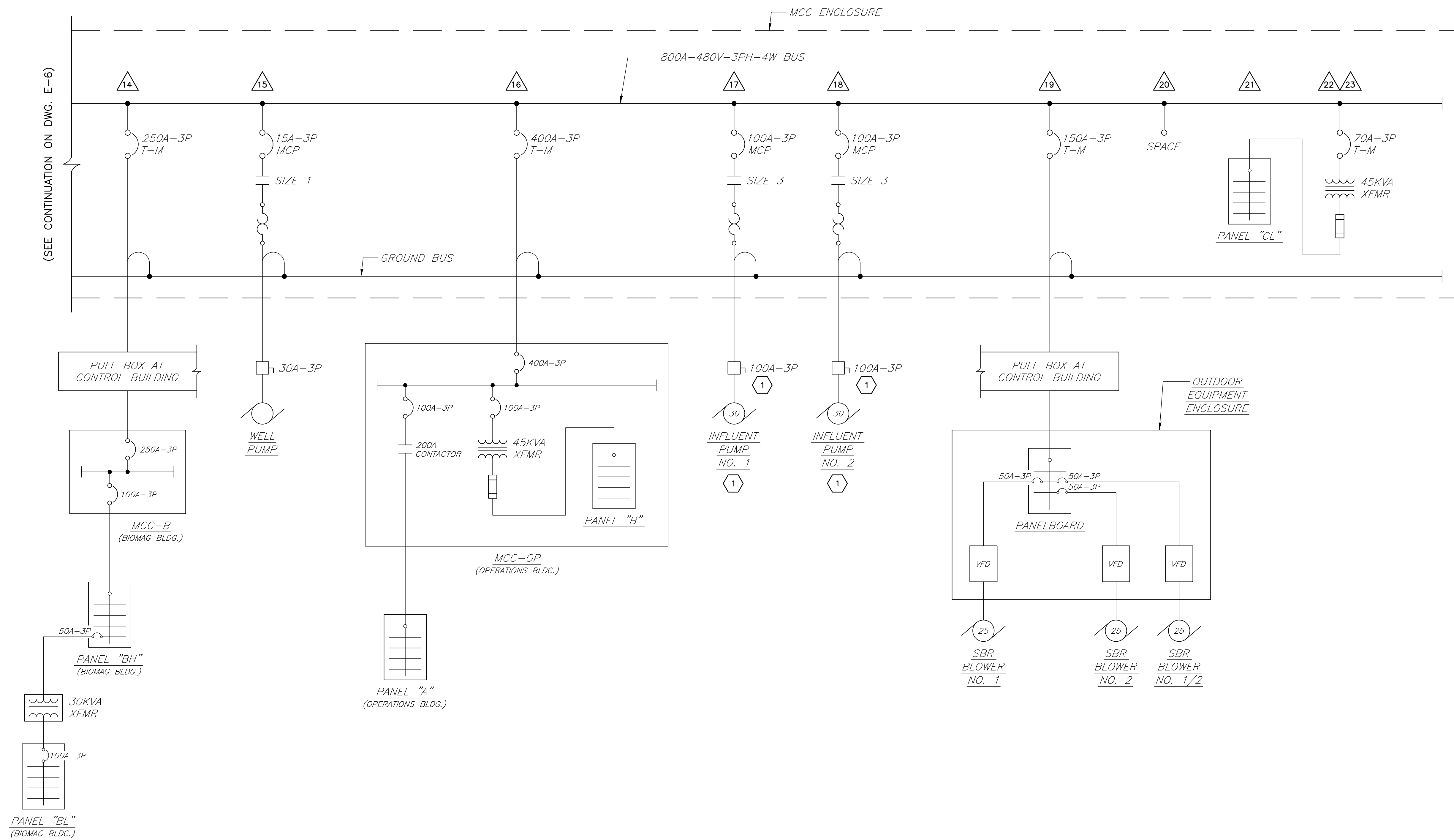


NOTES

- EXISTING SBR BLOWERS NO. 1, NO. 2, AND NO. 1/2 SHALL BE RENAMED SBR BLOWER NO. 1A, NO. 2A, AND NO. 3A.

DEMOLITION NOTES

- EQUIPMENT TO BE REMOVED. REMOVE EXISTING CONDUIT AND WIRING BACK TO MCC



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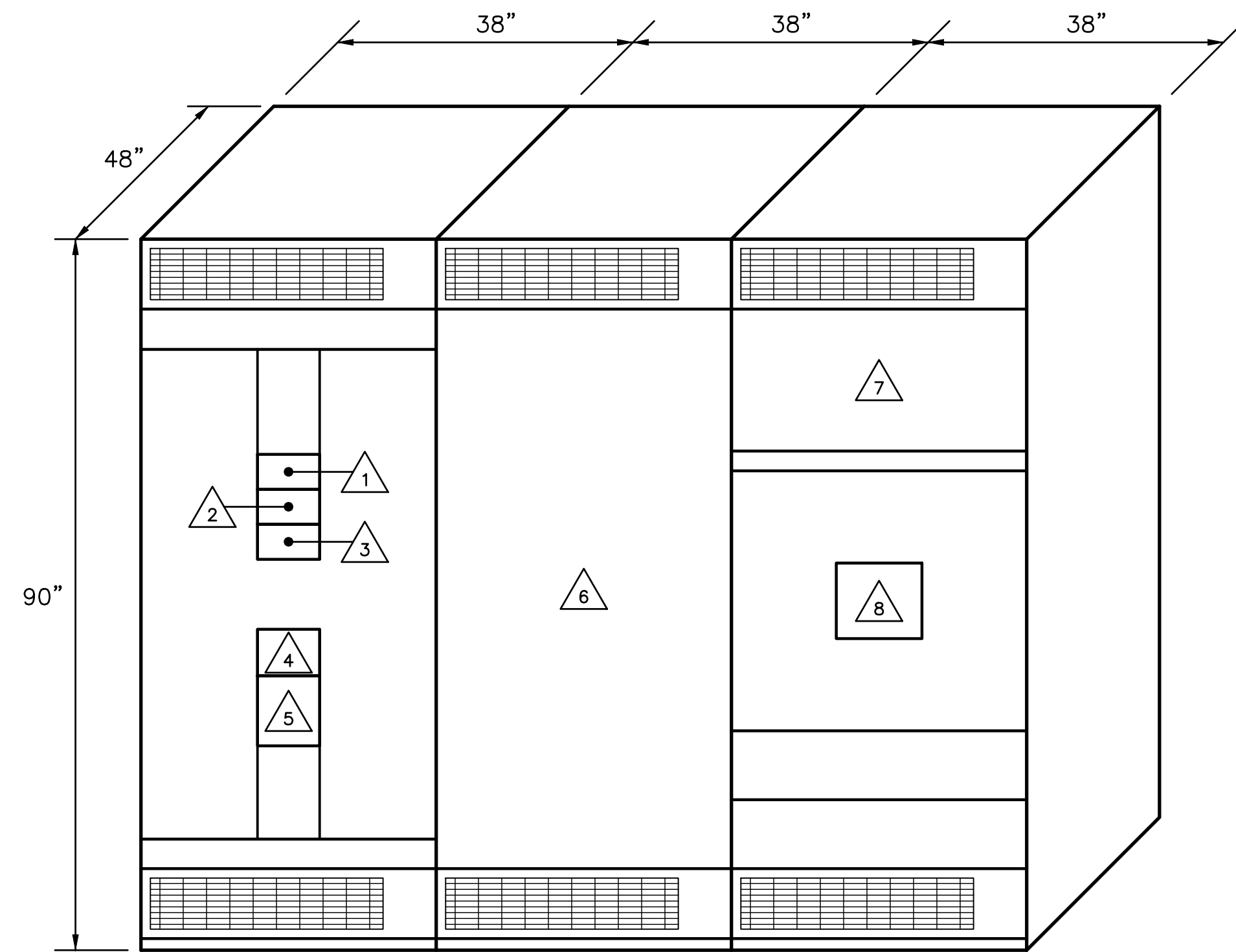
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SHEET TITLE:
EXISTING MCC-C ONE-LINE DIAGRAM

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**MAIN DISTRIBUTION SWITCHBOARD
ELEVATION**

UNIT LOCATION	DESCRIPTION
△ 1	SBR BLOWER NO. 1B VFD
△ 2	SBR BLOWER NO. 2B VFD
△ 3	SBR BLOWER NO. 3B VFD
△ 4	MCC-CH (CHEMICAL BUILDING)
△ 5	MCC-C (CONTROL BUILDING)
△ 6	AUTOMATIC TRANSFER SWITCH
△ 7	POWER MONITOR AND SURGE PROTECTIVE DEVICE
△ 8	1600A MAIN BREAKER

NOTES

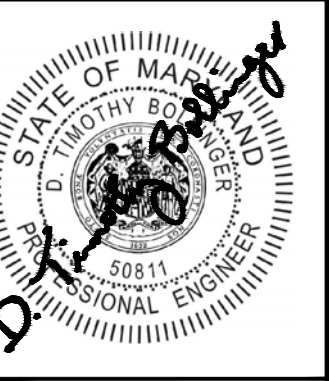
1. PROVIDE AN ENGRAVED NAMEPLATE ON THE SWITCHBOARD. NAMEPLATE SHALL BE ENGRAVED WITH 1" HIGH LETTERS AS FOLLOWS:

MAIN DISTRIBUTION SWITCHBOARD

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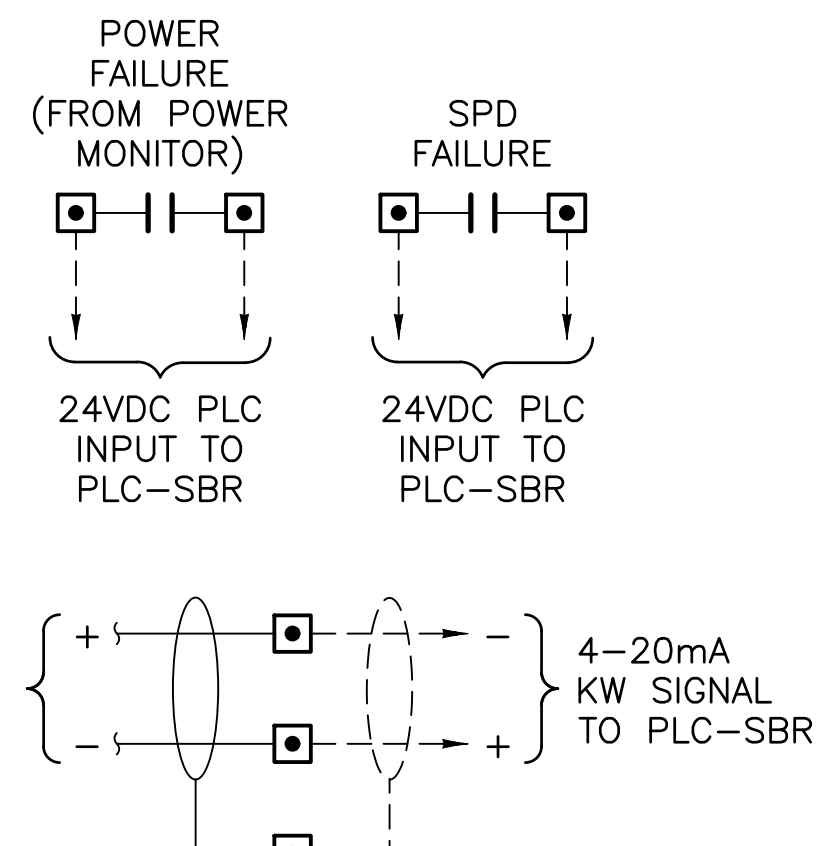
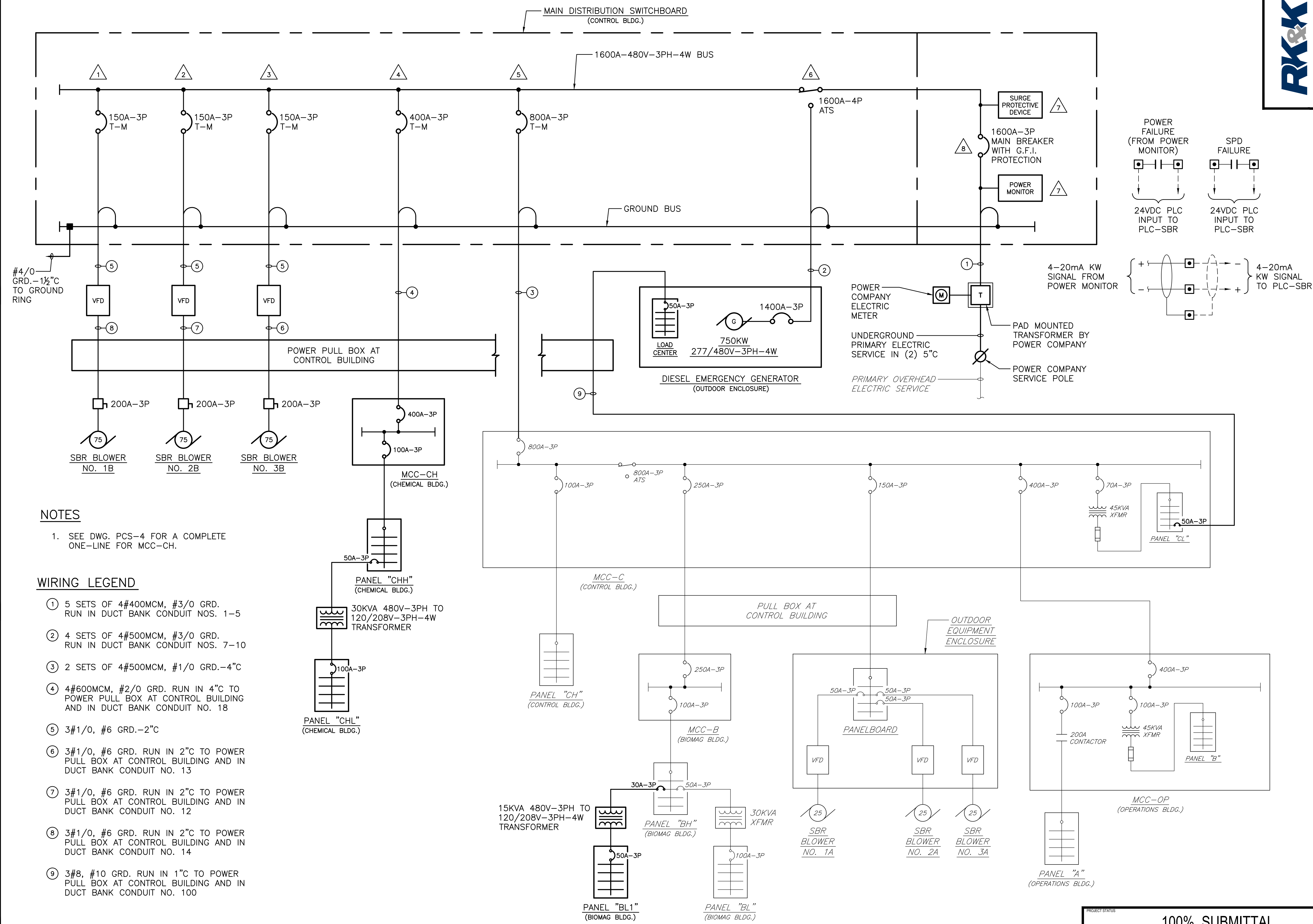
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**MAIN
DISTRIBUTION
SWITCHBOARD
ELEVATION**

SHEET NO:
E-8



NOTES

- SEE DWG. PCS-4 FOR A COMPLETE ONE-LINE FOR MCC-CH.

WIRING LEGEND

- 5 SETS OF 4#400MCM, #3/0 GRD. RUN IN DUCT BANK CONDUIT NOS. 1-5
- 4 SETS OF 4#500MCM, #3/0 GRD. RUN IN DUCT BANK CONDUIT NOS. 7-10
- 2 SETS OF 4#500MCM, #1/0 GRD.-4" C
- 4#600MCM, #2/0 GRD. RUN IN 4" C TO POWER PULL BOX AT CONTROL BUILDING AND IN DUCT BANK CONDUIT NO. 18
- 3#1/0, #6 GRD.-2" C
- 3#1/0, #6 GRD. RUN IN 2" C TO POWER PULL BOX AT CONTROL BUILDING AND IN DUCT BANK CONDUIT NO. 13
- 3#1/0, #6 GRD. RUN IN 2" C TO POWER PULL BOX AT CONTROL BUILDING AND IN DUCT BANK CONDUIT NO. 12
- 3#1/0, #6 GRD. RUN IN 2" C TO POWER PULL BOX AT CONTROL BUILDING AND IN DUCT BANK CONDUIT NO. 14
- 3#8, #10 GRD. RUN IN 1" C TO POWER PULL BOX AT CONTROL BUILDING AND IN DUCT BANK CONDUIT NO. 100

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SHEET TITLE
MAIN DISTRIBUTION SWITCHBOARD ONE-LINE DIAGRAM

PROJECT STATUS
100% SUBMITTAL

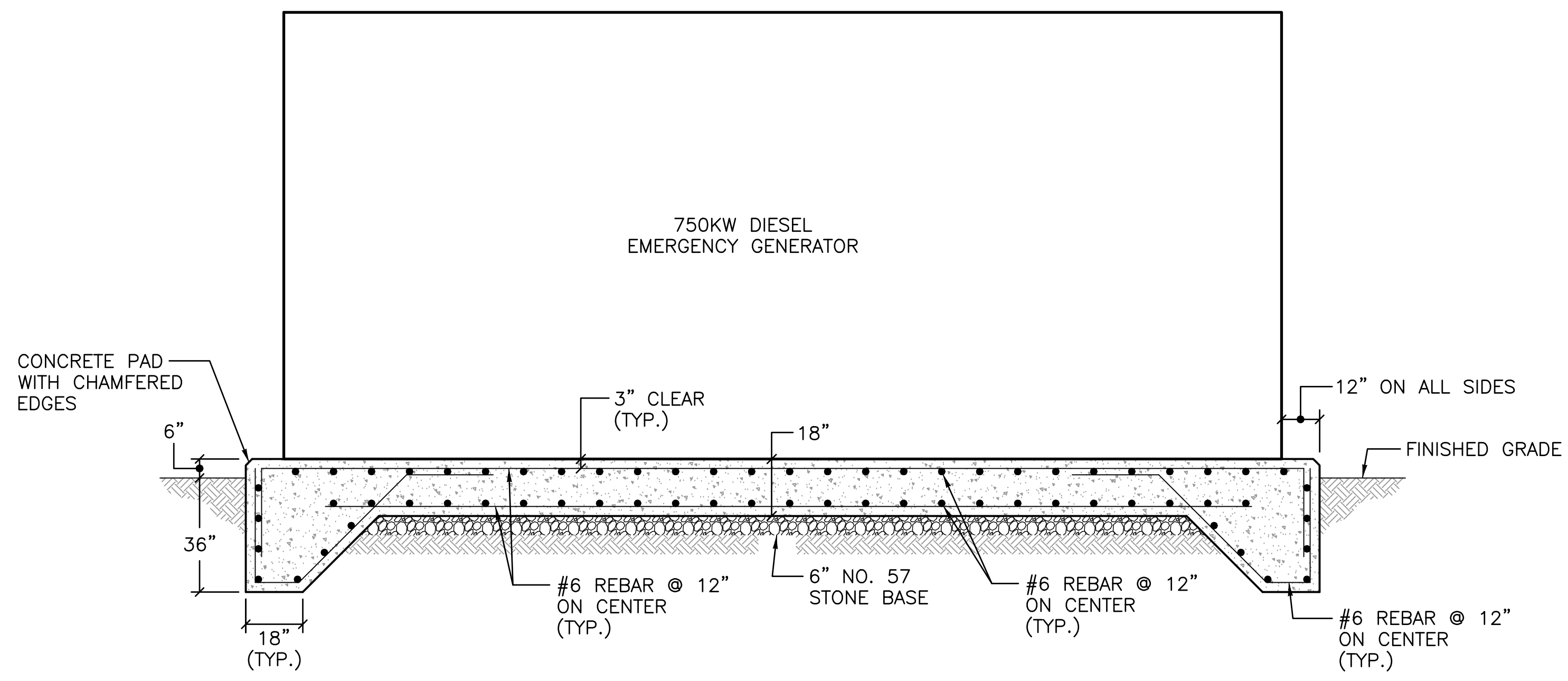
SHEET NO.
E-9

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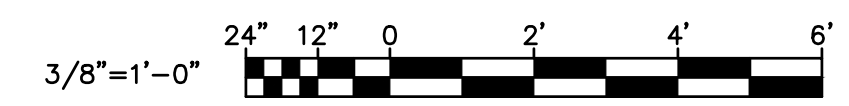


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**EMERGENCY GENERATOR CONCRETE PAD
 INSTALLATION DETAIL**

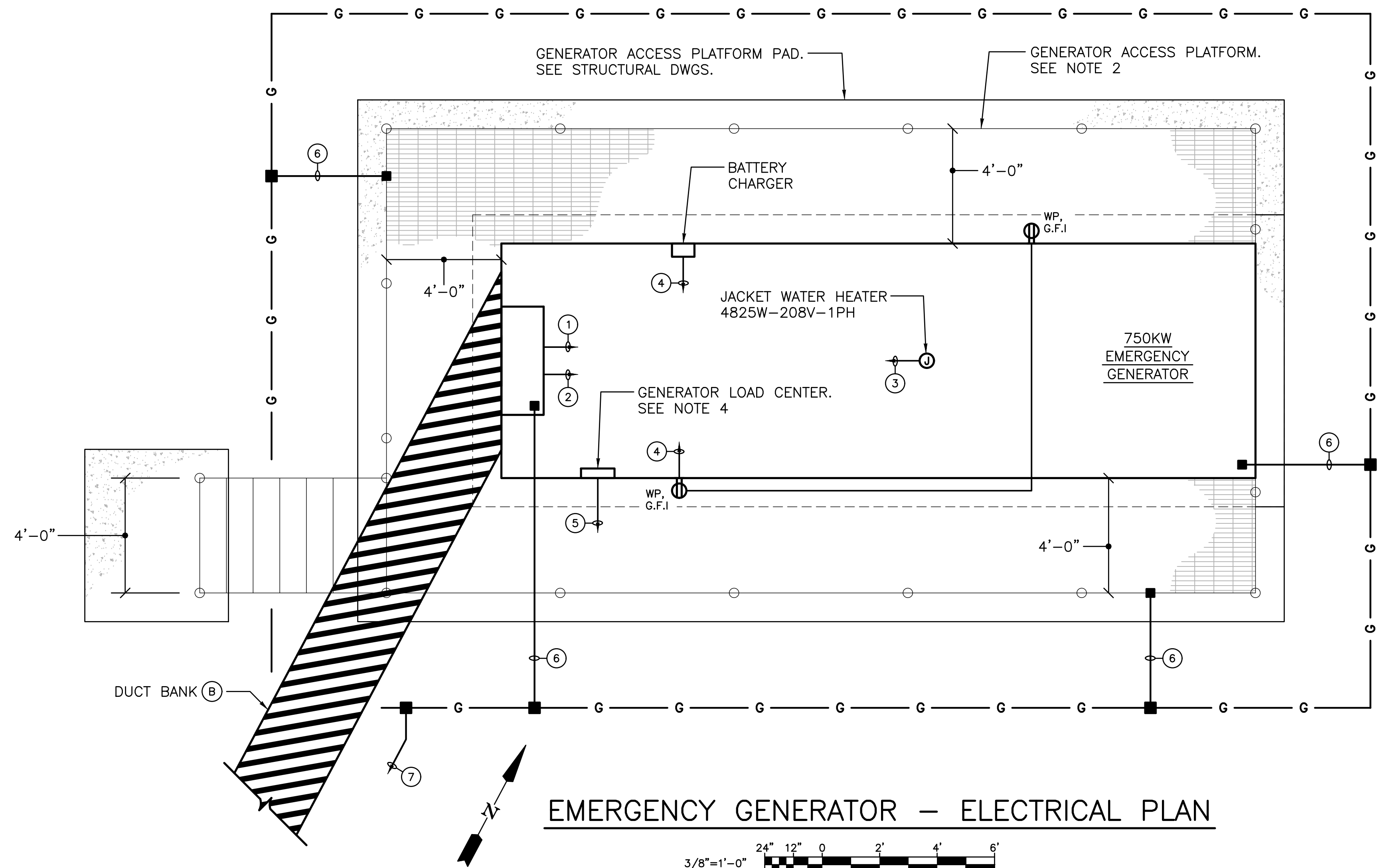


NOTES

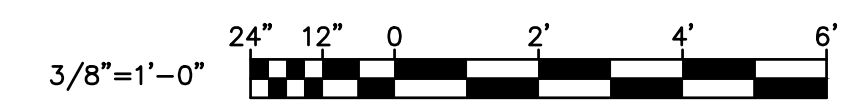
1. SEE MDS ONE-LINE DIAGRAM ON DWG. E-9 FOR POWER WIRING TO EMERGENCY GENERATOR.
2. THE CONTRACTOR SHALL PROVIDE A FABRICATED ALUMINUM ACCESS PLATFORM AROUND THE GENERATOR. TOP OF PLATFORM SHALL BE EVEN WITH THE TOP OF GENERATOR SUB-BASE FUEL TANK. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON THE PLATFORM FOR REVIEW.
3. ALL ELECTRICAL CONNECTIONS TO THE GENERATOR SHALL BE MADE USING FLEXIBLE CONDUIT.
4. GENERATOR LOAD CENTER SHALL BE PROVIDED BY EMERGENCY GENERATOR MANUFACTURER.
5. COORDINATE DIMENSIONS OF CONCRETE PAD WITH THE ACTUAL GENERATOR BEING PROVIDED.
6. CONCRETE FOR THE CONCRETE PAD SHALL BE 3,500 PSI CONCRETE.
7. SUBMIT A SHOP DRAWING FOR THE EMERGENCY GENERATOR CONCRETE PAD.

WIRING LEGEND

- ① 10#14 (24VDC) TO SBR CONTROL PANEL FOR GENERATOR ALARMS. RUN IN DUCT BANK CONDUIT NO. 201
- ② 2#14 FOR GENERATOR START SIGNAL TO ATS IN MDS LOCATED IN THE CONTROL BUILDING ELECTRICAL ROOM. RUN IN DUCT BANK CONDUIT NO. 200
- ③ 2#10, #10 GRD.-3/4"C TO GENERATOR LOAD CENTER
- ④ 2#12-3/4"C TO GENERATOR LOAD CENTER
- ⑤ 3#8, #10 GRD. TO PANEL "CL" IN EXISTING MCC-ROOM IN CONTROL BUILDING MCC ROOM. RUN IN DUCT BANK CONDUIT NO. 100 TO POWER PULL BOX AT CONTROL BUILDING AND IN 1"C TO PANEL "CL"
- ⑥ #2/0 GRD.-1 1/2"C
- ⑦ #4/0-1 1/2"C GRD. TO MDS IN CONTROL BUILDING ELECTRICAL ROOM



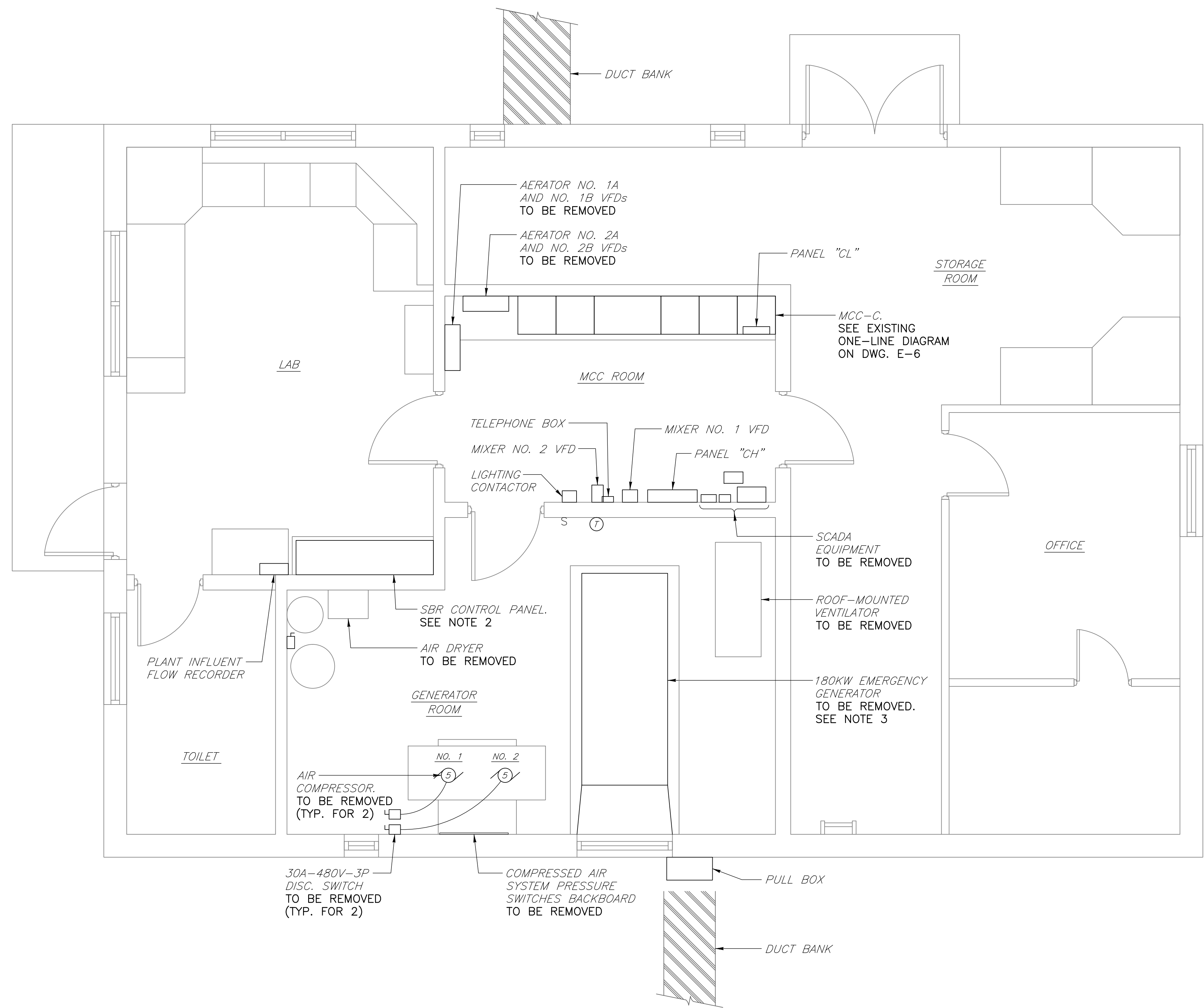
EMERGENCY GENERATOR - ELECTRICAL PLAN



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NOTES

1. WHERE EQUIPMENT IS NOTED TO BE REMOVED, REMOVE ALL ASSOCIATED CONDUIT AND WIRE BACK TO SOURCE.
2. THE EXISTING SBR CONTROL PANEL SHALL BE REMOVED AND REPLACED WITH A NEW SBR CONTROL PANEL IN A NEW LOCATION. INSTALL A NEMA 12 TERMINATION CABINET IN LOCATION OF EXISTING SBR CONTROL PANEL, AND INSTALL TERMINAL BLOCKS IN CABINET TO TERMINATE ALL FIELD WIRING FROM THE SBR SYSTEM. DISCONNECT EXISTING POWER AND CONTROL WIRING FROM SBR CONTROL PANEL, AND RECONNECT WIRING TO NEW TERMINATION CABINET.
3. REMOVE THE EXISTING EMERGENCY GENERATOR, GENERATOR PAD, GENERATOR EXHAUST DUCT, AND ALL ASSOCIATED CONDUIT AND WIRE.

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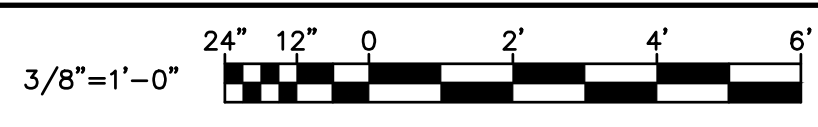
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SHEET TITLE:
CONTROL BUILDING ELECTRICAL DEMOLITION PLAN

CONTROL BUILDING ELECTRICAL DEMOLITION PLAN

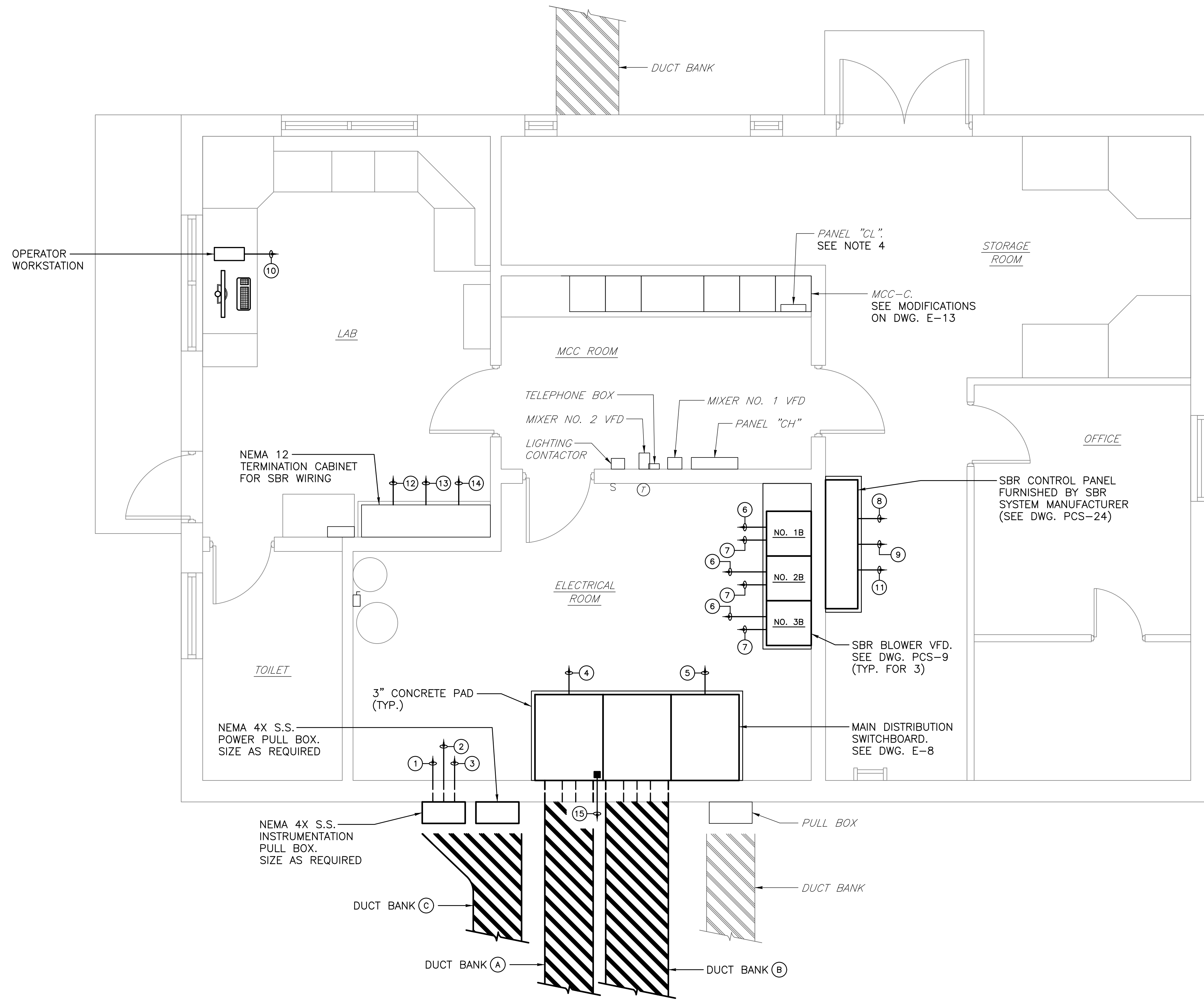


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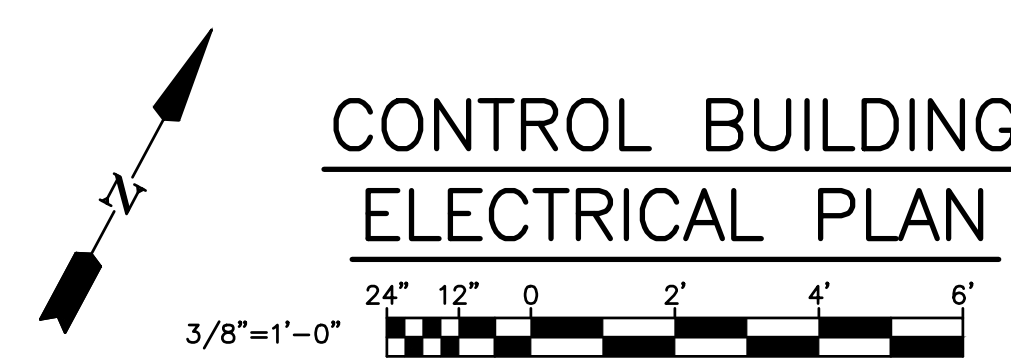
NOTES

1. ALL CONDUIT IN THE CONTROL BUILDING SHALL BE RIGID ALUMINUM.
2. SEE MAIN DISTRIBUTION SWITCHBOARD ONE-LINE DIAGRAM ON DWG. E-9 FOR ADDITIONAL POWER WIRING.
3. SAW CUT FLOOR UNDER MAIN DISTRIBUTION SWITCHBOARD FOR INSTALLATION OF DUCT BANKS "A" AND "B".
4. INSTALL A NEW 50A-3P CIRCUIT BREAKER IN EXISTING PANEL "CL" IN MCC-C TO FEED THE GENERATOR LOAD CENTER, AND INSTALL A NEW 50A-1P CIRCUIT BREAKER IN EXISTING PANEL "CL" TO FEED THE SBR CONTROL PANEL.

WIRING LEGEND

- ① 3/4" C TO SBR BLOWER NO. 1B VFD FOR MOTOR THERMAL SWITCH WIRING
- ② 3/4" C TO SBR BLOWER NO. 2B VFD FOR MOTOR THERMAL SWITCH WIRING
- ③ 3/4" C TO SBR BLOWER NO. 3B VFD FOR MOTOR THERMAL SWITCH WIRING
- ④ 4#14 AND 1 PR. #18 SHLD.-1" C TO SBR CONTROL PANEL
- ⑤ (2) 4" SPARE CONDUITS TO POWER PULL BOX
- ⑥ 4#14 AND (2) 1 PR. #18 SHLD.-3/4" C TO SBR CONTROL PANEL (24VDC)
- ⑦ 4#14-3/4" C TO SBR CONTROL PANEL (120VAC)
- ⑧ 2#8, #10 GRD.-1" C TO NEW 50A-1P CIRCUIT BREAKER IN EXISTING PANEL "CL" IN MCC-C
- ⑨ 6-STRAND FIBER OPTIC CABLE TO EXISTING BIOMAG CONTROL PANEL IN BIOMAG BUILDING. RUN IN 1" C TO INSTRUMENTATION PULL BOX AND IN DUCT BANK CONDUIT NOS. 205 AND 207
- ⑩ ETHERNET CABLE-3/4" C TO SBR CONTROL PANEL
- ⑪ TELEPHONE LINE-3/4" C TO EXISTING TELEPHONE BACKBOARD IN MCC ROOM
- ⑫ 50#14-2" C TO SBR CONTROL PANEL
- ⑬ 50#14-2" C TO SBR CONTROL PANEL
- ⑭ (14) 1 PR. #18 SHLD.-2" C TO SBR CONTROL PANEL
- ⑮ #4/0 GRD.-1 1/2" C TO GENERATOR GROUND RING

CONTROL BUILDING ELECTRICAL PLAN



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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE
CONTROL BUILDING ELECTRICAL PLAN

SHEET NO.
E-12

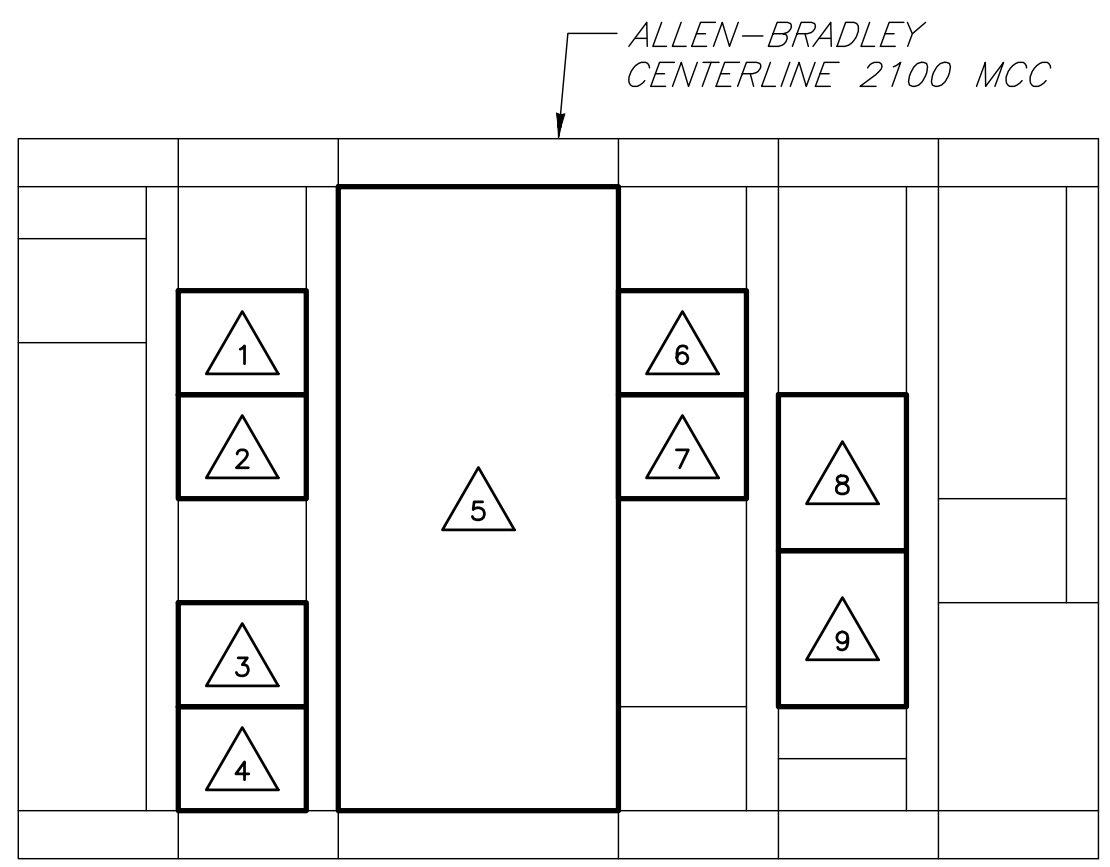
PROJECT STATUS
100% SUBMITTAL



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22823 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

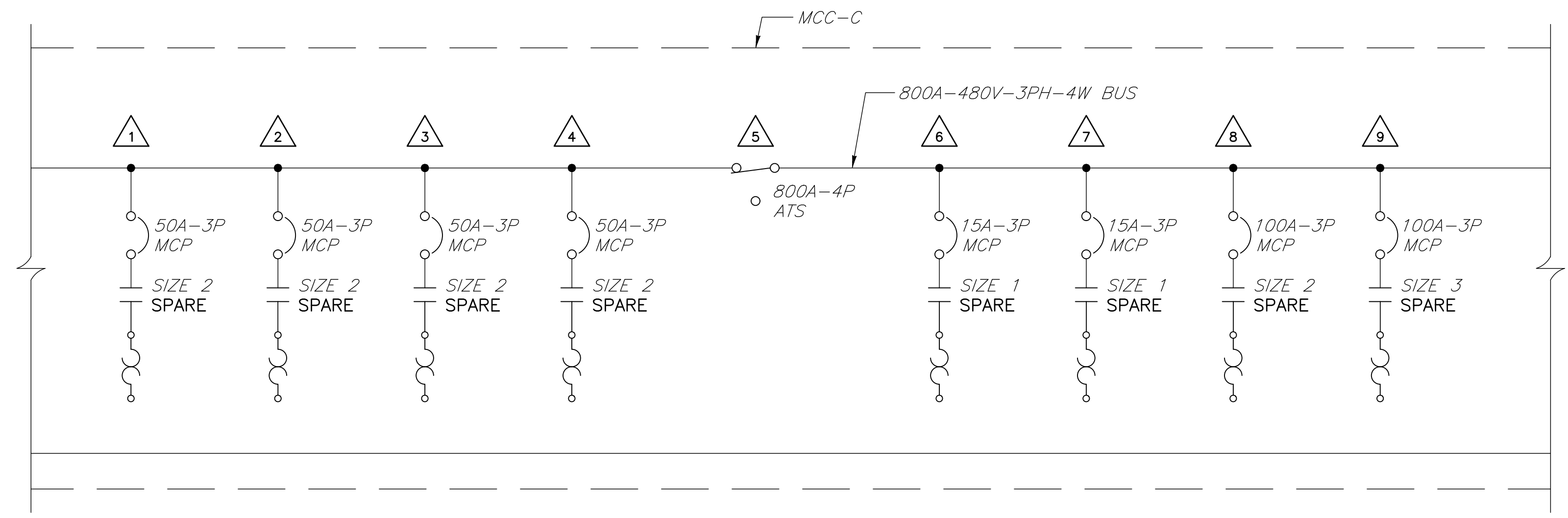
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21785

MCC-C MODIFICATIONS



EXISTING MCC-C ELEVATION
 (LOCATED IN THE CONTROL BUILDING)

- 1 EXISTING SBR NO. 1 AERATOR NO. 1A IS BEING REMOVED. THE EXISTING SIZE 2 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 2 SPARE".
- 2 EXISTING SBR NO. 1 AERATOR NO. 1B IS BEING REMOVED. THE EXISTING SIZE 2 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 2 SPARE".
- 3 EXISTING SBR NO. 2 AERATOR NO. 2A IS BEING REMOVED. THE EXISTING SIZE 2 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 2 SPARE".
- 4 EXISTING SBR NO. 2 AERATOR NO. 2B IS BEING REMOVED. THE EXISTING SIZE 2 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 2 SPARE".
- 5 THE EXISTING EMERGENCY GENERATOR IS BEING REMOVED. THE EXISTING ATS SHALL REMAIN.
- 6 EXISTING AIR COMPRESSOR NO. 1 IS BEING REMOVED. THE EXISTING SIZE 1 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 1 SPARE".
- 7 EXISTING AIR COMPRESSOR NO. 2 IS BEING REMOVED. THE EXISTING SIZE 1 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 1 SPARE".
- 8 EXISTING INFLUENT PUMP NO. 1 IS BEING REMOVED. THE EXISTING SIZE 3 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 3 SPARE".
- 9 EXISTING INFLUENT PUMP NO. 2 IS BEING REMOVED. THE EXISTING SIZE 3 MOTOR STARTER SHALL REMAIN AND BECOME A SPARE. PROVIDE AN ENGRAVED NAMEPLATE FOR THE MOTOR STARTER ON THE UNIT DOOR. THE NAMEPLATE SHALL READ "SIZE 3 SPARE".



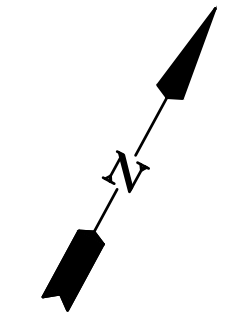
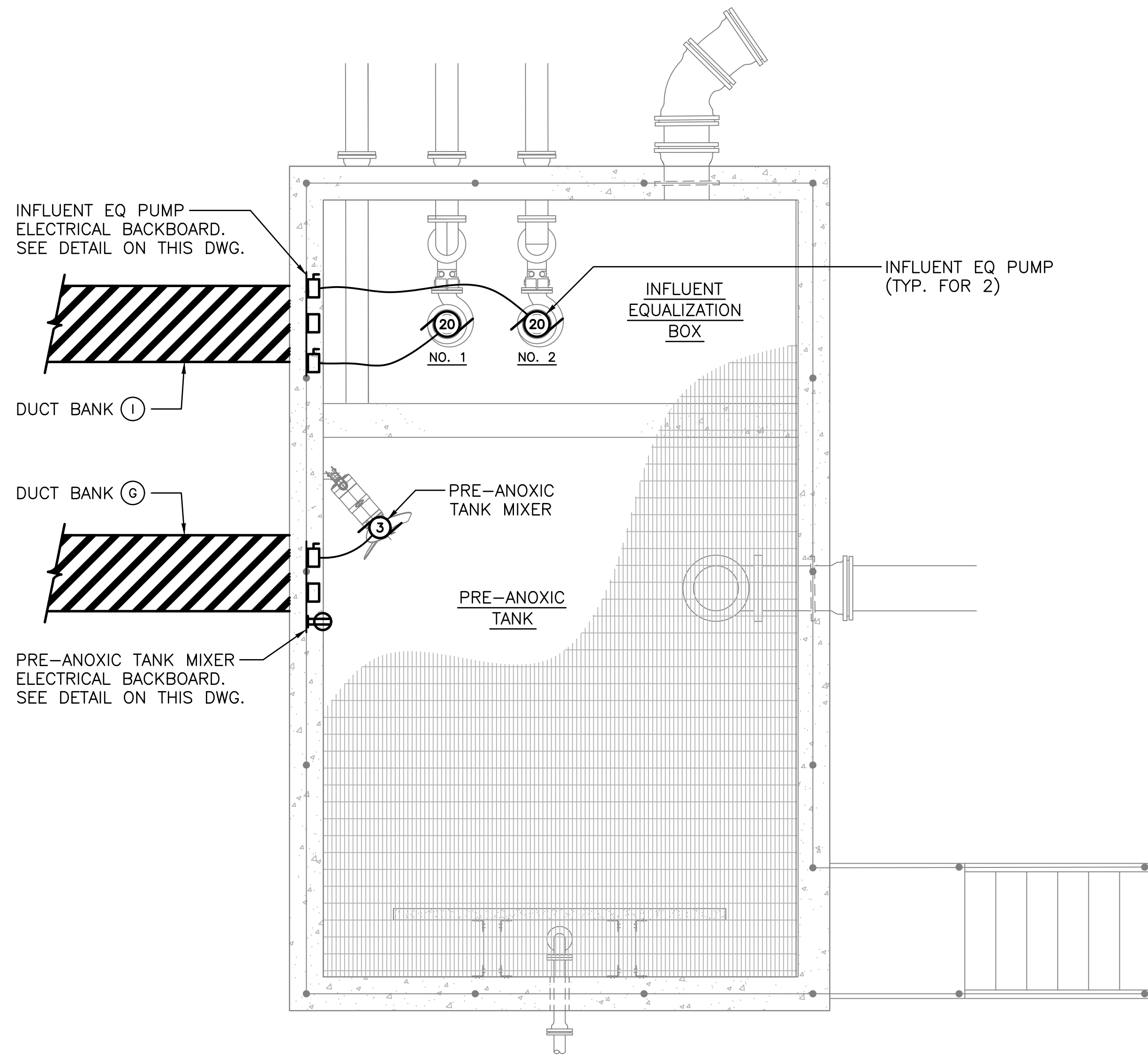
EXISTING MCC-C MODIFICATIONS
ONE-LINE DIAGRAM

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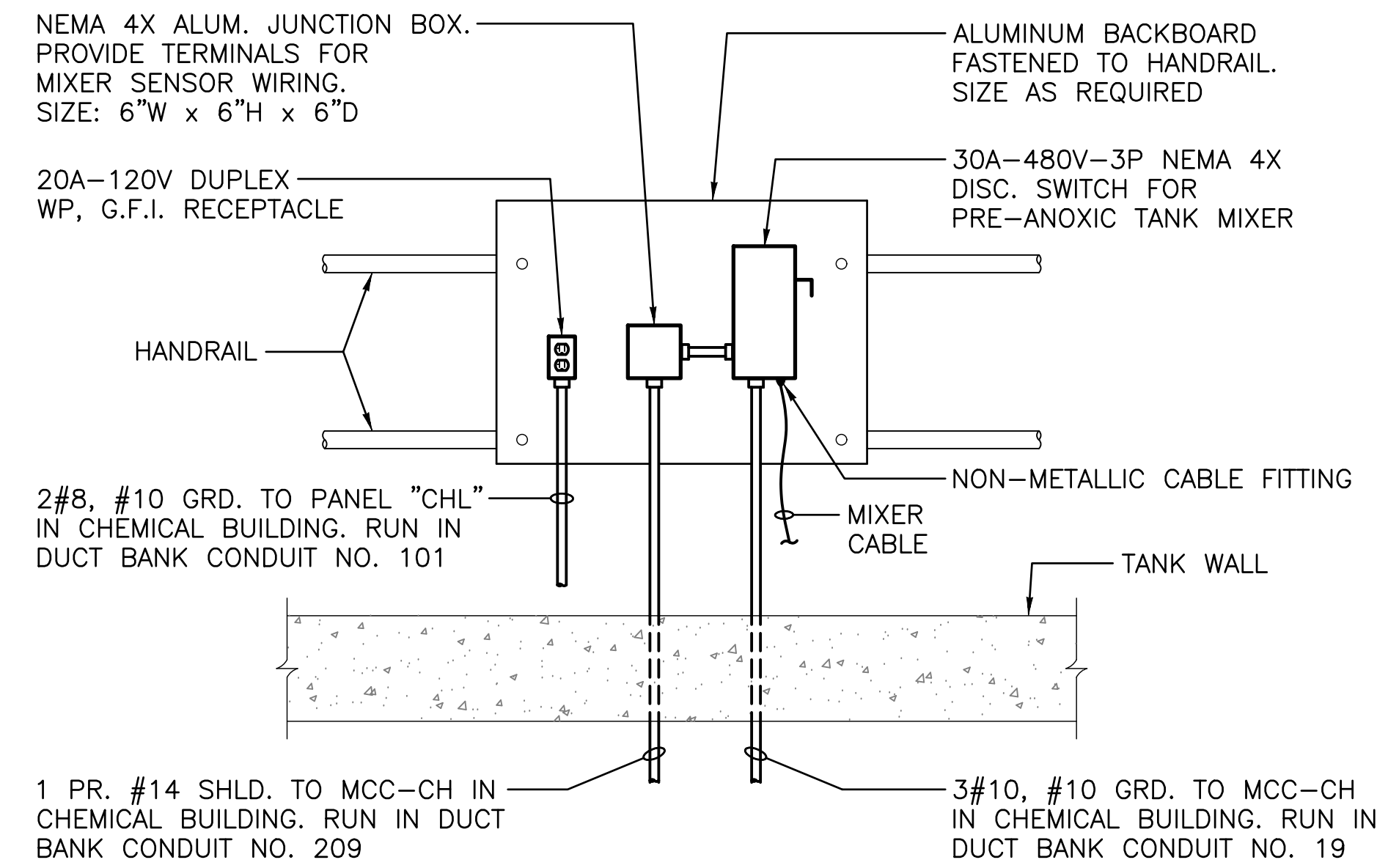
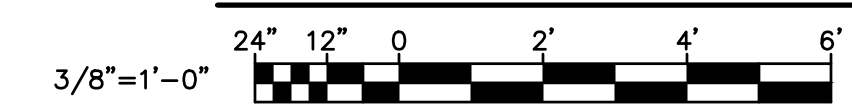
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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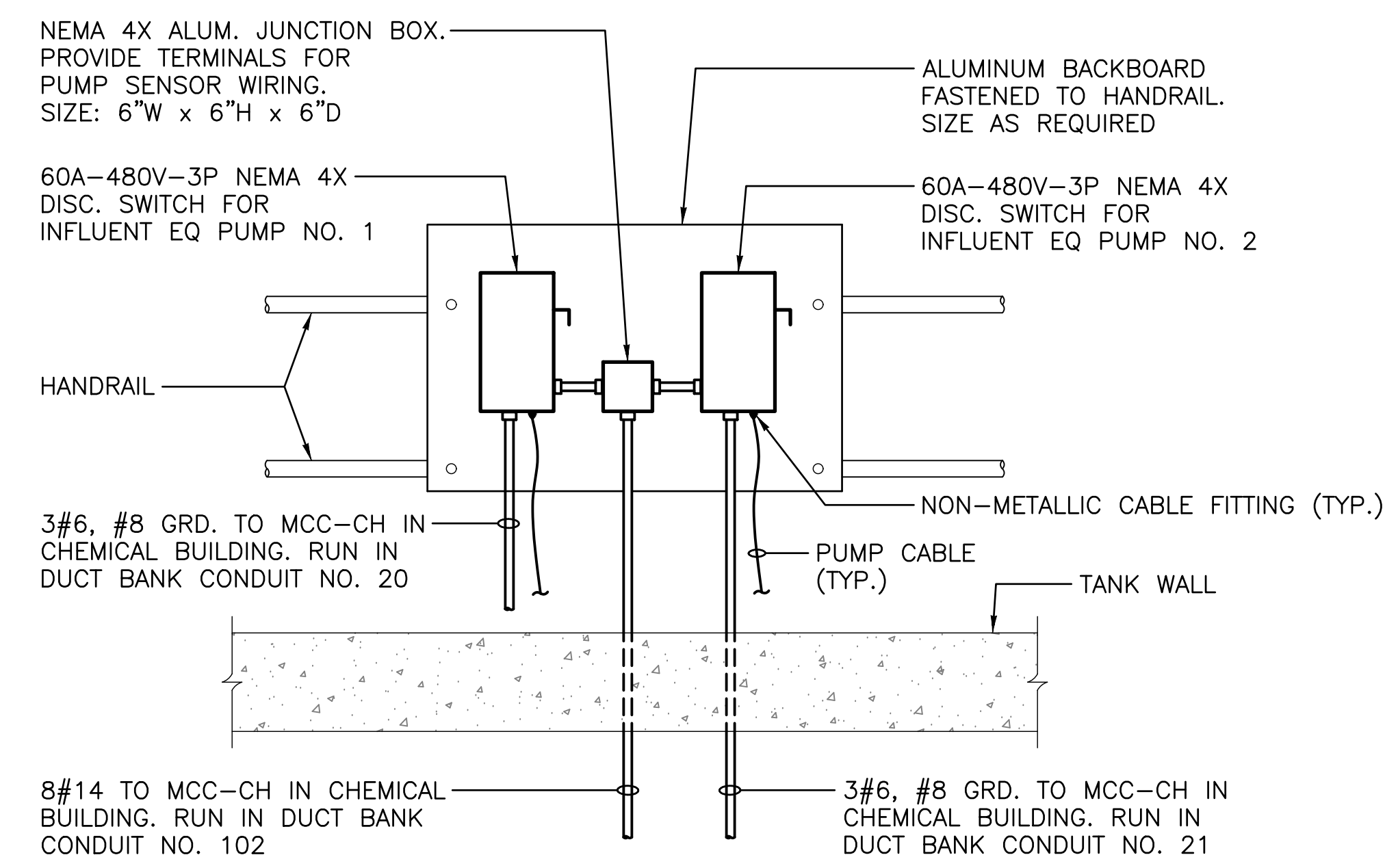
SHEET TITLE:
MCC-C MODIFICATIONS



**PRE-ANOXIC TANK
 ELECTRICAL PLAN**



**PRE-ANOXIC TANK MIXER
 ELECTRICAL BACKBOARD DETAIL**
 NO SCALE



**INFLUENT EQ PUMPS
 ELECTRICAL BACKBOARD DETAIL**
 NO SCALE

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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/20/21
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
PRE-ANOXIC TANK ELECTRICAL PLAN

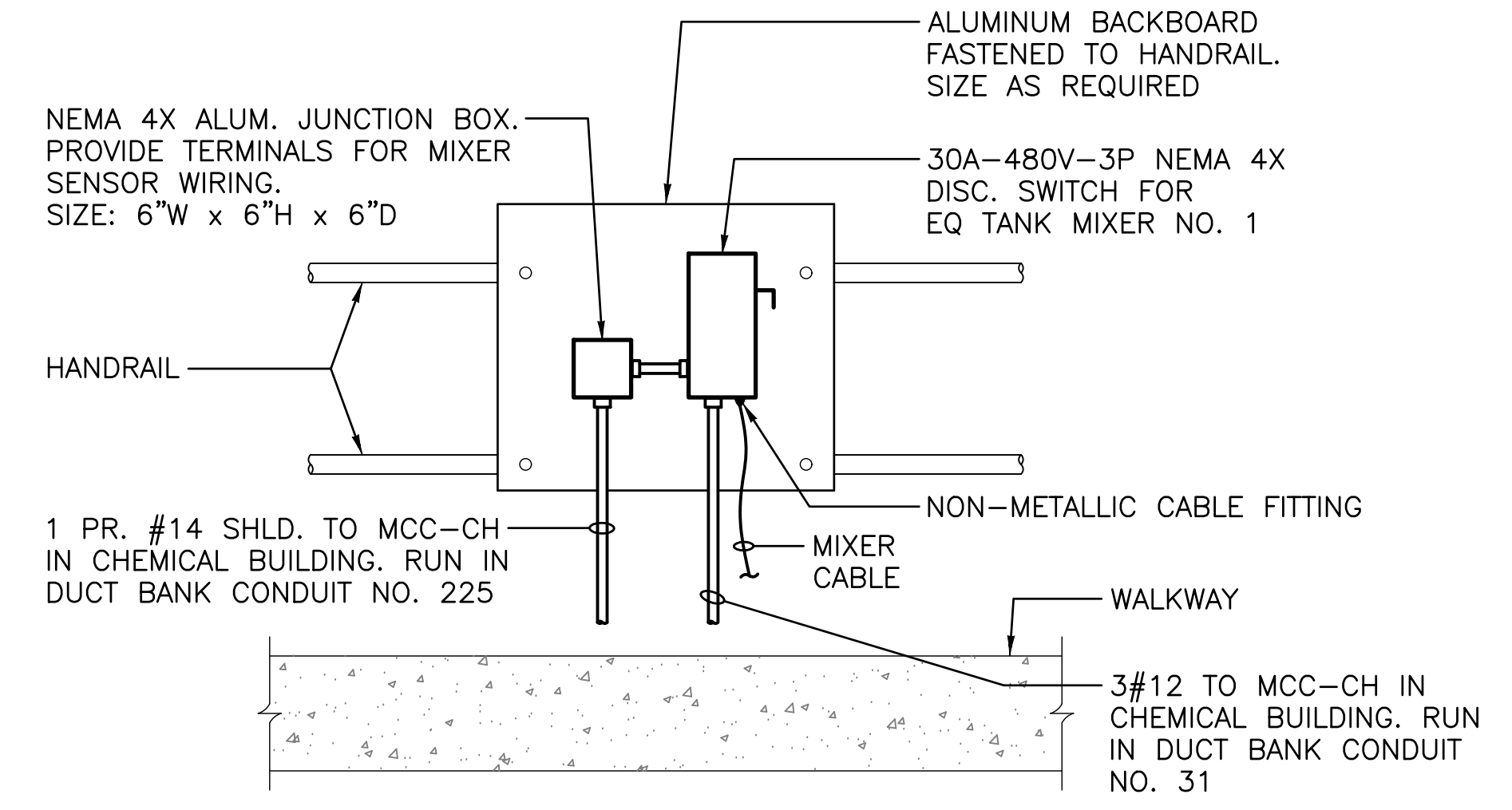
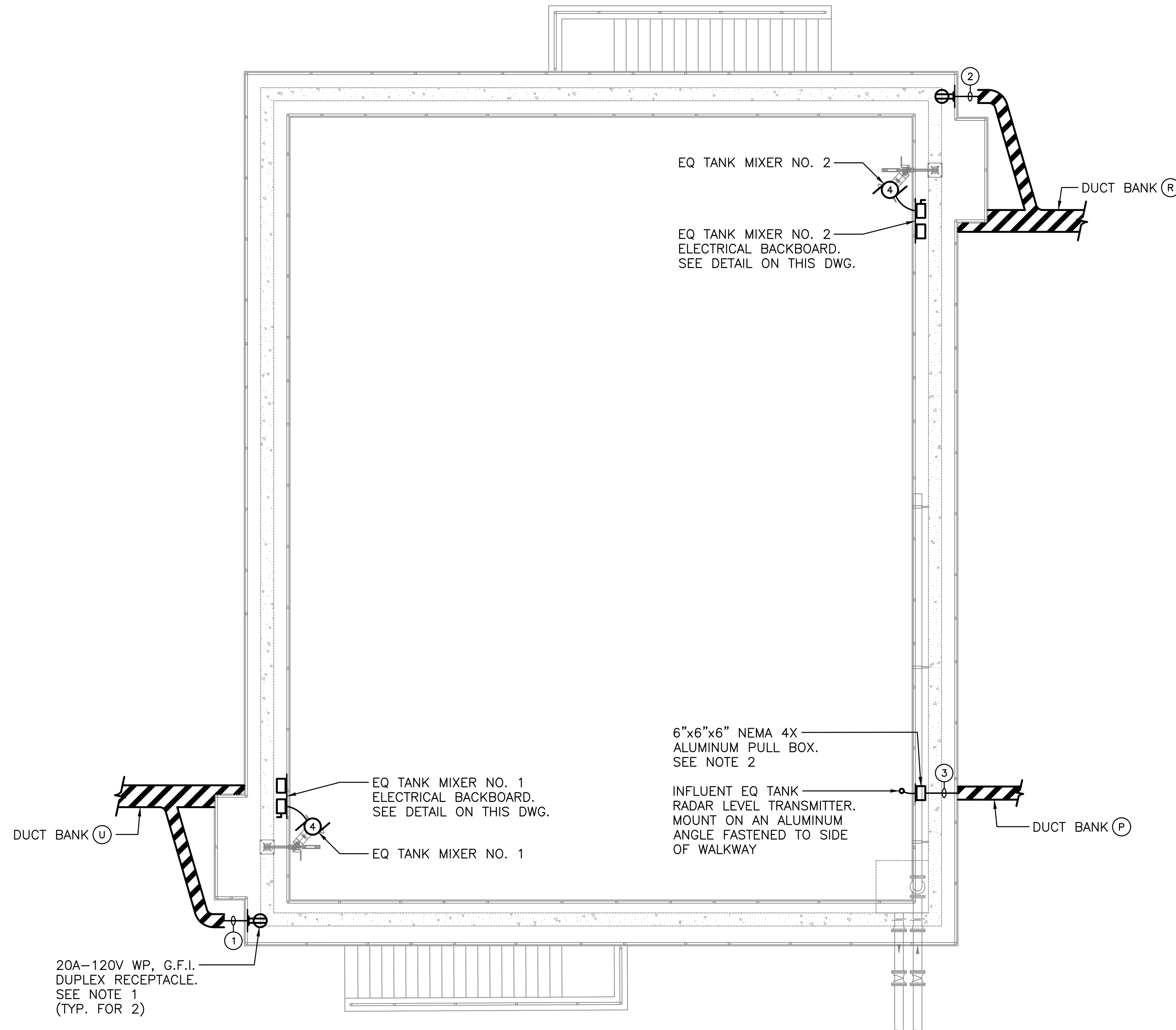


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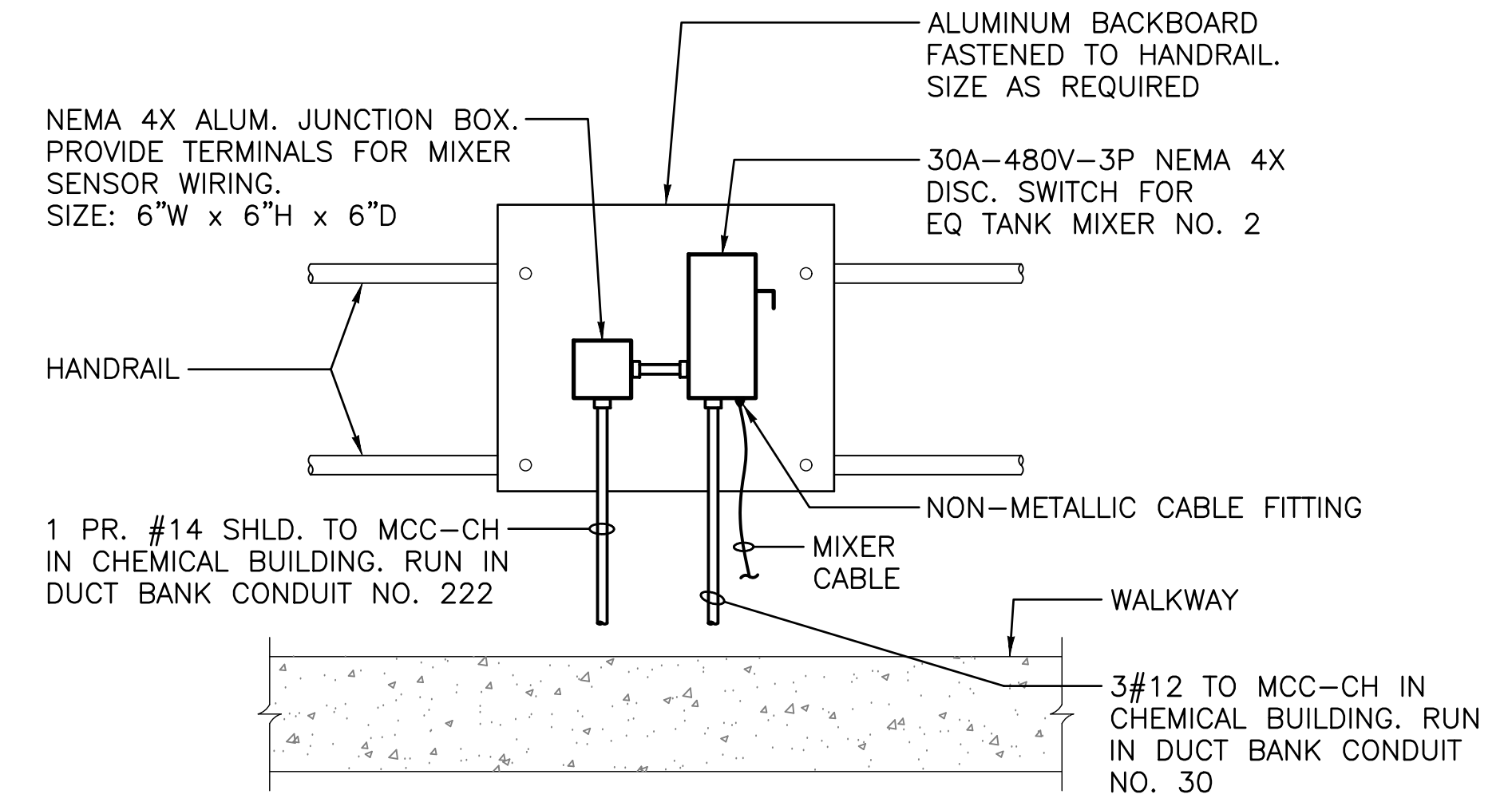
1. MOUNT RECEPTACLE ON AN ALUMINUM BACKBOARD FASTENED TO THE HANDRAIL.
2. MOUNT LEVEL TRANSMITTER PULL BOX ON AN ALUMINUM BACKBOARD FASTENED TO THE HANDRAIL.

WIRING LEGEND

- ① 2#10, #10 GRD. TO PANEL "CHH" IN CHEMICAL BUILDING ELECTRICAL ROOM. RUN IN DUCT BANK CONDUIT NO. 114
- ② 2#10, #10 GRD. TO PANEL "CHH" IN CHEMICAL BUILDING ELECTRICAL ROOM. RUN IN DUCT BANK CONDUIT NO. 110
- ③ 1 PR. #18 SHLD. TO INFLUENT PUMP CONTROL PANEL IN CHEMICAL BUILDING ELECTRICAL ROOM. RUN IN DUCT BANK CONDUIT NO. 220



**EQ TANK MIXER NO. 1
ELECTRICAL BACKBOARD DETAIL**
NO SCALE



**EQ TANK MIXER NO. 2
ELECTRICAL BACKBOARD DETAIL**
NO SCALE

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
**INFLUENT
EQUALIZATION
TANK
ELECTRICAL
PLAN**

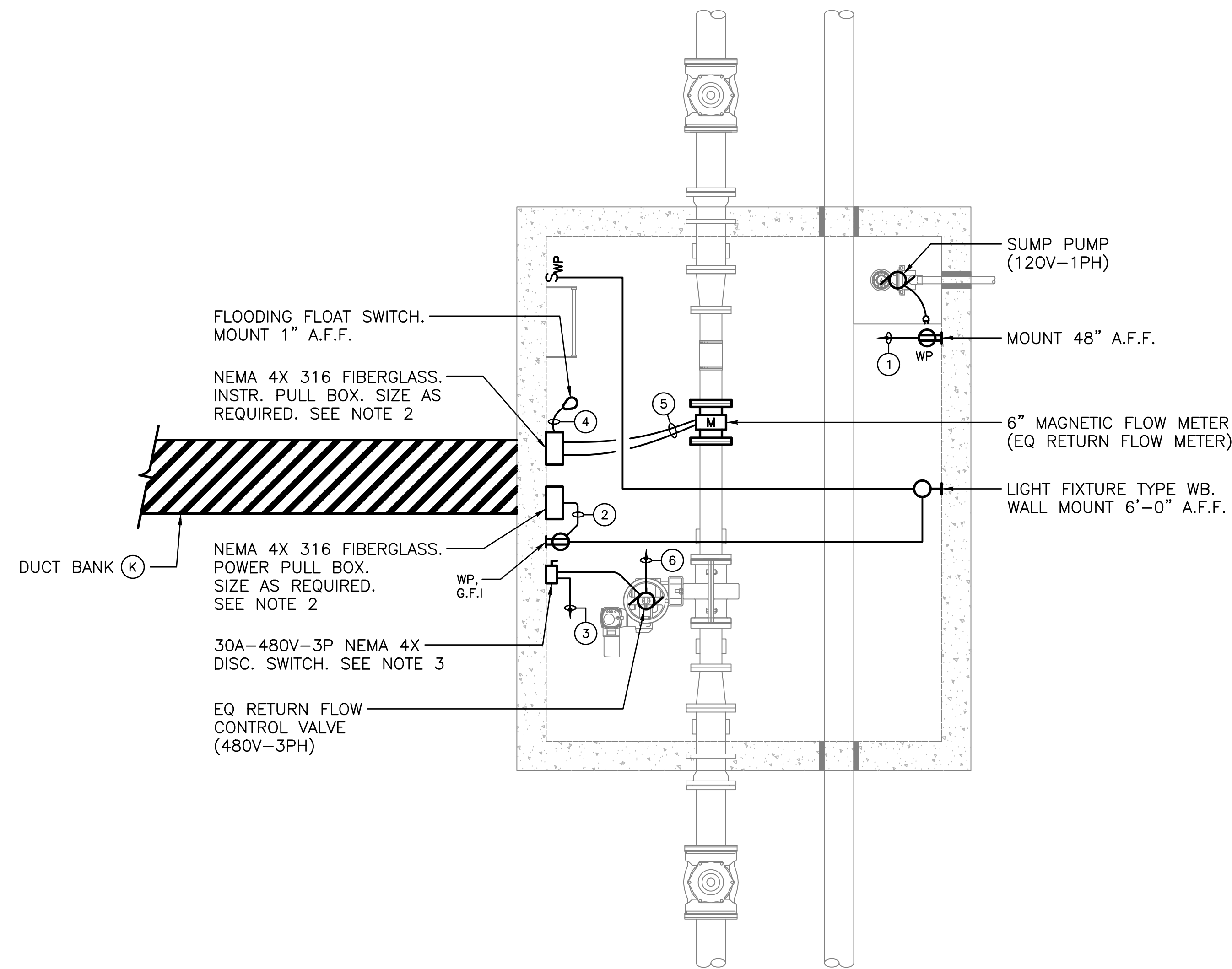
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NOTES

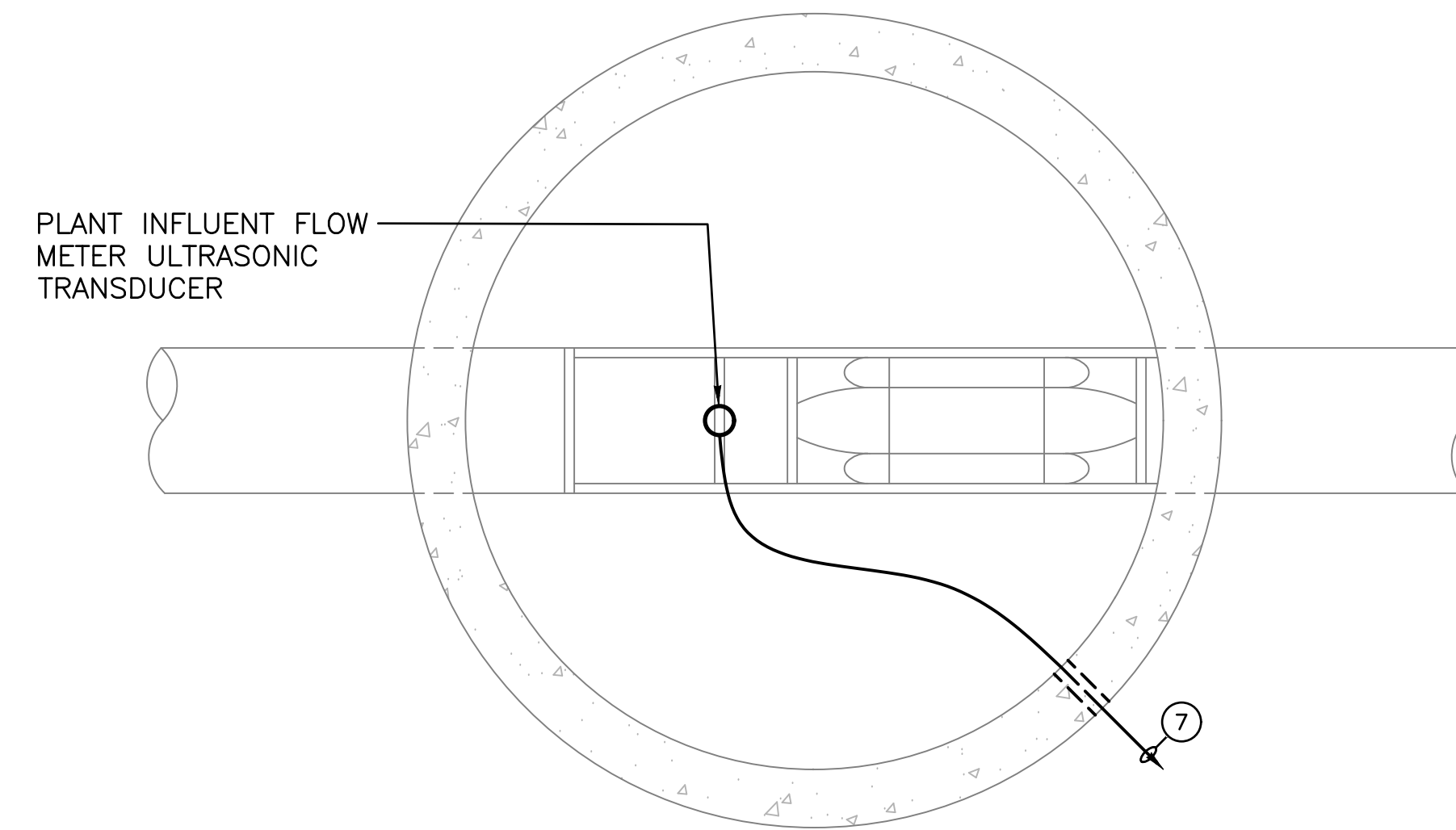
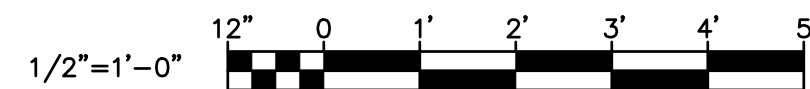
1. ALL CONDUIT IN THE EQ RETURN FLOW CONTROL VAULT AND METERING MANHOLE SHALL BE PVC SCHEDULE 80.
2. WALL MOUNT PULL BOXES ON FIBERGLASS UNI-STRUT.
3. WALL MOUNT DISCONNECT SWITCH ON FIBERGLASS UNI-STRUT.

