

CITY OF FLINT

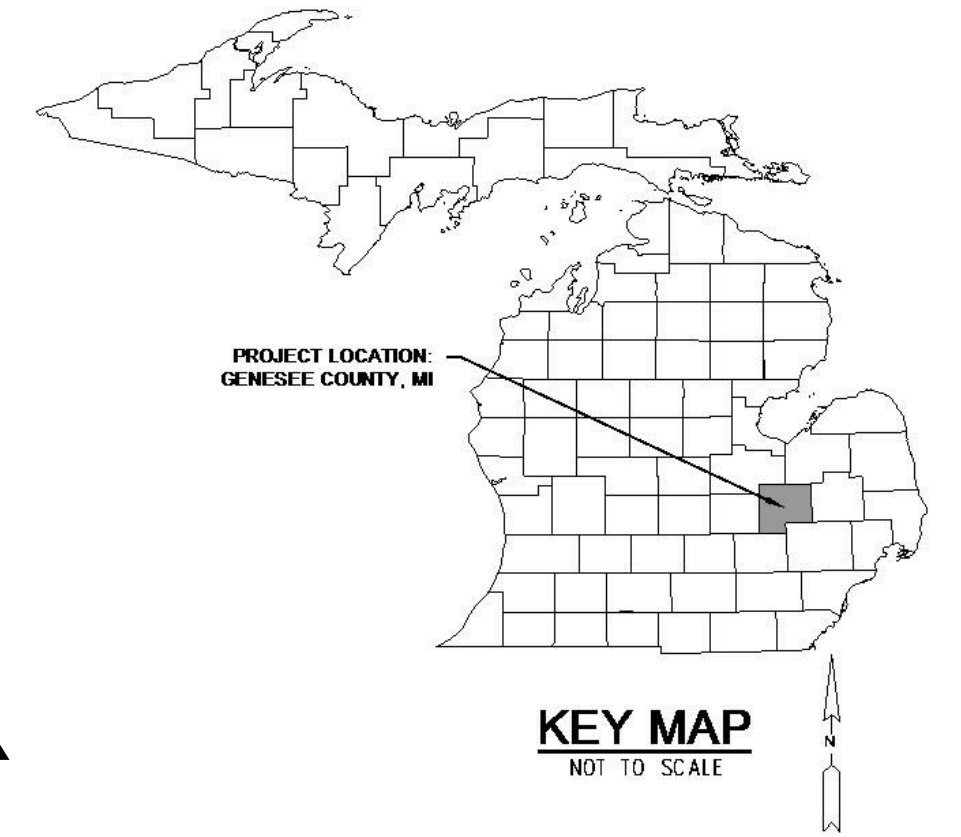
GENESEE COUNTY, MICHIGAN

CONSTRUCTION PLANS FOR

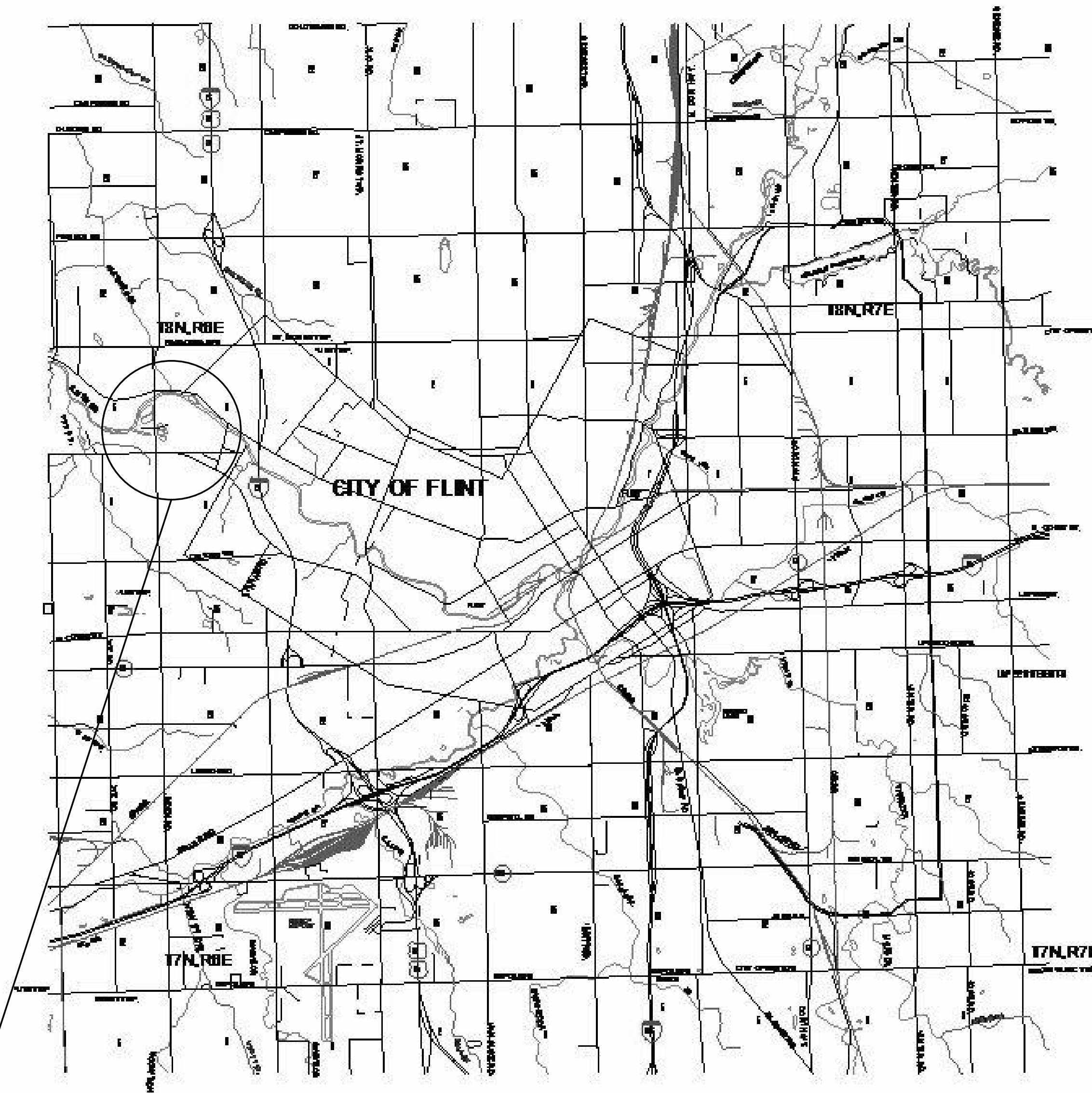
BATTERY B SECONDARY CLARIFIER

FLOW CONTROL PROJECT

COF1077-01F



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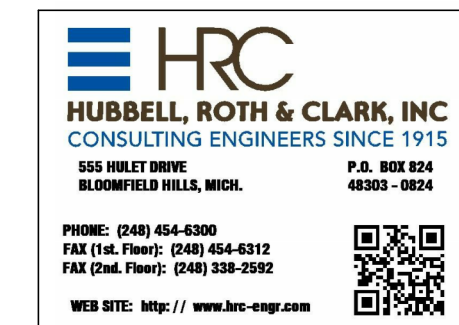
UTILITIES & MUNICIPALITIES

<p>TELEPHONE ATA ENGINEERING 54 NORTH MILL STREET, P.O. BOX 32 PONTIAC, MICHIGAN 48342 CONTACT: JEFF HEATH PHONE: 248.975.4588</p>	<p>CITY OF FLINT 702 WEST 12TH STREET TRANSPORTATION BUILDING FLINT, MICHIGAN 48502 CONTACT: JOHN DALY PHONE: 810.766.7343</p>
<p>CABLE TV COMCAST CABLEVISION 4908 WALL STREET STERLING HEIGHTS, MICHIGAN 48312 CONTACT: TOM DICKINSON PHONE: 586.853.7412</p>	<p>CITY OF FLINT WATER SERVICE CENTER 3310 EAST COURT STREET FLINT, MICHIGAN 48506 CONTACT: PHONE: 810.766.7202</p>
<p>ELECTRIC CONSUMERS ENERGY - ELECTRIC 3201 EAST COURT STREET FLINT, MICHIGAN 48501 CONTACT: MARCEY CONN PHONE: 810.760.3506</p>	<p>CITY OF FLINT ENGINEERING 702 WEST 12TH STREET FLINT, MICHIGAN 48502 CONTACT: MARK ADAS PHONE: 810.766.7135</p>
<p>GAS CONSUMERS ENERGY 3201 EAST COURT STREET FLINT, MICHIGAN 48501 CONTACT: SALVATORE DELISI PHONE: 810.760.3486</p>	<p>SOIL EROSION & SEDIMENTATION CONTROL GDDC-WWS G-4610 BEECHER ROAD FLINT, MICHIGAN 48532 CONTACT: MARK STEPHENS PHONE: 810.732.7870</p>

2023.07.10 ADDENDUM 1
2023.06.24 ISSUED FOR BIDS

COVER SHEET

JOB NO. COF1077-01F	SHEET G-001
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PREPARED UNDER THE SUPERVISION OF:



CITY OF FLINT WATER
POLLUTION CONTROL FACILITY
PROJECT LOCATION:
G-4652 BEECHER RD
FLINT, MI 48532

LOCATION MAP

SCALE: NONE
CITY OF FLINT
GENESEE COUNTY, MI
SECTION 4, T7N, R6E



Know what's below.
Call before you dig.

GENERAL NOTES

- 1. DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES ARE BASED ON PREVIOUS CONTRACT DRAWINGS...
2. ALL EXISTING DIMENSIONS AND ELEVATIONS SHOWN WITH THE ± SYMBOL...
3. ALL DIMENSIONS OR ELEVATIONS MARKED WITH AN ASTERISK *** SHALL BE DETERMINED OR VERIFIED WITH EQUIP...
4. ALL ADHESIVE ANCHORING SYSTEMS FOR POST-INSTALLED ANCHORS AND/OR REINFORCING DOWELS IN CONCRETE OR MASONRY...

CODES AND LOADS

- 1. ALL STRUCTURES SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:
A. CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES - AMERICAN CONCRETE ASSOCIATION ACI 350 (2006)
2. DESIGN LOADS (GENERAL)
A. ELEVATED SLAB & SLABS ON GRADE - LIVE LOADS - 150 PSF
B. ELEVATED PLATFORM LIVE LOADS - 150 PSF
C. SNOW LOADS PER ASCE 7-16...
D. WIND LOADS
E. LATERAL EARTH PRESSURES DRAINED CONDITION...
G. 100 YEAR FLOOD ELEVATION - GRADE

DEMOLITION

- 1. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO PREVENT DAMAGE TO EXISTING STRUCTURES...
2. WHEN REMOVING EXISTING CONCRETE BY CUTTING OR CHIPPING THE CONTRACTOR SHALL ONLY REMOVE REINFORCING BARS WHICH CANNOT BE BENT INTO AREAS...
3. IF FRACTURE OF ADJACENT CONCRETE OCCURS DURING DEMOLITION/ ALTERATION WORK...
4. CONTRACTOR SHALL PROVIDE WRITTEN PLAN AND DESCRIPTION OF ALL DEMOLITION, MODIFICATION, OR ALTERATION WORK...
5. ANY REMAINING EXPOSED REINFORCING STEEL AFTER DEMO SHALL BE COATED WITH CORROSION INHIBITING COMPOUND.

METALS

STEEL

- 1. STRUCTURAL STEEL AND MISCELLANEOUS METALS DESIGN SHALL CONFORM TO THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, AISI/ANSI 360.
2. ALL STRUCTURAL STEEL W SHAPES SHALL CONFORM TO ASTM A-992, GRADE 50. MISCELLANEOUS METALS SHALL CONFORM TO ASTM A-36.
3. BOLTS SHALL BE A MINIMUM 3/4" DIAMETER, ASTM A325N, TYPE 1, GALVANIZED, UNLESS NOTED OTHERWISE. PROVIDE COMPATIBLE A563 GRADE DH, HEAVY HEX NUTS, AND F436 GRADE 1 WASHERS.
4. ALL GALVANIZED STEEL SHALL BE HOT-DIP GALVANIZED CONFORMING TO ASTM A123, UNO.
5. ALL 1-1/2" DEEP STEEL GRATING INDICATED ON PLANS SHALL BE TYPE 15-SG1-4 GRATING AND SHALL HAVE A MINIMUM ALLOWABLE WORKING STRESS OF 12,000 PSI...
6. ALL GRATING PENETRATIONS SHALL BE CUT NEATLY AND A RECTANGULAR BAND BAR OF THE SAME HEIGHT AND MATERIAL SHALL BE INSTALLED BY WELDING.
7. ALL GRATING SHALL BE SECURED TO FRAMING MEMBERS USING GALV. STEEL SADDLE CLIPS AND 1/4" DIA. GALV. STEEL TEK SCREWS AS SPECIFIED BY GRATING MANUFACTURER.

STRUCTURAL ABBREVIATIONS

Table mapping abbreviations to full names: ALT ALTERNATE, ALUM ALUMINUM, B BOTTOM, BLDG BUILDING, BM BEAM, BSMT BASEMENT, CJ CONSTRUCTION JOINT, CL CENTERLINE, CLR CLEAR, COL COLUMN, CONC CONCRETE, CONST CONSTANT, CONSTR CONSTRUCTION, CONT CONTINUOUS, CLSM CONTROLLED LOW STRENGTH MATERIAL, CMU CONCRETE MASONRY UNIT, COR CORNER, CY CUBIC YARD, DBR DOWEL BAR REPLACEMENT, DET DETAIL, DIA DIAMETER, DIAG DIAGONAL, DISC DISCONTINUOUS, DWLS DOWELS, EJ EXPANSION JOINT, EE EACH END, EF EACH FACE, ES EACH SIDE, EQ EQUAL, EW EACH WAY, EA EACH, EL ELEVATION, EX EXISTING, EXT EXTERIOR/ EXTENSION, FC FILLET CONCRETE, FD FLOOR DRAIN, FF FAR FACE, FS FAR SIDE, FIN FINISH, FL FLOOR, FND FOUNDATION, FT FEET, GALV GALVANIZED, GR GRADE, GWV GROSS VEHICLE WEIGHT, H HORIZONTAL, HC HOLLOW CORE, HP HIGH POINT, HPC HIGH PERFORMANCE COATING, HK HOOK, HT HEIGHT, ID INSIDE DIAMETER, IE INVERT ELEVATION, IF INSIDE FACE, IN INCHES, INT INTERIOR, JT JOINT, KIP THOUSAND POUNDS, KSI KIPS PER SQUARE INCH, KB KNEE BRACE, L LENGTH, LP LOW POINT, LGHT LENGTH, MAX MAXIMUM, MIN MINIMUM, MCP MULTIPLE CORROSION PROTECTION, MO MASONRY OPENING, NA NOT APPLICABLE, NF NEAR FACE, NS NEAR SIDE, NTS NOT TO SCALE, NIC NOT IN CONTRACT, OC ON CENTER, OD OUT SIDE DIAMETER, OF OUT SIDE FACE, OPNG OPENING, PSF POUNDS PER SQ. FEET, PSI POUNDS PER SQUARE INCH, PT PRESSURE TREATED, REINF REINFORCEMENT, RE REFER TO, REM REMOVABLE, SHTS SHEETS, SIM SIMILAR, SJ SLAB CONTROL JOINT, SS STAINLESS STEEL, STIR STIRRUPS, STRUCT STRUCTURAL, T/ TOP, TERS TEMPORARY EARTH RETENTION SYSTEM, THK THICK, TOS ELEVATION TOP OF STRUCTURAL STEEL, TYP TYPICAL, UNO UNLESS NOTED OTHERWISE, V VERTICAL, W WIDTH, WP WORK POINT

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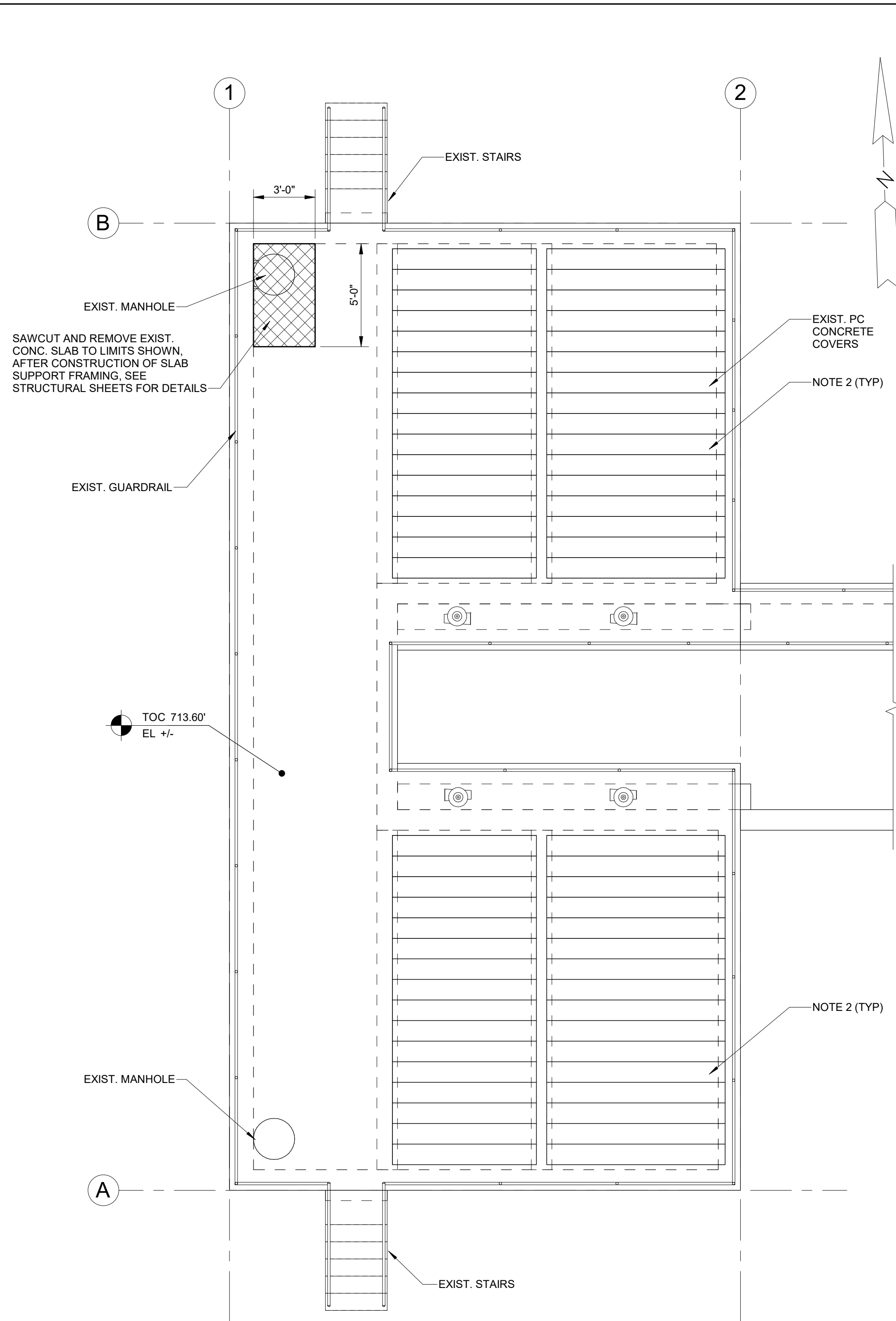
HRC logo and contact information: HUBBELL, ROTH & CLARK, INC. CONSULTING ENGINEERS SINCE 1915

CITY OF FLINT BATTERY B SECONDARY CLARIFIER FLOW CONTROL PROJECT STRUCTURAL GENERAL NOTES

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

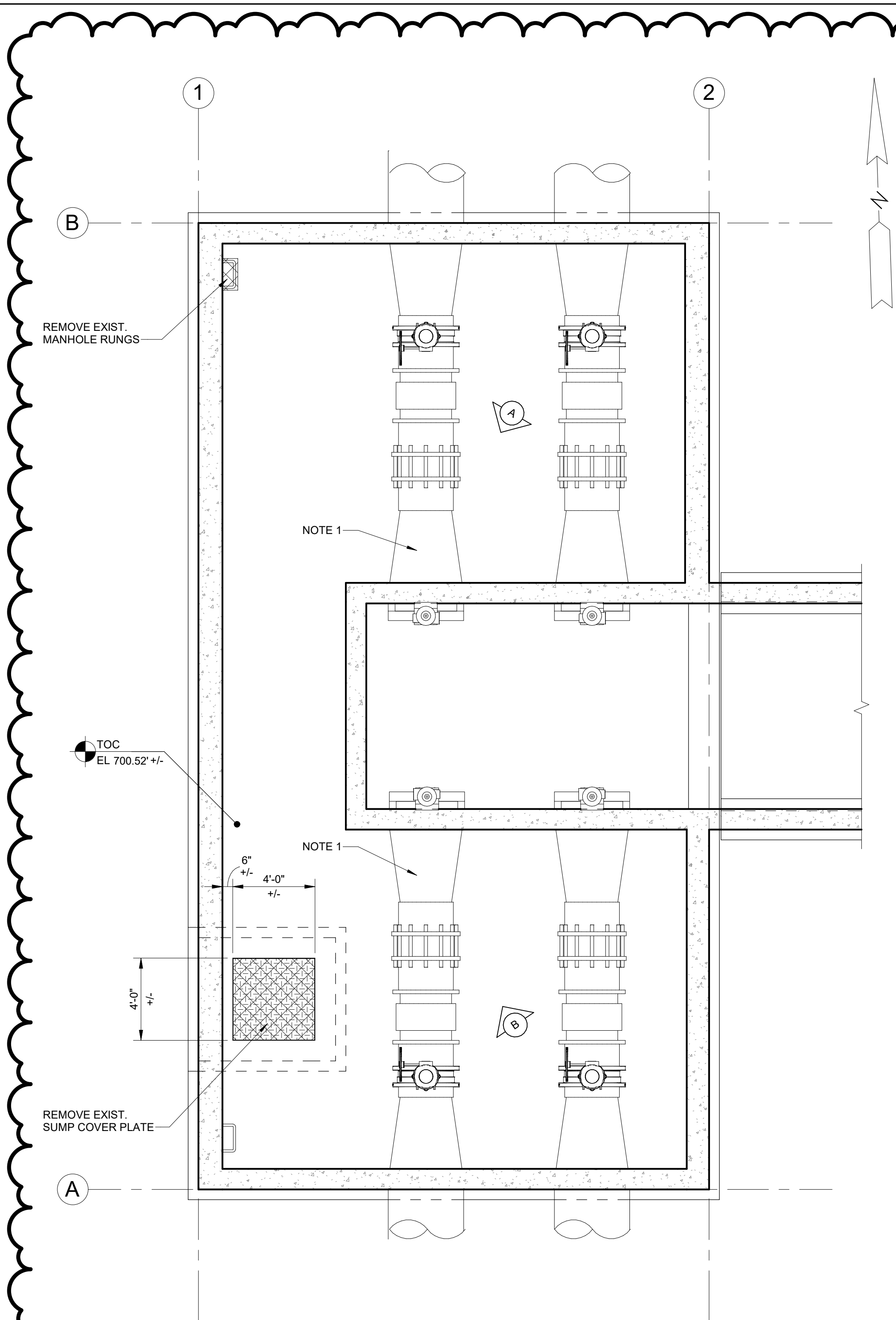
JOB NO. COF1077-01F

SHEET S-100



FLOW CONTROL VAULT TOP SLAB DEMO PLAN (EL 713.60-FT)
SCALE: 1/4" = 1'-0"

- EXTENT OF DEMOLITION & REMOVAL



FLOW CONTROL VAULT FDN SLAB DEMO PLAN (EL 700.52-FT)
SCALE: 1/4" = 1'-0"

- EXTENT OF DEMOLITION & REMOVAL

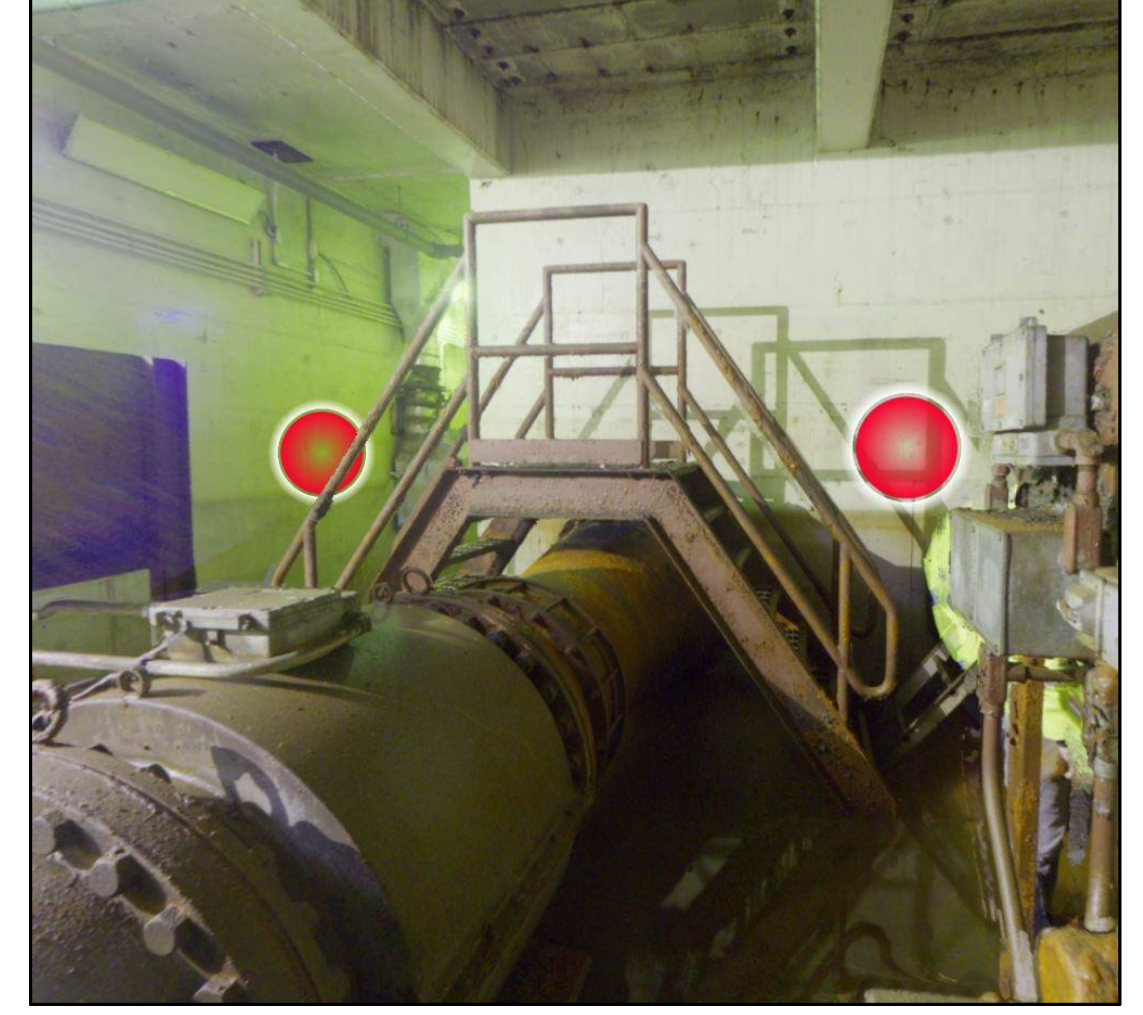
NOTES:

- EXISTING STEEL STAIR AND ELEVATED PLATFORM NOT SHOWN IN PLAN, SEE PHOTOS THIS SHEET. REMOVAL AND/OR TEMPORARY MODIFICATION OF STAIR AND PLATFORM WILL BE ALLOWED. STAIR, PLATFORM, GUARDRAIL AND ACCESSORIES ARE TO BE PREPPED AND COATED, SEE SPEC 09 96 00. SUBMIT REMOVAL / MODIFICATION PLAN AND PRECONSTRUCTION VIDEO FOR REVIEW PRIOR TO BEGINNING WORK.
- EXISTING PRECAST PLANK ROOF SECTIONS MAY BE REMOVED TO PERFORM WORK, AND MUST BE REPLACED UPON COMPLETION OF PROPOSED WORK. SEE STRUCTURAL SHEETS FOR PRECAST PLANK REINSTALLATION DETAILS.

PHOTO A:



PHOTO B:



FLOW CONTROL VAULT CROSSOVER STAIR AND PLATFORM
SCALE: NONE

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REV#	DATE	DESCRIPTION	TSW	BY
2	2023.07.08	ADDENDUM 1		



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CITY OF FLINT
BATTERY B SECONDARY CLARIFIER FLOW CONTROL PROJECT
STRUCTURAL DEMO - PLAN

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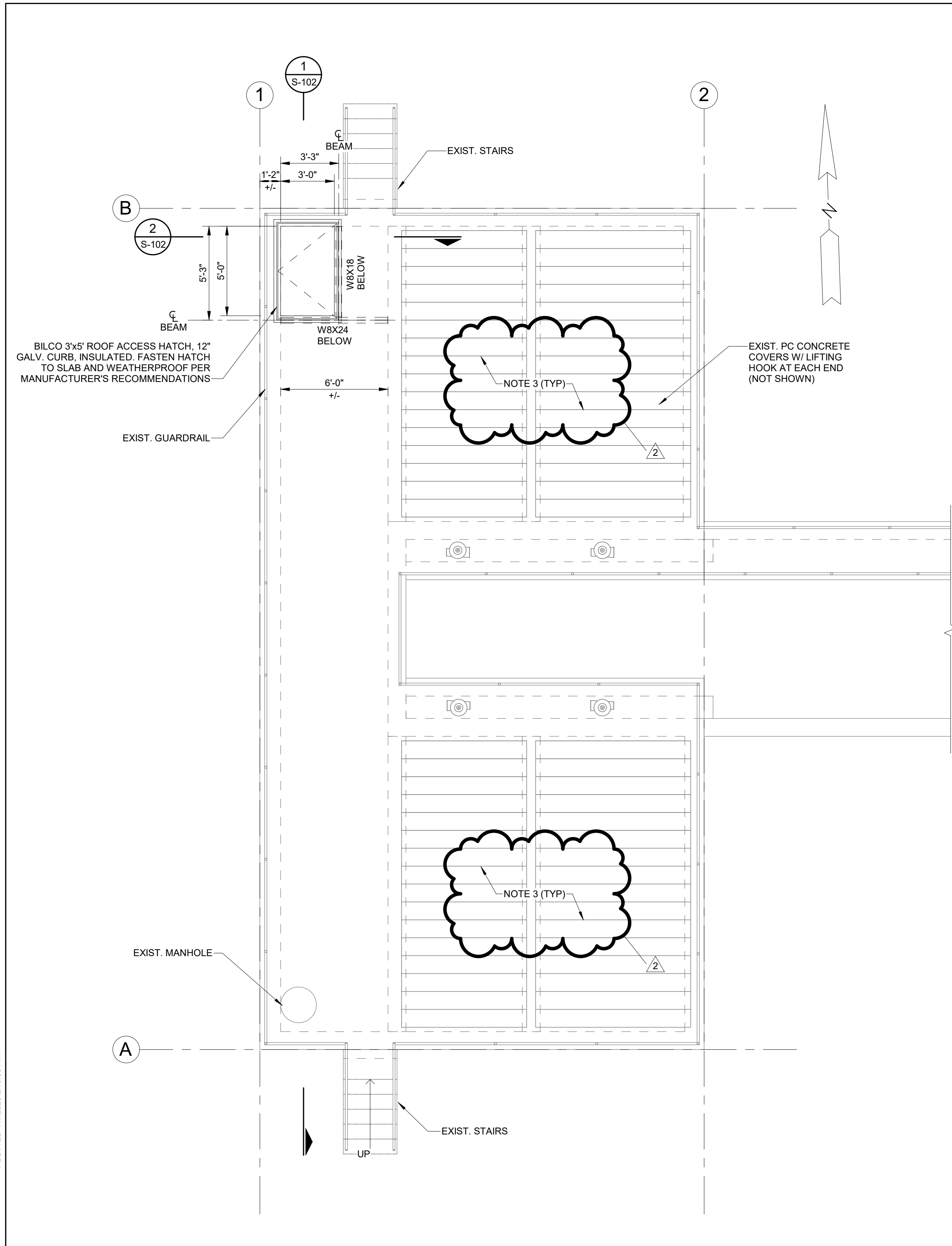
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SHEET SX-100

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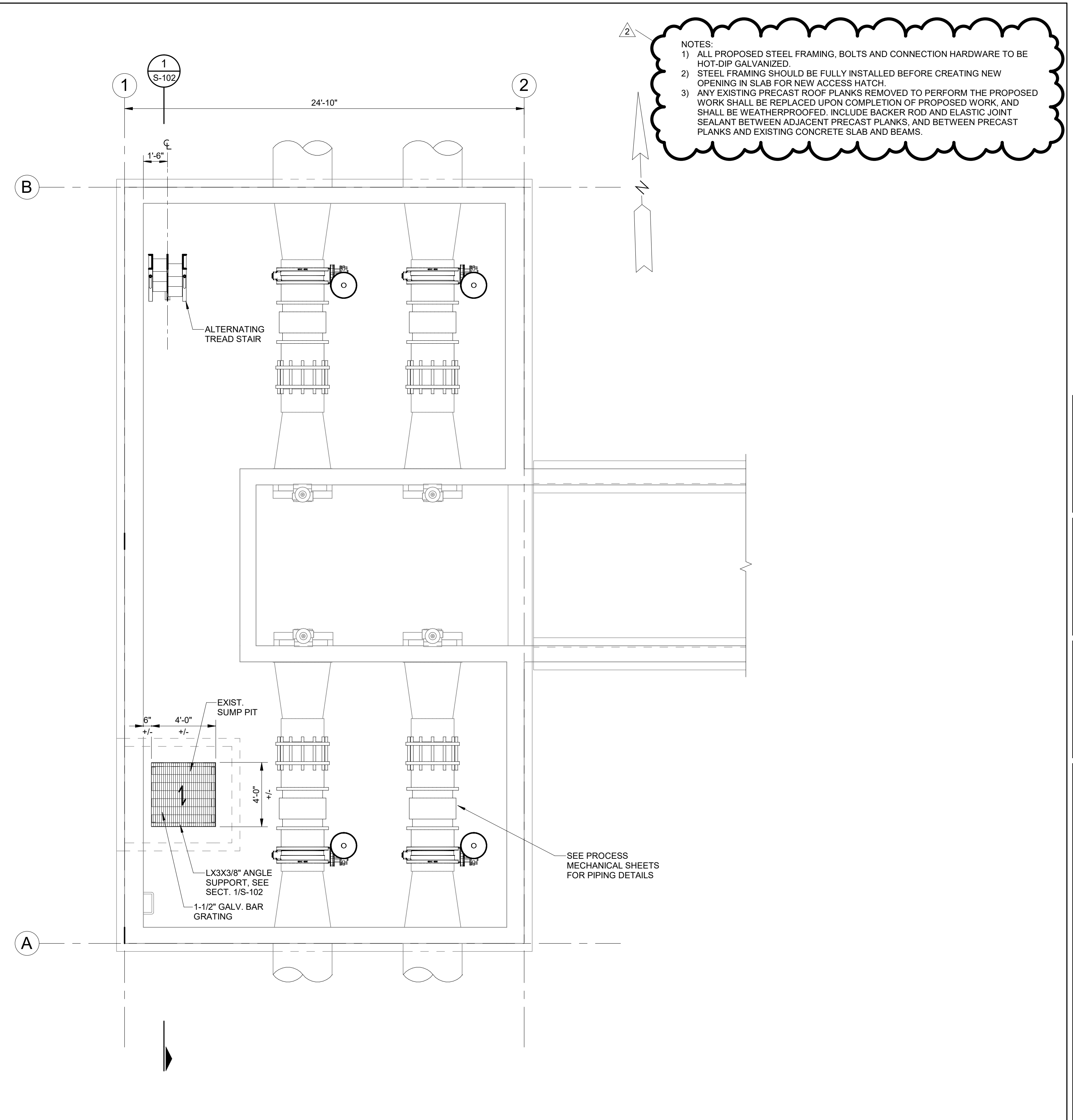
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FLOW CONTROL VAULT TOP PLAN (EL 713.60-FT)

1/4" = 1'-0"



FLOW CONTROL VAULT FDN PLAN (EL 700.52-FT)

1/4" = 1'-0"

NOTES:

- 1) ALL PROPOSED STEEL FRAMING, BOLTS AND CONNECTION HARDWARE TO BE HOT-DIP GALVANIZED.
- 2) STEEL FRAMING SHOULD BE FULLY INSTALLED BEFORE CREATING NEW OPENING IN SLAB FOR NEW ACCESS HATCH.
- 3) ANY EXISTING PRECAST ROOF PLANKS REMOVED TO PERFORM THE PROPOSED WORK SHALL BE REPLACED UPON COMPLETION OF PROPOSED WORK, AND SHALL BE WEATHERPROOFED. INCLUDE BACKER ROD AND ELASTIC JOINT SEALANT BETWEEN ADJACENT PRECAST PLANKS, AND BETWEEN PRECAST PLANKS AND EXISTING CONCRETE SLAB AND BEAMS.

