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City of Tampa  
Contract Administration Department  
306 E. Jackson St. #280A4N  
Tampa, FL 33602  
(813)274-8456



# CITY OF TAMPA

## DAVID L. TIPPIN WATER TREATMENT FACILITY (DLTWTF) FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION ISSUED FOR BID

MAY 2019

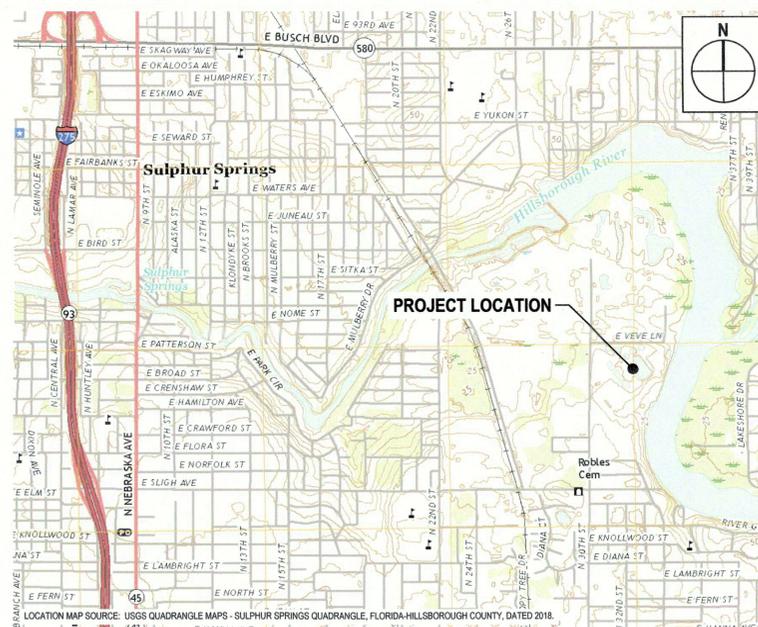
GHD PROJECT NUMBER: 11152370



CITY OF TAMPA, FLORIDA

### AREA MAP

NOT TO SCALE



### LOCATION MAP

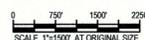
SCALE: 1" = 1500'

**SITE INFORMATION:**

1. ADDRESS: 7125 N. 30TH STREET, TAMPA, HILLSBOROUGH COUNTY, FLORIDA 33610
2. OWNER: CITY OF TAMPA
3. PARCEL ID: A-29-28-19-ZZZ-000005-60700.0

\*SOURCE OF INFORMATION - HILLSBOROUGH COUNTY PROPERTY APPRAISER.

No.	Issue	Drawn	Approved	Date
0	ISSUED FOR BID	CTF	MCM	MAY 2019



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Drafting Check	J. RIDDLE	Design Check	M. MUNZ
Project Manager	M. MUNZ	Date	MAY 2019
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Client	CITY OF TAMPA		
Project	DLTWTF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	COVER SHEET		
Project No.	11152370		
Original Size	Arch D	Sheet No.	G001
		Sheet	1 of 20

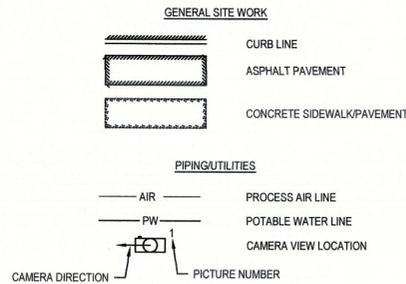
**LIST OF DRAWINGS**

Total	Dis.	Sht.	GENERAL
1	G	001	COVER SHEET
2	G	002	LIST OF DRAWINGS, LEGENDS, ABBREVIATIONS & GENERAL NOTES
<b>CIVIL</b>			
3	C	001	SITE VICINITY MAP
4	C	002	EXISTING CONDITIONS SITE PLAN
5	C	003	EXISTING CONDITIONS PHOTOS
6	C	004	AIR AND POTABLE WATER PIPING PLAN
<b>STRUCTURAL</b>			
7	S	001	STRUCTURAL LEGENDS, ABBREVIATIONS, SYMBOLS & GENERAL NOTES
8	S	002	OVERALL STRUCTURAL SITE PLAN
9	S	003	SULFURIC ACID CONTAINMENT PROPOSED MODIFICATIONS PLAN & SECTIONS
10	S	004	STRUCTURAL DETAILS
<b>MECHANICAL</b>			
11	M	001	SULFURIC ACID FILL STATION PROPOSED MODIFICATIONS PLAN & SECTION
12	M	002	FERRIC SULFATE DEMOLITION PLAN
13	M	003	FERRIC SULFATE PROPOSED MODIFICATIONS PLAN AND SECTIONS
14	M	004	FERRIC SULFATE TANK NO. 1 PROPOSED MODIFICATIONS ELEVATION & ROOF PLAN
15	M	005	FERRIC SULFATE TANK NO. 2 PROPOSED MODIFICATIONS ELEVATION & ROOF PLAN
16	M	006	MECHANICAL DETAILS
<b>ELECTRICAL</b>			
17	E	001	ELECTRICAL LEGEND, ABBREVIATIONS, SYMBOLS & GENERAL NOTES
18	E	002	OVERALL ELECTRICAL SITE PLAN & DETAIL
19	E	003	ELECTRICAL DETAILS
20	E	004	CONTROL ONE-LINE DIAGRAMS

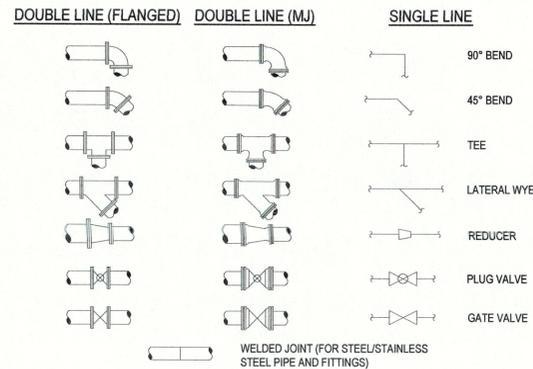
**DRAWING NOTES (APPLIES TO ALL DRAWINGS)**

- EXISTING FACILITIES AND PIPING SHOWN LIGHT. NEW FACILITIES AND PIPING SHOWN HEAVY.
- EXISTING CONDITIONS SHOWN ON THESE CONTRACT DRAWINGS WERE OBTAINED FROM PROVIDED RECORD DRAWINGS, FIELD AS-BUILTS AND AVAILABLE AERIAL IMAGERY - THEREFORE THEIR LOCATION MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING FIELD CONDITIONS AND DIMENSIONS.
- CONTRACTOR TO REPAIR AND RESTORE ANY ADJACENT ROADWAYS, DRIVEWAYS, CURB, SIDEWALKS, UTILITIES, STORM DRAINS, CULVERTS, SWALES, CLEANOUTS, STRUCTURES, EQUIPMENT, AND/OR SUBGRADE THAT IS EXPOSED, DISTURBED, OR OTHERWISE DAMAGED BY THE CONTRACTOR'S ACTIVITIES.
- EXISTING PAVEMENT SHALL BE PROTECTED FROM DAMAGE WHERE POSSIBLE. ANY DEMOLISHED OR DAMAGED PAVEMENT SHALL BE REPAIRED AS SPECIFIED AND TO MATCH EXISTING.
- CONTRACTOR IS TO FIELD VERIFY AND COORDINATE ALL EXISTING PIPING ELEVATIONS, LOCATIONS, SIZE AND TYPE OF MATERIAL WITH NEW PIPING PRIOR TO CONSTRUCTION. CONTRACTOR SHALL FIELD VERIFY AND COORDINATE ALL EQUIPMENT DIMENSIONS AND ELEVATIONS PRIOR TO ORDERING NEW EQUIPMENT.
- CONTRACTOR SHALL CONFORM WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES DURING TRENCHING ACTIVITIES.
- ALL EXISTING PIPING, EQUIPMENT, AND STRUCTURES MUST BE FULLY SUPPORTED DURING CONSTRUCTION AGAINST VERTICAL, HORIZONTAL, AND OVERTURNING FORCES AND MOVEMENT.
- CONTRACTOR SHALL SUPPLY ALL BENDS REQUIRED TO MAINTAIN SMOOTH FLOW LINES, CHANGES IN ELEVATION AND TO MEET ALL TRANSITIONS.
- CONTRACTOR SHALL REPLACE ALL PAVEMENT AND ROADWAYS THAT ARE 1) SHOWN AS REPLACED ON THE CONTRACT DRAWINGS, 2) IMPACTED BY NEW CONSTRUCTION, OR 3) IMPACTED BY CONTRACTOR'S OPERATIONS.

**CIVIL LEGEND**



**PIPING LEGEND**



**LIST OF ABBREVIATIONS**

EL.	ELEVATION
INV.	INVERT (ELEVATION)
T/SLAB	TOP OF SLAB (ELEVATION)
TYP.	TYPICAL

**LIST OF PIPING DESIGNATIONS**

PROCESS	
AIR	PROCESS AIR
FS	FERRIC SULFATE
PW	POTABLE WATER
SA	SULFURIC ACID

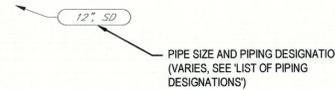
MATERIAL	
GALV	GALVANIZED STEEL
PAP	POLYETHYLENE ALUMINUM POLYETHYLENE (TUBING)
PVC	POLYVINYL CHLORIDE
SS	STAINLESS STEEL

**GENERAL LEGEND**

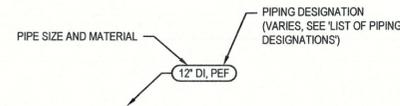
NEW GRAPHICS, EQUIPMENT, STRUCTURES, ETC., ARE SHOWN AS BOLD LINEWORK AND IN THIS TEXT FORMAT.

EXISTING GRAPHICS, EQUIPMENT, CONDITIONS, STRUCTURES, ETC. ARE SHOWN AS LIGHT LINEWORK AND IN THIS TEXT FORMAT.

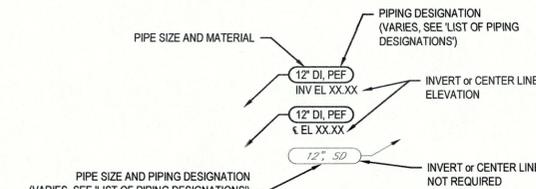
**EXISTING PIPE CALLOUT (FOR PLANS)**



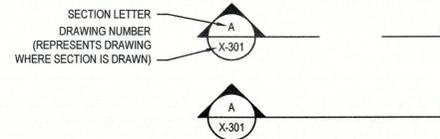
**NEW PIPE CALLOUT (FOR PLANS)**



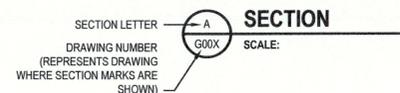
**NEW/EXIST PIPE CALLOUT (FOR SECTIONS)**



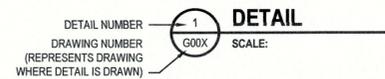
**TYPICAL SECTION MARKS (FOR PLANS)**



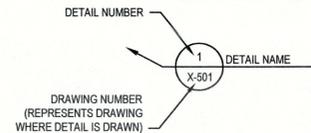
**TYPICAL SECTION SUB-TITLE (FOR SECTIONS)**