WIRING LEGEND

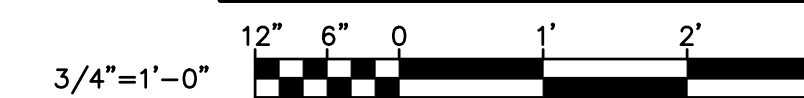
- ① 2#10, #10 GRD. TO PANEL "CHL" IN CHEMICAL BUILDING. RUN IN 3/4" C TO POWER PULL BOX AND IN DUCT BANK CONDUIT NO. 103
- ② 2#10, #10 GRD. TO PANEL "CHL" IN CHEMICAL BUILDING. RUN IN 3/4" C TO POWER PULL BOX AND IN DUCT BANK CONDUIT NO. 103
- ③ 3#12 TO MCC-CH IN CHEMICAL BUILDING. RUN IN 3/4" C TO POWER PULL BOX AND IN DUCT BANK CONDUIT NO. 22
- ④ FLOAT SWITCH CABLE. SPLICE TO 2#14 IN INSTRUMENTATION PULL BOX AND RUN 2#14 TO CHEMICAL BUILDING PLC PANEL IN DUCT BANK CONDUIT NO. 210
- ⑤ FLOW METER SIGNAL CABLES TO FLOW METER TRANSMITTER IN CHEMICAL BUILDING. RUN IN (2) 3/4" C TO INSTRUMENTATION PULL BOX AND IN DUCT BANK CONDUIT NO. 211
- ⑥ 4#14 AND (2) 1 PR. #18 SHLD. TO CHEMICAL BUILDING PLC PANEL. RUN IN 1" C TO INSTRUMENTATION PULL BOX AND IN DUCT BANK CONDUIT NO. 210
- ⑦ PLANT INFLUENT FLOW METER ULTRASONIC TRANSDUCER CABLE-1" C TO FLOW METER TRANSMITTER IN OPERATIONS BUILDING



**EQ RETURN FLOW CONTROL VAULT
ELECTRICAL PLAN**



**PLANT INFLUENT FLOW
METERING MANHOLE
ELECTRICAL PLAN**



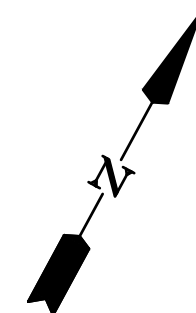
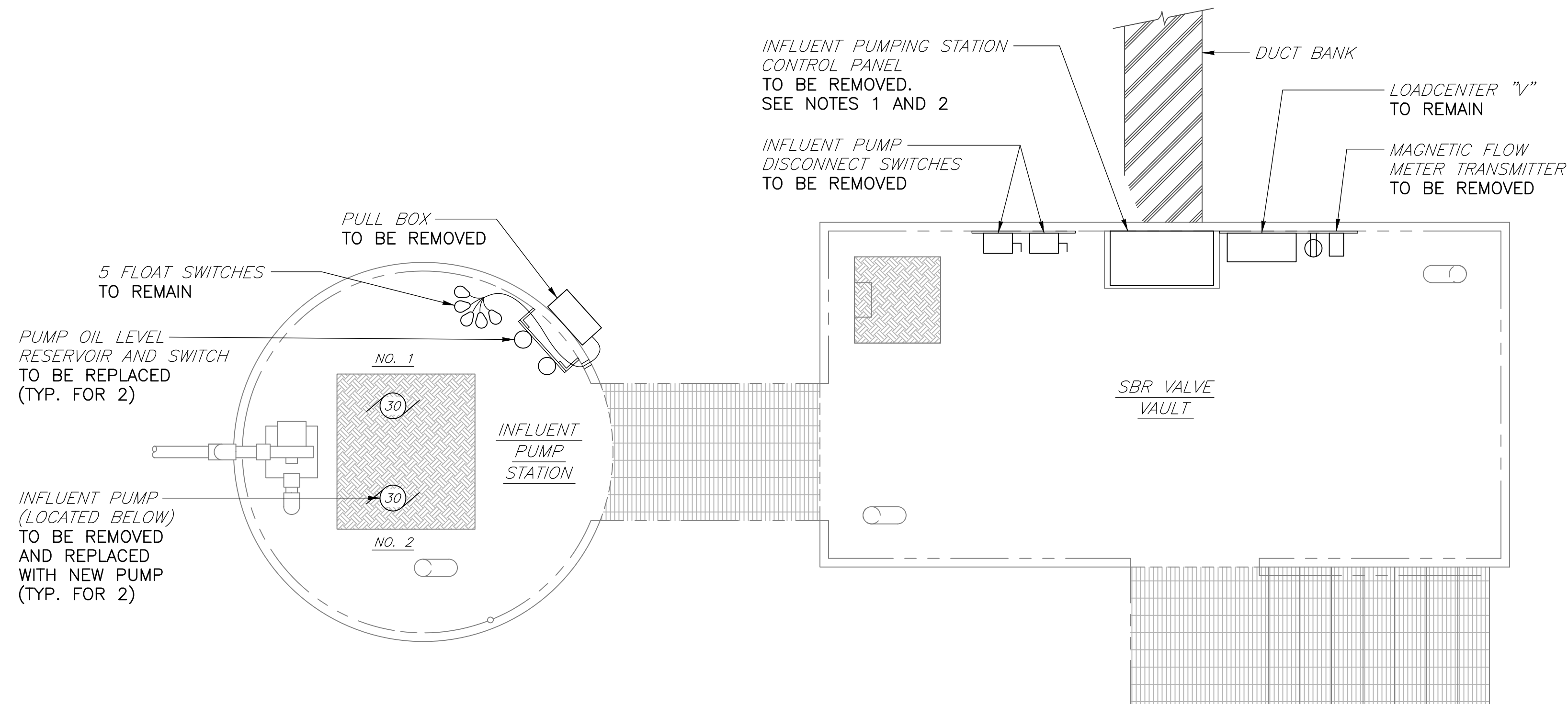
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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

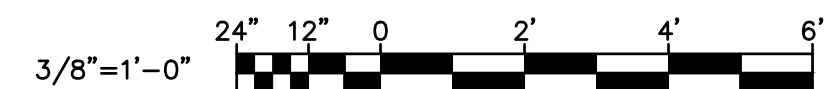
PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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SHEET TITLE:
EQ RETURN FLOW CONTROL VAULT AND METERING MH ELECTRICAL PLANS

SHEET NO.: **E-16**

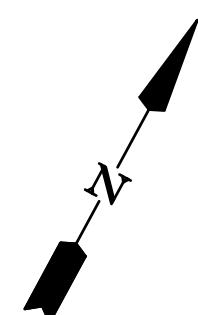
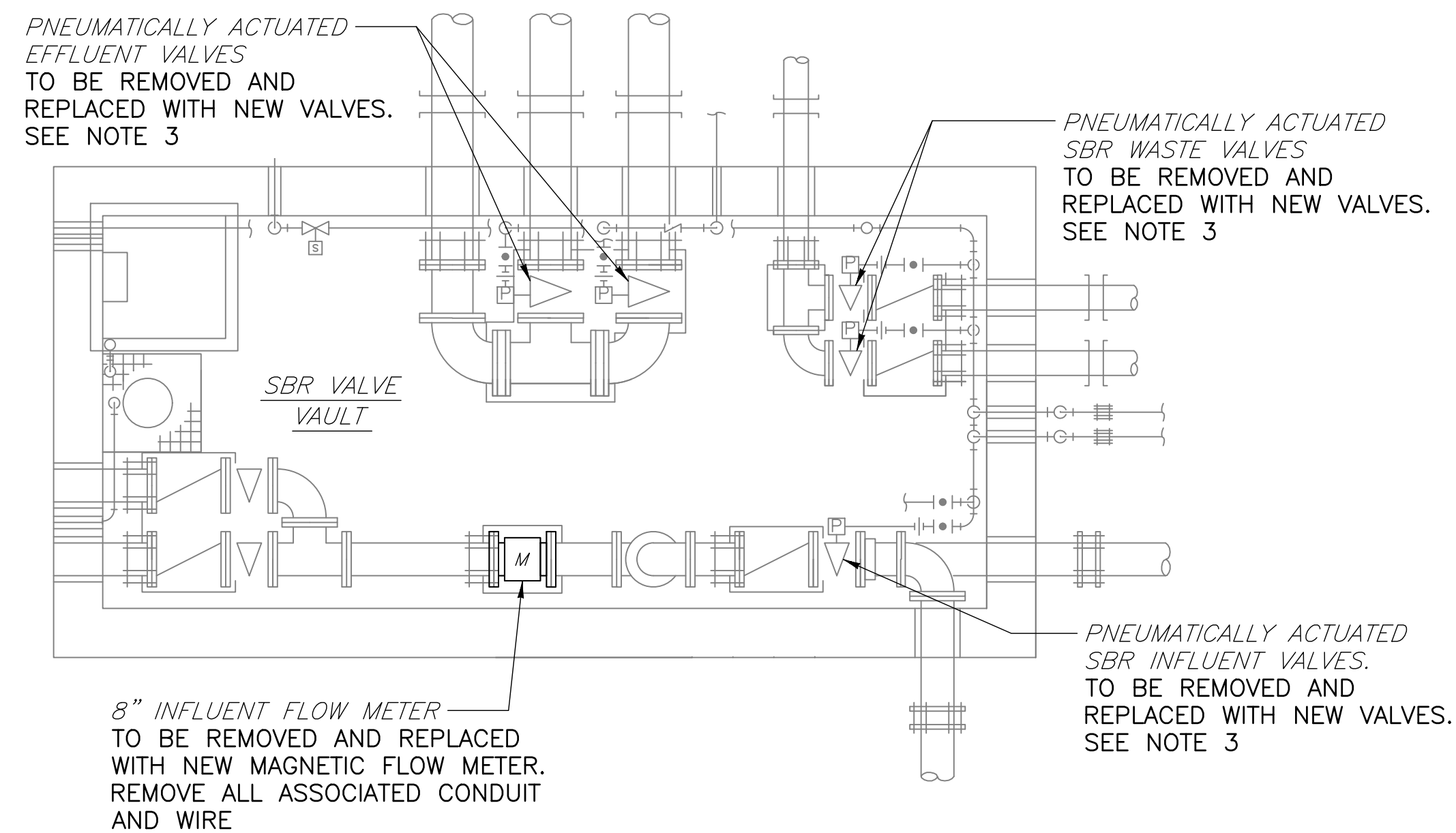


**INFLUENT PUMP STATION AND SBR VALVE VAULT – TOP SLAB
ELECTRICAL DEMOLITION PLAN**



NOTES

1. WHERE EQUIPMENT IS NOTED TO BE REMOVED, REMOVE ALL EXPOSED CONDUIT AND WIRING BACK TO SOURCE.
2. REMOVE EXISTING BUBBLER PIPING FROM INFLUENT PUMPING STATION CONTROL PANEL TO PUMP STATION.
3. REMOVE EXISTING CONDUIT AND WIRING FROM EACH PNEUMATICALLY ACTUATED VALVE TO THE INFLUENT PUMPING STATION CONTROL PANEL.



**SBR VALVE VAULT
ELECTRICAL DEMOLITION PLAN**



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION

22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY

16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
**INFLUENT
PUMP STATION
AND VALVE VAULT
ELECTRICAL
DEMOLITION
PLANS**

SHEET NO:
E-17

PROJECT STATUS: **100% SUBMITTAL**



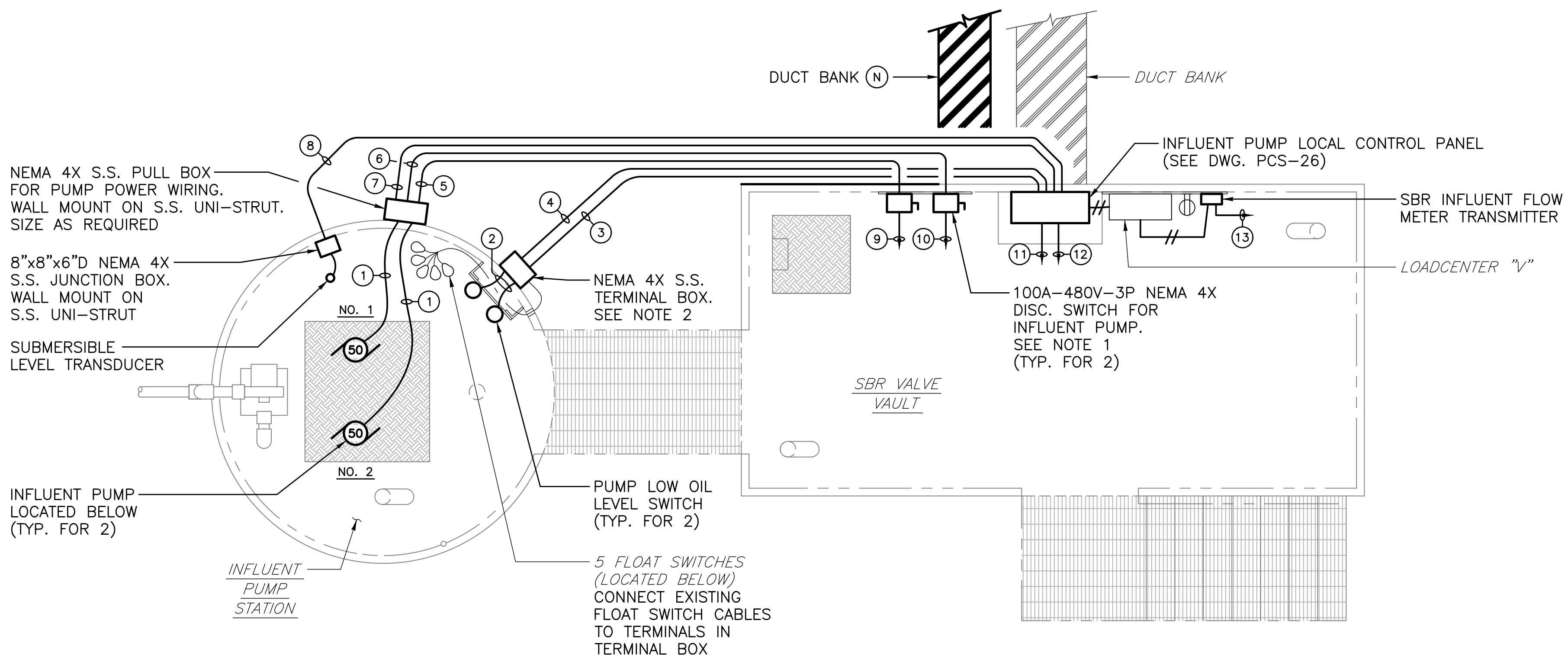
SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
2323 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21785

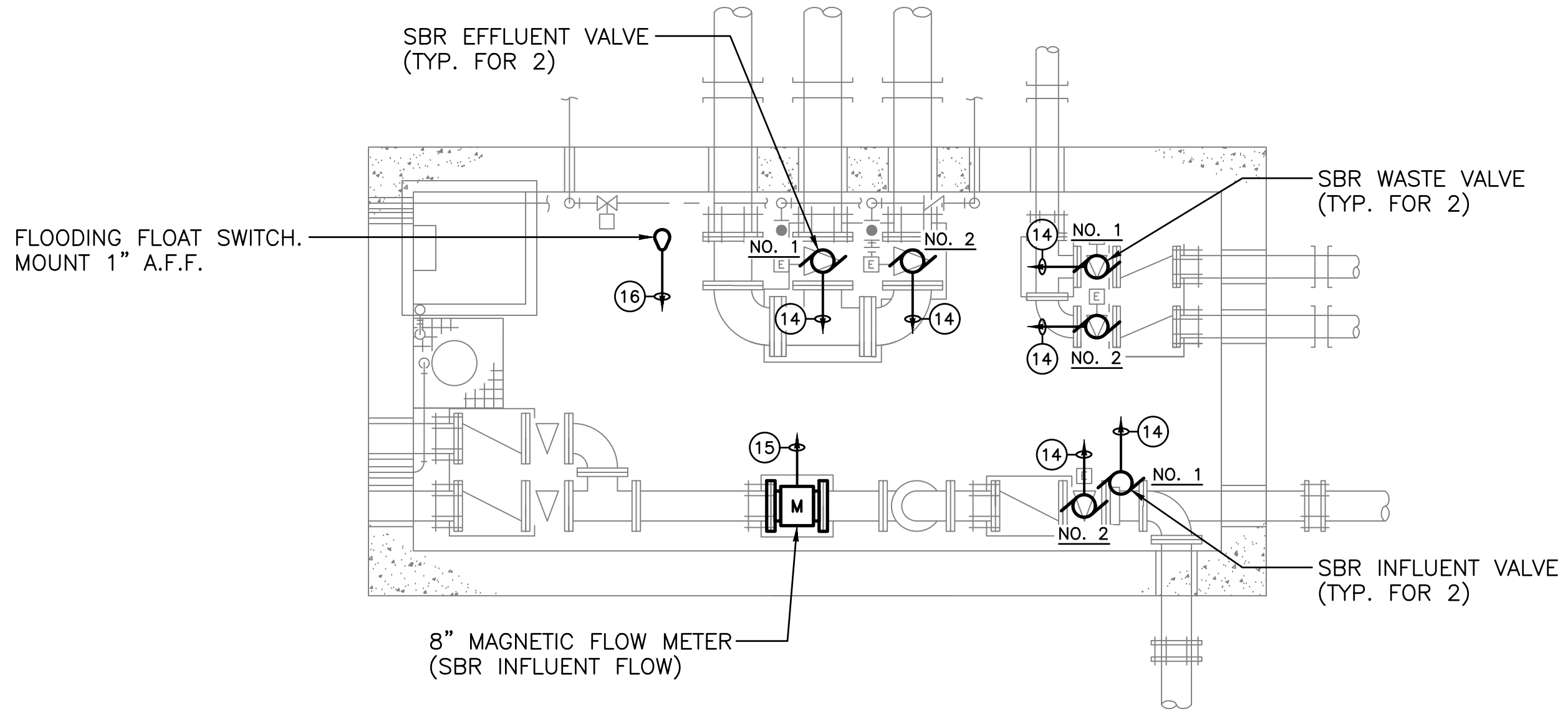
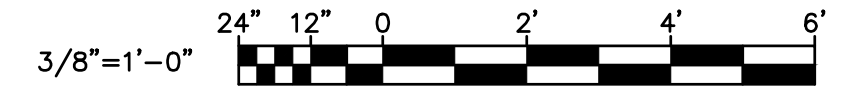
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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SHEET TITLE:
INFLUENT PUMP STATION AND SBR VALVE VAULT ELECTRICAL PLANS

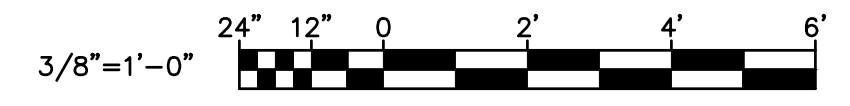
SHEET NO:
E-18



INFLUENT PUMP STATION AND SBR VALVE VAULT – TOP SLAB ELECTRICAL PLAN



SBR VALVE VAULT ELECTRICAL PLAN



NOTES

1. MOUNT PUMP DISCONNECT SWITCHES ON AN ALUMINUM BACKBOARD FASTENED TO S.S. UNI-STRUT.
2. CONTROL WIRING TERMINAL BOX, SIZE: 12"H x 12"W x 8"D. MOUNT ON S.S. UNI-STRUT AND PROVIDE TERMINALS INSIDE BOX FOR FLOAT SWITCHES AND OIL LEVEL SWITCHES.

WIRING LEGEND

- ① PUMP CABLES. CORE DRILL TWO 2" DIAMETER HOLES ON SIDE OF PUMP STATION FOR CABLES
- ② OIL LEVEL SWITCH CABLES
- ③ 4#14-3/4"C
- ④ 10#14-1"C (INTRINSICALLY SAFE)
- ⑤ 3#4, #8 GRD.-1/4"C TO PUMP NO. 1 DISC. SWITCH
- ⑥ 3#4, #8 GRD.-1/4"C TO PUMP NO. 2 DISC. SWITCH
- ⑦ 8#14-1"C FROM PUMP SENSORS
- ⑧ 1 PR. #18 SHLD.-3/4"C
- ⑨ 3#4, #8 GRD. TO PUMP VFD IN MCC-CH. RUN IN DUCT BANK CONDUIT NO. 31
- ⑩ 3#4, #8 GRD. TO PUMP VFD IN MCC-CH. RUN IN DUCT BANK CONDUIT NO. 32
- ⑪ 14#14 AND 1 PR. #18 SHLD. TO INFLUENT PUMP CONTROL PANEL. RUN IN DUCT BANK CONDUIT NO. 223
- ⑫ 16#14 TO PUMP VFDs IN MCC-CH. RUN IN DUCT BANK CONDUIT NO. 111
- ⑬ 1 PR. #18 SHLD. TO SBR CONTROL PANEL. RUN IN EXISTING DUCT BANK CONDUIT
- ⑭ 7#14 (24VDC) TO SBR CONTROL PANEL. RUN IN EXISTING DUCT BANK CONDUIT
- ⑮ FLOW METER SIGNAL CABLES. RUN IN (2) 3/4"C TO SBR INFLUENT FLOW METER TRANSMITTER
- ⑯ FLOAT SWITCH CABLE-1"C TO INFLUENT PUMP STATION LOCAL CONTROL PANEL

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PROJECT STATUS: **100% SUBMITTAL**

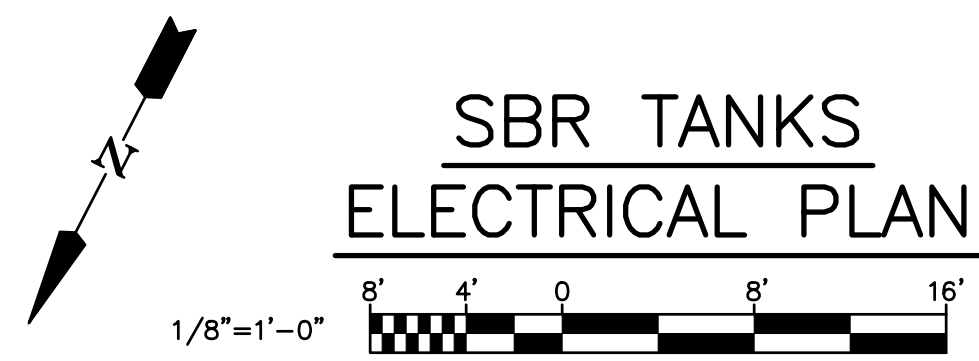
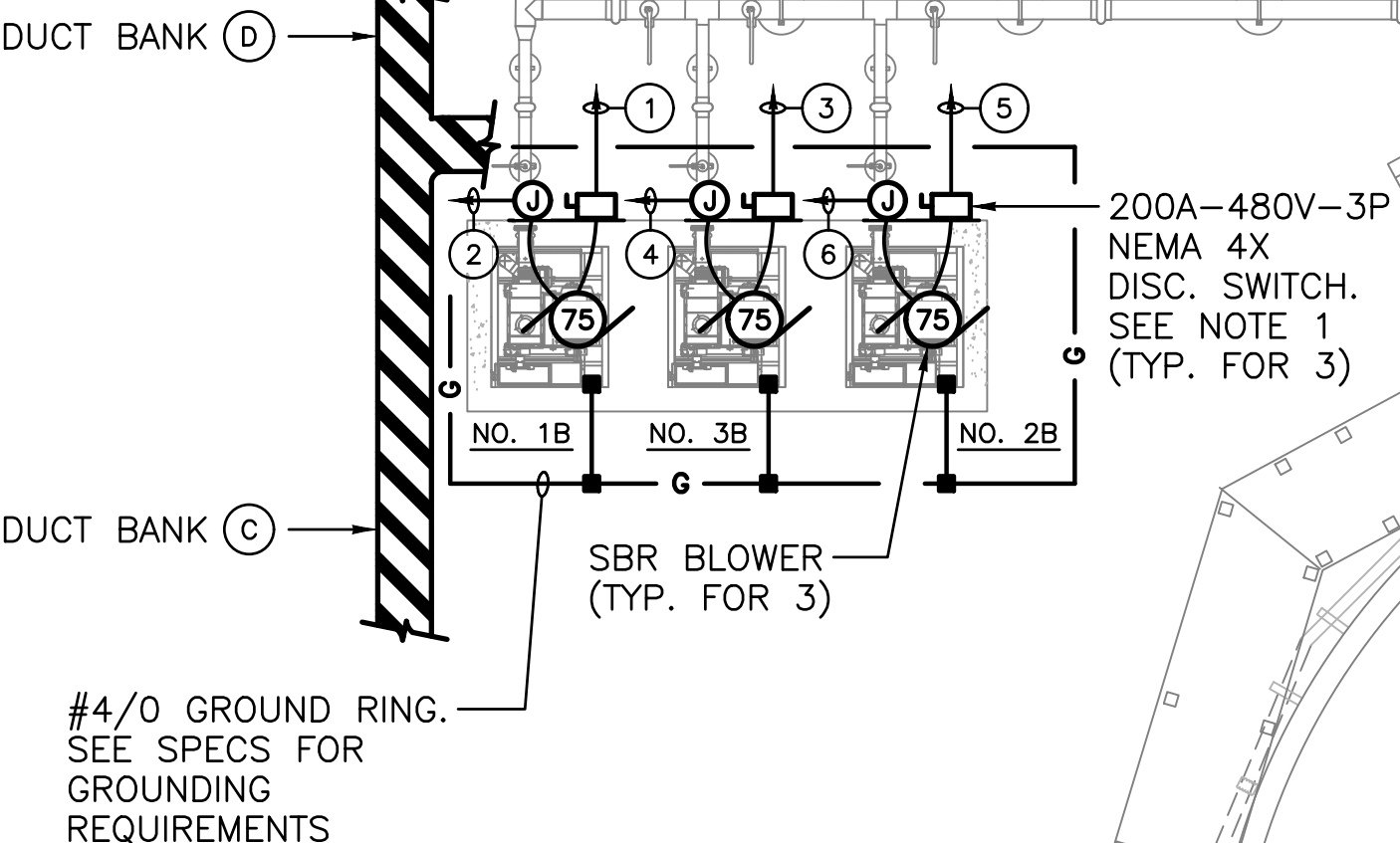
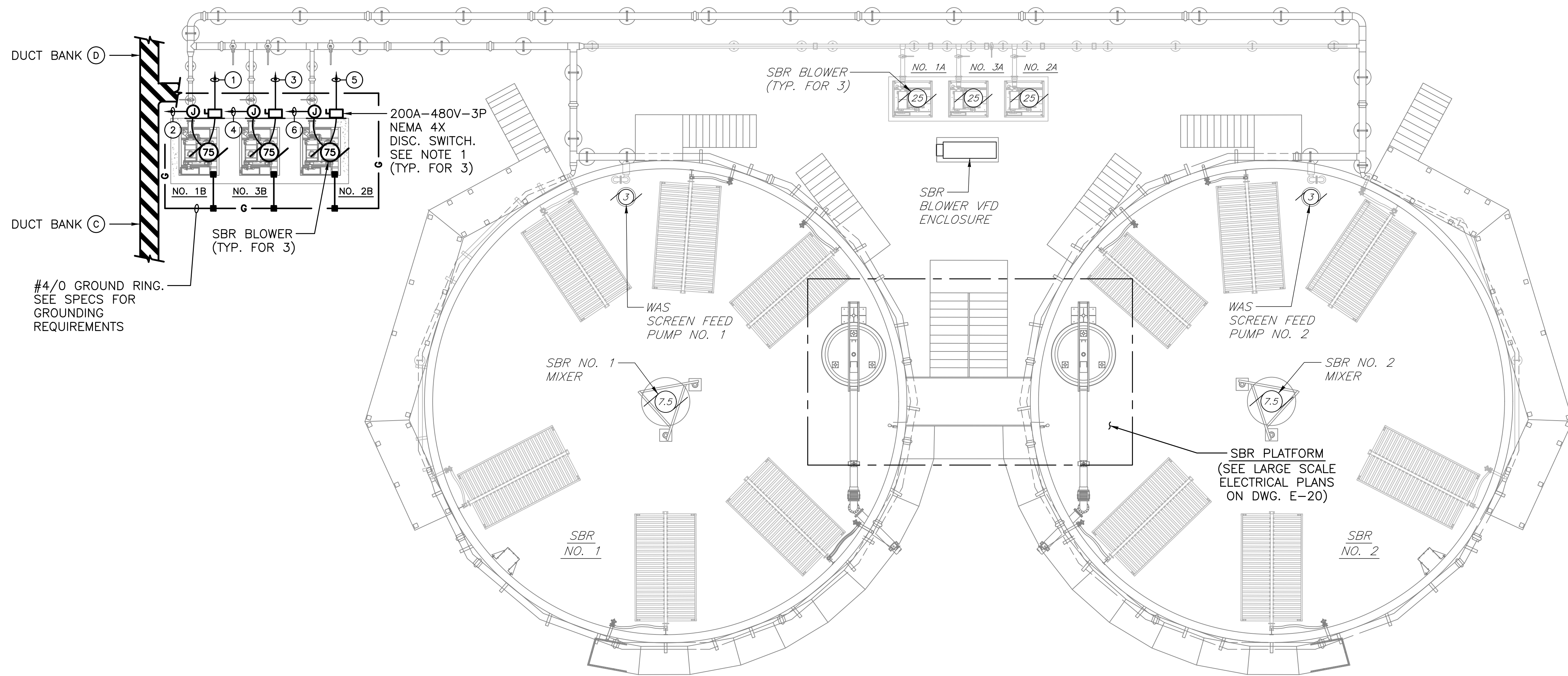


NOTES

1. MOUNT BLOWER DISCONNECT SWITCHES ON AN ALUMINUM BACKBOARD SUPPORTED BY STAINLESS STEEL UNI-STRUT.

WIRING LEGEND

- 1 3#1/0, #6 GRD.-2" C TO BLOWER VFD LOCATED IN CONTROL BUILDING. RUN IN DUCT BANK CONDUIT NO. 14
- 2 2#14-3/4" C FROM BLOWER MOTOR THERMAL SWITCHES TO BLOWER VFD. RUN IN DUCT BANK CONDUIT NO. 204
- 3 3#1/0, #6 GRD.-2" C TO BLOWER VFD LOCATED IN CONTROL BUILDING. RUN IN DUCT BANK CONDUIT NO. 13
- 4 2#14-3/4" C FROM BLOWER MOTOR THERMAL SWITCHES TO BLOWER VFD. RUN IN DUCT BANK CONDUIT NO. 203
- 5 3#1/0, #6 GRD.-2" C TO BLOWER VFD LOCATED IN CONTROL BUILDING. RUN IN DUCT BANK CONDUIT NO. 12
- 6 2#14-3/4" C FROM BLOWER MOTOR THERMAL SWITCHES TO BLOWER VFD. RUN IN DUCT BANK CONDUIT NO. 202



**SBR TANKS
ELECTRICAL PLAN**

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SMITHSBURG WWTp ENR UPGRADE AND EXPANSION
22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
**SBR TANKS
ELECTRICAL
PLAN**

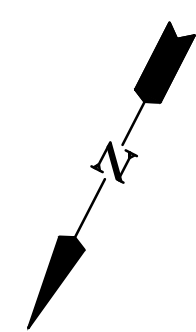
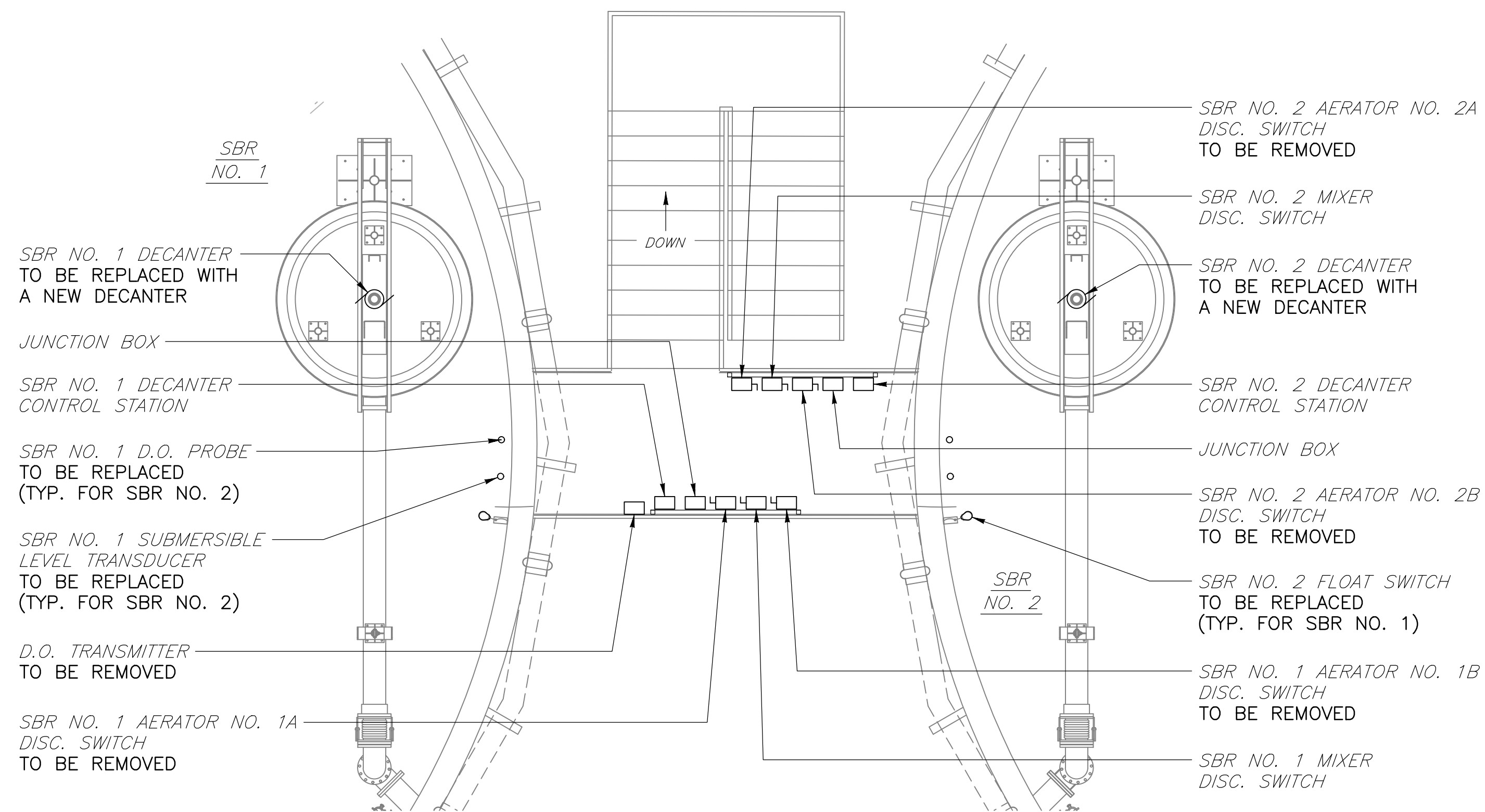


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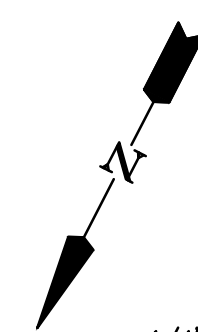
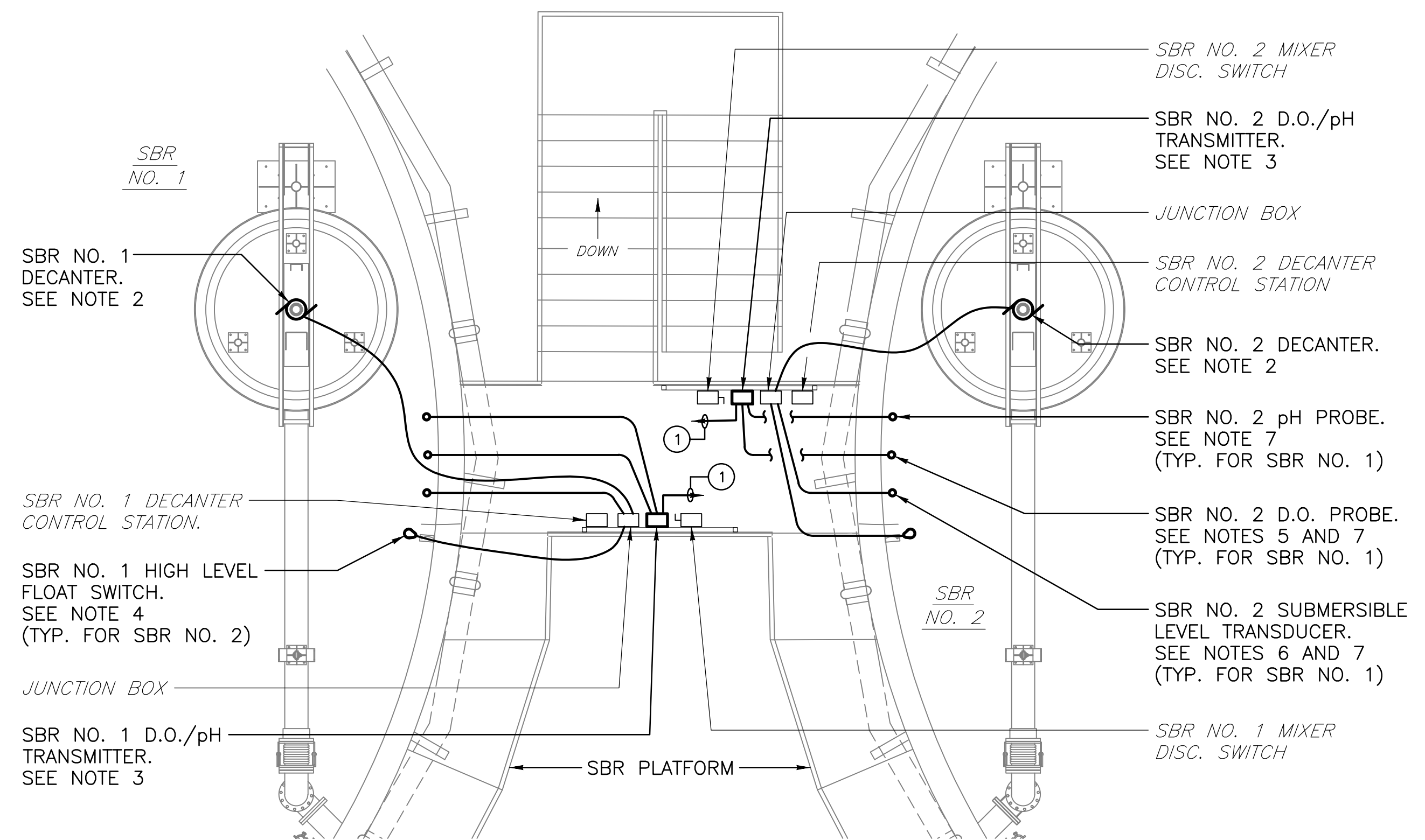
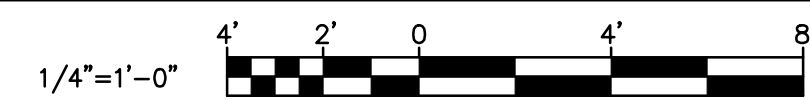
- WHERE EQUIPMENT IS SHOWN TO BE REMOVED, REMOVE ALL EXPOSED CONDUIT AND WIRE BACK TO SOURCE.
- THE EXISTING DECANTER WILL BE REPLACED WITH A NEW DECANTER. WIRE NEW DECANTER TO EXISTING JUNCTION BOX AND CONNECT TO EXISTING WIRING TO THE SBR CONTROL PANEL.
- MOUNT D.O. TRANSMITTER ON EXISTING BACKBOARD.
- REPLACE THE EXISTING HIGH LEVEL FLOAT SWITCH WITH A NEW FLOAT SWITCH AND WIRE TO EXISTING JUNCTION BOX.
- REPLACE THE EXISTING SUBMERSIBLE LEVEL TRANSDUCER WITH A NEW LEVEL TRANSDUCER AND WIRE TO EXISTING JUNCTION BOX.
- REPLACE THE EXISTING D.O. PROBE WITH A NEW D.O. PROBE AND WIRE TO NEW D.O. TRANSMITTER
- INSTALL THE FOLLOWING NEW INSTRUMENTS FURNISHED BY AQUA-AEROBICS IN EACH SBR:
 - SUBMERSIBLE LEVEL TRANSDUCER
 - D.O. PROBE
 - pH PROBE

WIRING LEGEND

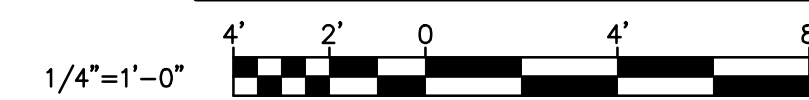
- ① (3) 1 PR. #18 SHLD. TO SBR CONTROL PANEL IN CONTROL BUILDING. RUN IN 1" C TO EXISTING JUNCTION BOX AND IN EXISTING DUCT BANK CONDUITS TO SBR CONTROL PANEL



SBR PLATFORM ELECTRICAL DEMOLITION PLAN



SBR PLATFORM ELECTRICAL PLAN



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22623 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLIOTT PARKWAY
WILMINGTON, MARYLAND 21795

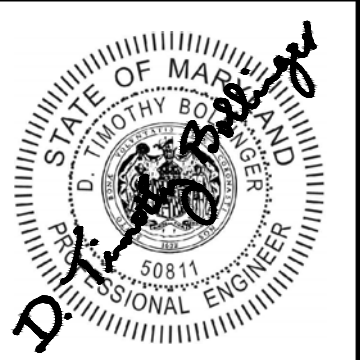
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
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SHEET TITLE:	

SBR PLATFORM ELECTRICAL PLANS

PROJECT STATUS: **100% SUBMITTAL**

SHEET NO.: **E-20**

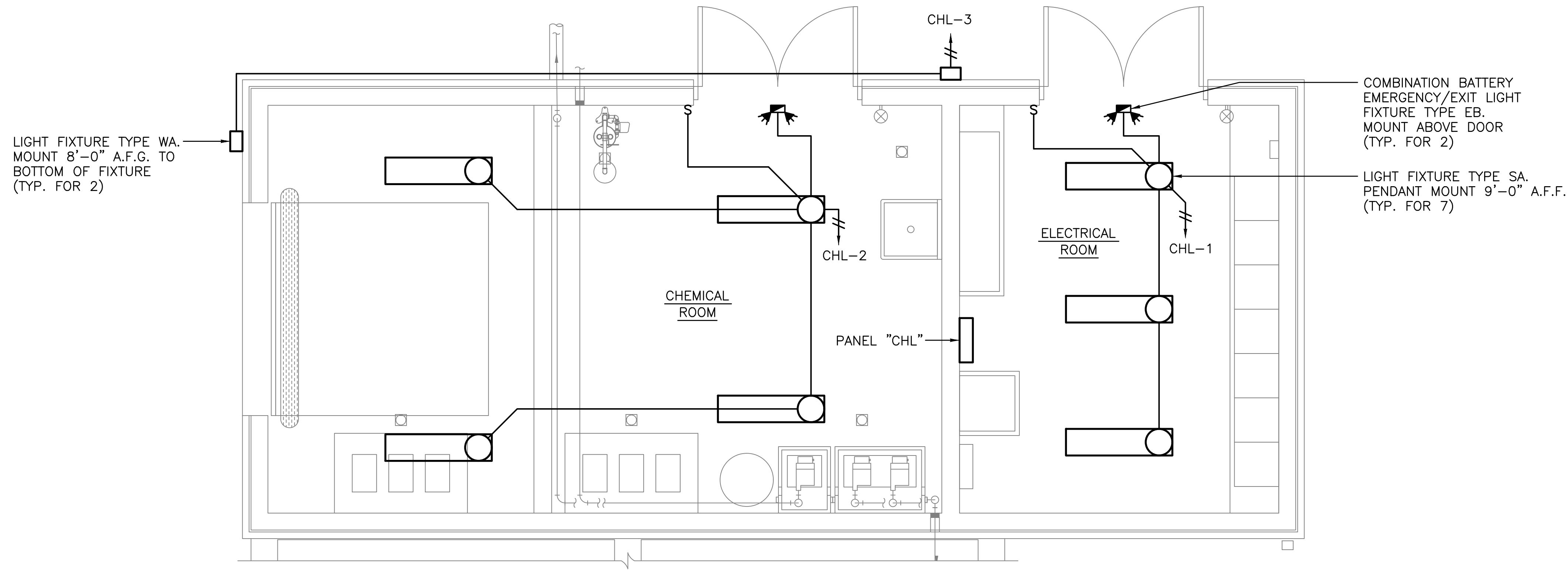


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PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
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SHEET TITLE:
**CHEMICAL BUILDING
 LIGHTING AND
 HVAC ELECTRICAL
 PLANS**

SHEET NO:
E-21



LIGHT FIXTURE TYPE WA.
 MOUNT 8'-0" A.F.G. TO
 BOTTOM OF FIXTURE
 (TYP. FOR 2)

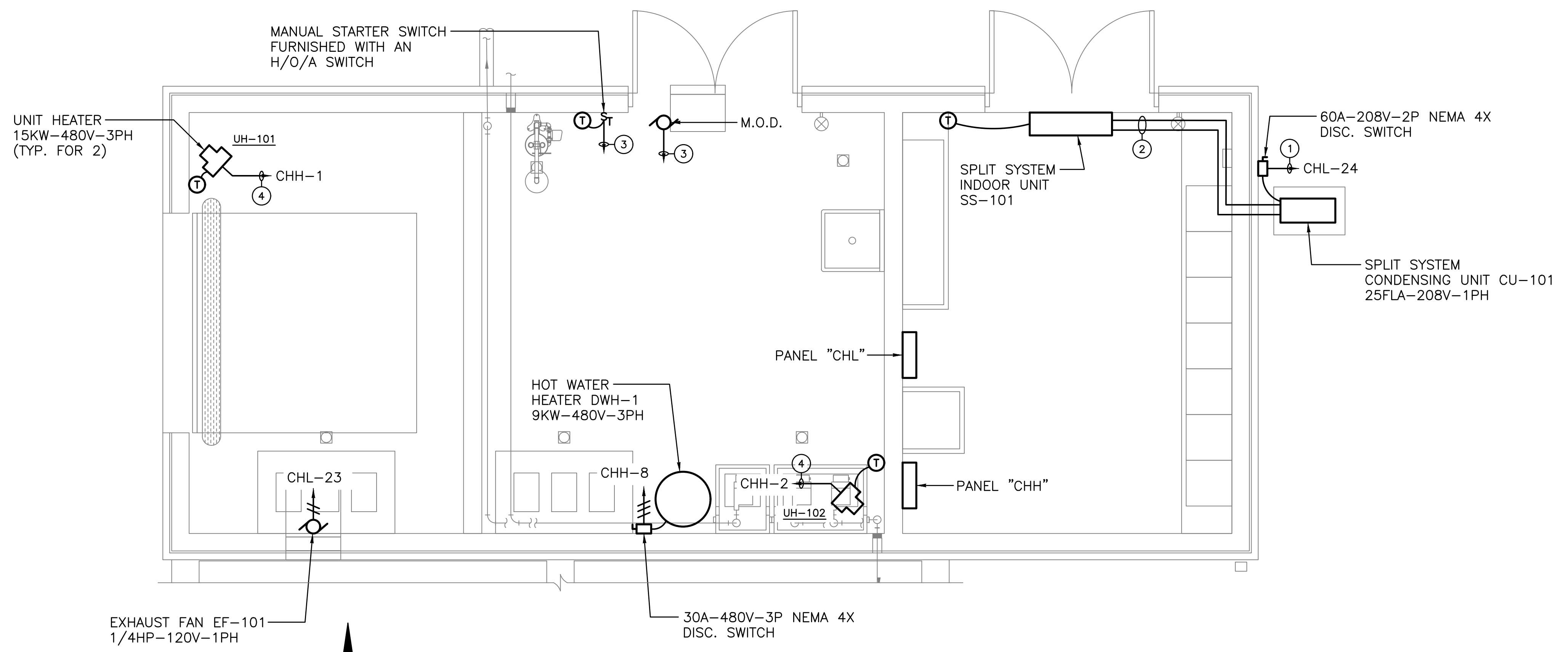
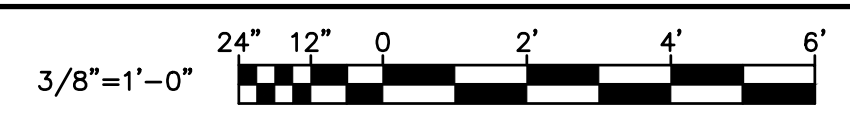
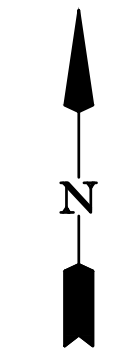
COMBINATION BATTERY
 EMERGENCY/EXIT LIGHT
 FIXTURE TYPE EB.
 MOUNT ABOVE DOOR
 (TYP. FOR 2)

LIGHT FIXTURE TYPE SA.
 PENDANT MOUNT 9'-0" A.F.F.
 (TYP. FOR 7)

WIRING LEGEND

- ① 2#8, #10 GRD.-1" C TO PANEL "CHL"
- ② (2) 3/4" C FOR POWER AND CONTROL WIRING TO SPLIT SYSTEM INDOOR UNIT. COORDINATE WIRING REQUIREMENTS WITH SYSTEM MANUFACTURER
- ③ 2#12-3/4" C TO EXHAUST FAN EF-101
- ④ 3#10, #10 GRD.-3/4" C TO PANEL "CHH"

CHEMICAL BUILDING - LIGHTING PLAN



UNIT HEATER
 15KW-480V-3PH
 (TYP. FOR 2)

EXHAUST FAN EF-101
 1/4HP-120V-1PH

HOT WATER
 HEATER DWH-1
 9KW-480V-3PH

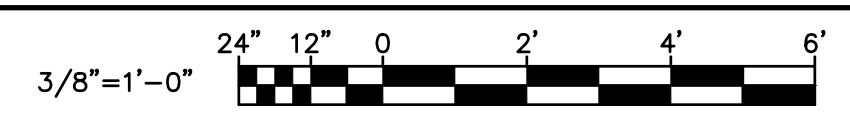
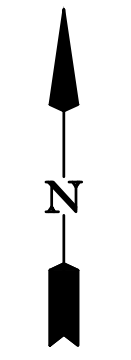
30A-480V-3P NEMA 4X
 DISC. SWITCH

SPLIT SYSTEM
 INDOOR UNIT
 SS-101

60A-208V-2P NEMA 4X
 DISC. SWITCH

SPLIT SYSTEM
 CONDENSING UNIT CU-101
 25FLA-208V-1PH

CHEMICAL BUILDING - HVAC ELECTRICAL PLAN



PROJECT STATUS: **100% SUBMITTAL**

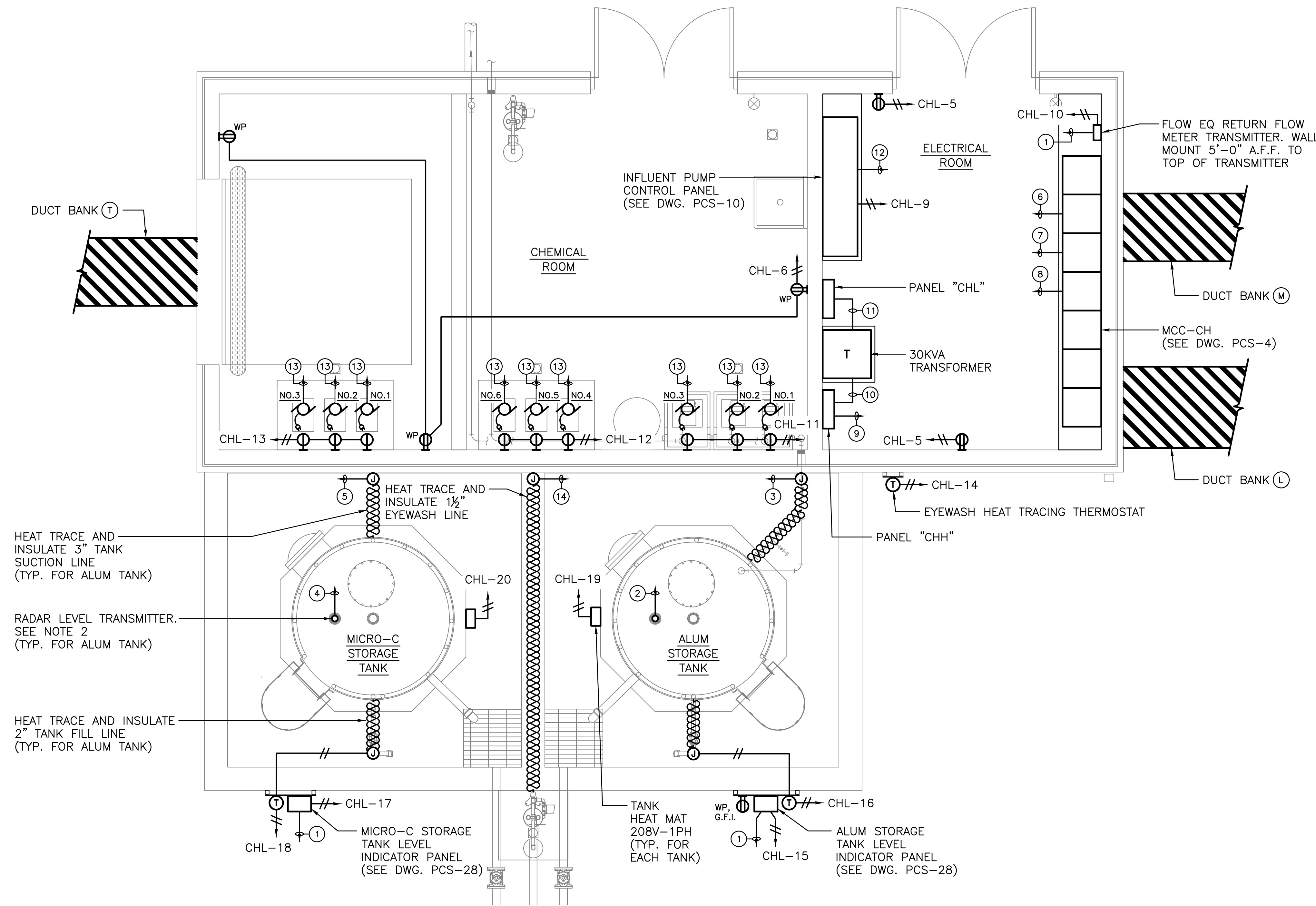


NOTES

1. MOUNT LEVEL INDICATOR PANEL AND HEAT TRACING THERMOSTAT ON AN ALUMINUM BACKBOARD SUPPORTED BY STAINLESS STEEL UNI-STRUT. TOP OF PANEL SHALL BE 4'-6" ABOVE FINISHED GRADE.
2. THE RADAR LEVEL TRANSMITTERS SHALL BE FLANGED MOUNTED ON TOP OF TANK.
3. COORDINATE WIRING FOR THE CHEMICAL FEED PUMPS WITH THE PUMP MANUFACTURER.

WIRING LEGEND

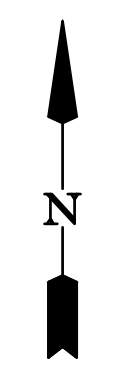
- ① 1 PR. #18 SHLD.-3/4"C TO INFLUENT PUMP CONTROL PANEL
- ② 1 PR. #18 SHLD.-3/4"C TO ALUM STORAGE TANK LEVEL INDICATOR PANEL
- ③ 2#12-3/4"C TO ALUM HEAT TRACING THERMOSTAT
- ④ 1 PR. #18 SHLD.-3/4"C TO MICRO-C STORAGE TANK LEVEL INDICATOR PANEL
- ⑤ 2#12-3/4"C TO MICRO-C HEAT TRACING THERMOSTAT
- ⑥ 8#14-3/4"C (120VAC) TO INFLUENT PUMP CONTROL PANEL
- ⑦ 88#14-3"C (24VDC) TO INFLUENT PUMP CONTROL PANEL
- ⑧ (8) 1 PR. #18 SHLD.-2"C TO INFLUENT PUMP CONTROL PANEL
- ⑨ 4#3, #8 GRD.-1 1/4"C TO MCC-CH
- ⑩ 3#8, #10 GRD.-1"C
- ⑪ 4#3, #8 GRD.-1 1/4"C
- ⑫ 6-STRAND FIBER OPTIC CABLE TO OPERATIONS BUILDING PLC PANEL. RUN IN DUCT BANK CONDUIT NO. 221
- ⑬ 8#14 AND (2) 1 PR. #18 SHLD.-1 1/4"C TO INFLUENT PUMP CONTROL PANEL
- ⑭ 2#12-3/4"C TO EYEWASH HEAT TRACING THERMOSTAT



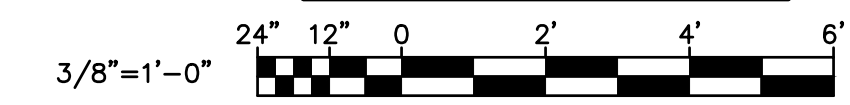
HEAT TRACE AND INSULATE 3" TANK SUCTION LINE (TYP. FOR ALUM TANK)

RADAR LEVEL TRANSMITTER. SEE NOTE 2 (TYP. FOR ALUM TANK)

HEAT TRACE AND INSULATE 2" TANK FILL LINE (TYP. FOR ALUM TANK)



**CHEMICAL BUILDING
 POWER PLAN**



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REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21795

PANELBOARD "CHH" SCHEDULE

VOLTAGE: 277/480V-3PH-4W
 MAIN BUS BARS AND LUGS: 125A
 MAIN BREAKER: NONE

PANEL TYPE: SURFACE MOUNTED, BREAKER
 MIN. A.I.C. RATING: 25,000
 LOCATION: CHEMICAL BUILDING ELECTRICAL ROOM

NOTES	HP	WATTS	LOCATION	POLE	AMP/TRIP	1	2	AMP/TRIP	POLE	LOCATION	WATTS	HP	NOTES
UNIT HEATER UH-101		15,000	CHEM. ROOM	3	30			30	3	CHEM. ROOM	15,000		UNIT HEATER UH-102
SPARE				3	20	7	8	20	3	CHEM. ROOM	9000		HOT WATER HEATER DWH-1
PANEL "CHL" XFMR		30,000	ELEC. ROOM	3	50	13	14	20	3				SPARE
SPARE				3	20	19	20	20	3				SPARE
SPARE				3	20	25	26	20	3				SPARE
SPACE						31	32						SPACE
SPACE						37	38						SPACE

PANELBOARD "CHL" SCHEDULE

VOLTAGE: 120/208V-3PH-4W
 MAIN BUS BARS AND LUGS: 100A
 MAIN BREAKER: 100A-3P

PANEL TYPE: SURFACE MOUNTED, BREAKER
 MIN. A.I.C. RATING: 10,000
 LOCATION: CHEMICAL BUILDING ELECTRICAL ROOM

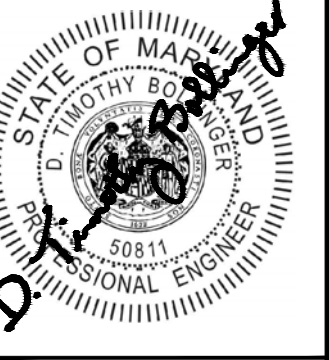
NOTES	HP	WATTS	LOCATION	POLE	AMP/TRIP	1	2	AMP/TRIP	POLE	LOCATION	WATTS	HP	NOTES
LIGHTS		300	ELEC. ROOM	1	20			20	1	CHEM. ROOM	300		LIGHTS
EXTERIOR LIGHTS		208	OUTSIDE	1	20	3	4	20	1				SPARE
RECEPTACLES		400	ELEC. ROOM	1	20	5	6	20	1	CHEM. ROOM	600		RECEPTACLES
SPARE				1	20	7	8	20	1				SPARE
INFLUENT PUMP CONTROL PANEL		1500	ELEC. ROOM	1	20	9	10	20	1	ELEC. ROOM	200		FLOW EQ RETURN FLOW METER TRANSMITTER
ALUM FEED PUMP NOS. 1-3 RECEPTACLES		600	CHEM. ROOM	1	20	11	12	20	1	CHEM. ROOM	1000		ALUM FEED PUMP NOS. 4-6 RECEPTACLES
MICRO-C FEED PUMP RECEPTACLES		600	CHEM. ROOM	1	20	13	14	20	1	OUTSIDE	500		EYEWASH HEAT TRACING THERMOSTAT
ALUM STORAGE TANK LEVEL INDICATOR PANEL		500	OUTSIDE	1	20	15	16	20	1	OUTSIDE	700		ALUM TANK HEAT TRACING T-STAT AND RECEPT.
MICRO-C STORAGE TANK LEVEL INDICATOR PANEL		500	OUTSIDE	1	20	17	18	20	1	OUTSIDE	500		MICRO-C TANK HEAT TRACING T-STAT
ALUM STORAGE TANK HEAT MAT		1500	OUTSIDE	2	20	19	20	20	2	OUTSIDE	1500		MICRO-C STORAGE TANK HEAT MAT
EXHAUST FAN EF-101	1/4		CHEM. ROOM	1	20	23	24	40	2	OUTSIDE		25 FLA	SPLIT SYSTEM CONDENSING UNIT CU-101
PRE-ANOXIC TANK RECEPTACLE		200	PRE-ANOXIC	1	20	25							
EQ TANK MIXER NO. 1 BACKBOARD RECEPTACLE		200	EQ TANK	1	20	27	28	20	1	EQ TANK	200		EQ TANK MIXER NO. 2 BACKBOARD RECEPTACLE
EQ FLOW CONTROL VAULT LIGHT AND RECEPTACLES		300	CONTROL VAULT	1	20	29	30	20	1	CONTROL VAULT		1/4	SUMP PUMP
UTILITY WATER FLOW METER TRANSMITTER		200	UW VALVE VAULT	1	20	31	32	20	1	UW VALVE VAULT	200		UTILITY WATER PUMP STATION RECEPTACLE
SPARE				1	20	33	34	20	1				SPARE
SPARE				1	20	35	36	20	1				SPARE
SPARE				1	20	37	38	20	1				SPARE
SPACE						39	40						SPACE
SPACE						41	42						SPACE

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PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
 DRAWN BY: SMJ
 CHECKED BY: DTB
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SHEET TITLE:
CHEMICAL BUILDING PANELBOARD SCHEDULES

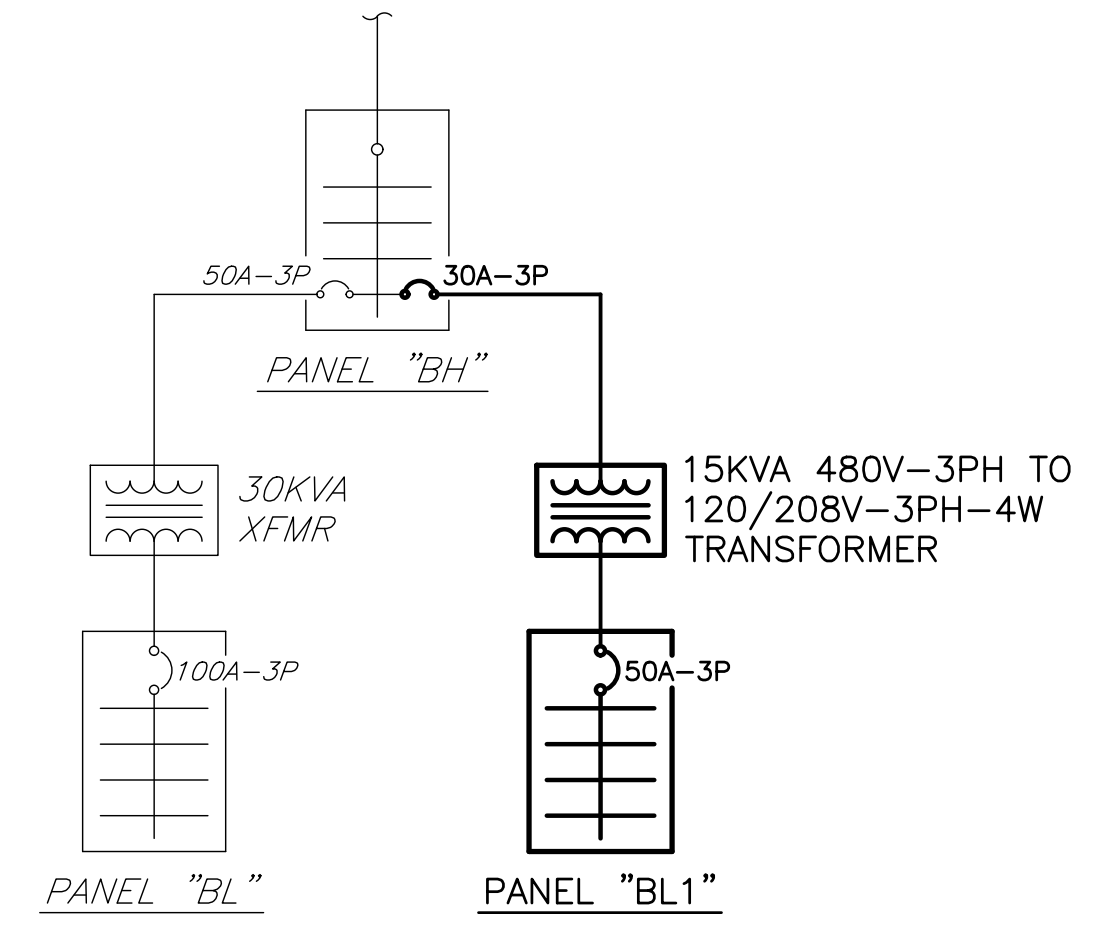
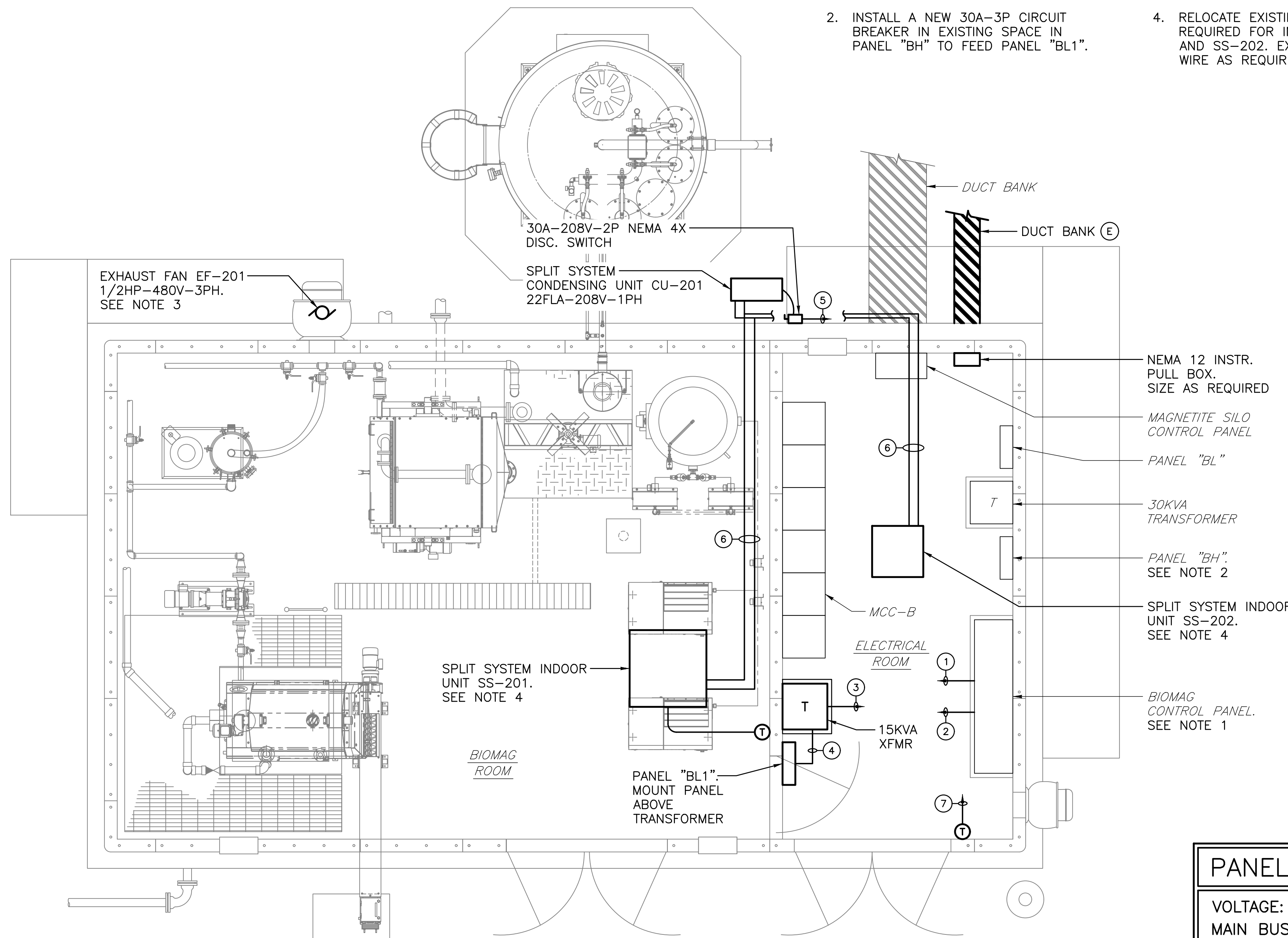


NOTES

1. INSTALL A NEW MANAGED ETHERNET SWITCH IN THE BIOMAG CONTROL PANEL FOR COMMUNICATION WITH THE PLANT WIDE PLC NETWORK.
2. INSTALL A NEW 30A-3P CIRCUIT BREAKER IN EXISTING SPACE IN PANEL "BH" TO FEED PANEL "BL1".
3. THE EXISTING EXHAUST FAN IS BEING REPLACED WITH A NEW EXHAUST FAN. RECONNECT EXISTING POWER AND CONTROL WIRING TO NEW EXHAUST FAN EF-201.
4. RELOCATE EXISTING LIGHT FIXTURES AS REQUIRED FOR INSTALLATION OF SS-201 AND SS-202. EXTEND CONDUIT AND WIRE AS REQUIRED.

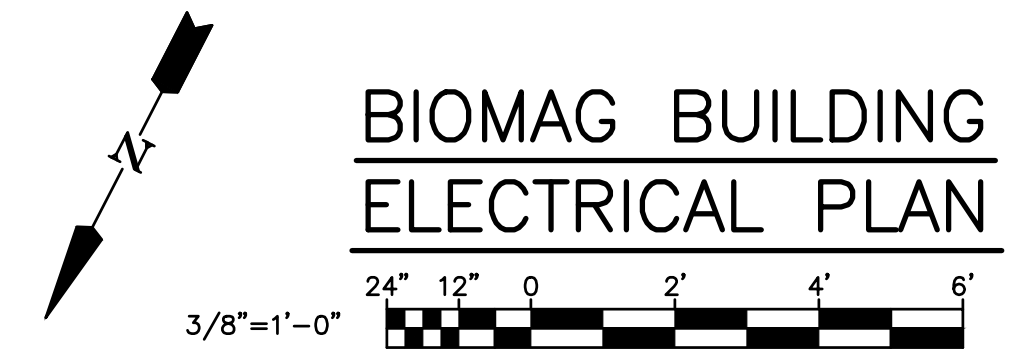
WIRING LEGEND

- ① 6-STRAND FIBER OPTIC CABLE TO INFLUENT PUMP CONTROL PANEL. RUN IN 1½" C TO INSTRUMENTATION PULL BOX AND IN DUCT BANK CONDUIT NOS. 207 AND 208
- ② 6-STRAND FIBER OPTIC CABLE TO SBR CONTROL PANEL. RUN IN 1½" C TO INSTRUMENTATION PULL BOX AND IN DUCT BANK CONDUIT NOS. 205 AND 207
- ③ 3#10, #10 GRD.-3/4" C TO NEW 30A-3P CIRCUIT BREAKER IN EXISTING PANEL "BH"
- ④ 4#8, #10 GRD.-1" C
- ⑤ 2#10, #10 GRD.-3/4" C TO PANEL "BL1", CIRCUIT NO. 1
- ⑥ (2) 3/4" C FOR POWER AND CONTROL WIRING TO SPLIT SYSTEM INDOOR UNIT. COORDINATE WIRING REQUIREMENTS WITH SYSTEM MANUFACTURER
- ⑦ 2#12-3/4" C TO SS-202



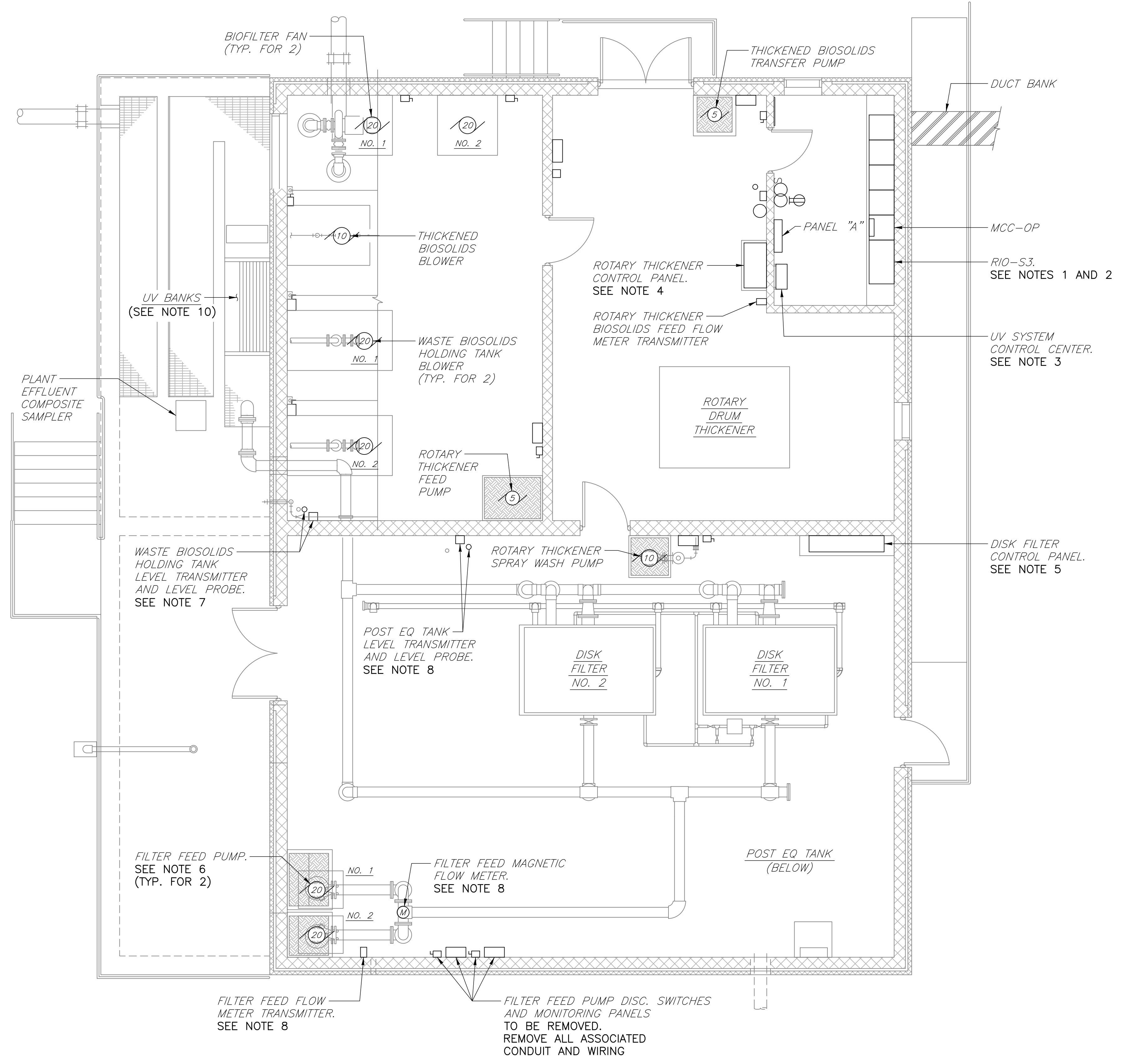
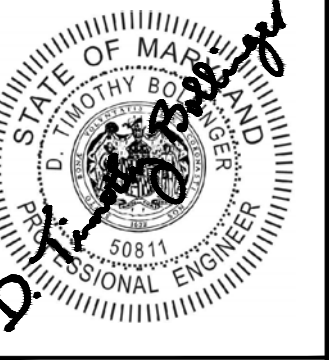
PANEL "BH" ONE-LINE MODIFICATIONS

PANELBOARD "BL1" SCHEDULE													
VOLTAGE: 120/208V-3PH-4W							PANEL TYPE: SURFACE MOUNTED, BREAKER						
MAIN BUS BARS AND LUGS: 100A							MIN. A.I.C. RATING: 10,000						
MAIN BREAKER: 50A-3P							LOCATION: BIOMAG BUILDING ELECTRICAL ROOM						
NOTES	HP	WATTS	LOCATION	POLE	AMP/TRIP	AMP/TRIP	POLE	LOCATION	WATTS	HP	NOTES		
SPLIT SYSTEM CONDENSING UNIT CU-201	22	FLA	OUTSIDE	2	30	1	2	20	1		SPARE		
						3	6	20	1		SPARE		
SPARE				1	20	5	6	20	1		SPARE		
SPARE				1	20	7	8	20	1		SPARE		
SPARE				1	20	9	10	20	1		SPARE		
SPACE						11	12				SPACE		
SPACE						13	14				SPACE		
SPACE						15	16				SPACE		
SPACE						17	18				SPACE		



BIOMAG BUILDING ELECTRICAL PLAN

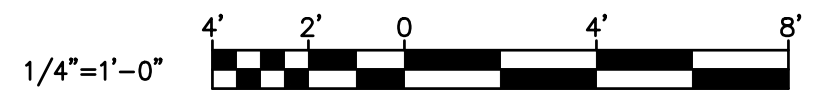
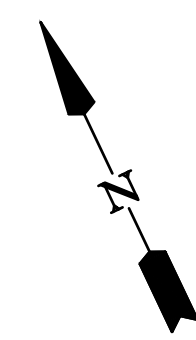
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NOTES

1. REMOVE EXISTING PLC-5 REMOTE I/O RACK (RIO-S3), ISOLATION TRANSFORMER, 24VDC POWER SUPPLIES, RELAYS, AND ALL ASSOCIATED WIRE INSIDE RIO PANEL.
2. THE EXISTING RIO-S3 SHALL BECOME A TERMINATION CABINET. ALL EXISTING PLC I/O POINTS SHALL BE WIRED FROM EXISTING TERMINALS IN THE TERMINATION CABINET TO THE NEW OPERATIONS BUILDING PLC PANEL.
3. REMOVE EXISTING UV SYSTEM CONTROL CENTER AND ALL ASSOCIATED CONDUIT AND WIRE.
4. REMOVE EXISTING ROTARY THICKENER CONTROL PANEL AND REPLACE IT WITH A NEW CONTROL PANEL. DISCONNECT AND REMOVE ALL EXISTING CONDUIT AND WIRE FROM CONTROL PANEL.
5. REMOVE EXISTING DISK FILTER CONTROL PANEL AND REPLACE IT WITH A NEW CONTROL PANEL. DISCONNECT ALL EXISTING POWER AND CONTROL WIRING INSIDE THE PANEL, AND MODIFY EXISTING CONDUITS AS REQUIRED FOR REMOVAL OF EXISTING PANEL AND INSTALLATION OF NEW PANEL.
6. THE EXISTING FILTER FEED PUMPS ARE BEING REPLACED WITH NEW POST EQ PUMPS.
7. REMOVE EXISTING WASTE BIOSOLIDS HOLDING TANK LEVEL TRANSMITTER AND REPLACE IT WITH A NEW RADAR LEVEL TRANSMITTER.
8. REMOVE EXISTING POST EQ TANK LEVEL TRANSMITTER AND REPLACE IT WITH A NEW RADAR LEVEL TRANSMITTER.
9. THE EXISTING FILTER FEED MAGNETIC FLOW METER SHALL BE REPLACED WITH A NEW FLOW METER. REMOVE FLOW METER TRANSMITTER AND ALL ASSOCIATED CONDUIT AND WIRE.
10. THE EXISTING UV DISINFECTION SYSTEM IS BEING REPLACED WITH A NEW UV SYSTEM. REMOVE ALL CONDUIT AND WIRE FROM EXISTING UV SYSTEM.