REV#	DATE	DESCRIPTION	TSW	BY
2	2023.07.08	ADDENDUM 1		



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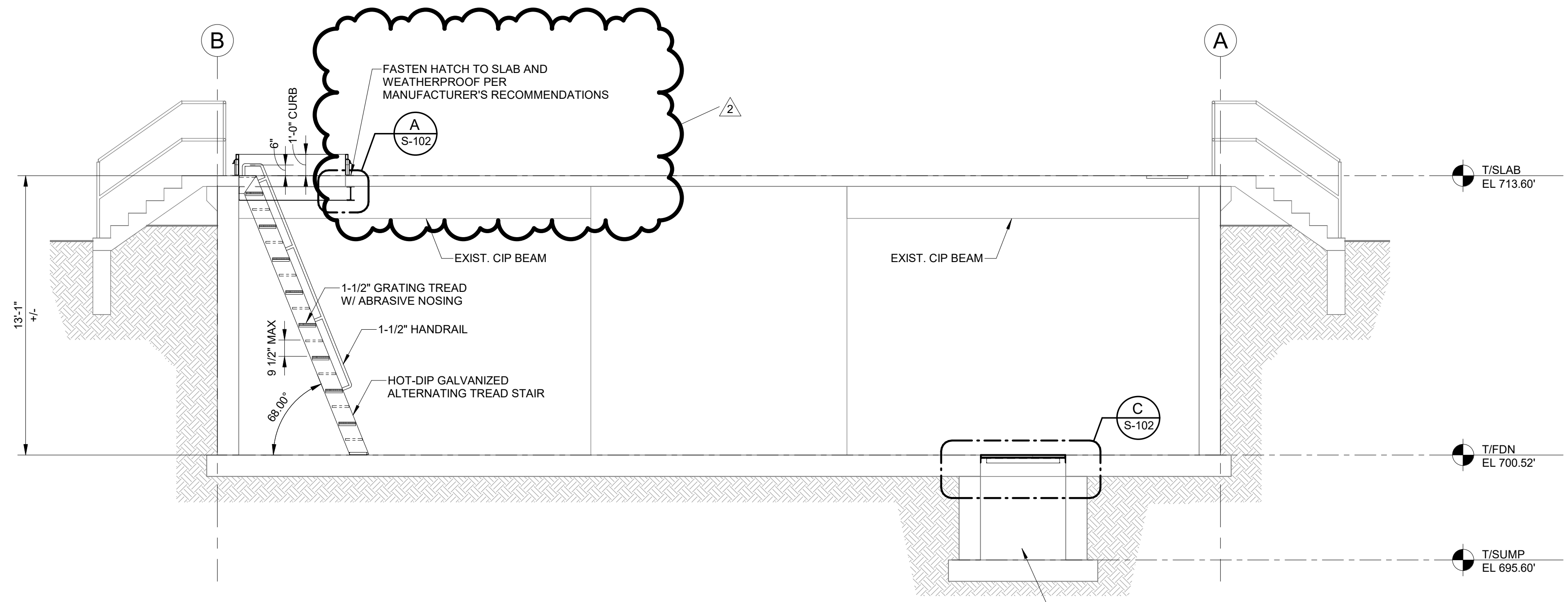
CITY OF FLINT
BATTERY B SECONDARY CLARIFIER FLOW CONTROL PROJECT
PLANS

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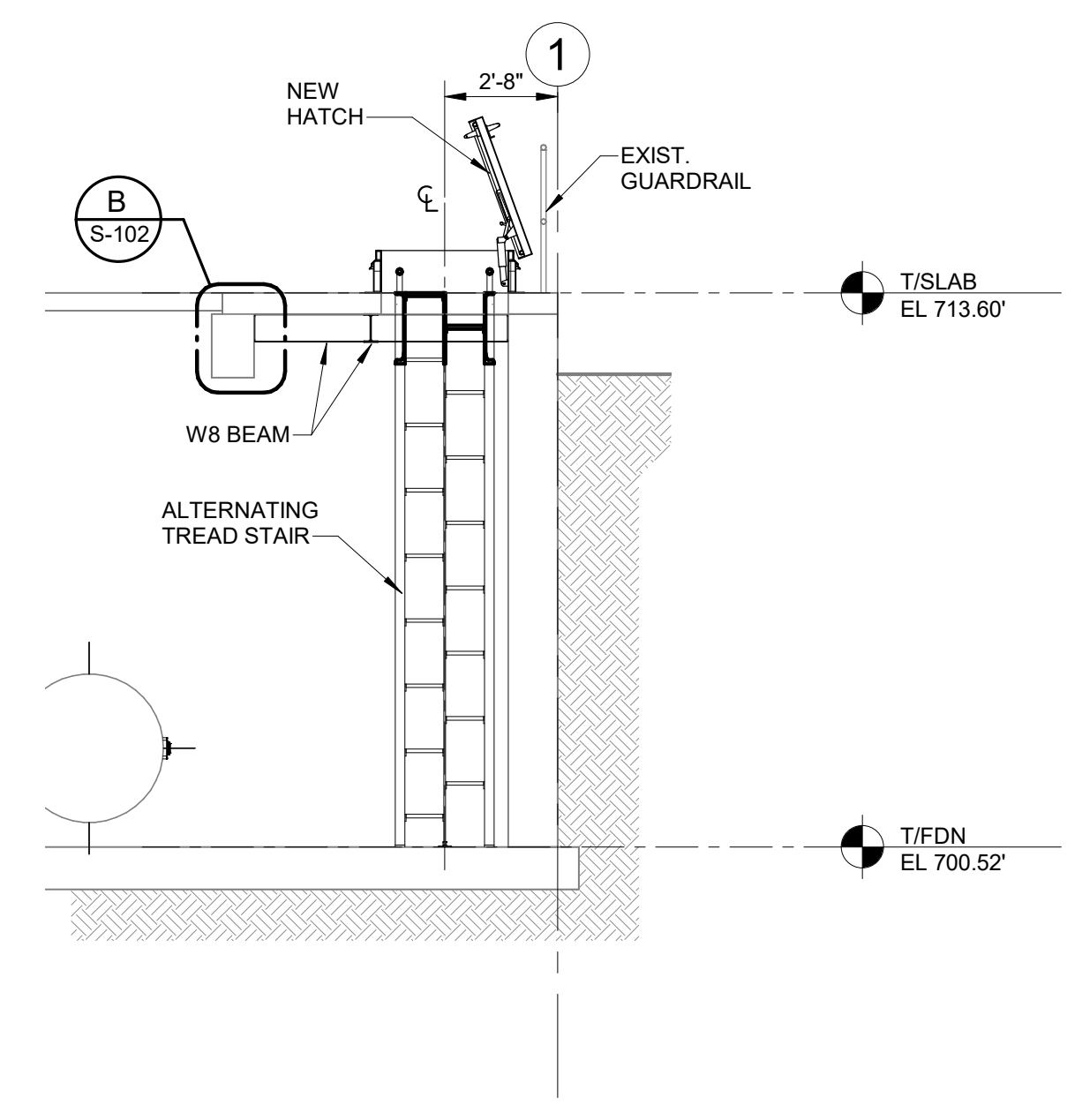
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SHEET
S-101

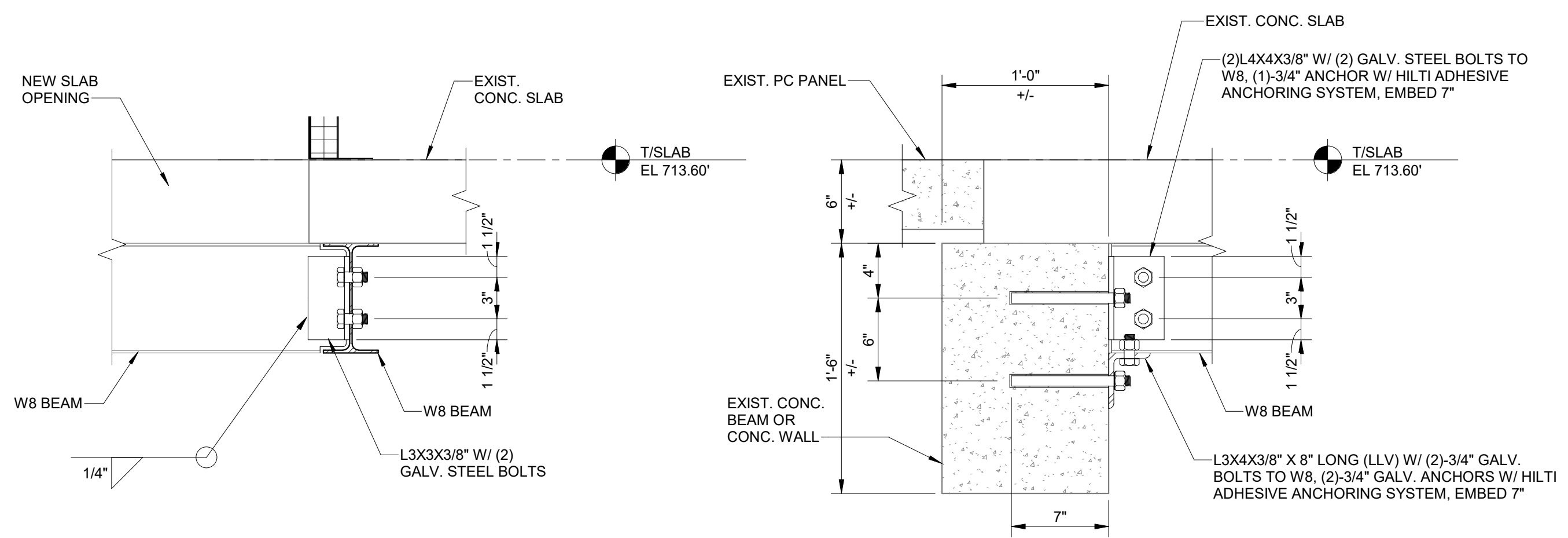
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1 SECTION
S-101 SCALE: 1/4" = 1'-0"

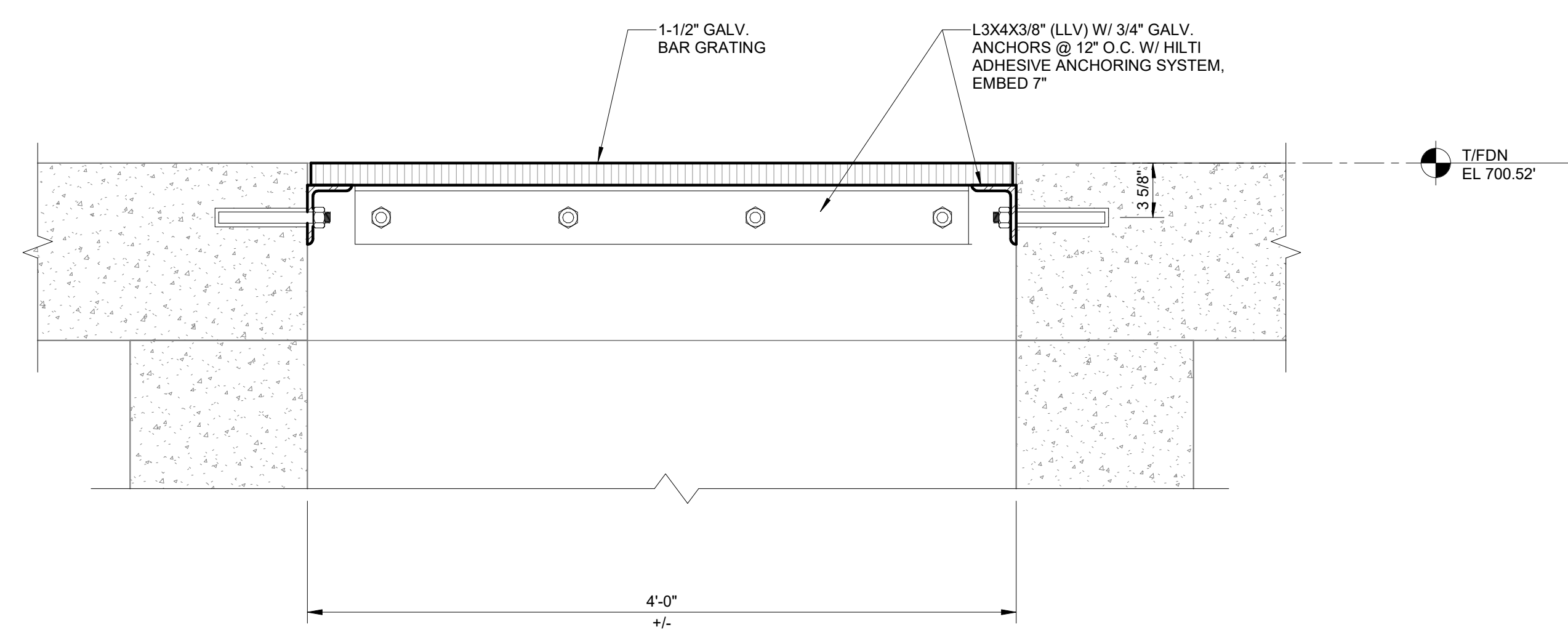


2 SECTION
S-101 SCALE: 1/4" = 1'-0"



A CONNECTION DETAIL
S-102 SCALE: 1 1/2" = 1'-0"

B TYP. CONC. CONNECTION DETAIL
S-102 SCALE: 1 1/2" = 1'-0"



C SUMP GRATING DETAIL
S-102 SCALE: 1 1/2" = 1'-0"

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CITY OF FLINT
BATTERY B SECONDARY CLARIFIER FLOW CONTROL PROJECT
SECTIONS & DETAILS

ISSUED FOR: BIDS
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COF1077-01F

SHEET
S-102

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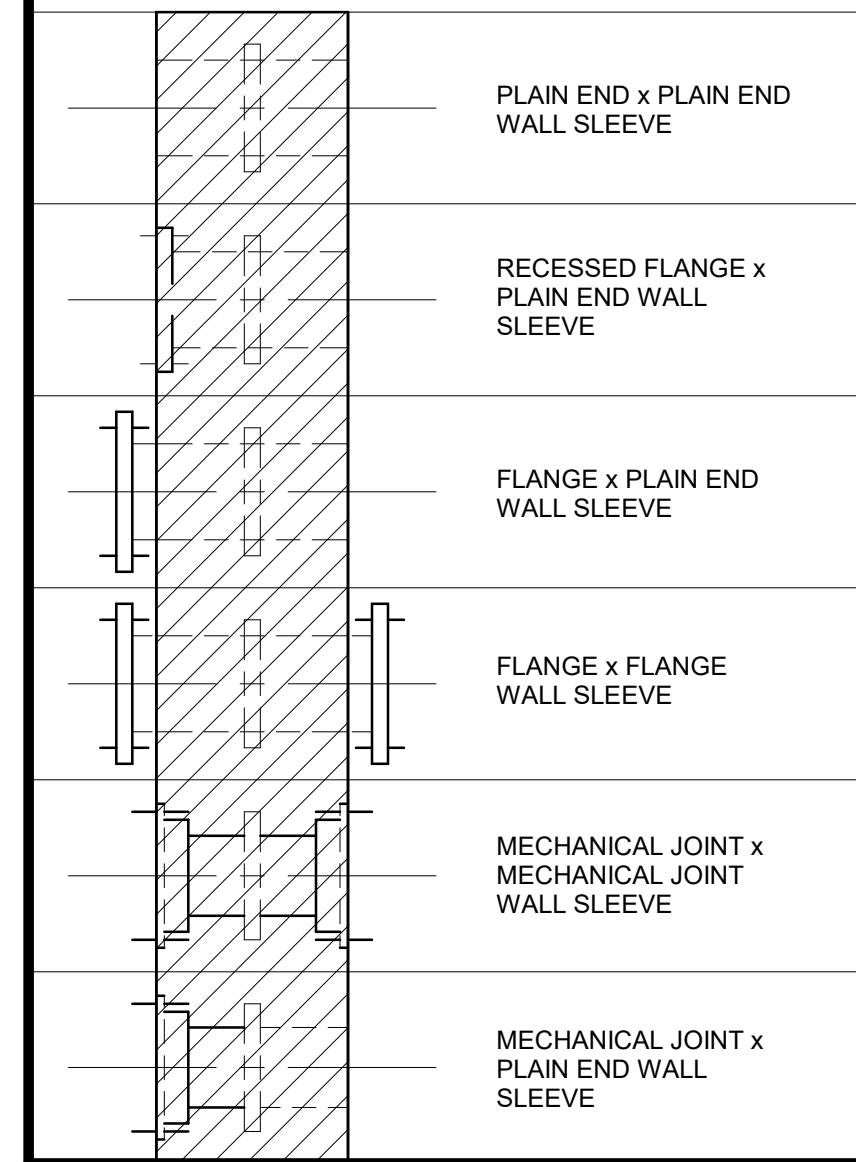
ABBREVIATIONS - PIPING	
AFB	ABOVE FINISHED FLOOR
AL	ALUMINUM
ARV	AIR RELIEF VALVE
BCE	BIOLOGICAL CONTACTOR EFFLUENT
BF	BLIND FLANGE
BP	BYPASS
C	CENTRATE
CA	COMPRESSED AIR
CDS	CHEMICAL DOSING
CE	CHLORINATED EFFLUENT
CI	CAST IRON
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CL	CENTER LINE
CON	CONCENTRATE
CON RED	CONCENTRIC REDUCER
CONC	CONCRETE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CUP	COPPER PIPE
CW	COLD WATER
D	DRAIN
DE	DECANT
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DMJ	DISMANTLING JOINT
DS	DIGESTED SLUDGE
ECC	ECCENTRIC
ECC RED	ECCENTRIC REDUCER
ED	EQUIPMENT DRAIN
EFF	EFFLUENT
EI	EQUALIZATION TANK INFLUENT
EL	ELEVATION
ELB	ELBOW
ER	EQUALIZATION TANK RETURN
ES	EQUALIZATION TANK SLUDGE
FA	FOUL AIR
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FE	FINAL EFFLUENT
FFWD	FEED FORWARD
FLG	FLANGE
FM	FORCE MAIN
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FRP	FIBERGLASS REINFORCED PIPE
FS	FINAL TANK SLUDGE
FTW	FILTER TO WASTE
GRS	GREASE
GRT	GRIT
GRV	GROOVED JOINT
GSP	GALVANIZED STEEL PIPE
GW	GLAND WATER
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HS	HEATED SLUDGE
INF	INFLUENT
INV	INVERT
IR	INFRARED
LPA	LOW PRESSURE AIR
LR	LONG RADIUS
MBR	MEMBRANE BIOREACTOR

ABBREVIATIONS - PIPING	
MFR	MANUFACTURER
MH	MANHOLE
MJ	MECHANICAL JOINT
ML	MIXED LIQUOR
MLP	MAIN LIFT PUMP
NaOCl	SODIUM HYPOCHLORITE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NPW	NON-POTABLE WATER
OVRFL	OVERFLOW
PA	PROCESS AIR
PE	PRIMARY TANK EFFLUENT
PEP	POLYETHYLENE PIPE
PERM	PERMEATE
PEW	PLANT EFFLUENT WATER
PI	PRIMARY TANK INFLUENT
PLT	PLATE
POA	PULLOUT ASSEMBLY
PP	POLYPROPYLENE PIPE
PS	PRIMARY TANK SLUDGE
PVC	POLYVINYL CHLORIDE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RC	RECYCLED
RCP	REINFORCED CONCRETE PIPE
RDMJ	RESTRAINED DISMANTLING JOINT
RECYC	INTERNAL RECYCLE
RED	REDUCER
REW	REUSE WATER
RFCA	RESTRAINED FLANGED COUPLING ADAPTER
RO	REVERSE OSMOSIS
RS	RAW SEWAGE
RW	RAW WATER
S	SCUM
SAM	SAMPLE
SE	SECONDARY EFFLUENT
SFE	SECONDARY FINAL EFFLUENT
SN	SUPERNATANT
SPD	SLUMP PUMP DISCHARGE
SS or SST	STAINLESS STEEL
STL	STEEL PIPE
SW	SECONDARY WASTE
SWHP	SECONDARY WATER - HIGH PRESSURE
SWLP	SECONDARY WATER - LOW PRESSURE
SWMP	SECONDARY WATER - MEDIUM PRESSURE
SWP	SEAL WATER PANEL
TE	TERTIARY EFFLUENT
THD	THREADED
THS	THICKENED SLUDGE
TO	THICKENER OVERFLOW
TOR	THERMAL OIL RETURN
TOS	THERMAL OIL SUPPLY
TS	TRANSFER SLUDGE
UNO	UNLESS NOTED OTHERWISE
UWF	UNFILTERED WATER FLUSH
V	VENT
VIF	VERIFY IN FIELD
WAS	WASTE ACTIVATED SLUDGE
WM	WATER MAIN
WWD	WASHWATER DRAIN
WWS	WASHWATER SUPPLY

PIPING & EQUIPMENT SYMBOLS

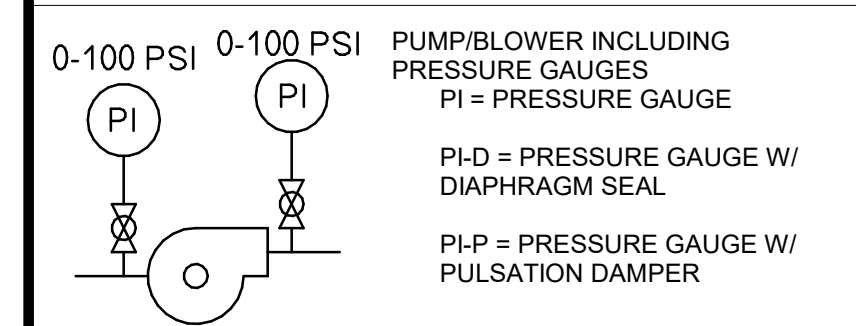
	VENT TO ROOF
	PIPE ANCHOR
	EXPANSION JOINT
	EXPANSION COMPENSATOR
	FLEXIBLE CONNECTOR
	FLOW ELEMENT
	PIPE GUIDE
	YARD HYDRANT
	PRESSURE REDUCING STATION
	PUMP SEALING WATER CONNECTION
	SAMPLE FUNNEL
	AIR SET ASSEMBLY
	AIR TO VALVE OPERATOR (THROTTLING SERVICE)
	AIR TO VALVE OPERATOR (OPEN SHUT SERVICE)
	IN LINE STATIC MIXER
	EDUCTOR
	INJECTOR
	TRAP (STEAM OR AIR MOISTURE)
	QUICK DISCONNECT (AIR) (3/4")
	ELBOW UP
	ELBOW DOWN
	TEE UP
	TEE DOWN
	REDUCER-CONCENTRIC
	REDUCER-ECCENTRIC
	WYE STRAINER
	BASKET STRAINER
	UNION
	METER (TOTALIZING)
	ROTAMETER
	STEEL WALL SLEEVE
	EMERGENCY SHOWER AND EYEWASH
	PIPING (BELOW SLAB)
	FLOOR DRAIN
	FLOOR DRAIN W/SEDIMENT BUCKET
	FLOOR SINK
	PUMP BASE DRAIN
	EQUIPMENT DRAIN
	CLEANOUT-FLOOR
	CLEANOUT-HORIZONTAL
	ROOF DRAIN
	PIPE TO DRAIN
	IN-LINE PUMP
	INSTRUMENT AIR PNEUMATIC SIGNAL
	ELECTRIC
	INSTRUMENT CAPILLARY TUBING
	BACKFLOW PREVENTER
	CONNECTION TO EXISTING
	PIPE CAP OR PLUG
	DIRECTION OF FLOW
	ELBOW FLOW METER

SLEEVE DESIGNATIONS



VALVE SYMBOLS

	TRIPLE DUTY VALVE
	GATE VALVE
	GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CORPORATION COCK
	BALANCING VALVE
	PET COCK
	CHECK VALVE
	PLUG VALVE
	STOP AND CHECK VALVE
	PINCH VALVE
	DIAPHRAGM VALVE
	AUTO-FLOW CONTROL VALVE
	ANGLE OR NEEDLE VALVE
	PRESSURE RELIEF VALVE
	THREE WAY VALVE
	TEMPERING VALVE
	SOLENOID OPERATED VALVE
	PRESSURE REGULATING VALVE (SELF CONTAINED)
	MOTORIZED CONTROL VALVE (OPEN-SHUT, THROTTLING)
	PNEUMATIC OPERATED CONTROL VALVE (OPEN-SHUT, THROTTLING)
	BACKPRESSURE VALVE
	HOSE BIBB (3/4")
	HOSE REEL (3/4")
	FLUSHING HOSE BIBB (1-1/2")
	SILL COCK (3/4")
	FLUSHING CONNECTION (ON PIPE) 1-1/2"
	ANTISIPHON VALVE



GENERAL PIPING NOTES

- LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- UNLESS NOTED OTHERWISE, PIPE ELEVATIONS SHOWN ON PIPING DRAWINGS REFER TO CENTERLINE OF PIPE.
- SUBMIT THE ROUTING OF PIPING NOT SHOWN IN THE DRAWINGS FOR APPROVAL, INCLUDING PIPING SMALLER THAN 3 INCHES.
- SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS NOTED OTHERWISE. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
- LOCATIONS AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL DESIGN AND PROVIDE PIPE SUPPORTS AS SPECIFIED.
- ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL OR THROUGH WATERTIGHT STRUCTURE.
- ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS NOTED OTHERWISE. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
- NOT ALL OF THE GRAPHICS, ABBREVIATIONS, ETC., SHOWN ON THIS SHEET ARE USED ON THE PROJECT.
- NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS ARE APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
- WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.
- LOCATE PRESSURE TAPS ON THE TOP OF PROCESS PIPES.
- LOCATE SAMPLE TAPS ON THE SIDE OF PROCESS PIPES.
- LOCATE DRAIN TAPS ON THE BOTTOM OF PROCESS PIPES.
- INSTALL ALL PLUG, BUTTERFLY, AND BALL VALVES WITH THE SHAFT IN THE HORIZONTAL POSITION, UNLESS NOTED OTHERWISE.
- ALL MECHANICAL AND PROCESS EQUIPMENT SHALL BE PLACED ON CONCRETE HOUSEKEEPING PADS, WHETHER INDICATED OR NOT. SEE STRUCTURAL SHEETS FOR TYPICAL DETAILS.
- VERTICAL ELEVATIONS ARE PROVIDED IN THE CITY OF DETROIT DATUM. ALL OTHER ELEVATIONS ARE PROVIDED IN NAVD88. THE CONVERSION FROM THE CITY OF DETROIT DATUM TO NAVD88 IS 479.20'.

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REV#	DATE	ISSUED FOR	DESCRIPTION
2	2023.07.08	ADDENDUM 1	
1	2023.06.24	ISSUED FOR BIDS	



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CITY OF FLINT WPCF
BATTERY B SECONDARY CLARIFIER FLOW
CONTROL PROJECT

PLUMBING GENERAL NOTES, SYMBOLS, AND
ABBREVIATIONS

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

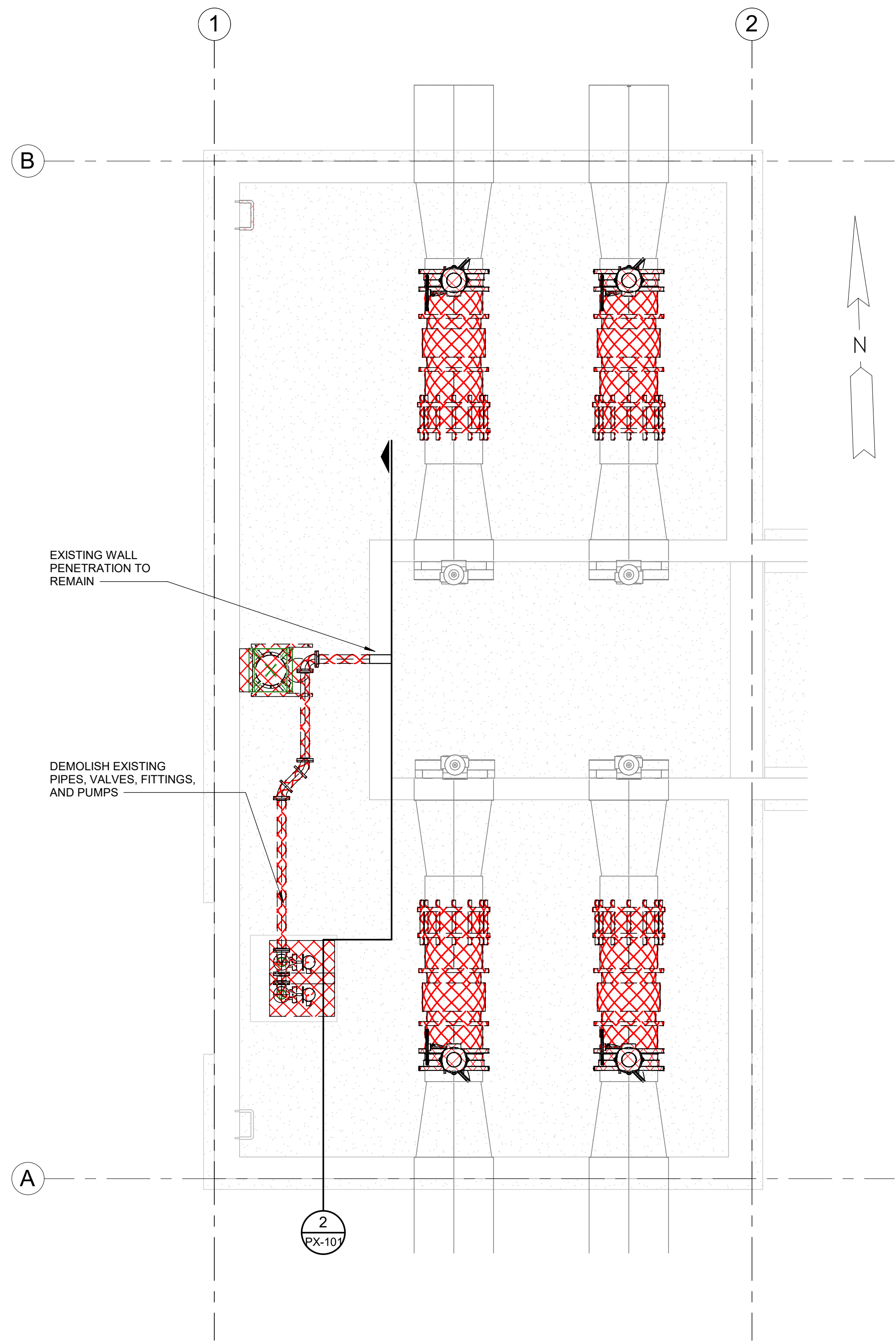
JOB NO. COF1077-01F

SHEET P-001

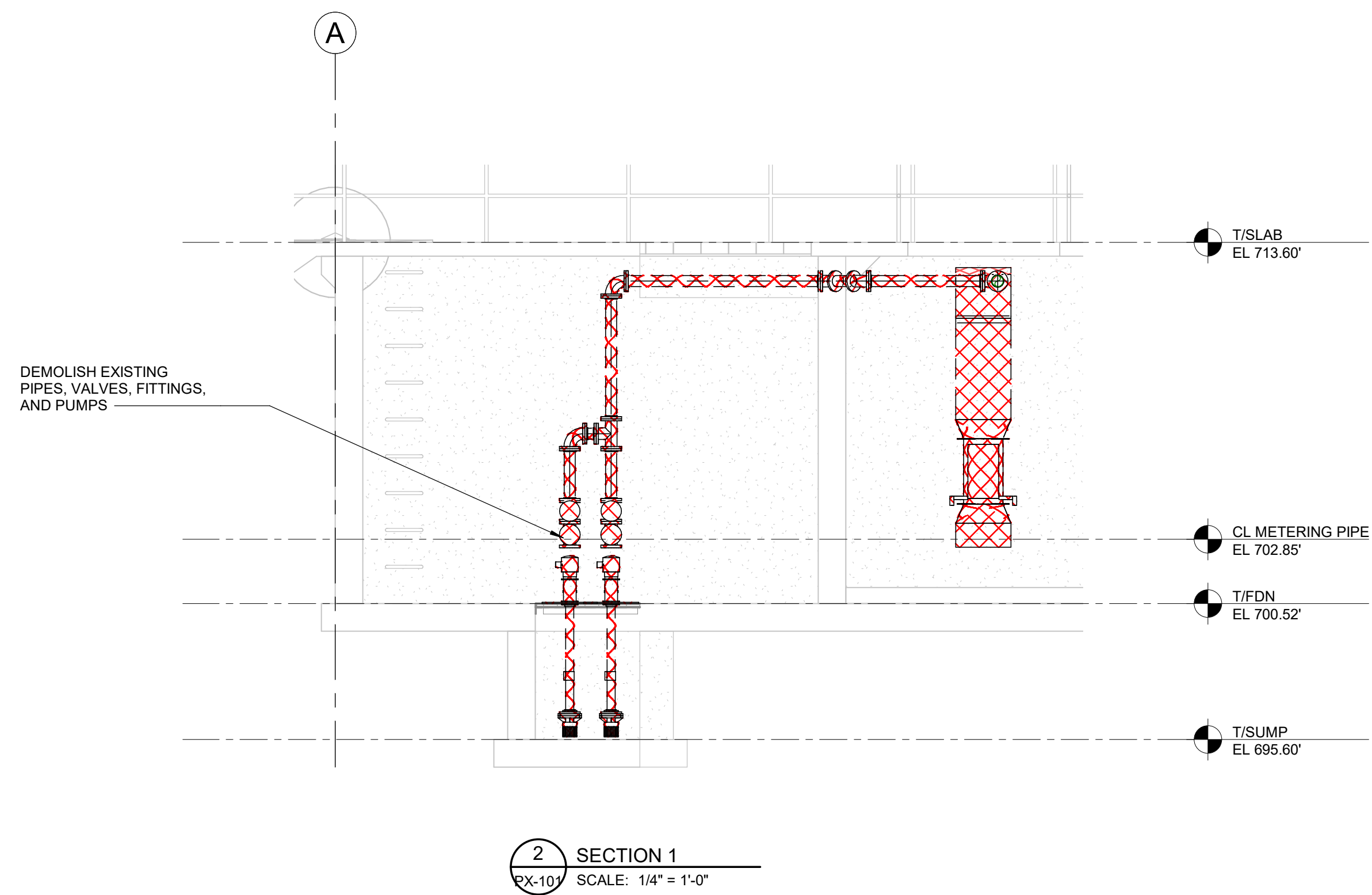
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PLUMBING DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



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**CITY OF FLINT WPCF
BATTERY B SECONDARY CLARIFIER FLOW
CONTROL PROJECT
PLUMBING DEMOLITION PLAN AND SECTION**

