

CITY OF PITTSBURG

COMMUNITY DEVELOPMENT DEPARTMENT

CONTRACT 2023-XX

WATER TREATMENT PLANT FILTRATION IMPROVEMENTS AND HYPOCHLORITE CONVERSION

60% DESIGN PACKAGE
JUNE 2023

CITY ENGINEER:

PROJECT TEAM

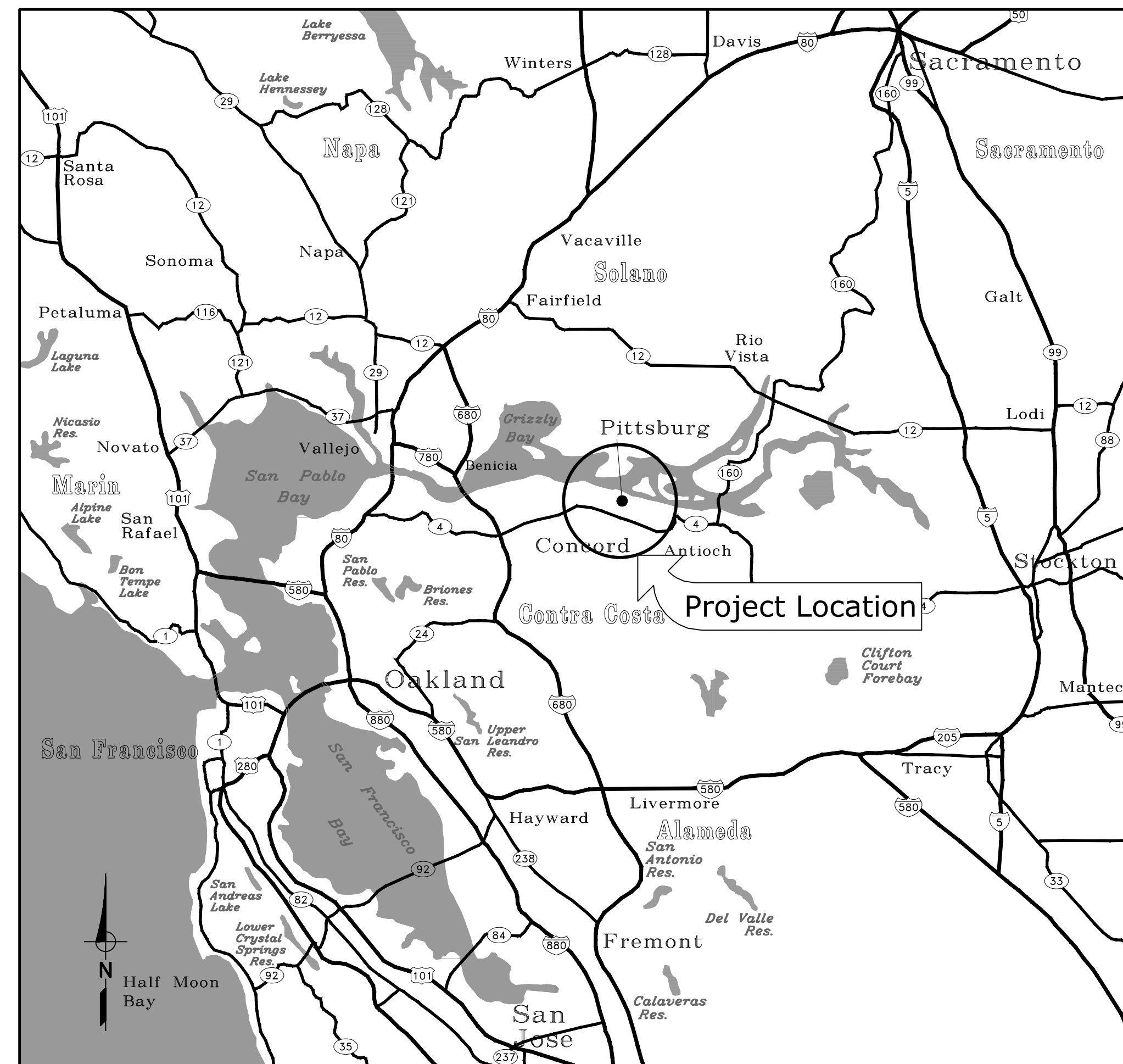
CITY OF PITTSBURG
DEPARTMENT OF PUBLIC WORKS
357 E 12th STREET
PITTSBURG, CA 94565
ATTN: JOHN SAMUELSON, P.E.
(925) 252-4930

CITY REPRESENTATIVE:
(WATER TREATMENT PLANT
SUPERINTENDENT)

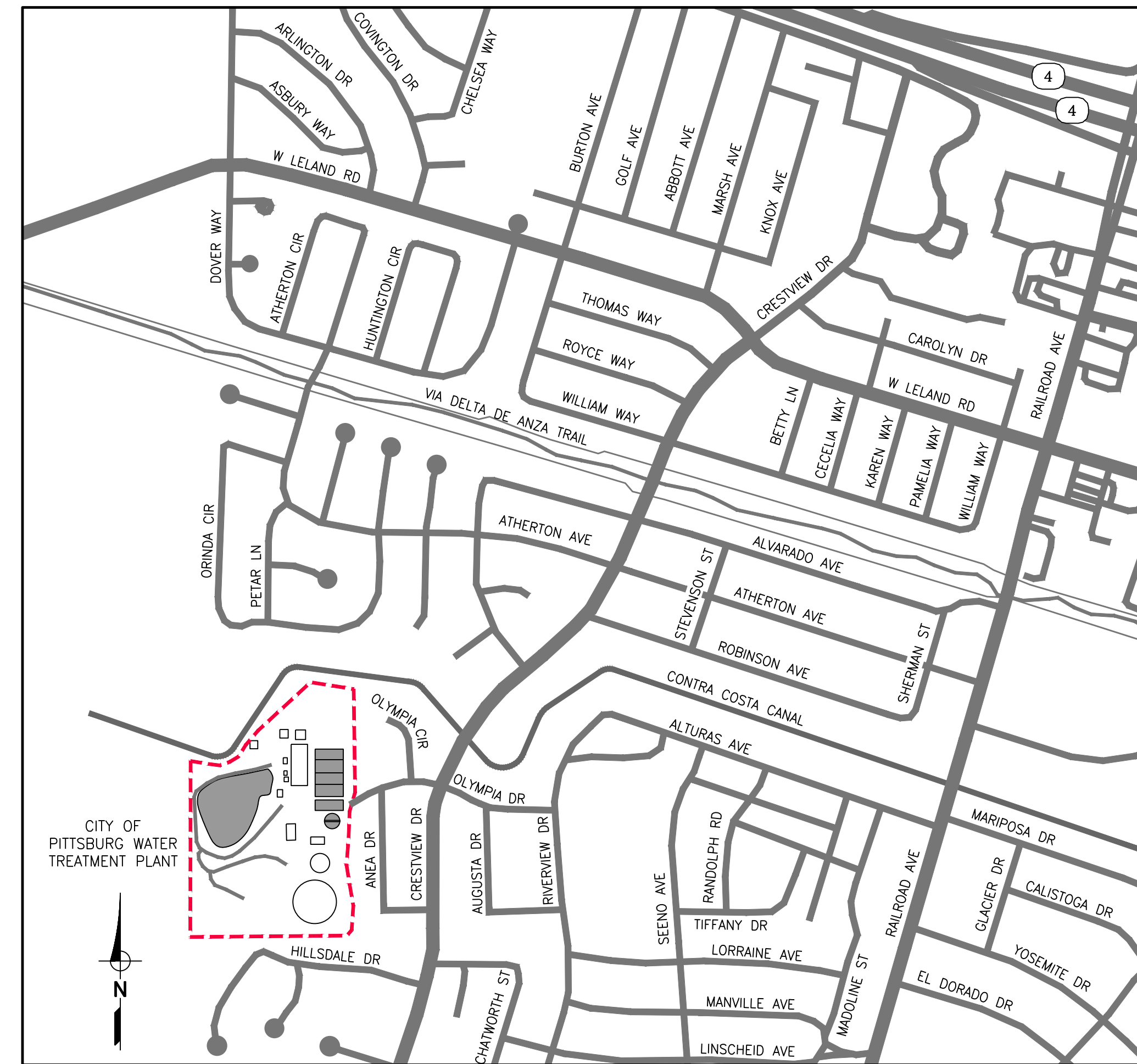
CITY OF PITTSBURG
WATER TREATMENT PLANT
300 OLYMPIA DRIVE
PITTSBURG, CA 94565
ATTN: JASON MOSER
(925) 252-6997

CIVIL ENGINEER:

WEST YOST ASSOCIATES
1001 GALAXY WAY
SUITE 310
CONCORD, CA 94520
ATTN: TIMOTHY R. BANYAI
(925) 949-5811



VICINITY MAP



LOCATION MAP

THE CITY COUNCIL OF THE CITY OF PITTSBURG
SHANELLE SCALES-PRESTON, MAYOR
JUAN ANTONIO BANALES, VICE MAYOR
JELANI KILLINGS, COUNCIL MEMBER
DIONNE ADAMS, COUNCIL MEMBER
ANGELICA LOPEZ, COUNCIL MEMBER

GARRETT EVANS, CITY MANAGER
ALICE E. EVENSON, CITY CLERK
JOHN SAMUELSON, CITY ENGINEER

JUNE 2023
PRELIMINARY PLAN
NOT FOR CONSTRUCTION

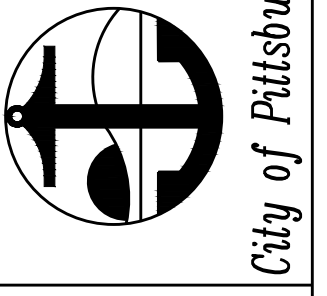
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SCALE IN INCHES

PREPARED UNDER THE DIRECTION OF:

JOHN SAMUELSON
City Engineer
Date: _____

ACCEPTED FOR USE:

JOHN SAMUELSON
City Engineer
Date: _____



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
TITLE SHEET, LOCATION MAP AND VICINITY MAP

BY: DRAWN: SMB
CHECKED: TRB
REVIEWED: AMS
DATE: JUNE 2023
SCALE: 1" = 40'

DATE	REV	DESCRIPTION

SHEET NO.
1 OF

DWG. NO.
G001

W:\Clients\1040 City of Pittsburg\50-22-01 Filter & C12 Improv\CAD\Production\1040-50-22-01-G001.dwg 5-30-23 09:22:43 AM agutierrez



ORIGINAL PAGE SIZE: 22"x34"

GENERAL

SHT NO.	DWG NO.	SHEET NAME
1	G001	TITLE SHEET, LOCATION MAP AND VICINITY MAP
2	G002	DRAWING INDEX
3	G003	LEGENDS AND ABBREVIATIONS
4	G004	DESIGN CRITERIA
5	G005	HYDRAULIC PROFILE
6	G006	LIQUID PROCESS FLOW DIAGRAM
7	G007	SOLIDS PROCESS FLOW DIAGRAM

CIVIL

SHT NO.	DWG NO.	SHEET NAME
8	GC001	CIVIL DETAILS 1
9	GC002	CIVIL DETAILS 2
10	GC003	CIVIL DETAILS 3
11	C001	EXISTING WTP AREA SITE PLAN
12	C003	OVERALL WTP DEMOLITION PLAN
13	C100	OVERALL PROPOSED SITE PLAN
14	C101	OVERALL YARD PIPING PLAN

NOTE: ADDITIONAL CIVIL SHEETS WILL BE PROVIDED ON 6/5/23

STRUCTURAL

SHT NO.	DWG NO.	SHEET NAME
15	GS001	Structural General Notes 1
16	GS002	Structural General Notes 2
17	GS003	Structural General Notes 3
18	GS004	Legend and Abbreviations
19	S001	Structural Standard Details 1
20	S002	Structural Standard Details 2
21	S003	Structural Standard Details 3
22	S641	Chemical Storage Area-Foundation Plan
23	S642	Chemical Storage Area-Roof Plan
24	S643	Chemical Storage Area-Sections 1
25	S644	Chemical Storage Area-Sections 2

MECHANICAL

SHT NO.	DWG NO.	SHEET NAME
26	GM001	MECHANICAL DETAILS 1
27	GM002	MECHANICAL DETAILS 2
28	GM003	MECHANICAL DETAILS 3
29	GM004	MECHANICAL DETAILS 4
30	M290	SETTLED WATER MANIFOLD PLAN, SECTION AND DETAILS
31	M300	FILTER COMPLEX ISOMETRIC VIEW 1
32	M301	FILTER COMPLEX ISOMETRIC VIEW 2
33	M302	FILTER UPPER LEVEL PLAN
34	M303	FILTER BLOWER AND ELECTRICAL ROOM PLAN
35	M304	FILTER GALLERY SECTIONS 1
36	M305	FILTER GALLERY SECTIONS 2
37	M310	FILTER SECTIONS AND DETAILS 1
38	M640	CHEMICAL STORAGE AREA RENDERING
39	M641	CHEMICAL STORAGE AREA PLAN
40	M642	CHEMICAL STORAGE AREA SECTIONS 1
41	M643	CHEMICAL STORAGE AREA SECTIONS 2
42	M644	CHEMICAL STORAGE AREA SECTIONS AND DETAILS
43	M660	GASEOUS CHLORINE SYSTEM DEMOLITION PLAN
44	M661	CHLORINE ROOM PLAN, SECTIONS AND DETAILS
45	M662	EXISTING CHLORINE DIOXIDE GENERATOR MODIFICATIONS
46	M663	SODIUM HYPOCHLORITE METERING PUMPS ISOMETRIC

INSTRUMENTATION

SHT NO.	DWG NO.	SHEET NAME
47	G1001	INSTRUMENTATION LEGEND
48	G1002	INSTRUMENTATION LEGEND
49	G1003	INSTRUMENTATION STANDARD DETAILS I
50	G1004	INSTRUMENTATION STANDARD DETAILS II
51	G1005	INSTRUMENTATION STANDARD DETAILS III
52	I010	P&ID - NETWORK DIAGRAM
53	I301	P&ID - FILTER 1
54	I320	P&ID - AIR SCOUR BLOWERS AND SUMP
55	I640	P&ID - SODIUM HYPOCHLORITE STORAGE SYSTEM
56	I641	P&ID - SODIUM HYPOCHLORITE METERING PUMPS
57	I642	P&ID - HYDROCHLORIC ACID STORAGE SYSTEM
58	I643	P&ID - CHLORINE DIOXIDE GENERATORS

ELECTRICAL

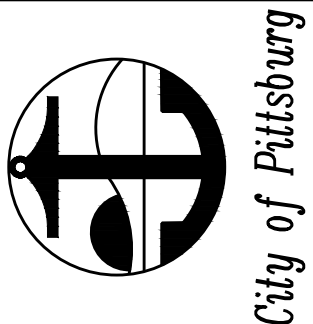
SHT NO.	DWG NO.	SHEET NAME
59	GE001	ELECTRICAL LEGEND AND ABBREVIATIONS
60	GE002	ELECTRICAL STANDARD DETAILS I
61	GE003	ELECTRICAL STANDARD DETAILS II
62	GE004	MCC-30 SINGLE LINE DIAGRAM AND ELEVATION
63	GE005	PEAK POWER SWITCHBOARD SINGLE LINE DIAGRAM AND PHOTOS
64	GE006	MCC-B PARTIAL SINGLE LINE DIAGRAM AND PHOTOS
65	E301	FILTER LOWER LEVEL PLAN
66	E303	FILTER BLOWER AND ELECTRICAL ROOM PLAN
67	E306	FILTER BLOWER AND ELECTRICAL ROOM SECTIONS
68	E307	FILTER BLOWER AND ELECTRICAL ROOM SECTIONS
69	E480	HIGH LEVEL PUMP STATION NO. 2 PARTIAL SITE PLAN
70	E600	OPERATIONS BUILDING LOWER LEVEL PLAN
71	E641	CHEMICAL STORAGE AREA PLAN
72	E661	CHLORINE ROOM PLAN



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**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 DRAWING INDEX



ACCEPTED FOR USE:
 JOHN SAMUELSON
 City Engineer
 Date: _____

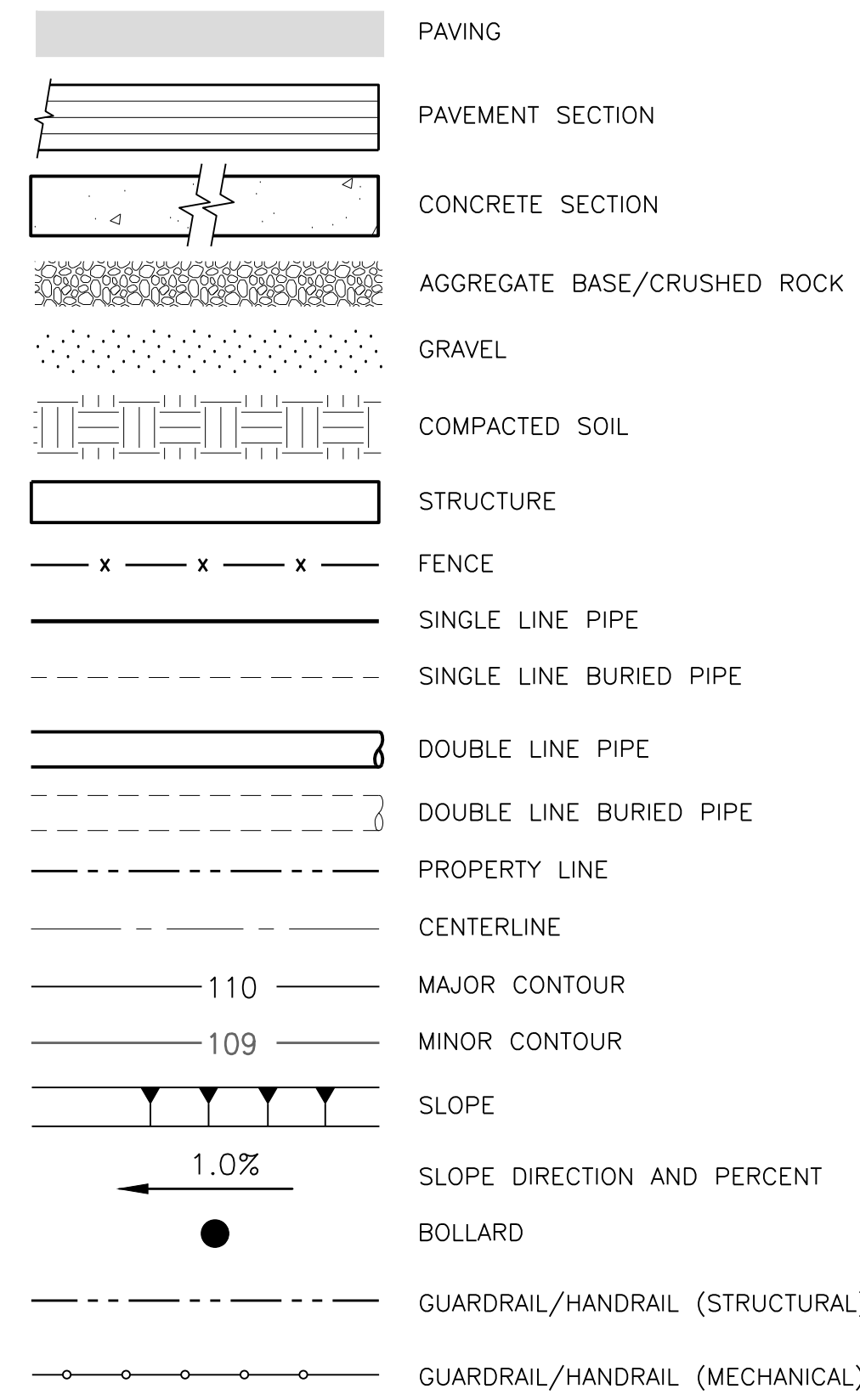
PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 DATE: _____

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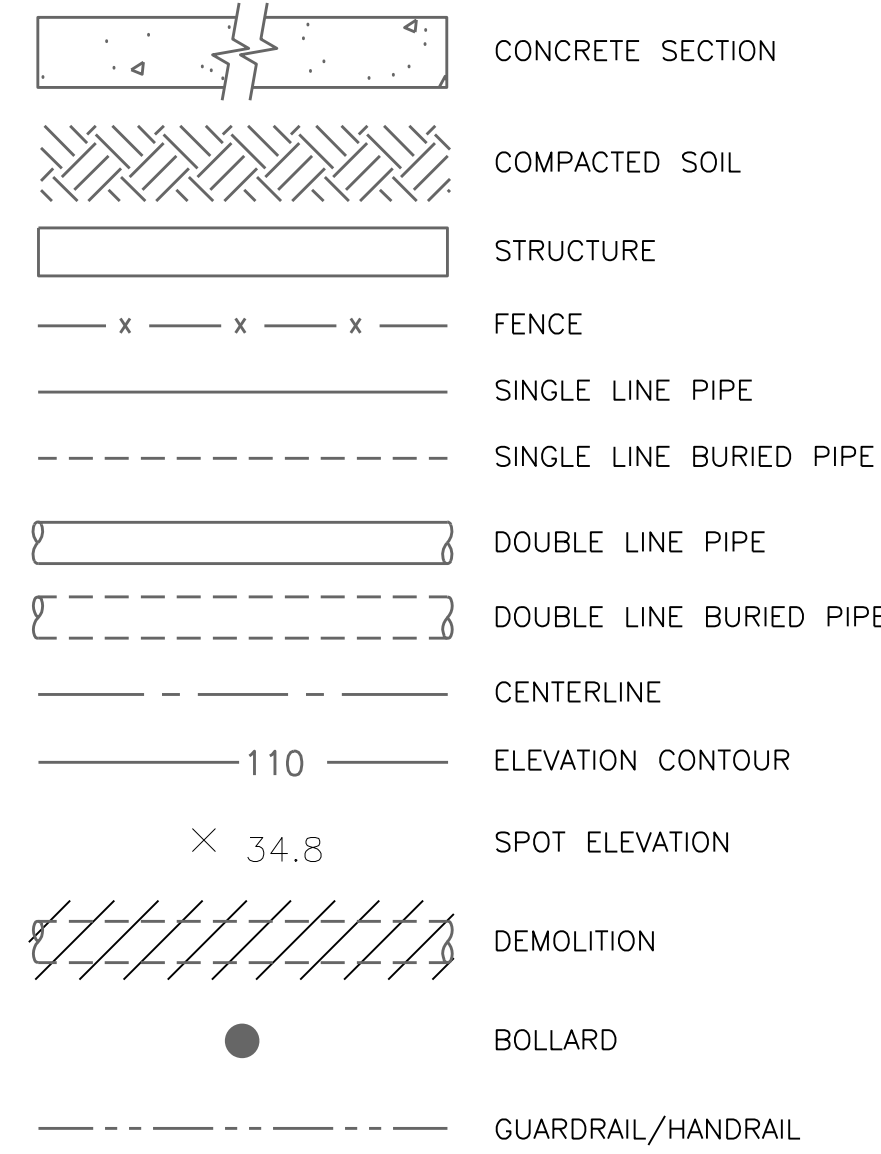
SHEET NO.
2 OF #
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G002

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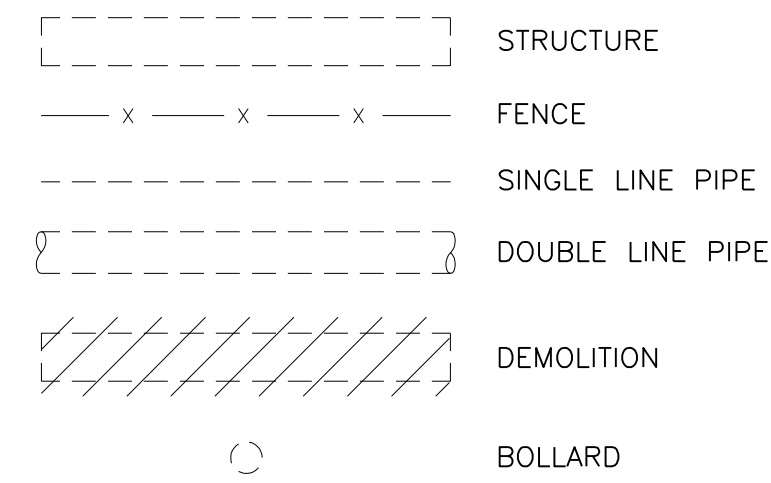
NEW (PROPOSED)



EXISTING



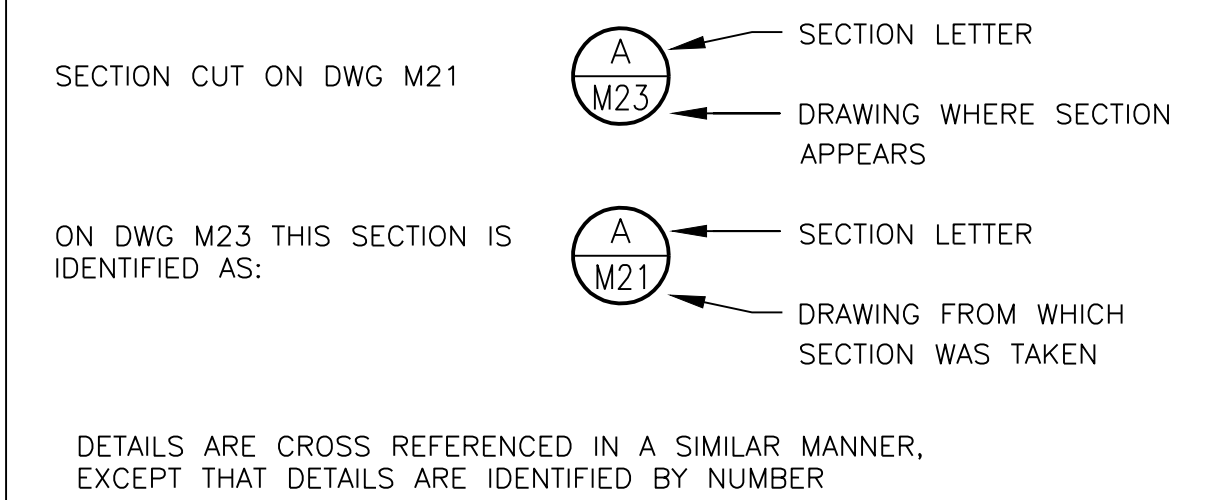
FUTURE



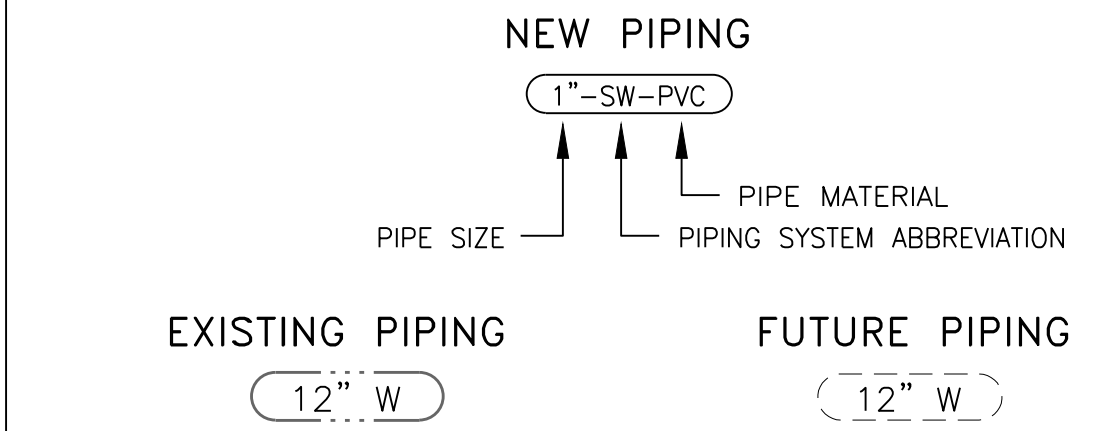
ABBREVIATIONS

AB	AGGREGATE BASE	R	RADIUS
AC	ASPHALT CONCRETE	REQ'D	REQUIRED
AFF	ABOVE FINISH FLOOR	REV	REVISION
AL	ALUM	R/W	RIGHT OF WAY
APPROX	APPROXIMATE	S	SEWER, SOUTH, SLOPE
ARV	AIR RELIEF VALVE	SCH	SCHEDULE
ASPH	ASPHALT	SDMH	STORM DRAIN MANHOLE
BC	BEGIN CURVE	SPD	SUMP PUMP DISCHARGE
B.C.	BACK OF CURB	SQ	SQUARE
BF	BLIND FLANGE	SS	SANITARY SEWER
BFV	BUTTERFLY VALVE	SSB	STAINLESS STEEL BOLT
B.O.	BLOW OFF	SSMH	SANITARY SEWER MANHOLE
BM	BENCH MARK	SST	STAINLESS STEEL
CB	CATCH BASIN	STA	STATION
CL, ☉	CENTER LINE	ST	STREET
CLR	CLEAR	STD	STANDARD
CLSM	CONTROLLED LOW STRENGTH MATERIAL	STL	STEEL
CMU	CONCRETE MASONRY UNIT	SVC	SERVICE
CO	CLEAN OUT	SW	SIDEWALK
CONC	CONCRETE	T	TELEPHONE
CONT.	CONTINUOUS	T&B	TOP & BOTTOM
CPE	COPOLYESTER	TC	TOP OF CURB
CY	CHECK VALVE	TOC	TOP OF CONCRETE
DEM	DEMOLITION	TOW	TOP OF WALL
DI	DRAIN INLET	TYP	TYPICAL
DIA, ⌀	DIAMETER	UG	UNDERGROUND
DIP	DUCTILE IRON PIPE	VAR	VARIOUS
DWG	DRAWING	VTR	VENT THROUGH ROOF
E	EAST	W	WEST
EA	EACH	W/O	WITH OUT
EF	EACH FACE	WCT	WASTE CONTAINMENT TANK
EL	ELEVATION	WL	WATER LEVEL
ELEC	ELECTRIC	WS	WATER SURFACE
EP	EDGE OF PAVEMENT	WSE	WATER SURFACE ELEVATION
EQUIP	EQUIPMENT	WTP	WATER TREATMENT PLANT
EW	EACH WAY	WV	WATER VALVE
(E), EX	EXISTING	WWF	WELDED WIRE FABRIC
EXP	EXPANSION		
FCO	FLOOR CLEANOUT		
FD	FLOOR DRAIN		
FF	FINISHED FLOOR		
FG	FINISHED GRADE		
FH	FIRE HYDRANT		
FL, ☉	FLOW LINE		
FLG	FLANGE		
FO	FIBER OPTIC		
FOC	FACE OF CURB		
FOT	FLAT ON TOP		
FRP	FIBERGLASS REINFORCED PLASTIC		
FSW	FIRE SERVICE WATER		
FT, ' "	FEET, FOOT		
FUT, F, (F)	FUTURE		
GA	GAUGE		
GALV	GALVANIZED		
GB	GRADE BREAK		
GS	GROUND SURFACE		
GSP	GROUND SURFACE PROFILE		
GV	GATE VALVE		
HC	HANDICAPPED		
HP	HIGH POINT IN PVMT, HIGH PRESSURE		
HPI	HORIZONTAL POINT OF INFLECTION		
HORZ	HORIZONTAL		
IE	INVERT ELEVATION		
IN, ' "	INCH		
INV	INVERT		
IPS	IRON PIPE SIZE		
LF	LINEAL FEET		
M	METER		
MFR	MANUFACTURER		
MAX	MAXIMUM		
MIN	MINIMUM		
MH	MANHOLE		
MON	MONUMENT, MONITORING		
MOV	MOTOR OPERATED VALVE		
N	NORTH		
NIC	NOT IN CONTRACT		
No., #	NUMBER		
NTS	NOT TO SCALE		
OC	ON CENTER		
OD	OUTSIDE DIAMETER		
OF	OVERFLOW		
OH	OVERHEAD		
PCC	PORTLAND CEMENT CONCRETE		
PE	PLAIN END, POLYETHYLENE		
PG	PRESSURE GAUGE		
PL, ☉	PLATE, PROPERTY LINE		
PRV	PRESSURE REDUCING VALVE		
PSF	POUNDS PER SQUARE FOOT		
PSI	POUNDS PER SQUARE INCH		
PSV	PRESSURE RELIEF VALVE		
PV	PLUG VALVE		
PVC	POLYVINYL CHLORIDE		
PVM'T	PAVEMENT		

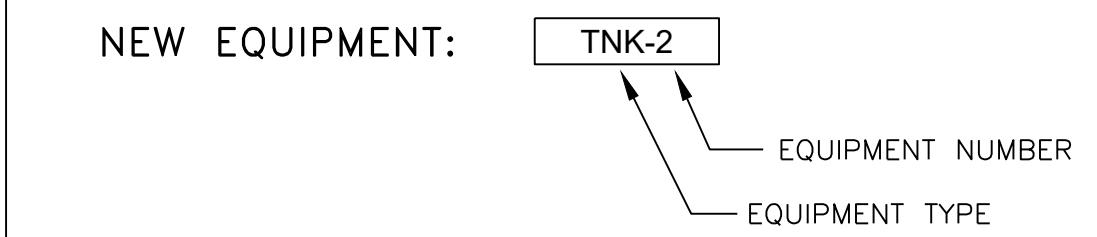
SECTION & DETAIL DESIGNATIONS



PIPING DESIGNATIONS



EQUIPMENT NUMBERING DESIGNATION



PIPING SYSTEM ABBREVIATIONS

1W	PLANT WATER, POTABLE
2W	PLANT WATER, NONPOTABLE
AS	AIR SCOUR
AAS	AMMONIA SOLUTION
CD	CHEMICAL DRAIN
CFE	COMBINED FILTER EFFLUENT
CLD	CHLORINE DIOXIDE
CLS	CHLORINE SOLUTION
CLV	CHLORINE VAPOR
D	DRAIN
FE	FILTER EFFLUENT
FI	FILTER INFLUENT
FTW	FILTER TO WASTE
HCL	HYDROCHLORIC ACID
NG	NATURAL GAS
OF	OVERFLOW
PFD	PERFORATED DRAIN
POL	POLYMER
SA	SAMPLE
SC	SPARE CHEMICAL
SCL	SODIUM CHLORITE
SD	STORM DRAIN
SHC	SODIUM HYPOCHLORITE
SS	SANITARY SEWER
SW	SETTLED WATER
V	VENT
WWD	WASHWATER DRAIN
WWS	WASHWATER SUPPLY

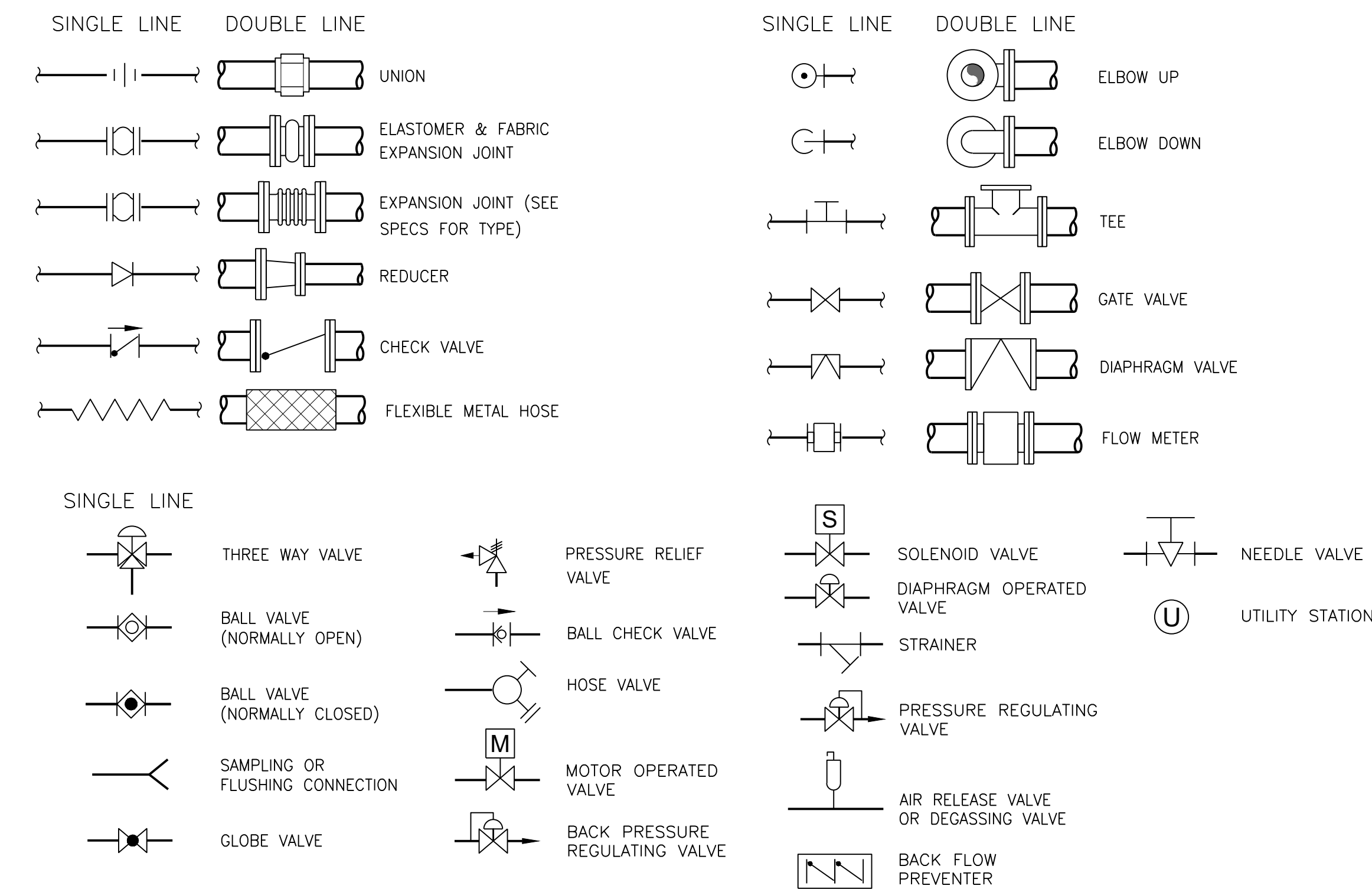
NOTE:
NOT ALL EXISTING PIPING SYSTEM ABBREVIATIONS ARE LISTED. SEE THE 1987 WATER TREATMENT PLANT DRAWINGS FOR ADDITIONAL ABBREVIATIONS.

PIPING SYSTEM MATERIAL ABBREVIATIONS

ABS	ACRYLONITRILE BUTADIENE STYRENE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CU	COPPER PIPE
DI	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
HDPE	HIGH DENSITY POLYETHYLENE (FUSED)
PE	POLYETHYLENE PIPE
PP	POLYPROPYLENE PIPE
PPC	PERFORATED POLYVINYL CHLORIDE
PVC	POLYVINYL CHLORIDE PIPE
RH	RUBBER HOSE
SST	STAINLESS STEEL
WS	WELDED STEEL PIPE

NOTE:
NOT ALL EXISTING PIPING SYSTEM MATERIAL ABBREVIATIONS ARE LISTED. SEE THE 1987 WATER TREATMENT PLANT DRAWINGS FOR ADDITIONAL ABBREVIATIONS.

MECHANICAL PIPE, FITTINGS AND VALVES

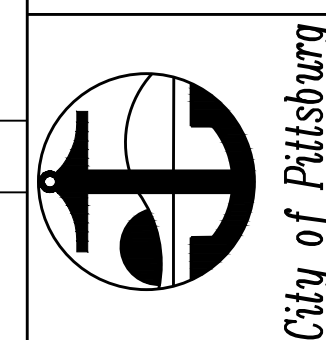


PREPARED UNDER THE DIRECTION OF:

JOHN SAMUELSON
DATE:

ACCEPTED FOR USE:

JOHN SAMUELSON
City Engineer
Date:



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
LEGENDS AND ABBREVIATIONS

BY	DRAWN: SMB
	CHECKED: TRB
	REVIEWED: AMS
	DATE: JUNE 2023
	SCALE: AS SHOWN

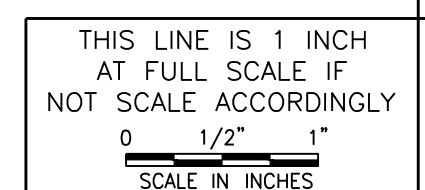
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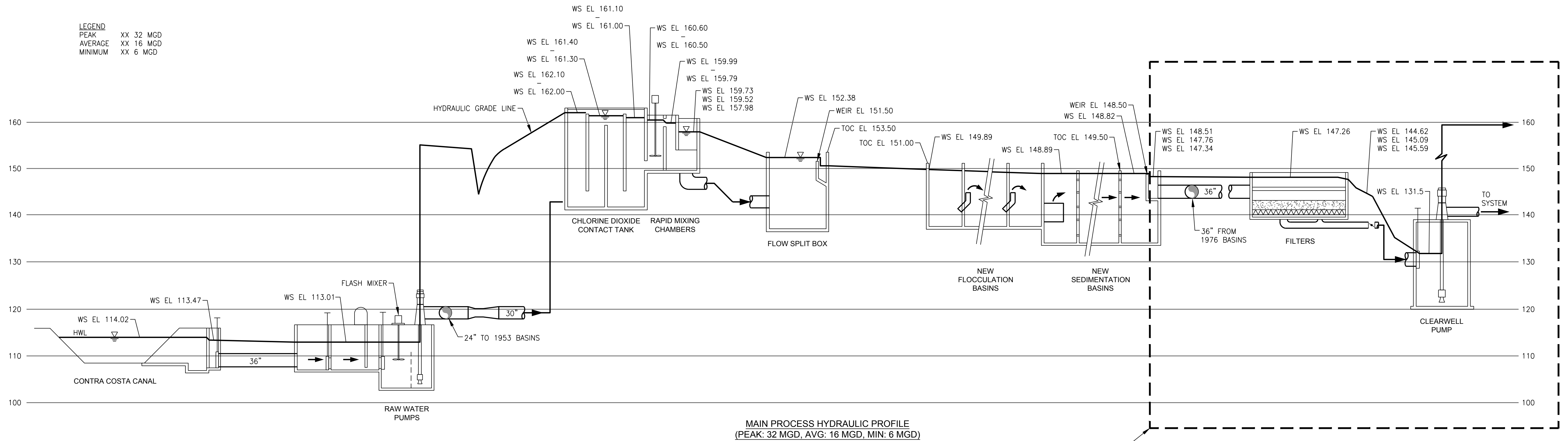
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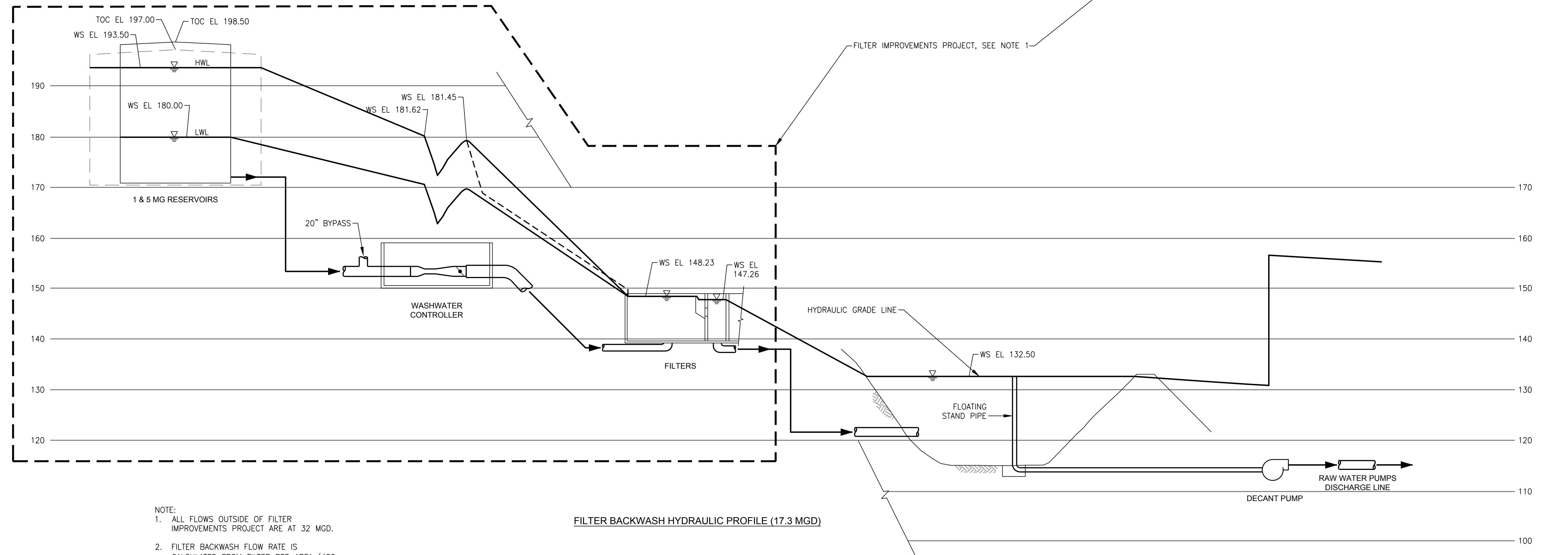
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LEGEND
 PEAK XX 32 MGD
 AVERAGE XX 16 MGD
 MINIMUM XX 6 MGD



MAIN PROCESS HYDRAULIC PROFILE
 (PEAK: 32 MGD, AVG: 16 MGD, MIN: 6 MGD)



FILTER BACKWASH HYDRAULIC PROFILE (17.3 MGD)

NOTE:
 1. ALL FLOWS OUTSIDE OF FILTER IMPROVEMENTS PROJECT ARE AT 32 MGD.
 2. FILTER BACKWASH FLOW RATE IS CALCULATED FROM FILTER BED AREA (480 SF) AND BACKWASH RATE OF 25 GPM/SF.

PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 DATE: _____
 City Engineer
 City of Pittsburg

WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION
 HYDRAULIC PROFILE

BY: SMB
 CHECKED: TRB
 REVIEWED: AMS
 DATE: 5/30/23
 SCALE: AS SHOWN

DATE	REV	DESCRIPTION

SHEET NO.
 5 OF #

DWG. NO.
G005

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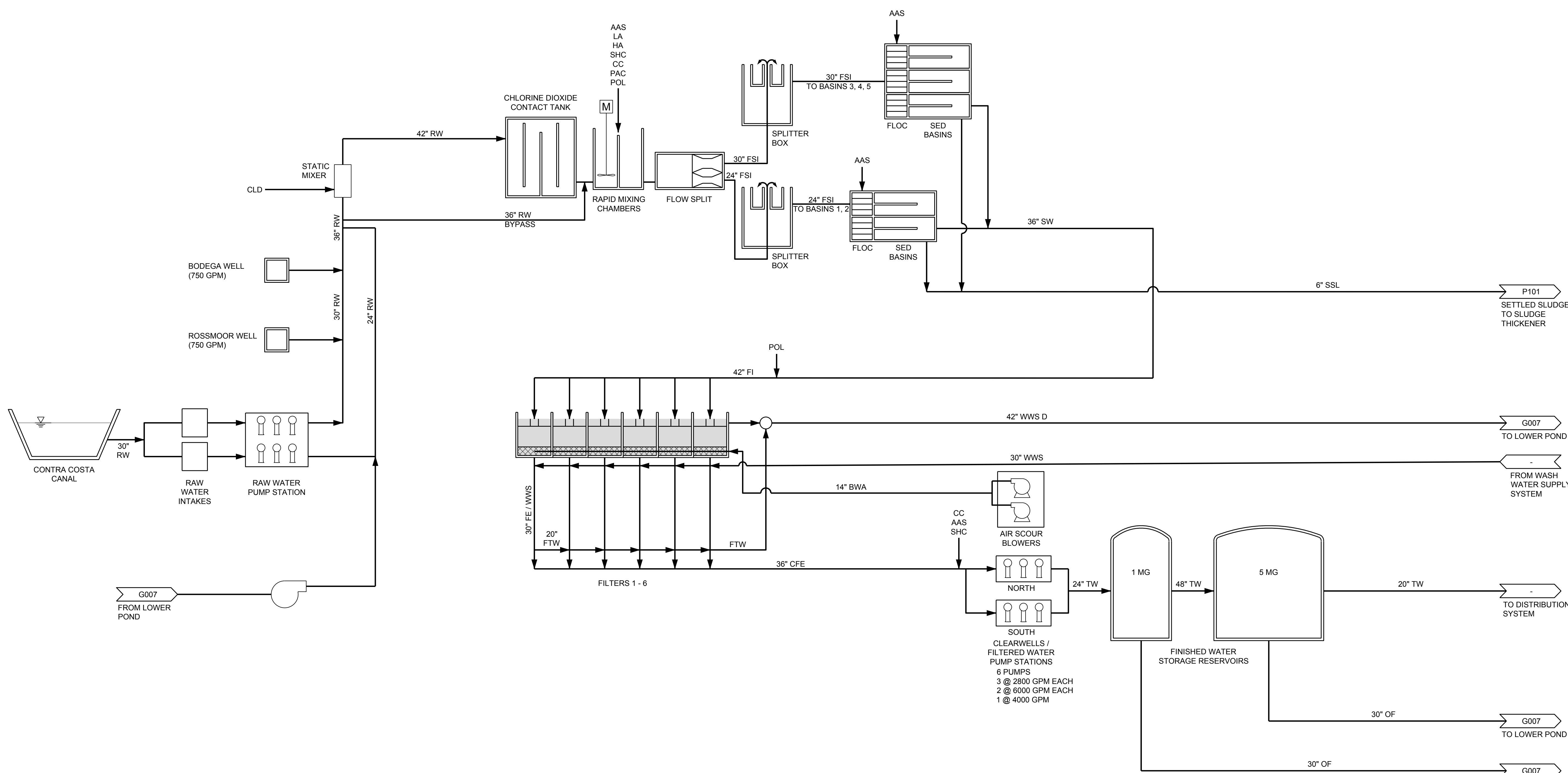


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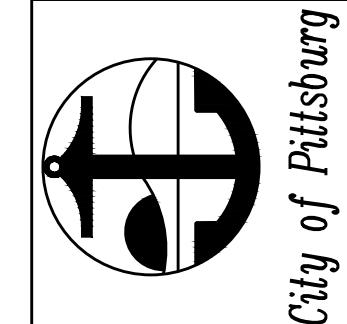
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- CHEMICAL ABBREVIATIONS**
- AAS ANHYDROUS AMMONIA
 - CC CORROSION CONTROL
 - CLD CHLORINE DIOXIDE
 - HA HYDROFLUORIC ACID
 - LA LIQUID ALUM
 - PAC POWDERED ACTIVATED CARBON
 - POL POLYMER
 - SHC SODIUM HYPOCHLORITE

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
Date: _____

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
LIQUIDS PROCESS FLOW DIAGRAM

BY: _____
DRAWN: SMB
CHECKED: TRB
REVIEWED: AMS
DATE: 5/30/23
SCALE: NONE

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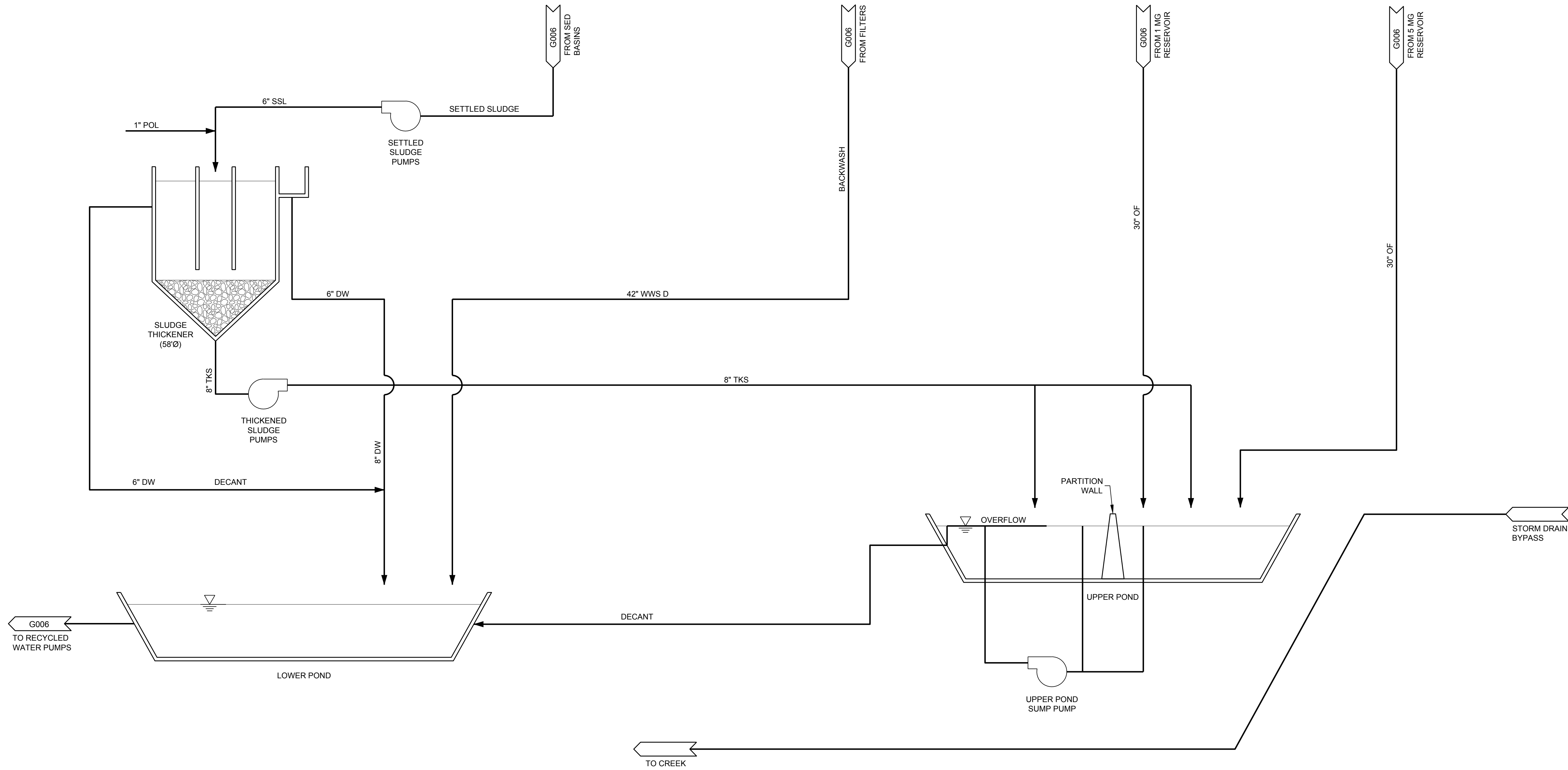
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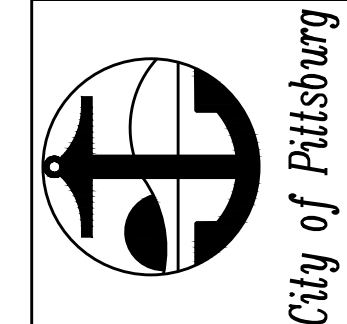
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- CHEMICAL ABBREVIATIONS
- AAS ANHYDROUS AMMONIA
 - CC CORROSION CONTROL
 - CLD CHLORINE DIOXIDE
 - HA HYDROFLUORIC ACID
 - LA LIQUID ALUM
 - PAC POWDERED ACTIVATED CARBON
 - POL POLYMER
 - SHC SODIUM HYPOCHLORITE

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JOHN SAMUELSON
City Engineer
Date: _____

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
SOLIDS PROCESS FLOW DIAGRAM

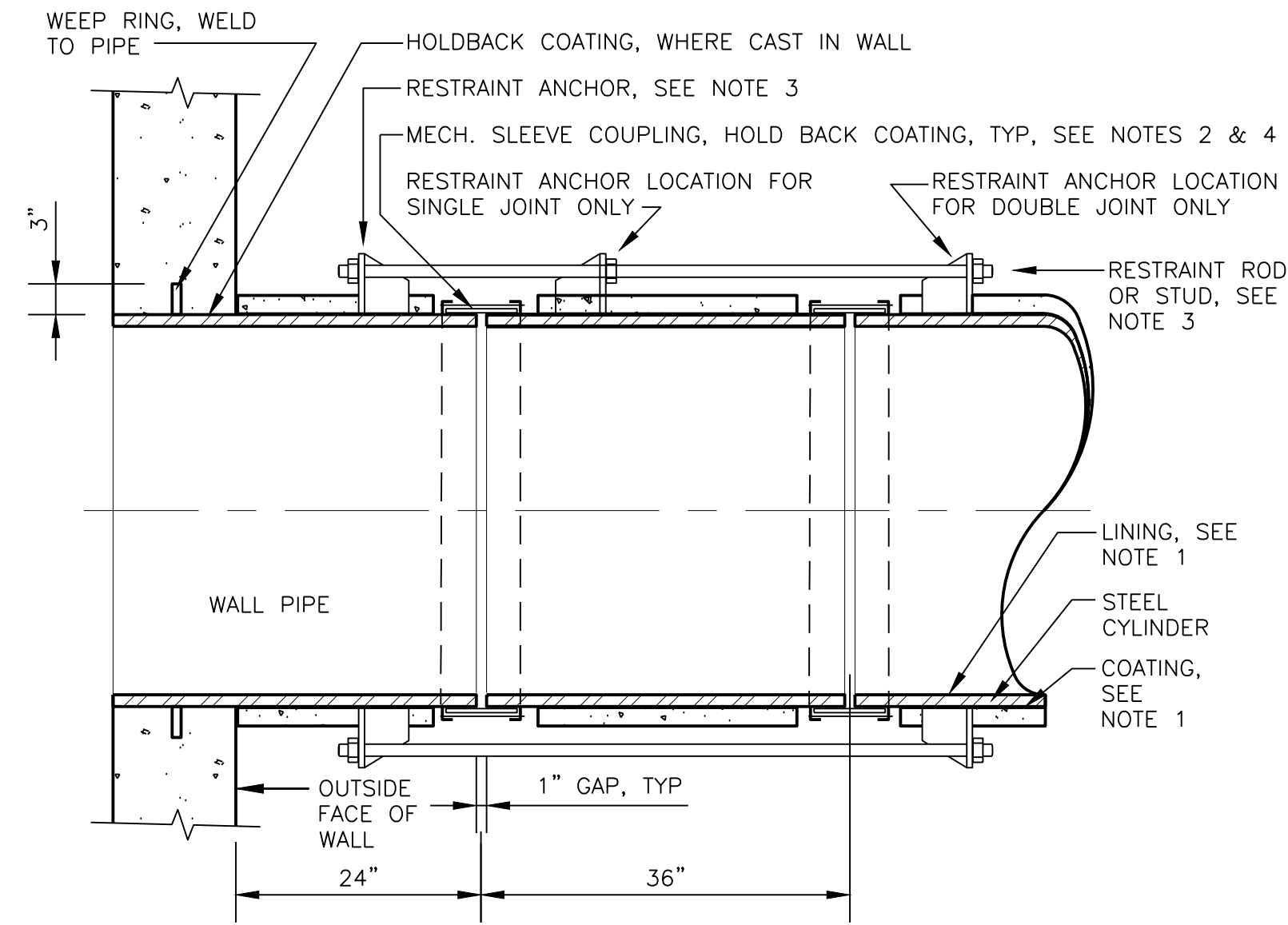
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DATE: 5/30/23
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OF #
DWG. NO.
G007

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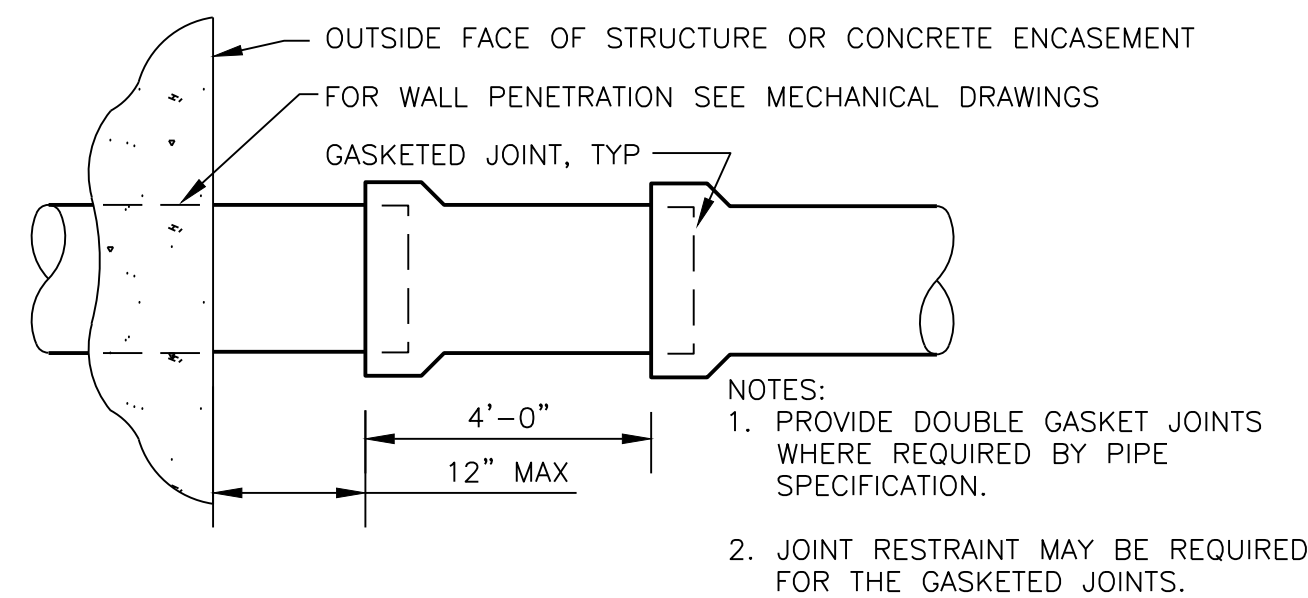
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- NOTES:
- SEE SPEC SECTIONS XX XX XX FOR FABRICATED STEEL PIPE AND SPECIALS REQUIREMENTS.
 - SEE SPEC SECTION XX XX XX FOR MECHANICAL SLEEVE COUPLING AND RESTRAINT REQUIREMENTS.
 - RESTRAINED ANCHORS AND RODS SHALL BE DESIGNED PER AWWA MOP11 AND AWWA C219-01. SUBMIT CALCULATIONS. SEE ALSO NOTE 2.
 - SEE SECTION XX XX XX FOR COATING REQUIREMENTS.

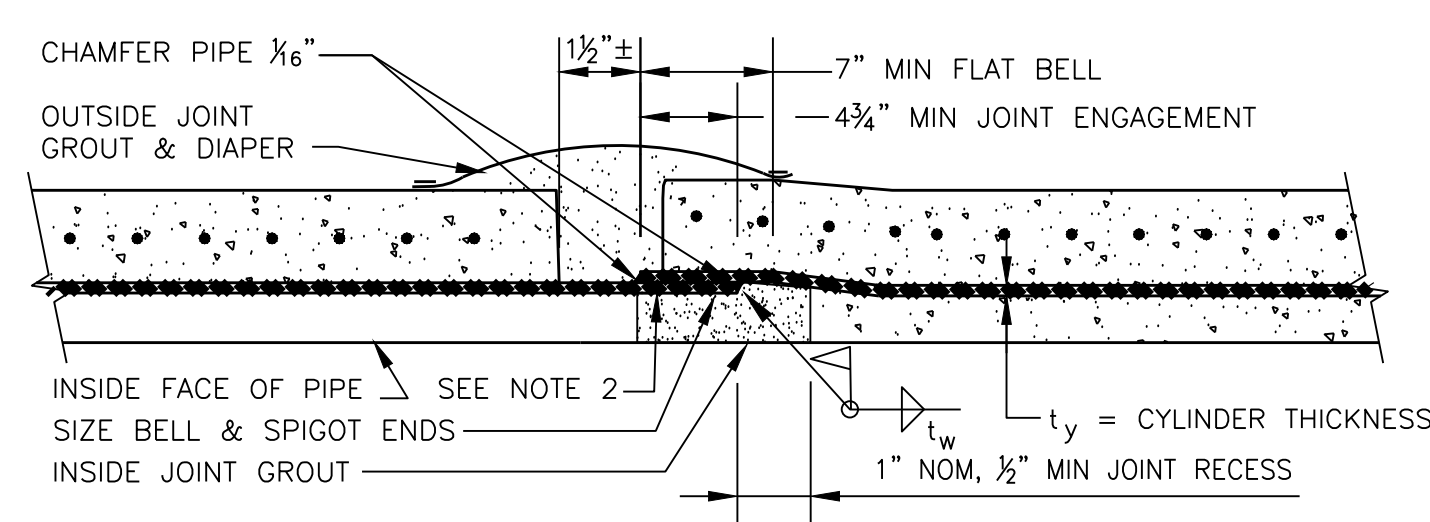
SINGLE OR DOUBLE RESTRAINED SLEEVE COUPLING AT WALL

DETAIL 1
VAR
NOT TO SCALE



DUCTILE IRON AT STRUCTURES & ENCASUREMENTS

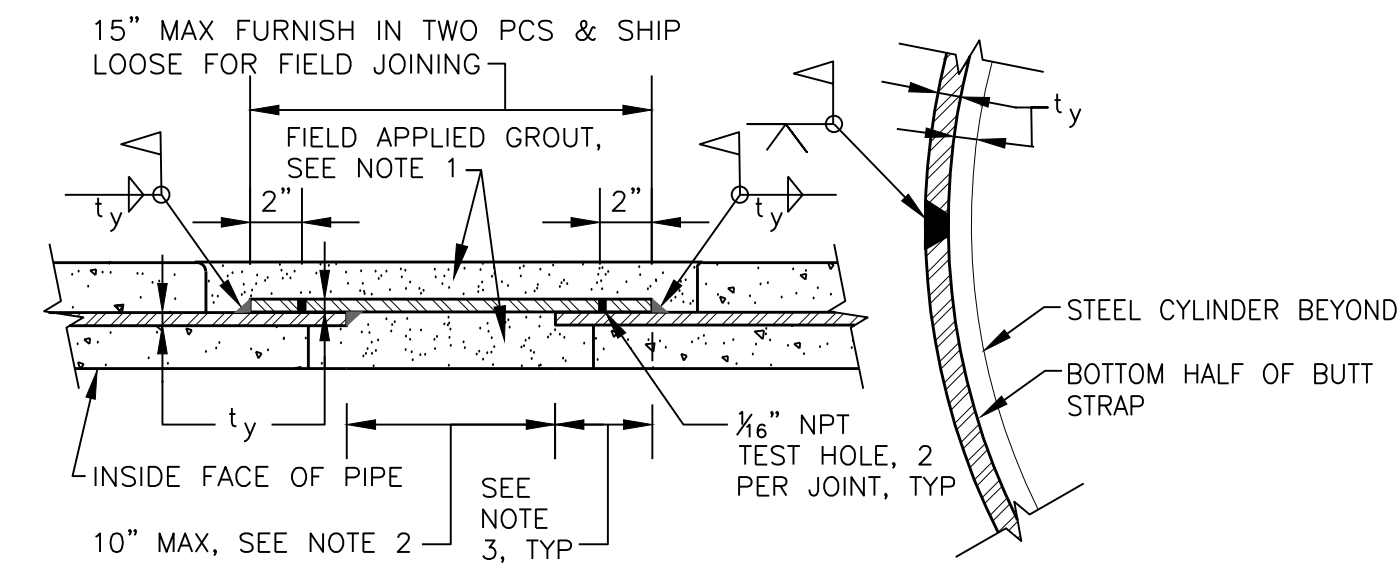
DETAIL 5
VAR
NOT TO SCALE



- NOTES:
- SEE SPECIFICATION SECTION XX XX XX FOR SIZE OF FILLET WELD t_w .
 - USE TWO 1/8" NPT TEST HOLES, WITH LINING BLOCKOUTS.
 - USE THIS DETAIL AS STANDARD FIELD JOINT AND FOR RESTRAINED JOINTS.
 - THIS JOINT DETAIL IS LIMITED TO PIPE WITH CYLINDER THICKNESS t_y LESS THAN OR EQUAL TO 3/8". USE DOUBLE WELDED BUTT JOINT FOR PIPE WITH t_y GREATER THAN 3/8".
 - HOLD BACK COATING AND LINING TO ACCOMMODATE FIELD WELDS.

FIELD JOINT FOR STEEL PIPE

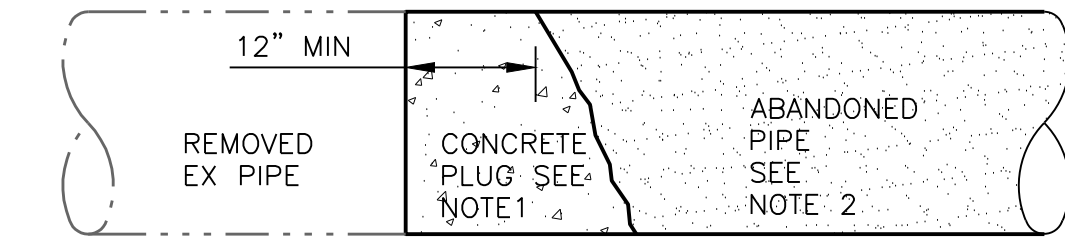
DETAIL 2
VAR
NOT TO SCALE



- NOTES:
- FIELD APPLIED REINFORCED JOINT GROUT, INSIDE AND OUTSIDE, REINFORCED WITH 2x4 12 GAUGE WELDED WIRE FABRIC. SPOT WELD FABRIC TO STEEL BUTT STRAP.
 - DISTANCE BETWEEN FILLET WELDS SHALL BE MINIMUM OF 10 t_y OR 4", WHICHEVER IS GREATEST.
 - LAP DISTANCE SHALL BE MINIMUM OF 5 t OR 4" WHICHEVER IS GREATEST.
 - PROVIDE HAND HOLES FOR ACCESS FOR GROUTING.

BUTT STRAP JOINT FOR STEEL PIPE

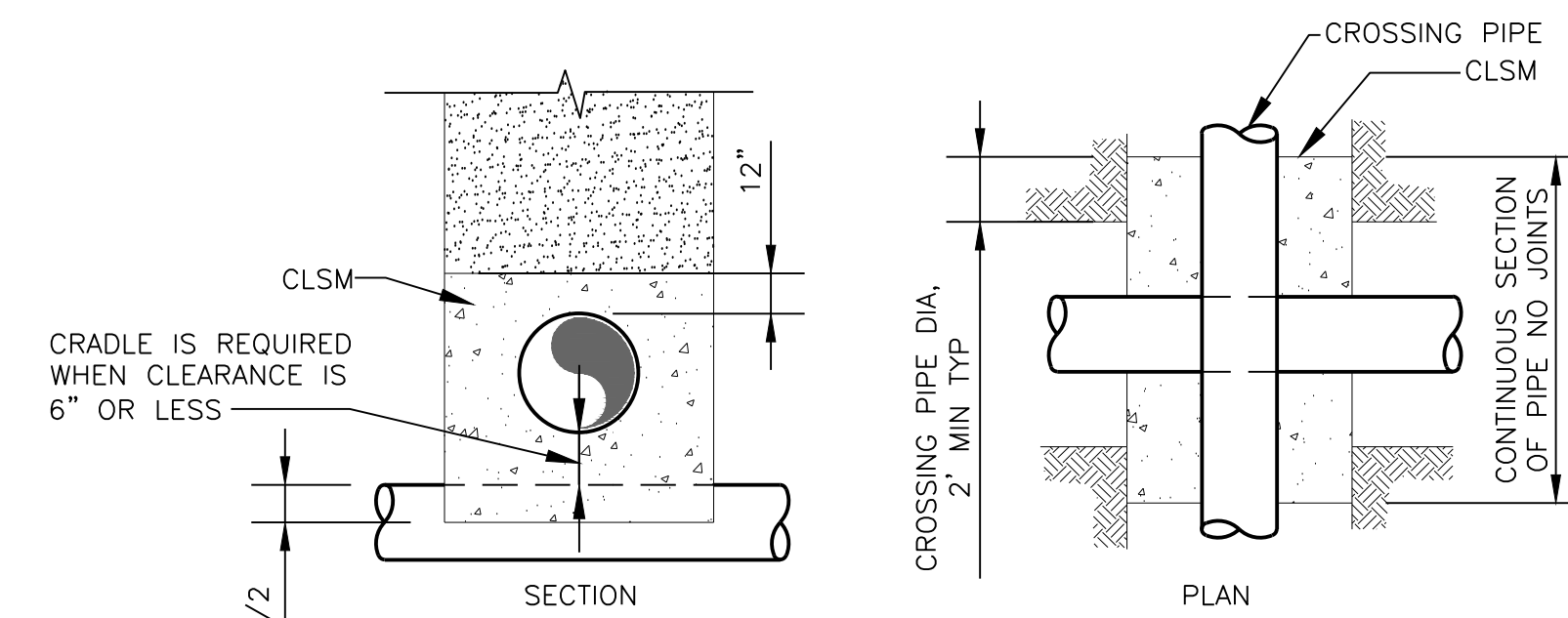
DETAIL 3
VAR
NOT TO SCALE



- NOTES:
- PIPE PLUGS SHALL BE INSTALLED WHERE INDICATED ON THE DRAWINGS.
 - ABANDONED PIPES 12" AND LARGER SHALL BE BROKEN EVERY 50' AND FILLED COMPLETELY WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM).

ABANDONED PIPE PLUGS

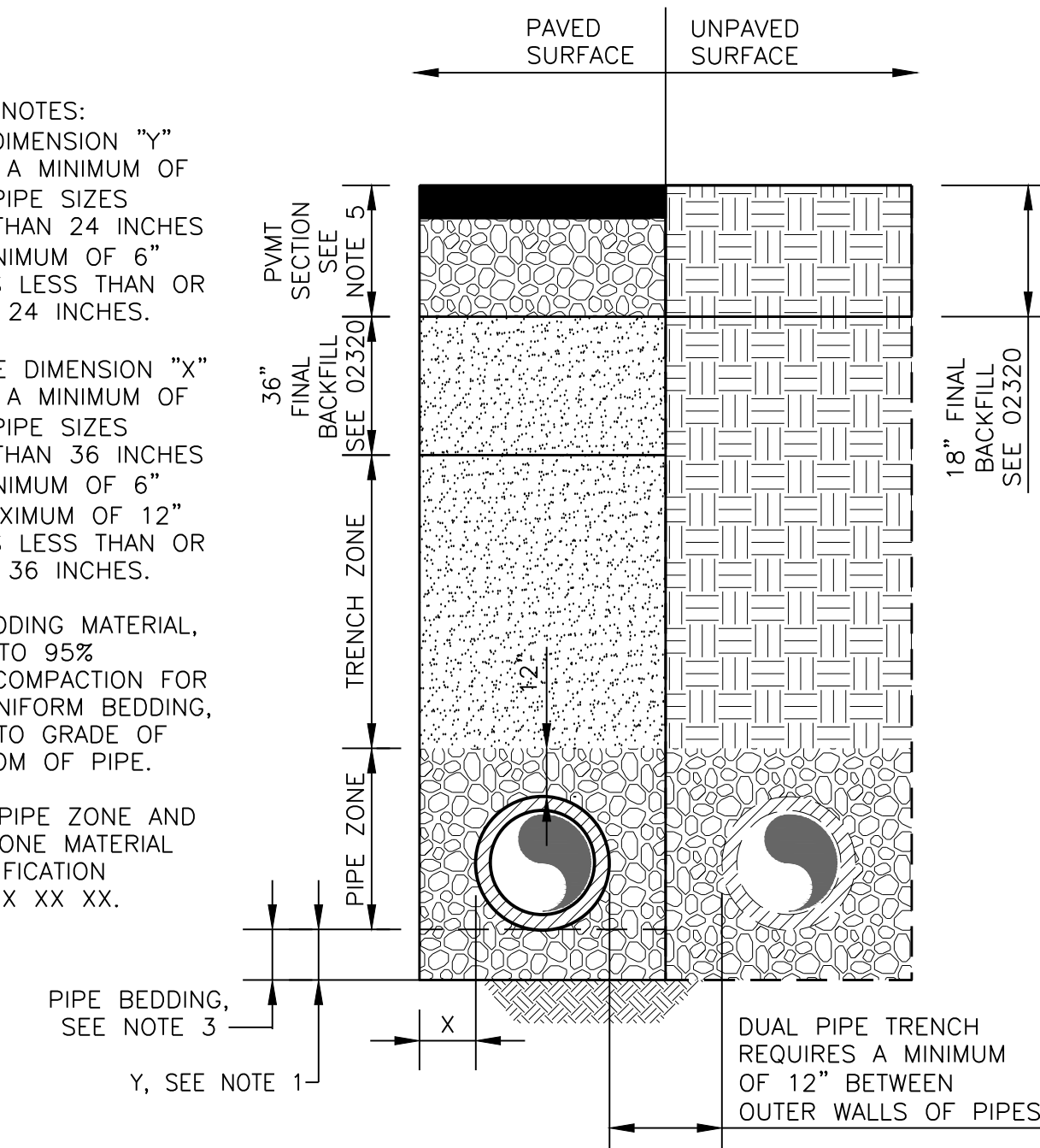
DETAIL 4
VAR
NOT TO SCALE



CLOSE CROSSING DETAIL

DETAIL 6
VAR
NOT TO SCALE

- PIPE TRENCH NOTES:
- BEDDING DIMENSION "y" SHALL BE A MINIMUM OF 12" FOR PIPE SIZES GREATER THAN 24 INCHES AND A MINIMUM OF 6" FOR PIPES LESS THAN OR EQUAL TO 24 INCHES.
 - CLEARANCE DIMENSION "x" SHALL BE A MINIMUM OF 18" FOR PIPE SIZES GREATER THAN 36 INCHES AND A MINIMUM OF 6" FOR PIPES LESS THAN OR EQUAL TO 36 INCHES.
 - PLACE BEDDING MATERIAL, COMPACT TO 95% RELATIVE COMPACTION FOR FIRM & UNIFORM BEDDING, & BRING TO GRADE OF THE BOTTOM OF PIPE.
 - BEDDING, PIPE ZONE AND TRENCH ZONE MATERIAL PER SPECIFICATION SECTION XX XX XX.