**TYPICAL DETAIL MARKS**



**TYPICAL DETAILING**



**NORTH ARROW**



No.	Issue	Drawn	Approved	Date
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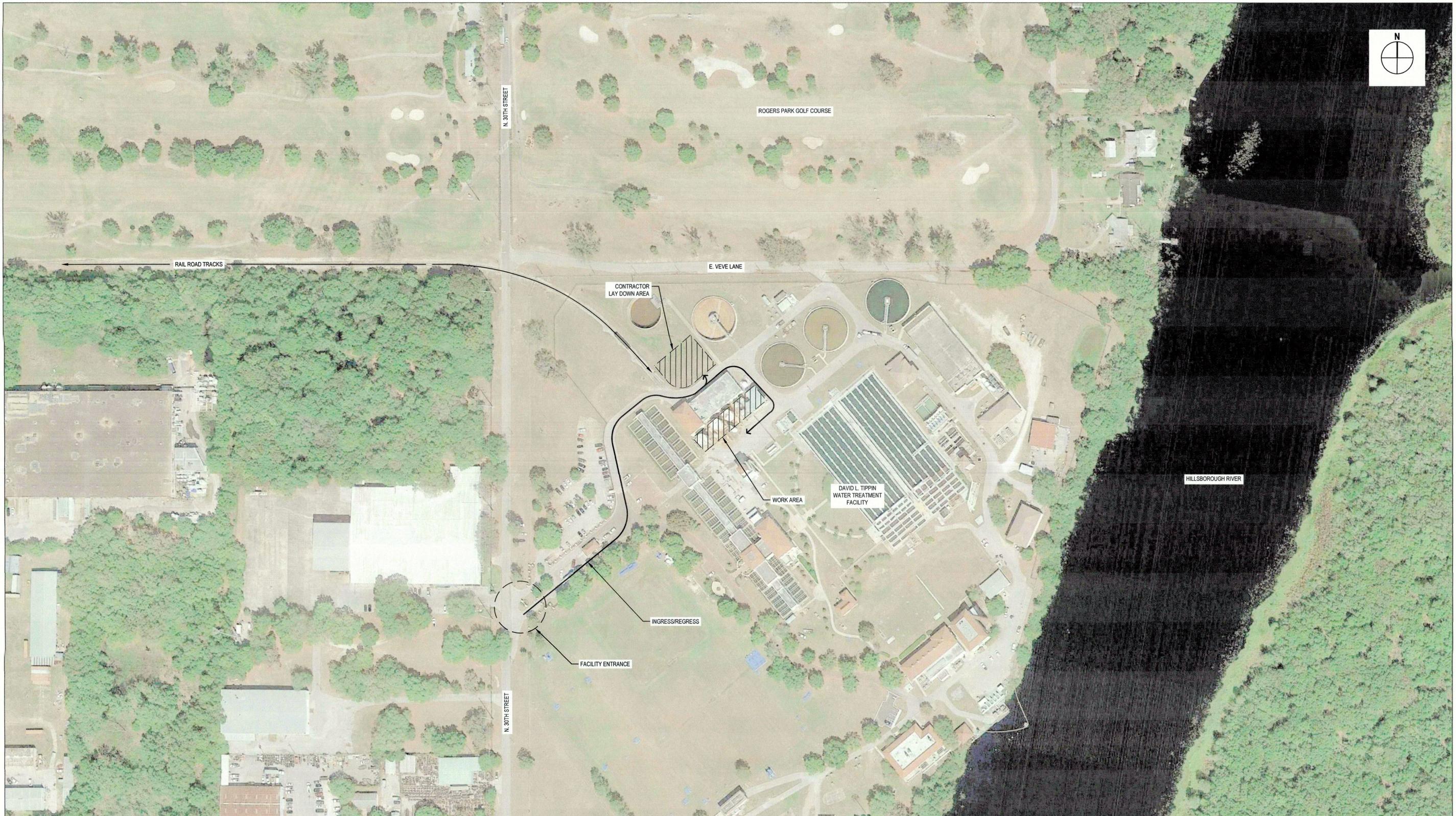
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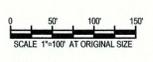
Client	CITY OF TAMPA
Project	DLTWTFF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Title	LIST OF DRAWINGS, LEGENDS, ABBREVIATIONS & GENERAL NOTES
Project No.	11152370
Original Size	G002
Arch	D
Sheet No.	2 of 20



**1 SITE VICINITY MAP**  
SCALE: 1" = 100'

AERIAL IMAGERY VIA Image ©2018 Google, Imagery date: 3/15/2018.

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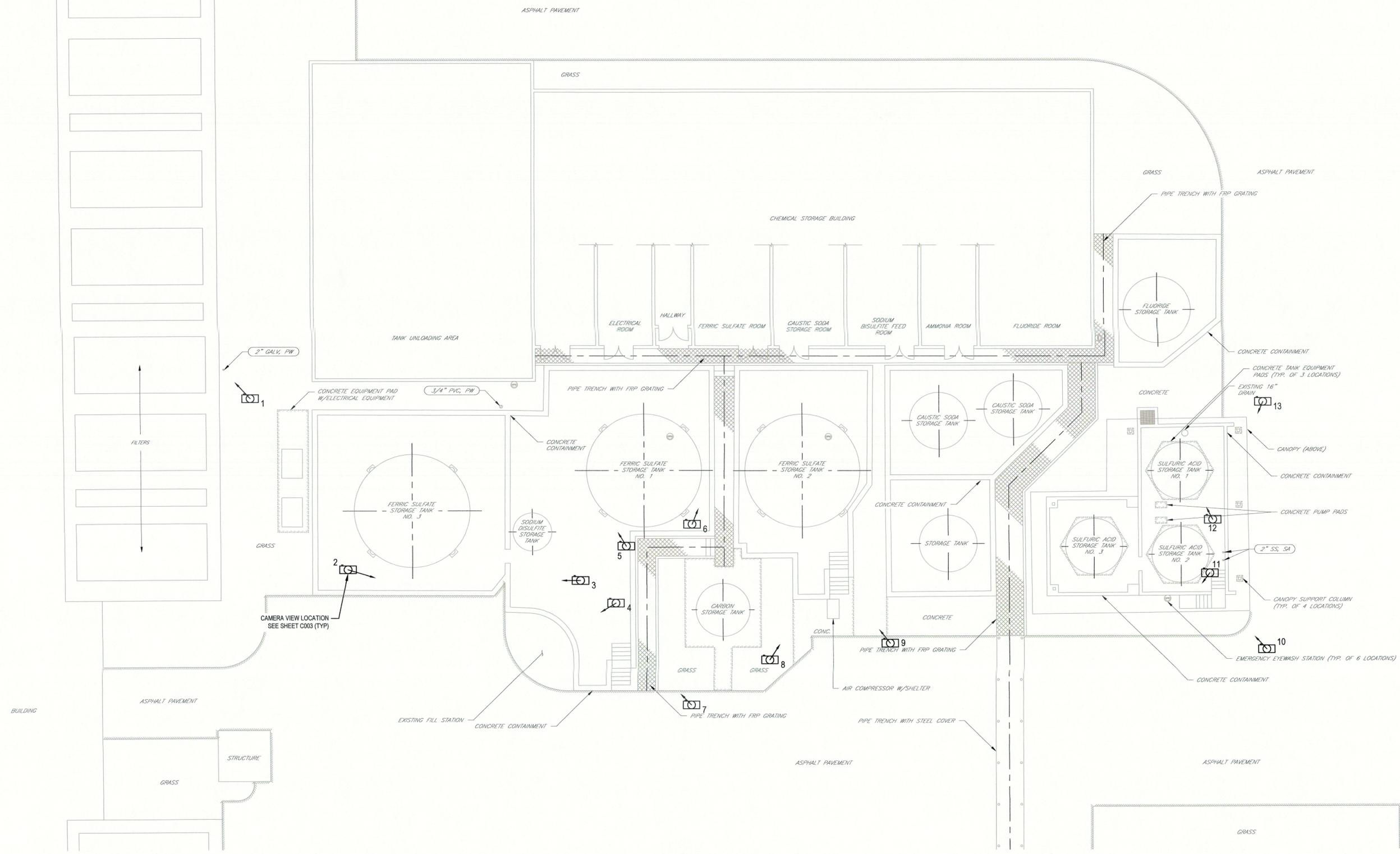
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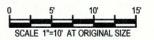
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Client	CITY OF TAMPA		
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	SITE VICINITY MAP		
Project No.	11152370		
Original Size	Arch D	Sheet No.	C001



**2 EXISTING CONDITIONS SITE PLAN**  
SCALE: 1" = 10'

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Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	EXISTING CONDITIONS SITE PLAN		
Project No.	11152370		
Original Size	Arch D	Sheet No.	C002
		Sheet	4 of 20



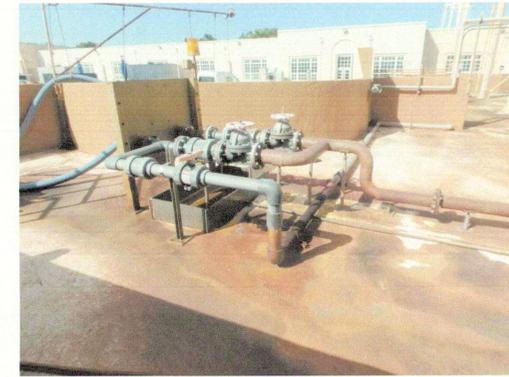
1  
C002 SCALE: NTS  
**POTABLE WATER CONNECTION POINT FOR EYE WASH SUPPLY**



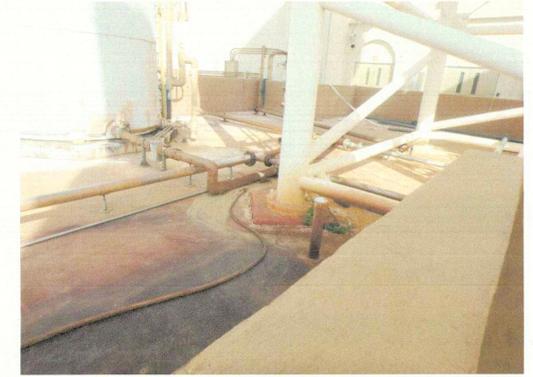
2  
C002 SCALE: NTS  
**EXISTING PVC FERRIC SULFATE TANK NO. 3 FILL LINE AND CONTAINMENT WALL**



3  
C002 SCALE: NTS  
**FERRIC SULFATE CONTAINMENT AND EXISTING CONDUIT/PIPE RACK OVER OPENING**



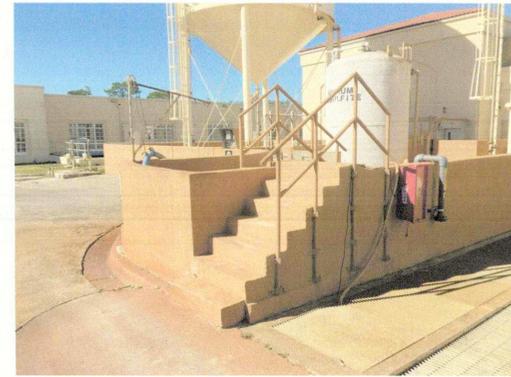
4  
C002 SCALE: NTS  
**EXISTING FERRIC SULFATE FILL PIPING**



5  
C002 SCALE: NTS  
**FERRIC SULFATE CONTAINMENT AND MISCELLANEOUS PIPING**



6  
C002 SCALE: NTS  
**FERRIC SULFATE CONTAINMENT WALL PENETRATIONS**



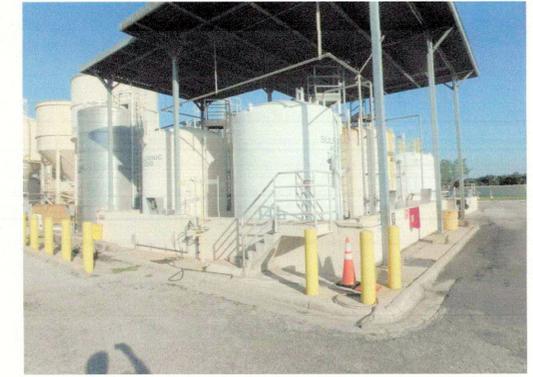
7  
C002 SCALE: NTS  
**FERRIC SULFATE CONTAINMENT STAIRS AND RAILING**



8  
C002 SCALE: NTS  
**EXISTING AIR COMPRESSOR ELECTRICAL CONNECTION**



9  
C002 SCALE: NTS  
**EXISTING AIR COMPRESSOR AND CANOPY**



10  
C002 SCALE: NTS  
**SULFURIC ACID CONTAINMENT AREA AND CANOPY**



11  
C002 SCALE: NTS  
**INTERIOR OF SULFURIC ACID CONTAINMENT AREA AND FAILING COATING**



12  
C002 SCALE: NTS  
**INTERIOR OF SULFURIC ACID CONTAINMENT AREA AND POOLING WATER**



13  
C002 SCALE: NTS  
**SULFURIC ACID CONTAINMENT AREA EXTERIOR**

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No.	Issue	Drawn	Approved	Date