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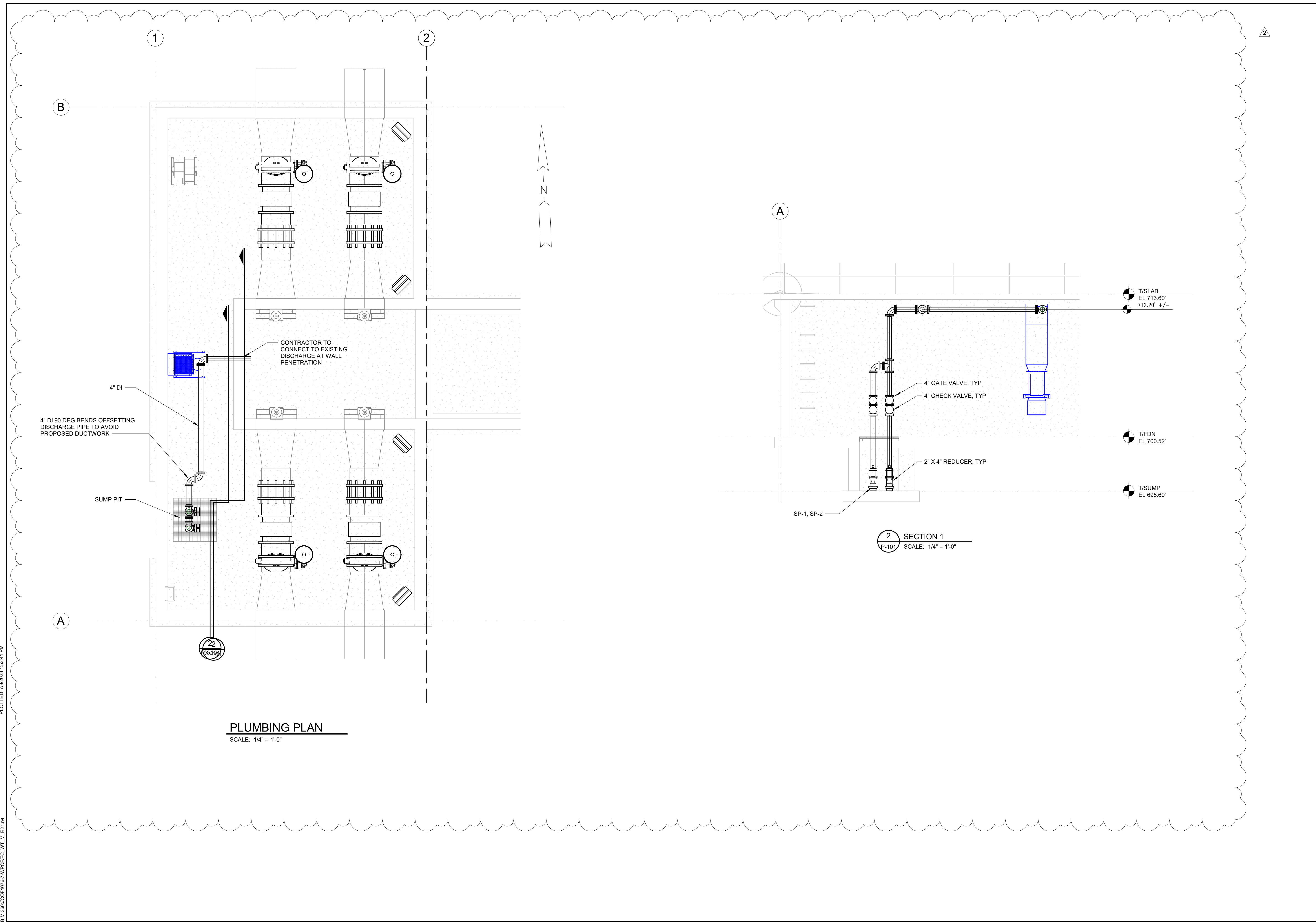
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PLUMBING PLAN
SCALE: 1/4" = 1'-0"

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

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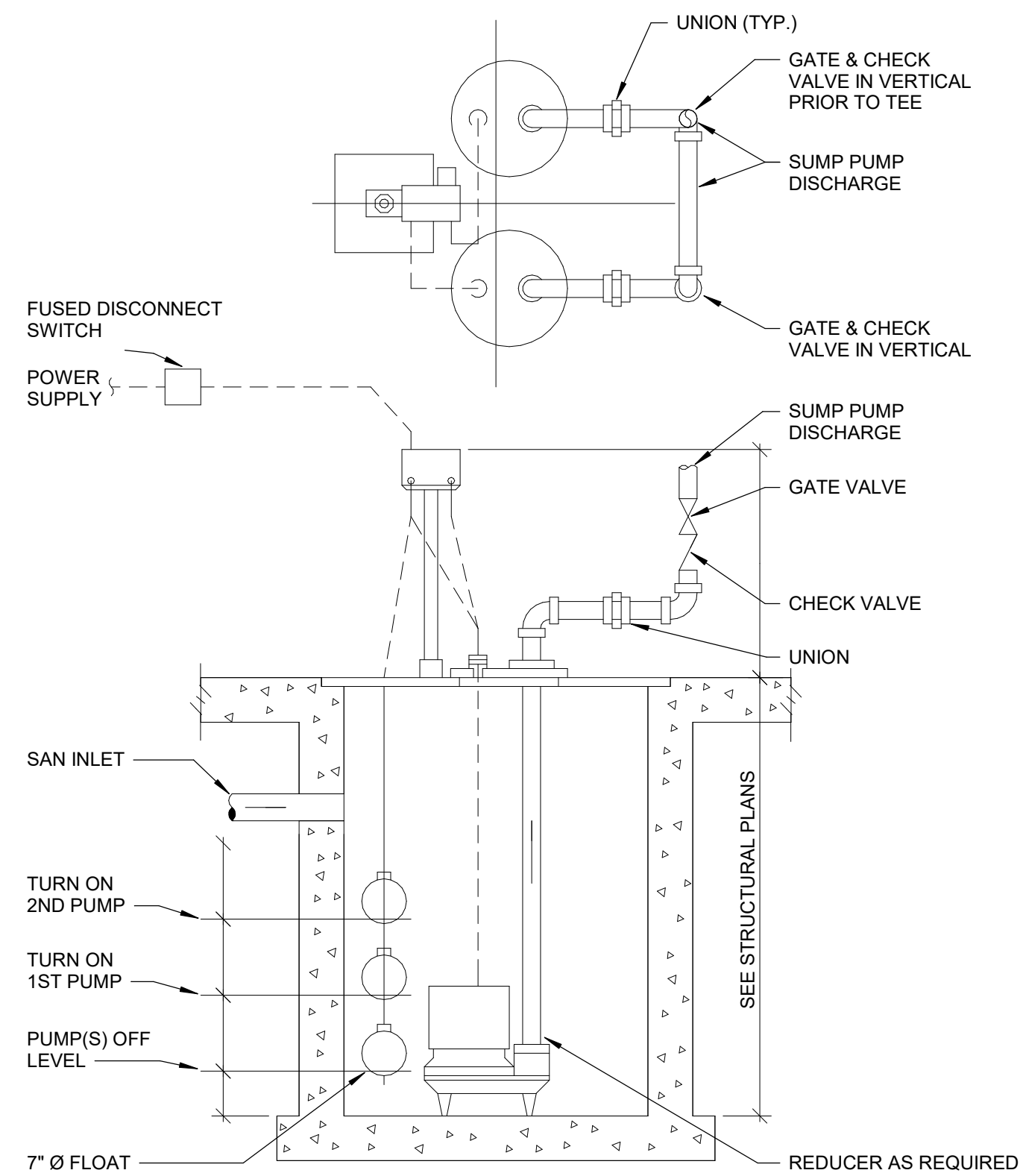
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**CITY OF FLINT WPCF
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CONTROL PROJECT
PLUMBING PLAN AND SECTION**

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

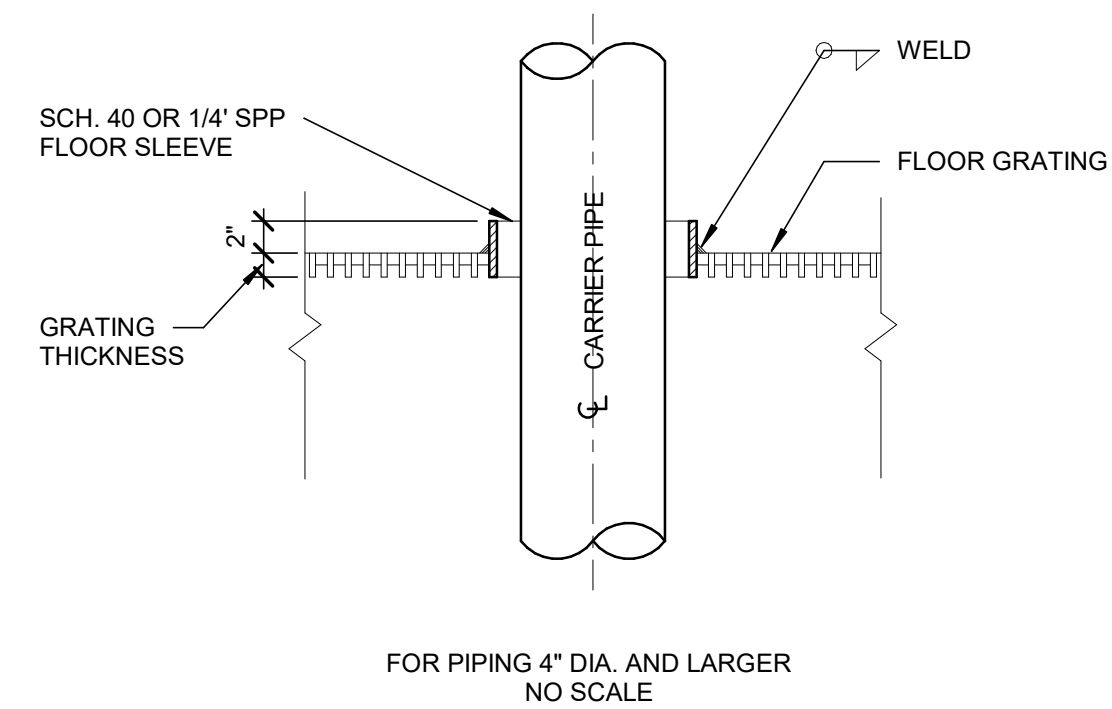
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P-101



1 DUPLEX SYSTEM SUBMERSIBLE SUMP PUMP DETAIL
TYP NOT TO SCALE

PUMP SCHEDULE							
TAG	LOCATION	VOLTS/PHASE	HP	HEAD AND GPM	MANUFACTURER	MODEL	REMARKS
SP-1, SP-2	FLOW CONTROL	480/3	3	25 FT / 80 GPM	FLYGT	CS 3045	FLOATS PUMP(S) OFF: 696.60' 1ST PUMP ON: 697.90' 2ND PUMP ON: 699.20'



2 SLEEVE - GR TG - FLOOR
P-601 NOT TO SCALE

2

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CITY OF FLINT WPCF
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 CONTROL PROJECT
 PLUMBING SCHEMATIC, SCHEDULES, AND
 DETAILS

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P-601

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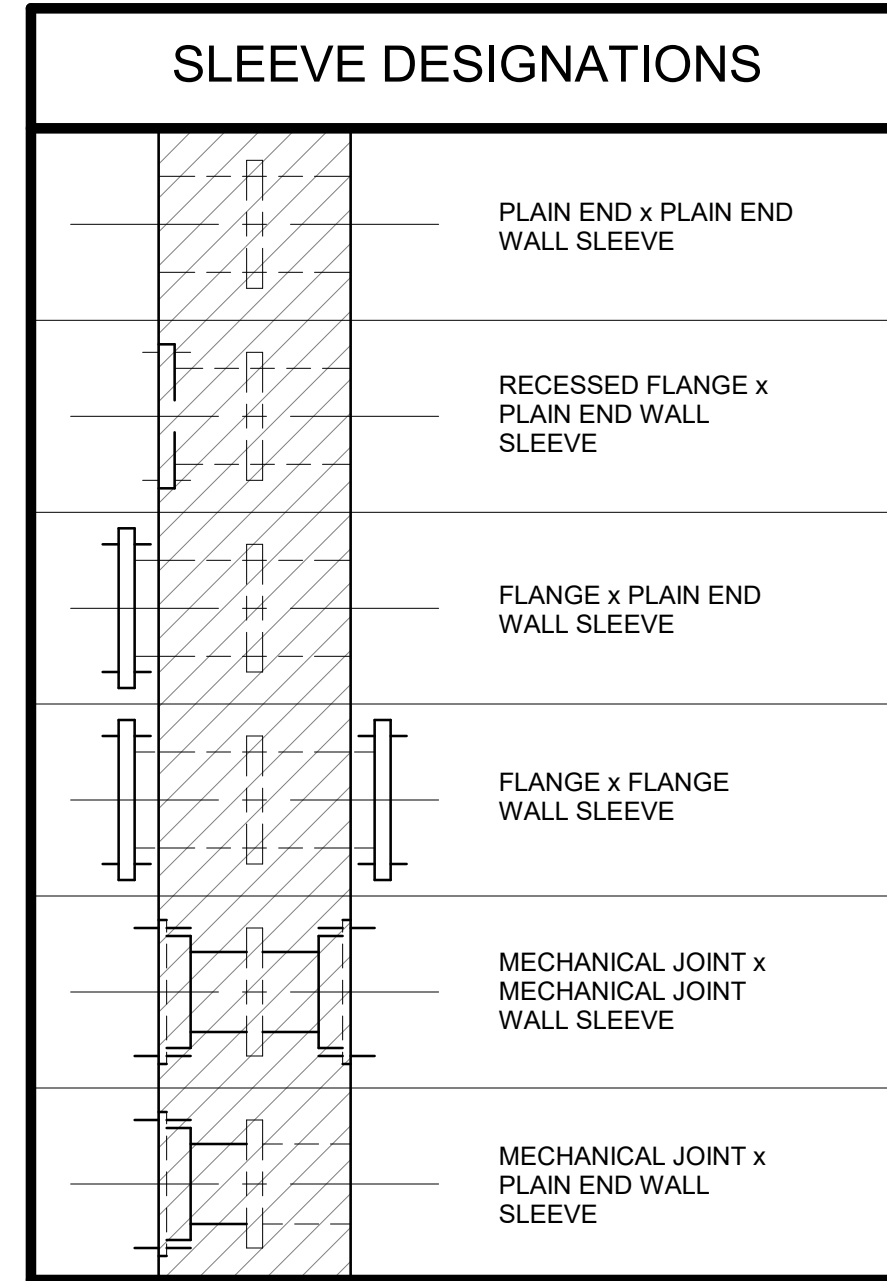
ABBREVIATIONS - PIPING	
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
ARV	AIR RELIEF VALVE
BCE	BIOLOGICAL CONTACTOR EFFLUENT
BF	BLIND FLANGE
BP	BYPASS
C	CENTRATE
CA	COMPRESSED AIR
CDS	CHEMICAL DOSING
CE	CHLORINATED EFFLUENT
CI	CAST IRON
CIP	CAST IRON PIPE
CISP	CAST IRON SOIL PIPE
CL	CENTER LINE
CON	CONCENTRATE
CON RED	CONCENTRIC REDUCER
CONC	CONCRETE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CUP	COPPER PIPE
CW	COLD WATER
D	DRAIN
DE	DECANT
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DMJ	DISMANTLING JOINT
DRC	DRESSER COUPLING
DS	DIGESTED SLUDGE
ECC	ECCENTRIC
ECC RED	ECCENTRIC REDUCER
ED	EQUIPMENT DRAIN
EFF	EFFLUENT
EI	EQUALIZATION TANK INFLUENT
EL	ELEVATION
ELB	ELBOW
ER	EQUALIZATION TANK RETURN
ES	EQUALIZATION TANK SLUDGE
FA	FOUL AIR
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FE	FINAL EFFLUENT
FFWD	FEED FORWARD
FLG	FLANGE
FM	FORCE MAIN
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FRP	FIBERGLASS REINFORCED PIPE
FS	FINAL TANK SLUDGE
FTW	FILTER TO WASTE
GRS	GREASE
GRT	GRIT
GRV	GROOVED JOINT
GSP	GALVANIZED STEEL PIPE
GW	GLAND WATER
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HS	HEATED SLUDGE
INF	INFLUENT
INV	INVERT
LPA	LOW PRESSURE AIR
LR	LONG RADIUS
MAG	MAG METER
MBR	MEMBRANE BIOREACTOR
MFR	MANUFACTURER

ABBREVIATIONS - PIPING	
MH	MANHOLE
MJ	MECHANICAL JOINT
ML	MIXED LIQUOR
MPL	MAIN LIFT PUMP
NaOCl	SODIUM HYPOCHLORITE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NPW	NON-POTABLE WATER
OVRFL	OVERFLOW
PA	PROCESS AIR
PE	PRIMARY TANK EFFLUENT
PEP	POLYETHYLENE PIPE
PERM	PERMEATE
PEW	PLANT EFFLUENT WATER
PI	PRIMARY TANK INFLUENT
PLT	PLATE
POA	PULLOUT ASSEMBLY
PP	POLYPROPYLENE PIPE
PS	PRIMARY TANK SLUDGE
PVC	POLYVINYL CHLORIDE
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RC	RECYCLED
RCP	REINFORCED CONCRETE PIPE
RDJ	RESTRAINED DISMANTLING JOINT
RECYC	INTERNAL RECYCLE
RED	REDUCER
REW	REUSE WATER
RFC	RESTRAINED FLANGED COUPLING ADAPTER
RO	REVERSE OSMOSIS
RS	RAW SEWAGE
RW	RAW WATER
S	SCUM
SAM	SAMPLE
SE	SECONDARY EFFLUENT
SFE	SECONDARY FINAL EFFLUENT
SLG	SLUICE GATE
SN	SUPERNATANT
SPD	SUMP PUMP DISCHARGE
SS or SST	STAINLESS STEEL
STL	STEEL PIPE
SW	SECONDARY WASTE
SWHP	SECONDARY WATER - HIGH PRESSURE
SWLP	SECONDARY WATER - LOW PRESSURE
SWMP	SECONDARY WATER - MEDIUM PRESSURE
SWP	SEAL WATER PANEL
TE	TERTIARY EFFLUENT
THD	THREADED
THS	THICKENED SLUDGE
TO	THICKENER OVERFLOW
TOR	THERMAL OIL RETURN
TOS	THERMAL OIL SUPPLY
TS	TRANSFER SLUDGE
UNO	UNLESS NOTED OTHERWISE
UWF	UNFILTERED WATER FLUSH
V	VENT
VIF	VERIFY IN FIELD
WAS	WASTE ACTIVATED SLUDGE
WM	WATER MAIN
WWD	WASHWATER DRAIN
WWS	WASHWATER SUPPLY

VALVE SYMBOLS	
[Symbol]	TRIPLE DUTY VALVE
[Symbol]	GATE VALVE
[Symbol]	GLOBE VALVE
[Symbol]	BALL VALVE
[Symbol]	BUTTERFLY VALVE
[Symbol]	CORPORATION COCK
[Symbol]	BALANCING VALVE
[Symbol]	PET COCK
[Symbol]	CHECK VALVE
[Symbol]	PLUG VALVE
[Symbol]	STOP AND CHECK VALVE
[Symbol]	PINCH VALVE
[Symbol]	DIAPHRAGM VALVE
[Symbol]	AUTO-FLOW CONTROL VALVE
[Symbol]	ANGLE OR NEEDLE VALVE
[Symbol]	PRESSURE RELIEF VALVE
[Symbol]	THREE WAY VALVE
[Symbol]	TEMPERING VALVE
[Symbol]	SOLENOID OPERATED VALVE
[Symbol]	PRESSURE REGULATING VALVE (SELF CONTAINED)
[Symbol]	MOTORIZED CONTROL VALVE (OPEN-SHUT, THROTTLING)
[Symbol]	PNEUMATIC OPERATED CONTROL VALVE (OPEN-SHUT, THROTTLING)
[Symbol]	BACKPRESSURE VALVE
[Symbol]	HOSE BIBB (3/4")
[Symbol]	FLUSHING HOSE BIBB (1-1/2")
[Symbol]	SILL COCK (3/4")
[Symbol]	FLUSHING CONNECTION (ON PIPE) 1-1/2"
[Symbol]	ANTISIPHON VALVE
[Symbol]	PUMP/BLOWER INCLUDING PRESSURE GAUGES
[Symbol]	PI = PRESSURE GUIDE
[Symbol]	PI-D = PRESSURE GAUGE W/ DIAPHRAGM SEAL
[Symbol]	PI-P = PRESSURE GAUGE W/ PULSATON DAMPER

PIPING & EQUIPMENT SYMBOLS	
[Symbol]	VENT TO ROOF
[Symbol]	PIPE ANCHOR
[Symbol]	EXPANSION JOINT
[Symbol]	EXPANSION COMPENSATOR
[Symbol]	FLEXIBLE CONNECTOR
[Symbol]	FLOW ELEMENT
[Symbol]	PIPE GUIDE
[Symbol]	YARD HYDRANT (SEE DETAIL)
[Symbol]	PRESSURE REDUCING STATION (SEE DETAIL)
[Symbol]	PUMP SEALING WATER CONNECTION (SEE DETAIL)
[Symbol]	SAMPLE FUNNEL (SEE DETAIL)
[Symbol]	AIR SET ASSEMBLY (SEE DETAIL)
[Symbol]	AIR TO VALVE OPERATOR (SEE DETAIL) (THROTTLING SERVICE)
[Symbol]	AIR TO VALVE OPERATOR (SEE DETAIL) (OPEN SHUT SERVICE)
[Symbol]	IN LINE STATIC MIXER
[Symbol]	EDUCTOR
[Symbol]	INJECTOR
[Symbol]	TRAP (STEAM OR AIR MOISTURE)
[Symbol]	QUICK DISCONNECT (AIR) (3/4")
[Symbol]	ELBOW UP
[Symbol]	ELBOW DOWN
[Symbol]	TEE UP
[Symbol]	TEE DOWN
[Symbol]	REDUCER-CENTRIC
[Symbol]	REDUCER-ECCENTRIC
[Symbol]	WYE STRAINER
[Symbol]	BASKET STRAINER
[Symbol]	UNION
[Symbol]	METER (TOTALIZING)
[Symbol]	ROTAMETER
[Symbol]	STEEL WALL SLEEVE
[Symbol]	EMERGENCY SHOWER AND EYEWASH
[Symbol]	PIPING (BELOW SLAB)
[Symbol]	FLOOR DRAIN
[Symbol]	FLOOR DRAIN W/SEDIMENT BUCKET
[Symbol]	FLOOR SINK
[Symbol]	PUMP BASE DRAIN
[Symbol]	EQUIPMENT DRAIN
[Symbol]	CLEANOUT-FLOOR
[Symbol]	CLEANOUT-HORIZONTAL
[Symbol]	ROOF DRAIN
[Symbol]	PIPE TO DRAIN
[Symbol]	IN-LINE PUMP
[Symbol]	INSTRUMENT AIR PNEUMATIC SIGNAL
[Symbol]	ELECTRIC
[Symbol]	INSTRUMENT CAPILLARY TUBING
[Symbol]	BACKFLOW PREVENTER
[Symbol]	CONNECTION TO EXISTING
[Symbol]	PIPE CAP OR PLUG
[Symbol]	DIRECTION OF FLOW

INSTRUMENTATION SYMBOLS	
[Symbol]	PANEL MOUNTED INSTRUMENT (INSIDE)
[Symbol]	PANEL MOUNTED INSTRUMENT (FACE)
[Symbol]	LOCALLY MOUNTED INSTRUMENT
[Symbol]	FLOW ELEMENT
[Symbol]	FLOW INDICATOR
[Symbol]	LEVEL ELEMENT
[Symbol]	LOW WATER CUT-OFF
[Symbol]	PRESSURE SWITCH
[Symbol]	TEMPERATURE INDICATOR
[Symbol]	TEMPERATURE INDICATOR CONTROLLER
[Symbol]	TEMPERATURE TRANSMITTER



GENERAL NOTES PROCESS PIPING	
A	LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
B	UNLESS NOTED OTHERWISE, PIPE ELEVATIONS SHOWN ON PIPING DRAWINGS REFER TO CENTERLINE OF PIPE.
C	SUBMIT THE ROUTING OF PIPING NOT SHOWN IN THE DRAWINGS FOR APPROVAL, INCLUDING PIPING SMALLER THAN 3 INCHES.
D	SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS NOTED OTHERWISE. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
E	LOCATIONS AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN ARE APPROXIMATE. DESIGN AND PROVIDE PIPE SUPPORTS AS REQUIRED.
F	ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL OR THROUGH WATERTIGHT STRUCTURE.
G	ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS NOTED OTHERWISE. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
H	NOT ALL OF THE GRAPHICS, ABBREVIATIONS, ETC., SHOWN ON THIS SHEET ARE USED ON THE PROJECT.
I	NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS ARE APPROXIMATE. PROVIDE ALL UNIONS, FLANGES, AND COUPLINGS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES, INSTRUMENTS, AND MECHANICAL EQUIPMENT.
J	WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.
K	LOCATE PRESSURE TAPS ON THE TOP OF PROCESS PIPES.
L	LOCATE SAMPLE TAPS ON THE SIDE OF PROCESS PIPES.
M	LOCATE DRAIN TAPS ON THE BOTTOM OF PROCESS PIPES.
N	INSTALL ALL PLUG, BUTTERFLY, AND BALL VALVES WITH THE SHAFT IN THE HORIZONTAL POSITION, UNLESS NOTED OTHERWISE.
O	ALL MECHANICAL AND PROCESS EQUIPMENT SHALL BE PLACED ON CONCRETE HOUSEKEEPING PADS, WHETHER INDICATED OR NOT. SEE STRUCTURAL SHEETS FOR TYPICAL DETAILS.
P	HYDRAULIC GRADE LINE ELEVATIONS ARE PROVIDED IN THE CITY OF DETROIT DATUM. ALL OTHER ELEVATIONS ARE PROVIDED IN NAVD88. THE CONVERSION FROM THE CITY OF DETROIT DATUM TO NAVD88 IS 479.20'.

TEMPERATURE CONTROL SYMBOLS	
[Symbol]	TEMPERATURE INDICATOR
[Symbol]	DAMPER OPERATOR
[Symbol]	TEMPERATURE TRANSMITTER
[Symbol]	FIRESTAT
[Symbol]	FREEZE STAT
[Symbol]	EP RELAY
[Symbol]	TEMPERATURE CONTROLLER
[Symbol]	RELAY
[Symbol]	CONTROLLER
[Symbol]	SMOKE DETECTOR
*	PANEL MOUNTED DEVICES
[Symbol]	NIGHT THERMOSTAT

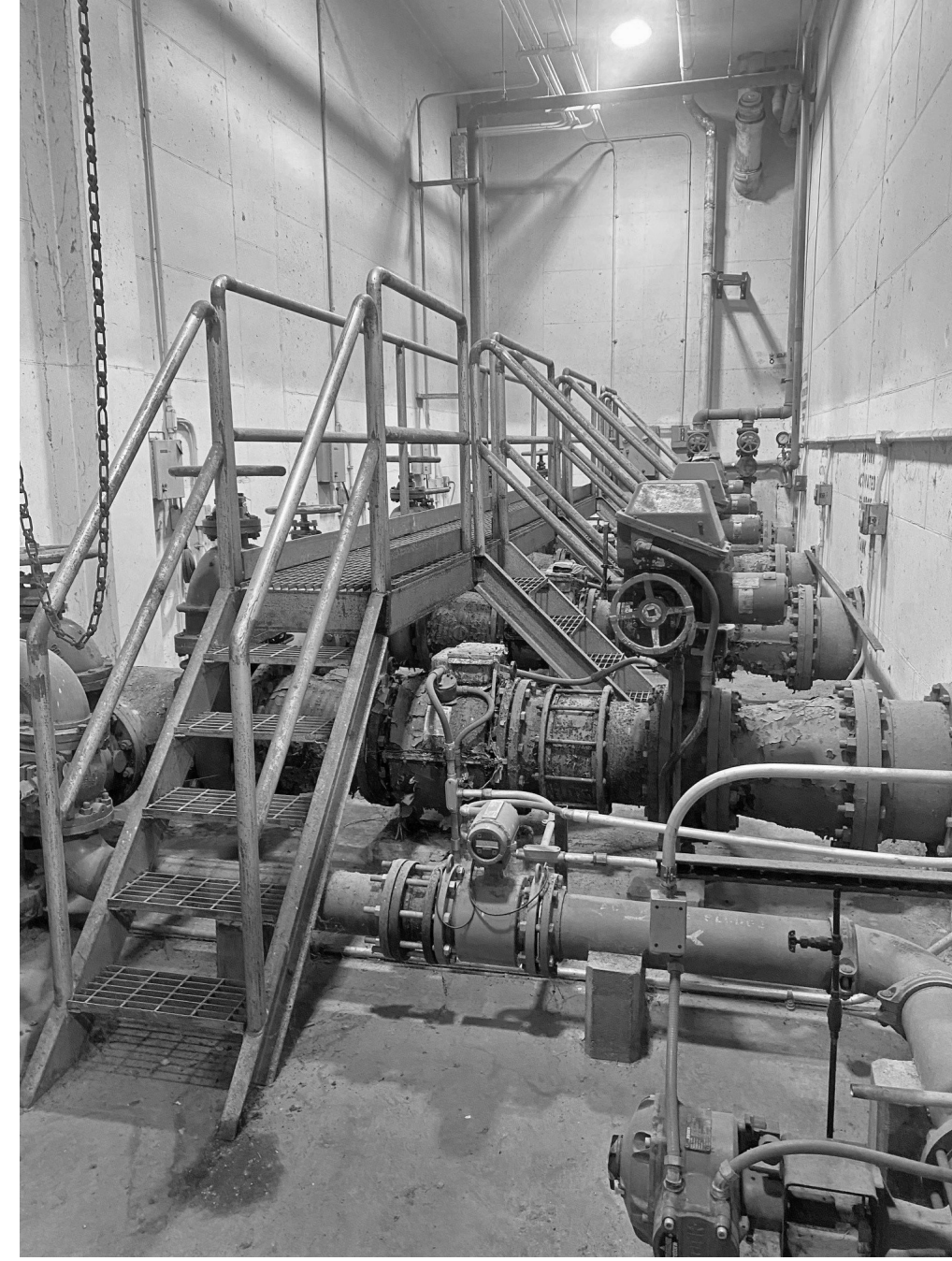
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CITY OF FLINT
 WPCF BATTERY B SECONDARY CLARIFIER
 FLOW CONTROL
 PROCESS SYMBOLS AND ABBREVIATIONS

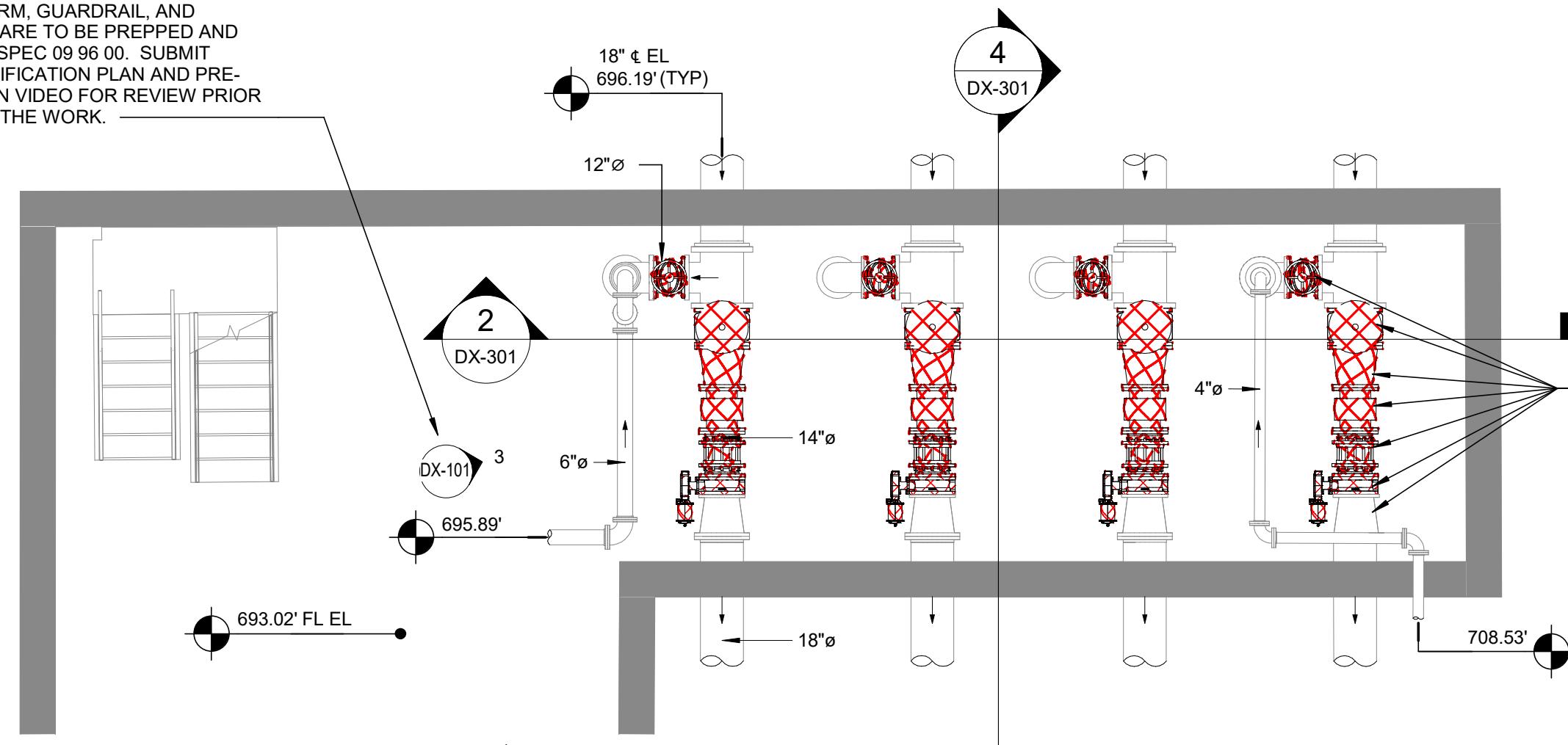
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 SHEET:
D-001



3 STAIR AND PLATFORM
 DX-101 NOT TO SCALE

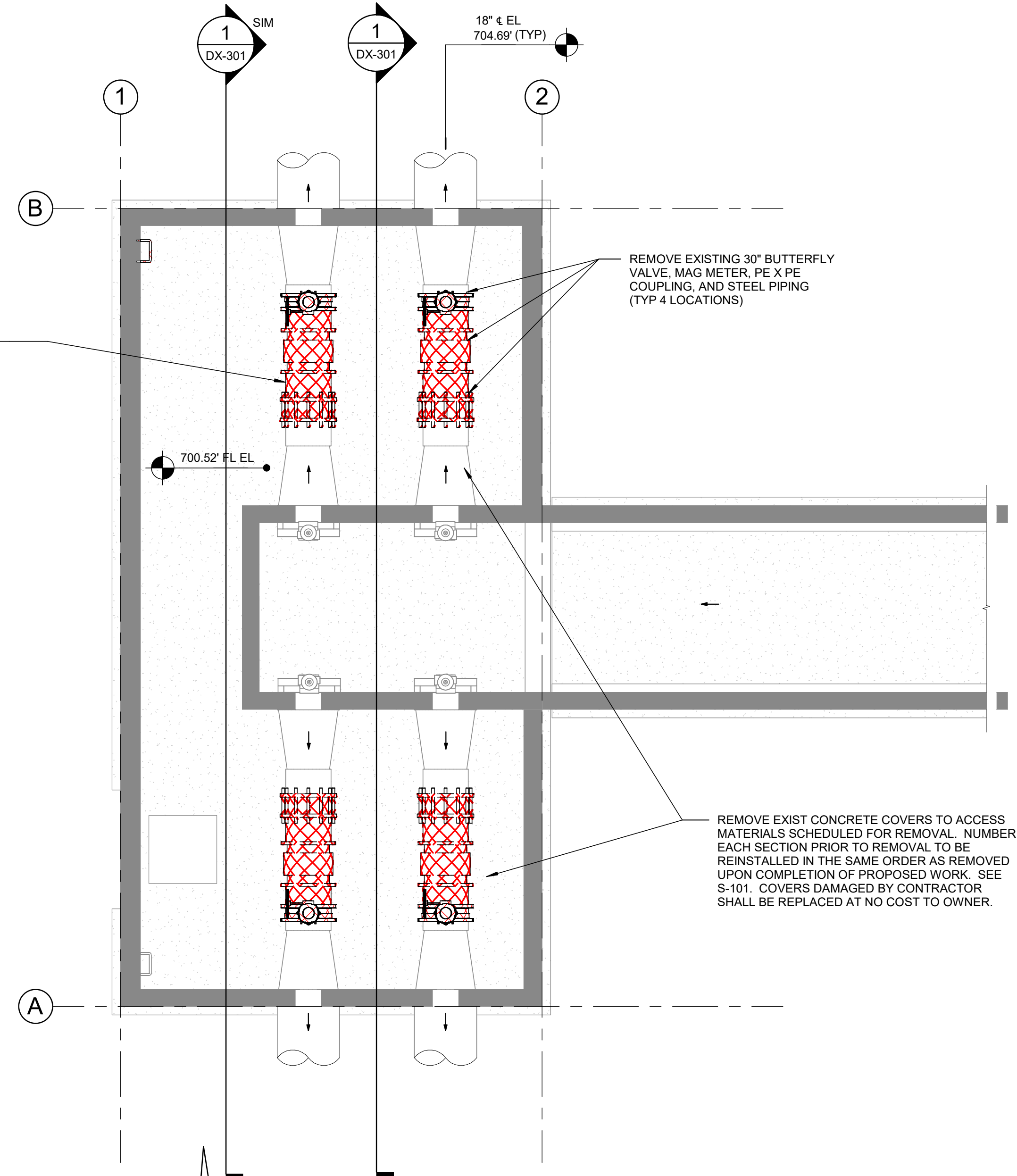
EXISTING STEEL STAIR AND ELEVATED PLATFORM NOT SHOWN. SEE PHOTO DETAIL (3/DX-101). REMOVAL AND/OR TEMPORARY MODIFICATION OF STAIR AND PLATFORM WILL BE ALLOWED PROVIDED STAIR, PLATFORM, AND ACCESSORIES ARE RESTORED TO PRE-WORK CONDITIONS UPON COMPLETION OF PROPOSED WORK. STAIR, PLATFORM, GUARDRAIL, AND ACCESSORIES ARE TO BE PREPPED AND COATED - SEE SPEC 09 96 00. SUBMIT REMOVAL/MODIFICATION PLAN AND PRE-CONSTRUCTION VIDEO FOR REVIEW PRIOR TO BEGINNING THE WORK.