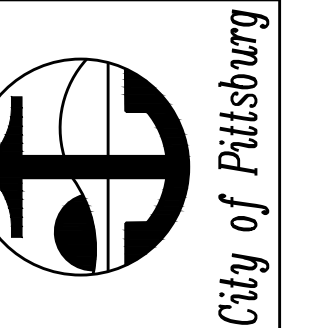


PIPE TRENCH

DETAIL 7
VAR
NOT TO SCALE

PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CIVIL DETAILS 1

BY:	DRAWN: SMB
DATE:	CHECKED: TRB
REV:	REVIEWED: AMS
	DATE: 5/31/23
	SCALE: AS SHOWN

DESCRIPTION

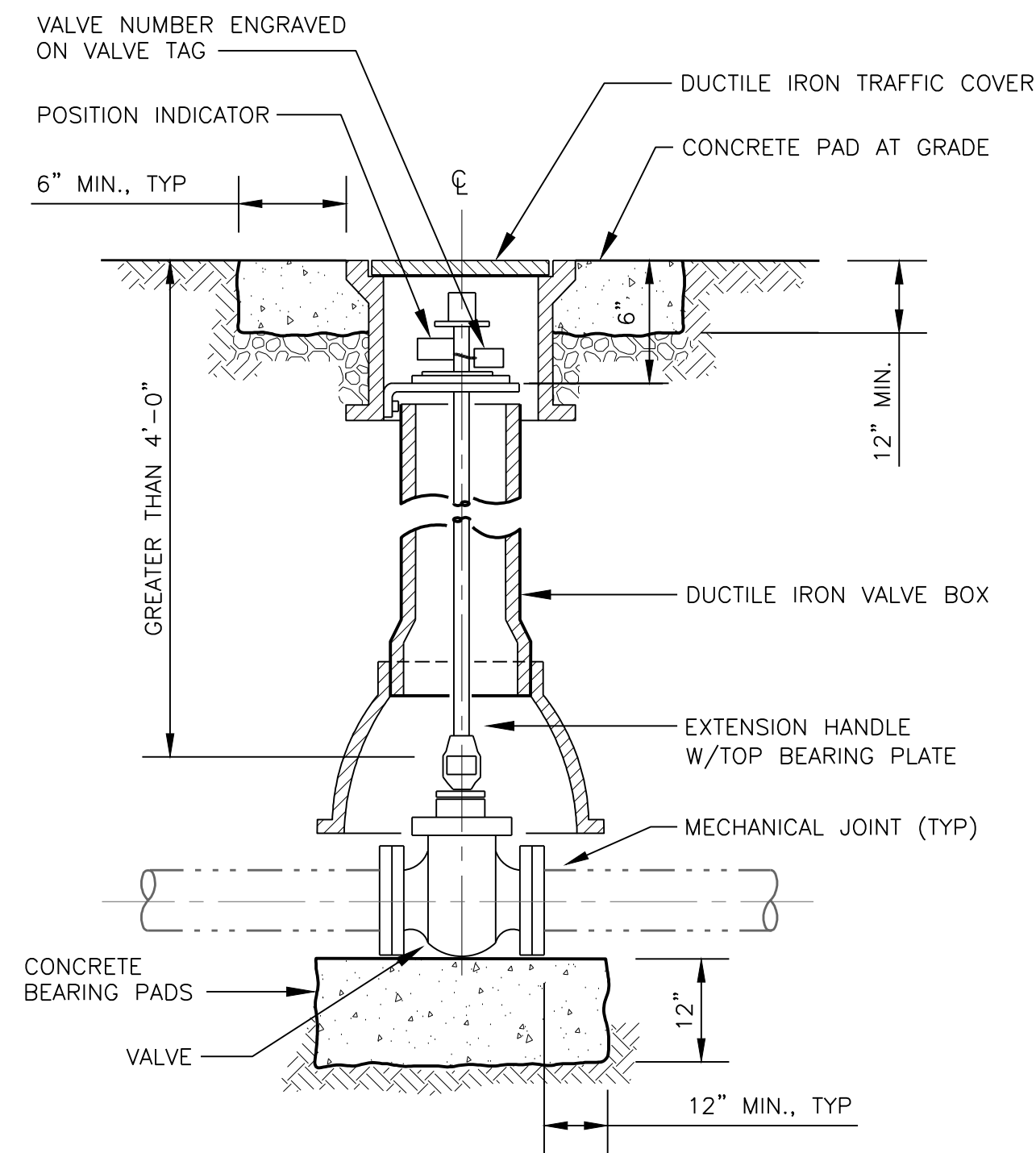
SHEET NO.
OF

DWG. NO.
GC001

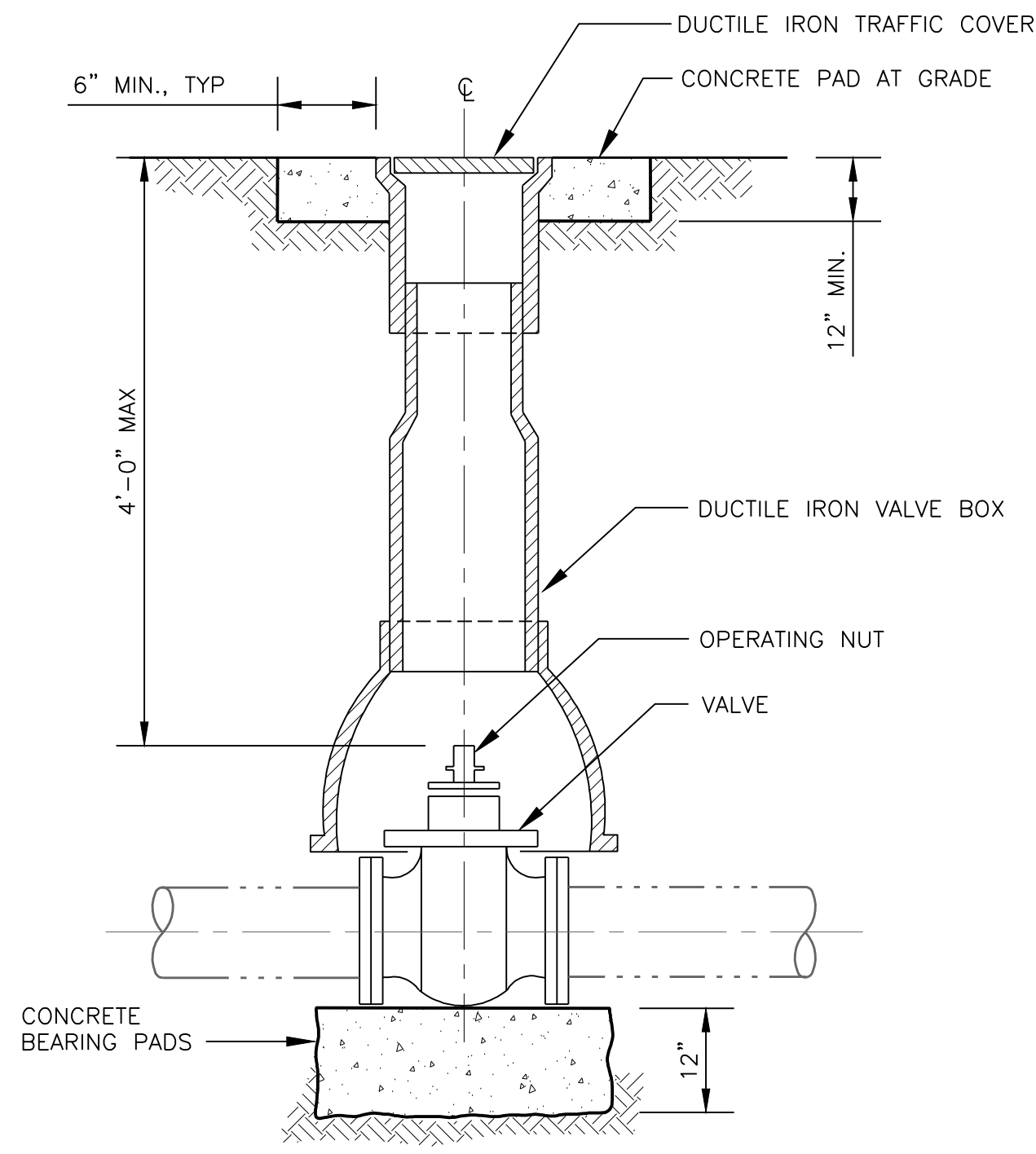
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NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES



ORIGINAL PAGE SIZE: 22"x34"



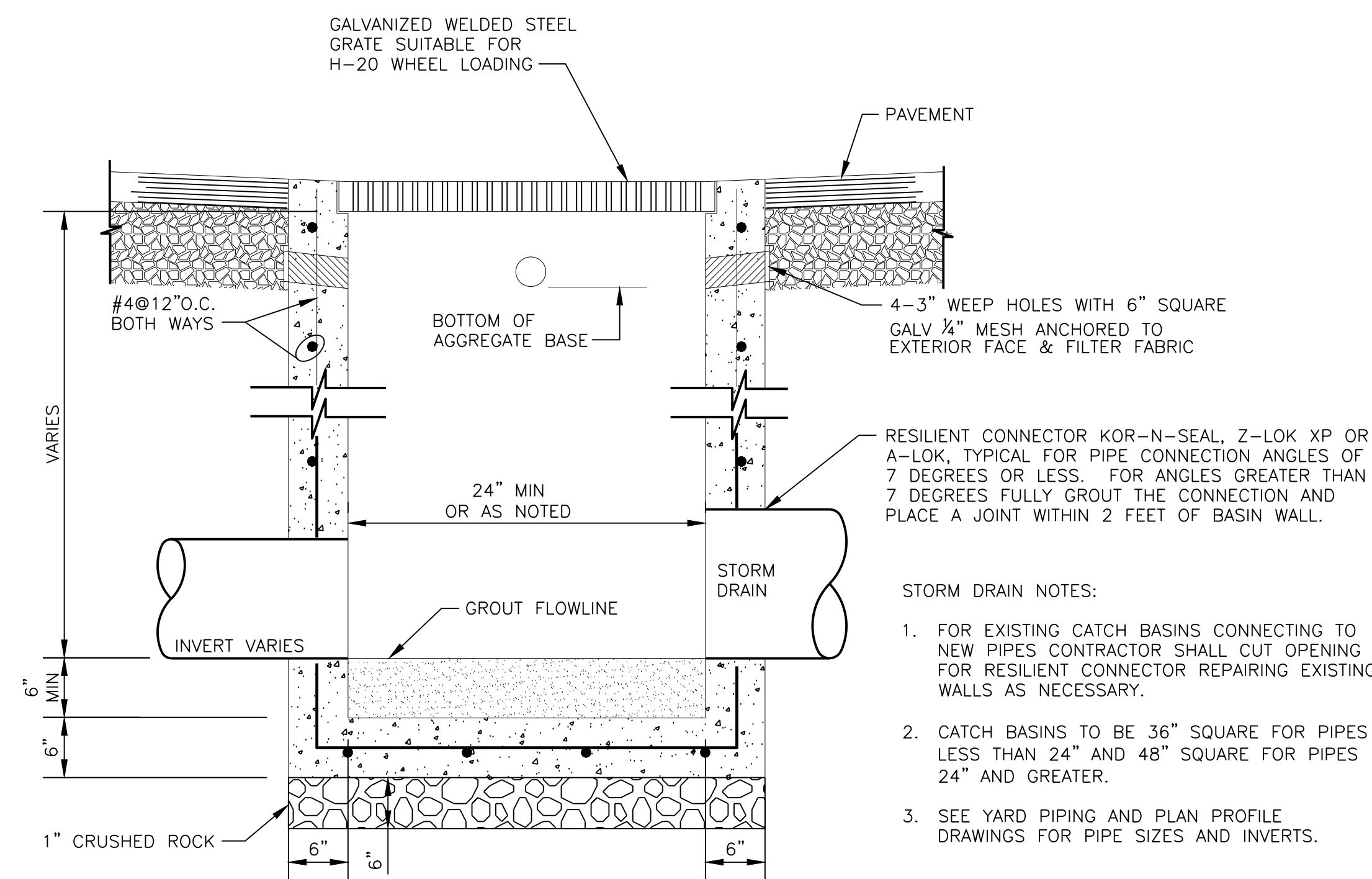
DEEP BURIAL



SHALLOW BURIAL

TYPICAL BURIED VALVE DETAILS

DETAIL 1 TYP NOT TO SCALE



CATCH BASIN

DETAIL 2 TYP NOT TO SCALE

- STORM DRAIN NOTES:
- FOR EXISTING CATCH BASINS CONNECTING TO NEW PIPES CONTRACTOR SHALL CUT OPENING FOR RESILIENT CONNECTOR REPAIRING EXISTING WALLS AS NECESSARY.
 - CATCH BASINS TO BE 36" SQUARE FOR PIPES LESS THAN 24" AND 48" SQUARE FOR PIPES 24" AND GREATER.
 - SEE YARD PIPING AND PLAN PROFILE DRAWINGS FOR PIPE SIZES AND INVERTS.

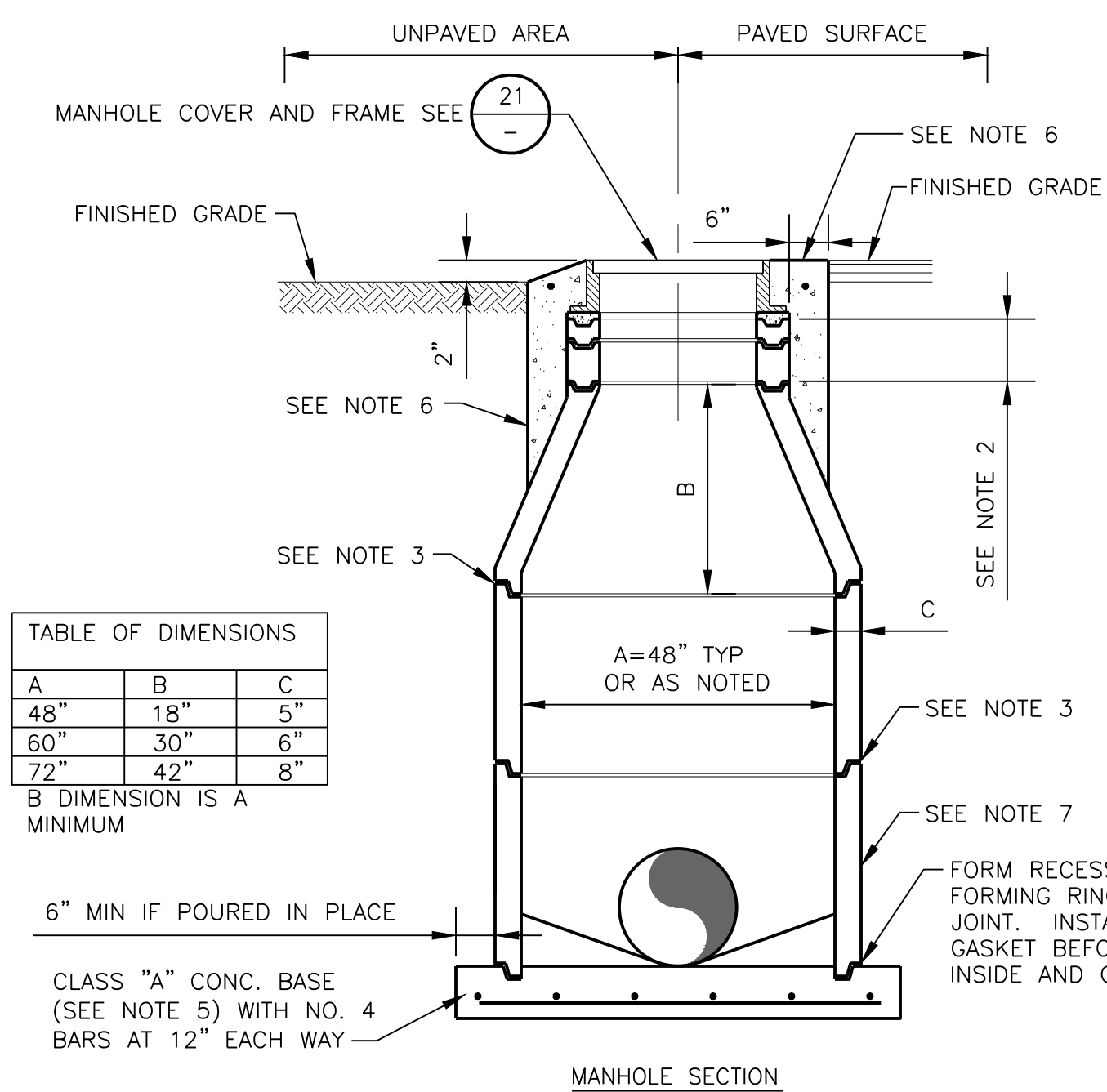
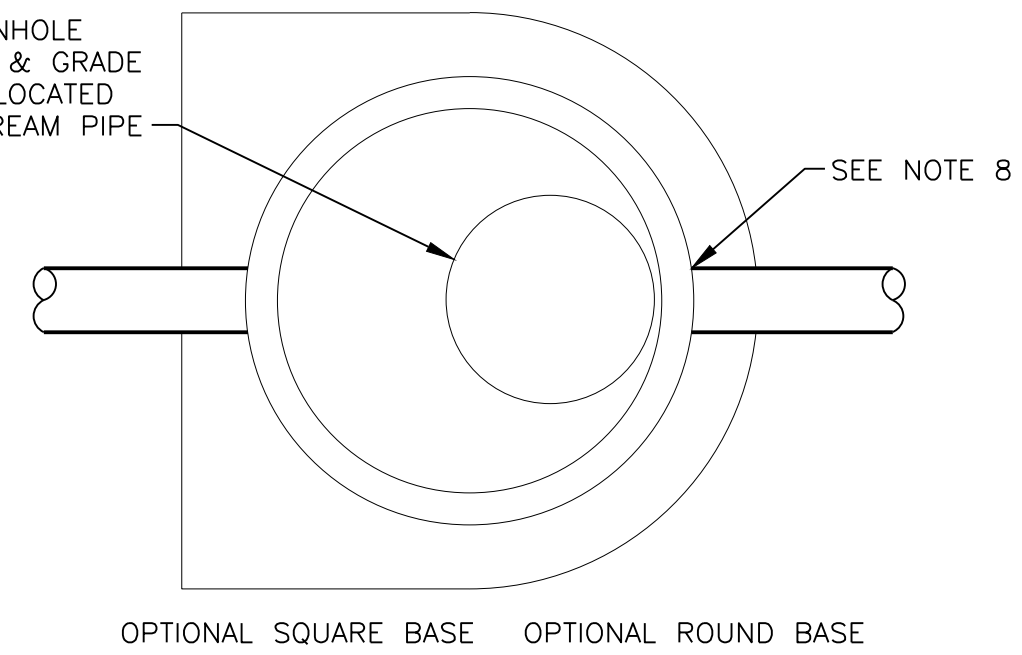


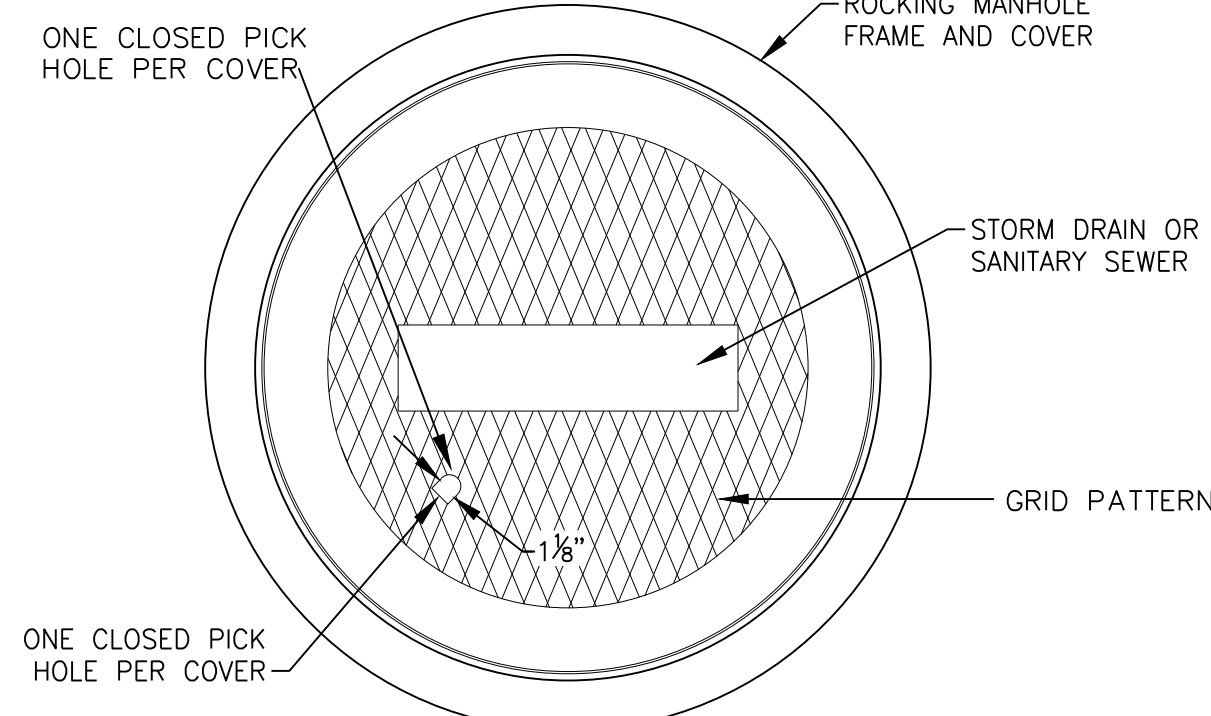
TABLE OF DIMENSIONS		
A	B	C
48"	18"	5"
60"	30"	6"
72"	42"	8"

B DIMENSION IS A MINIMUM



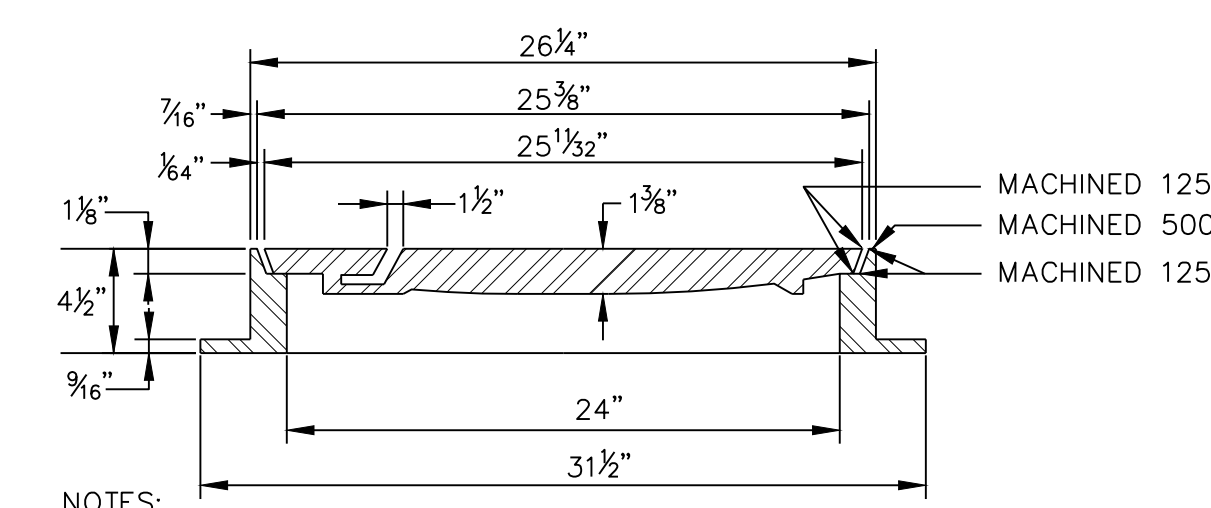
MANHOLE BASE

- STORM DRAIN MANHOLE NOTES:
- WHEN MANHOLES ARE INSTALLED IN UNPAVED AREAS, THE TOP OF THE COVER SHALL BE 2" ABOVE GRADE.
 - 3" GRADE ADJUSTMENT RING AS NECESSARY. MAX. HEIGHT OF GRADE ADJUSTMENT RINGS = 12".
 - SET ALL BARREL SECTIONS & TAPER SECTIONS IN PREFORMED PLASTIC SEALING COMPOUND.
 - CONE SECTION (TAPER) SHALL BE ECCENTRIC UNLESS OTHERWISE NOTED ON THE PLANS.
 - CAST-IN-PLACE BASE SHALL BE POURED FULL THICKNESS ON UNDISTURBED SOIL, OR ON 6" COMPACTED 1" CRUSHED ROCK IF WATER IS PRESENT. PRECAST BASE SHALL BE PLACED ON 6" MINIMUM OF COMPACTED 1" CRUSHED ROCK INSTALLED AGAINST UNDISTURBED EARTH.
 - CLASS "A" CONC. COLLAR SHALL BE HAVE NO. 4 REINFORCEMENT HOOP.
 - STANDARD MANHOLE BARREL SECTION PER ASTM C478.
 - FLEXIBLE PIPE CONNECTION AT MANHOLE, KOR-N-SEAL, A-LOK OR EQUAL.
 - MANHOLE RIM ELEVATION SHOWN ON PLAN IS APPROXIMATE. ADJUST FRAME AND COVER TO GRADE AFTER STREET OR SIDEWALK HAS BEEN CONSTRUCTED ON ALL SIDES OF THE STRUCTURE. COMPLETE PAVING AFTER STRUCTURE IS ADJUSTED.



MANHOLE FRAME AND COVER

DETAIL 4 VAR NOT TO SCALE



- NOTES:
- SPECIFY CASTING OF WORDS "STORM DRAIN" WHEN ORDERING.
 - ALL MATERIAL USED IN MANUFACTURING SHALL CONFORM TO A.S.T.M. DESIGNATION A-48 CLASS 35 B, OR OF UNITED STATES GOVERNMENT SPECIFICATIONS Q01-652B.
 - MINIMUM WEIGHT COMPONENTS: COVER - 130 POUNDS FRAME - 135 POUNDS.
 - FRAME AND COVER SHALL BE H-20 TRAFFIC RATED.

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PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:



WATER TREATMENT PLANT FILTER REHABILITATION AND HYPOCHLORITE CONVERSION
CIVIL DETAILS 2

BY: DRAWN: SMB
CHECKED: TRB
REVIEWED: AMS
DATE: 5/31/23
SCALE: AS SHOWN

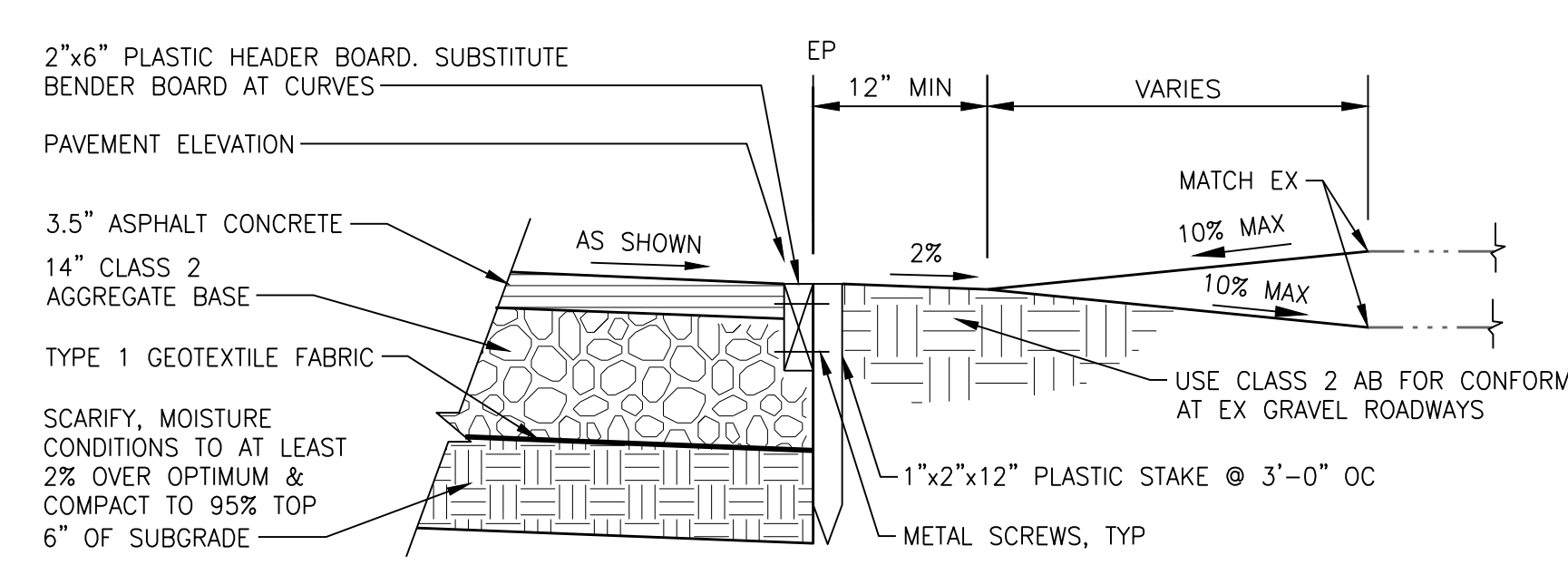
DATE	REV	DESCRIPTION

SHEET NO. # OF #

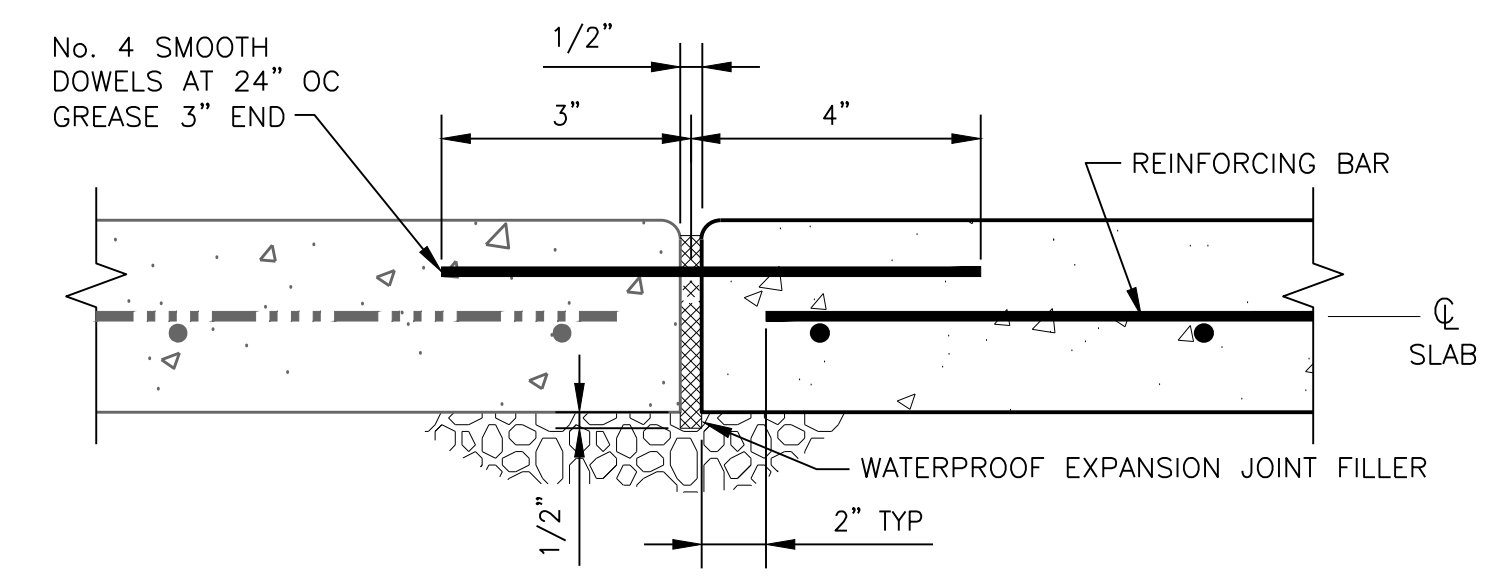
DWG. NO. GC002

JOHN SAMUELSON
City Engineer
Date: _____

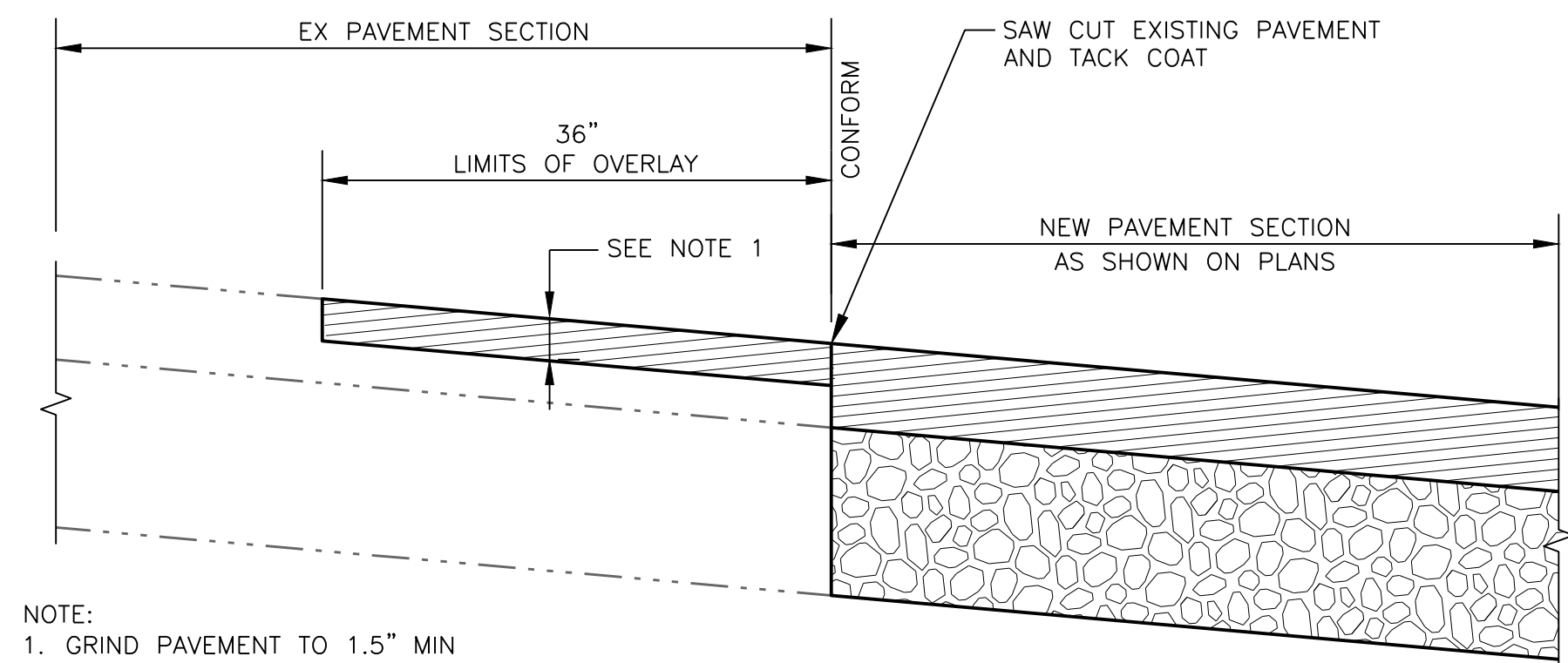
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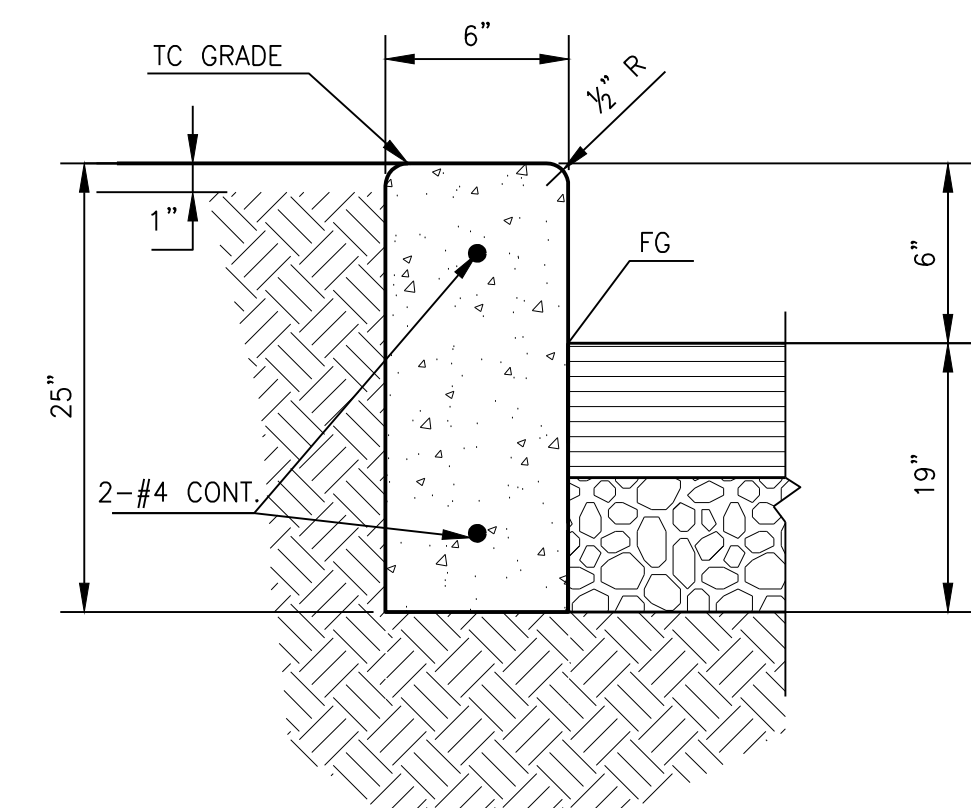
ASPHALT PAVEMENT
DETAIL 1 VAR
NOT TO SCALE



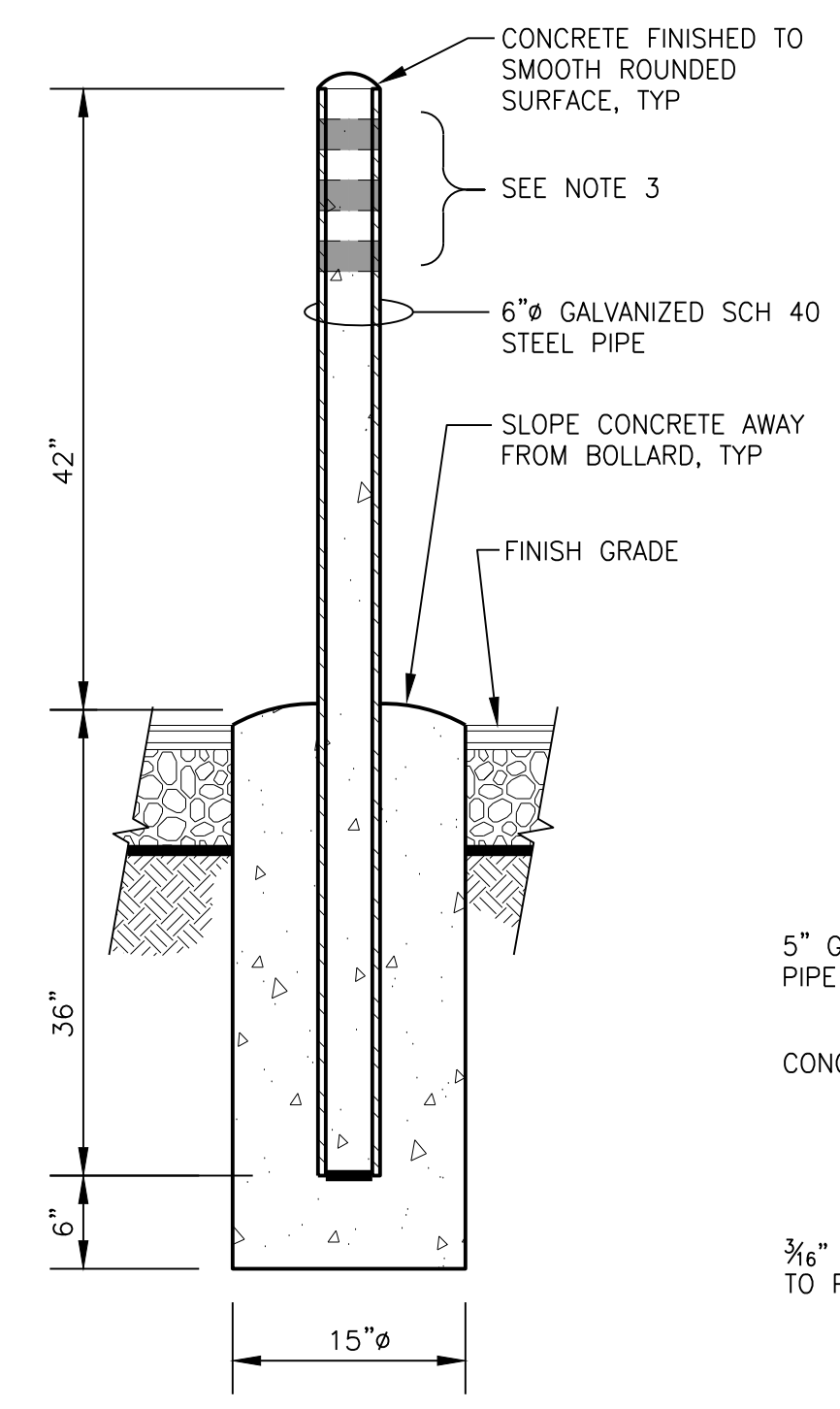
SIDEWALK EXPANSION JOINT
DETAIL 4 TYP
NOT TO SCALE



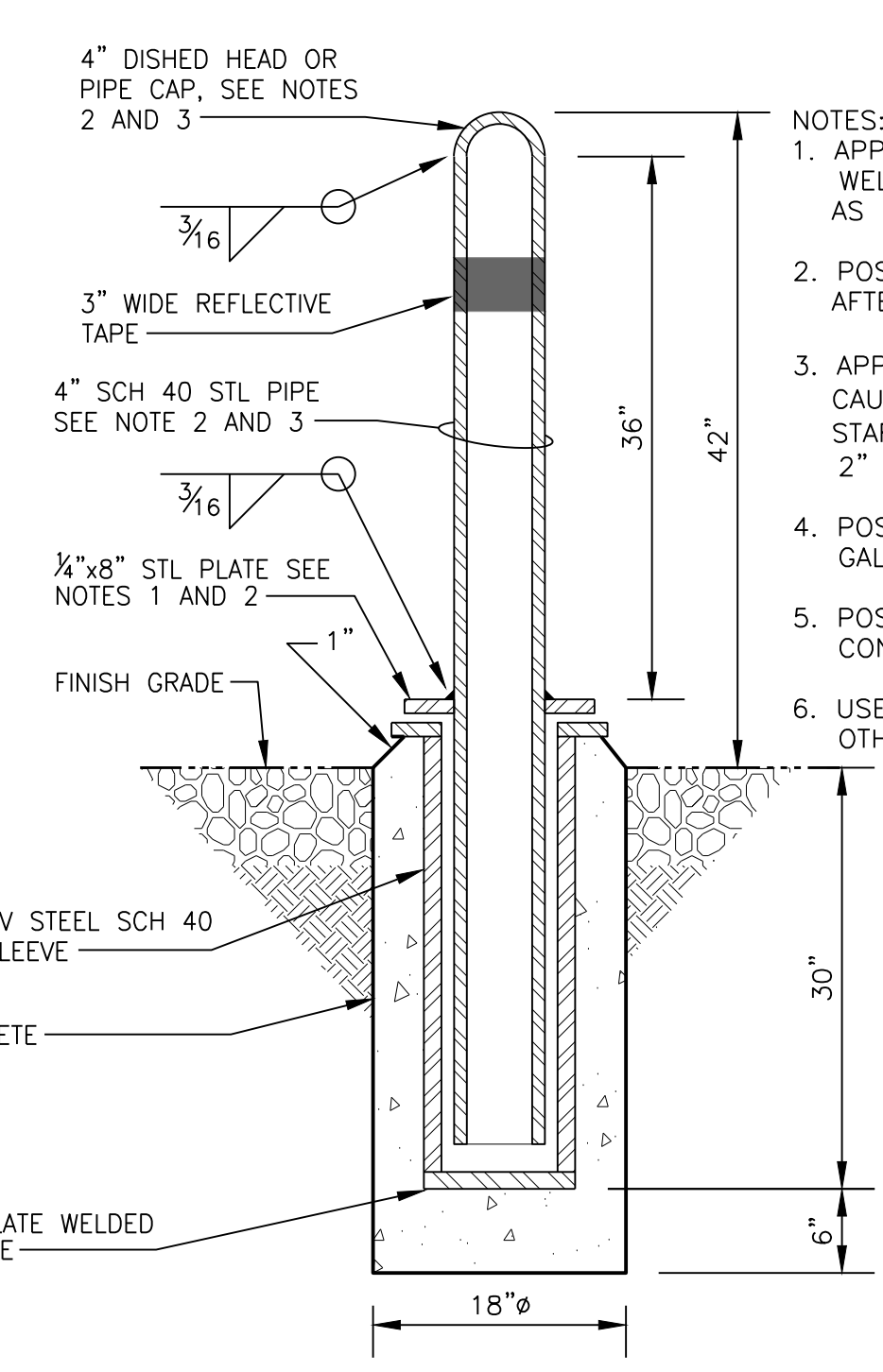
NEW TO EXISTING PAVEMENT CONFORM
DETAIL 5 VAR
NOT TO SCALE



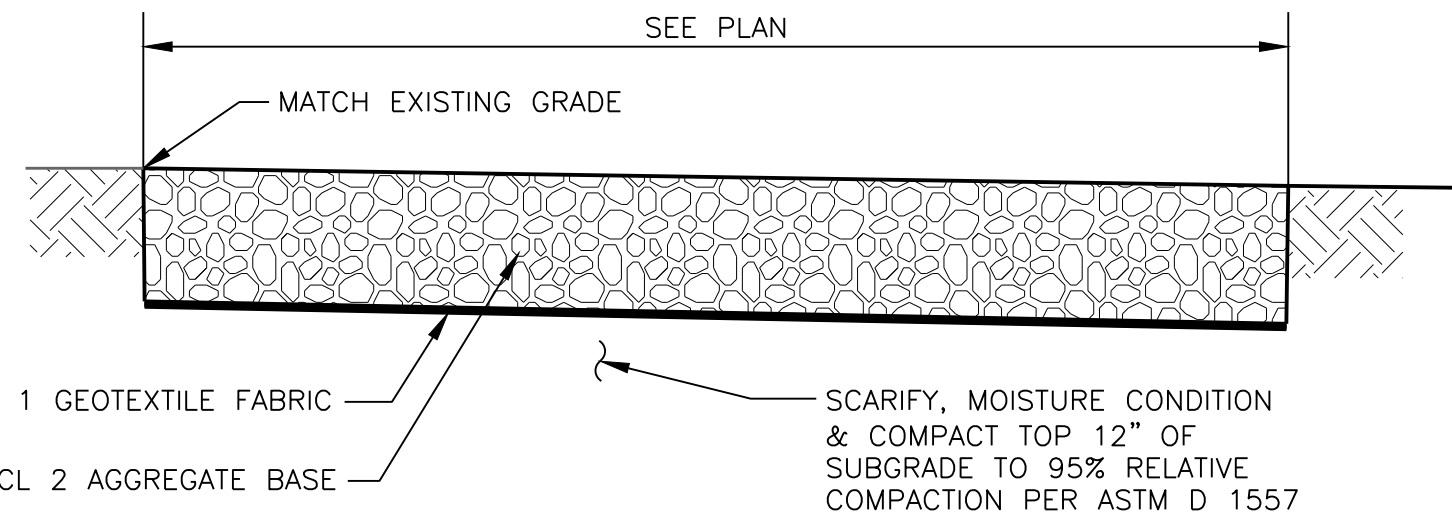
VERTICAL 6" CURB
DETAIL 8 VAR
NOT TO SCALE



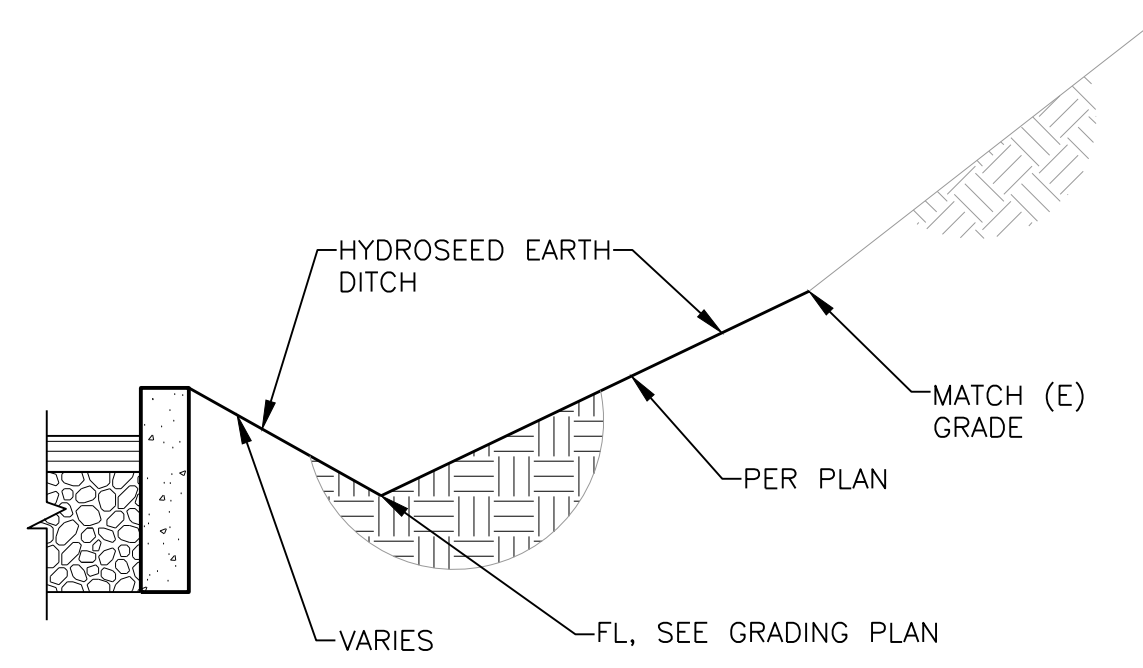
PERMANENT BOLLARD
DETAIL 2 VAR
NOT TO SCALE



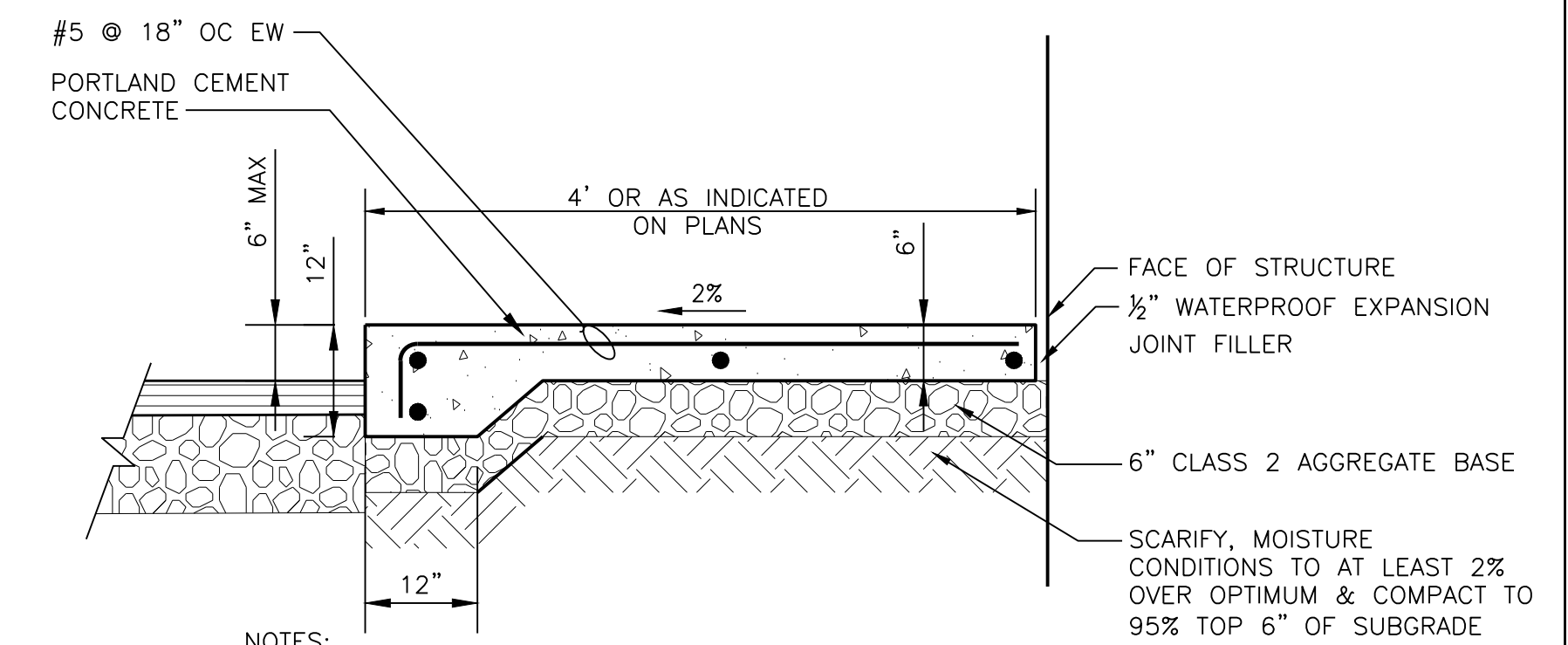
REMOVABLE BOLLARD
DETAIL 3 VAR
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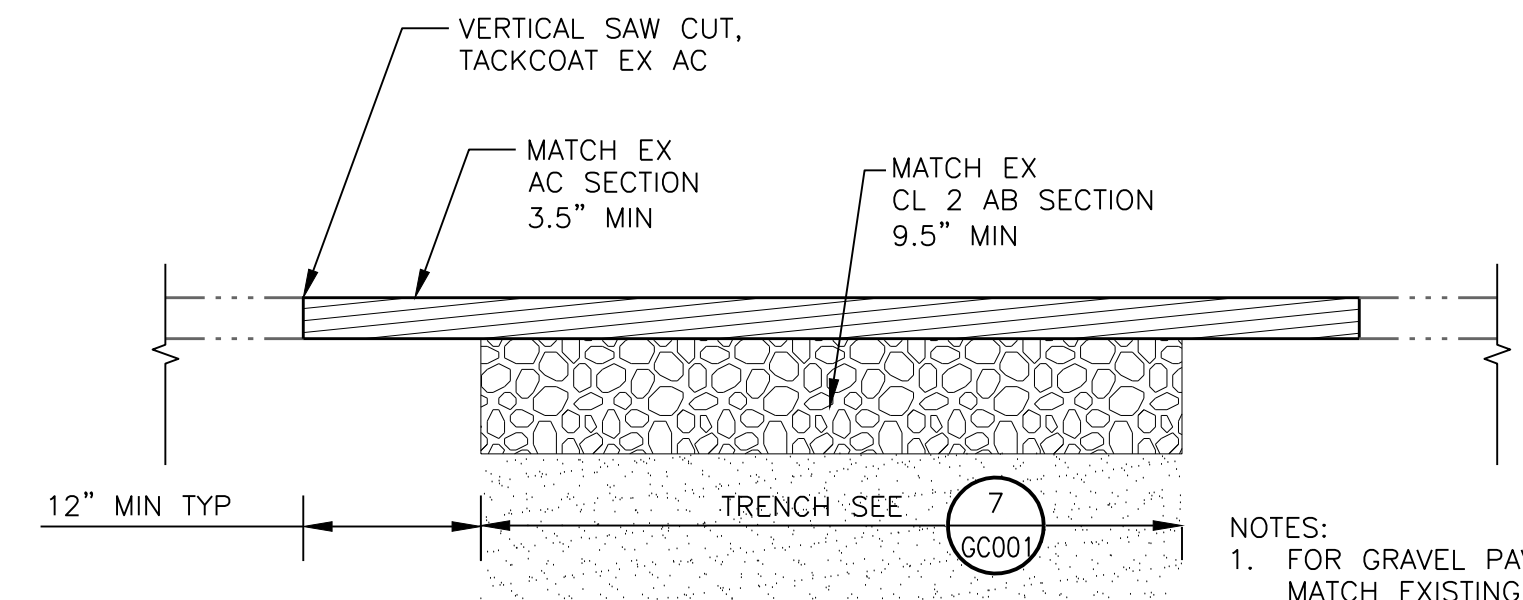
AGGREGATE BASE PAVEMENT
DETAIL 6 VAR
NOT TO SCALE



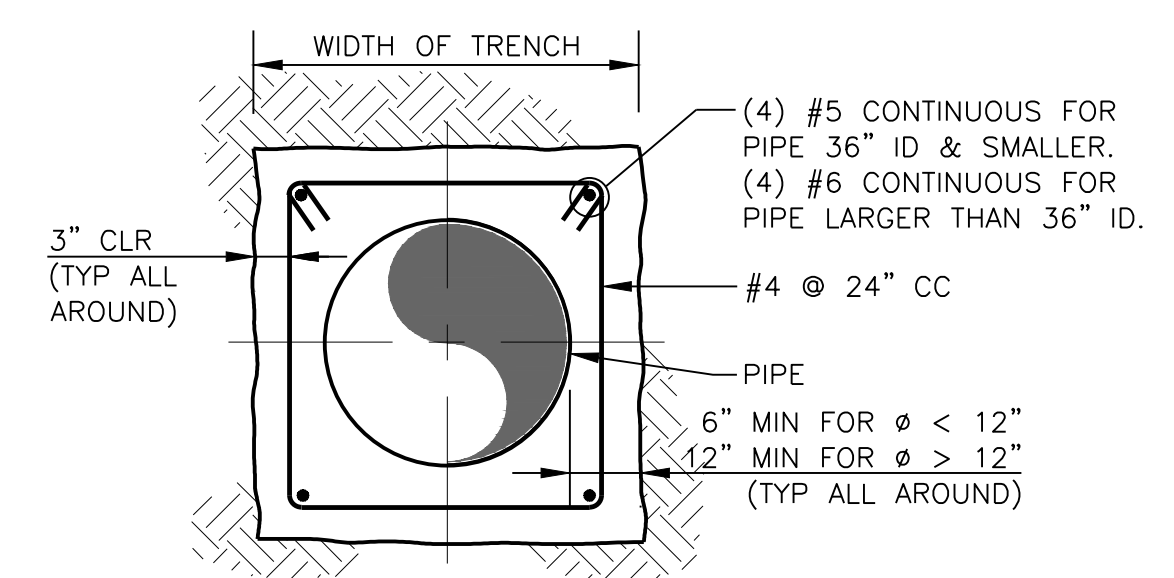
EARTH SWALE DITCH
DETAIL 9 VAR
NOT TO SCALE



CONCRETE SIDEWALK
DETAIL 3 VAR
NOT TO SCALE



TRENCH PAVEMENT REPAIR
DETAIL 7 VAR
NOT TO SCALE



CONCRETE PIPE ENCASEMENT
DETAIL 10 VAR
NOT TO SCALE

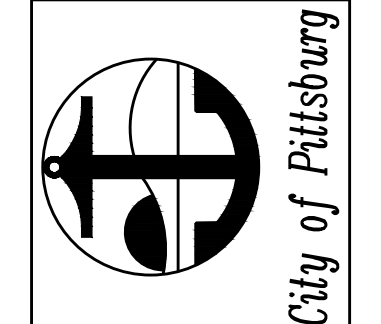


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SCALE IN INCHES

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
Date: _____

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CIVIL DETAILS 3

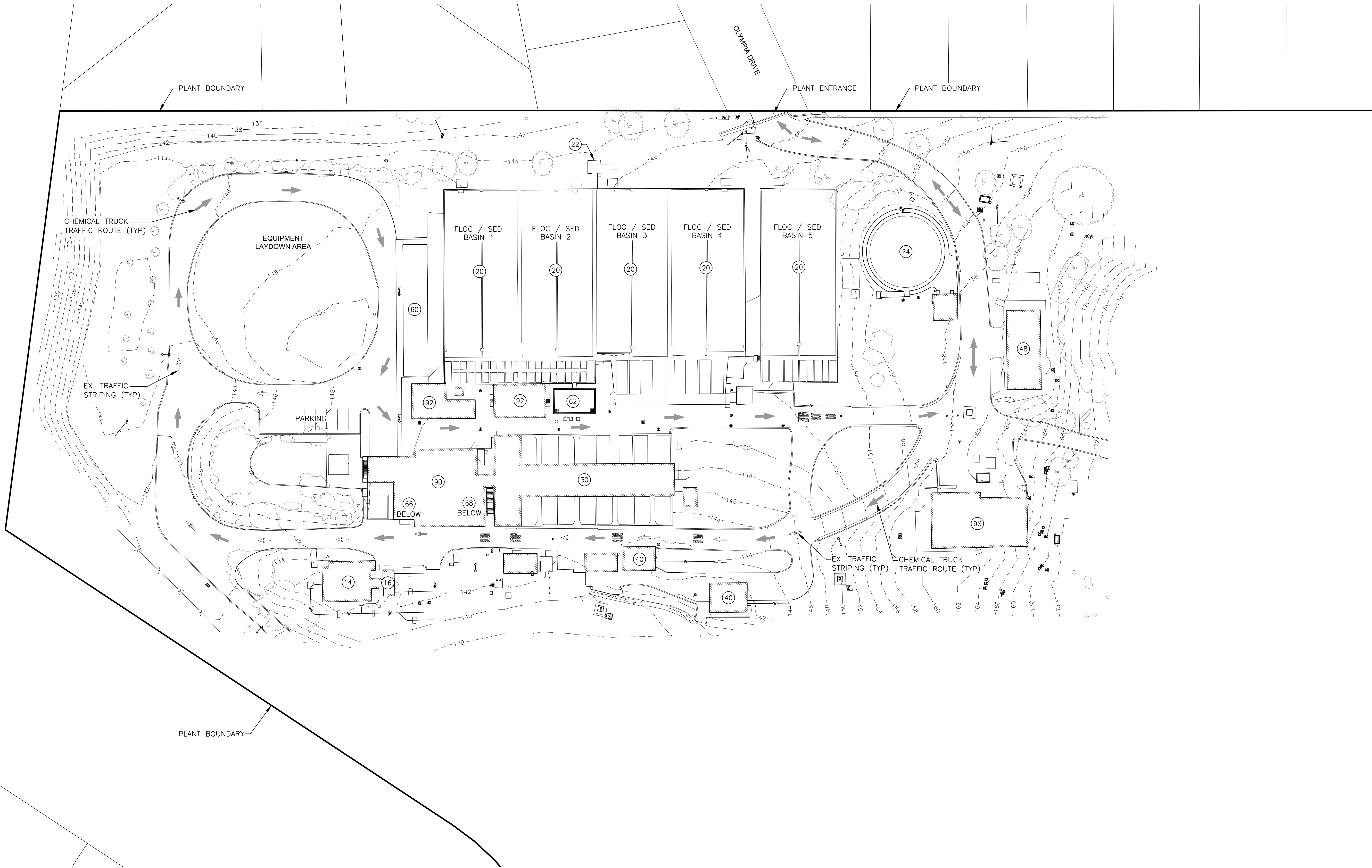
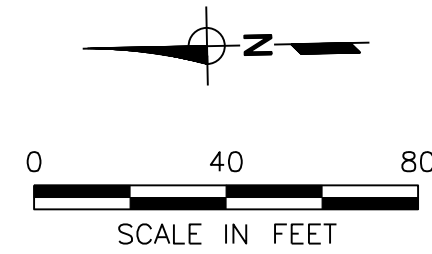
BY:	SMB
CHECKED:	TRB
REVIEWED:	AMS
DATE:	6/2/23
SCALE:	AS SHOWN
DESCRIPTION	
REV	
DATE	

SHEET NO. # OF #
DWG. NO. GC003

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FACILITIES LEGEND:

- (14) CHLORINE DIOXIDE CONTACTOR
- (16) RAPID MIX
- (20) PRETREATMENT BASINS
- (22) SETTLED SLUDGE PUMP STATION
- (24) SLUDGE THICKENER
- (30) FILTERS
- (40) FILTERED WATER PUMP STATIONS
- (48) HIGH SERVICE BOOSTER STATION
- (50) REMOTE STORAGE
- (60) CHEMICAL STORAGE 1 (EXISTING)
- (62) CHEMICAL STORAGE 2 (EXISTING - AMMONIA)
- (64) CHEMICAL STORAGE 3 (NEW)
- (66) CHLORINE AND CHLORINE DIOXIDE ROOM
- (68) CHEMICAL METERING ROOM
- (90) OPERATIONS BUILDING
- (92) EQUIPMENT AND MATERIALS STORAGE BUILDINGS
- (94) MAINTENANCE BUILDING

THIS LINE IS 1" INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

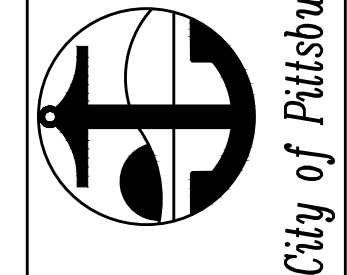
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
EXISTING WTP AREA SITE PLAN

BY: _____
DATE: _____
DESCRIPTION: _____

DATE	REV	DESCRIPTION

SHEET NO.
12 OF

DWG. NO.
C001



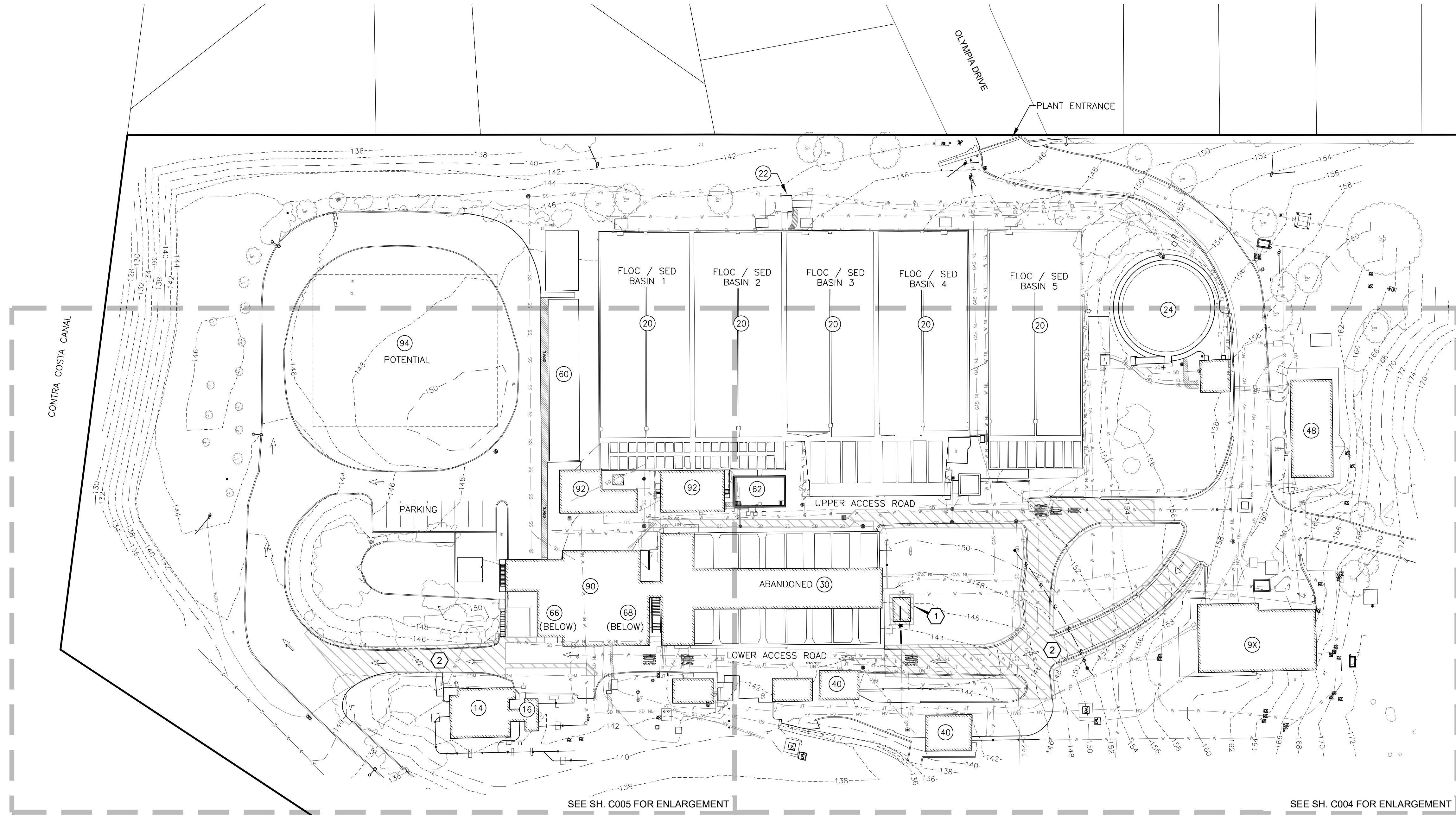
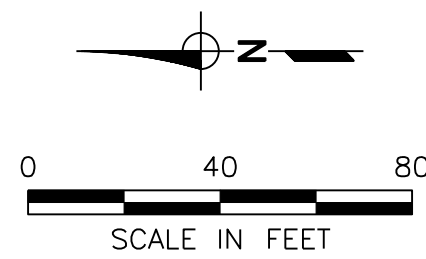
ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____

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ORIGINAL PAGE SIZE: 22"x34"



SEE SH. C005 FOR ENLARGEMENT

SEE SH. C004 FOR ENLARGEMENT

DEMOLITION NOTES:

- ① CONTRACTOR TO REMOVE FULLY DISPOSE OF EX. BUILDING INCLUDING _____
- ② EXISTING ASPHALT ROAD TO BE REMOVED. CONTRACTOR TO REMOVE AND DISPOSE OF ALL ASPHALT ROADWAY AND CONCRETE CURB AND GUTTERS.

FACILITIES LEGEND:

- ⑭ CHLORINE DIOXIDE CONTACTOR
- ⑮ RAPID MIX
- ⑯ PRETREATMENT BASINS
- ⑰ SETTLED SLUDGE PUMP STATION
- ⑱ SLUDGE THICKENER
- ⑳ FILTERS
- ④① FILTERED WATER PUMP STATIONS
- ④② HIGH SERVICE BOOSTER STATION
- ④③ REMOTE STORAGE
- ④④ CHEMICAL STORAGE 1 (EXISTING)
- ④⑤ CHEMICAL STORAGE 2 (EXISTING - AMMONIA)
- ④⑥ CHEMICAL STORAGE 3 (NEW)
- ④⑦ CHLORINE AND CHLORINE DIOXIDE ROOM
- ④⑧ CHEMICAL METERING ROOM
- ④⑨ OPERATIONS BUILDING
- ④⑩ EQUIPMENT AND MATERIALS STORAGE BUILDINGS
- ④⑪ MAINTENANCE BUILDING

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 0 1/2" 1"
 SCALE IN INCHES

**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 OVERALL WTP DEMOLITION PLAN

BY: _____
 DRAWN: SMB
 CHECKED: TRB
 REVIEWED: AMS
 DATE: 6/2/23
 SCALE: 1" = 40'

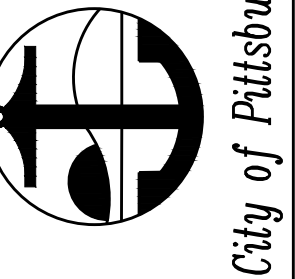
DATE	REV	DESCRIPTION

SHEET NO.
14 OF

DWG. NO.
C003

PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:

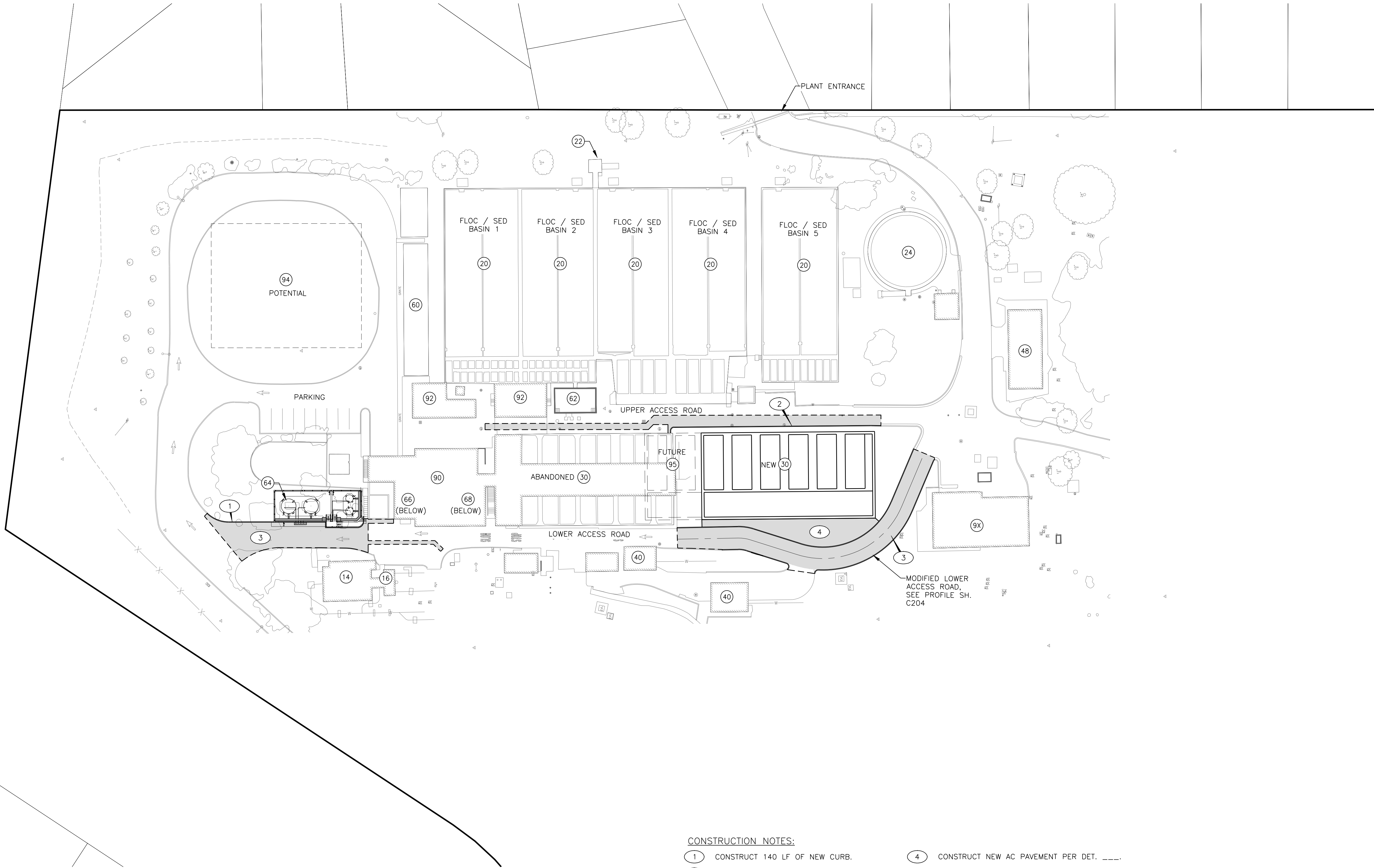


JOHN SAMUELSON
 City Engineer
 Date: _____

JOHN SAMUELSON
 City Engineer
 Date: _____

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CONTRA COSTA CANAL

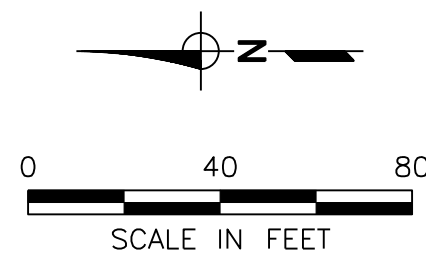


CONSTRUCTION NOTES:

- ① CONSTRUCT 140 LF OF NEW CURB.
- ② CONSTRUCT 165 LF OF NEW CURB.
- ③ CONSTRUCT NEW AC PAVEMENT PER DET.
- ④ CONSTRUCT NEW AC PAVEMENT PER DET.

FACILITIES LEGEND:

- ⑭ CHLORINE DIOXIDE CONTACTOR
- ⑮ RAPID MIX
- ⑯ PRETREATMENT BASINS
- ⑰ SETTLED SLUDGE PUMP STATION
- ⑱ SLUDGE THICKENER
- ⑳ FILTERS
- ④① FILTERED WATER PUMP STATIONS
- ④② HIGH SERVICE BOOSTER STATION
- ④③ REMOTE STORAGE
- ④④ CHEMICAL STORAGE 1 (EXISTING)
- ④⑤ CHEMICAL STORAGE 2 (EXISTING - AMMONIA)
- ④⑥ CHEMICAL STORAGE 3 (NEW)
- ⑥⑥ CHLORINE AND CHLORINE DIOXIDE ROOM
- ⑥⑧ CHEMICAL METERING ROOM
- ⑨① OPERATIONS BUILDING
- ⑨② EQUIPMENT AND MATERIALS STORAGE BUILDINGS
- ⑨④ MAINTENANCE BUILDING



ORIGINAL PAGE SIZE: 22"x34"

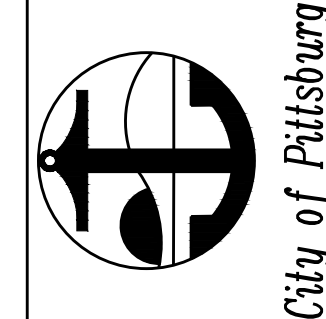
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 0 1/2" 1"
 SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	SCALE

SHEET NO.
17 OF

DWG. NO.
C100

**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION
 OVERALL PROPOSED SITE PLAN**



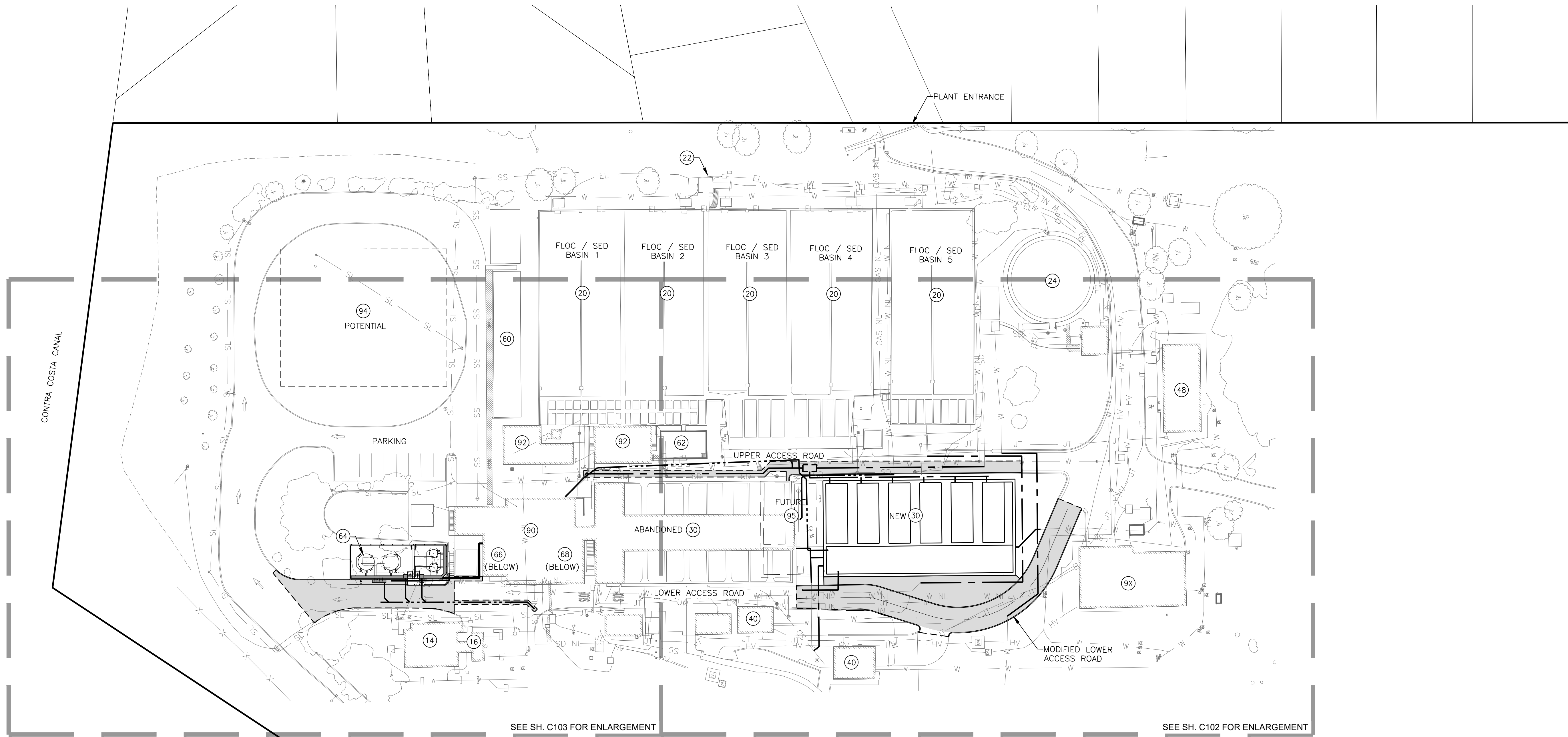
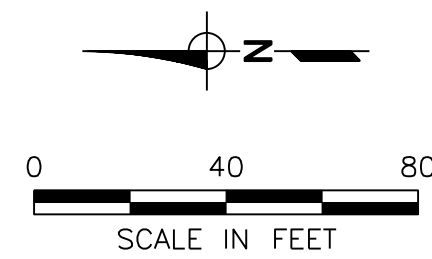
ACCEPTED FOR USE:
 JOHN SAMUELSON
 City Engineer
 Date: _____

PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 City Engineer
 DATE: _____

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ORIGINAL PAGE SIZE: 22"x34"



SEE SH. C103 FOR ENLARGEMENT

SEE SH. C102 FOR ENLARGEMENT

FACILITIES LEGEND:

- (14) CHLORINE DIOXIDE CONTACTOR
- (16) RAPID MIX
- (20) PRETREATMENT BASINS
- (22) SETTLED SLUDGE PUMP STATION
- (24) SLUDGE THICKENER
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- (66) CHLORINE AND CHLORINE DIOXIDE ROOM
- (68) CHEMICAL METERING ROOM
- (90) OPERATIONS BUILDING
- (92) EQUIPMENT AND MATERIALS STORAGE BUILDINGS
- (94) MAINTENANCE BUILDING

THIS LINE IS 1/2" INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES

**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 OVERALL YARD PIPING PLAN

BY: _____
 DRAWN: SMB
 CHECKED: TRB
 REVIEWED: AMS
 DATE: 6/2/23
 SCALE: 1" = 40'

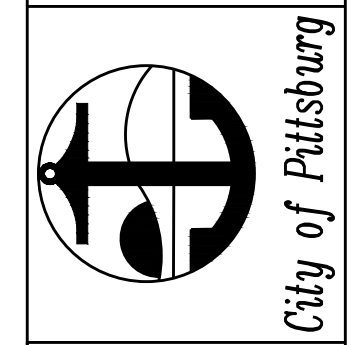
DATE	REV	DESCRIPTION

SHEET NO.
18 OF

DWG. NO.
C101

PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:



JOHN SAMUELSON
 City Engineer
 Date: _____

JOHN SAMUELSON
 City Engineer
 Date: _____

JOHN SAMUELSON
 City Engineer
 Date: _____

JOHN SAMUELSON
 City Engineer
 Date: _____

JOHN SAMUELSON
 City Engineer
 Date: _____

STRUCTURAL NOTES

GENERAL

- ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE CIVIL, ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND SHOP DRAWINGS AND THE PROJECT SPECIFICATIONS.
- CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE 2022 CALIFORNIA BUILDING CODE (CBC). THE CBC SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR THESE DOCUMENTS ARE MORE RESTRICTIVE.
- NOTHING SHOWN OR OMITTED FROM THESE DOCUMENTS SHALL RELIEVE THE CONTRACTOR FROM FULL COMPLIANCE WITH ALL APPLICABLE CODES AND ORDINANCES.
- THE CONTRACTOR ALONE IS RESPONSIBLE FOR JOB SITE SAFETY. SITE REVIEW OF THE CONSTRUCTION BY THE ENGINEER IS TO DETERMINE CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. IT DOES NOT ENCOMPASS SAFETY PROCEDURES OR OPERATIONS.
- WITHOUT EXCLUSION OF ANY REFERENCE IN THE CONSTRUCTION DOCUMENTS TO ANY RULE OR REGULATION, THE ENGINEER IS NOT ASSUMING ANY PROVISIONS OF SUPERVISION OF CONSTRUCTION METHODS OR PROCESSES.
- STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, BRACING OR SHORING SHALL SUPPORT STRUCTURES WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.
- SEE ALL OTHER PROJECT DOCUMENTS FOR REGLETS, PIPE SLEEVES, CONDUITS AND OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH THE CONCRETE.
- PENETRATIONS THROUGH WALLS OR SLABS LESS THAN 12 INCHES IN DIAMETER MAY NOT BE SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ASSOCIATED DRAWINGS FOR LOCATIONS.
- THE MINIMUM CLEAR DISTANCE BETWEEN PIPE AND CONDUIT PENETRATIONS SHALL BE 3 TIMES THE DIAMETER OF THE PENETRATION OR 8 INCHES, WHICHEVER IS SMALLER.
- WRITTEN DIMENSIONS SHALL BE USED FOR CONSTRUCTION. DO NOT SCALE DRAWINGS.
- STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL AND/OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
- MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SHOWN ON THE DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR PRIOR TO PLACING CONCRETE.
- DIMENSIONS INDICATED WITH AN * SHALL BE COORDINATED WITH MECHANICAL AND/OR ELECTRICAL DRAWINGS AND EQUIPMENT SUPPLIED.
- ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR. SHOULD CONFLICTS OR INTERFERENCE OCCUR, THEY SHALL BE RESOLVED WITH THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER. EXISTING FIELD CONDITIONS AT VARIANCE WITH THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ANY WORK IS PERFORMED.
- USE PERTINENT STANDARD DETAILS SHOWN, EVEN THOUGH THEY MAY NOT BE CALLED OUT AT LOCATIONS WHERE THEY APPLY.
- CONDITIONS NOT SPECIFICALLY SHOWN OR INDICATED SHALL BE CONSTRUCTED SIMILAR TO DETAILS SHOWN FOR THE RESPECTIVE MATERIALS OR CONDITIONS.

DEFERRED SUBMITTALS

- THE FOLLOWING PORTIONS OF THE PROJECT ARE DEFERRED SUBMITTAL ITEMS. DEFERRED SUBMITTALS LISTED BELOW ARE THE RESPONSIBILITY OF THE CONTRACTOR. DEFERRED SUBMITTAL ITEMS HAVE NOT BEEN DESIGNED BY THE ENGINEER OF RECORD. REFER TO CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION.
 - PRE-ENGINEERED CANOPY
 - METAL STAIRS AND LANDINGS
 - FRP STAIRS AND LANDINGS
 - FRP GRATING AND PLATFORM SYSTEMS
 - HANDRAILS
 - GUARDRAILS
 - EQUIPMENT ANCHORAGE
 - TANK DESIGN
 - TANK ANCHORAGE
 - PIPE SUPPORTS
 - CONDUIT SUPPORTS, INCLUDING CABLE TRAY SYSTEMS
- UNLESS OTHERWISE NOTED, DEFERRED SUBMITTAL ITEMS SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.
- DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL DURING THE CONSTRUCTION PHASE OF THE PROJECT.
- DEFERRED SUBMITTAL ITEMS SHALL NOT BE FABRICATED UNTIL THE ENGINEER OF RECORD HAS REVIEWED THE SUBMITTAL DOCUMENTS AND INDICATED THAT THEY HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS.
- DEFERRED SUBMITTAL ITEMS SHALL NOT BE FABRICATED UNTIL THEIR DESIGN AND SUBMITTAL DOCUMENTS HAVE BEEN FAVORABLY REVIEWED BY THE OWNER.

DESIGN LOADS

1. LIVE LOADS:

USE OR OCCUPANCY	UNIFORM LOAD (psf)	CONCENTRATED LOAD (lbs)
WALKWAYS, STAIRWAYS	100	300 ⁽¹⁾
EQUIPMENT ROOM FLOORS	250	2 ⁽²⁾
ROOFS (NON-CONCRETE)	20 ⁽³⁾	-
ROOFS (CONCRETE)	50	-
PROCESS AREA	200	-

- MINIMUM CONCENTRATED LOAD ON STAIR TRENDS ONLY.
- REFER TO EQUIPMENT MANUFACTURER'S DRAWINGS FOR CONCENTRATED LOAD.
- MAY BE REDUCED AS ALLOWED BY THE CBC.