**OPERATIONS BUILDING
 ELECTRICAL DEMOLITION PLAN**



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22623 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
**OPERATIONS BUILDING
 ELECTRICAL DEMOLITION PLAN**

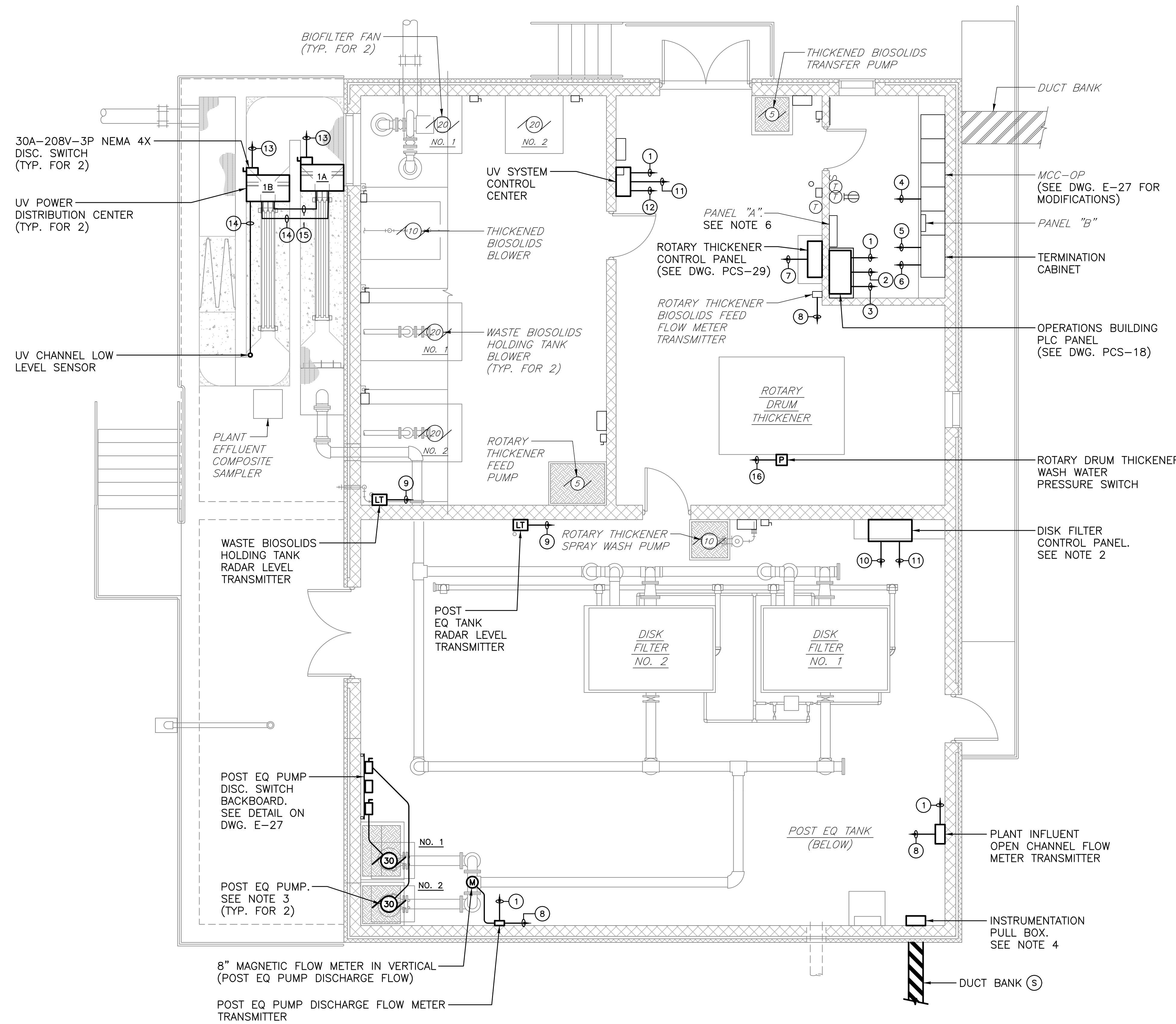
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NOTES

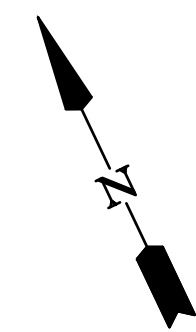
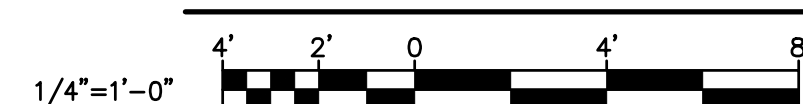
1. ALL CONDUIT IN THE OPERATIONS BUILDING SHALL BE RIGID ALUMINUM.
2. THE DISK FILTER CONTROL PANEL SHALL BE FURNISHED BY THE DISK FILTER MANUFACTURER TO REPLACE THE EXISTING CONTROL PANEL. RECONNECT EXISTING POWER AND CONTROL WIRING TO NEW CONTROL PANEL.
3. CORE DRILL THE FLOOR SLAB BELOW EACH DISCONNECT SWITCH FOR THE INSTALLATION OF THE PUMP CABLE.
4. THE INSTRUMENTATION PULL BOX SHALL BE NEMA 4X ALUMINUM. SIZE: 16"W x 10"H x 8"D.
5. COORDINATE WIRING FOR UV SYSTEM WITH UV SYSTEM MANUFACTURER.
6. INSTALL A 50A-3P CIRCUIT BREAKER IN EXISTING PANEL "A" FOR THE FEEDER TO THE TEMPORARY UV SYSTEM.

WIRING LEGEND

- ① 2#12-3/4"C TO SPARE 20A-1P CIRCUIT BREAKER IN EXISTING PANEL "B"
- ② 6-STRAND FIBER OPTIC CABLE TO SBR CONTROL PANEL IN CONTROL BUILDING. RUN IN 1/4"C TO TERMINATION CABINET AND IN EXISTING DUCT BANK TO CONTROL BUILDING
- ③ 6-STRAND FIBER OPTIC CABLE TO INFLUENT PUMP CONTROL PANEL IN FILTER BUILDING. RUN IN 1/4"C TO INSTRUMENTATION PULL BOX AND IN DUCT BANK CONDUIT NO.
- ④ 24#14 AND (4) 1 PR. #18 SHLD.-2"C (24VDC) TO OPERATIONS BUILDING PLC PANEL
- ⑤ 60#14 AND (6) 1 PR. #18 SHLD.-3"C (24VDC) TO OPERATIONS BUILDING PLC PANEL
- ⑥ 22#14-1/2"C (120VAC) TO OPERATIONS BUILDING PLC PANEL
- ⑦ 40#14-2"C (24VDC) TO OPERATIONS BUILDING PLC PANEL
- ⑧ 1 PR. #18 SHLD.-3/4"C TO OPERATIONS BUILDING PLC PANEL
- ⑨ 1 PR. #18 SHLD.-3/4"C TO OPERATIONS BUILDING PLC PANEL. REUSE EXISTING CONDUIT TO EXTENT POSSIBLE
- ⑩ 12#14-1/4"C TO OPERATIONS BUILDING PLC PANEL
- ⑪ ETHERNET CABLE-3/4"C TO OPERATIONS BUILDING PLC PANEL
- ⑫ 12#14 AND 1 PR. #18 SHLD.-1/2"C TO OPERATIONS BUILDING PLC PANEL
- ⑬ 3#10, #10 GRD.-3/4"C TO SPARE 30A-3P CIRCUIT BREAKER IN EXISTING PANEL "B"
- ⑭ 2#14-3/4"C
- ⑮ 1 PR. #18 SHLD. AND #14 GRD.-3/4"C
- ⑯ 2#14-3/4"C TO ROTARY THICKENER CONTROL PANEL



**OPERATIONS BUILDING
 ELECTRICAL PLAN**



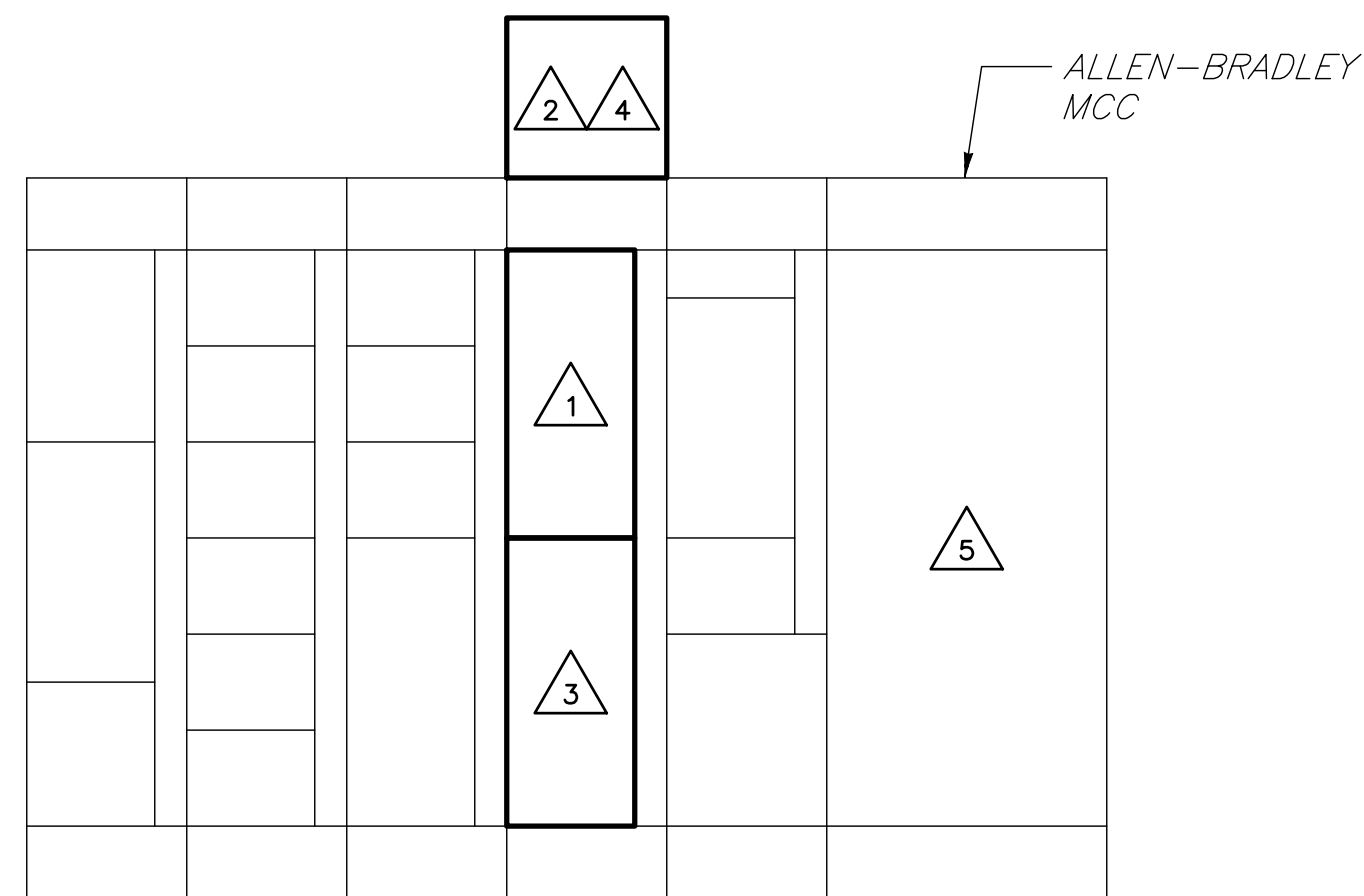
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PROJECT STATUS: **100% SUBMITTAL**

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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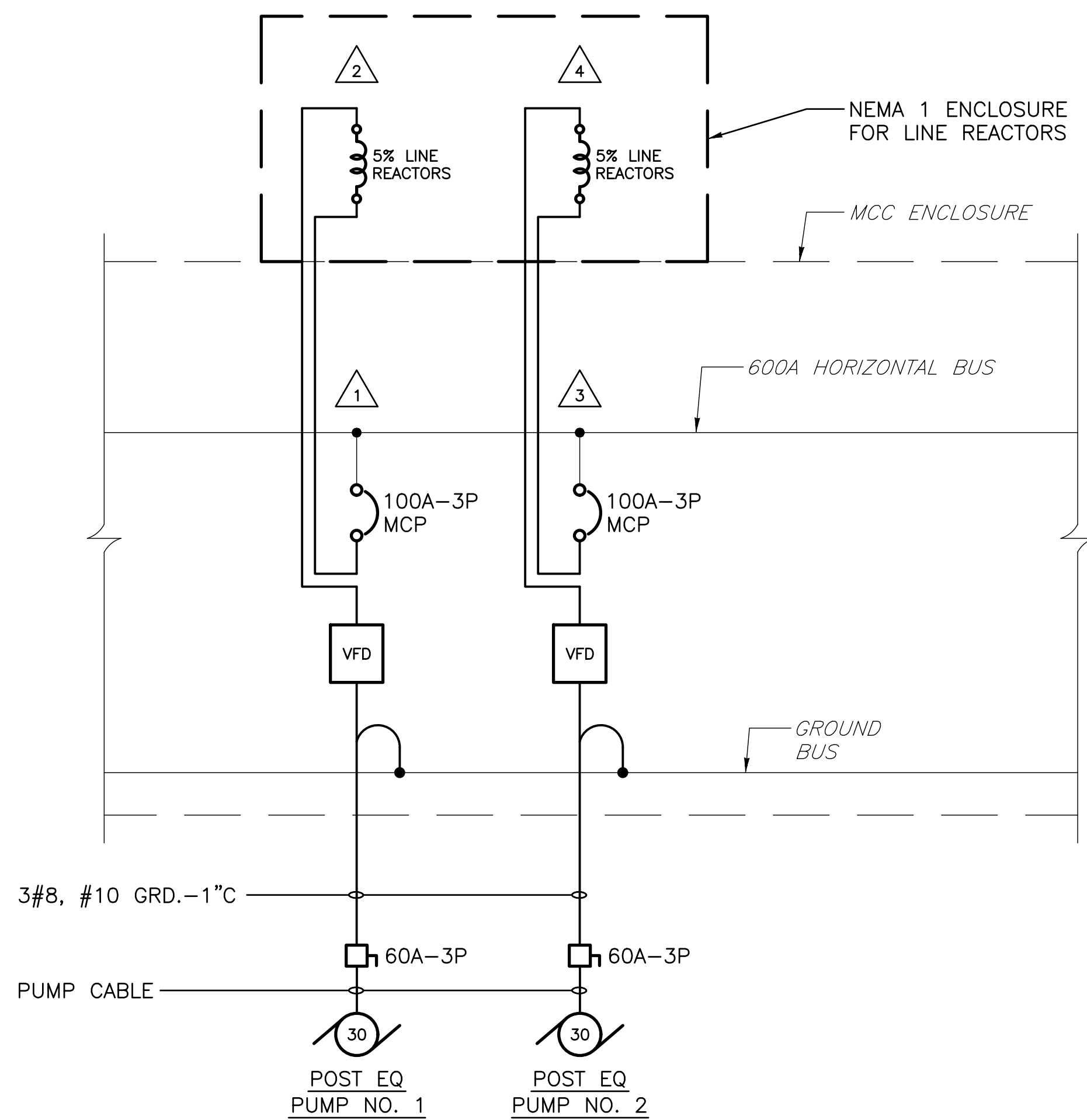
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 SHEET NO.: **E-26**



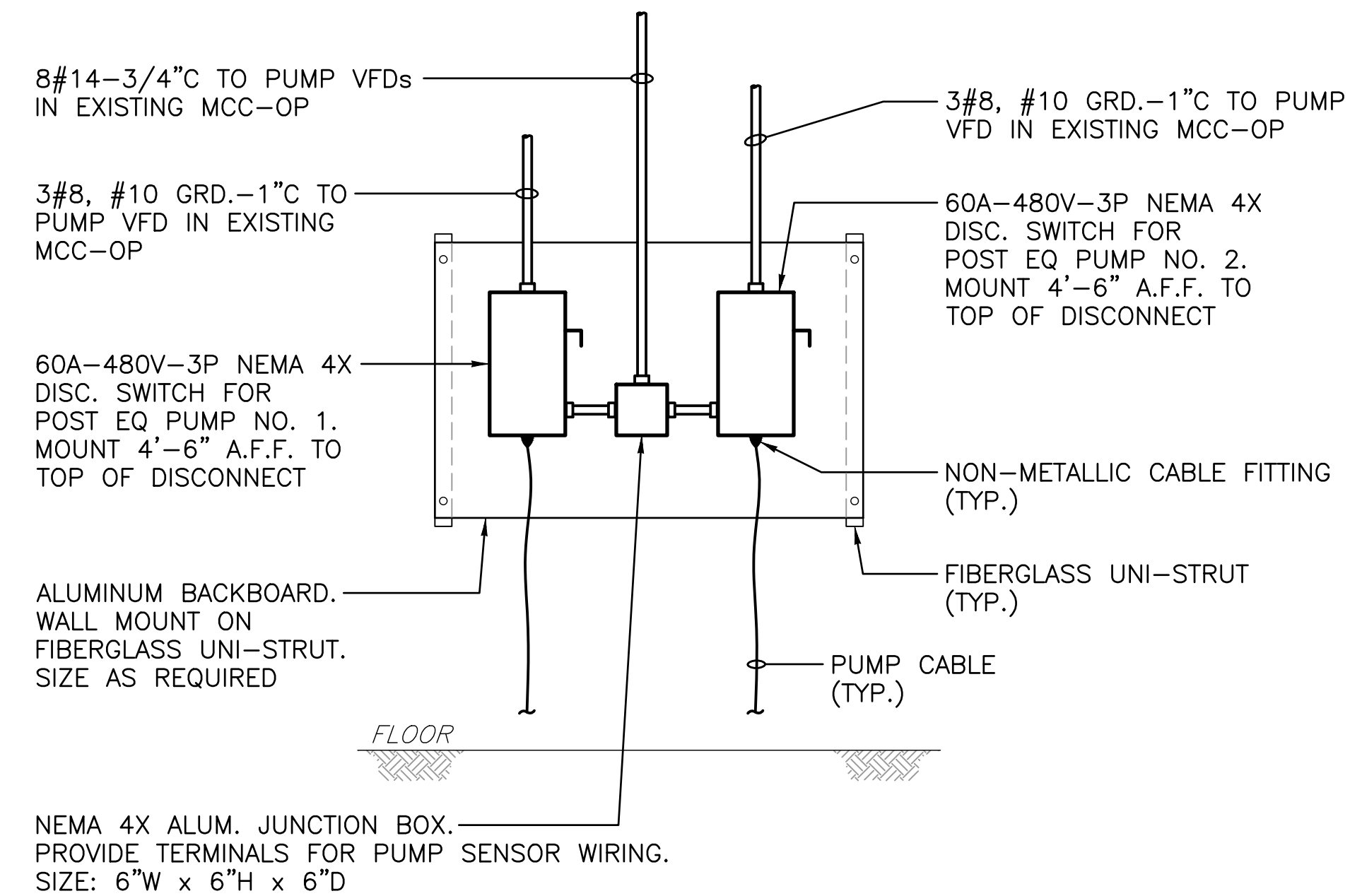
EXISTING MCC-OP ELEVATION

MCC-OP MODIFICATIONS

- 1 REMOVE THE EXISTING VFD BUCKET FOR EXISTING FILTER FEED PUMP NO. 1 AND INSTALL A NEW VFD BUCKET IN THE SAME LOCATION TO FEED NEW POST EQ PUMP NO. 1. SEE CONTROL WIRING DIAGRAM ON DWG. E-28. PROVIDE AN ENGRAVED NAMEPLATE ON THE UNIT DOOR.
- 2 INSTALL LINE REACTOR FOR POST EQ PUMP NO. 1 VFD IN ENCLOSURE MOUNTED ON TOP OF MCC.
- 3 REMOVE THE EXISTING VFD BUCKET FOR EXISTING FILTER FEED PUMP NO. 2 AND INSTALL A NEW VFD BUCKET IN THE SAME LOCATION TO FEED NEW POST EQ PUMP NO. 2. SEE CONTROL WIRING DIAGRAM ON DWG. E-28. PROVIDE AN ENGRAVED NAMEPLATE ON THE UNIT DOOR.
- 4 INSTALL LINE REACTOR FOR POST EQ PUMP NO. 2 VFD IN ENCLOSURE MOUNTED ON TOP OF MCC.
- 5 REMOVE EXISTING PLC-5 I/O RACK, ISOLATION TRANSFORMER, 24VDC POWER SUPPLIES, RELAYS, AND ALL ASSOCIATED WIRING. EXISTING PLC I/O POINTS SHALL BE WIRED FROM TERMINALS TO NEW OPERATIONS BUILDING PLC PANEL.



EXISTING MCC-OP MODIFICATIONS ONE-LINE DIAGRAM



POST EQ PUMPS ELECTRICAL BACKBOARD DETAIL
NO SCALE

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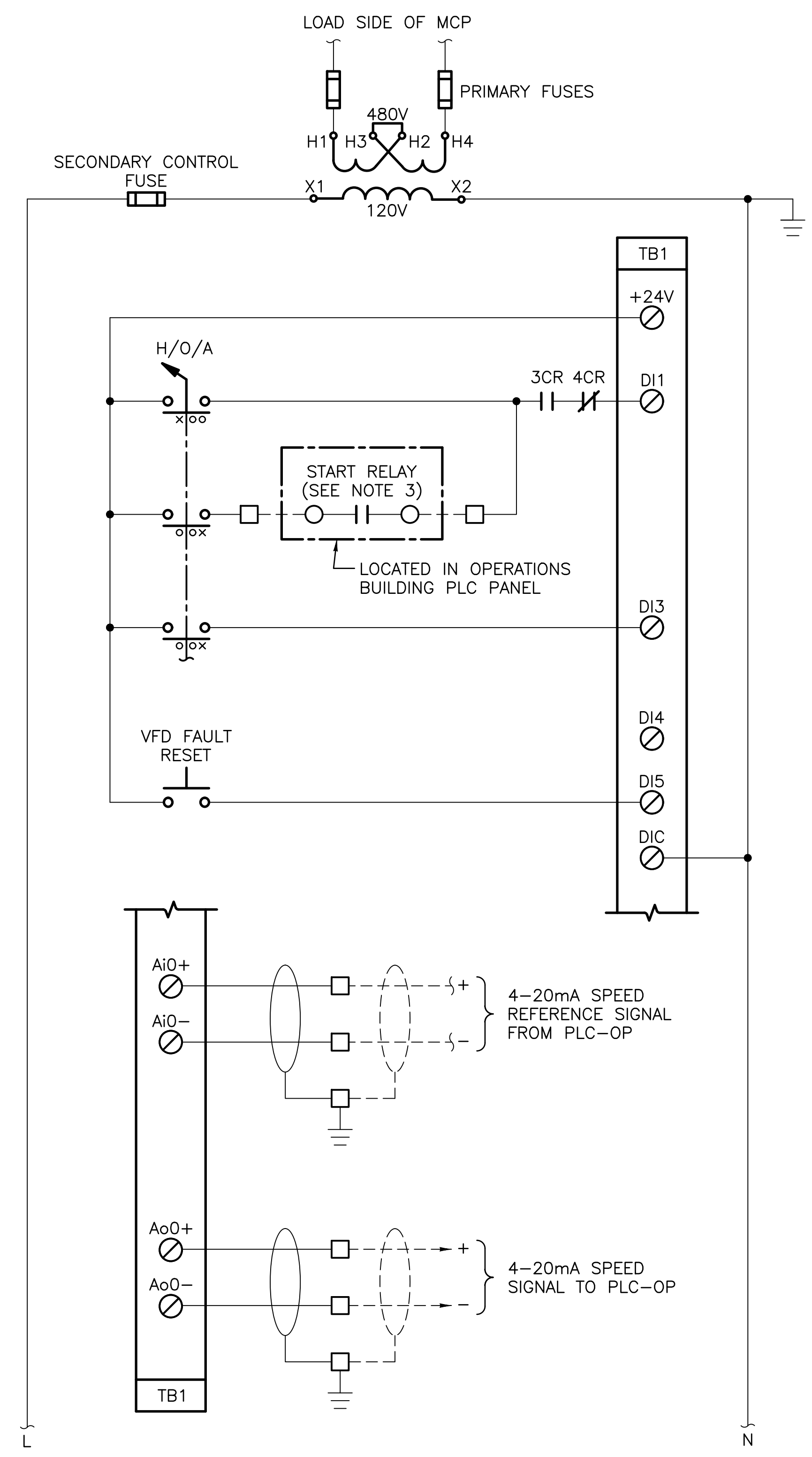
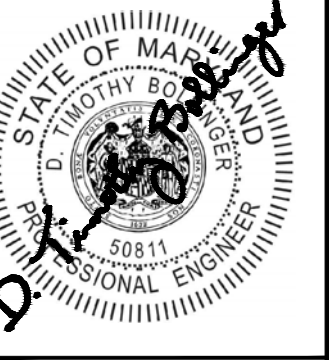
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

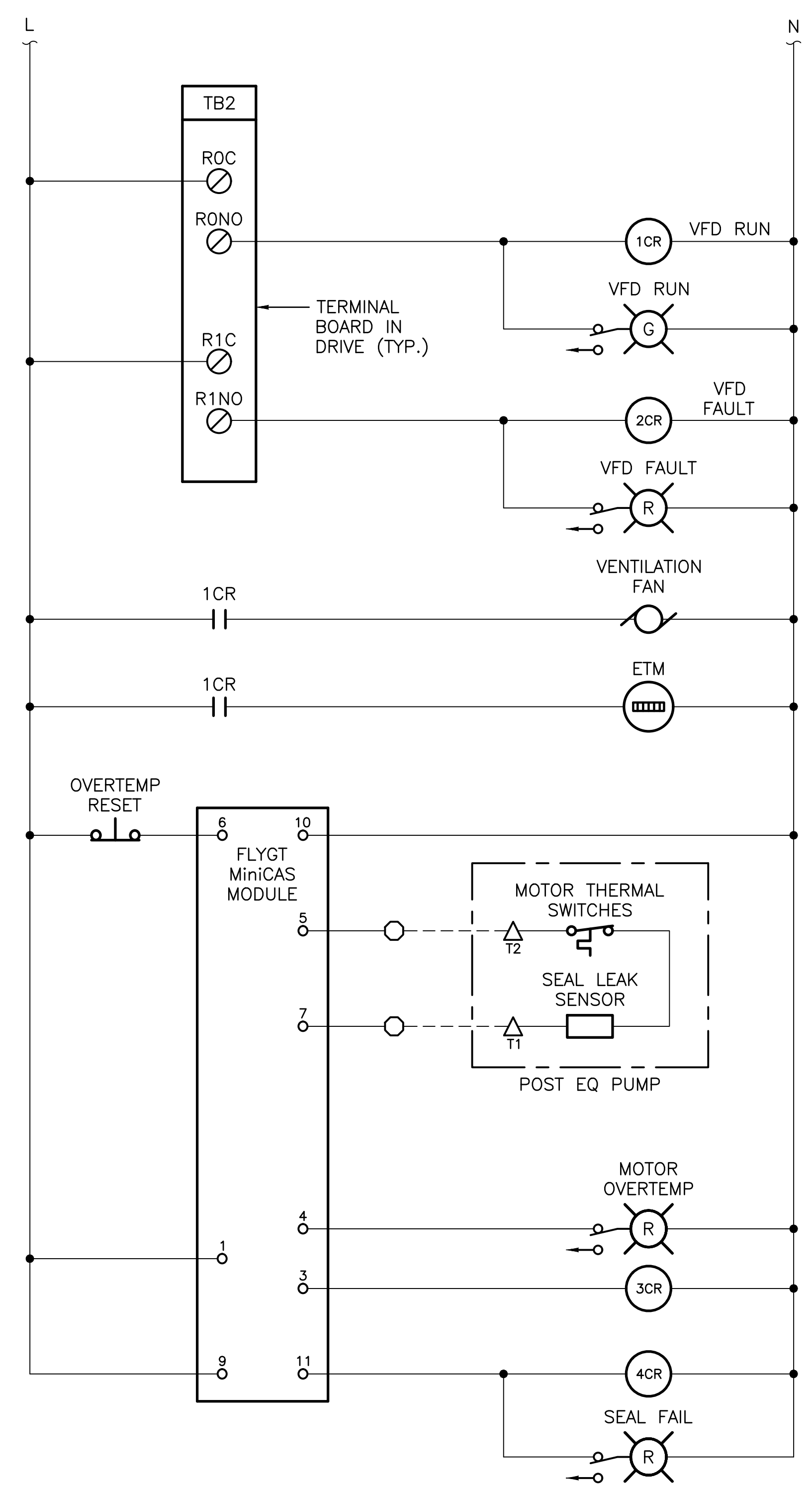
PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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EXISTING MCC-OP MODIFICATIONS AND POST EQ PUMP BACKBOARD DETAIL

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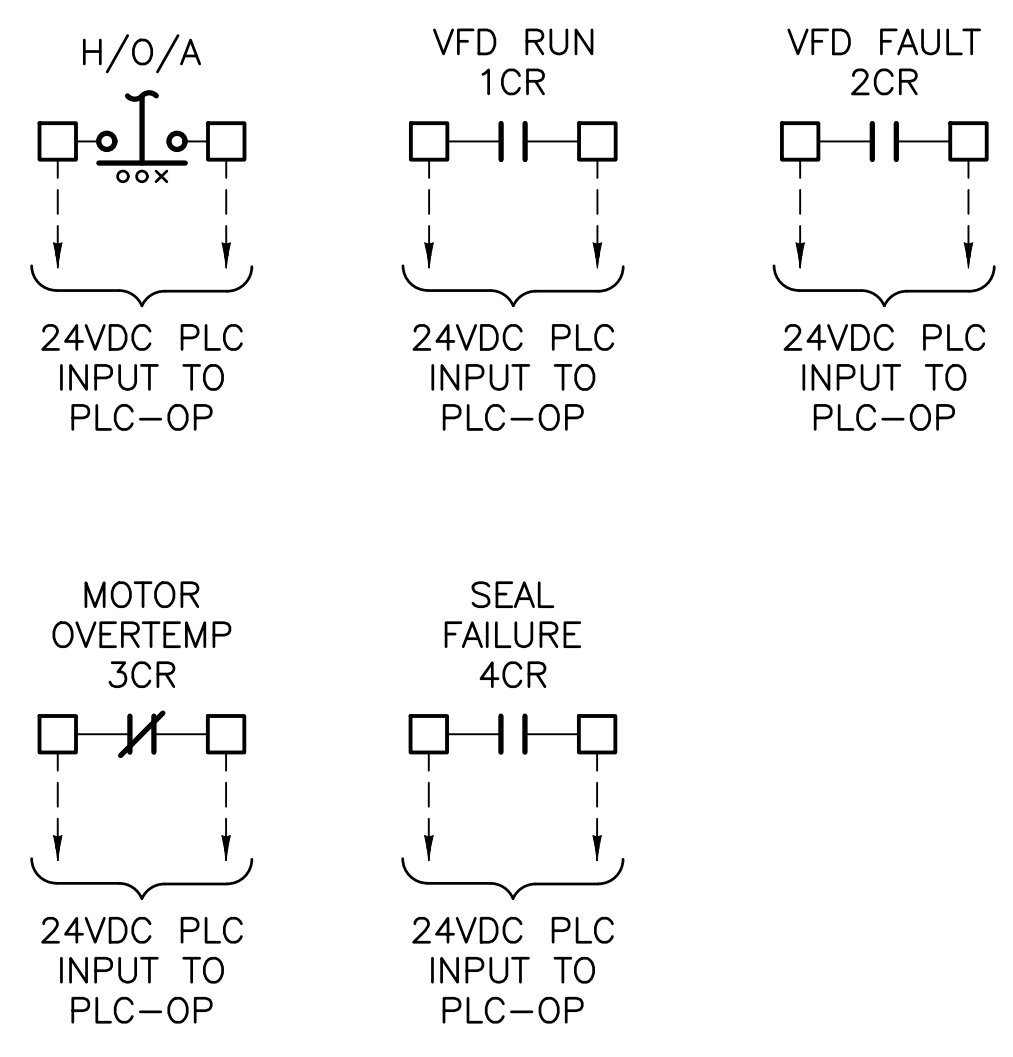


POST EQ PUMPS NO. 1 AND NO. 2 VFD CONTROL WIRING DIAGRAM



NOTES

- COORDINATE VFD CONTROL WIRING WITH THE VFD MANUFACTURER. REFER TO THE DESCRIPTION OF OPERATION IN THE SPECS FOR THE AUTO START/STOP AND SPEED CONTROL SEQUENCE.
- COORDINATE WIRING FOR THE FLYGT MiniCAS MODULE WITH THE PUMP SUPPLIER.
- THE PUMP START RELAY CONTACTS ARE AS FOLLOWS:
 POST EQ PUMP NO. 1 - 1CR
 POST EQ PUMP NO. 2 - 2CR



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SHEET TITLE:
POST EQ PUMP VFD CONTROL WIRING DIAGRAM

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NOTES

1. ALL CONDUITS IN THE FLOW METER VAULT SHALL BE PVC SCHEDULE 80.

WIRING LEGEND

- 1 PR. #18 SHLD. TO INFLUENT PUMP CONTROL PANEL IN CHEMICAL BUILDING. RUN IN 1" C TO UTILITY WATER PUMP STATION ELECTRICAL BACKBOARD AND IN DUCT BANK CONDUIT NO. 224
- 2#14 TO INFLUENT PUMP CONTROL PANEL. RUN IN 1" C TO UTILITY WATER PUMP STATION ELECTRICAL BACKBOARD AND IN DUCT BANK CONDUIT NO. 224
- FLOW METER SIGNAL CABLES TO FLOW METER TRANSMITTER ON UTILITY WATER PUMP STATION ELECTRICAL BACKBOARD. RUN IN (2) 3/4" C TO JUNCTION BOX AND IN (1) 1/4" C TO BACKBOARD

12"W X 10"H X 6"D NEMA 4X ALUMINUM TERMINAL BOX FOR PUMP SENSOR WIRING AND FLOAT SWITCH WIRING

30A-480V-3P NEMA 4X DISC. SWITCH FOR UTILITY WATER PUMP NO. 1. MOUNT 4'-6" A.F.F. TO TOP OF DISC.

30A-480V-3P NEMA 4X DISC. SWITCH FOR UTILITY WATER PUMP NO. 2. MOUNT 4'-6" A.F.F. TO TOP OF DISC.

20A-120V DUPLEX WP, G.F.I. RECEPTACLE

NEMA 4X ALUMINUM WIREWAY. SIZE AS REQUIRED

PUMP NO. 1 CABLE-1 1/2" C

2#8, #10 GRD. TO PANEL "CHL" IN CHEMICAL BUILDING. RUN IN DUCT BANK CONDUIT NO. 112

6#14 AND (2) 1 PR. #18 SHLD. TO INFLUENT PUMP CONTROL PANEL IN CHEMICAL BUILDING. RUN IN DUCT BANK CONDUIT NO. 224

FLOW METER VAULT WALL

8#14 TO PUMP MONITORING RELAYS IN MCC-CH. RUN IN DUCT BANK CONDUIT NO. 113

UTILITY WATER FLOW METER TRANSMITTER. MOUNT 4'-6" A.F.F. TO TOP OF TRANSMITTER

ALUMINUM BACKBOARD FASTENED TO S.S. UNI-STRUT. SIZE AS REQUIRED.

S.S. UNI-STRUT (TYP.)

FLOW METER SIGNAL CABLES-1/4" C FROM UTILITY WATER METER

FINISHED GRADE

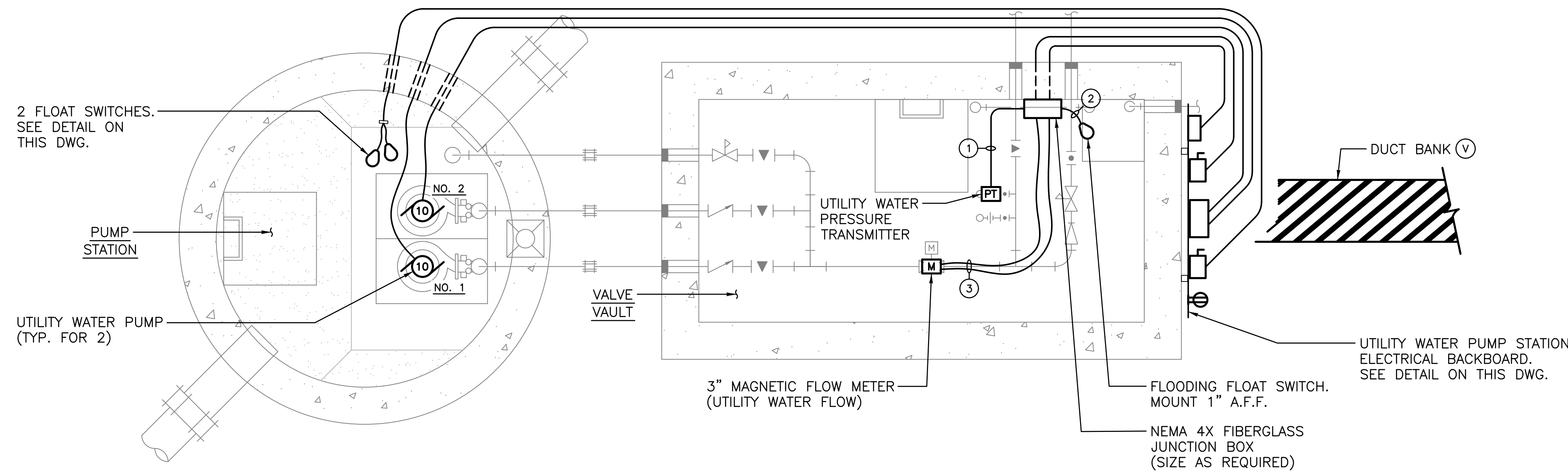
2#14 AND 1 PR. #18 SHLD.-1" C FROM FLOODING FLOAT SWITCH AND PRESSURE TRANSMITTER

PUMP NO. 2 CABLE-1 1/2" C

FLOAT SWITCH CABLES-1 1/2" C

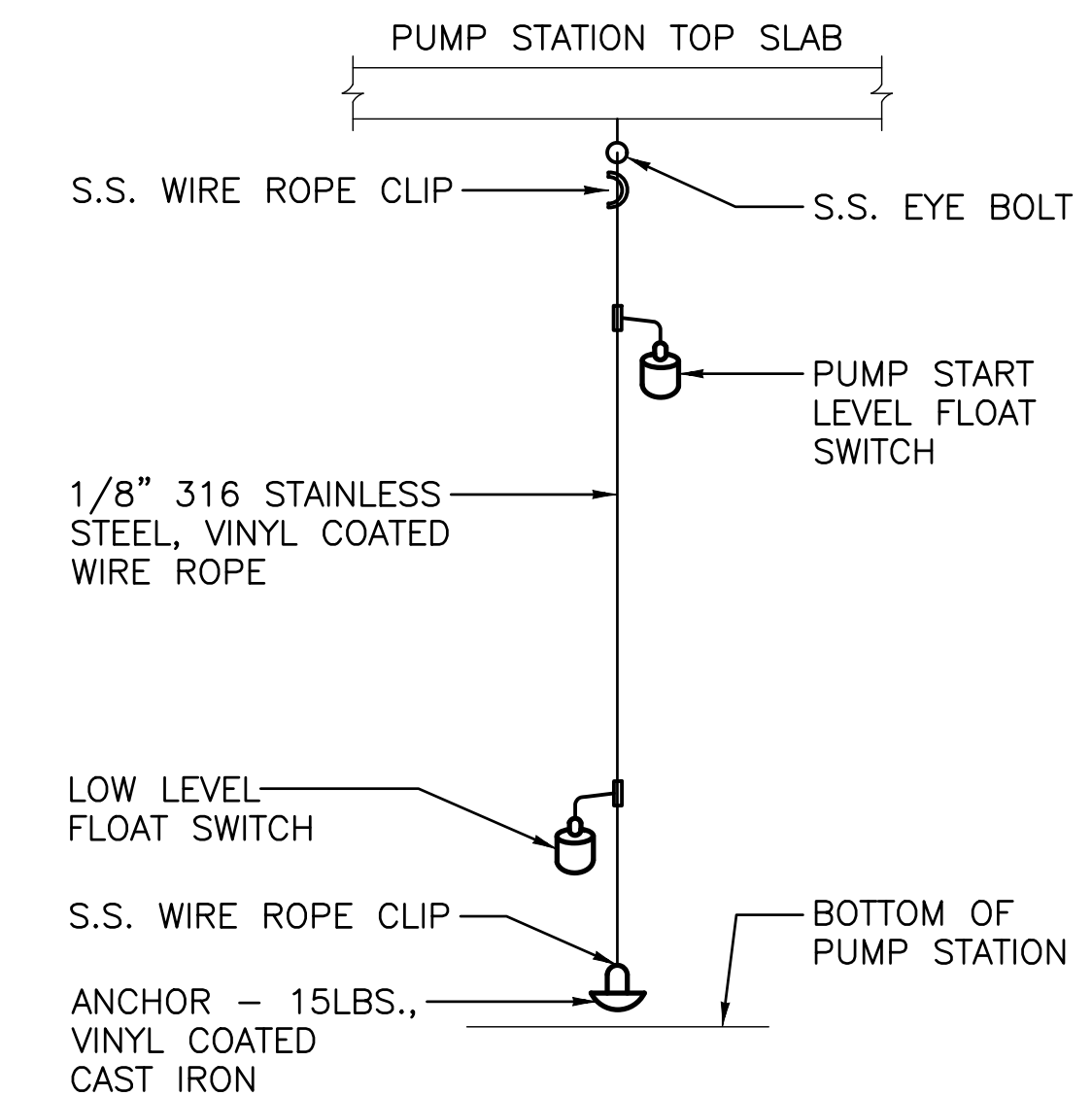
6#8, 2#10 GRD. TO PUMP MOTOR STARTERS IN MCC-CH IN CHEMICAL BUILDING. RUN IN DUCT BANK CONDUIT NO. 33

UTILITY WATER PUMP STATION ELECTRICAL BACKBOARD DETAIL
NO SCALE

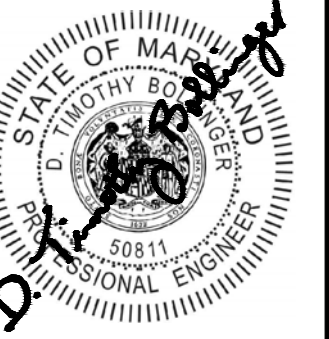


UTILITY WATER PUMP STATION ELECTRICAL PLAN

3/16" = 1'-0"



FLOAT SWITCH MOUNTING DETAIL
NO SCALE

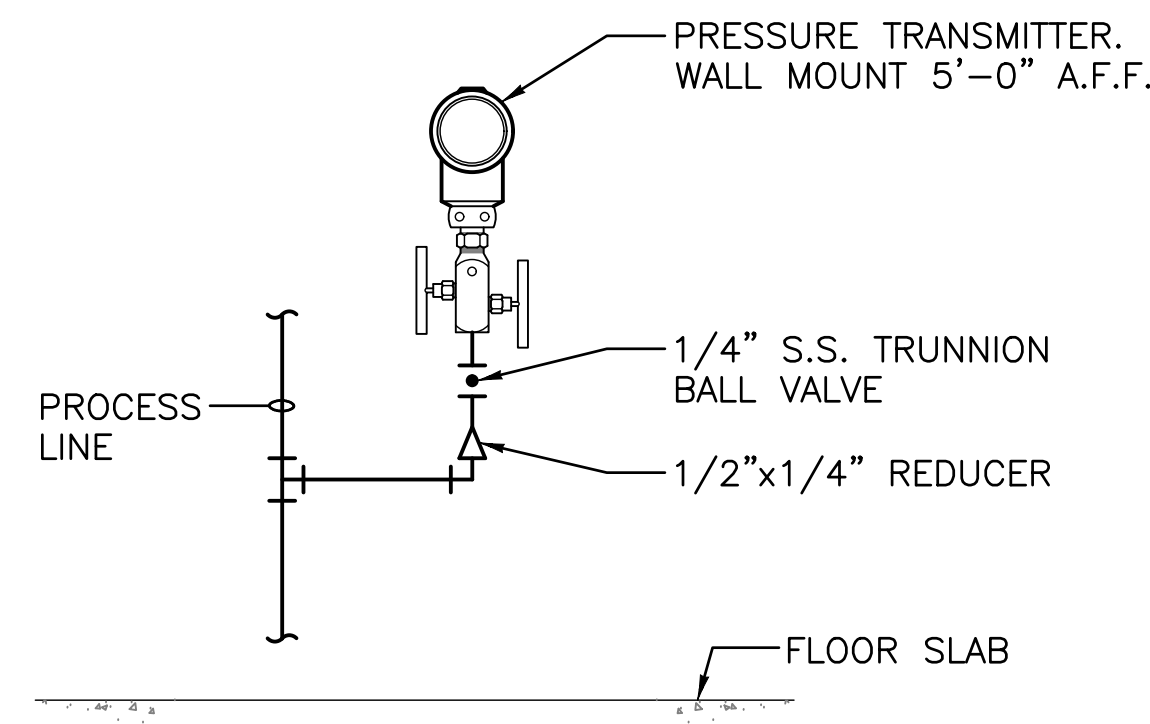


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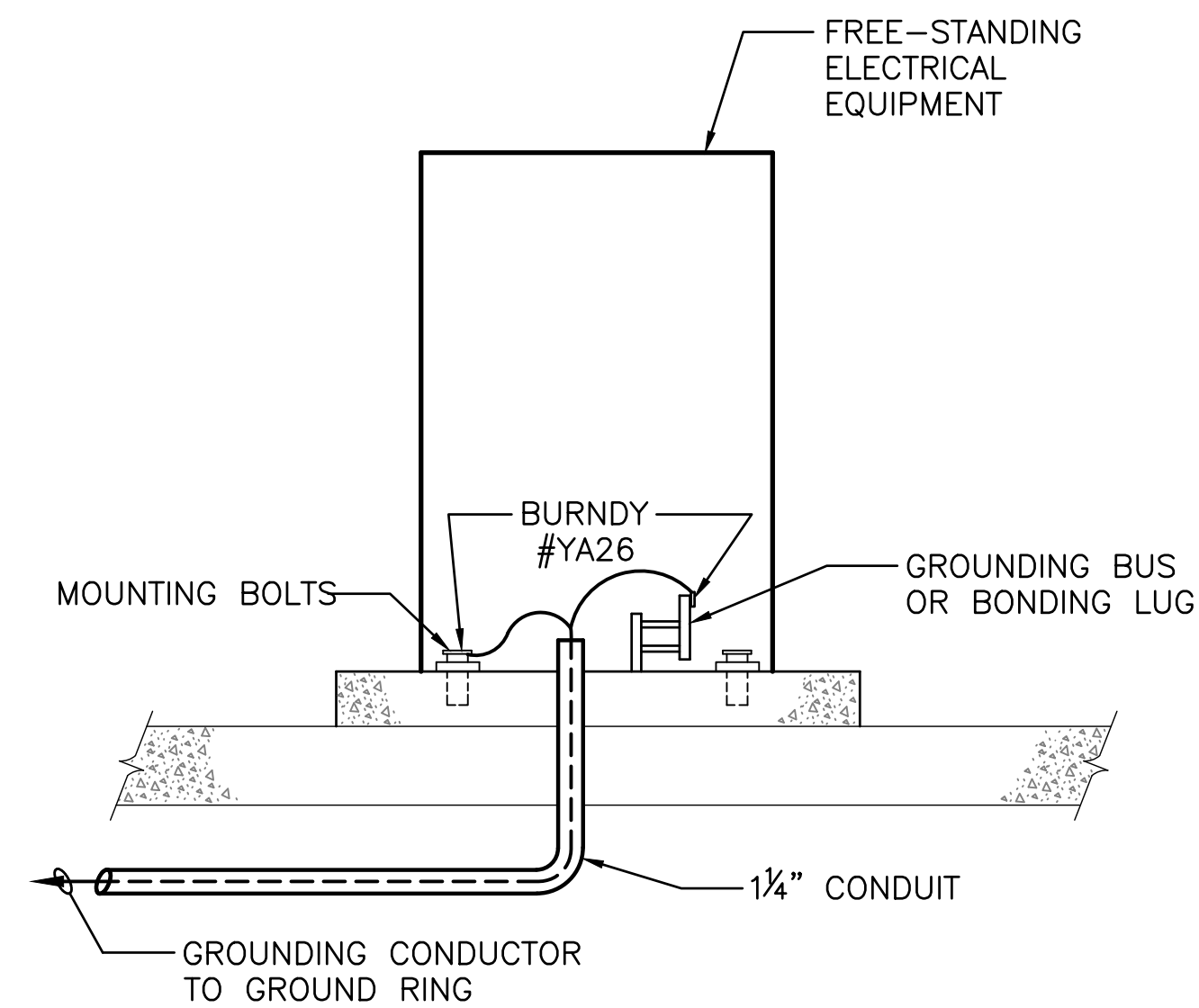
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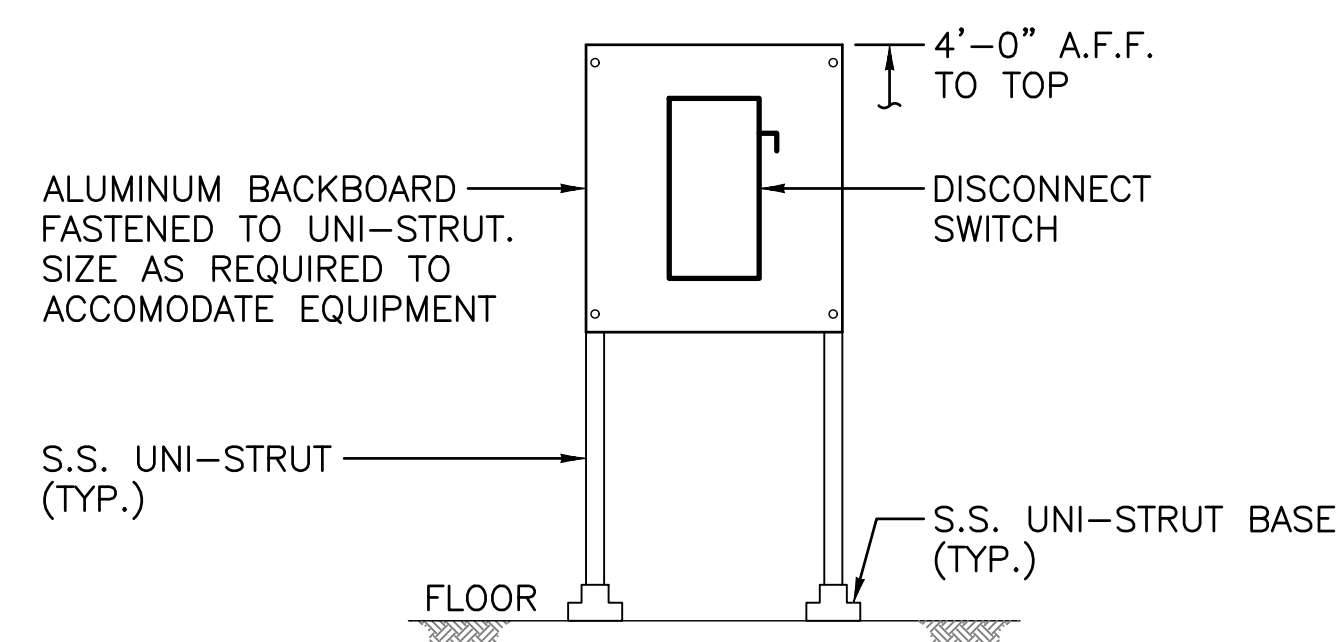
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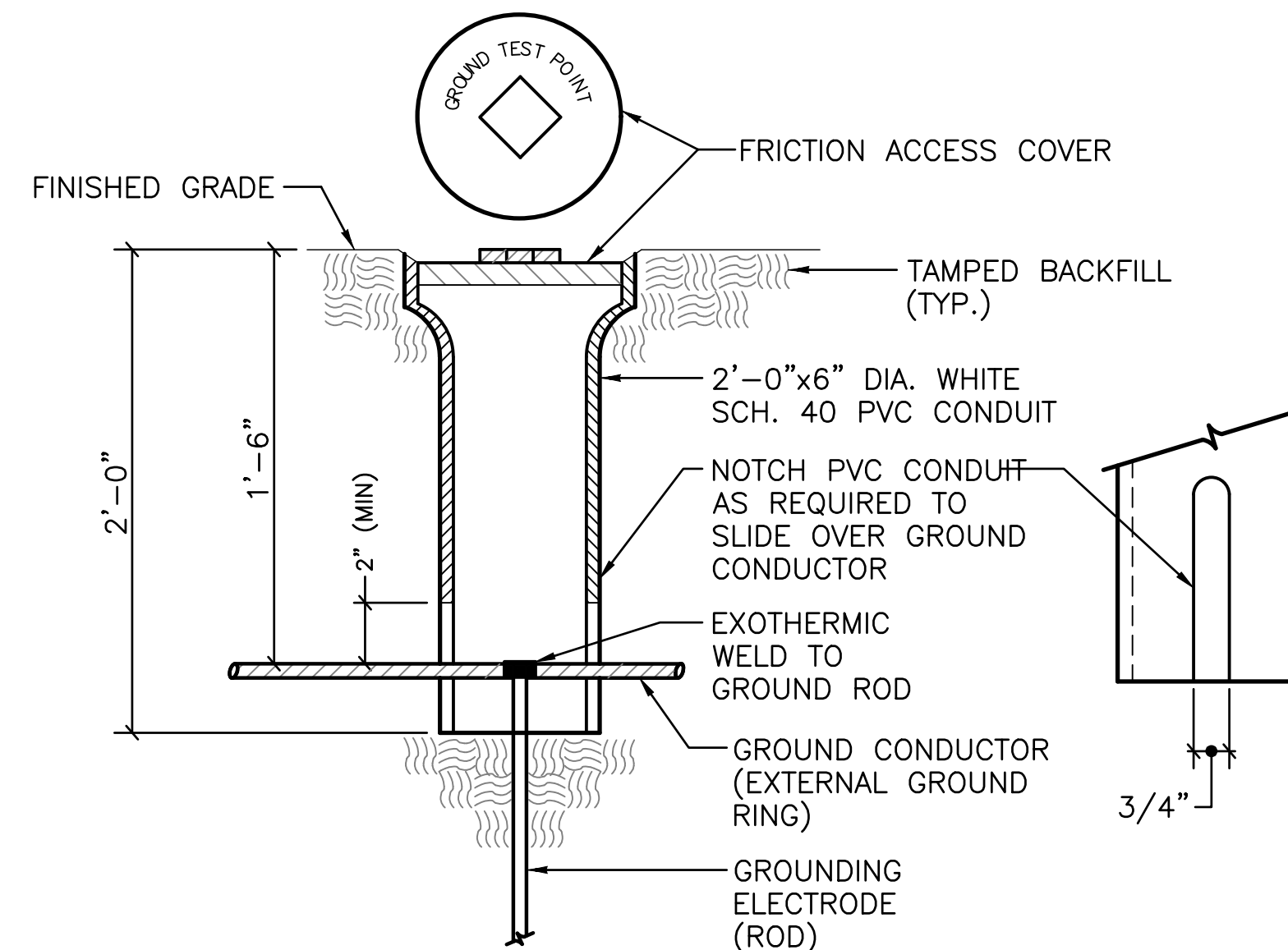
**PRESSURE TRANSMITTER
 INSTALLATION DETAIL**
 NO SCALE



**TYPICAL ENCLOSURE
 GROUNDING DETAIL**
 NO SCALE



**DISCONNECT SWITCH
 MOUNTING DETAIL**
 NO SCALE



GROUND TEST POINT DETAIL
 NO SCALE

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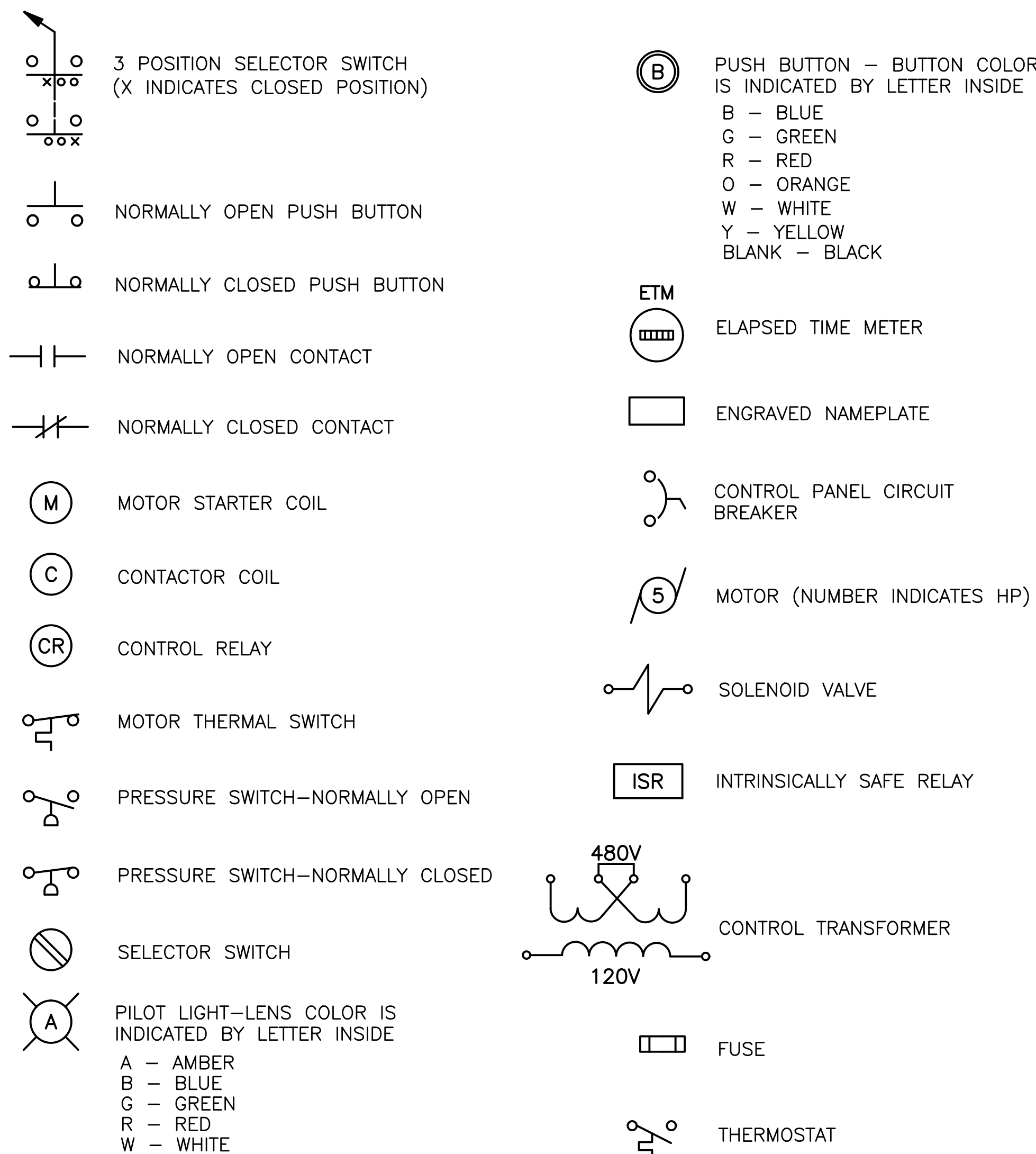
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SHEET TITLE:
**ELECTRICAL
 DETAILS**

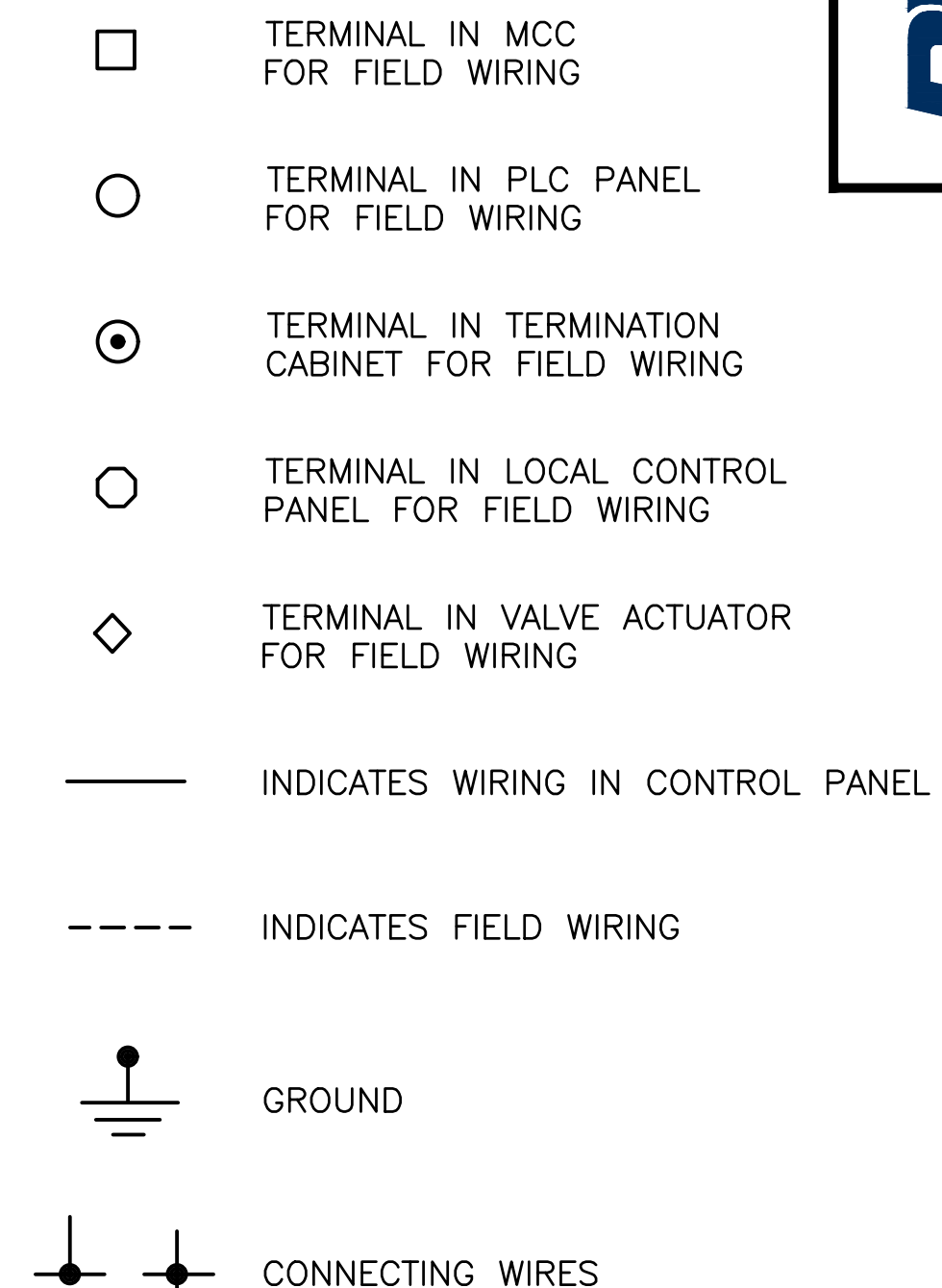
ABBREVIATIONS

A	—	AMPS	MS.	—	MOTOR STARTER
AC	—	ALTERNATING CURRENT	N	—	NEUTRAL
ALT.	—	ALTERNATE	NO.	—	NUMBER
AUX.	—	AUXILIARY	OIT	—	OPERATOR INTERFACE TERMINAL
BLDG.	—	BUILDING	P	—	POLE
D	—	DEEP	PCS	—	PROCESS CONTROL SYSTEM
DC	—	DIRECT CURRENT	PH	—	PHASE
DISC.	—	DISCONNECT	PLC	—	PROGRAMMABLE LOGIC CONTROLLER
DWG.	—	DRAWING	RAS	—	RETURN ACTIVATED SLUDGE
EXIST.	—	EXISTING	SEC.	—	SECONDARY
H	—	HIGH	SHLD.	—	SHIELDED
H/O/A	—	HAND/OFF/AUTO	SPD	—	SURGE PROTECTIVE DEVICE
HP	—	HORSEPOWER	S.S.	—	STAINLESS STEEL
I/O	—	INPUT/OUTPUT	TEMP.	—	TEMPERATURE
J-BOX	—	JUNCTION BOX	T-M	—	THERMAL MAGNETIC
KV	—	KILOVOLT	TYP.	—	TYPICAL
L	—	LOW, LINE	UPS	—	UNINTERRUPTIBLE POWER SUPPLY
mA	—	MILLIAMPERE	V	—	VOLTS
MCC	—	MOTOR CONTROL CENTER	VFD	—	VARIABLE FREQUENCY DRIVE
MCP	—	MOTOR CIRCUIT PROTECTOR	W	—	WIDE, WIRE

SYMBOLS



LEGEND



NOTES

- COORDINATE SIZE OF ALL BREAKERS, MOTOR STARTERS AND VFDs WITH ACTUAL HORSEPOWERS OF EQUIPMENT BEING FURNISHED.
- ALL WIRING SHALL CONFIRM TO THE FOLLOWING COLOR CODE:
120 VOLT, 1 PHASE: BLACK - PHASE WIRE
WHITE - NEUTRAL WIRE
CONTROL WIRES: 120VAC - RED
24VDC - BLUE
EXTERNAL POWER SOURCE - YELLOW
INTRINSICALLY SAFE WIRES: PURPLE
GROUND WIRES: GREEN

AB 5380 CompactLogix LEGEND

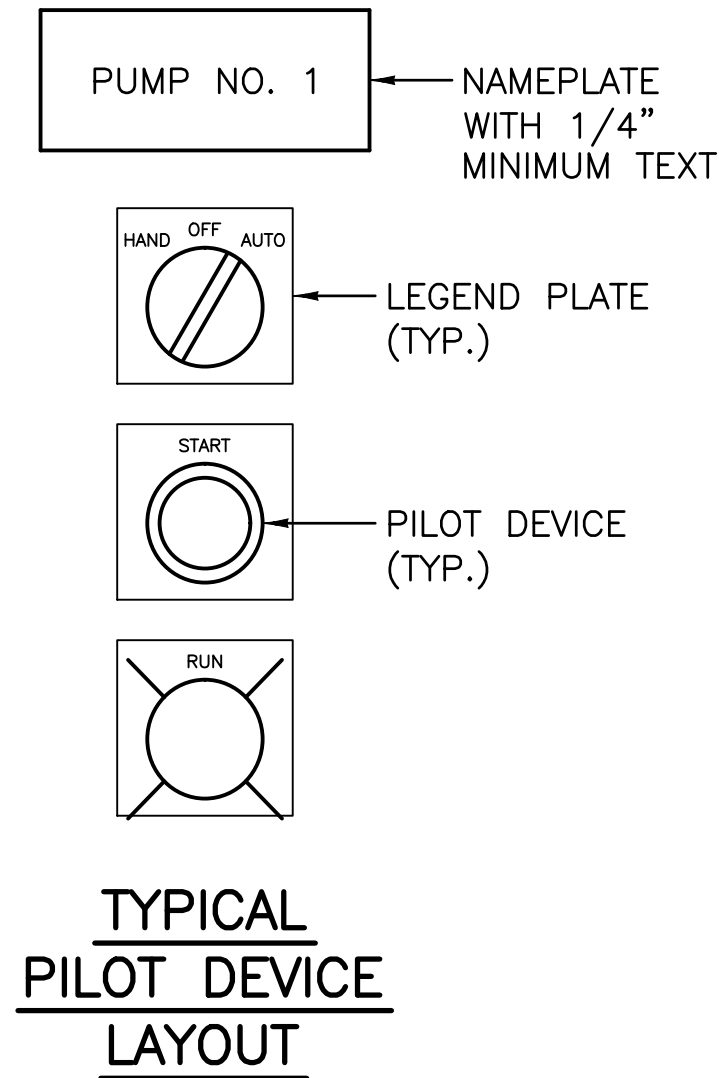
5069-L330ER	—	PROGRAMMABLE CONTROLLER
5069-IQ16	—	16 POINT 24VDC INPUT MODULE
5069-IA16	—	16 POINT 120VAC INPUT MODULE
5069-OB16	—	16 POINT 24VDC RELAY OUTPUT MODULE
5069-IF8	—	8 POINT ANALOG INPUT MODULE
5069-OF8	—	8 POINT ANALOG OUTPUT MODULE

AB 5370 CompactLogix LEGEND

1769-L33ER	—	PROGRAMMABLE CONTROLLER
1769-PA4	—	POWER SUPPLY
1769-IQ16	—	16 POINT 24VDC INPUT MODULE
1769-OW8I	—	8 POINT ISOLATED OUTPUT MODULE
1769-IF4I	—	4 POINT ANALOG INPUT MODULE
1769-OF4CI	—	4 POINT ANALOG OUTPUT MODULE

ALLEN-BRADLEY PLC-5 LEGEND

PLC-5/15	—	PROGRAMMABLE CONTROLLER
1771-ASB	—	REMOTE I/O ADAPTER MODULE
1771-IBD	—	24VDC INPUT MODULE
1771-IAD	—	120VAC INPUT MODULE
1771-OD	—	ISOLATED OUTPUT MODULE
1771-OAD	—	120VAC RELAY OUTPUT MODULE
1771-IFE	—	ANALOG INPUT MODULE
1771-OFE2	—	ANALOG OUTPUT MODULE
1770-SC	—	STATION CONNECTION BOX
1770-KF2	—	COMMUNICATION INTERFACE MODULE



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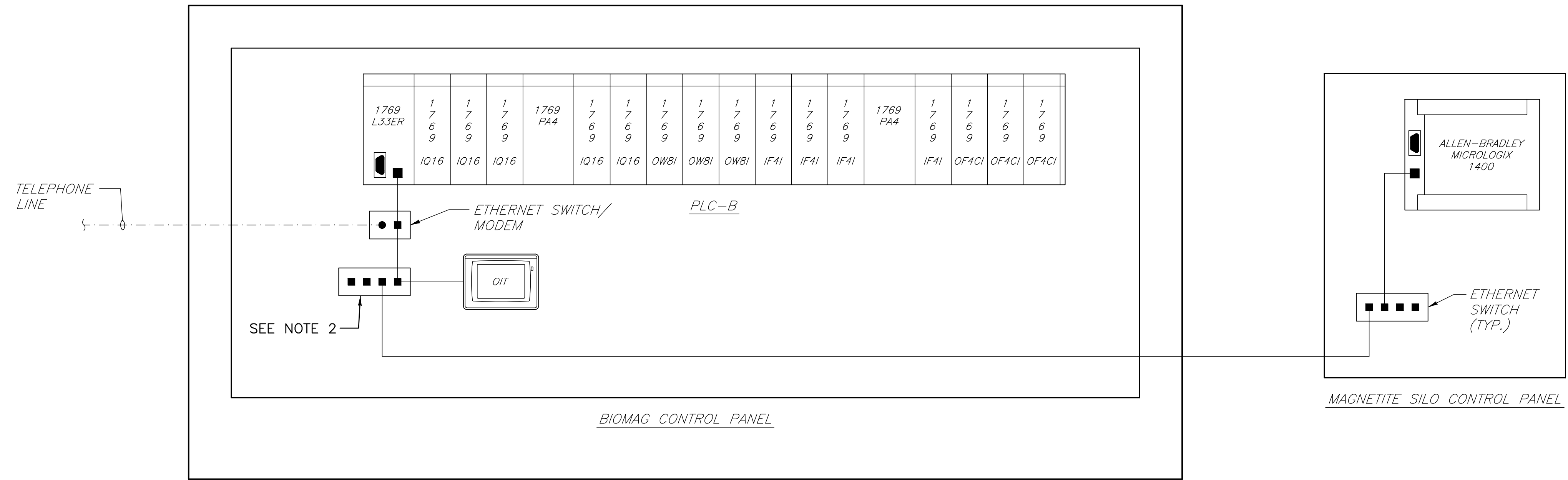
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SHEET TITLE:
PROCESS CONTROL SYSTEM ABBREVIATIONS, SYMBOLS, AND LEGEND

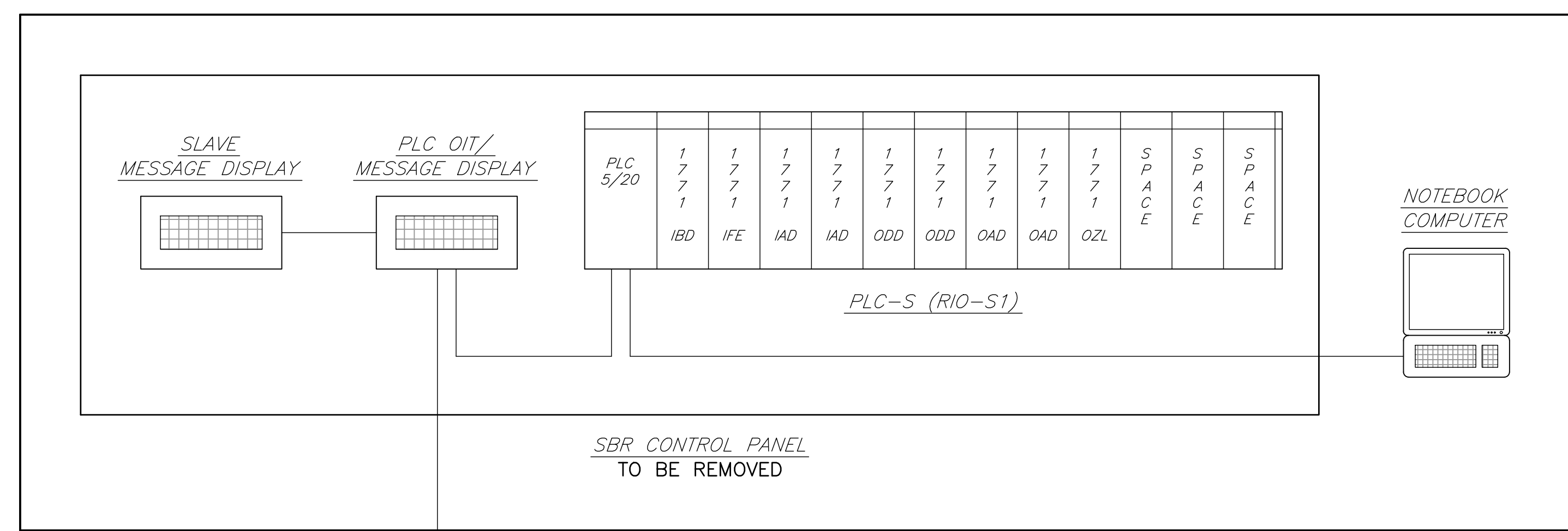
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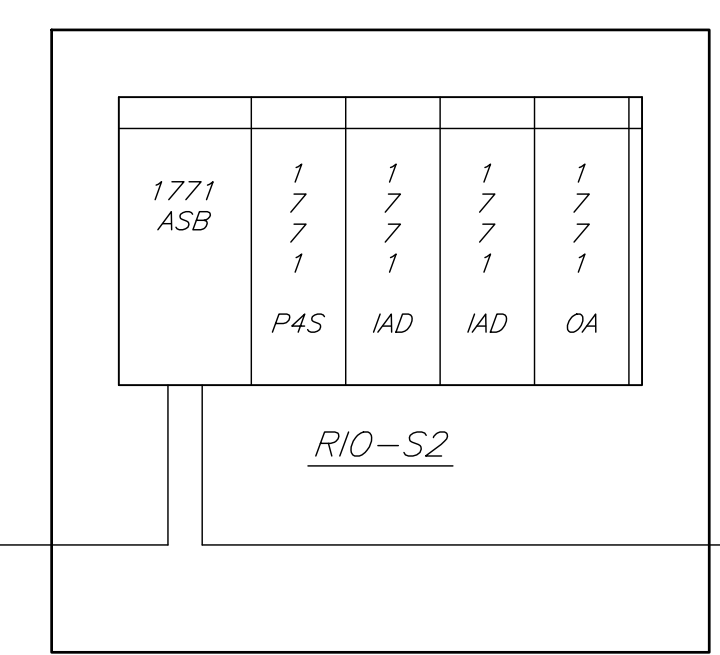
BIOMAG BUILDING

NOTES

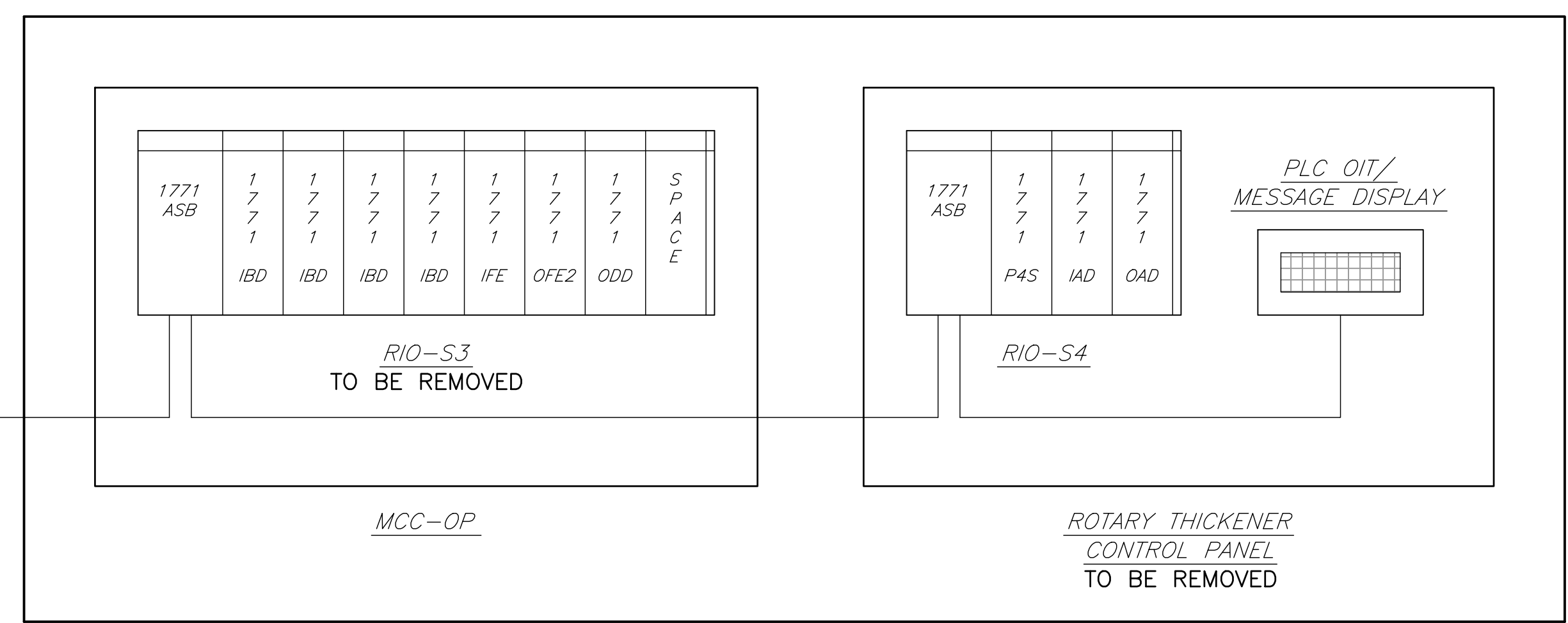
1. ALL MODEL NUMBERS SHOWN ARE ALLEN-BRADLEY MODEL NUMBERS.
2. REMOVE THE EXISTING ETHERNET SWITCH AND INSTALL A NEW MANAGED ETHERNET SWITCH IN THE BIOMAG CONTROL PANEL FOR COMMUNICATION WITH THE PLANT WIDE PLC NETWORK.