VALVE ROOM DEMO PLAN
 SCALE: 3/16" = 1'-0"

REMOVE EXISTING GATE VALVES, REDUCERS, MAG METER, PIPE, PE X PE COUPLING, AND SUPPORTS. SALVAGE REDUCERS FOR REUSE. (TYP 4 MAINS)

SALVAGE 30" F X PE SPOOL FOR REUSE WITH PROPOSED WORK (TYP 4 LOCATIONS)



T/FDN DEMO
 SCALE: 3/16" = 1'-0"

REMOVE EXISTING 30" BUTTERFLY VALVE, MAG METER, PE X PE COUPLING, AND STEEL PIPING (TYP 4 LOCATIONS)

REMOVE EXIST CONCRETE COVERS TO ACCESS MATERIALS SCHEDULED FOR REMOVAL. NUMBER EACH SECTION PRIOR TO REMOVAL TO BE REINSTALLED IN THE SAME ORDER AS REMOVED UPON COMPLETION OF PROPOSED WORK. SEE S-101. COVERS DAMAGED BY CONTRACTOR SHALL BE REPLACED AT NO COST TO OWNER.

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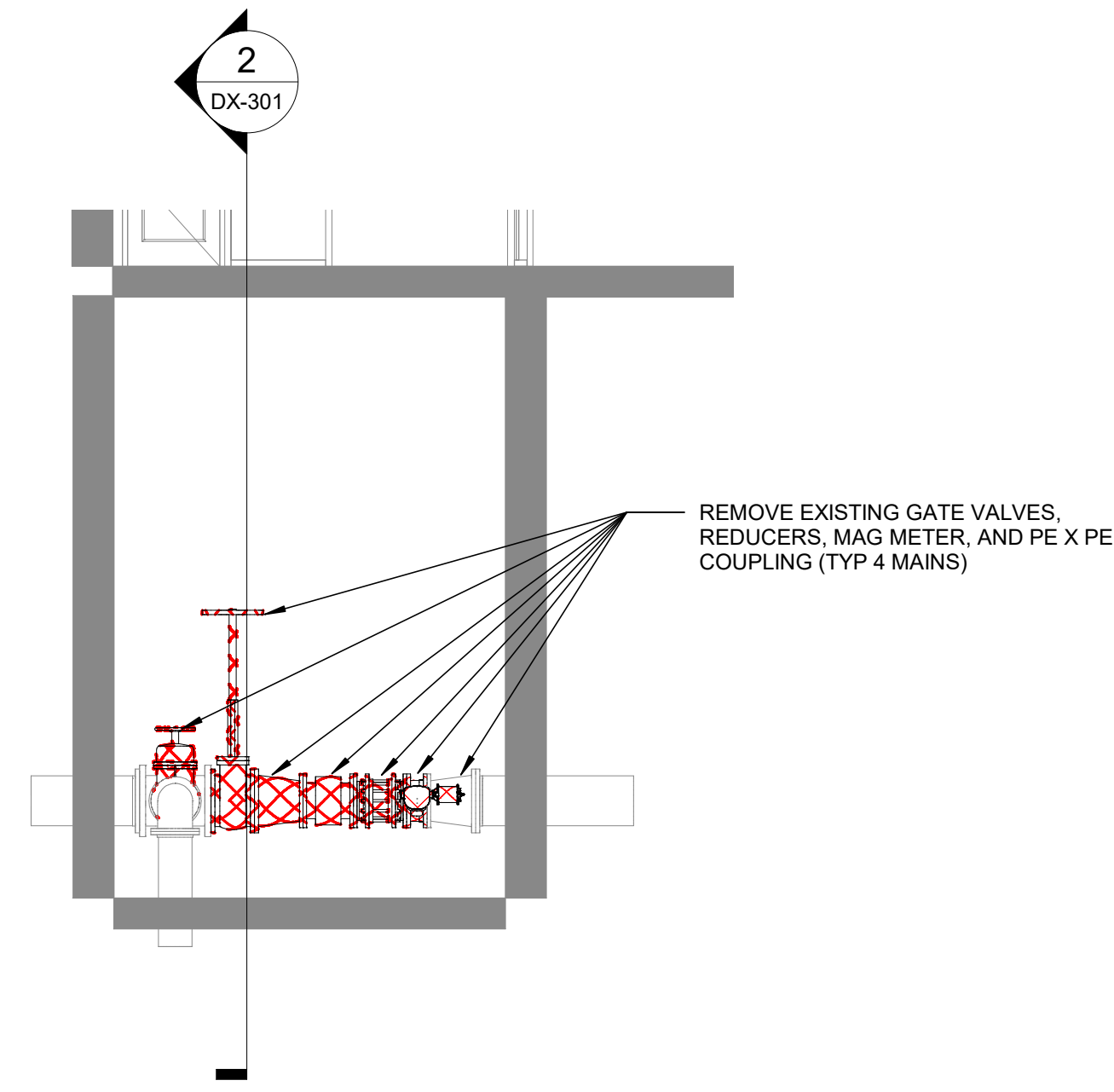
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CITY OF FLINT
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 FLOW CONTROL
 DEMOLITION PLANS

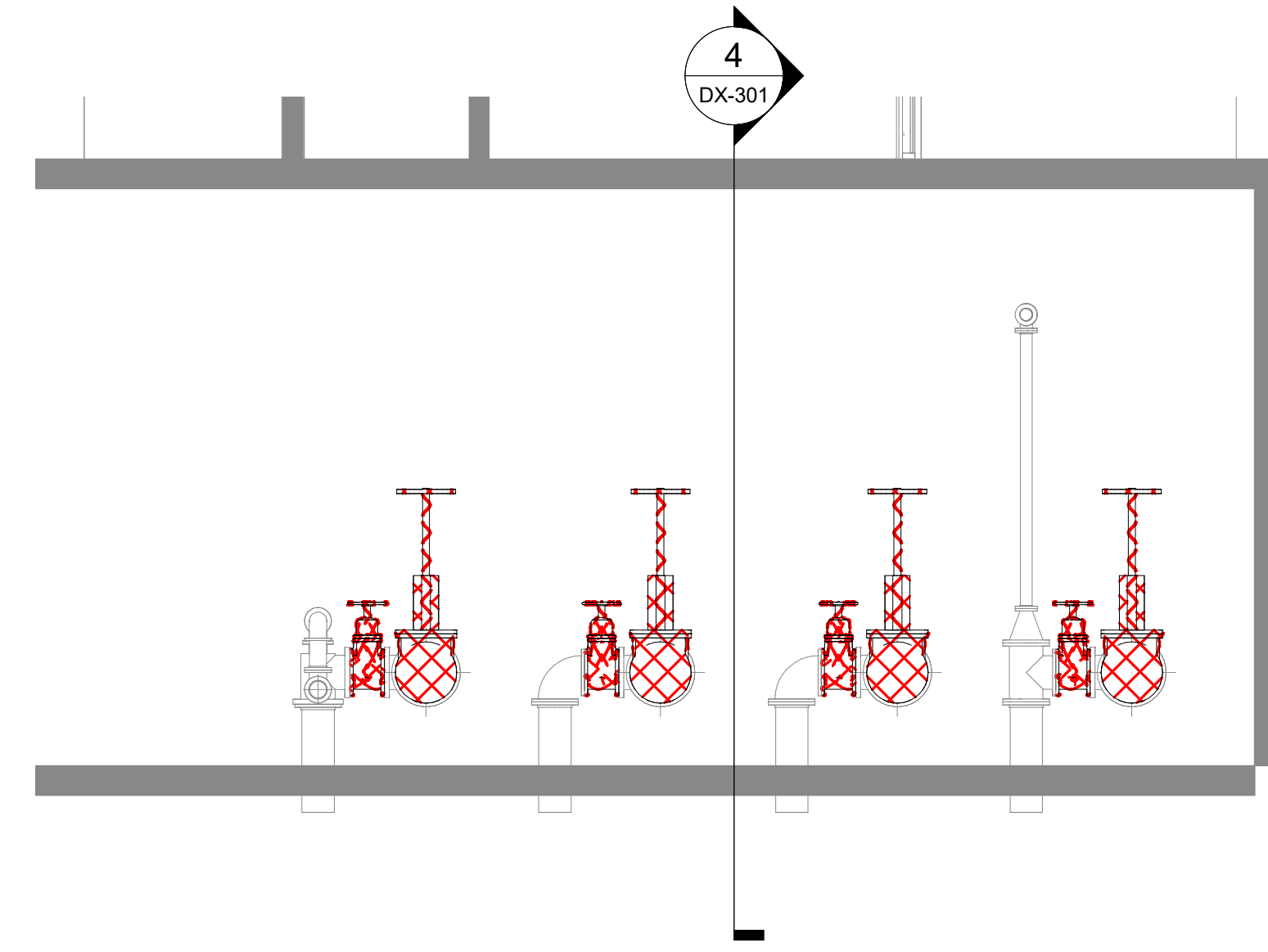
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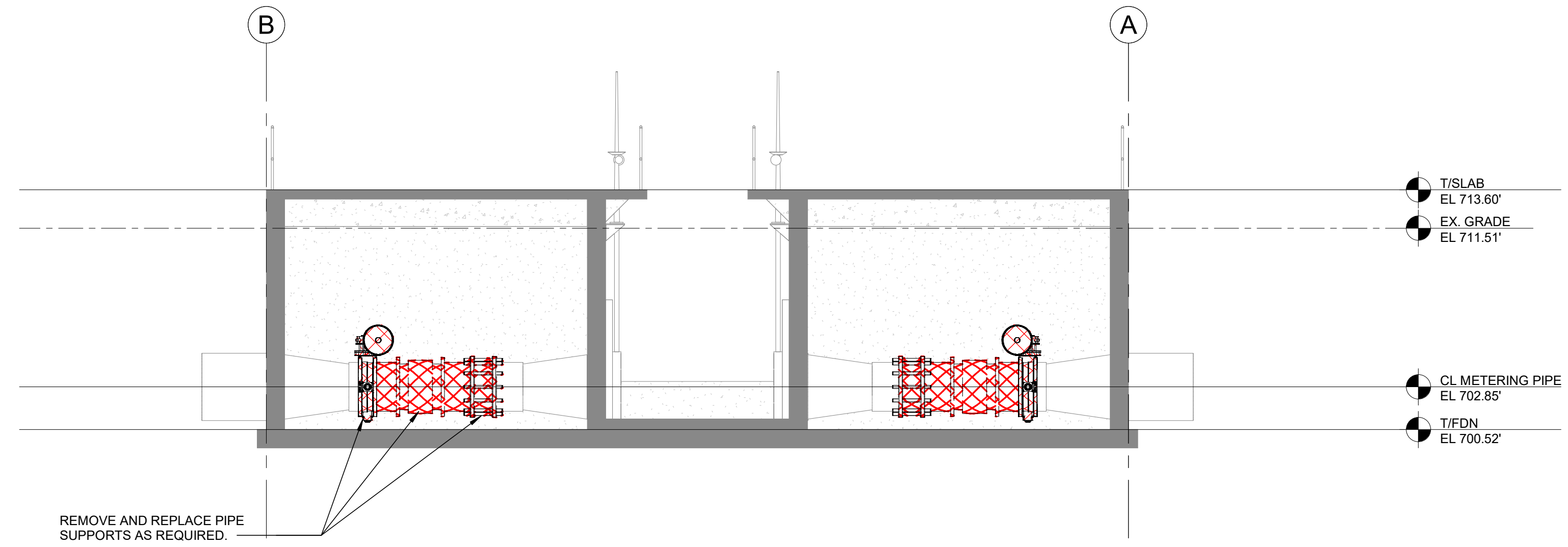
SHEET DX-101



4 MAIN SECTION DEMO
D-301 SCALE: 3/16" = 1'-0"



2 BRANCH SECTIONS DEMO
DX-101 SCALE: 3/16" = 1'-0"



1 VAULT DEMO SECTION
DX-101 SCALE: 3/16" = 1'-0"

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CITY OF FLINT
WPCF BATTERY B SECONDARY CLARIFIER
FLOW CONTROL
DEMOLITION SECTIONS

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

JOB NO.
COF1077-01F

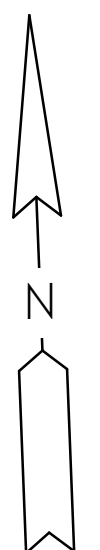
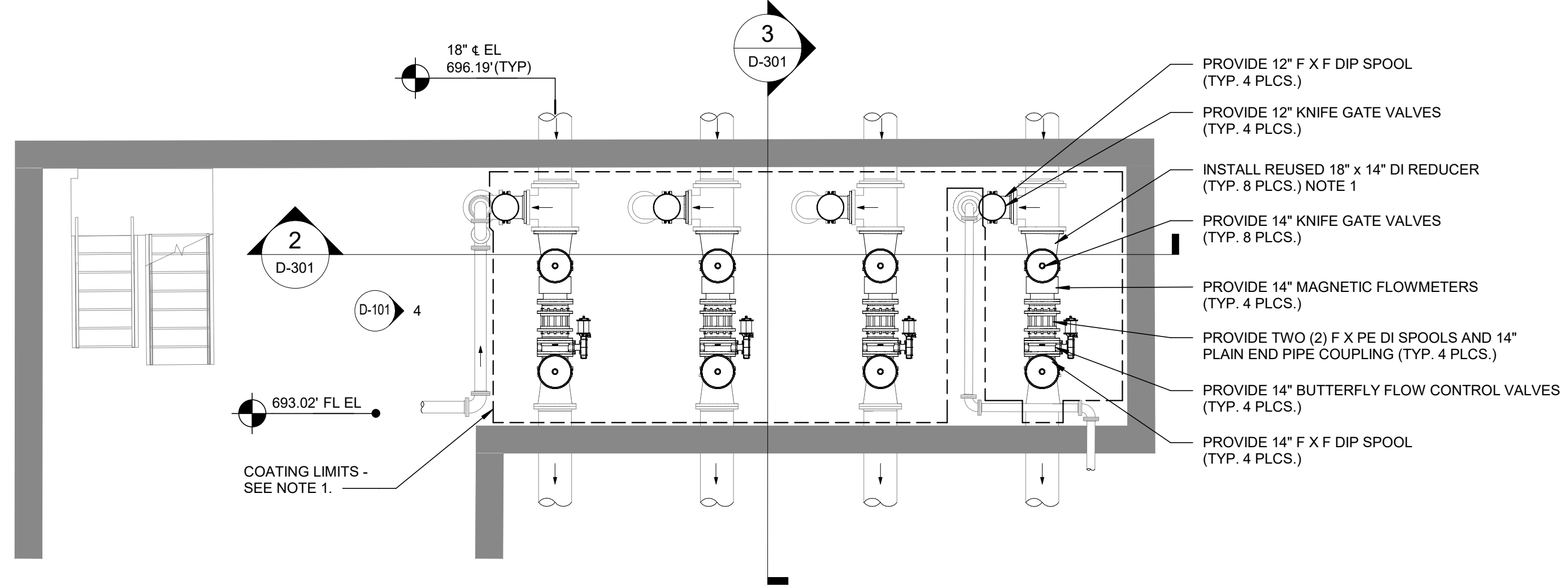
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DX-301

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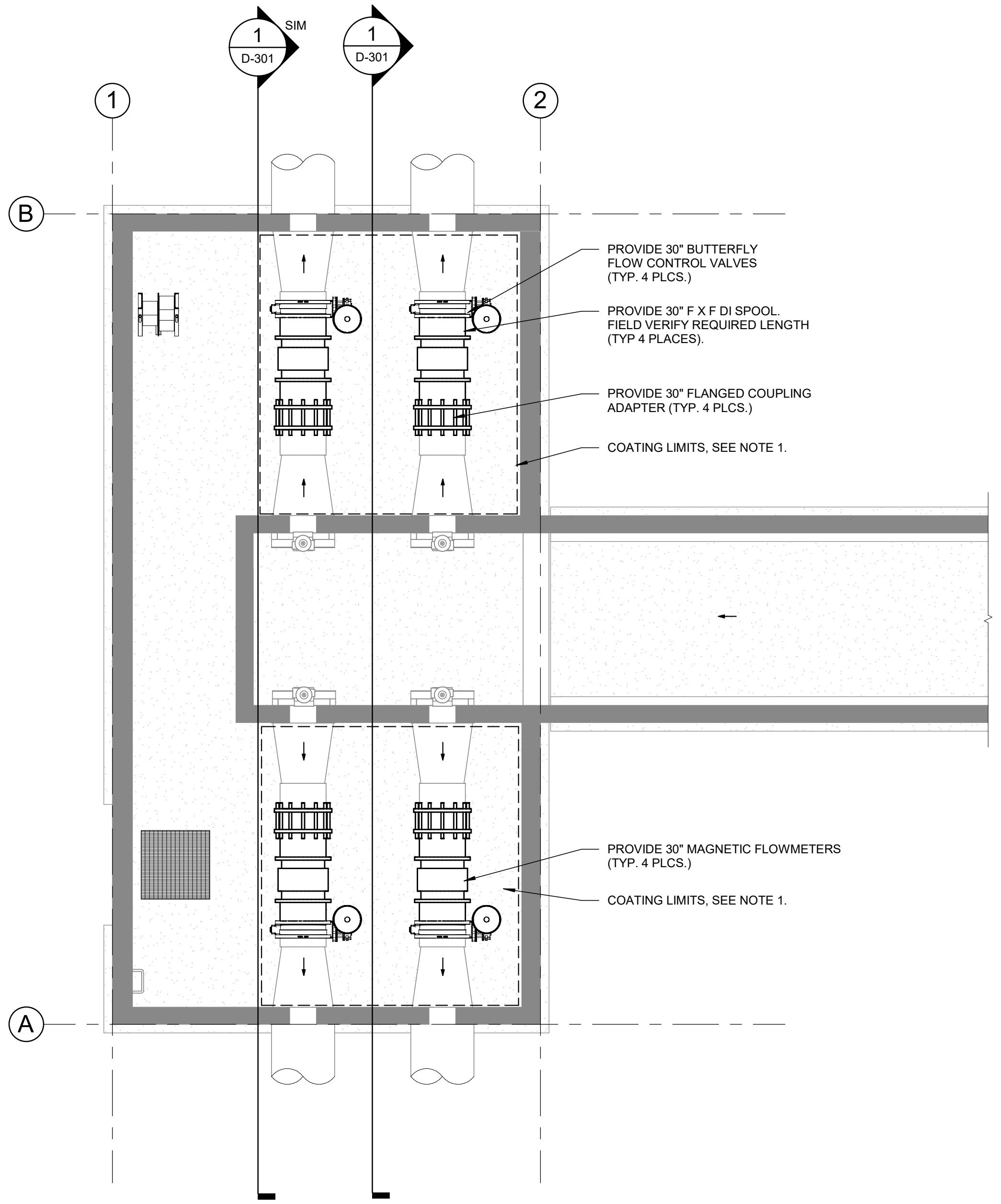


SEE NOTE 2.

4 RAS FLOW CONTROL STAIRS AND PLATFORM
D-101 NOT TO SCALE



RAS FLOW CONTROL VALVE ROOM PLAN
SCALE: 3/16" = 1'-0"



CLARIFIER INFLUENT FLOW CONTROL VAULT T/FDN PLAN
SCALE: 3/16" = 1'-0"

- NOTES:
1. PREPARE AND COAT EXISTING PIPING, PROPOSED PIPING, SUPPORTS AND VALVES PER SPECIFICATION SECTION 09 96 00. COATING LIMITS SHOWN ON PLANS. DO NOT COAT FLOW METER OR VALVE ACTUATOR.
 2. EXISTING STEEL STAIR AND ELEVATED PLATFORM NOT SHOWN. SEE PHOTO THIS SHEET AND STRUCTURAL SHEET. REMOVAL AND/OR TEMPORARY MODIFICATION OF STAIR AND PLATFORM WILL BE ALLOWED. STAIR, PLATFORM, GUARDRAIL AND ACCESSORIES ARE TO BE PREPPED AND COATED - SEE SPEC 09 96 00. SUBMIT REMOVAL/MODIFICATION PLAN AND PRE-CONSTRUCTION VIDEO FOR REVIEW PRIOR TO BEGINNING THE WORK. SEE PHOTO SHEET DX-101.

REV#	DATE	DESCRIPTION	BY	TSW
2	2023.07.07	ADDENDUM 1	TSW	
1	2023.06.24	ISSUED FOR BIDS	TSW	



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**CITY OF FLINT
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FLOW CONTROL
FLOOR PLANS**

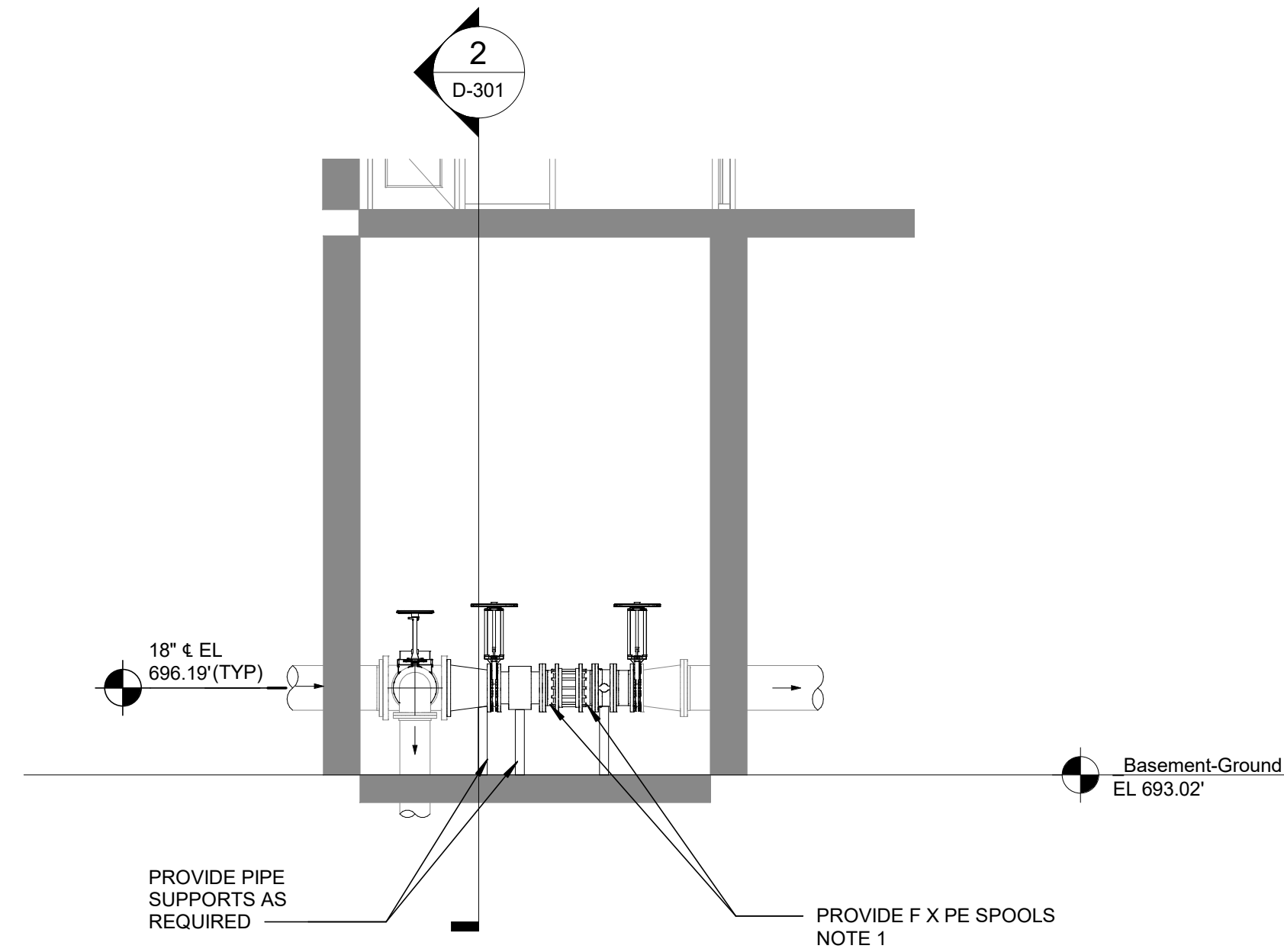
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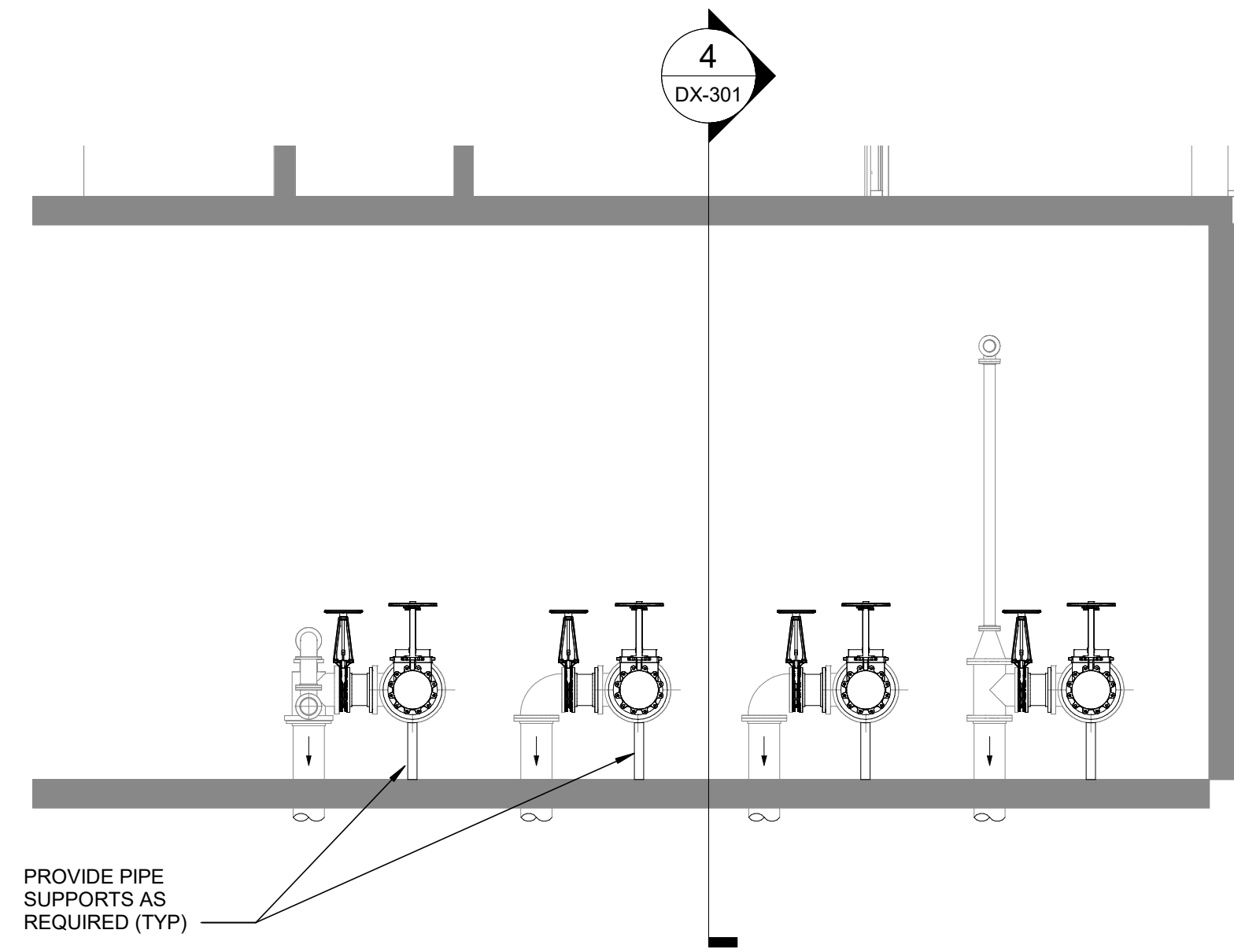
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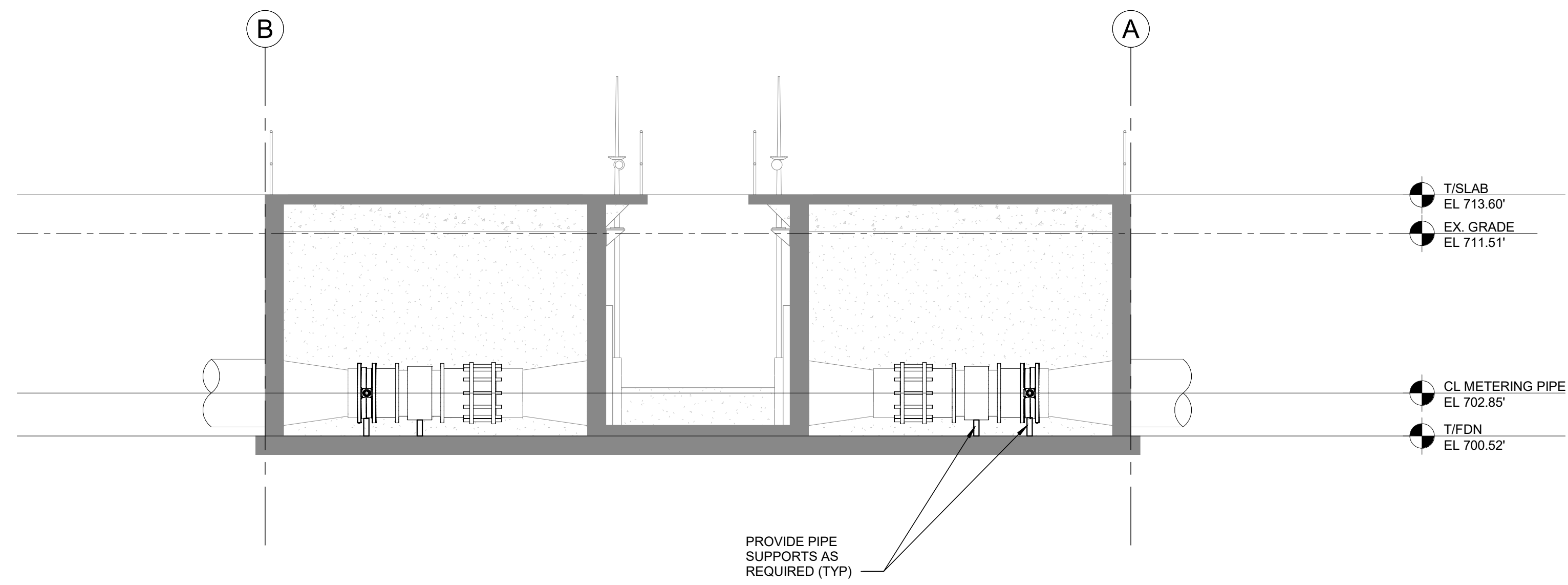
1. PREPARE AND COAT EXISTING PIPING, PROPOSED PIPING, SUPPORTS AND VALVES PER SPECIFICATION SECTION 09 96 00. COATING LIMITS SHOWN ON PLANS. DO NOT COAT FLOW METER OR VALVE ACTUATOR.
2. EXISTING STEEL STAIR, ELEVATED PLATFORM, AND CATWALK NOT SHOWN. SEE PHOTOS ON SHEETS D-101 AND SX-100. REMOVAL AND/OR TEMPORARY MODIFICATION OF STAIR AND PLATFORM WILL BE ALLOWED. STAIR, PLATFORM, GUARDRAIL, AND ACCESSORIES ARE TO BE PREPPED AND COATED - SEE SPEC 09 96 00. SUBMIT REMOVAL/MODIFICATION PLAN AND PRE-CONSTRUCTION VIDEO FOR REVIEW PRIOR TO BEGINNING THE WORK. SEE PHOTO SHEET DX-101.