2. WIND:

BASIC WIND SPEED V_{ult} (3-SECOND GUST):	103 MPH
RISK CATEGORY:	IV
WIND EXPOSURE CATEGORY:	C
INTERNAL PRESSURE COEFFICIENT	PER CBC
C&C PRESSURES FOR DEFERRED SUBMITTALS	PER CBC

3. SEISMIC:

SEISMIC IMPORTANCE FACTOR (I_e)	1.50
RISK CATEGORY:	IV
MAPPED SPECTRAL RESPONSE ACCELERATIONS:	$S_s = 1.88g, S_1 = 0.64g$
SITE CLASS	C
SPECTRAL RESPONSE COEFFICIENTS:	$S_{DS} = 1.50g, S_{D1} = 0.60g$
SEISMIC DESIGN CATEGORY:	D

4. SNOW:

GROUND SNOW LOAD (P_g):	0 PSF
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CONCRETE

- REINFORCED CONCRETE SHALL CONFORM TO ACI 318.
- PORTLAND CEMENT SHALL CONFORM TO ASTM C150 TYPE II. ONE BRAND OF CEMENT SHALL BE USED THROUGHOUT THE WORK.
- ALL AGGREGATES SHALL CONFORM TO ASTM C33. THE MAXIMUM SIZE AGGREGATE SHALL BE 1 INCH. USE OF RECYCLED CONCRETE, RECYCLED AGGREGATE OR OTHER RECYCLABLE MATERIALS IS NOT PERMISSIBLE.
- MIXING WATER SHALL BE POTABLE WATER FREE FROM INJURIOUS AMOUNTS OF ACID, ALKALI, OR OTHER HARMFUL SUBSTANCES. WATER SHALL BE OBTAINED FROM LOCAL UTILITY COMPANY MAINS UNLESS THE ENGINEER APPROVES ANOTHER SOURCE.
- AIR ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C260.
- CURING COMPOUNDS SHALL CONFORM TO ASTM C309.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE MINIMUM REQUIREMENTS LISTED BELOW. CEMENT CONTENT SHALL BE INCREASED OVER THAT LISTED IF REQUIRED TO OBTAIN THE LISTED COMPRESSIVE STRENGTH.

LOCATION	MIN 28 DAY STRENGTH (psi)	MIN CEMENT CONTENT (lbs)	SLUMP (in)
STRUCTURAL CONCRETE	4,500	560	3-5
CONCRETE SIDEWALKS AND PAVEMENTS	3,000	480	1-3
CONCRETE FILL	2,500	440	1-4
- ALL CONCRETE SHALL HAVE AIR ENTRAINMENT OF 3.5 TO 5.0 PERCENT.
- CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE 3/4" MINIMUM CHAMFER, UNLESS NOTED OTHERWISE.

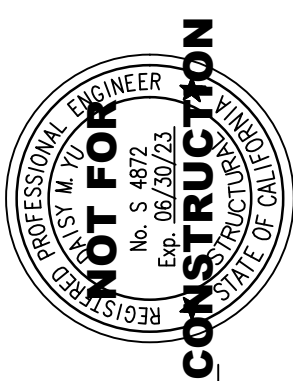
CONCRETE REINFORCING

- REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF ASTM SPECIFICATION A706 OR A615, GRADE 60.
- REINFORCING STEEL FABRICATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CRSI MANUAL OF STANDARD PRACTICE.
- REINFORCING SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

CONDITION	COVER (INCHES)
UNFORMED SURFACES IN CONTACT WITH EARTH	3
FORMED SURFACES EXPOSED TO EARTH, WATER AND/OR WEATHER	
- PRIMARY REINFORCING FOR BEAMS AND COLUMNS	2 1/2
- ALL OTHER LOCATIONS	2
BOTTOM SURFACES FOR SLAB OVER WATER	2
CONCRETE SURFACES FOR DRY CONDITIONS	
- WALLS, SLABS AND JOISTS	1 1/2
- BEAMS AND COLUMNS:	
- PRIMARY REINFORCING	2
- STIRRUPS, SPIRALS AND TIES	1 1/2
- SPLICED BARS SHALL HAVE A MINIMUM CLASS B CONTACT LAP AS SPECIFIED IN THE LATEST EDITION OF ACI 315 DETAILING MANUAL AND ACI 318 UNLESS OTHERWISE NOTED ON THE DRAWINGS. WHERE SHOWN ON THE DRAWINGS, l_d = DEVELOPMENT LENGTH AS DEFINED IN THE STANDARD DETAILS OF THESE DRAWINGS. HOOKS OF REINFORCING STEEL SHALL COMPLY WITH ACI 318.
- WRITTEN SPACING AND LOCATION OF REINFORCING SHALL TAKE PRECEDENCE OVER DEPICTED SPACING AND LOCATION.
- UNLESS OTHERWISE NOTED ON THE DRAWINGS, REINFORCING BARS SHOWN TERMINATING WITH A HOOK SHALL BE FABRICATED WITH A STANDARD HOOK AS DEFINED WITHIN ACI 318. WHERE SECTION THICKNESS DOES NOT ALLOW FOR FULL HOOK EXTENSION, TILT HOOK UNTIL HOOK FITS. ALTERNATIVELY CONTRACTOR MAY USE 180° HOOK OR TWO SMALLER HOOKED BARS OF EQUIVALENT AREA OF STEEL.
- IN CASES WHERE REINFORCING BARS CANNOT BE EXTENDED AS FAR AS REQUIRED DUE TO THE LIMITED EXTENT OF THE ADJACENT CONCRETE STRUCTURE, THE BARS SHALL EXTEND AS FAR AS POSSIBLE AND BE TERMINATED WITH A STANDARD HOOK.
- AT FOOTING CORNERS AND INTERSECTIONS, EXTEND BARS AROUND CORNERS AND LAP A MINIMUM OF 40 BAR DIAMETERS.

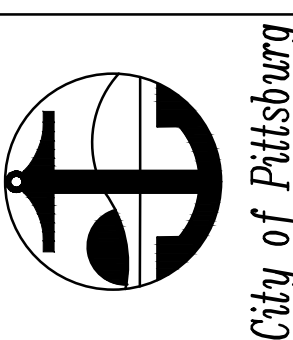
CONCRETE JOINTS

- REINFORCING STEEL SHOWN IS FOR CLARITY ONLY. SEE PLANS AND SECTIONS FOR REINFORCING SIZES, SPACING, LOCATIONS AND DETAILS.
- ALL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH SPECIFICATION SECTION 03 15 00.
- EXCEPT WHERE OTHERWISE NOTED ON THE DETAILS JUNCTION BARS (JB) SHALL BE THE SAME SIZE AS THE LARGER OF WALL OR SLAB REINFORCING.
- ALL LAP SPLICES SHALL BE CLASS B TENSION CONTACT LAP.
- UNLESS OTHERWISE NOTED, SEALANT SHALL BE PROVIDED IN JOINTS WHERE SHOWN ON THE DRAWINGS AND WHERE INDICATED BY THE FOLLOWING:
 - CONTROL JOINTS FOR WALLS AND SLABS IN LIQUID CONTAINMENT STRUCTURES SHALL HAVE SEALANT APPLIED TO THE LIQUID SIDE(S) OF THE JOINT.
 - EXPANSION JOINTS SHALL HAVE SEALANT APPLIED TO BOTH SIDES OF THE JOINT, EXCEPT FOR THE SOIL SIDE OF A JOINT FOR A BASE SLAB.
 - CONSTRUCTION JOINTS WILL NOT REQUIRE SEALANT, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- UNLESS OTHERWISE NOTED, WATERSTOPS SHALL BE PROVIDED IN JOINTS WHERE SHOWN ON THE DRAWINGS AND WHERE INDICATED BY THE FOLLOWING:
 - IN ALL JOINTS IN WALLS AND SLABS OF LIQUID CONTAINMENT STRUCTURES TO PREVENT EXFILTRATION OF LIQUID INTO SOIL OR DRY AREAS OF THE STRUCTURE.
 - IN ALL BELOW-GRADE JOINTS IN WALLS AND SLABS TO PREVENT INFILTRATION OF GROUNDWATER INTO STRUCTURE.
- WATERSTOP SHALL BE PLACED AT CENTER OF WALL OR SLAB, UNLESS OTHERWISE NOTED.



PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:



WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
STRUCTURAL GENERAL NOTES 1

BY: DRAWN:EV
CHECKED:DMY
REVIEWED:
DATE: 6/2/23
SCALE: NTS

DATE	REV	DESCRIPTION

SHEET NO.
OF

DWG. NO.
GS001



THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

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CONCRETE ANCHORS

- 1. CAST-IN ANCHOR RODS/BOLTS SHALL BE STAINLESS STEEL. TYPE 304 FOR INTERIOR DRY CONDITIONS AND TYPE 316 FOR INTERIOR WET, EXTERIOR OR SUBMERGED CONDITIONS.
2. POST-INSTALLED CONCRETE ANCHORS, INCLUDING ADHESIVE AND EXPANSION ANCHORS, SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS AND THE APPROPRIATE EVALUATION REPORT. ANCHORS WITHOUT A CURRENT ICC-ES ESR, IAPMO-UES ER OR EQUAL SHALL NOT BE USED.
3. UNLESS OTHERWISE INDICATED, ALL ADHESIVE AND EXPANSION ANCHORS FOR INSTALLATION IN CONCRETE SHALL HAVE SATISFIED THE REQUIREMENTS OF THE SIMULATED SEISMIC TESTS OF ACI 355.4 OR ACI 355.2, NO SUBSTITUTION SHALL BE ALLOWED.
4. CONTRACTOR SHALL LOCATE EXISTING REBAR USING NON-DESTRUCTIVE METHODS PRIOR TO DRILLING HOLES FOR POST-INSTALLED ANCHORS. ADJUST SPACING OF ANCHORS TO MISS EXISTING REINFORCING. TOTAL NUMBER OF ANCHORS PROVIDED SHALL BE EQUAL TO THAT SHOWN ON THE DRAWINGS.
5. ADHESIVE ANCHORS SHALL CONSIST OF A TWO-COMPONENT RESIN ADHESIVE. THE PACKAGES CONTAINING EACH COMPONENT SHALL BE ATTACHED TO A DISPENSING MANIFOLD. AN AUGER STYLE NOZZLE SHALL BE ATTACHED FOR PROPER MIXING OF THE ADHESIVE COMPONENTS. WHERE THREADED RODS ARE REQUIRED, RODS SHALL CONFORM TO ASTM A193 GRADE B7. WHERE STAINLESS STEEL IS CALLED FOR ON THE DRAWINGS, STAINLESS STEEL SHALL BE TYPE 316.
6. WHERE THE DESIGN OF THE ANCHORAGE REQUIRES ADDITIONAL SUPPLEMENTAL CONCRETE REINFORCING STEEL TO PROTECT AGAINST CONCRETE FAILURE MODES, THE DESIGN OF THE ADDITIONAL SUPPLEMENTAL REINFORCING STEEL SHALL BE INCLUDED AS PART OF THE SUBMITTED ANCHORAGE CALCULATIONS. THE ADDITIONAL SUPPLEMENTAL CONCRETE REINFORCING STEEL SHALL BE TREATED AS PART OF THE REQUIRED BUILDING AND/OR EQUIPMENT ANCHORAGE AND SHALL BE PROVIDED AND INSTALLED AT NO ADDITIONAL COST TO THE OWNER.

CONDUITS AND PIPES EMBEDDED IN CONCRETE

- 1. CONDUIT, PIPES, AND SLEEVES OF ANY MATERIAL NOT HARMFUL TO CONCRETE AND WITHIN LIMITATIONS OF THE PROJECT DRAWINGS AND SPECIFICATIONS, AND ACI 318 MAY BE PERMITTED TO BE EMBEDDED IN CONCRETE SUBJECT TO PRIOR APPROVAL BY THE ENGINEER OF RECORD, PROVIDED THEY ARE NOT CONSIDERED, BY THE ENGINEER OF RECORD, TO DISPLACE STRUCTURAL CONCRETE, EXCEPT AS PROVIDED HEREIN.
2. CONDUITS AND PIPES OF ALUMINUM SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE.
3. CONDUITS AND PIPES, WITH THEIR FITTINGS, EMBEDDED WITHIN A COLUMN SHALL NOT DISPLACE MORE THAN 4-PERCENT OF THE AREA OF THE CROSS SECTION ON WHICH THE STRENGTH IS CALCULATED OR WHICH IS REQUIRED FOR FIRE PROTECTION. THE ENGINEER OF RECORD SHALL DETERMINE IF THE STRENGTH OF THE CONSTRUCTION HAS BEEN SIGNIFICANTLY IMPAIRED.
4. CONDUITS AND PIPES EMBEDDED WITHIN A SLAB, WALL, OR BEAM SHALL SATISFY THE FOLLOWING:
a) THEY SHALL NOT BE LARGER IN OUTSIDE DIAMETER THAN 1/3 THE OVERALL THICKNESS OF SLAB, WALL, OR BEAM IN WHICH THEY ARE EMBEDDED.
b) MINIMUM CENTER-TO-CENTER SPACING BETWEEN CONDUIT AND/OR PIPING RUNS SHALL BE 3 TIMES OUTSIDE DIAMETER OR WIDTH.
c) THEY SHALL BE LOCATED IN SUCH A MANNER AS TO MAINTAIN A MINIMUM OF 1-INCH CLEAR SPACE BETWEEN THE EMBEDDED ITEM AND PRIMARY REINFORCEMENT.
d) THEY SHALL NOT SIGNIFICANTLY IMPAIR THE STRENGTH OF THE CONSTRUCTION. THE ENGINEER OF RECORD SHALL DETERMINE IF THE STRENGTH OF THE CONSTRUCTION HAS BEEN SIGNIFICANTLY IMPAIRED.
5. NO LIQUIDS, GAS, OR VAPOR, EXCEPT WATER NOT EXCEEDING 90 DEGREES FAHRENHEIT NOR 50 PSI, SHALL BE PLACED IN THE PIPES UNTIL THE CONCRETE HAS ATTAINED ITS DESIGN STRENGTH.
6. IN SOLID SLABS, CONDUITS AND/OR PIPING SHALL BE PLACED BETWEEN THE TOP AND BOTTOM REINFORCEMENT AT THE CENTERLINE OF THE SLAB. AT A MINIMUM, THEY SHALL BE LOCATED IN SUCH A MANNER AS TO MAINTAIN A MINIMUM OF 1-INCH CLEAR SPACE BETWEEN THE EMBEDDED ITEM AND PRIMARY REINFORCEMENT.
7. CONCRETE COVER FOR PIPES, CONDUITS, AND FITTINGS SHALL NOT BE LESS THAN 2-INCHES FOR CONCRETE EXPOSED TO EARTH, CONTAINED LIQUIDS, OR WEATHER, NOR LESS THAN 1-INCH FOR CONCRETE NOT EXPOSED TO CONTAINED LIQUIDS, WEATHER OR IN CONTACT WITH GROUND.
8. ADDITIONAL REINFORCEMENT WITH AN AREA NOT LESS THAN 0.002 TIMES THE AREA OF CONCRETE SECTION SHALL BE PROVIDED NORMAL TO THE CONDUIT AND/OR PIPING.
9. CONDUITS AND/OR PIPING SHALL BE SO FABRICATED AND INSTALLED THAT CUTTING, BENDING, OR DISPLACEMENT OF PRIMARY REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED.
10. PIPES PASSING THROUGH WALLS OF A LIQUID - CONTAINING STRUCTURE SHALL INCLUDE AN INTEGRAL WATERSTOP.

STRUCTURAL AND MISCELLANEOUS STEEL

- 1. STRUCTURAL SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36, UNLESS OTHERWISE NOTED.
2. STRUCTURAL W-SHAPES SHALL CONFORM TO ASTM A992, GRADE 50.
3. STRUCTURAL STEEL TUBES SHALL CONFORM TO ASTM A500, GRADE C.
4. STRUCTURAL STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE S, GRADE B.
5. MACHINE BOLTS (MB) SHALL CONFORM TO ASTM A307.
6. NUTS SHALL BE HEAVY HEX IN ACCORDANCE WITH ANSI B8.2.1.1.
7. ALL STRUCTURAL STEEL SHALL BE FABRICATED, ERECTED AND CONNECTED IN COMPLIANCE WITH THE LATEST AISC MANUAL.
8. CONNECTIONS FOR STRUCTURAL STEEL SHALL CONFORM TO ASTM A325, SC. CLASS A. UNLESS OTHERWISE NOTED, ALL BOLTS SHALL BE 3/4 INCH DIAMETER MEETING THE REQUIREMENTS OF ASTM A325. BOLTS SHALL BE TIGHTENED USING THE TURN-OF-THE-NUT METHOD.
9. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE STRUCTURAL WELDING CODE, AWS (D1.1). ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
10. WELDING ELECTRODES SHALL MEET THE MINIMUM REQUIREMENTS OF E70XX. FILLER METAL FOR WELDS IN MOMENT CONNECTIONS SHALL HAVE A MINIMUM CVN VALUE OF 20 FT-LB AT 0 DEGREE F.
11. ALL METAL FABRICATIONS SHALL RECEIVE A SHOP COAT OF RUST INHIBITIVE PAINT MEETING FEDERAL SPECIFICATION TT-P-86, TYPE III.
12. WHERE BUTT WELDS ARE SHOWN, MATERIAL SHALL BE GROUND TO A BEVEL AND WELD SHALL BE FULL PENETRATION.
13. ALL BOLT HOLES SHALL BE PUNCHED OR DRILLED (REAMED). BURNING OF HOLES IS NOT ACCEPTABLE.
14. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.
15. SHOP PAINTING AND FIELD PAINTING, IF REQUIRED, SHALL BE DONE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. STRUCTURAL STEEL SHALL BE SHOP PRIMED UNLESS OTHERWISE NOTED.

FRP MOLDED GRATING

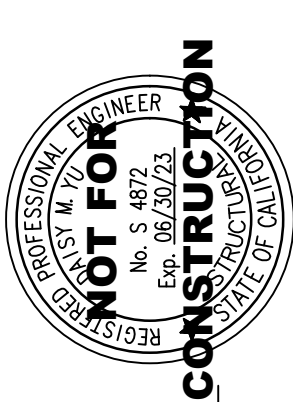
- 1. GRATING AND SUPPORTS SHALL BE YELLOW IN COLOR, MANUFACTURED WITH POLYESTER FIRE RETARDANT RESIN WITH A FLAME SPREAD RATING OF 25 OR LESS WHEN TESTED IN ACCORDANCE WITH THE ASTM E-84 TUNNEL TEST. THICKNESS SHALL BE AS INDICATED ON THE DRAWINGS.
2. GRATING SHALL BE MOLDED, ONE-PIECE CONSTRUCTION WITH A 1 1/2" SQUARE MESH PATTERN AND A MENISCUS SURFACE.
3. GLASS CONTENT SHALL BE A MINIMUM OF 25 PERCENT AND A MAXIMUM OF 35 PERCENT BY WEIGHT AS DETERMINED BY ASTM D2584. GRATING PANELS SHALL HAVE NO EXPOSED DRY GLASS OR VOIDS CONTAINING DRY GLASS.
4. FRP GRATING SHALL BE CAPABLE OF SUPPORTING A UNIFORM LIVE LOAD OF 100 PSF WHILE MAINTAINING A DEFLECTION OF LESS THAN 1/4-INCH OR L/200 WHICHEVER IS SMALLER. GRATING SHALL BE CAPABLE OF SUPPORTING A CONCENTRATED LIVE LOAD OF 300 LB/FT TRANSVERSE TO THE SPAN. A FACTOR OF SAFETY OF 5.0 SHALL BE APPLIED TO ULTIMATE CAPACITIES TO DETERMINE ALLOWABLE SPANS.
5. CONTRACTOR SHALL BE REQUIRED TO FURNISH CERTIFIED LOAD/DEFLECTION STATISTICAL QUALITY CONTROL DATA AND LOAD/DEFLECTION INFORMATION FOR THE SUPPLIED GRATING.
6. ALL GRATING WHICH REQUIRES CUTTING DURING INSTALLATION SHALL HAVE THE AFFECTED SURFACES SEALED WITH CATALYZED RESIN SEALANT OF EQUAL OR SUPERIOR CORROSION RESISTANCE TO THE GRATING.
7. FASTENERS, ANCHORS, BOLTS, NUTS AND WASHERS FOR GRATING AND SUPPORTS SHALL BE TYPE 304 OR 316 STAINLESS STEEL. ALL FRP GRATING SHALL BE SECURELY FASTENED TO SUPPORTS WITH STAINLESS STEEL GRATING CLIPS AND STAINLESS STEEL ANCHORS, UNLESS OTHERWISE NOTED.
8. GRATING PANEL LAYOUT SHALL PROVIDE FOR THE REMOVAL OF GRATING AROUND PIPE AND OTHER GRATING PENETRATIONS. MULTIPLE GRATING SECTIONS SHALL BE PROVIDED SUCH THAT NO ONE SECTION IS GREATER THAN 75 POUNDS IN WEIGHT.

FRP STAIRS AND HANDRAIL SYSTEMS

- 1. UNLESS OTHERWISE NOTED, ALL COMPONENTS OF FRP STAIRS AND HANDRAIL SYSTEMS SHALL BE YELLOW IN COLOR, MANUFACTURED WITH FIRE RETARDANT ISOPHTHALIC POLYESTER RESIN WITH A FLAME SPREAD RATING OF 25 OR LESS WHEN TESTED IN ACCORDANCE WITH THE ASTM E-84 TUNNEL TEST.
2. ALL FRP ELEMENTS SHALL BE MANUFACTURED FROM THERMALLY CURED PULTRUDED COMPONENTS WITH A UV RESISTANT SYNTHETIC VEIL ON ALL EXPOSED SURFACES. ALL COMPONENTS WHICH REQUIRE CUTTING DURING INSTALLATION SHALL HAVE THE AFFECTED SURFACES SEALED WITH CATALYZED RESIN SEALANT OF EQUAL OR SUPERIOR CORROSION RESISTANCE AS THAT SUPPLIED BY THE MANUFACTURER.
3. GLASS CONTENT SHALL BE A MINIMUM OF 25 PERCENT AND A MAXIMUM OF 35 PERCENT BY WEIGHT AS DETERMINED BY ASTM D2584. COMPONENTS SHALL HAVE NO EXPOSED DRY GLASS OR VOIDS CONTAINING DRY GLASS.
4. CONTRACTOR SHALL FURNISH CERTIFIED LOAD/DEFLECTION STATISTICAL QUALITY CONTROL DATA AND LOAD/DEFLECTION INFORMATION FOR THE SUPPLIED STAIR TREADS. CONTRACTOR SHALL FURNISH CERTIFIED ALLOWABLE LOAD INFORMATION FOR ALL HANDRAILS.
5. FASTENERS, ANCHORS, BOLTS, NUTS AND WASHERS FOR STAIR AND HANDRAIL SYSTEMS SHALL BE TYPE 304 OR 316 STAINLESS STEEL.
6. FRP STAIR TREADS SHALL BE CAPABLE OF SUPPORTING A UNIFORM LIVE LOAD OF 100 PSF WHILE MAINTAINING A DEFLECTION OF LESS THAN 1/4-INCH OR L/200 WHICHEVER IS SMALLER. FRP STAIR TREADS AND LADDER RUNGS SHALL BE CAPABLE OF SUPPORTING A CONCENTRATED LIVE LOAD OF 300 LBS., APPLIED AT A LOCATION RESULTING IN THE MAXIMUM STRESS, WHILE MAINTAINING A DEFLECTION OF LESS THAN 1/4-INCH. A FACTOR OF SAFETY OF 5.0 SHALL BE APPLIED TO ULTIMATE CAPACITIES TO DETERMINE ALLOWABLE SPANS AND LOADS.
7. THE FRP STAIR AND HANDRAIL SYSTEMS SHALL CONFORM TO THE LOADING AND DIMENSIONAL REQUIREMENTS SET FORTH IN THE CBC.
8. UNLESS OTHERWISE NOTED, LADDER RAILS AND TOP AND MID-RAILS OF HANDRAILS SHALL BE 1 3/4" X 1/8" SQUARE TUBE. POSTS SHALL BE 2 1/8" X 3/16" SQUARE TUBE. TOP AND MIDDLE RAILS SHALL BE CONTINUOUS AT POST INTERSECTIONS. KICKPLATE SHALL BE 9/16" X 4" W-SECTION.
9. MAXIMUM POST SPACING SHALL NOT EXCEED 6 FEET ON CENTER.
10. KICKPLATES SHALL BE REQUIRED FOR ALL WALKWAYS 48 INCHES OR HIGHER ABOVE THE ADJACENT AREA. KICKPLATES SHALL BE INSTALLED WITH NOT MORE THAN 1/4" CLEARANCE ABOVE THE WALKING SURFACE.
11. FOR INCLINED HANDRAIL, THE HEIGHT FROM THE TOP OF THE TOP-RAIL TO THE WORK LINE SHALL BE VARIABLE FROM 30 1/2" TO 32 1/16".
12. STAIR TREADS SHALL BE SUPPLIED WITH AN ABRASIVE, NON-SLIP SURFACE. THE DEPTH OF TREADS SHALL BE AS REQUIRED TO MEET THE SPECIFIED LOADING REQUIREMENTS.

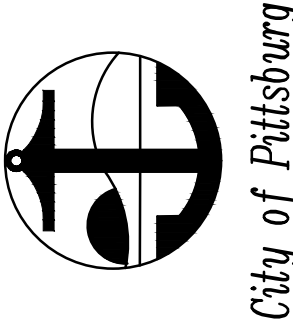


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PREPARED UNDER THE DIRECTION OF: JOHN SAMUELSON DATE:

ACCEPTED FOR USE: JOHN SAMUELSON City Engineer Date:



WATER TREATMENT PLANT FILTER REHABILITATION AND HYPOCHLORITE CONVERSION STRUCTURAL GENERAL NOTES 2

Table with columns: DRAWN:EV, CHECKED:DMY, REVIEWED, DATE: 6/2/23, SCALE: NTS

Table with columns: DATE, REV, DESCRIPTION

SHEET NO. # OF #

DWG. NO. GS002

SPECIAL INSPECTION

1. SPECIAL INSPECTION SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN CHAPTER 17 OF THE CBC. UNLESS OTHERWISE NOTED IN THE PROJECT SPECIFICATIONS, SPECIAL INSPECTION SHALL BE PROVIDED BY AND PAID FOR BY THE OWNER. THE FOLLOWING ITEMS, AS A MINIMUM, SHALL RECEIVE SPECIAL INSPECTION:

ITEM	STRUCTURAL STEEL INSPECTIONS AND VERIFICATION	FREQUENCY	
		CONTINUOUS	PERIODIC
1.	MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:	---	---
	A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.		X
	B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.		X
2.	INSPECTION OF HIGH-STRENGTH BOLTING:	---	---
	A. BEARING-TYPE CONNECTIONS.		X
	B. SLIP-CRITICAL CONNECTIONS.	X	
3.	MATERIAL VERIFICATION OF STRUCTURAL STEEL:	---	---
	A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.		X
	B. MANUFACTURERS' CERTIFIED MILL TEST REPORTS.		X
4.	MATERIAL VERIFICATION OF WELD FILLER MATERIALS:	---	---
	A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.		X
	B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.		X
5.	INSPECTION OF WELDING:	---	---
	A. STRUCTURAL STEEL:	---	---
	1) COMPLETE AND PARTIAL PENETRATION GROOVE WELDS.	X	
	2) MULTI-PASS FILLET WELDS.	X	
	3) SINGLE-PASS FILLET WELDS > 5/16"	X	
	4) SINGLE-PASS FILLET WELDS ≤ 5/16"		X
	5) FLOOR AND ROOF DECK WELDS.		X
	B. REINFORCING STEEL:		
	1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.		X
	2) REINFORCING STEEL-RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE SHEAR WALLS AND SHEAR REINFORCEMENT.	X	
	3) SHEAR REINFORCEMENT.	X	
	4) OTHER REINFORCING STEEL.		X
6.	INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:	---	---
	A. DETAILS SUCH AS BRACING AND STIFFENING.		X
	B. MEMBER LOCATIONS.		X
	C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.		X
	SPECIAL PROVISIONS FOR SEISMIC RESISTANCE		
7.	THE TESTING SHALL BE AS REQUIRED BY AISC 341.	---	---
8.	BASE METAL THICKER THAN 1.5 INCHES (38 MM), WHERE SUBJECT TO THROUGH-THICKNESS WELD SHRINKAGE STRAINS, SHALL BE ULTRASONICALLY TESTED FOR DISCONTINUITIES BEHIND AND ADJACENT TO SUCH WELDS AFTER JOINT COMPLETION.	---	---
9.	THE ACCEPTANCE CRITERIA FOR NONDESTRUCTIVE TESTING SHALL BE AS REQUIRED IN AWS D1.1 AS SPECIFIED BY THE ENGINEER OF RECORD. ANY MATERIAL DISCONTINUITIES SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF ASTM A 435 OR ASTM A 898 (LEVEL 1 CRITERIA) AND CRITERIA AS ESTABLISHED BY THE REGISTERED DESIGN PROFESSIONAL(S) IN RESPONSIBLE CHARGE AND THE CONSTRUCTION DOCUMENTS.	---	---
10.	CONTINUOUS SPECIAL INSPECTION IS REQUIRED FOR STRUCTURAL WELDING IN ACCORDANCE WITH AISC 341	X	

ITEM	CONCRETE INSPECTIONS AND VERIFICATION	FREQUENCY	
		CONTINUOUS	PERIODIC
1.	INSPECTION OF REINFORCING STEEL AND PLACEMENT.		X
2.	INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.3, ITEM 2.	X	
3.	INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.		X
4.	INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS.	X	
5.	VERIFYING USE OF REQUIRED DESIGN MIX.		X
6.	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	
7.	INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	
8.	INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X
9.	INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.		X
	SPECIAL PROVISIONS FOR SEISMIC RESISTANCE		
10.	VERIFY SUBMITTAL OF CERTIFIED MILL TEST REPORTS FOR EACH SHIPMENT OF REINFORCING STEEL USED TO RESIST FLEXURAL, SHEAR AND AXIAL FORCES IN REINFORCED CONCRETE INTERMEDIATE FRAMES, SPECIAL MOMENT FRAMES AND BOUNDARY ELEMENTS OF SPECIAL REINFORCED CONCRETE OR REINFORCED MASONRY SHEAR WALLS.		X
11.	TEST ASTM A 615 REINFORCING STEEL IS USED TO RESIST EARTHQUAKE-INDUCED FLEXURAL AND AXIAL FORCES IN SPECIAL MOMENT FRAMES AND IN WALL BOUNDARY ELEMENTS OF SHEAR WALLS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F, PER ACI 318.		X
12.	TEST ASTM A 615 REINFORCING STEEL THAT IS TO BE WELDED, CHEMICAL TESTS SHALL BE PERFORMED TO DETERMINE WELDABILITY IN ACCORDANCE WITH SECTION 26.6.4.1 OF ACI 318.		X

ITEM	WATERSTOP INSPECTIONS AND VERIFICATION	FREQUENCY	
		CONTINUOUS	PERIODIC
1.	INSPECTION OF FIELD WELDS OF WATERSTOP.		X
2.	MANUFACTURER SHALL PROVIDE FIELD TRAINING OF WATERSTOP WELDERS AND SPECIAL INSPECTORS.	---	---

ITEM	INSPECTIONS FOR WIND RESISTANCE	FREQUENCY	
		CONTINUOUS	PERIODIC
1.	ROOF CLADDING AND ROOF FRAMING CONNECTIONS		X
2.	WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND FRAMING		X
3.	VERTICAL WINDFORCE-RESISTING SYSTEMS, INCLUDING BRACED FRAMES, MOMENT FRAMES AND SHEAR WALLS		X
4.	WINDFORCE-RESISTING SYSTEM CONNECTIONS TO THE FOUNDATION		X

ITEM	FOUNDATION INSPECTIONS AND VERIFICATION	FREQUENCY	
		CONTINUOUS	PERIODIC
	SOILS		
1.	VERIFY SUBGRADE MATERIALS BELOW THE FOOTING FOR DESIGN BEARING CAPACITY.		X
2.	VERIFY DEPTH OF EXCAVATION AND TYPE OF SUBGRADE MATERIALS REACHED.		X
3.	PERFORM CLASSIFICATION AND COMPACTION TESTING OF CONTROLLED BACKFILL MATERIALS.		X
4.	VERIFY MATERIALS USED, LAYERED THICKNESSES AND COMPACTION OF BACK FILLS.	X	
5.	VERIFY THE SUBGRADE AND SITE PREPARATIONS FOR CONTROLLED FILL.		X

ITEM	INSPECTIONS AND VERIFICATION FOR SEISMIC RESISTANCE IN OTHER BUILDING SYSTEMS	FREQUENCY	
		CONTINUOUS	PERIODIC
	DESIGNATED SEISMIC SYSTEMS		
1.	EXAMINE DESIGNATED SEISMIC SYSTEMS REQUIRING SEISMIC QUALIFICATION AND VERIFY THAT THE LABEL, ANCHORAGE OR MOUNTING CONFORMS TO THE CERTIFICATE OF COMPLIANCE		X
	MECHANICAL & ELECTRICAL COMPONENTS		
1.	ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F.		X
2.	ANCHORAGE OF OTHER ELECTRICAL EQUIPMENT IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY E OR F.		X
3.	PIPING SYSTEMS INTENDED TO CARRY FLAMMABLE, COMBUSTIBLE OR HIGHLY TOXIC CONTENTS AND THEIR ASSOCIATED MECHANICAL UNITS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F.		X
4.	HVAC DUCTWORK THAT WILL CONTAIN HAZARDOUS MATERIALS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F.		X
5.	VIBRATION ISOLATION SYSTEMS OF EQUIPMENT IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E OR F WHERE THE CONSTRUCTION DOCUMENTS REQUIRE A NOMINAL CLEARANCE OF 0.25 INCHES (6.4 MM) OR LESS BETWEEN THE EQUIPMENT SUPPORT FRAME AND RESTRAINT.		X
	STORAGE RACKS		
1.	INSPECT THE ANCHORAGE OF STORAGE RACKS 8 FEET (2438 MM) OR GREATER IN HEIGHT IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F.		X
	ARCHITECTURAL COMPONENTS		
1.	INSPECT THE ERECTION AND FASTENING OF THE FOLLOWING ELEMENTS IN STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F.	---	---
	A. EXTERIOR CLADDING		X
	B. INTERIOR AND EXTERIOR NONBEARING WALLS		X
	C. INTERIOR AND EXTERIOR VENEER		X

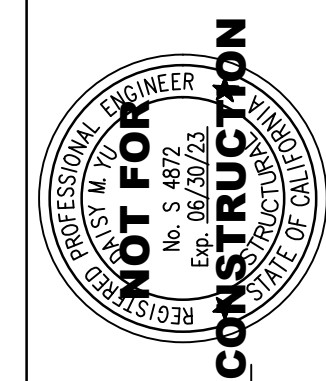
NOTATION:

"X" DENOTES EITHER CONTINUOUS OR PERIODIC INSPECTIONS.
 "---" DENOTES AN ACTIVITY THAT IS EITHER A ONE TIME ACTIVITY OR ONE WHOSE FREQUENCY IS DEFINED IN SOME OTHER MANNER

DEFINITIONS:
 CONTINUOUS - SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED (CBC, SECTION 202)

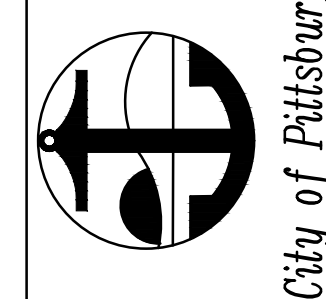
PERIODIC - SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED (CBC, SECTION 202)

SPECIAL INSPECTOR - A QUALIFIED PERSON EMPLOYED OR RETAINED BY THE OWNER AND APPROVED BY THE AUTHORITY HAVING JURISDICTION AS HAVING THE COMPETENCE NECESSARY TO INSPECT A PARTICULAR TYPE OF CONSTRUCTION REQUIRING SPECIAL INSPECTION.



PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 DATE:

ACCEPTED FOR USE:
 JOHN SAMUELSON
 City Engineer
 Date:



WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION
 STRUCTURAL GENERAL NOTES 3

BY: _____
 DATE: _____
 CHECKED: DMY
 REVIEWED: _____
 DATE: 6/2/23
 SCALE: NTS

DATE	REV	DESCRIPTION

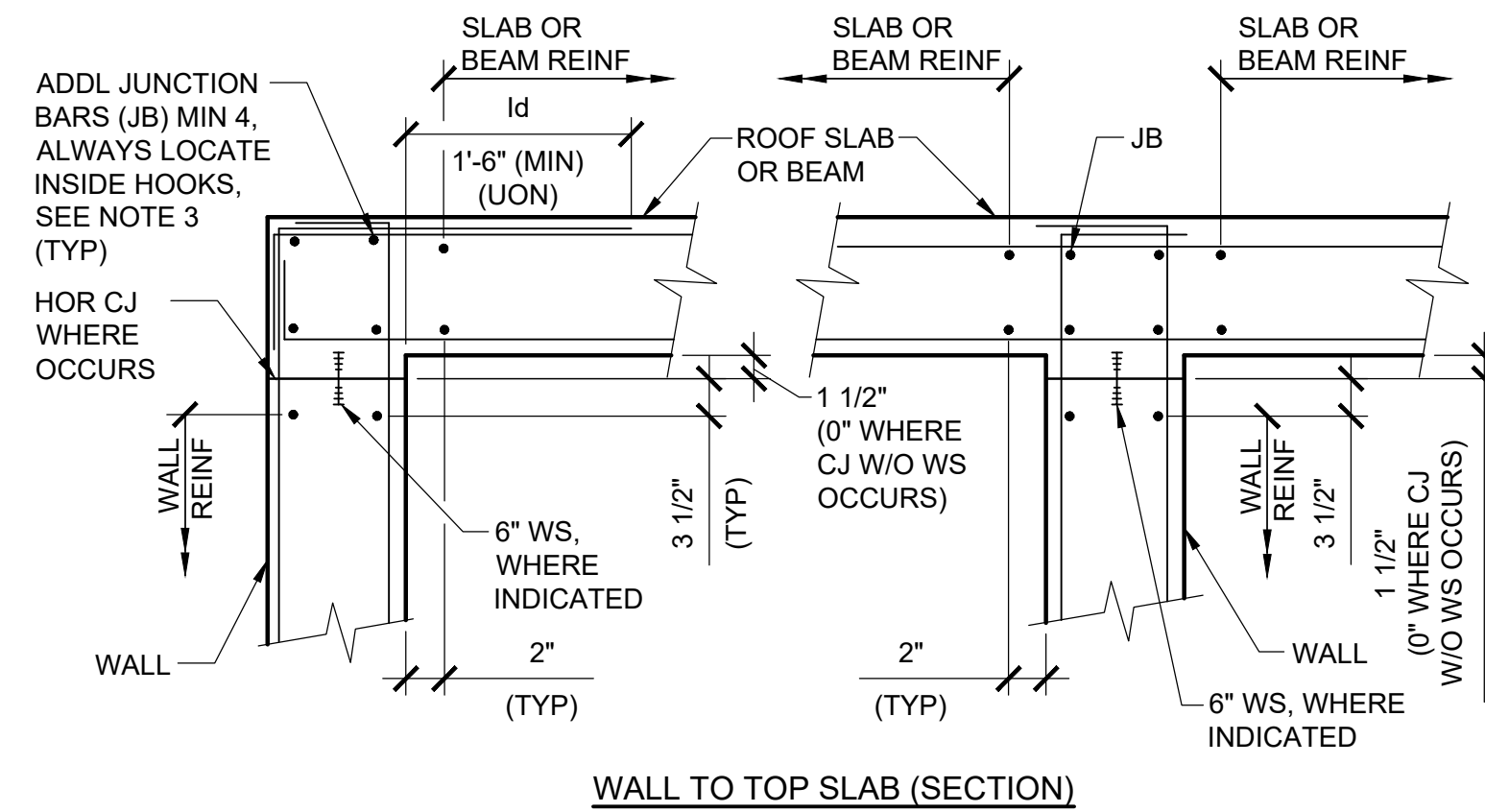
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DWG. NO.
GS003

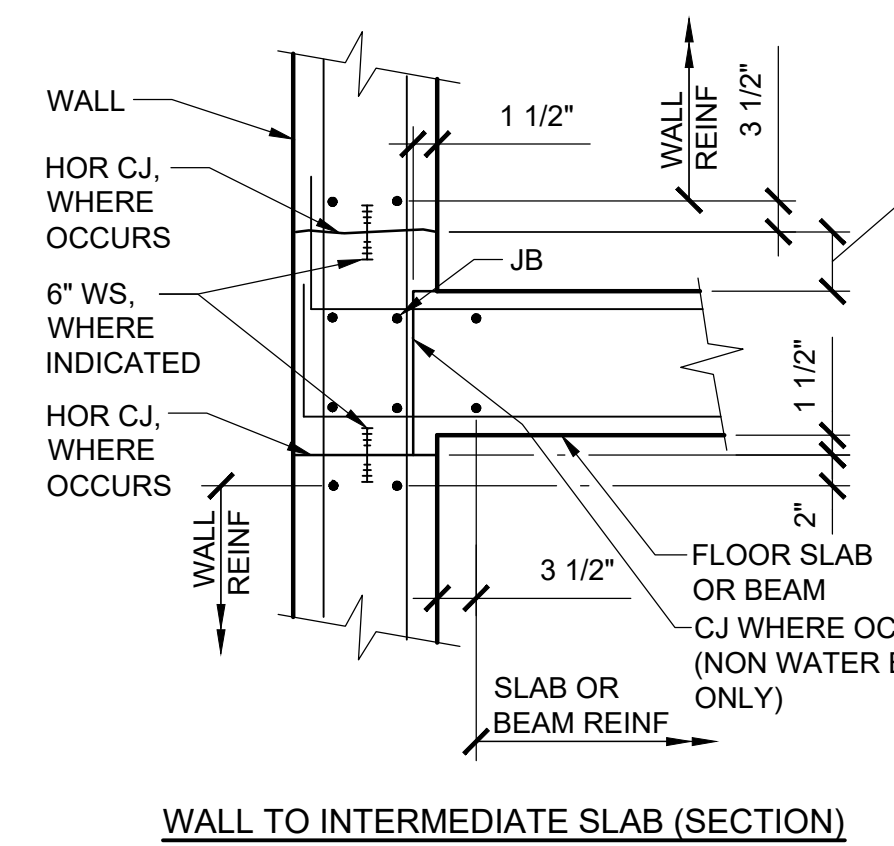


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 SCALE IN INCHES

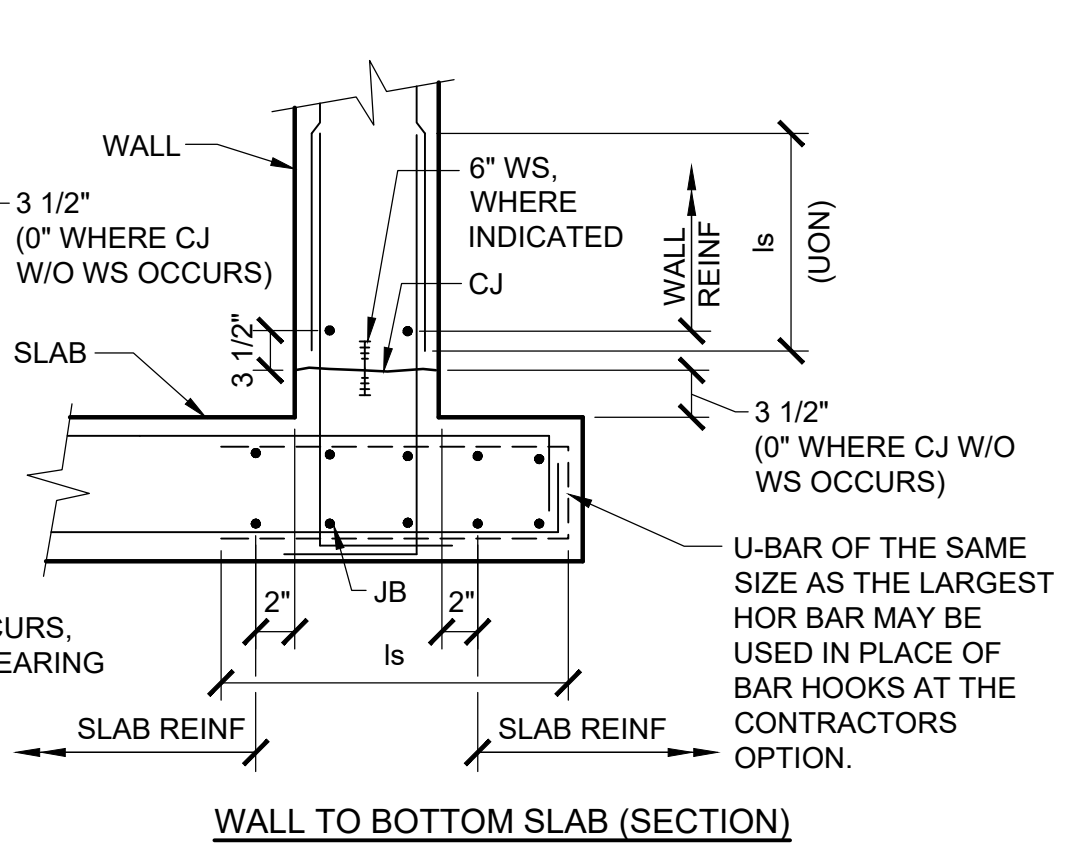
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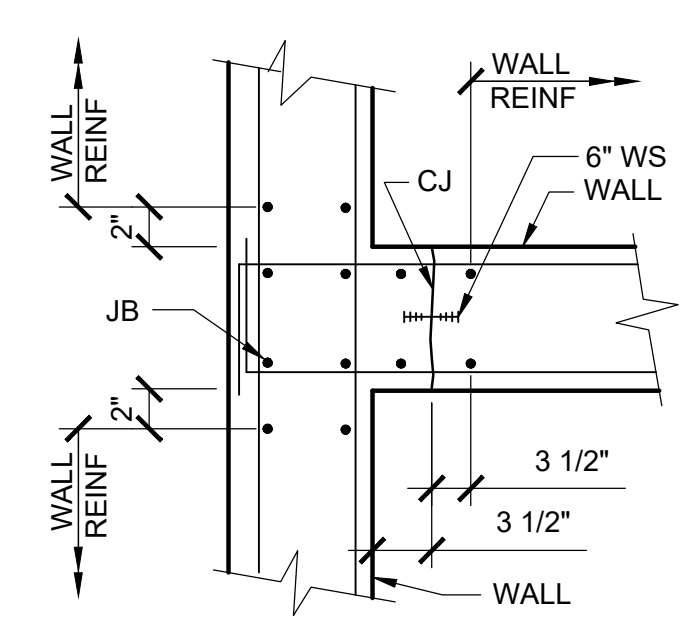
WALL TO TOP SLAB (SECTION)



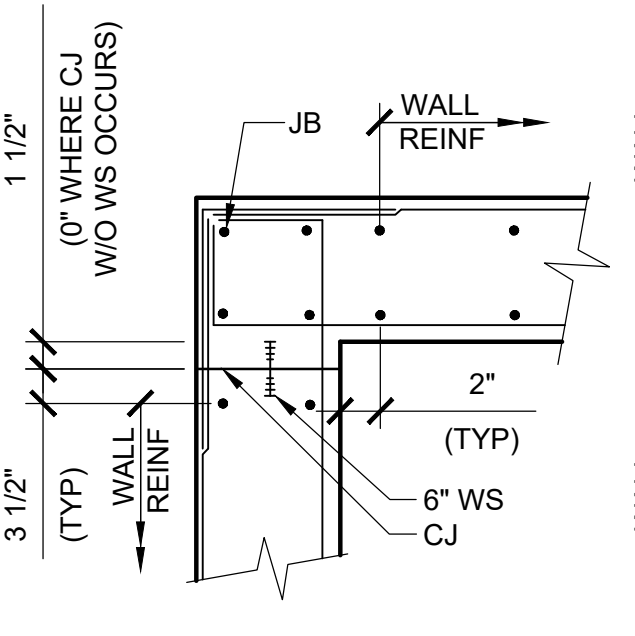
WALL TO INTERMEDIATE SLAB (SECTION)



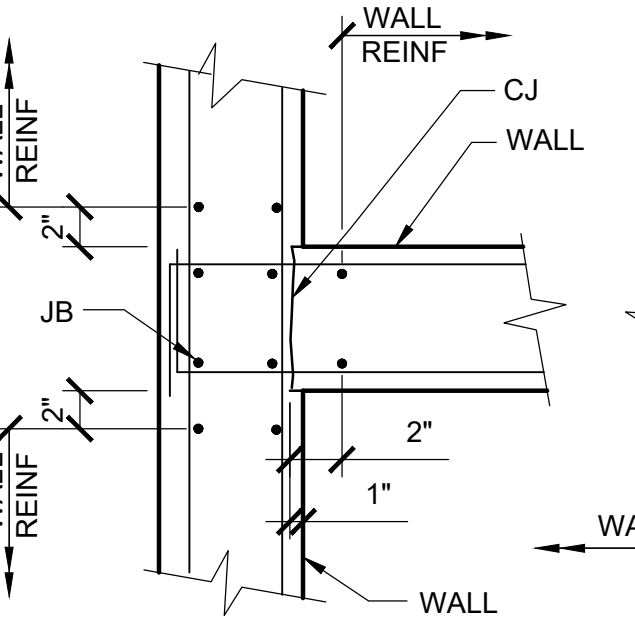
WALL TO BOTTOM SLAB (SECTION)



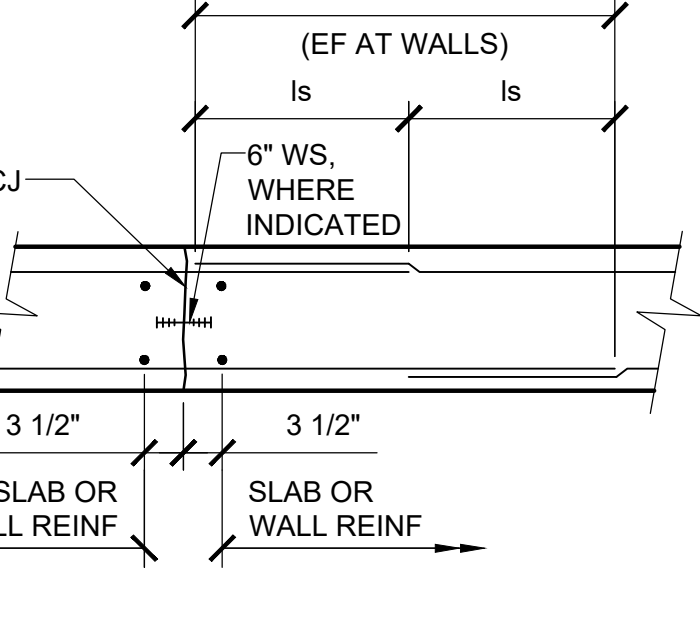
WATER BEARING (PLAN)



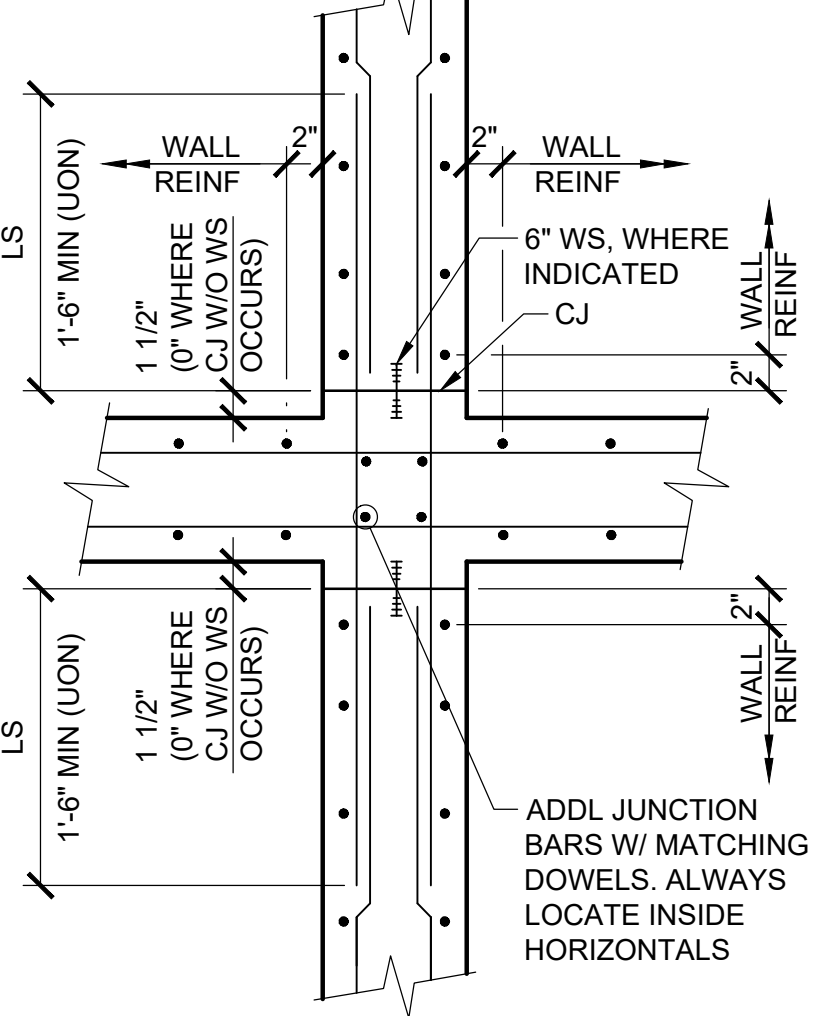
WALL TO WALL (PLAN)



NON-WATER BEARING (PLAN)



SLAB OR WALL CONTINUATION (PLAN/SECTION)

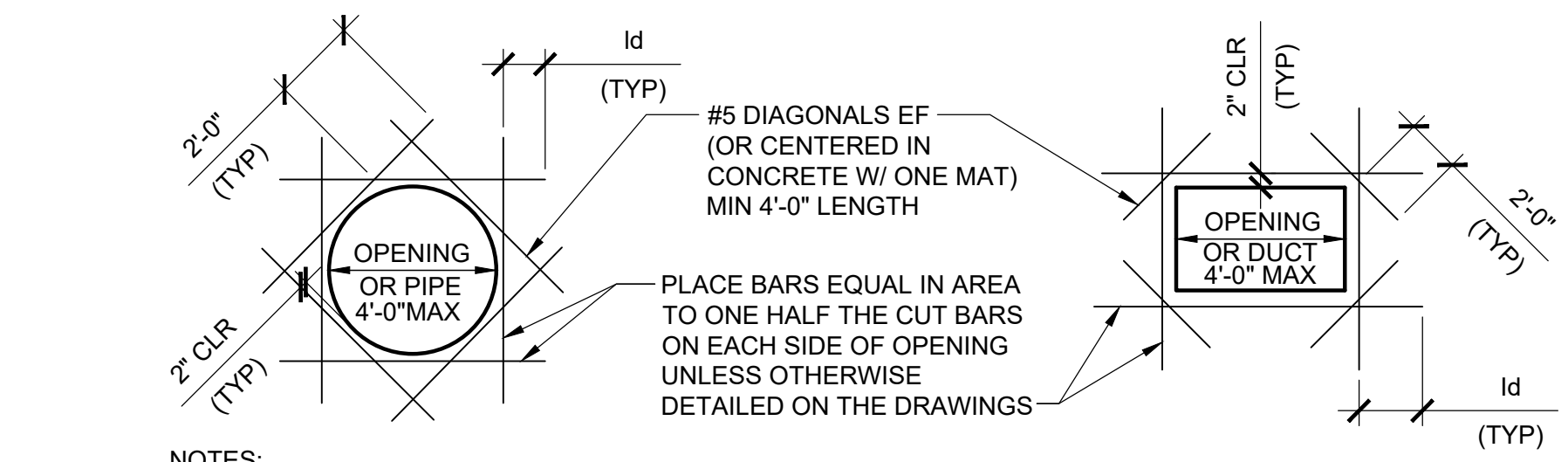


FOUR WALL INTERSECTION

CONSTRUCTION JOINT NOTES:

- REINFORCING SHOWN IS FOR CLARITY ONLY. SEE PLANS AND SECTIONS FOR REINFORCING SIZES, SPACING, LOCATION AND DETAILS.
- ALL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- JUNCTION BARS SHALL BE SAME SIZE OF THE LARGER OF WALL OR SLAB REINFORCING EXCEPT WHERE OTHERWISE NOTED ON THE DETAILS OR DRAWINGS. THESE ARE ADDITIONAL BARS TO THOSE CALLED OUT FOR WALLS & SLABS. JUNCTION BARS SHALL BE PLACED INSIDE PRIMARY REINFORCING.
- ALL LAP SPLICES SHALL BE CLASS B TENSION CONTACT LAP.
- WATERSTOP SHALL BE PLACED AT CENTER OF WALL OR SLAB, UNLESS OTHERWISE NOTED.
- UNLESS OTHERWISE NOTED WATERSTOP SHALL BE PLACED AT ALL CONSTRUCTION JOINTS FOR BELOW GRADE OR WATER RETENTION STRUCTURES.
- SEE PLANS & SECTIONS FOR LOCATION OF JOINTS.
- UNLESS OTHERWISE NOTED, WITHIN CONTRACT DOCUMENTS, REINFORCING BARS SHALL TERMINATE WITH A STANDARD HOOK. WHERE SECTION THICKNESS DOES NOT ALLOW FOR FULL HOOK EXTENSION, ROTATE HOOK UNTIL HOOK FITS. ALTERNATIVELY, CONTRACTOR MAY USE 180° HOOK OR TWO SMALLER HOOKED BARS OF EQUIVALENT AREA OF STEEL.
- SEE DETAIL 03001 FOR ADDITIONAL REINFORCING.
- SEE PLANS AND SECTIONS FOR ORIENTATION OF PRIMARY REINFORCING.

CONSTRUCTION JOINT (CJ)
DETAIL 03002
NTS VAR



ADDITIONAL TRIM REINFORCEMENT AT OPENINGS

DETAIL 03025
NTS VAR

NOTES:

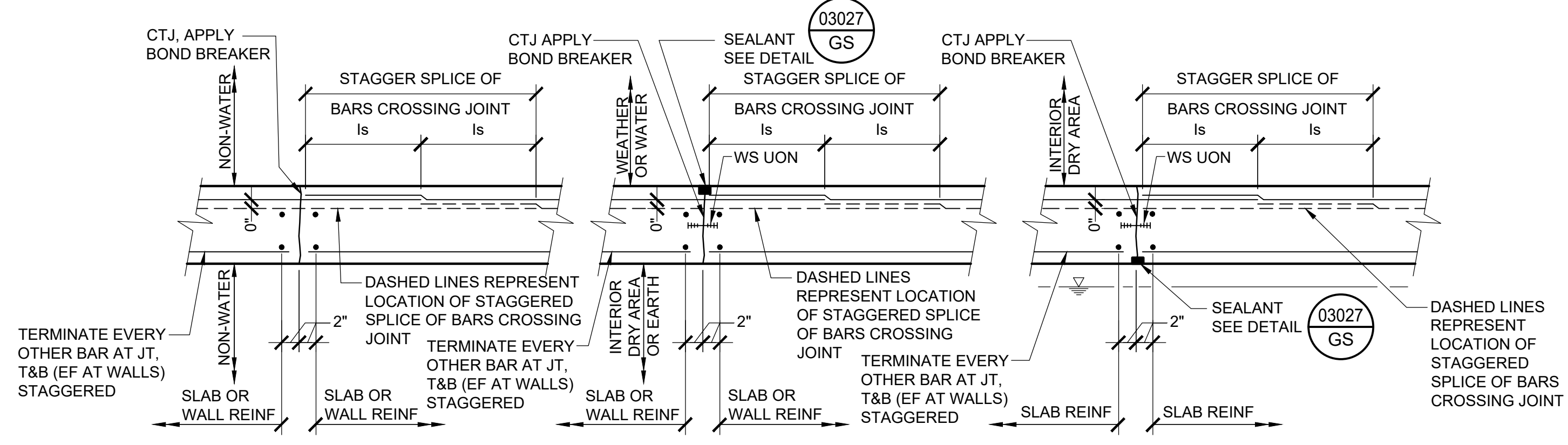
- PROVIDE STANDARD HOOK IF INDICATED LENGTH IS NOT POSSIBLE.
- REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS.
- DETAIL IS TYPICAL FOR ALL OPENINGS GREATER THAN 10 INCHES AND LESS THAN OR EQUAL TO 4 FEET IN THE LARGER DIMENSION IN CONCRETE WALLS AND SLABS UNLESS OTHERWISE DETAILED ON THE DRAWINGS.
- TRIM BARS ARE NOT REQUIRED AT AN OPENING EDGE PARALLEL TO AND WITHIN 6 INCHES OF A WALL OR BEAM.

f'c (PSI) CONCRETE	BAR SIZE	ld (INCHES)		ls (INCHES)		ldh (INCHES)
		TOP BAR	OTHER	TOP BAR	OTHER	
2500	#3	24	19	32	25	9
	#4	32	25	42	33	12
	#5	39	30	51	39	15
3000	#6	47	37	62	49	18
	#3	22	17	29	23	9
	#4	29	23	38	30	11
4500	#5	36	28	47	37	14
	#6	43	34	56	45	17
	#3	18	14	24	19	7
	#4	24	19	32	25	9
	#5	30	24	39	32	12
	#6	35	27	46	36	14
	#7	51	40	67	52	16
#8	59	46	77	60	18	
#9	66	51	86	67	21	
#10	74	57	97	75	23	

NOTES:

- ld: DEVELOPMENT LENGTH FOR A STRAIGHT REINFORCING BAR IN TENSION.
ls: CLASS B TENSION CONTACT LAP SPLICE LENGTH.
ldh: DEVELOPMENT LENGTH FOR STANDARD HOOKS IN TENSION.
- LAP SPLICES SHALL BE CLASS B TENSION CONTACT LAP SPLICES TYPICAL, UNLESS OTHERWISE NOTED ON DRAWINGS.
- TOP BAR IS ANY HORIZONTAL BAR WITH MORE THAN 12" CONCRETE CAST IN ONE LIFT BENEATH THE BAR, INCLUDING BUT NOT LIMITED TO, HORIZONTAL BARS CAST IN WALLS.
- SPLICES IN HORIZONTAL BARS SHALL BE STAGGERED.
- UNLESS OTHERWISE DETAILED ON THE DRAWINGS, SPLICES IN TWO CURTAINS SHALL NOT OCCUR IN THE SAME LOCATION.

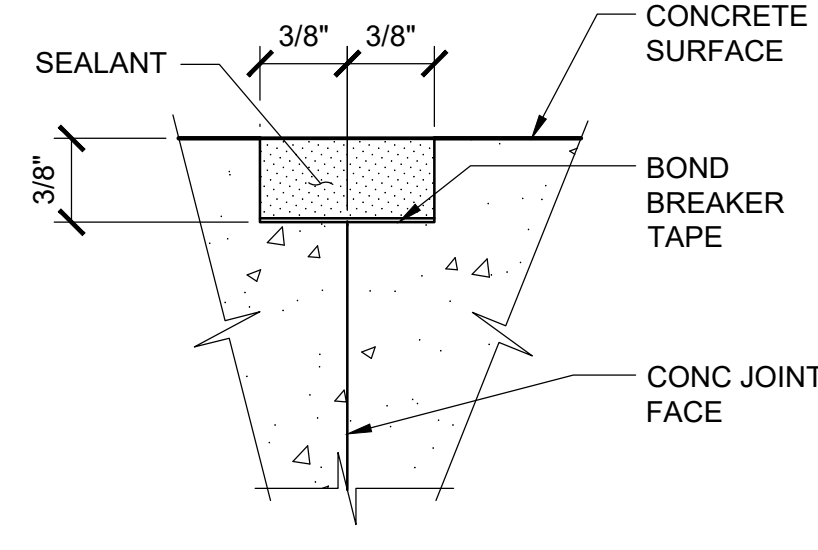
LAP SPLICE LENGTH
DETAIL 03026
NTS VAR



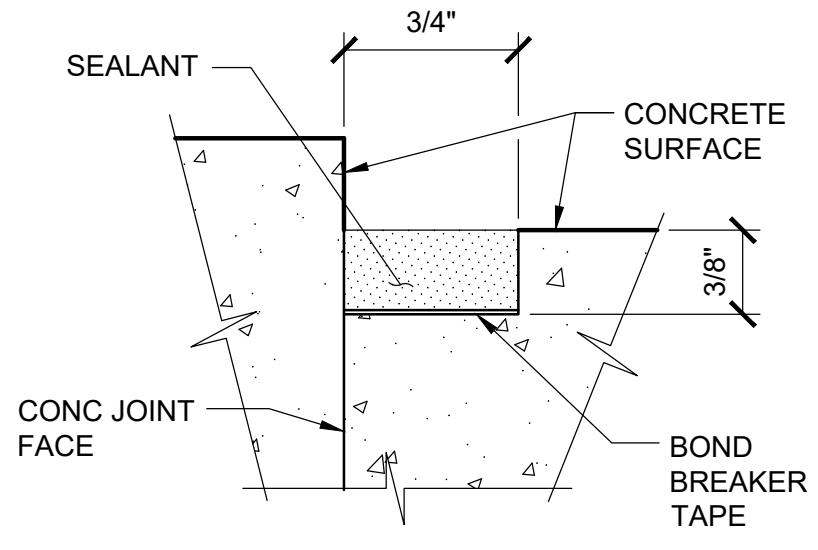
CONTROL JOINT NOTES:

- ALL SURFACES SHALL BE ROUGHENED AND PREPARED IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
- REINFORCING SHOWN IS FOR CLARITY ONLY. SEE PLANS AND SECTIONS FOR REINFORCING SIZES AND LOCATIONS.
- ALL LAP SPLICES SHALL BE CLASS B TENSION CONTACT LAP OR 2'-0", WHICHEVER IS GREATER. PROVIDE "TOP BAR" LAPS WHERE MORE THAN 12" OF CONCRETE IS CAST IN ONE LIFT BENEATH THE BAR.
- LAP SPLICES MAY BE OMITTED IF CONTINUOUS BARS ARE USED.

CONTROL JOINT (CTJ)
DETAIL 03003
NTS VAR



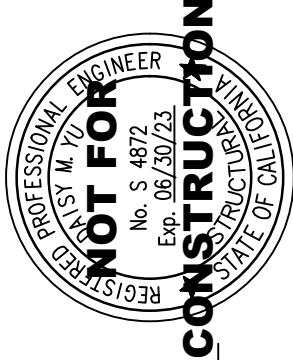
CONFIGURATION 1



CONFIGURATION 2

NOTE:
DO NOT COAT SEALANT GROOVE WITH BOND BREAKER.

SEALANT GROOVE
DETAIL 03027
NTS VAR



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
DATE:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:



WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
STRUCTURAL STANDARD DETAILS 1

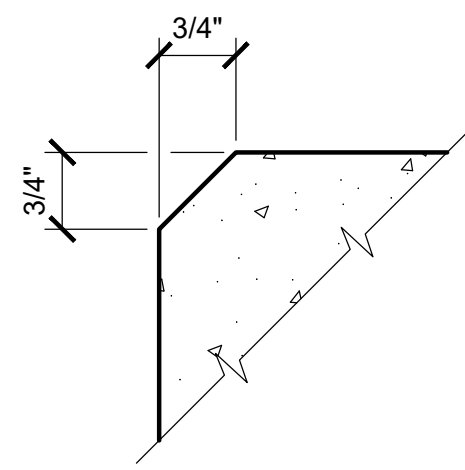
BY	DRAWN:ADP
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DATE:6/2/23	
SCALE:NTS	

DATE	REV	DESCRIPTION

SHEET NO.
OF #
DWG. NO.
S001

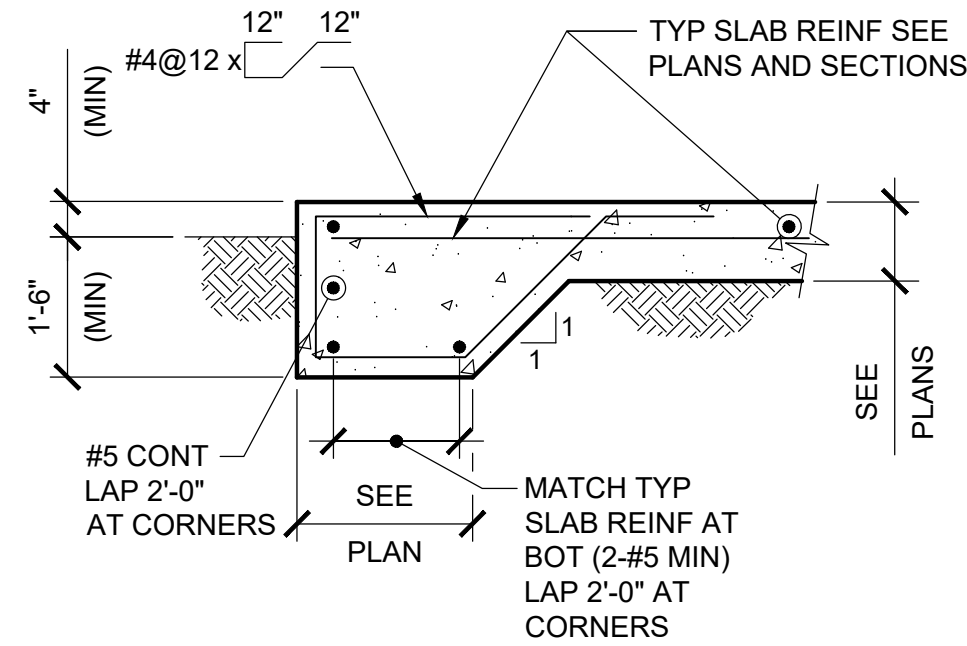


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SCALE IN INCHES

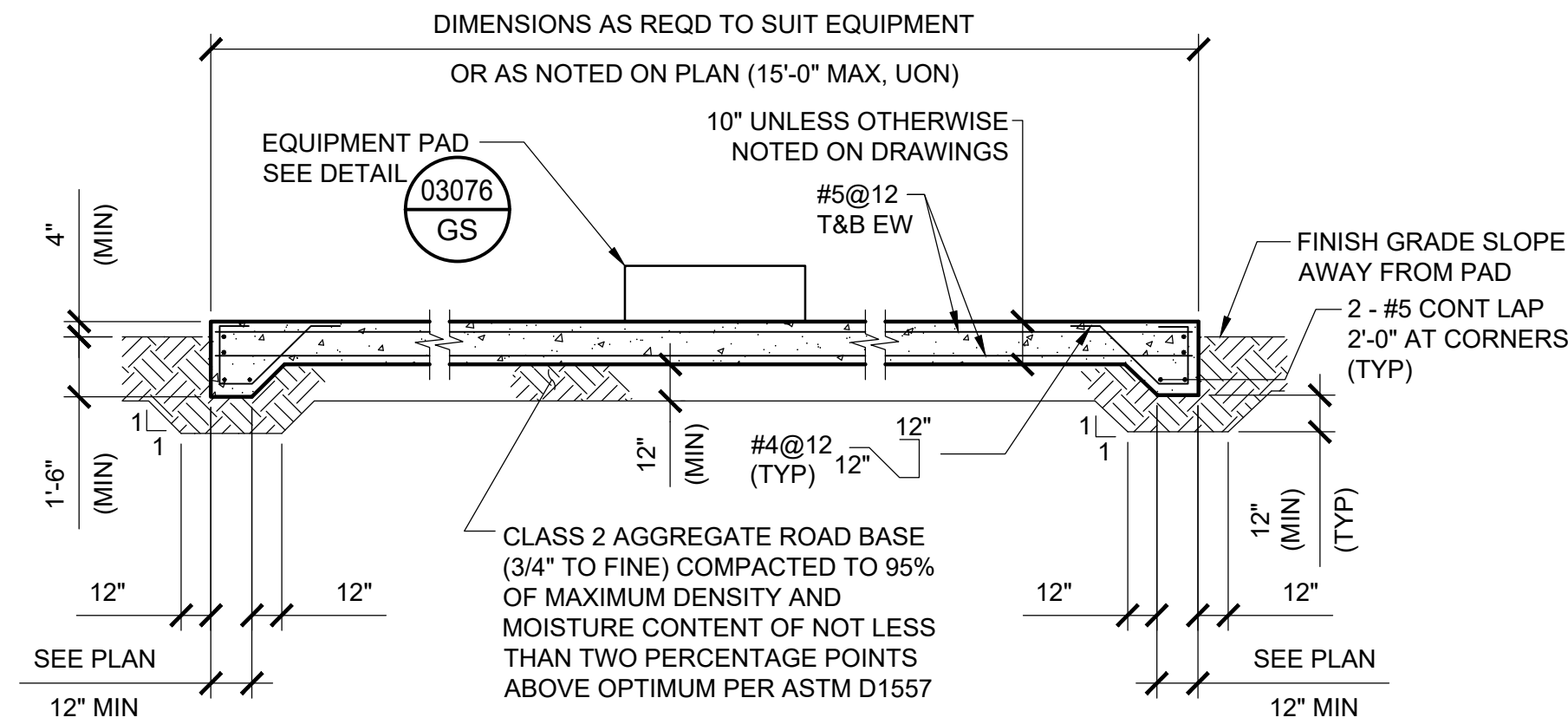


UON ON DRAWINGS

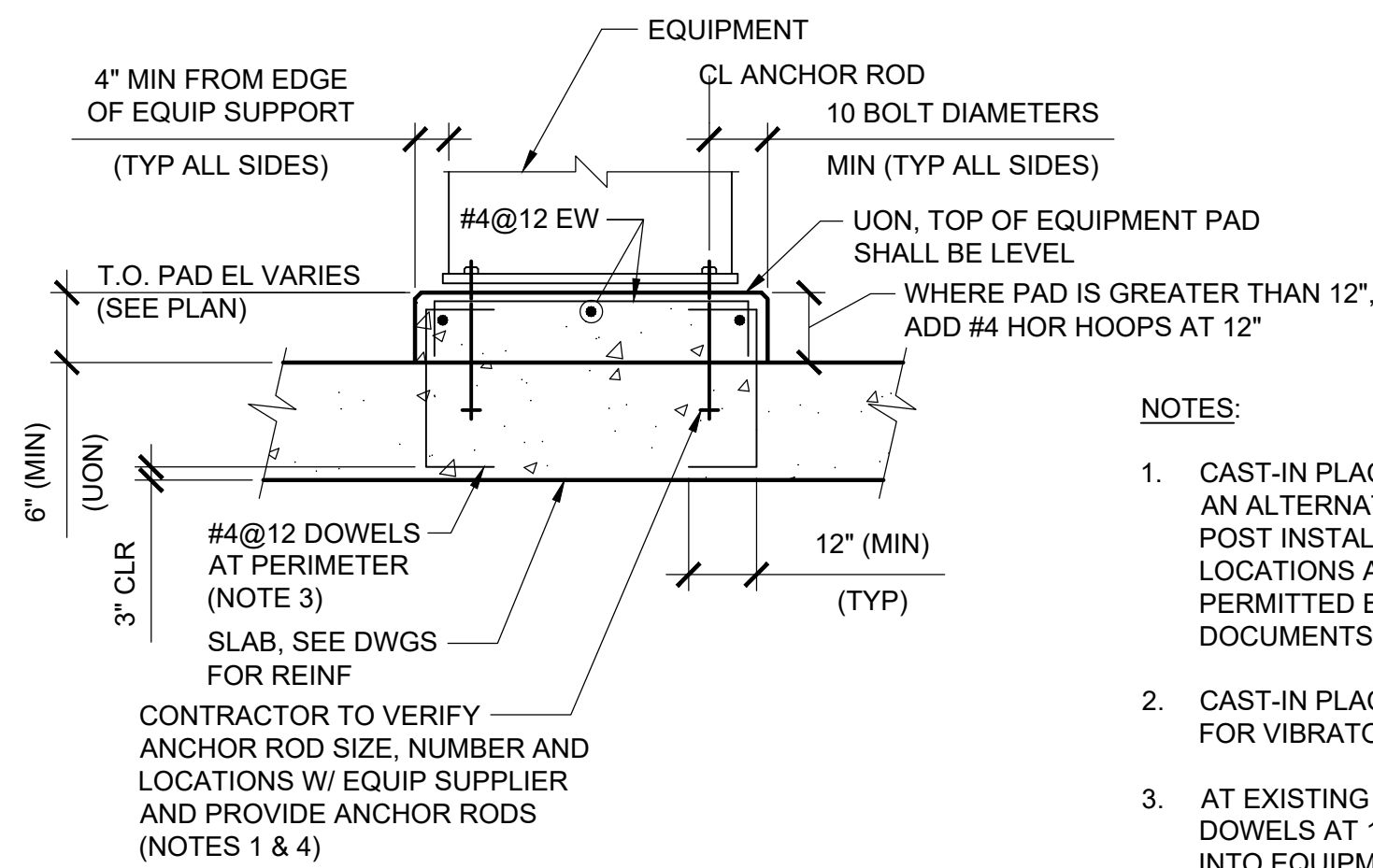
CONCRETE CHAMFER
DETAIL 03028
NTS VAR



THICKENED SLAB EDGE
DETAIL 03032
NTS VAR

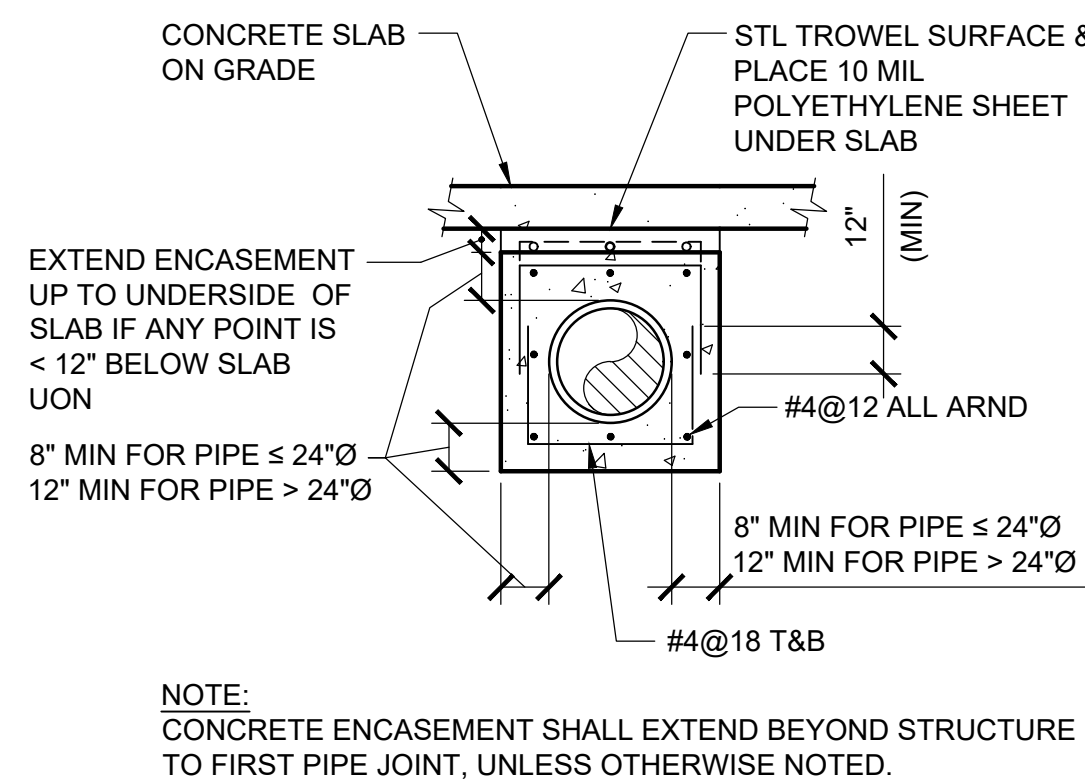


EXTERIOR EQUIPMENT SLAB
DETAIL 03075
NTS VAR

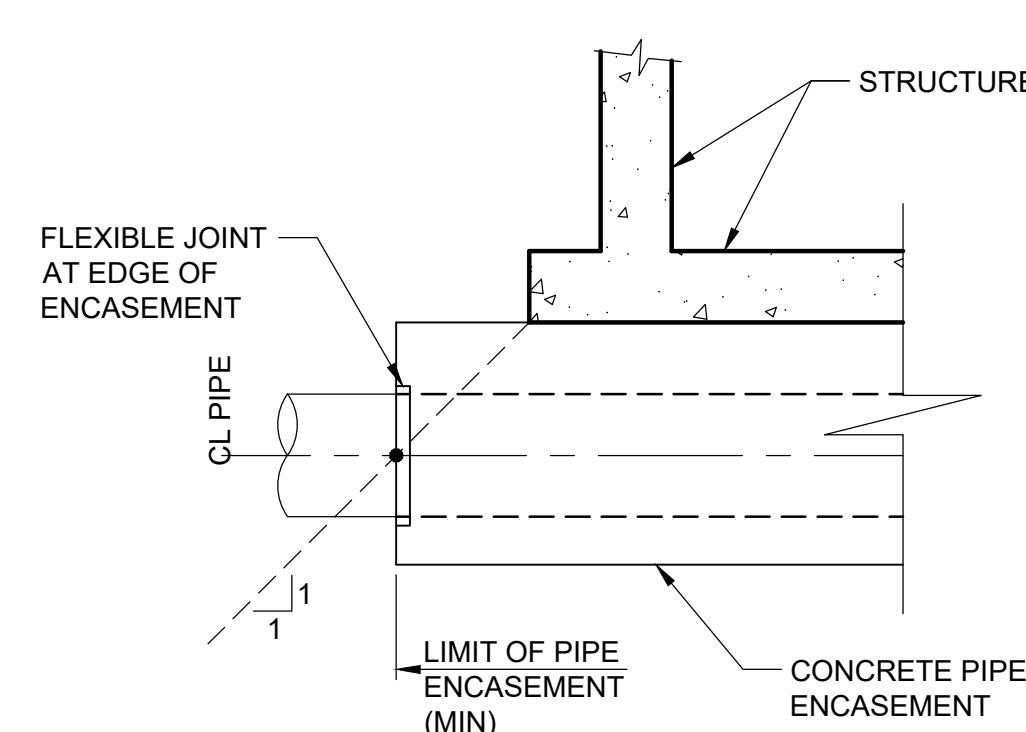


EQUIPMENT PAD
DETAIL 03076
NTS VAR

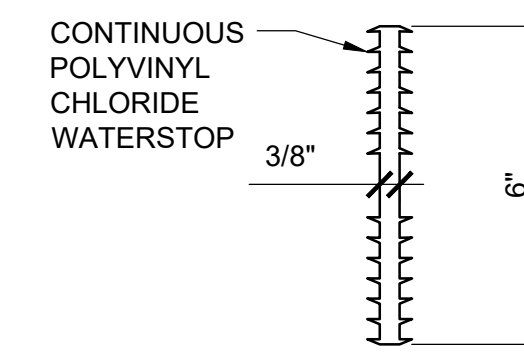
- NOTES:
- CAST-IN PLACE ANCHOR ROD SHOWN. AS AN ALTERNATIVE, CONTRACTOR MAY USE POST INSTALLED CONCRETE ANCHORS AT LOCATIONS AND APPLICATIONS WHERE PERMITTED BY THE CONTRACT DOCUMENTS.
 - CAST-IN PLACE ANCHORS SHALL BE USED FOR VIBRATORY EQUIPMENT.
 - AT EXISTING SLAB USE #4 ADHESIVE DOWELS AT 12" WITH STANDARD HOOK INTO EQUIPMENT PAD.
 - UNLESS OTHERWISE NOTED, ANCHOR BOLTS ARE A DEFERRED SUBMITTAL ITEM AND SHALL BE DESIGNED BY THE CONTRACTOR.