CONTROL BUILDING



INFLUENT PUMPING STATION CONTROL PANEL TO BE REMOVED



OPERATIONS BUILDING



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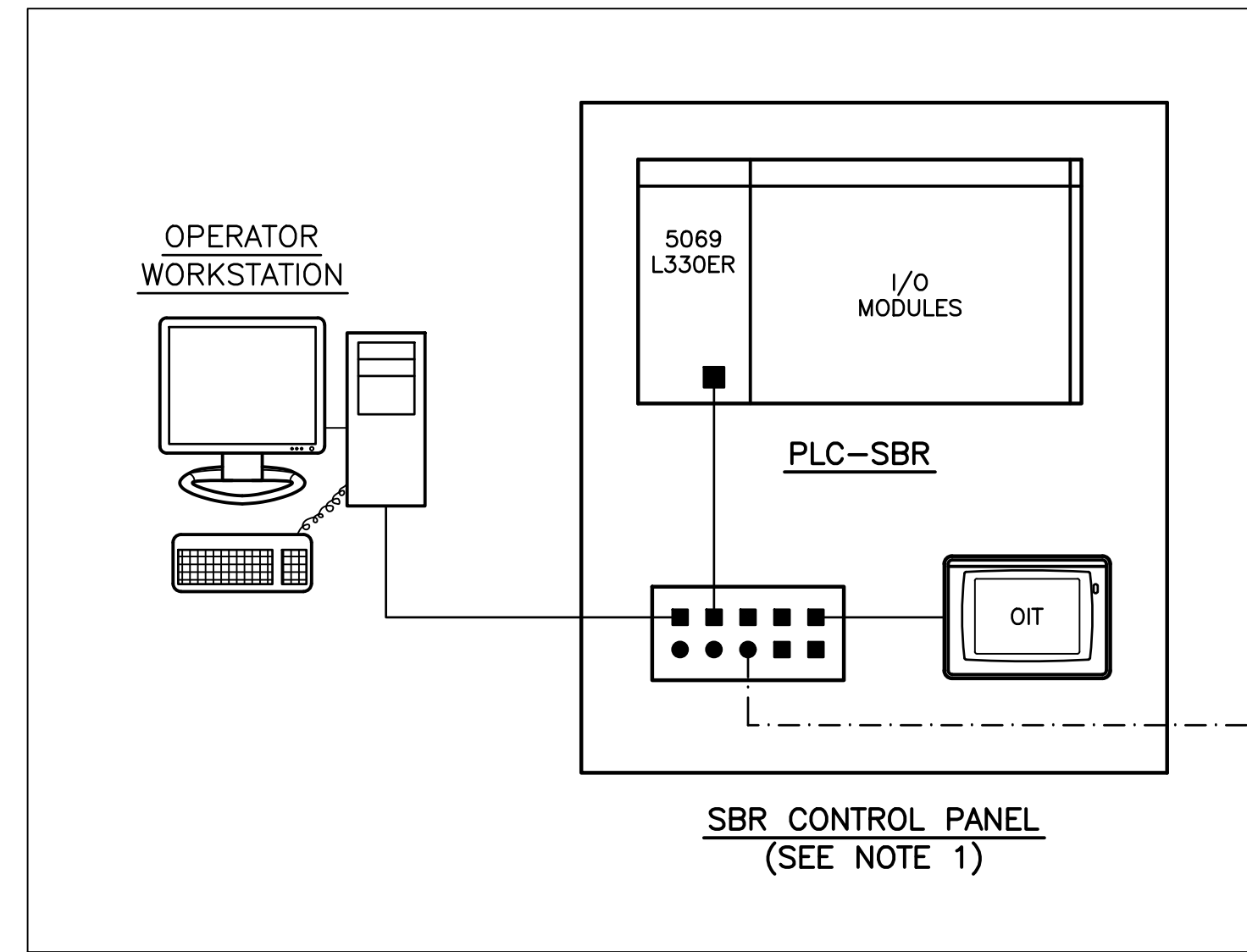
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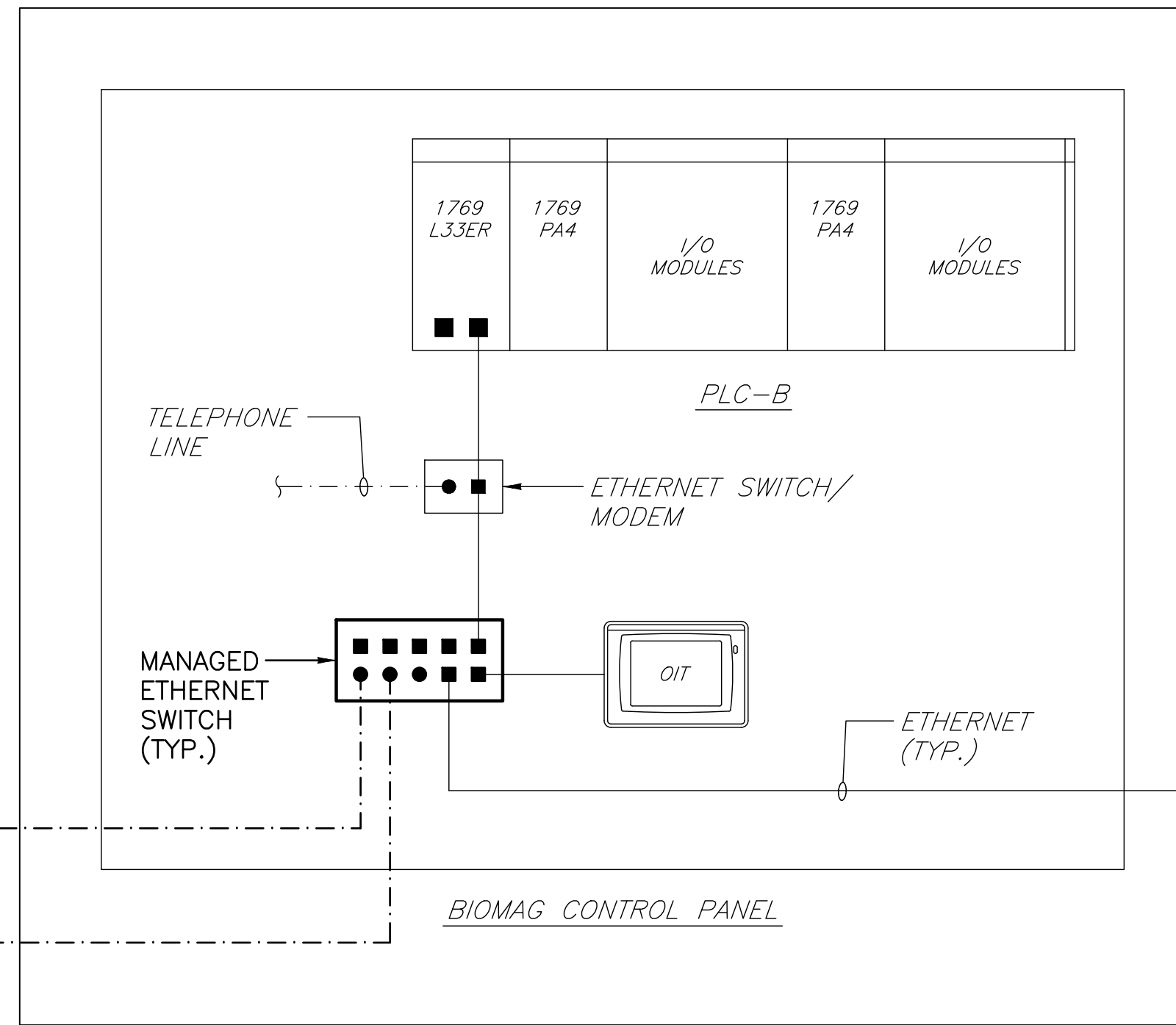
SHEET TITLE:
EXISTING PLC SYSTEM ARCHITECTURE

NOTES

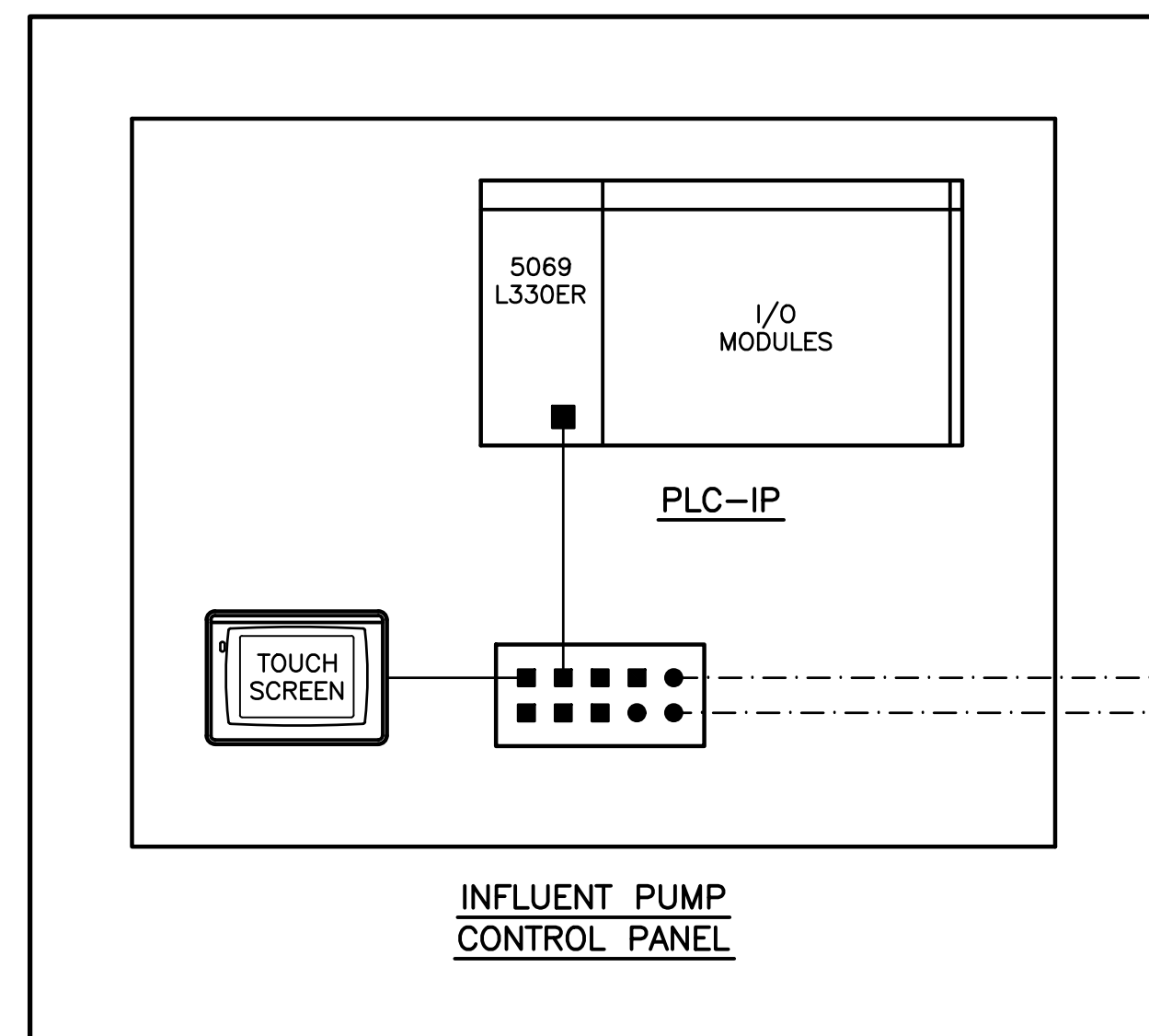
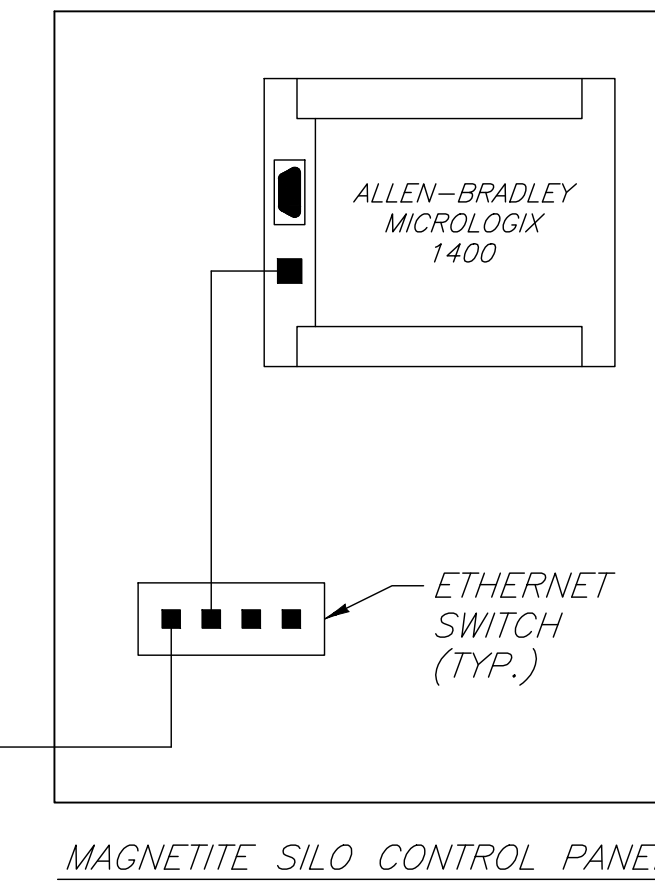
1. THE SBR CONTROL PANEL SHALL BE FURNISHED BY THE SBR MANUFACTURER.
2. THE DISK FILTER CONTROL PANEL SHALL BE FURNISHED BY THE DISK FILTER MANUFACTURER.
3. THE UV SYSTEM CONTROL CENTER SHALL BE FURNISHED BY THE UV SYSTEM MANUFACTURER.



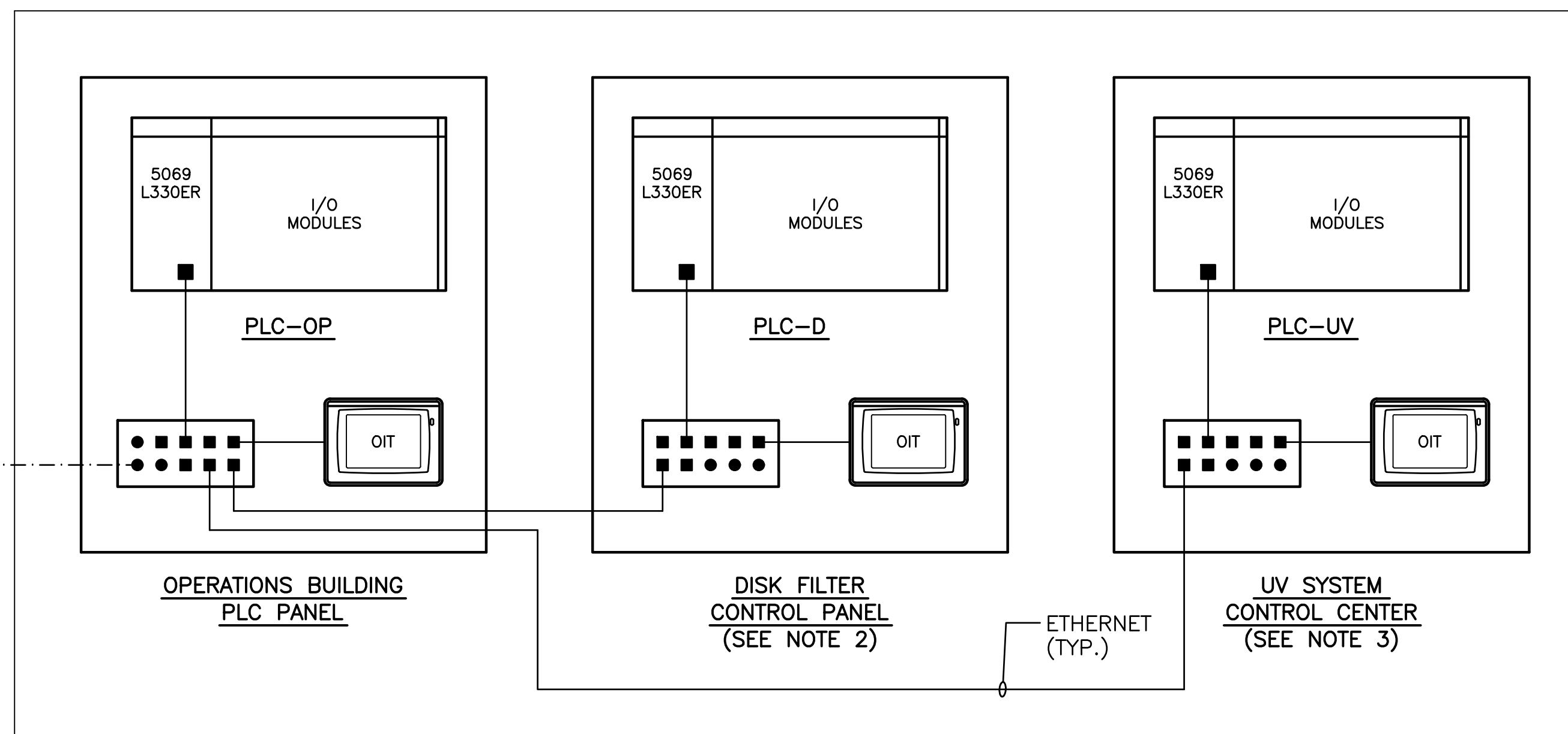
CONTROL BUILDING



BIOMAG BUILDING



CHEMICAL BUILDING



OPERATIONS BUILDING

FIBER OPTIC CABLE (TYP.)



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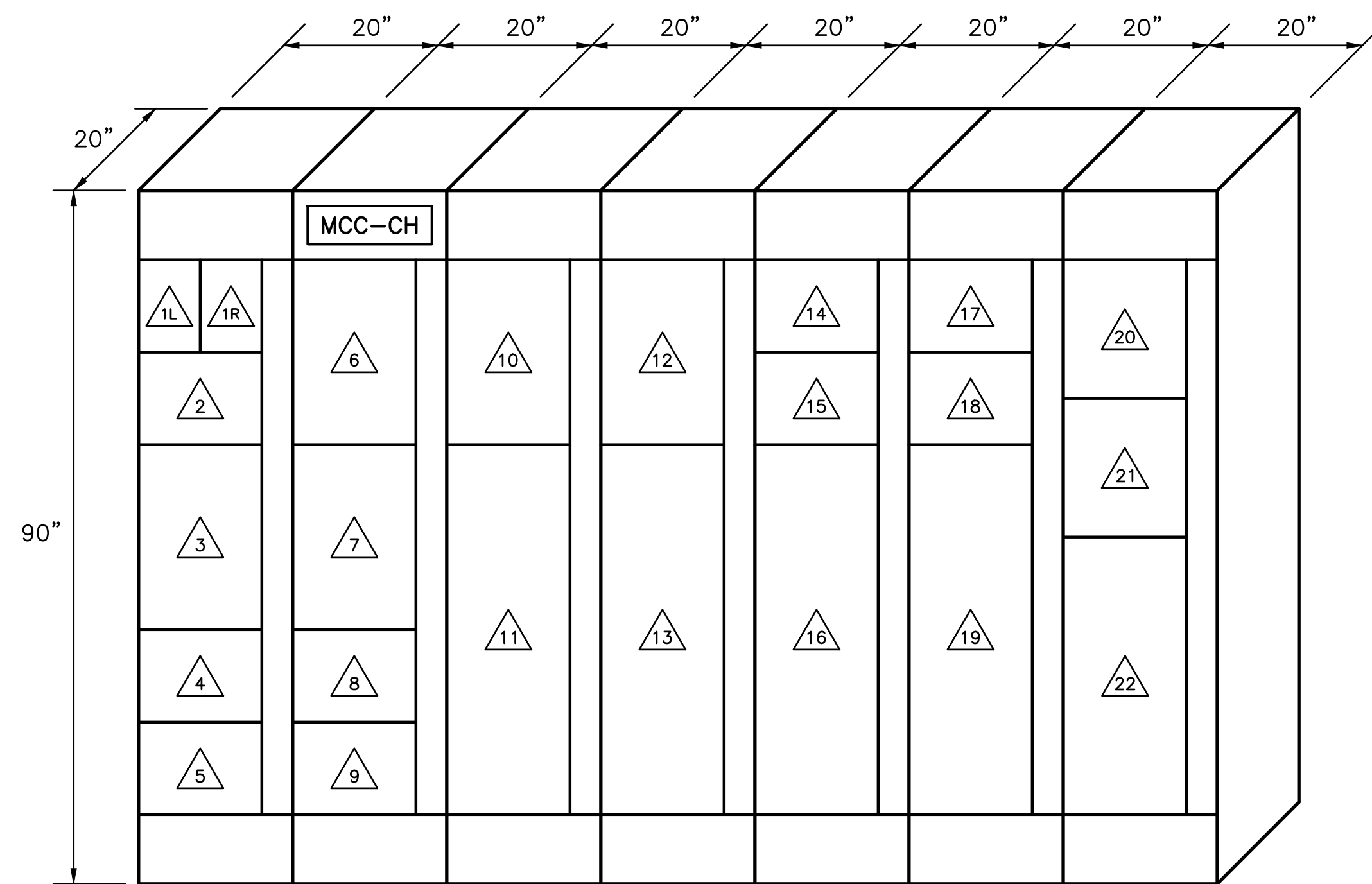
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SHEET TITLE:

PROPOSED PLC SYSTEM ARCHITECTURE

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MCC-CH ELEVATION
 NO SCALE

NOTES

- "MCC-CH" IS LOCATED IN THE CHEMICAL BUILDING.
- "MCC-CH" NAMEPLATE SHALL HAVE 2" HIGH LETTERS.

UNIT LOCATION	DESCRIPTION
△1L	EQ RETURN FLOW CONTROL VALVE
△1R	20A-3P SPARE
△2	PANEL "CHH"
△3	PRE-ANOXIC TANK MIXER
△4	SPACE
△5	SPACE
△6	INFLUENT EQ TANK MIXER NO. 1
△7	INFLUENT EQ TANK MIXER NO. 2
△8	SPACE
△9	SPACE
△10	UTILITY WATER PUMP NO. 1
△11	INFLUENT EQ PUMP NO. 1

UNIT LOCATION	DESCRIPTION
△12	UTILITY WATER PUMP NO. 2
△13	INFLUENT EQ PUMP NO. 2
△14	SPACE
△15	SPACE
△16	INFLUENT PUMP NO. 1
△17	SPACE
△18	SPACE
△19	INFLUENT PUMP NO. 2
△20	SURGE PROTECTIVE DEVICE
△21	POWER MONITOR
△22	400A MAIN BREAKER

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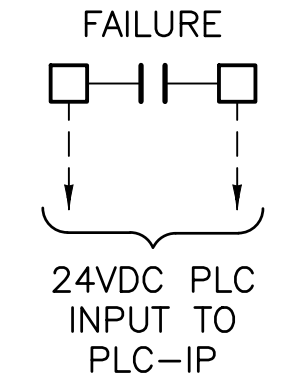
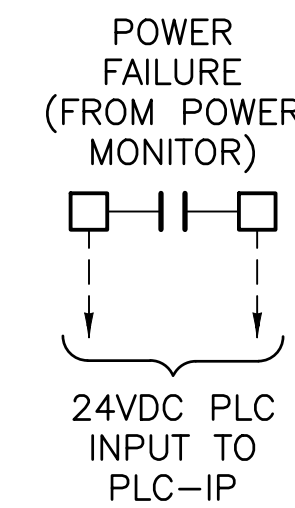
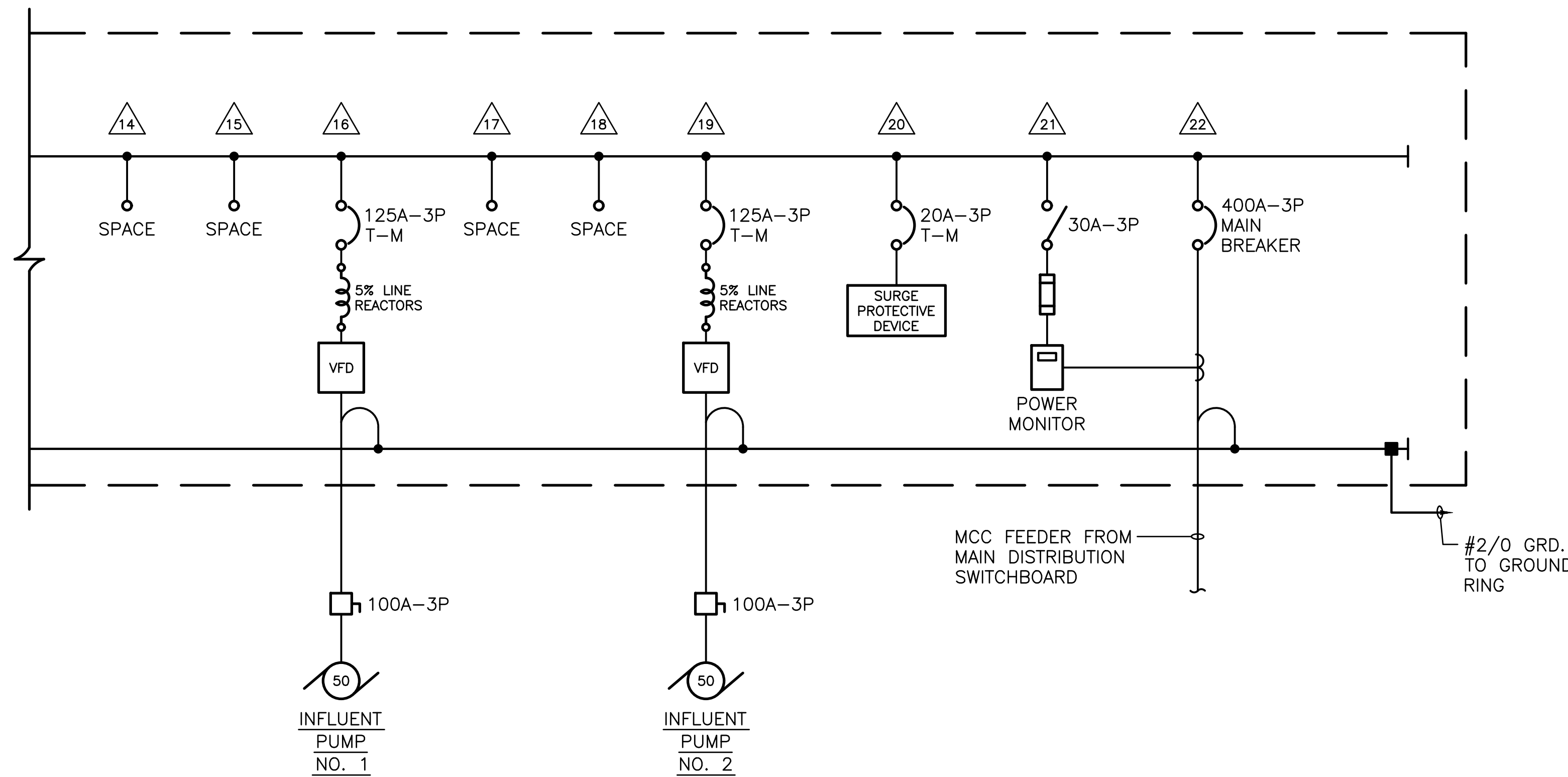
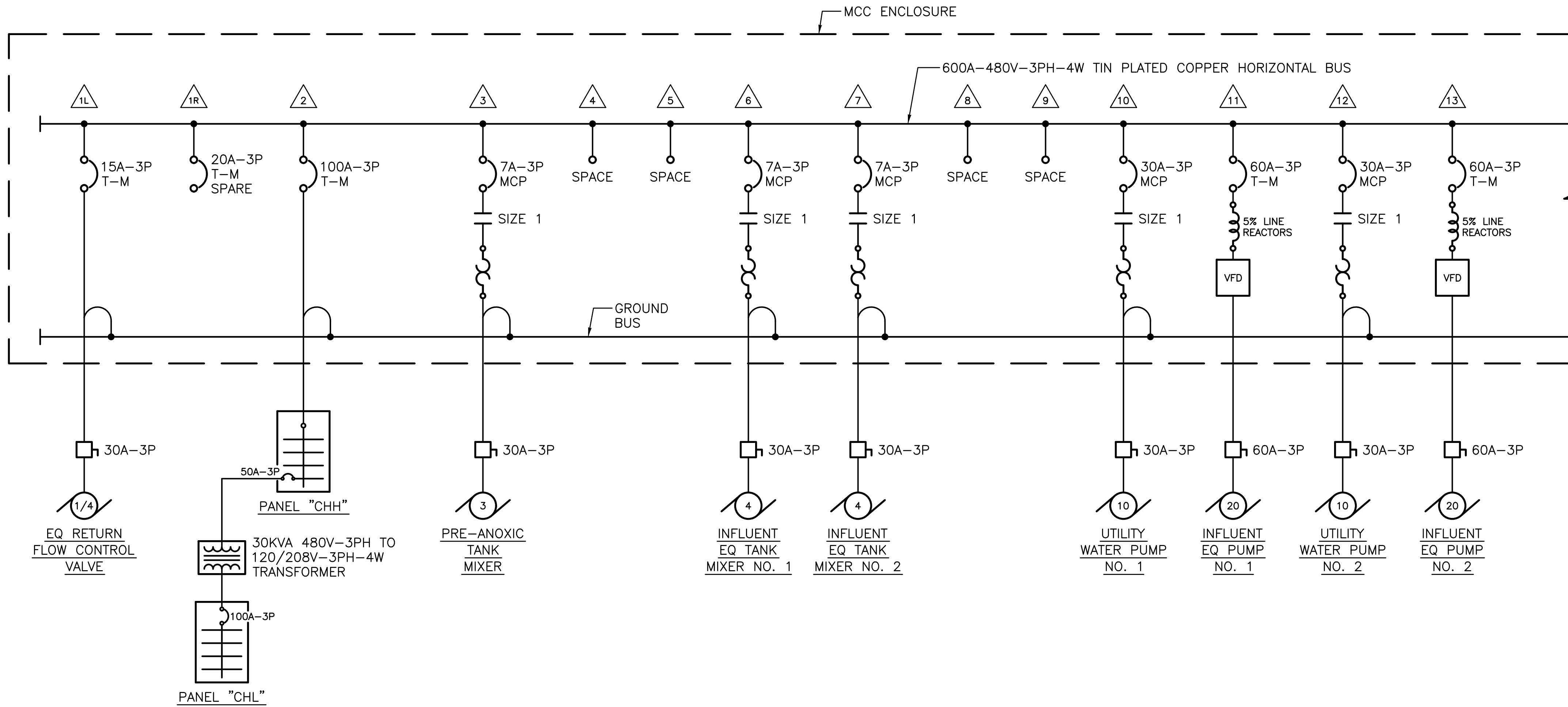
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 SHEET TITLE:

MCC-CH
 ELEVATION



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SHEET TITLE:
MCC-CH ONE-LINE DIAGRAM

NOTES

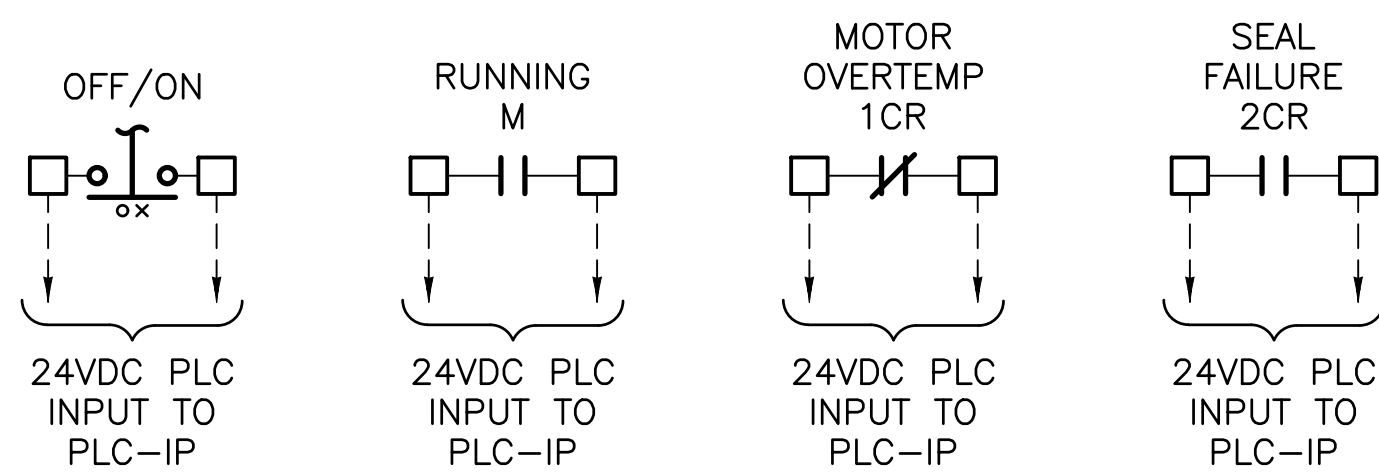
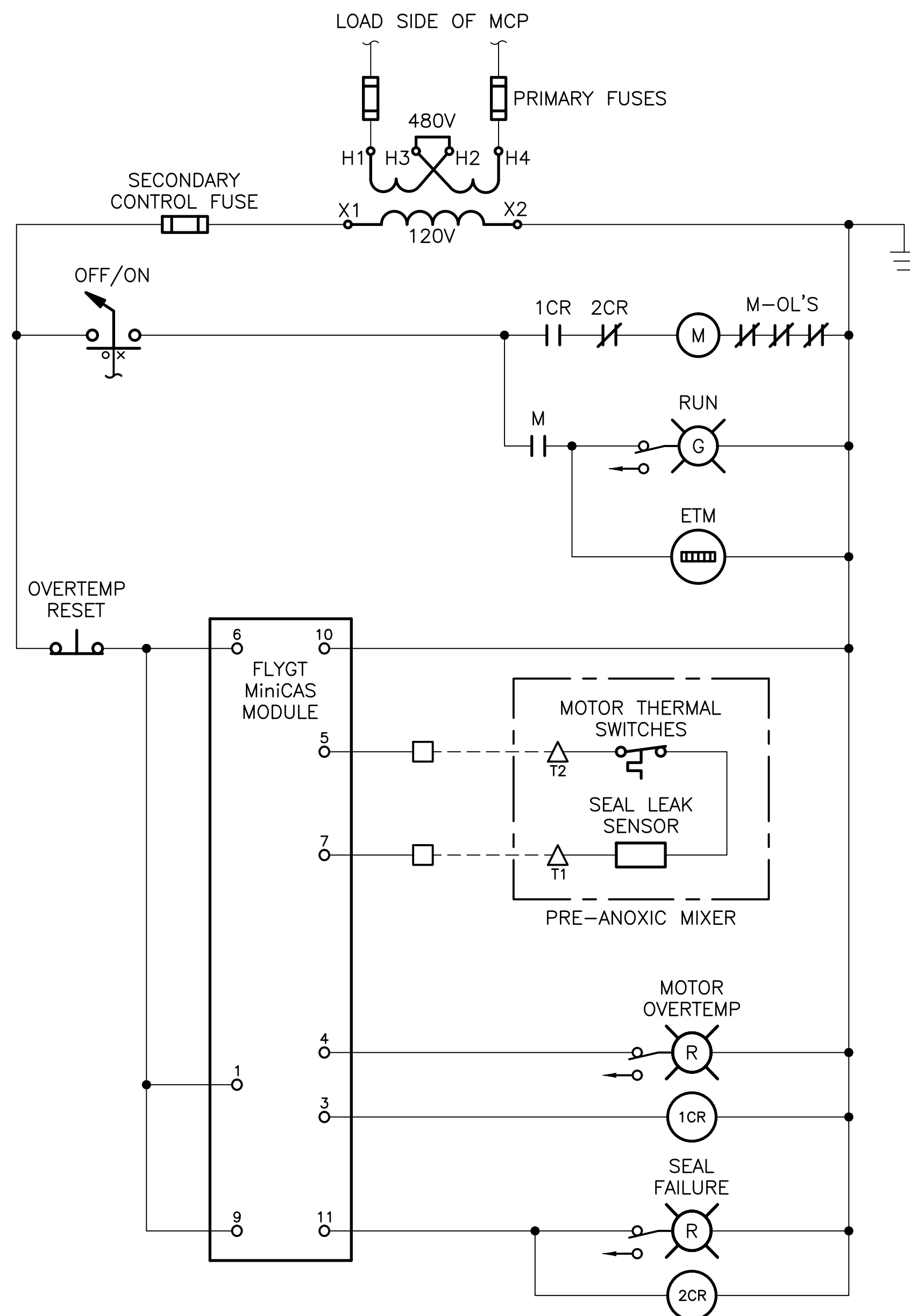
1. COORDINATE WIRING FOR MIXER AND PUMP MONITORING RELAYS WITH EQUIPMENT MANUFACTURER.

2. THE INFLUENT EQ TANK MIXER START RELAY CONTACTS ARE AS FOLLOWS:

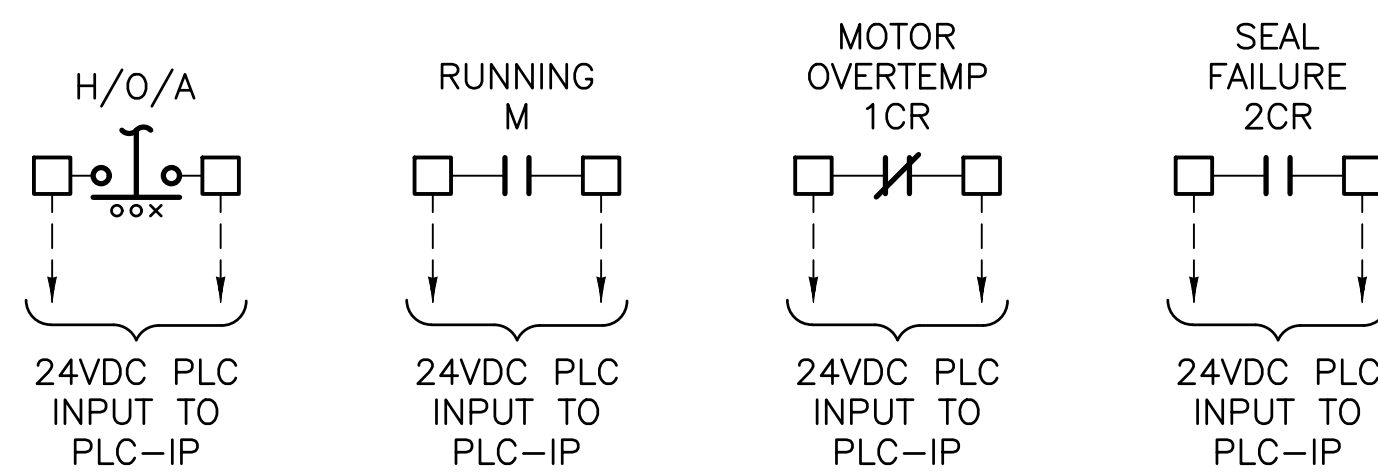
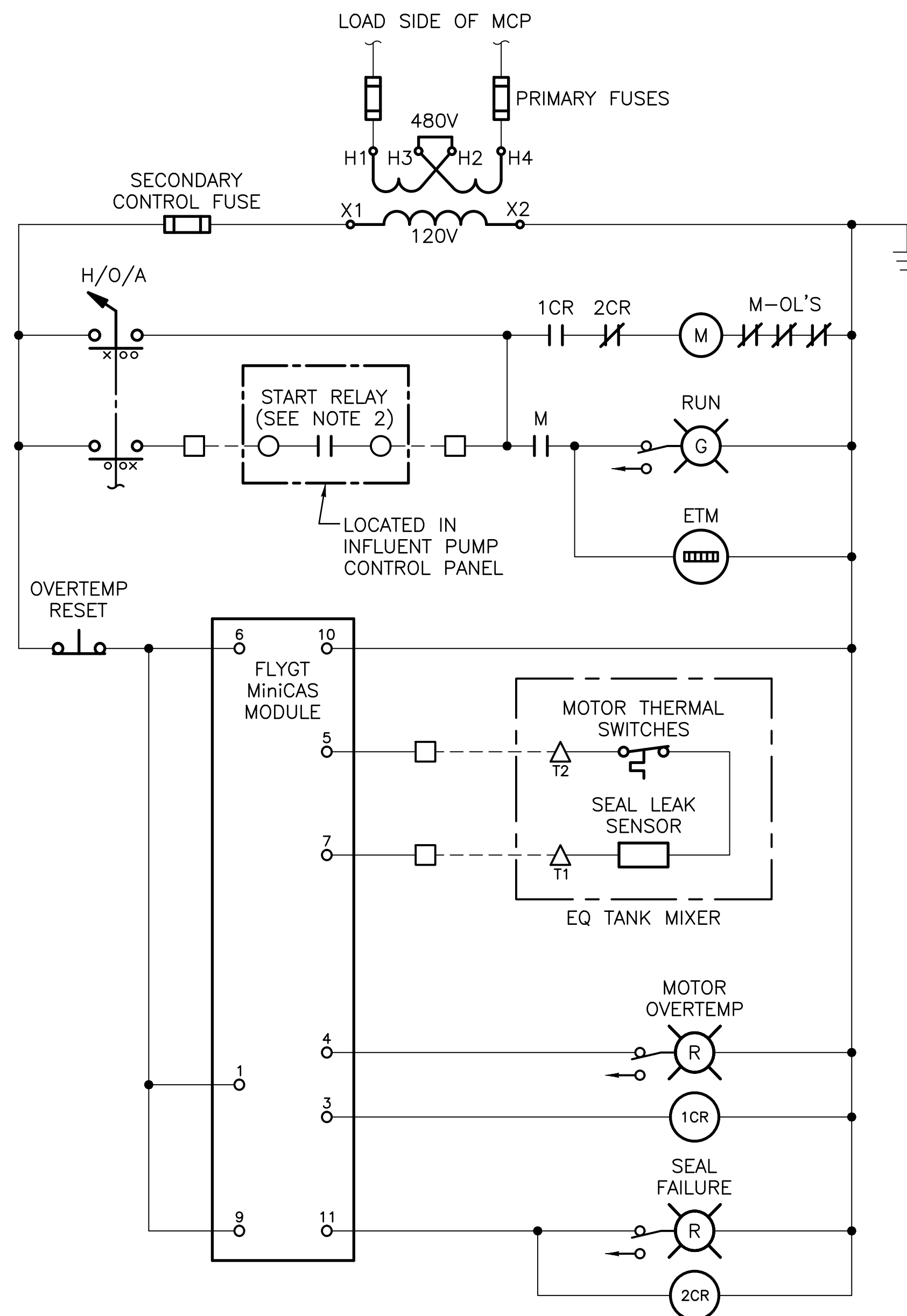
INFLUENT EQ TANK MIXER NO. 1 - 10CR
INFLUENT EQ TANK MIXER NO. 2 - 11CR

3. THE UTILITY WATER PUMP START RELAY CONTACTS ARE AS FOLLOWS:

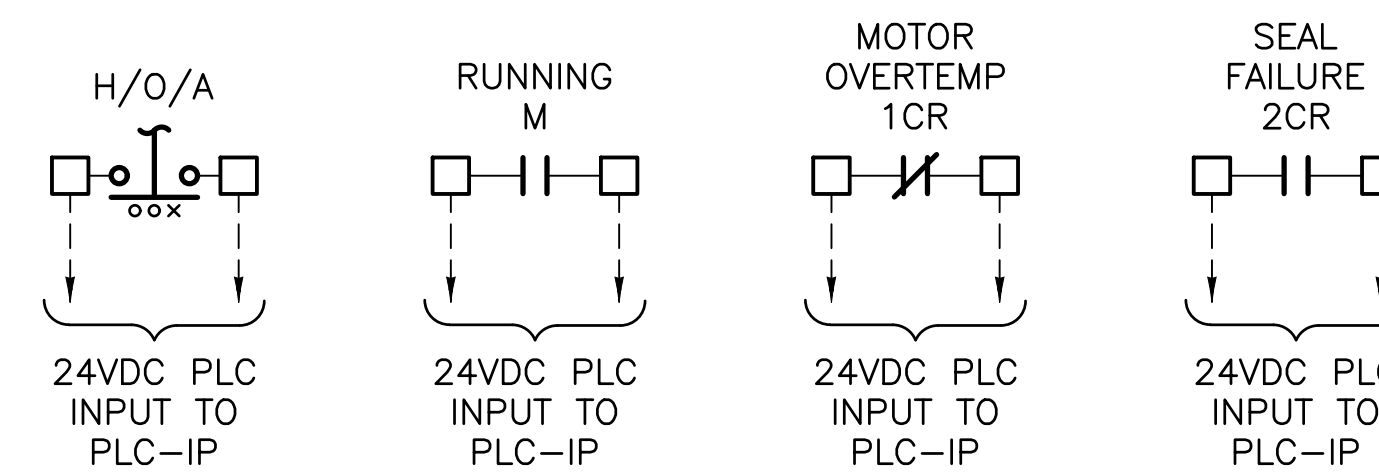
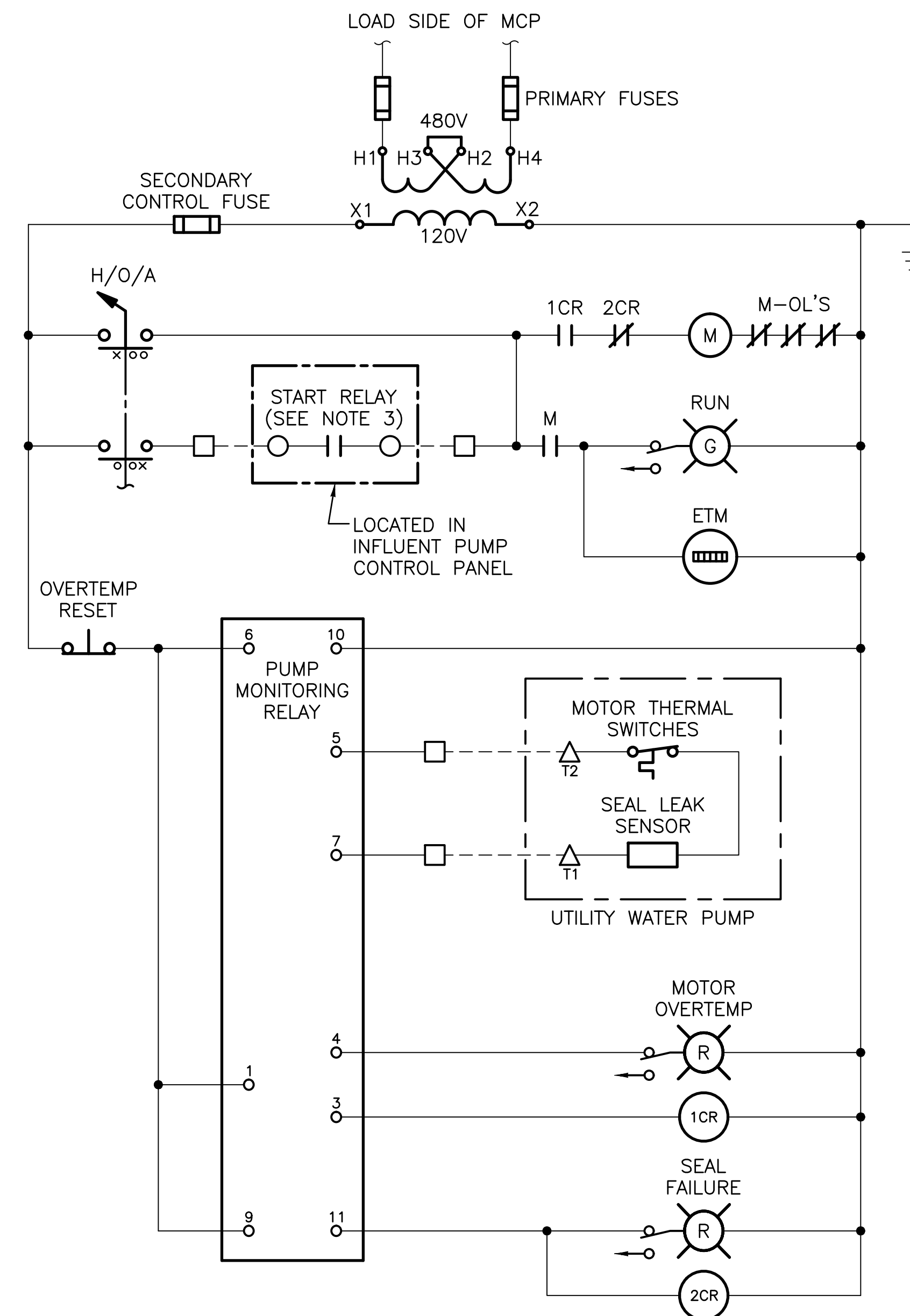
UTILITY WATER PUMP NO. 1 - 12CR
UTILITY WATER PUMP NO. 2 - 13CR



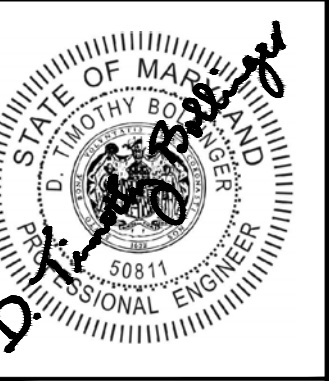
**PRE-ANOXIC MIXER
CONTROL WIRING DIAGRAM**



**INFLUENT EQ TANK MIXERS NO. 1 AND NO. 2
CONTROL WIRING DIAGRAM**



**UTILITY WATER PUMPS NO. 1 AND NO. 2
CONTROL WIRING DIAGRAM**



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
MCC-CH CONTROL WIRING DIAGRAMS

I:\00_RK\COMFSCLOUD\PROJECTS\2017\012_WCENR\012_SMITHSBURG_EXPANSION\REVISIONS\DWG\PCS6.DWG (print) 8/20/2021 12:39 PM\Shannon_Johnson



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22623 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

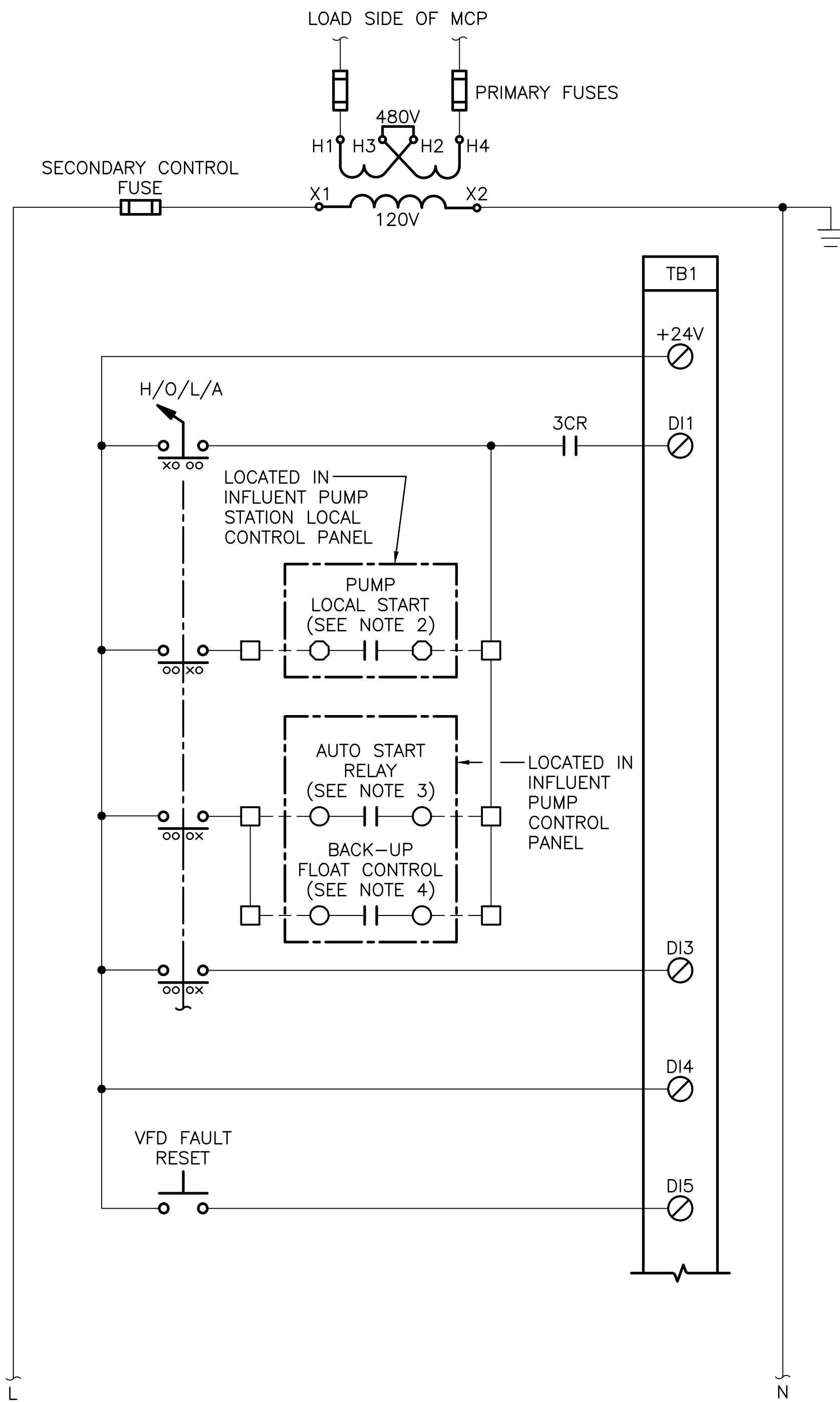
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

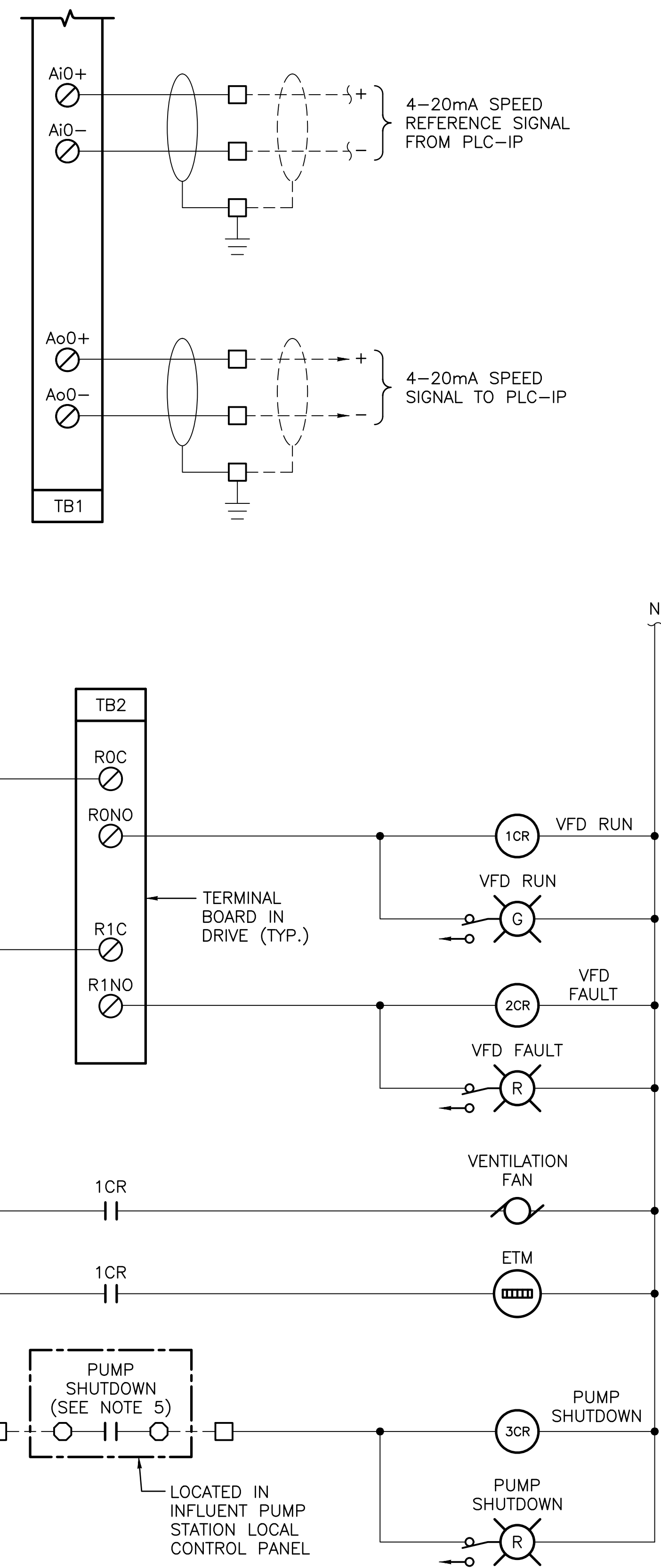
PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
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SHEET TITLE:
MCC-CH CONTROL WIRING DIAGRAMS

SHEET NO.: **PCS-7**

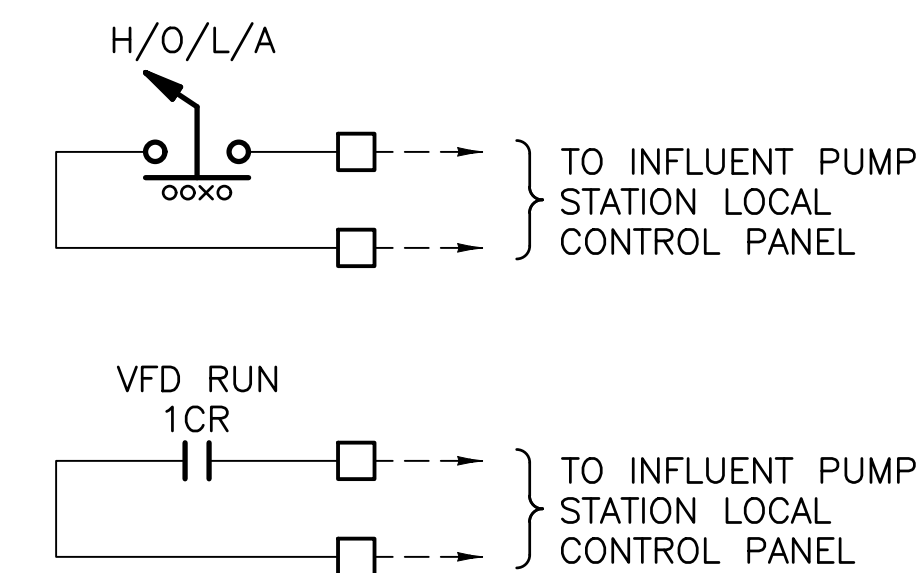
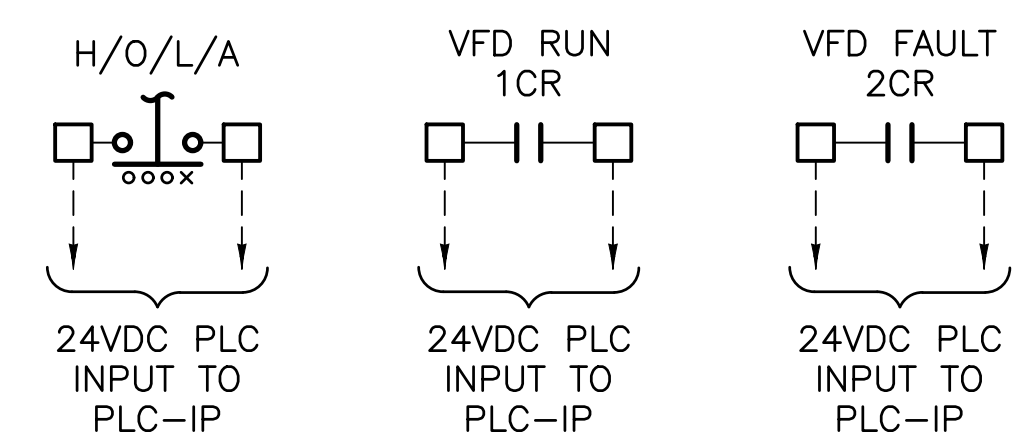


INFLUENT PUMPS NO. 1 AND NO. 2 VFD CONTROL WIRING DIAGRAM



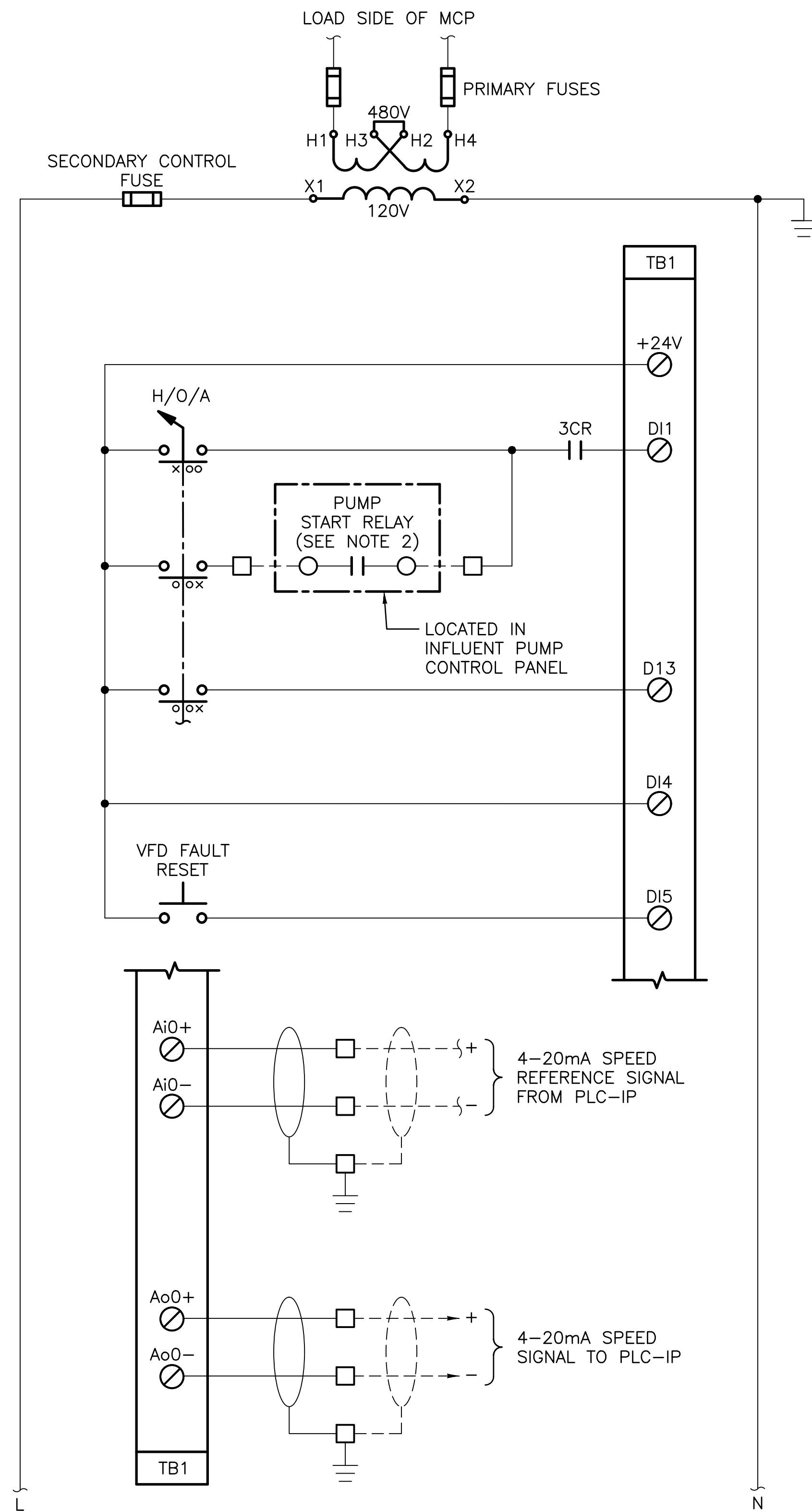
NOTES

- COORDINATE VFD CONTROL WIRING WITH THE VFD MANUFACTURER. REFER TO THE DESCRIPTION OF OPERATION IN THE SPECS FOR THE AUTO START/STOP AND SPEED CONTROL SEQUENCE.
- THE PUMP LOCAL START RELAY CONTACTS ARE AS FOLLOWS:
 INFLUENT PUMP NO. 1 - 1CR
 INFLUENT PUMP NO. 2 - 6CR
- THE PUMP AUTO START RELAY CONTACTS ARE AS FOLLOWS:
 INFLUENT PUMP NO. 1 - 6CR
 INFLUENT PUMP NO. 2 - 7CR
- THE BACK-UP FLOAT CONTROL START RELAY CONTACTS ARE AS FOLLOWS:
 INFLUENT PUMP NO. 1 - 3CR
 INFLUENT PUMP NO. 2 - 4CR
- THE PUMP SHUTDOWN RELAY CONTACTS ARE AS FOLLOWS:
 INFLUENT PUMP NO. 1 - 5CR
 INFLUENT PUMP NO. 2 - 10CR

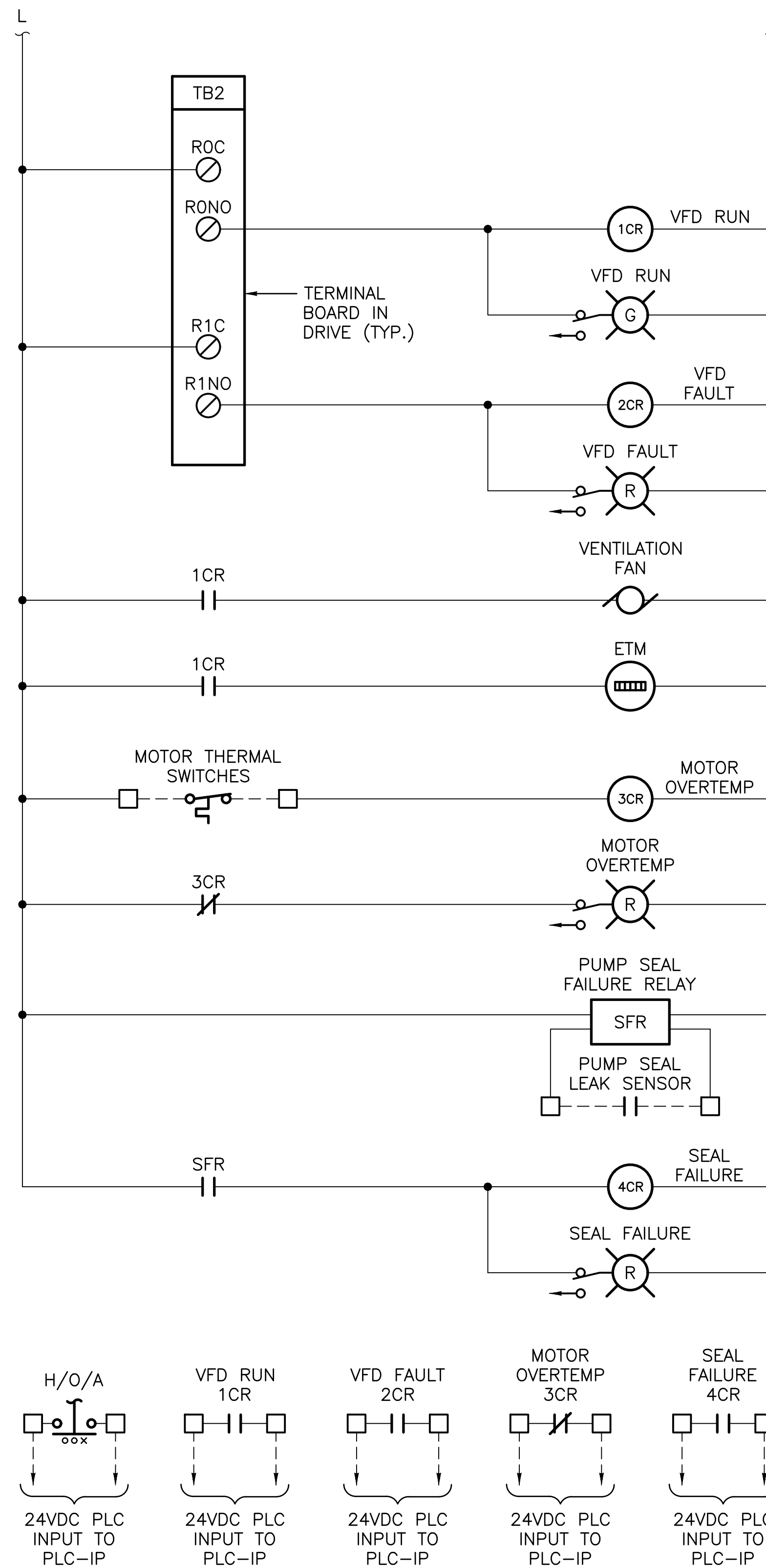


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INFLUENT EQ PUMPS NO. 1 AND NO. 2 VFD CONTROL WIRING DIAGRAM



NOTES

- COORDINATE VFD CONTROL WIRING WITH THE VFD MANUFACTURER. REFER TO THE DESCRIPTION OF OPERATION IN THE SPECS FOR THE AUTO START/STOP AND SPEED CONTROL SEQUENCE.
- THE PUMP START RELAY CONTACTS ARE AS FOLLOWS:
 INFLUENT EQ PUMP NO. 1 - 8CR
 INFLUENT EQ PUMP NO. 2 - 9CR



P. 410/728/2630
 700 East Pratt Street, Suite 501 Baltimore, MD 21202
 Telephone: 410.774.8000
 Fax: 410.774.8001
 www.rkandk.com
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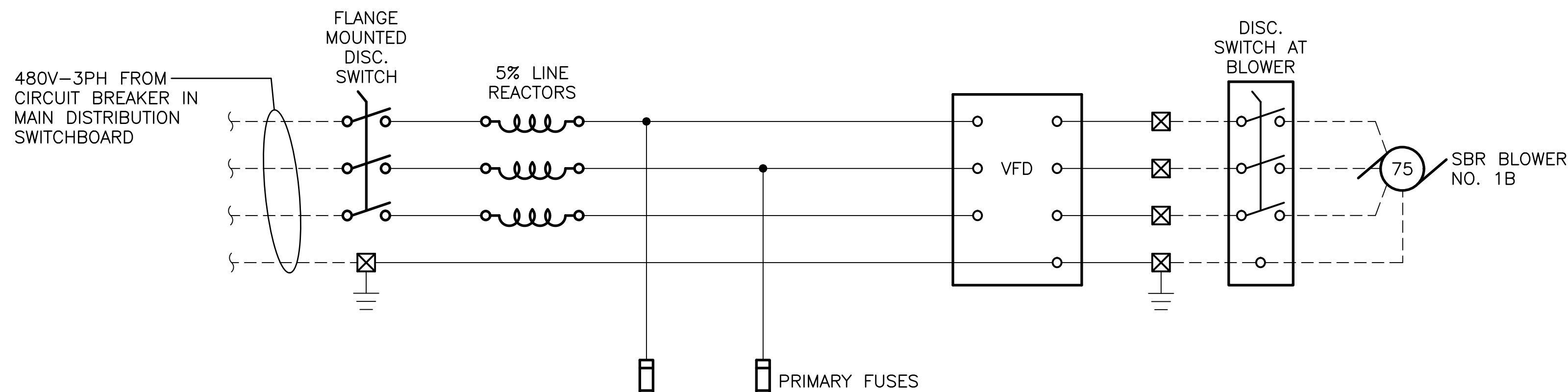


SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22823 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLIOTT PARKWAY
 WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/20/21
DRAWN BY:	SMJ
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SHEET TITLE:
MCC-CH CONTROL WIRING DIAGRAMS

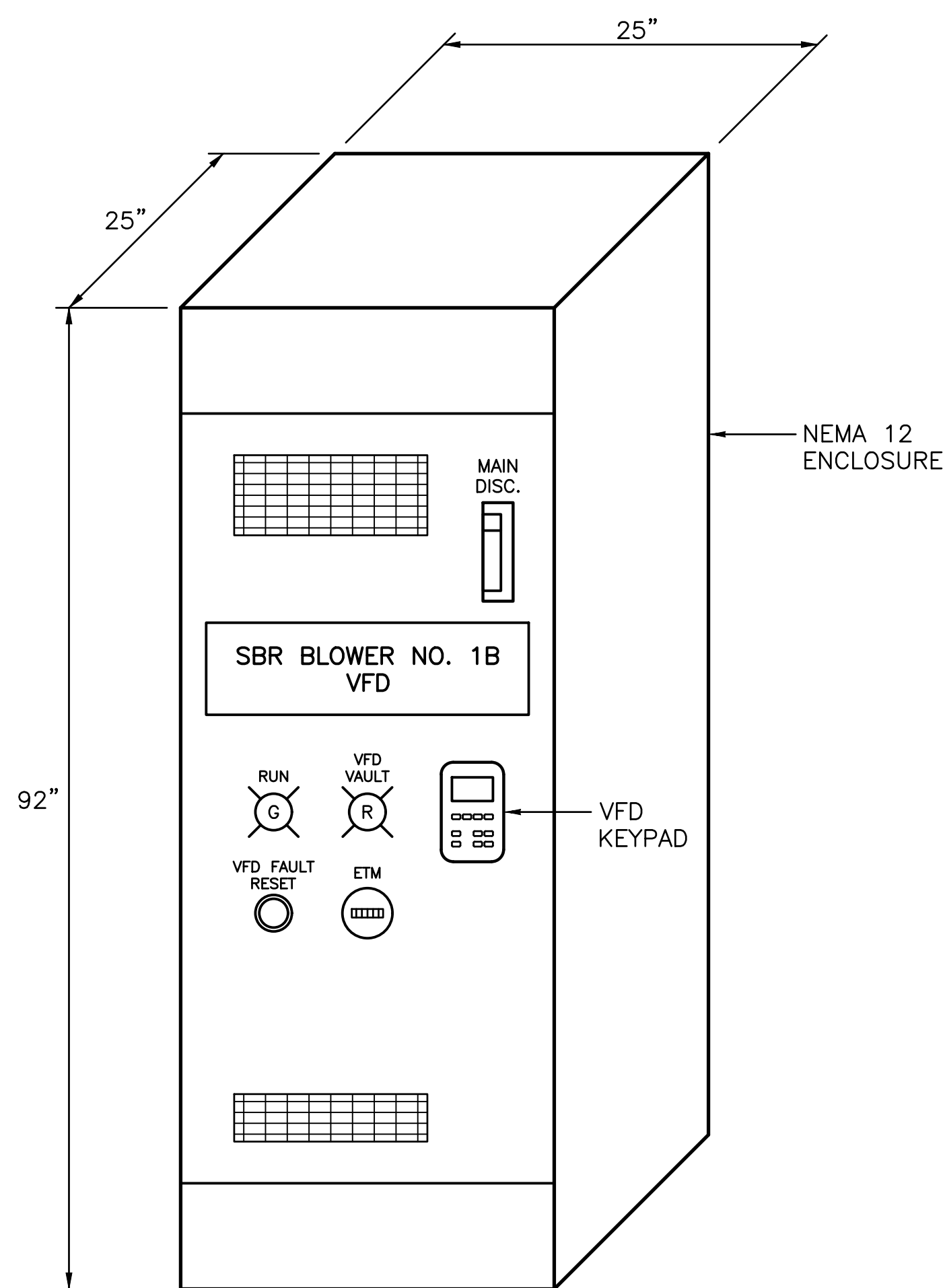


NOTES

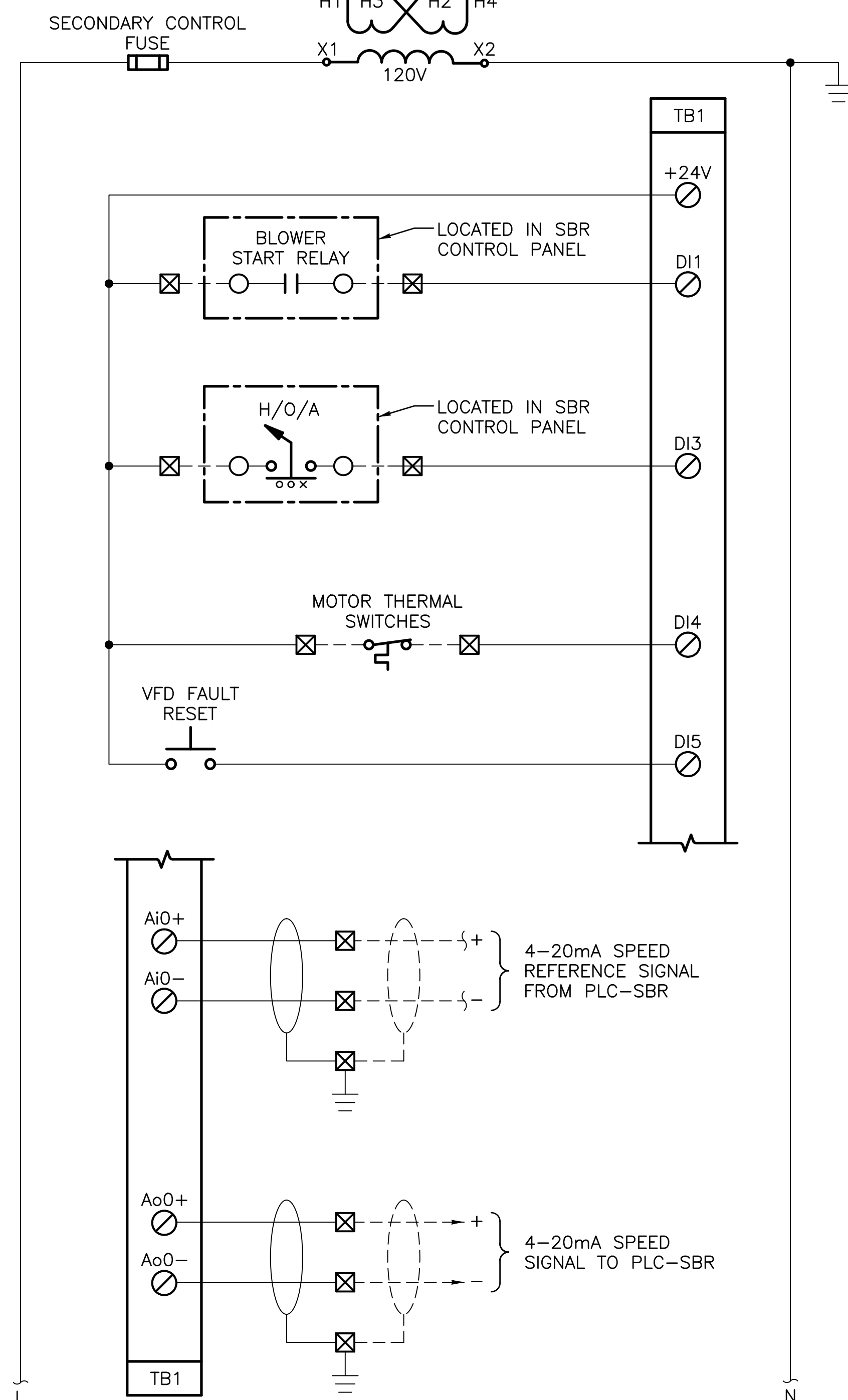
1. THE SBR BLOWER VFD ELEVATION AND WIRING DIAGRAM ARE TYPICAL FOR THE FOLLOWING THREE (3) BLOWER VFDs:

- SBR BLOWER NO. 1B VFD
- SBR BLOWER NO. 2B VFD
- SBR BLOWER NO. 3B VFD

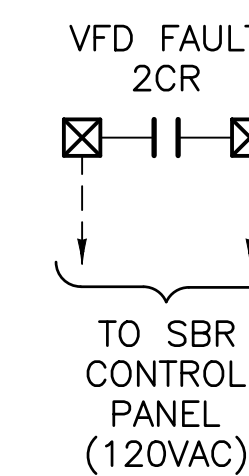
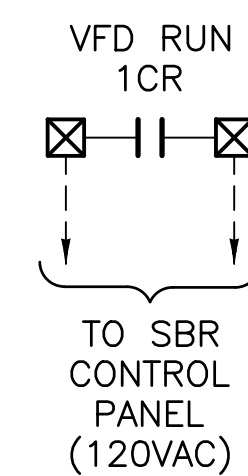
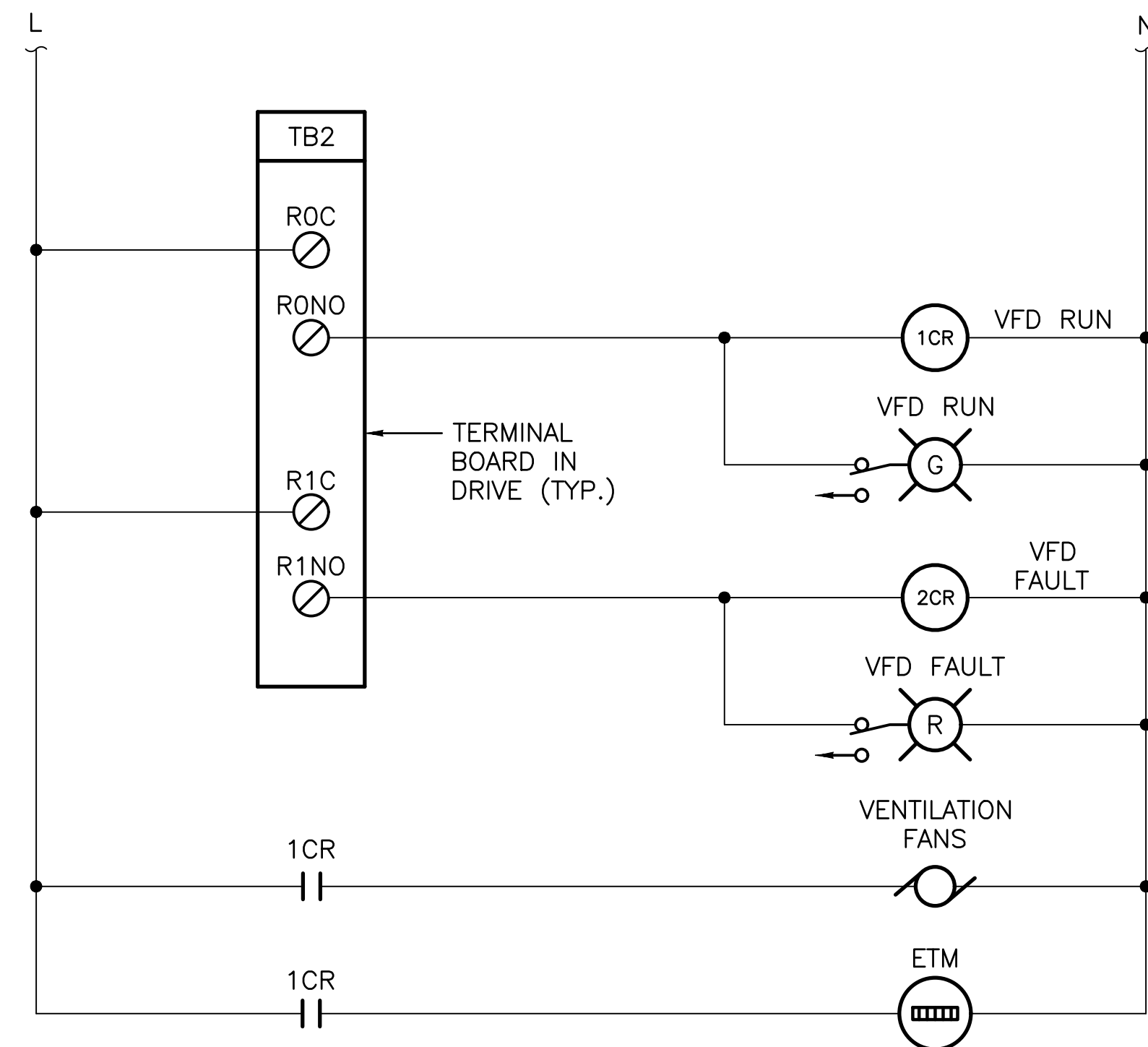
2. COORDINATE VFD CONTROL WIRING WITH THE VFD MANUFACTURER. REFER TO THE DESCRIPTION OF OPERATION IN THE SPECS FOR THE AUTO START/STOP AND SPEED CONTROL SEQUENCE.