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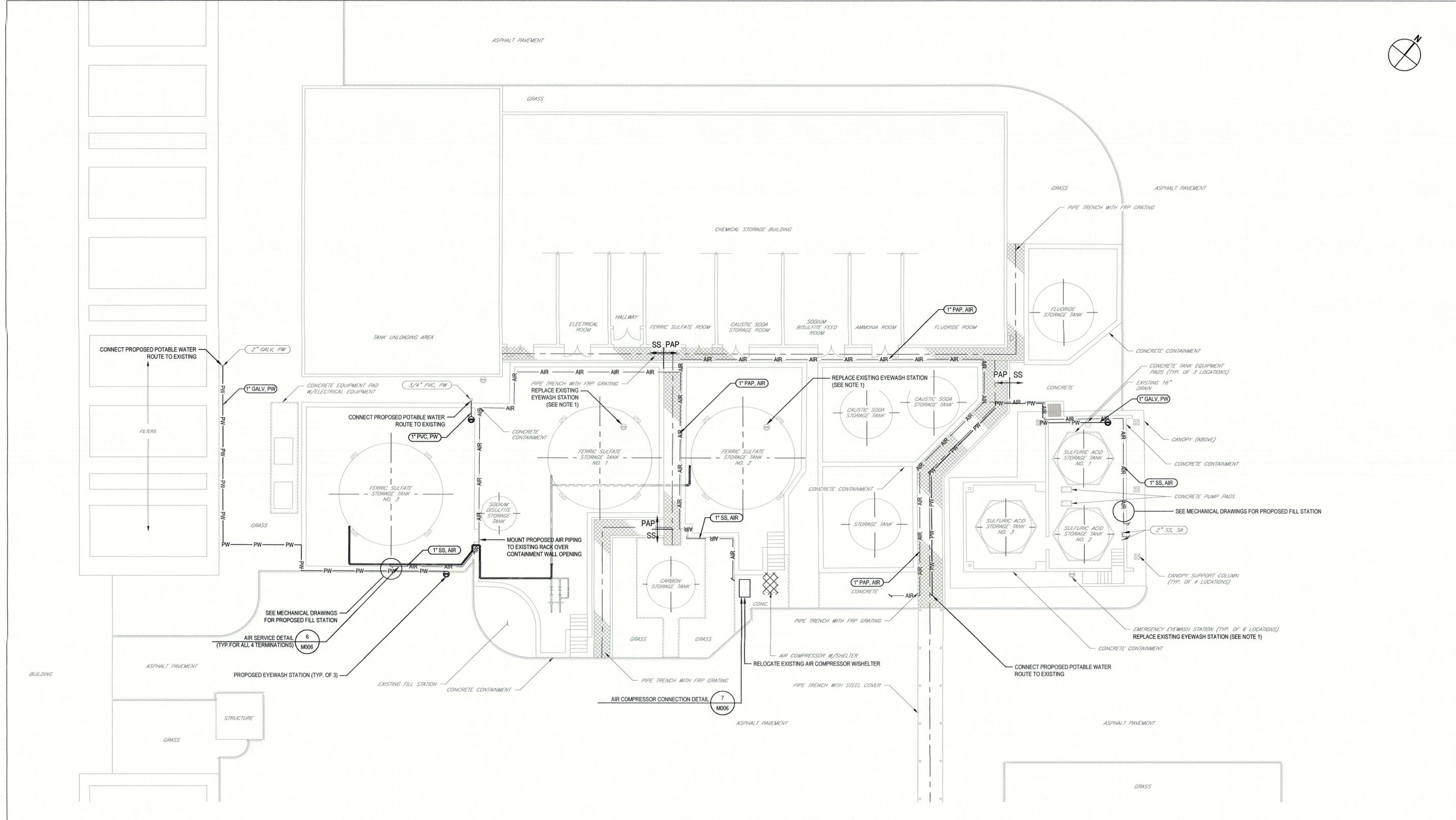
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Client	CITY OF TAMPA		
Project	DLTWT FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	EXISTING CONDITIONS PHOTOS		
Project No.	11152370		
Original Size	Arch D	Sheet No.	C003
		Sheet	5 of 20

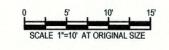


**1 AIR AND POTABLE WATER PIPING PLAN**  
SCALE: 1" = 10'

- NOTES:**
1. REPLACE EXISTING EYEWASH STATION WITH NEW EYEWASH STATION CONFORMING WITH SPEC 22 45 16, EYEWASH EQUIPMENT.

**LEGEND**  
[Symbol] TO BE RELOCATED

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Client	CITY OF TAMPA		
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	AIR AND POTABLE WATER PIPING PLAN		
Project No.	11152370	Original Size	Arch D
Sheet No.	C004	Scale	1" = 10'

**STRUCTURAL ABBREVIATIONS**

AB	ANCHOR BOLT	L	ANGLE
ADDL	ADDITIONAL	LF	LINEAR FEET
AFF	ABOVE FINISHED FLOOR	LL	LIVE LOAD
AGGR	AGGREGATE	LLH	LONG LEG HORIZONTAL
ALT	ALTERNATE	LLV	LONG LEG VERTICAL
ALUM	ALUMINUM	LWL	LOW WATER LEVEL
ARCH	ARCHITECT OR ARCHITECTURAL		
ASPH	ASPHALT	MAS	MASONRY
		MATL	MATERIAL
B/	BOTTOM OF	MAX	MAXIMUM
B/F	BOTTOM OF FOOTING	MECH	MECHANICAL
BTW	BETWEEN	MEMB	MEMBRANE
BLDG	BUILDING	MFR	MANUFACTURER
BM	BEAM	MIN	MINIMUM
BOT	BOTTOM	MISC	MISCELLANEOUS
BP	BASE PLATE	MTL	METAL
BRG	BEARING	MULT	MULTIPLE
		N	NORTH
CC	CENTER TO CENTER	NF	NEAR FACE
CEM	CEMENT	NIC	NOT IN CONTRACT
CIRC	CIRCULAR	NO	NUMBER
CIRCUMF	CIRCUMFERENTIAL	#	NUMBER
CS JT	CONSTRUCTION JOINT	NOM	NOMINAL
CL	CENTER LINE	NTS	NOT TO SCALE
CL JT	CONTROL JOINT		
CLR	CLEAR	OC	ON CENTERS
CLG	CEILING	OD	OUTSIDE DIAMETER
CMU	CONCRETE MASONRY UNIT	OF	OUTSIDE FACE
COL	COLUMN	OPNG	OPENING
CONC	CONCRETE	OPP	OPPOSITE
CONN	CONNECTION		
CONST	CONSTRUCTION	PL	PLATE / PROPERTY LINE
CONT	CONTINUOUS	PAR	PARALLEL
CONTR	CONTRACTOR	PCF	POUNDS PER CUBIC FOOT
COORD	COORDINATE	PERP	PERPENDICULAR
CP	CONCRETE PLANK	PIL	PILASTER
CRF	CHEMICAL RESISTANT FINISH	PL	PLATE / PROPERTY LINE
CRS	COURSE	PLF	POUNDS PER LINEAR FOOT
CTRD	CENTERED	PLBG	PLUMBING
		PLYWD	PLYWOOD
DEFL	DEFLECTION	PR	PAIR
DET	DETAIL	PREFAB	PREFABRICATED
DBL	DOUBLE	PRV	PRESSURE RELIEF VALVE
DIA	DIAMETER	PSF	POUNDS PER SQUARE FOOT
Ø	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIAG	DIAGONAL	PT	POINT / PRESSURE TREATED
DIM	DIMENSION		
DIST	DISTANCE	QTY	QUANTITY
DJ	DOUBLE JOIST		
DL	DEAD LOAD	RAD	RADIUS
DN	DOWN	RCP	REINFORCED CONCRETE PIPE
DR	DOOR	REINF	REINFORCING
DWG	DRAWING	REIN	REMOVE / REMAINING
DWL	DOWEL	REP	REPAIR
		REQD	REQUIRED
EA	EACH	REV	REVISE
EF	EACH FACE	RF	ROOF
EJ	EXPANSION JOINT	RM	ROOM
EL	ELEVATION	RO	ROUGH OPENING
ELEC	ELECTRIC		
ENGR	ENGINEER	S	SOUTH
EQ	EQUAL	SCH	SCHEDULE
EQUIP	EQUIPMENT	SECT	SECTION
EW	EACH WAY	SF	SQUARE FOOT
EXIST	EXISTING	SHT	SHEET
EXP	EXPANSION	SIM	SIMILAR
EXT	EXTERIOR/EXTENSION	STL JST	STEEL JOIST
		SYP	SOUTHERN YELLOW PINE
FAB	FABRICATE	SPEC	SPECIFICATION
FF	FAR FACE	SQ	SQUARE
FIN	FINISH	SS	STAINLESS STEEL
FLR	FLOOR	STIRR	STIRRUPS
FND	FOUNDATION	STL	STEEL
FOC	FACE OF COLUMN	STRUC	STRUCTURAL / STRUCTURE
FRP	FIBERGLASS REINFORCED	SURF	SURFACE
PLASTIC		SYM	SYMMETRICAL
FS	FOOTING STEP		
FT	FEET	T & B	TOP AND BOTTOM
FTG	FOOTING	T	TOP
		T/D	TOP OF DECK
GALV	GALVANIZED	T/FTG	TOP OF FOOTING
GR	GRADE / GUARDRAIL	T/G	TOP OF GROUT
GRTG	GRATING	T/GRTG	TOP OF GRATING
		T/MAS	TOP OF MASONRY
H PT	HIGH POINT	T/S	TOP OF SLAB
HVAUC	HEATING AND VENTILATING	T/STL	TOP OF STEEL
HM	HOLLOW METAL	T/W	TOP OF WALL
H	HORIZONTAL	TEMP	TEMPORARY
HOR	HORIZONTAL	THK	THICK
HT	HEIGHT	TK	TANK
HWL	HIGH WATER LEVEL	TOL	TOLERANCE
		TYP	TYPICAL
ID	INSIDE DIAMETER		
IF	INSIDE FACE	UNO	UNLESS NOTED OTHERWISE
INCL	INCLUDE	UV	ULTRAVIOLET
INSUL	INSULATION		
INT	INTERIOR	W/	WITH
INV	INVERT	W/O	WITHOUT
ISO	ISOLATION	WG	WEIR GATE
		WP	WORKING POINT
JST	JOIST	WS	WATERSTOP
JT	JOINT	WT	WEIGHT
		WWF	WELDED WIRE FABRIC
K	1000 POUNDS (1 KIP)		
L PT	LOW POINT		

**MATERIAL SYMBOLS**

	UNDISTURBED EARTH
	COMPACTED EARTH
	COMPACTED BACKFILL
	CRUSHED STONE SUBGRADE
	MUDMAT
	ASPHALT PAVEMENT
	STRUCTURAL CONCRETE
	FILL CONCRETE
	CONCRETE MASONRY GROUT
	CONCRETE MASONRY (BLOCK)
	CLAY MASONRY (BRICK)
	ALUMINUM GRATING
	FRP GRATING
	SOLID SURFACE FRP PLANK/GRATING
	ALUMINUM CHECKERED PLATE
	CAST IRON GRATING
	WOOD BLOCKING
	RIGID INSULATION
	ITEM TO BE DEMOLISHED
	FERROUS OR NON-FERROUS METAL IN SECTION
	ALUMINUM PLANK
	ROCK

**LINETYPE LEGEND**

	EXISTING ITEM
	NEW ITEM
	HIDDEN ITEM
	CENTERLINE
	GUARDRAIL
	VAPOR BARRIER
	CHEMICAL RESISTANT FINISH

**GENERAL STRUCTURAL NOTES**

GENERAL

- STRUCTURAL DRAWINGS SHALL BE COORDINATED AND USED IN CONJUNCTION WITH OTHER DRAWINGS, CIVIL (SITE), MECHANICAL, AND ELECTRICAL DRAWINGS. ANY APPARENT DISCREPANCIES SHALL BE BROUGHT TO ENGINEER'S ATTENTION FOR CLARIFICATION PRIOR TO PROCEEDING ON SUCH WORK.
- NO CHANGES OF THE STRUCTURAL SYSTEM AS INDICATED ON THESE STRUCTURAL DRAWINGS SHALL BE DONE PRIOR TO RECEIVING WRITTEN APPROVAL FROM THE ENGINEER.
- THESE STRUCTURAL DRAWINGS DO NOT IDENTIFY COMPONENTS REQUIRED FOR CONSTRUCTION SAFETY. THE CONTRACTOR SHALL BE RESPONSIBLE TO IDENTIFY AND PROVIDE COMPONENTS REQUIRED FOR CONSTRUCTION SAFETY.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS PRIOR TO STARTING AND CONTINUOUSLY DURING CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARILY BRACING AND MAINTAINING THE STABILITY OF THE STRUCTURES DURING DEMOLITION AND CONSTRUCTION. THE STRUCTURES SHALL BE ASSUMED UNSTABLE UNTIL ALL OF THE WALLS, ROOF (IF APPLICABLE), CONNECTIONS, AND PERMANENT BRACING ARE FULLY INSTALLED.
- SECTIONS AND DETAILS ON THE STRUCTURAL DRAWINGS ARE TO BE CONSIDERED TYPICAL FOR SIMILAR CONSTRUCTION NOT FULLY DETAILED.
- CHEMICAL ADHESIVE SYSTEMS SHALL BE USED TO INSTALL ALL COMPONENTS AND ACCESSORIES (BOLTS, DOWELS, ETC.) INTO HARDENED CONCRETE, UNLESS NOTED OTHERWISE.
- THE NOTES ON THIS SHEET ARE ONLY INTENDED TO SUPPLEMENT THE SPECIFICATIONS. REFER TO THE APPLICABLE SPECIFICATIONS FOR ALL REQUIREMENTS AND ADDITIONAL INFORMATION.