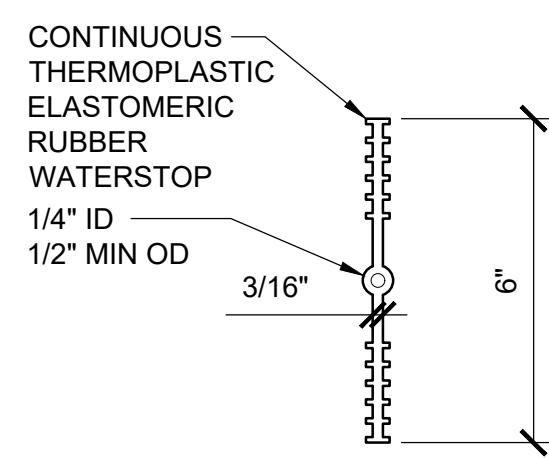
PIPE ENCASEMENT
DETAIL 03084
NTS VAR



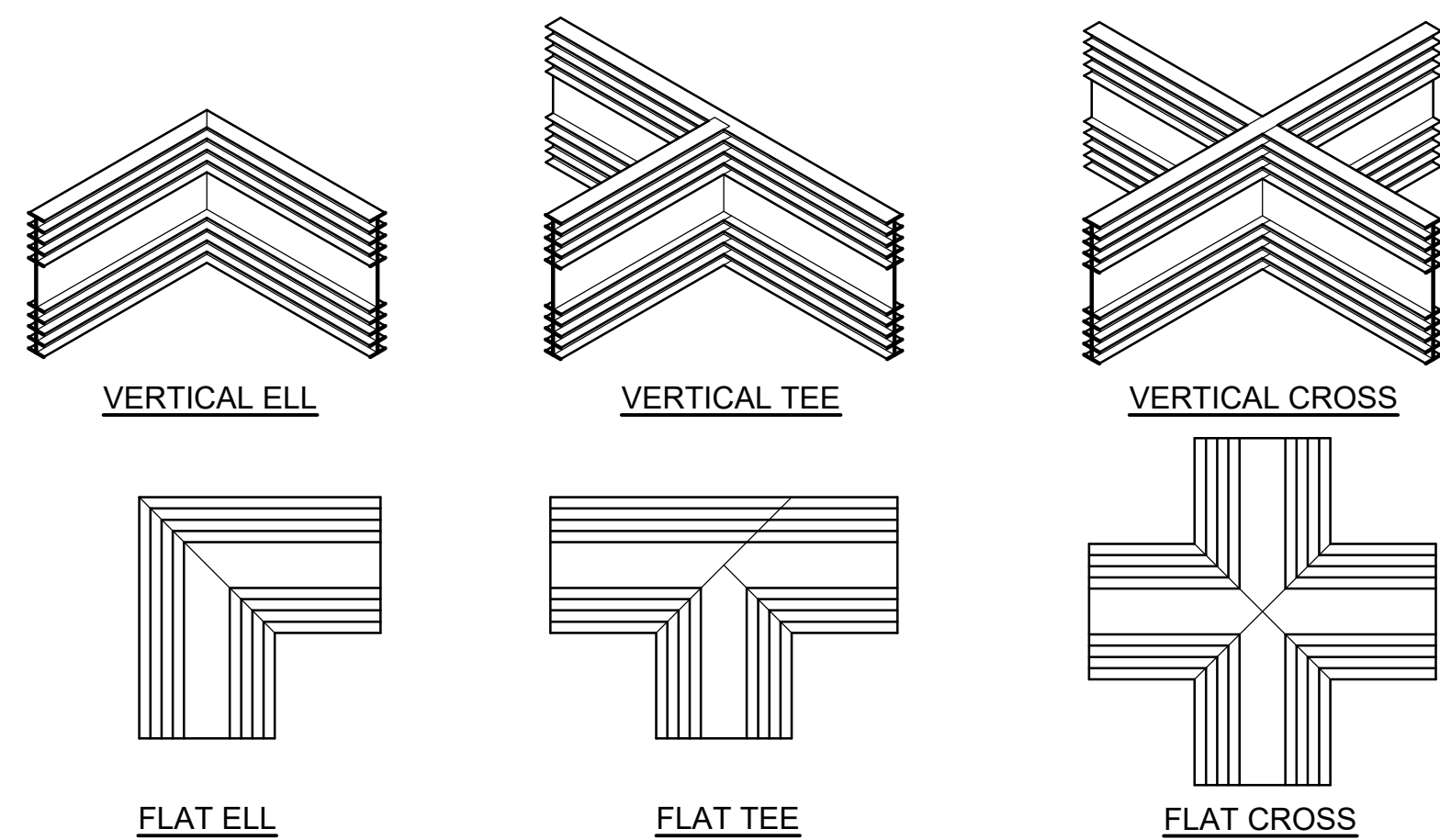
ENCASEMENT LIMITS
DETAIL 03086
NTS VAR



6" PVC JOINT WATERSTOP
DETAIL 03102
NTS VAR

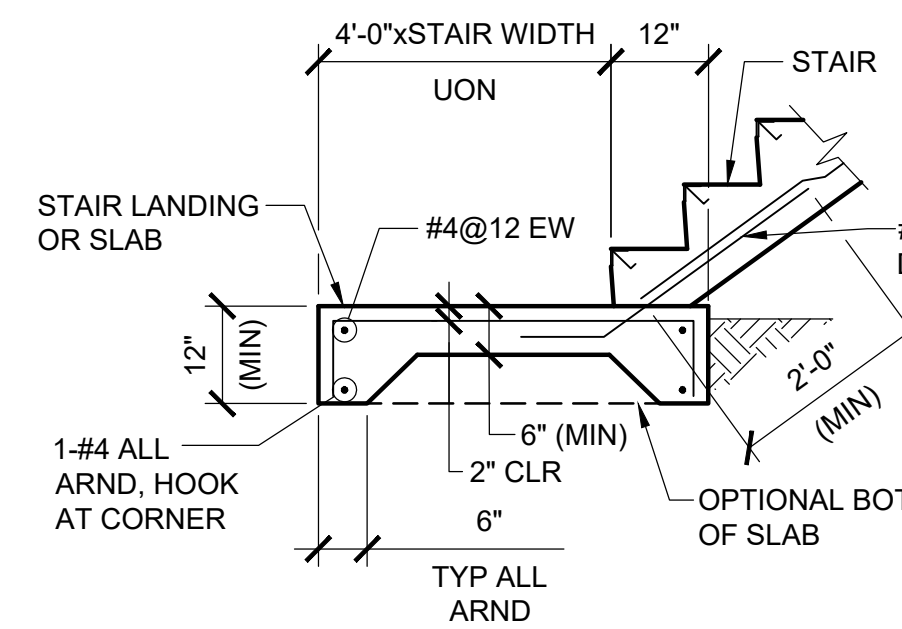


6" TPER JOINT WATERSTOP
DETAIL 03104
NTS VAR

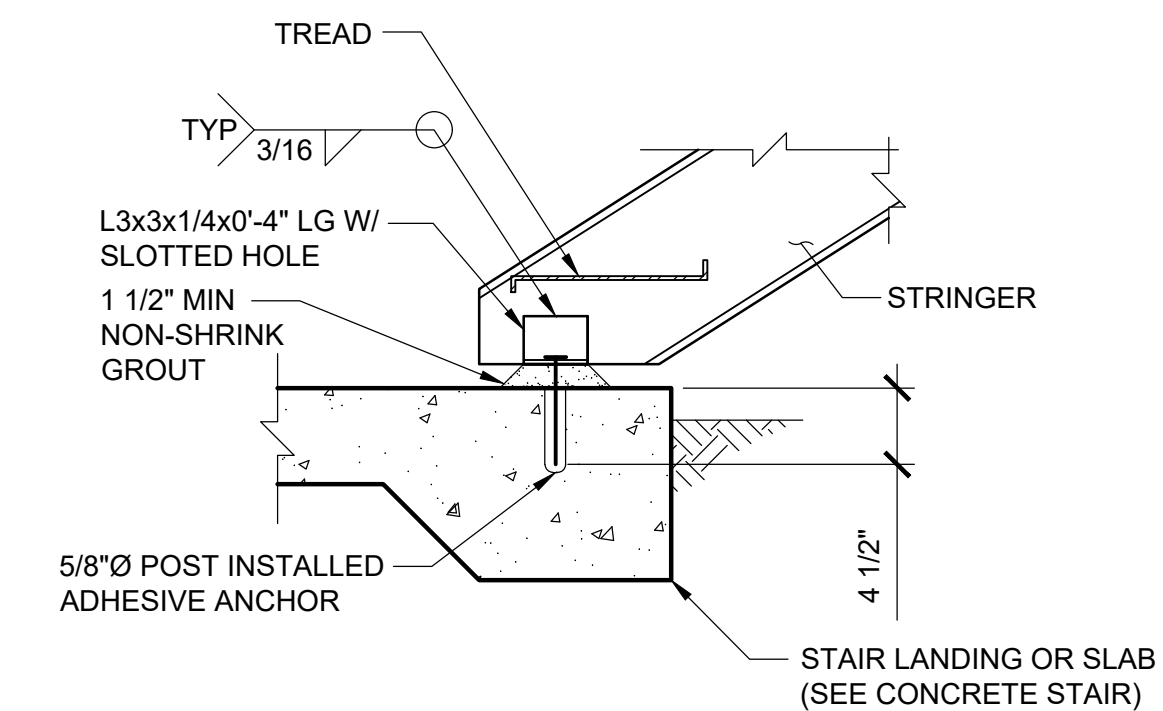


WATERSTOP FITTINGS
DETAIL 03106
NTS VAR

- NOTES:
- PVC WATERSTOPS SHOWN, SIMILAR FOR THERMOPLASTIC ELASTOMERIC RUBBER WATERSTOPS.
 - ALL FITTINGS SHALL BE FACTORY MADE OR SHOP WELDED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 - ONLY STRAIGHT BUTT SPLICES MAY BE MADE IN FIELD.



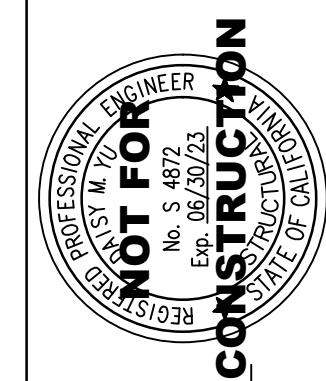
CONCRETE STAIR



METAL STAIR

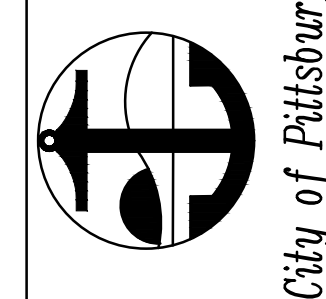
STAIR TO CONCRETE SLAB CONNECTION
DETAIL 03127
NTS VAR

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
DATE:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:

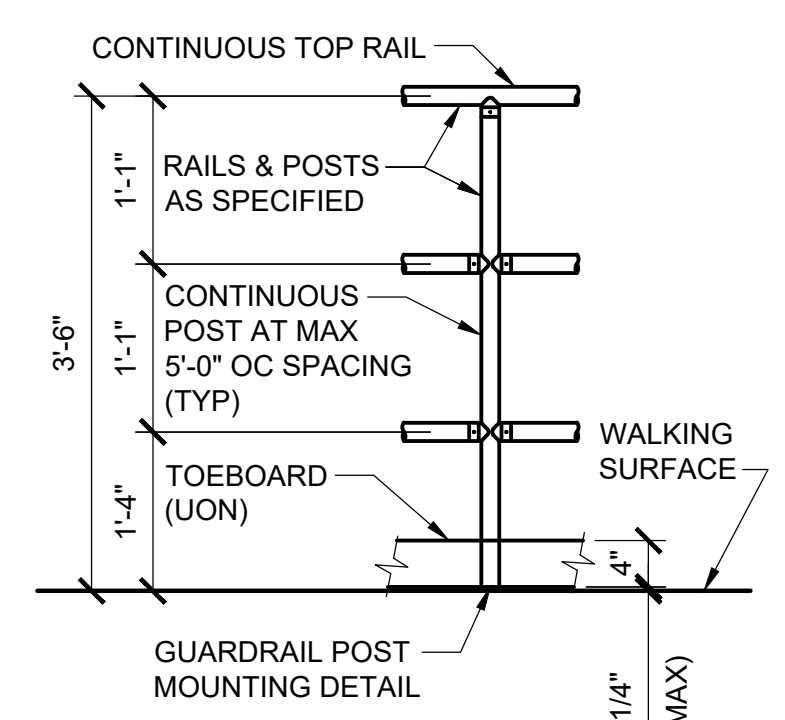


WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
STRUCTURAL STANDARD DETAILS 2

BY	DRAWN:ADP
DESCRIPTION	CHECKED:DMY
DATE	REVIEWED:
REV	DATE: 6/2/23
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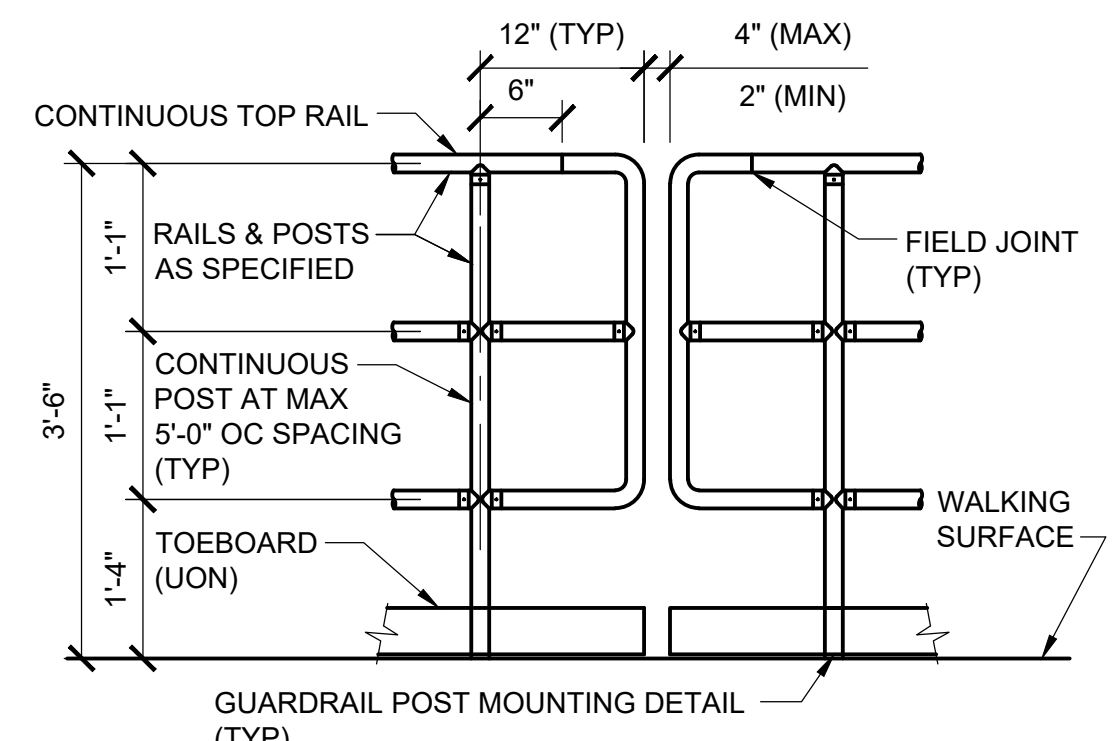
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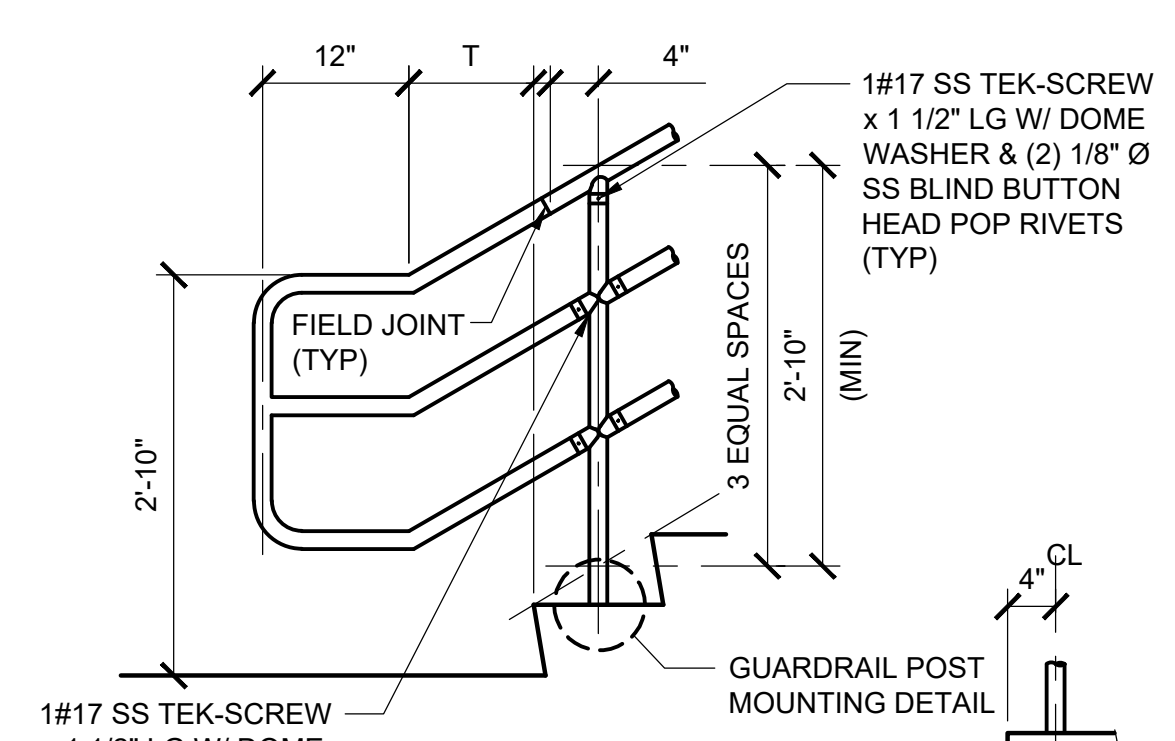
TOEBOARD SHALL BE PROVIDED UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS OR IN SPECS. TOEBOARD NOT REQUIRED WHEN CONCRETE CURBS 4" OR HIGHER ARE PROVIDED.

TYPICAL GUARDRAIL
DETAIL 05101
NTS VAR



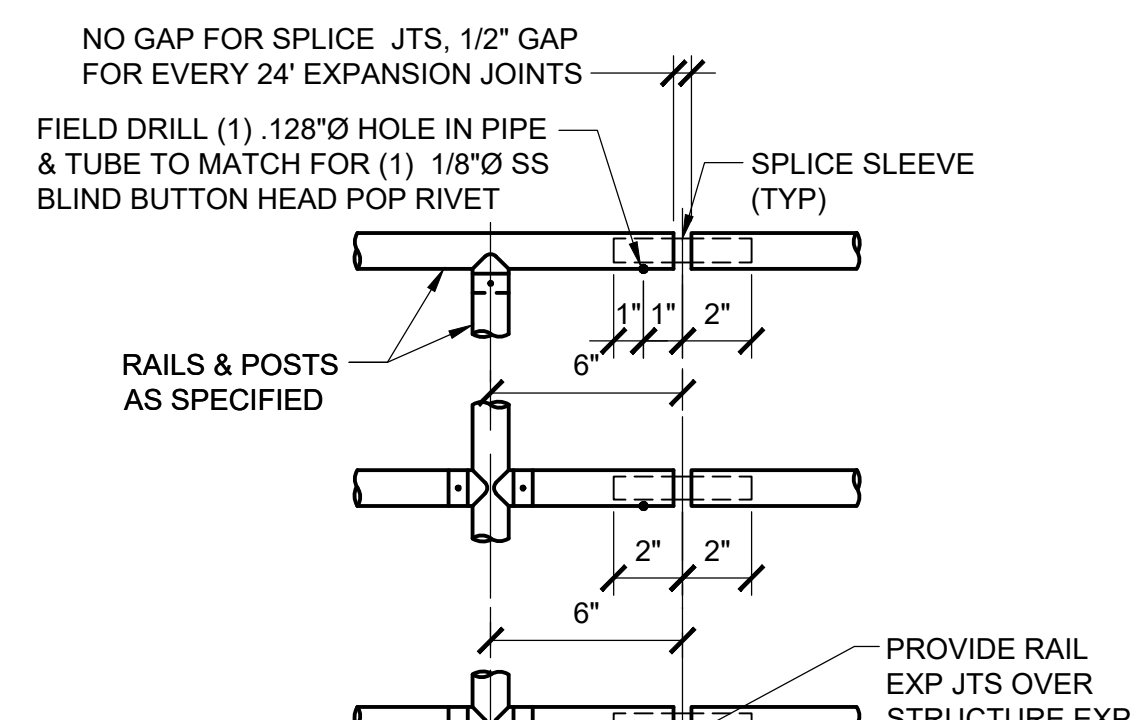
TOEBOARD SHALL BE PROVIDED UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS OR IN SPECS. TOEBOARD NOT REQUIRED WHEN CONCRETE CURBS 4" OR HIGHER ARE PROVIDED.

TYPICAL GUARDRAIL END POST
DETAIL 05102
NTS VAR



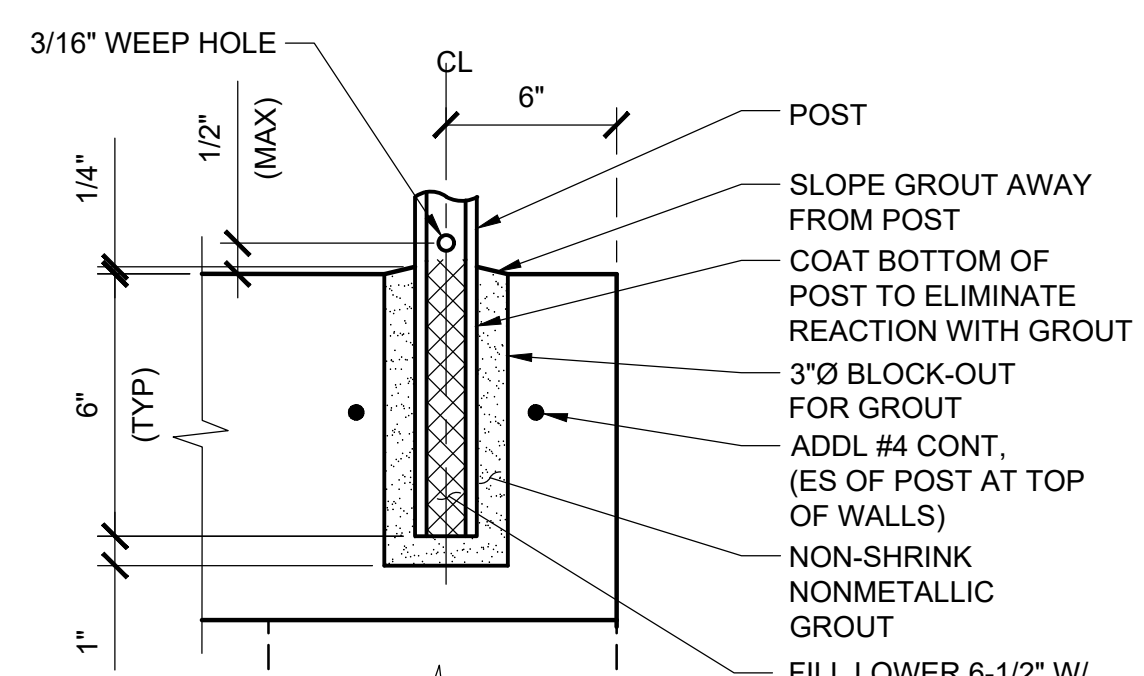
T = TYP TREAD LENGTH

TYPICAL GUARDRAIL END POST AT STAIR
DETAIL 05103
NTS VAR



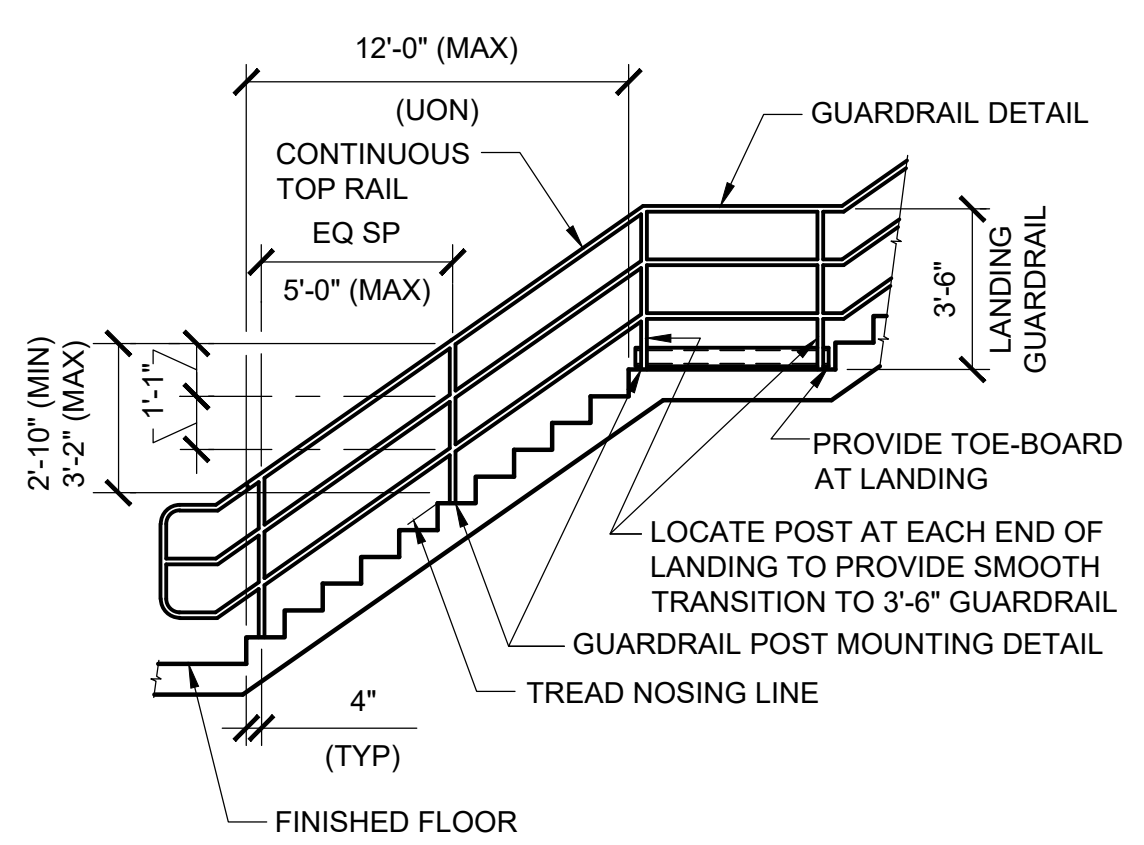
NO GAP FOR SPLICE JTS, 1/2" GAP FOR EVERY 24' EXPANSION JOINTS
FIELD DRILL (1) .128"Ø HOLE IN PIPE & TUBE TO MATCH FOR (1) 1/8"Ø SS BLIND BUTTON HEAD POP RIVET

TYPICAL GUARDRAIL JOINT
DETAIL 05105
NTS VAR



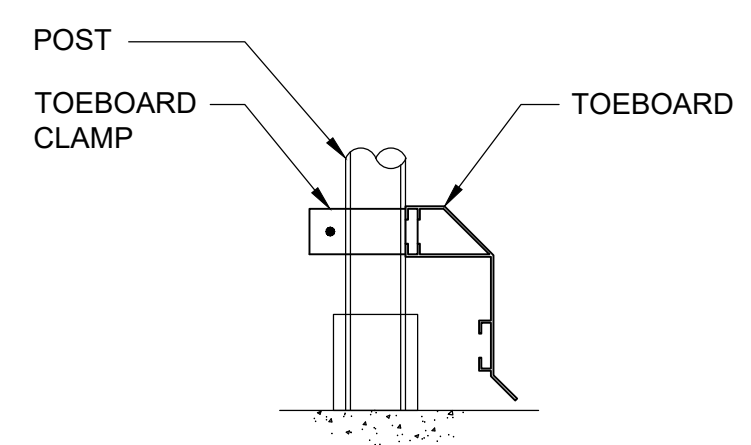
SLOPE GROUT AWAY FROM POST
COAT BOTTOM OF POST TO ELIMINATE REACTION WITH GROUT
3'Ø BLOCK-OUT FOR GROUT
ADDL #4 CONT. (ES OF POST AT TOP OF WALLS)
NON-SHRINK NONMETALLIC GROUT
FILL LOWER 6-1/2" W/ RIGID FOAM FOR ALL POSTS EXPOSED TO WEATHER

GUARDRAIL POST MOUNTING (PERMANENT)
DETAIL 05107
NTS VAR



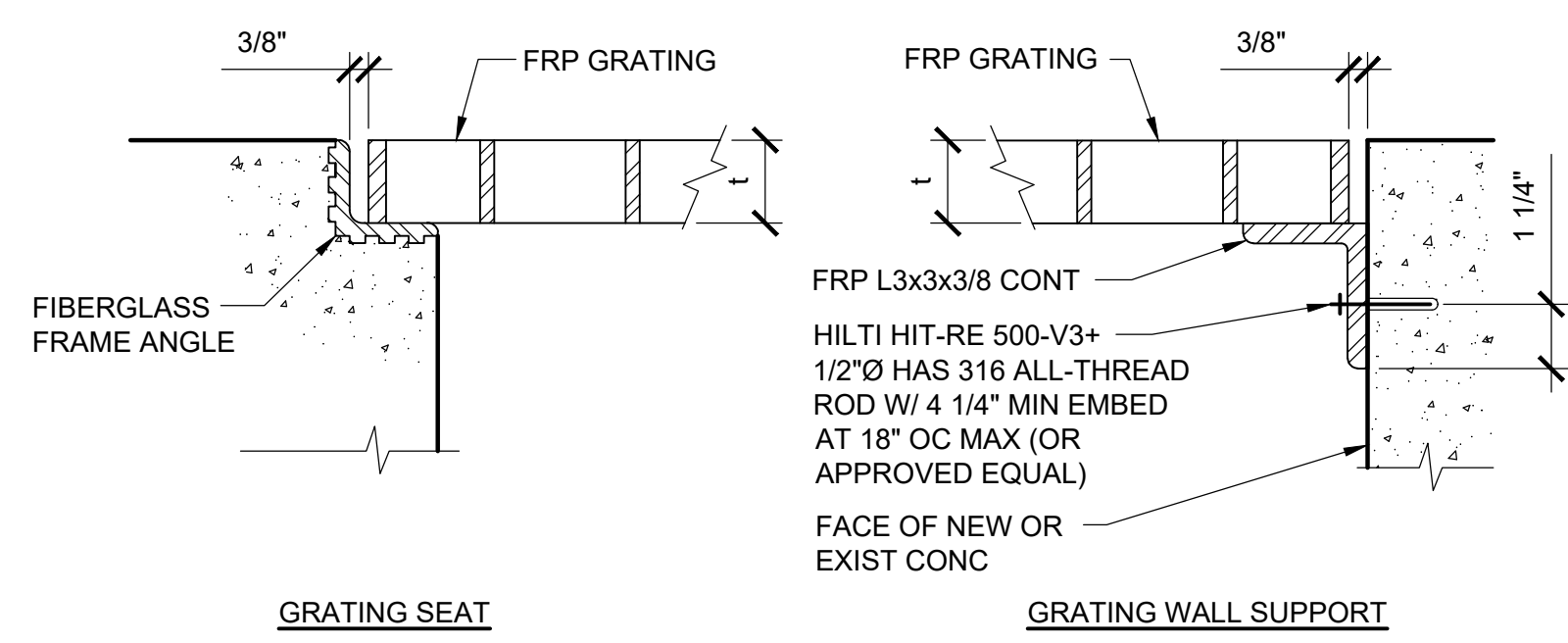
NOTE: ALL DIMENSIONS ARE TO CENTERLINE OF POST OR RAIL.

STAIR GUARDRAIL
DETAIL 05108
NTS VAR



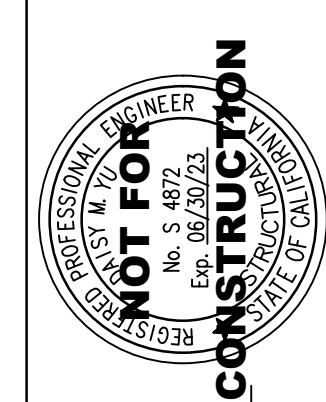
NOTE: TOEBOARD TO HAVE MINIMUM MOMENT OF INERTIA (I) ABOUT VERTICAL AXIS OF XXX.

TOEBOARD AT POST
DETAIL 05114
NTS VAR



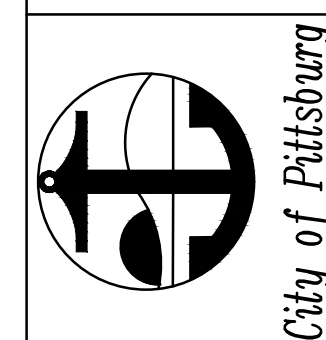
NOTES:
1. GRATING AND GRATING SUPPORTS SHALL BE PROVIDED BY THE SAME MANUFACTURER.

FRP GRATING SUPPORT
DETAIL 06001
NTS VAR



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
DATE:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
STRUCTURAL STANDARD DETAILS 3

BY	DRAWN:ADP
DESCRIPTION	CHECKED:DMY
DATE	REVIEWED:
REV	DATE: 6/2/23
	SCALE: NTS

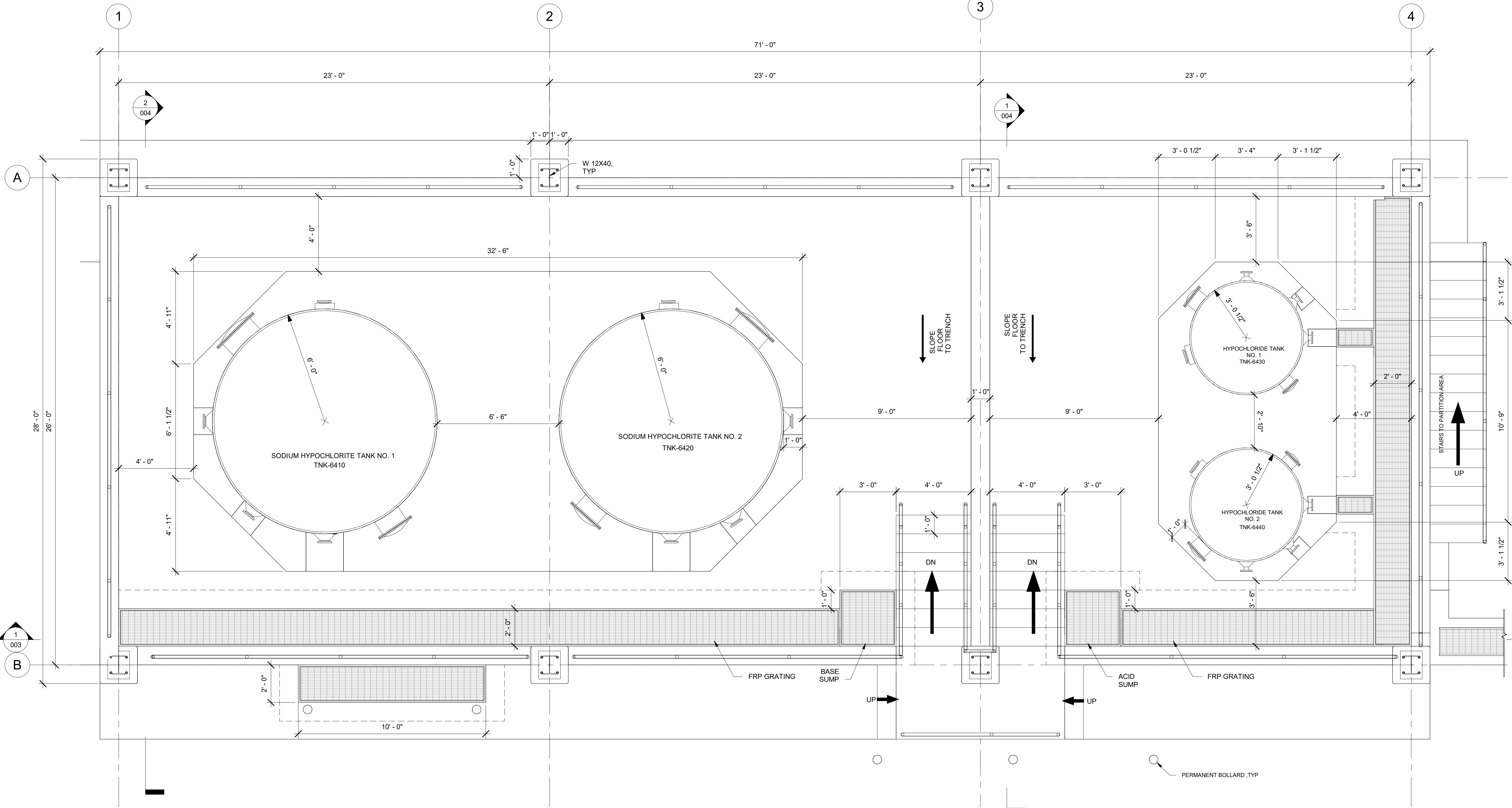
DATE	REV	SHEET NO.
		# OF #
		DWG. NO.

S003

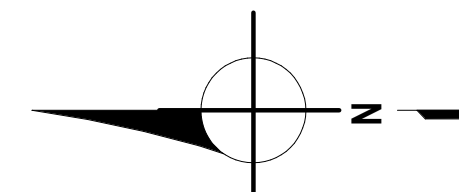


THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



1 PLAN @ ELEV-140'
REINFORCEMENT
3/8" = 1'-0"



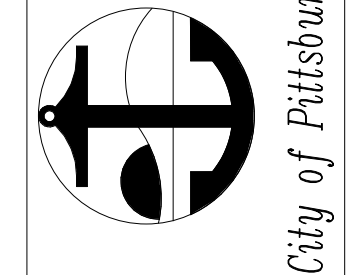
DATE	REV	DESCRIPTION

SHEET NO.
OF

DWG. NO.
S641

THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

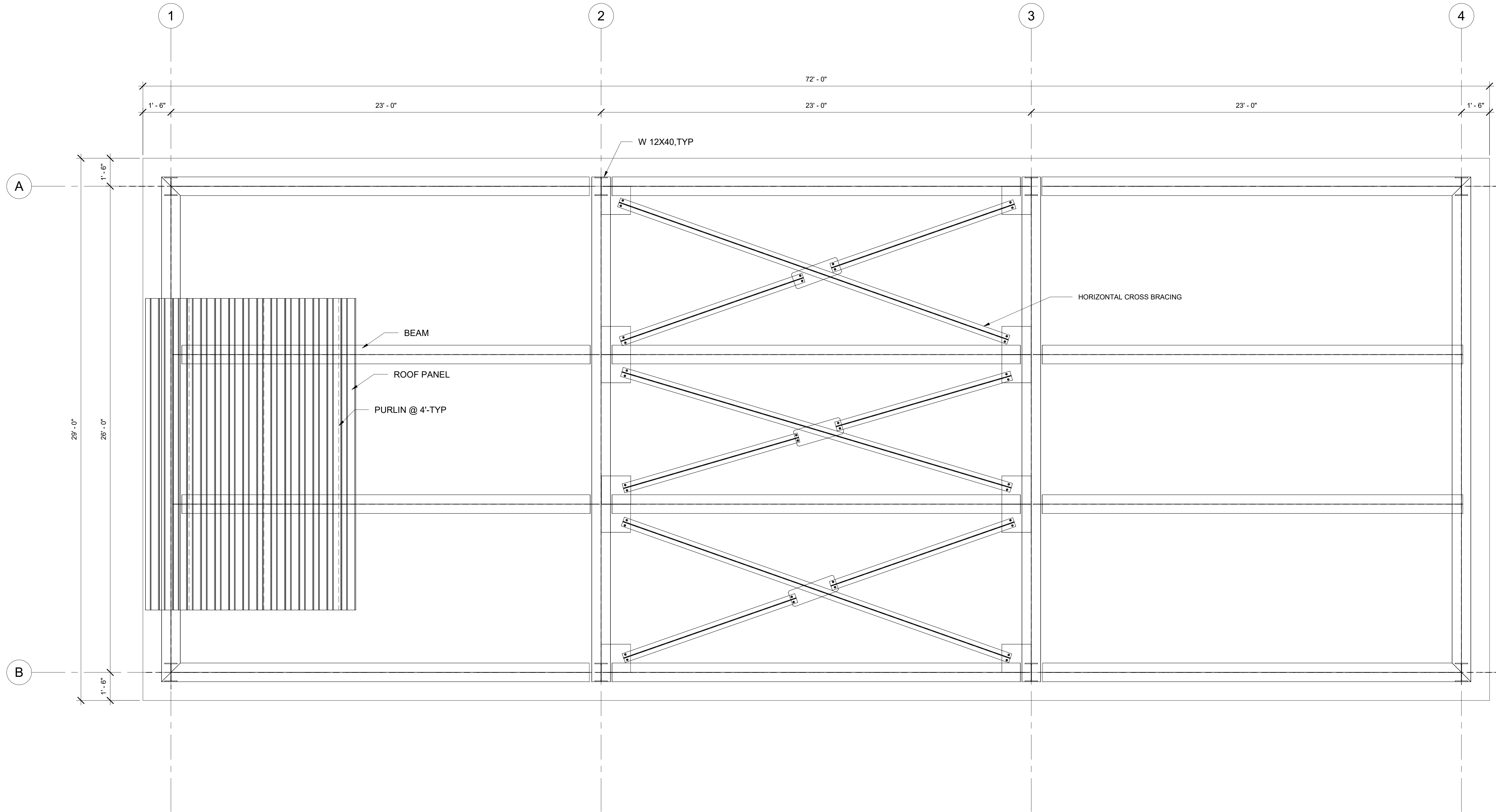
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CHEMICAL STORAGE AREA-FOUNDATION PLAN



ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____

BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



1 ROOF PLAN
3/8" = 1'-0"

DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 05/26/23	SCALE: AS INDICATED

SHEET NO.
OF

DWG. NO.
S642

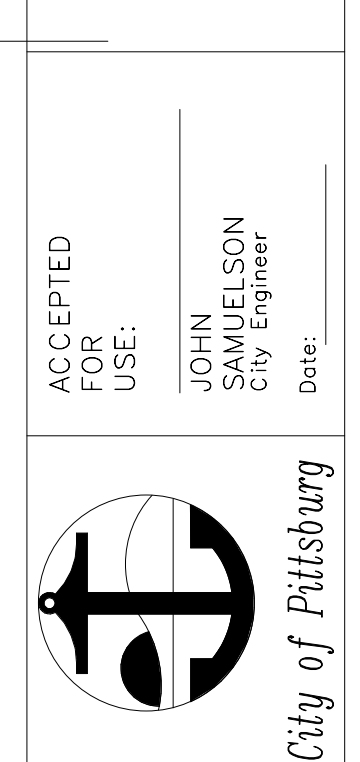
THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:

JOHN SAMUELSON
City Engineer

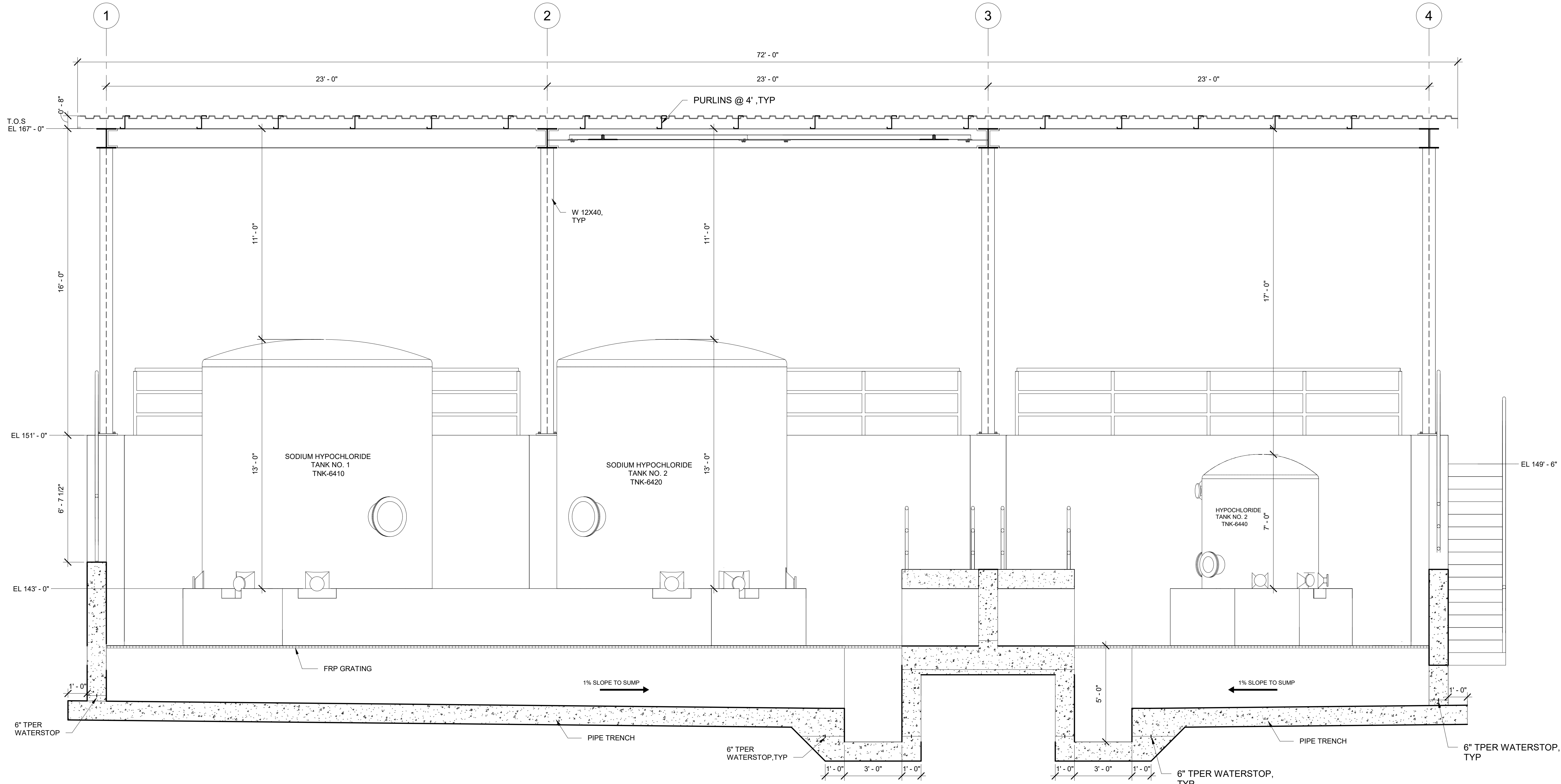
JOHN SAMUELSON
DATE:



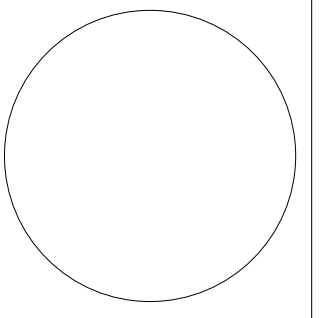
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**

CHEMICAL STORAGE AREA-ROOF PLAN

BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



1 SECTION-1
3/8" = 1'-0"

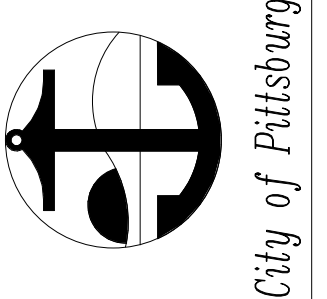


PREPARED UNDER THE DIRECTION OF:

DATE: _____
JOHN SAMUELSON
City Engineer

ACCEPTED FOR USE:

DATE: _____
JOHN SAMUELSON
City Engineer



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CHEMICAL STORAGE AREA-SECTIONS 1

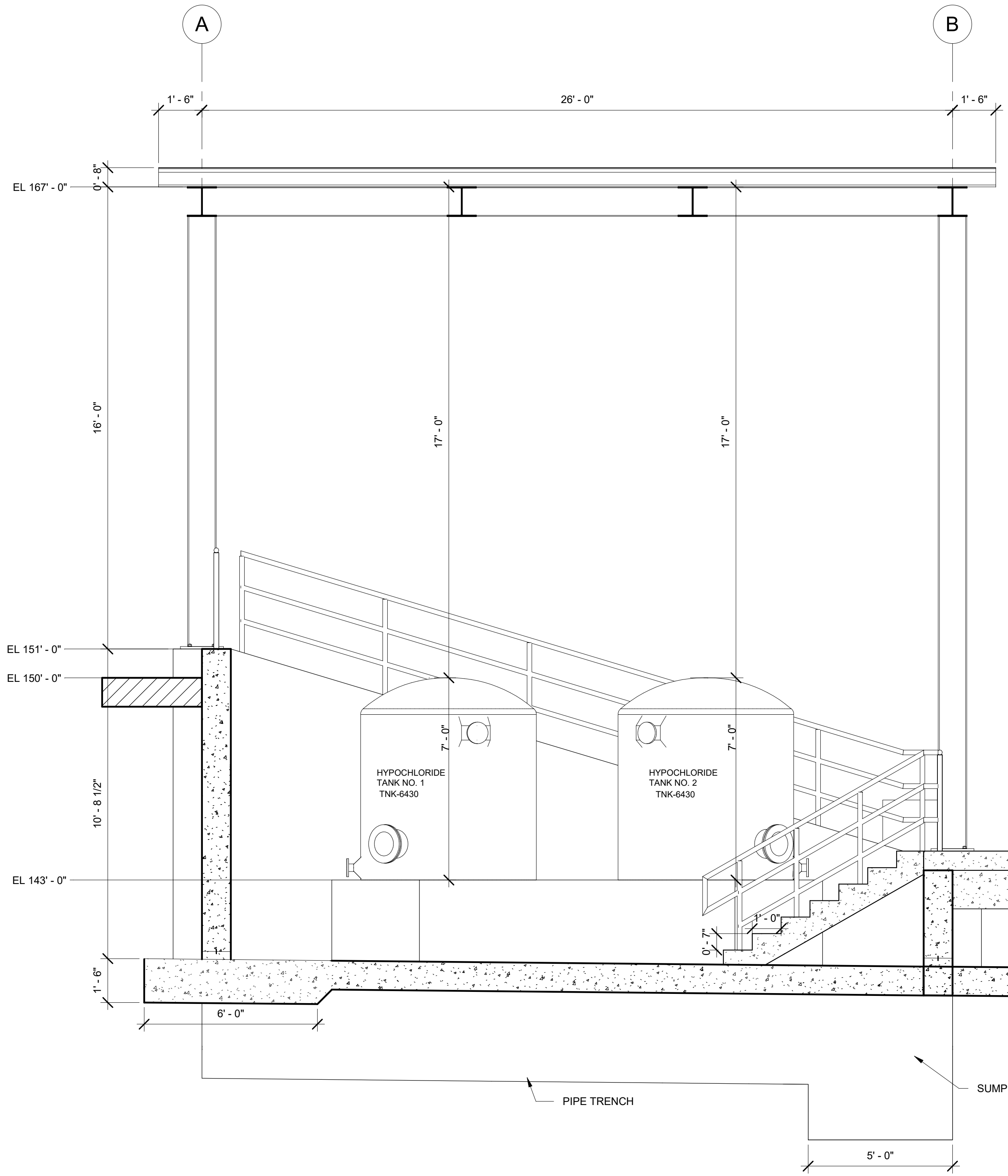
DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 05/26/23	SCALE: AS INDICATED

SHEET NO.
OF

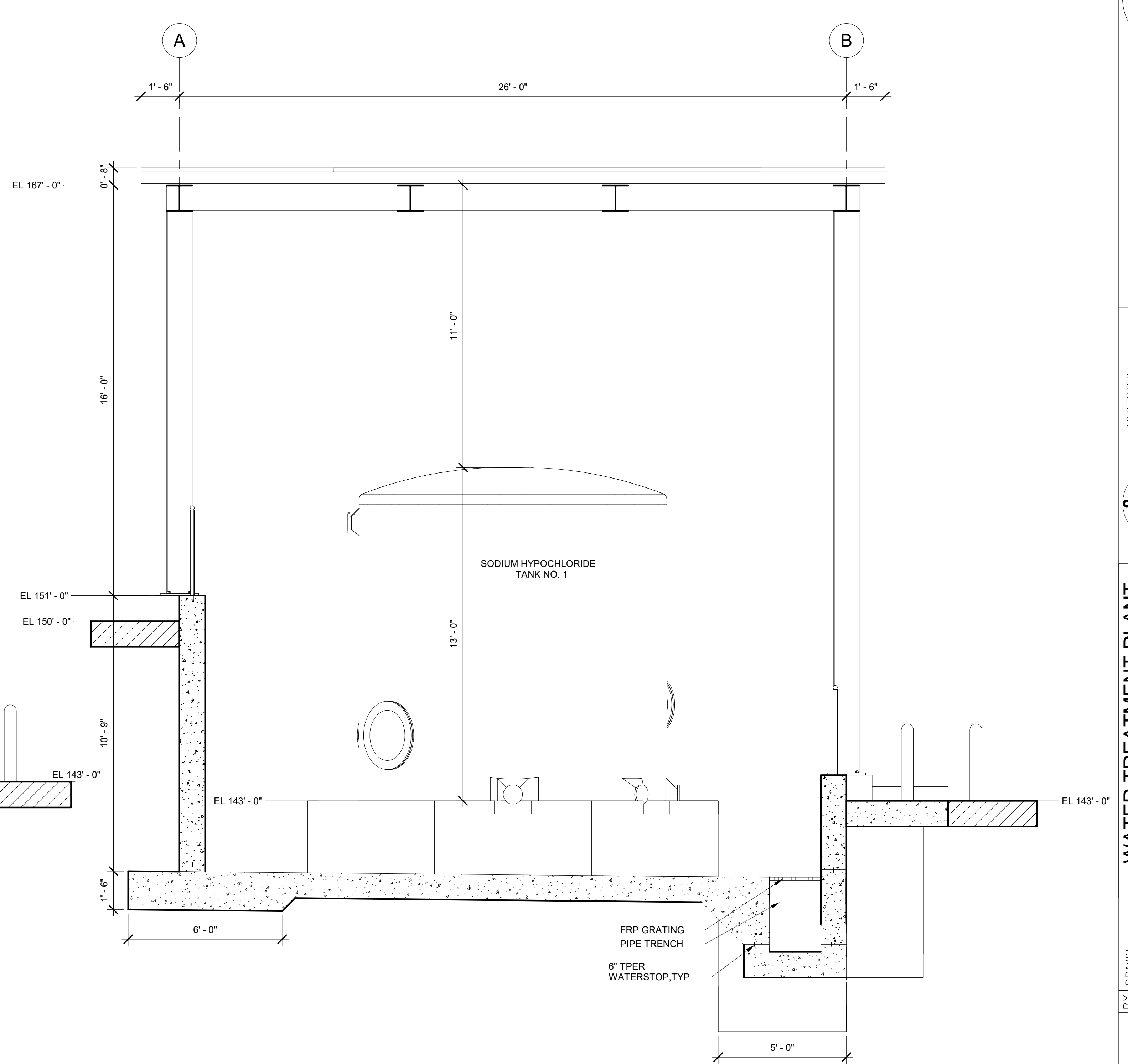
DWG. NO.
S643

THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

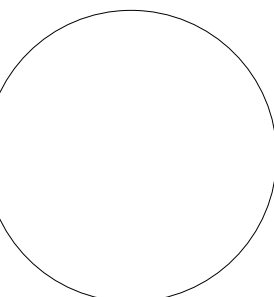
BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



1 SECTION-2
3/8" = 1'-0"

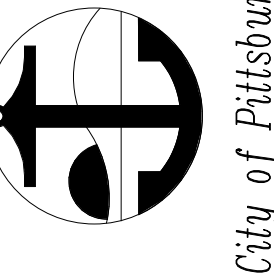


2 SECTION-3
3/8" = 1'-0"



PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CHEMICAL STORAGE AREA-SECTIONS 2

BY: _____
CHECKED: _____
REVIEWED: _____
DATE: 05/26/23
SCALE: AS INDICATED

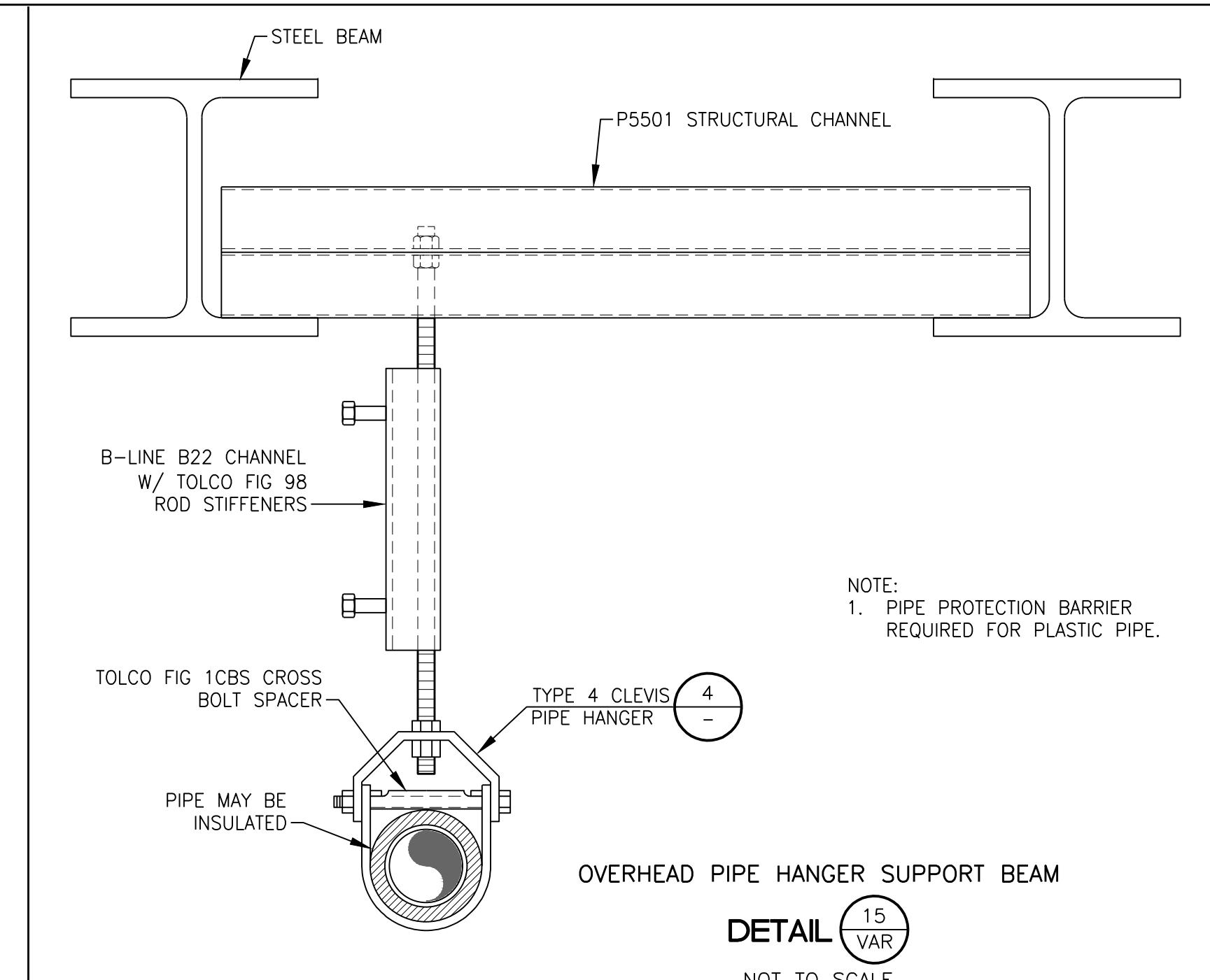
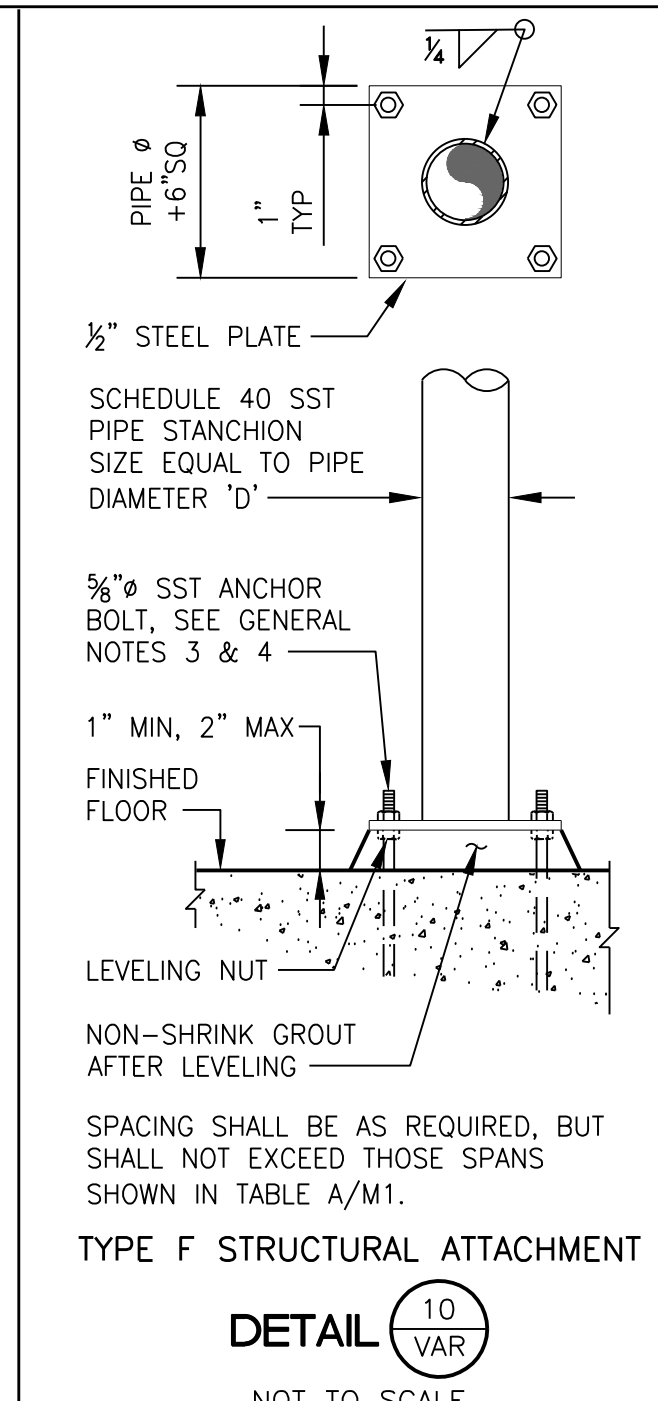
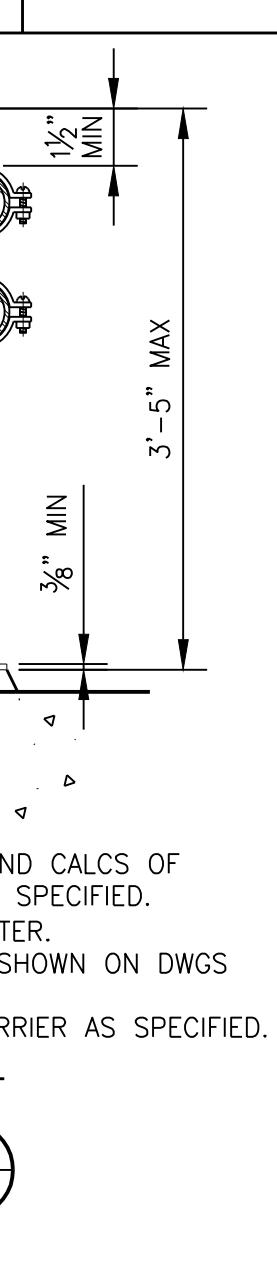
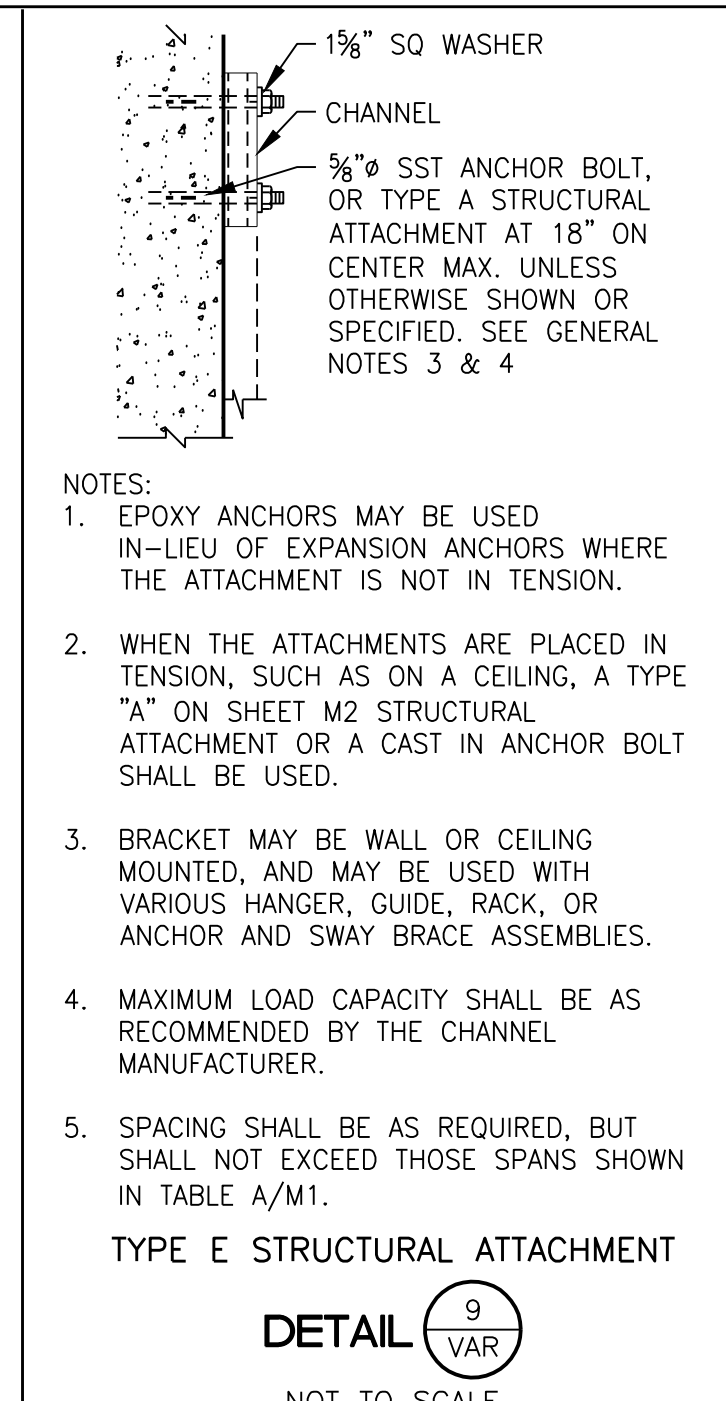
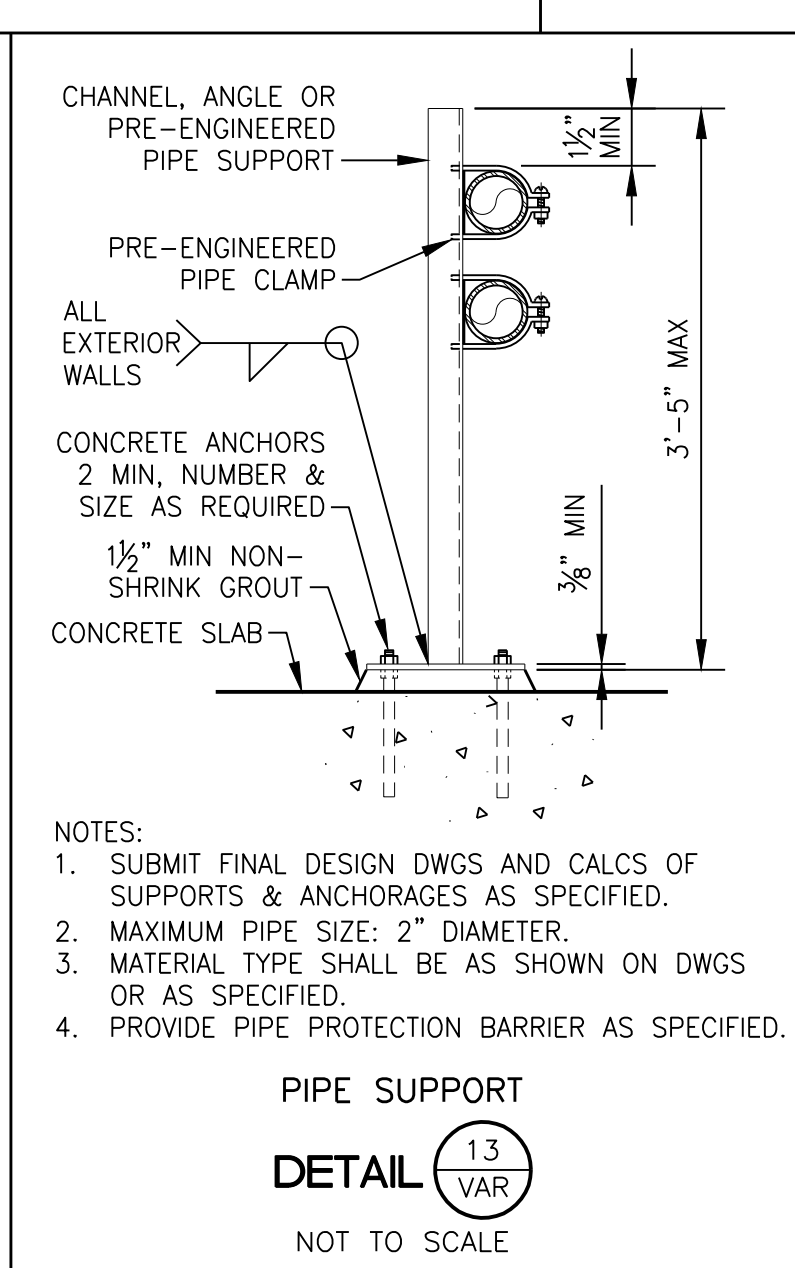
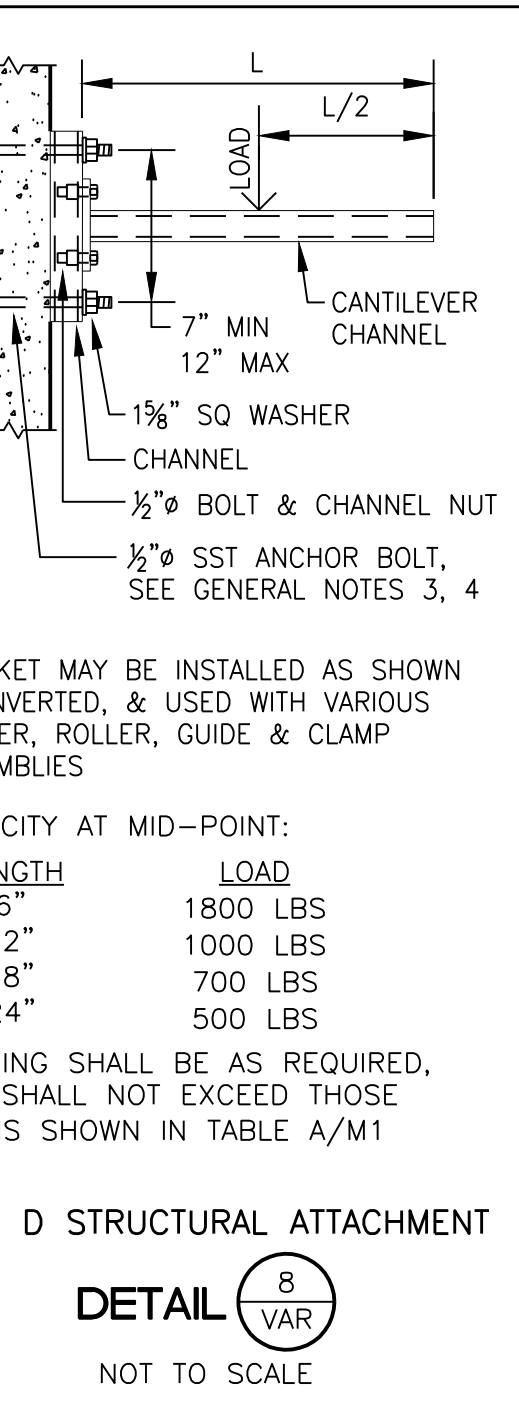
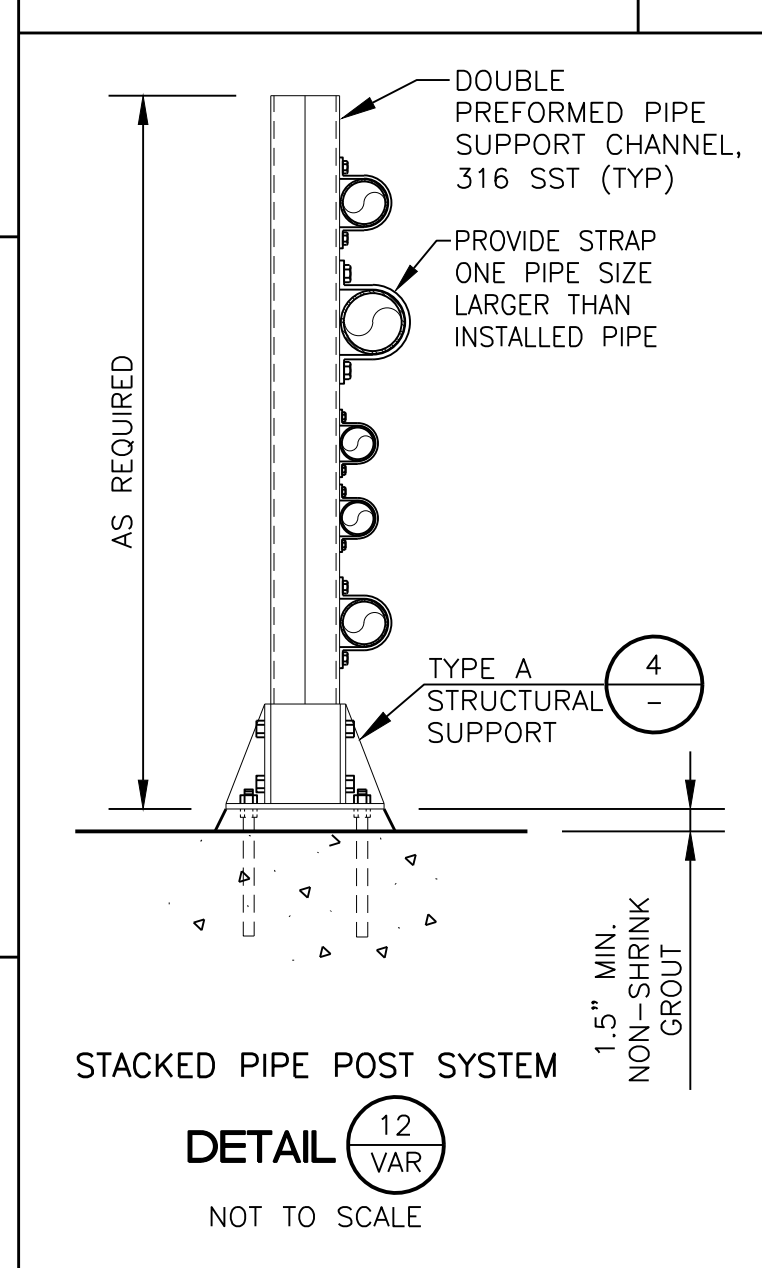
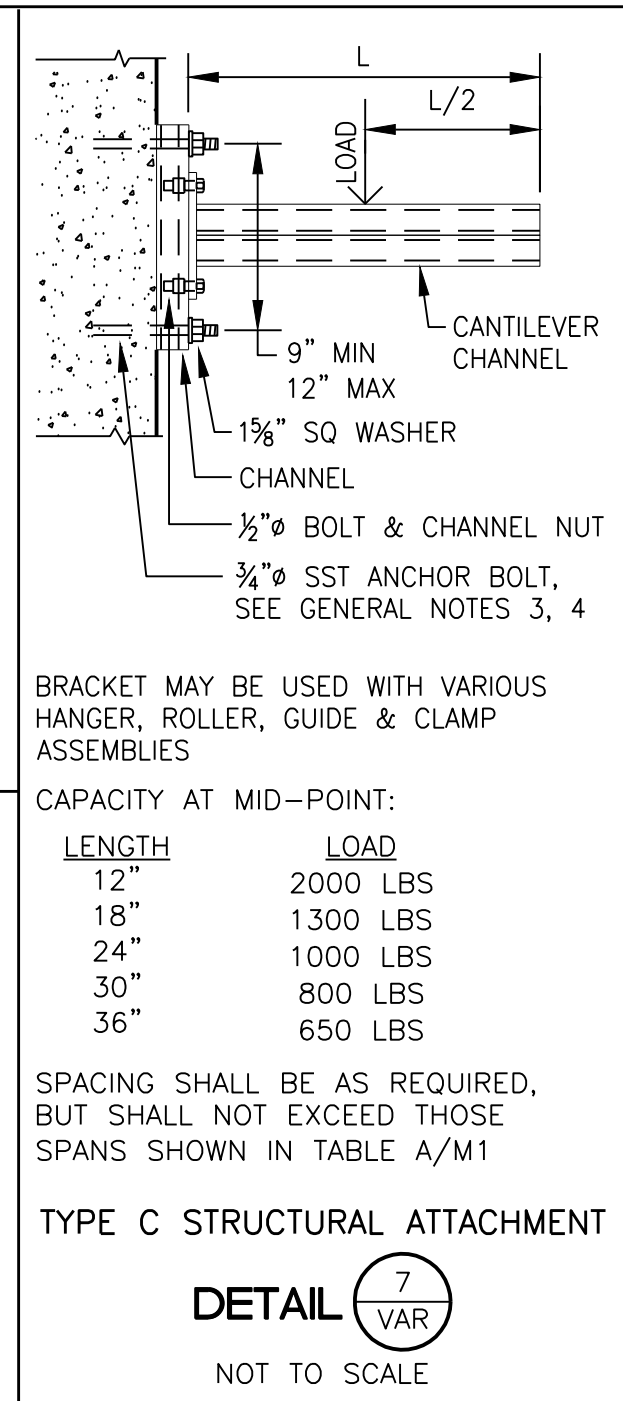
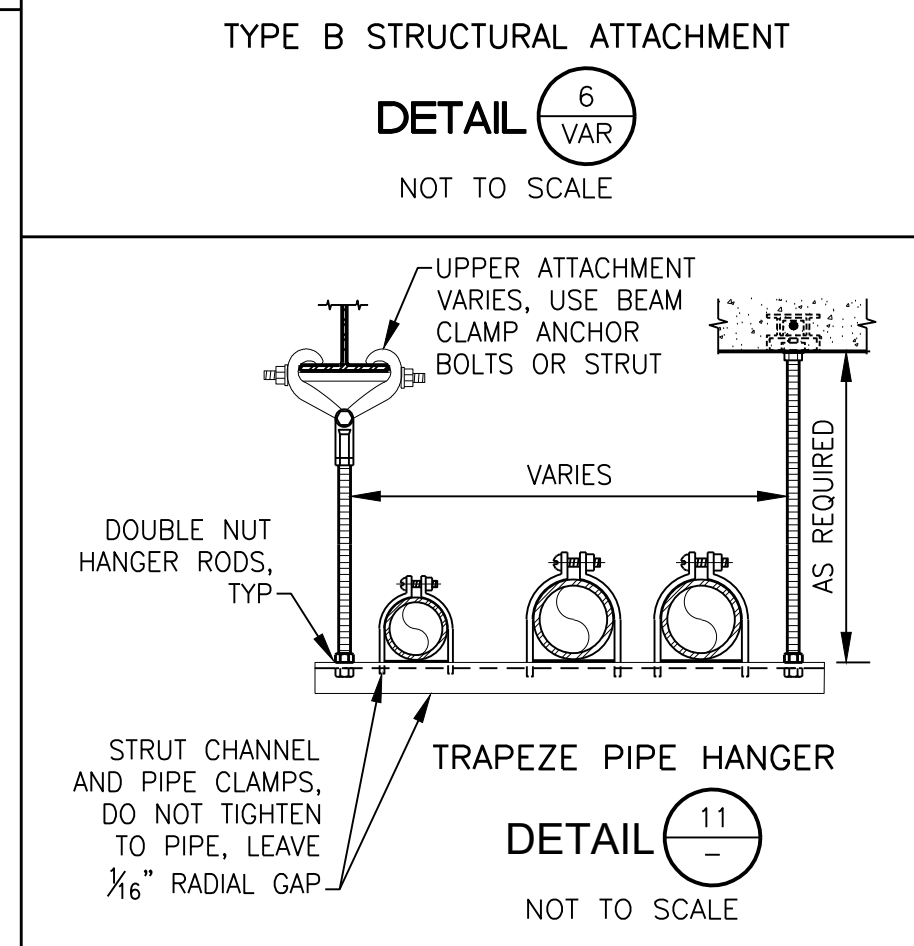
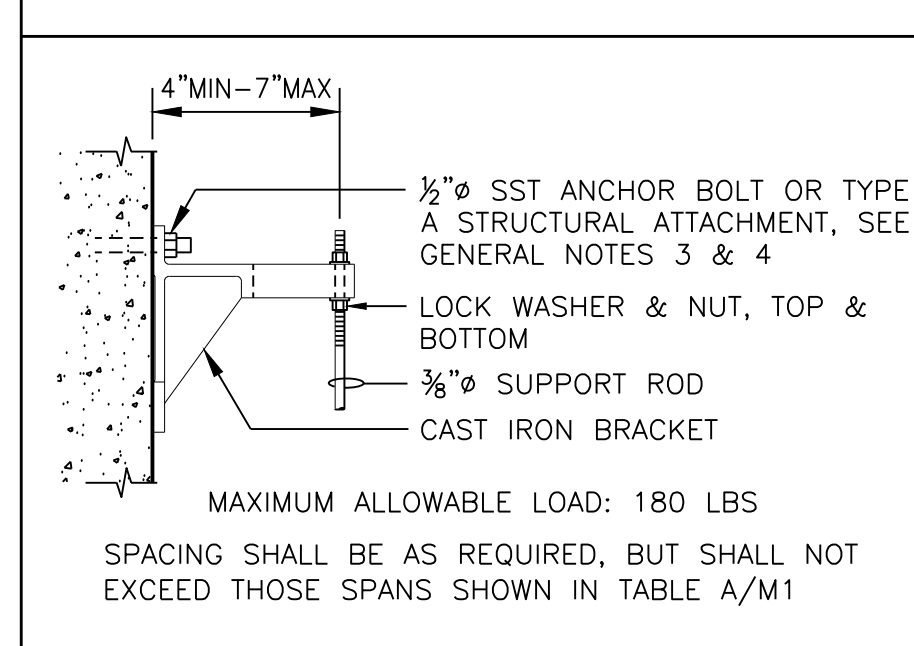
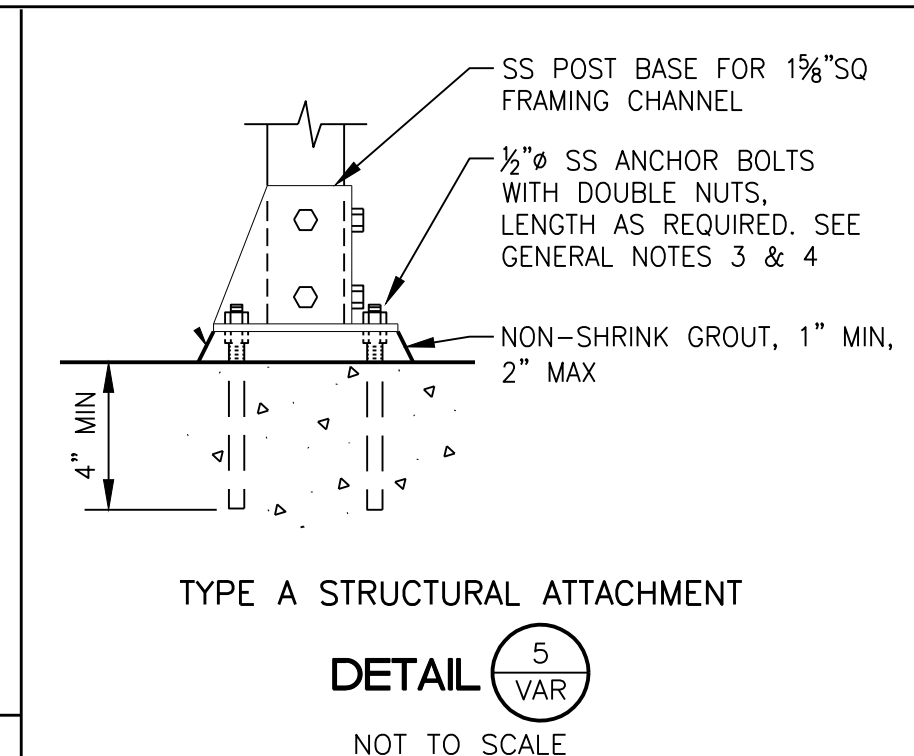
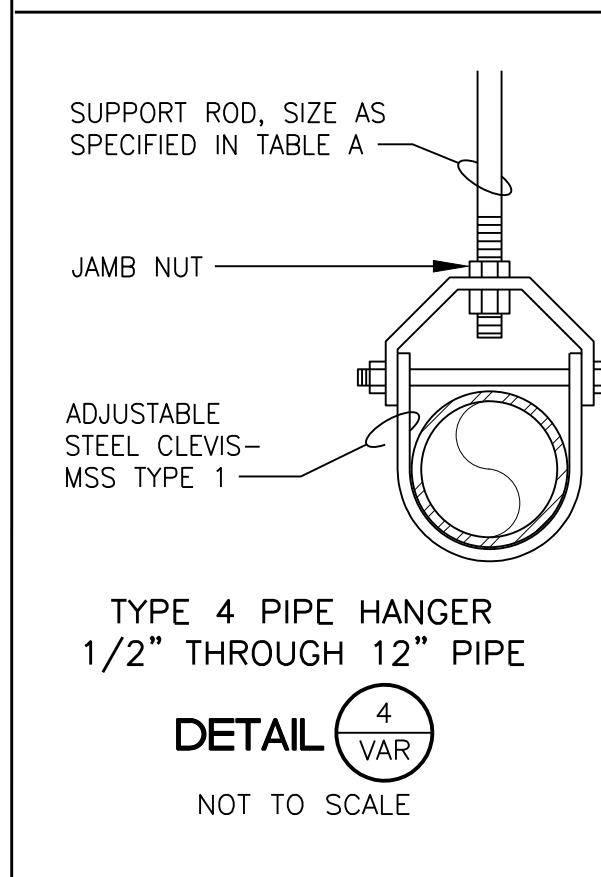
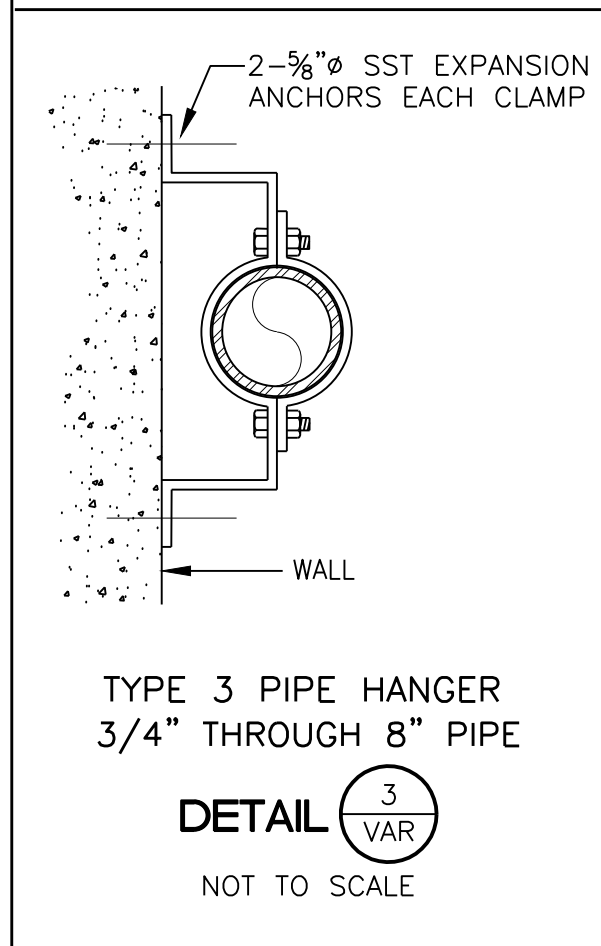
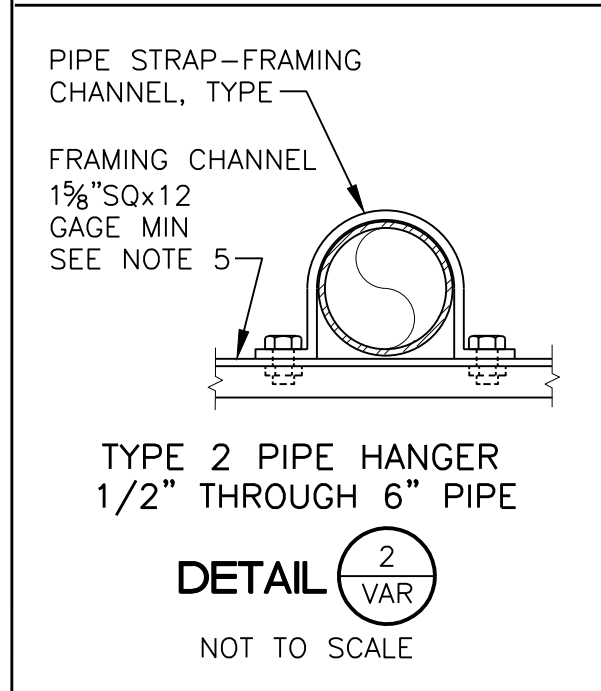
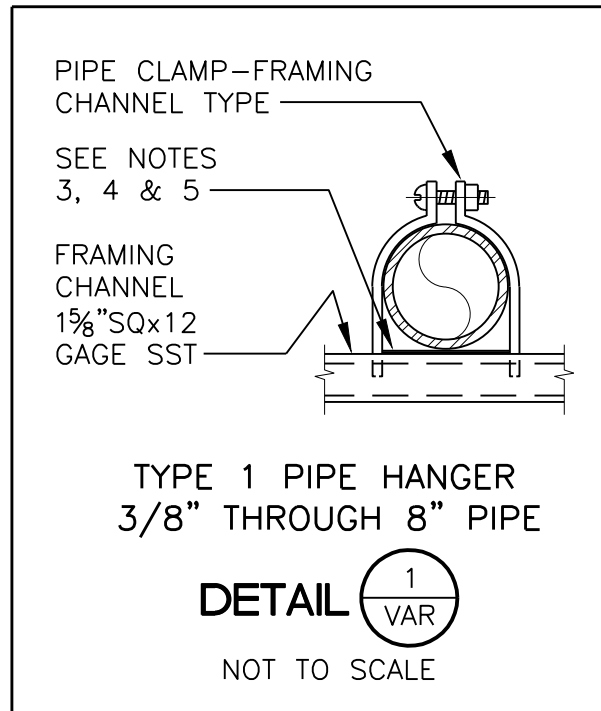
DATE	REV	DESCRIPTION

SHEET NO.
OF

DWG. NO.
S644

THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

W:\Clients\1040 City of Pittsburgh\50-22-01 Filter & C2 Improv\CAD\Production\1040-50-22-01-GM001.dwg 5-29-23 12:27:16 PM asr:th



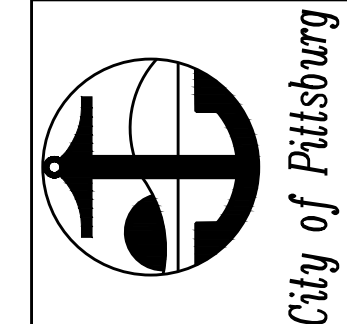
- GENERAL NOTES:**
- NOT ALL PIPE ATTACHMENTS ARE USED IN THESE CONTRACT DRAWINGS.
 - SEE GENERAL PIPE SUPPORT NOTES ON THIS DRAWING.
 - ALL ATTACHMENTS, HANGERS, AND SUPPORTS SHALL BE TYPE 316 STAINLESS STEEL. ANCHOR BOLTS, BOLTS, NUTS, AND WASHERS SHALL BE TYPE 316 STAINLESS STEEL.
 - SEE GENERAL PIPE SUPPORT NOTE NOTE 15.