**SBR BLOWER VFD
 ELEVATION**



**SBR BLOWER VFD
 WIRING DIAGRAM**



REVISIONS	MARK	ISSUED DATE	DESCRIPTION

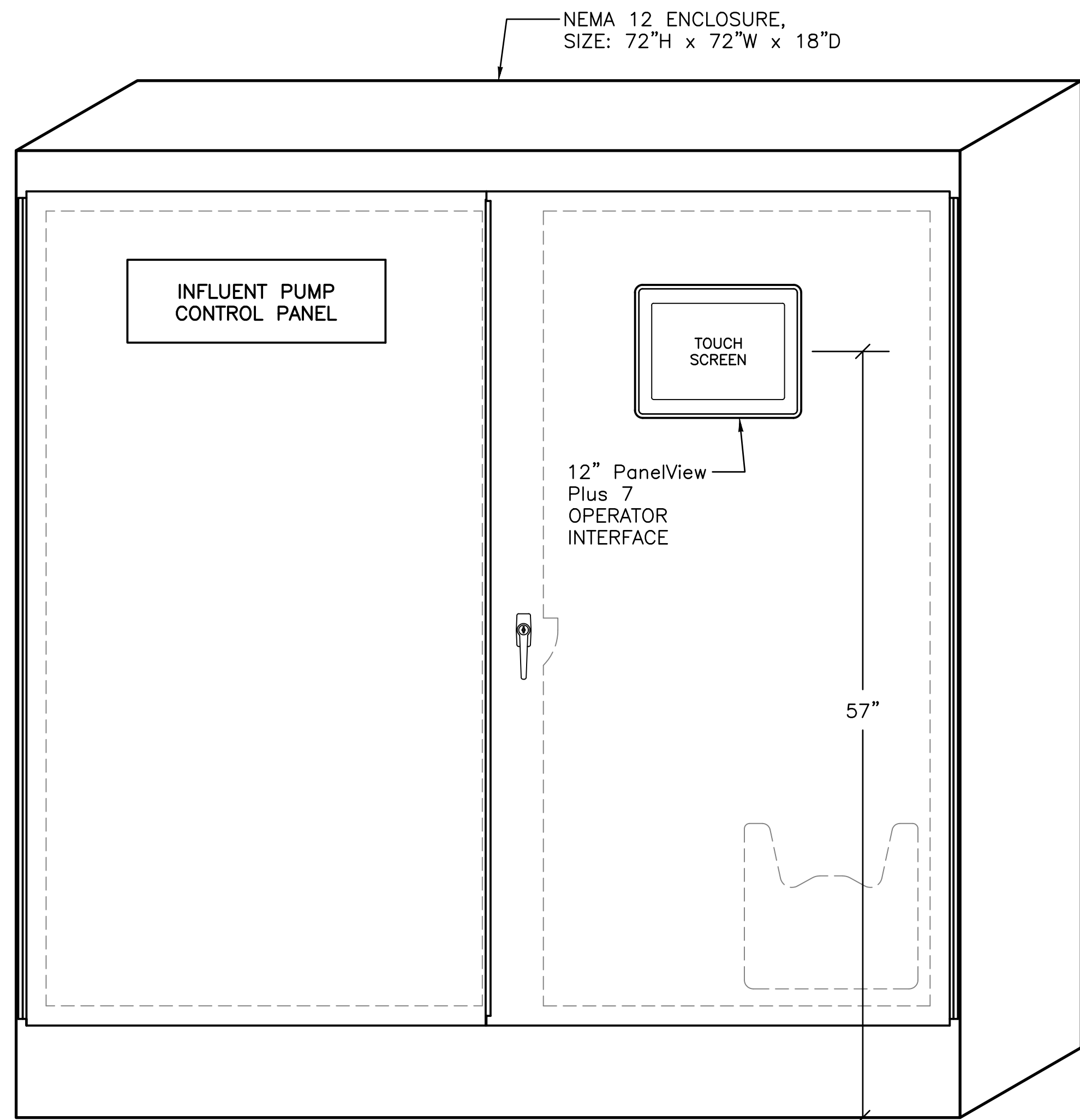
PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
**SBR BLOWER
 VFDs**

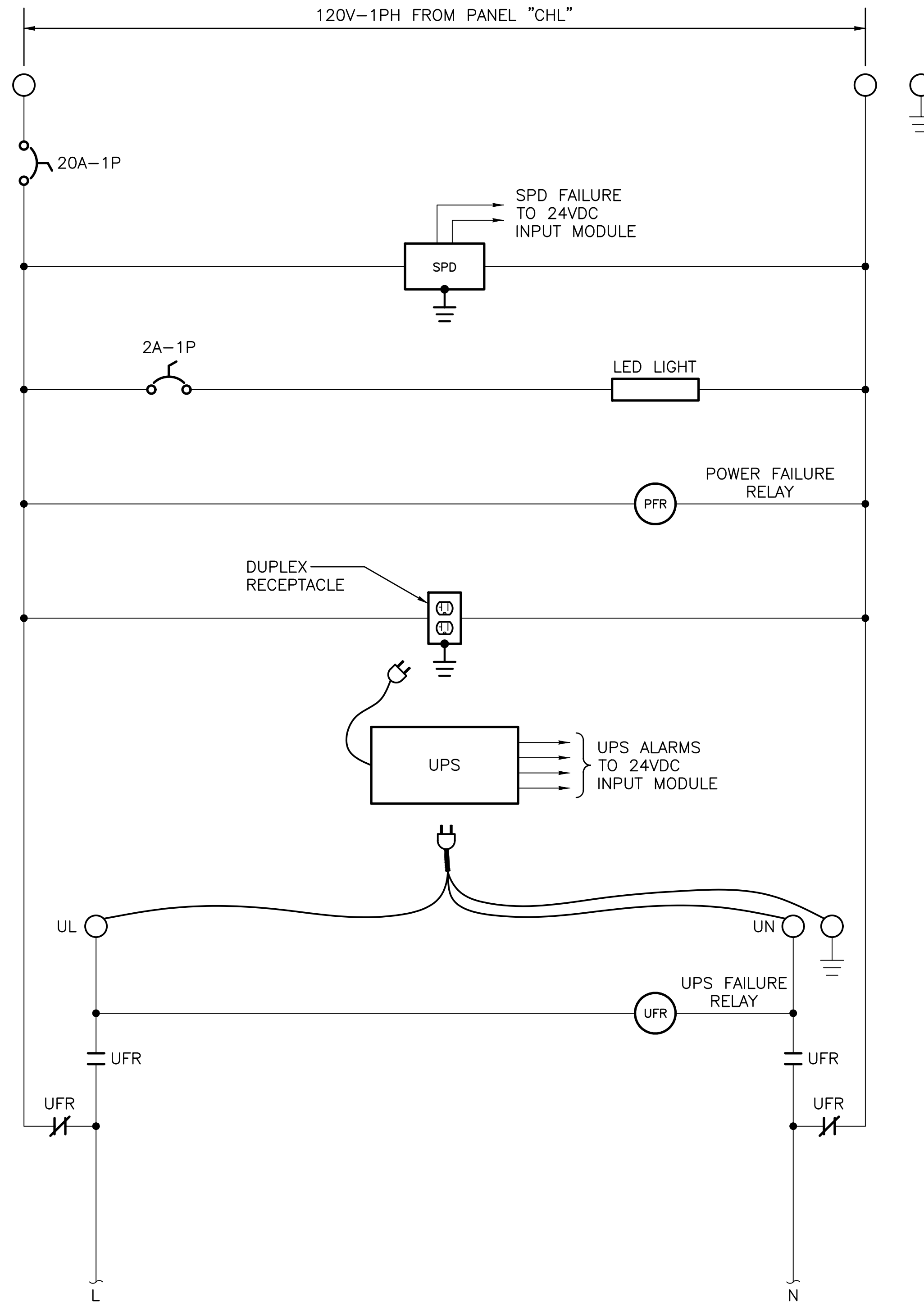
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NOTES

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



**INFLUENT PUMP CONTROL PANEL
PANEL LAYOUT**



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21795

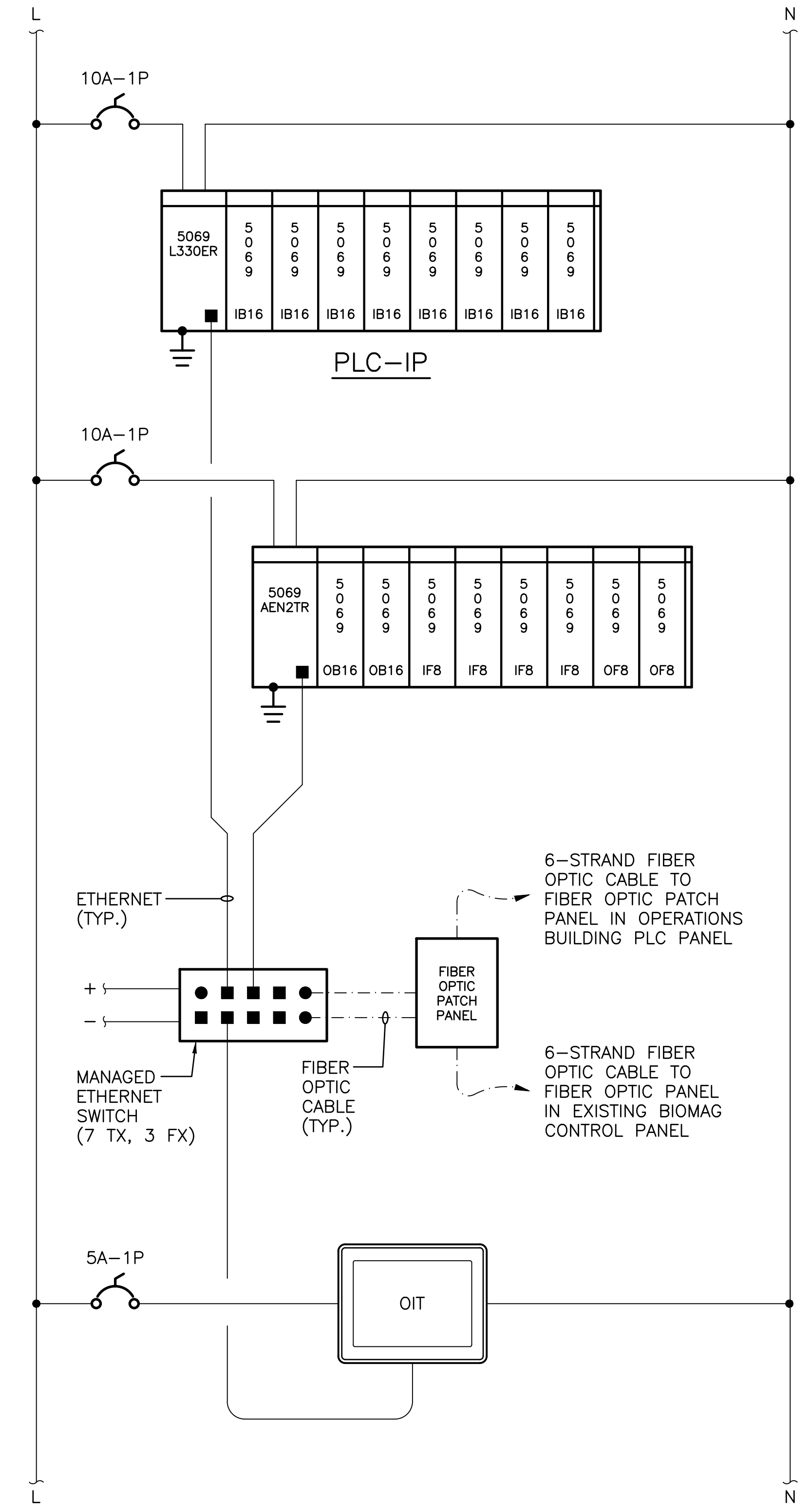
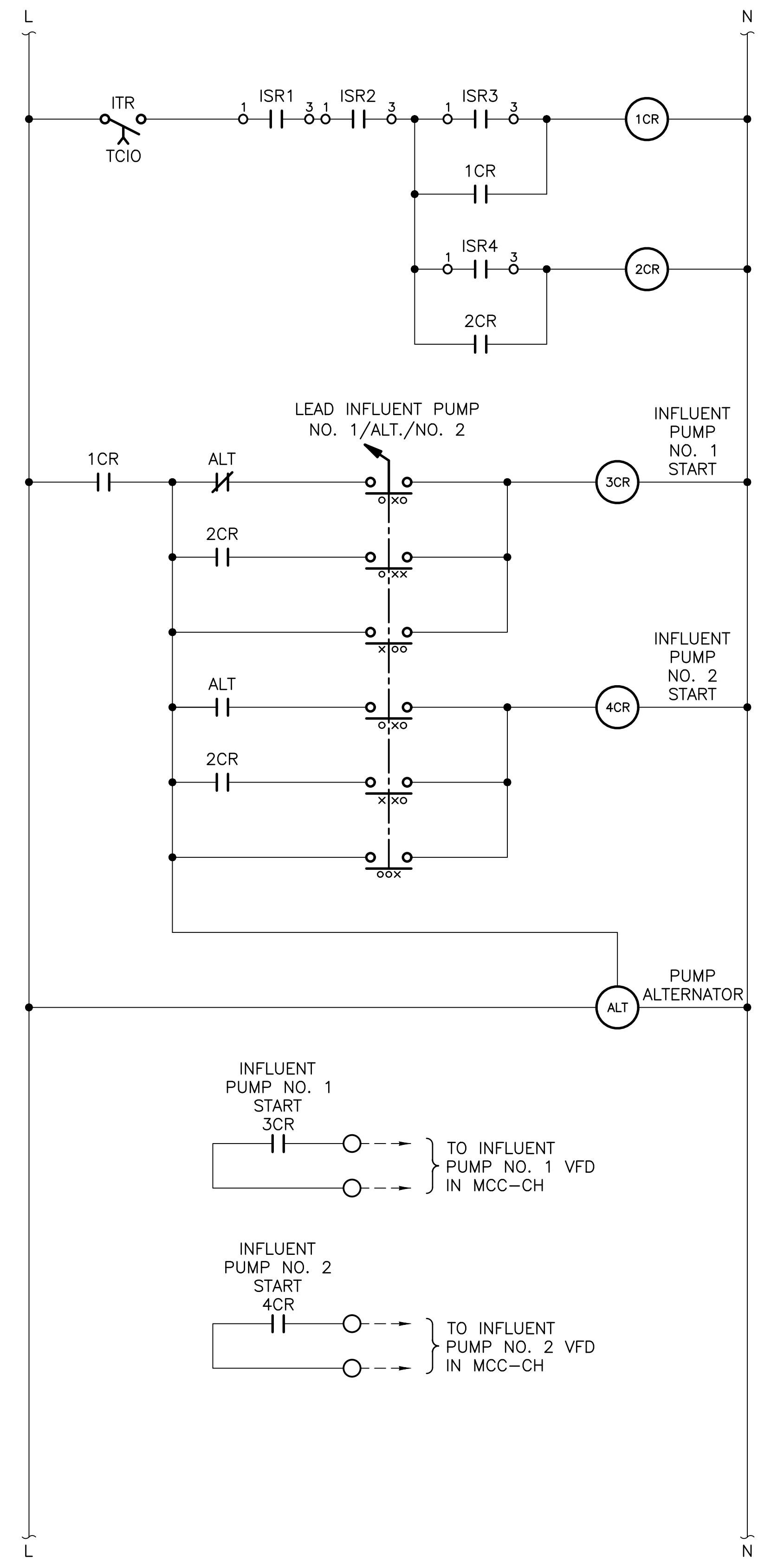
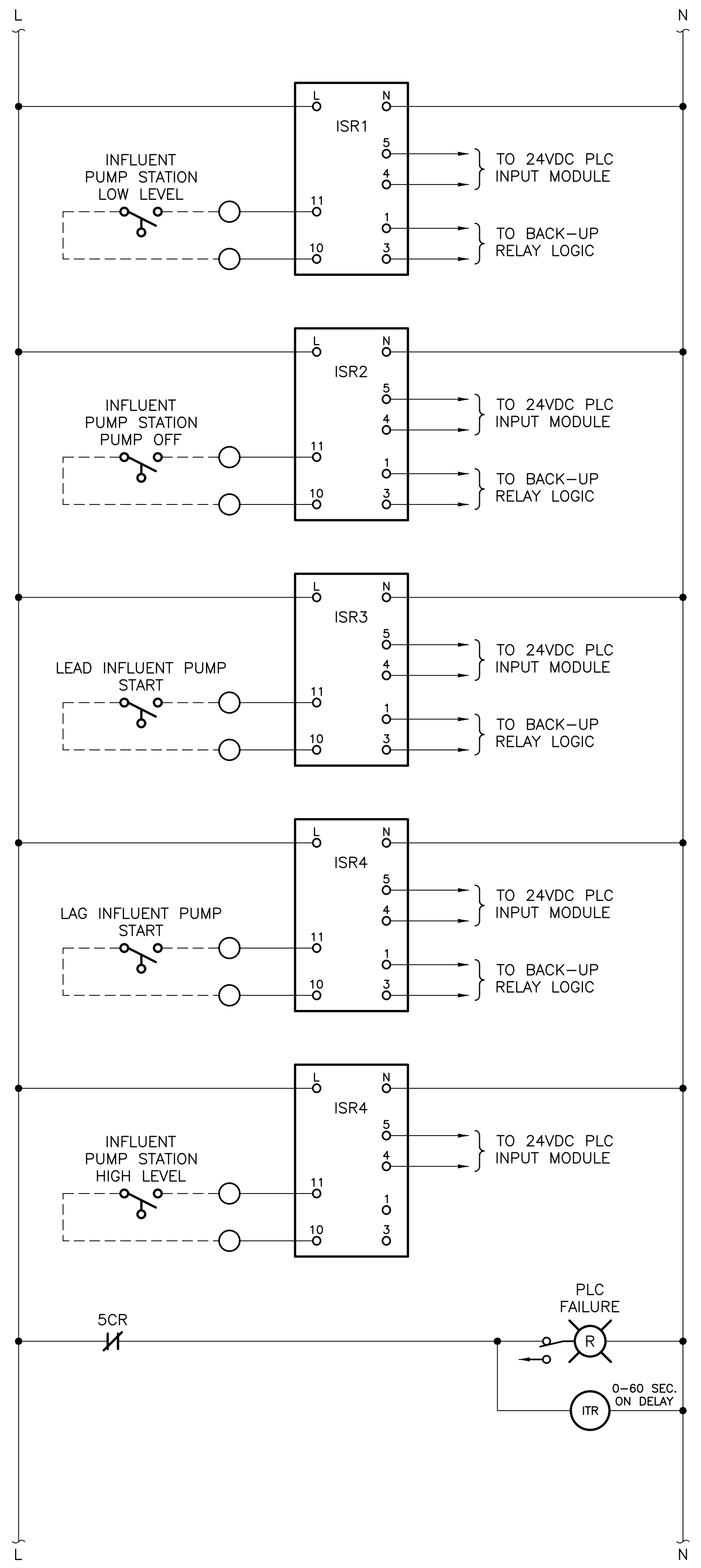
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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SHEET TITLE:
INFLUENT PUMP CONTROL PANEL

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I:\0_RK\COM\ES\CLD\PROJECTS\2017\012_WCENR\012_SMITHSBURG_EXPANSION\REF\ENR\PCS11.DWG (rev. 18/20/2021 12:31 PM) Shanon Johnson



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
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 SMITHSBURG, MARYLAND 21783

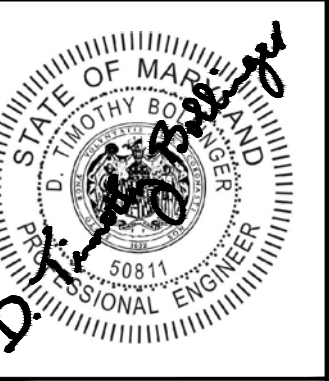
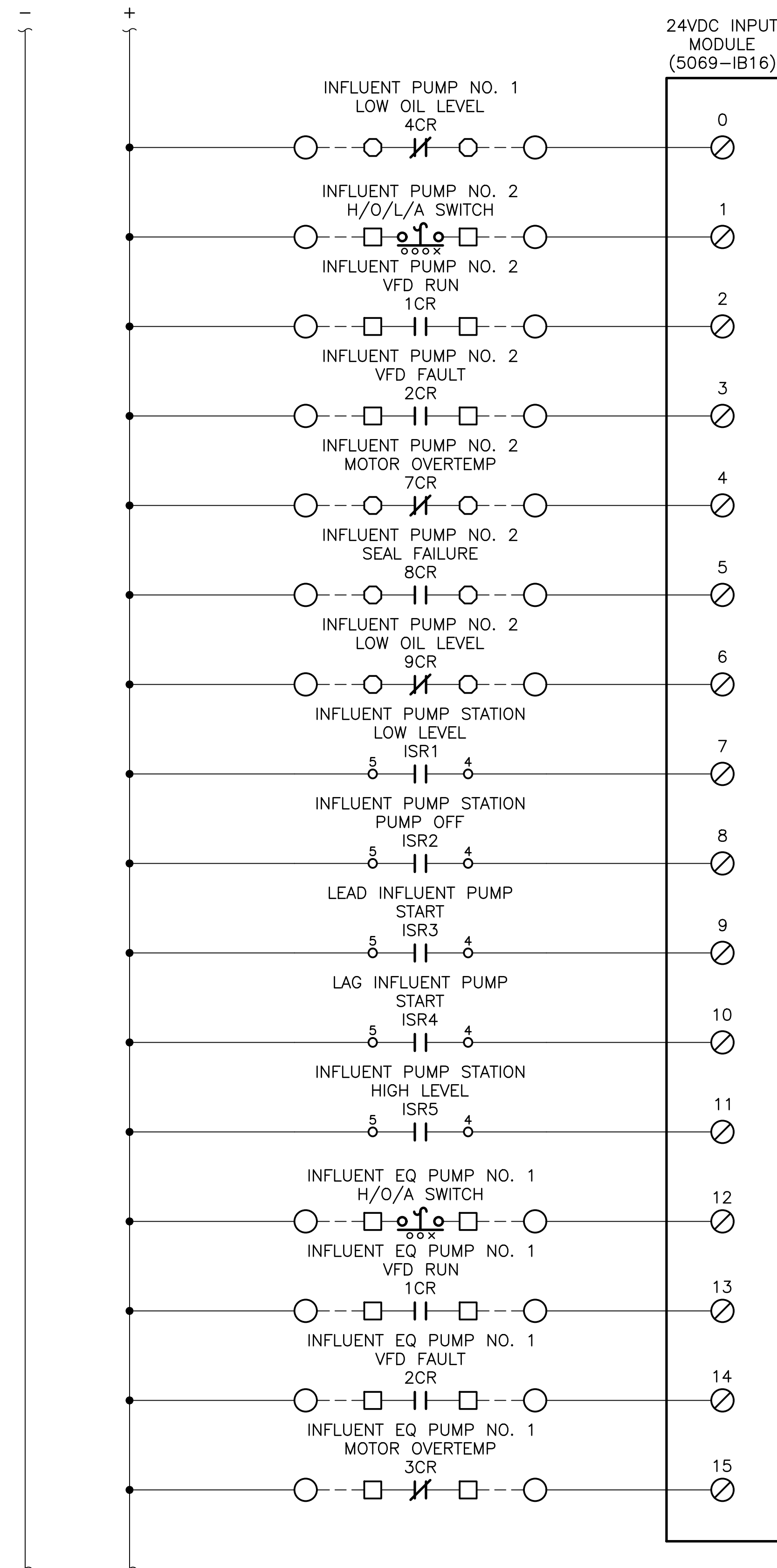
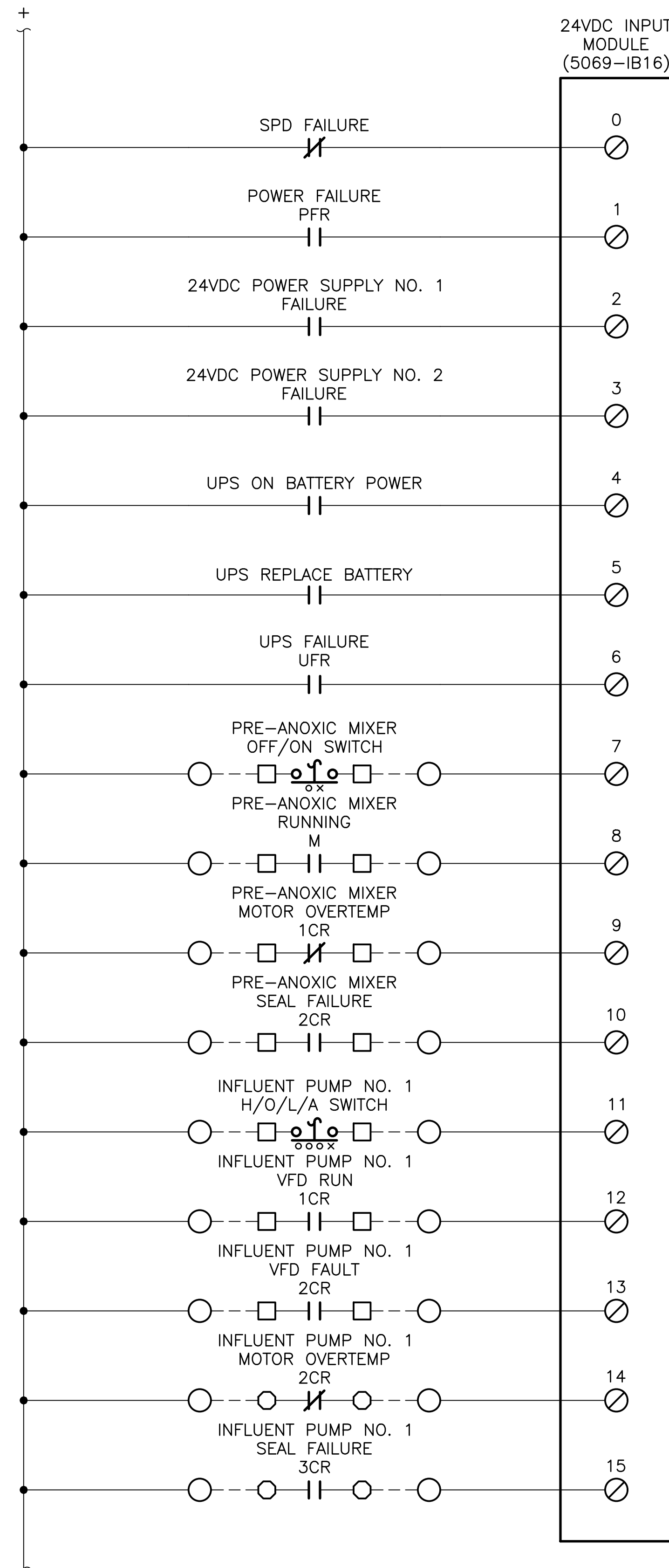
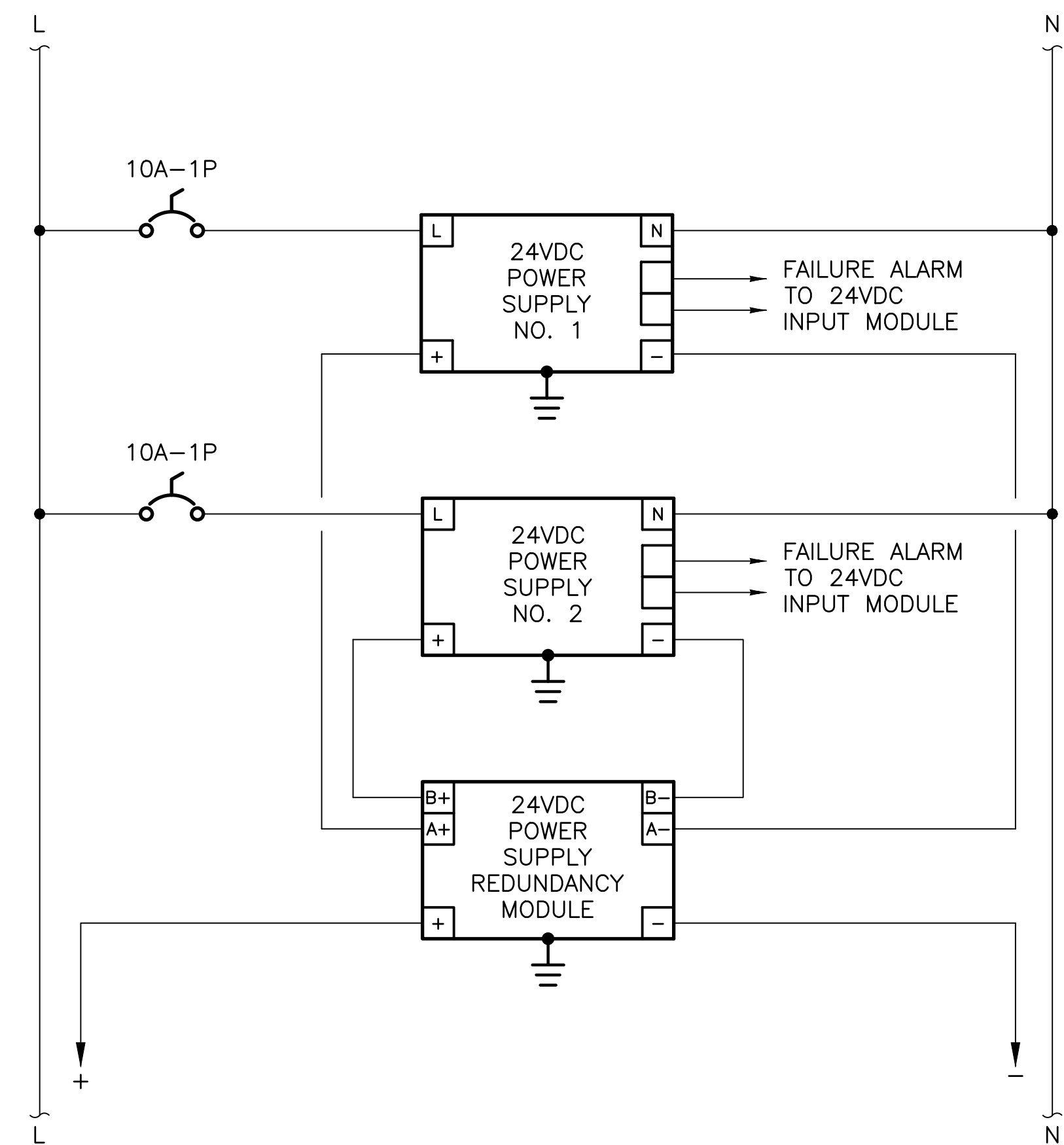
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
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SHEET TITLE:
INFLUENT PUMP CONTROL PANEL WIRING DIAGRAM

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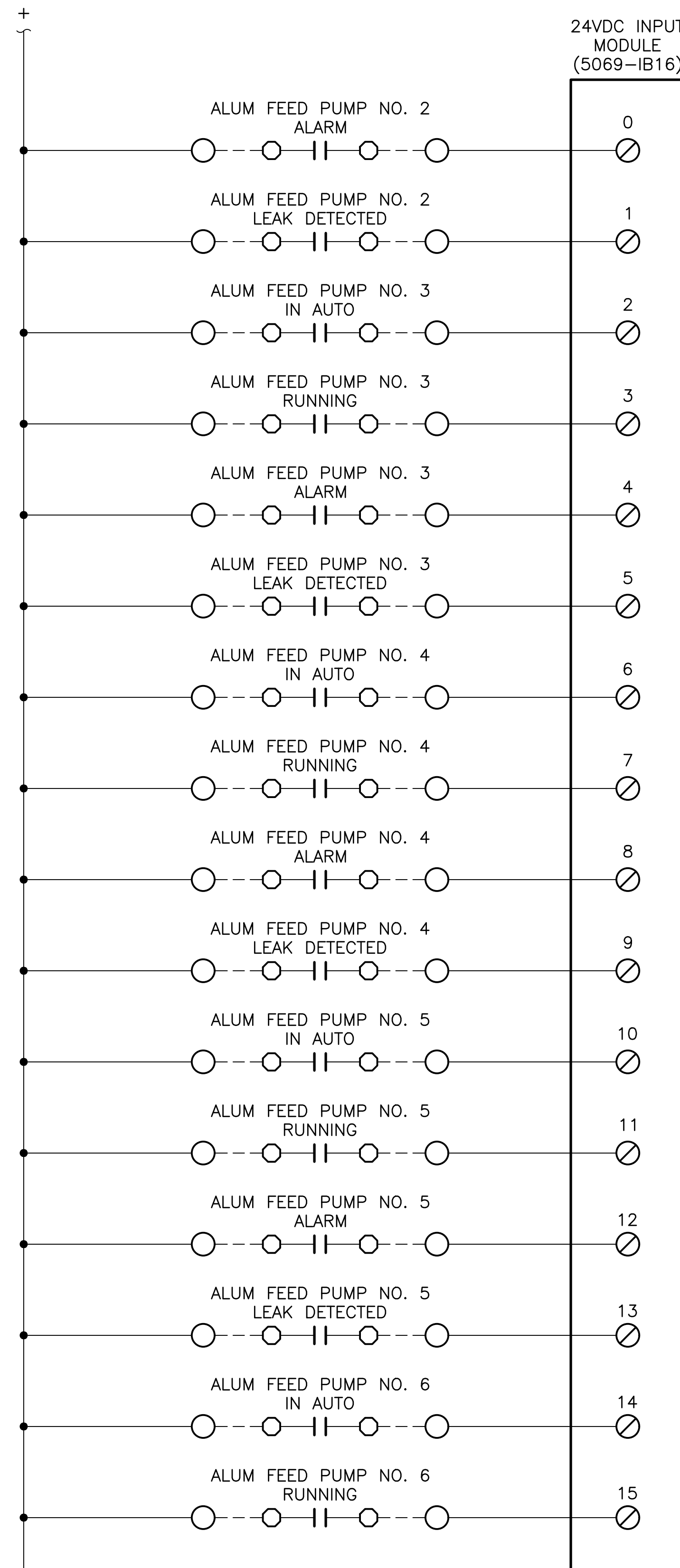
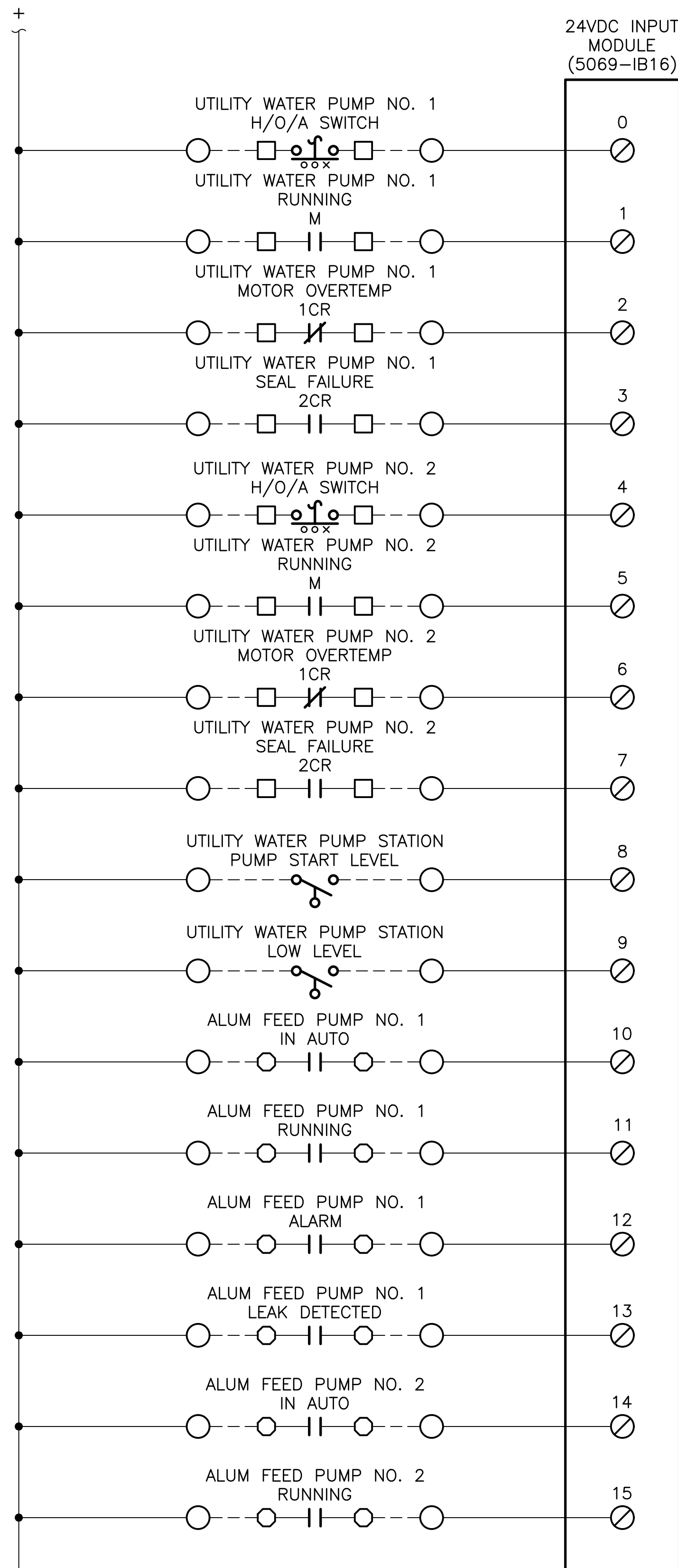
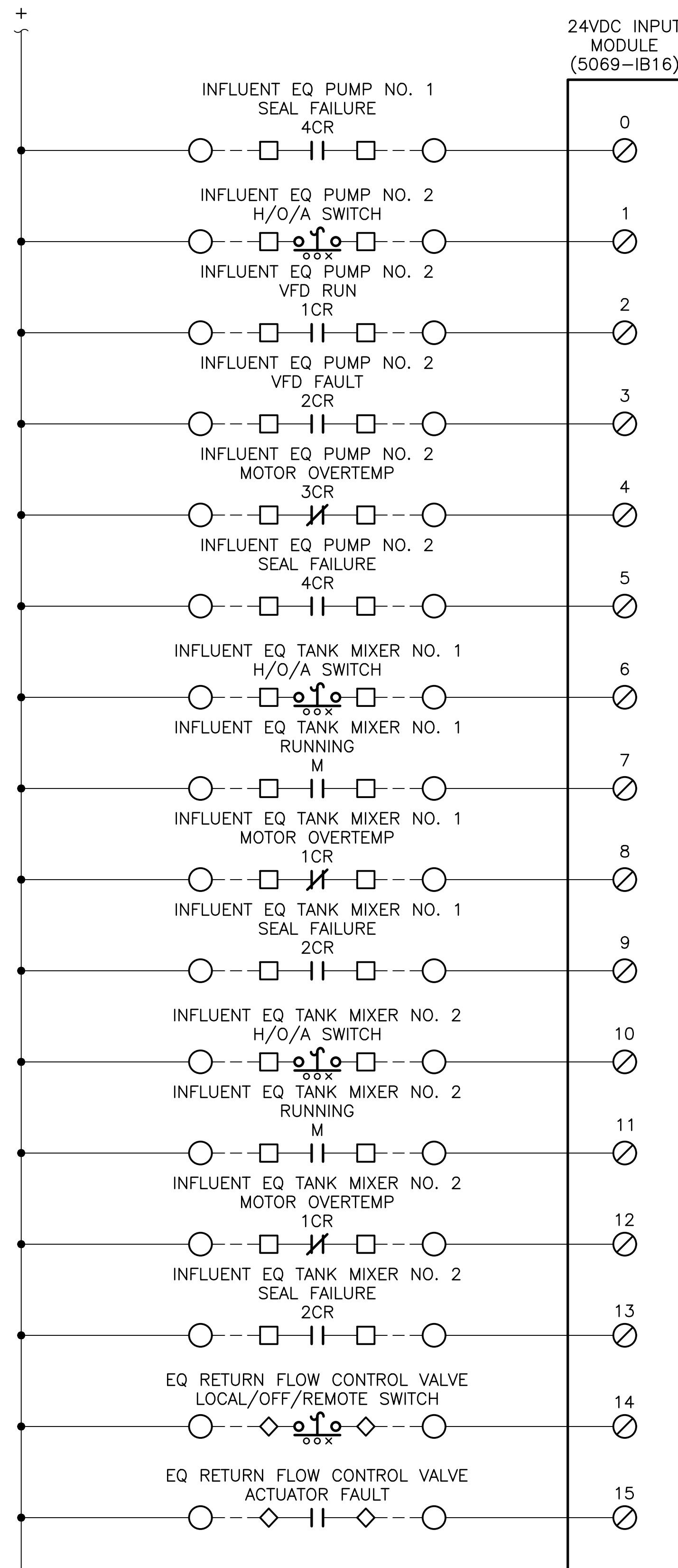
SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22623 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21795

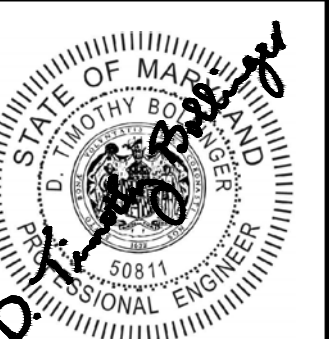
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PROJECT NO: 76436-03
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INFLUENT PUMP CONTROL PANEL WIRING DIAGRAM



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22823 LETTERSBURG, SMITHSBURG, ROAD
SMITHSBURG, MARYLAND 21783

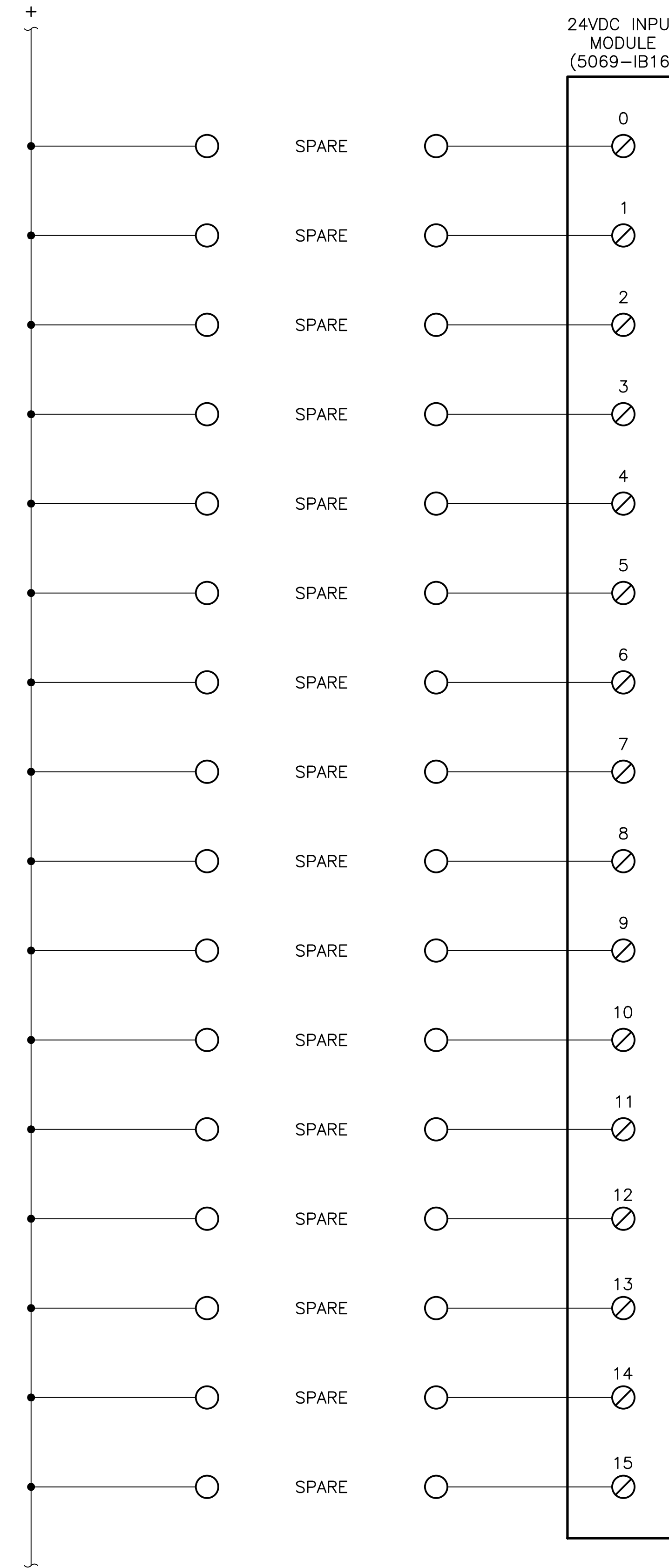
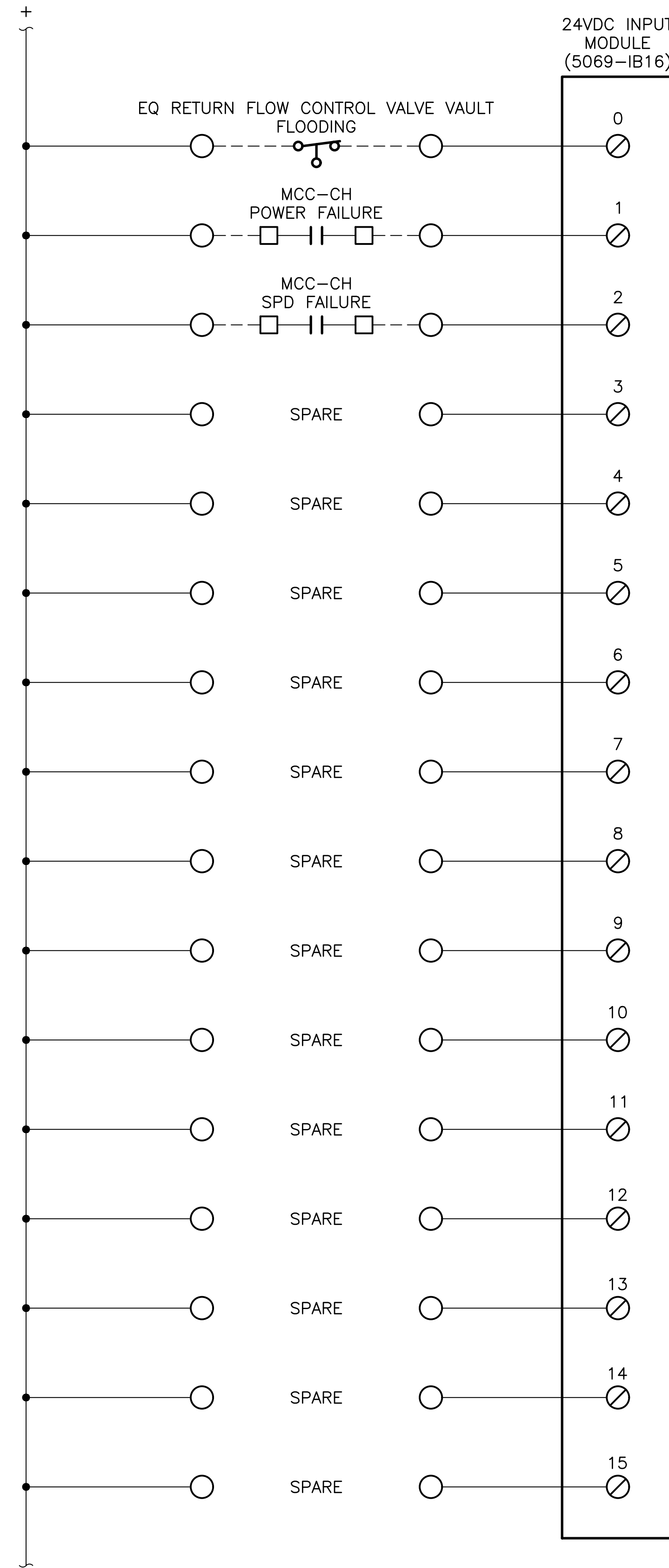
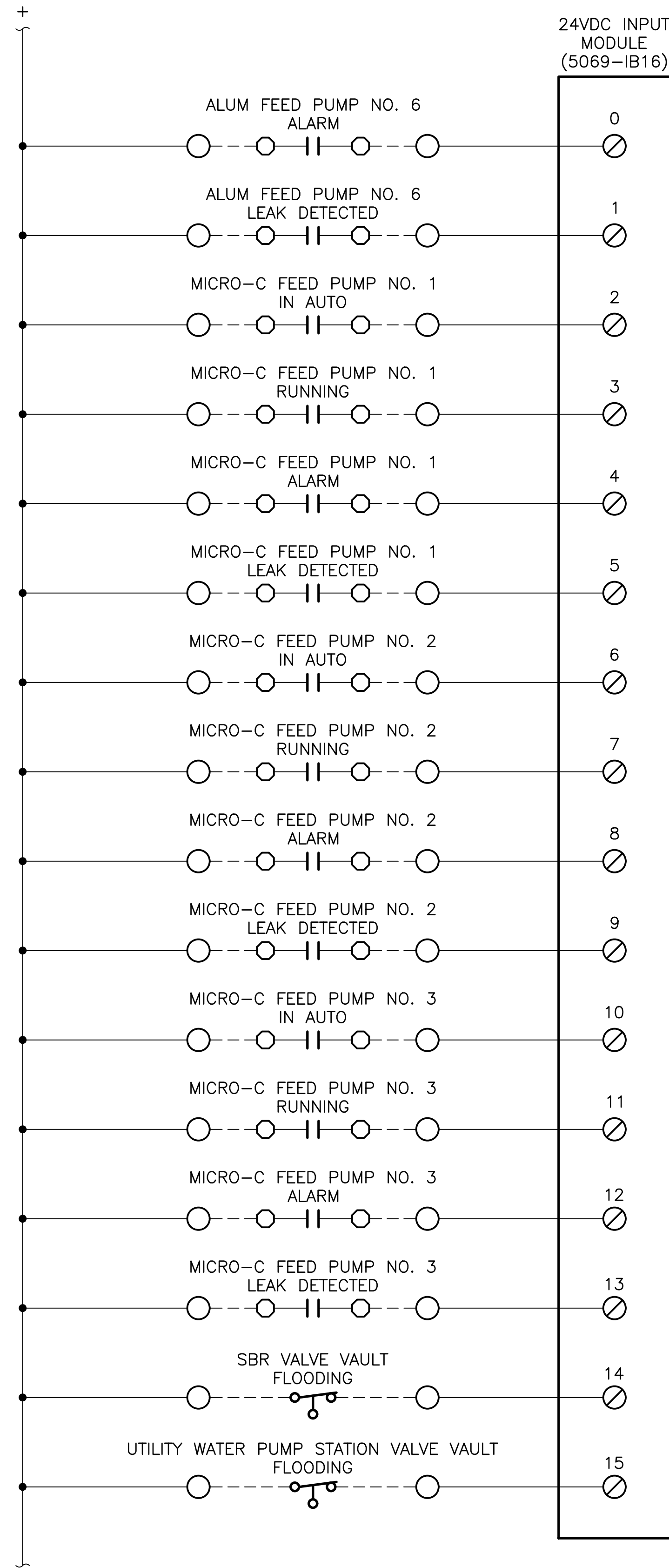
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELIOTT PARKWAY
WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/20/21
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SHEET TITLE:
INFLUENT PUMP CONTROL PANEL WIRING DIAGRAM

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22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY

16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21785

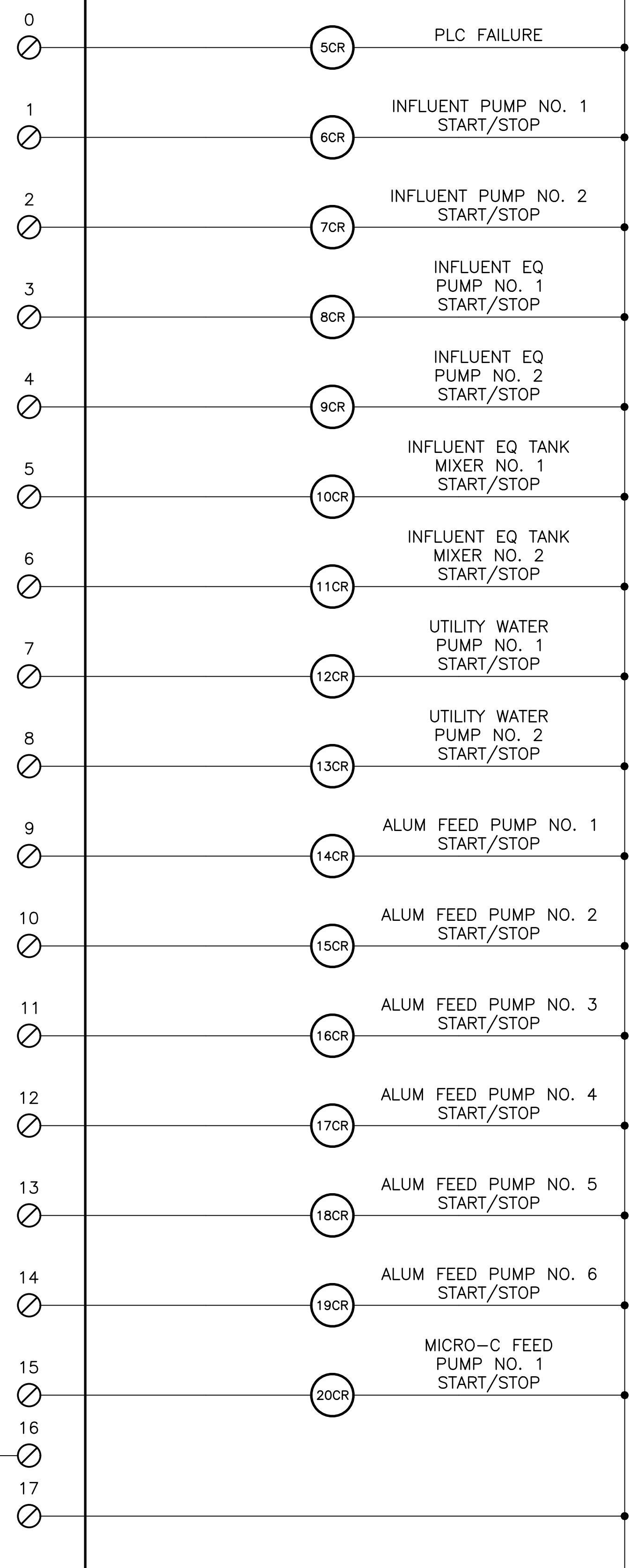
REVISIONS	
MARK	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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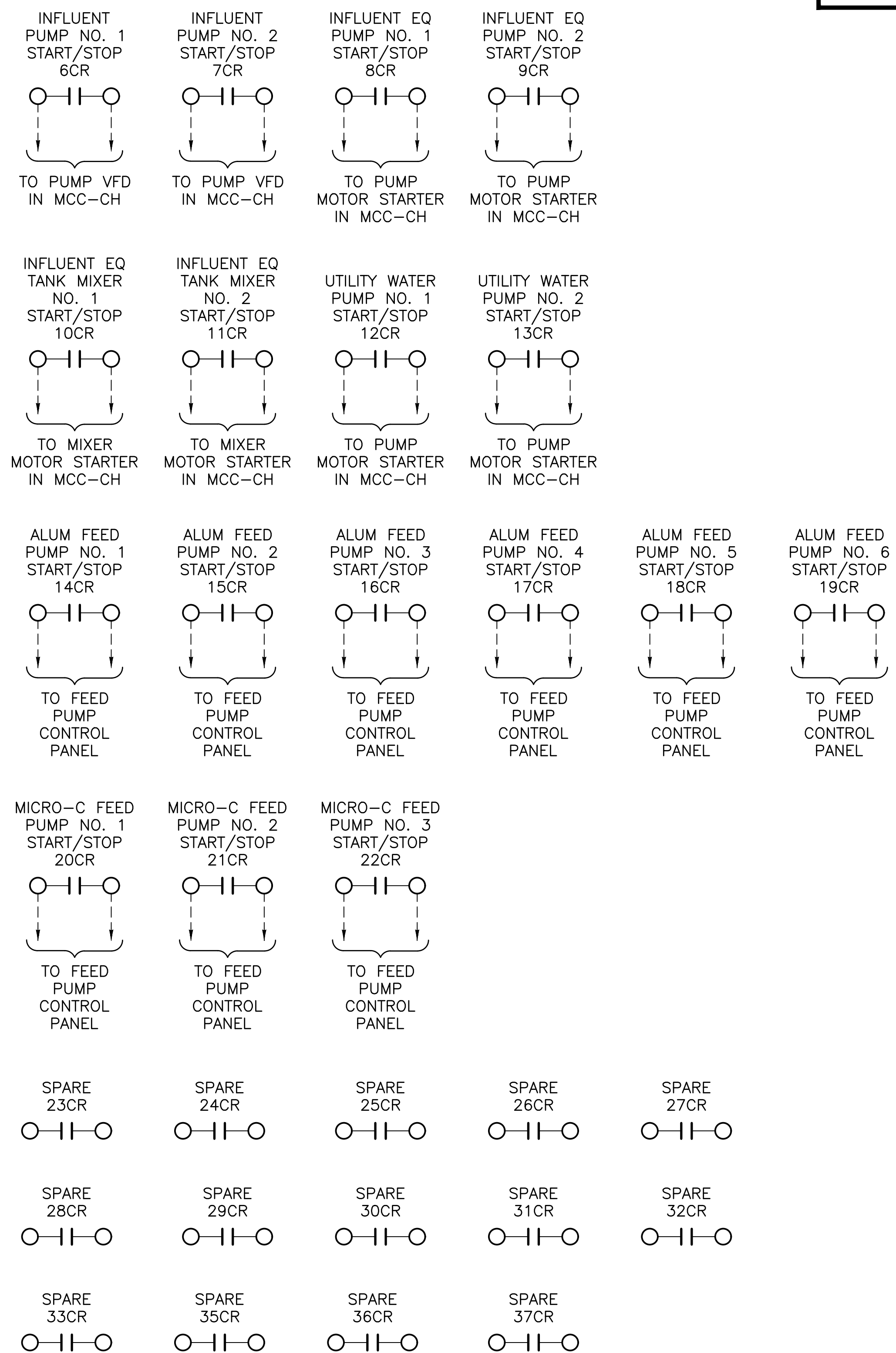
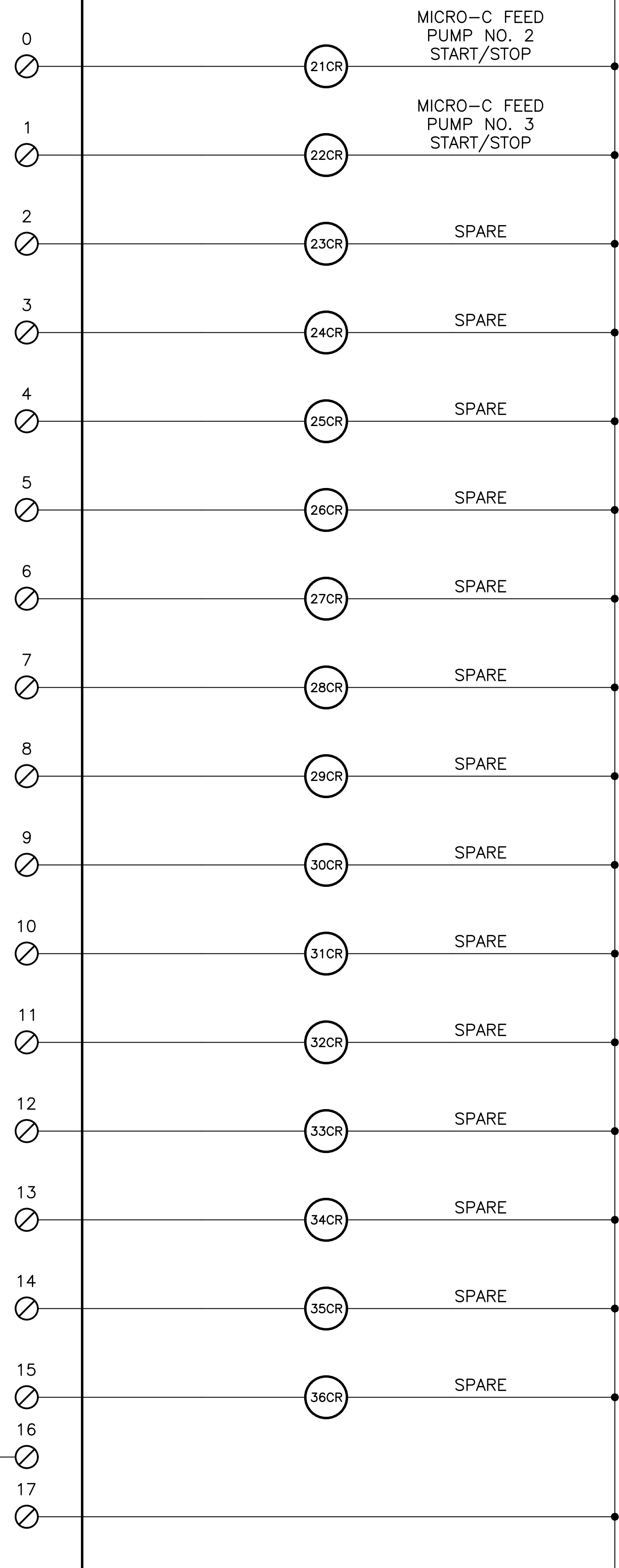
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INFLUENT PUMP CONTROL PANEL WIRING DIAGRAM

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24VDC RELAY
OUTPUT MODULE
(5069-OB16)



24VDC RELAY
OUTPUT MODULE
(5069-OB16)



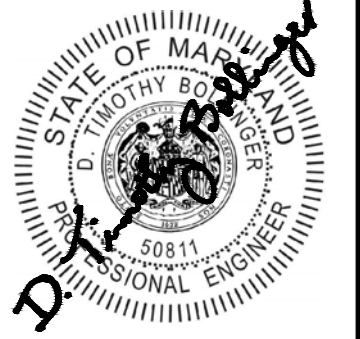
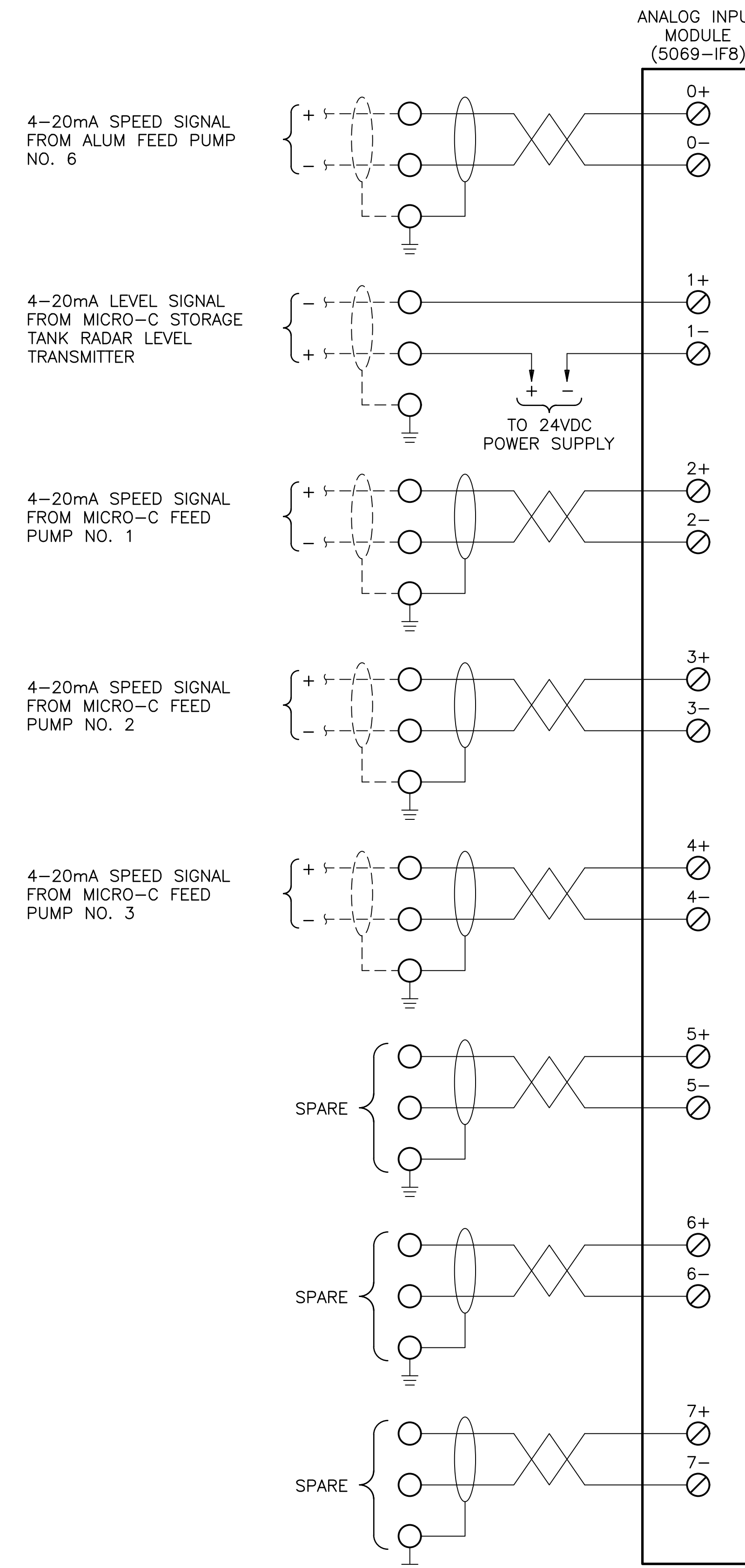
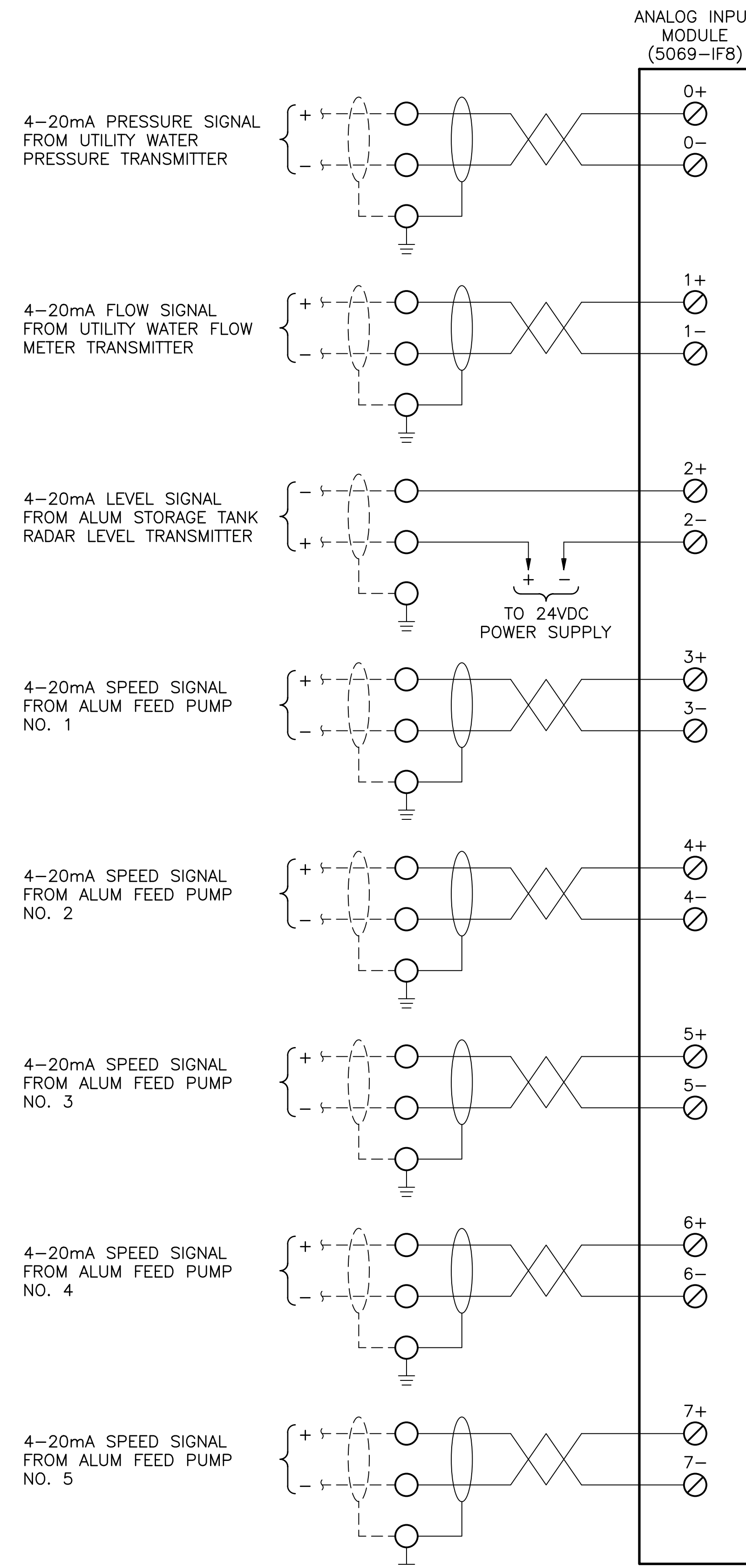
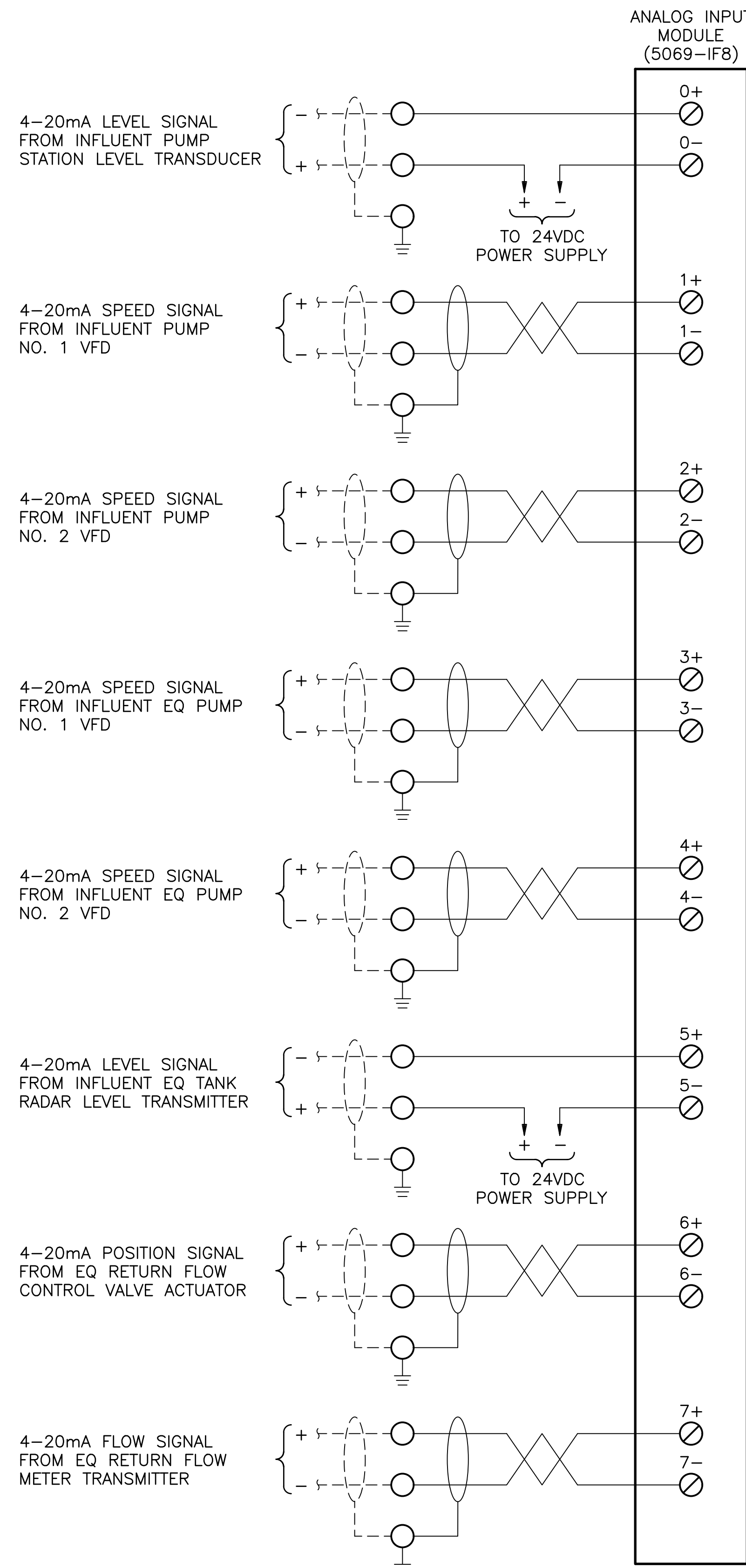
SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22823 LETTERSBURG, SMITHSBURG, ROAD
 SMITHSBURG, MARYLAND 21783
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21795

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PROJECT NO: 76436-03
 ISSUED DATE: 08/20/21
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 CHECKED BY: DTB
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SHEET TITLE:
**INFLUENT PUMP
 CONTROL
 PANEL
 WIRING
 DIAGRAM**

I:\0_RK\COMPS\CLOUD\PROJECTS\2007\012_WENR0712_SMITHSBURG_EXPANSION\REFDESIGN\40\ELC\PCS16.DWG (rev. 18/20/2021 12:31 PM) Smanon_Jordan



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
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SMITHSBURG, MARYLAND 21783

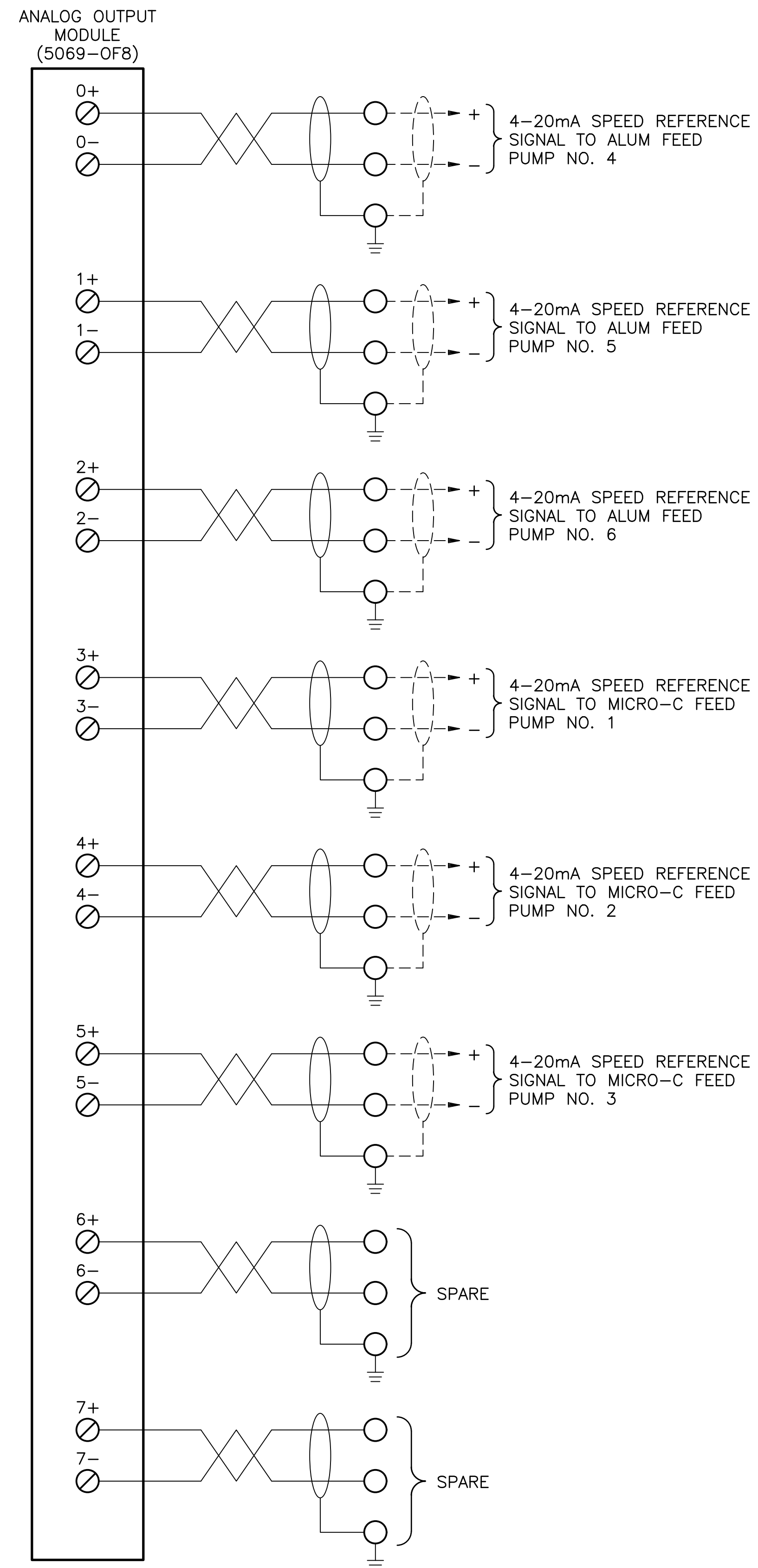
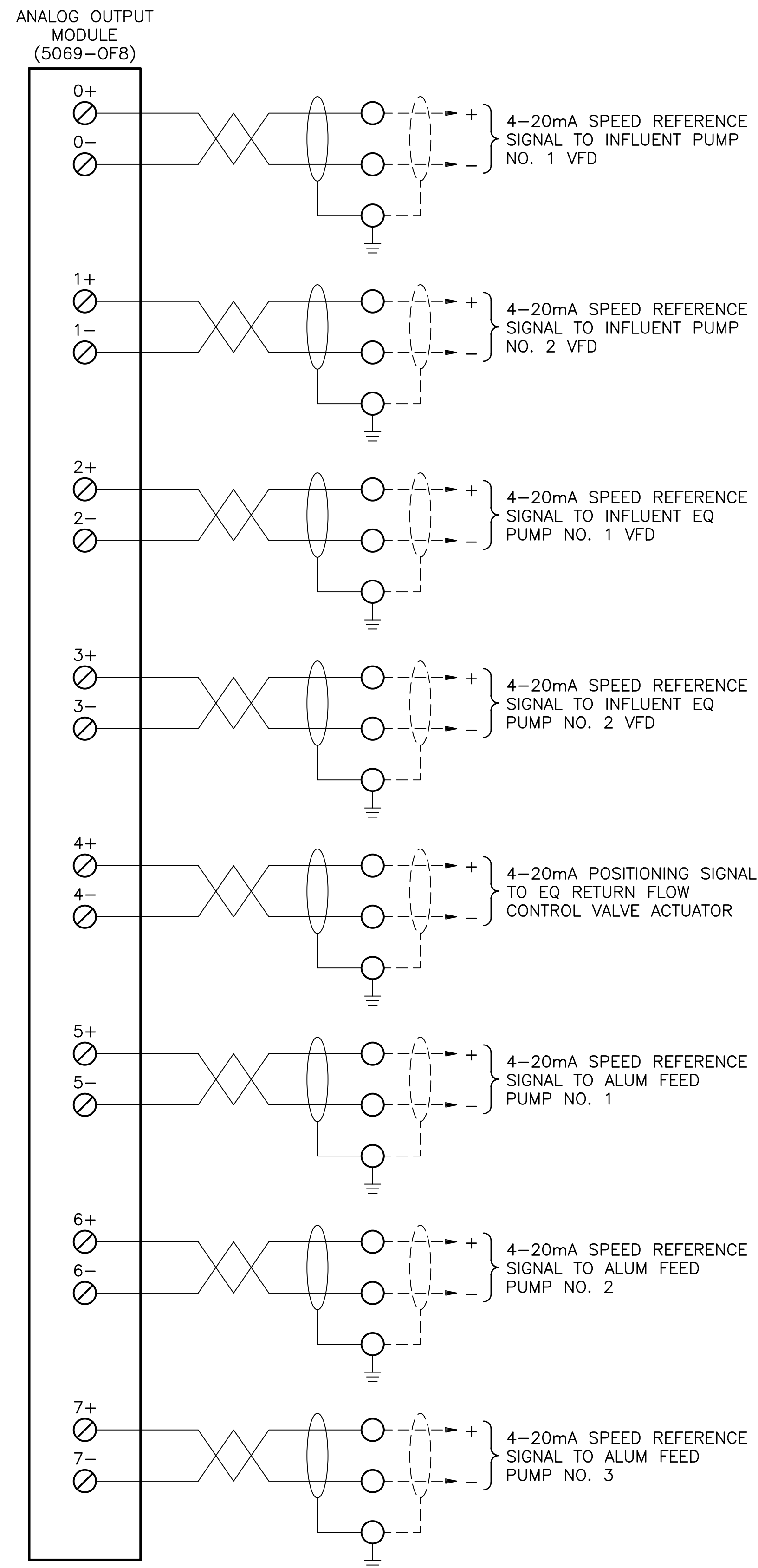
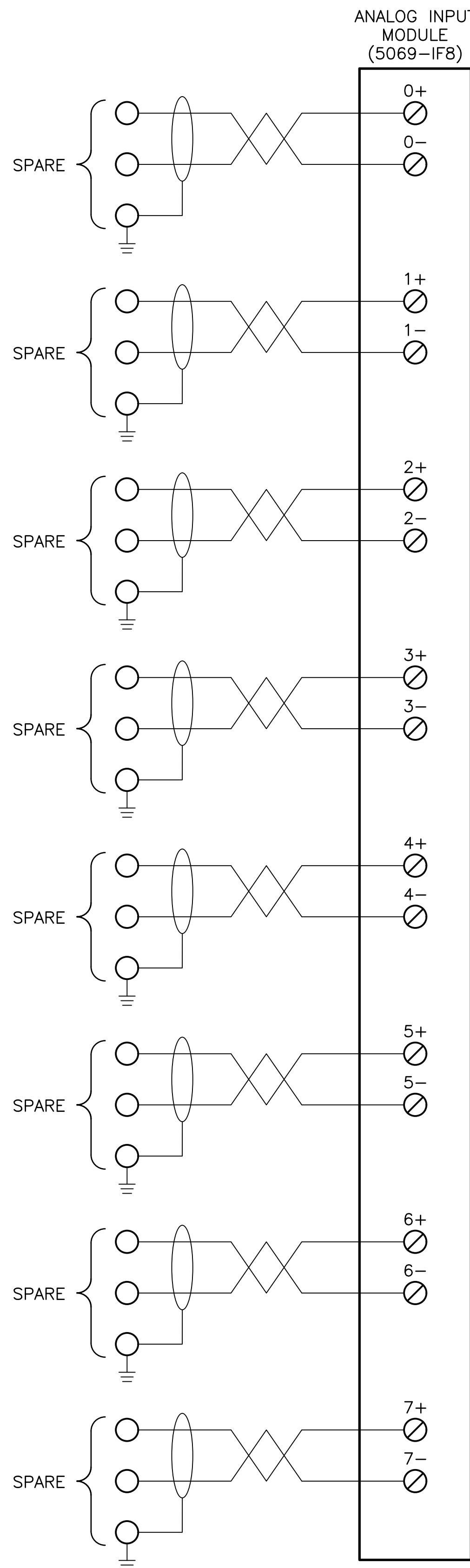
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