3 MAIN SECTION
D-101 SCALE: 3/16" = 1'-0"



2 BRANCH SECTIONS
D-101 SCALE: 3/16" = 1'-0"



1 VAULT SECTION
D-101 SCALE: 3/16" = 1'-0"

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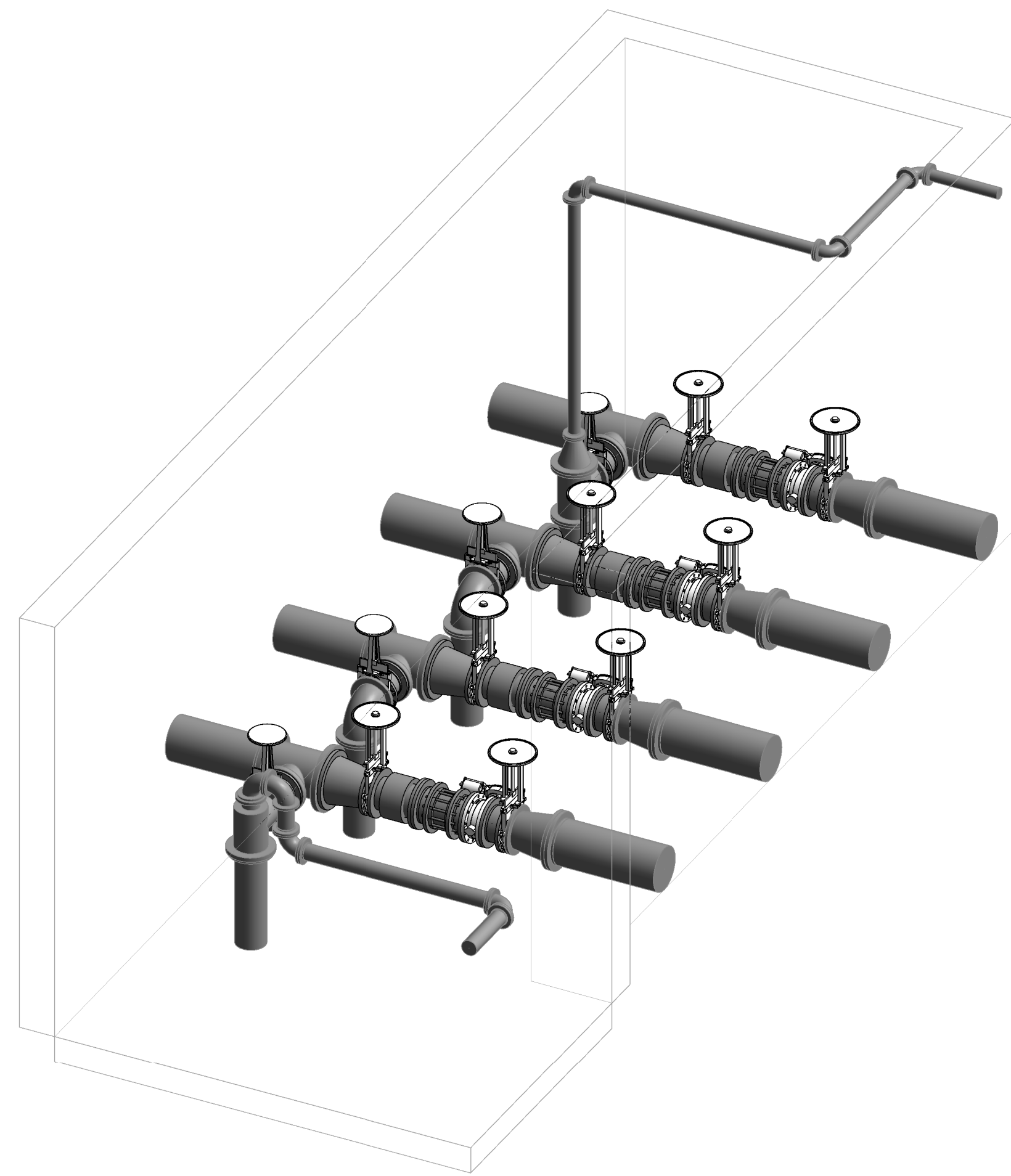
CITY OF FLINT
**WPCF BATTERY B SECONDARY CLARIFIER
FLOW CONTROL SECTIONS**

ISSUED FOR BIDS DATE: 2023.06.24 BY: TSW

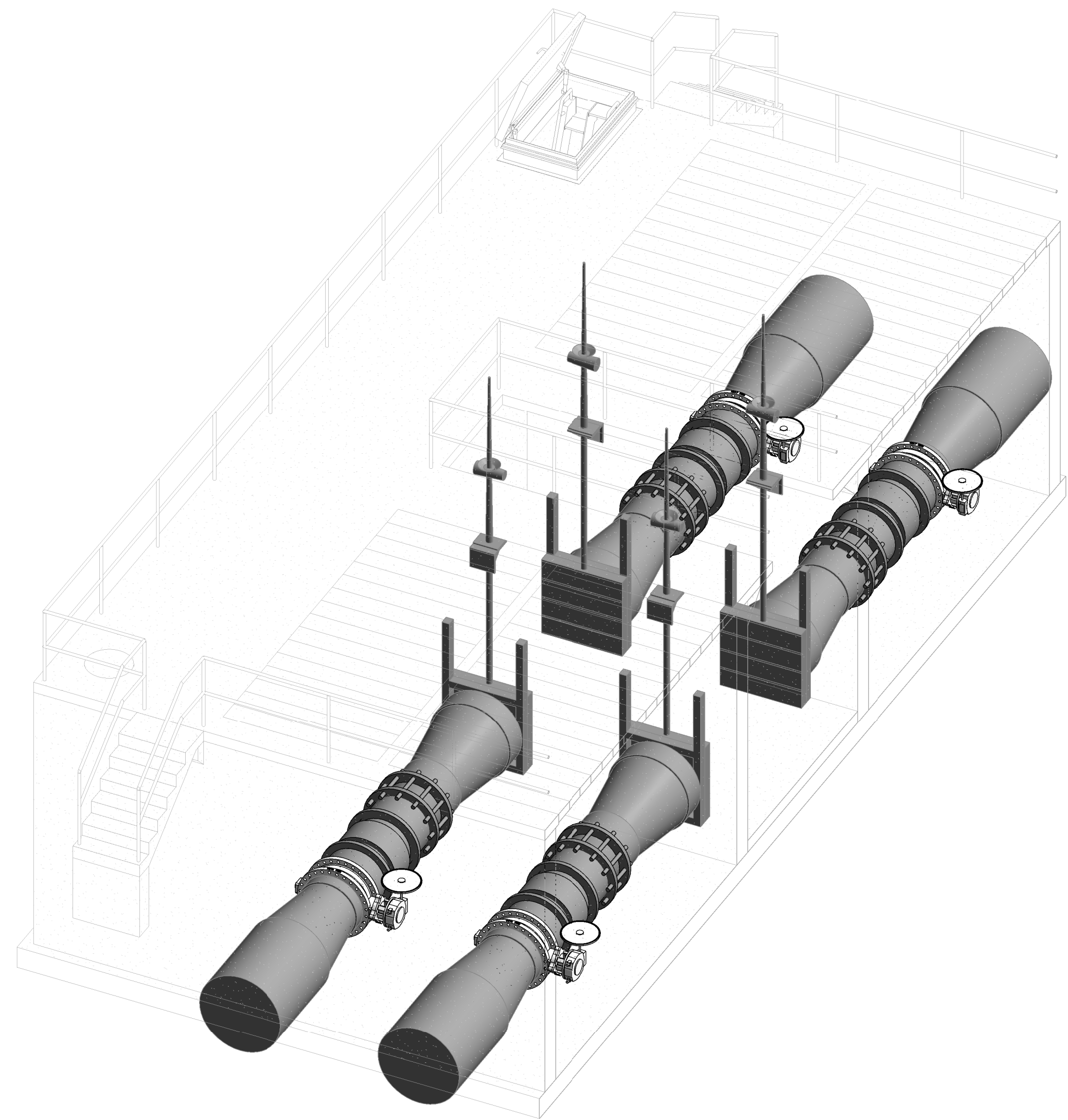
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SHEET D-301

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3D VALVE ROOM
 NOT TO SCALE




3D VAULT
 NOT TO SCALE

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CITY OF FLINT
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FLOW CONTROL
3D REPRESENTATIONS

ISSUED FOR: BIDS
 DATE: 2023.06.24
 BY: TSW

JOB NO:
COF1077-01F

SHEET
D-901

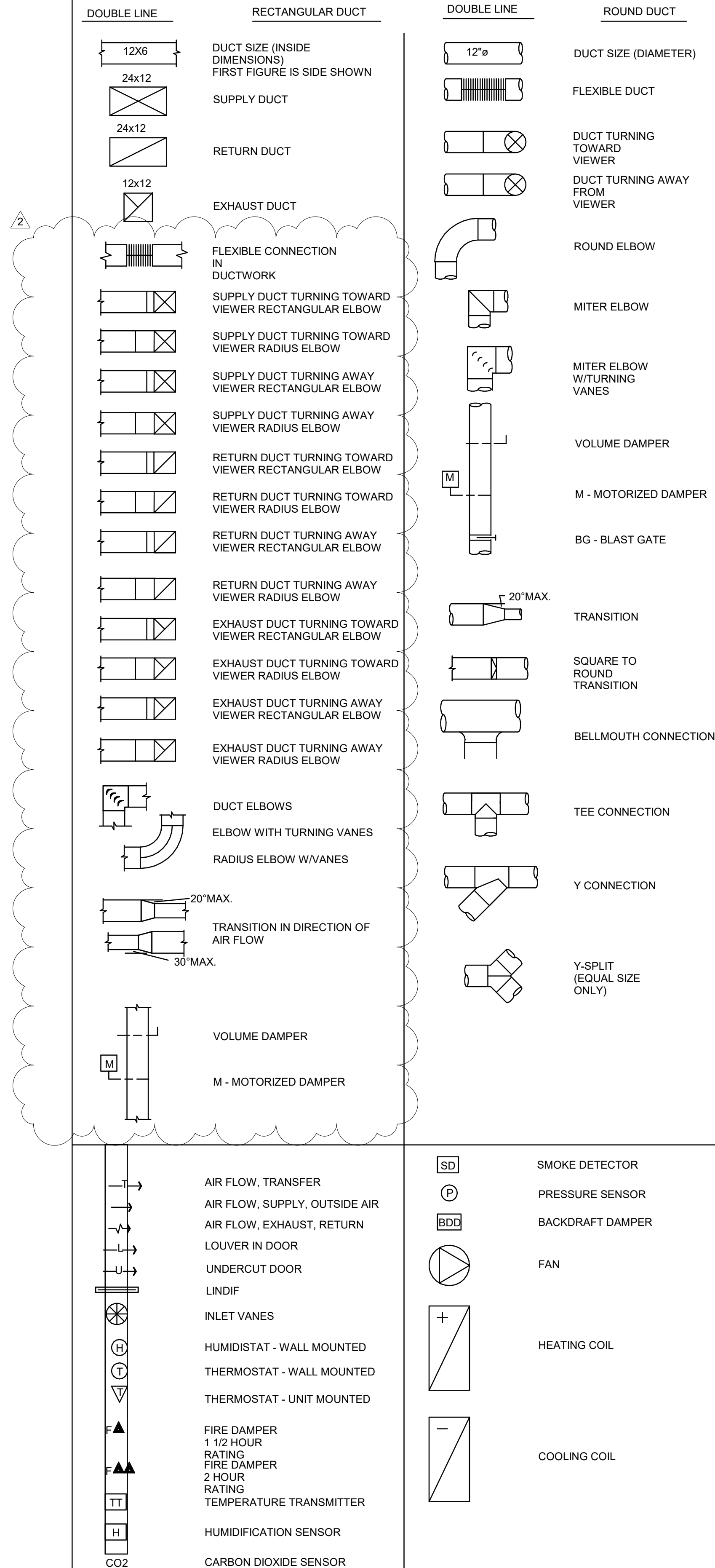
ABBREVIATIONS - HVAC

%RH	RELATIVE HUMIDITY
AC GAS	AIR CONDITIONING REFRIGERANT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
ACD	ACCESS DOOR
ACP	ACCESS PANEL
AD	AUTOMATIC DAMPER
AD/PR	ACCESS DOOR / PRESSURE RELIEF
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AP	ALARM PANEL
APD	AIR PRESSURE DROP
AUX	AUXILIARY
B	BOILER
BACNET	BUILDING AUTOMATION & CONTROLS NETWORK
BCU	BLOWER COIL UNIT
BF	BOOSTER FAN
BOD	BOTTOM OF DUCT
BOI	BOTTOM OF INSULATION
BOP	BOTTOM OF PIPE
BOT	BOTTOM
C	COMMON
CA	COMBUSTION AIR
CAV	CONSTANT AIR VOLUME
CC	CABINET CONVECTOR
CC	COOLING COIL
CD	CEILING DIFFUSER
CE	CEILING EXHAUSTER
CEF	CENTRIFUGAL FAN
CF	CABINET FAN
CLG	CEILING
CONC	CONCRETE
COND	CONDENSATE
CONT	CONTINUATION
CONTR	CONTRACTOR
CRD	CORROSION RESISTANT DUCT
CUH	CABINET UNIT HEATER
CV	CONTROL VALVE
CWF	CENTRIFUGAL WALL FAN
DB	DECIBEL
DF	DUCT FURNACE (GAS FIRED)
DG	DOOR GRILLE
DH	DOOR HEATER
DIA	DIAMETER
DN	DOWN
DSF	DESTRATIFICATION FAN
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBR	ELECTRIC BASEBOARD RADIATION
EC	ELECTRICAL CONTRACTOR
EDB	ENTERING DRY BULB
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EH	ELECTRIC HUMIDIFIER
EH	EXHAUST HOOD
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
EL	EXHAUST LOUVER
ELECT	ELECTRICAL
EP	EXHAUST PLENUM
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
F	FILTER
FAT	FINAL AIR TEMPERATURE
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FF	FORCE FLOW CONVECTOR
FFE	FINISHED FLOOR ELEVATION
FL	FLOOR
FM	FLOW METER
FO	FLOOR OPENING
FS	FREEZE STAT
FT	FINNED TUBE RADIATION
FVV	FAN POWERED VAV BOX
FW	FIRE WATER
GC	GENERAL CONTRACTOR
GUH	GAS UNIT HEATER
GV	GRAVITY VENTILATOR
GWH	GAS WATER HEATER
HC	HEATING COIL
HCU	HEATING & COOLING UNIT
HD	HEAT DETECTOR
HORIZ	HORIZONTAL
HRC	HEAT RECOVERY COIL
HRP	HEAT RECOVERY PUMP

ABBREVIATIONS - HVAC

HRC	HEAT RECOVERY COIL
HRP	HEAT RECOVERY PUMP
HRTU	HEAT RECOVERY UNIT
HTX	HEAT EXCHANGER
HUH	HYDRONIC UNIT HEATER
HUM	HUMIDIFIER
HV	HEATING AND VENTILATING UNIT
HVAC	HEATING, VENTILATING & AIR CONDITIONING UNIT
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IF	INLINE FAN
IH	INTAKE HOOD
KW	KILOWATT
LAT	LATENT
LDB	LEAVING DRY BULB
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MB	MIXING BOX
MC	MECHANICAL CONTRACTOR
MCC	MOTOR CONTROL CENTER
MID	MIDDLE
MIN	MINIMUM
MOD	MOTOR CONTROL DAMPER
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NG	NATURAL GAS
NGV	NATURAL GAS VENT
NIC	NOT IN CONTRACT
NK	NECK
NO	NORMALLY OPEN
NPW	NON-POTABLE WATER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAIL	OUTSIDE AIR INTAKE LOUVER
OAK	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
P	PUMP
PH	PENTHOUSE
PHC	PREHEAT COIL
PRV	PRESSURE REDUCING VALVE
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RAR	RETURN AIR REGISTER
RF	ROOF FAN
RF	RETURN FAN
RH	RELIEF HOOD
RV	ROOF VENTILATOR
SA	SUPPLY AIR
SAD	SUPPLY AIR DIFFUSER
SD	SMOKE DETECTOR
SDI	SMOKE DETECTOR IONIZATION
SF	SUPPLY FAN
SM	SHEET METAL
SP	STATIC PRESSURE
SPEC	SPECIFICATIONS
SQ	SQUARE
SR	SUPPLY REGISTER
SS	STAINLESS STEEL
SST	SATURATED SUCTION TEMPERATURE
SUH	STEAM UNIT HEATER
SUMPP	SUMP PUMP
TA	TRANSFER AIR
TAG	TRANSFER AIR GRILLE
TCC	TEMPERATURE CONTROL CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TD	TEMPERATURE DIFFERENCE
TEMP	TEMPERATURE
TOD	TOP OF DUCT
TOP	TOP OF PIPE
TOS	TOP OF STEEL
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
V	VENT
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VP	VELOCITY PRESSURE
VTR	VENT THROUGH ROOF
VU	VENTILATION UNIT
W	WIDTH
WCC	WATER COOLED CONDENSING UNIT
WCO	WALL CLEANOUT
WD	WALL DIFFUSER
WF	WALL FAN
WG	WALL GRILLE
WMS	WIRE MESH SCREEN
WO	WALL OPENING
WPD	WATER PRESSURE DROP

DUCTWORK LEGEND



GENERAL HVAC NOTES

A	REFER TO SPECIFICATION SECTIONS FOR SPECIFIC MATERIAL AND INSTALLATION DATA
B	COORDINATE THIS WORK WITH WORK BY OTHER CONTRACTORS
C	COORDINATE ALL WALL AND ROOF PENETRATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS
D	COORDINATE AIR DEVICE PLACEMENT WITH LIGHTS AND CEILINGS
E	MODIFICATIONS IN DUCT ROUTINGS MUST BE APPROVED BY OWNER'S REPRESENTATIVE
F	INSTALL VOLUME DAMPERS AT ALL AIR DEVICE BRANCH CONNECTIONS
G	COORDINATE WITH TEST AND BALANCE CONTRACTOR TO ENSURE PROPER PLACEMENT OF VOLUME DAMPERS
H	PROVIDE ACCESS DOORS AT ALL FIRE DAMPERS AND OUTSIDE AIR FLOW MEASURING STATIONS
J	DUCT ELBOWS: 1. RECTANGULAR DUCT ELBOWS MAY BE RADIUS OR MITERED AND SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE", FIGURE 4-2, "RECTANGULAR ELBOWS". 2. ROUND DUCT ELBOWS MAY VARY IN RADIUS-TO-DIAMETER RATIO, BUT MUST COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE", FIGURE 304, "ROUND DUCT ELBOWS". 3. REFER TO SPECIFICATION SECTION 18840 "DUCTWORK AND SHEET METAL SPECIALTIES" FOR MORE DETAIL
K	APPROXIMATE. SEE EQUIPMENT CERTIFIED DRAWINGS FOR EXACT DIMENSIONS
L	PROVIDE FIRE STOPPING AROUND ALL PENETRATIONS THROUGH FIRE RATED WALLS AND ROOFS
M	DUCTWORK SHALL BE STAINLESS STEEL, CONSTRUCTED PER LATEST EDITION OF THE SMACNA AND ASHRAE STANDARDS. ALL DUCTWORK JOINTS AND LONGITUDINAL SEAMS SHALL BE SEALED SMACNA CLASS "A". INSULATED, CLASS 1 FLEXIBLE DUCTWORK SHALL BE USED FOR CONNECTIONS FROM LOW AND MEDIUM PRESSURE TRUNK DUCTWORK TO ALL FAN TERMINAL UNITS AND DIFFUSERS: 1. PROVIDE END CAPS, AS REQUIRED, NOT SPECIFICALLY CALLED OUT ON DRAWINGS 2. ALL DUCT SIZES ARE IN INCHES
N	COORDINATE AND FIELD VERIFY LOCATION AND SIZES OF DUCTWORK. LOUVER AND DUCT ACCESSORIES WITH ACTUAL OPENINGS PROVIDED BY OTHERS
P	VERIFY ALL DIMENSIONS PRIOR TO FABRICATION OF PLENUMS, DUCTWORK, DUCT HANGERS/ SUPPORTS
Q	DENOTES EQUIPMENT, PIPE & DUCT AREAS OF DEMOLITION.
R	UNIT HEATERS TO BE INSTALLED 8'-0" A.F.F. UNLESS NOTED OTHERWISE.
S	ALL UNUSED PORTIONS OF LOUVERS FOR MECHANICAL EQUIPMENT OPENINGS SHALL BE BLOCKED-OFF USING INSULATED SHEET METAL PANELS UNLESS OTHERWISE INDICATED.
T	LINE ALL SUPPLY AND RETURN DUCT THE FIRST 15' FROM THE AIR HANDLER
U	COORDINATE LOCATION OF THERMOSTATS WITH LIGHT SWITCHES. LOCATE THERMOSTAT ON SAME WALL AS SWITCH.

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**CITY OF FLINT WPCF
 BATTERY B SECONDARY CLARIFIER FLOW
 CONTROL PROJECT
 HVAC GENERAL NOTES, SYMBOLS, AND
 ABBREVIATIONS**

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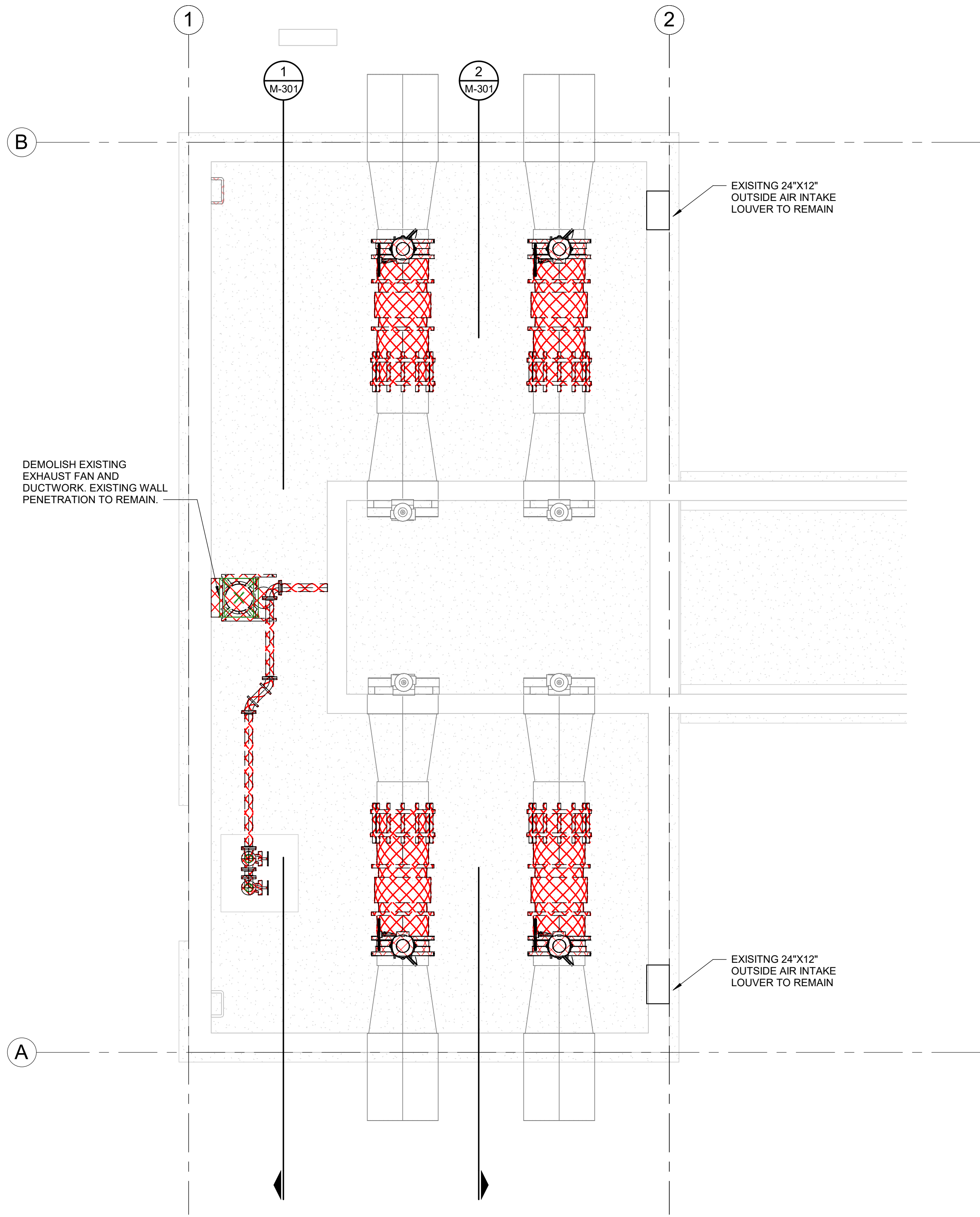
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1 HVAC DEMO PLAN
 MX-101 SCALE: 1/4" = 1'-0"



REV#	DATE	DESCRIPTION	BY
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CITY OF FLINT WPCF
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 CONTROL PROJECT
 MECHANICAL DEMOLITION PLAN

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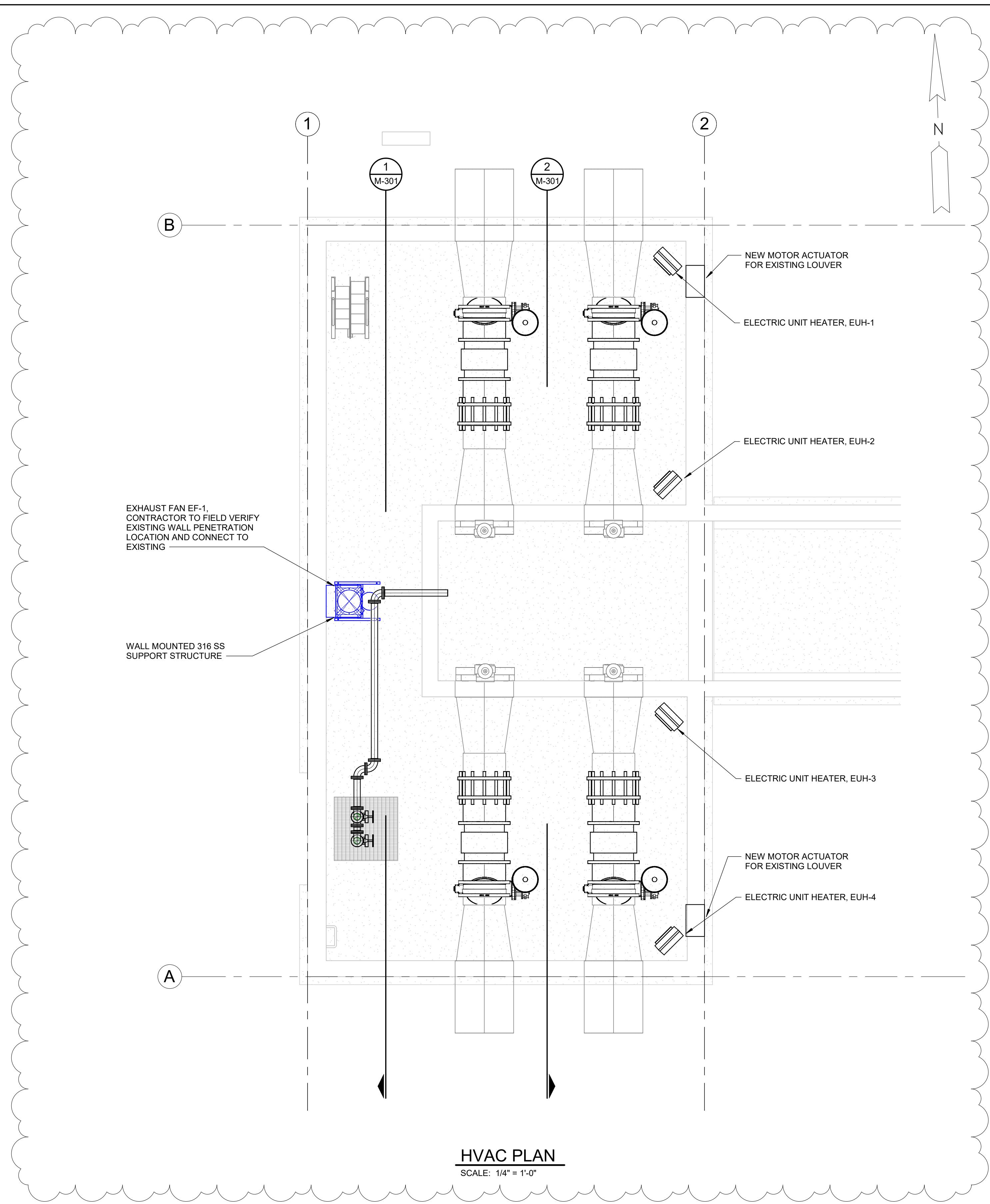
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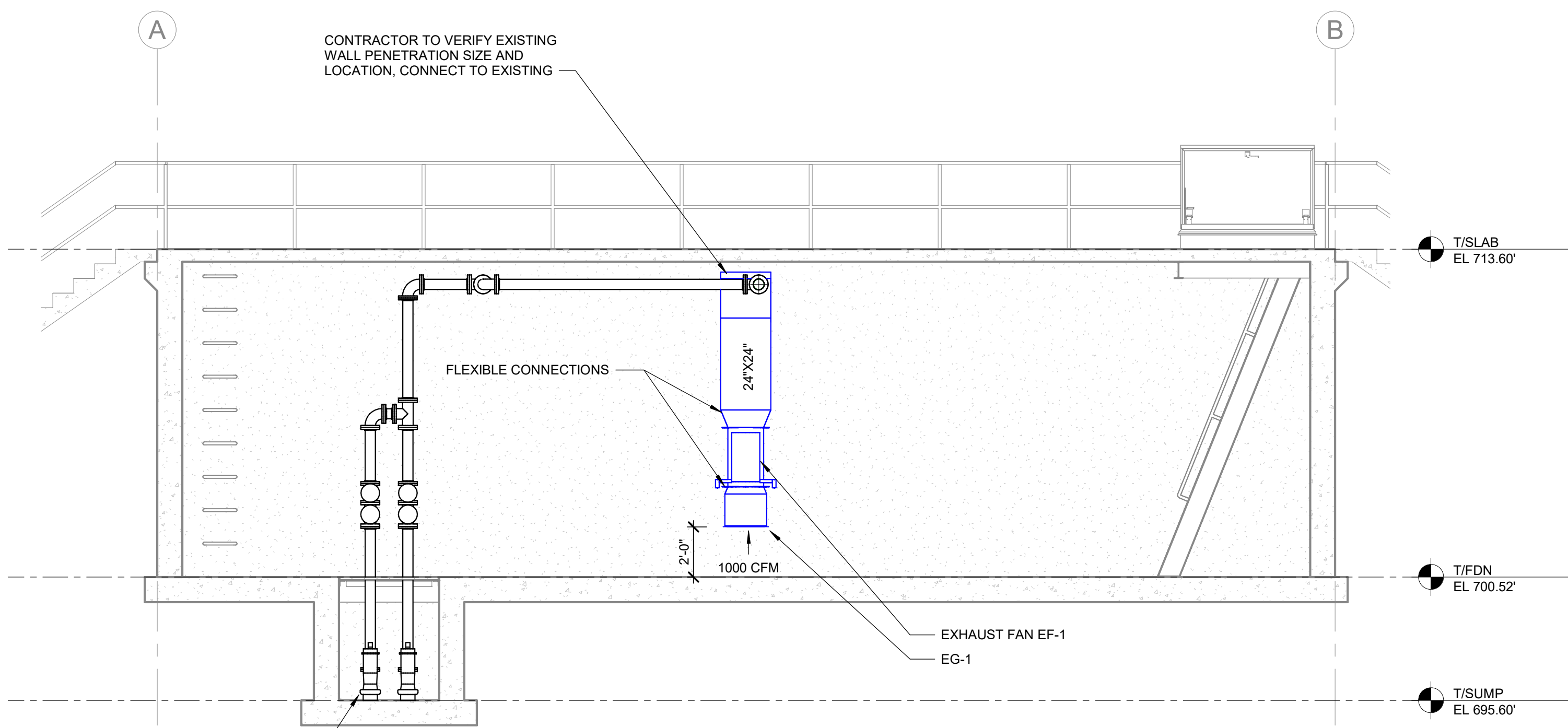
**CITY OF FLINT WPCF
BATTERY B SECONDARY CLARIFIER FLOW
CONTROL PROJECT
HVAC PLAN**

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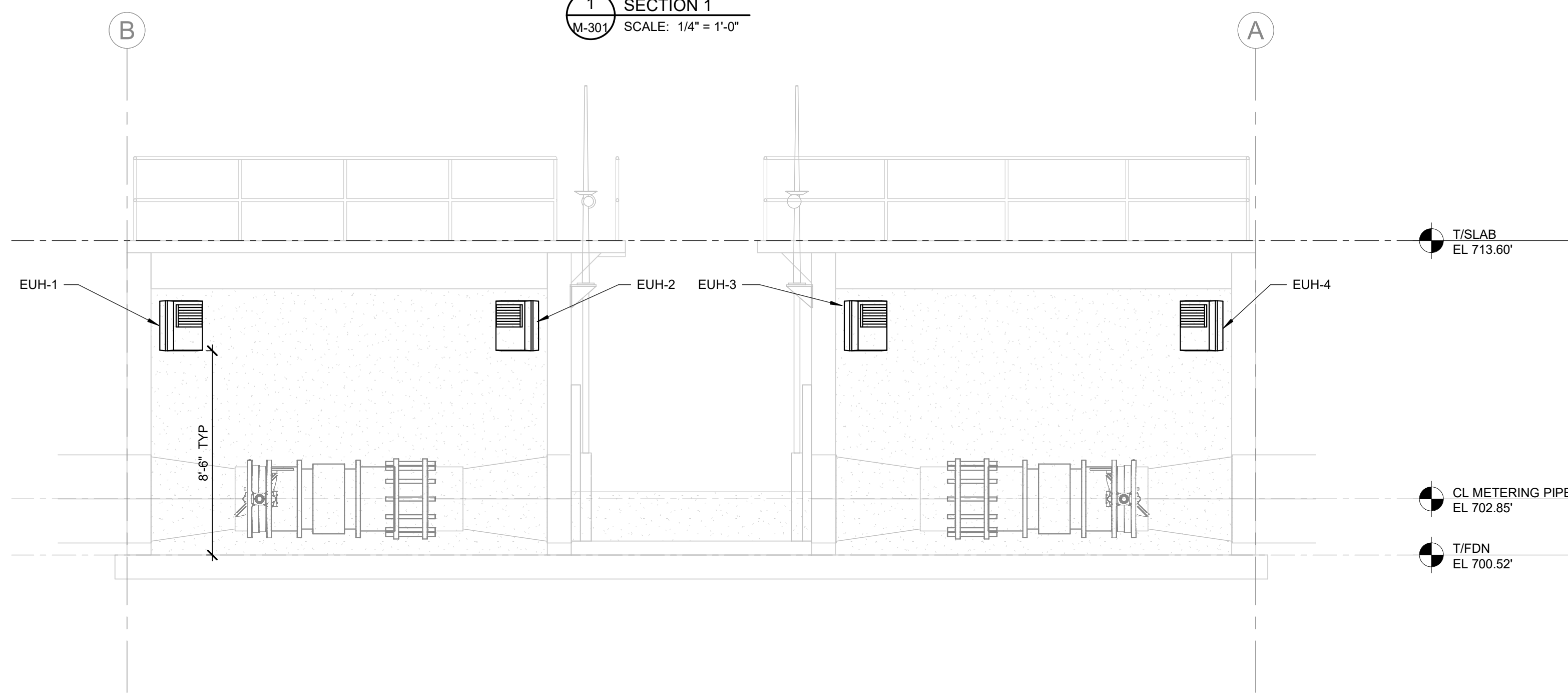
SHEET
M-101

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DUPLEX SUMP PUMP, SP-1 AND SP-2, SEE SHEET P-101

1 SECTION 1
M-301 SCALE: 1/4" = 1'-0"



2 SECTION 2
M-301 SCALE: 1/4" = 1'-0"

FAN SCHEDULE

TAG	QUANTITY	LOCATION	SERVICE	CFM	ESP (IN W.G.)	DRIVE	MOTOR	MANUFACTURER	MODEL	REMARKS
EF-1	1	FLOW CONTROL	EXHAUST	1000	0.7	BELT	0.5 HP 460V, 3 PHASE	GREENHECK	QEI-9	ALL

- REMARKS:
1. PROVIDE NEMA 4X DISCONNECT SWITCH PREWIRED
 2. PROVIDE INDUSTRIAL EPOXY COATING, GRAY
 3. ALUMINUM MOTOR COVER
 4. STAINLESS STEEL SHAFT
 5. ALUMINUM HOUSING
 6. TEFC PREMIUM EFFICIENCY MOTOR
 7. GRIP NOTCH BELTS
 8. ONE SPARE SET OF BELTS
 9. BEARING AND GREASE FITTING
 10. WIRING PIGTAIL
 11. SPRING ISOLATORS
 12. EXTENDED LUBE LINES
 13. 2 YEAR WARRANTY
 14. ALL STAINLESS STEEL FASTENERS
 15. AUTO BELT TENSIONER

AIR DISTRIBUTION SCHEDULE

TAG	DESCRIPTION	SIZE	MATERIAL	SS DAMPER	BORDER FRAME TYPE	MAX. PRESSURE DROP	MAX N.C.	MANUFACTURER	MODEL
EG-1	1/2" X 1/2" X 1/2" EGGCRATE TYPE EXHAUST AIR GRILLE	20" X 20"	316 SS	YES	DUCT MOUNT	0.10	30	TITUS	50R-SS

ELECTRICAL UNIT HEATER SCHEDULE

TAG	LOCATION	VOLTS/PHASE	HEATING	MANUFACTURER	REMARKS
EUH-1,2,3,4	FLOW CONTROL VAULT	480/3	10 KW (EACH)	MODINE	EXPLOSION PROOF

HEATING AND VENTILATING SEQUENCE

1. EF-1 AND EXISTING LOUVERS WILL PROVIDE 6 ACH PER HOUR WHEN OCCUPIED.
2. EF-1 IS INTERLOCKED WITH EXISTING MOTOR ACTUATED LOUVERS.
3. EF-1 SET TO AUTO: EF-1 AND EXISTING LOUVERS MOTOR ACTUATED DAMPERS OPEN, EF-1 ENERGIZES.
4. WHEN THE SPACE IS UNOCCUPIED, EF-1 WILL ENERGIZE WHEN THE TEMPERATURE IN THE ROOM REACHES 90 DEG F TO CIRCULATE AIR.
5. WHEN THE SPACE DROPS TO 55 DEG F, EUH-1, EUH-2, EUH-3 AND EUH-4 WILL ENERGIZE, PROVIDING HEATING.
6. EUH-1, EUH-2, EUH-3 AND EUH-4 WILL TURN OFF WHEN THE TEMPERATURE IN THE SPACE RISES TO 70 DEG F.