NOMINAL PIPE SIZE (INCHES)	SUPPORT ROD SIZE & MAXIMUM LOAD PER ROD, SEE NOTE 2		MAXIMUM PIPE SPAN (FEET) SEE NOTE 3				
	ROD SIZE (INCHES)	MAXIMUM LOAD (POUNDS)	STEEL	COPPER	PLASTIC SEE NOTE 4 CONTINUOUS	CAST IRON SEE NOTE 5	
3/8 to 3/4	3/8	610	5	5	5	-	
1	3/8	610	5	5	5	-	
1 1/4	3/8	610	5	5	5	-	
1 1/2	3/8	610	5	5	5	-	
2	3/8	610	10	5	5	-	
2 1/2	3/8	610	10	10	5	-	
3	3/8	610	10	20	5	-	
4	3/8	1130	10	20	5	-	
6	3/8	1810	15	20	5	-	
8	3/4	2710	15	20	5	-	
10	3/4	2710	20	-	5	-	
12	3/4	3770	20	-	10	-	
14	1	4960	20	-	-	-	
16	1	4960	20	-	-	-	
18	1	4960	20	-	-	-	
20	1 1/4	8000	20	-	-	-	
24	1 1/4	8000	20	-	-	-	

- SUPPORT TABLE NOTES:**
- DESIGN WEIGHT SHALL BE TWICE THE WEIGHT OF THE PIPE FULL OF WATER PLUS THE WEIGHTS OF VALVES, FITTINGS, INSULATING MATERIALS AND SUSPENDED HANGER COMPONENTS ON THE RUN OF PIPE BEING SUPPORTED.
 - ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING THE DESIGN WEIGHTS (SEE NOTE 1) TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS IN THE TABLE ABOVE.
 - PIPE SHALL NOT HAVE POCKETS FORMED IN THE SPAN DUE TO SAGGING OF THE PIPE BETWEEN SUPPORTS CAUSED BY THE WEIGHT OF THE PIPE, MEDIUM IN THE PIPE, INSULATION, VALVES AND FITTINGS.
 - SPAN SHOWN IS FOR SCHEDULE 80 PVC PIPE AT 100°F. SPANS FOR OTHER PLASTICS, OTHER PVC PIPE SCHEDULES AND PIPES AT HIGHER TEMPERATURES SHALL BE SHORTENED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. "CONTINUOUS" MEANS PIPE SHALL BE IN UNISTRUT OR SIMILAR CHANNEL.
 - PROVIDE A MINIMUM OF ONE PIPE HANGER PER PIPE LENGTH, WITHIN 4-INCHES OF THE BELL.
 - PIPE HANGER & SUPPORT SELECTION SHALL BE IN ACCORDANCE WITH TABLE B AND SPECIFICATION SECTION 15060.



ACCEPTED FOR USE: _____
 PREPARED UNDER THE DIRECTION OF: _____
 JOHN SAMUELSON
 City Engineer
 Date: _____



**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION
 MECHANICAL DETAILS 1**

BY	DRAWN: SMB
DATE	CHECKED: TRB
REV	REVIEWED: AMS
	DATE: 5/29/23
	SCALE: AS SHOWN

DATE	REV	DESCRIPTION

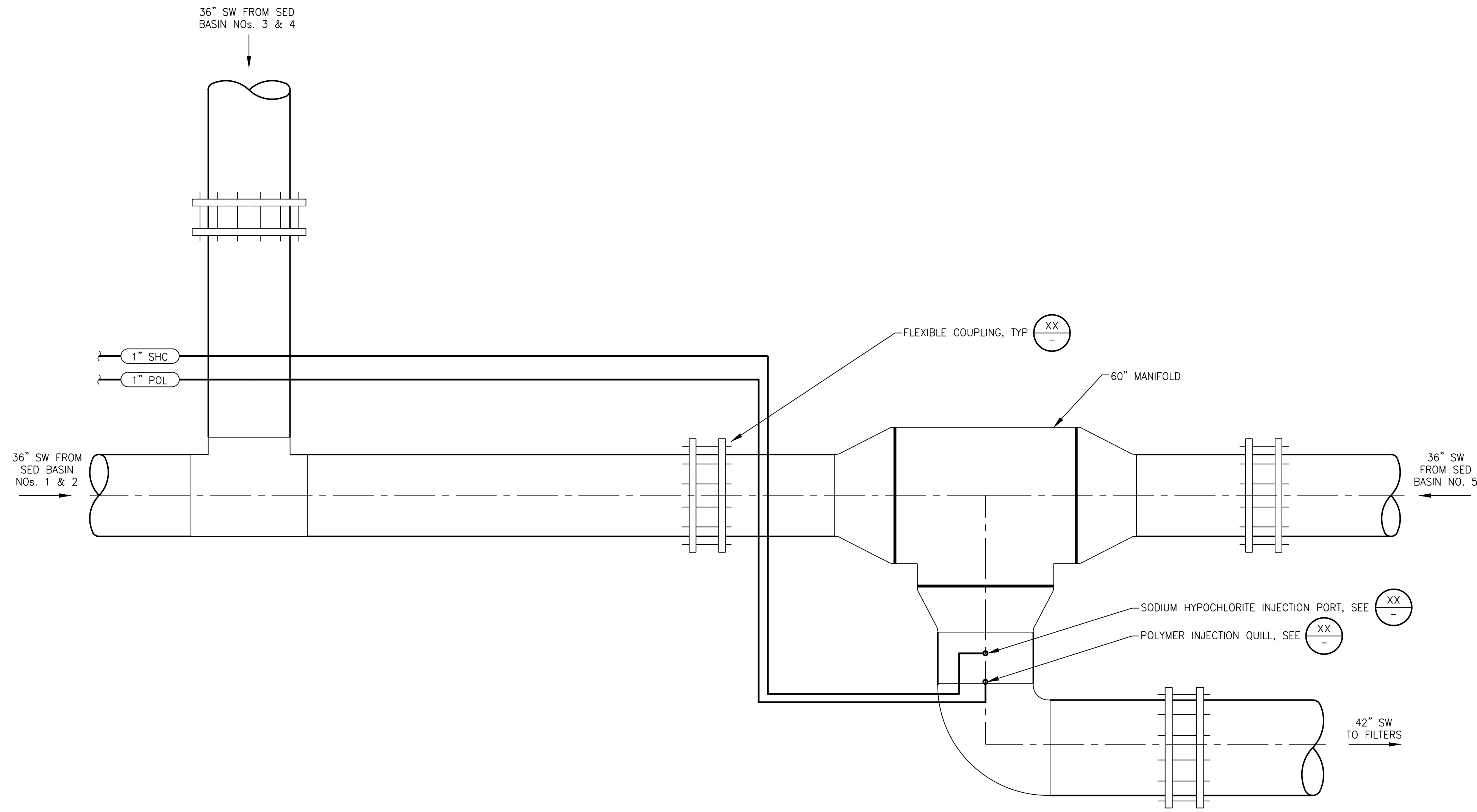
SHEET NO. # OF #
 DWG. NO. **GM001**

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES

W:\Clients\1040 City of Pittsburgh\50-22-01 Filter & C12 Improvm\CAD\Production\1040-50-22-01-M290.dwg 6-02-23 12:02:00 PM asmith



ORIGINAL PAGE SIZE: 22"X34"



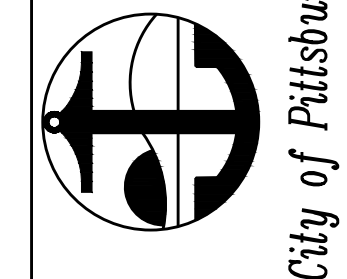
PLAN
 SETTLED WATER MIXING CHAMBER
 DETAIL $\frac{1}{XXXX}$
 SCALE: 3/8"=1'-0"

PREPARED UNDER THE DIRECTION OF:

JOHN SAMUELSON
 City Engineer
 Date: _____

ACCEPTED FOR USE:

JOHN SAMUELSON
 City Engineer
 Date: _____



**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 SETTLED WATER MANIFOLD PLAN, SECTION
 AND DETAILS

BY: _____
 DRAWN: SMB
 CHECKED: TRB
 REVIEWED: AMS
 DATE: 6/2/23
 SCALE: AS SHOWN

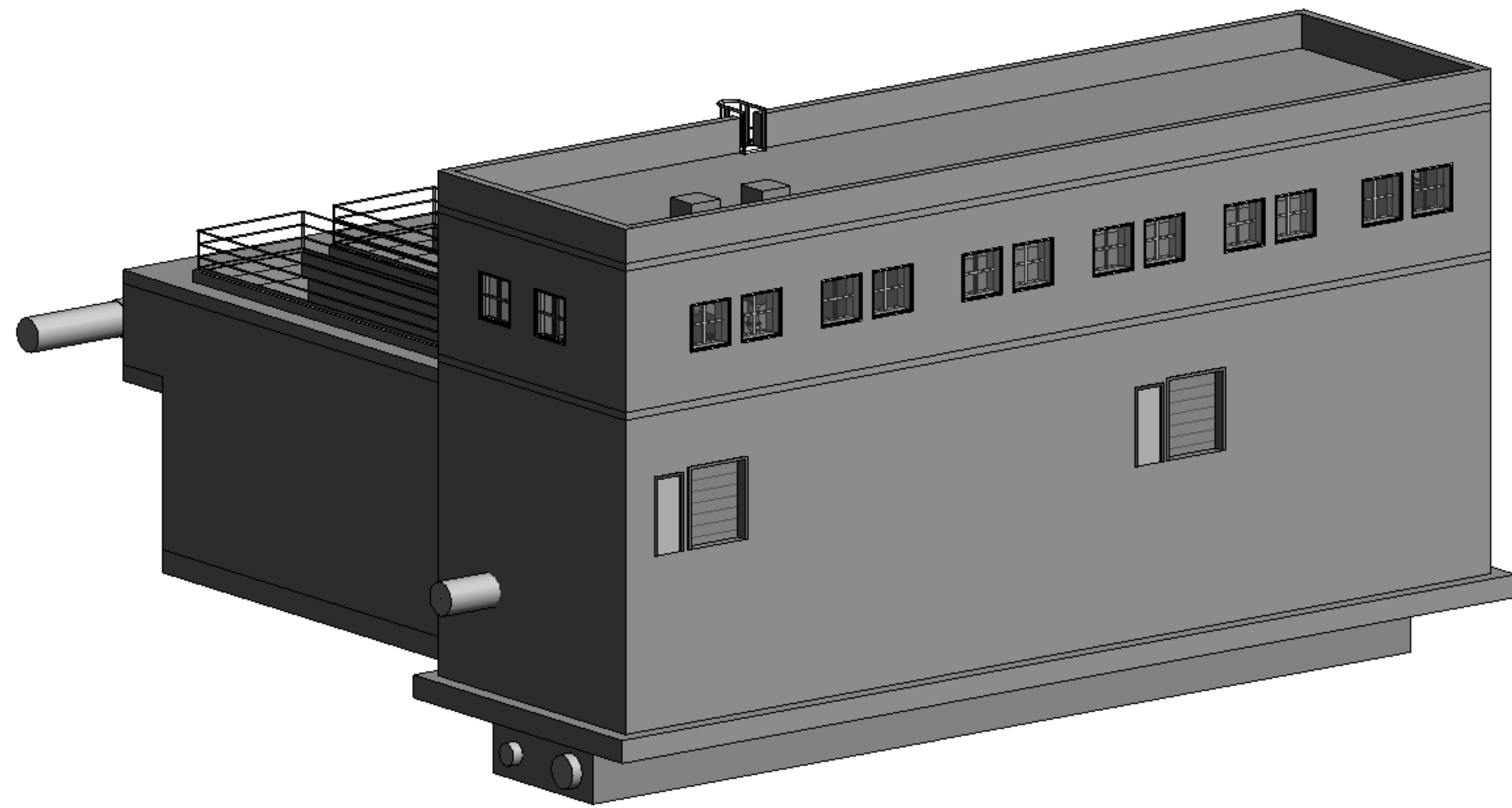
DATE	REV	DESCRIPTION

SHEET NO.
 # OF #

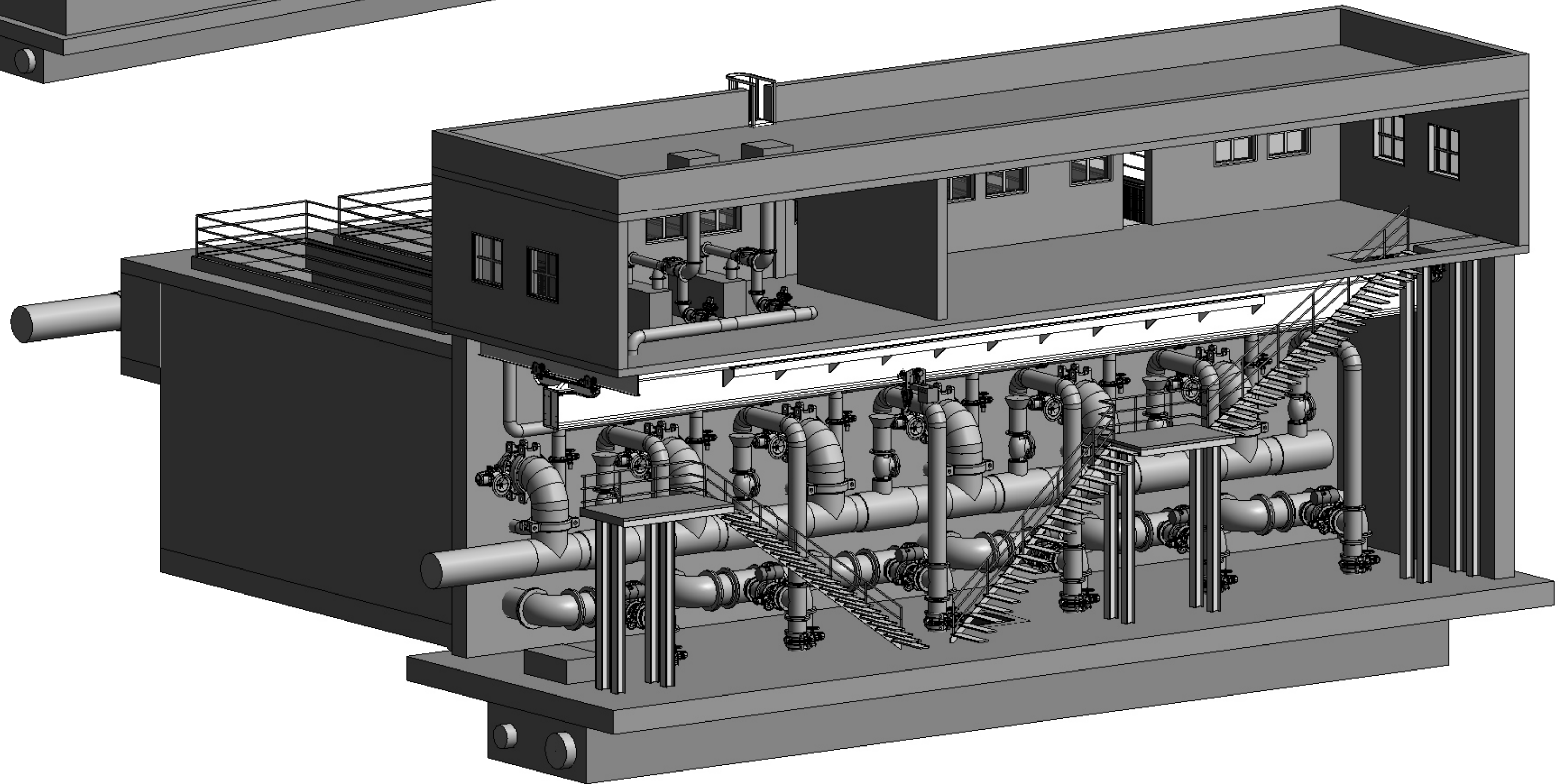
DWG. NO.
M290

THIS LINE IS 1 INCH
 AT FULL SCALE IF
 NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES

BIM 360://PITTSBURG WTP_IMPROVEMENTS\XXXX-WYS-PT-XX-M3-S-0002.rvt



1 FILTER ISOMETRIC



2 FILTER PIPING GALLERY

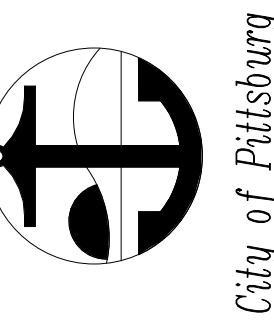
THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 05 / 17 / 23	SCALE: AS INDICATED

SHEET NO. # OF #

DWG. NO.

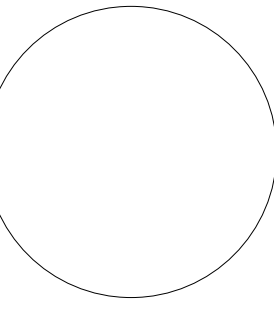
M300



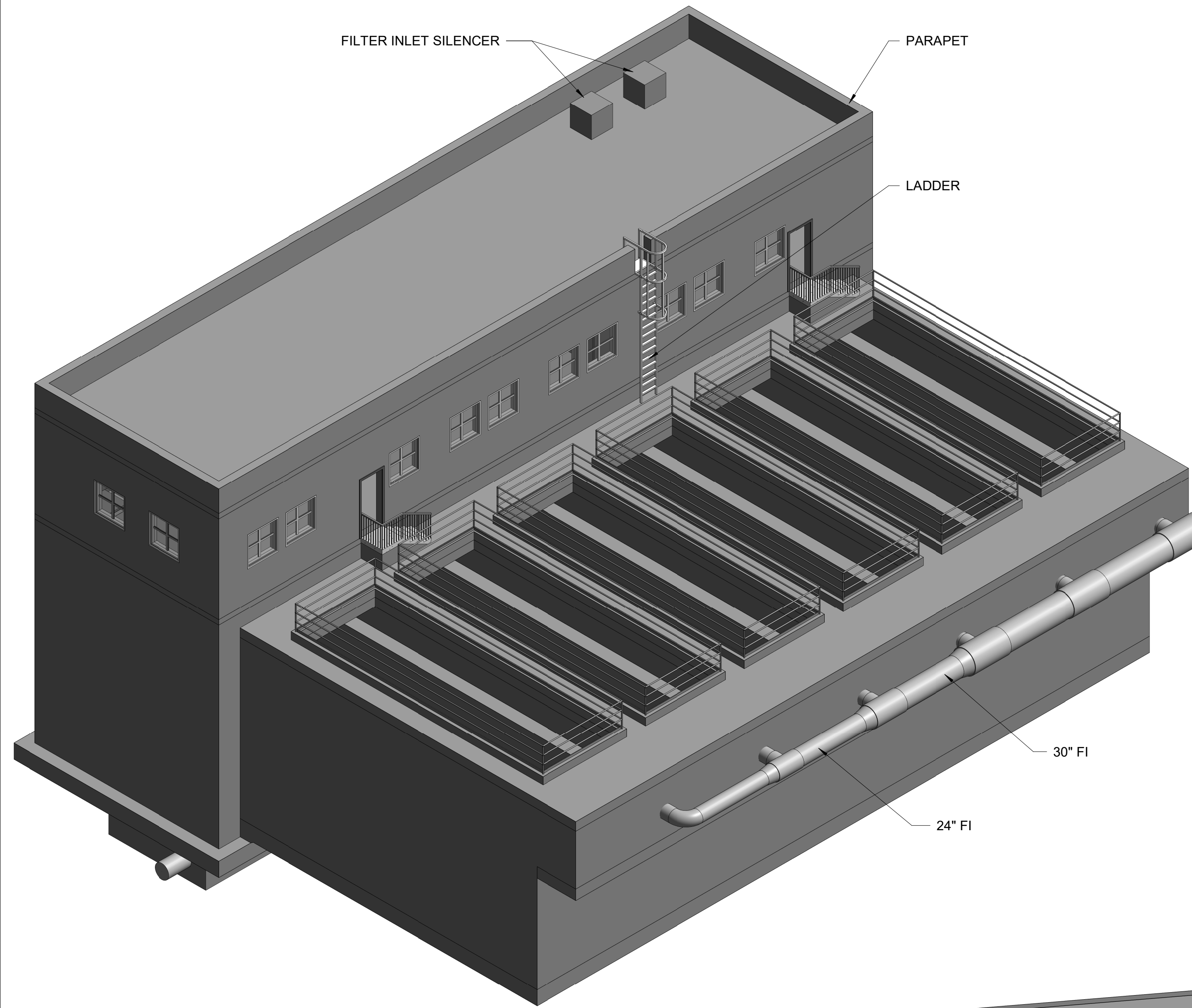
WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
FILTER ISOMETRIC VIEWS

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:

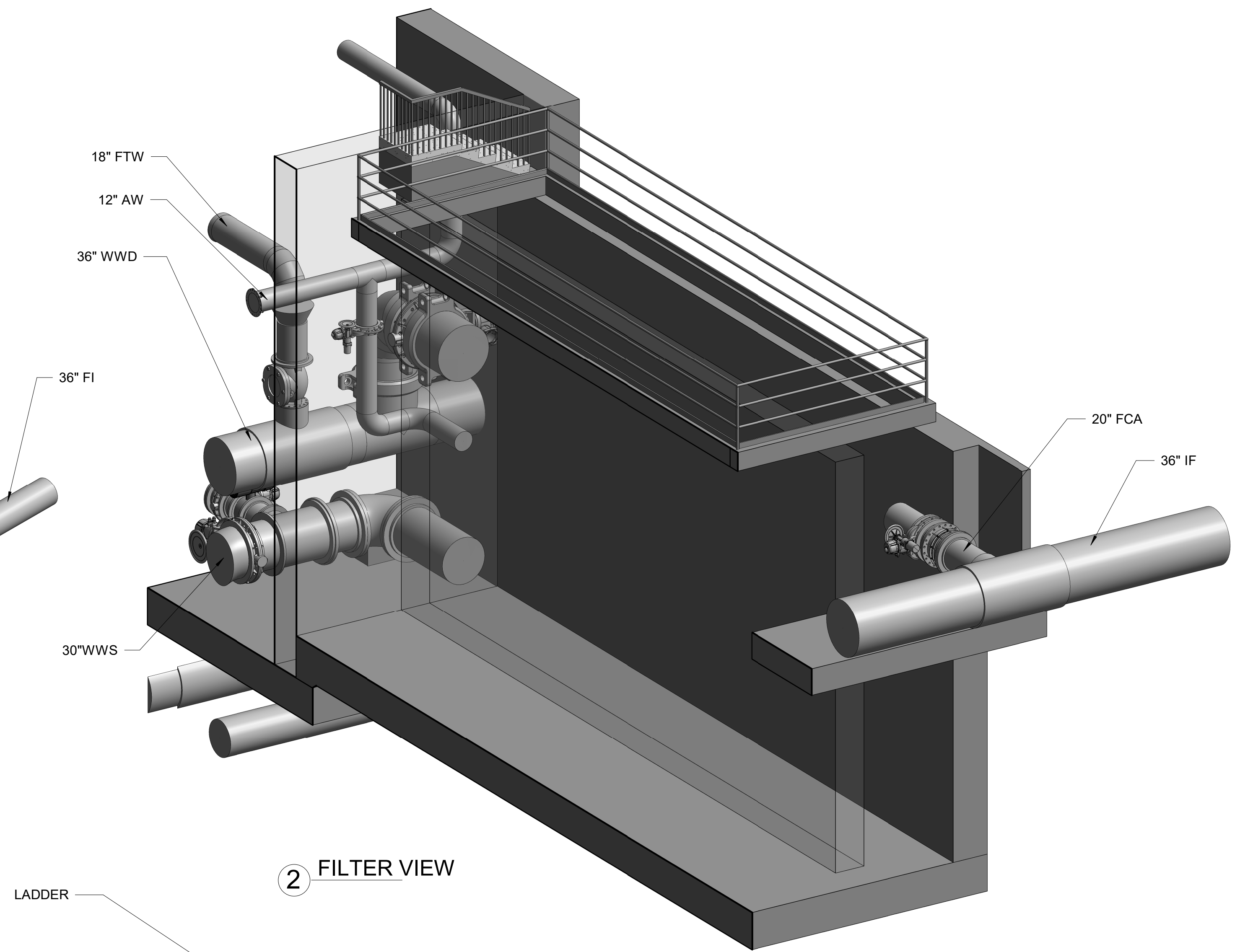
PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE:



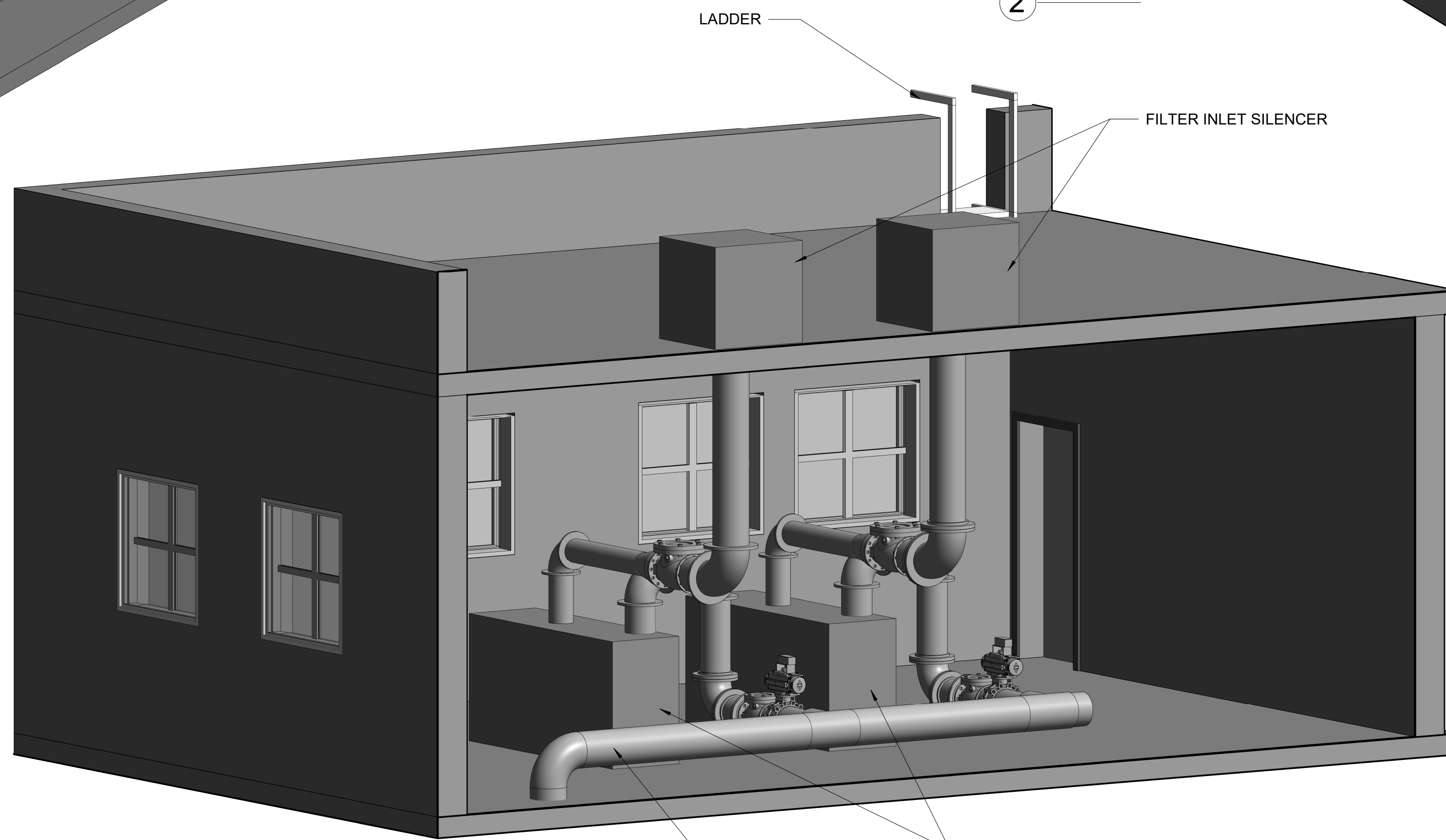
BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0002.rvt



1 FILTER ISOMETRIC VIEW



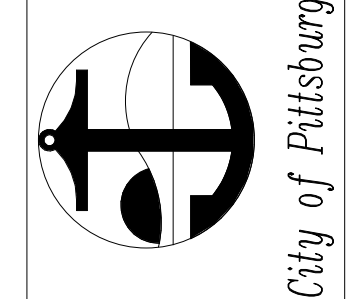
2 FILTER VIEW



3 BLOWER ROOM

PREPARED UNDER THE DIRECTION OF: _____ DATE: _____
 JOHN SAMUELSON
 City Engineer

ACCEPTED FOR USE: _____ DATE: _____
 JOHN SAMUELSON
 City Engineer

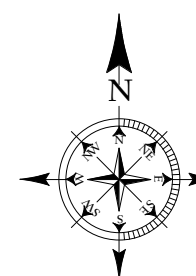
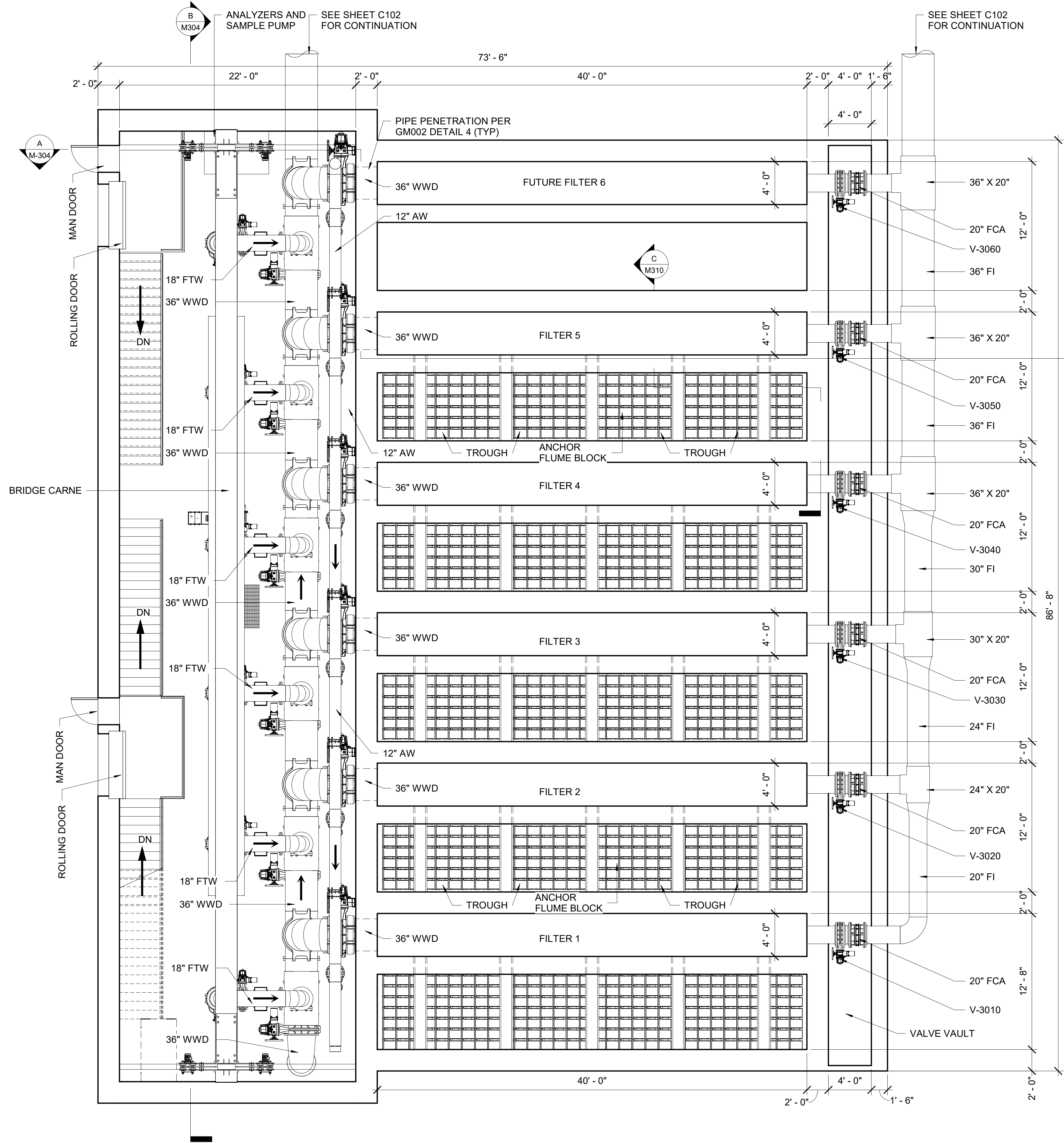


**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 FILTER ISOMETRIC VIEWS

DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 05 / 17 / 23	SCALE: AS INDICATED

SHEET NO. # OF #
 DWG. NO. M301

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES



1 PLAN @ ELEV - 126.9'
3/16" = 1'-0"

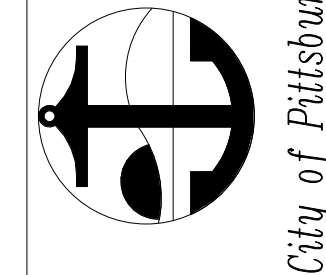
THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 05/17/23	SCALE: AS INDICATED

SHEET NO.
OF

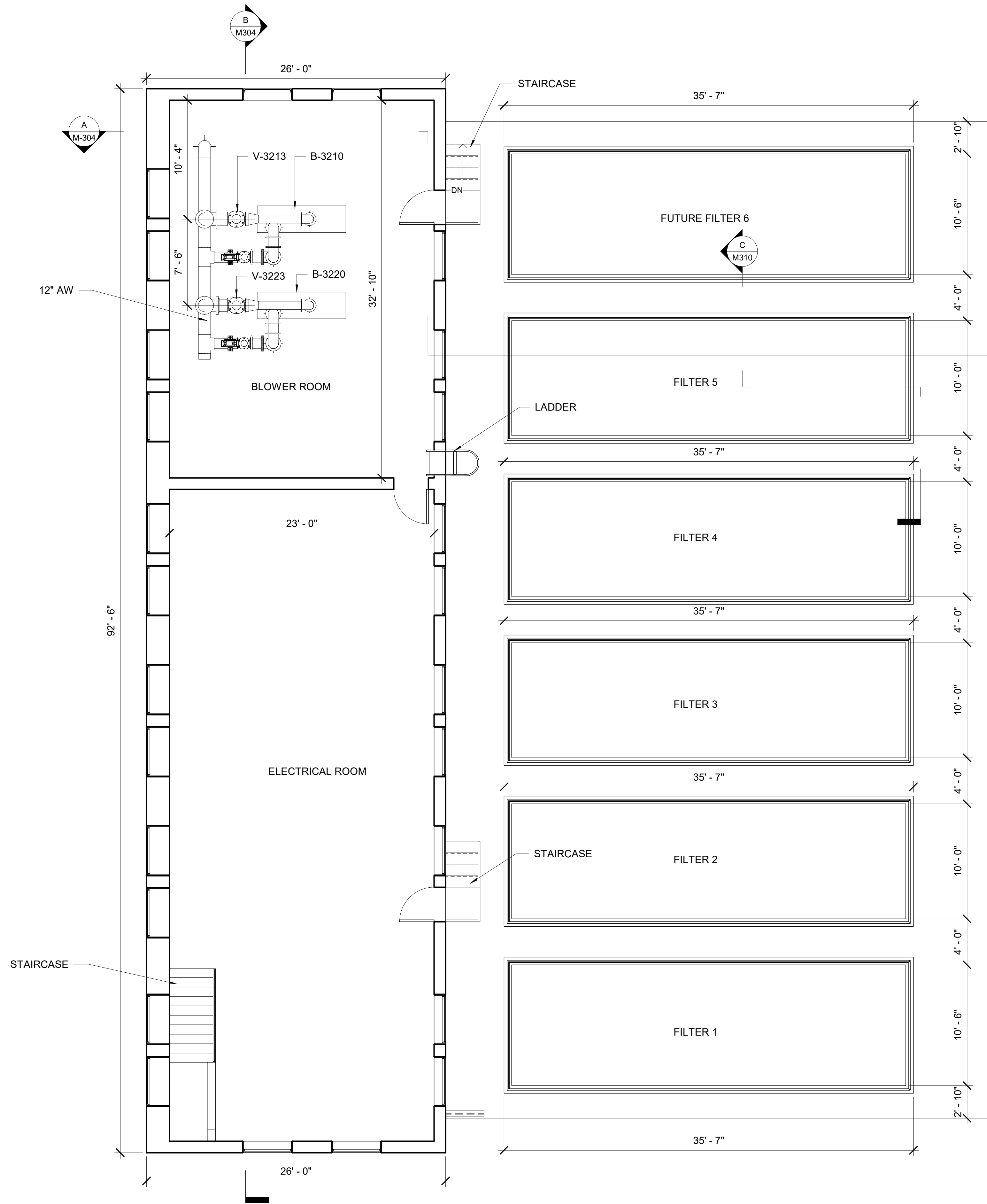
DWG. NO.
M302

**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
FILTER UPPER LEVEL PLAN

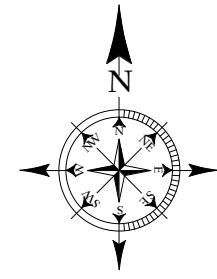


ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____



1 PLAN @ ELEV -152'
3/16" = 1'-0"



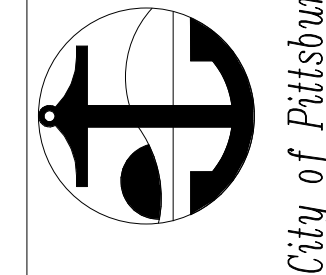
DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 05 / 17 / 23	SCALE: AS INDICATED

SHEET NO. # OF #

DWG. NO.

M303

**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
FILTER BLOWER AND
ELECTRICAL ROOM PLAN**

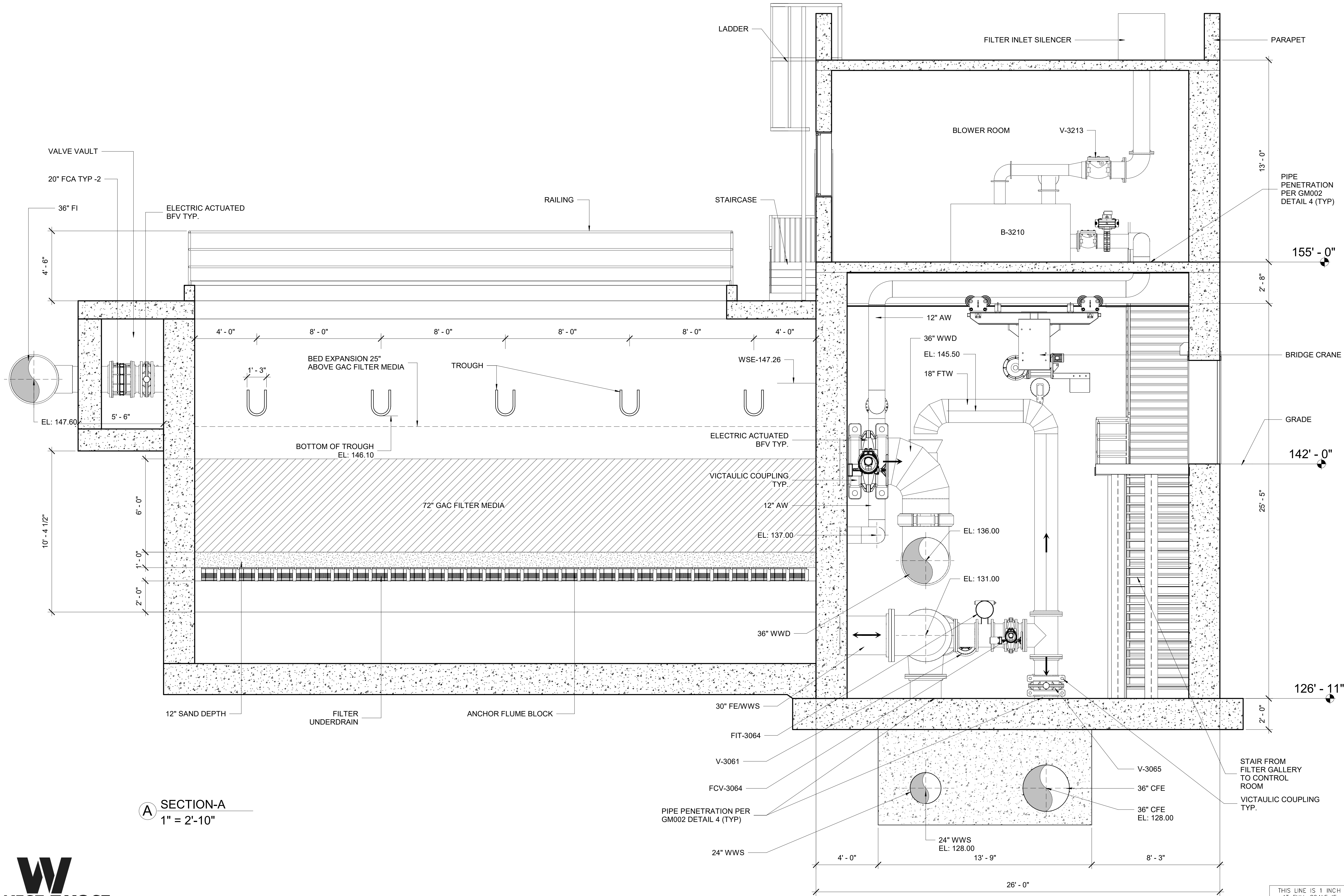


ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE:

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

BIM 360://PITTSBURG WTP_IMPROVEMENTS\XXXX-WYS-PT-XX-M3-S-0002.rvt



A SECTION-A
1" = 2'-10"

PREPARED UNDER THE DIRECTION OF: _____ DATE: _____

ACCEPTED FOR USE: _____ DATE: _____

JOHN SAMUELSON
City Engineer

JOHN SAMUELSON
City Engineer

City of Pittsburgh

**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**

FILTER GALLERY SECTIONS 1

DATE	REV	DESCRIPTION	BY	DRAWN	CHECKED	REVIEWED	DATE	SCALE
							05/17/23	AS INDICATED

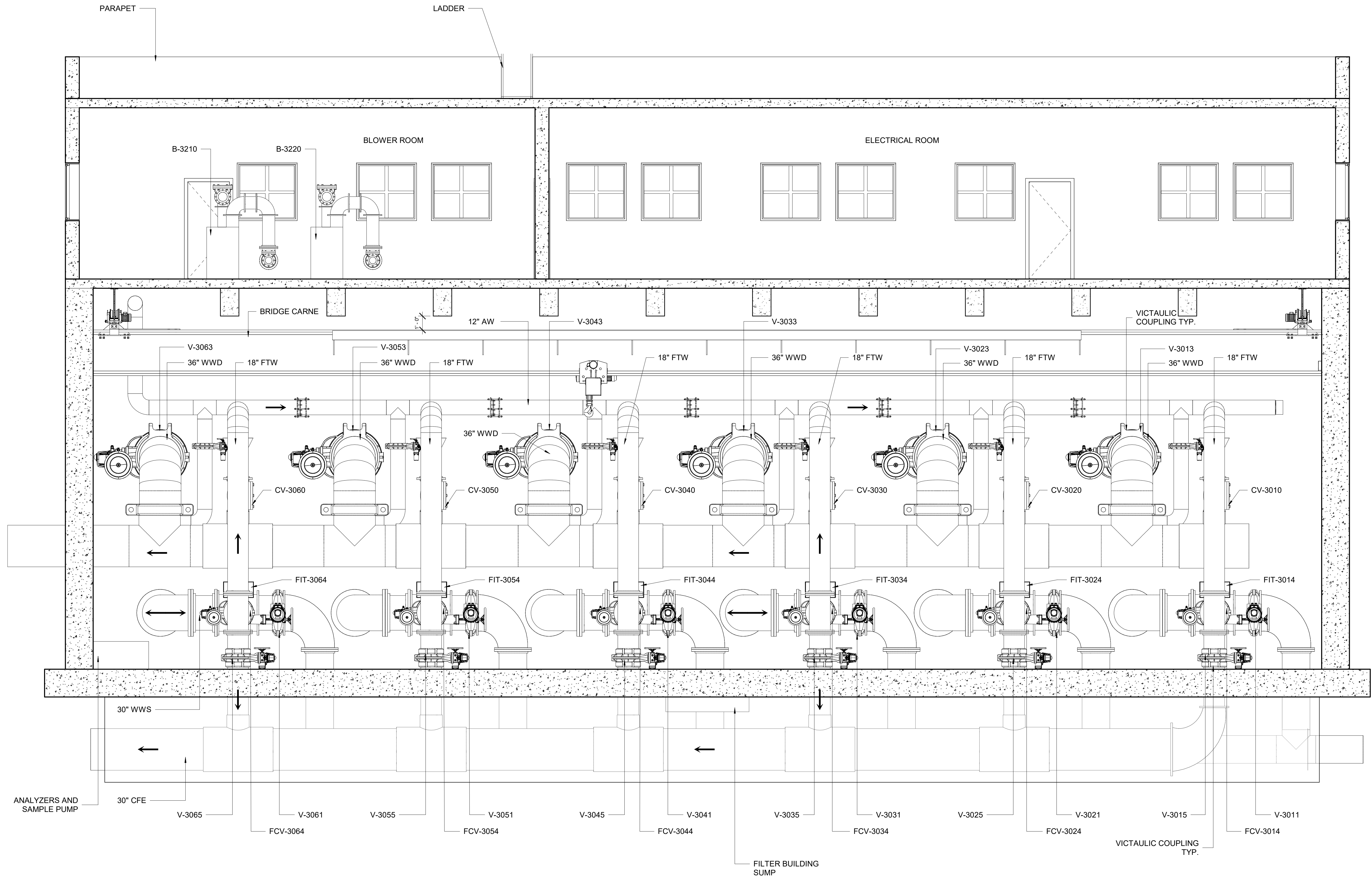
SHEET NO. # OF #

DWG. NO. **M304**

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY

0 1/2" 1" SCALE IN INCHES

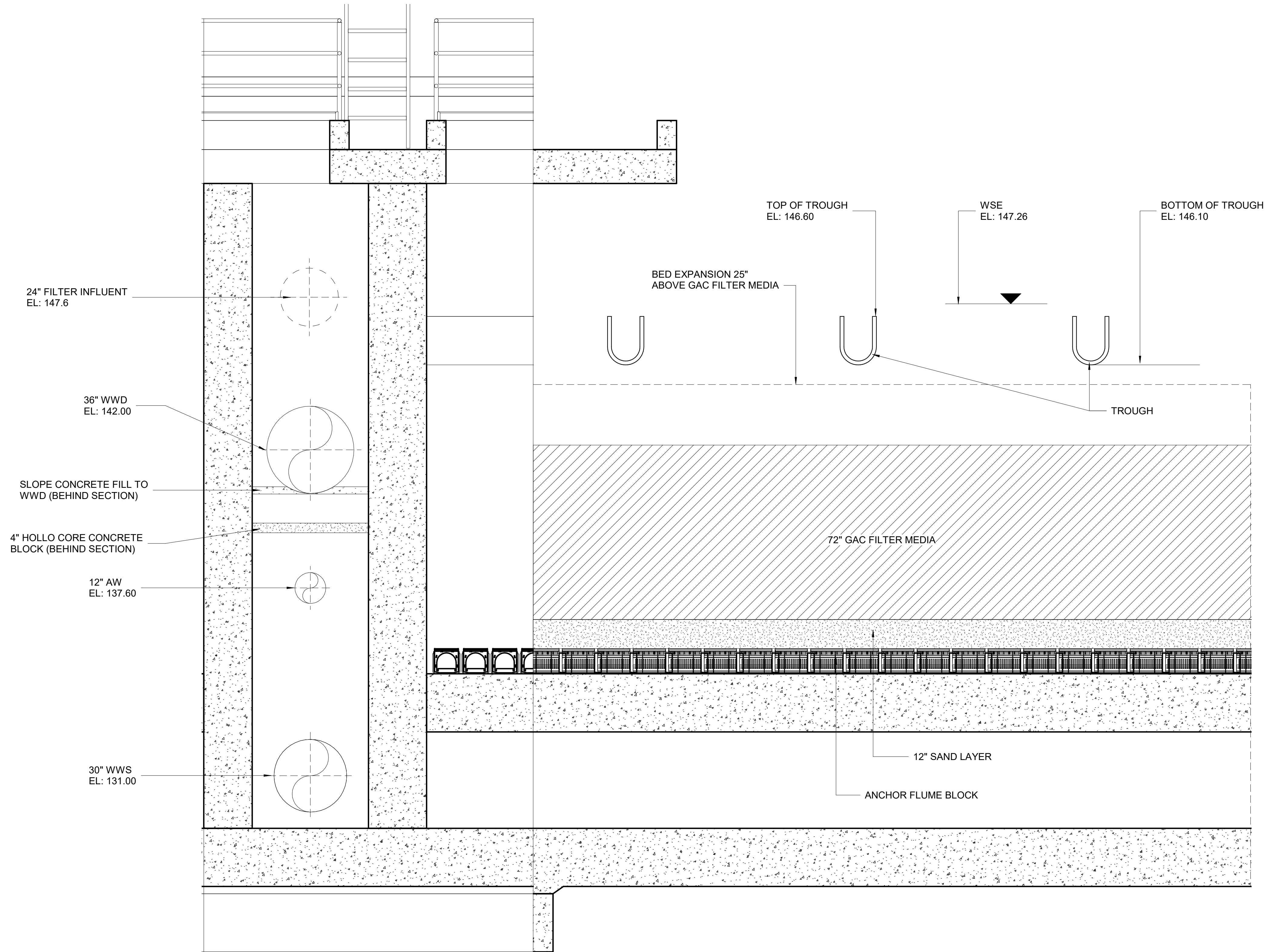
BIM 360://PITTSBURG WTP_IMPROVEMENTS\XXXX-WYS-PT-XX-M3-S-0002.rvt



B SECTION-B
1" = 3'-4"

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

ACCEPTED FOR USE:	JOHN SAMUELSON City Engineer	DATE:
PREPARED UNDER THE DIRECTION OF:	JOHN SAMUELSON City Engineer	DATE:
 City of Pittsburgh		
WATER TREATMENT PLANT FILTER REHABILITATION AND HYPOCHLORITE CONVERSION FILTER GALLERY SECTION 2		
BY:	DATE:	SCALE:
DESCRIPTION:	REV:	AS INDICATED
CHECKED:	DATE: 05 / 17 / 23	
REVIEWED:		
SHEET NO.		DWG. NO.
# OF #		M305



© SECTION C
1/2" = 1'-0"

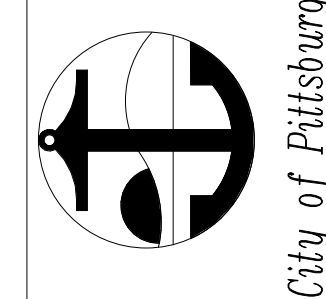
DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 05 / 17 / 23	SCALE: AS INDICATED

SHEET NO.
OF

DWG. NO.
M310

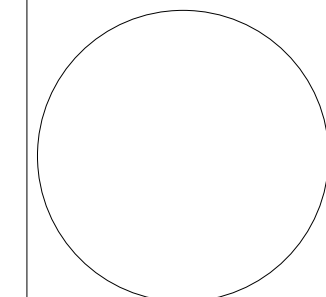
THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
FILTER SECTIONS AND DETAILS

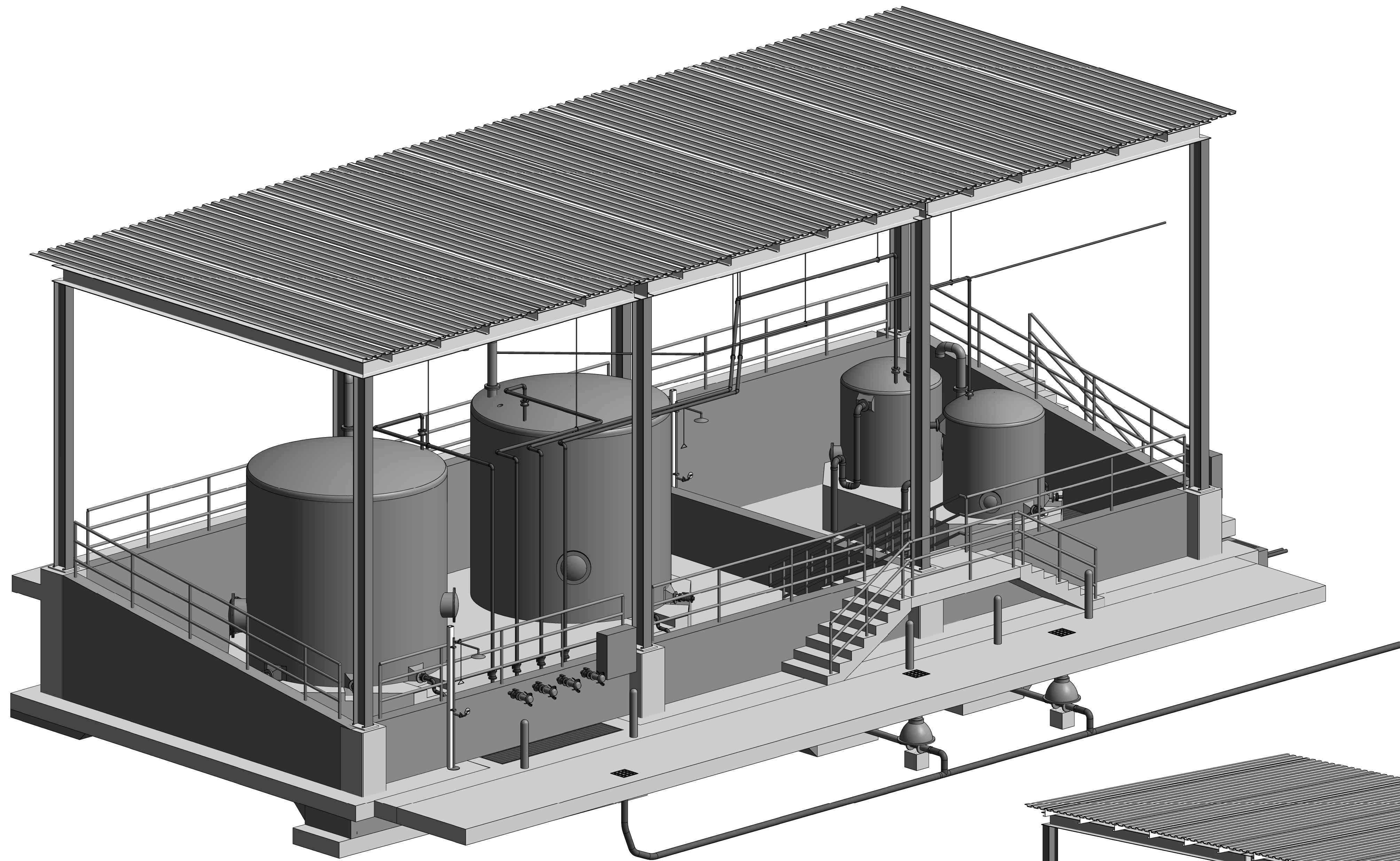


ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

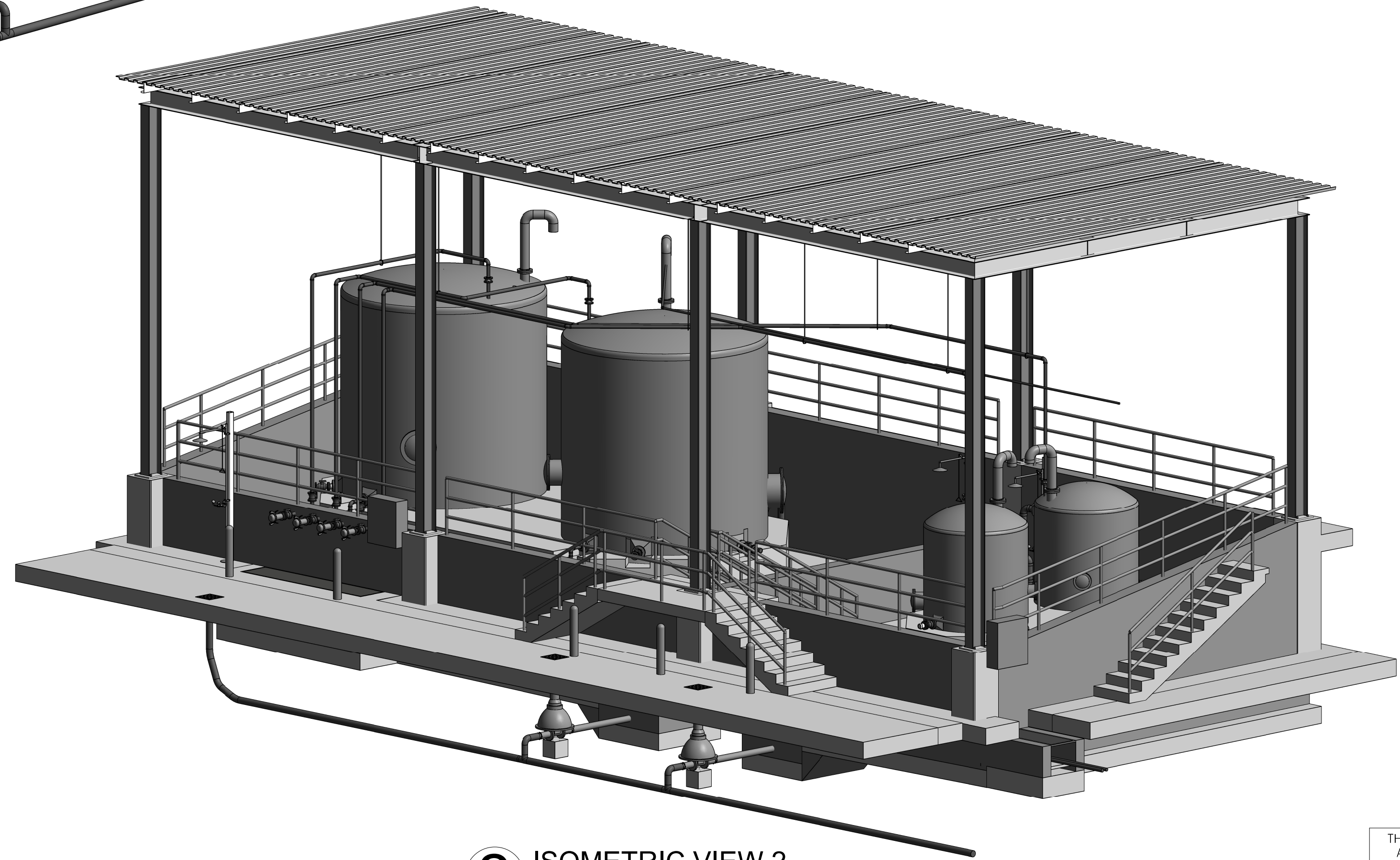
PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____



BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



1 ISOMETRIC VIEW 1



2 ISOMETRIC VIEW 2

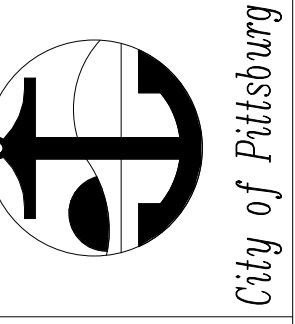
THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN:	CHECKED:	REVIEWED:	DATE: 06/02/23	SCALE: AS INDICATED

SHEET NO. # OF #

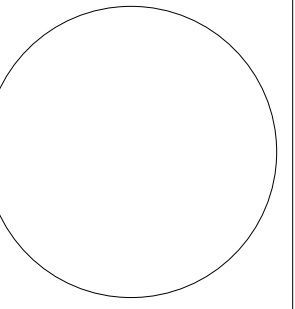
DWG. NO. M640

WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
CHEMICAL STORAGE AREA RENDERING

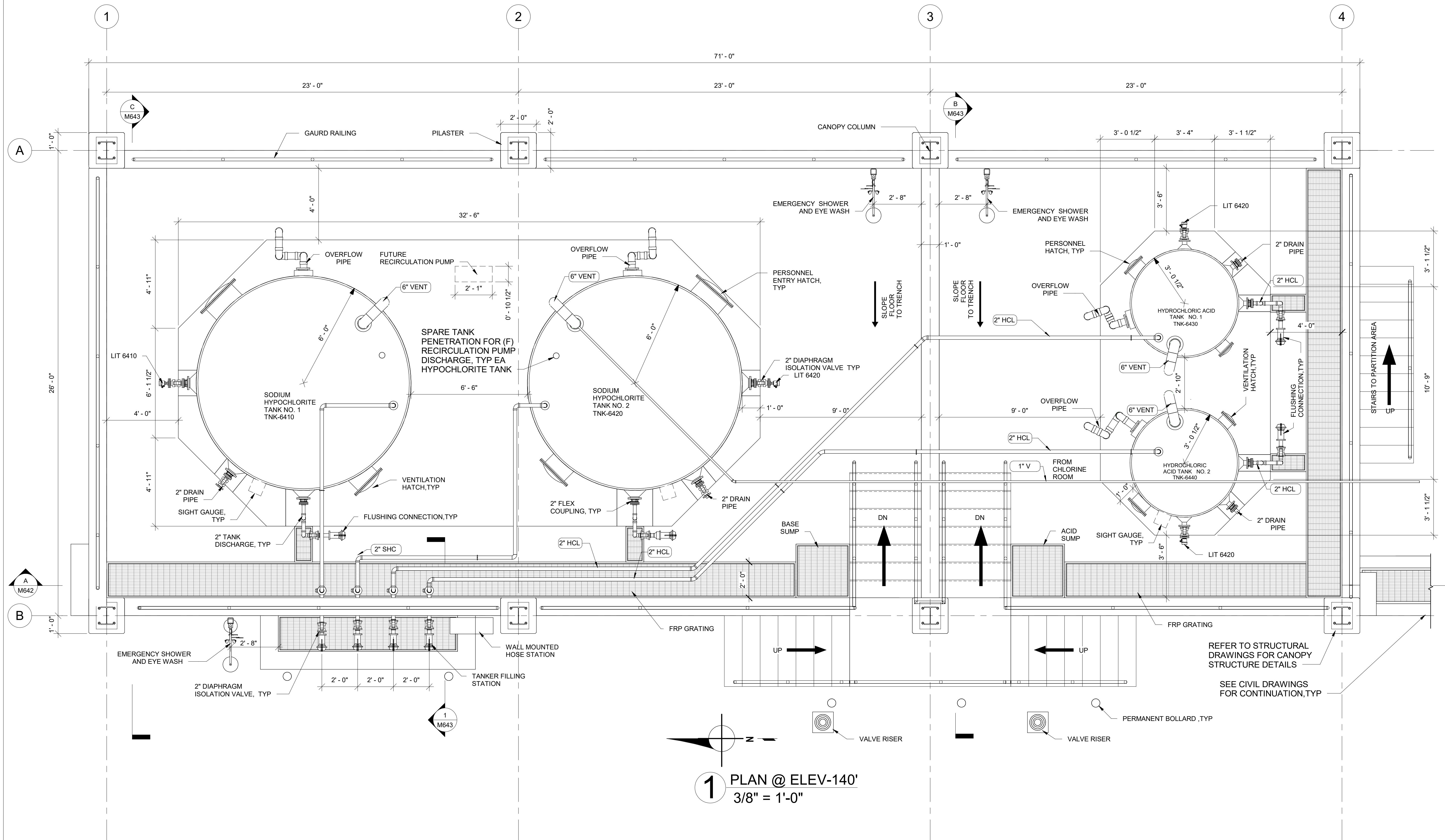


ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE:



BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



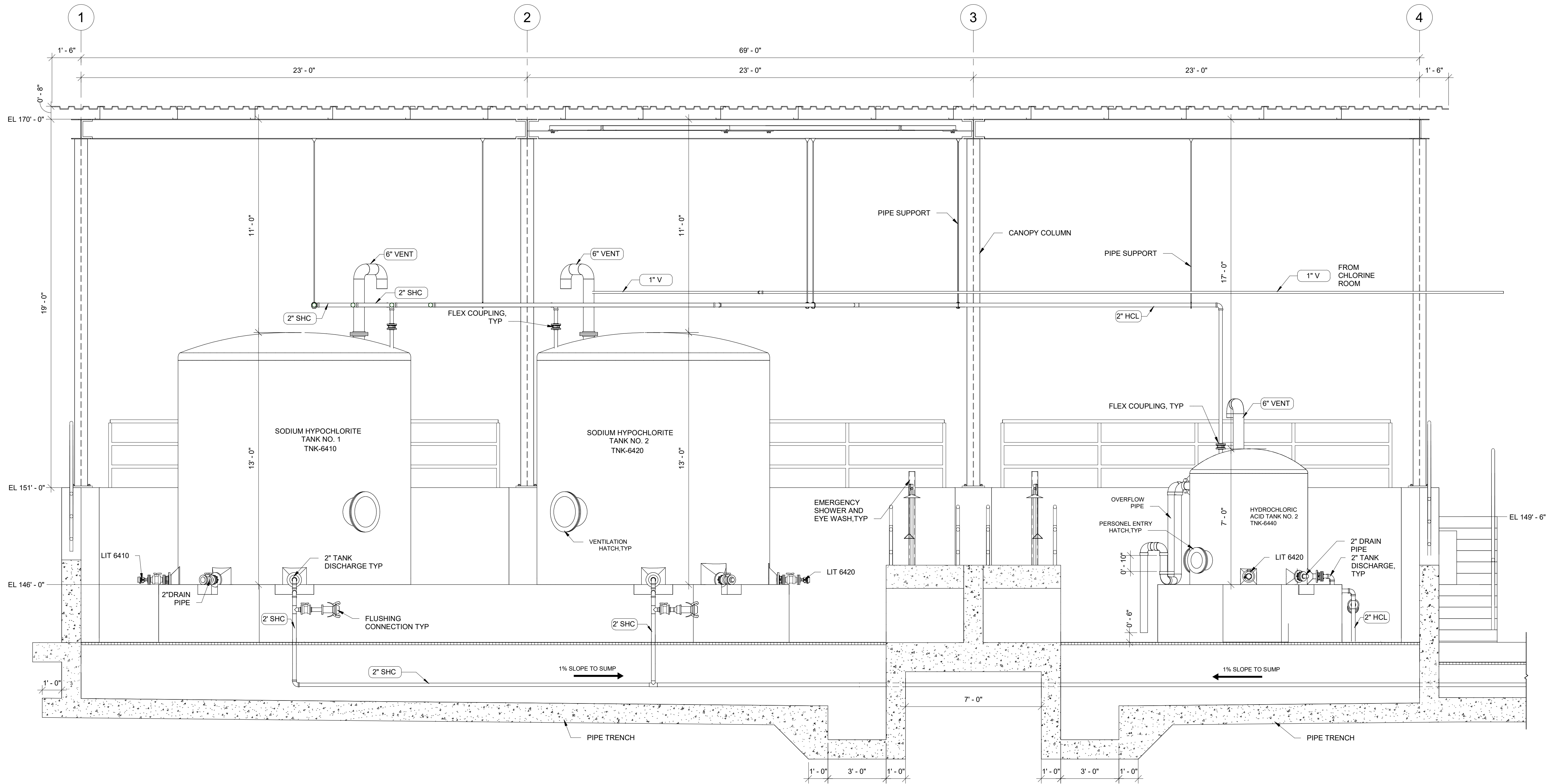
1 PLAN @ ELEV-140'
3/8" = 1'-0"

ACCEPTED FOR USE:		PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON City Engineer		JOHN SAMUELSON
DATE:		DATE:
 City of Pittsburgh		
WATER TREATMENT PLANT FILTER REHABILITATION AND HYPOCHLORITE CONVERSION		
CHEMICAL STORAGE AREA-FOUNDATION PLAN		
BY:	DRAWN:	DATE: 06/02/23
REV:	CHECKED:	SCALE: AS INDICATED
DATE:	REVIEWED:	
DESCRIPTION:		
SHEET NO.	# OF #	
DWG. NO.	M641	

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

REFER TO STRUCTURAL DRAWINGS FOR CANOPY STRUCTURE DETAILS
SEE CIVIL DRAWINGS FOR CONTINUATION, TYP

BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



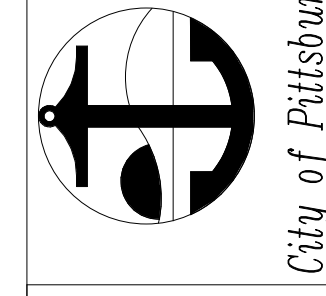
A SECTION-A
3/8" = 1'-0"

DATE	REV	DESCRIPTION

SHEET NO.
OF

DWG. NO.
M642

THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

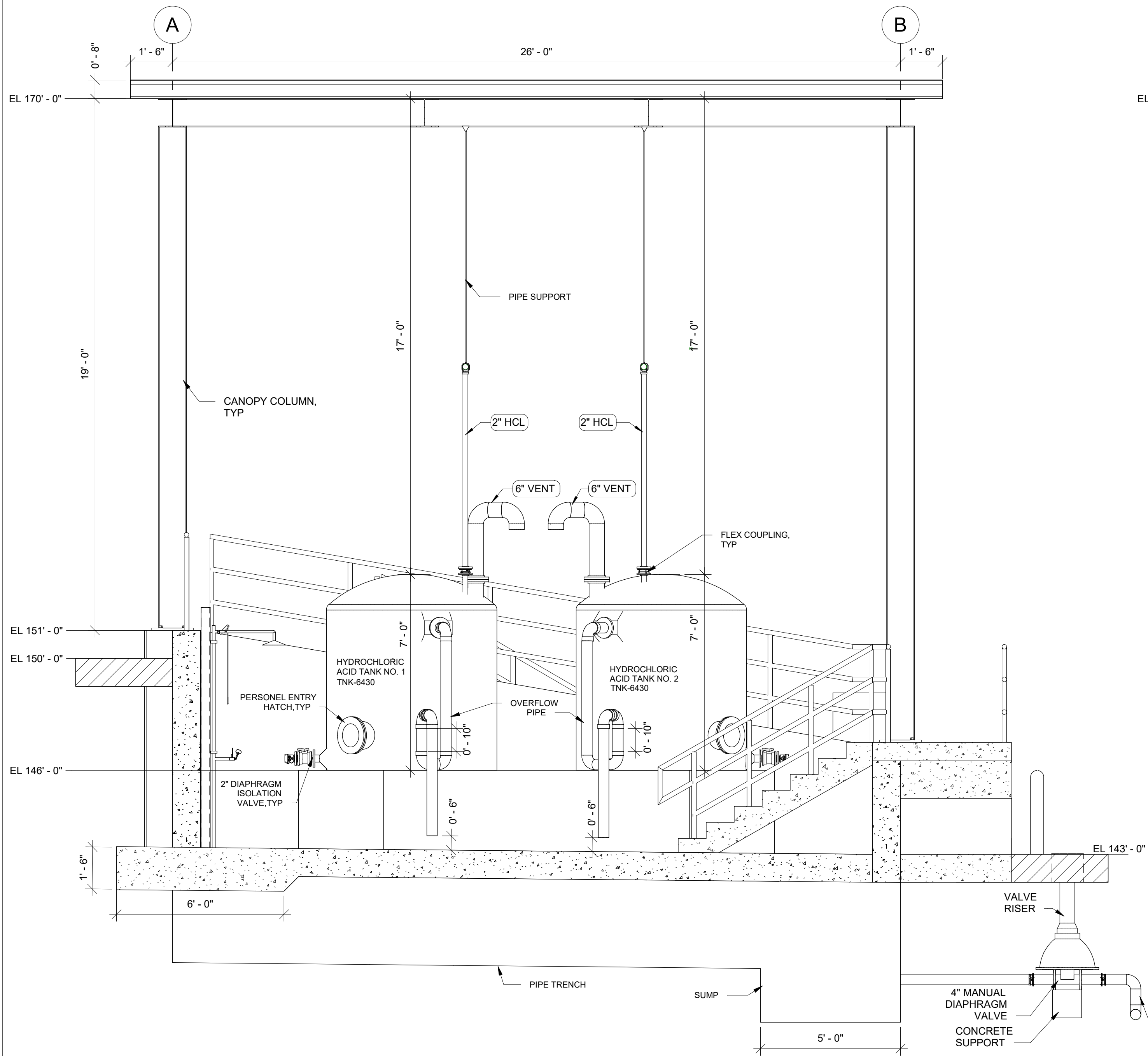


**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CHEMICAL STORAGE AREA-SECTIONS 1

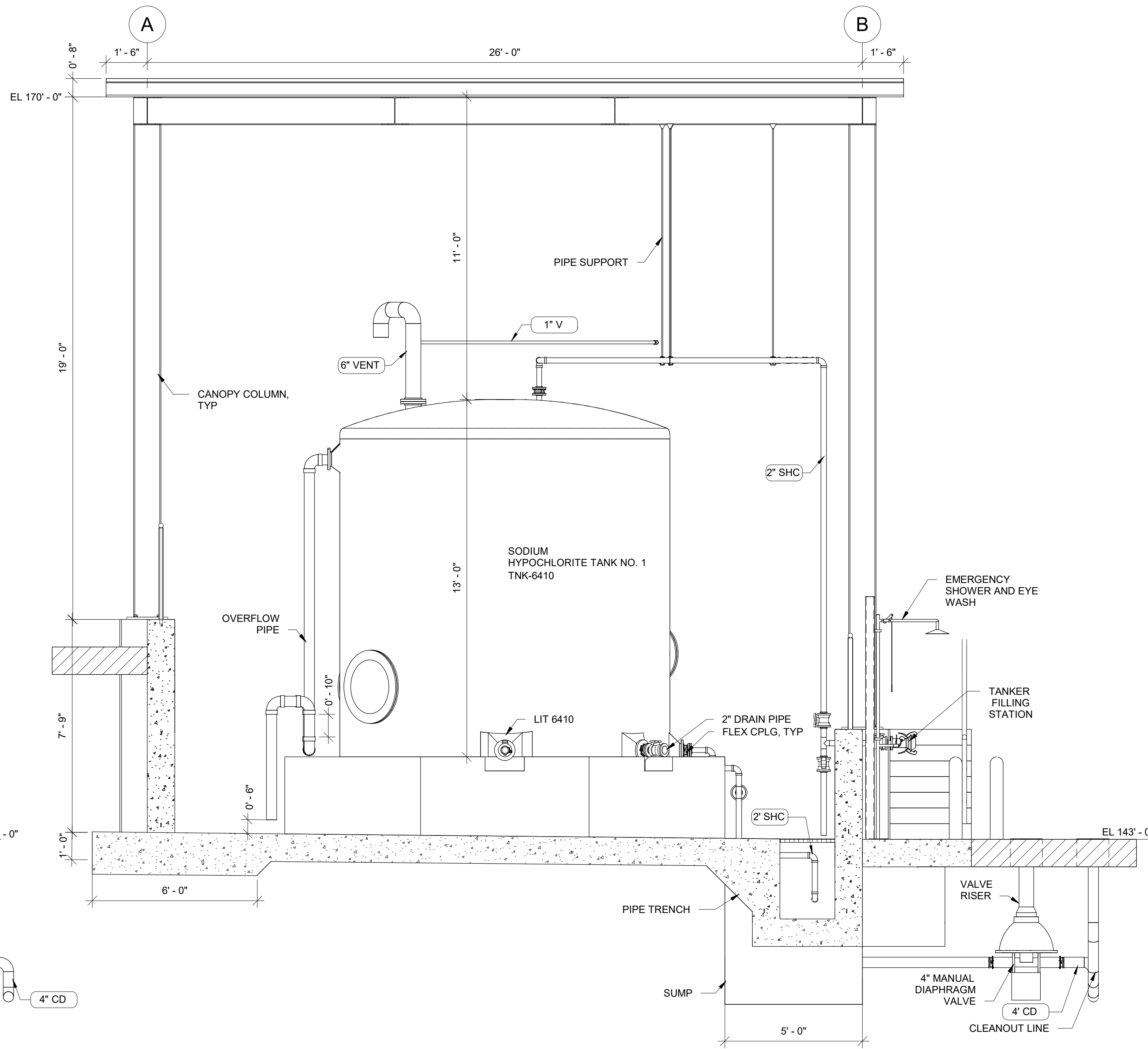
ACCEPTED
FOR
USE:
JOHN
SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN
SAMUELSON
City Engineer
Date: _____

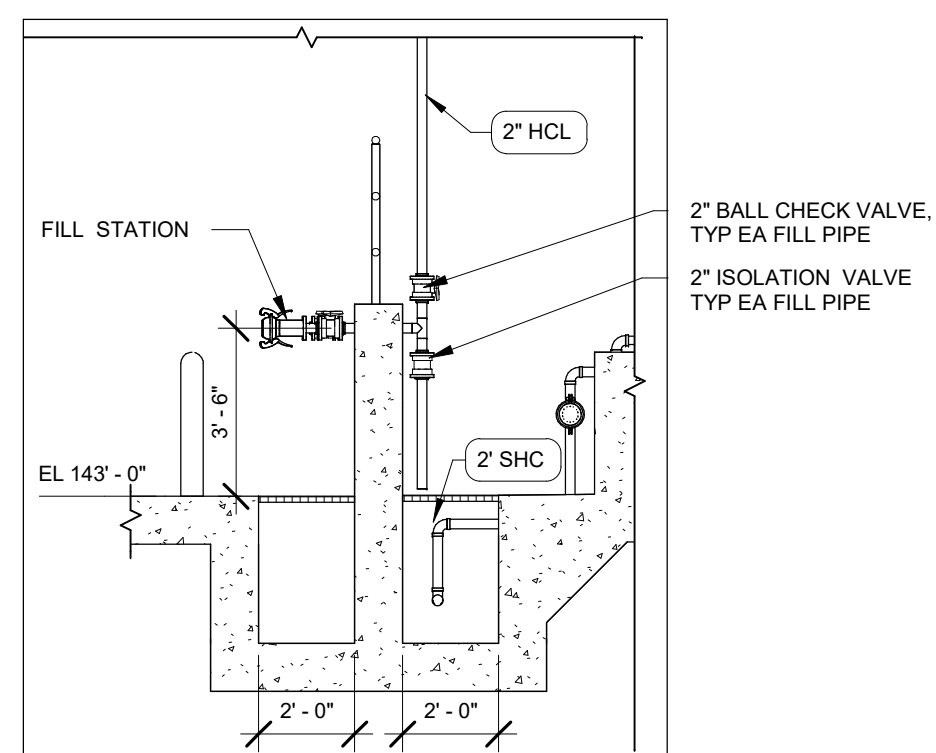
BIM 360://PITTSBURG WTP_IMPROVEMENTS/XXXX-WYS-PT-XX-M3-S-0001.rvt



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



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



1 DETAIL VIEW-1
1/4" = 1'-0"

DATE	REV	DESCRIPTION

SHEET NO.
OF

DWG. NO.
M643

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION

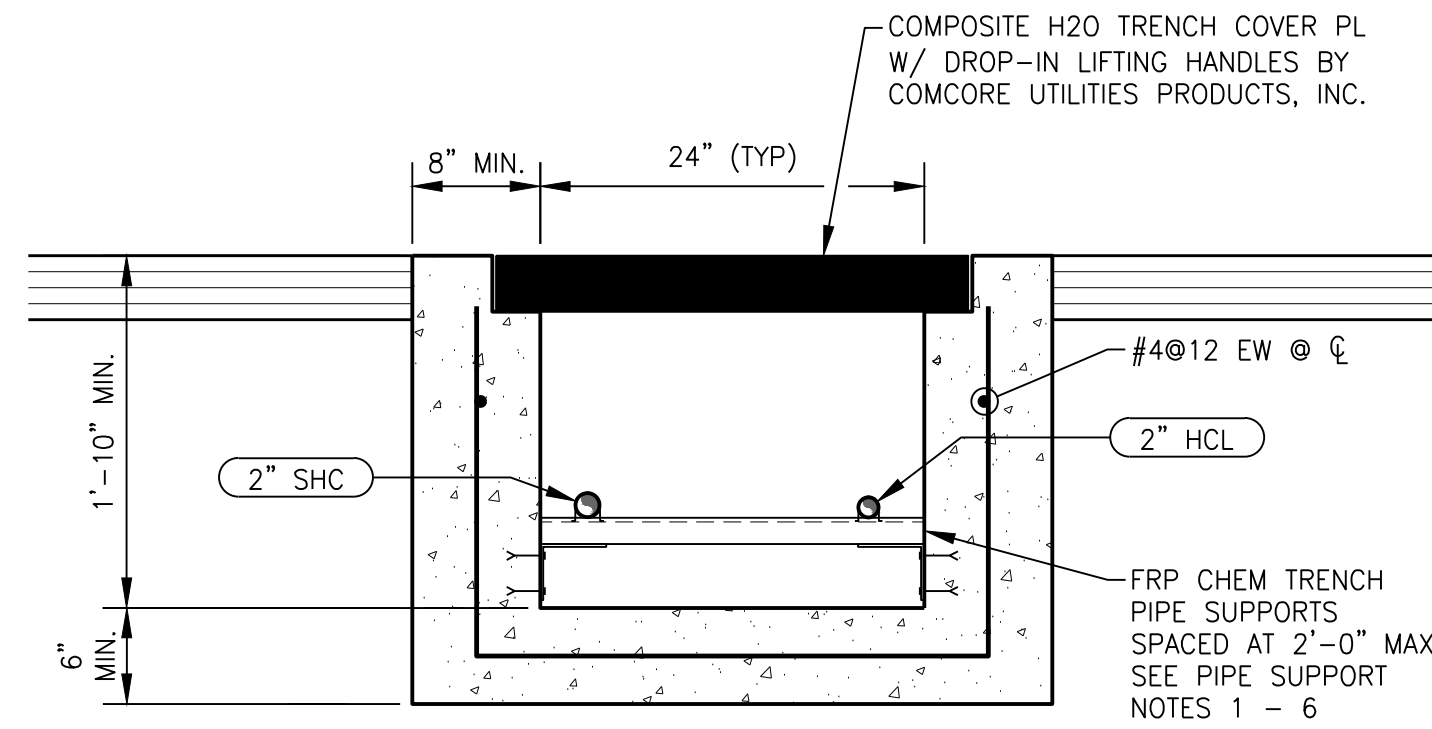
CHEMICAL STORAGE AREA-SECTIONS 2

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
Date: _____

City of Pittsburgh

W:\Clients\1040 City of Pittsburgh\50-22-01 Filter & C12 Improvm\CAD\Production\1040-50-22-01-M644.dwg 5-29-23 12:59:38 PM asmith



CHEMICAL PIPE CHASE IN ROADWAY
SECTION E
M641
SCALE: 1"=1'-0"

- NOTE:
- SEE DRAWING COXX FOR CHEMICAL PIPE CHASE TRENCH DETAILS.
 - PROVIDE PIPE LABELING ON EACH CHEMICAL PIPELINE INDICATING THE PIPELINE'S CONTENTS AS SPECIFIED IN SECTION 15050, PIPING SYSTEMS.