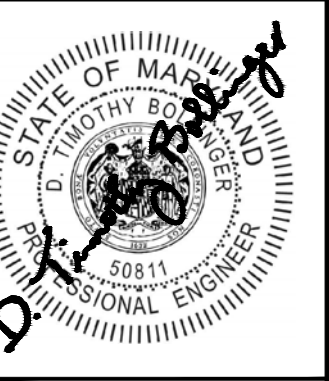
PROJECT NO: 76436-03
ISSUED DATE: 08/20/21
DRAWN BY: SMJ
CHECKED BY: DTB
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INFLUENT PUMP CONTROL PANEL WIRING DIAGRAM

I:\0_RK\COMPS\CLOUD\PROJECTS\2007\0102_WCENR\0102_SMITHSBURG_EXPANSION\REFDESIGN\CADD\ELECTRICAL\DWG\Panel18.dwg (18/20/2021 12:31 PM) Stamp: Jambon



P. 410/728/2600
708 East Pratt Street, Suite 501 Baltimore, MD 21202
Engineering Commission #16999 (Plumbing) #16999 (Electrical)
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SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21795

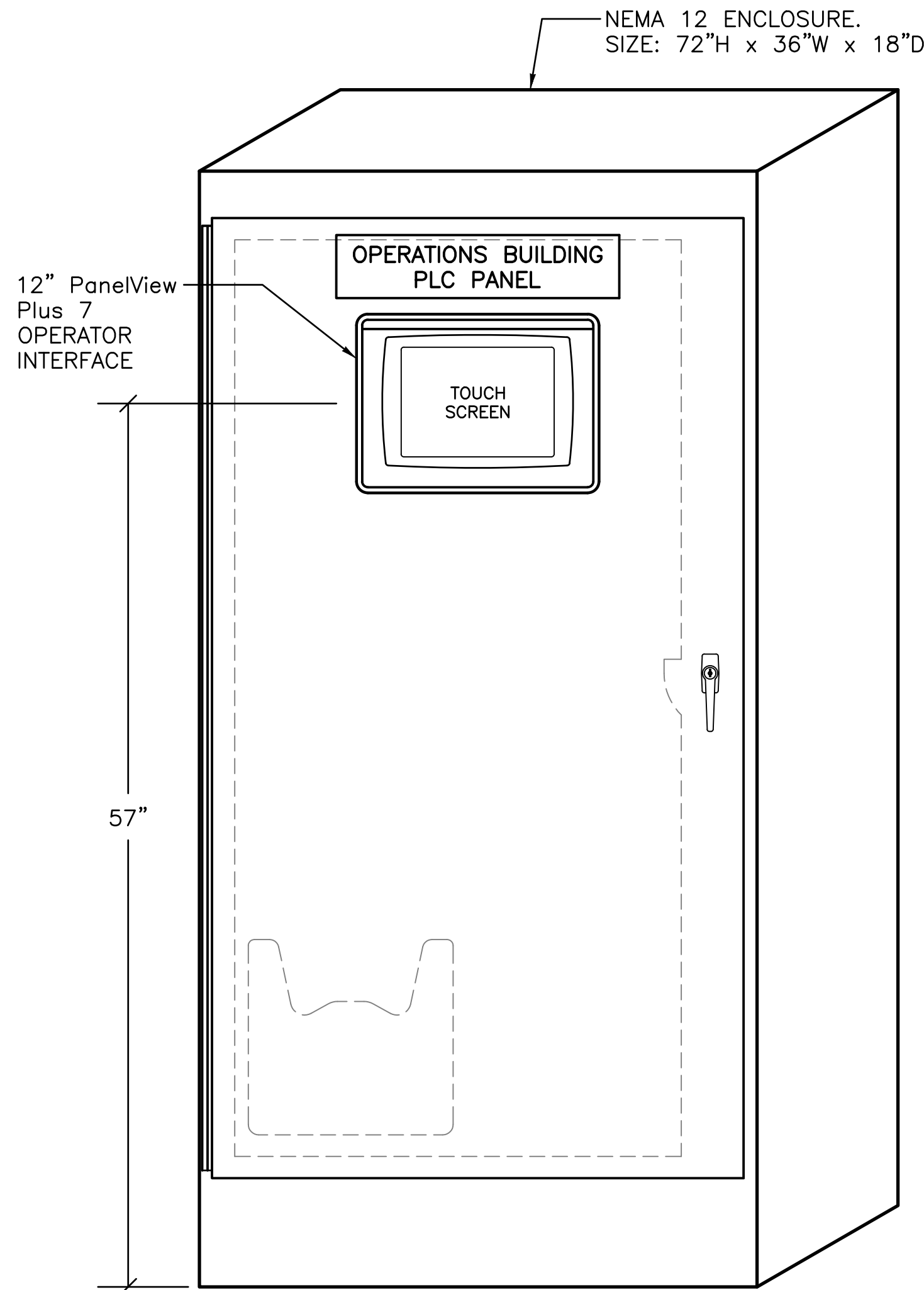
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/20/21
DRAWN BY: SMJ
CHECKED BY: DTB
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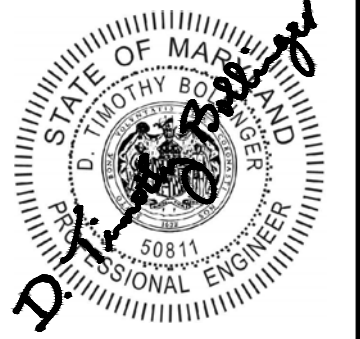
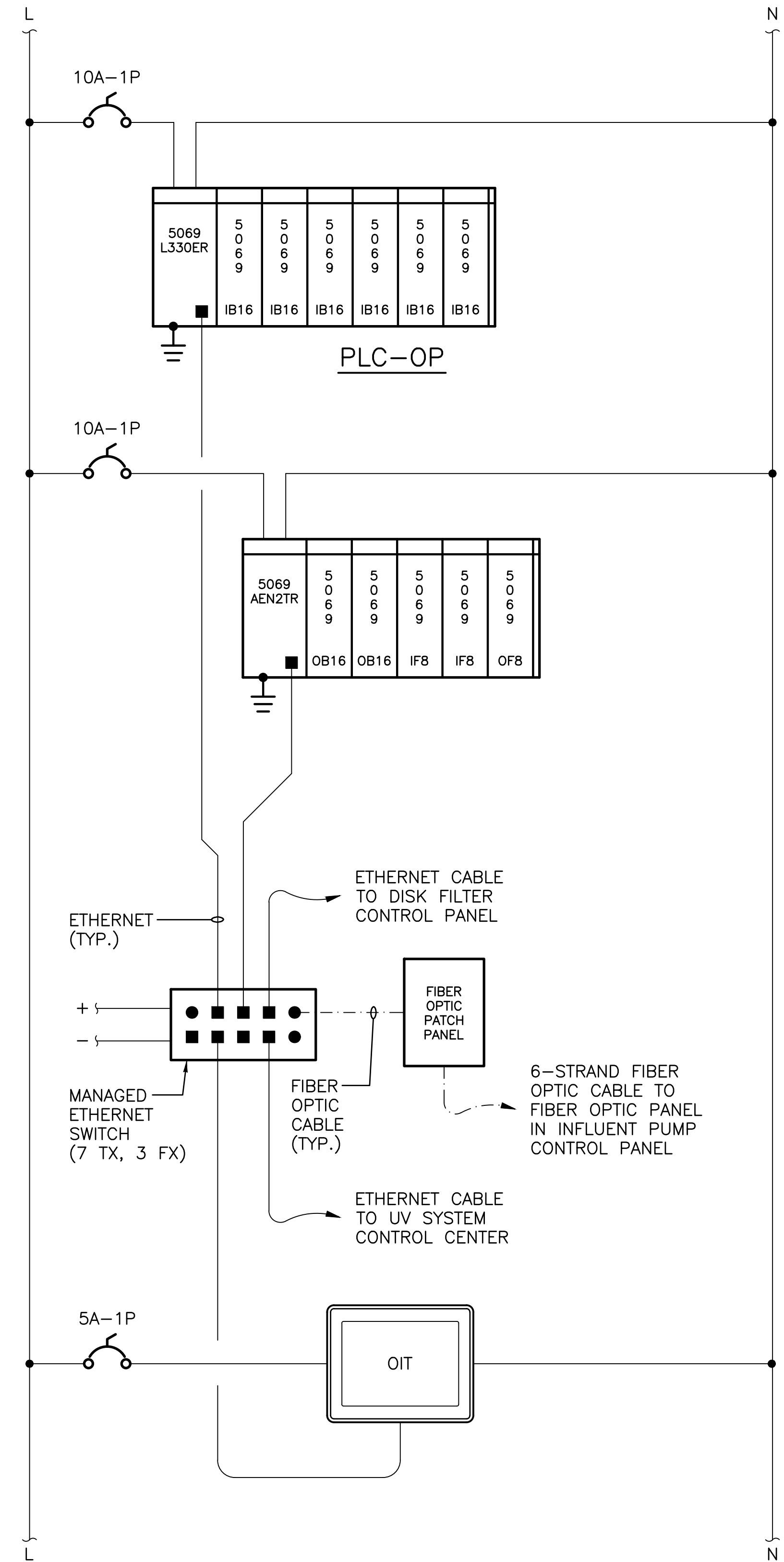
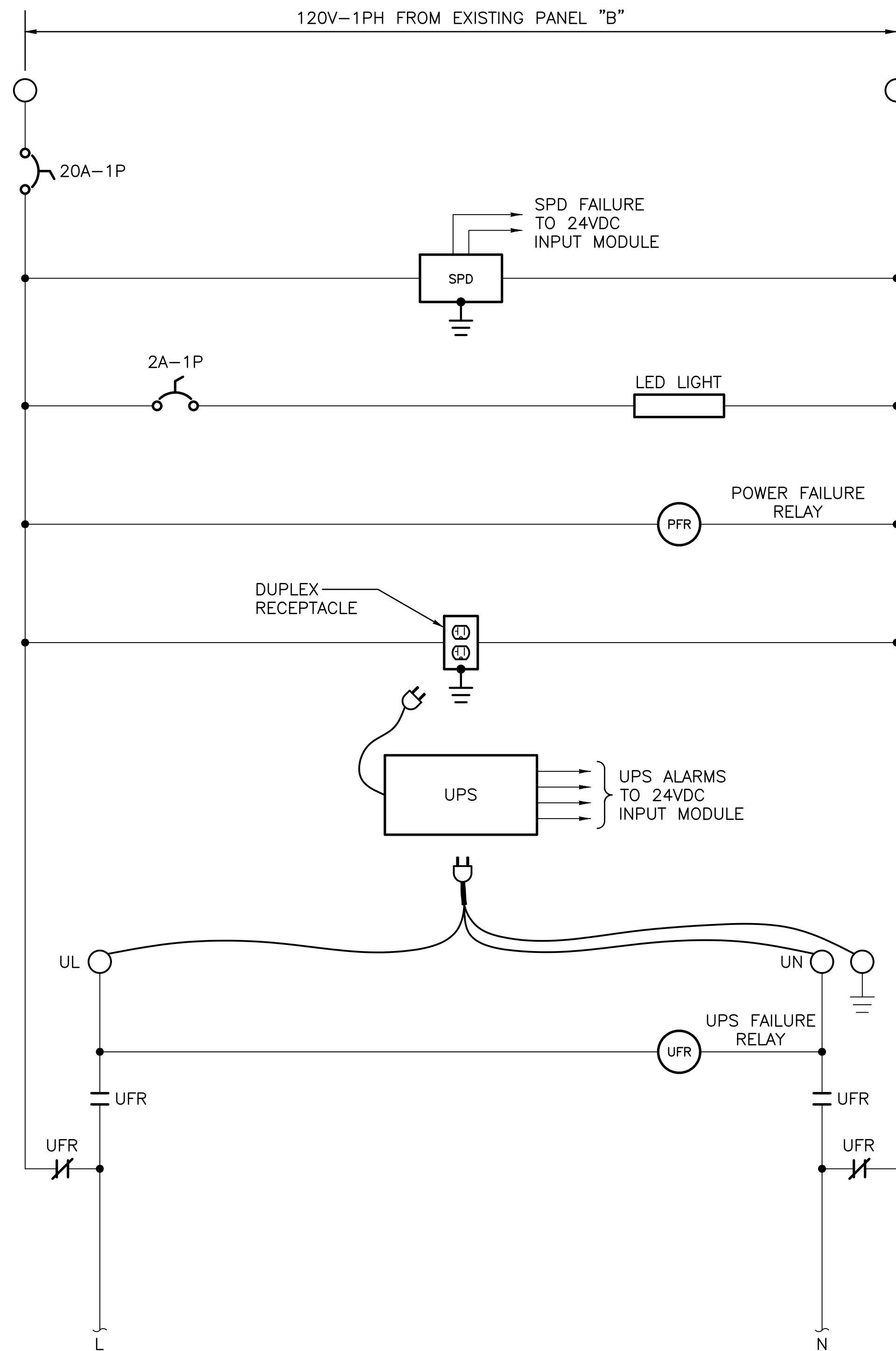
INFLUENT PUMP CONTROL PANEL WIRING DIAGRAM

NOTES

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



**OPERATIONS BUILDING PLC PANEL
PANEL LAYOUT**



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21785

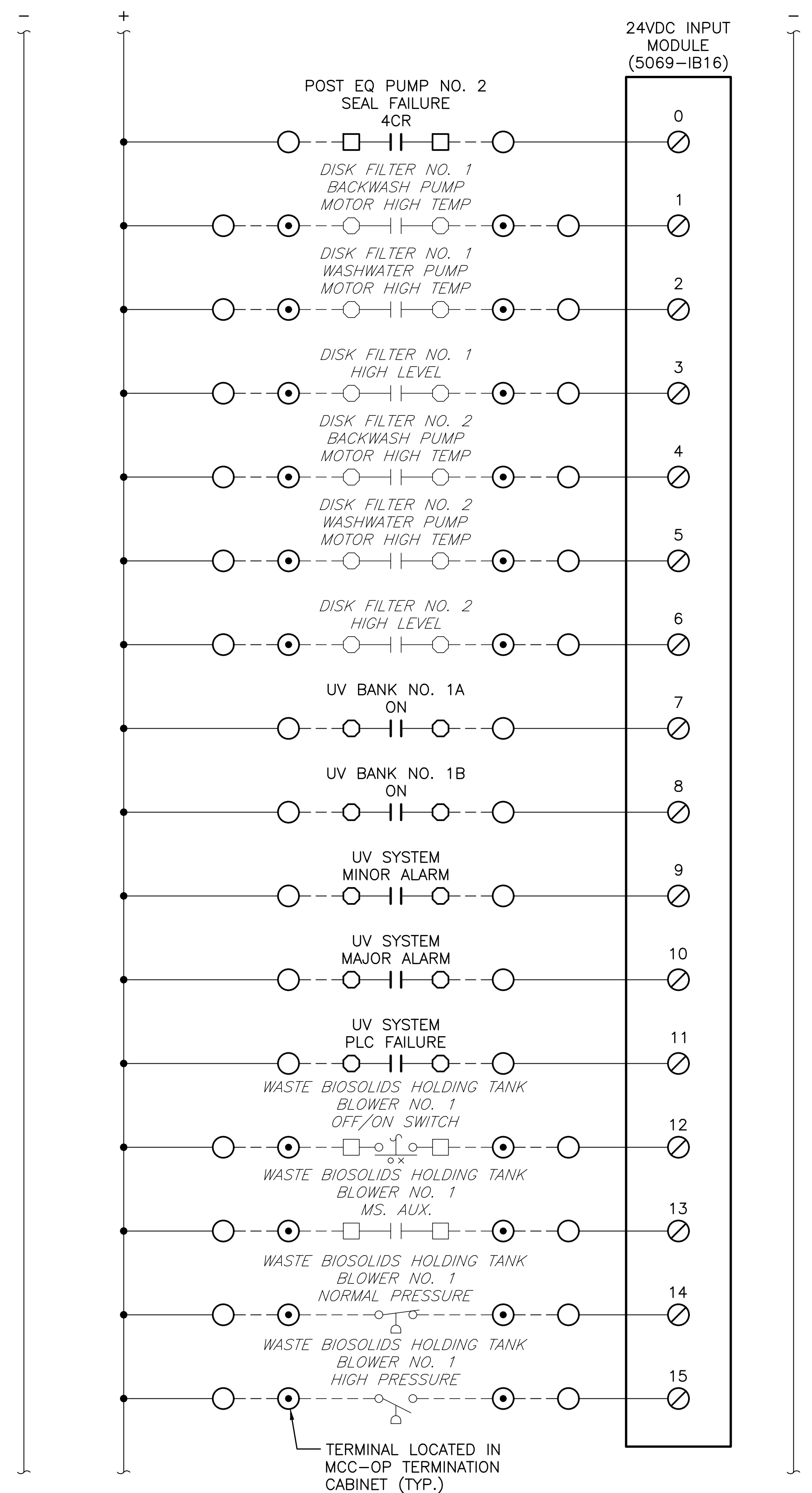
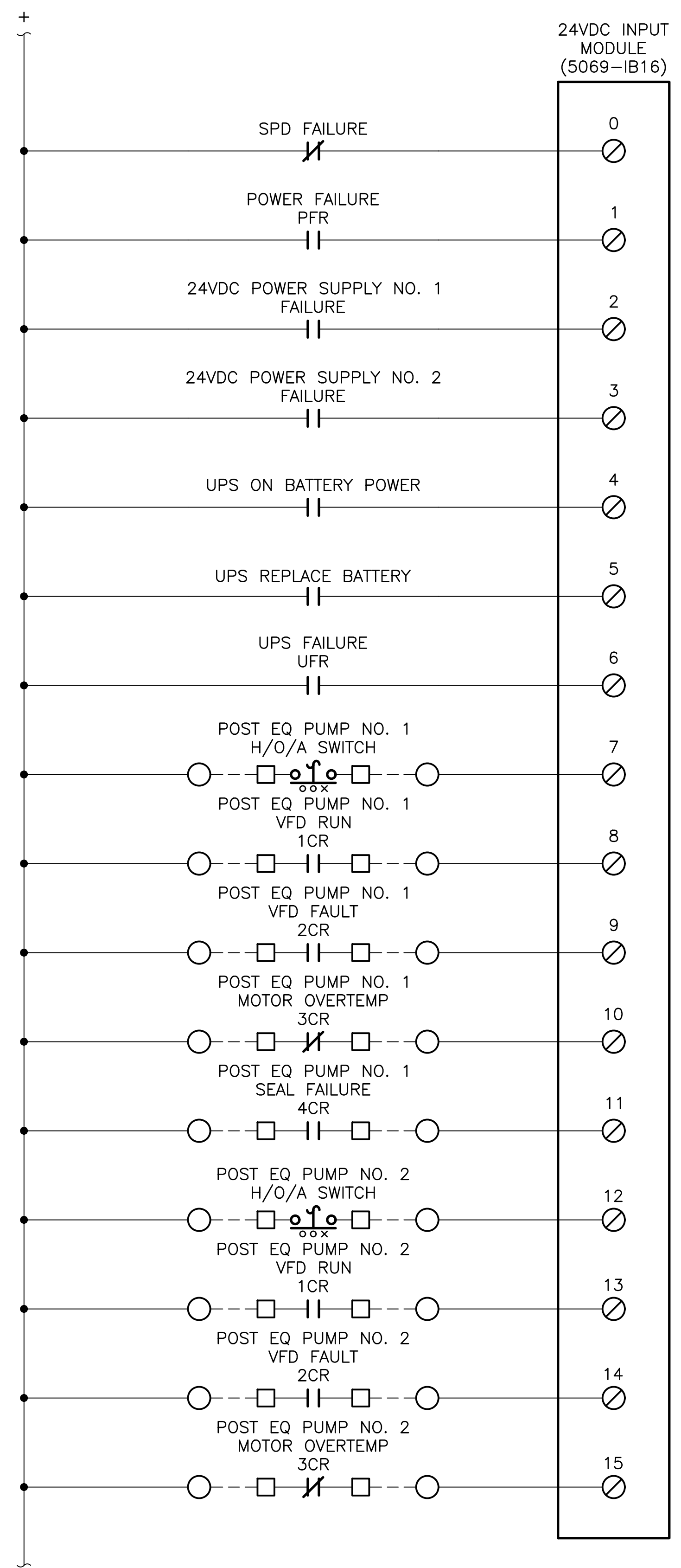
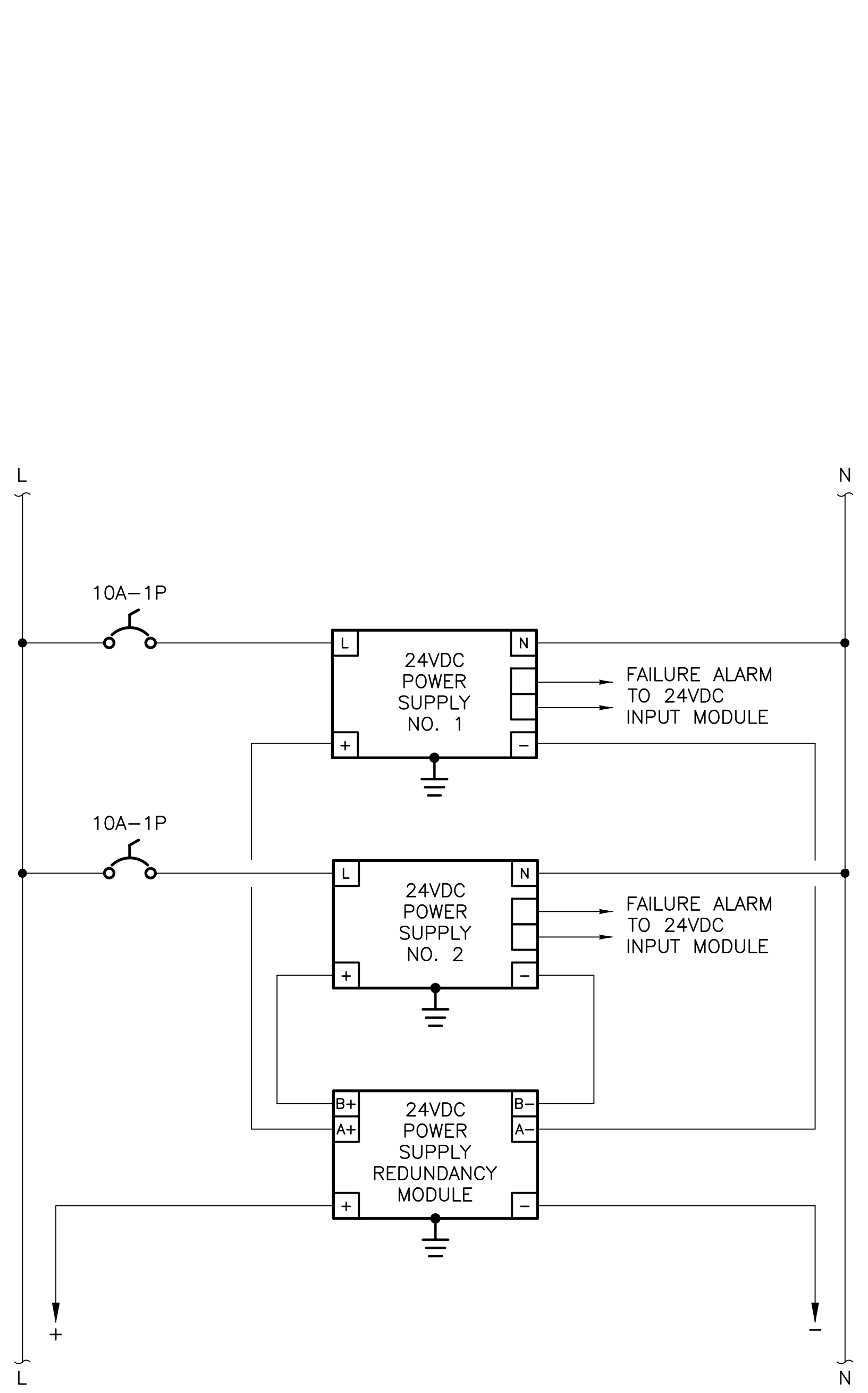
REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
OPERATIONS BUILDING PLC PANEL

I:\0_RK\COMPS\CLOUD\PROJECTS\2021\0712_WENR0712_SMITHSBURG_EXPANSION\REFDESIGN\DWG\PCS18.dwg 11/18/2021 12:31 PM S:\shannon.jamison

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SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22623 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

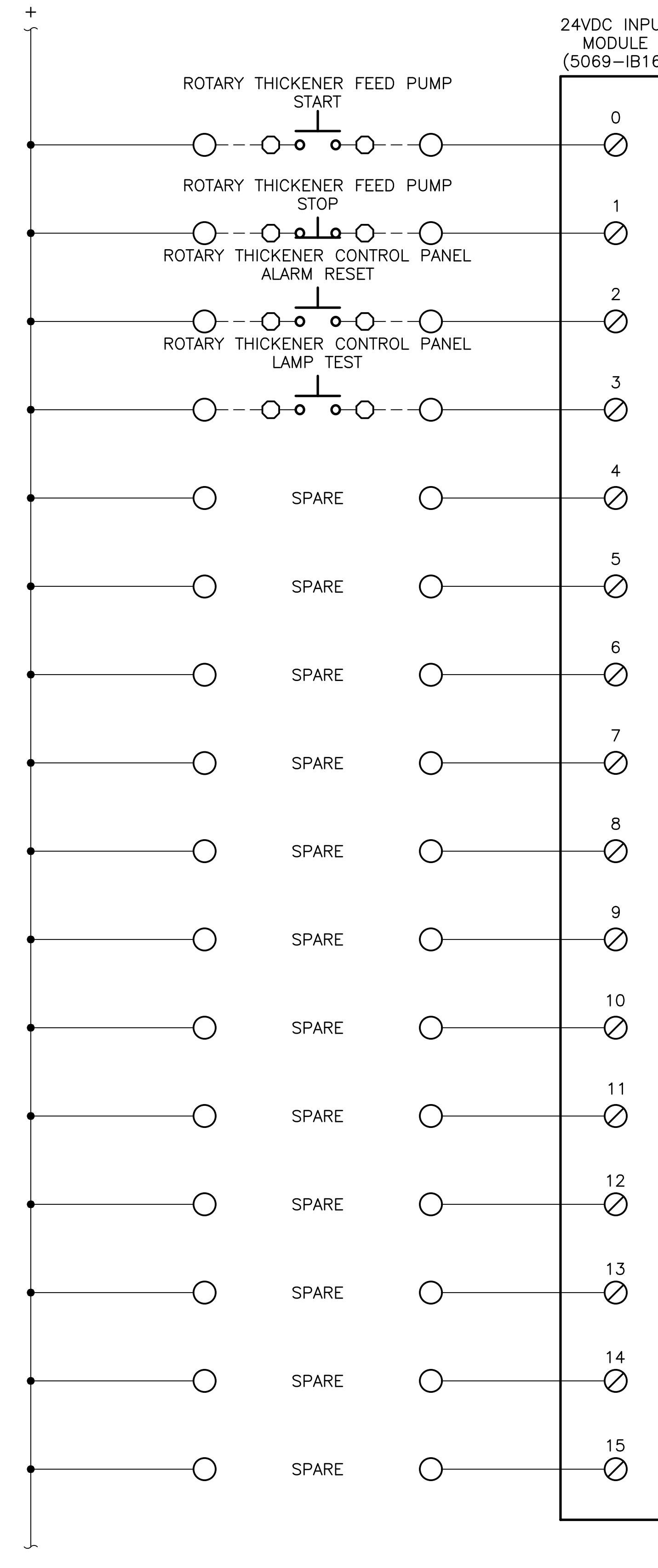
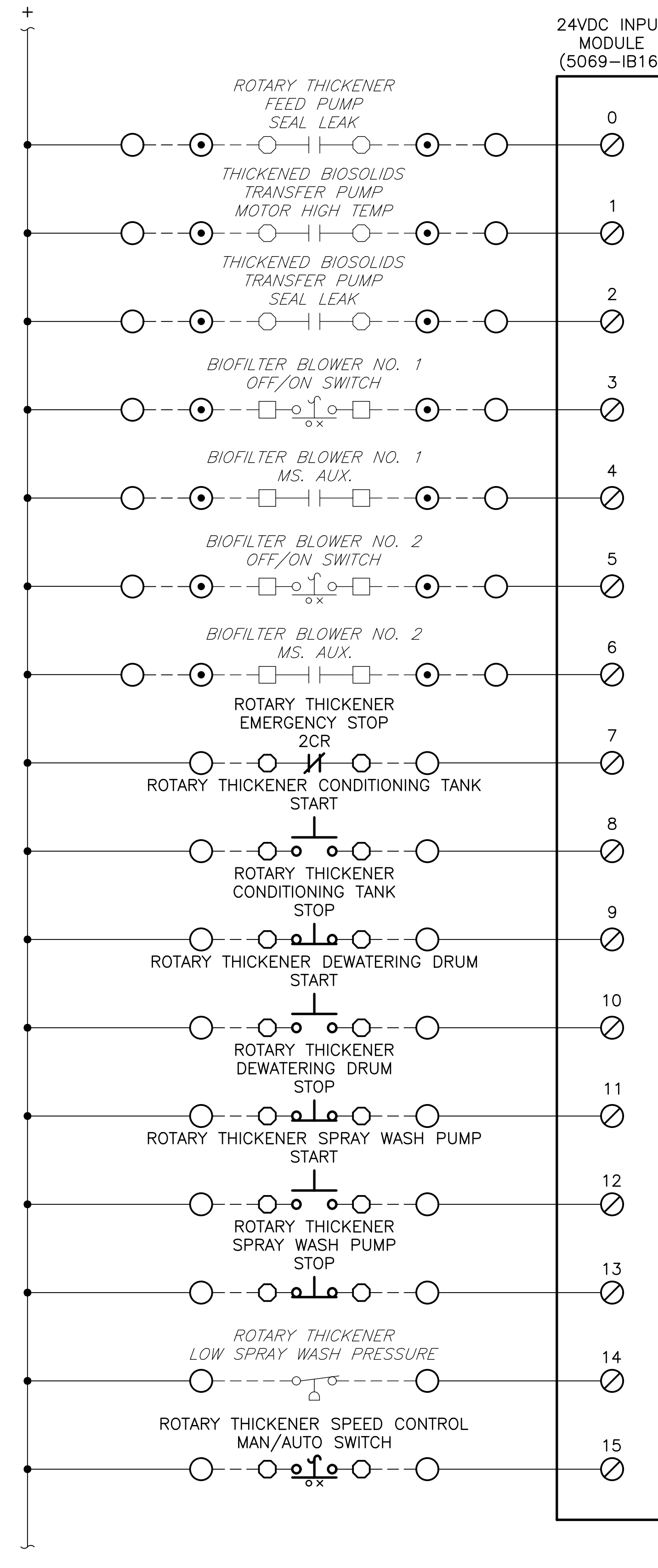
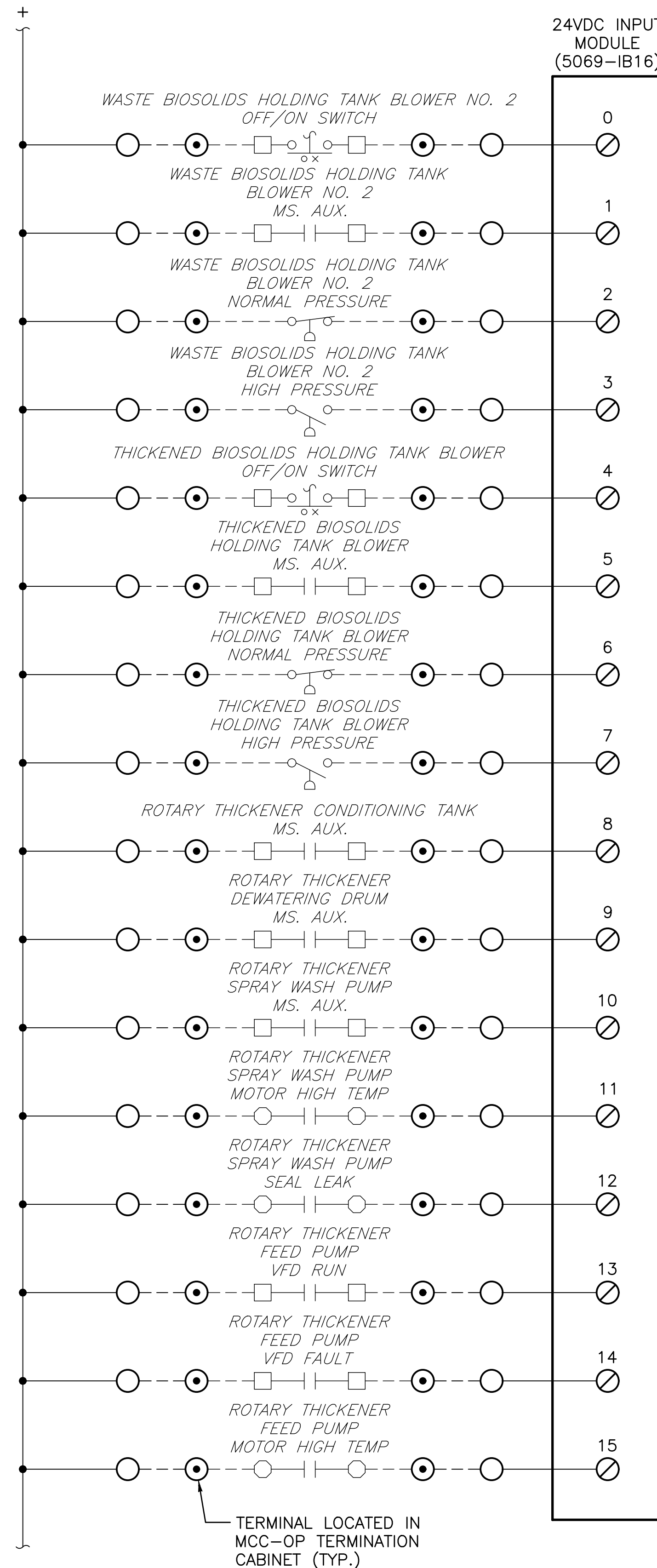
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLOTT PARKWAY
 WILMINGTON, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: 08/2021
 DRAWN BY: SMJ
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SHEET TITLE:
OPERATIONS BUILDING PLC PANEL WIRING DIAGRAM

I:\0_RK\COMPS\CLOUD\PROJECTS\2070712_WENR0712_SMITHSBURG_EXPANSION_REFERENCES\PCS20.DWG (rev. 18/20/2021 12:31 PM) Shanon Johnson



SMITHSBURG WWTp ENR UPGRADE AND EXPANSION
22823 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
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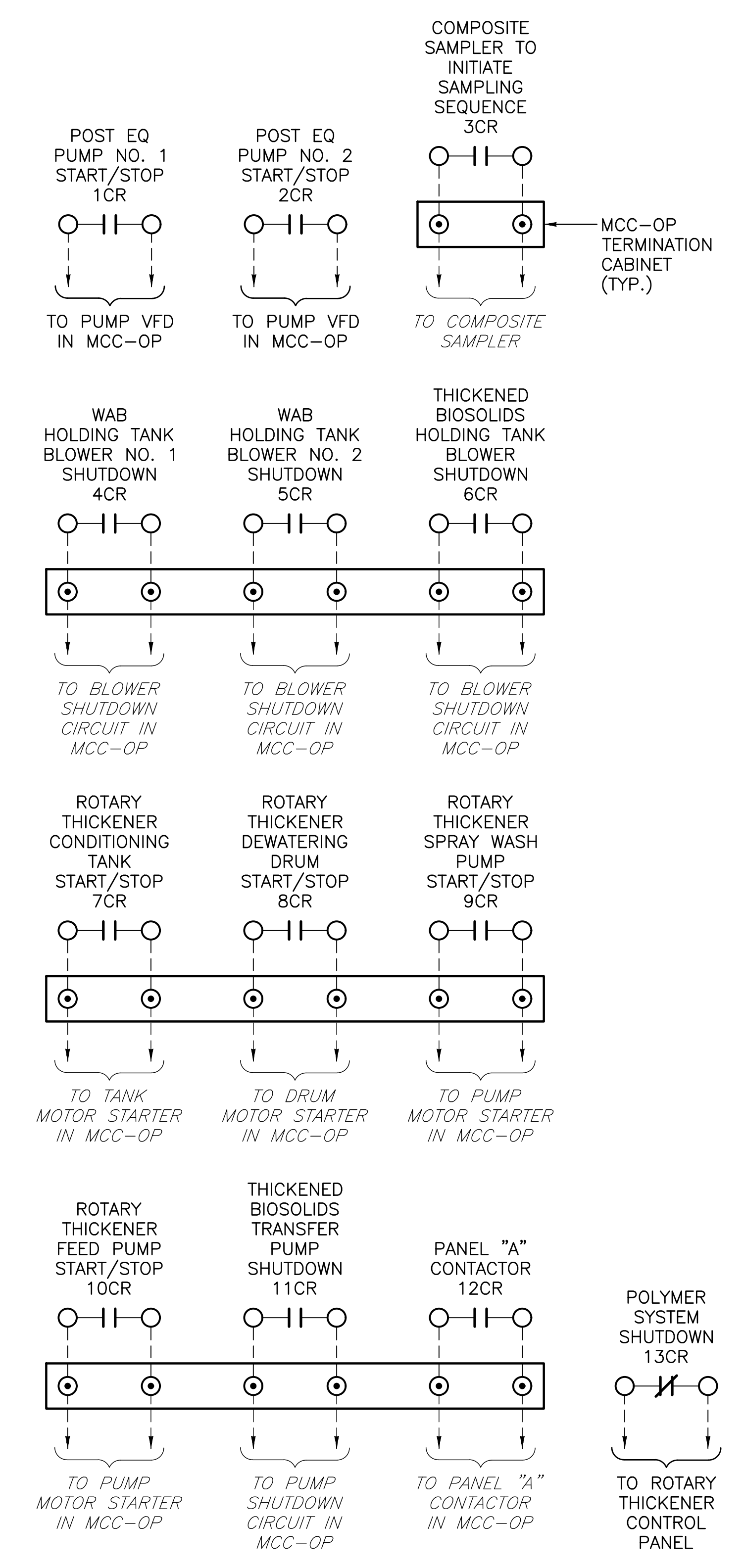
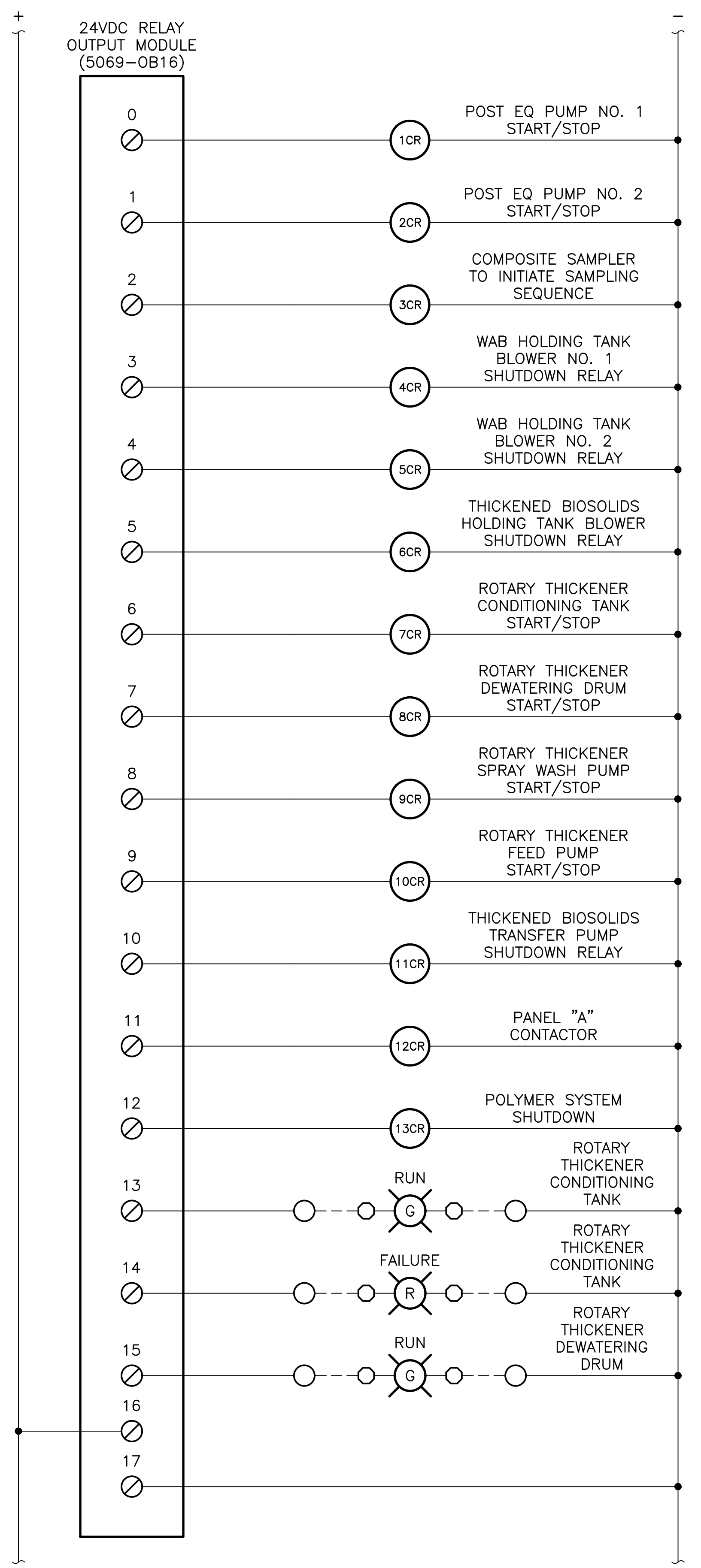
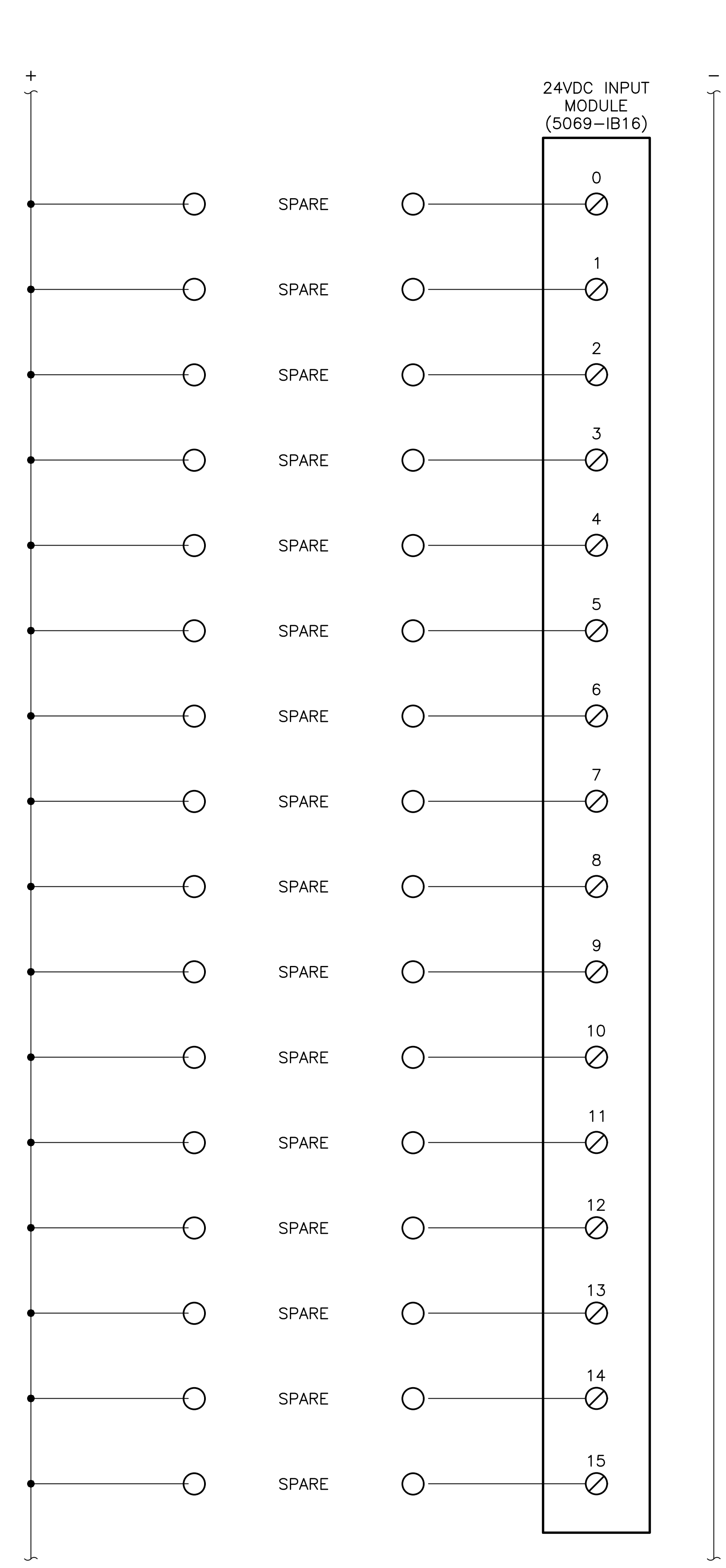
OPERATIONS
BUILDING
PLC PANEL
WIRING
DIAGRAM

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SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22823 LETTERSBURG, SMITHSBURG, ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21785

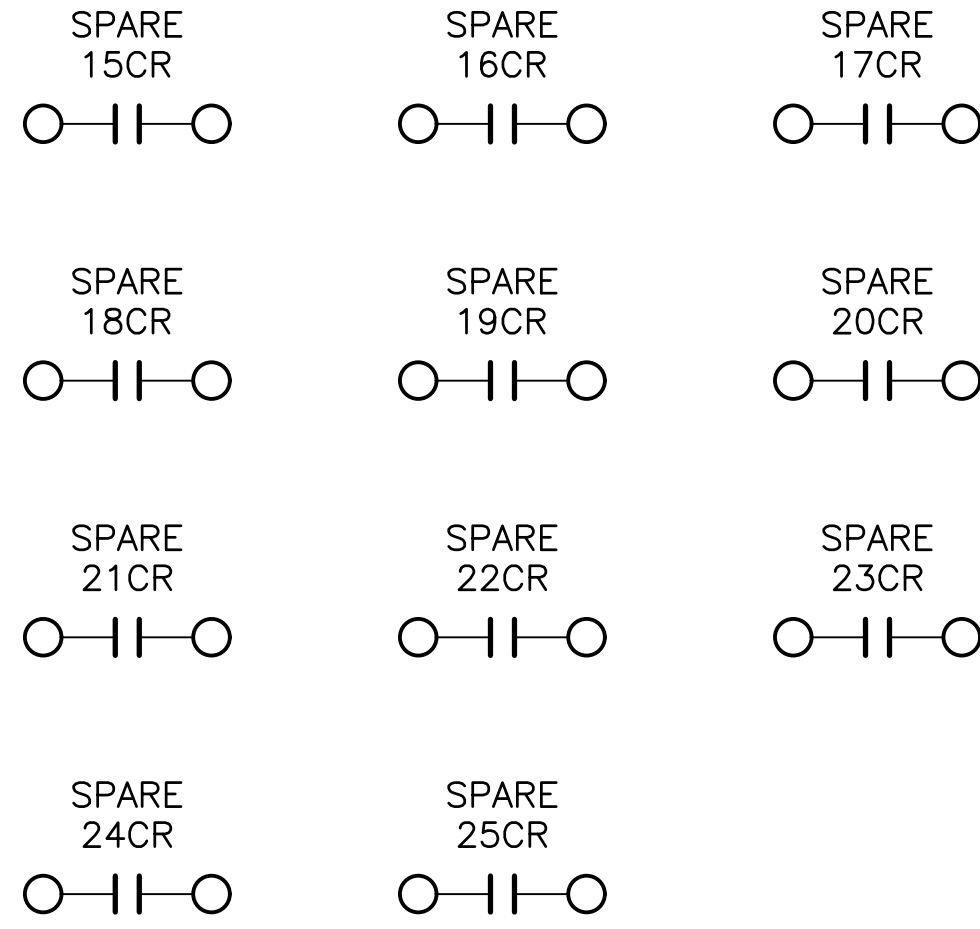
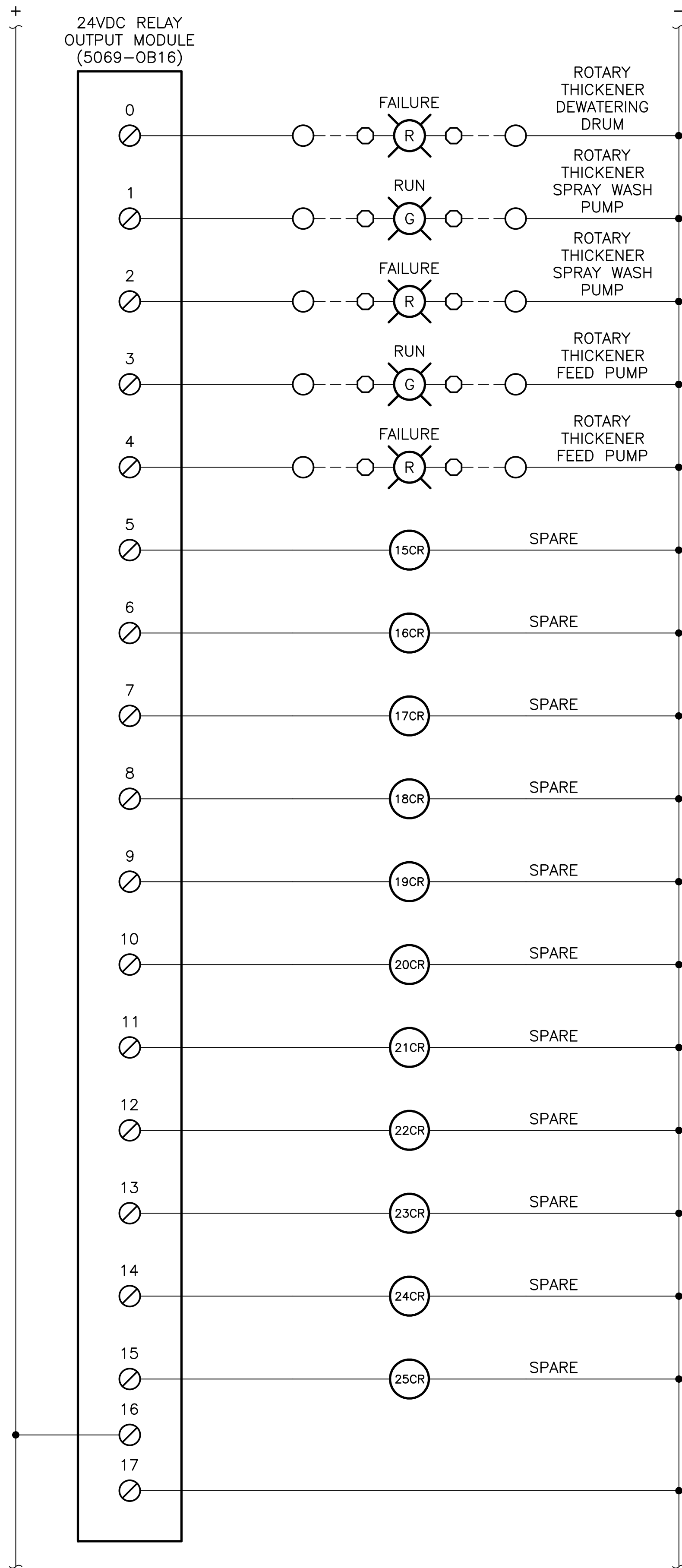


REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/20/21
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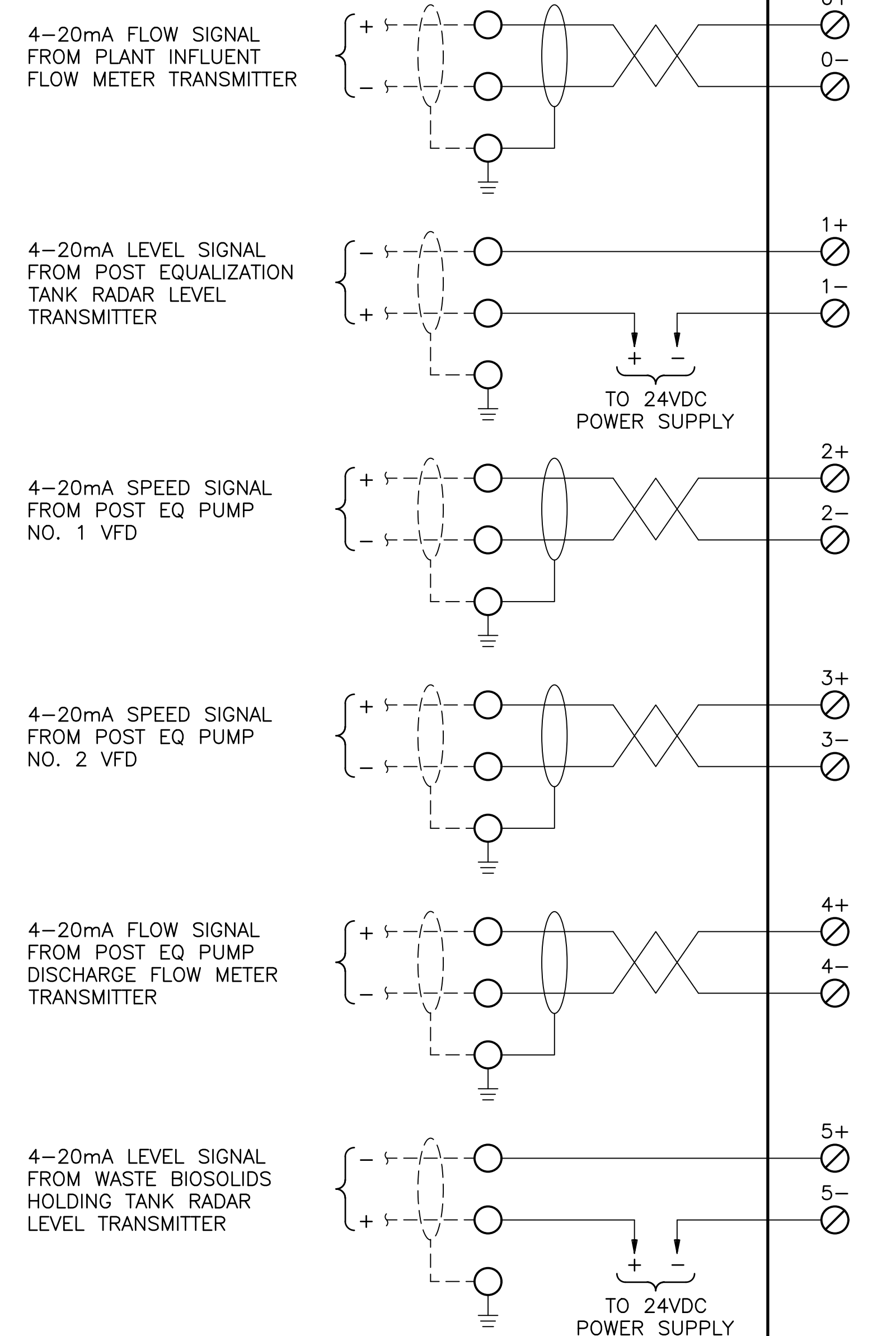
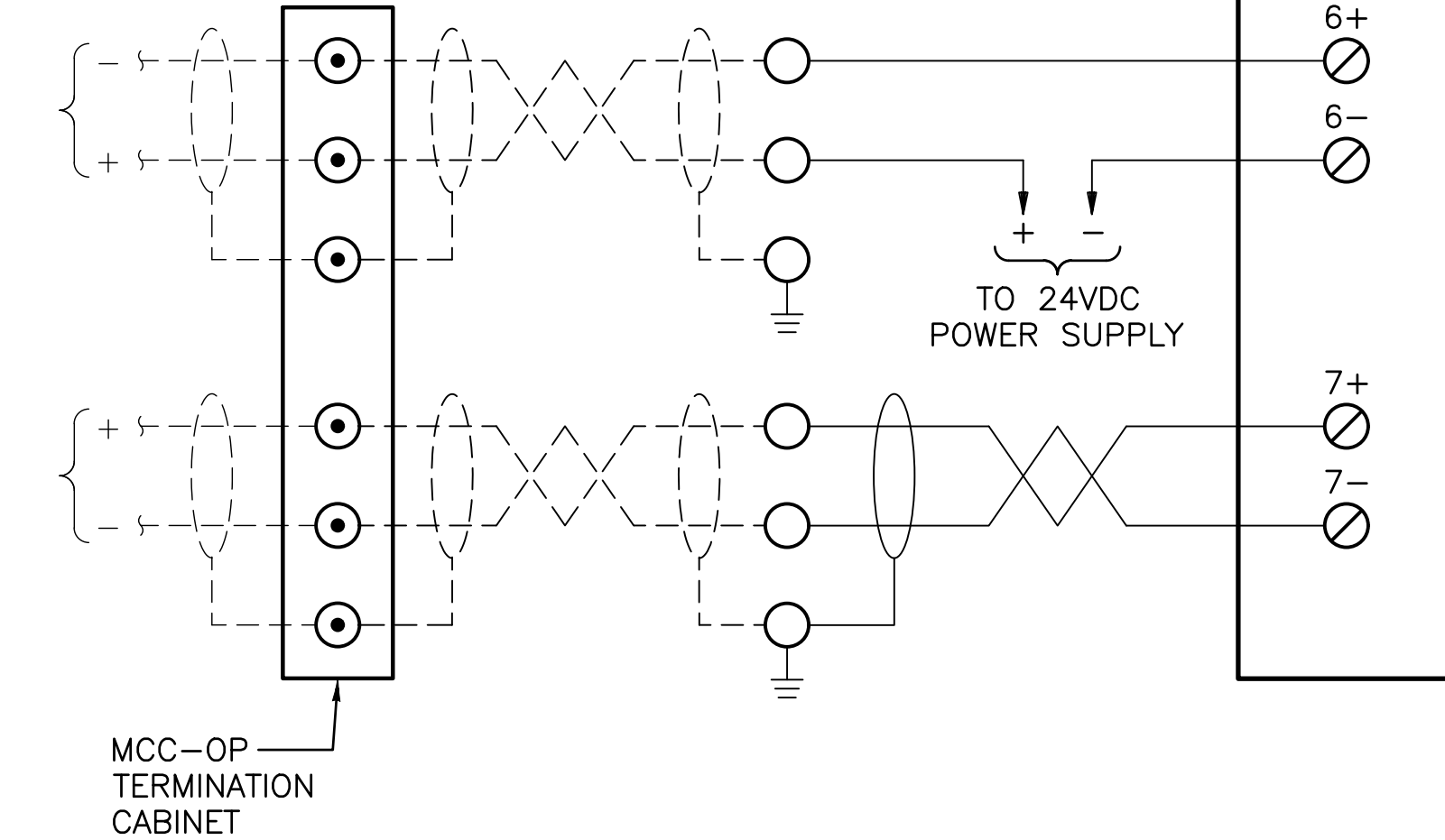
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OPERATIONS BUILDING PLC PANEL WIRING DIAGRAM

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4-20mA LEVEL SIGNAL FROM THICKENED BIOSOLIDS HOLDING TANK LEVEL TRANSMITTER

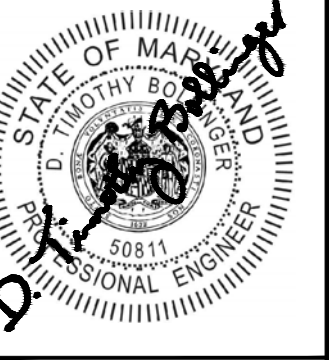
4-20mA FLOW SIGNAL FROM ROTARY THICKENER BIOSOLIDS FEED FLOW METER TRANSMITTER



ANALOG INPUT MODULE (5069-IF8)



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16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

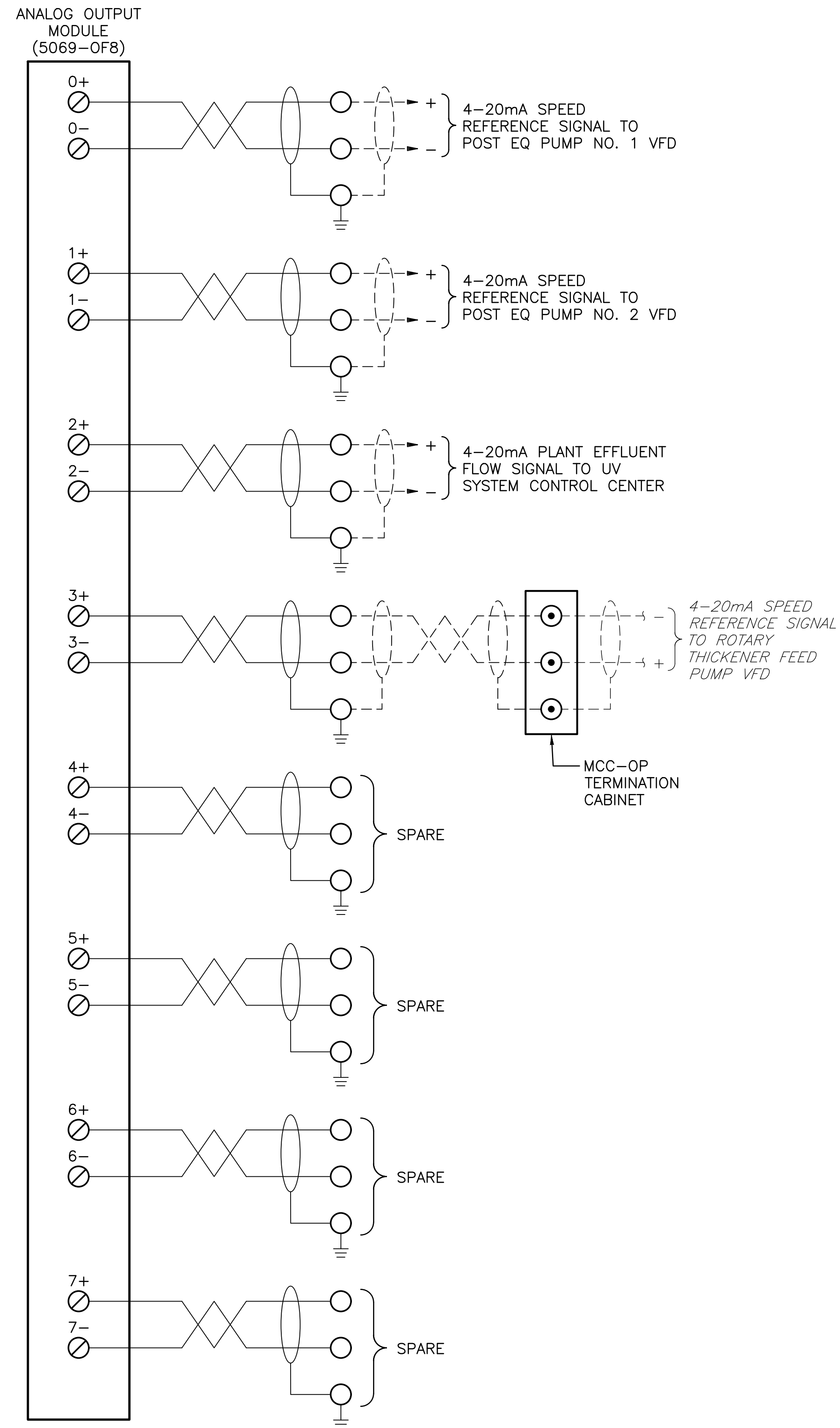
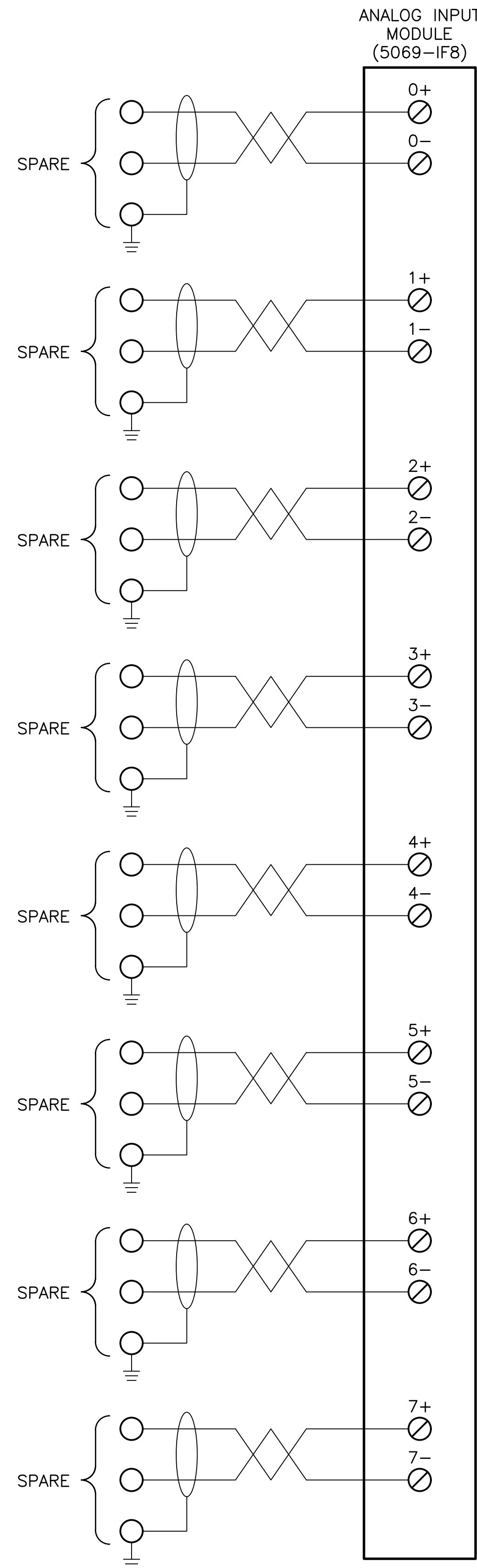
PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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SHEET TITLE:
OPERATIONS BUILDING
PLC PANEL
WIRING
DIAGRAM

PROJECT STATUS: 100% SUBMITTAL

SHEET NO: PCS-22

I:\0_RK\COMPS\CLOUD\PROJECTS\2007\0712_WENR\0712_SMITHBURG_EXPANSION_REDESIGN\ADDED\PCS23.DWG (rev. 18/20/2021 12:28 PM) Stanney Johnston



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22323 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY

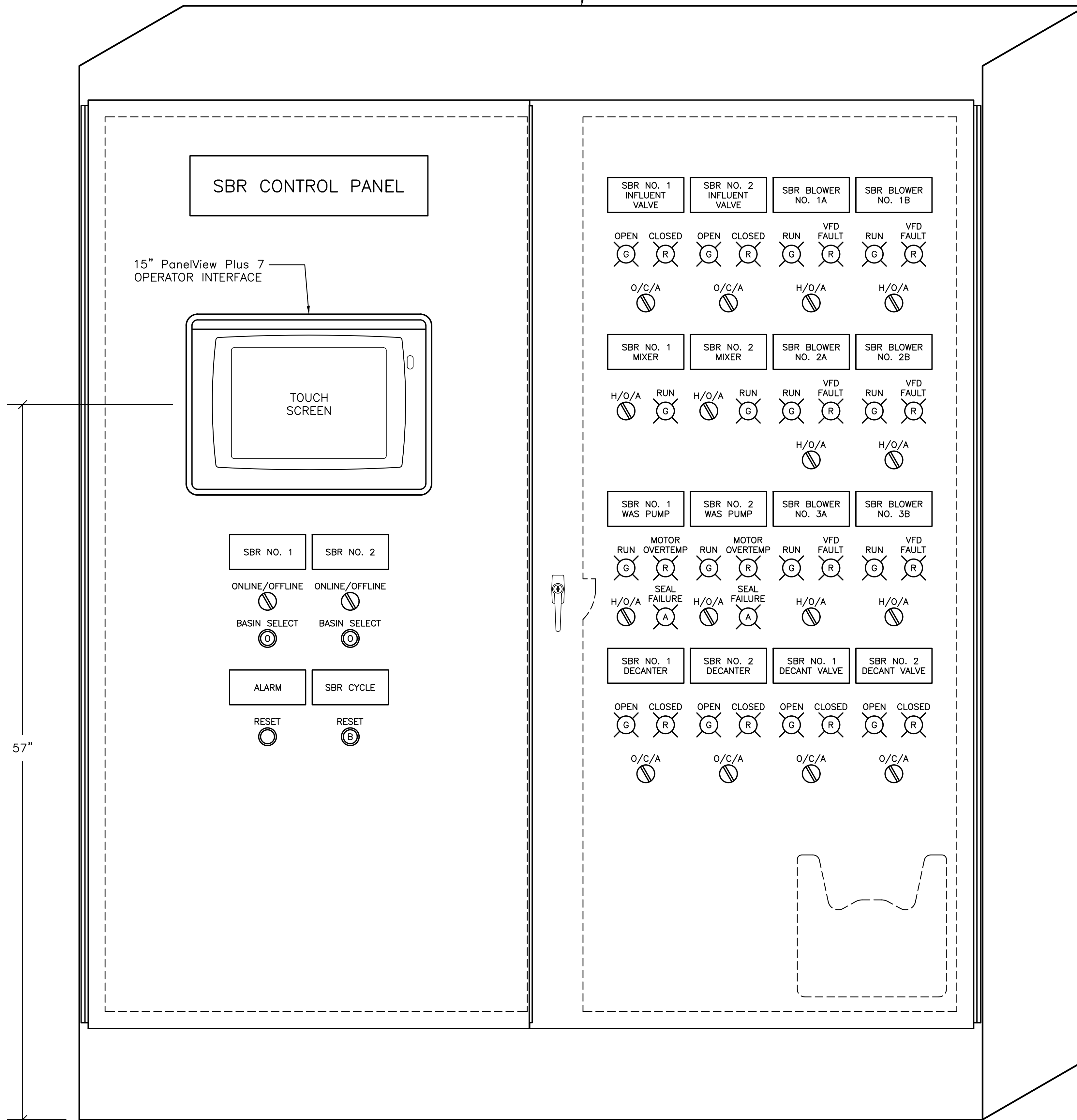
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
**OPERATIONS
BUILDING
PLC PANEL
WIRING
DIAGRAM**

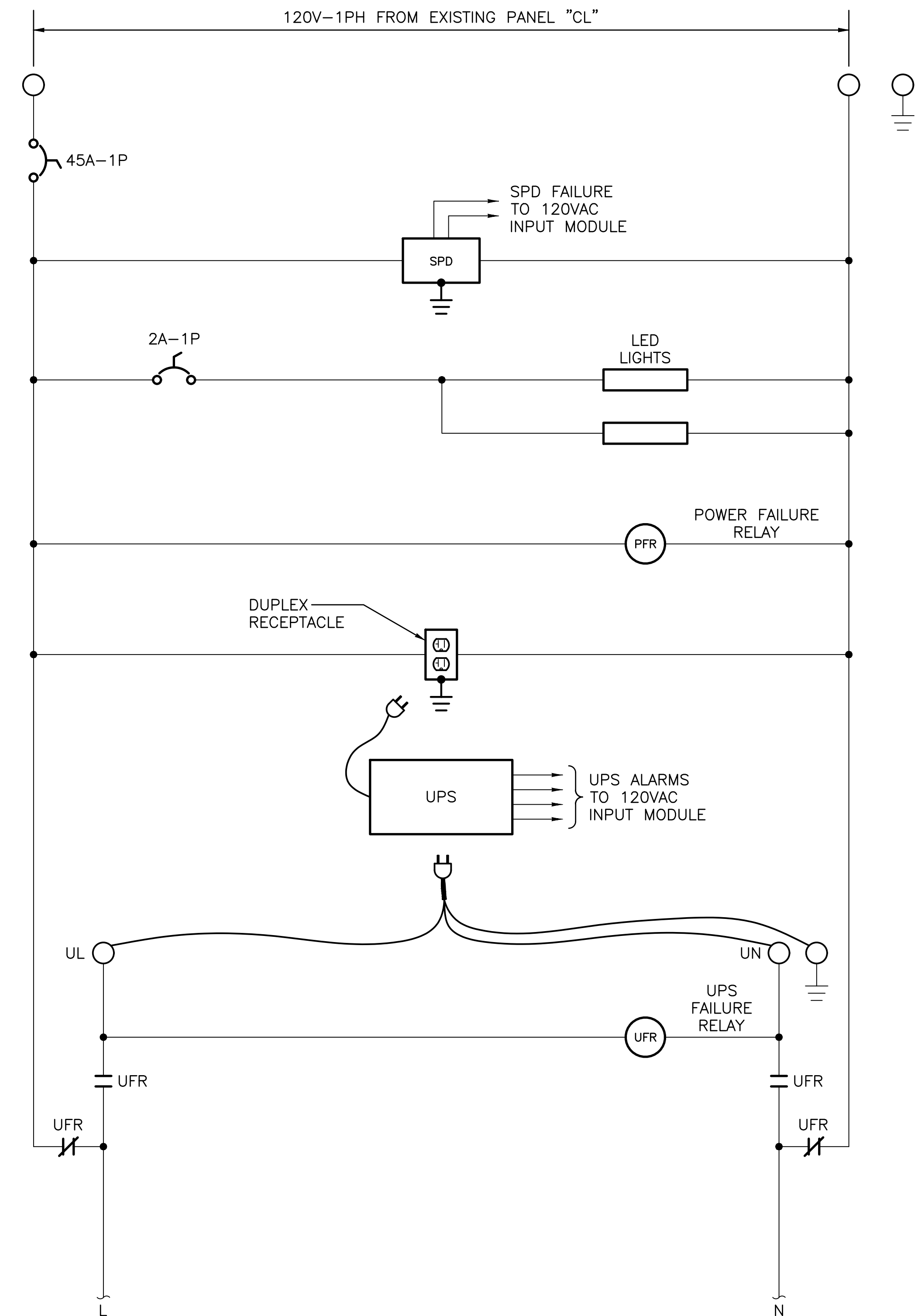
NEMA 12 ENCLOSURE.
SEE NOTE 3



**SBR CONTROL PANEL
PANEL LAYOUT**

NOTES

1. THE SBR CONTROL PANEL SHALL BE FURNISHED BY THE SBR SYSTEM MANUFACTURER.
2. CONTROL PANEL NAMEPLATE SHALL BE ENGRAVED WITH 1" HIGH LETTERS.
3. THE CONTROL PANEL SHALL BE A CUSTOM MADE NEMA 12 ENCLOSURE, SIZE: 84"H x 72"W x 18"D.



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
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16322 ELLOTT PARKWAY
WILLIAMSPORT, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

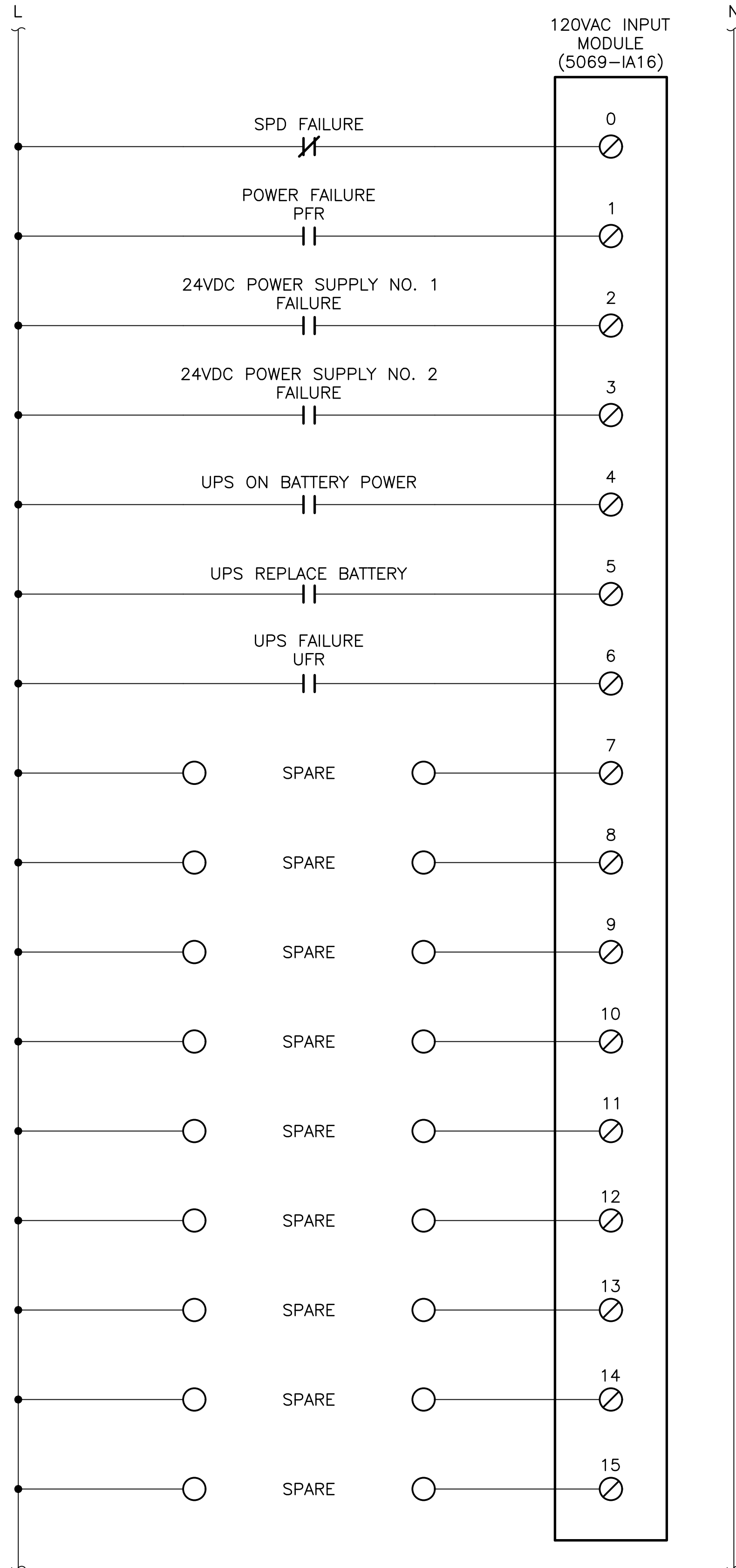
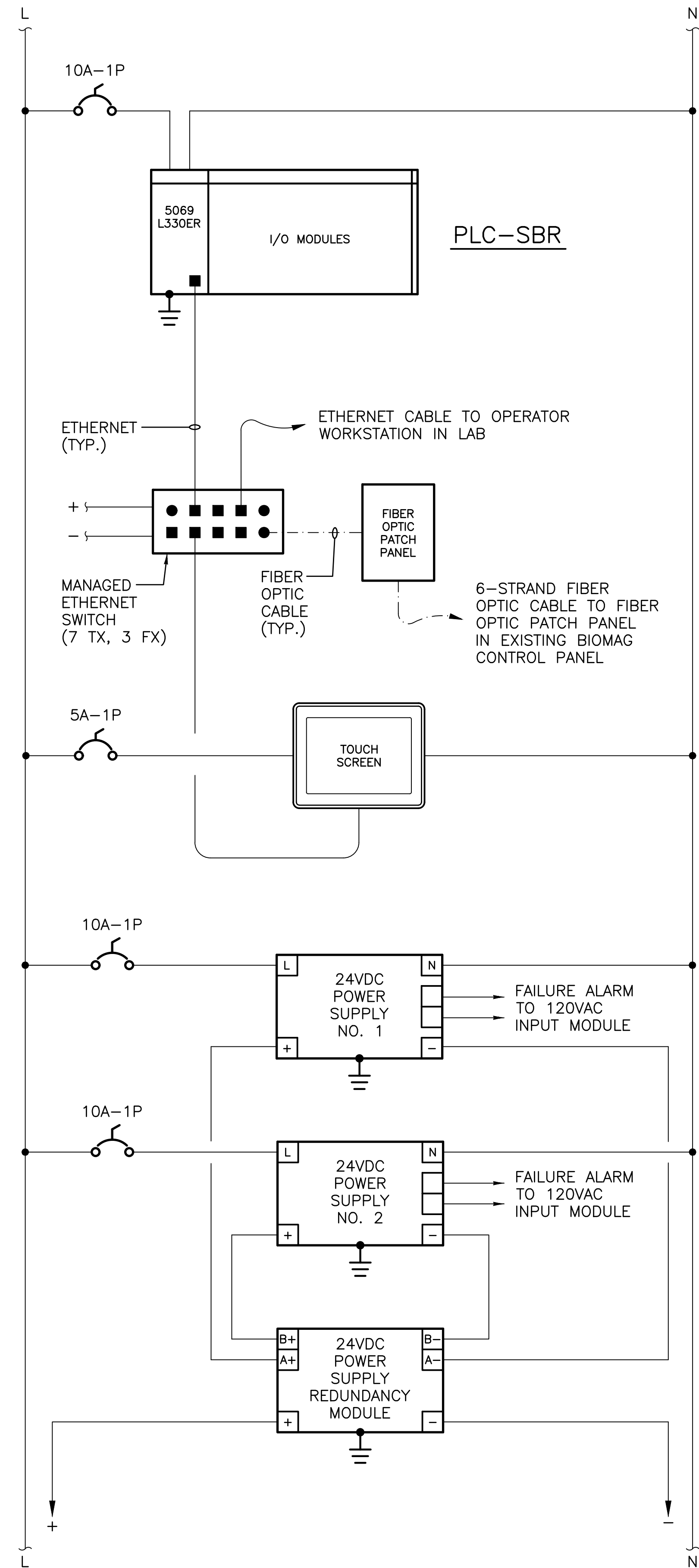
PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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SHEET TITLE:

SBR CONTROL PANEL

100% SUBMITTAL

PCS-24

I:\01_RK\COMPS\CLOUD\PROJECTS\2020\07\012_WCENR\0112_SMITHSBURG_EXPANSION_REDESIGN\ADD\ELEC\PCS24_SBR_DWG1.dwg 12/22/2021 12:32 PM Sharon Lamson



NOTES

1. NOT ALL I/O WIRING HAS BEEN SHOWN. SEE SPECIFICATION SECTION 17500 (DESCRIPTION OF OPERATION) FOR ALL PLC I/O, AND PROVIDE ALL I/O MODULES REQUIRED FOR A COMPLETE SYSTEM.