EARTHWORK/FOUNDATION NOTES (REFERENCE DIVISION 31 SPECIFICATIONS):

- ALL FOUNDATION WORK, INCLUDING (BUT NOT LIMITED TO) SUBGRADE PREPARATION AND PLACEMENT OF FILL MATERIAL, SHALL BE PERFORMED AS DESCRIBED IN DIVISION 31 OF THE SPECIFICATIONS.
- MAXIMUM ALLOWABLE SOIL PRESSURE = 2,000 PSF.
- LOWER BOTTOM OF FOOTINGS AS REQUIRED TO REACH FIRM, UNDISTURBED SOIL.
- BACKFILL UNDER SLABS TO BE COMPACTED TO 95% PROCTOR.
- ALL FOUNDATIONS SHALL BE CONSTRUCTED ON FIRM SUBGRADE, BEDROCK, OR COMPACTED STRUCTURAL FILL.
- OPEN EXCAVATIONS SHALL BE PROTECTED FROM RAIN AND/OR GROUNDWATER. SUCH EXCAVATIONS MAY BE PROTECTED BY CASTING A MINIMUM 3-INCH THICK CLSM MUD MAT.
- CONTRACTOR SHALL ALLOW OWNER'S REPRESENTATIVE OR ENGINEER TO VERIFY ALL SUBGRADE CONDITIONS PRIOR TO PLACEMENT OF FOUNDATIONS, BASE SLABS, AND SLABS-ON-GRADE.

CONCRETE NOTES (REFERENCE DIVISION 3 SPECIFICATIONS):

- ALL CONCRETE SHALL BE MIXED, CONVEYED, PLACED, CURED, AND TESTED IN ACCORDANCE WITH ACI 301, ACI 318, ACI 350, AND CHAPTER 19 OF THE BUILDING CODE REFERENCED IN THE "STRUCTURAL DESIGN CRITERIA". REFER TO DIVISION 3 SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- AIR ENTRAINMENT IS REQUIRED FOR ALL EXTERIOR EXPOSED CONCRETE AND FOR ALL LIQUID CONTAINMENT STRUCTURES.
- TYPICAL REINFORCING BAR LAP LENGTHS (SPLICES) SHALL BE AS SHOWN IN THE "REINFORCEMENT LAP SPLICE LENGTHS" TABLE ON DWG S001, UNLESS NOTED OTHERWISE ON THE CONTRACT DRAWINGS.
- APPLY BONDING AGENT PRIOR TO CASTING CONCRETE AGAINST HARDENED CONCRETE.
- ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" CHAMFER (INCLUDING TOP EDGES AND OUTSIDE CORNERS OF WALLS AND SLABS), UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL PROPOSE ADDITIONAL CONSTRUCTION JOINTS AS NEEDED TO FACILITATE CONSTRUCTION. ALL PROPOSED CONSTRUCTION JOINTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTING.
- CONTRACTOR SHALL COORDINATE ALL OPENINGS AND PENETRATIONS IN CONCRETE WITH ALL OTHER TRADES.
- ALL CONCRETE DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR IN AN APPROVED MANNER.
- ALL EXISTING AND NEW PENETRATIONS INTO UNDERGROUND STRUCTURES SHALL BE SEALED WATERTIGHT AGAINST INFILTRATION OF GROUNDWATER AND SUBMERGENCE.

PROTECTION OF EXISTING FACILITIES:

- CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PROTECT THE INTEGRITY OF EXISTING STRUCTURES WHILE CARRYING OUT THE REQUIRED WORK. ANY DAMAGE CAUSED TO EXISTING STRUCTURES SHALL BE REPORTED TO THE ENGINEER. THE DAMAGE SHALL BE REPAIRED IN-KIND AT CONTRACTOR'S EXPENSE TO THE OWNER'S SATISFACTION.

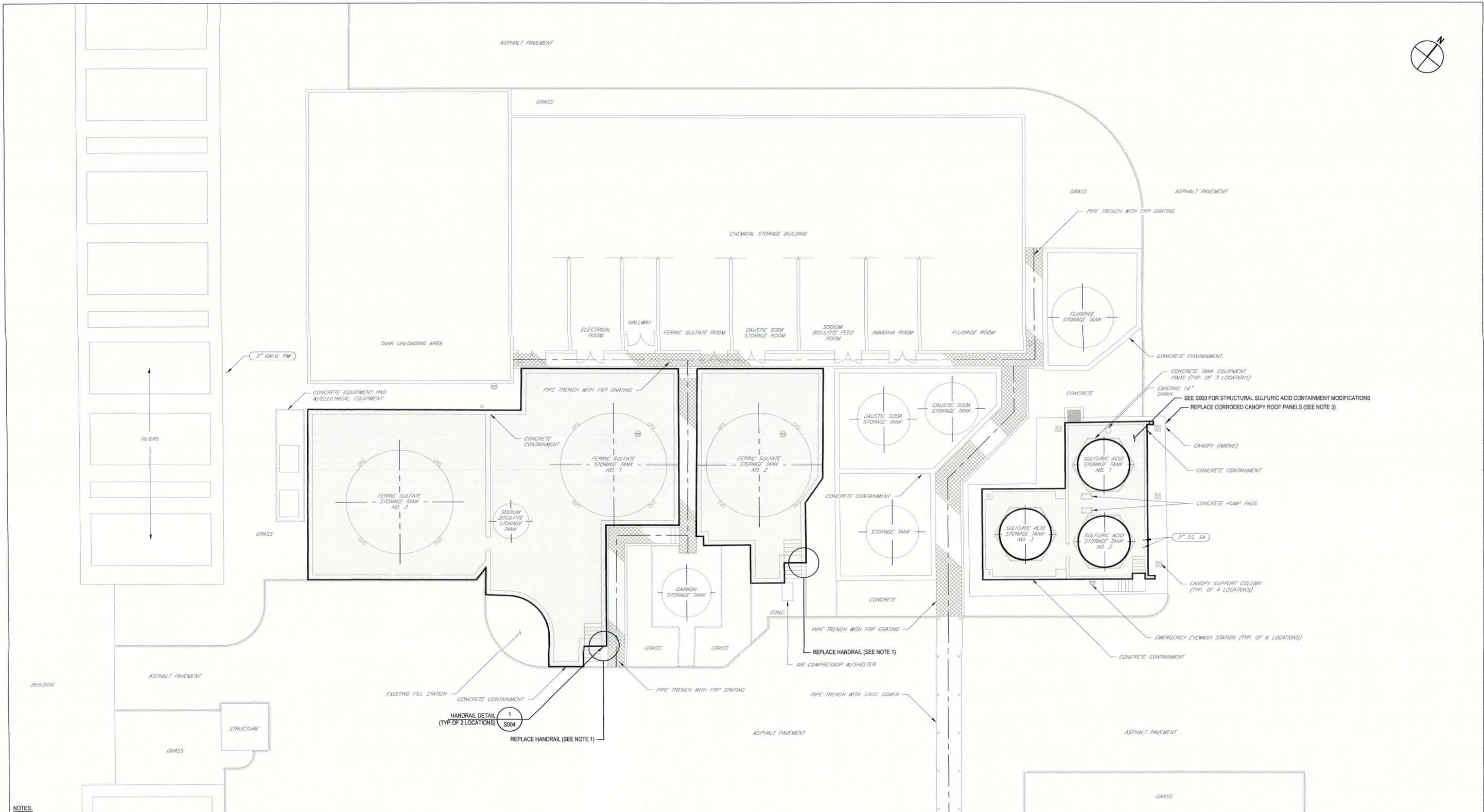
Bar is one inch on original size sheet  
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Drafting Check	J. RIDDLE	Design Check	S. ANDERSON
Project Manager	M. MUNZ	Date	MAY 2019

Client	CITY OF TAMPA
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Title	STRUCTURAL LEGENDS, ABBREVIATIONS, SYMBOLS & GENERAL NOTES
Project No.	11152370
Original Size	S001
Scale	NOT TO SCALE
Arch D	Sheet No. S001
Sheet	7 of 20

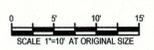


- NOTES:**
1. REPLACE EXISTING HANDRAIL PER SPECIFICATION 05 52 00 AND DETAIL PROVIDED ON STRUCTURAL DETAIL SHEET.
  2. FERRIC SULFATE TANKS ARE ELEVATED. EXPOSED CONCRETE BENEATH TANKS, INCLUDING TANK PADS, SHALL BE COATED.
  3. ROOF PANELS SHALL BE REPLACED AS DIRECTED IN FIELD BY ENGINEER. PANELS SHALL BE 22 GATE TYPE "B" GALVANIZED ROOF PANELS ATTACHED TO SUPPORTS WITH #12 TEK SCREWS (36/3) LAYOUT. ASSUME 100 SQ FT OF REPLACEMENT IS REQUIRED.

**1 PROPOSED MODIFICATIONS SITE PLAN**  
SCALE: 1" = 10'

**LEGEND**  
 PREPARE SURFACE AND APPLY COATING PER SPECIFICATION 09 96 35, CHEMICAL RESISTANT COATINGS (SEE NOTE 2)

No.	Issue	Drawn	Approved	Date
0	ISSUED FOR BID	CTF	SHA	MAY 2019



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0 1'