- PIPE SUPPORT NOTES:
- STRUTS SHALL BE:
 - UNISTRUT P1000T-ST
 - ANVIL AS100EH-SS
 - OR EQUAL
 - ANGLE SUPPORTS SHALL BE AS MANUFACTURED BY UNISTRUT, ANVIL OR EQUAL.
 - PIPE CLAMPS SHALL BE 316 SST AND SHALL BE PROVIDED BY THE STRUT MANUFACTURER TO FIT THE PIPE BEING CLAMPED.
 - BRACKET SUPPORTS SHALL BE:
 - UNISTRUT P294X
 - ANVIL AS 651
 - OR EQUAL
 - UON, ALL STRUTS, SUPPORTS AND ACCESSORIES SHALL BE 316 STAINLESS STEEL.
 - EXPANSION ANCHORS SHALL BE:
 - HILTI KWIK-BOLT TZ-SS 316
 - SIMPSON STRONG BOLT 316 SS
 - OR EQUAL

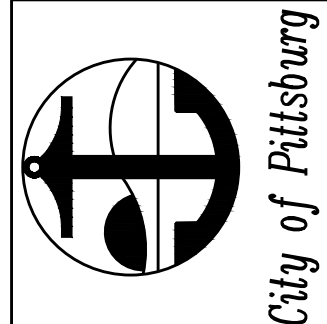


ORIGINAL PAGE SIZE: 22"X34"

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN: SMB	CHECKED: TRB	REVIEWED: AMS	DATE: 5/29/23	SCALE: AS SHOWN

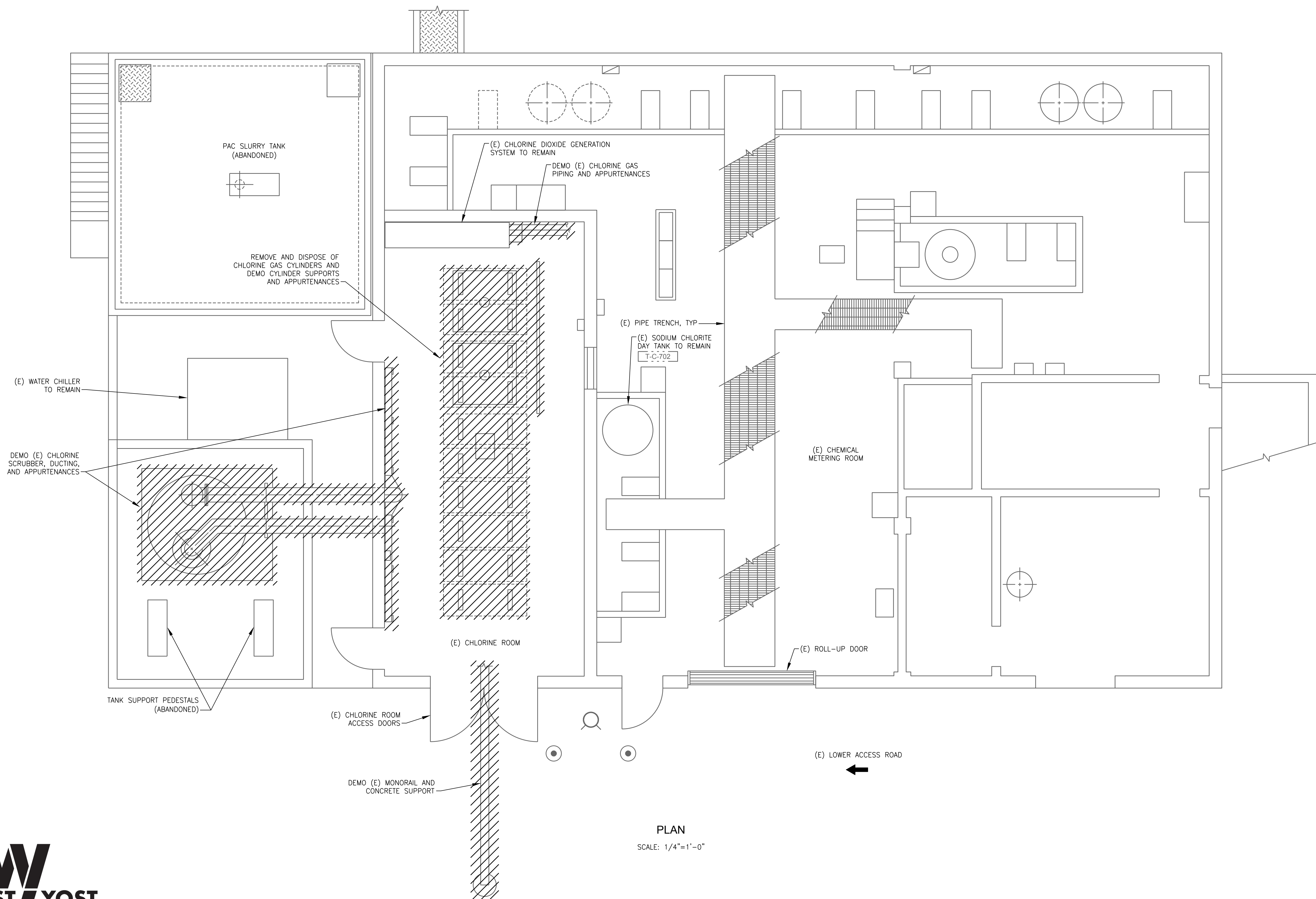
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CHEMICAL STORAGE AREA
SECTIONS AND DETAILS



ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____

SHEET NO.
OF #
DWG. NO.
M644



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

W:\Clients\1040 City of Pittsburg\50-22-01 Filter & C2 Improv\CAD\Production\1040-50-22-01-M660.dwg 2-07-23 02:31:03 PM sbarber



ORIGINAL PAGE SIZE: 22"x34"

	<p>PREPARED UNDER THE DIRECTION OF:</p> <p>JOHN SAMUELSON City Engineer</p>	<p>ACCEPTED FOR USE:</p> <p>JOHN SAMUELSON City Engineer</p>	<p>DATE:</p>	<p>DATE:</p>
<p>City of Pittsburg</p>				
<p>WATER TREATMENT PLANT FILTER REHABILITATION AND HYPOCHLORITE CONVERSION</p> <p>EXISTING GASEOUS CHLORINE SYSTEM DEMOLITION PLAN</p>				
BY	DRAWN: SMB	CHECKED: TRB	REVIEWED: AMS	DATE: 2/7/23
DESCRIPTION				SCALE: 1/4"=1'-0"
DATE	REV			
SHEET NO. # OF #				
DWG. NO. M660				

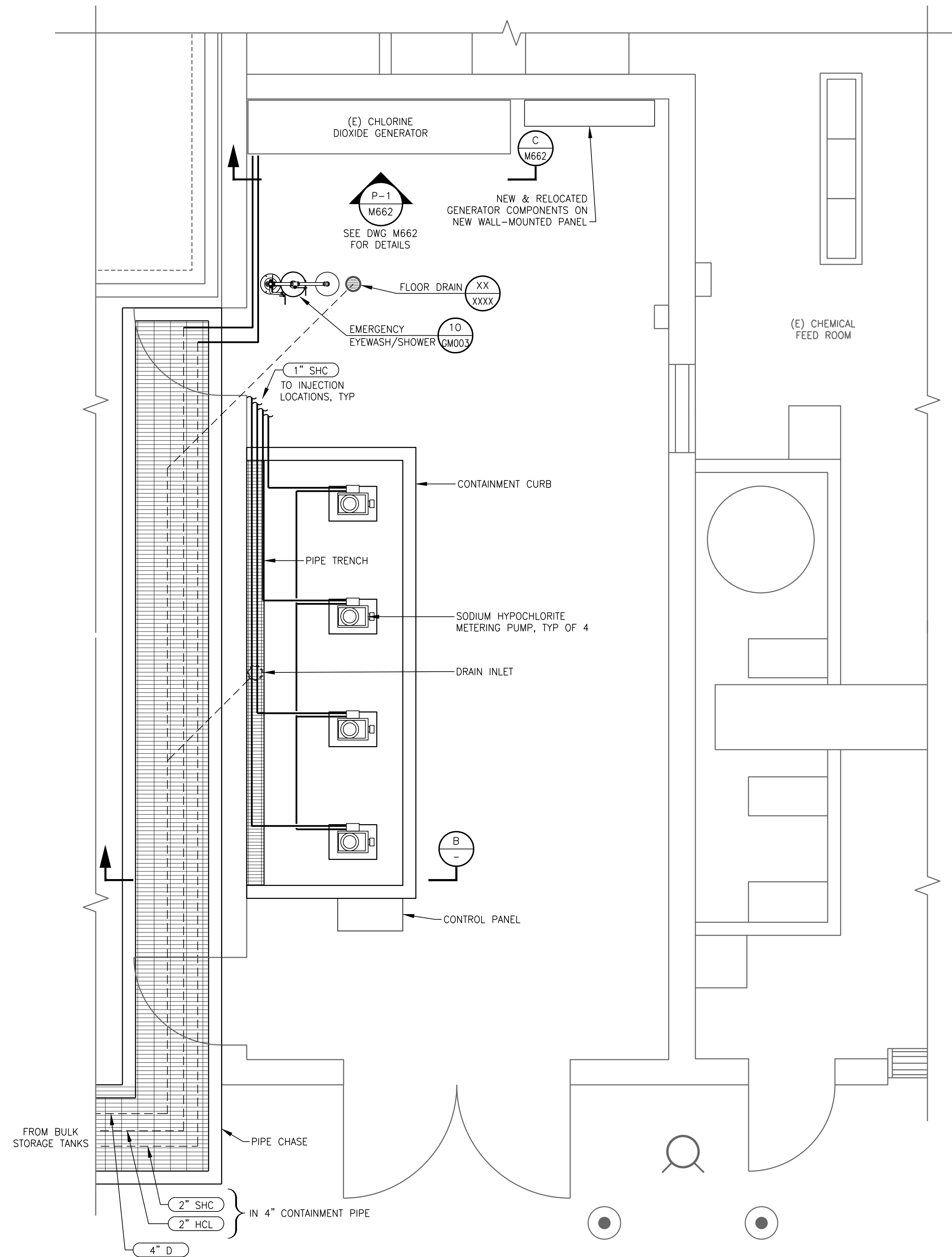
THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY

0 1/2" 1"
SCALE IN INCHES

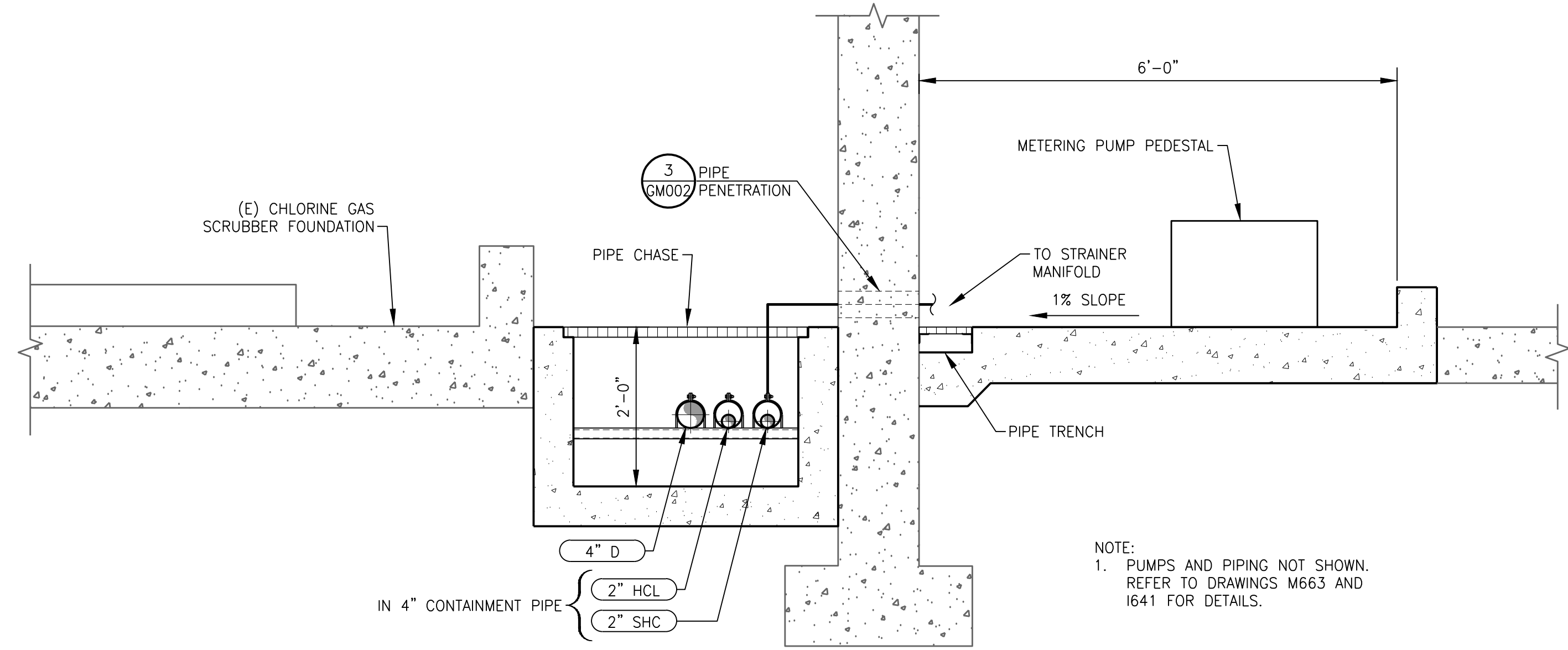
W:\Clients\1040 City of Pittsburgh\50-22-01 Filter & C12 Improv\CAD\Production\1040-50-22-01-M661.dwg 6-02-23 12:51:15 PM sbr/bbr



ORIGINAL PAGE SIZE: 22"X34"



CHLORINE ROOM MODIFICATIONS
 PLAN
 SCALE: 3/8"=1'-0"



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

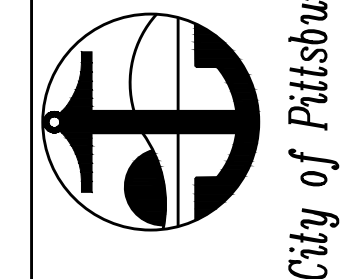
NOTE:
 1. PUMPS AND PIPING NOT SHOWN. REFER TO DRAWINGS M663 AND I641 FOR DETAILS.

PREPARED UNDER THE DIRECTION OF:

JOHN SAMUELSON
 City Engineer
 Date: _____

ACCEPTED FOR USE:

JOHN SAMUELSON
 City Engineer
 Date: _____



**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 CHLORINE ROOM PLAN, SECTION AND
 DETAILS

DATE	REV	DESCRIPTION	BY	DRAWN: SMB	CHECKED: TRB	REVIEWED: AMS	DATE: 6/2/23	SCALE: 1/4"=1'-0"

SHEET NO.
 # OF #

DWG. NO.
M661

THIS LINE IS 1 INCH
 AT FULL SCALE IF
 NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES

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ORIGINAL PAGE SIZE: 22"x34"

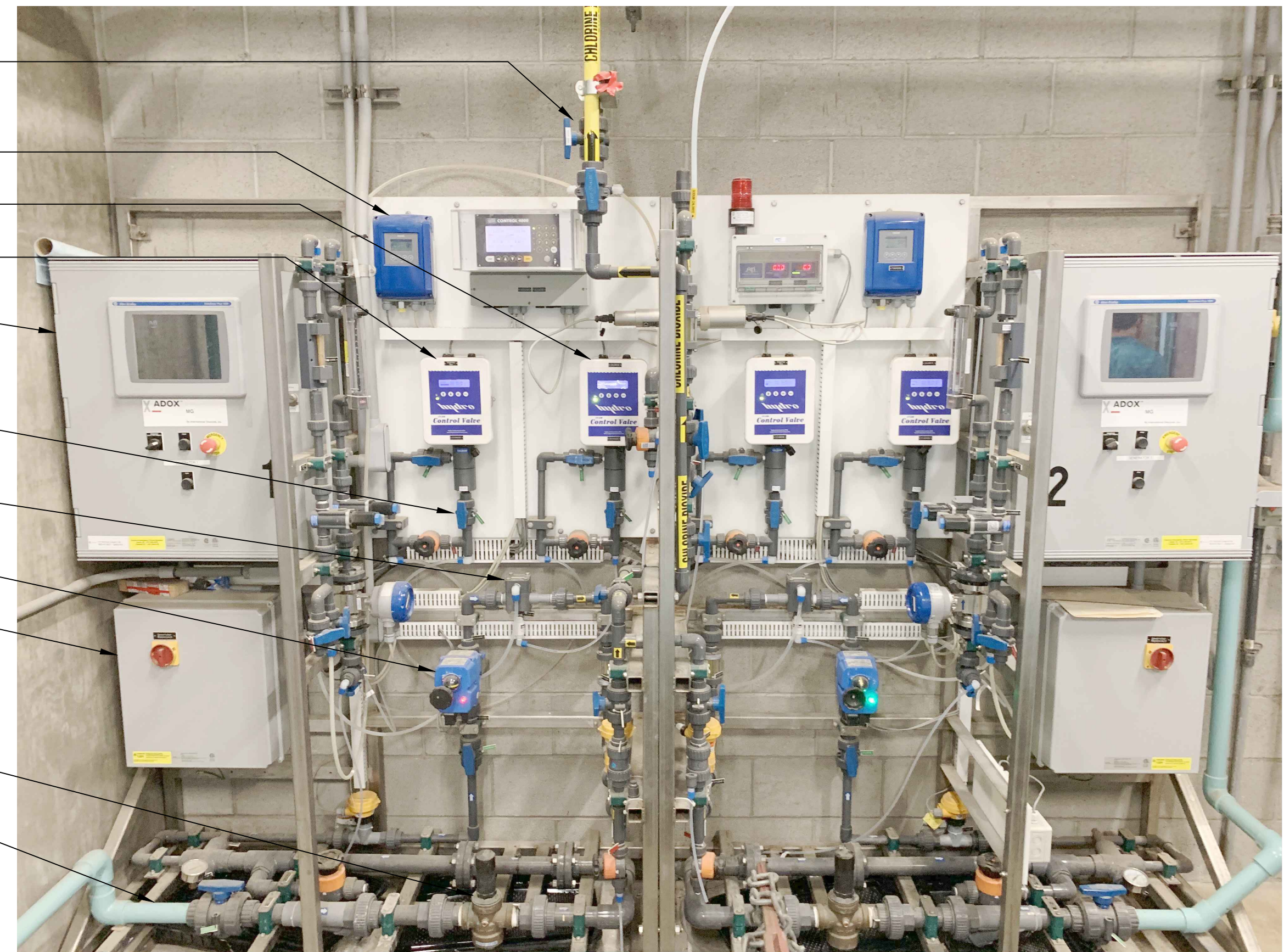
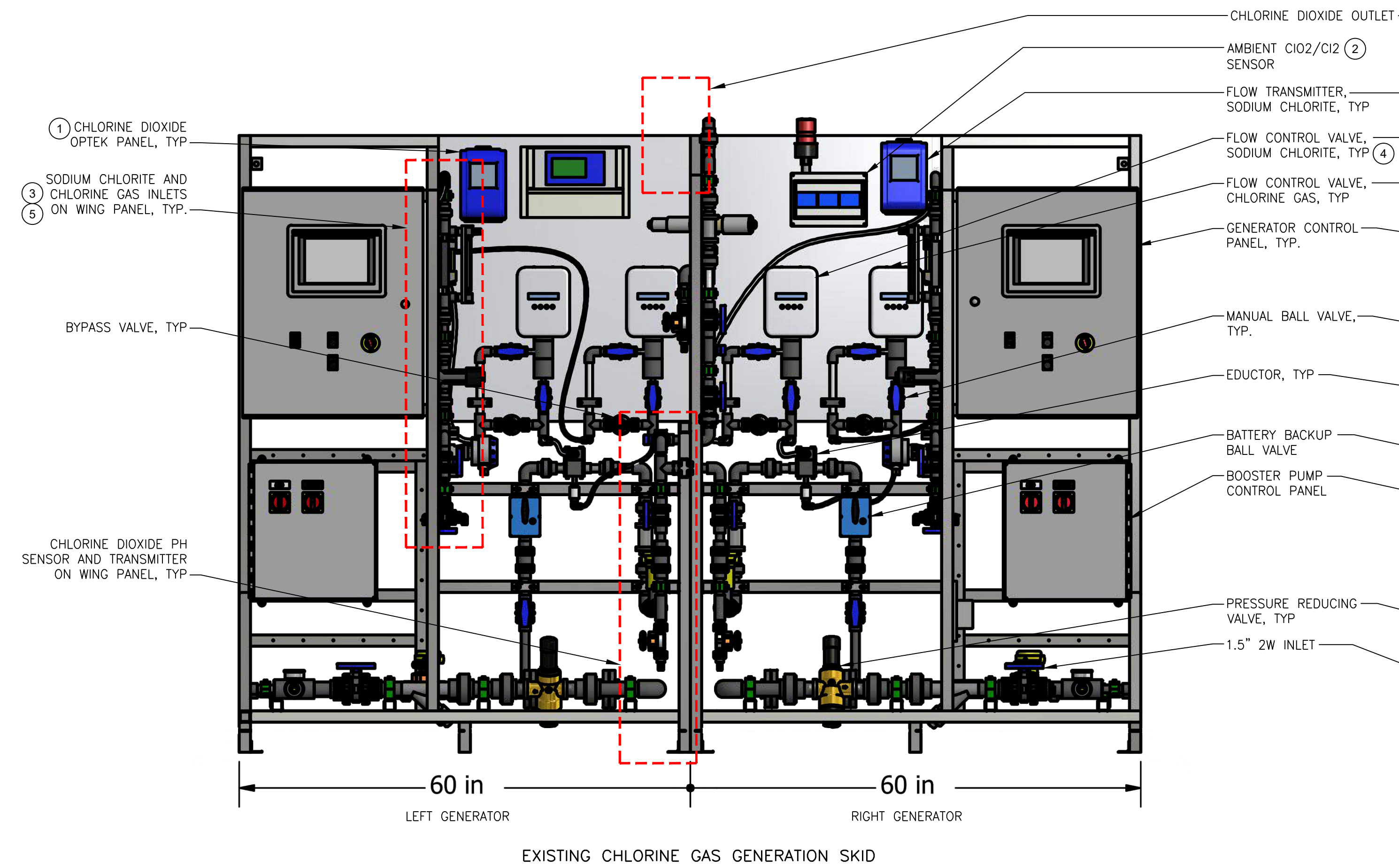


PHOTO DETAIL (P-1 M661)

KEY NOTES:

- 1 RELOCATE OTEK PANEL TO NEW OFF-SKID PANEL. LOCATE ALONG WALL IMMEDIATELY SOUTH OF (E) GENERATOR SKIDS.
- 2 RELOCATE ANALYZER TO NEW OFF-SKID PANEL. LOCATE ALONG WALL IMMEDIATELY SOUTH OF (E) GENERATOR SKIDS.
- 3 REPLACE (E) TWO-CHEMICAL PRECURSOR INLET STACKS WITH NEW OFF-SKID THREE-CHEMICAL PRECURSOR INLET PANELS.
- 4 MODIFY FLOW CONTROL VALVE BYPASS PLUMBING, TYP ALL FCV'S EACH GENERATOR.
- 5 PROVIDE NEW FLOW CONTROL VALVE AND APPURTENANCES FOR HYDROCHLORIC ACID, TYP EACH GENERATOR, IN SPACE VACATED BY RELOCATED PRECURSOR CHEMICAL INLET STACK.

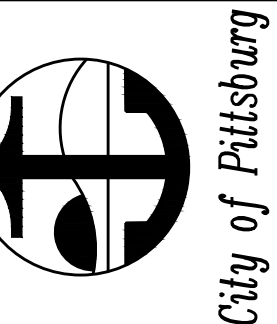
NOTES:

1. REFER TO P&ID FOR ADDITIONAL DETAILS RELATED TO MODIFICATION OF (E) GENERATOR SKIDS.

PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:

JOHN SAMUELSON
 City Engineer
 Date: _____



WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION
 EXISTING CHLORINE DIOXIDE GENERATOR
 MODIFICATIONS

BY: DRAWN: SMB
 CHECKED: TRB
 REVIEWED: AMS
 DATE: JUNE 2023
 SCALE: 1"=1'-0"

DATE	REV	DESCRIPTION

SHEET NO.
 # OF #

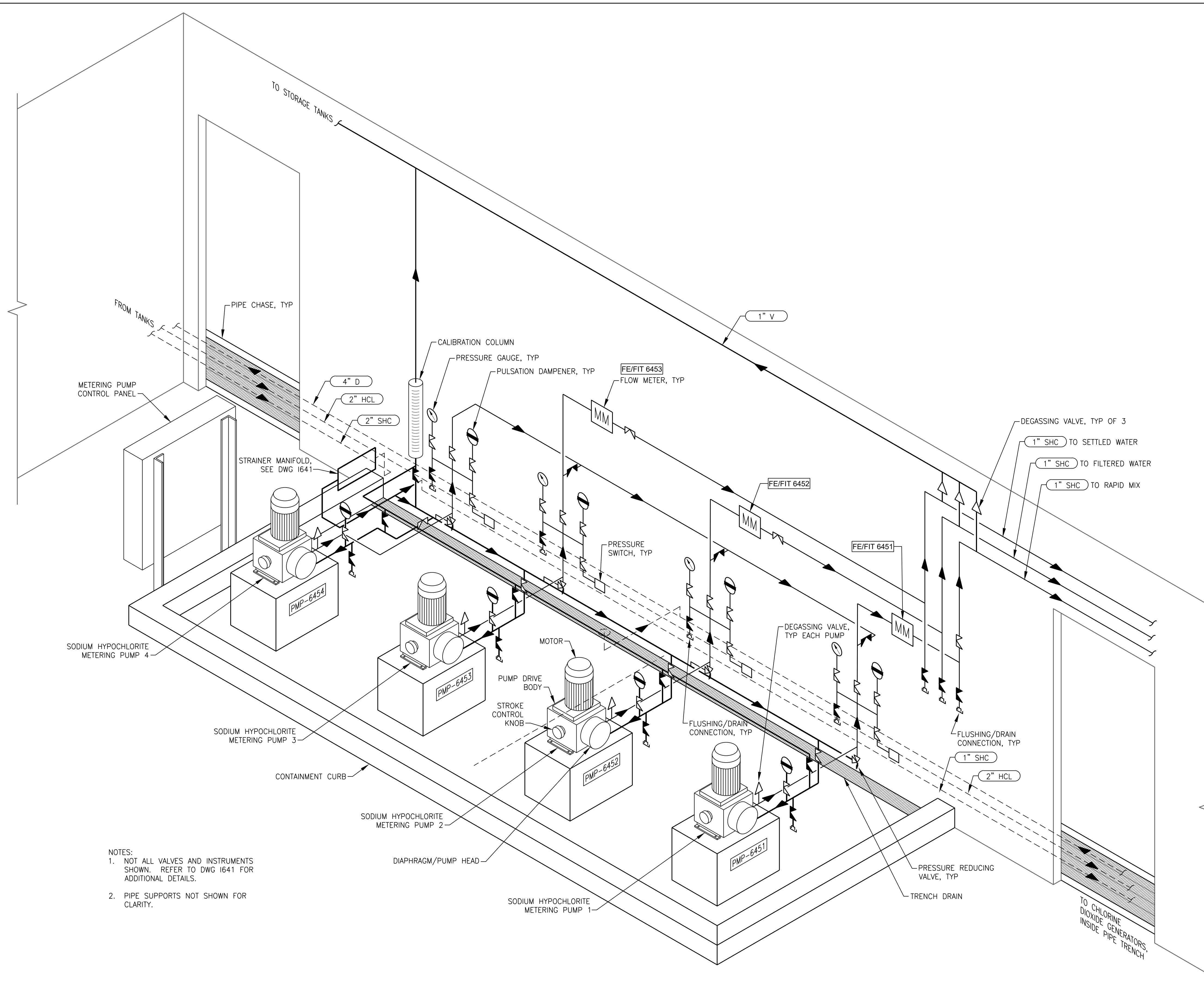
DWG. NO.
M662

THIS LINE IS 1 INCH
 AT FULL SCALE IF
 NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES

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ORIGINAL PAGE SIZE: 22"x34"

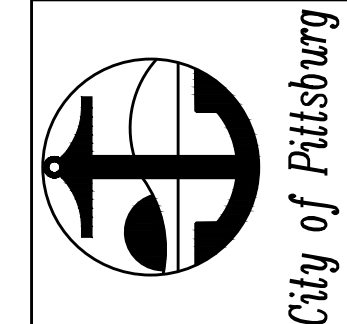


NOTES:
 1. NOT ALL VALVES AND INSTRUMENTS SHOWN. REFER TO DWG 1641 FOR ADDITIONAL DETAILS.
 2. PIPE SUPPORTS NOT SHOWN FOR CLARITY.

SODIUM HYPOCHLORITE METERING PUMPS
 ISOMETRIC VIEW
 NOT TO SCALE

PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 City Engineer
 DATE:

ACCEPTED FOR USE:
 JOHN SAMUELSON
 City Engineer
 DATE:



**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 SODIUM HYPOCHLORITE METERING PUMPS
 ISOMETRIC

BY: SMB
 CHECKED: TRB
 REVIEWED: AMS
 DATE: 6/2/23
 SCALE: 1/4" = 1'-0"

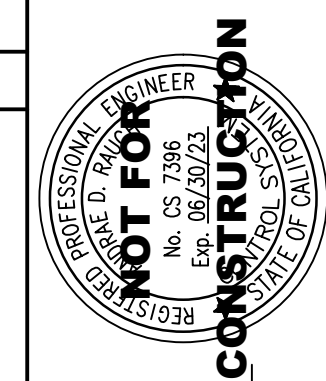
DATE	REV	DESCRIPTION

SHEET NO.
 # OF #

DWG. NO.
M663

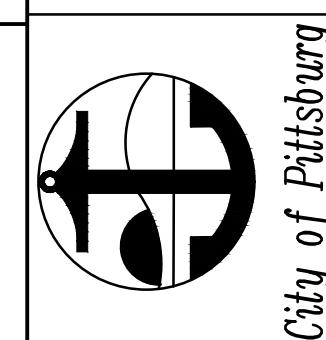
THIS LINE IS 1 INCH
 AT FULL SCALE IF
 NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES

DRAWING SYMBOLS



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
Date:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:



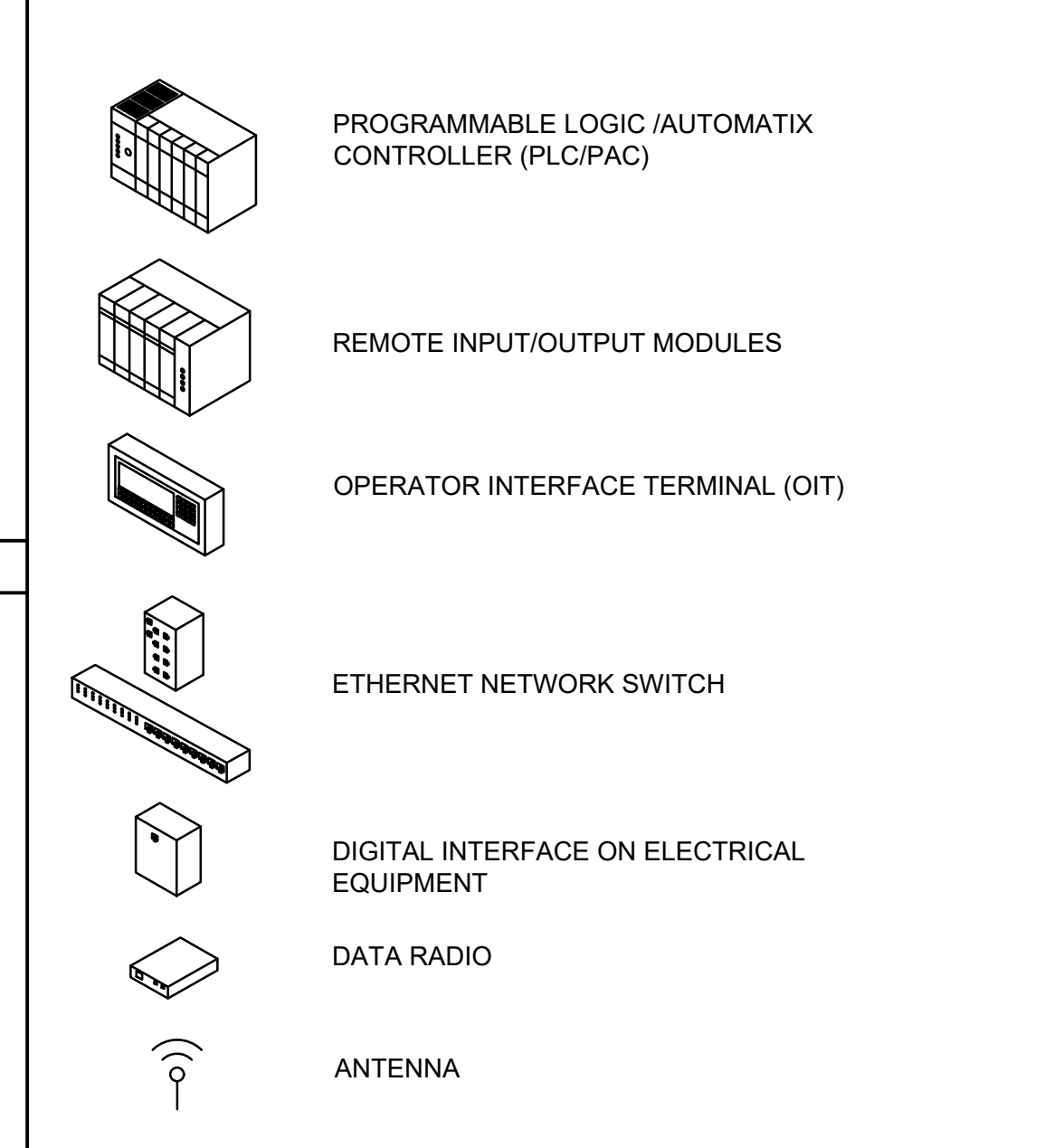
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
INSTRUMENTATION
LEGEND

DRAWN: ADP	CHECKED: ADR	REVIEWED: -	DATE: 6/2/23	SCALE: NTS
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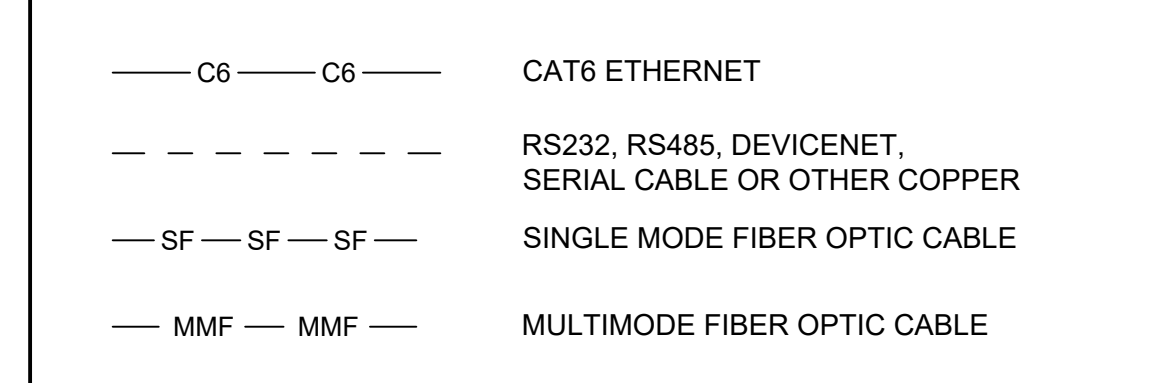
DATE	REV	DESCRIPTION

SHEET NO. # OF #
DWG. NO. **G1001**

SCADA EQUIPMENT SYMBOLS



NETWORK CABLES



GENERAL SHEET NOTES

- THIS IS A GENERAL P&ID LEGEND SHEET. SOME SYMBOLS OR NOTATIONS SHOWN MAY NOT BE USED ON THIS PROJECT.
- EXISTING EQUIPMENT AND PROCESS PIPING AND STRUCTURES ARE SHOWN SCREENED BACK.
- ALL NECESSARY VALVES ARE NOT SHOWN ON THE P&ID'S FOR CLARITY. PROVIDE ISOLATION VALVES ON ALL SAMPLE LINES TO SENSORS, THREE-VALVE MANIFOLDS FOR ALL ABSOLUTE AND GAUGE PRESSURE TRANSMITTERS, AND FIVE-VALVE MANIFOLDS FOR ALL DIFFERENTIAL PRESSURE TRANSMITTERS.
- SHADING OF WORK IS USED TO INDICATE PROCUREMENT EQUIPMENT, CONTROLS, AND INSTRUMENTS PROVIDED BY OTHERS.
- COMPUTER FUNCTIONS REFER TO DIGITAL DISPLAY OR STORAGE DEVICES.

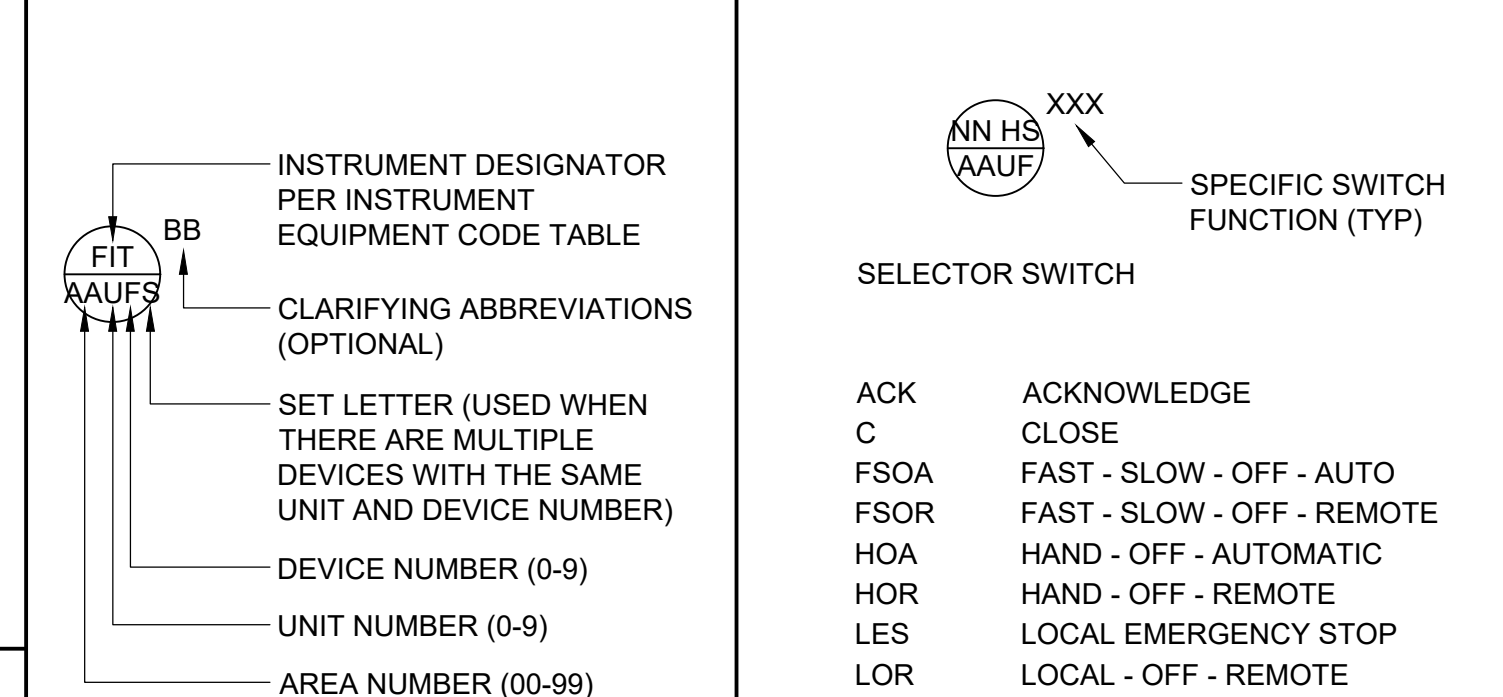
ABBREVIATIONS AND LETTER SYMBOLS

<p>AC ALTERNATING CURRENT ANN ANNUNCIATOR AVG AVERAGE CCR COMBINED CHLORINE RESIDUAL CLG CHLORINE GAS CL2 CHLORINE (TYP - USE STANDARD CHEMICAL ELEMENT ABBREV.) CP CONTROL PANEL DC DIRECT CURRENT DCS DISTRIBUTED CONTROL SYSTEM DCU DISTRIBUTED CONTROL UNIT DO DISSOLVED OXYGEN FCL FREE CHLORINE RESIDUAL HMI HUMAN MACHINE INTERFACE I INTERLOCK I/O INPUT/OUTPUT ISR INTRINSICALLY SAFE RELAY LAN LOCAL AREA NETWORK LEL LOWER EXPLOSIVE LIMIT LOP LOCAL OPERATION PANEL MCC MOTOR CONTROL CENTER MLC MULTILOOP CONTROLLER MOD MODULATING MUX MULTIPLEXER NC NORMALLY CLOSED NO NORMALLY OPENED</p>	<p>OIP OPERATOR INTERFACE PANEL ORP OXIDATION REDUCTION POTENTIAL OL OVERLOAD pH HYDROGEN ION CONCENTRATION PLC PROGRAMMABLE LOGIC CONTROLLER RIO REMOTE PLC INPUT/OUTPUT RACK RTD RESISTANCE TEMPERATURE DETECTOR RTU REMOTE TERMINAL UNIT RW RAW WATER; RECYCLED WATER SCADA SUPERVISORY CONTROL AND DATA ACQUISITION SCD STREAMING CURRENT DETECTOR TURB TURBIDIMETER UPS UNINTERRUPTIBLE POWER SUPPLY VFD VARIABLE FREQUENCY DRIVE VHC VOLATILE HYDROCARBONS VIB VIBRATION VOC VOLATILE ORGANIC COMPOUNDS WAN WIDE AREA NETWORK Δ DIFFERENCE Σ SUM × MULTIPLY ÷ DIVIDE √ SQUARE ROOT > SELECT HIGHEST SIGNAL < SELECT LOWEST SIGNAL</p>	<p>OPERATOR INTERFACE PANEL OXIDATION REDUCTION POTENTIAL OVERLOAD HYDROGEN ION CONCENTRATION PROGRAMMABLE LOGIC CONTROLLER REMOTE PLC INPUT/OUTPUT RACK RESISTANCE TEMPERATURE DETECTOR REMOTE TERMINAL UNIT RAW WATER; RECYCLED WATER SUPERVISORY CONTROL AND DATA ACQUISITION STREAMING CURRENT DETECTOR TURBIDIMETER UNINTERRUPTIBLE POWER SUPPLY VARIABLE FREQUENCY DRIVE VOLATILE HYDROCARBONS VIBRATION VOLATILE ORGANIC COMPOUNDS WIDE AREA NETWORK DIFFERENCE SUM MULTIPLY DIVIDE SQUARE ROOT SELECT HIGHEST SIGNAL SELECT LOWEST SIGNAL</p>
--	---	---

INSTRUMENT EQUIPMENT CODE TABLE

FIRST LETTER	SUCCEEDING LETTERS			
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION
A	ANALYSIS		ALARM	
B	BURNER		USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CLOSE
D	USER'S CHOICE	DIFFERENTIAL		
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)	
F	FLOW RATE	RATIO		
G	USER'S CHOICE		SIGHT GLASS, VIEWING DEVICE	
H	HAND			HIGH
I	CURRENT		INDICATOR	
J	POWER	SCAN		
K	TIME, TIME SCHEDULE	TIME, RATE OF CHANGE		CONTROL STATION
L	LEVEL		LIGHT	LOW
M	USER'S CHOICE	MOMENTARY		MIDDLE, INTERMEDIATE
N	USER'S CHOICE		RUNNING	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION	OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	
Q	QUANTITY	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD	
S	SPEED, FREQUENCY	SAFETY		SWITCH
T	TEMPERATURE			TRANSMIT
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION		VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL	
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y AXIS		RELAY, COMPUTE, OR CONVERT
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT

TYPICAL INSTRUMENTATION TAGGING

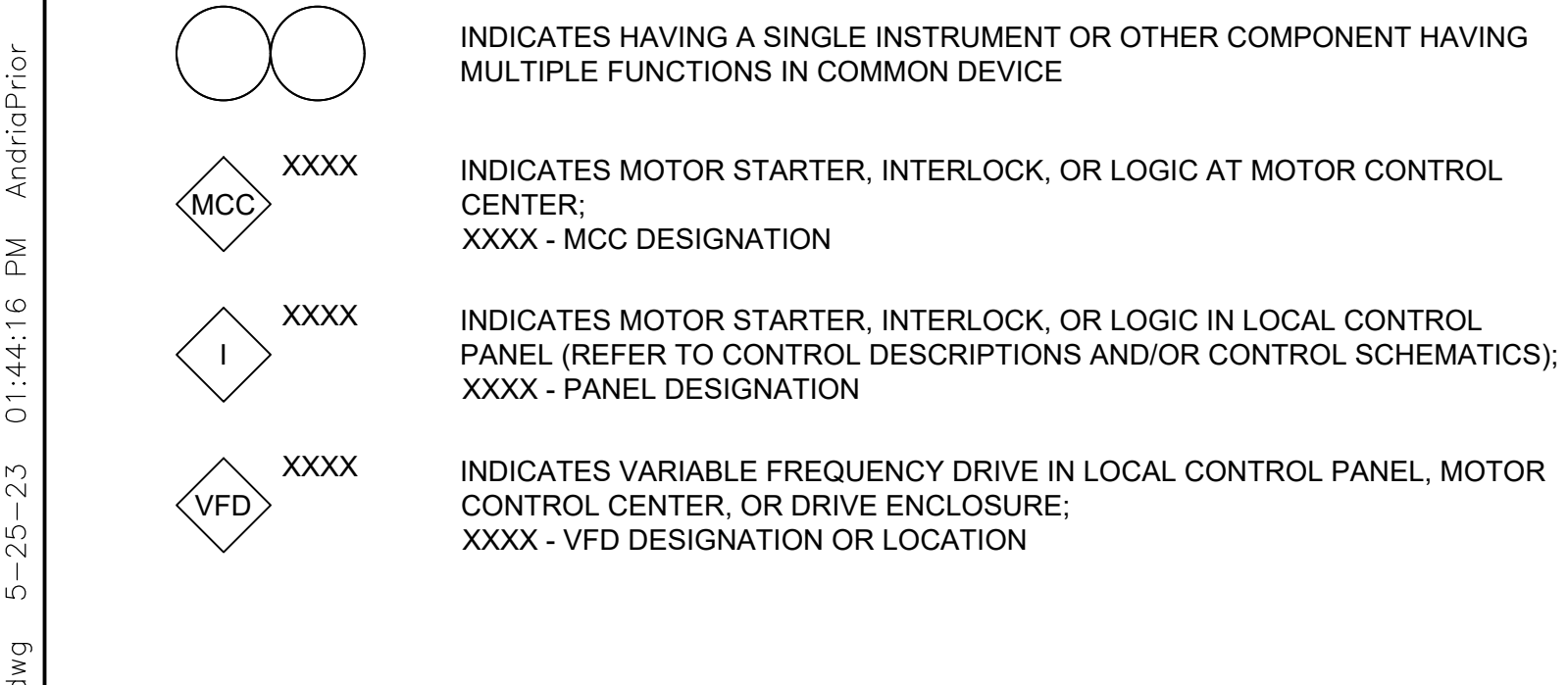


HAND SWITCHES

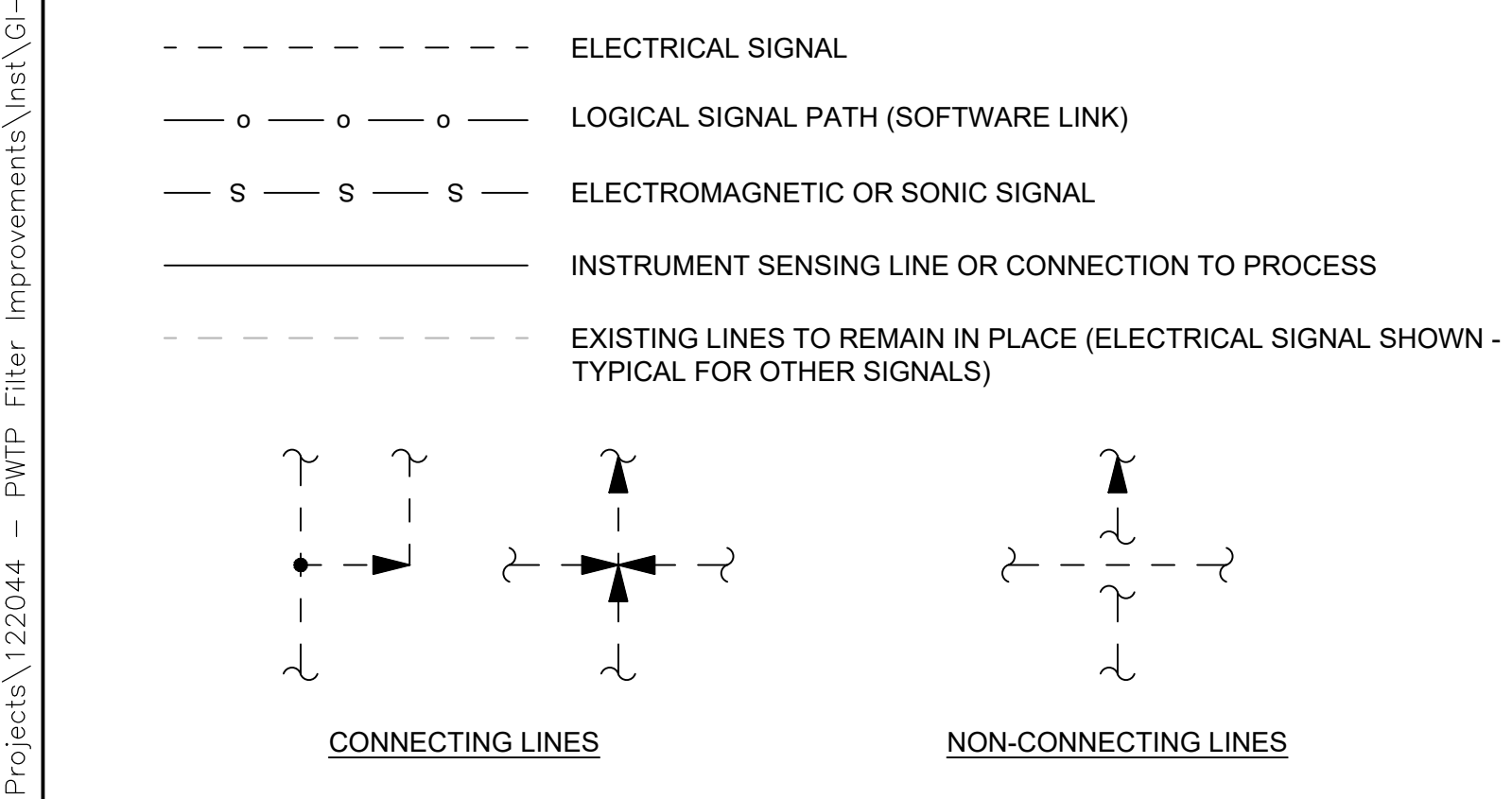
<p>ACK ACKNOWLEDGE C CLOSE FSOA FAST - SLOW - OFF - AUTO FSOR FAST - SLOW - OFF - REMOTE HOA HAND - OFF - AUTOMATIC HOR HAND - OFF - REMOTE LES LOCAL EMERGENCY STOP LOR LOCAL - OFF - REMOTE LR LOCAL - REMOTE MA MANUAL - AUTO O/C OPEN / CLOSE O/O ON / OFF O OPEN OOA ON - OFF - AUTO OOR ON - OFF - REMOTE RST RESET S/F SLOW / FAST S/S START / STOP SIL SILENCE STRT START STOP STOP TEST TEST</p>	<p>SELECTOR SWITCH</p> <p>XXX SPECIFIC SWITCH FUNCTION (TYP)</p>
---	--

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

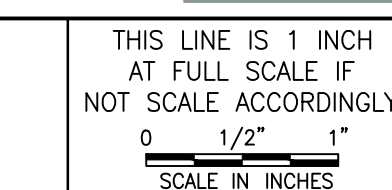
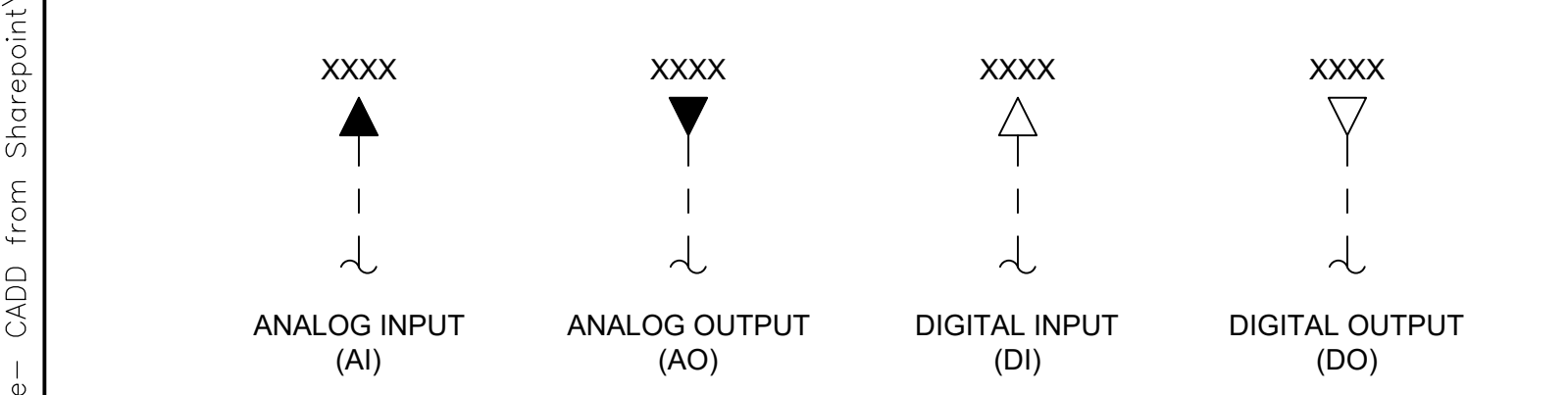
	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	PRIMARY AUXILIARY LOCATION NORMALLY NOT ACCESSIBLE TO OPERATOR	SECONDARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	SECONDARY AUXILIARY LOCATION NORMALLY NOT ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	XX ZZ	XX ZZ	XX ZZ	XX ZZ	XX ZZ
COMPUTER FUNCTION, SHARED DISPLAY, OR CONTROL (NOTE 5)	XX ZZ	N/A	XX ZZ	XX ZZ	XX ZZ
PROGRAMMABLE LOGIC CONTROLLER	XX ZZ	N/A	XX ZZ	XX ZZ	XX ZZ
PILOT LIGHT	XX ZZ	XX ZZ	N/A	XX ZZ	N/A



INSTRUMENT LINE SYMBOLS

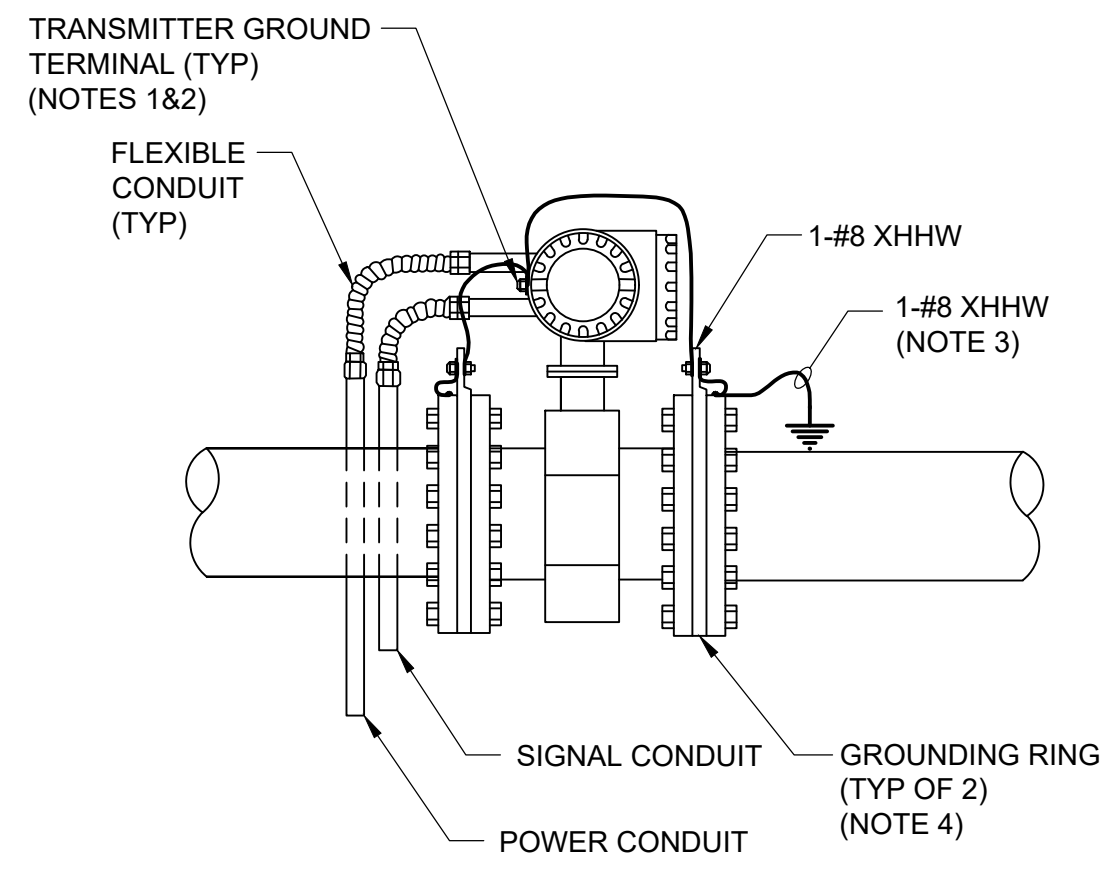


CONTROLLER INPUT/OUTPUT (I/O) SYMBOLS



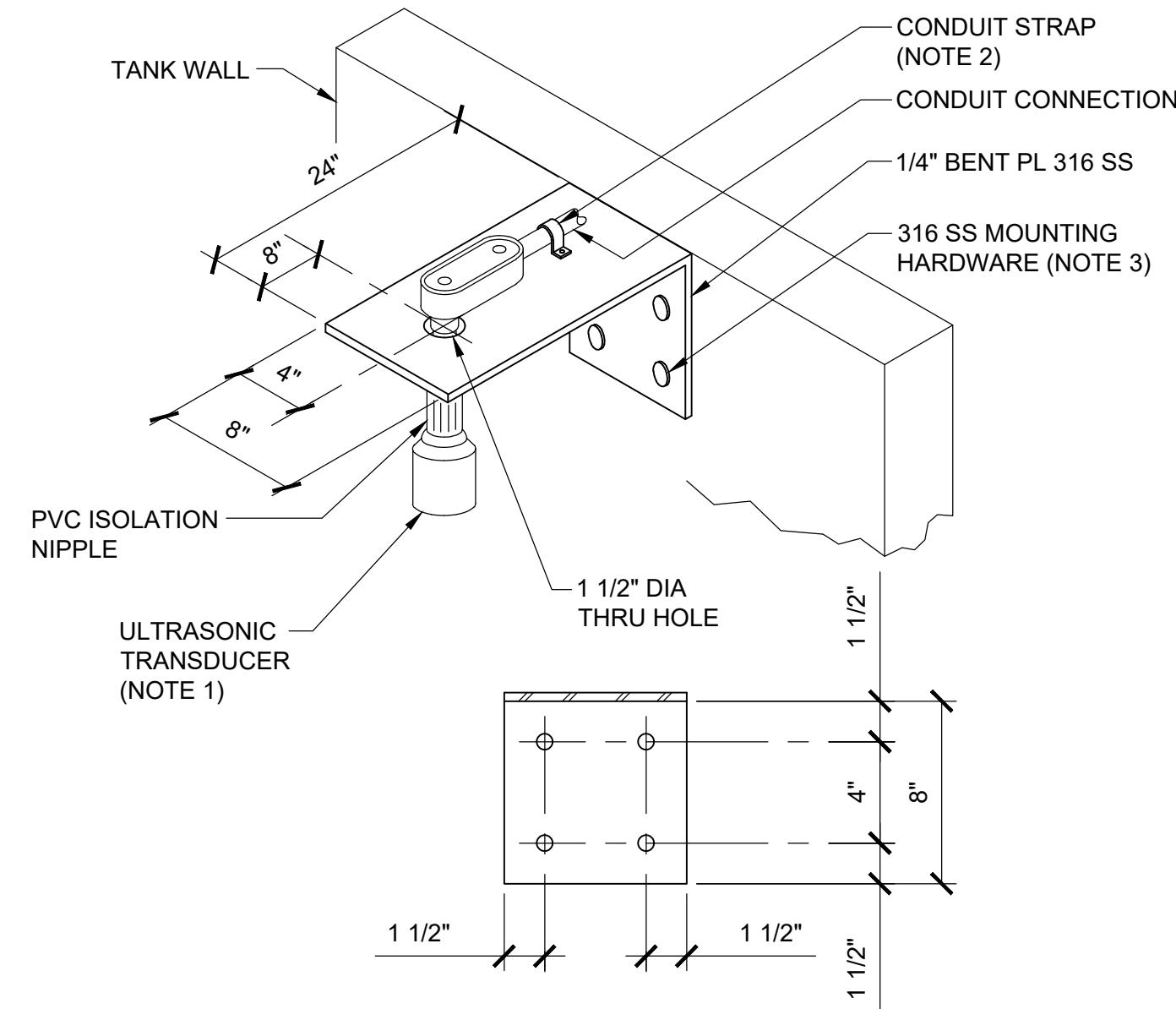
THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

C:\Users\AndriaPrior\TUCAA Dropbox\Andria Prior\W Drive- CADD from Sharepoint\2022 Projects\122044 - PWTWP Filter Improvements\Inst\GI-003.dwg 5--25--23 01:42:38 PM AndriaPrior



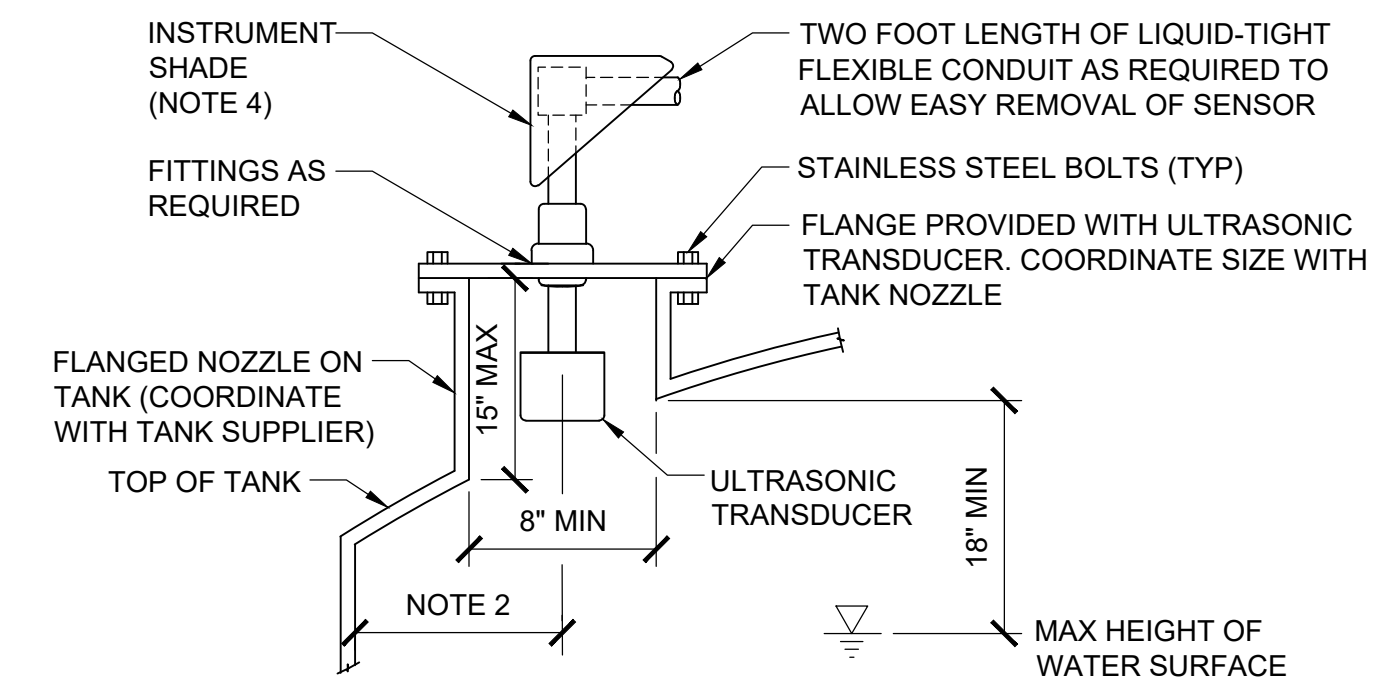
- NOTES:**
1. VERIFY ZERO GROUND POTENTIAL BETWEEN FLOW TUBE AND TRANSMITTER GROUND TERMINAL.
 2. CONNECT TRANSMITTER GROUNDING TERMINAL TO GROUND RINGS.
 3. CONNECT METER BODY TO EARTH GROUND POTENTIAL.
 4. INSTALL GROUNDING RINGS TO EQUALIZE POTENTIAL BETWEEN FLUID AND MAGMETER.

INTEGRAL MAGNETIC FLOW METER GROUNDING
DETAIL 40001
 NTS VAR



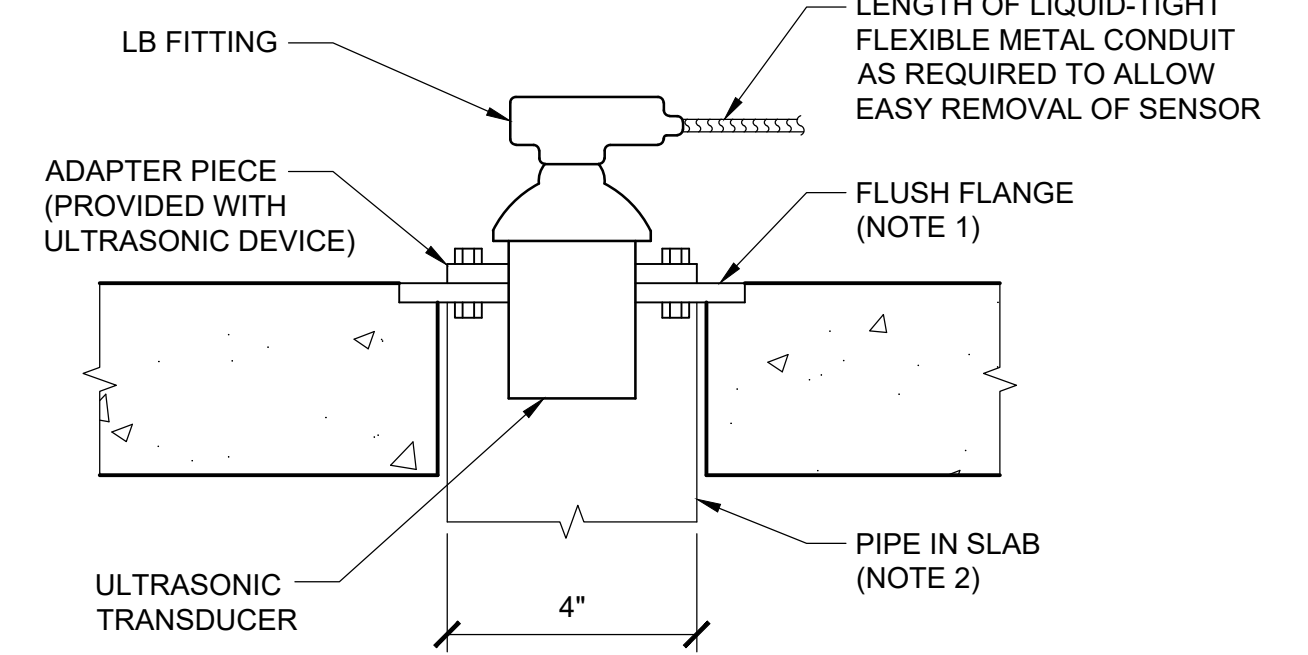
- NOTES:**
1. PROVIDE AND INSTALL ULTRASONIC TRANSDUCER IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
 2. ATTACH WITH HILTI BI-METAL KWIK-FLEX STAINLESS STEEL SCREW (OR EQUAL).
 3. MINIMUM MOUNTING HARDWARE SHALL BE FOUR 3/8" DIAMETER STAINLESS STEEL HILTI KWIK-BOLT TZ EXPANSION ANCHORS (OR EQUAL) WITH 2 1/2" MINIMUM EMBEDMENT.

ULTRASONIC TRANSDUCER OPEN CHANNEL/TANK INSTALLATION
DETAIL 40101
 NTS VAR



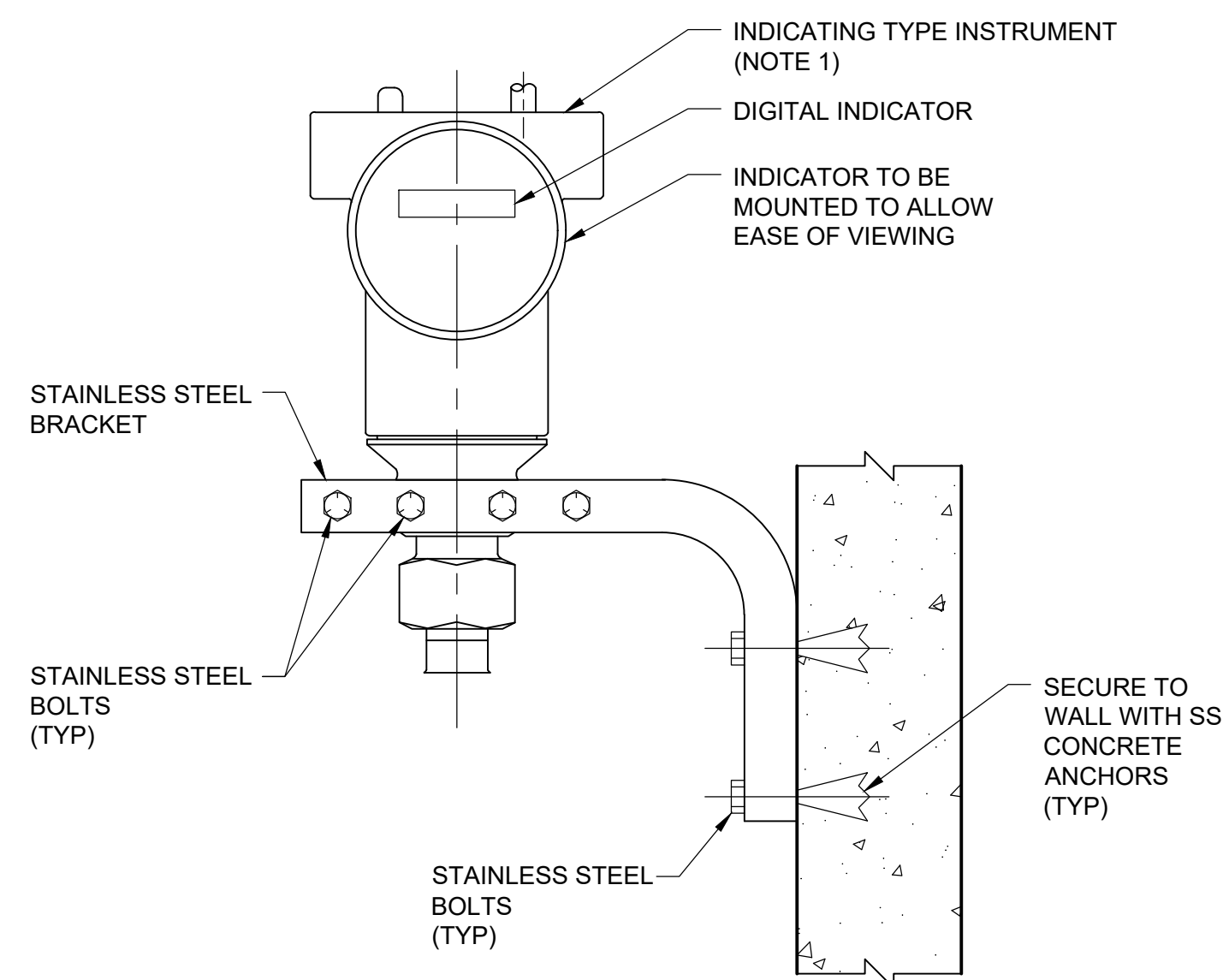
- NOTES:**
1. PROVIDE AND INSTALL ULTRASONIC TRANSDUCER IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
 2. MINIMUM OFFSET OF NOZZLE FROM INTERIOR TANK WALL SHALL BE 2'-0" FOR A MEASURING RANGE OF 0'-18" (FROM TRANSDUCER FACE). FOR MEASURING RANGES GREATER THAN 0'-18" REFER TO THE SPECIFICATIONS.
 3. PROVIDE A CHEMICALLY IMPERVIOUS COATING EXTENDING OVER THE ENTIRE FLANGE FACE FOR CORROSIVE ENVIRONMENTS.
 4. PROVIDE INSTRUMENT SUNSHIELD BY ANDERSON GREENWOOD INSTRUMENTATION MODEL 5L; OR APPROVED EQUAL. OPENED AREA SHALL BE INSTALLED FACING NORTH.