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16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

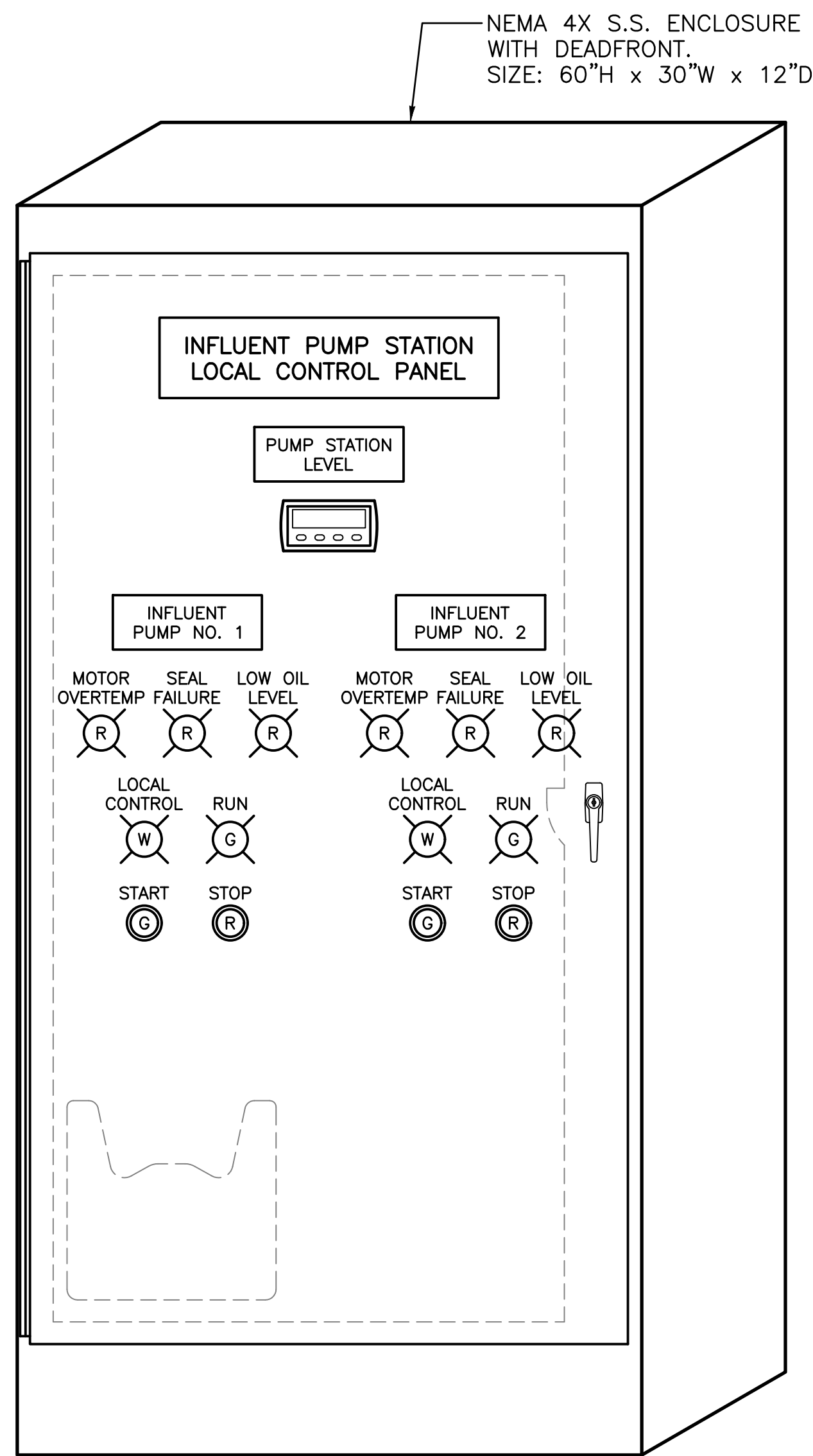
PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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SHEET TITLE:
SBR CONTROL PANEL WIRING DIAGRAM

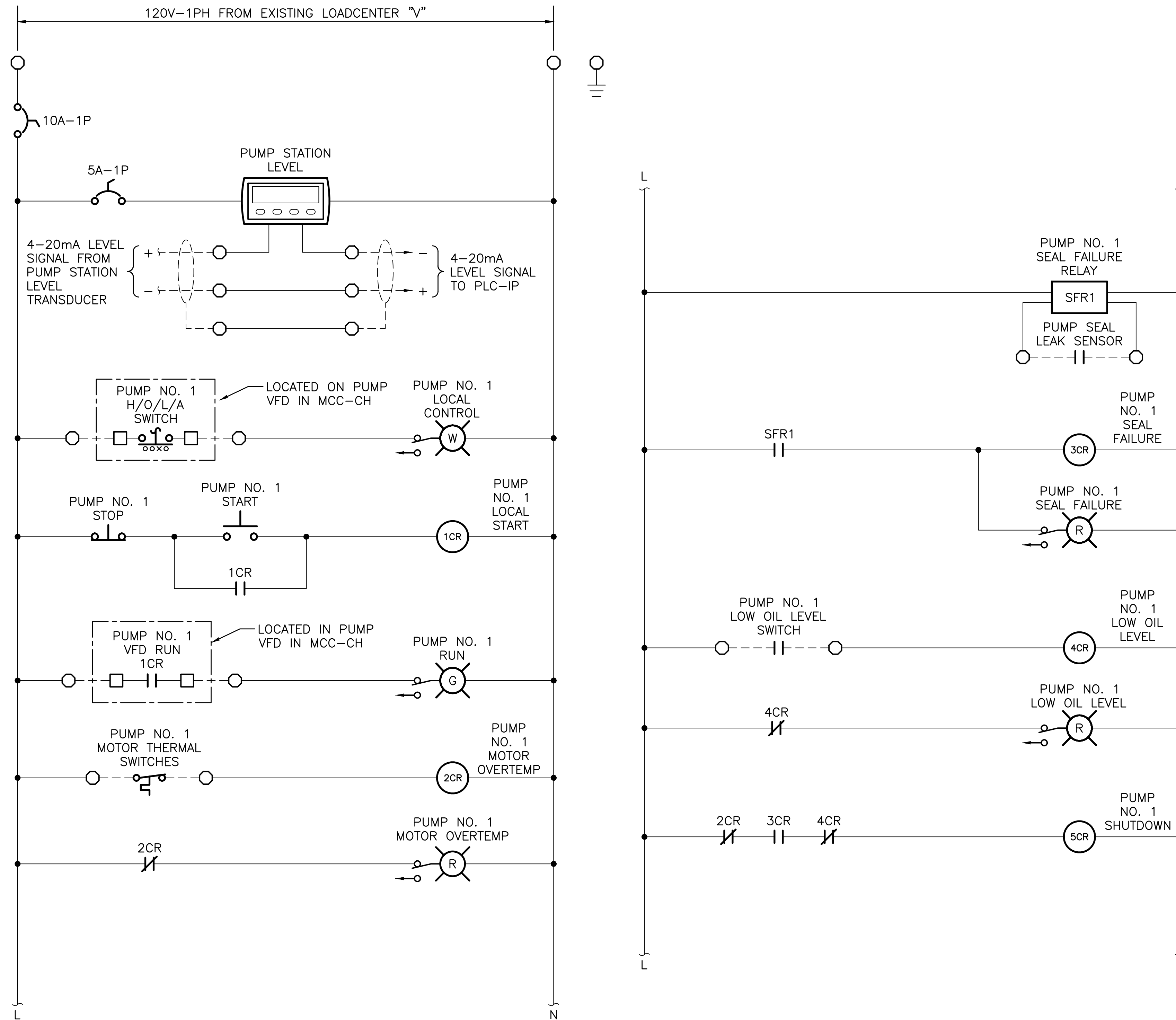


NOTES

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



**INFLUENT PUMP STATION
 LOCAL CONTROL PANEL
 PANEL LAYOUT**



**INFLUENT PUMP STATION LOCAL CONTROL PANEL
 WIRING DIAGRAM**

I:\0_RK\COMPS\CLOUD\PROJECTS\2021\0712_WCENR0712_Smithsburg Expansion\REFDESIGN\04\EL\PCS26.DWG (rev. 18/20/2021 12:39 PM) S:\jason.johnson

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22823 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY

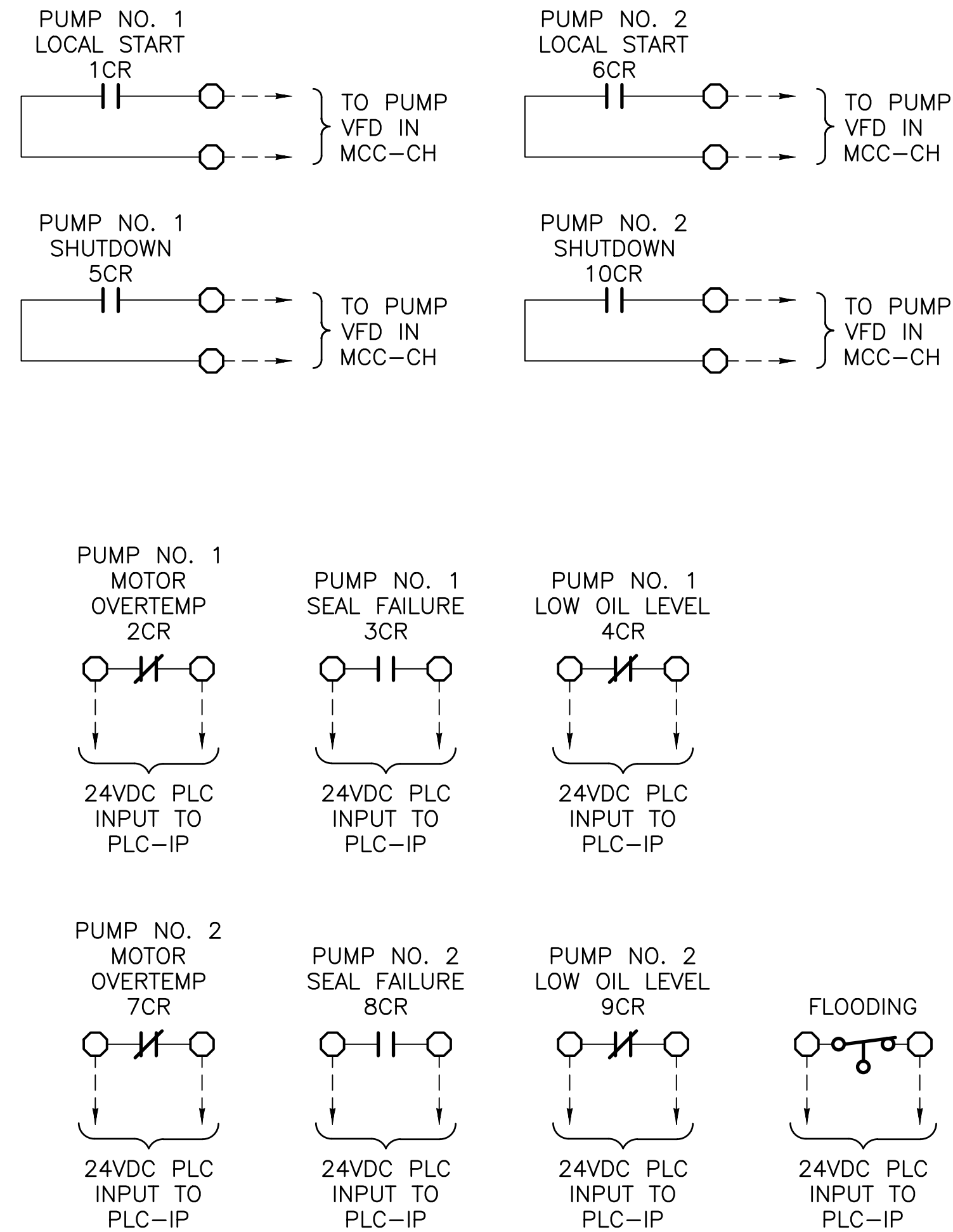
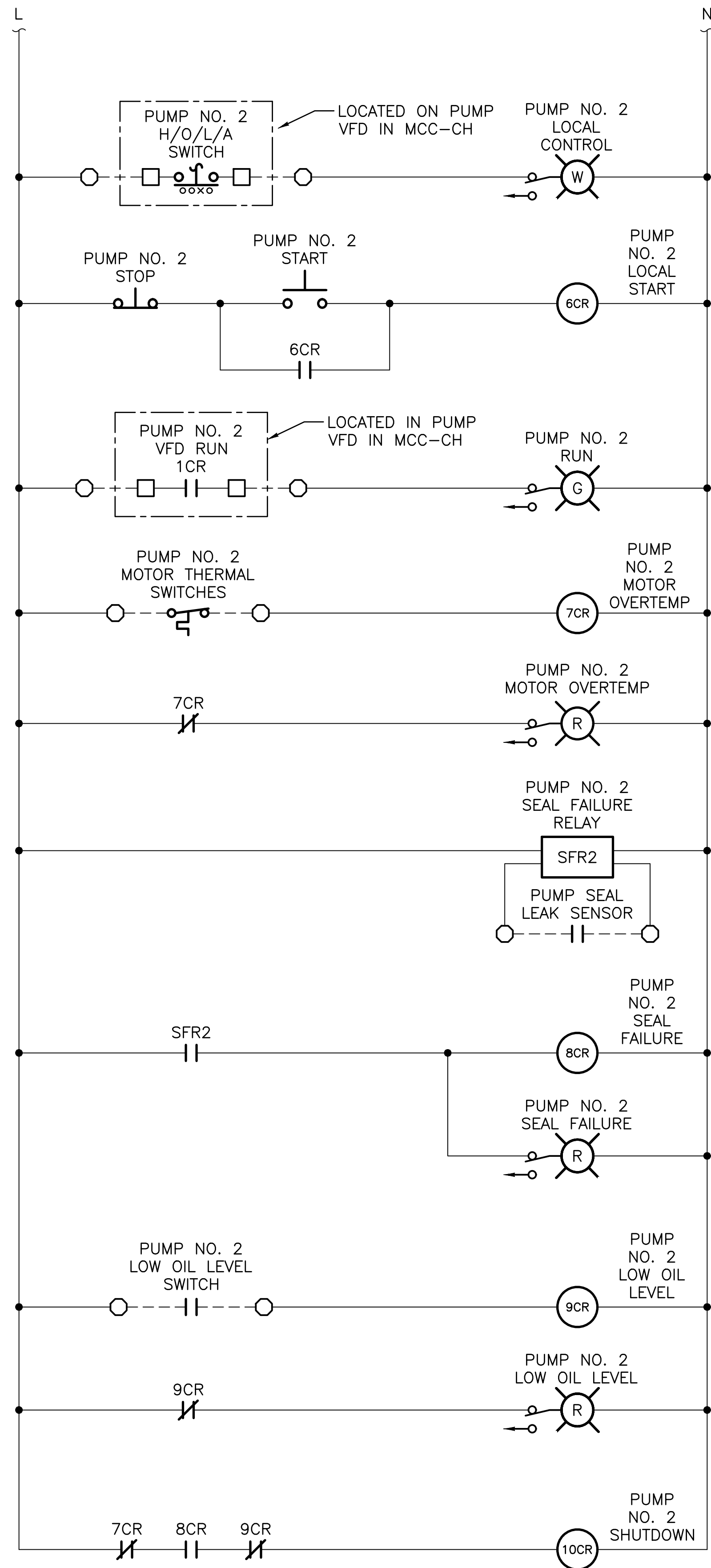
16322 ELLOTT PARKWAY
 WILMINGTON, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	08/2021
DRAWN BY:	SMJ
CHECKED BY:	DTB
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SHEET TITLE:
INFLUENT PUMP STATION LOCAL CONTROL PANEL

I:\0_RK\COMFSCLOUD\PROJECTS\2021\0712_WENR0712_SmithsburgExpansion\REFDESIGN\REFDESIGN\PCS27.DWG (print) 18/20/2021 12:39 PM Stanton, Justin



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SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
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SHEET TITLE:
INFLUENT PUMP STATION LOCAL CONTROL PANEL WIRING DIAGRAM



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
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SMITHSBURG, MARYLAND 21783

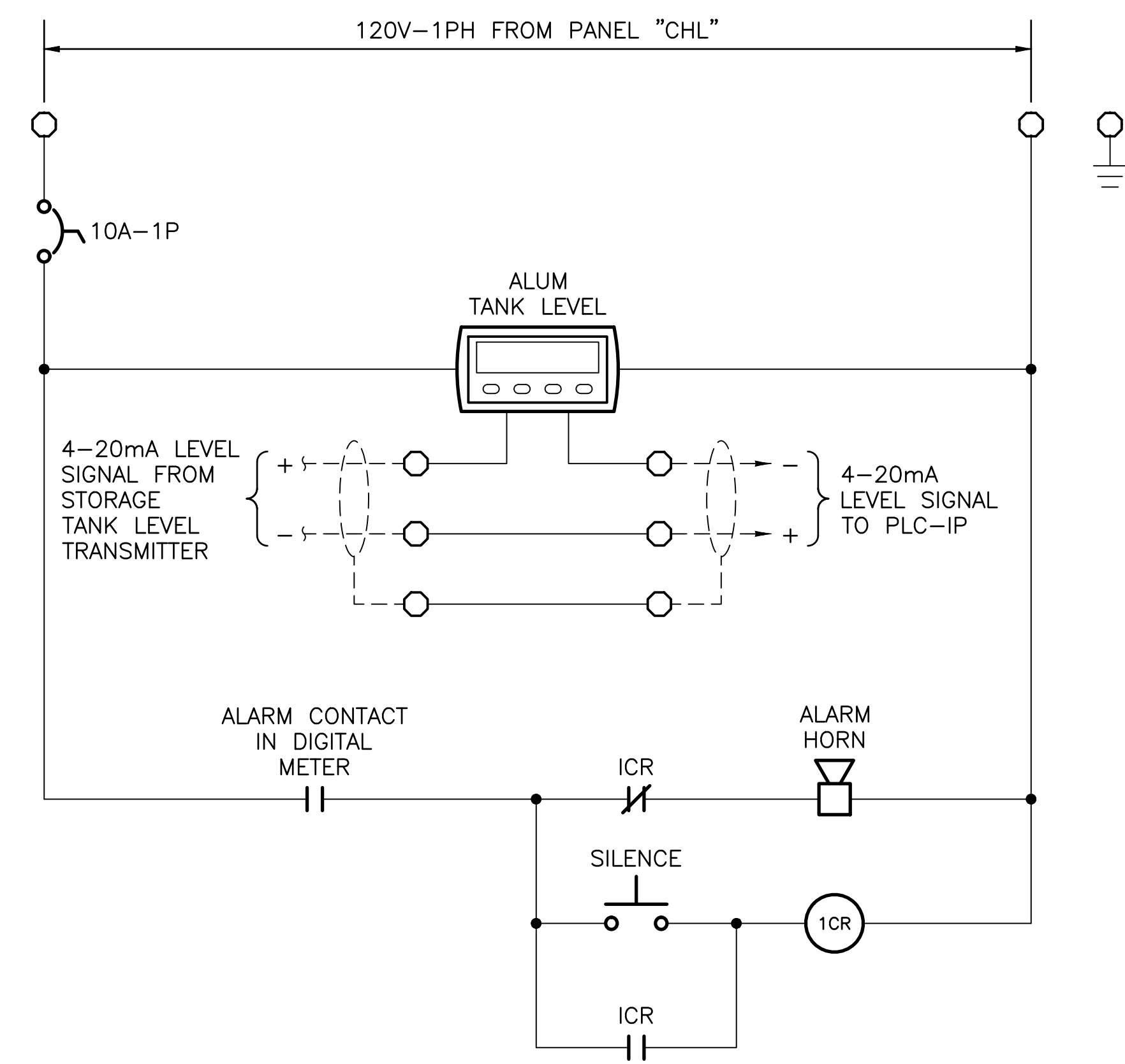
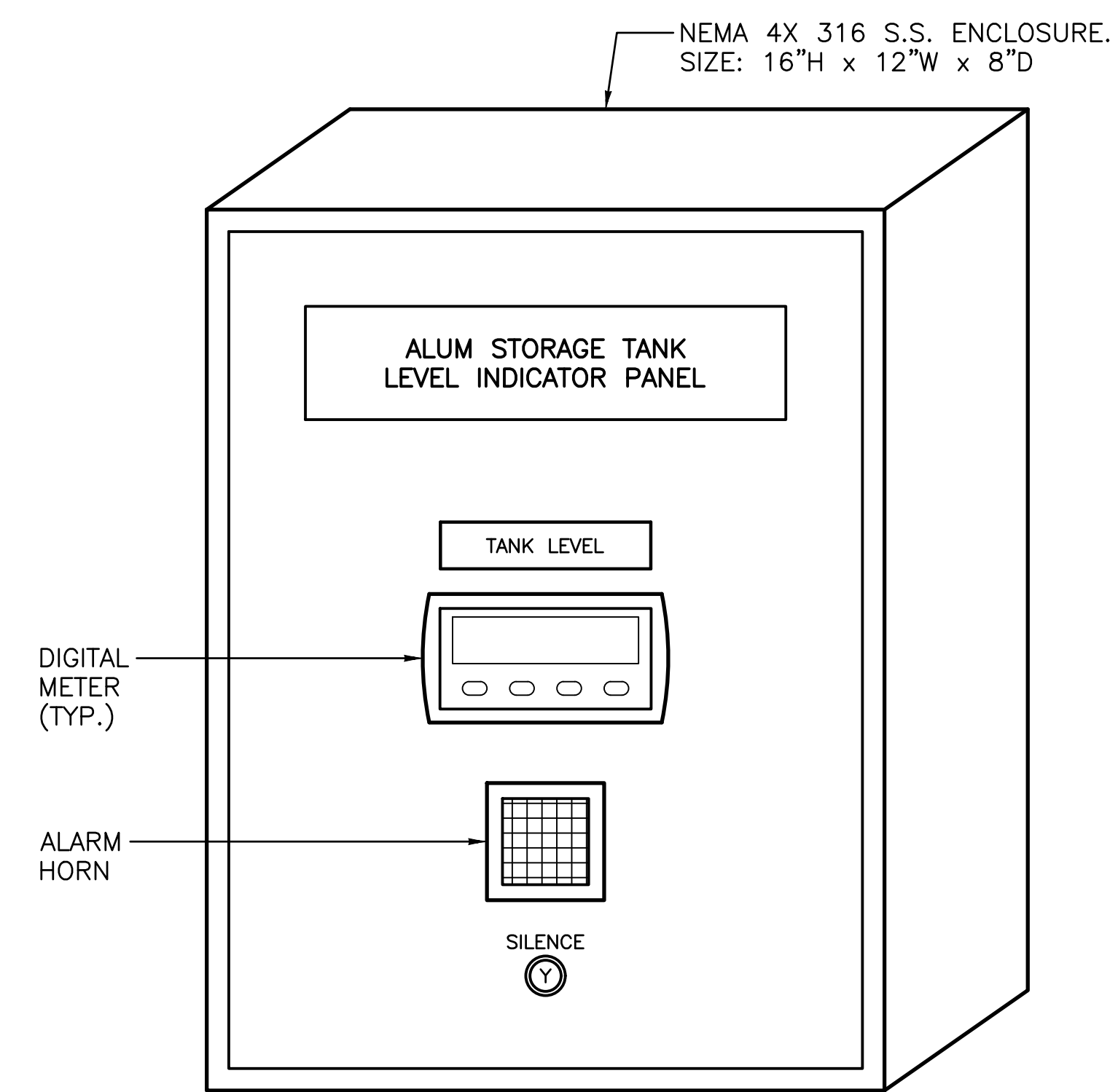
WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLOTT PARKWAY
WILMINGTON, MARYLAND 21795

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

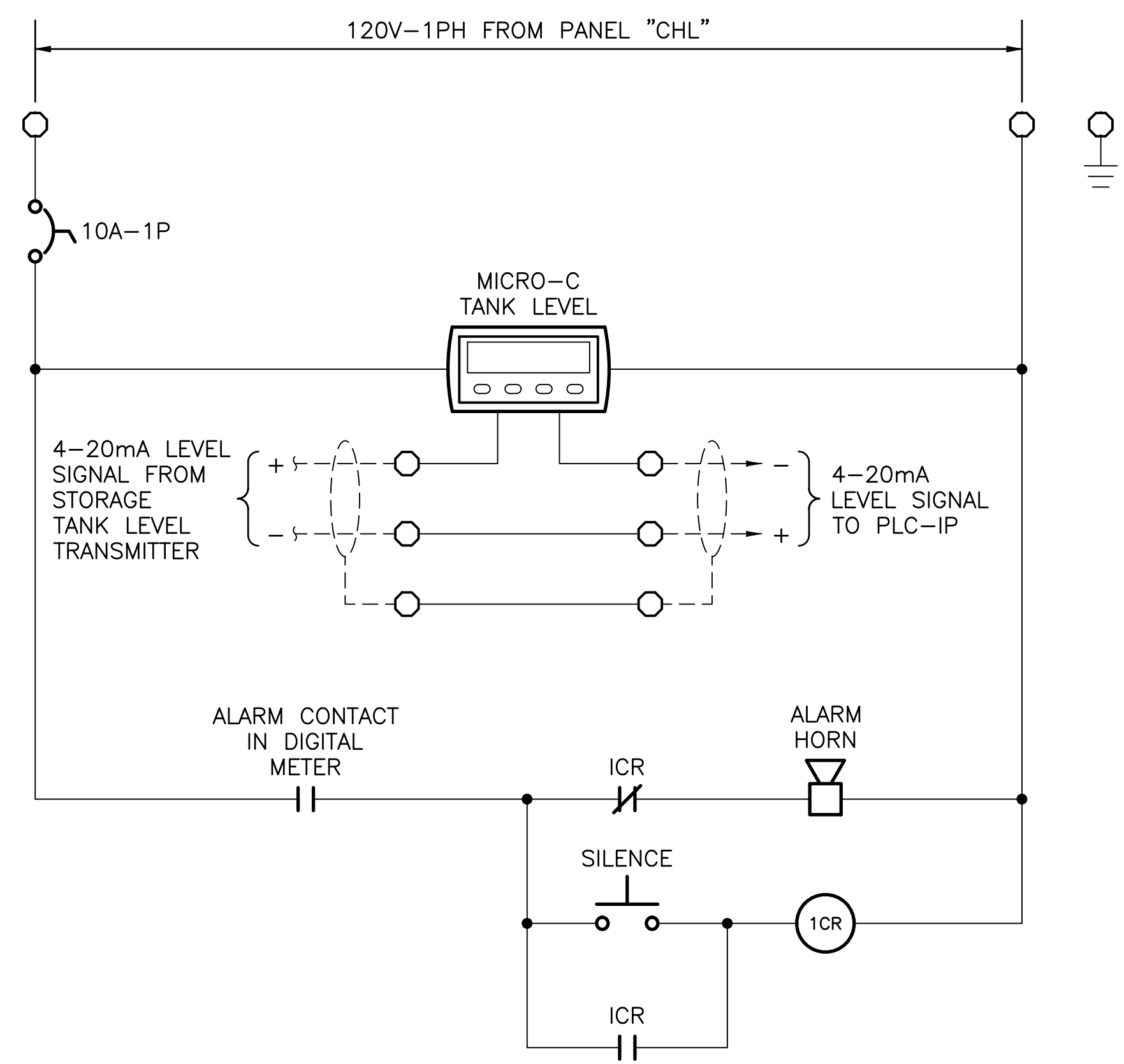
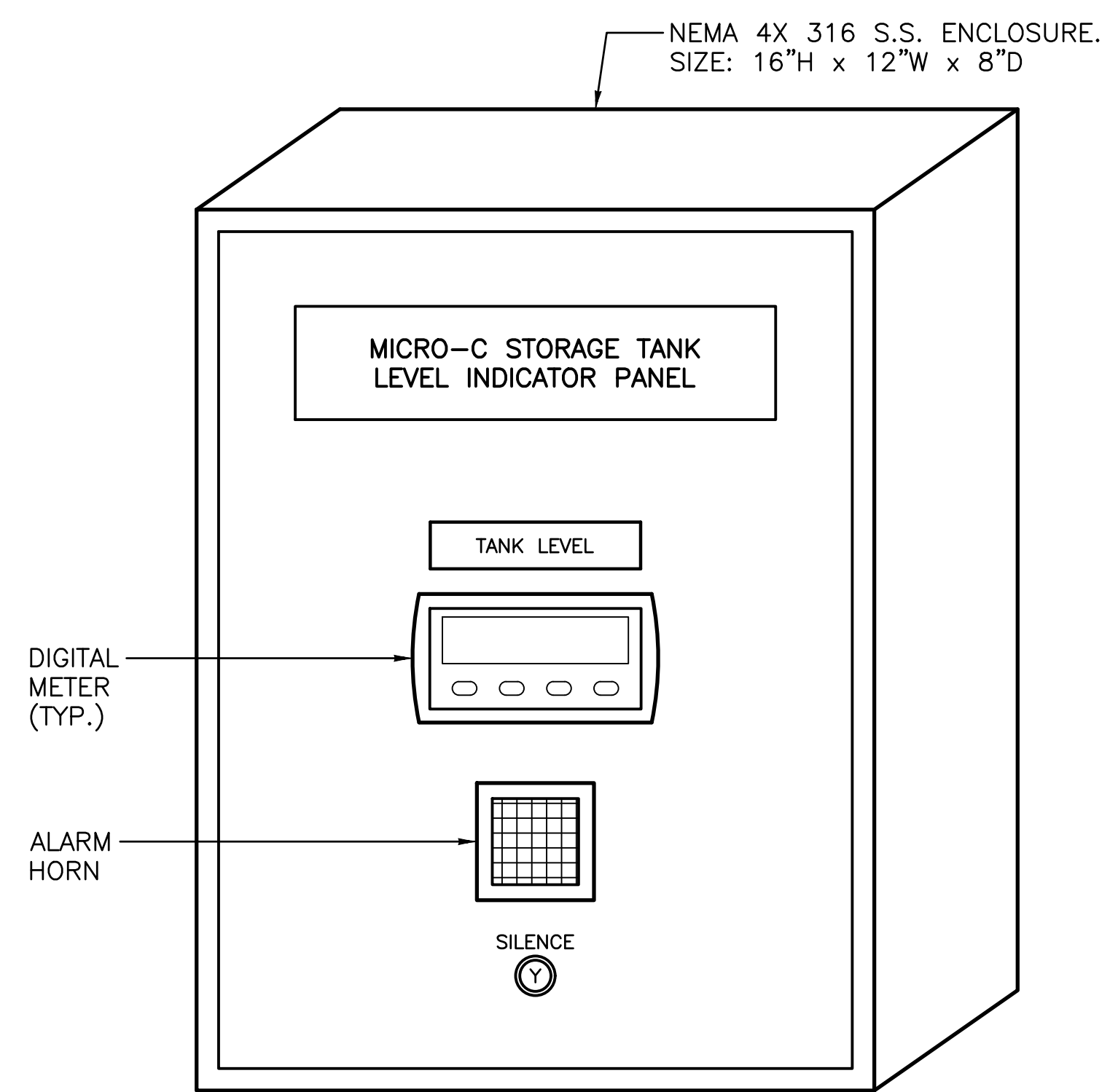
PROJECT NO:	76436-03
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SHEET TITLE
STORAGE TANK LEVEL INDICATOR PANELS

SHEET NO.
PCS-28



**ALUM STORAGE TANK LEVEL INDICATOR PANEL
PANEL LAYOUT AND WIRING DIAGRAM**

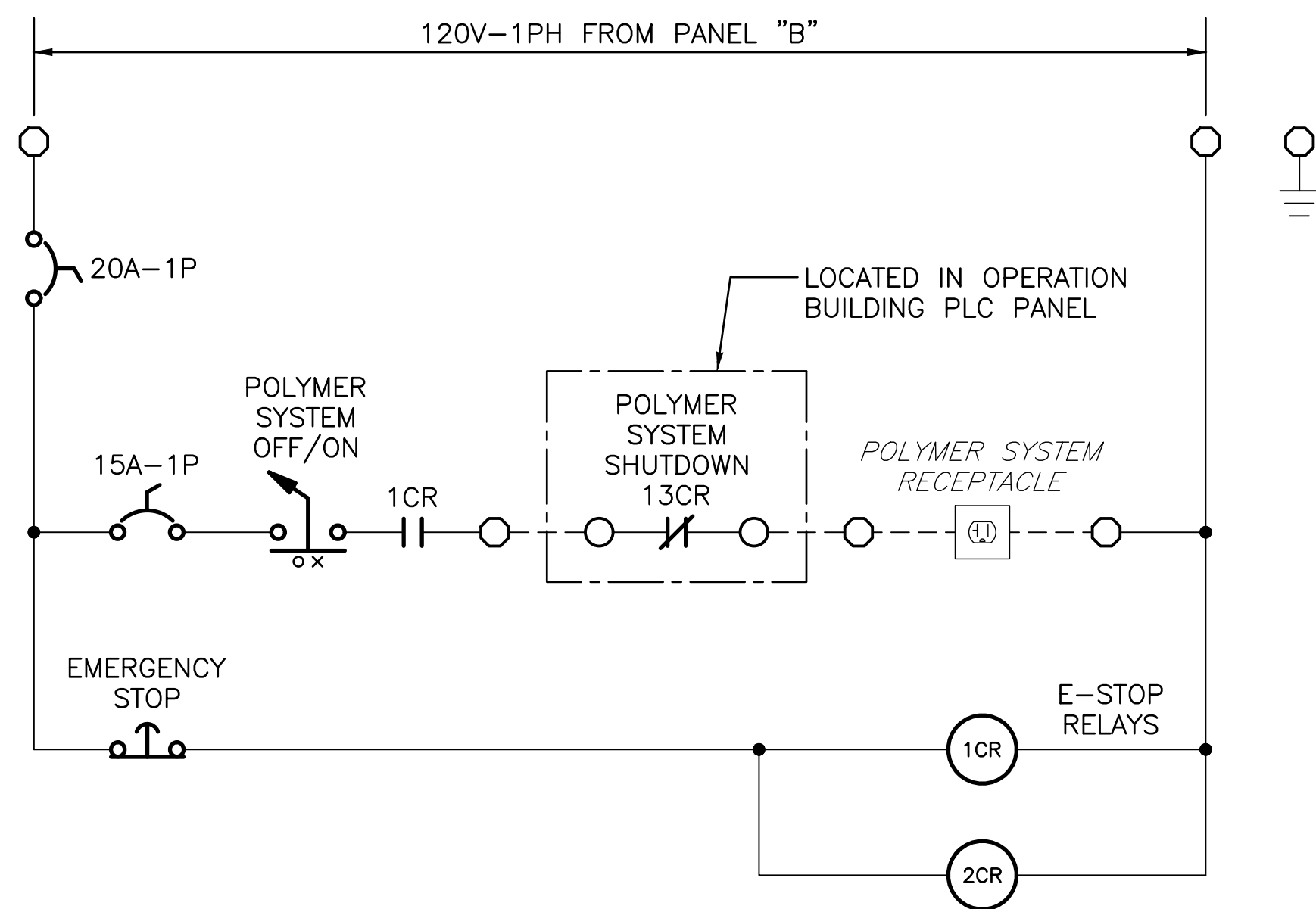
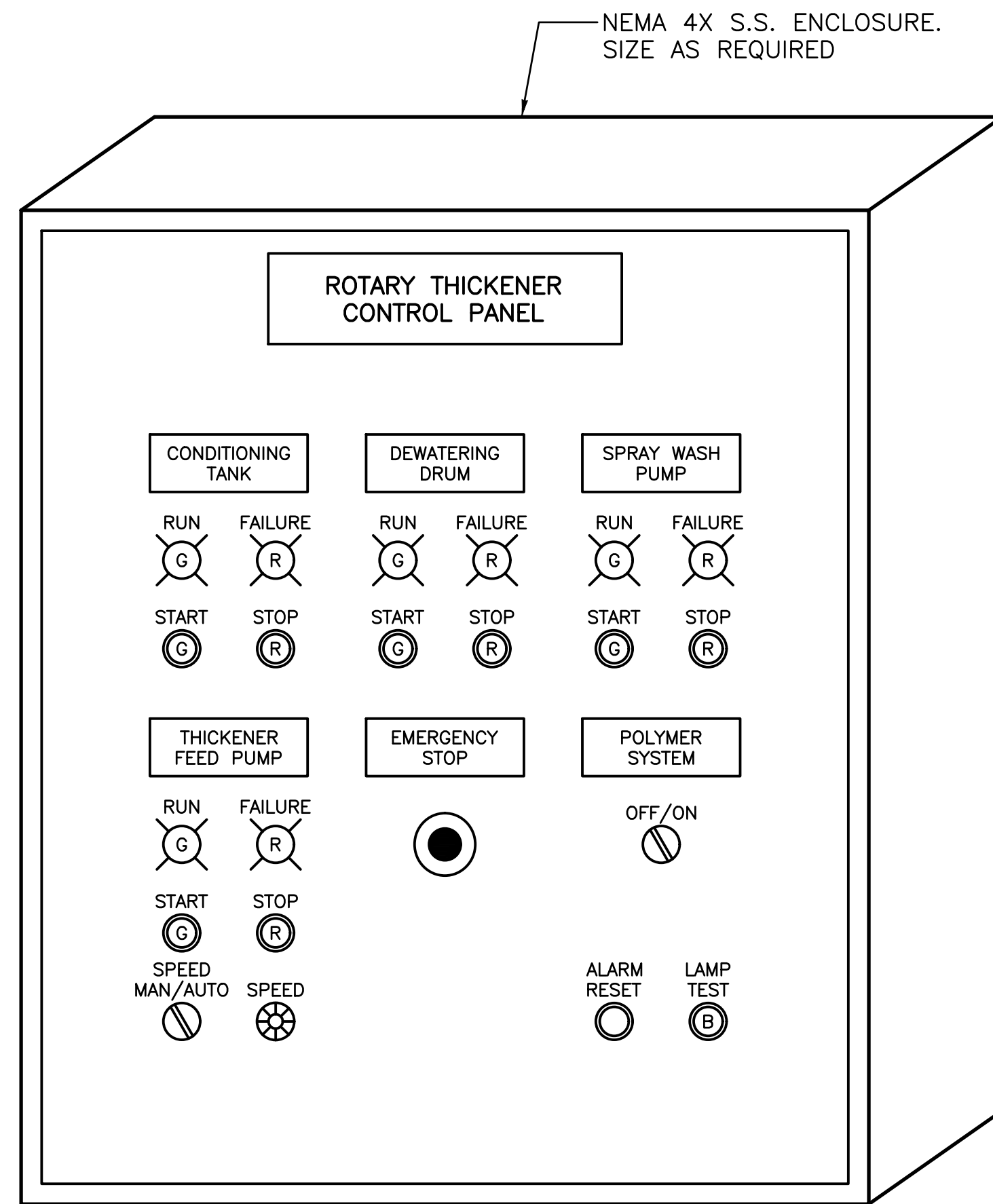


**MICRO-C STORAGE TANK LEVEL INDICATOR PANEL
PANEL LAYOUT AND WIRING DIAGRAM**

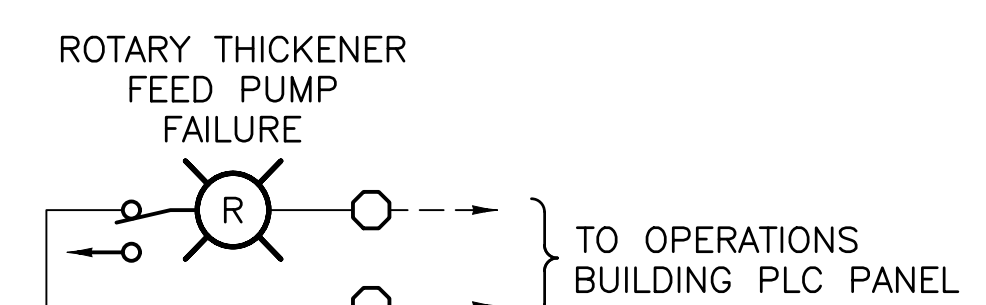
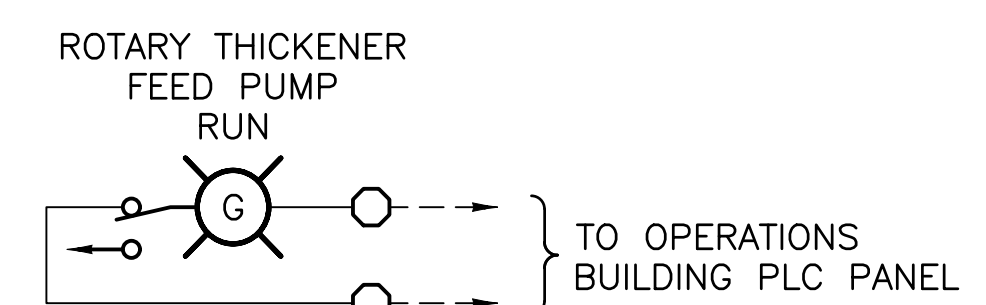
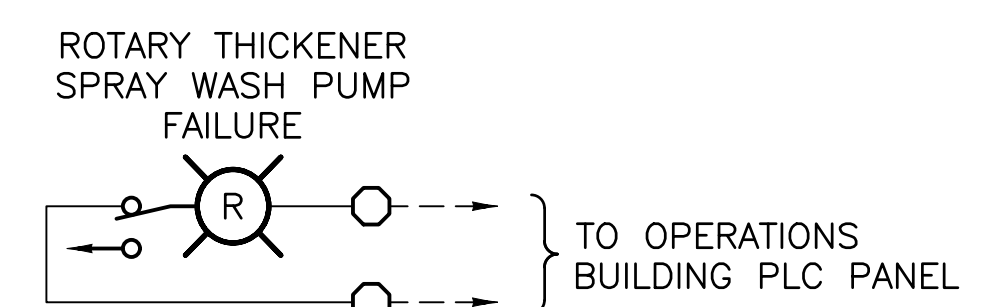
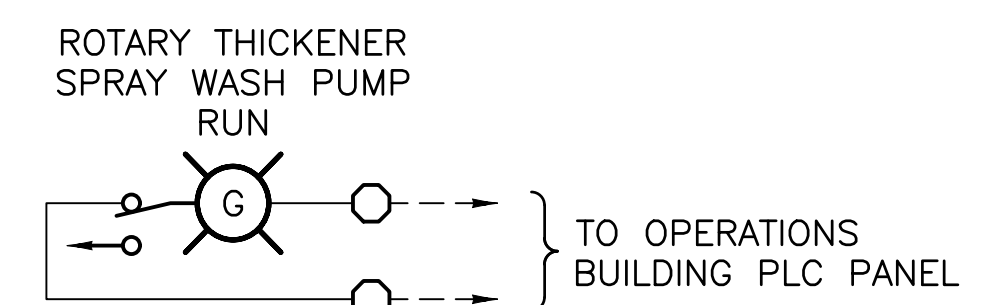
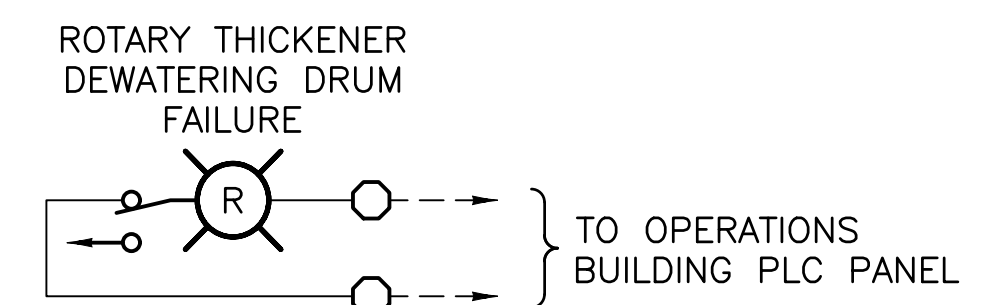
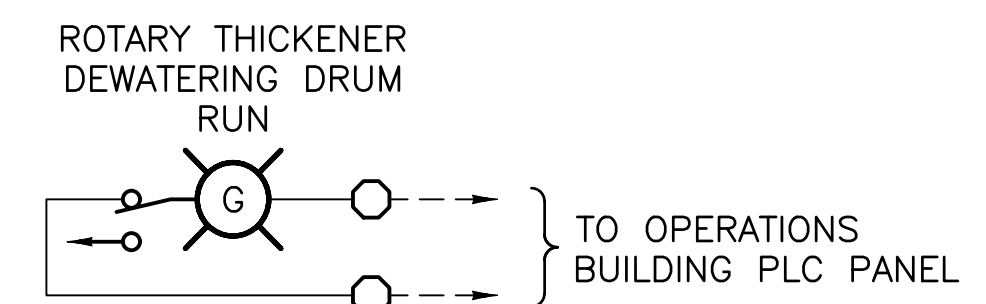
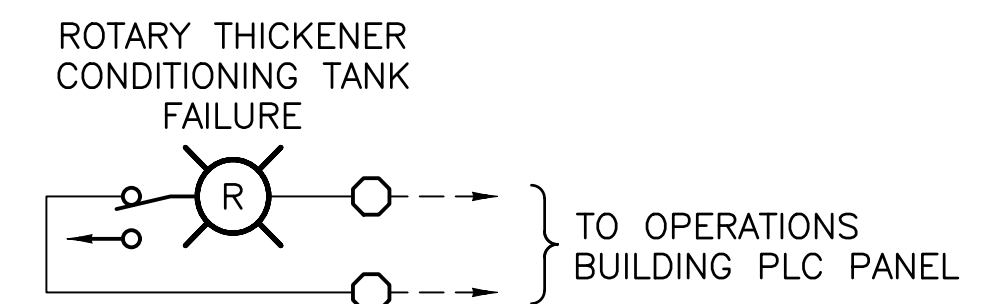
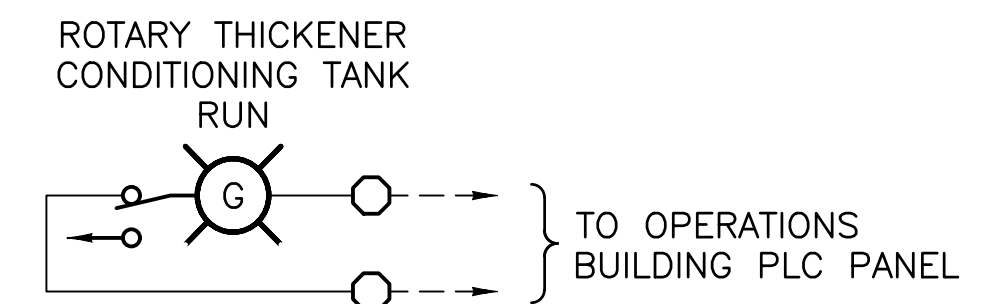
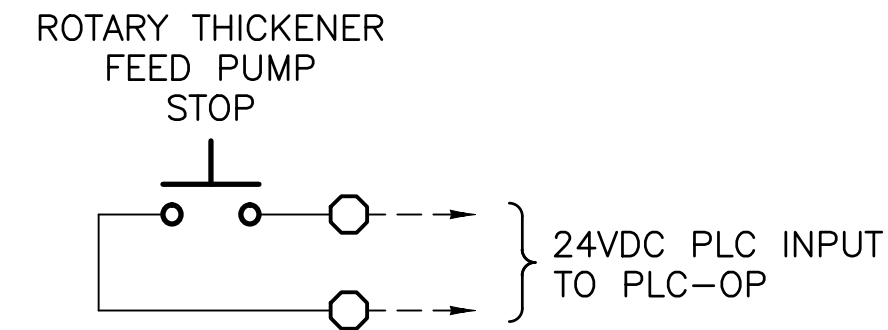
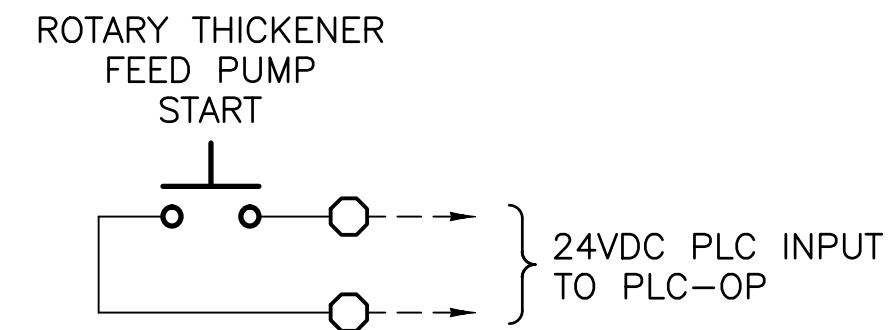
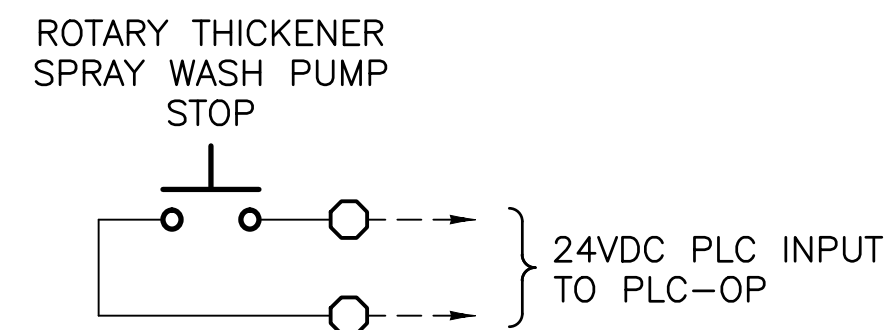
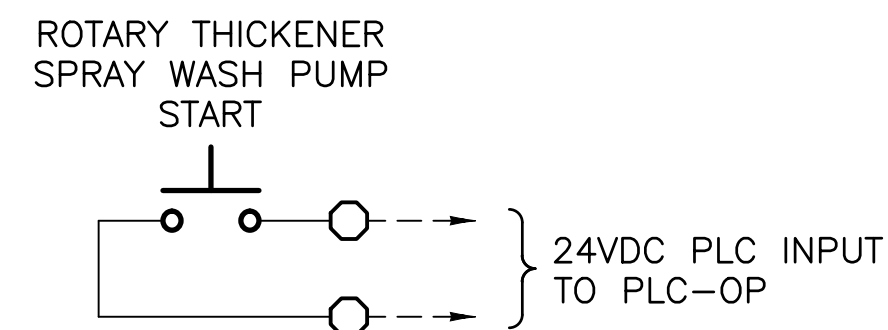
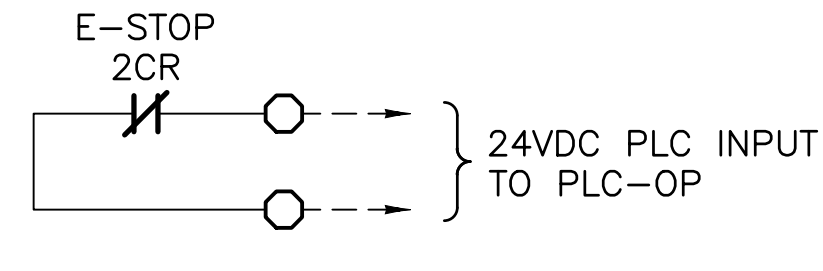
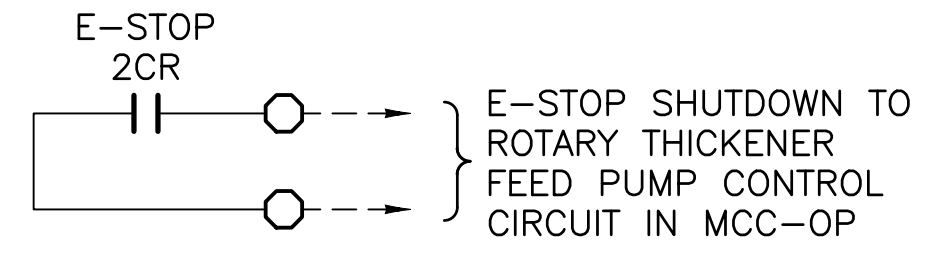
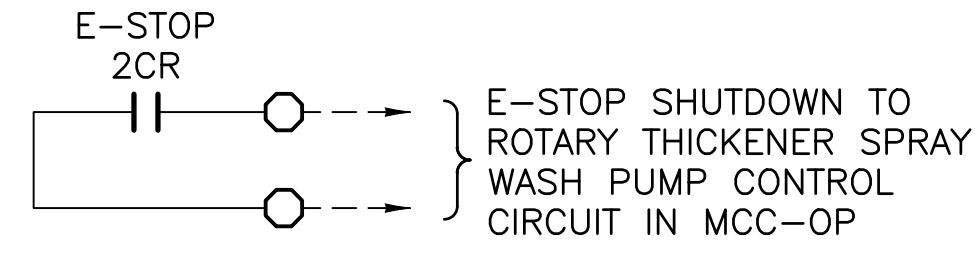
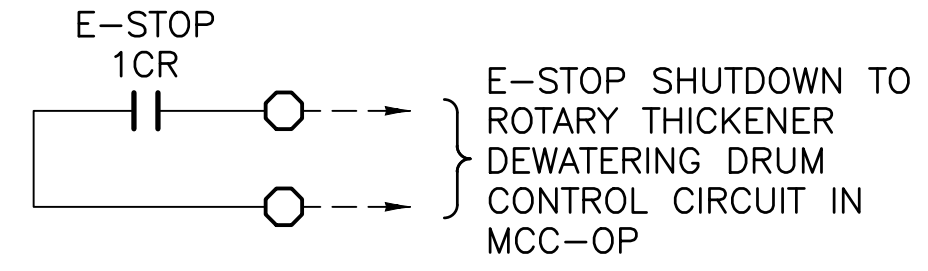
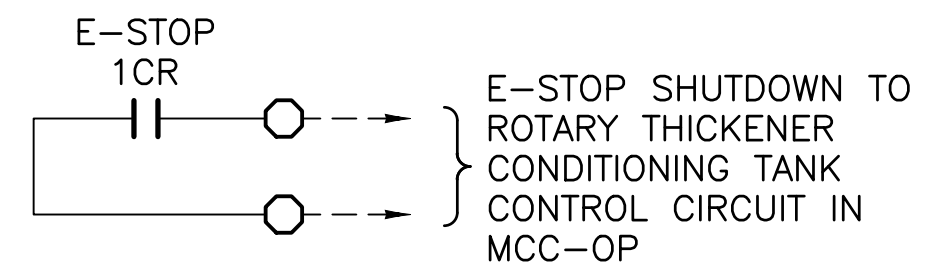
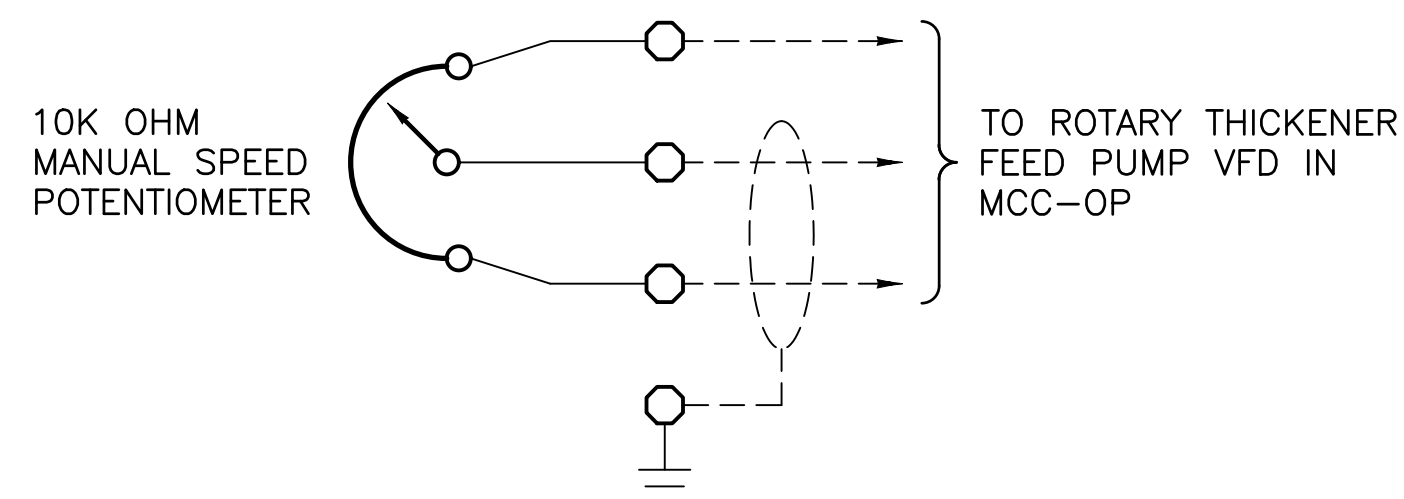
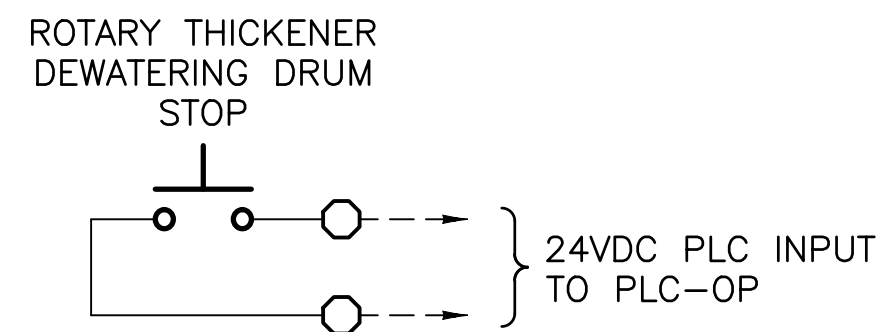
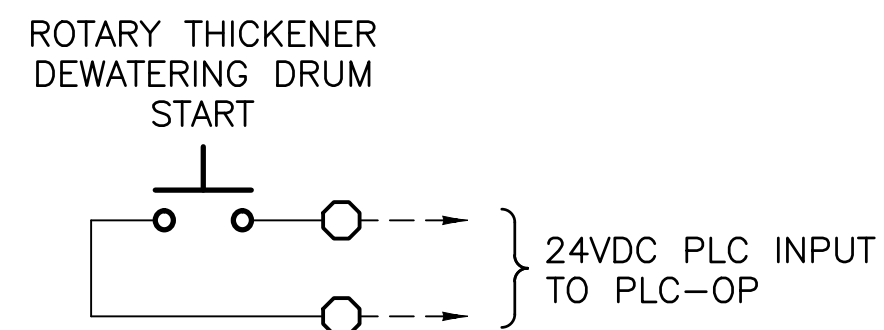
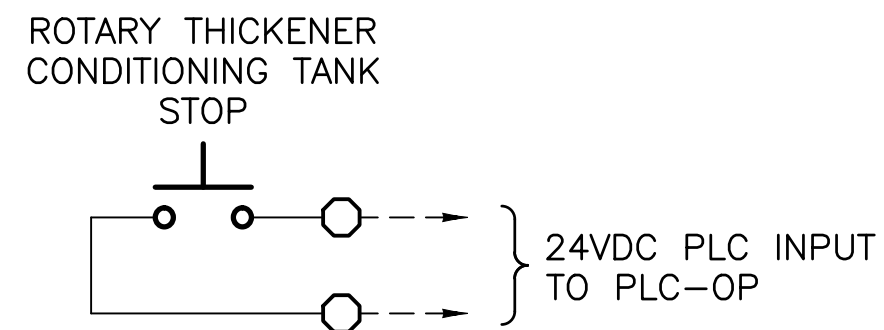
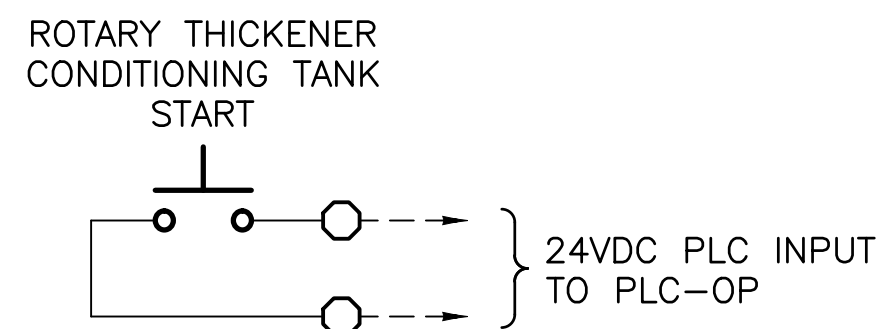
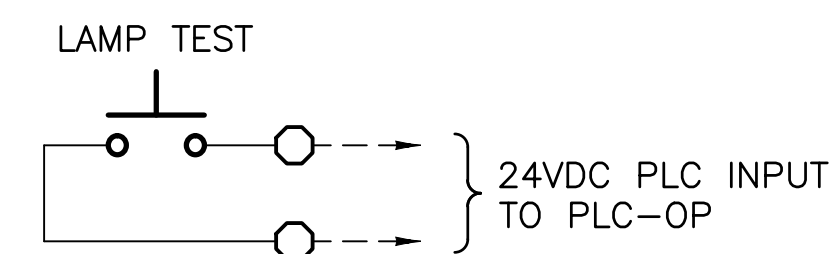
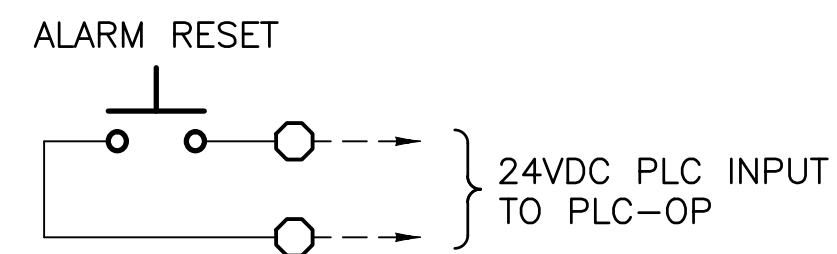
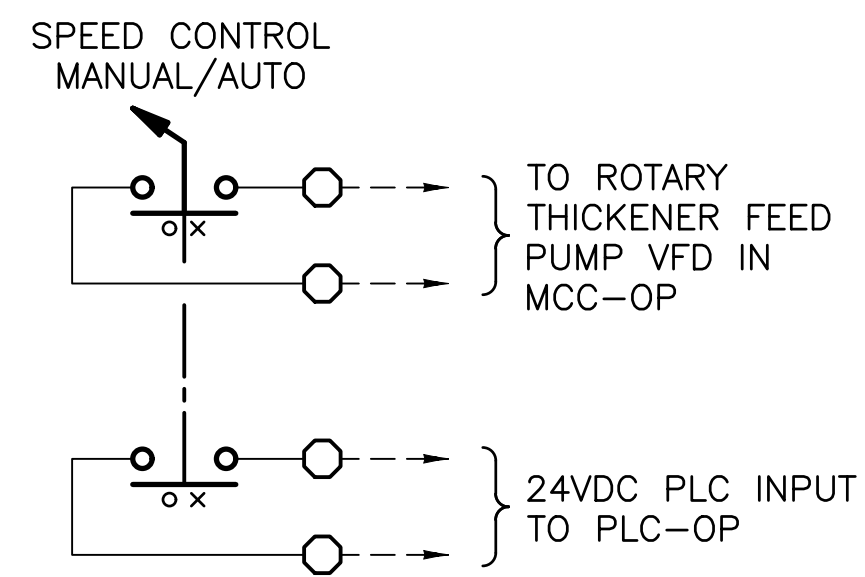
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NOTES

1. THE CONTROL PANEL MAIN NAMEPLATE SHALL BE ENGRAVED WITH 1/2" HIGH LETTERS. SECONDARY NAMEPLATES SHALL BE ENGRAVED WITH 1/4" HIGH LETTERS.



**ROTARY THICKENER CONTROL PANEL
PANEL LAYOUT AND WIRING DIAGRAM**



REVISIONS	MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
ISSUED DATE: 08/2021
DRAWN BY: SMJ
CHECKED BY: DTB
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SHEET TITLE:

ROTARY THICKENER CONTROL PANEL

WASHINGTON COUNTY, MARYLAND

DEPARTMENT OF WATER QUALITY

SMITHSBURG

WWTP ENR UPGRADE AND EXPANSION

STORMWATER MANAGEMENT FINAL PLAN



PROJECT NO.

76436-03

SITE LOD SWM SUMMARY TABLE		
SITE AREA	AC	8.75
DISTURBANCE AREA	AC	1.25
EXISTING IMPERVIOUS	AC	0.28
PROPOSED IMPERVIOUS	AC	0.16
TOTAL IMPERVIOUS	AC	0.44
DEVELOPMENT TYPE	NEW DEVELOPMENT	
ESDv REQUIRED	CF	796
ESDv PROVIDED	CF	1,010

ENGINEER/ARCHITECT DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAS BEEN DESIGNED IN ACCORDANCE WITH LOCAL ORDINANCES, COMAR 26.17.01.07, AND MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

Signature: *Livia Noya* 200370 6/7/2021
 SIGNATURE REGISTRATION NUMBER DATE

APPROVED FOR CONSTRUCTION

Signature: *Mark D. Bradshaw* 8-1-22
 MARK D. BRADSHAW, P.E. DATE:
 DIRECTOR, DEPARTMENT OF ENVIRONMENTAL SERVICES
 WASHINGTON COUNTY, MD

**WASHINGTON COUNTY SOIL CONSERVATION DISTRICT
 SOIL EROSION AND SEDIMENT CONTROL PLAN APPROVAL**

BY: *Jim Hill*
 DATE: 8/1/2022
 (PLAN IS VALID FOR TWO YEARS FROM DATE OF APPROVAL)

OWNER / DEVELOPER'S CERTIFICATION

I/WE CERTIFY ALL ANY PARTIES RESPONSIBLE FOR CLEARING, GRADING, CONSTRUCTION, AND/OR DEVELOPMENT WILL: BE DONE PURSUANT TO THIS PLAN AND RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SOIL EROSION AND SEDIMENT.

APPROVED FOR CONSTRUCTION

Signature: *Mark D. Bradshaw* 8-1-22
 SIGNATURE DATE:

ENGINEER AS-BUILT STORM WATER MANAGEMENT CERTIFICATION

I VERIFY AND AFFIRM THAT THE CONSTRUCTION FOR THE STORM WATER MANAGEMENT FACILITIES AS PERFORMED EITHER MEETS OR EXCEEDS THE REQUIREMENTS AND DESIGN INTENT OF THIS PLAN, INCLUDING ALL SPECIFICATIONS AND REFERENCED STANDARDS, AND HAS BEEN COMPLETED IN ACCORDANCE WITH GOOD CONSTRUCTION PRACTICES. I ALSO VERIFY AND AFFIRM THAT I HAVE REVIEWED THE CONSTRUCTION INSPECTION DOCUMENTATION AND THE AS-BUILT INFORMATION; THAT IT HAS BEEN DONE IN ACCORDANCE WITH WASHINGTON COUNTY REQUIREMENTS AND AT A LEVEL DEEMED NECESSARY TO ASSURE THE VERIFICATION MADE HEREIN; AND ALL DISCREPANCIES BETWEEN THE AS-BUILT INFORMATION AND APPROVED PLANS HAVE BEEN NOTED AND ARE CONSIDERED ACCEPTABLE TO THE CONSULTANT.

SIGNATURE DATE:

OWNER/DEVELOPER: BOARD OF COUNTY COMMISSIONERS FOR WASHINGTON COUNTY, MD
 AGENT: MARK D. BRADSHAW, P.E.
 16232 ELLIOTT PARKWAY
 WILLIAMSPORT, MD 21795
 PHONE: 240-313-2600
 FAX: 240-313-2601

ENGINEER: BUCHART HORN
 445 WEST PHILADELPHIA ROAD
 YORK, PA 17401
 PHONE: 717-852-1400

- MDE NOTES - NOI REQUIREMENTS**
- SOIL EROSION AND SEDIMENT CONTROL - THIS PROJECT HAS BEEN DESIGNED TO MINIMIZE DISTURBANCE AND MAXIMIZE THE AMOUNT OF GREEN SPACE.
 - ESD DOCUMENTATION AND DESIGN - ALL ESD DOCUMENTATION IS AVAILABLE AND THE DESIGN IS IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
 - PROTECTION OF NATURAL AREAS - SILT FENCE, DIVERSION FENCE, AND INLET PROTECTION WILL BE INSTALLED AT THE ONSET OF CONSTRUCTION ACTIVITIES. THE PLANT IS ALSO ENCLOSED BY A FENCE WHICH WILL MAINTAIN THE LIMIT OF DISTURBANCE.
 - CONSTRUCTION EQUIPMENT CONTROL - THE CONSTRUCTION EQUIPMENT WILL BE LIMITED TO THE CONSTRUCTION AREA BY SILT FENCE AND THE PROPERTY FENCE.
 - SITE CLEARING EVALUATION - SITE CLEARING WILL BE LIMITED TO THE LIMIT OF DISTURBANCE WHICH HAS A FENCE AND SILT FENCE PERIMETER.
 - PHASING FOR SITE AREA - THE PROPOSED WORK HAS BEEN PROPERLY SEQUENCED BY THESE PLANS FOR ALL WORK TO BE COMPLETED IN PROPER ORDER.
 - HIGH RISK SOIL IDENTIFICATION - THERE ARE NO HIGH RISK SOILS WITHIN THE LIMIT OF DISTURBANCE.
 - STEEP SLOPES - NO EXCESSIVELY STEEP SLOPES EXIST ON SITE.
 - DESIGNATION OF STABILIZATION - STABILIZE ALL DISTURBED AREA IN ACCORDANCE WITH THE NOTES PROVIDED ON SHEETS ES-1 AND ES-2.

GENERAL NOTE -

IN AN EFFORT TO IMPROVE AND PROTECT RECEIVING WATER QUALITY, THE SMITHSBURG WWTP IS UNDERGOING A SERIES OF ENHANCED NUTRIENT REMOVAL UPGRADES TO EXPAND THE PLANT'S WATER TREATMENT CAPACITY. THE UPGRADES INCLUDE CONSTRUCTION OF OPEN TANKS, NEW BUILDINGS, AND OTHER STRUCTURES INCLUDING TRENCHING FOR NEW PIPING.

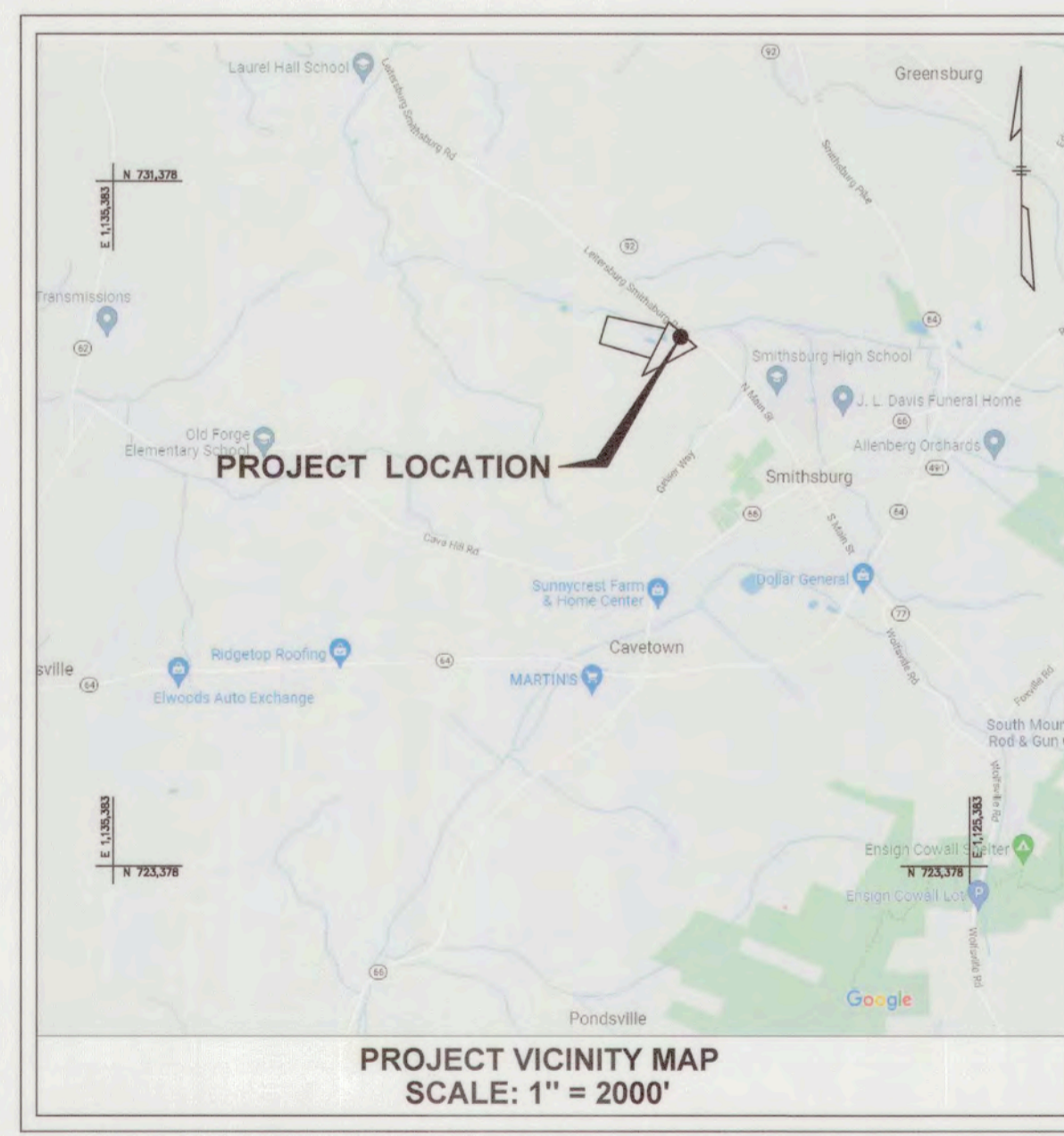
DISTURBED AREA QUANTITY

THE TOTAL AREA TO BE DISTURBED SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY 1.20 ACRES. TOTAL EXCAVATION FOR THE PROPOSED STORMWATER FACILITIES SHOWN ON THESE PLANS IS 105 CUBIC YARDS. TOTAL FILL IS 33 CUBIC YARDS.

SOIL EROSION & SEDIMENT CONTROL ARE SHOWN ON SHEETS ES-1 and ES-2

PROJECT INFORMATION

22523 LEITERSBURG SMITHSBURG ROAD
 SMITHSBURG, MD 21783
 MAP: 039
 GRID: 0012
 PARCEL: 0171
 ZONING: RT
 ELECTION DISTRICT: 7



BOARD OF COUNTY COMMISSIONERS:
 JEFFREY A. CLINE, PRESIDENT
 TERRY L. BAKER, VICE PRESIDENT
 WAYNE K. KEEFER
 CHARLES A. BURKETT JR.
 RANDALL E. WAGNER

JOHN M. MARTIRANO, COUNTY ADMINISTRATOR
 MARK BRADSHAW, PE, DIRECTOR OF ENVIRONMENTAL MANAGEMENT

INDEX OF DRAWINGS

SHEET NO.	SHEET DESIGNATION	TITLE
1	G-01	GENERAL - TITLE SHEET
2	GP-01	OVERALL SITE AND GRADING PLAN
3	SWM-01	STORMWATER MANAGEMENT PLAN
4	SWM-02	STORMWATER MANAGEMENT PROFILE AND NOTES
5	SWM-03	LANDSCAPE PLAN, NOTES, AND DETAILS
6	DA-01	DRAINAGE AREA PLAN (EXISTING)
7	DA-02	DRAINAGE AREA PLAN (PROPOSED)
8	ES-01	EROSION AND SEDIMENT CONTROL PLAN
9	ES-02	EROSION AND SEDIMENT CONTROL DETAILS AND NOTES

STORMWATER FACILITY

TYPE	NO.	DA (sq-ft) (Contributing)	IMPERVIOUS DA (sq-ft) (Contributing)	ESDv (cu-ft)	Rev (cu-ft)
Non-Rooftop Disconnect	3	436	436	35	N/A
Bioretention	1	60,528	18,524	894	1,379
Rain Garden	1	1,481	747	82	52

- STANDARD COUNTY NOTES**
- 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 WASHINGTON COUNTY DIVISION OF PUBLIC WORKS.
 - THIS PROJECT WILL REQUIRE A THIRD PARTY QUALIFIED PROFESSIONAL TO BE PRESENT AT THE PRE-CONSTRUCTION MEETING SCHEDULED WITH WASHINGTON COUNTY PUBLIC WORKS AND THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT. CONSTRUCTION INSPECTION WILL BE REQUIRED FOR THIS PROJECT PER THE "ROADWAY AND STORMWATER MANAGEMENT CONSTRUCTION VERIFICATION PROCEDURES" DATED OCTOBER 17, 2008.
 - PLEASE BE ADVISED THAT THE STORMWATER MANAGEMENT PLAN PROPOSED MUST MEET THE REQUIREMENTS OF THE 2000 MARYLAND STORMWATER DESIGN MANUAL SUPPLEMENT 1 IF FINAL APPROVAL FROM THE SCD FOR SOIL EROSION AND SEDIMENT CONTROL AND FINAL APPROVAL FOR STORMWATER MANAGEMENT FROM DPW HAS NOT BEEN OBTAINED BY MAY 4, 2010.
 - IN CONFORMANCE WITH THE STORMWATER MANAGEMENT ORDINANCE OF WASHINGTON COUNTY, A PERFORMANCE SECURITY AND EXECUTED MAINTENANCE AGREEMENT SHALL BE REQUIRED FROM THE DEVELOPER PRIOR TO ISSUANCE OF ANY BUILDING OR GRADING PERMIT FOR CONSTRUCTION OF THESE PLANS.
 - ALL GRADING FOR THIS PROJECT SHALL BE THE FULL RESPONSIBILITY OF THE PROJECT OWNER.

I/WE HEREBY CERTIFY THAT ALL CLEARING, GRADING, CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND IN ACCORDANCE WITH THE STORMWATER MANAGEMENT ORDINANCE OF WASHINGTON COUNTY AND THE POLICY ON CONSTRUCTION OF SUBDIVISION INFRASTRUCTURE FOR ACCEPTANCE AND OWNERSHIP BY WASHINGTON COUNTY (S-3).