HEATING AND VENTILATING NOTES

1. CONTRACTOR TO SUBMIT DUCTWORK LAYOUT DRAWING.
2. CONTRACTOR TO SUBMIT PROPOSED CONNECTIONS TO EXISTING WALL PENETRATIONS.
3. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL COMPONENTS LISTED IN SCHEDULES AND DRAWINGS.

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CITY OF FLINT WPCF
BATTERY B SECONDARY CLARIFIER FLOW
CONTROL PROJECT
HVAC SECTIONS

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

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SHEET M-301

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CIRCUIT BREAKER (CB) - RATINGS AND NO. OF POLES AS SHOWN.	
30A, 3-POLE DISCONNECT SWITCH	
SEPARATELY MOUNTED COMBINATION MOTOR STARTER	
FUSED	
FUSED CUTOUT	
FUSIBLE SWITCH	
NON-FUSED SWITCH	
DISCONNECT OR DRAWOUT CONNECTION	
THERMAL OVERLOAD ELEMENT	
THERMAL OVERLOAD RELAY CONTACT	
480 VAC 3-PHASE MOTOR	
120 VAC 1-PHASE MOTOR	
120 VAC 1-PHASE MOTORIZED DAMPER	
TRANSFER SWITCH X - INDICATES TYPE: ATS - AUTOMATIC MTS - MANUAL	
GENERATOR	
TRANSFORMER Δ 3-PHASE, 3-WIRE DELTA CONNECTION Y 3-PHASE, 4-WIRE GROUNDED WYE CONNECTION	
CONTROL POWER TRANSFORMER (CPT)	
VOLTAGE TRANSFORMER (VT)	
CURRENT TRANSFORMER (CT)	
MOTOR STARTER	
CONTROL RELAY	
TIMING RELAY	
GROUND	
LIGHTNING ARRESTER	
LOW VOLTAGE SURGE PROTECTIVE DEVICE	
ELECTRICAL CONNECTION	
NO ELECTRICAL CONNECTION	
NORMALLY-OPEN CONTACT	
NORMALLY-CLOSED CONTACT	
NORMALLY-OPEN CONTACT FOR ON-DELAY TIMING RELAY	
NORMALLY OPEN CONTACT FOR OFF-DELAY TIMING RELAY	
NORMALLY-OPEN LIMIT SWITCH	
NORMALLY-CLOSED LIMIT SWITCH	
NORMALLY OPEN TEMPERATURE SWITCH; CLOSE ON RISING TEMPERATURE	
NORMALLY CLOSED TEMPERATURE SWITCH; OPEN ON RISING TEMPERATURE	
NORMALLY OPEN FLOW SWITCH; CLOSE ON INCREASING FLOW	
NORMALLY CLOSED FLOW SWITCH; OPEN ON INCREASING FLOW	
NORMALLY OPEN LEVEL SWITCH	
NORMALLY CLOSED LEVEL SWITCH	
NORMALLY OPEN PRESSURE SWITCH	
NORMALLY CLOSED PRESSURE SWITCH	
NORMALLY-OPEN PUSHBUTTON	
NORMALLY-CLOSED PUSHBUTTON	
TYPICAL SELECTOR SWITCH	
SEAL MOISTURE SENSOR	
TEMPERATURE SENSOR	
LOCAL CONTROL PANEL	
FIELD WIRING EXTERNAL TO CONTROL PANEL	
INTERLOCK	
TRANSFORMER	
JUNCTION BOX	
CIRCUIT CONTINUATION	
CONDUIT STUBBED OUT AND CAPPED	
CONDUIT TURNING UP	
CONDUIT TURNING DOWN	
HOME RUN TO PANEL, 2#12 + 1#12 GND IN 3/4" C UNLESS OTHERWISE NOTED	
ABOVE GROUND CONDUIT RUN	
UNDERGROUND CONDUIT RUN	
GROUND CABLE	
GROUND ROD	
FIELD DEVICES	
SELECTOR SWITCH	
PUSHBUTTON	
PRESSURE ELEMENT/PRESSURE INDICATING TRANSMITTER	
LEVEL ELEMENT	
LEVEL INDICATING TRANSMITTER	
FLOW ELEMENT	
FLOW INDICATING TRANSMITTER	
FLOW SWITCH	
FLOAT SWITCH	
LIMIT SWITCH	
SOLENOID VALVE	
GAS DETECTOR	
CONTROL STATION	
THERMOSTAT	
MOTORIZED DAMPER	
PRESSURE SWITCH	
SINGLE DATA	
SINGLE TELEPHONE	
DOUBLE DATA / VOIP	
FLOOR MOUNTED DATA	
WELDER RECEPTACLE	
DUPLEX RECEPTACLE	
DUPLEX RECEPTACLE GFCI	
QUAD-DUPLEX RECEPTACLE	
SIMPLEX RECEPTACLE	
FLOOR MOUNTED RECEPTACLE	
X - INDICATES TYPE: GFCI - GROUND FAULT CIRCUIT INTERRUPTER	
INDICATING LIGHT	
PUSH-TO-TEST PILOT LIGHT	
X INDICATES LENS COLOR: R - RED Y - YELLOW G - GREEN W - WHITE B - BLUE A - AMBER	
LIGHTING	
PHOTOCELL	
CEILING/PENDANT-MOUNTED LUMINAIRE	
WALL-MOUNTED LUMINAIRE	
CEILING/PENDANT-MOUNTED LIGHT FIXTURE	
EMERGENCY LIGHT FIXTURE	
EMERGENCY LIGHT FIXTURE	
WALL MOUNTED EXIT/EMERGENCY LIGHT	
DOUBLE-FACED CEILING OR WALL-MOUNTED EXIT LIGHT; DIRECTIONAL ARROWS (IF REQUIRED) AS INDICATED ON PLANS	
SINGLE-FACED CEILING OR WALL-MOUNTED EXIT LIGHT; DIRECTIONAL ARROWS (IF REQUIRED) AS INDICATED ON PLANS	
AREA OR ROADWAY LIGHT - POLE-MOUNTED	
X - INDICATES FIXTURE TYPE PER LIGHTING FIXTURE SCHEDULE OR DETAILS Y - SWITCH CONTROL	
TOGGLE SWITCH	
X - INDICATES TYPE: NONE - SINGLE POLE 3 - THREE-WAY 4 - FOUR-WAY HP - HORSEPOWER RATED K - KEY SWITCH P - PILOT LIGHT L - LIGHTED HANDLE TE - MANUAL MOTOR STARTER WITH THERMAL ELEMENT OS - OCCUPANCY SENSOR DM - DIMMABLE	
PANELBOARD (LESS THAN 250V)	
PANELBOARD (250V TO 600V)	
ELECTRICAL EQUIPMENT ENCLASURE, AS INDICATED ON PLANS	
OCCUPANCY SENSOR CEILING MOUNTED	
COMMUNICATION	
CELL PHONE REPEATER	
OUTDOORS ANTENNA	
END OF LINE RESISTANCE PANEL	
FIRE ALARM	
FIRE ALARM ANNUNCIATOR	
FIRE ALARM CONTROL PANEL	
FIRE ALARM ANNUNCIATOR PANEL	
FIRE ALARM MANUAL STATION, MH=4'-0" AFF UNO	
FIRE ALARM CONTACT, TAMPER SWITCH	
FIRE ALARM CONTACT, TAMPER SWITCH INSIDE KNOX KEYBOX	
FIRE ALARM SMOKE DETECTOR, CEILING MOUNTED	
X - INDICATES TYPE: I - IONIZATION TYPE P - PHOTOELECTRIC TYPE	
FIRE ALARM ADDRESSABLE DUCT TYPE SMOKE DETECTOR, MOUNTED ON DUCT	
FIRE ALARM HEAT DETECTOR, CEILING MOUNTED	
FIRE ALARM BELL WITH PROTECTIVE CAGE, MH=7'-6" AFG UNO	
FIRE ALARM SPEAKER, MH=10'-0" AFF UNO	
FIRE ALARM STROBE, MH=6'-8" AFF UNO	
FIRE ALARM BELL AND FLASHING LIGHT COMBINATION UNIT, MH=7'-6" AFG UNO	
FIRE ALARM SPEAKER WITH STROBE, MH=6'-8" AFF UNO	
X - INDICATES TYPE: NONE - GENERAL ALARM DEVICE F - FIRE ALARM DEVICE	
INTERFACE UNIT, MH=4'-0" AFF UNO	
INTERFACE UNIT, CEILING MOUNTED UNO	
NOTES: 1. STANDARD ELECTRICAL LEGEND SHEET. NOT ALL SYMBOLS MAY BE USED ON THIS PROJECT.	

REV#	DATE	ISSUED FOR	DESCRIPTION
2	2023.07.06	ADDENDUM 1	
1	2023.06.24	ISSUED FOR BIDS	



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BATTERY B SECONDARY CLARIFIER FLOW CONTROL

ELECTRICAL SYMBOLS AND ABBREVIATIONS

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

JOB NO.
COF1077-01F
SHEET

E-001

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GENERAL ELECTRICAL NOTES:

(APPLY TO ALL DRAWINGS)

- 1. THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE FIELD CONDITIONS AND THE EXISTING ELECTRICAL INSTALLATION AND UTILITIES PRIOR TO SUBMITTING HIS BID.
2. OTHER PROJECTS ARE, OR MAY BE, UNDER CONSTRUCTION AT THIS SITE, AND THIS CONTRACTOR SHALL COORDINATE WITH THEM SO AS NOT TO DELAY THEIR SCHEDULES OR IMPEDE THEIR WORK.
3. COORDINATE ALL NEW ELECTRICAL UNDERGROUND WORK WITH NEW AND EXISTING UNDERGROUND UTILITIES BEFORE INSTALLATION.
4. ALL EMPTY CONDUITS SHALL BE PROVIDED WITH A FISH LINE.
5. ALL UNDERGROUND CONDUITS SHALL BE P.V.C., EXCEPT WHERE ENTERING MANHOLES, HANDHOLES, BUILDINGS, LIGHT POLE BASES, AND TRANSFORMER PAD. UNDERGROUND CONDUITS AND/OR DUCTS SHALL BE RIGID GALVANIZED ALUMINUM WITHIN 5'-0" OF THE STRUCTURE. ALL CONDUITS AND/OR DUCTS UNDER BUILDINGS SHALL BE RIGID GALVANIZED STEEL.
6. PROVIDE WATERTIGHT HUBS AT CONDUIT ENTRANCES TO ALL ENCLOSURES MOUNTED OUTDOORS AND AT ALL WATERTIGHT (NEMA TYPE 4 & 4X) ENCLOSURES MOUNTED INDOORS. ALL NEMA TYPE 4 & 4X ENCLOSURES, EXCEPT THOSE IN CORROSIVE AREAS, SHALL BE EQUIPPED WITH A DRAIN/BREATHER FITTING.
7. EXPANSION OR EXPANSION/DEFLECTION FITTINGS SHALL BE PROVIDED FOR ALL CONDUITS CROSSING BUILDING EXPANSION JOINTS.
8. ALL POWER FEEDERS SHALL BE RUN IN INDIVIDUAL CONDUITS, FROM SOURCE TO LOAD, AS INDICATED IN SCHEDULES, WIRING DIAGRAMS, OR BY HOME RUNS ON THE PLANS.
9. ALL CONDUITS SHALL BE ROUTED TO AVOID OPENINGS IN FLOORS, ROOFS, AND WALLS. LADDERS UP WALLS SHALL NOT BE CROSSED BY EXPOSED CONDUIT RUNS. PROVIDE THE MINIMUM CLEAR SPACE REQUIRED BY ALL GOVERNING CODES BETWEEN HANDRAILS AND ALL ELECTRICAL ENCLOSURES AND RACEWAYS, WHICH IN NO CASE SHALL BE LESS THAN 1 1/2" CLEAR.
10. ALL CONDUITS FOR 480VAC POWER FEEDERS, BRANCH CIRCUITS, AND INSTRUMENTATION SHALL BE RUN EXPOSED OVERHEAD, UNLESS SHOWN OTHERWISE ON THE PLANS.
11. ALL ELECTRICAL FLOOR MOUNTED EQUIPMENT SUCH AS MOTORS, CONTROL PANELS, AND METALLIC SUPPORT RACKS SHALL HAVE A #2 (UNLESS OTHERWISE NOTED) BARE GROUND CONDUCTOR TIE BETWEEN THE MOTOR FRAME, ENCLOSURE, OR SUPPORT LEG AND THE BUILDING GROUND SYSTEM.
12. GROUND CONDUCTOR SPLICING AND BONDING SHALL BE ACCOMPLISHED BY THE USE OF EXOTHERMIC WELDING.
13. PROVIDE A GREEN GROUND CONDUCTOR IN ALL SYSTEMS CONDUITS, EXCEPT INSTRUMENT SIGNAL AND ALARM CONDUITS, INCLUDING BRANCH CIRCUIT CONDUITS FOR LIGHTING AND RECEPTACLES. GROUND CONDUCTOR SIZING SHALL BE PER N.E.C. TABLE 250.122 (MINIMUM) WHERE NOT SIZED ON THE DRAWINGS.
14. COORDINATE EXACT LOCATION AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES AND ELECTRICAL DEVICES WITH MECHANICAL PIPING AND DUCTWORK BEFORE INSTALLATION.
15. ALL THREADED MECHANICAL CONNECTIONS ON ELECTRICAL EQUIPMENT (CONDUIT, COUPLINGS, JUNCTION BOXES, ETC.) INSTALLED WITHIN WET AREAS, HAZARDOUS AREAS, OR OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.
16. ALL WALL AND RACK MOUNTED DISCONNECT SWITCHES, CONTROL PANELS, AND LIGHTING PANELS SHALL BE 5'-6" TO TOP, ABOVE FINISHED FLOOR.
17. ALL WEATHERPROOF (W.P.) DUPLEX RECEPTACLES SHALL BE INSTALLED SUCH THAT COVER DOORS OPEN UPWARD.
18. ALL EXPOSED METALLIC ELECTRICAL EQUIPMENT, PULL BOXES, JUNCTION BOXES, CONDUITS, SUPPORTS, BRACKETS, HANGERS, NUTS, BOLTS, ETC. LOCATED WITHIN HAZARDOUS OR CORROSIVE AREAS, SHALL BE P.V.C. COATED WITH 40 MILS (MIN.) COVERING. WHERE FACTORY P.V.C. COATING IS NOT AVAILABLE OR WHERE P.V.C. COATING WOULD VOID U.L.LISTING OR LABELING, FACTORY OR FIELD COATING WITH A CORROSION RESISTANT, EPOXY PAINT SHALL BE PROVIDED.
19. ALL PENETRATIONS OF FIRE WALLS OR FLOORS SHALL BE SEALED AFTER INSTALLATION OF CONDUIT WITH A FIRE RETARDANT SEALANT THAT IS RATED THE SAME AS THE FIRE WALL OR FLOOR.
20. ALL CONDUITS AND/OR SLEEVES THAT PASS THROUGH WALLS OR FLOORS SEPARATING HAZARDOUS AREAS FROM NON-HAZARDOUS AREAS SHALL BE SEALED GAS-TIGHT WITH NON-METALLIC, NON SHRINK GROUT AFTER CONDUIT IS INSTALLED.
21. ALL WALL MOUNTED ELECTRICAL EQUIPMENT SHALL HAVE A 1/2" (MINIMUM) AIR SPACE BETWEEN WALL AND EQUIPMENT (PROVIDE NON-CORROSIVE SPACERS OR BRACKETS AS REQUIRED).
22. FOR ALL WALL MOUNTED EQUIPMENT WITHIN HAZARDOUS OR CORROSIVE AREAS USE STAINLESS STEEL ANCHORS AND 1/2" STAINLESS STEEL SPACERS ON STAINLESS STEEL ANCHOR BOLTS TO PROVIDE A 1/2" AIR SPACE BETWEEN THE EQUIPMENT AND THE WALL.
23. ALL FLOOR OR PAD MOUNTED ELECTRICAL ENCLOSURES SHALL BE SPACED 1" OUT FROM EXTERIOR WALLS (MINIMUM).
24. FOR ALL 120 VAC LIGHTING AND RECEPTACLE CIRCUITS, RUN 2-#12 (MINIMUM) + #12 GRD., 3/4" C. TO THE LIGHTING PANELBOARD INDICATED, UNLESS NOTED OTHERWISE. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR BRANCH CIRCUIT WIRING.

- 25. FOR EACH INTRINSICALLY SAFE CIRCUIT, RUN 2-#14 AWG (MINIMUM), OR 1 PAIR-#18 FOIL SHIELDED, IN 3/4" R.G.S. (MINIMUM). INTRINSICALLY SAFE (I.S.) CIRCUITS MAY BE RUN WITH OTHER I.S. CIRCUITS IN THE I.S. CONDUIT SYSTEM, BUT SHALL NOT BE RUN IN THE SAME CONDUIT, RACEWAY, WIRE DUCT, ETC., WITH ANY NON-INTRINSICALLY SAFE CIRCUITS, NOR SHALL I.S. CONDUCTORS COME IN CONTACT IN ANY FASHION WITH NON-INTRINSICALLY SAFE CONDUCTORS. I.S. CIRCUIT INSTALLATION SHALL MEET ALL REQUIREMENTS OF THE LATEST REVISIONS OF N.E.C. ARTICLE 504, ANS/ISA RP-12.06, AND ANS/UL 913.
26. 4-20 MA, INSTRUMENT SIGNAL AND DC TOTALIZED PULSE CABLES, MAY BE RUN WITH OTHER INSTRUMENT SIGNAL CABLES IN THE INSTRUMENT CONDUIT SYSTEM. INSTRUMENT SIGNALS SHALL NOT BE RUN IN THE SAME CONDUIT WITH ANY OTHER TYPE OF ALARM, CONTROL AND/OR POWER WIRING.
27. DC ALARM WIRING SHALL BE #14 AWG AND MAY BE RUN WITH OTHER ALARM WIRING IN THE ALARM CONDUIT SYSTEM. ALARM WIRING SHALL NOT BE RUN IN THE SAME CONDUIT WITH ANY OTHER TYPE INSTRUMENT SIGNAL, CONTROL, OR POWER WIRING, UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
28. IN AREAS WHERE ELECTRICAL WORK DISTURBS EXISTING SOG, GROUND SHALL BE REGRADED AS REQUIRED AND SOG SHALL BE REPAIRED OR REPLACED, AS REQUIRED, TO RETURN THE SITE TO A CONDITION MEETING OR EXCEEDING THAT PRIOR TO THE BEGINNING OF WORK.
29. ALL SALVAGED MATERIALS SHALL BE TURNED OVER TO THE OWNER OR DISPOSED OF AS DIRECTED BY THE OWNER.

DEMOLITION NOTES:

(APPLIES TO ALL DRAWINGS WHERE APPLICABLE)

- 1. THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE FIELD CONDITIONS AND THE EXISTING ELECTRICAL INSTALLATION PRIOR TO SUBMITTING A BID.
2. ALL DEMOLITION WORK SHALL BE COORDINATED WITH THE OWNER.
3. ALL ELECTRICAL DEMOLITION WORK SHALL INCLUDE REMOVING OF EXISTING LIGHTING FIXTURES, DISCONNECT SWITCHES, WIRE, CONDUIT, BOXES, ETC., AS INDICATED ON THE DRAWINGS AND SHALL BE BY THIS CONTRACTOR.
4. REMOVE ALL CONDUIT, WIRE, HANGERS, CLAMPS, ETC. THAT ARE NOT BEING RE-USED UNLESS CONCEALED ABOVE CEILINGS OR IN WALLS, WHICH MAY BE ABANDONED AND LEFT IN PLACE. CONDUIT IN FLOOR SLAB SHALL BE CUT FLUSH WITH SLAB AND PLUGHED WITH NON-SHRINK GROUT.
5. REMOVE ALL WIRE IN EXISTING CONCEALED ABANDONED CIRCUITS, EXISTING CONCEALED CONDUITS (IF APPLICABLE) MAY BE REUSED FOR NEW WIRING.
6. EXISTING CONDUITS AND BRANCH CIRCUIT WIRING MAY BE RE-USED WHERE APPLICABLE. IF CONDUIT AND WIRING IS NOT RE-USED IT SHALL BE REMOVED.
7. ALL OPENING CREATED BY REMOVAL OF CONDUITS THROUGH EXISTING WALLS OR FLOORS SHALL BE SEALED WATER TIGHT TO MATCH EXISTING.
8. REVISE ALL EXISTING LIGHTING PANEL DIRECTORIES AND MCC NAMEPLATES TO REFLECT ALL REVISIONS TO BRANCH CIRCUIT BREAKERS IN THE EXISTING PANELS AND MCC'S.
9. VERIFY REMOVAL OF ALL EXISTING POWER AND CONTROL WIRING WITH THE OWNER PRIOR TO START OF DEMOLITION WORK.
10. ALL SALVAGE ELECTRICAL EQUIPMENT SHALL BECOME THE PROPERTY OF THE OWNER AND SHALL BE STORED AT AN ON SITE LOCATION AS DIRECTED BY THE OWNER.
11. ALL EXISTING PANELBOARDS, LIGHTING FIXTURES, WIRING DEVICES, TELEPHONE OUTLETS, ETC., SHALL REMAIN IN THEIR EXISTING LOCATIONS, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
12. REMOVE EQUIPMENT AS SHOWN, INCLUDING ALL ASSOCIATED CONDUIT AND WIRE.
13. ALL ELECTRICAL EQUIPMENT WITHIN THE EXISTING CLARIFIER VAULT SHALL BE REMOVED (CONDUIT, WIRE, FLOAT SWITCHES, LIGHTS CONTROL PANELS, FLOW METERS AND ETC.).
14. ALL INTERRUPTIONS OF POWER (IF REQUIRED) FOR DISCONNECTING OR CONNECTIONS OF POWER FOR THE NEW EQUIPMENT INSTALLATION SHALL BE AUTHORIZED BY THE OWNER.

ELECTRICAL ABBREVIATIONS LIST

Table with multiple columns listing electrical abbreviations and their meanings. Includes terms like AMPERE, AUTO, OR; HEATER; PAN-TILT-ZOOM POWER; QUANTITY; REMOTE OR RED RIGID ALUMINUM CONDUIT; RECEPTACLE INSTRUMENT INPUT/OUTPUT ISOLATION JUNCTION BOX JUNCTION THOUSAND AMPERES THOUSAND AMPERES INTERRUPTING CAPACITY THOUSAND CIRCULAR MILS KILOVOLT AMPERE KILOWATT LOCAL LOCAL CONTROL PANEL LOCAL CONTROL STATION LOCAL LOCAL-OFF-REMOTE LOCKOUT STOP PUSHBUTTON LIGHTING PANEL LOCKED ROTOR AMPS LEVEL SWITCH LEVEL TRANSMITTER LIGHTING LIGHTS LOW VOLTAGE MOTOR CONTACTOR COIL MILLIAMPERE MOTOR CONTROL CENTER THOUSAND CIRCULAR MILS MOTOR CIRCUIT PROTECTOR MANUFACTURER METAL HALIDE, MOUNTING HEIGHT OR MANHOLE MAIN LUGS ONLY MOTOR OPERATED VALVE MINI-POWER ZONE MOTOR STARTER MOTOR MANUAL TRANSFER SWITCH MEDIUM VOLTAGE NEUTRAL NOT APPLICABLE NORMALLY CLOSED NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION NON-FUSIBLE NOT IN CONTRACT NIGHT LIGHT NORMALLY OPEN NAMEPLATE NOT TO SCALE OPEN OR OFF OVERLOAD ORANGE POLE PUBLIC ADDRESS PUSHBUTTON OR PULLBOX PHOTOCELL POWER FACTOR PHASE PILOT LIGHT PROGRAMMABLE LOGIC CONTROLLER PANEL PUMP POWER PANEL OR PROCESSOR PANEL POSITION POTENTIAL PAIR PRIMARY PRESSURE SWITCH OR POWER SUPPLY POTENTIAL TRANSFORMER OR PRESSURE CENTER LINE PLATE

Table with columns: TSW, TSW, TSW, ADDENDUM 1, ISSUED FOR BIDS, DATE, REV#



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BATTERY B SECONDARY CLARIFIER FLOW CONTROL GENERAL NOTES AND ABBREVIATIONS

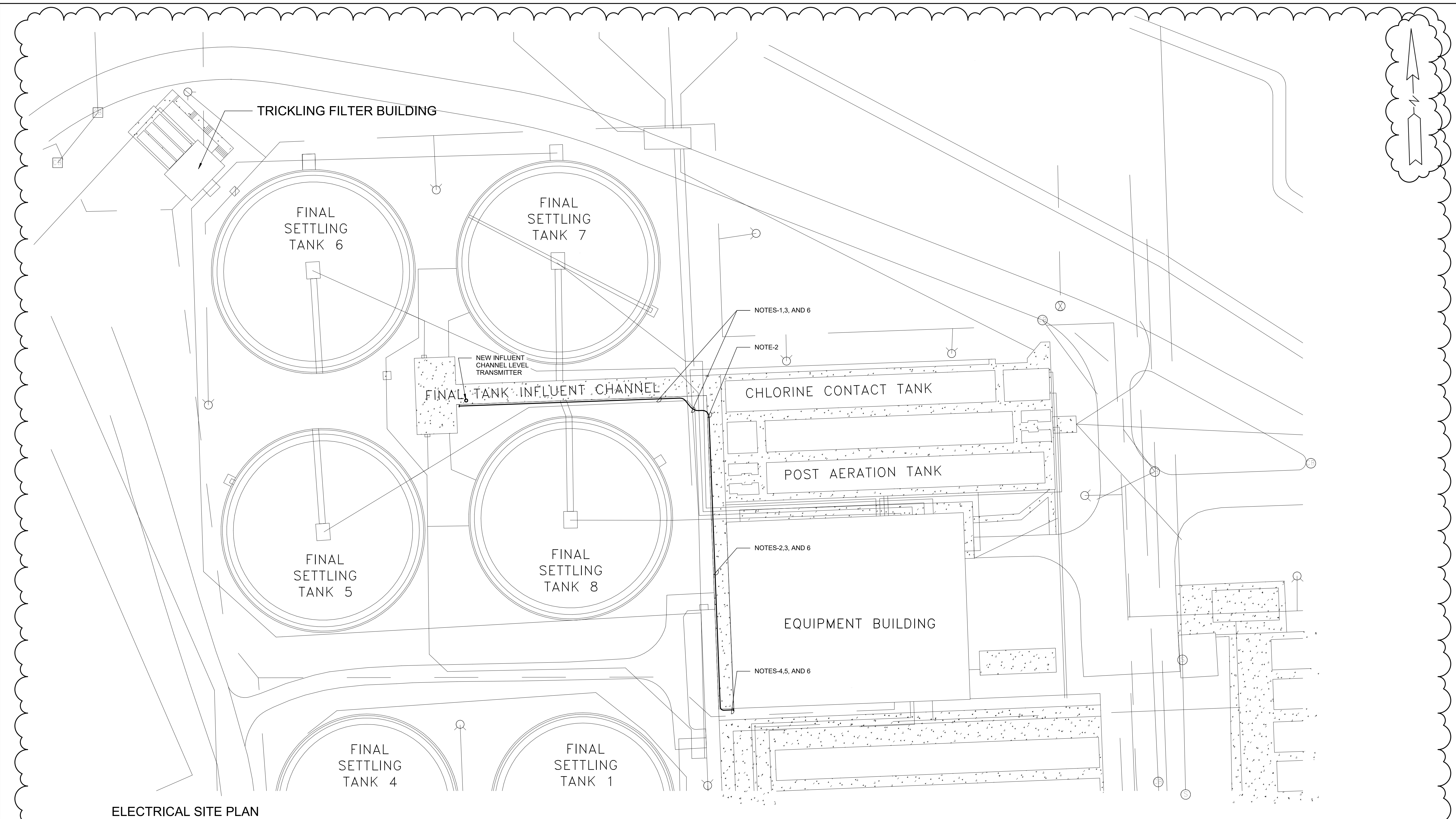
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ELECTRICAL SITE PLAN
 SCALE: 1" = 30'-0"

- PLAN NOTES:
1. NEW CONDUITS ROUTED UNDERGROUND. PROVIDE PULL BOX AS REQUIRED AT TRANSITION FROM UNDERGROUND TO ABOVE GRADE.
 2. NEW CONDUITS ROUTED EXPOSED AT TOP OF CHANNEL. COORDINATE MOUNTING AND MOUNTING HARDWARE WITH EXISTING PIPING AND CONDUIT.
 3. 1-1 1/4" (COMMUNICATION) + 1 1/4" (480V POWER) + 2-2" (SPARE - FUTURE CLARIFIER POWER AND SIGNALS) + 1 1/4" (SPARE - FUTURE LIGHTING).
 4. CORE DRILL WALL, SEAL AROUND CONDUITS, WATER TIGHT WITH LINK SEAL.
 5. PROVIDE CONDUIT SUPPORT FOR CONDUITS CROSSING INFLUENT CHANNEL.
 6. ALL EXPOSED EXTERIOR CONDUIT SHALL BE PVC COATED ALUMINUM.

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1	2023.06.24	ISSUED FOR BIDS	



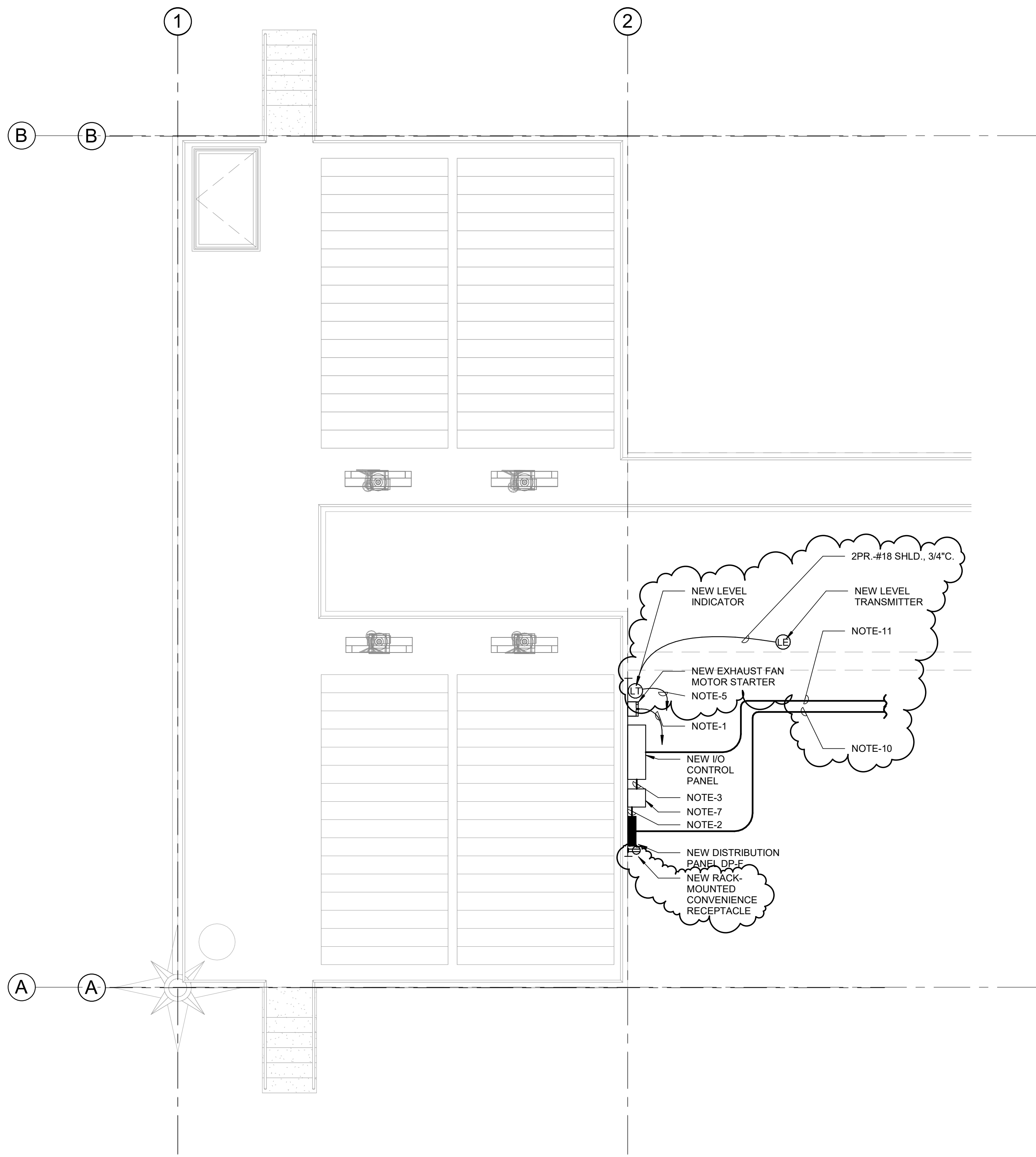
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BATTERY B SECONDARY CLARIFIER FLOW CONTROL
ELECTRICAL SITE PLAN

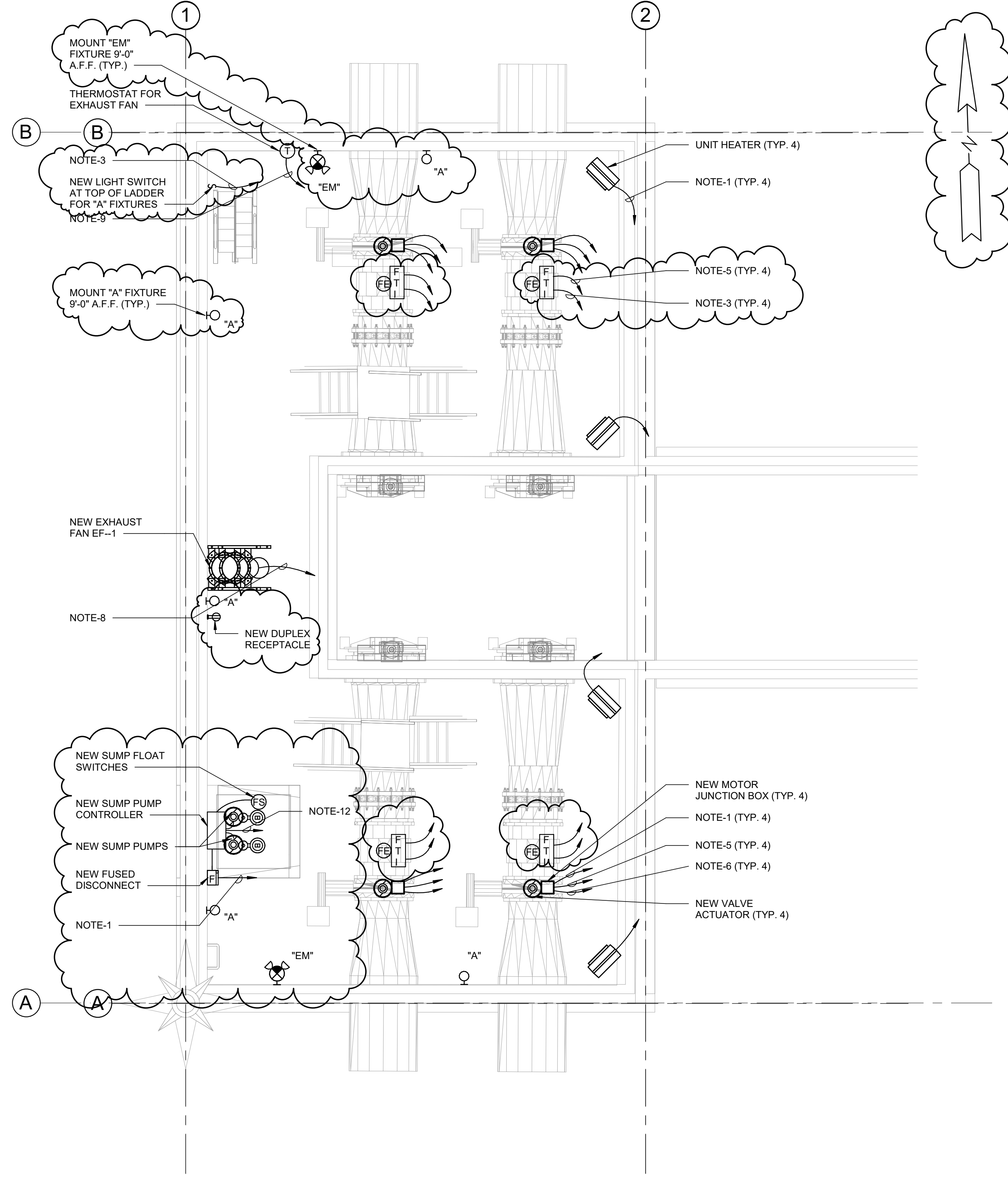
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VAULT ELECTRICAL PLAN FL. EL. 715.50-FT

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



VAULT ELECTRICAL PLAN FL. EL. 700.52-FT

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

PLAN NOTES:

1. 3-#12 + GRD., 3/4"C. TO DP-F.
2. 2-#10 + 1-#10 GRD., 3/4"C.
3. 2-#12 + 1-#12 GRD., 3/4"C. TO LP-F.
4. INSTALL I/O CONTROL PANEL. PANEL FURNISHED BY OTHERS. SEE APPENDIX FOR PANEL DESCRIPTION.
5. 2PR-#18 SHLD., 3/4"C. TO I/O CONTROL PANEL.
6. 6-#14, 3/4"C. TO I/O CONTROL PANEL.
7. MINI-LOAD CENTER, 480-240/120V, 10 KVA, 1-PHASE.
8. 3-#12 + 1-#12 GRD., 3/4"C. TO EXHAUST FAN MOTOR STARTER.
9. 2-#14, 3/4"C. TO EXHAUST FAN MOTOR STARTER.
10. 3-#2 + 1-#8 GRD., 1 1/4"C. TO MCC P4E + 1-2"C. (SPARE) AND 1-1"C. (SPARE) TO MCC P4W + 1-2"C. (SPARE) AND 1-1"C. (SPARE) AND 1-1 1/4"C. (SPARE) TO MCC P4E. CAP SPARE CONDUITS AT WALL BELOW NEW PANELS.
11. 1-4 STRAND FIBER OPTIC CABLE, 1 1/4"C. TO EXISTING REMOTE I/O PANEL LOCATED IN EQUIPMENT BUILDING.
12. 2-#14, 3/4"C. TO NEW REMOTE I/O PANEL.
13. ALL EXPOSED CONDUIT, EXTERIOR AND IN VAULT, SHALL BE PVC COATED.