ULTRASONIC LEVEL SENSOR CLOSED TOP TANK INSTALLATION
DETAIL 40102
 NTS VAR



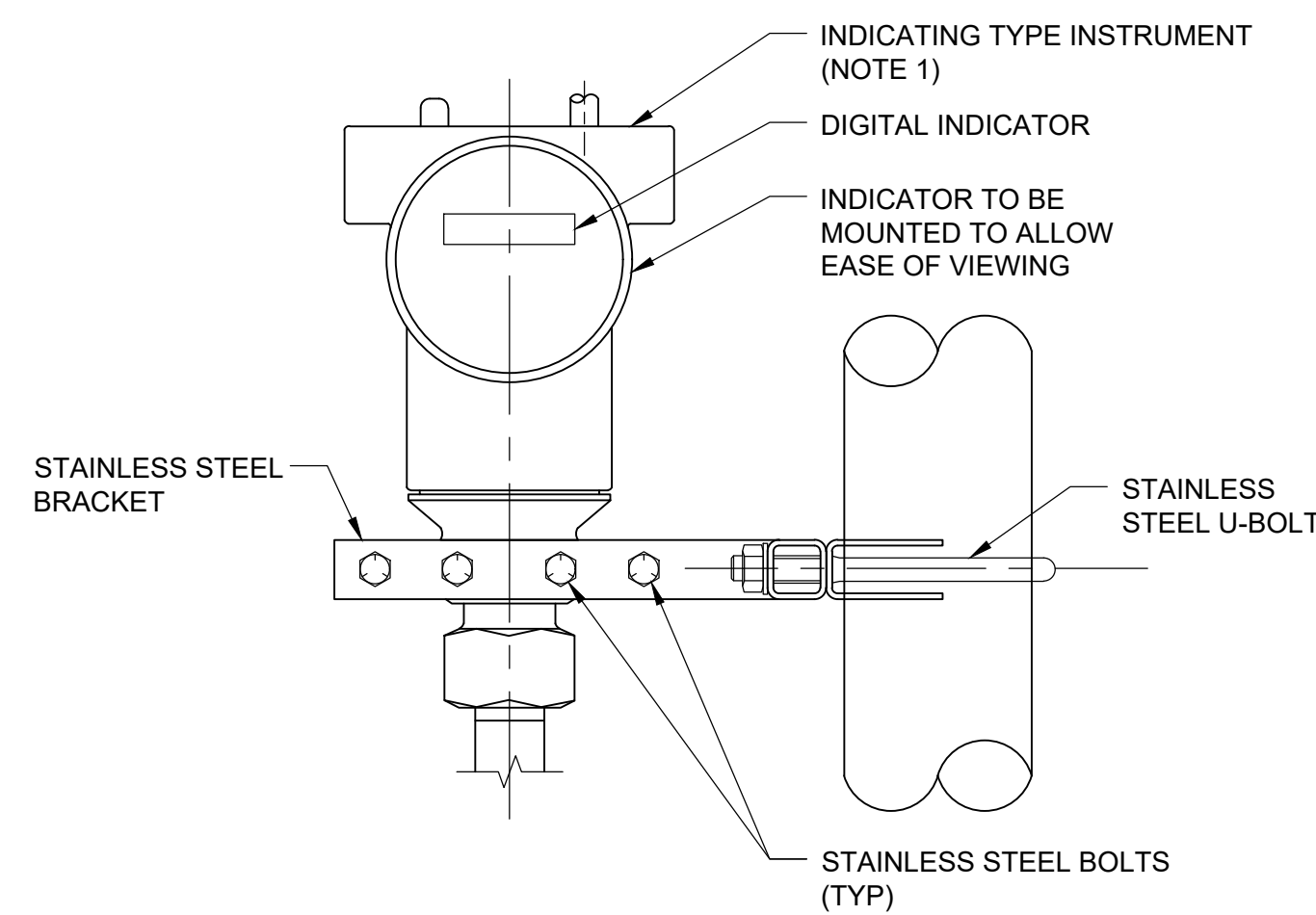
- NOTES:**
1. REFER TO MECHANICAL DRAWINGS FOR PIPE IN SLAB PENETRATION REQUIREMENTS.
 2. PROVIDE A 4-INCH DIAMETER PVC PIPE WITH A VENT HOLE FOR A STILLING WELL UNLESS OTHERWISE NOTED.

ULTRASONIC LEVEL SENSOR IN SLAB PENETRATION
DETAIL 40103
 NTS VAR



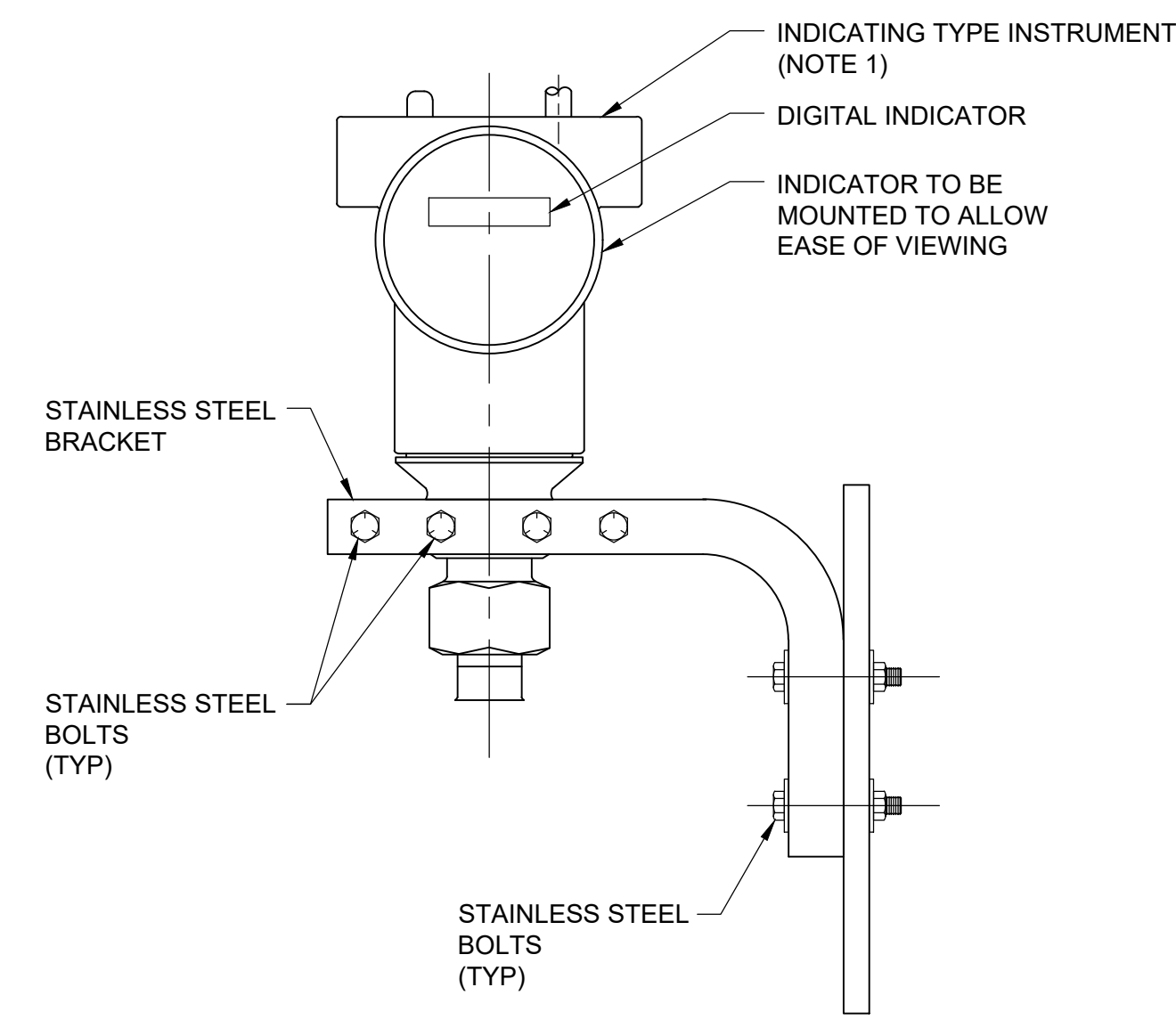
- NOTES:**
1. DIAPHRAGM SEAL, MANIFOLD, AND PROCESS CONNECTIONS NOT SHOWN. REFER TO DETAILS 40204 AND 40205.

DIFFERENTIAL, GAUGE, AND ABSOLUTE PRESSURE INSTRUMENT WALL MOUNTED INSTALLATION
DETAIL 40201
 NTS VAR



- NOTES:**
1. DIAPHRAGM SEAL, MANIFOLD, AND PROCESS CONNECTIONS NOT SHOWN. REFER TO DETAILS 40204 AND 40205.

DIFFERENTIAL, GAUGE, AND ABSOLUTE PRESSURE INSTRUMENT PIPE MOUNTED INSTALLATION
DETAIL 40202
 NTS VAR



- NOTES:**
1. DIAPHRAGM SEAL, MANIFOLD, AND PROCESS CONNECTIONS NOT SHOWN. REFER TO DETAILS 40204 AND 40205.

DIFFERENTIAL, GAUGE, AND ABSOLUTE PRESSURE INSTRUMENT STANCHION MOUNTED INSTALLATION
DETAIL 40203
 NTS VAR

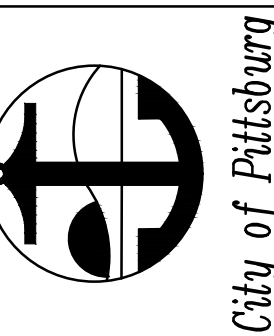
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 0 1/2" 1"
 SCALE IN INCHES

PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:



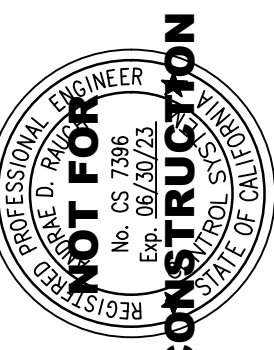
WATER TREATMENT PLANT FILTER REHABILITATION AND HYPOCHLORITE CONVERSION
 INSTRUMENTATION STANDARD DETAILS - 1

BY: DRAWN:ADP
 CHECKED:ADR
 REVIEWED:--
 DATE: 6/2/23
 SCALE: NTS

DATE	REV	DESCRIPTION

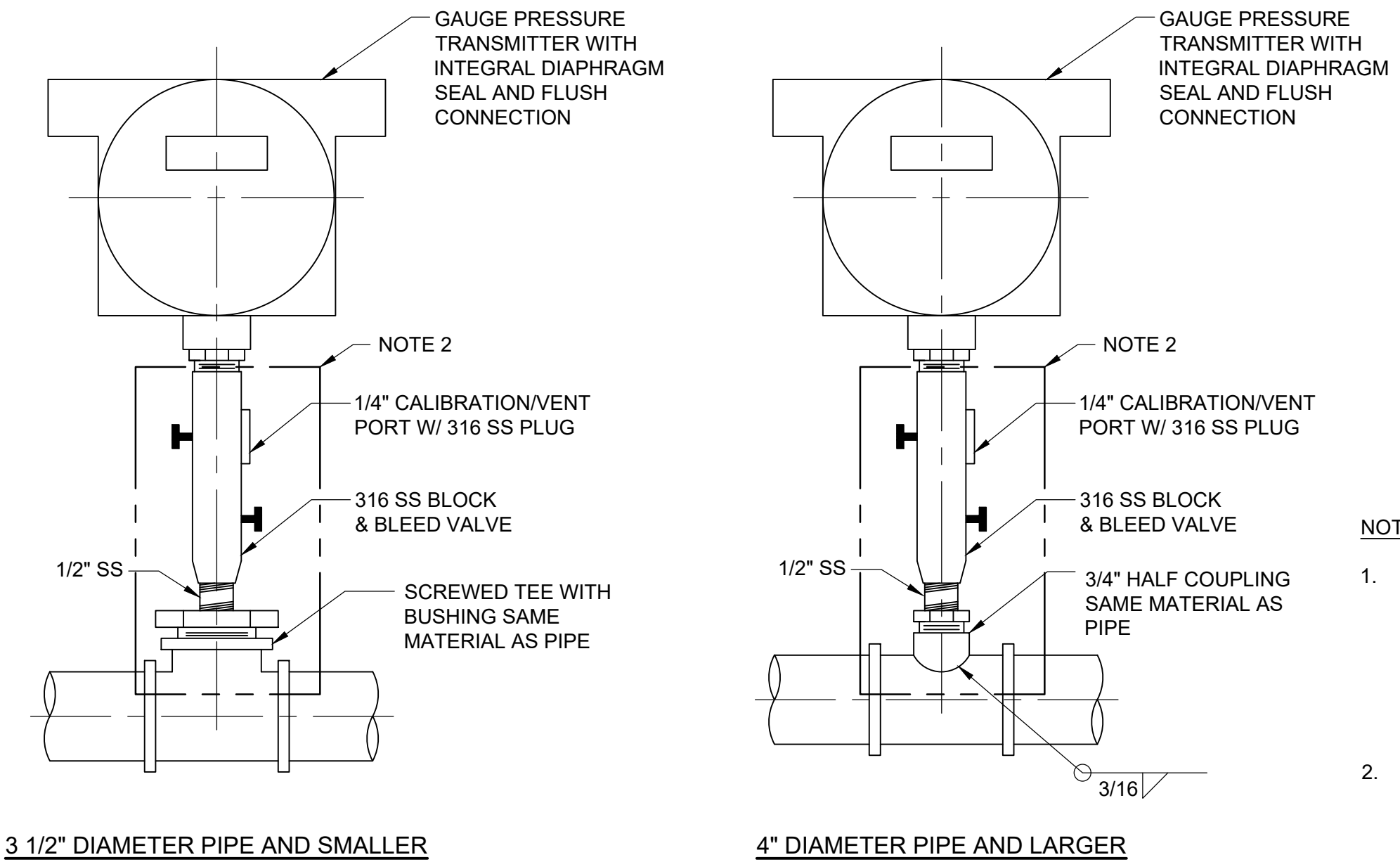
SHEET NO. # OF #

DWG. NO. G1003



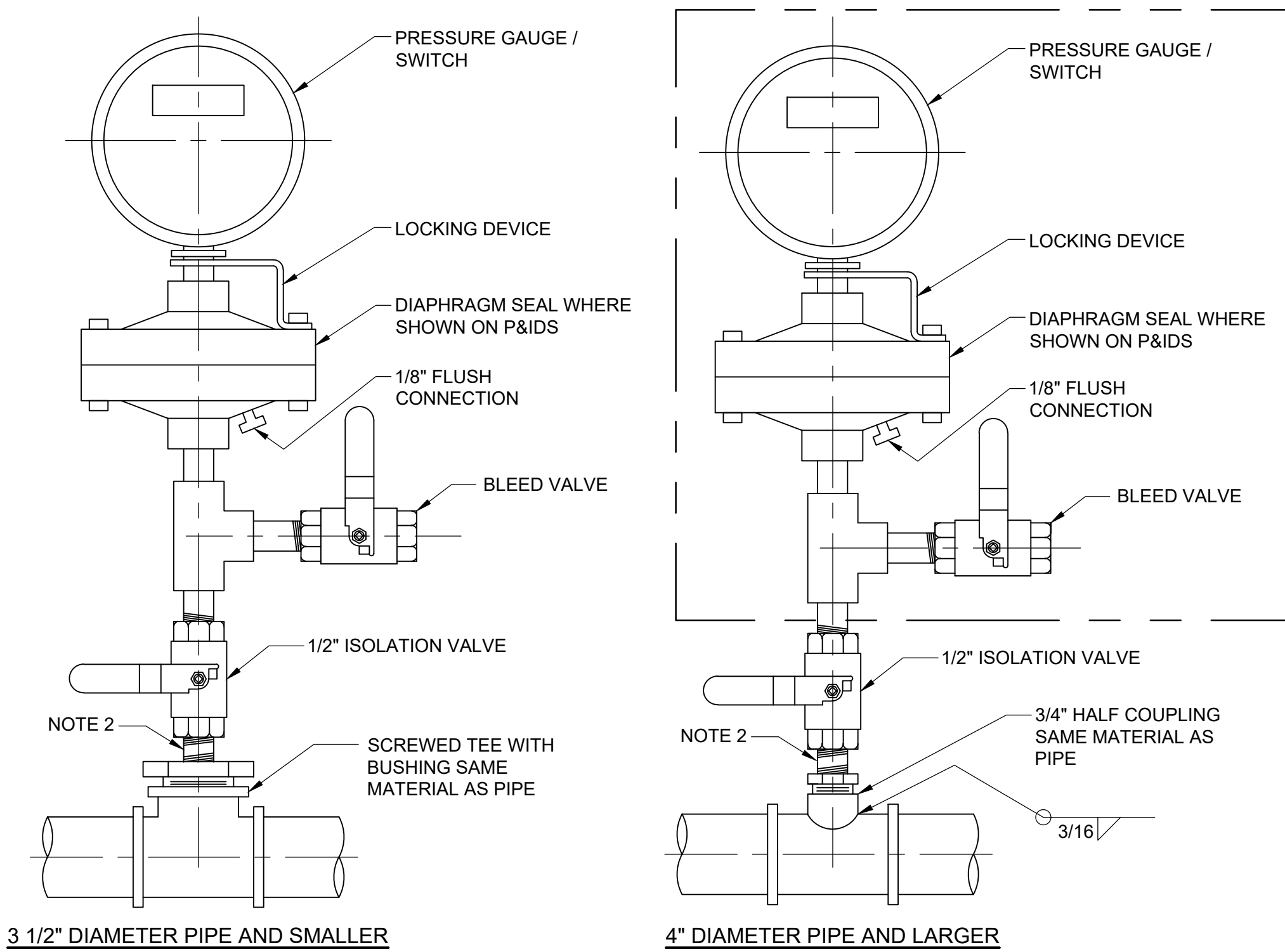
JOHN SAMUELSON
 City Engineer
 DATE: _____

C:\Users\AndriaPrior\TUCAA Dropbox\Andria Prior\W Drive- CADD from Sharepoint\2022 Projects\122044 - PWTWP Filter Improvements\Inst\GI-004.dwg 5--25--23 01:41:21 PM AndriaPrior



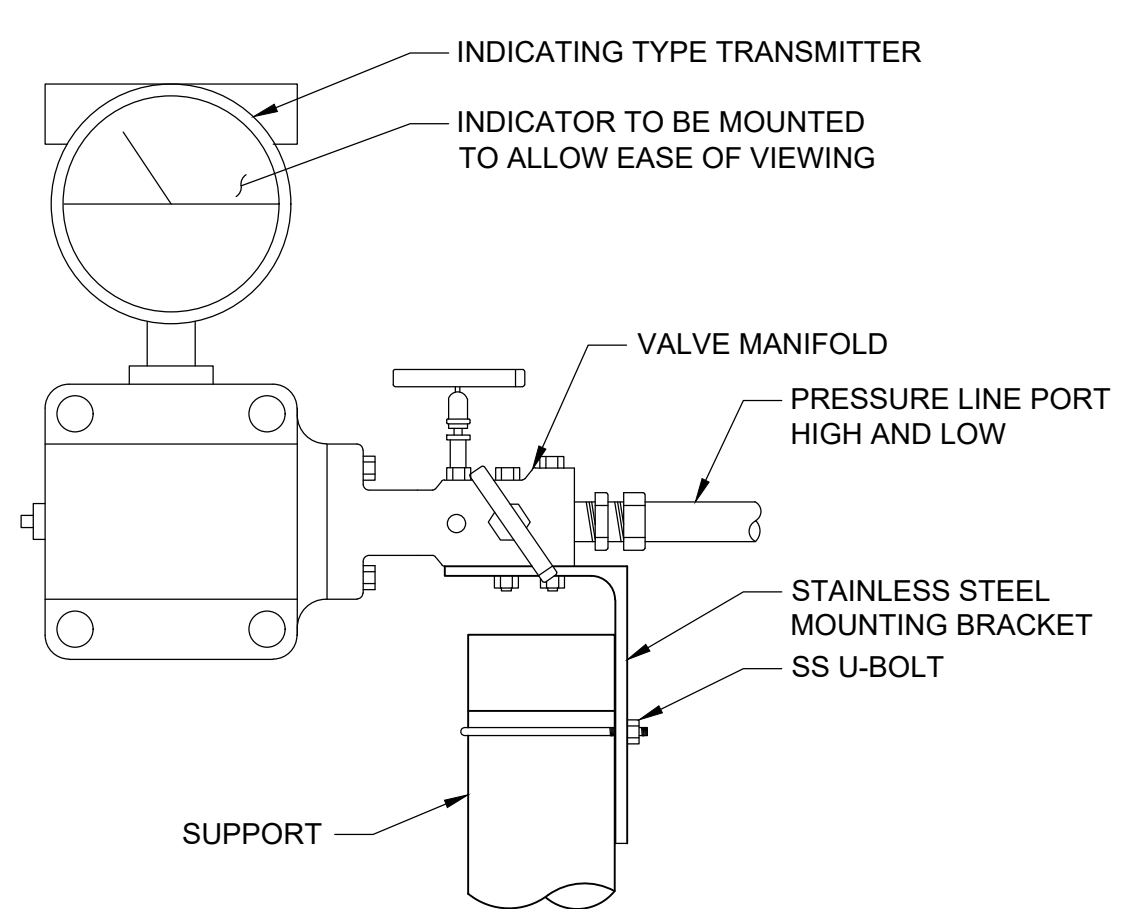
DIRECT PIPE MOUNT
GAUGE PRESSURE TRANSMITTER
DETAIL 40204
NTS VAR

- NOTES:**
1. STAINLESS STEEL PIPING SHOWN. PROVIDE 316 STAINLESS STEEL PIPING AND VALVES. FOR PLASTIC LINES, PROVIDE PLASTIC PIPING AND VALVES. FOR ALL OTHER LINES, PROVIDE BRASS OR BRONZE. REFER TO DIVISION 23 FOR REQUIREMENTS.
 2. TYPICAL MANIFOLD CONNECTION AND ISOLATION VALVE ARE SHOWN. ISOLATION VALVE, MANIFOLD TYPE AND CONNECTIONS ARE AS REQUIRED PER SPECIFICATION SECTION 40 73 00. PROVIDE REQUIRED MANIFOLDS AND ISOLATION VALVE PER DETAIL 40211.

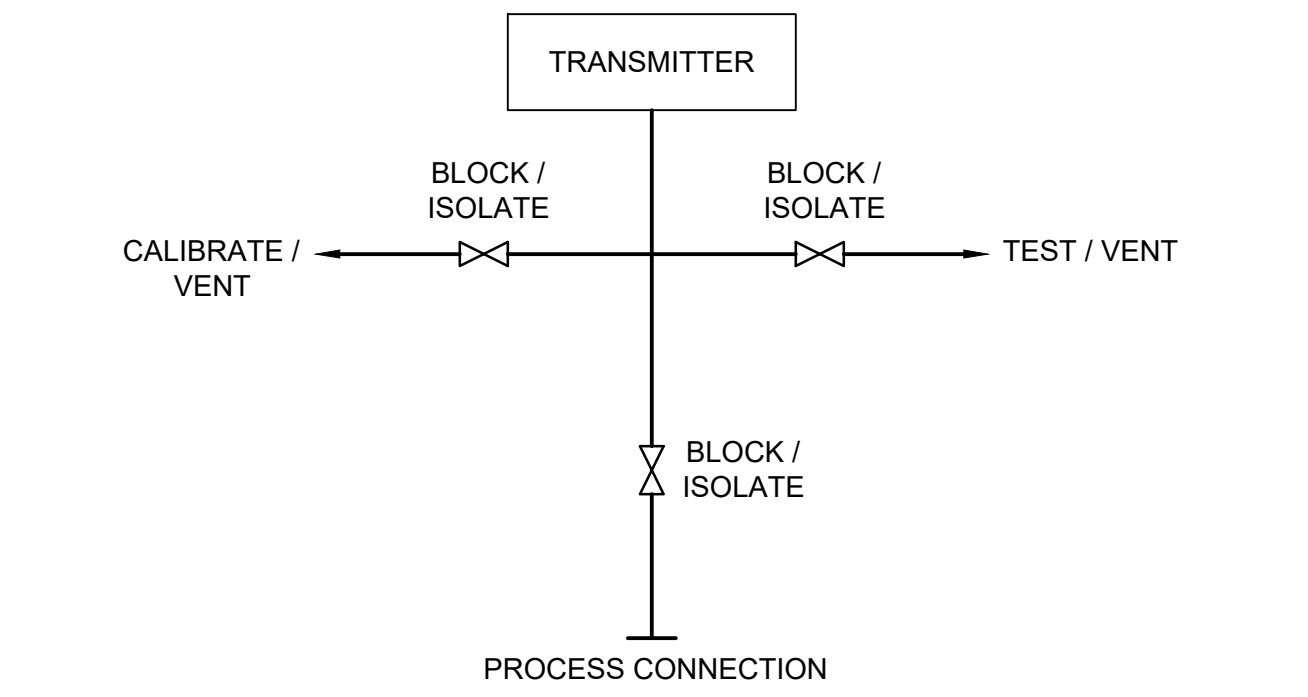


DIRECT PIPE MOUNT
PRESSURE GAUGE / SWITCH
DETAIL 40205
NTS VAR

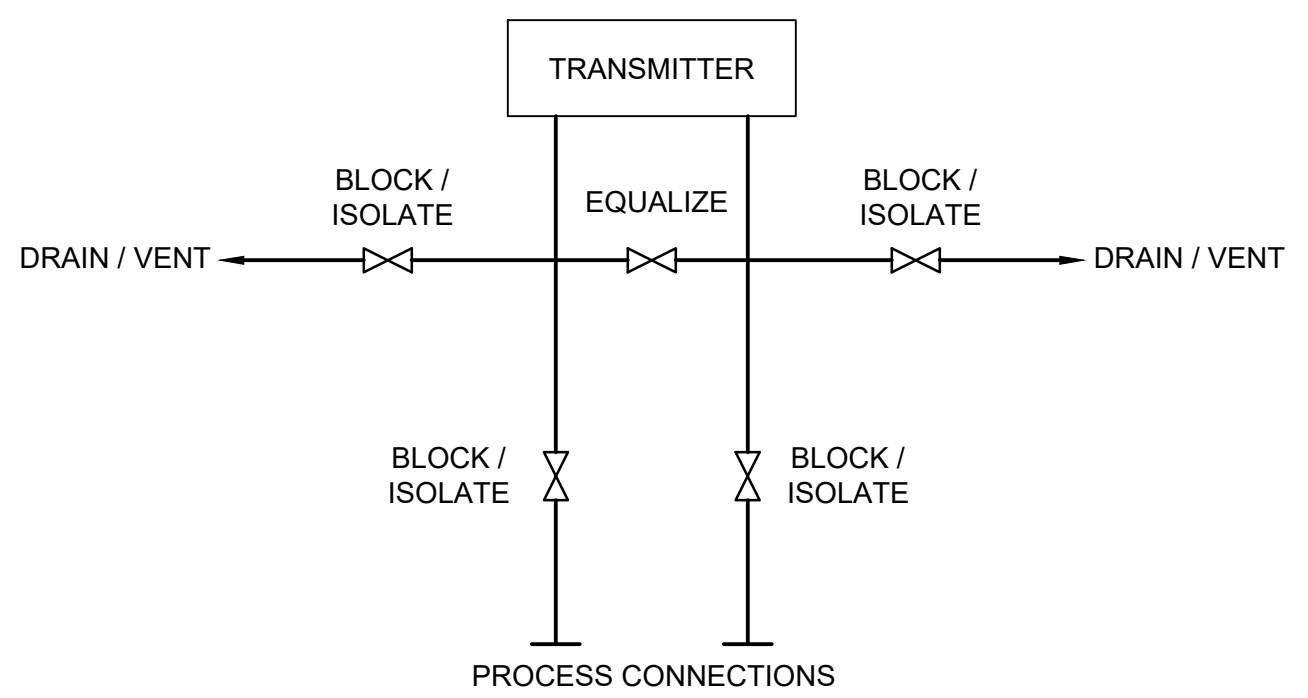
- NOTES:**
1. STAINLESS STEEL PIPING SHOWN. PROVIDE 316 STAINLESS STEEL PIPING AND VALVES. FOR PLASTIC LINES, PROVIDE PLASTIC PIPING AND VALVES. FOR ALL OTHER LINES, PROVIDE BRASS OR BRONZE. REFER TO DIVISION 15 FOR REQUIREMENTS.
 2. PROVIDE MINIMUM 1/4" STAINLESS STEEL PROCESS CONNECTION FOR CLEAN WATER APPLICATIONS OR 1/2" STAINLESS STEEL PROCESS CONNECTION FOR FLUIDS WITH SUSPENDED SOLIDS. PROVIDE TRI-CLAMP FITTINGS FOR SLUDGE APPLICATIONS.
 3. WHERE SHOWN ON P&ID WITH MULTIPLE PRESSURE INSTRUMENTS ON THE SAME PROCESS CONNECTION, PROVIDE EACH PRESSURE INSTRUMENT WITH SEPARATE DIAPHRAGM SEAL AND BLEED VALVE.



DIFFERENTIAL AND GAUGE
PRESSURE TRANSMITTER MOUNTING
DETAIL 40207
NTS VAR

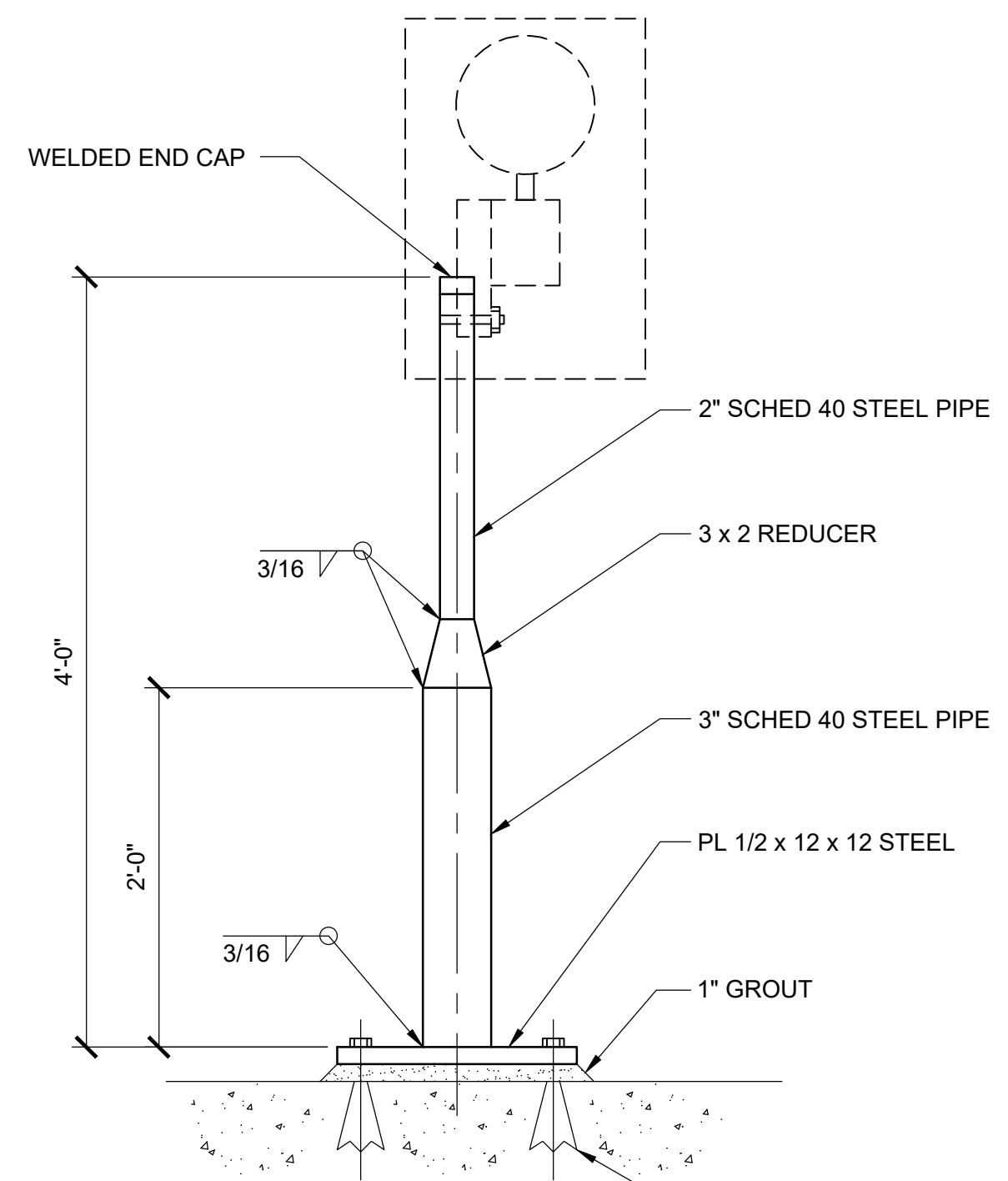


THREE - VALVE MANIFOLD CONNECTION DIAGRAM
FOR ABSOLUTE AND GAGE PRESSURE TRANSMITTER



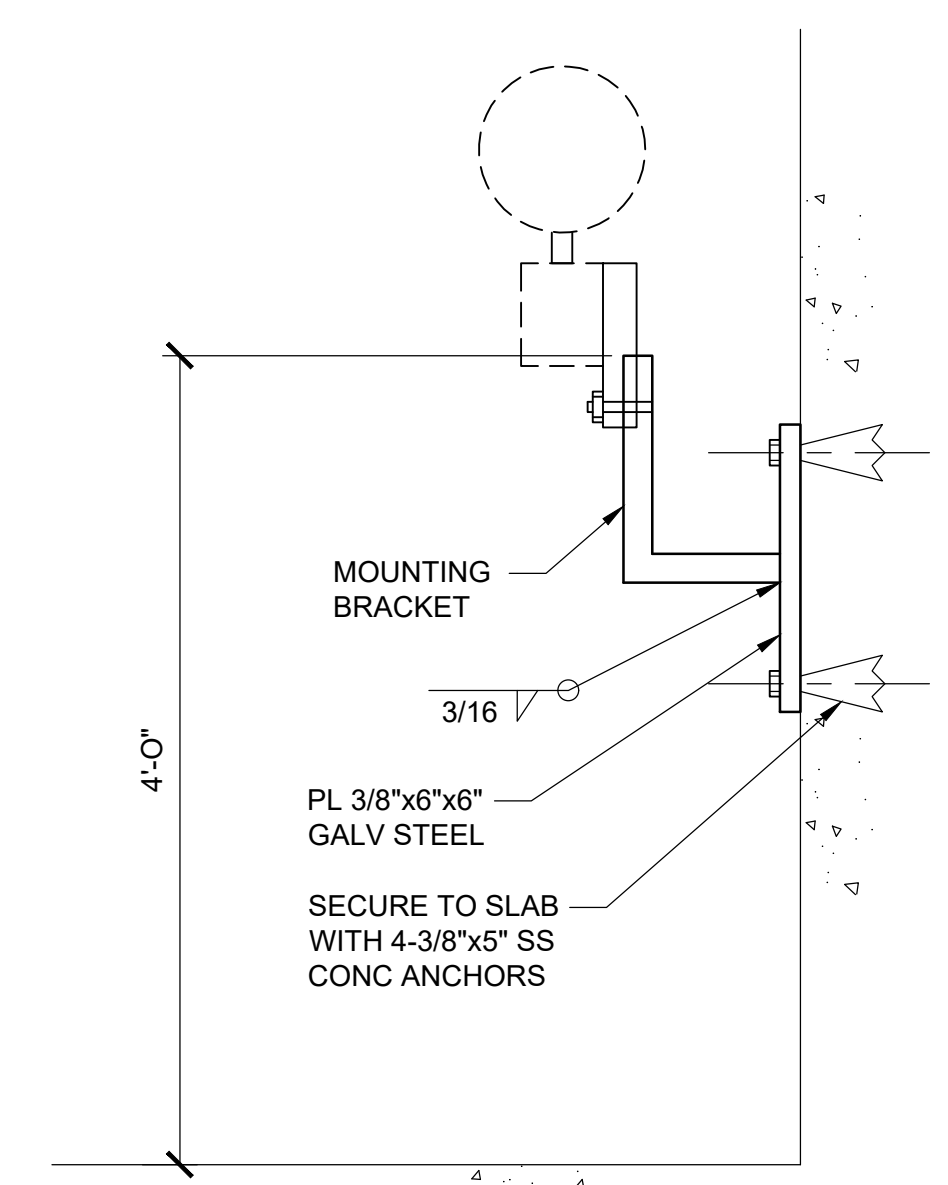
FIVE - VALVE MANIFOLD CONNECTION DIAGRAM
FOR DIFFERENTIAL PRESSURE TRANSMITTER

VALVE MANIFOLD CONNECTION DIAGRAM
DETAIL 40211
NTS VAR



- NOTE:**
1. HOT DIP GALVANIZE ENTIRE ASSEMBLY AFTER FABRICATION.

INSTRUMENT MOUNTING
FLOOR STANCHION SUPPORT
DETAIL 40301
NTS VAR



- NOTE:**
1. HOT DIP GALVANIZE ENTIRE ASSEMBLY AFTER FABRICATION.

INSTRUMENT MOUNTING
CONCRETE WALL
DETAIL 40302
NTS VAR



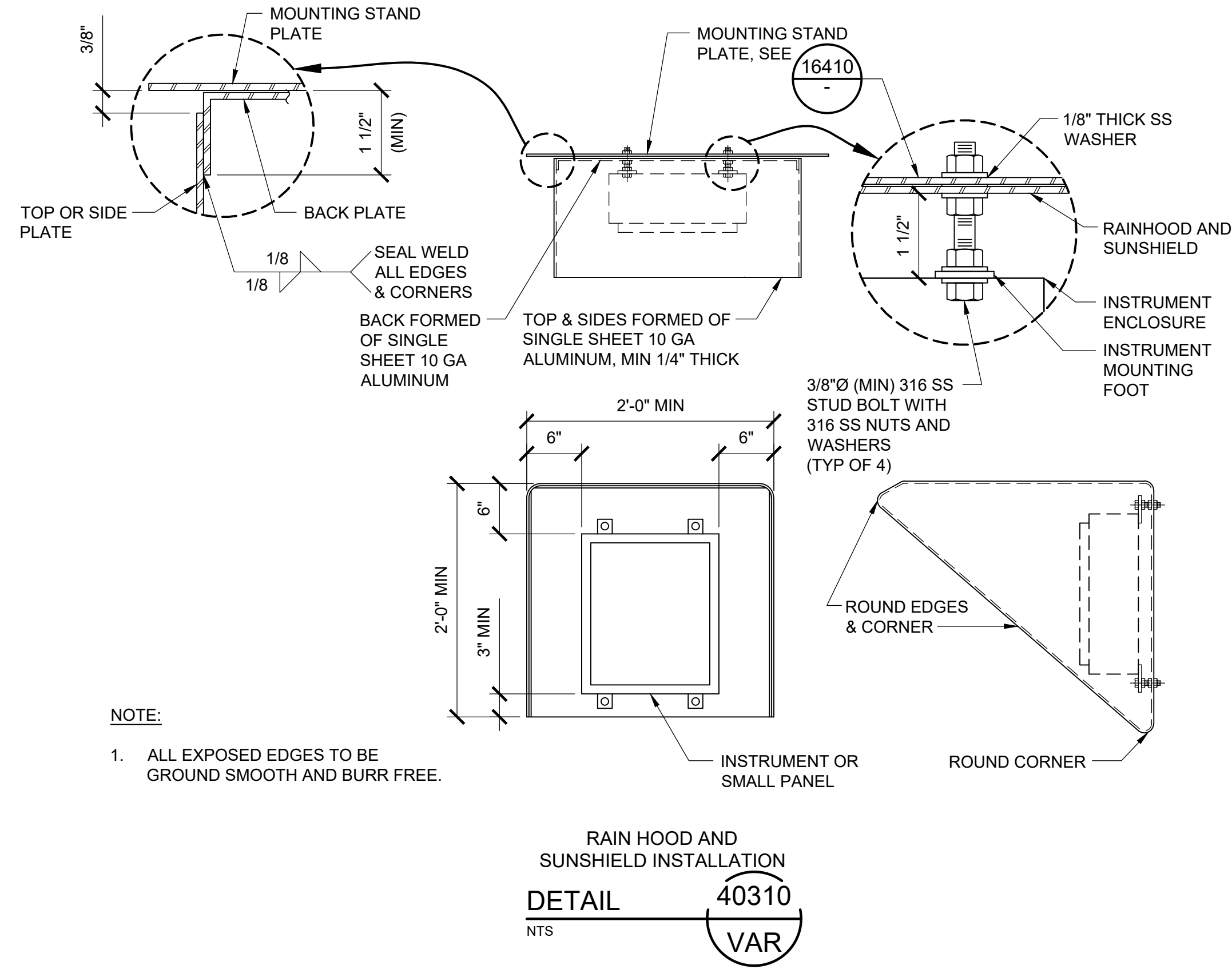
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0 1/2" 1"
SCALE IN INCHES

**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
INSTRUMENTATION
STANDARD DETAILS II

DATE	REV	DESCRIPTION	BY	DRAWN:ADP	CHECKED:ADR	REVIEWED:-	DATE: 6/2/23	SCALE: NTS

PREPARED UNDER THE DIRECTION OF: JOHN SAMUELSON
ACCEPTED FOR USE: JOHN SAMUELSON, City Engineer
DATE: _____

SHEET NO. # OF #
DWG. NO. G1004

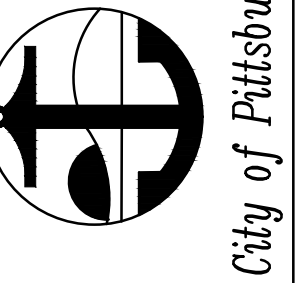


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0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN:ADP
				CHECKED:ADR
				REVIEWED:—
				DATE: 6/2/23
				SCALE: NTS

SHEET NO.
OF

DWG. NO.
GI005

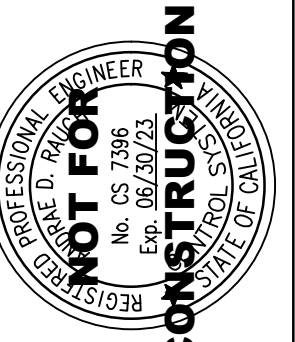


City of Pittsburgh

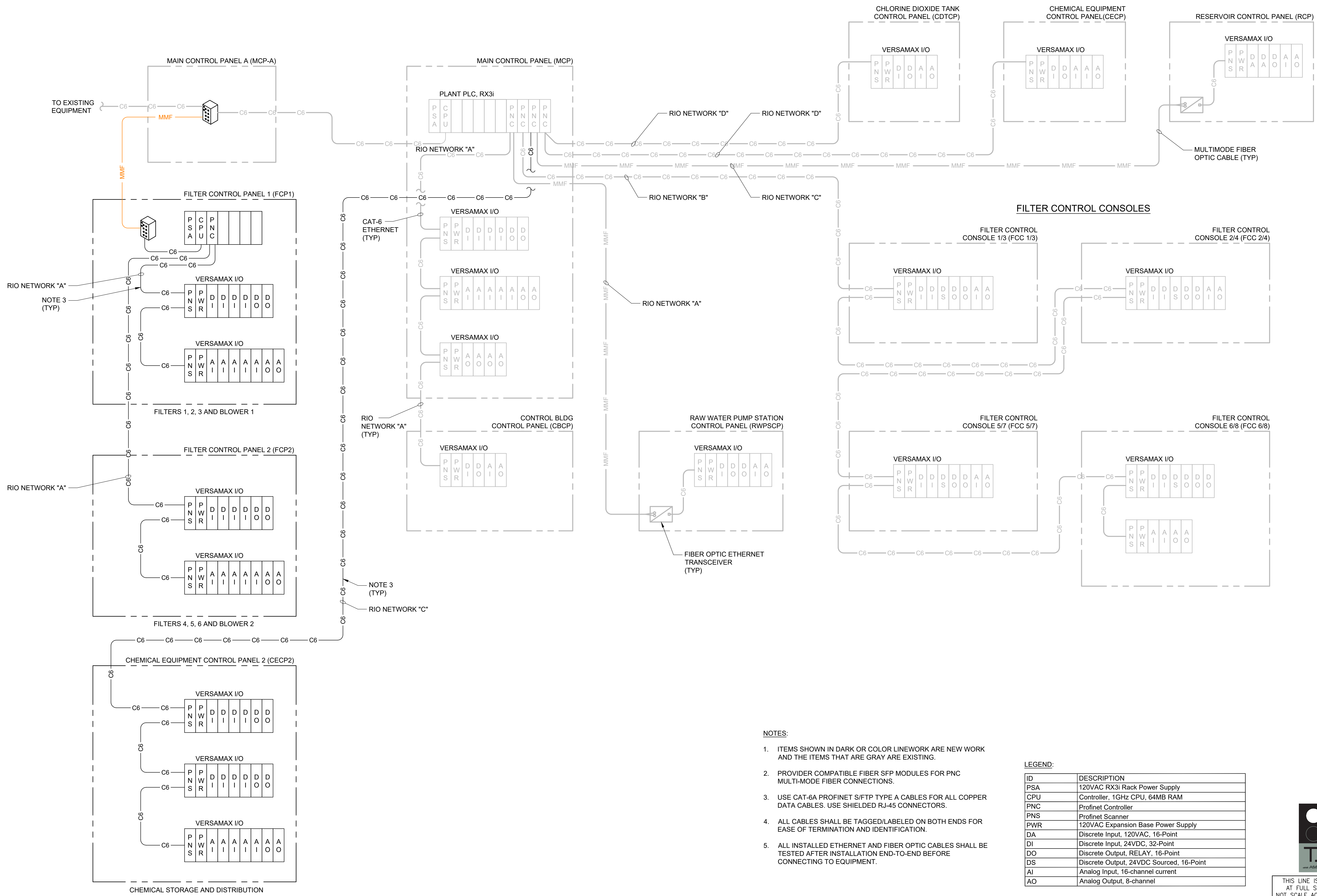
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
INSTRUMENTATION
STANDARD DETAILS III

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____



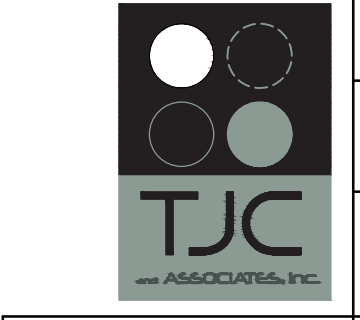
C:\Users\Andria\Prior\TUCAA Dropbox\Andria Prior\W Drive- CADD from Sharepoint\2022 Projects\122044 - PWT Filter Improvements\inst\1-010.dwg 5-25-23 01:54:05 PM AndriaPrior



- NOTES:**
- ITEMS SHOWN IN DARK OR COLOR LINEWORK ARE NEW WORK AND THE ITEMS THAT ARE GRAY ARE EXISTING.
 - PROVIDER COMPATIBLE FIBER SFP MODULES FOR PNC MULTI-MODE FIBER CONNECTIONS.
 - USE CAT-6A PROFINET S/FTP TYPE A CABLES FOR ALL COPPER DATA CABLES. USE SHIELDED RJ-45 CONNECTORS.
 - ALL CABLES SHALL BE TAGGED/LABELED ON BOTH ENDS FOR EASE OF TERMINATION AND IDENTIFICATION.
 - ALL INSTALLED ETHERNET AND FIBER OPTIC CABLES SHALL BE TESTED AFTER INSTALLATION END-TO-END BEFORE CONNECTING TO EQUIPMENT.

LEGEND:

ID	DESCRIPTION
PSA	120VAC RX3i Rack Power Supply
CPU	Controller, 1GHz CPU, 64MB RAM
PNC	Profinet Controller
PNS	Profinet Scanner
PWR	120VAC Expansion Base Power Supply
DA	Discrete Input, 120VAC, 16-Point
DI	Discrete Input, 24VDC, 32-Point
DO	Discrete Output, RELAY, 16-Point
DS	Discrete Output, 24VDC Sourced, 16-Point
AI	Analog Input, 16-channel current
AO	Analog Output, 8-channel



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 0 1/2" 1"
 SCALE IN INCHES

ORIGINAL PAGE SIZE: 22"x34"

**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 P&ID - NETWORK DIAGRAM

City of Pittsburg

DATE: 6/2/23
 SCALE: NTS

BY: _____
 CHECKED: ADP
 REVIEWED: _____
 DATE: 6/2/23
 SCALE: NTS

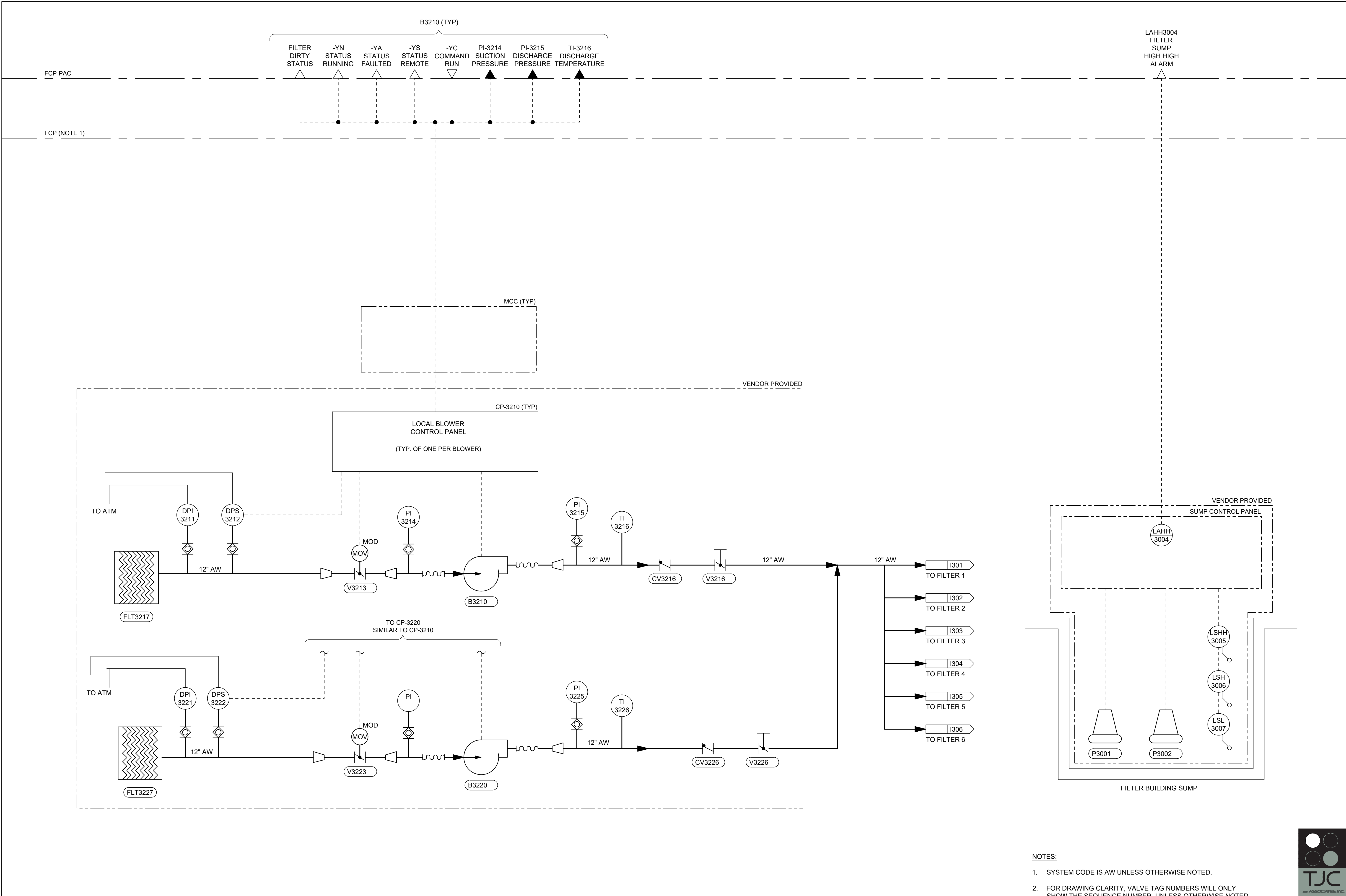
DATE REV _____
 SHEET NO. # OF #
 DWG. NO. 1010

PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 City Engineer
 DATE: _____

ACCEPTED FOR USE:
 JOHN SAMUELSON
 City Engineer
 DATE: _____

NOT FOR CONSTRUCTION
 PROFESSIONAL ENGINEER
 No. CS 7396
 Exp. 06/30/23
 JOHN D. RAY

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ORIGINAL PAGE SIZE: 22"x34"

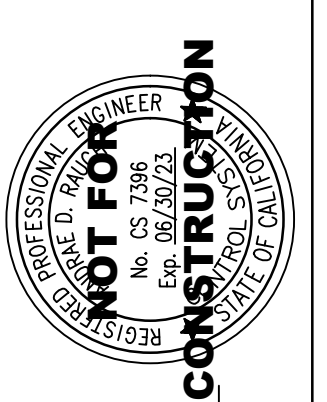
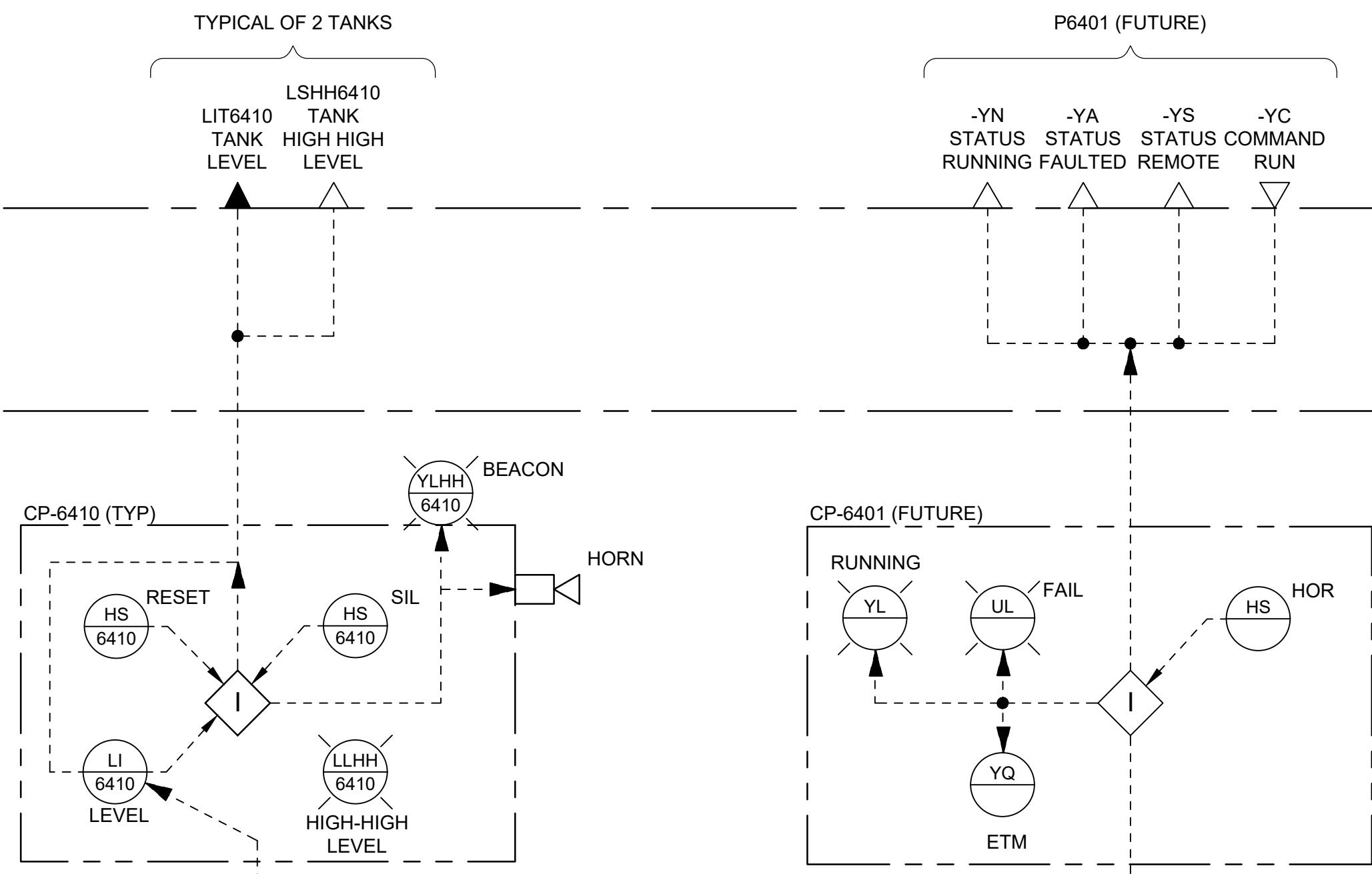
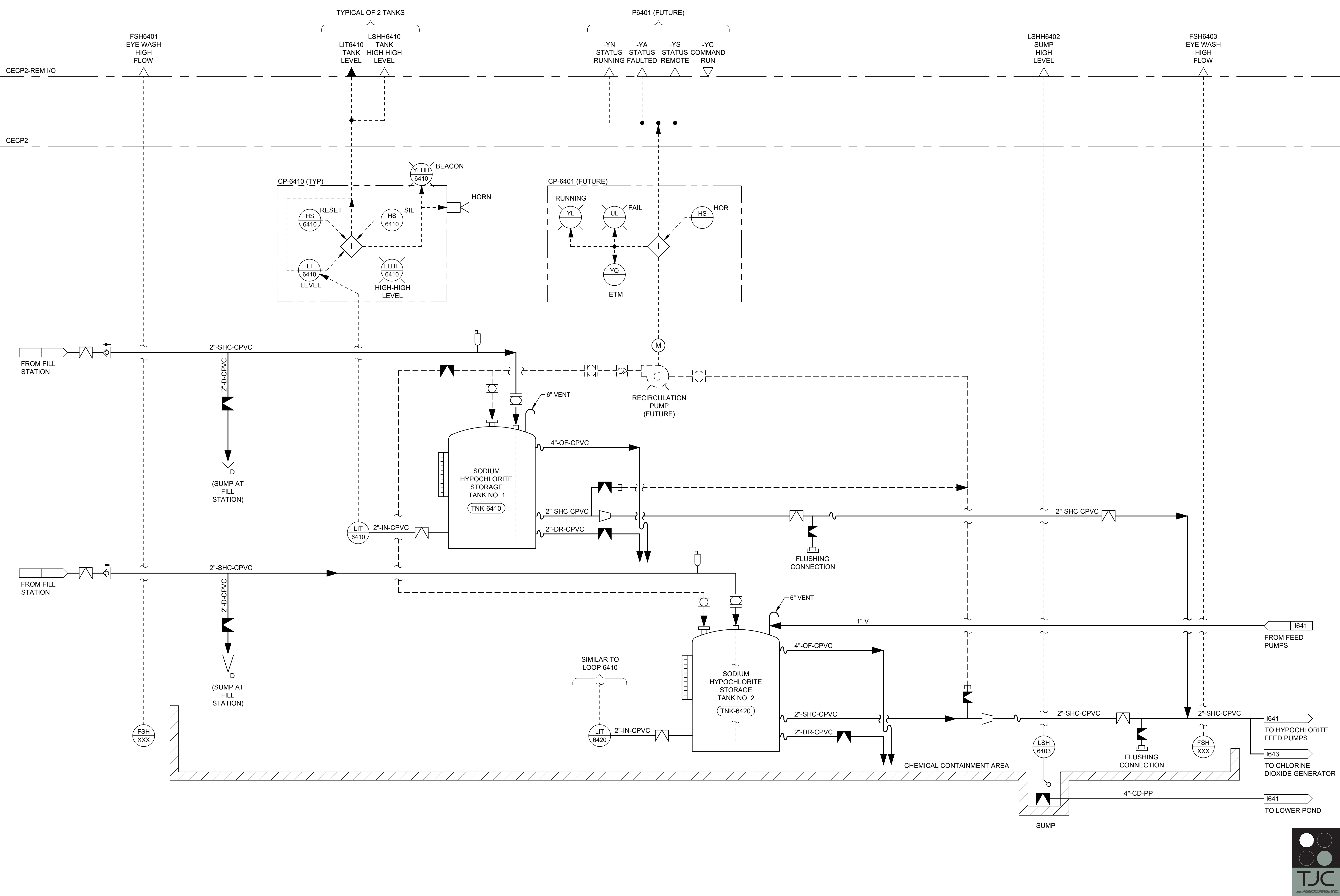
- NOTES:**
1. SYSTEM CODE IS AW UNLESS OTHERWISE NOTED.
 2. FOR DRAWING CLARITY, VALVE TAG NUMBERS WILL ONLY SHOW THE SEQUENCE NUMBER, UNLESS OTHERWISE NOTED.
 3. LOCAL CONTROL DEVICES, SUCH AS LIGHTS AND SWITCHES LOCATED ON MCCs OR ON EQUIPMENT, MAY NOT BE SHOWN.



THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES

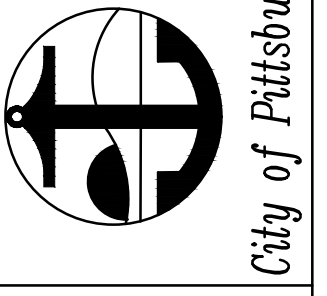
	PREPARED UNDER THE DIRECTION OF: JOHN SAMUELSON City Engineer DATE:
	ACCEPTED FOR USE: JOHN SAMUELSON City Engineer Date:
WATER TREATMENT PLANT FILTER REHABILITATION AND HYPOCHLORITE CONVERSION P&ID - AIR SCOUR BLOWERS AND SUMP	
BY: _____ DESCRIPTION: _____	DRAWN: ADP CHECKED: ADR REVIEWED: - DATE: 6/2/23 SCALE: NTS
DATE: _____ REV: _____	SHEET NO. # OF #
DWG. NO. 1320	

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PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 City Engineer
 DATE:

ACCEPTED FOR USE:
 JOHN SAMUELSON
 City Engineer
 Date:



**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 P&ID - SODIUM HYPOCHLORITE STORAGE SYSTEM

BY	ADP
CHECKED	ADR
REVIEWED	-
DATE	6/2/23
SCALE	NTS

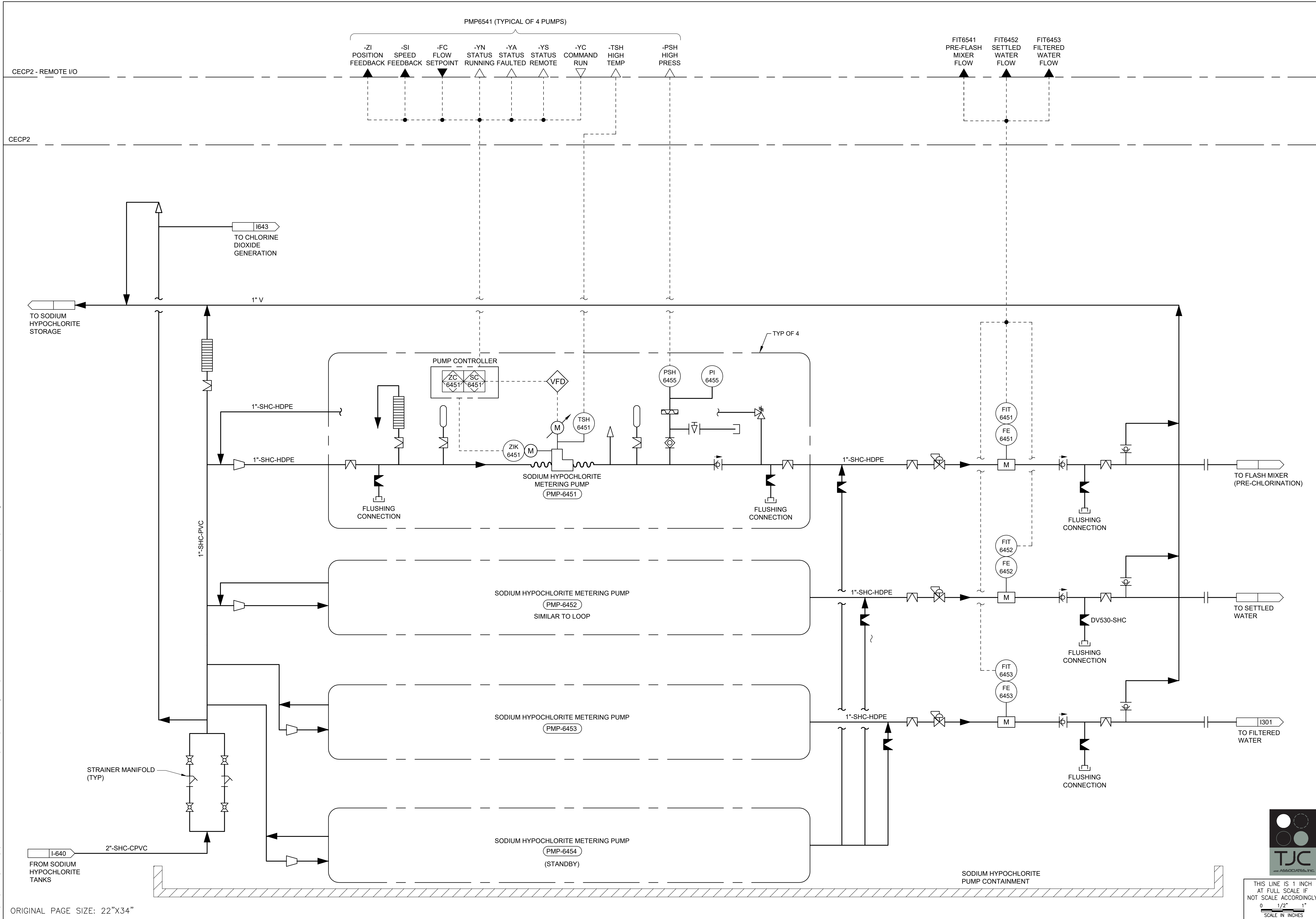
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SHEET NO. # OF #
 DWG. NO. 1640



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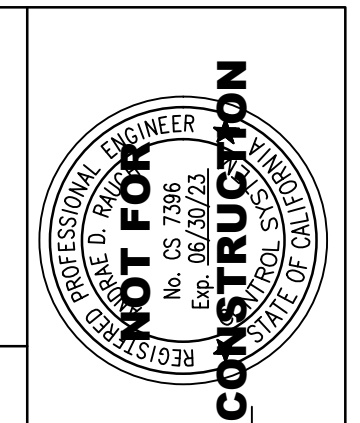


CECP2 - REMOTE I/O
CECP2

PMP6541 (TYPICAL OF 4 PUMPS)

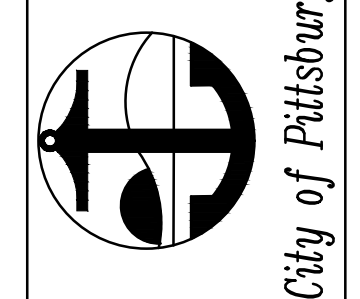
-ZI POSITION FEEDBACK
-SI SPEED FEEDBACK
-FC FLOW SETPOINT
-YN STATUS RUNNING
-YA STATUS FAULTED
-YS STATUS REMOTE
-YC COMMAND RUN
-TSH HIGH TEMP
-PSH HIGH PRESS

FIT6541 PRE-FLASH MIXER FLOW
FIT6452 SETTLED WATER FLOW
FIT6453 FILTERED WATER FLOW



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:

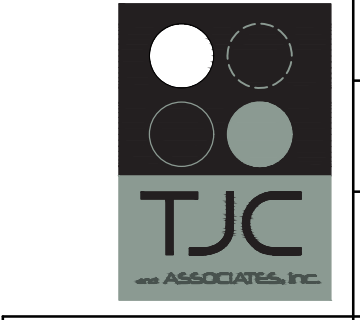


**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
P&ID - SODIUM HYPOCHLORITE
METERING PUMPS

BY	DRAWN:ADP
DESCRIPTION	CHECKED:ADR
DATE	REVIEWED:-
REV	DATE: 6/2/23
	SCALE: NTS

DATE	REV	DESCRIPTION

SHEET NO. # OF #
DWG. NO. **1641**



THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

ORIGINAL PAGE SIZE: 22"x34"

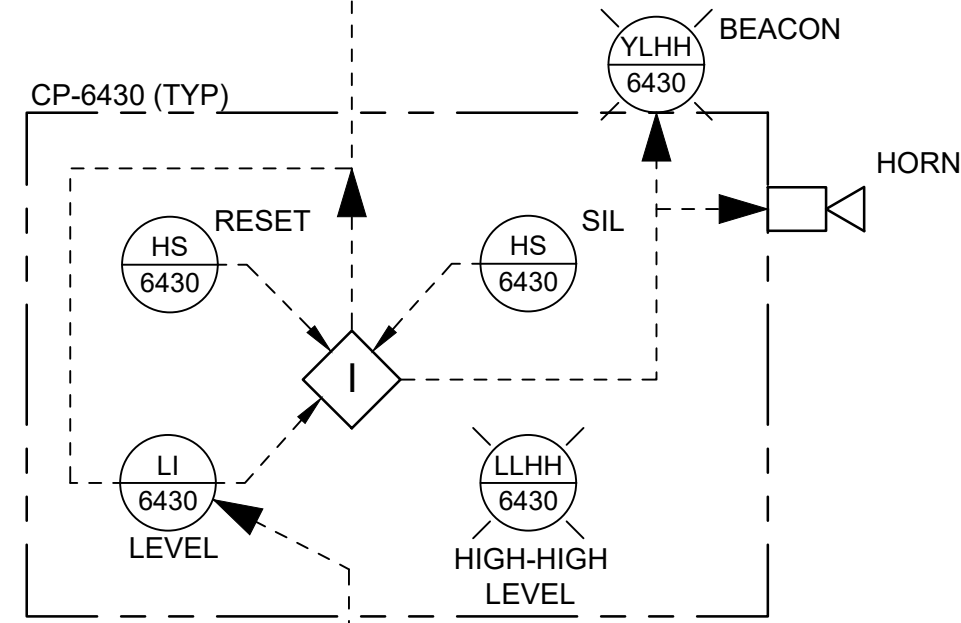
C:\Users\AndriaPrior\TUCAA Dropbox\Andria Prior\W Drive-CADD from Sharepoint\2022 Projects\122044 - PWTP Filter Improvements\Inst\1642.dwg 6-02-23 12:24:27 PM AndriaPrior

CECP2-REM I/O

CECP2

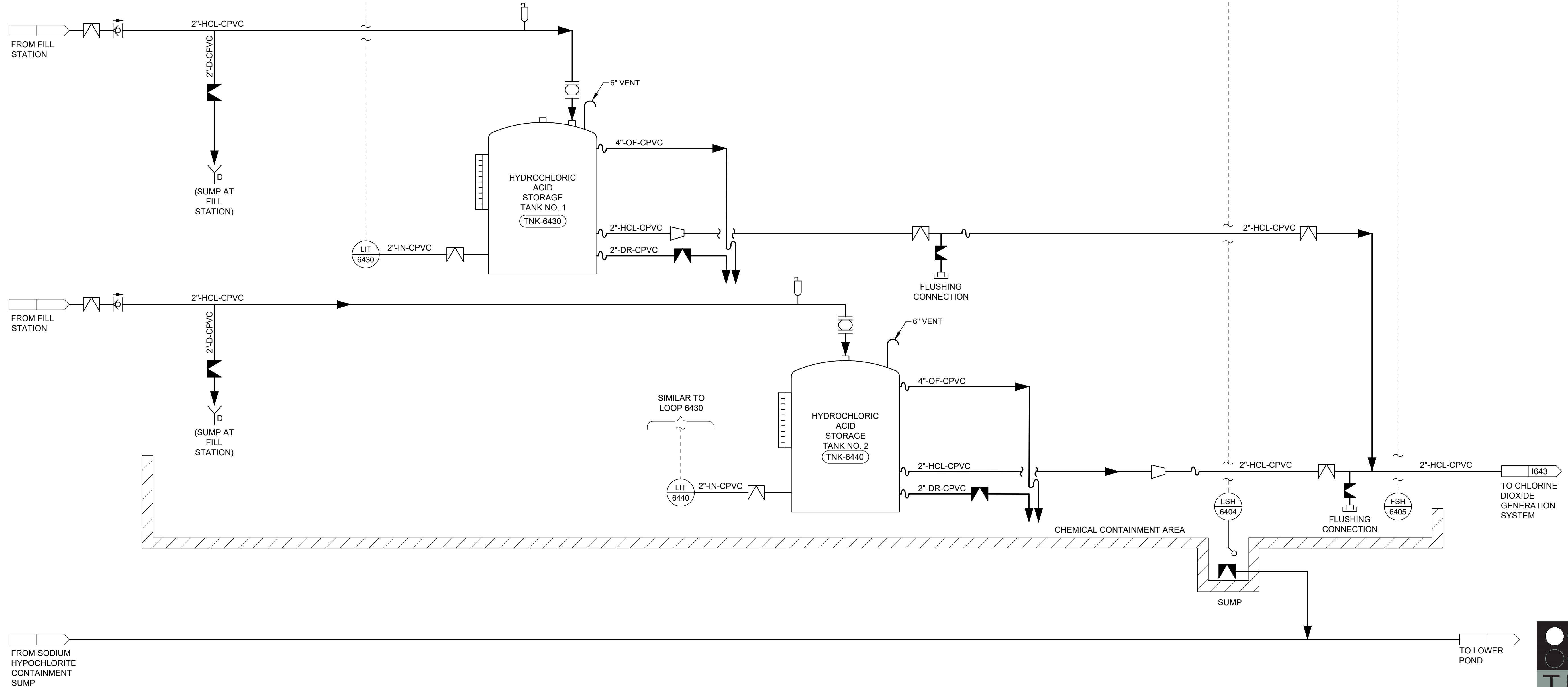
TYPICAL OF 2 TANKS

LIT6430 TANK HIGH LEVEL
LSHH6430 TANK HIGH HIGH LEVEL



LSHH6404 SUMP HIGH LEVEL

FSH6405 EYE WASH HIGH FLOW

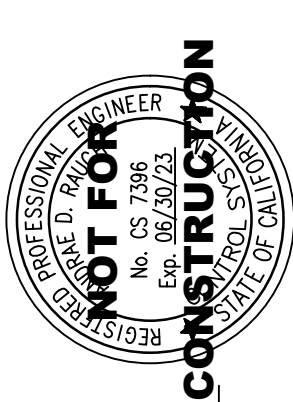


FROM SODIUM HYPOCHLORITE CONTAINMENT SUMP

TO LOWER POND

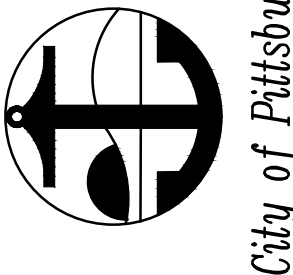


THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
DATE:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
P&ID - HYDROCHLORIC ACID
STORAGE SYSTEM

BY: ADP
CHECKED: ADR
REVIEWED: -
DATE: 6/2/23
SCALE: NTS

DATE	REV	DESCRIPTION

SHEET NO. # OF #
DWG. NO. **1642**

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
(XXXXXXX)	(XXXXXXX)	EQUIPMENT IDENTIFIER AS DEFINED BY THE PROCESS
ZXXX	ZXXX	CONDUIT ID: Z = CONDUIT TYPE (AS NOTED OR SCHEDULED) XXX = NUMBER PER SCHEDULE (NOTE 3)
MOV	MOV	MOTOR OPERATED VALVE
G	G	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
#	M	MOTOR, NUMERAL INDICATES HORSEPOWER
UTILITY METER	N/A	UTILITY METER
DMM	N/A	DIGITAL MULTIMETER
TRIP FRAME	CB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED; STABS INDICATE DRAWOUT TYPE
SSC	N/A	SOLID STATE MOTOR CONTROL * D.C. = D.C. DRIVE CONTROLLER SCR = SILICON CONTROLLED RECTIFIER VFD = VARIABLE FREQUENCY DRIVE RVSS = REDUCED VOLTAGE SOLID STATE
MCP	N/A	COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: * FVR FULL VOLTAGE REVERSING 2S2W TWO SPEED, TWO WINDING RVAT REDUCED VOLTAGE, AUTO TRANSFORMER # NUMERAL INDICATES NEMA SIZE
DISCONNECT	N/A	NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A
FUSIBLE DISCONNECT	N/A	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A # FUSE RATING EXAMPLE 15
MANUAL MOTOR STARTER	N/A	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER "P" INDICATES WITH PILOT LIGHT "2" INDICATES TWO POLE
POWER TRANSFORMER	T	POWER TRANSFORMER, * RATINGS AND CONNECTIONS AS SHOWN ON THE SINGLE LINE DIAGRAM
CONTROL TRANSFORMER	T	CONTROL TRANSFORMER, * RATINGS AND CONNECTIONS AS SHOWN ON THE SINGLE LINE DIAGRAM
ATS-1	N/A	AUTOMATIC TRANSFER SWITCH NO. 1 (ATS-1) "N" INDICATES NORMAL SOURCE "S" INDICATES STANDBY SOURCE 100A INDICATES CONTINUOUS CURRENT RATING
ARRESTOR	N/A	ARRESTOR, TYPE AS INDICATED * LA = LIGHTNING SURGE ARRESTOR SA = SURGE ARRESTOR
GROUND ROD	N/A	GROUND OR GROUND ROD
TERMINAL LUG	N/A	TERMINAL LUG, TERMINATION POINT, OR GROUNDING BOND POINT
FUSE	N/A	FUSE, AMPERE RATING AS NOTED
CONTACT (NO)	N/A	CONTACT, NORMALLY OPEN (NO)
CONTACT (NC)	N/A	CONTACT, NORMALLY CLOSED (NC)
MOTOR STARTER COIL	N/A	MOTOR STARTER COIL, NUMBER AS INDICATED
CONTROL RELAY COIL	N/A	CONTROL RELAY COIL, NUMBER AS INDICATED
KEY INTERLOCK	N/A	KEY INTERLOCK: # - KEY NUMBER AS INDICATED
ELECTRICAL INTERLOCK	N/A	ELECTRICAL INTERLOCK

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION																
Terminal symbol	N/A	TERMINAL TO EXTERNAL DEVICE (FIELD OR OTHER PANEL)																
Network connection symbol	N/A	NETWORK CONNECTION TERMINATION																
Control station symbol	N/A	CONTROL STATION, TAG NO. AS INDICATED * DEVICE TYPE DEFINED ON P&ID SHEETS OR CONTROL DIAGRAMS ## LOOP NO.																
Pushbutton symbol	CS	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED																
Pushbutton symbol	CS	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN																
Emergency stop symbol	CS	EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)																
Selector switch symbol	CS	SELECTOR SWITCH A ON LOCAL B OFF REMOTE																
3 position selector switch symbol	CS	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O-OPEN X-CLOSED <table border="1"> <thead> <tr> <th>POSITION</th> <th>TOP CONTACT</th> <th>MIDDLE CONTACT</th> <th>BOTTOM CONTACT</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>X</td> <td>0</td> <td>0</td> </tr> <tr> <td>B</td> <td>0</td> <td>X</td> <td>0</td> </tr> <tr> <td>C</td> <td>0</td> <td>0</td> <td>X</td> </tr> </tbody> </table> NAMEPLATE (A/B/C) * HOA - HAND/OFF/AUTO HOR - HAND/OFF/REMOTE LOR - LOCAL/OFF/REMOTE OSC - OPEN/STOP/CLOSE	POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT	A	X	0	0	B	0	X	0	C	0	0	X
POSITION	TOP CONTACT	MIDDLE CONTACT	BOTTOM CONTACT															
A	X	0	0															
B	0	X	0															
C	0	0	X															
Pilot light symbol	N/A	PILOT LIGHT AND PILOT LIGHT PUSH-TO-TEST TYPE COLOR AS NOTED * R - RED G - GREEN B - BLUE W - WHITE A - AMBER																
Time delay relay symbol	N/A	TIME DELAY RELAY, NUMBER AS INDICATED RANGE AS NOTED SETPOINT AS NOTED																
NOTC symbol	N/A	NOTC-NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED (ON DELAY)																
NCTO symbol	N/A	NCTO-NORMALLY CLOSED, TIMED OPENING WHEN ENERGIZED (ON DELAY)																
NOTO symbol	N/A	NOTO-NORMALLY OPEN, TIMED OPENING WHEN DE-ENERGIZED (OFF DELAY)																
NCTC symbol	N/A	NCTC-NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED (OFF DELAY)																
Field instrument symbol	N/A	FIELD INSTRUMENT, TAG NO. AS INDICATED * INSTRUMENT TYPE DEFINED ON P&ID SHEETS, CONTROL DIAGRAMS, AND DIVISION 13 ## LOOP NO.																
Liquid level switch symbol	N/A	LIQUID LEVEL SWITCH NORMALLY OPEN, CLOSING ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL NORMALLY OPEN, CLOSING ON DROPPING LEVEL																
Pressure switch symbol	N/A	PRESSURE SWITCH NORMALLY OPEN, CLOSING ON RISING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE																
Flow switch symbol	N/A	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSING ON INCREASED FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW																
Position (limit) switch symbol	N/A	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN - HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED - HELD OPEN																
Temperature switch symbol	T	TEMPERATURE SWITCH OR ROOM THERMOSTAT NORMALLY OPEN, CLOSING ON RISING TEMPERATURE																
Strip heater symbol	HTR	STRIP HEATER OR HEATING ELEMENT																
Solenoid valve symbol	SV	SOLENOID VALVE																

PLAN	DESCRIPTION
NEMA X	NEMA AREA: "X" INDICATES REQUIRED NEMA RATING OF EQUIPMENT IN THE AREA
Exposed conduit	EXPOSED CONDUIT (SEE NOTE 4)
Concealed conduit	CONCEALED CONDUIT (SEE NOTE 4)
Underground duct bank	UNDERGROUND DUCT BANK, CONCRETE ENCASED UNLESS OTHERWISE NOTED. CONDUIT ARRAY SHOWN IN SECTION 1 ON SHEET E-10.
Homerun to panel	HOMERUN TO PANEL AND CIRCUIT SHOWN WITH TICK MARK INDICATES NUMBER OF CONDUCTORS: SHORT TICK = HOT LONG TICK = NEUTRAL LONG TICK WITH "G" = GROUND EXAMPLE SHOWN: CIRCUITS 1 AND 3 TO PANEL LP-1 (HOT, HOT, NEUTRAL, AND GROUND). (SEE NOTE 3)
Conduit stubbed out	CONDUIT STUBBED OUT AND CAPPED
Flexible metal conduit	FLEXIBLE METAL CONDUIT "WHIP" FOR RECESSED LIGHTING FIXTURES AND LIQUID TIGHT MOTOR CONNECTIONS (SEE NOTE 4)
Conduit turning down	CONDUIT TURNING DOWN
Conduit turning up	CONDUIT TURNING UP
Demolished	CONDUIT, CIRCUIT, OR EQUIPMENT TO BE DEMOLISHED
Lighting panelboard	LIGHTING PANELBOARD (120, 208, 240V)
UPS	UNINTERRUPTIBLE POWER SUPPLY
Ceiling mounted lighting fixture	CEILING MOUNTED LIGHTING FIXTURE "A" - FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "b" - CONTROLLED BY SWITCH "b" "3" - CIRCUIT NUMBER
Pendant or surface mounted lighting fixture	PENDANT OR SURFACE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
Wall mounted lighting fixture	WALL MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
Pole mounted lighting fixture	POLE MOUNTED LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
Cross hatch lighting fixture	CROSS HATCH INDICATES LIGHTING FIXTURE FOR EMERGENCY EGRESS LIGHTING
Emergency lighting fixture	EMERGENCY LIGHTING FIXTURE. NOTATIONS SAME AS ABOVE (NO SWITCHING REQUIRED)
Exit sign	EXIT SIGN. ARROW INDICATES DIRECTION OF EGRESS
Multiple pole switch	MULTIPLE POLE SWITCH # INDICATES NUMBER OF POLES (2, 3 OR 4); BLANK IS SINGLE POLE "a" INDICATES SWITCHLEG SHALL CONTROL LIGHT FIXTURES WITH "a" DESIGNATION
Duplex receptacle	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W, NUMBER INDICATES CIRCUIT * GF GROUND FAULT INTERRUPTER TYPE WP WEATHERPROOF T TRANSIENT VOLTAGE SURGE SUPPRESSOR
Specialty power receptacle	SPECIALTY POWER RECEPTACLE, FUNCTION AS NOTED
Special system jack	SPECIAL SYSTEM JACK, TELEPHONE / DATA
Telephone demarcation	TELEPHONE DEMARCATON (CABINET OR BACKBOARD)
Junction box	JUNCTION BOX
Pull box	PULL BOX
Terminal box	TERMINAL BOX
Underground structure	UNDERGROUND STRUCTURE (MANHOLE OR HANDHOLE) * STRUCTURE TYPE (MH OR HH) XXX ID NUMBER PER PLANS, SCHEDULE, OR AS SPECIFIED
Photo vantage point	PHOTO VANTAGE POINT AND DIRECTION # PHOTO NUMBER XX SHEET NO. WHERE PHOTO IS LOCATED

CONTROL SYSTEM INPUT/OUTPUT DEVICES	
Digital Input	Digital Output
Analog Input	Digital Output (Normally Open)
Analog Output	Digital Output (Normally Closed)
Pulse Input	Digital Output (Maintained)

ABBREVIATIONS			
A, AMP	AMPERE	LES	LOCAL EMERGENCY STOP
ac	ALTERNATING CURRENT	LTG	LIGHTING
AF	AMP FRAME	LP	LIGHTING PANEL
AFF	ABOVE FINISHED FLOOR	LV	LOW VOLTAGE
AL	ALUMINUM	MAX	MAXIMUM
AIC	AMPERE INTERRUPTING CAPACITY	MCC	MOTOR CONTROL CENTER
AT	AMP TRIP	MCP	MOTOR CIRCUIT PROTECTOR
ATS	AUTOMATIC TRANSFER SWITCH	MFR	MANUFACTURER
AUTO	AUTOMATIC	MH	MANHOLE
AUX	AUXILIARY	MIN	MINIMUM
AWG	AMERICAN WIRE GAUGE	ML	MOTOR LOAD
BCG	BARE COPPER GROUND	MV	MEDIUM VOLTAGE
BLDG	BUILDING	N	NEUTRAL
C	CONDUIT, CONTACTOR	N/A	NOT APPLICABLE
CB	CIRCUIT BREAKER	NC	NORMALLY CLOSED
CKT	CIRCUIT	NCL	NON-CONTINUOUS LOAD
CL	CONTINUOUS LOAD	NO	NOT IN CONTRACT
CMU	CONCRETE MASONRY UNIT	NO	NORMALLY OPEN
CP	CONTROL PANEL	NTS	NOT TO SCALE
CPT	CONTROL POWER TRANSFORMER	OL	OVERLOAD
CT	CURRENT TRANSFORMER	P	POLE
CU	COPPER	PB	PULL BOX
CWS	CONDUIT WALL SEAL	PC	PHOTOCELL
dc	DIRECT CURRENT	PH	PHASE
DIA	DIAMETER	PNL	PANEL OR PANELBOARD
DWG	DRAWING	PT	POTENTIAL
(E)	EXISTING	PVC	POLYVINYL CHLORIDE
EA	EACH	RECEPT	RECEPTACLE
ELEC	ELECTRICAL	REQD	REQUIRED
EL	ELEVATION	SEC	SECONDS OR SECONDARY
ENCL	ENCLOSURE OR ENCLOSED	SHT	SHEET
EQUIP	EQUIPMENT	SS	STAINLESS STEEL
ETM	ELAPSED TIME METER	SW	SWITCH
(F)	FUTURE	SWBD	SWITCHBOARD
FO	FIBER OPTIC	SWGR	SWITCHGEAR
FT	FEET	TC	TIME DELAY ON CLOSING
FU	FUSE	TEL	TELEPHONE
G, GRD	GROUND	TD	TELEPHONE DEMARCATON POINT
GALV	GALVANIZED	TM	TIME SWITCH
GEN	GENERATOR	TO	TIME DELAY ON OPENING
GFI	GROUND FAULT INTERRUPTER	TSP	TWISTED SHIELDED PAIR
GRS	GALVANIZED RIGID STEEL	TYP	TYPICAL
HID	HIGH INTENSITY DISCHARGE	UG	UNDERGROUND
HH	HANDHOLE	UON	UNLESS OTHERWISE NOTED
hp	HORSEPOWER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HVAC	HEATING VENTILATION AIR CONDITIONING	V	VOLTS
Hz	HERTZ	VA	VOLT AMPS
kornil	1000 CIRCULAR MILS	VAR	VOLT AMPS REACTIVE, VARIOUS
kVA	KILOVOLT AMPERES	VFD	VARIABLE FREQUENCY DRIVE
kW	KILOWATTS	W	WIRE, WATTS, WIDTH
		W/	WITH
		WP	WEATHERPROOF
		XFMR	TRANSFORMER

- NOTES:**
- THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS MAY NOT APPEAR WITHIN THE DRAWING SET FOR THIS PROJECT.
 - DETAILS REPRESENT TYPICAL INSTALLATION REQUIREMENTS TO BE USED ON THIS PROJECT FOR THE CONDITION SHOWN. DETAILS ARE NOT SPECIFICALLY CALLED OUT AT EVERY APPLICATION POINT FOR CLARITY AND SIMPLICITY. THE INDICATED DETAIL REQUIREMENTS SHALL APPLY FOR ALL APPLICABLE LOCATIONS.
 - PLANS DO NOT SHOW ROUTES OR SIZING OF RACEWAYS AND CONDUCTORS FOR RECEPTACLES, LIGHTING FIXTURES, LIGHTING SWITCHES, OR OTHER LOADS. PROVIDE RACEWAYS AND CONDUCTORS AS REQUIRED PER THE DEVICE LOCATION, SWITCH DESIGNATION, PANEL/CIRCUIT NUMBER, AND PROTECTIVE DEVICE RATING SHOWN ON THE DRAWINGS. HOMERUNS SHOWN CONCEALED OR EXPOSED SHALL BE INDICATIVE OF THE ENTIRE CIRCUIT INSTALLATION.
 - IF NOT SHOWN, PROVIDE MINIMUM CONDUIT AND WIRE CIRCUIT RUN CONSISTING OF 3/4" CONDUIT WITH 2#12, 1#12 GROUND.
 - WHERE LUMINAIRE MOUNTING HEIGHTS ARE SHOWN ON THE DRAWINGS, HEIGHTS SHALL BE AS MEASURED TO BOTTOM OF THE SOURCE OF ILLUMINATION.