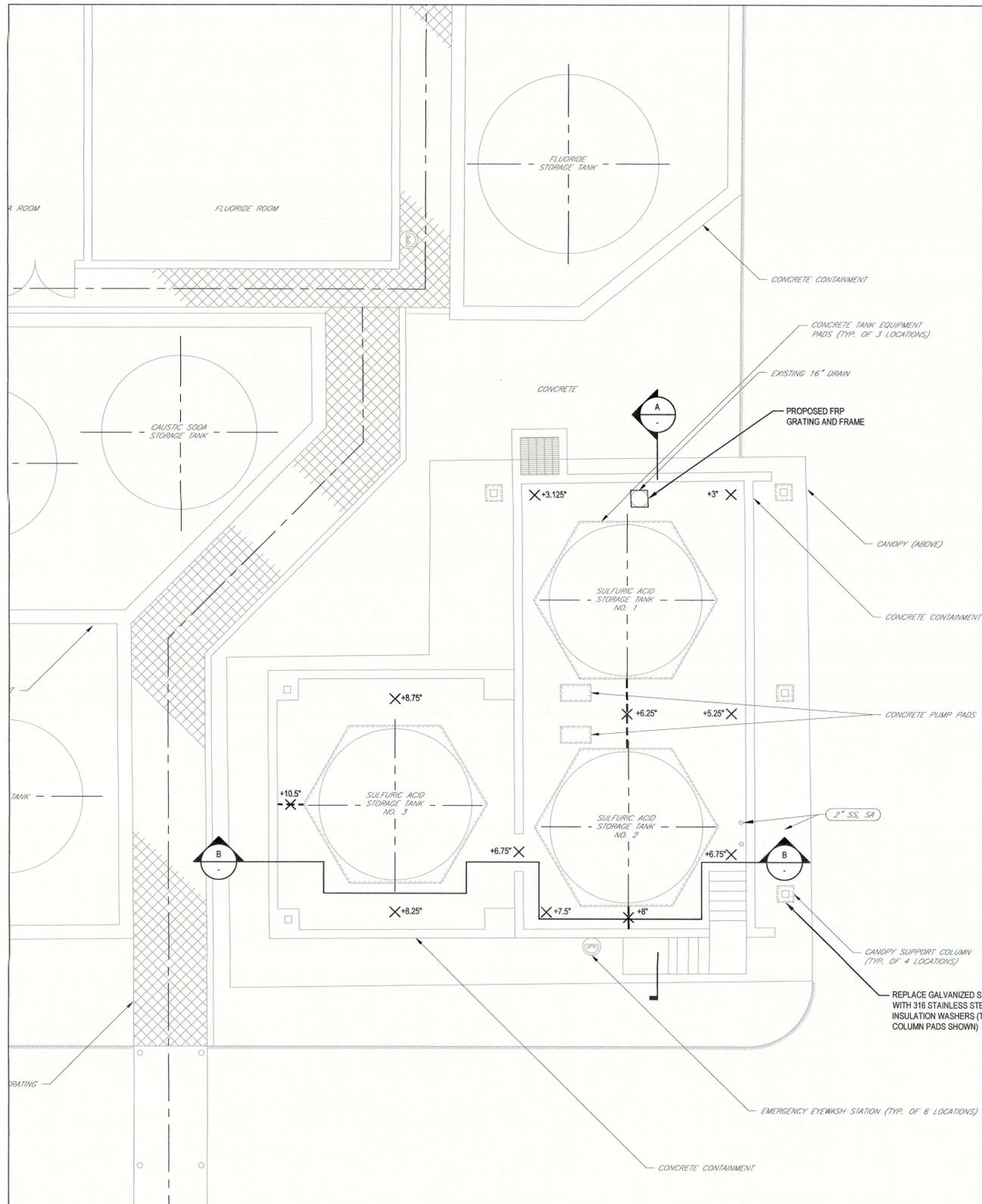
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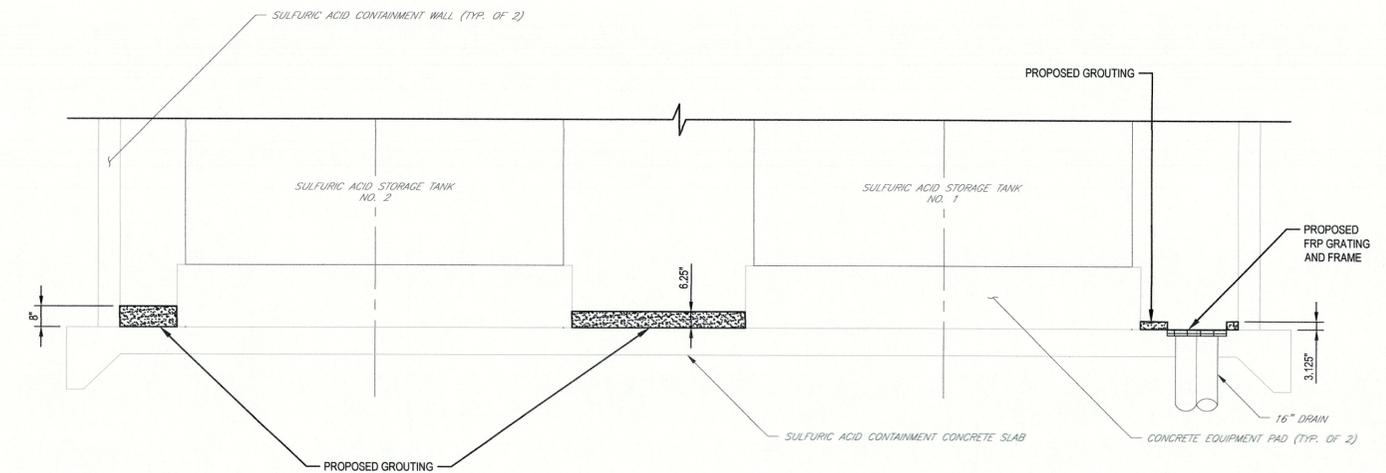
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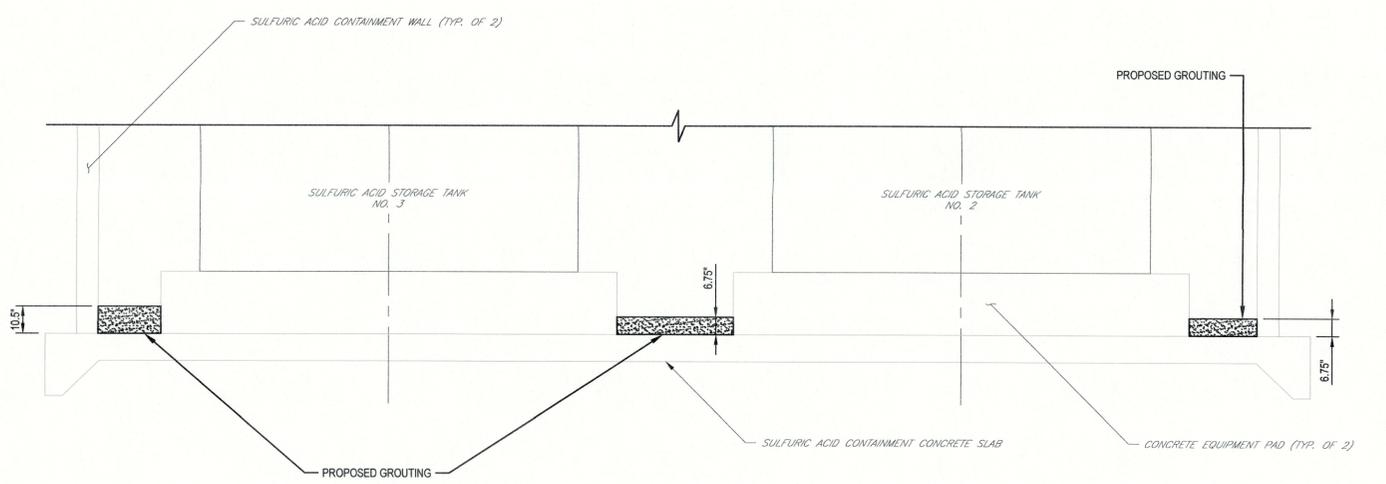
Client	CITY OF TAMPA		
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	OVERALL STRUCTURAL SITE PLAN		
Project No.	11152370		
Original Size	Arch D	Sheet No.	S002
		Sheet	8 of 20



**1 PLAN**  
SCALE: 1" = 5'



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



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

**LEGEND**  
 - - - PROPOSED SLOPE CREST  
 X +7.5' PROPOSED CHANGE IN FINISHED FLOOR ELEVATION (SEE NOTE 1)

**NOTES:**  
 1. SPOT ELEVATIONS SHOWN REFERENCE PROPOSED CHANGE IN FINISHED FLOOR ELEVATION. IN GENERAL, A MINIMUM SLOPE OF 3/16" PER ONE FOOT SHOULD BE PROVIDED TO DRAIN CONTAINMENT AREA TOWARDS EXISTING DRAIN.

0	ISSUED FOR BID	CTF	SHA	MAY 2019
No.	Issue	Drawn	Approved	Date

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 0 1"

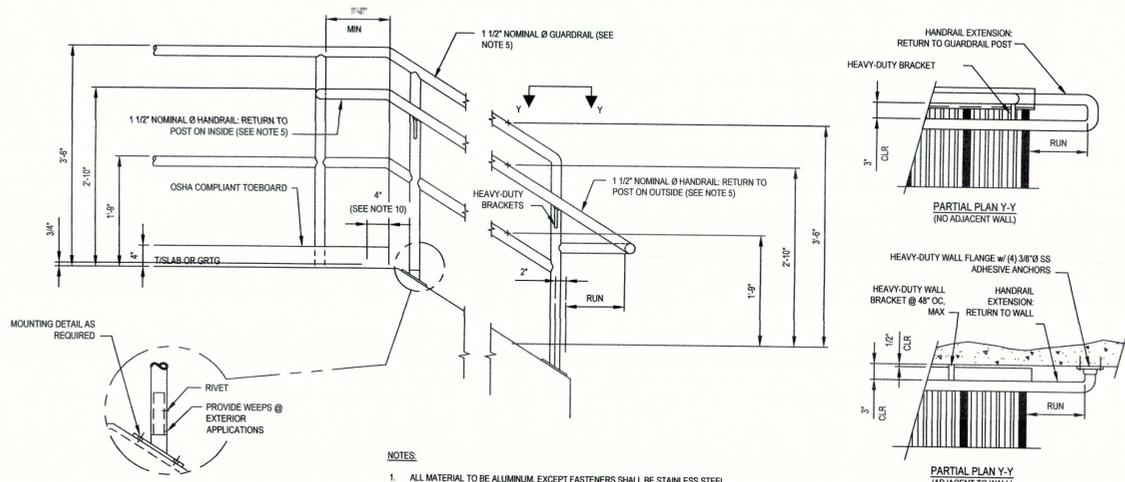
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 MATTHEW C. MUNZ  
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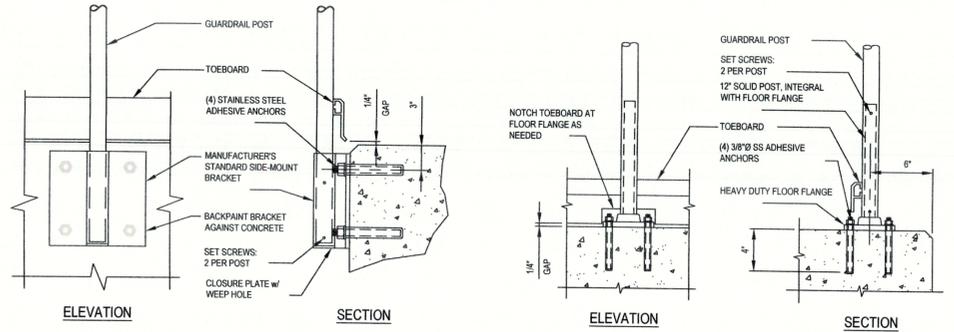
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Client	CITY OF TAMPA
Project	DLTWTFF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Title	SULFURIC ACID CONTAINMENT PROPOSED MODIFICATIONS PLAN & SECTIONS
Project No.	11152370
Original Size	Arch D
Sheet No.	S003



- NOTES:**
1. ALL MATERIAL TO BE ALUMINUM, EXCEPT FASTENERS SHALL BE STAINLESS STEEL.
  2. GUARDRAILS ARE NOT REQUIRED WHERE STAIR STRINGER IS PARALLEL TO AND MOUNTED LESS THAN 4" FROM A CONTINUOUS STRUCTURAL WALL. IN SUCH CASES, HANDRAIL MAY BE MOUNTED TO WALL USING HEAVY-DUTY BRACKETS. HANDRAIL SHALL BE POSITIONED TO PROVIDE CONTINUOUS 3" CLEARANCE TO NEAREST OBSTRUCTION.
  3. RAILINGS SHALL BE CONSTRUCTED IN CONFORMANCE WITH SECTION 05300 OF THE TECHNICAL SPECIFICATIONS. RAILINGS, BRACKETS, STRINGERS, TREADS, AND OTHER COMPONENTS SHALL BE CONSTRUCTED TO SUPPORT THE LOADS STATED IN THOSE SECTIONS.
  4. ALL RAILINGS TO HAVE 4" KICKPLATE UNLESS MOUNTED ON CURB.