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BATTERY B SECONDARY CLARIFIER FLOW CONTROL VAULT ELECTRICAL PLAN

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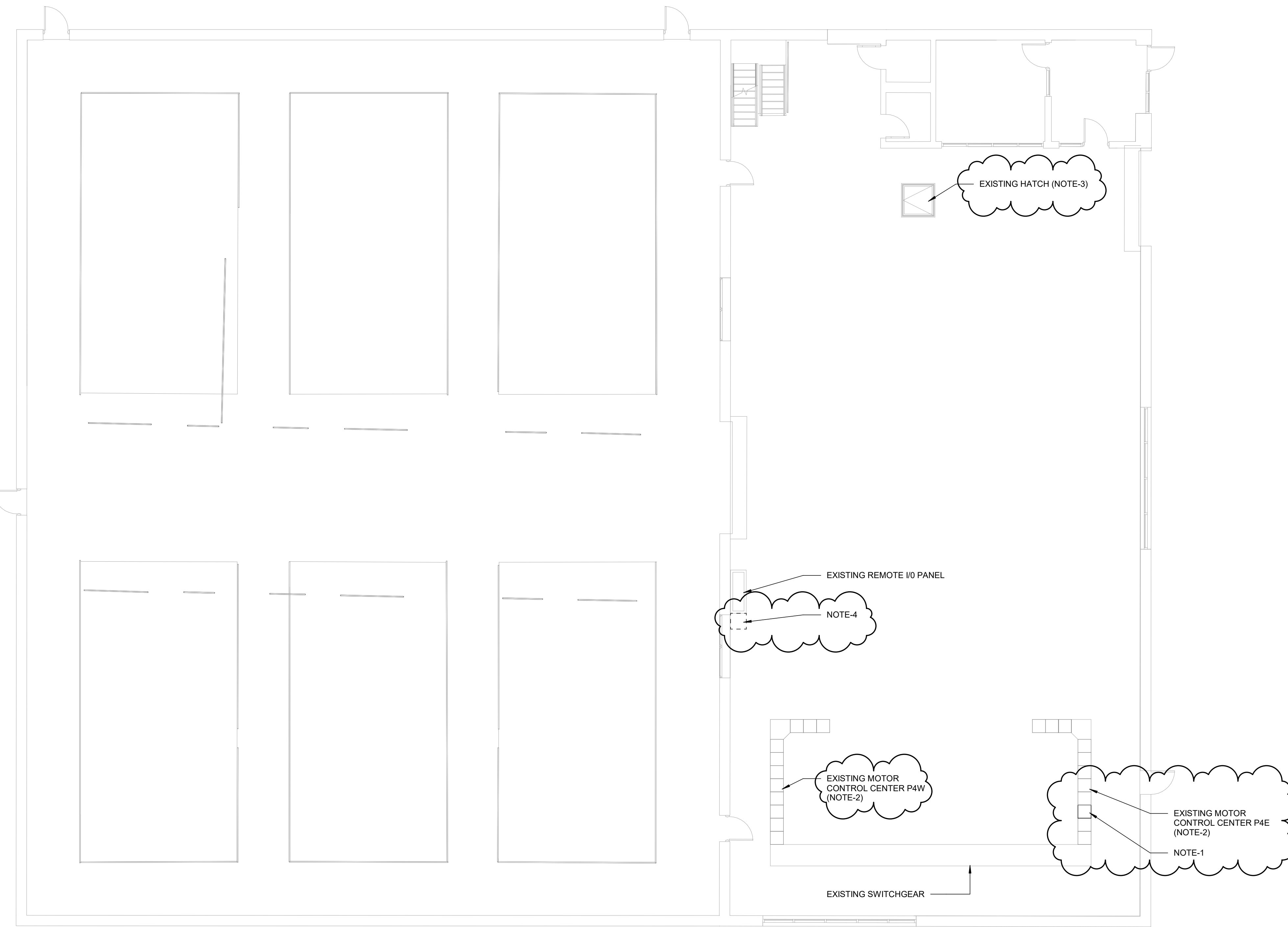
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EQUIPMENT BUILDING GRADE FLOOR ELECTRICAL PLAN

SCALE: 1/8" = 1'-0"

PLAN NOTES:

1. FURNISH AND INSTALL NEW MCC BUCKET AND 100A, 100% RATED, 3-POLE CIRCUIT BREAKER IN AVAILABLE SPACE.
2. STUB SPARE CONDUITS FROM CLARIFIER VAULT UP INTO BOTTOM OF MCC.
3. NEW RADAR LEVEL TRANSMITTER AND FLOAT SWITCHES TO BE MOUNTED IN EXISTING RAS TANK.
4. CORE DRILL FLOOR FOR NEW CONDUITS.

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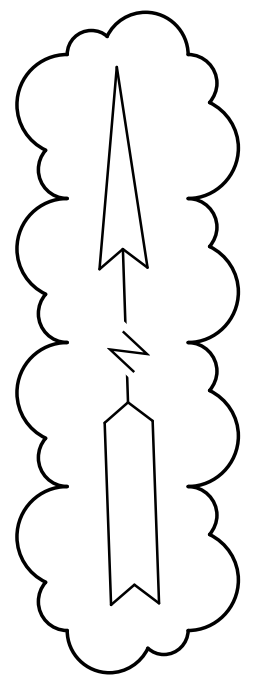
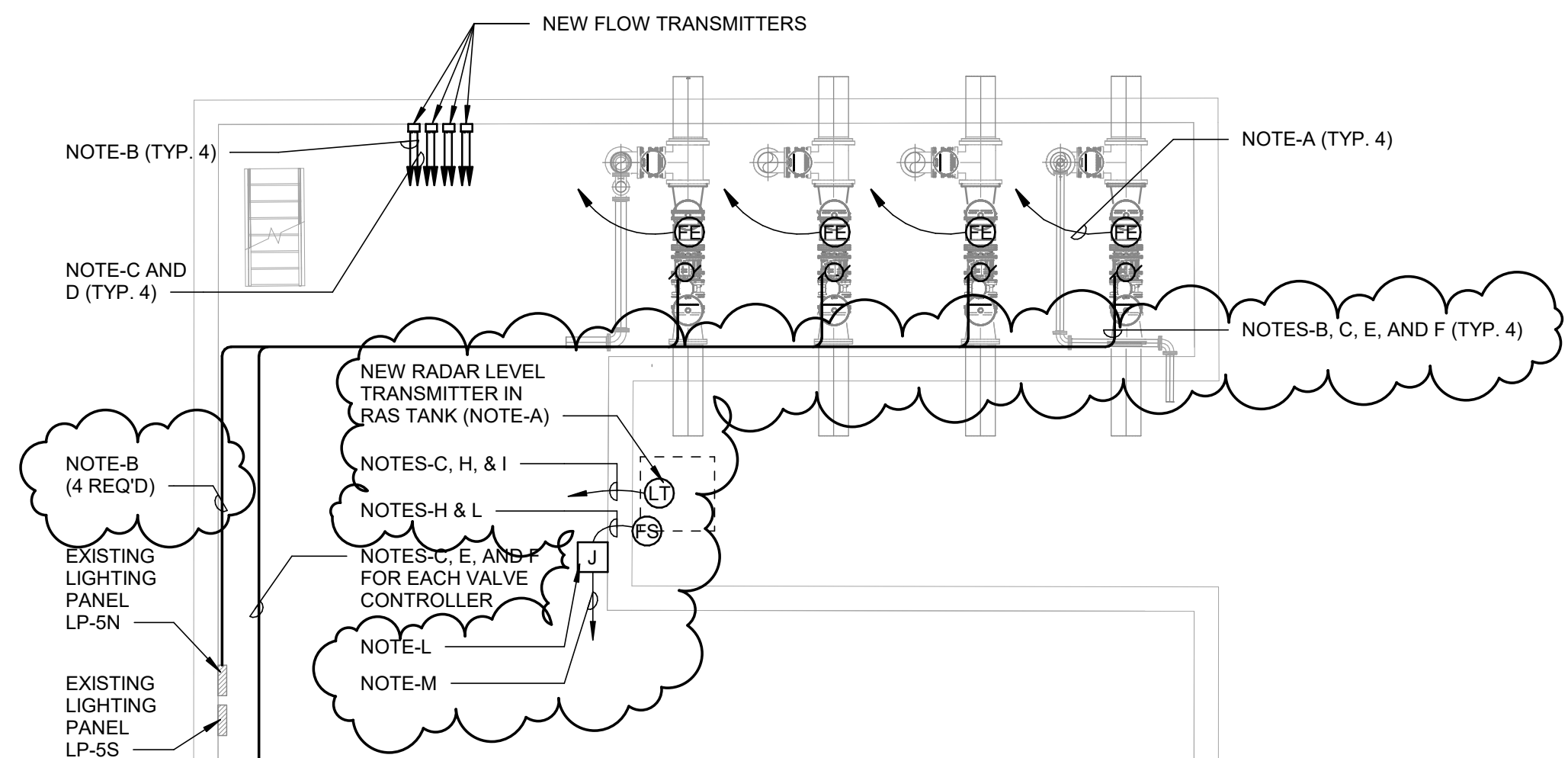
BATTERY B SECONDARY CLARIFIER FLOW CONTROL
EQUIPMENT BUILDING GRADE FLOOR ELECTRICAL PLAN

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

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COF1077-01F

SHIELD

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BATTERY B SECONDARY
 CLARIFIER FLOW CONTROL
 EQUIPMENT BUILDING LOWER LEVEL
 ELECTRICAL PLAN

- PLAN NOTES:
- MANUFACTURER'S SPECIAL CABLE, 3/4" C. TO FLOW TRANSMITTER.
 - 2-#12 + 1-#12 GRD., 3/4" C. TO EXISTING CIRCUIT BREAKER IN LP-5N.
 - 2PR-#18 SHLD., 3/4" C. TO EXISTING REMOTE I/O PANEL ON GRADE LEVEL.
 - RECONNECT FLOW SIGNAL TO EXISTING I/O POINT IN EXISTING REMOTE I/O PANEL.
 - 6-#14, 3/4" C. TO REMOTE I/O PANEL AT GRADE LEVEL.
 - CONNECT TO NEW I/O POINTS IN EXISTING I/O PANEL.
 - 4-STRAND FIBER OPTIC CABLE (MULTIMODE), 1 1/4" C. FROM EXISTING I/O CONTROL PANEL ABOVE TO NEW REMOTE I/O PANEL AT CLARIFIER VAULT.
 - SEAL AROUND CONDUIT AT TANK WALL PENETRATION. WATER TIGHT.
 - NEW RADAR LEVEL TRANSMITTER AND FLOAT SWITCHES TO BE MOUNTED NEAR TANK HATCH OPENING, AND TANK WALL PENETRATION NEAR TOP OF TANK.
 - 1-1 1/4" (DP-F FEED) + 1-2" (SPARE) + 1 1/4" (SPARE) + 1-1" (SPARE).
 - 1-2" (SPARE) + 1-1" (SPARE).
 - TWO (2) FLOAT SWITCH CABLES, 1 1/2" C. PROVIDE SPLICE BOX ON EXTERIOR OF RAS TANK. SPLICE EACH FLOAT SWITCH CABLE TO 2-#14 WIRE.
 - 4-#14, 3/4" C. TO EXISTING REMOTE I/O PANEL AT GRADE LEVEL.

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JOB NO. COF1077-01F SHEET

E-104

SEE SITE PLAN ON DWG. E-101 FOR CONTINUATION

TO EXISTING MCC-P4W AND MCC-P4E AND EXISTING REMOTE I/O PANEL

TO EXISTING REMOTE I/O PANEL ABOVE

TO EXISTING MCC-P4W ABOVE (NOTE-K)

TO EXISTING MCC-P4E ABOVE (NOTE-J)

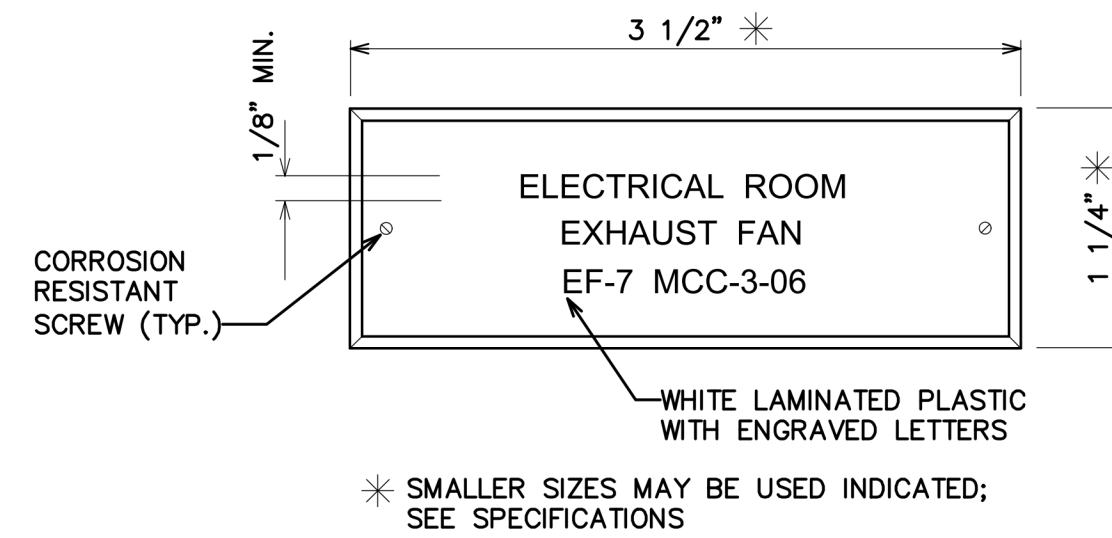
EQUIPMENT BUILDING LOWER LEVEL ELECTRICAL PLAN

SCALE: 1/8" = 1'-0"

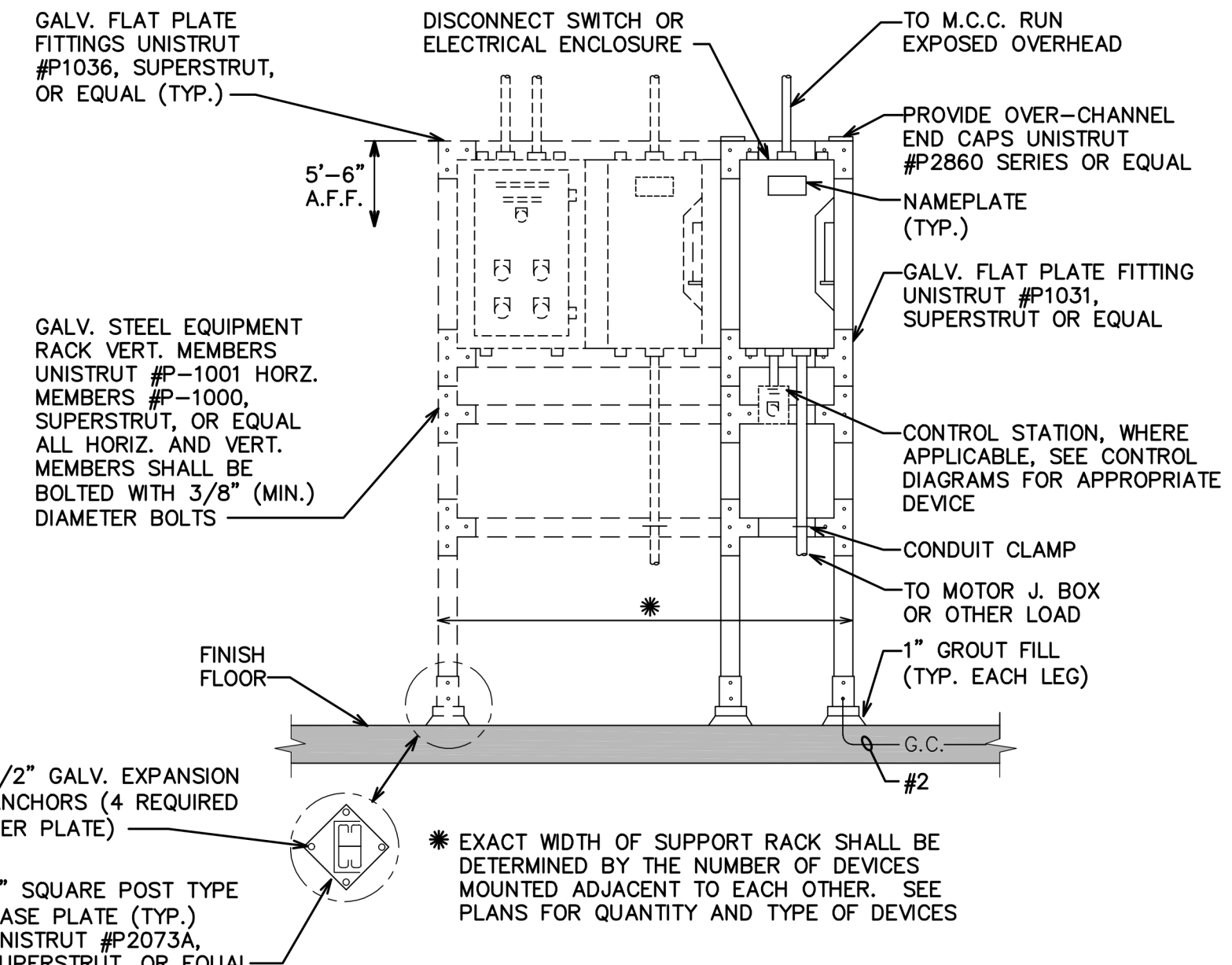
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NAMEPLATE DETAIL
FULL SCALE

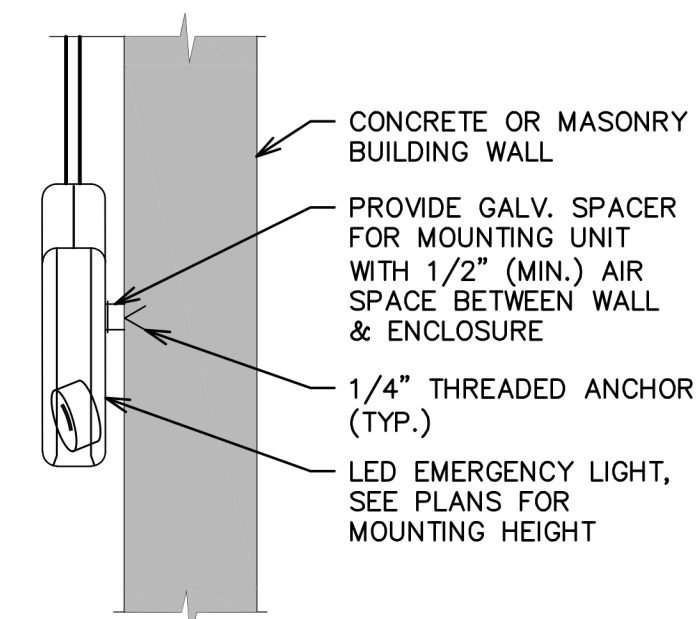


EQUIPMENT SUPPORT RACK DETAIL
N.T.S.

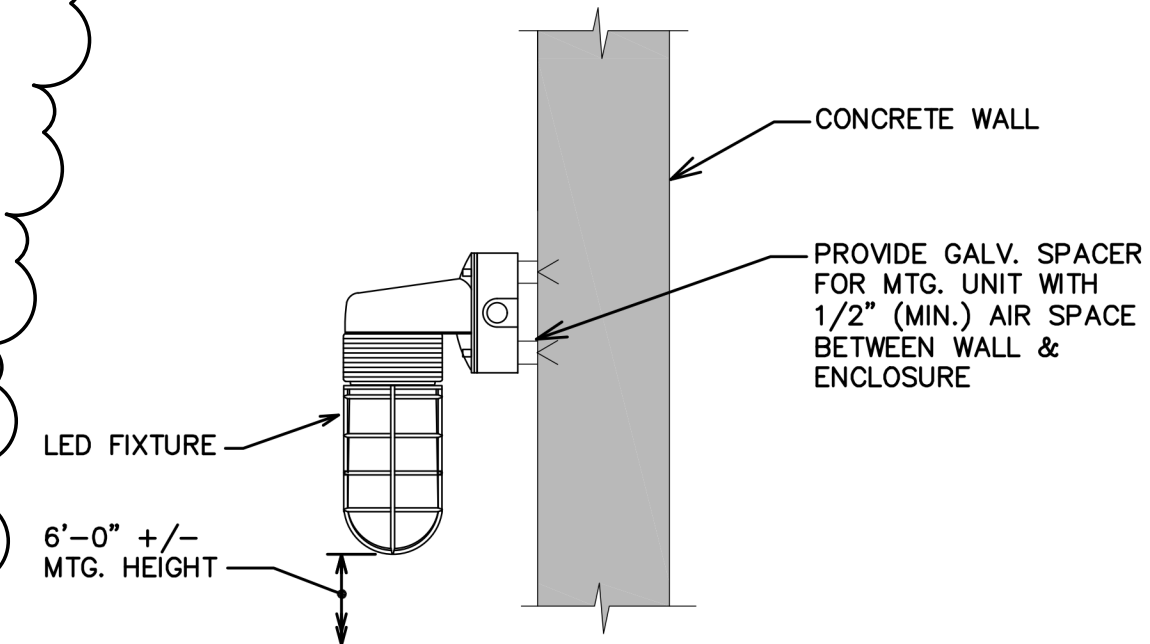
LIGHTING FIXTURE SCHEDULE				
TYPE	LAMP	OPERATING VOLTAGE	DESCRIPTION	MFR. CAT. NO.
"A"	15 WATT LED 4000K	120V.	WALL MOUNTED, (VAPOR-TIGHT) FIXTURE WITH FROSTED GLASS GLOBE, CAT ALUMINUM HOUSING, INTEGRAL SURGE PROTECTION, MINIMUM 50,000 HOURS, L80, MINIMUM 5 YEAR WARRANTY ON ALL PARTS	LITHONIA LIGHTING: OLVT SERIES OR EQUAL
"EM"	2-5 WATT	120/277V. 1PH.	EMERGENCY LIGHTING UNIT WITH SEALED MAINTENANCE FREE NICKEL-METAL HYDRIDE BATTERY, 120V INPUT VOLTAGE ADVANCE DIAGNOSTICS. POWERING 2-5W LED 12 VDC HEADS FOR THE MINIMUM DURATION OF 90 MINUTES.	EMERGI-LITE: PREMIER COMPACT #12MPR24H-2-LI-D(-CM) OR APPROVED EQUAL

FIXTURE SCHEDULE NOTES:

- * ALL LED FIXTURES MUST HAVE SURGE SUPPRESSION
- ** IF CATALOG NUMBER DOES NOT MEET THE FOLLOWING CRITERIA, THE CONTRACTOR OR MFR. SHALL REVISE CATALOG NUMBER AS REQUIRED.



EMERGENCY LIGHT TYPE "EM" MOUNTING DETAIL
N.T.S.
("EMEX" LIGHT MOUNTING SIMILAR)



TYPE "A" MOUNTING DETAIL
N.T.S.

REV#	DATE	DESCRIPTION	TSW	BY
2	2023.07.06	ADDENDUM 1		
1	2023.06.24	ISSUED FOR BIDS		



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BATTERY B SECONDARY CLARIFIER FLOW CONTROL
ELECTRICAL DETAILS

ISSUED FOR BIDS: DATE: 2023.06.24 BY: TSW

JOB NO. COF1077-01F

DP-F

Location:
 Supply From:
 Mounting: Surface
 Enclosure: Type 3R
 Notes:

Volts: 480V
 Phases: 3
 Wires: 3
 Bus:

A.I.C. Rating:
 Mains Type: CB
 Mains Rating: 150 A
 MCB Rating: 100 A

CKT	Circuit Description	Trip	P	Wire Size	A	B	C	Wire Size	P	Trip	Circuit Description	CKT	
1	FINAL CLARIFIER #5 INFLUENT FCV (MV-10A)	20 A	3	3-#12 + 1-#12 GRD., 3/4"	0.30	0.30		3-#12 + 1-#12 GRD., 3/4"	3	20 A	FINAL CLARIFIER #7 INFLUENT FCV (MV-10C)	2	
3												4	
5												6	
7	FINAL CLARIFIER #6 INFLUENT FCV (MV-10B)	20 A	3	3-#12 + 1-#12 GRD., 3/4"	0.30	0.30		3-#12 + 1-#12 GRD., 3/4"	3	20 A	FINAL CLARIFIER #8 INFLUENT FCV (MV-10D)	8	
9												10	
11												12	
13					3.35	3.35						14	
15	ELECTRIC UNIT HEATER EUH-1	20 A	3	3-#12 + 1-#12 GRD., 3/4"				3-#12 + 1-#12 GRD., 3/4"	3	20 A	ELECTRIC UNIT HEATER EUH-4	16	
17												18	
19					3.35	0.77						20	
21	ELECTRIC UNIT HEATER EUH-2	20 A	3	3-#12 + 1-#12 GRD., 3/4"				3-#12 + 1-#12 GRD., 3/4"	3	20 A	EXHAUST FAN EF-1	22	
23												24	
25					3.35	0.00						26	
27	ELECTRIC UNIT HEATER EUH-3	20 A	3	3-#12 + 1-#12 GRD., 3/4"				--		3	Spare	28	
29												30	
31					2.66	1.01						32	
33	SUMP PUMP CONTROL PANEL	20 A	3	3-#12 + 1-#12 GRD., 3/4"						2	30 A	MINI LOAD CENTER (10KVA) LP-F	34
35										1	20 A	Spare	36
37					0.00	0.00						38	
39	Spare	20 A	3	--						3	20 A	Spare	40
41												42	

Total Load: 17.92 kVA 18.23 kVA 17.05 kVA
Total Amps: 65 A 66 A 62 A

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Equipment	2000 VA	100.00%	2000 VA	Total Conn. Load: 53198 VA
HVAC	2304 VA	100.00%	2304 VA	
Heating	40200 VA	100.00%	40200 VA	Total Est. Demand: 54064 VA
Lighting	0 VA	0.00%	0 VA	Total Conn.: 64 A
Motor	11639 VA	108.57%	12637 VA	Total Est. Demand: 65 A
Power	360 VA	100.00%	360 VA	
DF80 Ltg	12 VA	80.00%	10 VA	

LP-F

Location:
 Supply From: DP-F
 Mounting: Surface
 Enclosure: Type 3R
 Notes:

Volts: 240V/120V Single
 Phases: 1
 Wires: 3
 Bus:

A.I.C. Rating:
 Mains Type: MCB
 Mains Rating: 40 A
 MCB Rating: 60 A

CKT	Circuit Description	Trip	P	Wire Size	A	B	Wire Size	P	Trip	Circuit Description	CKT
1	EMERGENCY LIGHTS	20 A	1	2-#12 + #12 GRD.	0.01	0.00	2-#12 + #12 GRD.	1	20 A	FINAL CLARIFIER I/O CONTROL PANEL	2
3	VAULT LIGHTING	20 A	1	2-#12 + #12 GRD.			0.00 0.36	1	20 A	RECEPTACLES	4
5	FLOWMETER MV10A	20 A	1	2-#12 + #12 GRD.	0.50	0.50	2-#12 + #12 GRD.	1	20 A	FLOWMETER MV10C	6
7	FLOWMETER MV10B	20 A	1	2-#12 + #12 GRD.			0.50 0.50	1	20 A	FLOWMETER MV10D	8
9	SPARE	20 A	1	--	0.00	0.00	--	1	20 A	SPARE	10
11	SPARE	20 A	1	--			0.00 0.00	1	20 A	SPARE	12
13	SPACE	--	1	--	--	--	--	1	--	SPACE	14
15	SPACE	--	1	--	--	--	--	1	--	SPACE	16

Total Load: 1.01 kVA 1.36 kVA
Total Amps: 8 A 11 A

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Equipment	2000 VA	100.00%	2000 VA	Total Conn. Load: 2372 VA
Lighting	0 VA	0.00%	0 VA	
Power	360 VA	100.00%	360 VA	Total Est. Demand: 2370 VA
DF80 Ltg	12 VA	80.00%	10 VA	Total Conn.: 10 A
				Total Est. Demand: 10 A

REV#	DATE	DESCRIPTION
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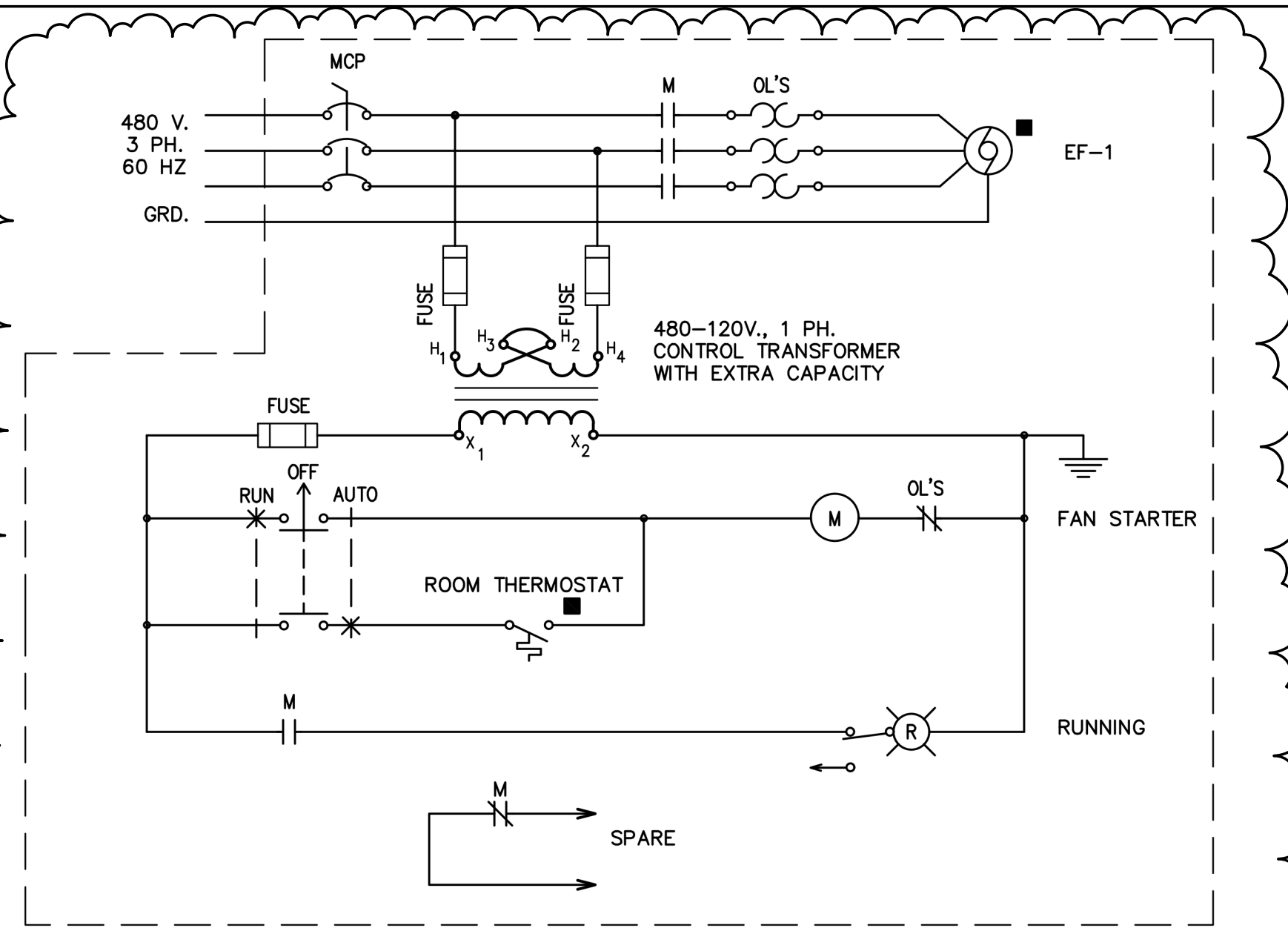
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BATTERY B SECONDARY
 CLARIFIER FLOW CONTROL
 ELECTRICAL SCHEDULES

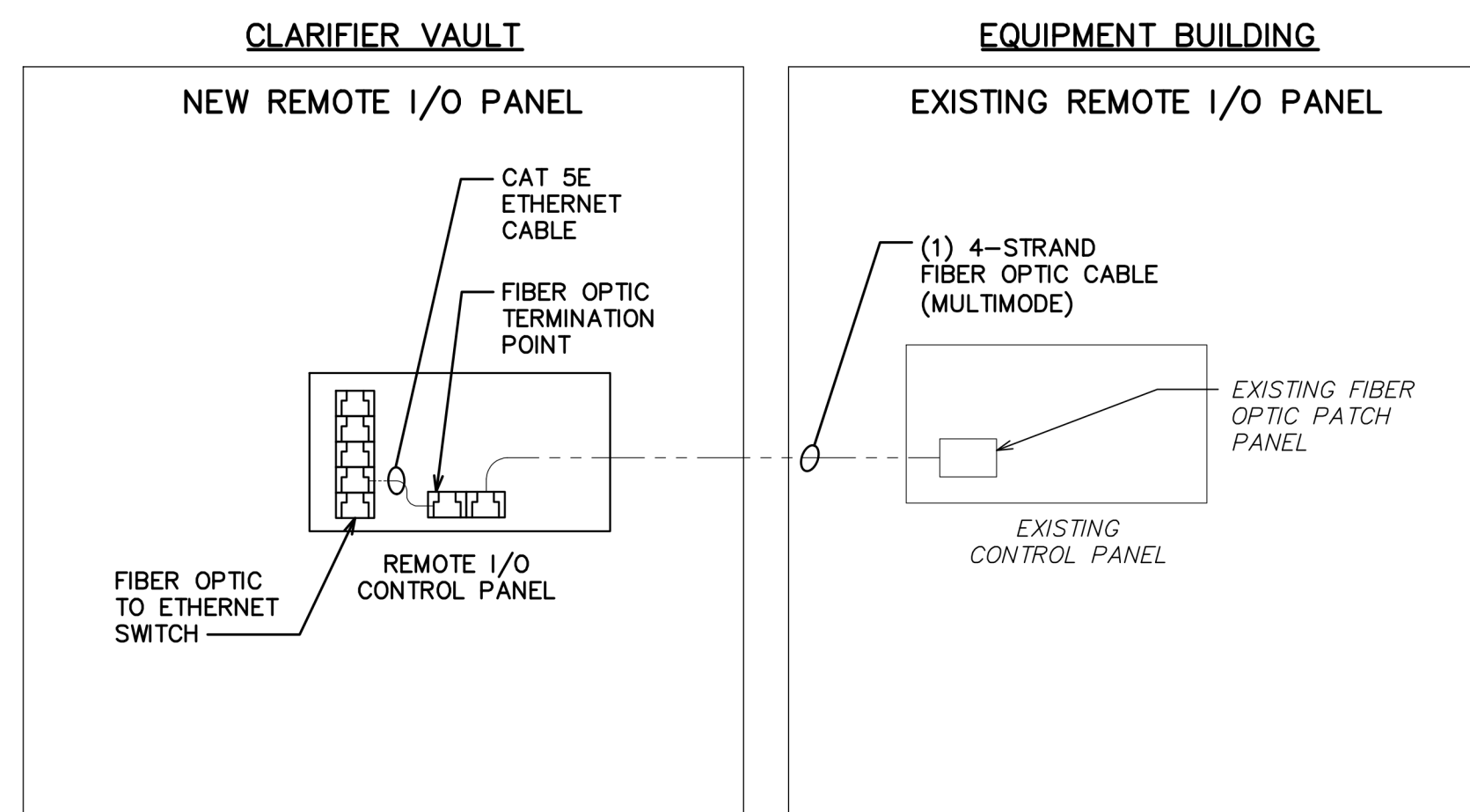
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E-601