ASSOCIATED SPECIFICATION DIVISION NUMBER

26410
GE002

26110
VAR

SHEET NO. WHERE DETAIL IS DRAWN

SYMBOL WHERE THERE IS A DETAIL

SYMBOL WHERE DETAIL IS DRAWN

DETAIL SYMBOL (NOTE 2)

TJC ASSOCIATES, INC.

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY

0 1/2" 1" SCALE IN INCHES

PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION
No. E. 25588
Exp. 09/30/23

PREPARED UNDER THE DIRECTION OF: JOHN SAMUELSON

DATE:

ACCEPTED FOR USE: JOHN SAMUELSON
City Engineer

Date:

City of Pittsburgh

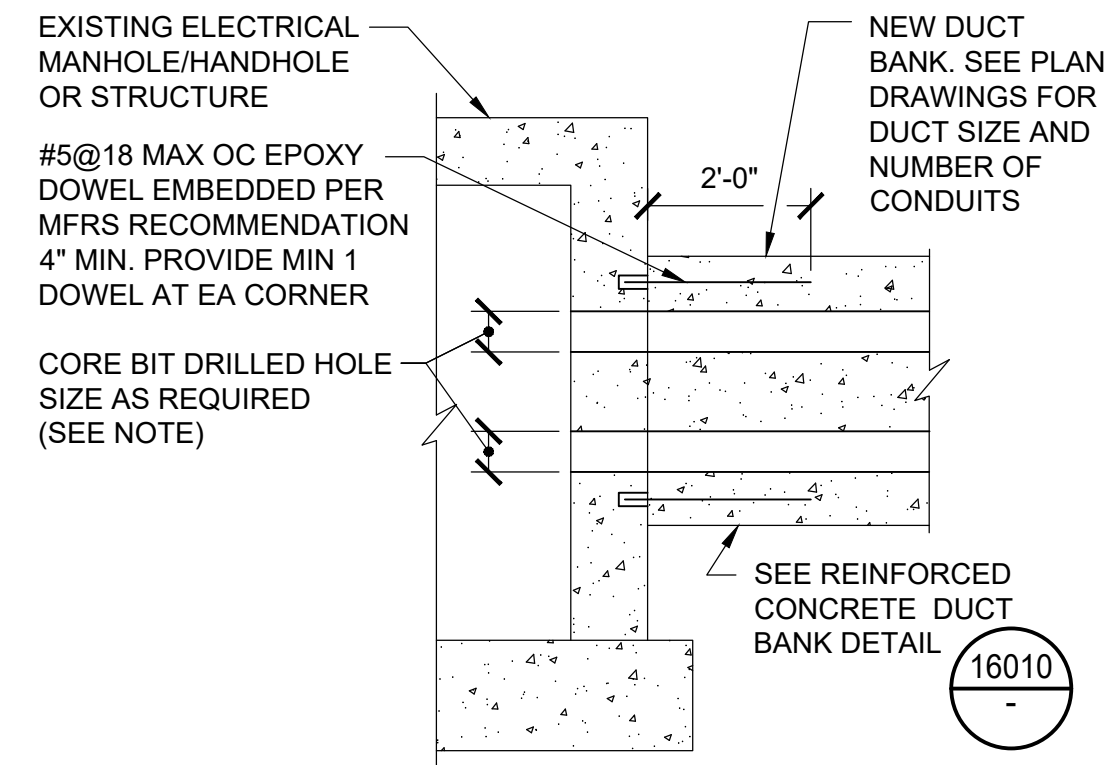
WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
ELECTRICAL LEGEND AND ABBREVIATIONS

BY	DESCRIPTION	DATE	REV

DRAWN:ADP
CHECKED:MSC
REVIEWED:EAN
DATE:6/2/23
SCALE:NTS

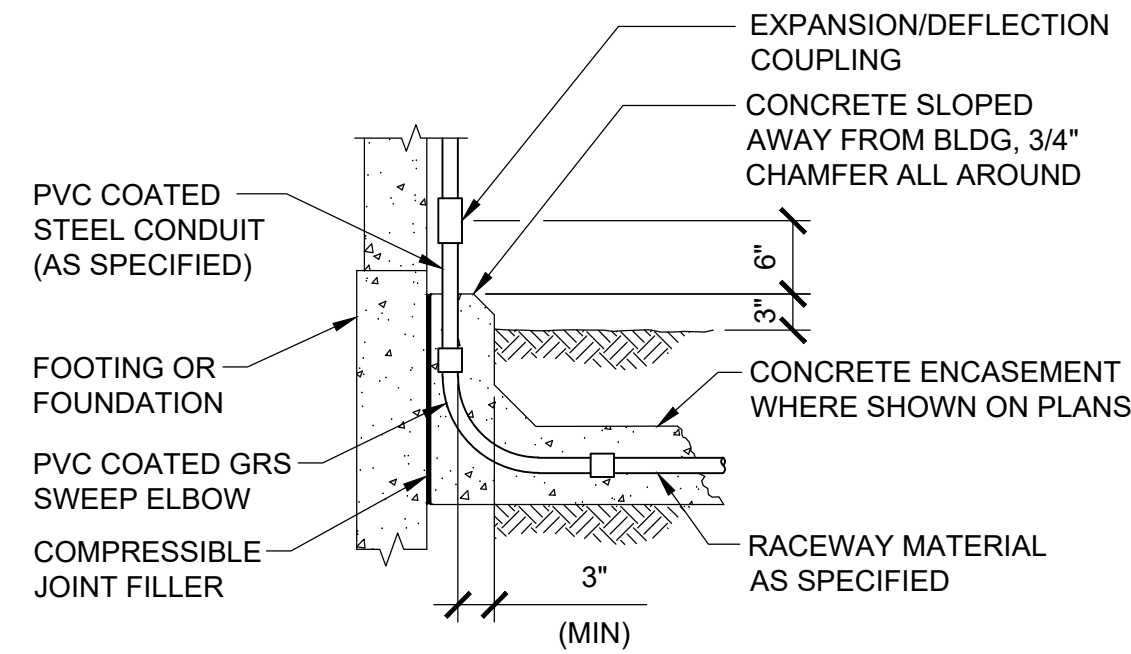
SHEET NO. # OF #

DWG. NO. GE001

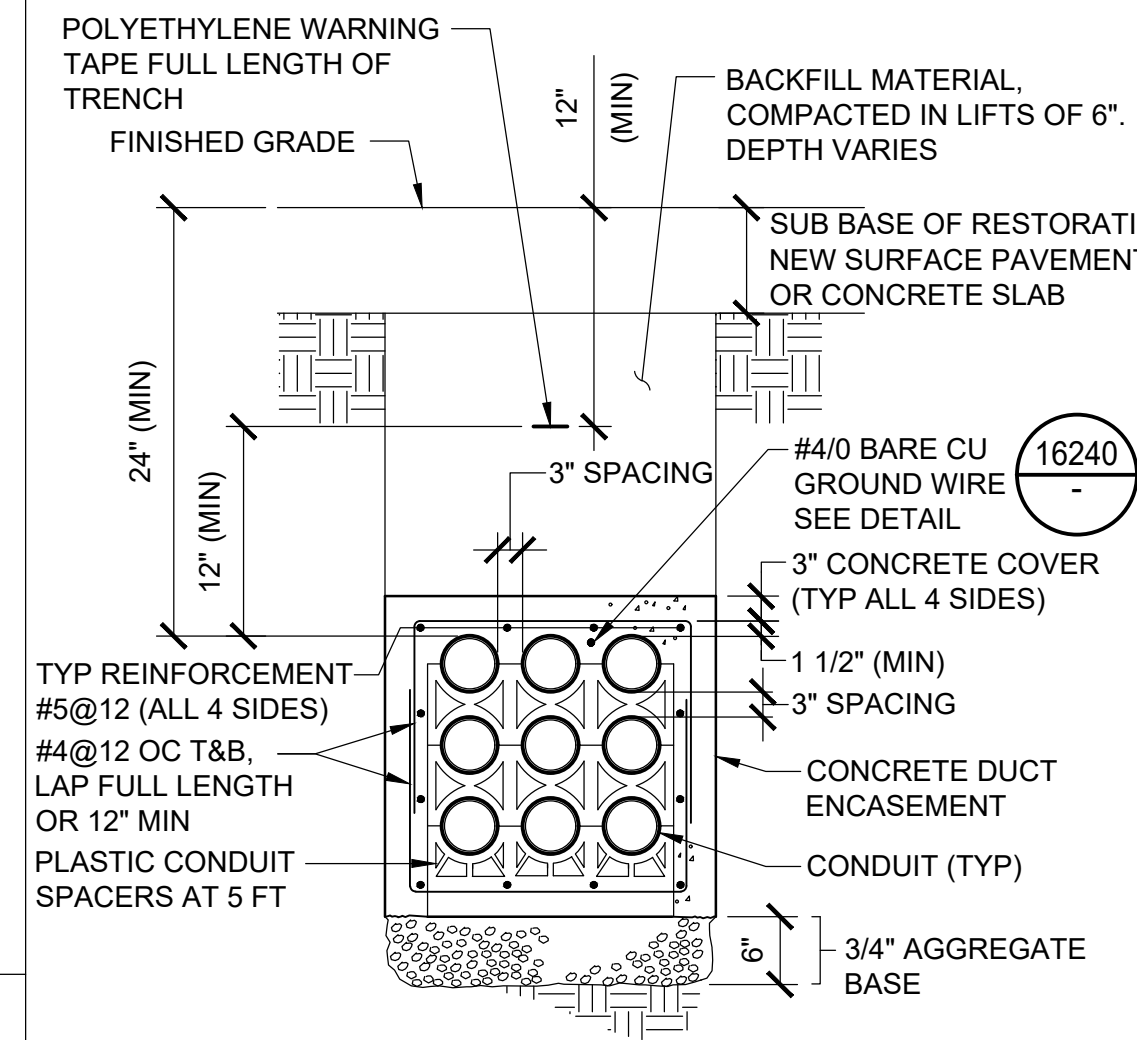


NOTE:
FOR PENETRATION THRU HANDHOLE/MANHOLE, SEAL AROUND CONDUIT WITH NON-SHRINK WATERPROOF GROUT SEALING AND PROVIDE BELL END CONNECTOR. FOR PENETRATION THRU STRUCTURE, REFER TO DETAIL 26100.

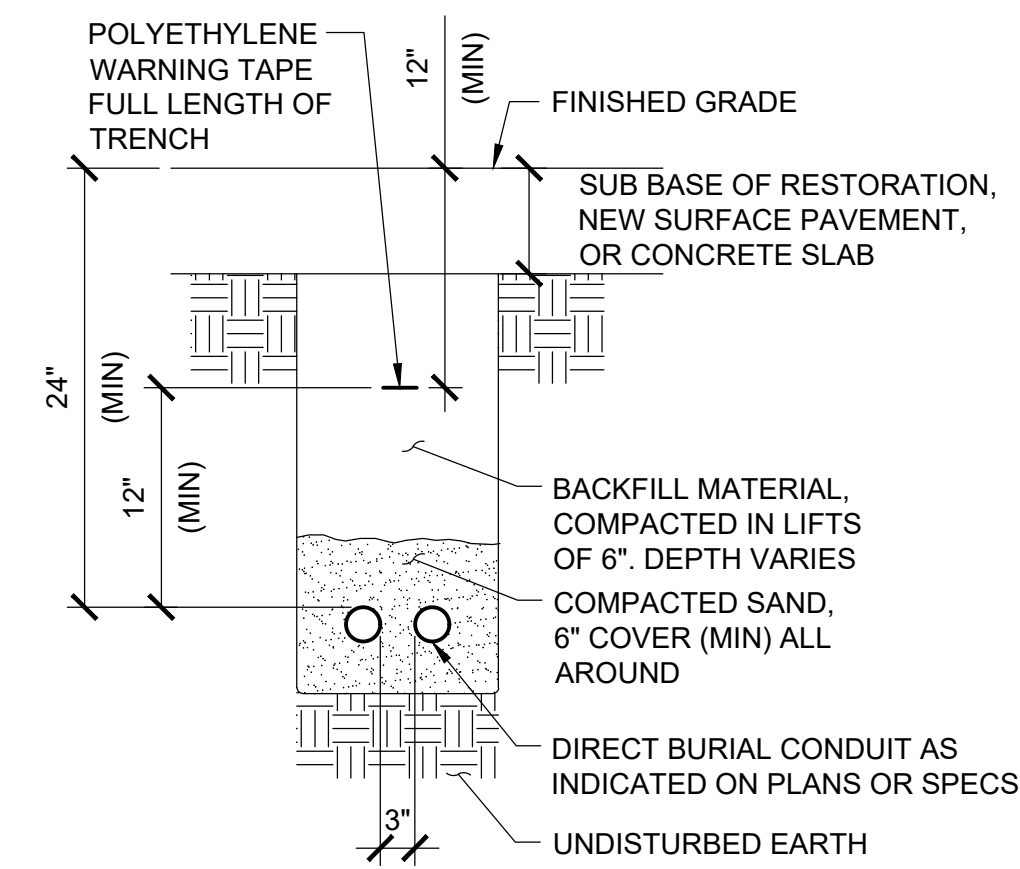
DUCT BANK CONNECTION TO EXISTING MANHOLE/HANDHOLE OR STRUCTURE
DETAIL 26001
NTS **VAR**



CONCRETE ENCASED DUCT BANK CONDUIT RISER
DETAIL 26004
NTS **VAR**



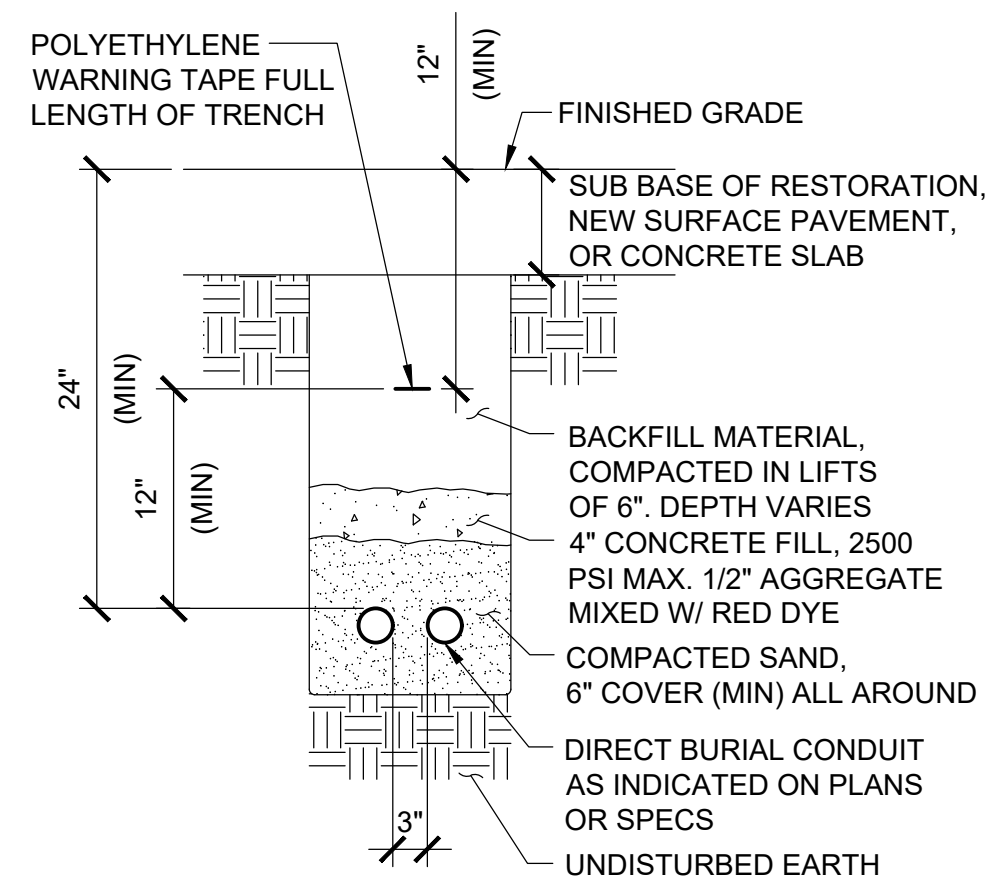
REINFORCED CONCRETE DUCT BANK
DETAIL 26010
NTS **VAR**



DIRECT BURIAL CONDUIT OR CABLE
DETAIL 26020
NTS **VAR**

NOTES:

- FIELD CONDITIONS MAY REQUIRE A MINIMUM DEPTH GREATER THAN SHOWN.
- SHARP TURNS OR BENDS OR OTHER IRREGULARITIES IN THE CONDUIT MUST BE AVOIDED.
- SOILS SHALL BE COMPACTED PER PROJECT SPECIFICATIONS.
- IF BOTTOM OF TRENCH IS ROCKY AND PLASTIC CONDUITS ARE USED, USE ROCK FREE BACKFILL AND TAMP TO AFFORD A SMOOTH BEDDING FOR THE CONDUIT. BEFORE TAMPING IN AREA OF PLASTIC CONDUIT, APPLY AT LEAST SIX INCHES OF BACKFILL OVER TOP OF CONDUIT TO AVOID BREAKAGE. FINAL BACKFILL MAY THEN BE PLACED IN THE TRENCH AND TAMPING EMPLOYED TO FINISH GRADE. IN ORDER TO REDUCE COSTS, WHERE APPROVED BY THE ENGINEER, THE SOIL ORIGINALLY REMOVED FROM THE TRENCH SHOULD BE USED AS BACKFILL WHEREVER POSSIBLE.
- DO NOT USE SALT WATER SAND BACKFILL WITH STEEL CONDUIT.
- POLYETHYLENE WARNING TAPE COLOR SHALL ADHERE TO APWA COLOR CODE.



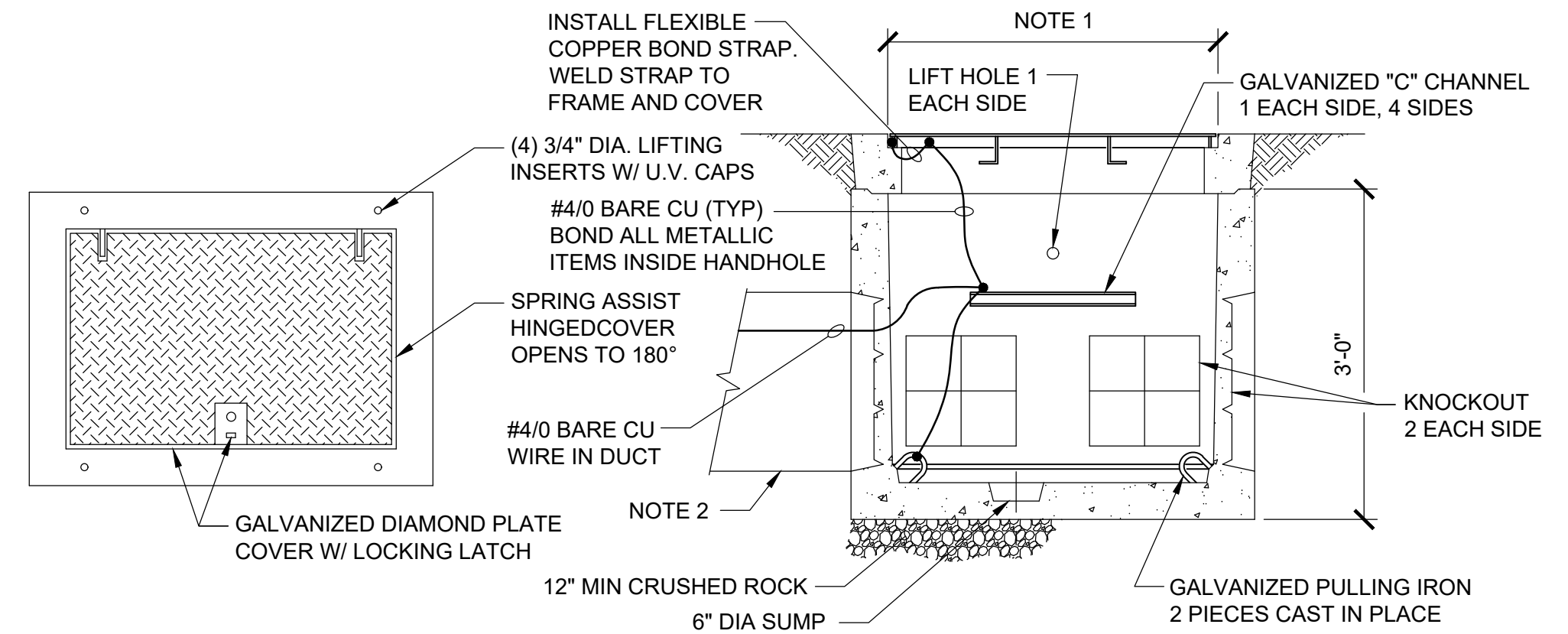
DIRECT BURIAL CONDUIT OR CABLE WITH CONCRETE CAP
DETAIL 26023
NTS **VAR**

NOTES:

- FIELD CONDITIONS MAY REQUIRE A MINIMUM DEPTH GREATER THAN SHOWN.
- SHARP TURNS OR BENDS OR OTHER IRREGULARITIES IN THE CONDUIT MUST BE AVOIDED.
- PROVIDE PLASTIC CONDUIT SPACERS AT 5'-0" FOR 3 OR MORE CONDUITS.
- SOILS SHALL BE COMPACTED PER PROJECT SPECIFICATIONS.
- IF BOTTOM OF TRENCH IS ROCKY AND PLASTIC CONDUITS ARE USED, USE ROCK FREE BACKFILL AND TAMP TO AFFORD A SMOOTH BEDDING FOR THE CONDUIT. BEFORE TAMPING IN AREA OF PLASTIC CONDUIT, APPLY AT LEAST SIX INCHES OF BACKFILL OVER TOP OF CONDUIT TO AVOID BREAKAGE. FINAL BACKFILL MAY THEN BE PLACED IN THE TRENCH AND TAMPING EMPLOYED TO FINISH GRADE. IN ORDER TO REDUCE COSTS, WHERE APPROVED BY THE ENGINEER, THE SOIL ORIGINALLY REMOVED FROM THE TRENCH SHOULD BE USED AS BACKFILL WHEREVER POSSIBLE.
- DO NOT USE SALT WATER SAND BACKFILL WITH STEEL CONDUIT.
- POLYETHYLENE WARNING TAPE COLOR SHALL ADHERE TO APWA COLOR CODE.

NOTES:

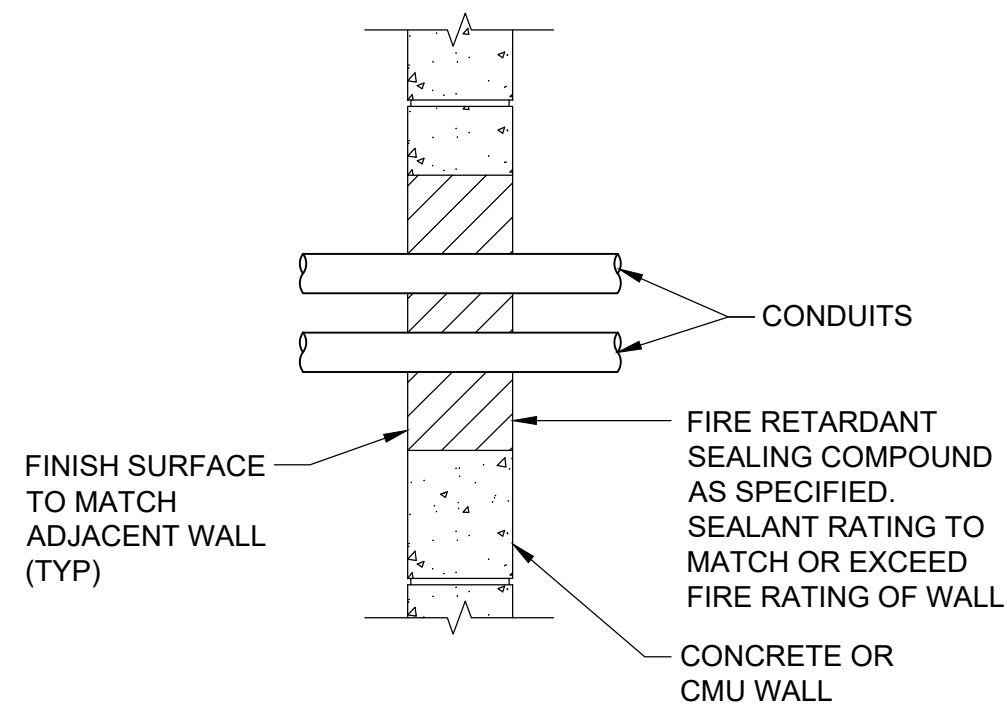
- MAINTAIN A MINIMUM OF 12" SEPARATION BETWEEN INSTRUMENTATION AND POWER DUCT BANKS.
- DETAIL IS APPLICABLE TO ALL UNDERGROUND CONDUIT RUNS.
- DETAIL IS SHOWN WITH 9 CONDUITS AS A TYPICAL ONLY. REFER TO THE DETAILED PLAN DRAWINGS FOR THE QUANTITY AND SIZE OF CONDUITS REQUIRED FOR EACH DUCT BANK.
- CONCRETE AND SOILS SHALL BE COMPACTED PER PROJECT SPECIFICATIONS.
- POLYETHYLENE WARNING TAPE COLOR SHALL ADHERE TO APWA COLOR CODE.



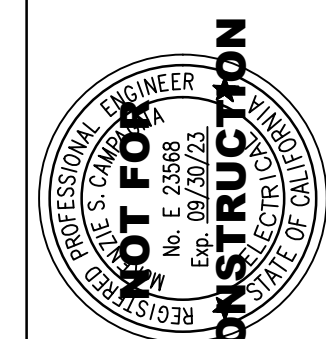
TYPICAL ELECTRICAL HANDHOLE
DETAIL 26051
NTS **VAR**

NOTES:

- SIZE OF HANDHOLE PER HANDHOLE SCHEDULE SHOWN ON DRAWINGS.
- SEE DETAIL 26000 FOR CONCRETE ENCASED CONDUIT DUCT ENTRY INTO HANDHOLE.

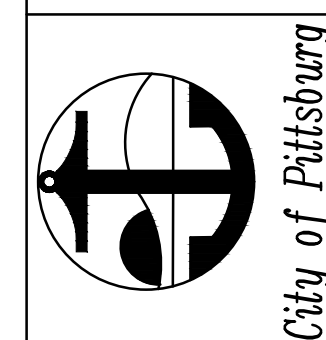


ABOVE GRADE WALL CONDUIT PENETRATION
DETAIL 26104
NTS **VAR**



PREPARED UNDER THE DIRECTION OF:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer



WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION
ELECTRICAL STANDARD DETAILS 1

BY	ADP
CHECKED	MSC
REVIEWED	EAN
DATE	6/2/23
SCALE	NTS

DATE	REV	DESCRIPTION

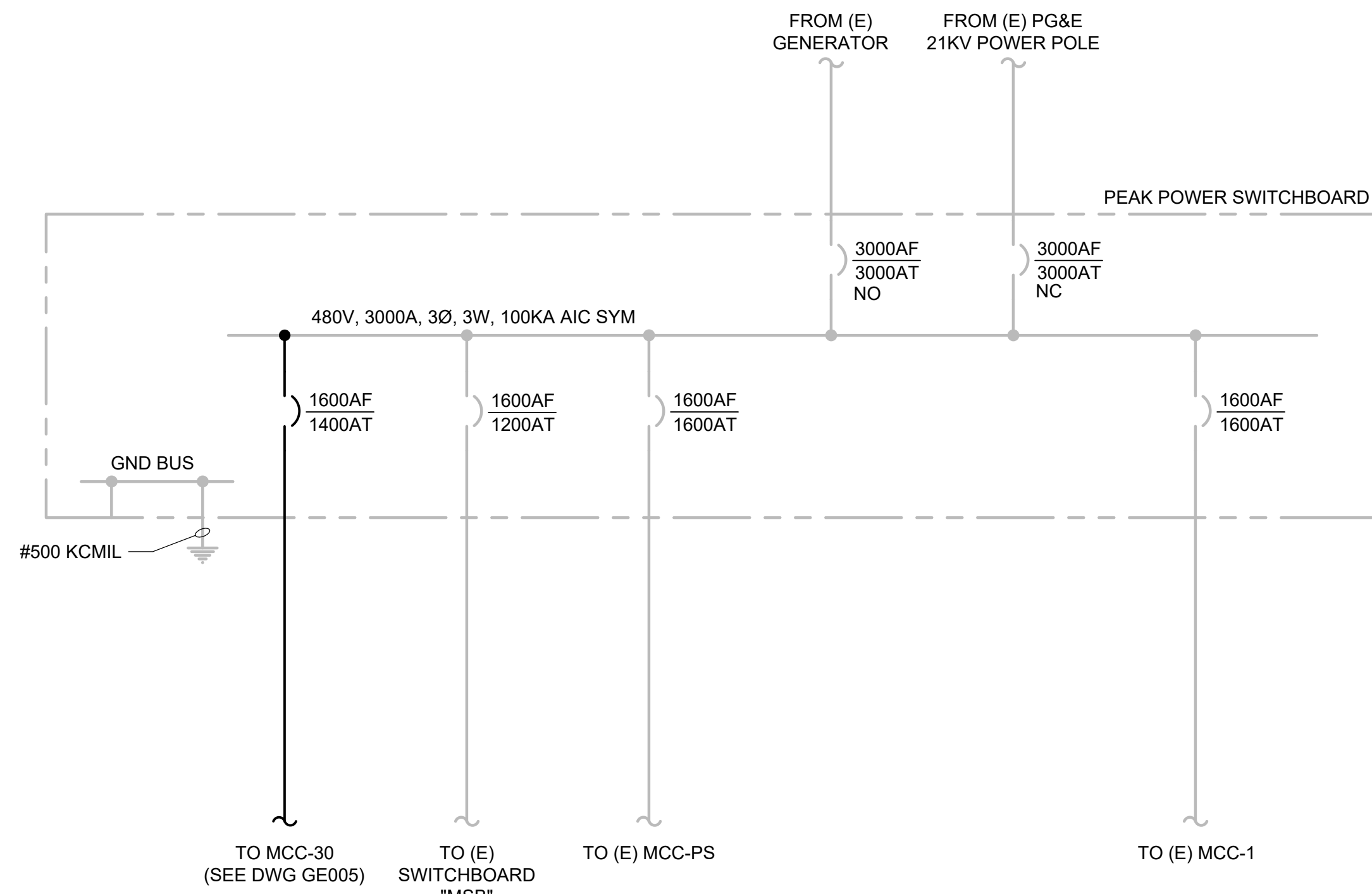
SHEET NO. # OF #
DWG. NO. GE002



THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

C:\Dropbox (TJCA)\V Drive- CADD from Sharepoint\2022 Projects\122044 - PWTP Filter Improvements\Elec\GE002.dwg 6-02-23 11:11:48 AM BeeVue

C:\Dropbox (TJCAA)\W Drive-CADD from Sharepoint\2022 Projects\122044 - PWTP Filter Improvements\Elec\GE004.dwg 6-02-23 11:18:39 AM BeeVue



PEAK POWER SWITCHBOARD SINGLE LINE DIAGRAM
SCALE: NTS



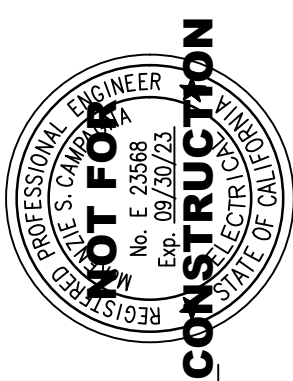
PEAK POWER SWITCHBOARD
PHOTO 1
SCALE: NTS E480



PEAK POWER SWITCHBOARD SECTION 4
PHOTO 2
SCALE: NTS E480

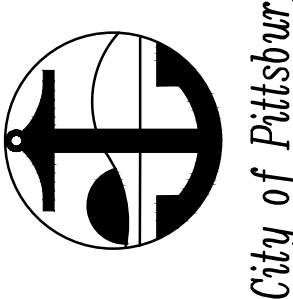


SPARE BREAKER TO BE REPLACED (MCC-30 BREAKER)
PHOTO 3
SCALE: NTS E480



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON DATE:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date:



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
PEAK POWER SWITCHBOARD
SINGLE LINE DIAGRAM AND PHOTOS

BY	DRAWN:EV
	CHECKED:MSC
	REVIEWED:EAN
	DATE: 6/2/23
	SCALE: NTS

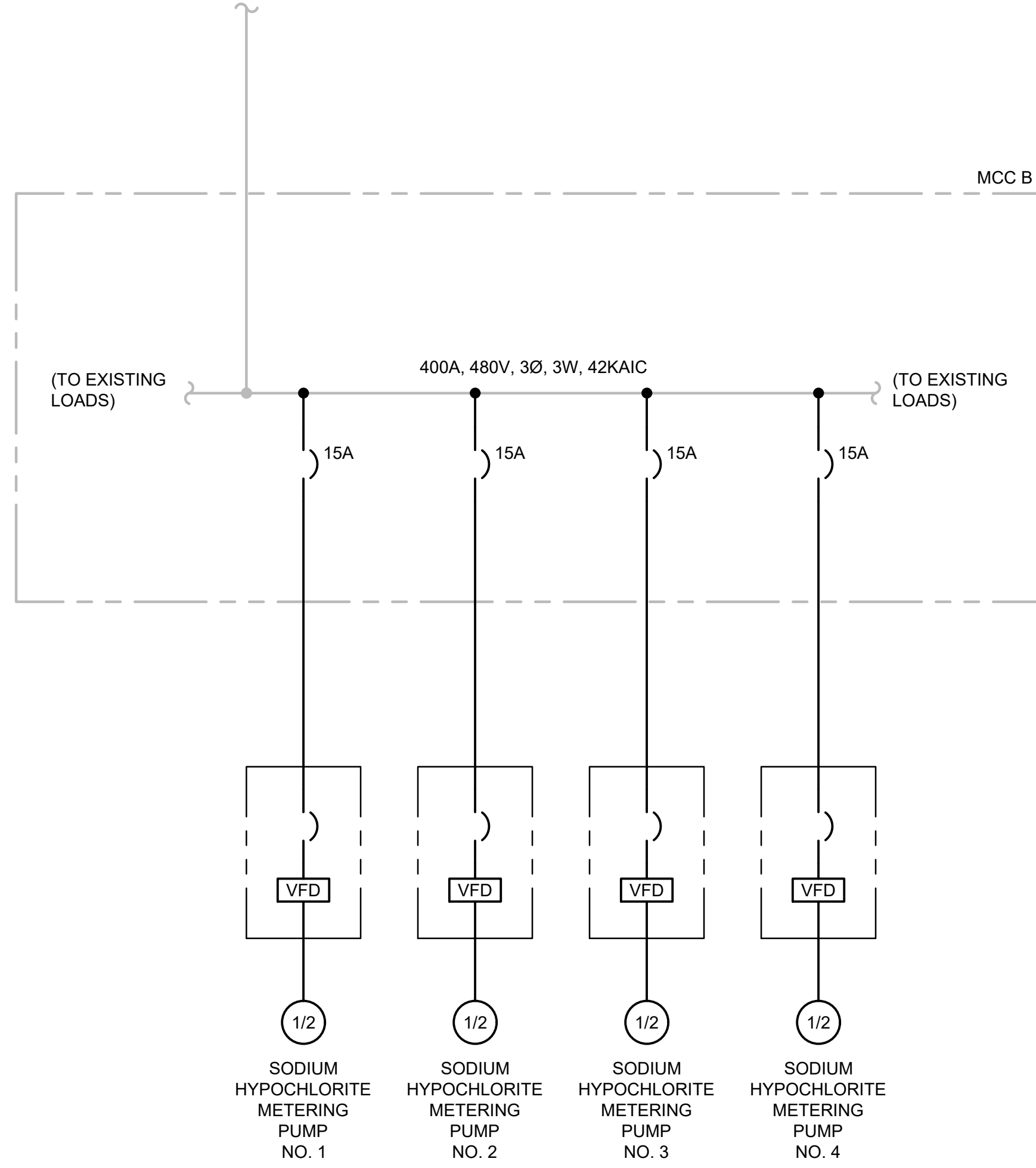
DATE	REV	DESCRIPTION

SHEET NO.
OF

DWG. NO.
GE004



THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES



PARTIAL MCC-B SINGLE LINE DIAGRAM
SCALE: NTS



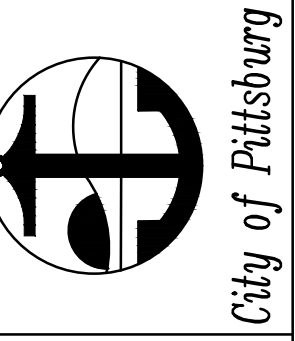
THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN:ADP
				CHECKED:MSC
				REVIEWED:EAN
				DATE: 6/2/23
				SCALE: NTS

SHEET NO.
OF

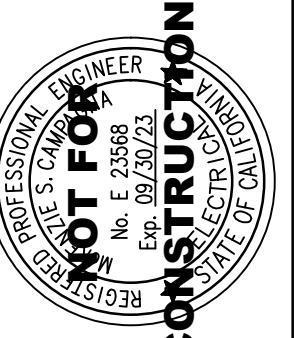
DWG. NO.
GE006

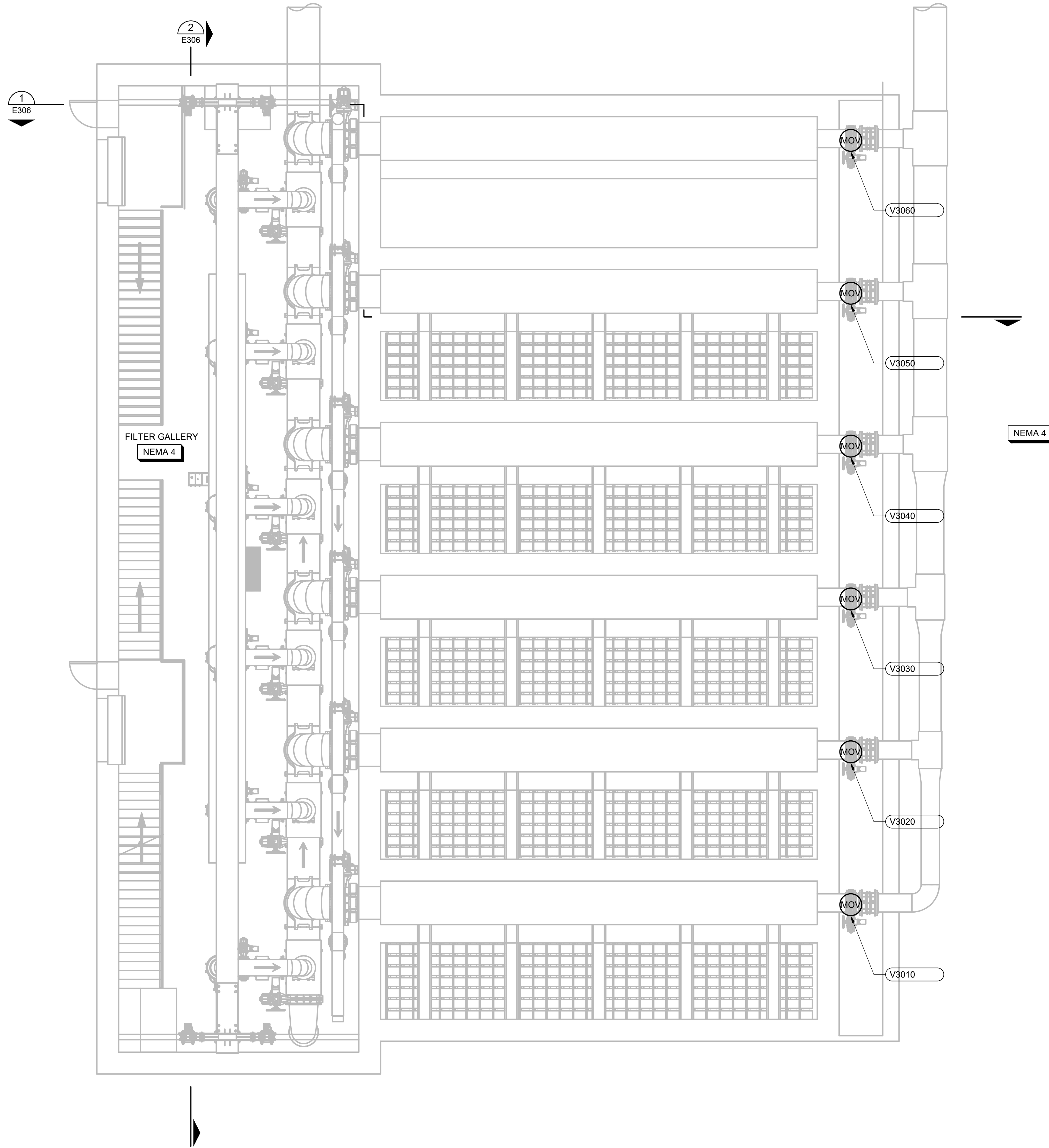
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
MCC-B PARTIAL SINGLE LINE DIAGRAM
AND PHOTOS



ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

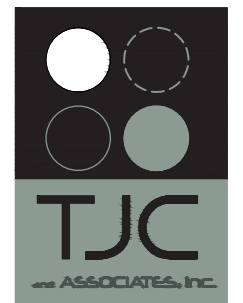
PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____





FILTER LOWER LEVEL PLAN
SCALE: 3/16"=1'-0"

ORIGINAL PAGE SIZE: 22"x34"

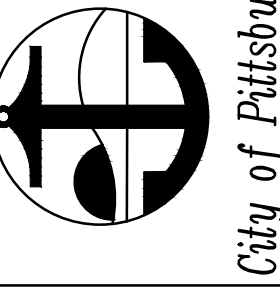


THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN:BV	CHECKED:MSC	REVIEWED:EAN	DATE: 6/2/23	SCALE: AS SHOWN

SHEET NO.
OF

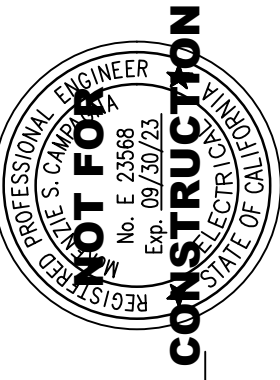
DWG. NO.
E301

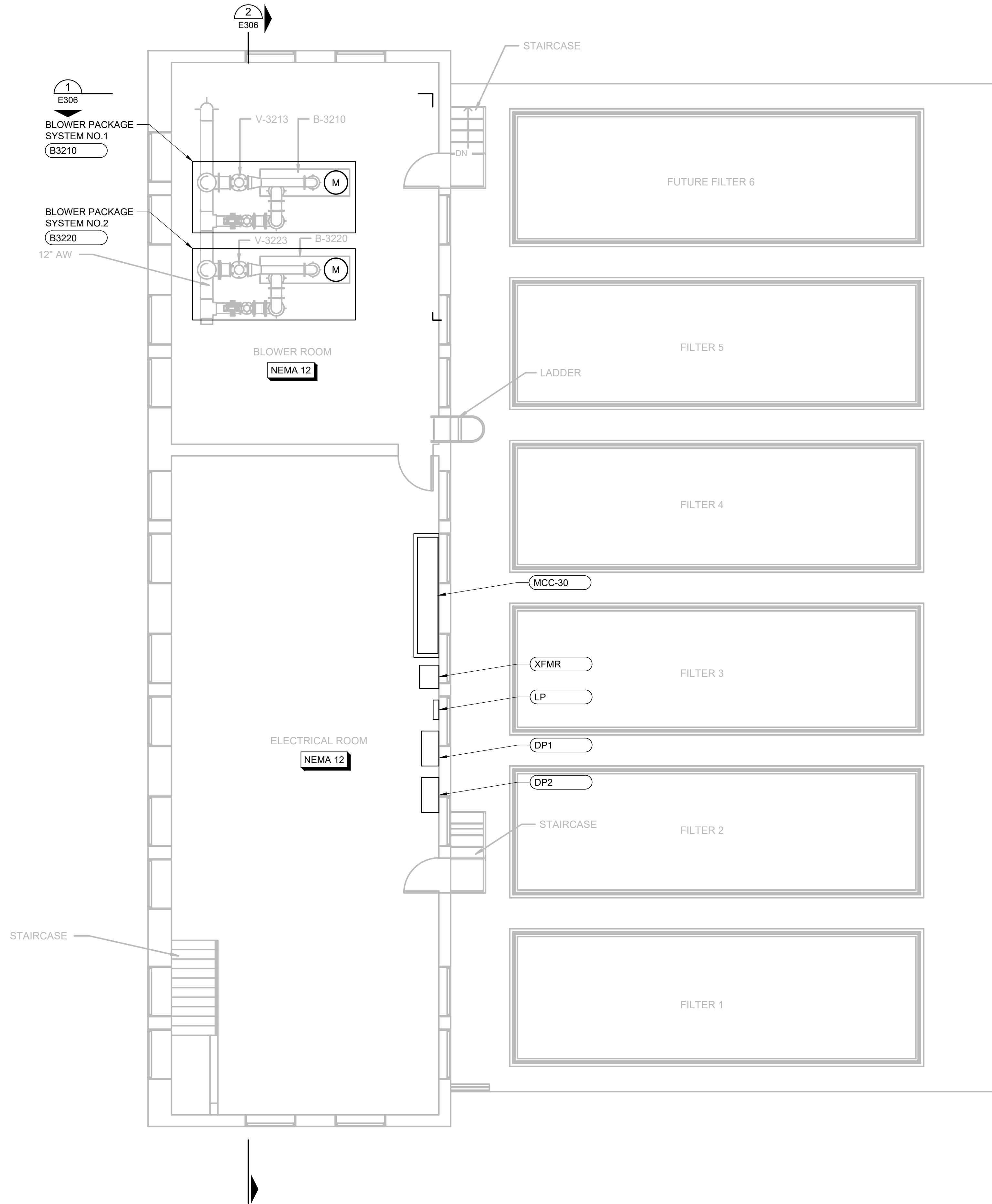


**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
FILTER LOWER LEVEL PLAN

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____





FILTER UPPER LEVEL PLAN
SCALE: 3/16"=1'-0"



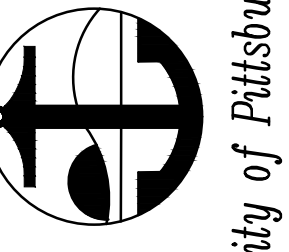
THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN: BV

SHEET NO.
OF

DWG. NO.
E303

**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
FILTER BLOWER AND
ELECTRICAL ROOM PLAN

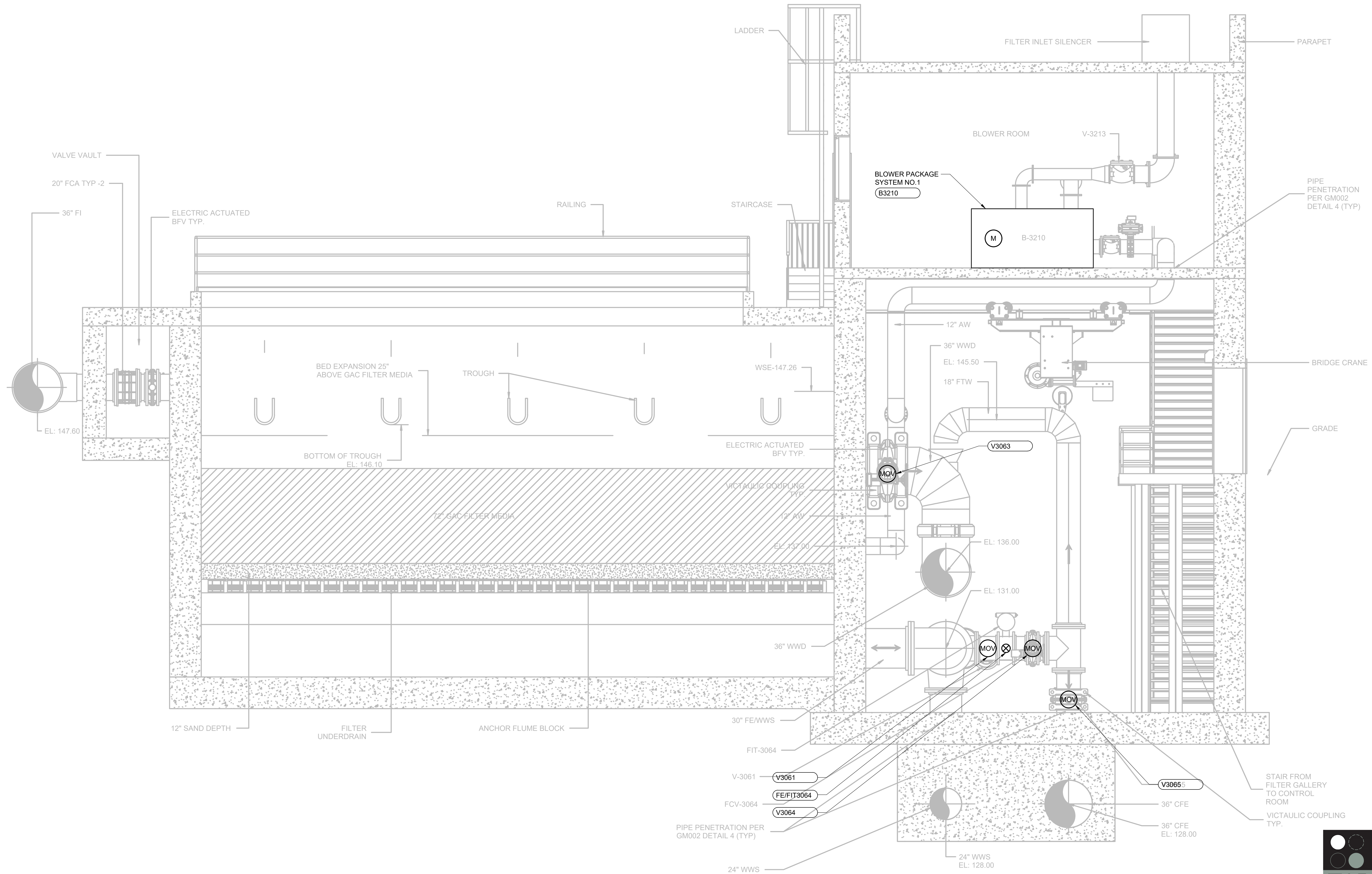


ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____



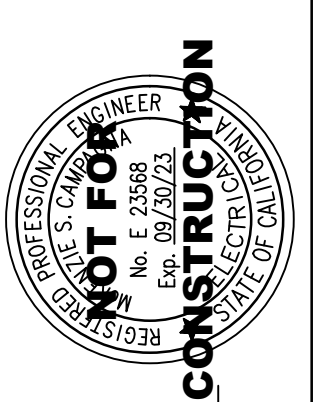
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SECTION 1
SCALE: 1"=2'-10"
E301,E302

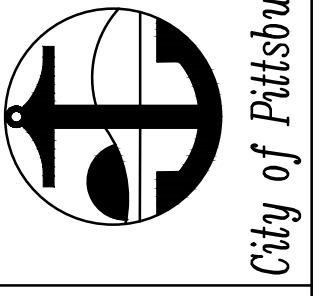
ORIGINAL PAGE SIZE: 22"x34"

THIS LINE IS 1 INCH AT FULL SCALE IF NOT SCALE ACCORDINGLY
SCALE IN INCHES
0 1/2" 1"



PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
City Engineer
DATE:

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
DATE:



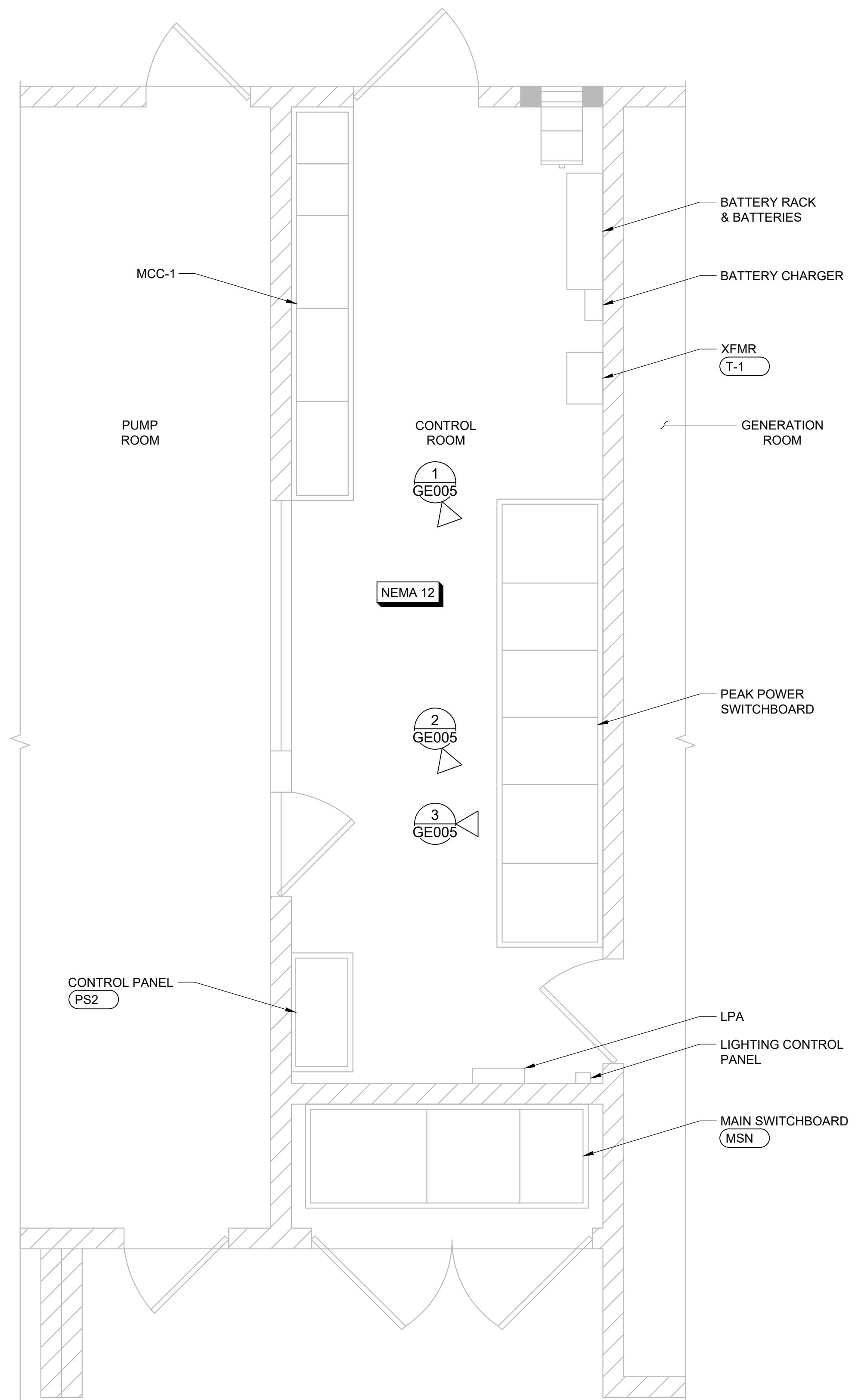
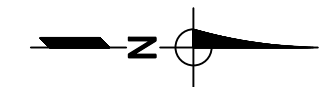
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
FILTER BLOWER ROOM ELECTRICAL ROOM SECTIONS

BY: DRAWN: BV
CHECKED: MSC
REVIEWED: EAN
DATE: 6/2/23
SCALE: AS SHOWN

DATE	REV	DESCRIPTION

SHEET NO. # OF #
DWG. NO. E306

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HIGH LEVEL PUMP STATION NO. 2 - CONTROL ROOM
SCALE: 3/8"=1'-0"



THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

ORIGINAL PAGE SIZE: 22"x34"

DATE	REV	DESCRIPTION	BY	DRAWN:EV	CHECKED:MSC	REVIEWED:EAN	DATE:6/2/23	SCALE:AS SHOWN

SHEET NO.
OF

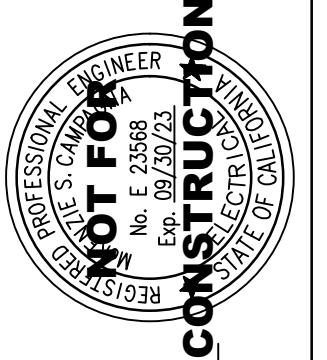
DWG. NO.
E480

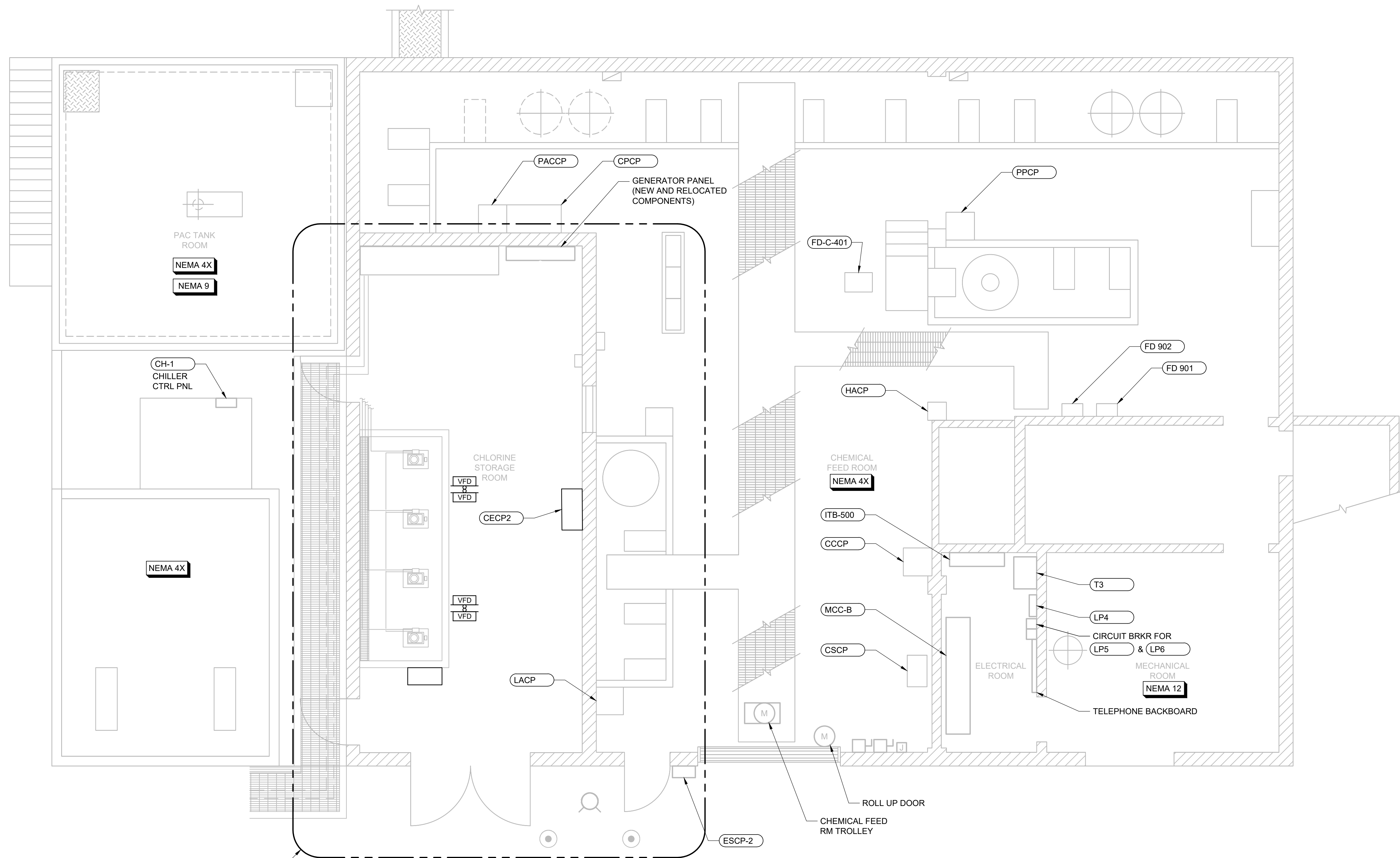
**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
HIGH LEVEL PUMP STATION NO. 2
PARTIAL PLAN



ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____

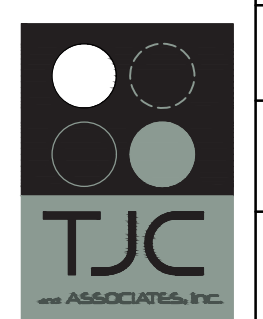




REFER TO DWG E661
FOR ENLARGED PLAN

OPERATIONS BUILDING LOWER LEVEL - POWER PLAN

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



THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY

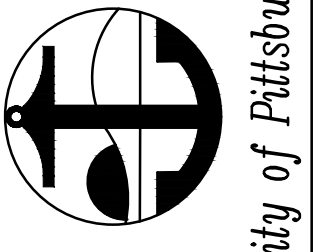
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	SCALE: AS SHOWN

SHEET NO.
OF

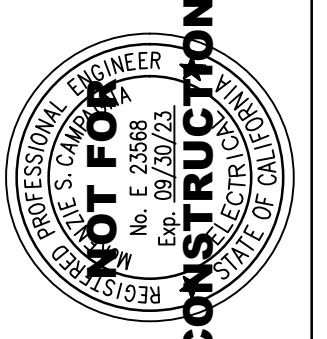
DWG. NO.
E600

**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
OPERATIONS BUILDING LOWER LEVEL PLAN



ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____

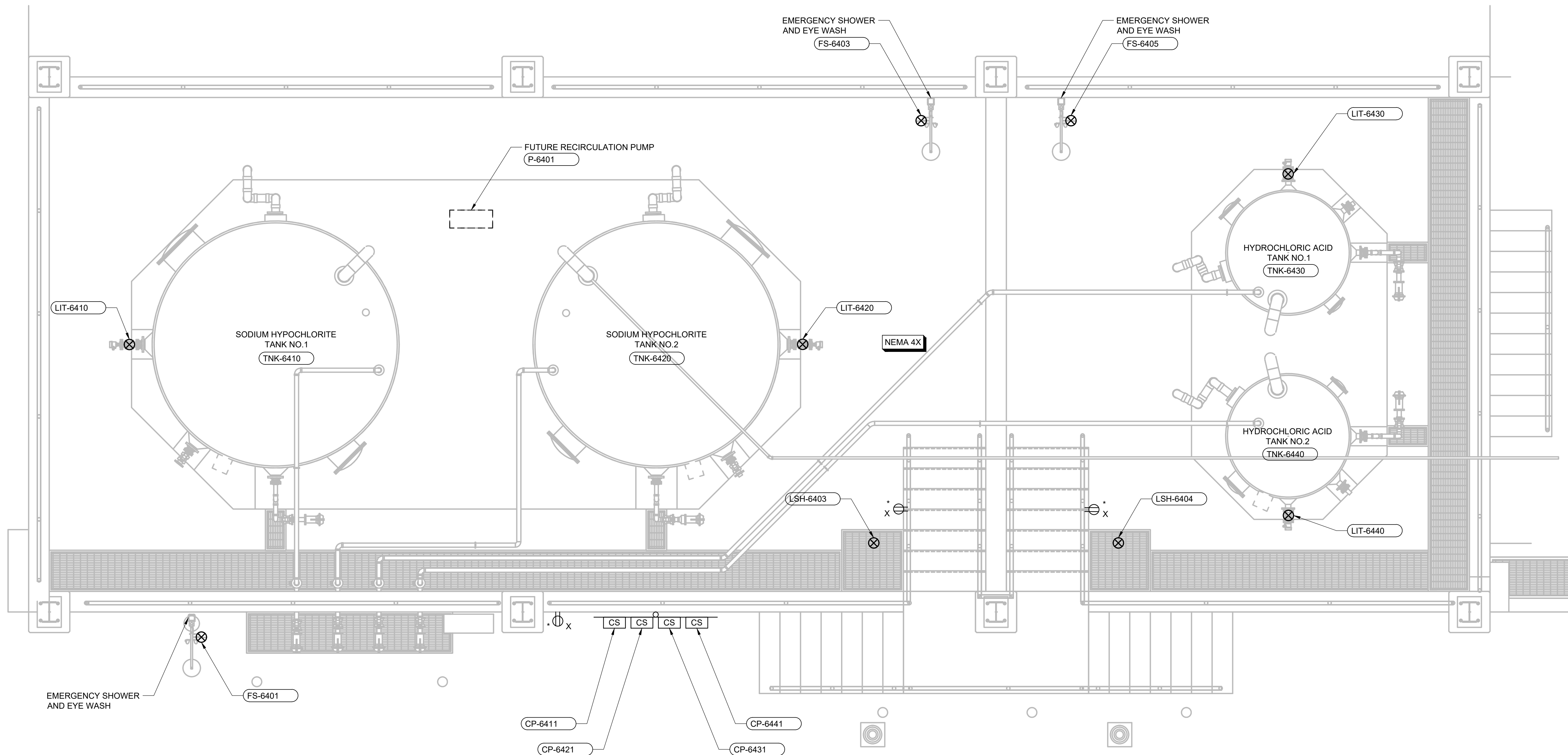


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ORIGINAL PAGE SIZE: 22"x34"

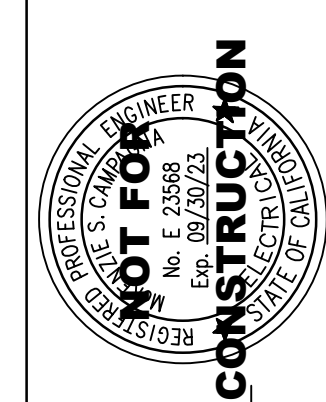


C:\Dropbox (TJCAA)\W Drive- CADD from Sharepoint\2022 Projects\122044 - PWTIP Filter Improvements\Elec\E641.dwg 6-02-23 02:52:27 PM BeeVue



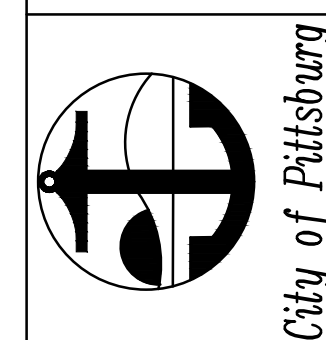
CHLORINE STORAGE AREA PLAN

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



PREPARED UNDER THE DIRECTION OF:
 JOHN SAMUELSON
 City Engineer
 DATE:

ACCEPTED FOR USE:
 JOHN SAMUELSON
 City Engineer
 Date:



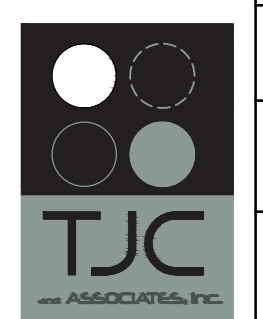
**WATER TREATMENT PLANT
 FILTER REHABILITATION AND
 HYPOCHLORITE CONVERSION**
 CHEMICAL STORAGE AREA PLAN

BY: DRAWN:EV
 CHECKED:MSC
 REVIEWED:EAN
 DATE: 6/2/23
 SCALE: AS SHOWN

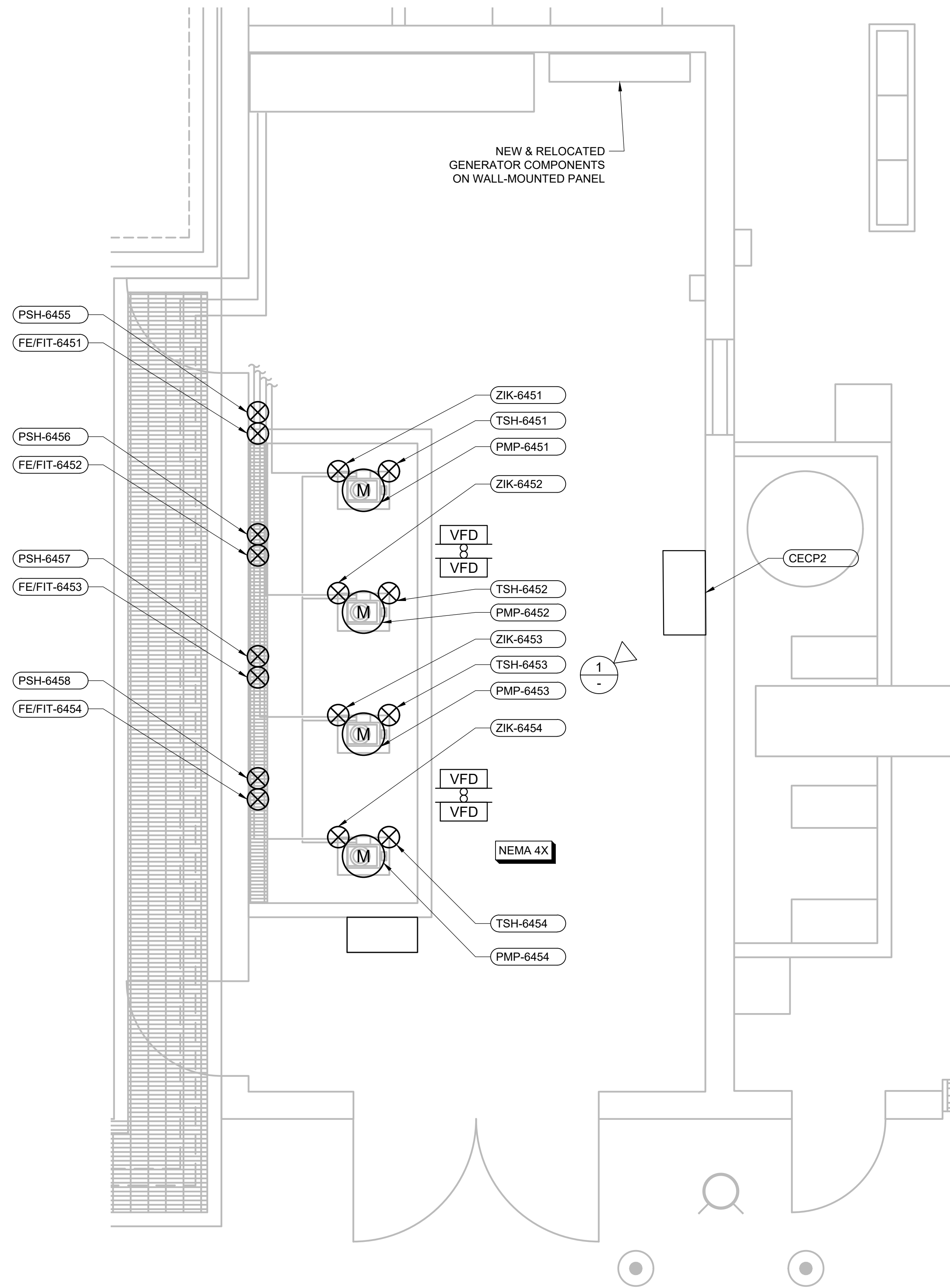
DATE	REV	DESCRIPTION

SHEET NO.
 # OF #

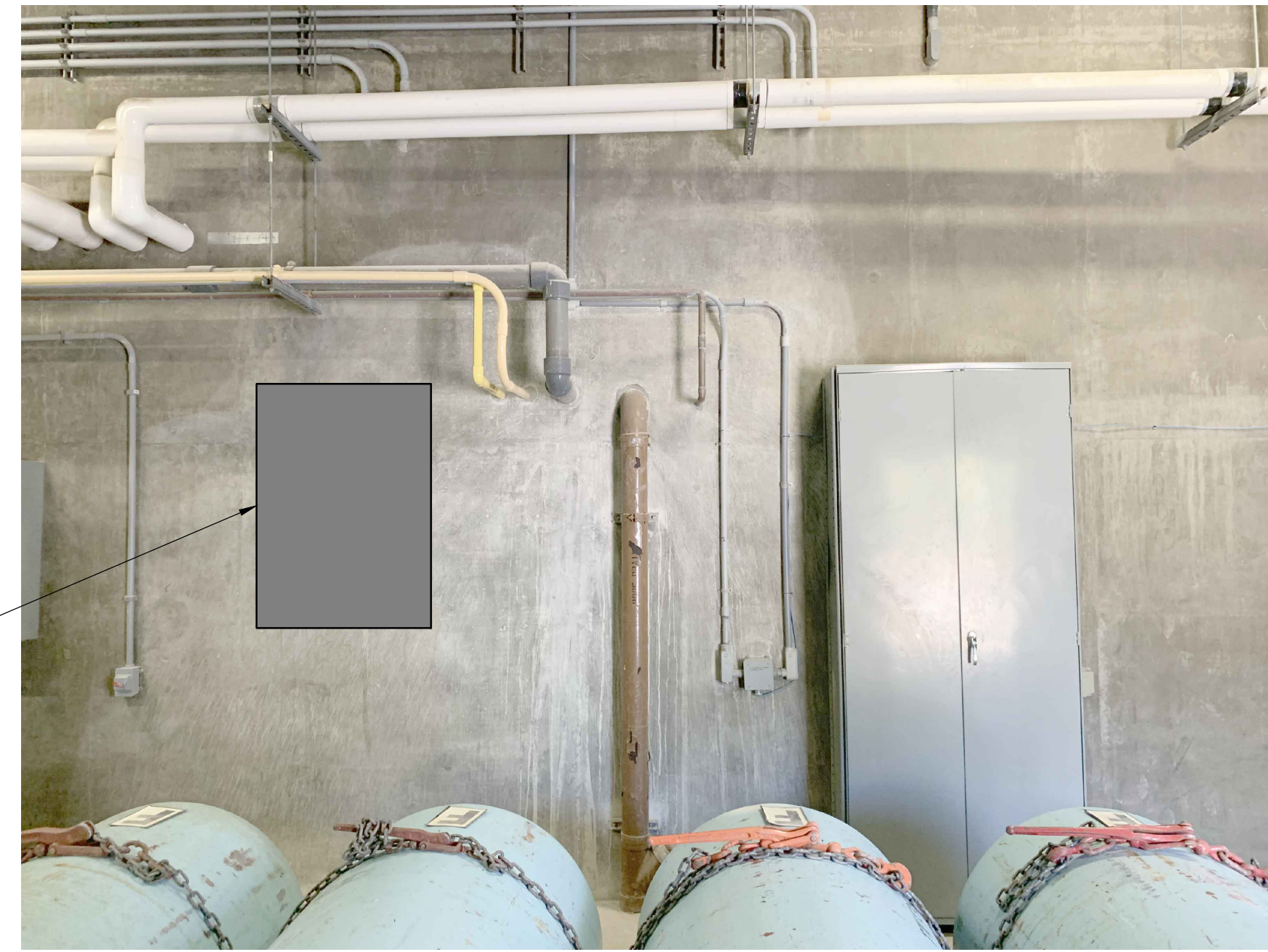
DWG. NO.
E641



THIS LINE IS 1 INCH
 AT FULL SCALE IF
 NOT SCALE ACCORDINGLY
 0 1/2" 1"
 SCALE IN INCHES



(E) CHLORINE ROOM PLAN
SCALE: 3/8"=1'-0"



LOCATION FOR
CECP2

EXISTING CHLORINE ROOM
PHOTO
SCALE: NTS

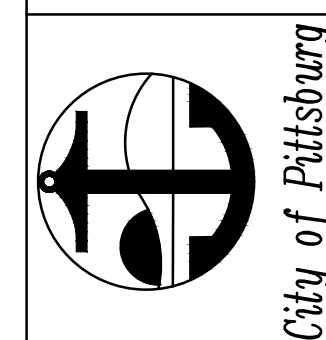


THIS LINE IS 1 INCH
AT FULL SCALE IF
NOT SCALE ACCORDINGLY
0 1/2" 1"
SCALE IN INCHES

DATE	REV	DESCRIPTION	BY	DRAWN: BV	CHECKED: MSC	REVIEWED: EAN	DATE: 6/2/23	SCALE: AS SHOWN

SHEET NO.
OF

DWG. NO.
E661



**WATER TREATMENT PLANT
FILTER REHABILITATION AND
HYPOCHLORITE CONVERSION**
CHLORINE ROOM PLAN

ACCEPTED FOR USE:
JOHN SAMUELSON
City Engineer
Date: _____

PREPARED UNDER THE DIRECTION OF:
JOHN SAMUELSON
DATE: _____