Signature: *Mark D. Bradshaw* 8-1-22
 OWNER/DEVELOPER DATE:

APPROVED

Signature: *Scott Hills* 8/2/22
 WASHINGTON COUNTY DIVISION OF ENGINEERING DATE:

"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. 200370, Expiration Date: 3/19/2023"





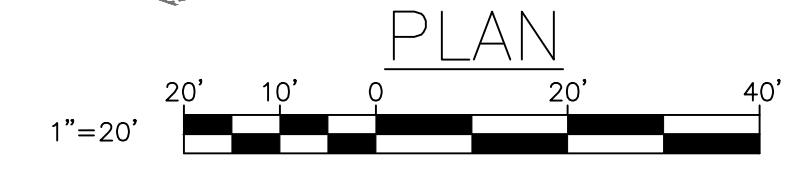
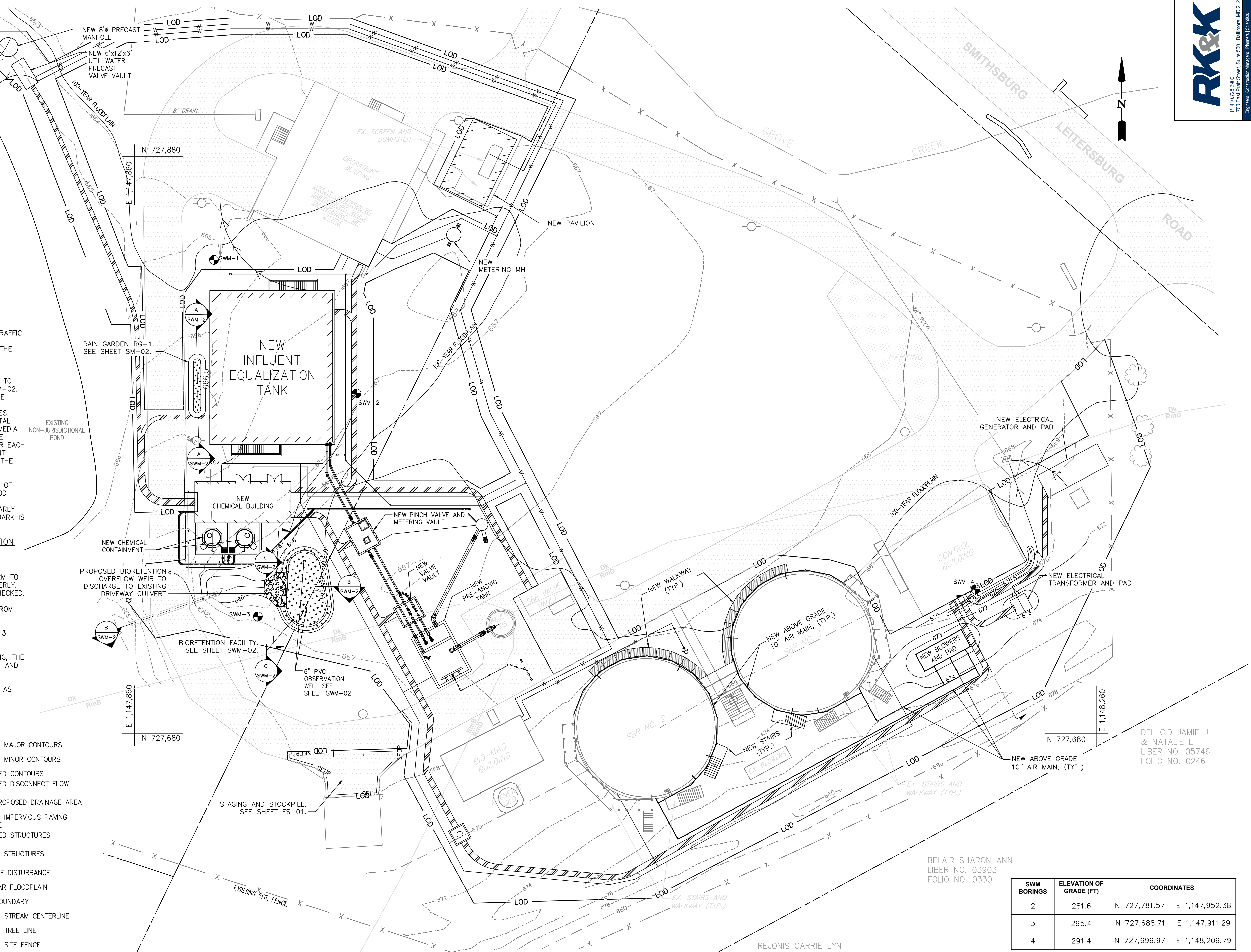
- GENERAL NOTES:**
- STORMWATER MANAGEMENT REQUIREMENTS AT THE SITE HAVE BEEN ADDRESSED THROUGH USE OF NON-ROOFTOP DISCONNECTION FOR THREE PROPOSED CONCRETE STRUCTURES (SIDEWALK, GENERATOR PAD AND TRANSFORMER PAD); A BIORETENTION FACILITY; AND ONE RAIN GARDEN.
 - THE PROJECT IS LOCATED ENTIRELY WITHIN THE ANTIETAM CREEK SUBBASIN (02-14-05-02).
 - THIS PROJECT INCLUDES PROPOSED DISTURBANCE WITHIN THE FEMA-DELINEATED 100-YEAR FLOODPLAIN. AN MDE JOINT PERMIT APPLICATION HAS BEEN APPROVED AND CONSTRUCTION AUTHORIZED TO PROCEED.
 - 51.7% OF SOILS ON SITE ARE HYDROLOGIC SOIL GROUP (HSG) A/D. 48.3% OF SOILS ON SITE ARE HSG B.

- BIORETENTION**
- THE CONTRACTOR SHALL ENSURE THAT CONSTRUCTION EQUIPMENT AND VEHICLE TRAFFIC ARE KEPT OUTSIDE OF THE PROPOSED BIORETENTION LOCATION. COMPACTION OF THE SOILS AND MEDIA IN THIS AREA IS UNACCEPTABLE.
 - THE BIORETENTION MEDIA SHALL CONFORM TO THE SPECIFICATIONS AS PROVIDED ON SWM-02. THE MEDIA SHALL BE A UNIFORM MIX, FREE FROM STONES, STUMPS, ROOTS, OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. THE MEDIA SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 12 INCHES. THE MEDIA SHALL BE COMPACTED BY SATURATING THE ENTIRE BIORETENTION FACILITY AREA AFTER EACH LIFT OF MEDIA IS PLACED. ANY SETTLEMENT THAT OCCURS SHALL BE FILLED BACK TO THE DESIGN ELEVATION.
 - THE SURFACE MULCH LAYER WILL CONSIST OF STANDARD FINE SHREDDED AGED HARDWOOD MULCH. THE MULCH SHOULD BE APPLIED UNIFORMLY TO A DEPTH OF 3 INCHES. YEARLY REPLISHING MAY BE NECESSARY. PINE BARK IS NOT ACCEPTABLE.

- OPERATION AND MAINTENANCE INSPECTION AND SCHEDULE**
- THE OWNER SHALL INSPECT THE FACILITY ANNUALLY AND AFTER EVERY HEAVY STORM TO DETERMINE IF THE BMP IS DRAINING PROPERLY. THE FILTER SURFACE AREA SHOULD BE CHECKED.
 - THE OWNER SHALL REMOVE ANY DEBRIS FROM THE FACILITY.
 - THE OWNER SHALL REMOVE AND REPLACE 3 INCHES OF HARDWOOD MULCH ANNUALLY.
 - IF THE FACILITY IS NOT PROPERLY DRAINING, THE BIORETENTION SOIL MIX MUST BE REMOVED AND REPLACED.
 - THE OWNER SHALL MOW THE SIDE SLOPES AS NEEDED.

LEGEND

--- 680 ---	EXISTING MAJOR CONTOURS
--- 678 ---	EXISTING MINOR CONTOURS
---	PROPOSED CONTOURS
→ →	PROPOSED DISCONNECT FLOW PATH
---	BR-1 PROPOSED DRAINAGE AREA
[Pattern]	EXISTING IMPERVIOUS PAVING SURFACE
[Pattern]	PROPOSED STRUCTURES
[Pattern]	EXISTING STRUCTURES
LOD	LIMITS OF DISTURBANCE
100 YR	100-YEAR FLOODPLAIN
Dk RmD	SOILS BOUNDARY
---	EXISTING STREAM CENTERLINE
---	EXISTING TREE LINE
X X	EXISTING SITE FENCE
---	25-FOOT WETLAND BUFFER
---	PARCEL BOUNDARY
SWM-1	SOIL BORING LOCATION



SWM BORINGS	ELEVATION OF GRADE (FT)	COORDINATES	
2	281.6	N 727,781.57	E 1,147,952.38
3	295.4	N 727,688.71	E 1,147,911.29
4	291.4	N 727,699.97	E 1,148,209.79

BELAIR SHARON ANN
 LIBER NO. 03903
 FOLIO NO. 0330

REJONIS CARRIE LYN
 LIBER NO. 04004
 FOLIO NO. 0366

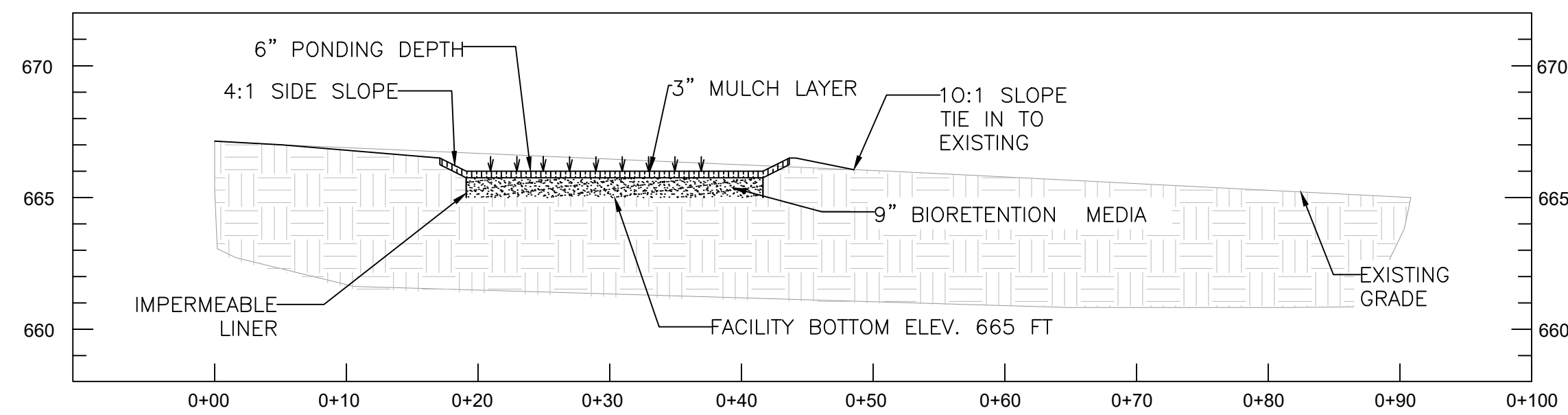
DEL CID JAMIE J & NATALIE L
 LIBER NO. 05746
 FOLIO NO. 0246

REVISIONS

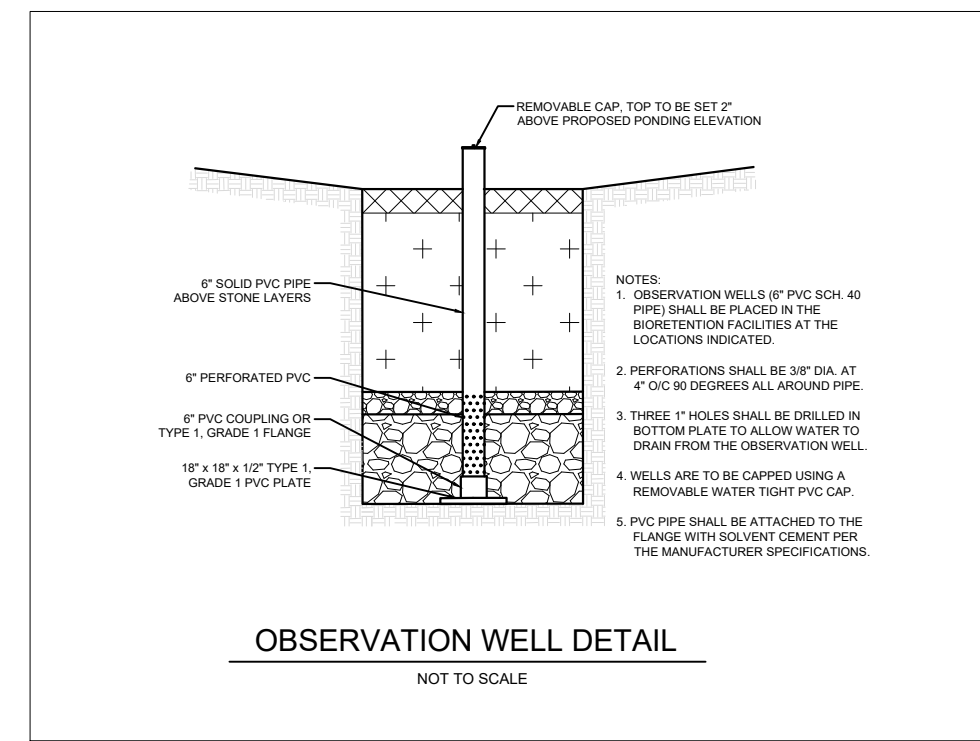
MARK	ISSUED DATE	DESCRIPTION

PROJECT NO:	76436-03
ISSUED DATE:	JAN. 2022
CO. PROJECT NO.:	
DRAWN BY:	ENV DRAFTERS
CHECKED BY:	RJA
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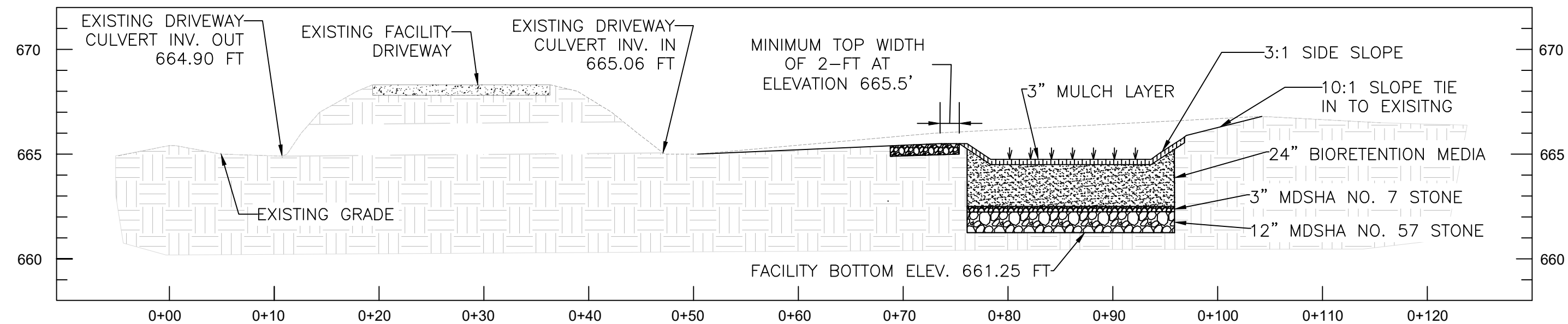
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SECTION A-A'
SCALE: H - 1"=10'
V - 1"=5'

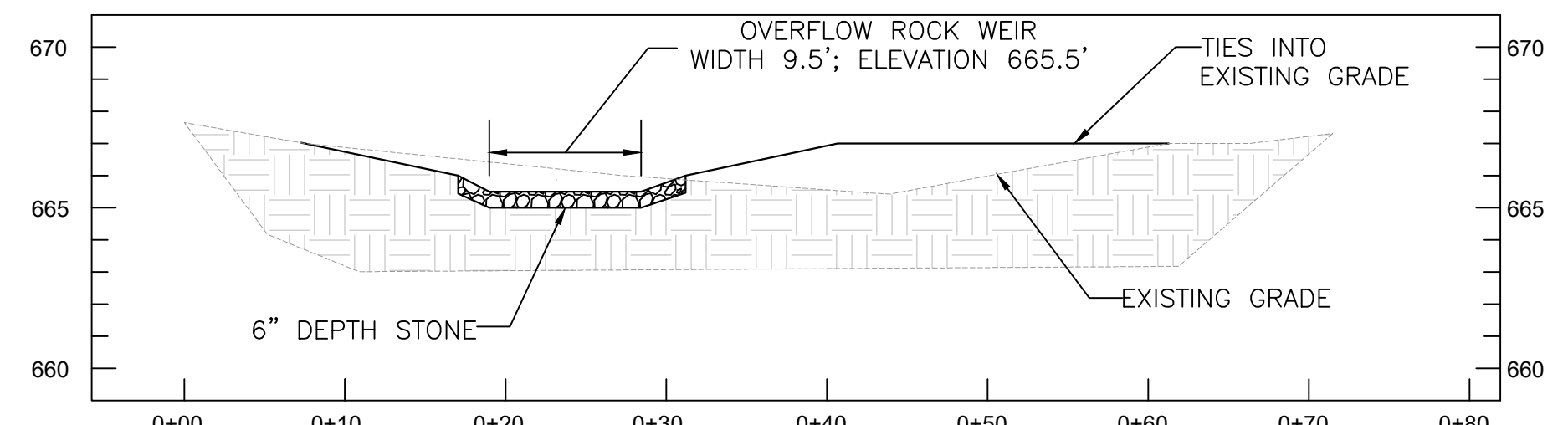


OBSERVATION WELL DETAIL
NOT TO SCALE



SECTION B-B'
SCALE: H - 1"=10'
V - 1"=5'

NOTE: CONTRACTOR SHALL HAND EXCAVATE TEST PITS TO DETERMINE THE EXACT LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION.



SECTION C-C'
SCALE: H - 1"=10'
V - 1"=5'

NOTICE OF REQUIRED STORMWATER MANAGEMENT INSPECTIONS BIORETENTION AND RAIN GARDEN FACILITIES				
The following inspections are required to be performed by the Qualified Professional for the construction of any Sand Filter, Bio-Retention or Rain Garden Facility. Additional inspections may be needed based on professional engineering judgement. Each inspection is required at the start of each stage.				
	Certifying Engineer	Date	County Inspector	Date
EXCAVATION OF FACILITY - Prior to excavation, verify sediment and erosion control features are in place to prevent sediment inflow. Verify all flagging required in the area for sensitive area protection. Verify grading is accurately staked-out and re-staked as needed. Facility dimensions shall be verified and soils check for infiltration. Verify contributing area is permanently stabilized. Verify that water is not present. Ensure roughening of side walls if sheared and sealed by heavy equipment. Verify that compaction of facility base is minimized.				
PLACEMENT OF FILTER CLOTH (Trenches) - Ensure filter fabric is overlapping six (6) inches between strips of cloth. Ensure tree roots or other obstacles are removed from facility walls or sides and base to prevent tearing. Verify that uphill fabric roll overlaps two (2) feet over downhill roll.				
PLACEMENT OF OBSERVATION WELLS - Location, size, and material of observation wells shall be verified prior to stone placement. Verify pipe ends capped.				
PLACEMENT OF FILTERING MEDIA - Verify bottom layer material and thickness. Verify filter media layer and thickness. Verify top filter media layer.				
STABILIZATION AND LANDSCAPING - Verify site top soiled, seeded and mulched. Verify embankment top soiled and seeded. Verify location, size, type and number of planted landscape material. Verify no more than 1/4 inch root ball exposed. Verify planting stock kept moist during on-site storage. Verify installation location, size, material typed of fencing or other safety barriers.				
The Qualified Professional may request the presence of a County Construction Standards Inspector at least 24 hours in advance by calling 240-313-2400.				

OPERATION AND MAINTENANCE PLAN - BIORETENTION		
Inspection Item	Inspection Requirements	Remedial Action
Maintenance Access		
General	Check for accessibility to facility; excessive vegetation; surface stability	Repair erosion and maintain access surface in good condition
Pretreatment		
Grass filter strip or sand layer	Check for sediment accumulation	Remove sediment as needed
Optional sand layer	Check sand for staining and sediment accumulation	If contaminated, replace first three inches of sand layer
Gravel diaphragm	Check for sediment accumulation and evidence of erosion	Remove sediment and replace gravel as needed
Mulch layer	Check for a (2-3) inch mulch layer	Remove mulch and replace as needed
Filter Bed		
Dewatering	Check for dewatering within 48 hours of rainfall; noticeable odors; water stains on the filter surface or at the outlet; presence of algae or aquatic vegetation	Remove mulch and the top (3-6) inches of soil/sediment and replace with suitable materials per plan specifications; follow up inspections shall confirm adequate dewatering; contact the plan approval authority if the facility does not function as intended
Sediment	Check for sediment accumulation	Remove sediment as needed
Mulch layer	Check for adequate cover; sediment accumulation; discoloration	Remove and replace mulch and excess sediment as needed
Vegetation		
Plant composition and health	Check for plant composition according to approved plans; invasive species, weeds, and dead or dying vegetation	Remove and replace plants as necessary
Vegetative cover/erosion	Check for erosion, runoff channelizing, or bare spots	Repair/grade and stabilize as needed
Outlets		
Underdrain system	Check outlet end to ensure that discharge is not obstructed; check for erosion	Remove any flow obstructions; grade and stabilize any eroded areas to provide stable conveyance
Overflow spillway	Check for displacement or rip-rap, stable conveyance, and erosion below the outlet	Repair and replace as needed
Conveyance Systems		
General	Check for erosion, flow blockages or bypass, and stable conveyance	Repair/replace and stabilize as needed
Flow diversion	Check flow splitter for proper functioning	Repair as necessary
Trash and Debris		
	Check for trash and debris accumulation	Trash and debris shall be disposed of in an acceptable manner
Structural Components		
	Check for structural deterioration, spalling or cracking	Repair according to specifications on the approved plan

Material Specifications for Bioretention			
MATERIAL	SPECIFICATION	SIZE	NOTES
Plantings	See Sheet SM-03		
Bioretention Soil Mixture (BSM)	Sand (35-60%) Silt (30-55%) Clay (10-25%)		USDA soil types loamy sand, sandy loam or loam
Mulch	Shredded hardwood		Aged 6 mo. minimum; no pine or wood chips
Pea Gravel Layer	ASTM-D-448	No. 8 or No. 9 (3/8" to 1/2")	To be placed between gravel jacket and BSM
Gravel Layer	ASSHTO M-43	MDSA No. 57 stone	To be placed on bottom of facility
Impermeable Liner	30-mm polyethylene impermeable liner		To be placed on sides of facility where adjacent to structure or where specified on plans
Underdrains and Pipe Fittings	AASHTO M-278	6" perforated and nonperforated schedule 40 pvc	Perforated sections should contain perforations 3/8" diameter, 6" on center, 4 holes per row
Observation Wells		6" nonperforated schedule 40 pvc	Observation wells shall extend 6" above the top elevation of the bioretention facility

- GENERAL NOTES:**
- ALL UTILITIES SHOWN ARE APPROXIMATE LOCATIONS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF ALL UTILITIES.
 - AN IMPERMEABLE LINER IS TO BE APPLIED IN THE RAIN GARDEN 1. THE IMPERMEABLE LINER IS TO BE PLACED ONLY ALONG THE EDGE OF THE STORMWATER FACILITY THAT IS ADJACENT TO THE PROPOSED INFLUENT TANK. TO A DEPTH GREATER OR EQUAL TO THE BUILDING'S FOUNDATION BOTTOM ELEVATION, THE LINER IS TO BE TURNED IN 90° TOWARDS THE BOTTOM OF THE FACILITY FOR A LENGTH OF 6".
 - THE OVERFLOW ROCK WEIR FOR THE BIORETENTION FACILITY SHALL DRAIN OVERLAND TO THE EXISTING STORMWATER CULVERT WHICH RUNS UNDER THE FACILITY DRIVEWAY.



SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
22523 LETTERSBURG SMITHSBURG ROAD
SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
16322 ELLIOTT PARKWAY
WILLIAMSPORT, MARYLAND 21785

REVISIONS	MARK	ISSUED DATE	DESCRIPTION

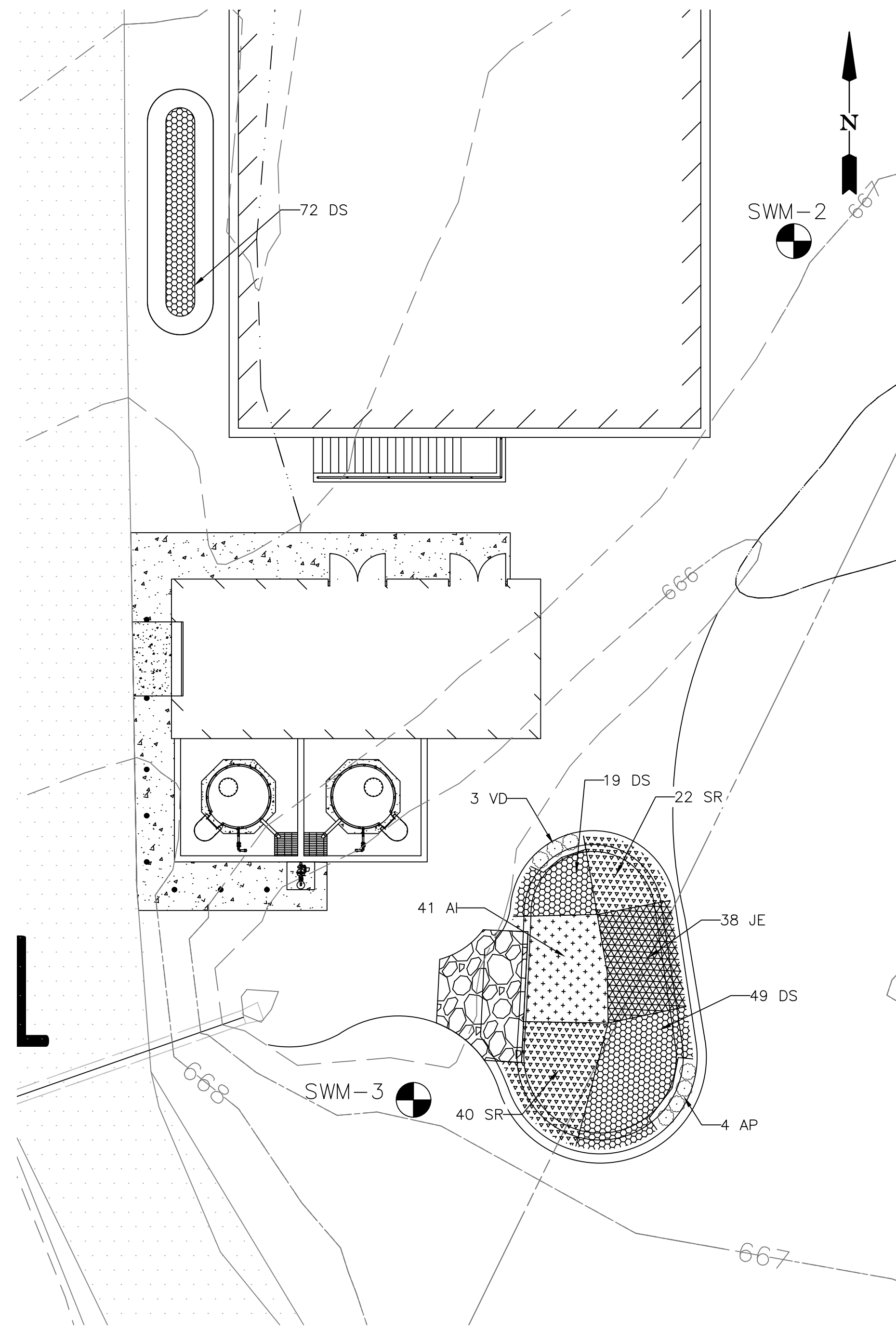
PROJECT NO: 76436-03
ISSUED DATE: JAN. 2022
CO. PROJECT NO:
DRAWN BY: ENV DRAFTERS
CHECKED BY: RJA
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SHEET TITLE:

STORMWATER MANAGEMENT PROFILE & NOTES

SHEET NO: SWM-02

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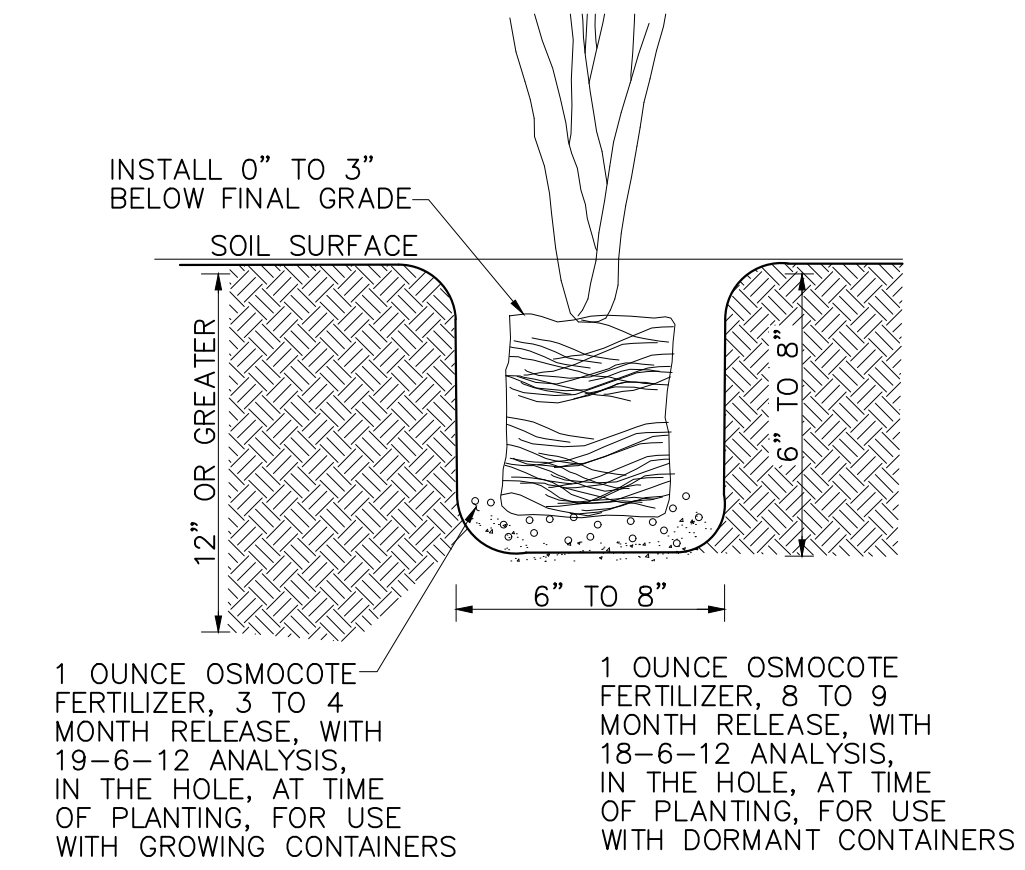
BIORETENTION AND RAIN GARDEN 1:
PLANTING PLAN

LEGEND

- NEW SHRUB, BOTTLEBRUSH BUCKEYE
- NEW SHRUB, ARROWWOOD
- NEW PLANT, SPIKE GRASS
- NEW PLANT, MILKWEED
- NEW PLANT, ROUGH GOLDENROD
- NEW PLANT, SOFT RUSH

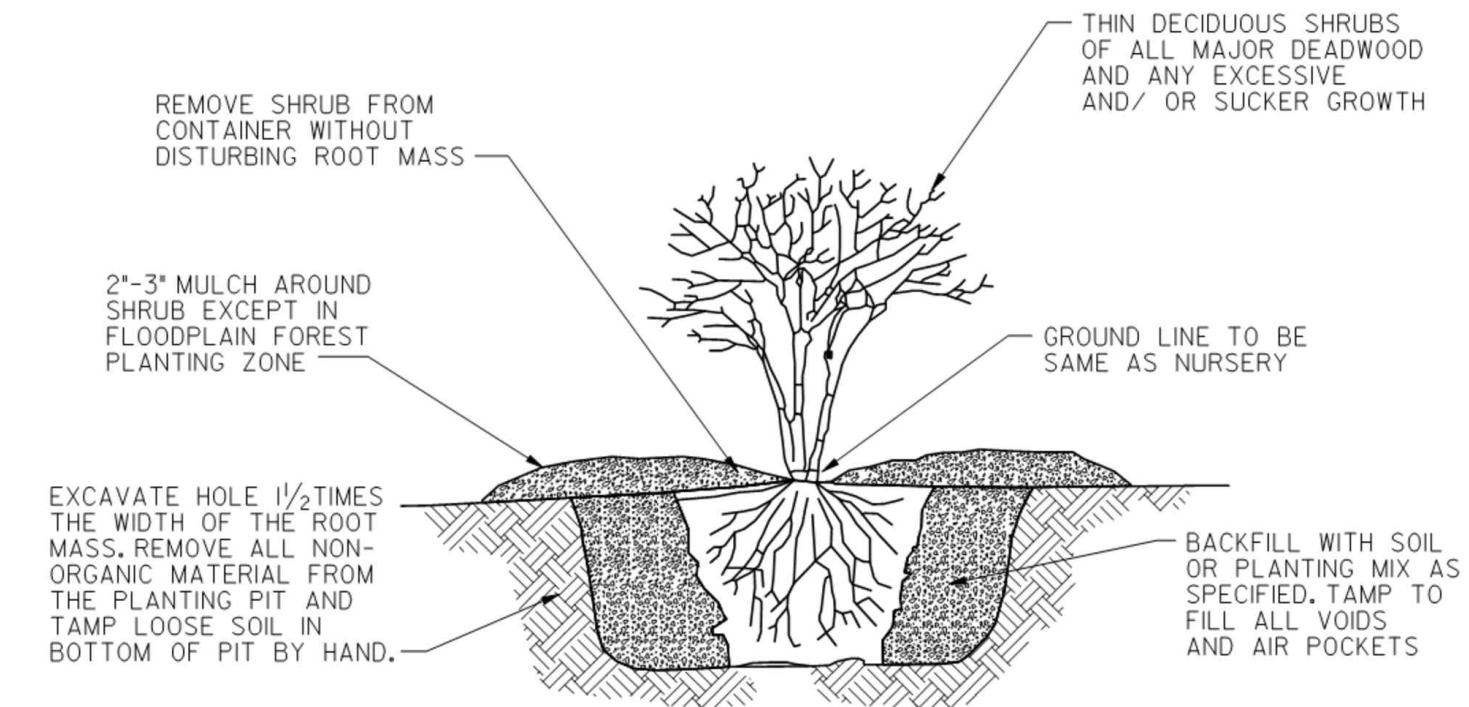
PLANTING NOTES:

- ALL PLANTS SELECTED ARE SPECIES NATIVE TO THE REGION.
- ALL HERBACEOUS PLANTS SHALL BE PROPERLY IDENTIFIED BY WEATHER PROOF LABELS SECURELY AFFIXED BEFORE DELIVERY TO PROJECT SITE. LABELS SHALL NOT BE REMOVED UNTIL THE FINAL INSPECTIONS BY A WASHINGTON COUNTY REPRESENTATIVE.
- ANY REQUEST TO SUBSTITUTE PLANTS OF DIFFERENT SPECIES, CULTIVARS, SIZE, GROWTH HABIT OR PLANTING STOCK TYPE SHALL BE SUBMITTED IN WRITING TO THE WASHINGTON COUNTY REPRESENTATIVE AS A SUBSTITUTION REQUEST. SUBSTITUTIONS WILL NOT BE PERMITTED WITHOUT WRITTEN APPROVAL FROM A WASHINGTON COUNTY REPRESENTATIVE.
- IF THE PLANTING IS COMPLETED OUTSIDE OF THE DESIGNATED TIME PERIOD, THEN EVALUATION AND POSSIBLE ACCEPTANCE OF THE PLANTING WILL OCCUR NO SOONER THAN ONE YEAR AFTER THE COMPLETION OF ALL PLANTING.
- PLANTS SHALL BE WATERED 3 TIMES PER WEEK DURING THE GROWING SEASON AND 2 TIMES PER MONTH IN THE DORMANT PERIOD IN THE ABSENCE OF SUFFICIENT RAINFALL.
- DEAD PLANTS RESULTING FROM WINTER FREEZES SHALL BE REPLACED IN THE SPRING.



- MAY BE INSTALLED YEAR ROUND
(DORMANT CONTAINER - OCTOBER THROUGH MARCH)
(GROWING CONTAINER - APRIL THROUGH SEPTEMBER)
- DIG A HOLE LARGE ENOUGH TO ACCOMMODATE THE PLANT, WHILE ALLOWING SPACE TO BACKFILL AROUND IT.
 - BACKFILL THE SIDES OF THE PIT WITH APPROVED BACKFILL AND TAMP FIRMLY AS PIT IS BEING FILLED.

PLANTING DETAIL HERBACEOUS
PLANT (CONTAINER GROWN)
(NOT TO SCALE)



SHRUB PLANTING - CONTAINER
(NOT TO SCALE)

PLANTING SCHEDULE

QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	SYMBOL	WETLAND INDICATOR STATUS
3	<i>Viburnum dentatum</i>	Arrowwood	3-4 ft	VD	FAC
4	<i>Aesculus parviflora</i>	Bottlebrush Buckeye	3-4 ft	AP	FACW
38	<i>Juncus effusus</i>	Soft Rush	1-Gal	JE	FACW
41	<i>Asclepias incarnata</i>	Swamp Milkweed	1-Gal	AI	OBL
62	<i>Solidago rugosa</i> "Fireworks"	Rough Goldenrod	1-Gal	SR	FACW
140	<i>Distichlis spicata</i>	Spike Grass	1-Gal	DS	FACW



REVISIONS	MARK	ISSUED DATE	DESCRIPTION



GENERAL NOTES:

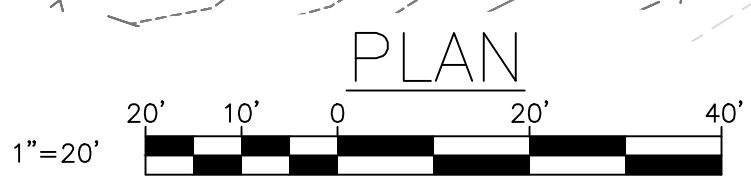
1. SINGLE BATCH REACTOR (SBR) TANKS ARE CONSIDERED IMPERVIOUS SURFACE IN THE DRAINAGE AREA (DA). HOWEVER, THESE TANKS ARE OPEN-TOP AND ANY STORMWATER COLLECTED IS TREATED BY THE PLANT. AS THIS STORMWATER DOES NOT CONTRIBUTE TO ON-SITE RUNOFF, THIS IMPERVIOUS AREA IS REMOVED FROM STORMWATER MANAGEMENT REQUIREMENTS.
2. THE BIO-MAG BUILDING HAS ADJACENT STORMWATER MANAGEMENT PLANTER BOXES TREATING THE STORMWATER RUNOFF FROM THE BUILDING. AS SUCH, THIS IMPERVIOUS SURFACE IS REMOVED FROM STORMWATER MANAGEMENT REQUIREMENTS FOR THE SITE.
3. TOTAL EXISTING IMPERVIOUS SURFACE NOT REQUIRING TREATMENT IN POI 1 DA IS APPROXIMATELY 6,400 SQUARE FEET.

POI 1

DA POI 1
DA = 1.44 AC

LEGEND

	-680-	EXISTING MAJOR CONTOURS
	-678-	EXISTING MINOR CONTOURS
	-678-	EXISTING 2-FT LIDAR CONTOURS
		EXISTING CULVERT DRAINAGE AREA
		TIME OF CONCENTRATION
		EXISTING IMPERVIOUS PAVING SURFACE
		EXISTING STRUCTURES
	100 YR	100-YEAR FLOODPLAIN
	Dk Rmd	SOILS BOUNDARY
		EXISTING STREAM CENTERLINE
		EXISTING TREE LINE
		EXISTING SITE FENCE
		25-FOOT WETLAND BUFFER
		PARCEL BOUNDARY



SITE DRAINAGE AREA SUMMARY TABLE

POINT OF INTEREST	1
EX. DRAINAGE AREA (AC)	1.44
EXISTING CURVE NO.	62
TIME OF CONCENTRATION (hr)	0.14
EXISTING 10-YR Q (CFS)	1.76

PROJECT STATUS: **STORMWATER MANAGEMENT FINAL PLAN**

REVISIONS

MARK	ISSUED DATE	DESCRIPTION

PROJECT NO: 76436-03
 ISSUED DATE: JAN. 2022
 CO. PROJECT NO:
 DRAWN BY: ENV DRAFTERS
 CHECKED BY: RJA
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 SHEET TITLE:

EXISTING DRAINAGE AREA PLAN

SHEET NO: **DA-01**

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SMITHSBURG WWTP ENR UPGRADE AND EXPANSION
 22523 LETTERSBURG SMITHSBURG ROAD
 SMITHSBURG, MARYLAND 21783

WASHINGTON COUNTY, MARYLAND DEPARTMENT OF WATER QUALITY
 16322 ELLIOTT PARKWAY
 WILLIAMSPORT, MARYLAND 21785

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 SHEET TITLE:

PROPOSED DRAINAGE AREA PLAN

SHEET NO:
DA-02

GENERAL NOTES:

- TOTAL EXISTING IMPERVIOUS SURFACE NOT REQUIRING TREATMENT IN POI 1 DA IS APPROXIMATELY 6,400 SQUARE FEET. SEE SHEET DA-01 FOR DETAILS.
- THE THREE NEW CHEMICAL TANKS, PRE-ANOXIC TANK AND INFLUENT EQUILIZATION TANK ARE OPEN-TOP, AND AS SUCH COLLECT STORMWATER WHICH FALLS IN THESE TANKS. THESE IMPERVIOUS AREAS ARE REMOVED FROM SITE STORMWATER MANAGEMENT REQUIREMENTS.
- STORMWATER RUNOFF FROM THE NEW MAG METER VALVE VAULT AND WATER UTILITY MANHOLE FLOWS INTO THE EXISTING NON-JURISDICTIONAL POND ADJACENT TO THE PROJECT SITE. AS SUCH, THIS RUNOFF IS CONSIDERED TREATED (POND IS CONSIDERED A DETENTION DEVICE). THIS IMPERVIOUS AREA IS REMOVED FROM SITE STORMWATER REQUIREMENTS.
- TOTAL NEW IMPERVIOUS SURFACE NOT REQUIRING TREATMENT ON SITE IS APPROXIMATELY 4,200 SQUARE FEET.

RAIN GARDEN DA = 0.03 AC

DA POI 1 DA = 1.44 AC

POI 1

LEGEND

- - - - -680- - - - - EXISTING MAJOR CONTOURS
- - - - -678- - - - - EXISTING MINOR CONTOURS
- - - - - PROPOSED CONTOURS
- - - - - PROPOSED DISCONNECT FLOW PATH
- - - - - PROPOSED RAIN GARDEN DRAINAGE AREA
- - - - - PROPOSED BIORETENTION DRAINAGE AREA
- - - - - TIME OF CONCENTRATION
- - - - - EXISTING IMPERVIOUS PAVING SURFACE
- - - - - PROPOSED STRUCTURES
- - - - - EXISTING STRUCTURES
- - - - - LOD - - - - - LIMITS OF DISTURBANCE
- - - - - 100 YR - - - - - 100-YEAR FLOODPLAIN
- - - - - Dk RmD - - - - - SOILS BOUNDARY
- - - - - EXISTING STREAM CENTERLINE
- - - - - EXISTING TREE LINE
- - - - - X - - - - - EXISTING SITE FENCE
- - - - - 25-FOOT WETLAND BUFFER
- - - - - PARCEL BOUNDARY



POINT OF INTEREST	1
EX. DRAINAGE AREA (AC)	1.44
EXISTING CURVE NO.	62
EXISTING 10-YR Q (CFS)	1.84
PR. DRAINAGE AREA (AC)	1.44
PROPOSED CURVE NO.	63
PROPOSED 10-YR Q (CFS)	0.37
PR. DRAINAGE AREA - RAIN GARDEN (AC)	0.03
PROPOSED CURVE NO. - RAIN GARDEN (AC)	72
PROPOSED 10-YR Q (CFS) - RAIN GARDEN	0.03

BELAIR SHARON ANN
 LIBER NO. 03903
 FOLIO NO. 0330

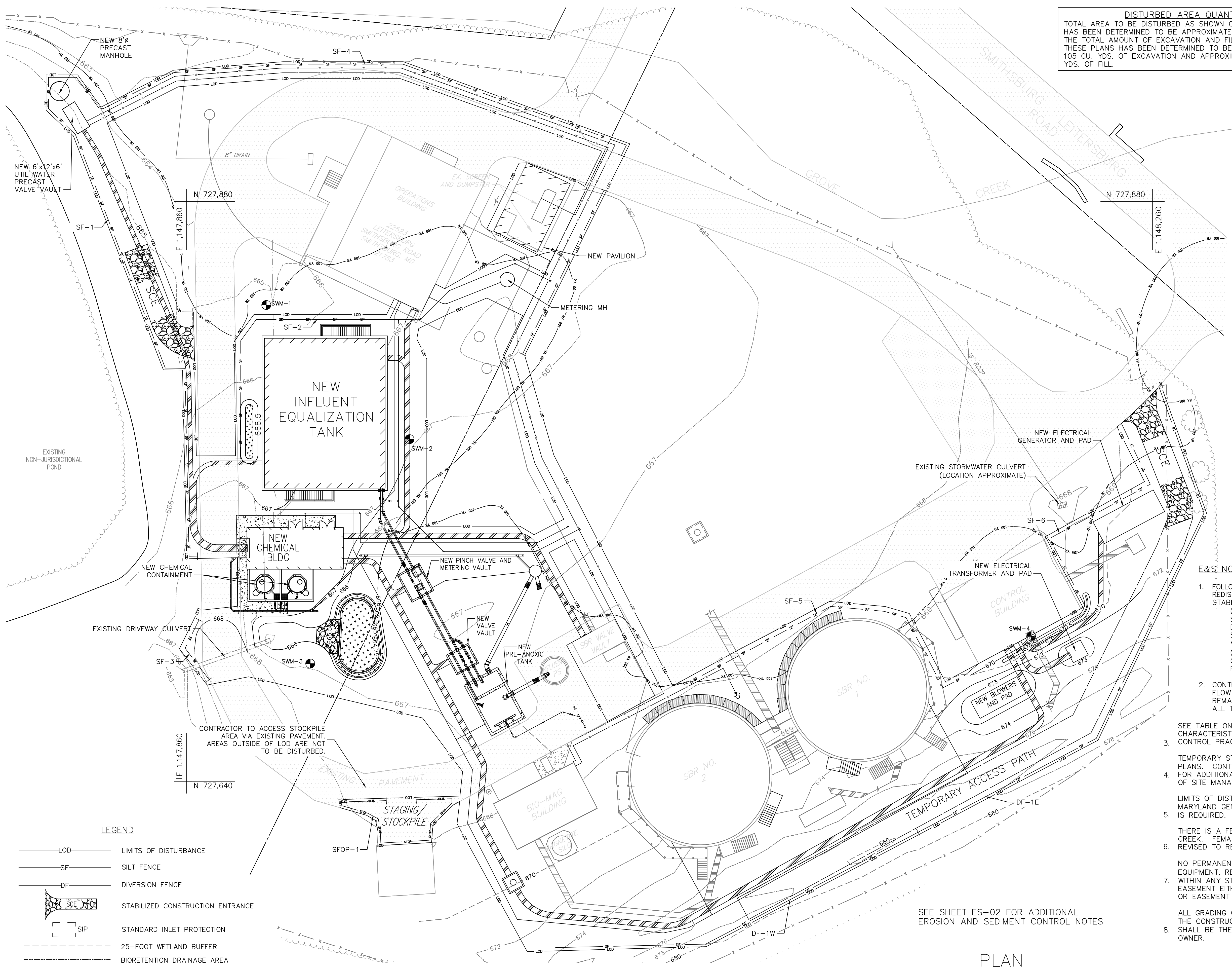
REJONIS CARRIE LYN
 LIBER NO. 04004
 FOLIO NO. 0366

DEL CID JAMIE J
 & NATALIE L
 LIBER NO. 05746
 FOLIO NO. 0246

STORMWATER MANAGEMENT FINAL PLAN

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DISTURBED AREA QUANTITY
 TOTAL AREA TO BE DISTURBED AS SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY 1.20 ACRES. THE TOTAL AMOUNT OF EXCAVATION AND FILL SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY 105 CU. YDS. OF EXCAVATION AND APPROXIMATELY 33 CU. YDS. OF FILL.

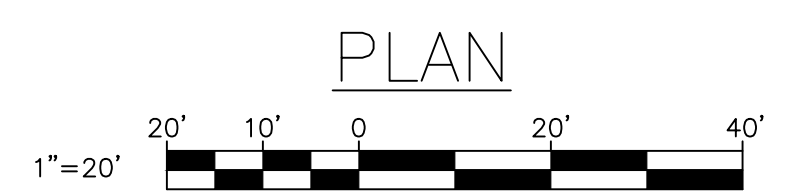


LEGEND

— LOD —	LIMITS OF DISTURBANCE
— SF —	SILT FENCE
— DF —	DIVERSION FENCE
	STABILIZED CONSTRUCTION ENTRANCE
	STANDARD INLET PROTECTION
- - - - -	25-FOOT WETLAND BUFFER
- · - · - · -	BIORETENTION DRAINAGE AREA
— 100 YR — 100 YR —	DELINEATED 100-YEAR FLOODPLAIN
— — — — —	PARCEL BOUNDARY

- E&S NOTES:**
- FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, 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 THE PROJECT SITE NOT UNDER ACTIVE GRADING.
 - CONTRACTOR SHALL ENSURE THAT STORMWATER FLOW THROUGH EXISTING DRIVEWAY CULVERT REMAINS FREE FROM SEDIMENT AND DEBRIS AT ALL TIMES.
- SEE TABLE ON SHEET ES-02 FOR DRAINAGE AREA CHARACTERISTICS FOR EACH SEDIMENT AND EROSION CONTROL PRACTICE.
- TEMPORARY STOCKPILE/STAGING AREA AS SHOWN ON PLANS. CONTRACTOR MAY USE PAVED AREAS ON SITE FOR ADDITIONAL STORAGE AS NEEDED WITH THE APPROVAL OF SITE MANAGER.
 - LIMITS OF DISTURBANCE ARE OVER 1 ACRE, THEREFORE A MARYLAND GENERAL CONSTRUCTION ACTIVITY PERMIT (NOI) IS REQUIRED.
 - THERE IS A FEMA DELINEATED FLOODPLAIN FOR GROVE CREEK. FEMA REFERENCE IS FIRM 24043C 0165 D REVISED TO REFLECT LOMR EFFECTIVE AUG 15, 2017.
 - NO PERMANENT STRUCTURES (FENCES, SHEDS, PLAY EQUIPMENT, RETAINING WALLS, ETC.) SHALL BE PERMITTED WITHIN ANY STORM DRAINAGE EASEMENT OR DRAINAGE EASEMENT EITHER SHOWN OR DESCRIBED ON A FINAL PLAT OR EASEMENT PLAT.
 - ALL GRADING ON LOT/PARCEL, EITHER BEFORE OR AFTER THE CONSTRUCTION OF A DWELLING, OR APPURTENANCES, SHALL BE THE FULL RESPONSIBILITY OF THE LOT/PARCEL OWNER.

SEE SHEET ES-02 FOR ADDITIONAL EROSION AND SEDIMENT CONTROL NOTES



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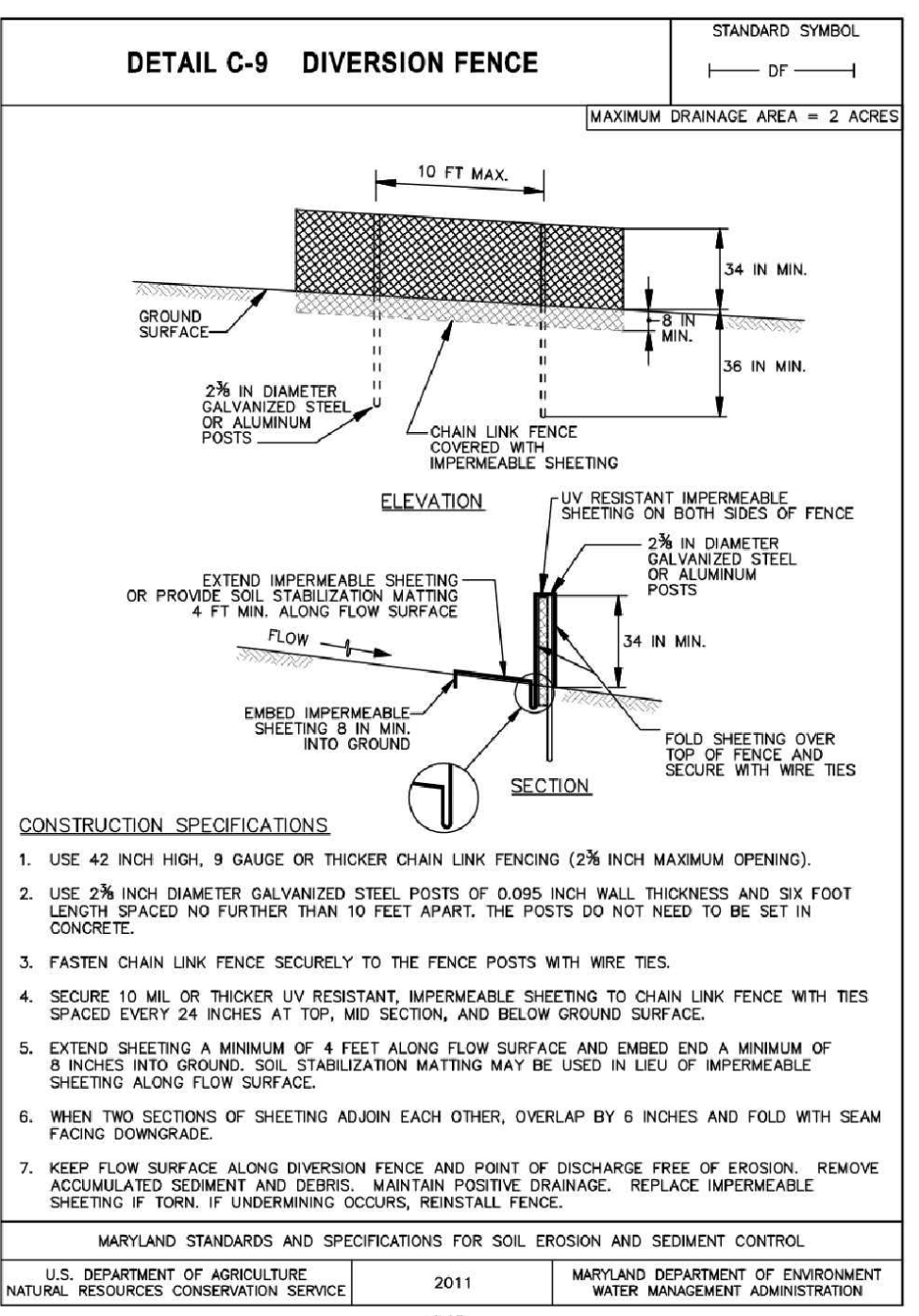
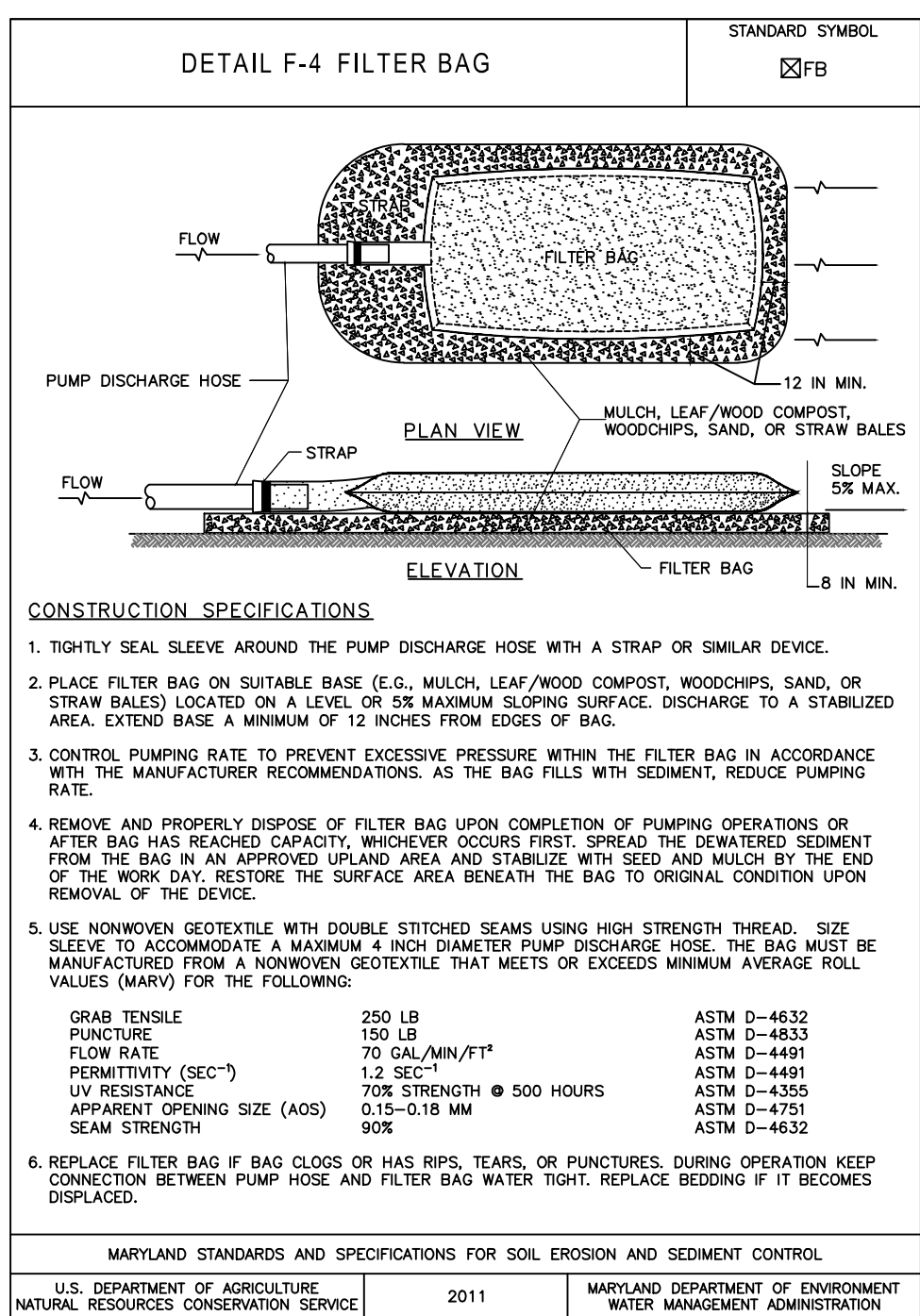
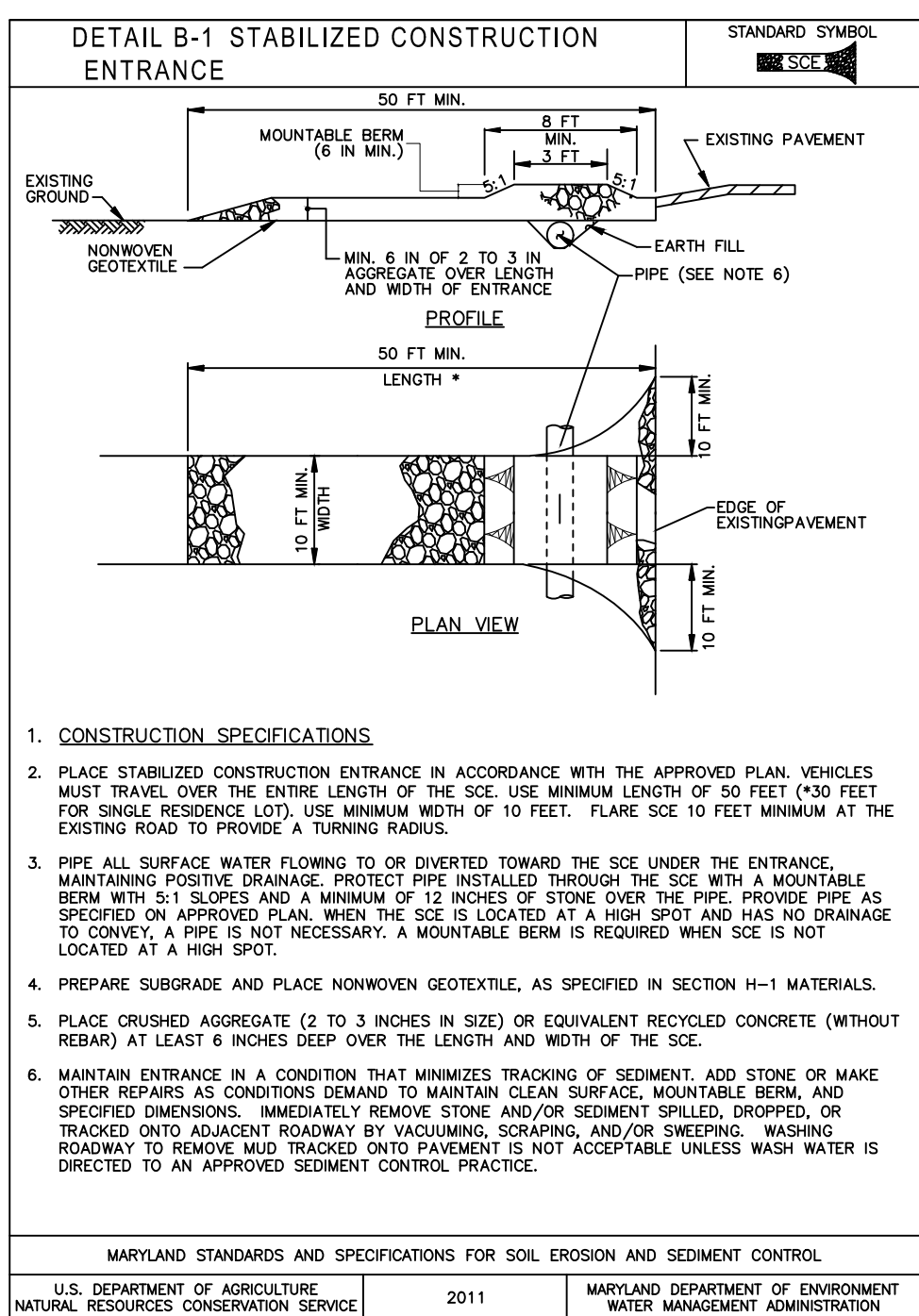
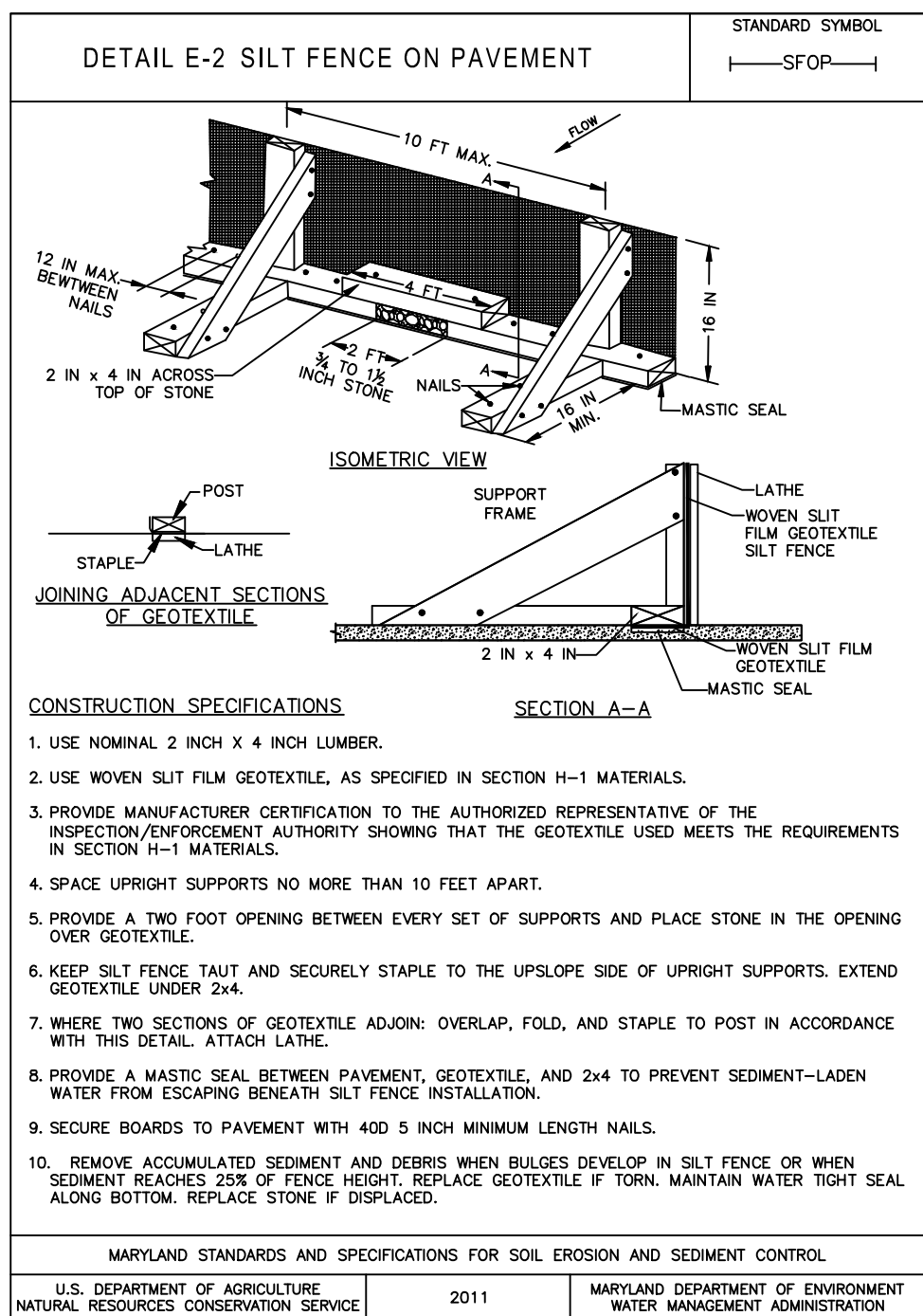
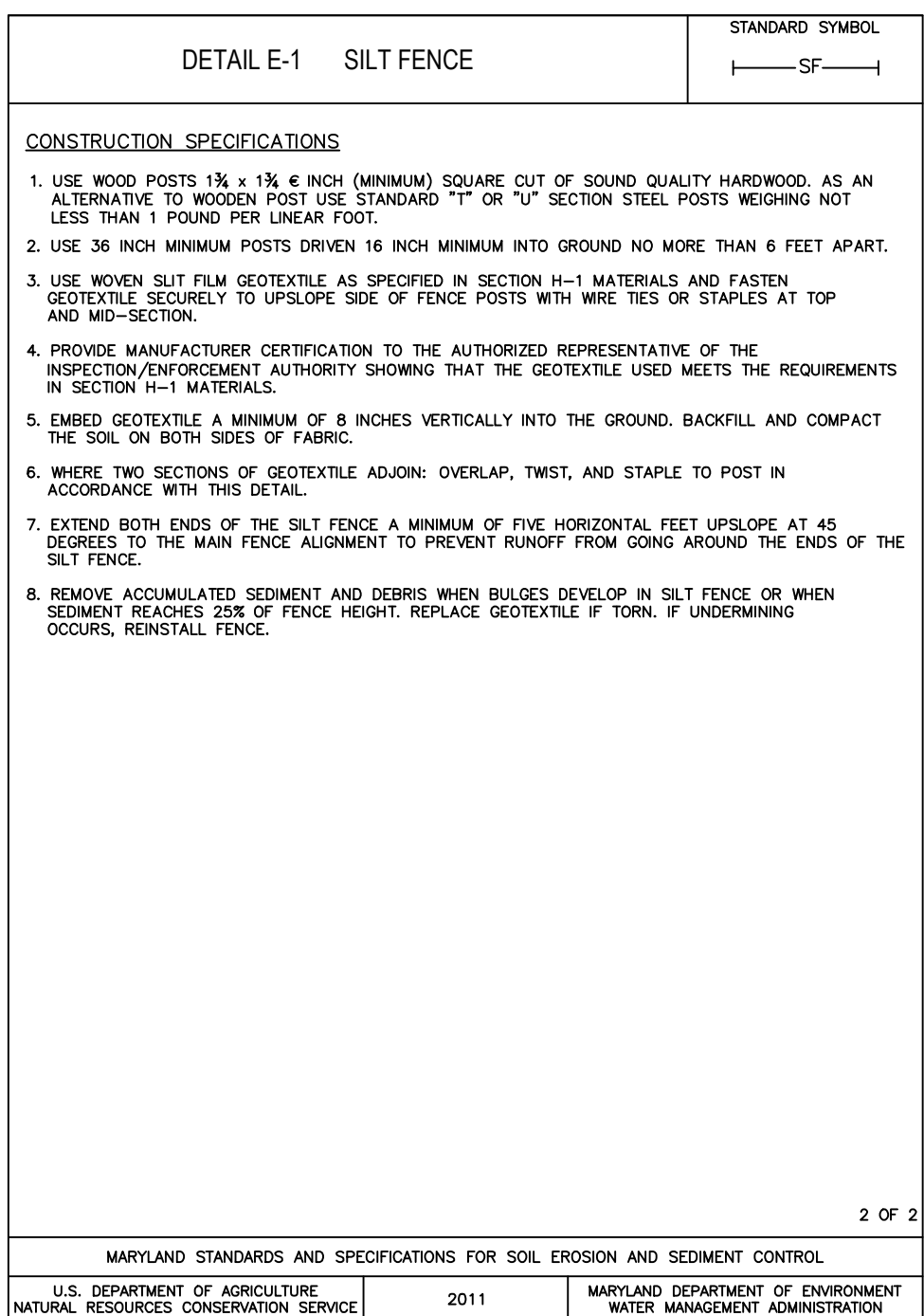
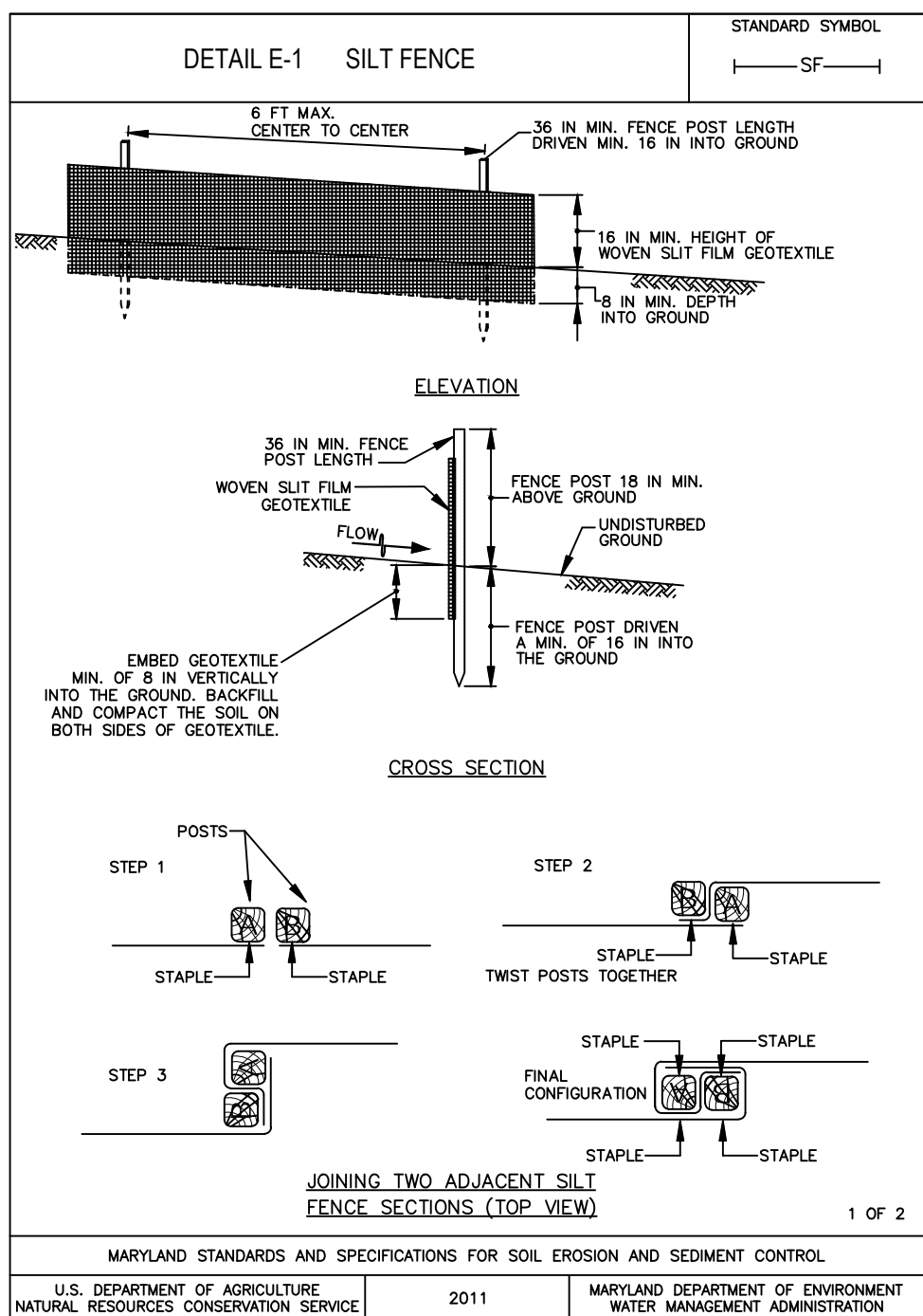
EROSION AND SEDIMENT CONTROL PLAN

SHEET NO: **ES-01**

PROJECT STATUS: **STORMWATER MANAGEMENT FINAL PLAN**

TEMPORARY SEEDING SUMMARY						
HARDINESS ZONE: 6B						
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS (INCHES)	FERTILIZER RATE (10-20-20)	LIME RATE
1	BARLEY (<i>Hordeum vulgare</i>)	96 LB/AC 2.2 LB/1000 SF	3/1-5/15; 8/1-10/15	1.0	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)
2	FOX TAIL MILLET (<i>Setaria italica</i>)	30 LB/AC 0.7 LB/1000 SF	3/1-5/15	0.5	436 LB/AC (10 LB/1000 SF)	2 TONS/AC (90 LB/1000 SF)

PERMANENT SEEDING SUMMARY								
HARDINESS ZONE: 6B SEED MIXTURE: 6								
NO.	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	LIME RATE
6	Tall Fescue (<i>Lolium arundinaceum</i>)	40	3/1-5/15; 8/15-10/15	1/4-1/2 INCHES	45 LB/AC (1 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	90 LB/AC (2 LB/ 1000 SF)	2 TONS/AC (90 LB/ 1000 SF)
	Perennial Ryegrass (<i>Lolium perenne</i>)	25	3/1-5/15; 8/1-10/15	1/4-1/2 INCHES				
	White Clover (<i>Trifolium repens</i>)	5	3/1-5/15; 8/1-10/15	1/4-1/2 INCHES				



SEQUENCE OF CONSTRUCTION:

- THE CONTRACTOR MUST NOTIFY MISS UTILITY AT 1-800-257-7777 A MINIMUM OF FIVE (5) DAYS PRIOR TO START OF CONSTRUCTION.
- ALL UTILITIES WITHIN THE LOD SHALL BE FIELD LOCATED PRIOR TO ANY EXCAVATION.
- THE CONTRACTOR MUST NOTIFY THE WASHINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL MANAGEMENT PROJECT MANAGER AT LEAST FIVE (5) DAYS PRIOR TO STARTING CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY WASHINGTON COUNTY SOIL CONSERVATION DISTRICT (SCD) AT (301) 797-6821 EXT. 3 AT LEAST FIVE (5) DAYS BEFORE COMMENCING ANY LAND DISTURBING ACTIVITY AND, UNLESS WAIVED BY SCD, SHALL BE REQUIRED TO HOLD A PRE-CONSTRUCTION MEETING BETWEEN PROJECT REPRESENTATIVES, A REPRESENTATIVE OF WASHINGTON COUNTY SCD AND WASHINGTON COUNTY ENGINEERING AND CONSTRUCTION.
- INSTALL STABILIZED CONSTRUCTION ENTRANCES AS SHOWN ON PLAN. INSTALL DIVERSION FENCE, SILT FENCE AND STANDARD INLET PROTECTION AS SHOWN ON PLAN. INSTALL DIVERSION FENCE TO DIVERT OFF-SITE OVERLAND FLOW EAST TO THE EXISTING YARD INLET AND WEST TO THE EXISTING DRAINAGE SWALE.
- GRADE SITE AREA FOR CONSTRUCTION OF NEW TANKS, EQUIPMENT, AND BUILDINGS. NOTE THAT ANY EXCESS FILL MUST GO TO A SITE WITH AN APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN.
- PREPARE SUBGRADE FOR NEW STRUCTURES AND CONSTRUCT NEW BUILDING FOUNDATIONS.
- UPON COMPLETION OF THE BUILDING FOUNDATIONS AND SITE GRADING AROUND THE STRUCTURES, BEGIN ERECTION OF STRUCTURES. POUR CONCRETE FOR SBR BLOWERS, GENERATOR, AND TRANSFORMER MOUNTING PADS. CONSTRUCT NEW PAVED AREAS AS SHOWN ON PLANS.
- UPON COMPLETION OF BUILDING ERECTION, MOBILIZE ALL MECHANICAL EQUIPMENT AND RELOCATE INSIDE THE BUILDING.
- BEGIN TRENCH WORK FOR LAYING OF PROPOSED PIPES AND ELECTRICAL LINES. CONTRACTOR SHALL HAVE PUMP AND FILTER BAG ON SITE TO DEWATER ALL TRENCHES AS NECESSARY. SEE STANDARD UTILITY TRENCH CONTROLS IN STANDARD UTILITY NOTES, FOLLOWING.
- UPON COMPLETION OF ALL TRENCHING AND SITE GRADING, PERMANENTLY SEED AND STABILIZE ALL TRENCHED AREAS.
- UPON COMPLETION OF ALL SITE GRADING, PERMANENTLY SEED AND MULCH ALL DISTURBED AREAS FOR STABILIZATION. CONTACT SCD AT 301-797-6821 EXT 3 TO OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION OF THE BIORETENTION AREA AND RAIN GARDENS. CONTACT WASHINGTON COUNTY ENGINEERING AND CONSTRUCTION FOR MONITORING OF CONSTRUCTION OF THE BIORETENTION AREA. THE COUNTY SHALL MONITOR BIORETENTION AREA CONSTRUCTION ENTIRELY.
- ONCE SCD AUTHORIZATION IS RECEIVED, EXCAVATE FOR THE BIORETENTION AREA. WHEN THE AREA IS EXCAVATED AND THE SURROUNDING AREA IS STABILIZED, CONTACT WASHINGTON COUNTY ENGINEERING AND CONSTRUCTION FOR MONITORING OF CONSTRUCTION OF THE BIORETENTION AREA, INCLUDING MEDIA PLACEMENT.
- UPON COMPLETION OF THE WORK, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN THE PROJECT AREA.
- CONTRACTOR SHALL CONTACT THE SOIL CONSERVATION DISTRICT AND WASHINGTON COUNTY ENGINEERING AND CONSTRUCTION TO SCHEDULE A FINAL SITE CLOSURE REVIEW ONCE SITE HAS ACHIEVED 95% VEGETATIVE STABILIZATION.
- AFTER OBTAINING PERMISSION FROM THE WASHINGTON COUNTY SOIL CONSERVATION DISTRICT, REMOVE ALL SEDIMENT AND EROSION CONTROL DEVICES. STABILIZE ANY AREAS RE-DISTURBED DURING REMOVAL.

STANDARD UTILITY NOTES:

- REFER TO SHEET C-3 FOR PROPOSED PIPING.
- CONTRACTOR TO ONLY OPEN UP LENGTH OF TRENCH THAT CAN BE CONSTRUCTED AND BACKFILLED IN ONE WORKING DAY IN PAVED AREAS.
- CONTRACTOR TO PLACE EXCAVATED MATERIALS IN A DUMP TRUCK AND HAUL TO AN APPROVED WASTE MATERIAL LOCATION.
- CONTRACTOR TO BACKFILL TRENCH WITH APPROVED MATERIALS AND STABILIZE DISTURBED AREAS THE SAME WORKING DAY.
- IN AREAS WHERE THE CONSTRUCTION TAKES PLACE OUTSIDE OF THE EXISTING ROADBED, CONTRACTOR TO INSTALL SILT FENCE ALONG THE DOWNHILL SIDE OF THE TRENCH BEFORE BEGINNING CONSTRUCTION AND PLACE EXCAVATED MATERIAL FROM THE TRENCH ON THE UPHILL SIDE.
- IF DEWATERING OF THE TRENCH IS REQUIRED, CONTRACTOR TO DEWATER BY MEANS OF PUMPING THROUGH A FILTER BAG.
- CONTRACTOR TO SWEEP STREETS OF ANY DEBRIS OR SEDIMENTS CAUSED BY CONSTRUCTION OPERATIONS AND DISPOSE OF AT AN APPROVED LOCATION.
- CONTRACTOR TO STABILIZE ALL DISTURBED AREAS WITH SEED & MULCH OR APPROPRIATE STREET REPAIR.

SOIL EROSION, SEDIMENT CONTROL, & SEEDING NOTES:

FOR SITES 1.0 ACRE OR MORE THE FOLLOWING ARE REQUIRED:

- Maryland Department of the Environment, General Permit for Stormwater Associated with a Construction Activity, NPDES Permit Number MDRC, State Discharge Permit Number 14GP, or an Individual Permit.
- The Maryland Department of the Environment (General/Individual Permit -Notice of Intent- NOI) application and permit shall be posted and/or available on-site at all times.
- During construction, all soil erosion and sediment control practices (BMP's) shall be inspected and recorded on the "Standard Inspection Form", "General Permit for Stormwater Associated with Construction Activity" per the Maryland Department of the Environment (General/Individual Permit -Notice of Intent -NOI).
- Following construction and release of the site for soil erosion and sediment control by the Washington County Soil Conservation District, i.e., all portions of a site have been permanently stabilized, and all stormwater discharges from construction sites that are authorized by the permit are eliminated, the authorized permittee shall submit the Maryland Department of the Environment, General/Individual Permit - Notice of Termination-NOT.

EROSION & SEDIMENT CONTROLS - DESIGN INFORMATION					
ID	LINE SYMBOL	DRAINAGE AREA (AC)	SLOPE (%)	MAX SLOPE LENGTH (FT)	MAX FENCE LENGTH (FT)
SILT FENCE					
SF 1	SF	0.07	0.9	52	221
SF 2	SF	0.12	2.0	49	126
SF 3	SF	< 0.01	< 0.1	16	75
SF 4	SF	0.37	< 0.1	255	255
SF 5	SF	0.23	3.0	33	156
SF 6	SF	0.06	1.6	32	109
SILT FENCE ON PAVEMENT					
SFOP 1	SFOP	< 0.01	< 0.1	102	102
DIVERSION FENCE					
DF-1E	DF	0.69	5.8	103	242
DF-1W	DF	1.01	9.7	62	162



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EROSION AND SEDIMENT CONTROL DETAILS			
PROJECT STATUS:	STORMWATER MANAGEMENT FINAL PLAN		
SHEET NO:	ES-02		

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