**RAILING DETAIL**



GUARDRAIL DETAIL (TOP MOUNTED ON CONCRETE)

GUARDRAIL DETAIL (SIDE-MOUNTED TO CONCRETE OR CHANNEL)

**1 HANDRAIL DETAIL**  
NOT TO SCALE

No.	Issue	Drawn	Approved	Date
0	ISSUED FOR BID	CTF	SHA	MAY 2019

Bar is one inch on original size sheet  
0 1'

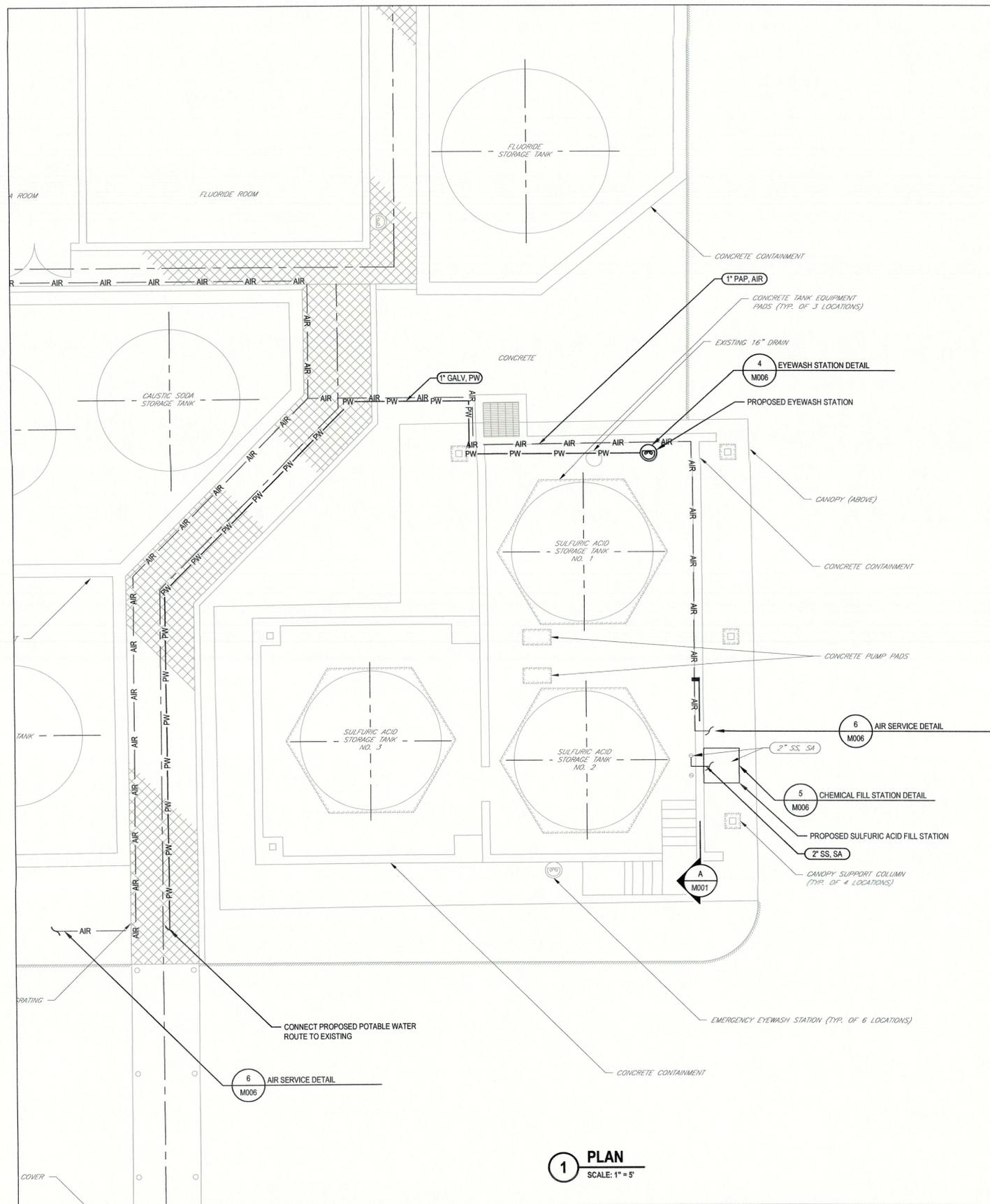
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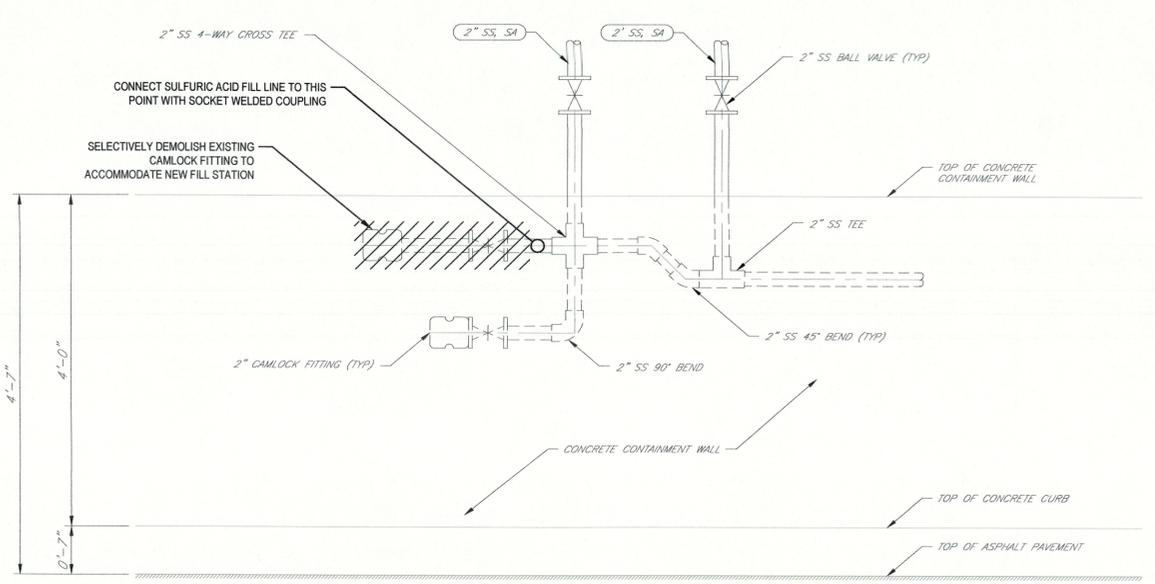
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Project Manager	M. MUNZ	Date	MAY 2019
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Client	CITY OF TAMPA
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Title	STRUCTURAL DETAILS
Project No.	11152370
Original Size	Arch D
Sheet No.	S004



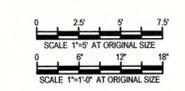
**1 PLAN**  
SCALE: 1" = 5'



**A SECTION**  
**SULFURIC ACID FILL PIPE MODIFICATIONS**  
SCALE: 1" = 1'-0"

LEGEND  
 TO BE DEMOLISHED

No.	Issue	Drawn	Approved	Date
0	ISSUED FOR BID	CTF	MCM	MAY 2019



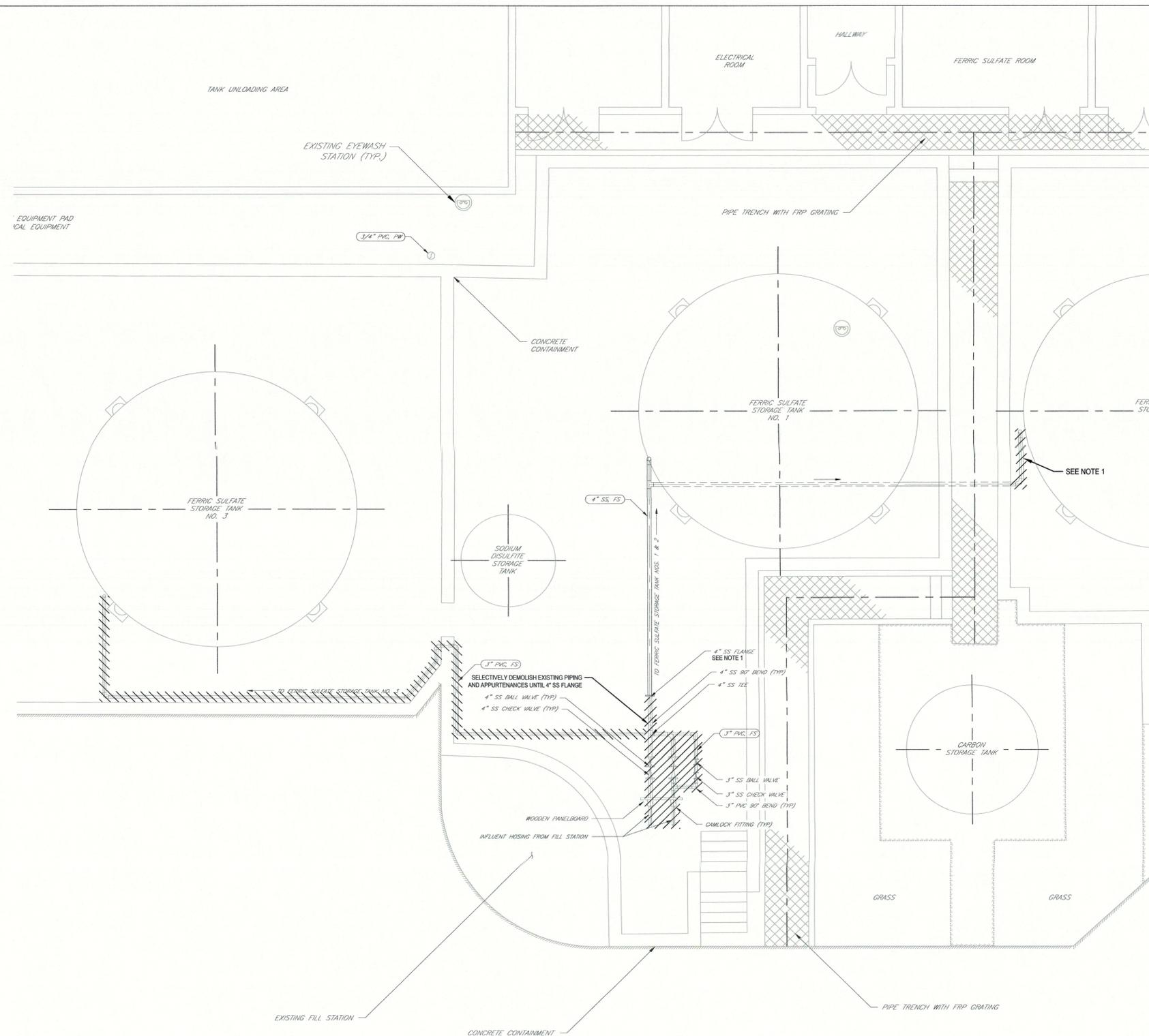
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Title	SULFURIC ACID FILL STATION PROPOSED MODIFICATIONS PLAN & SECTION
Project No.	11152370
Original Size	Arch D
Sheet No.	M001

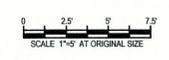


**1 PLAN**  
SCALE: 1" = 5'

**LEGEND**  
 TO BE DEMOLISHED

- NOTES:**
- EXISTING FERRIC SULFATE TANK #2 FILL PIPING SHALL BE DEMOLISHED FROM TANK FILL NOZZLE TO FLANGE AT CONTAINMENT WALL.