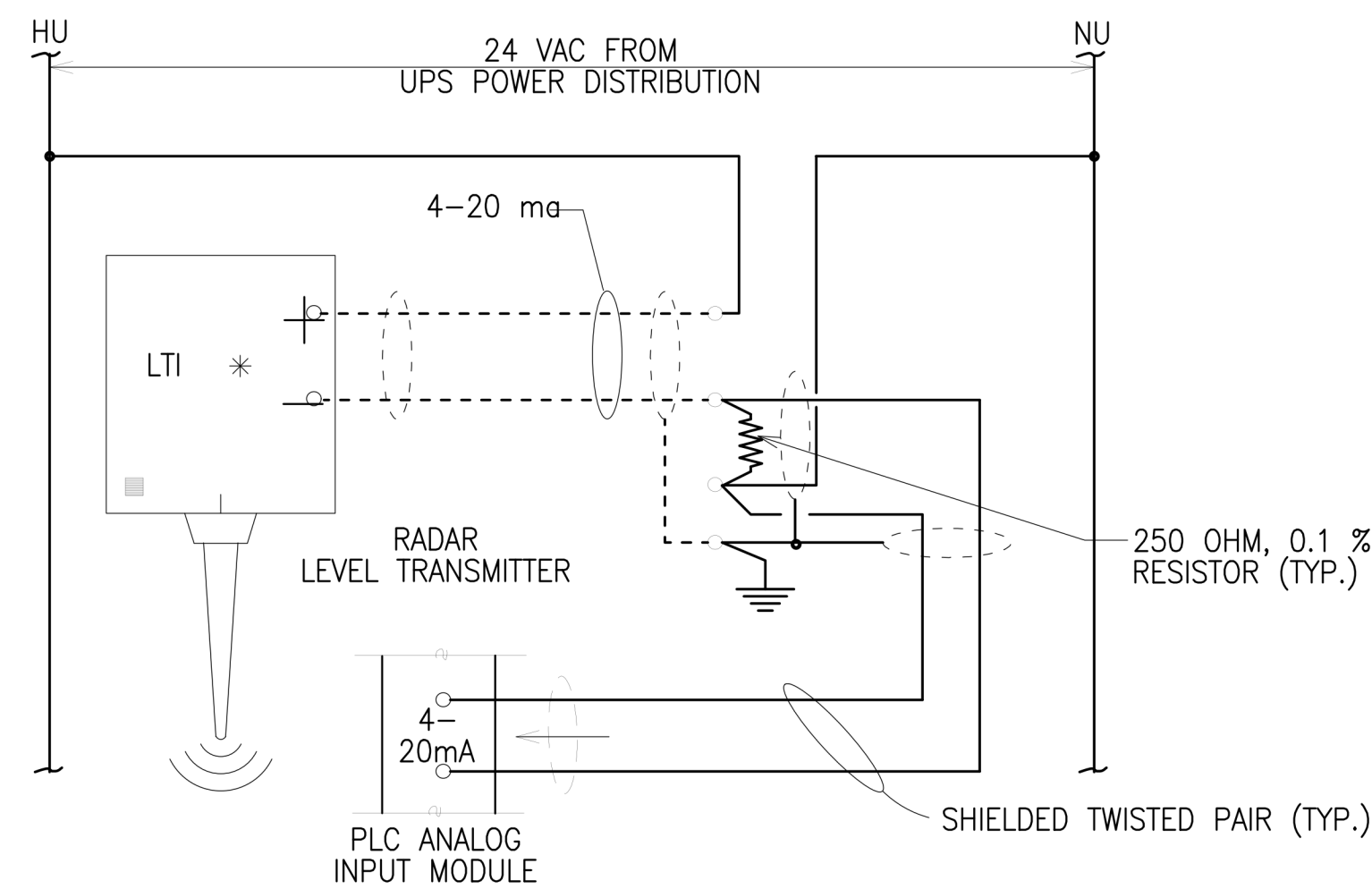


EXHAUST FAN EF-1

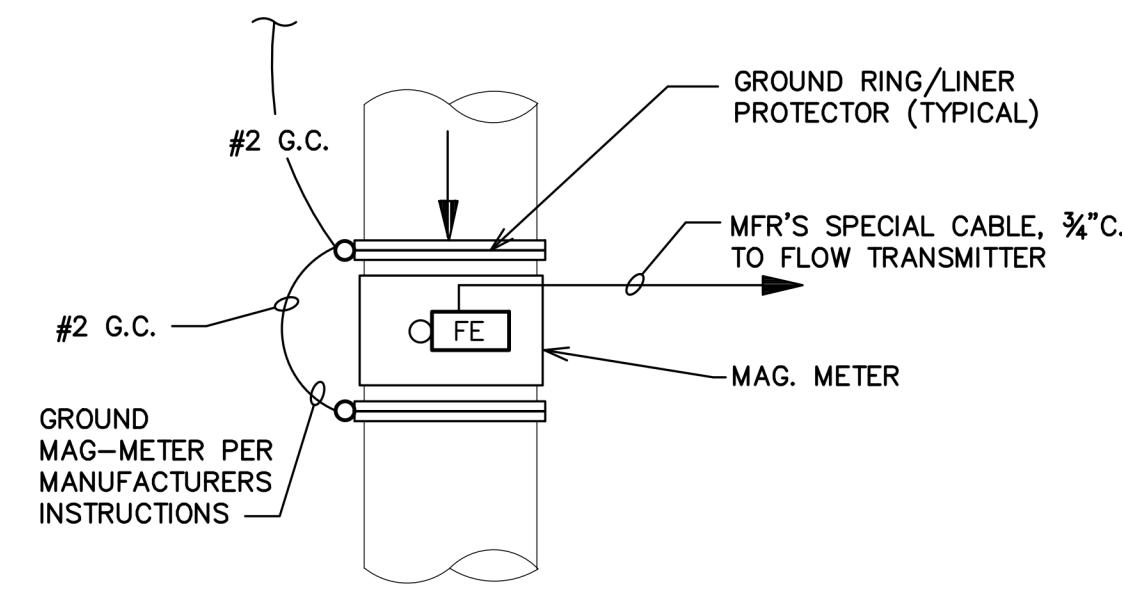


COMMUNICATIONS RISER DIAGRAM

NO SCALE

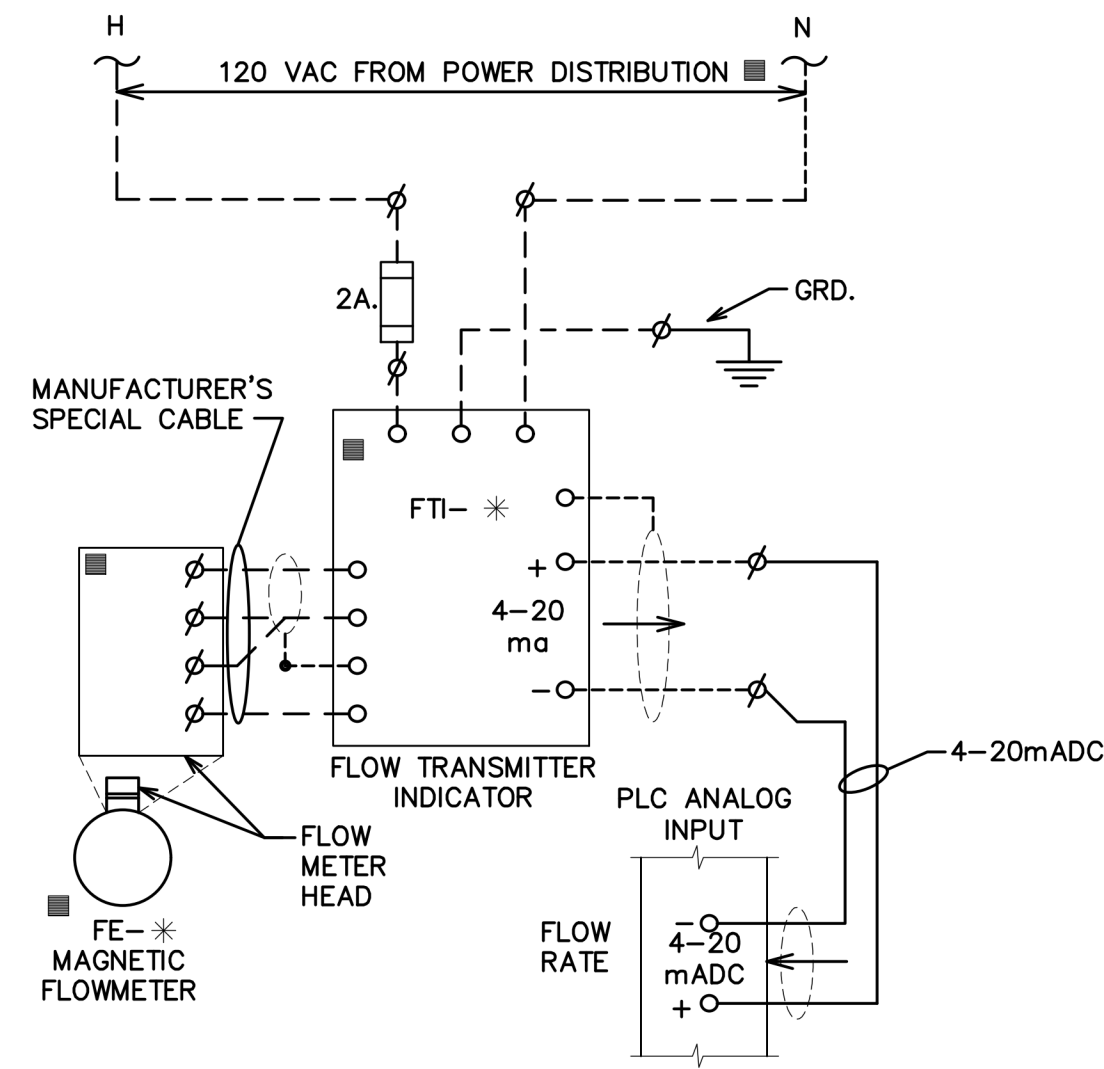


**RADAR LEVEL TRANSMITTER
TYPICAL WIRING DIAGRAM**



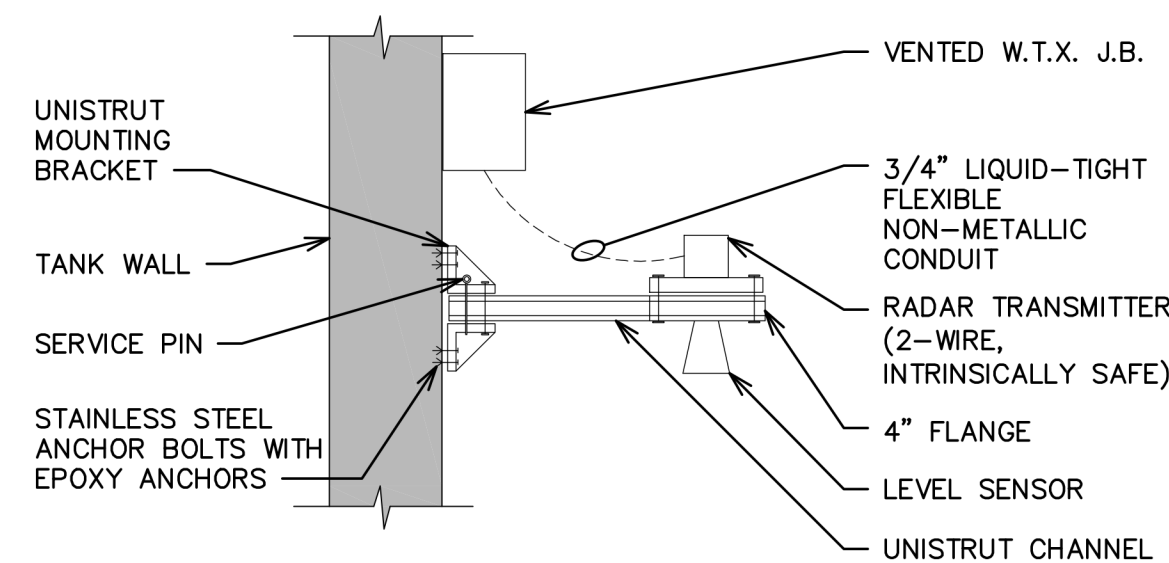
**TYPICAL MAGNETIC FLOW METER
INSTALLATION DETAIL**

N.T.S.



**MAGNETIC FLOW METER
WIRING DIAGRAM
(TYPICAL)**

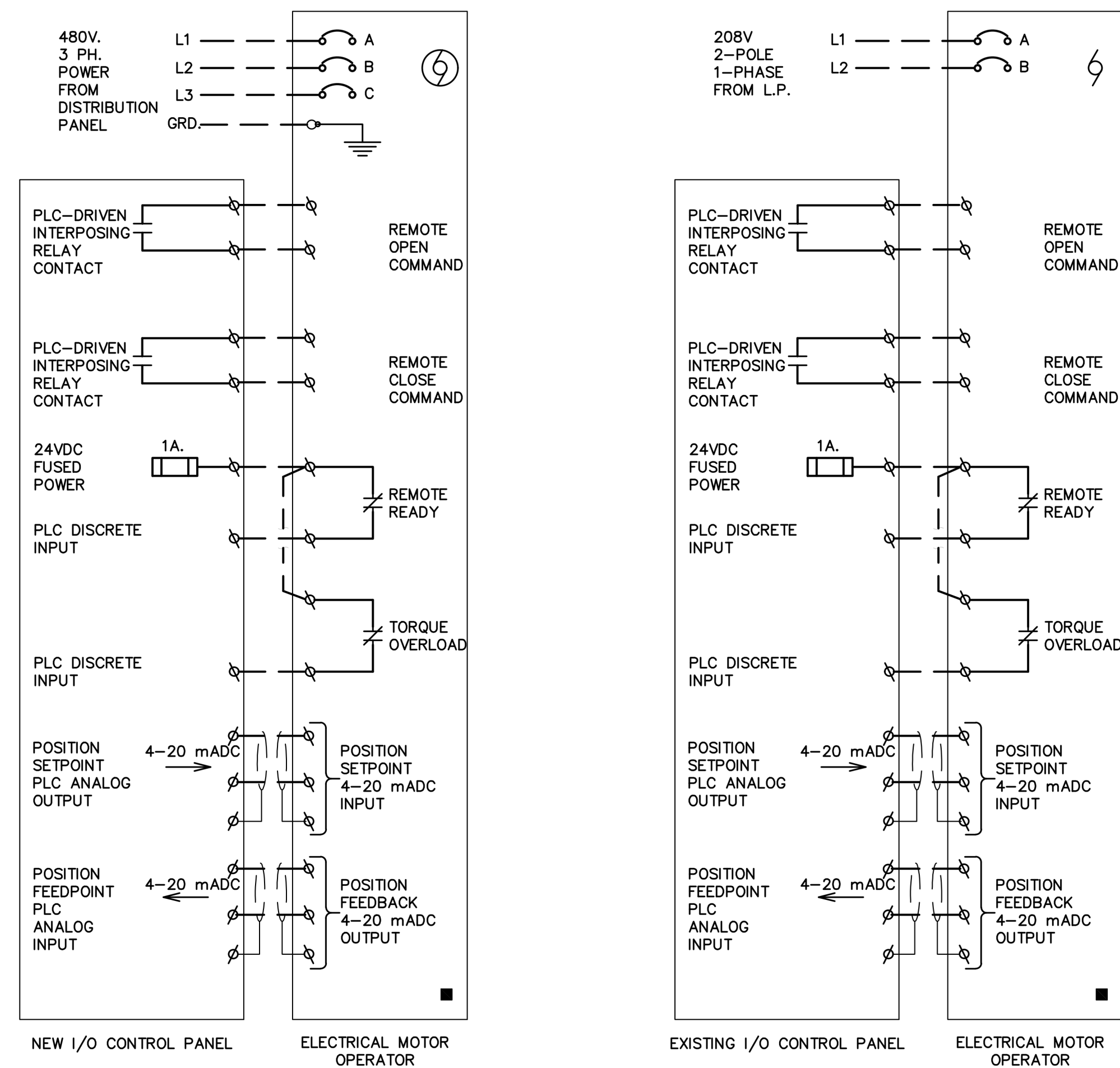
ALL DEVICES LOCATED IN CONTROL PANEL UNLESS OTHERWISE INDICATED BY ■
(MAGNETIC FLOWMETERS INSTALLED BELOW GRADE SHALL HAVE POTTED/SEALED HEADS, AND BE RATED SUITABLE FOR OCCASIONAL SUBMERSION; AS NOTED ON THE DRAWINGS)



**TYPICAL RADAR LEVEL SENSOR/
TRANSMITTER MOUNTING DETAIL**

N.T.S.

NOTE: ALL UNISTRUT AND HARDWARE SHALL BE 316 S.S.

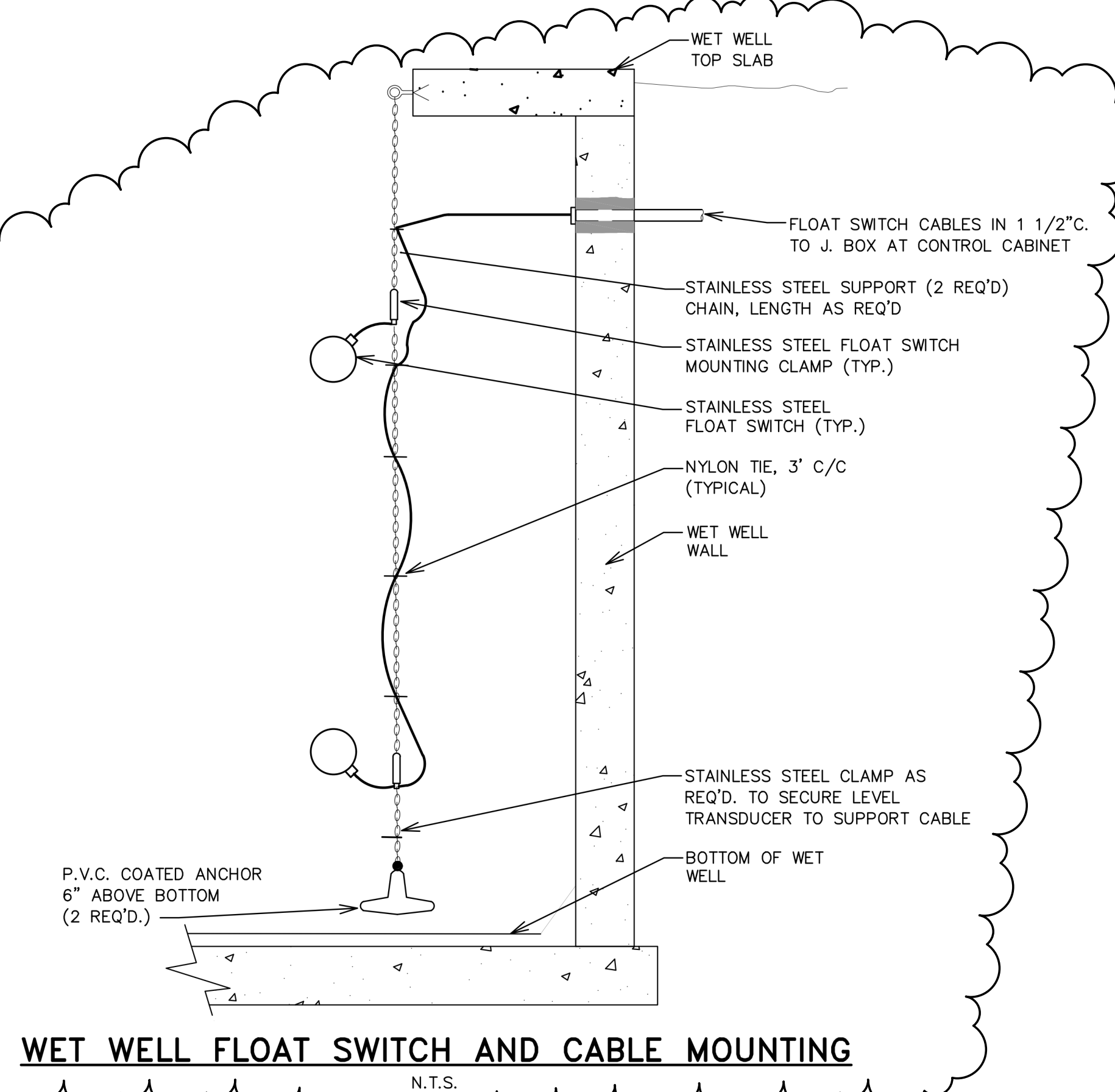


**CLARIFIER VAULT VALVE OPERATOR
CONNECTION DIAGRAM**

NO SCALE

**RAS FLOW CONTROL VALVE OPERATOR
CONNECTION DIAGRAM**

NO SCALE



WET WELL FLOAT SWITCH AND CABLE MOUNTING

N.T.S.

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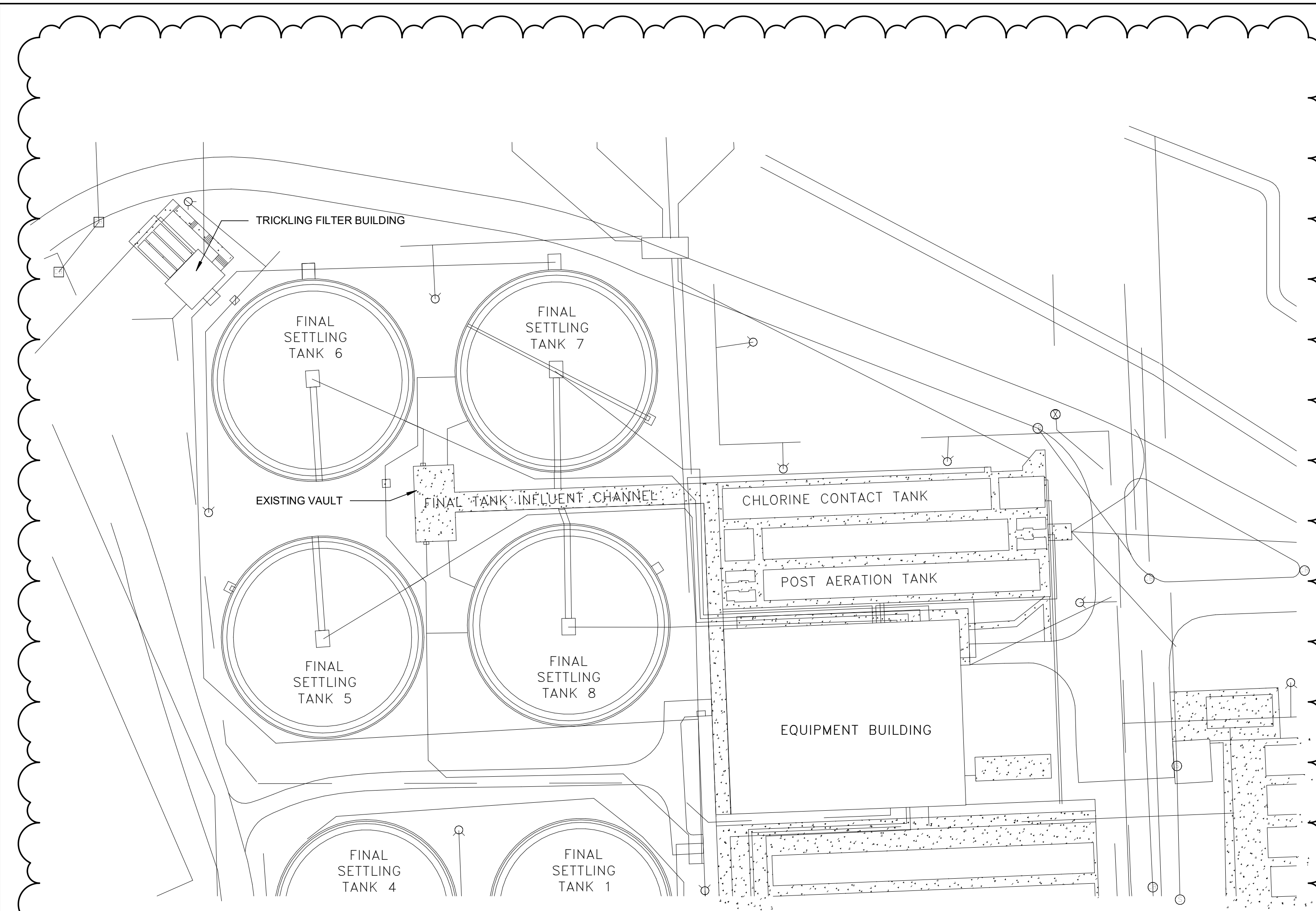


BATTERY B SECONDARY
CLARIFIER FLOW CONTROL
POWER WIRING DIAGRAMS

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

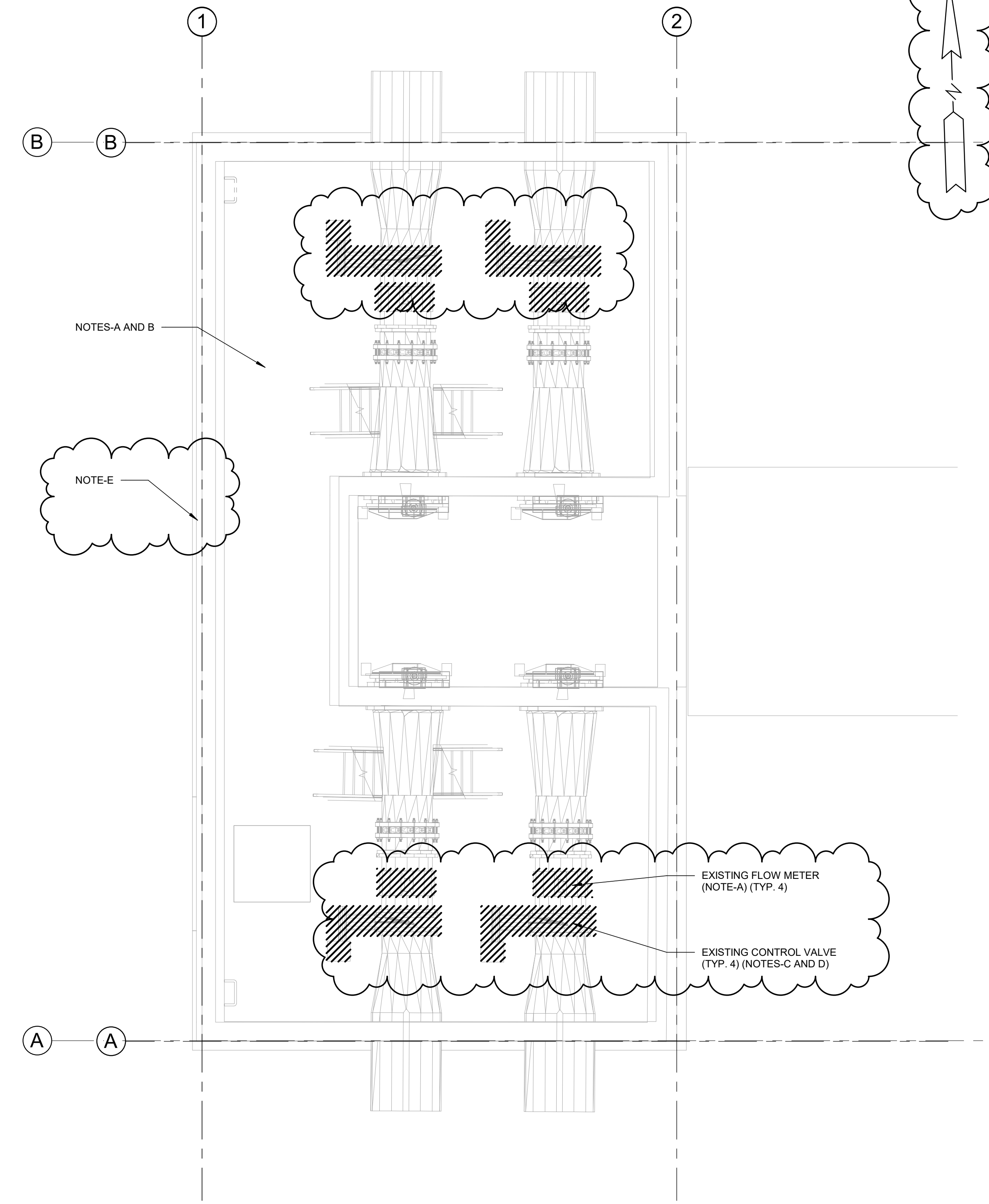
JOB NO: COF1077-01F

E-801



ELECTRICAL DEMOLITION SITE PLAN

SCALE: 1" = 50'-0"



VAULT ELECTRICAL DEMOLITION PLAN FL. EL. 700.52-FT

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

- DEMOLITION NOTES:
- A. DISCONNECT AND REMOVE ALL ELECTRICAL EQUIPMENT, DEVICES, CONDUIT, AND WIRE WITHIN VAULT.
 - B. REMOVE WIRE BACK TO SOURCE, REMOVE CONDUIT IN VAULT, PLUG AND CAP ALL CONDUITS ROUTED THROUGH WALLS, AND SEAL WATERTIGHT.
 - C. TURN OFF ALL EXISTING CONTROL VALVE CIRCUIT BREAKERS AND LABEL AS SPARE.
 - D. EXISTING POWER FROM TRICKLING FILTER BUILDING.
 - E. EXISTING POST TOP LIGHTING AT GRADE LEVEL TO REMAIN. VERIFY EXISTING CONDUIT AND WIRE ROUTING.

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BATTERY B SECONDARY CLARIFIER FLOW CONTROL STRUCTURE
ELECTRICAL DEMOLITION PLAN - CLARIFIER STRUCTURE

ISSUED FOR: BIDS DATE: 2023.06.24 BY: TSW

JOB NO.
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EX-101

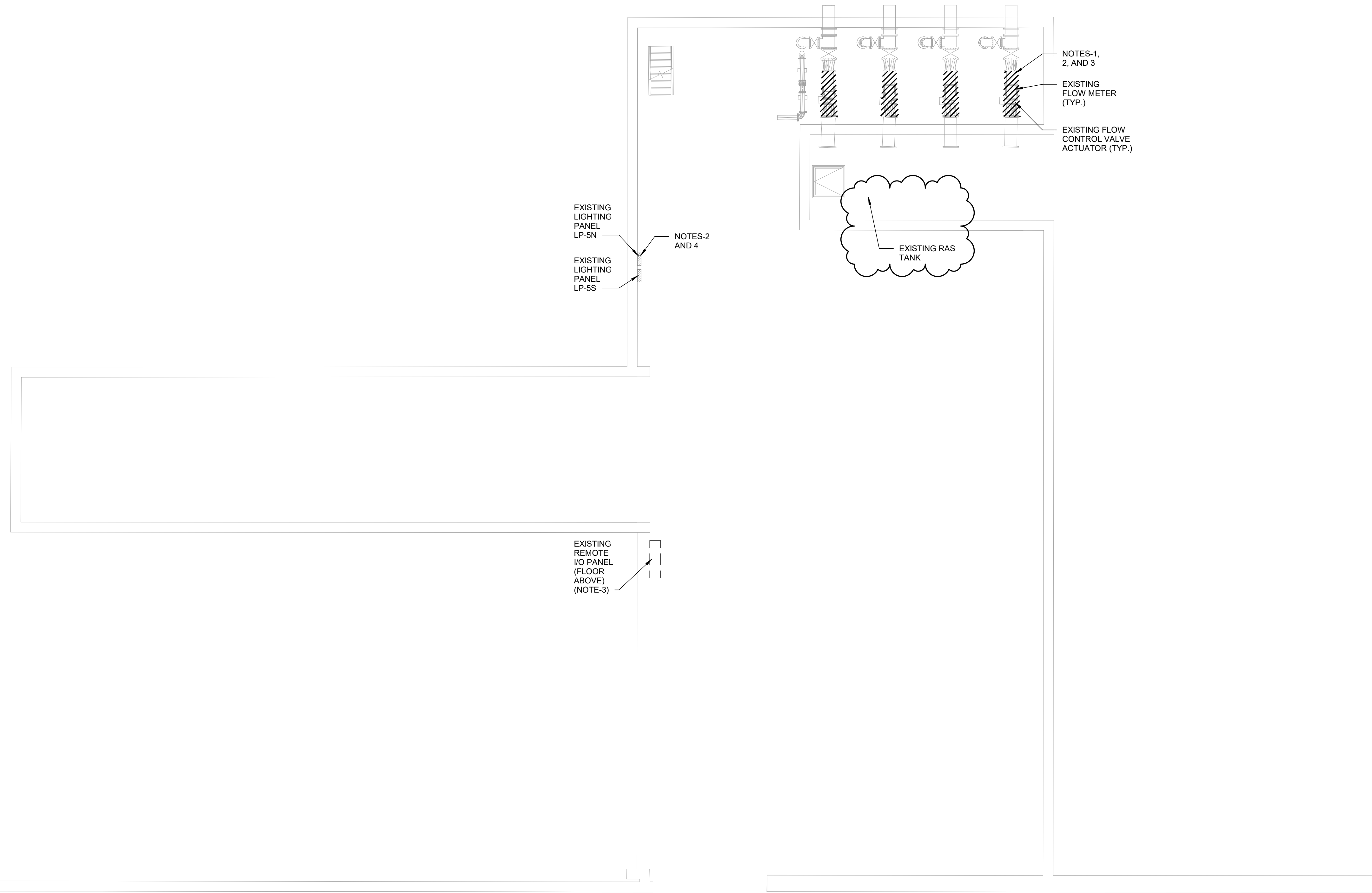
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ELECTRICAL DEMOLITION PLAN - BATTERY B/EQUIPMENT BUILDING

SCALE: 1/8" = 1'-0"

DEMOLITION NOTES:

1. DISCONNECT AND REMOVE EXISTING FLOW METERS AND FLOW CONTROL VALVE ACTUATORS.
2. REMOVE WIRE BACK TO SOURCE, LP-5N. REMOVE UNUSED CONDUIT. FURNISH AND INSTALL CAP FOR CONDUIT THAT REMAINS AND IS NOT BEING USED.
3. REMOVE CONTROL WIRE AND CONDUIT BACK TO SOURCE AND BACK TO CONTROL PANEL AT GRADE ABOVE.
4. REMOVE AND REPLACE EXISTING CIRCUIT BREAKER IN LP-5N FOR FLOW METERS AND VALVE ACTUATORS.

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**BATTERY B SECONDARY
 CLARIFIER FLOW CONTROL**

**ELECTRICAL DEMOLITION PLAN - BATTERY
 B/EQUIPMENT BUILDING**

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