0	ISSUED FOR BID	CTF	MCM	MAY 2019
No.	Issue	Drawn	Approved	Date



Bar is one inch on original size sheet  
 0 1'

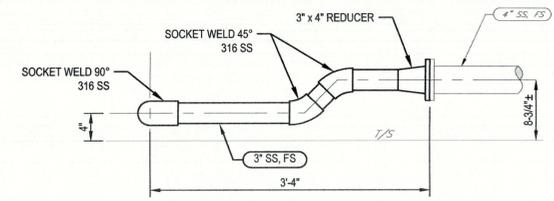
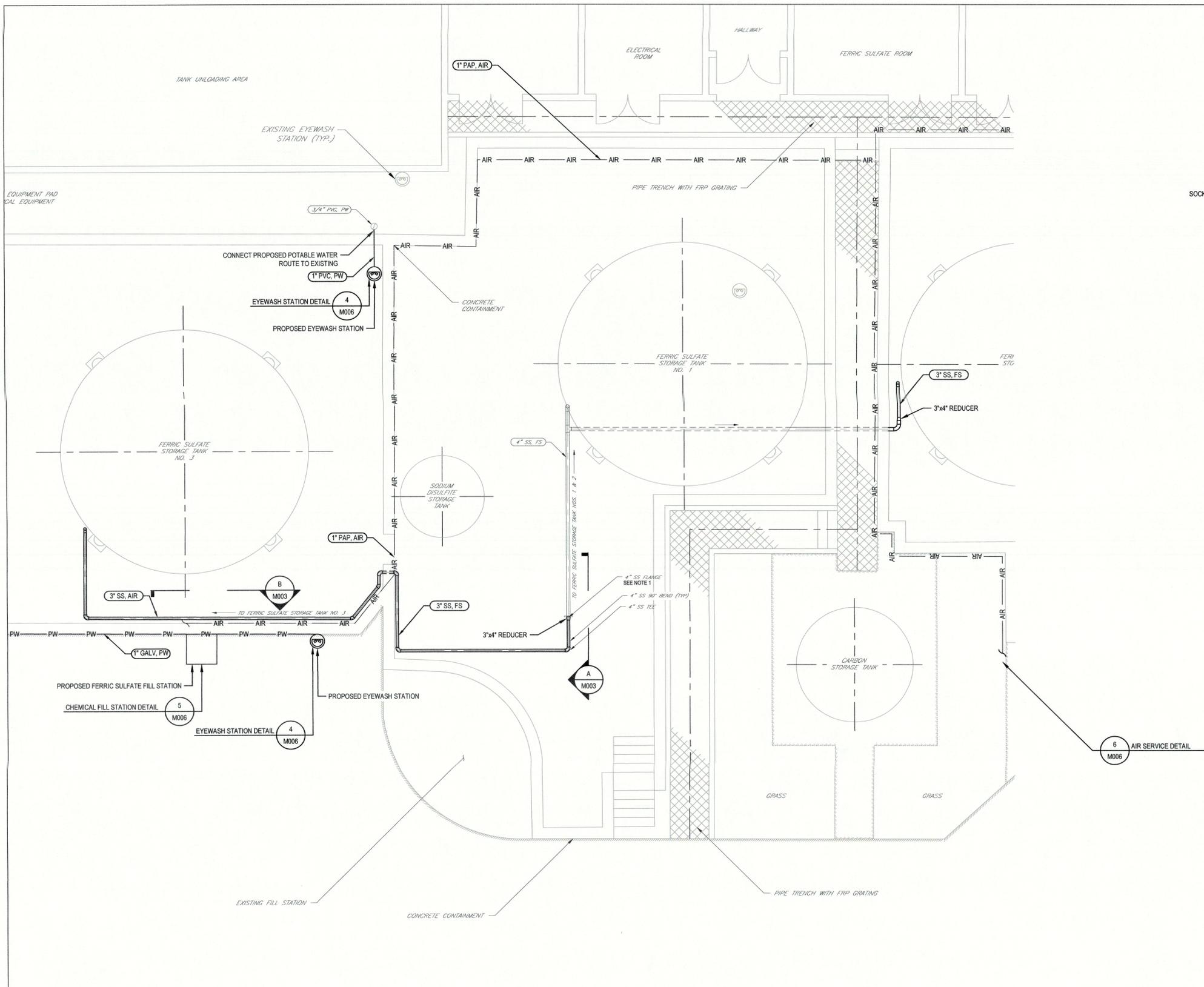
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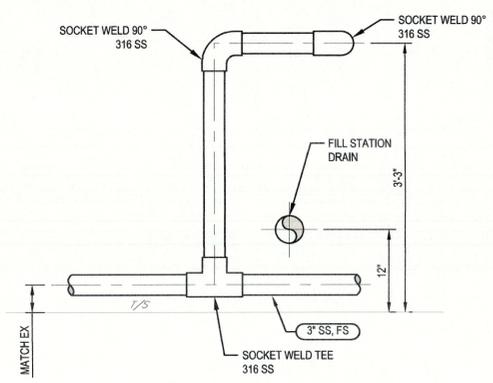
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Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Title	FERRIC SULFATE DEMOLITION PLAN
Project No.	11152370
Original Size	M002
Arch D	Sheet No. M002
Sheet	12 of 20



**A SECTION**  
M003 SCALE: 1" = 1"



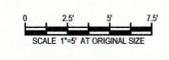
**B SECTION**  
M003 SCALE: 1" = 5"

**6 AIR SERVICE DETAIL**  
M006

**1 PLAN**  
SCALE: 1" = 5'

- NOTES:**
- INSTALL STAINLESS STEEL PIPING TO CONNECT FLANGE TO FERRIC SULFATE STORAGE TANK NO. 3.

No.	Issue	Drawn	Approved	Date
0	ISSUED FOR BID	CTF	MCM	MAY 2019



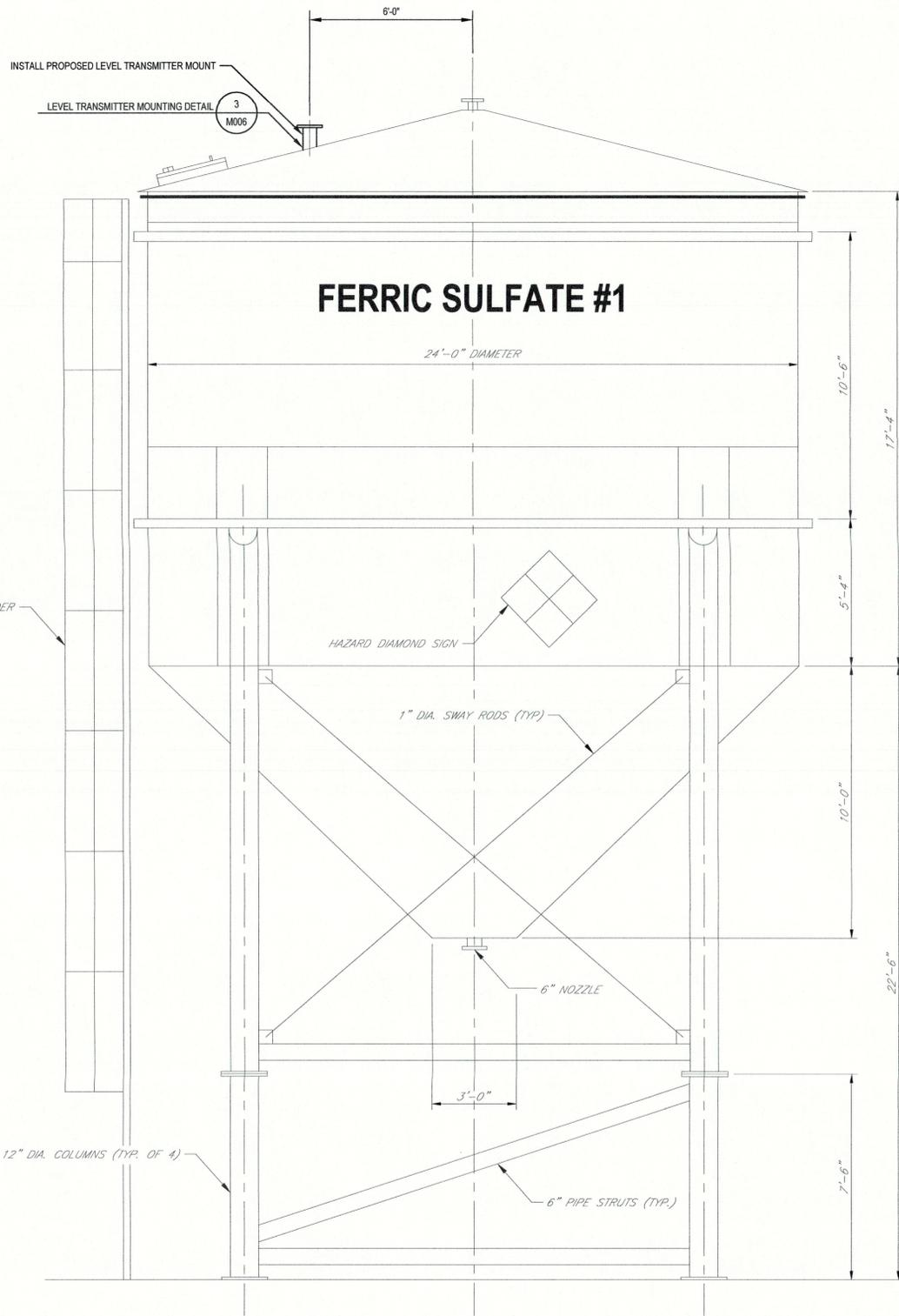
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Client	CITY OF TAMPA
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Title	FERRIC SULFATE PROPOSED MODIFICATIONS PLAN AND SECTIONS
Project No.	11152370
Original Size	Arch D
Sheet No.	M003



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

**STATEMENT OF WORK**

THIS IS A 70,000 GALLON, WELDED STEEL TANK.

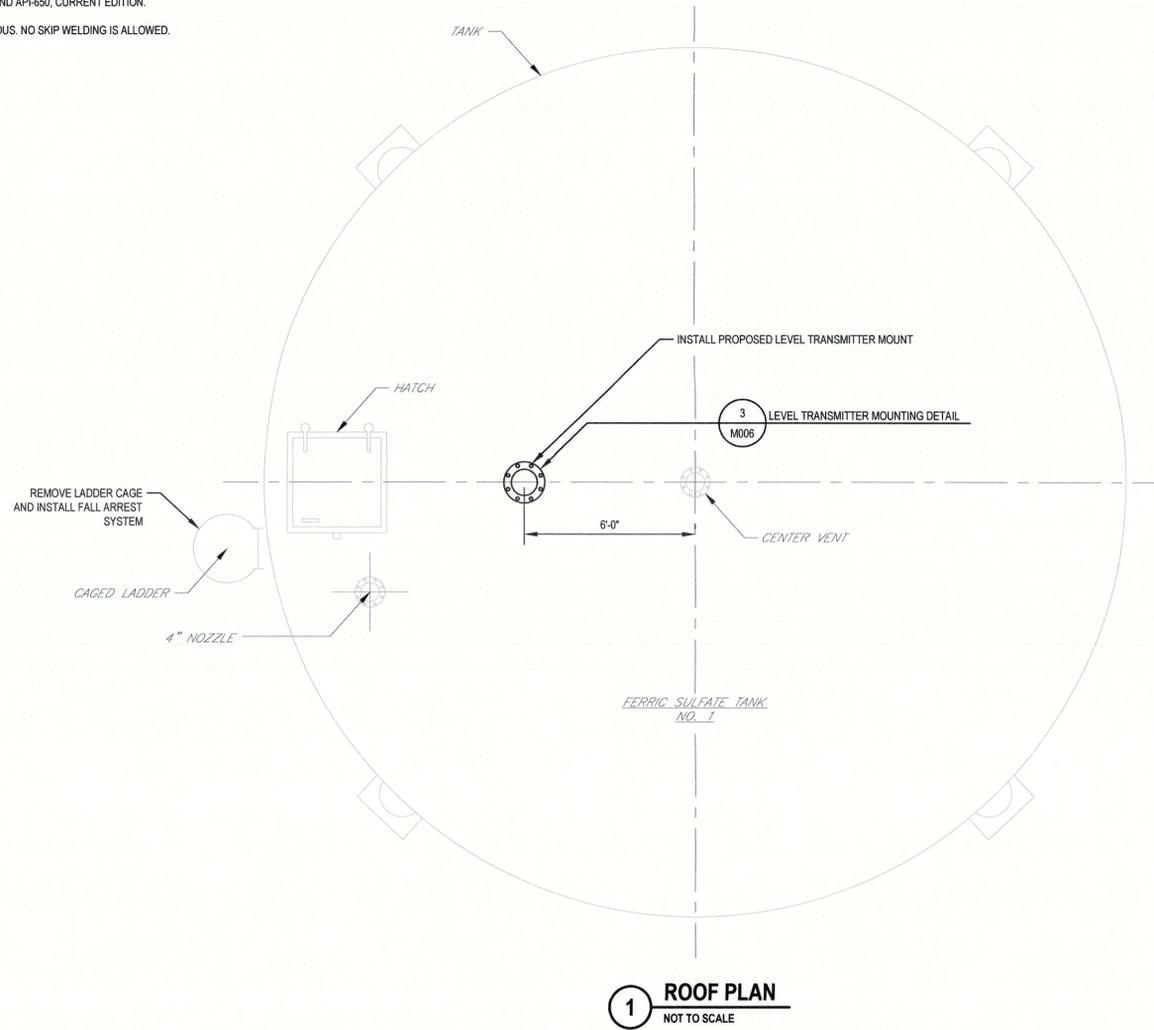
DIAMETER: 24'-0"  
HEIGHT: 27'-6"  
HEIGHT TO BOTTOM: 12'-8"  
MATERIAL: A36 STEEL

THE OVERALL PROJECT CONSISTS OF PROVIDING ALL LABOR, MATERIALS, SUPERVISION, POWER, EQUIPMENT AND SUPPLIES FOR:

1. INSTALL PROPOSED LEVEL TRANSMITTER MOUNT.

**GENERAL NOTES:**

1. ALL REPAIRS, ERECTION DIMENSIONS, AND MATERIAL SPECIFICATIONS SHALL COMPLY WITH API-653 AND API-650, CURRENT EDITION.
2. ALL WELDING TO BE CONTINUOUS. NO SKIP WELDING IS ALLOWED.



**1 ROOF PLAN**  
NOT TO SCALE

No.	ISSUED FOR BID	Drawn	CTF	MCM	MAY 2019
		Issue		Approved	Date



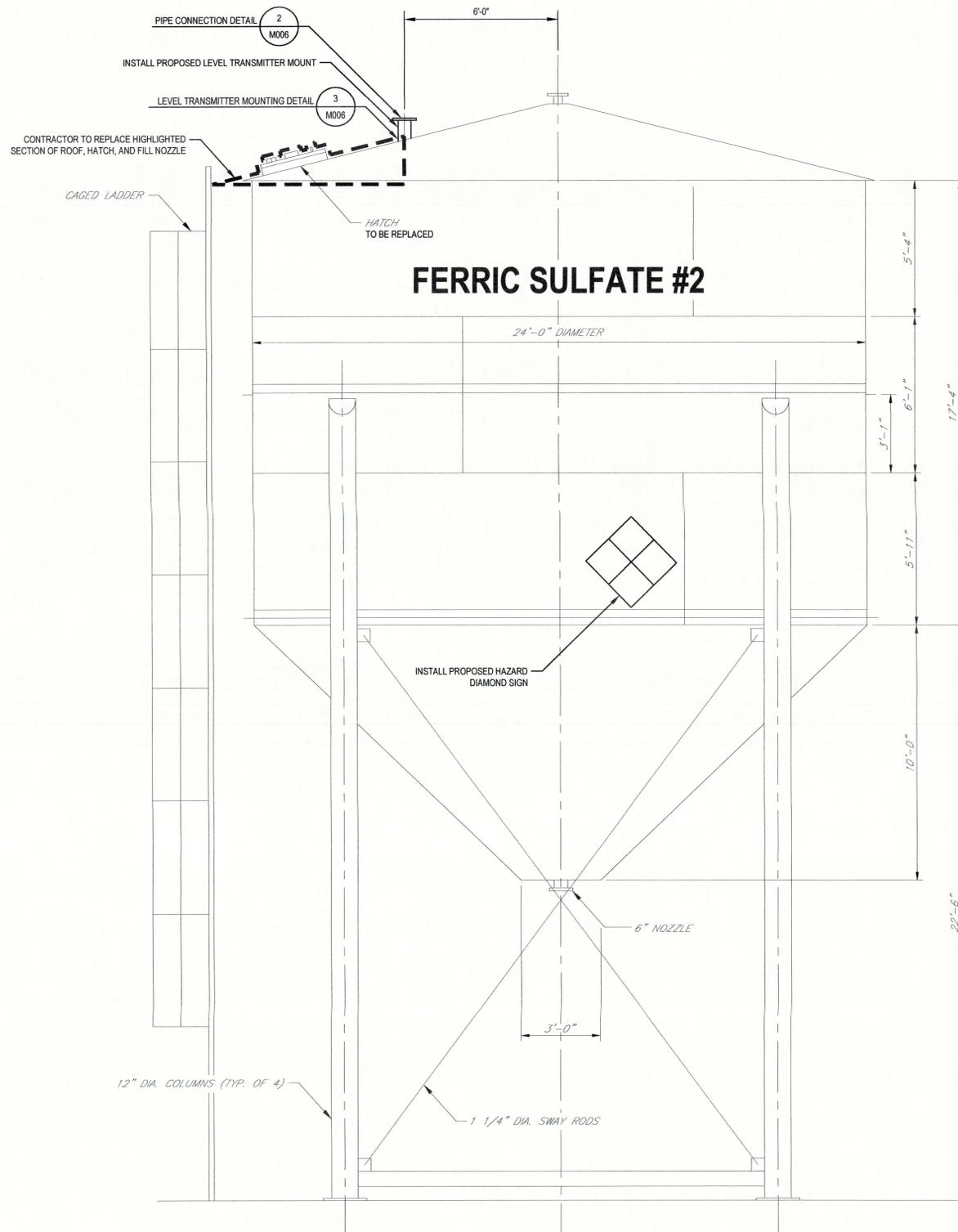
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Client	CITY OF TAMPA
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Title	FERRIC SULFATE TANK NO. 1 PROPOSED MODIFICATIONS ELEVATION & ROOF PLAN
Project No.	11152370
Original Size	Arch D
Sheet No.	M004



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

**STATEMENT OF WORK**  
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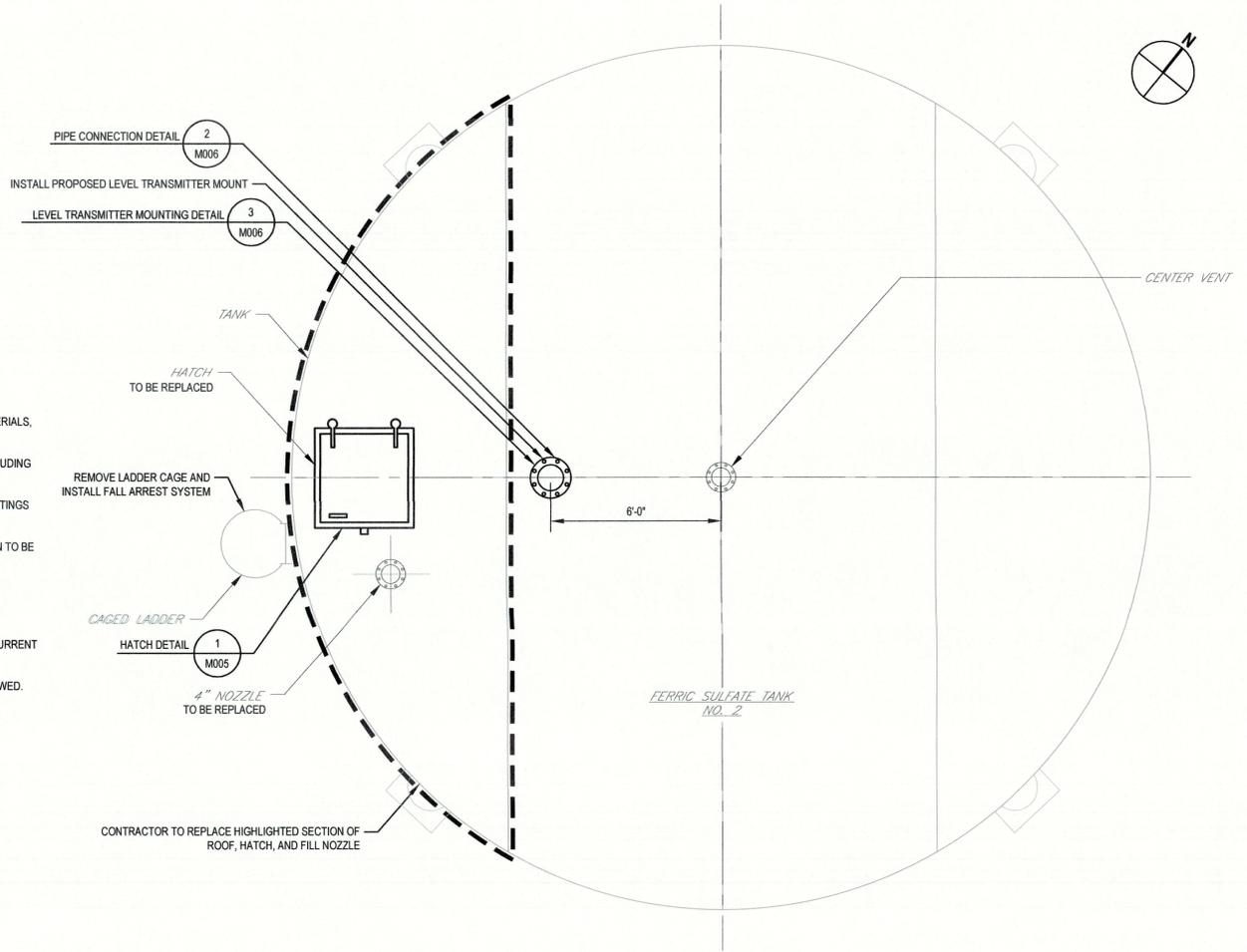
DIAMETER: 24'-0"  
HEIGHT: 27'-6"  
HEIGHT TO BOTTOM: 12'-8"  
MATERIAL: A36 STEEL

THE OVERALL PROJECT CONSISTS OF PROVIDING ALL LABOR, MATERIALS, SUPERVISION, POWER, EQUIPMENT AND SUPPLIES FOR:

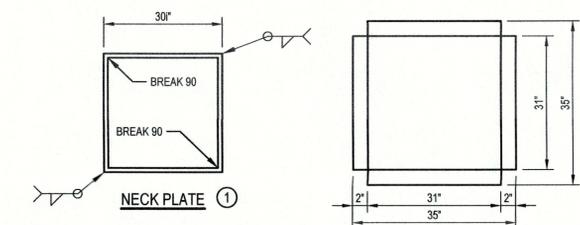
1. REPLACE CORROSION DAMAGED SECTION OF THE ROOF, INCLUDING HATCH AND FILL NOZZLE.
2. ABRASIVE BLAST THE ENTIRE EXTERIOR AND APPLY NEW COATINGS TO ALL EXTERIOR SURFACES.
3. NEW TANK IDENTIFICATION LABEL AND HAZARD DIAMOND SIGN TO BE INSTALLED.

**GENERAL NOTES:**

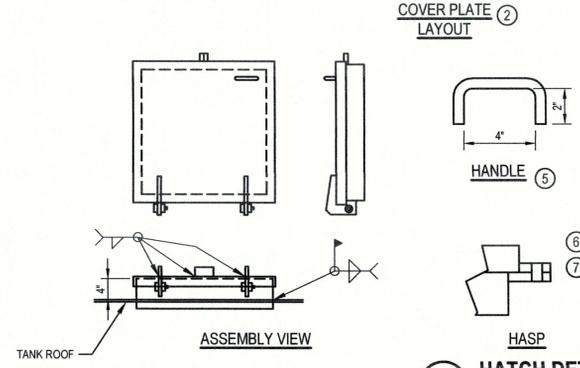
1. ALL REPAIRS, ERECTION DIMENSIONS, AND MATERIAL SPECIFICATIONS SHALL COMPLY WITH API-653 AND API-650, CURRENT EDITION.
2. ALL WELDING TO BE CONTINUOUS. NO SKIP WELDING IS ALLOWED.



**2 ROOF PLAN**  
NOT TO SCALE

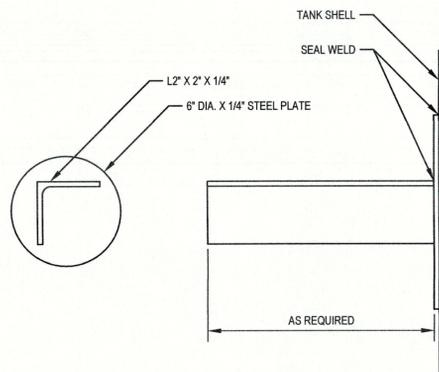


ITEM#	QTY	DESCRIPTION	MAT'L
1	2	4 1/2" x 1/4" x 61" LG	C.S.
2	1	3/16" PL 35" x 35"	C.S.
3	2	5" x 8" x 1/4" PL	C.S.
4	4	L3" x 3" x 1/4"	C.S.
5	1	5/8" RD. ROD 10" LG.	C.S.
6	1	2" x 1/4" FLAT BAR 1 1/2" LG	C.S.
7	1	2" x 1/4" FLAT BAR 2" LG	C.S.
8	2	BOLT 5/8" x 3" LG W/ 2 NUTS	316 S.S.

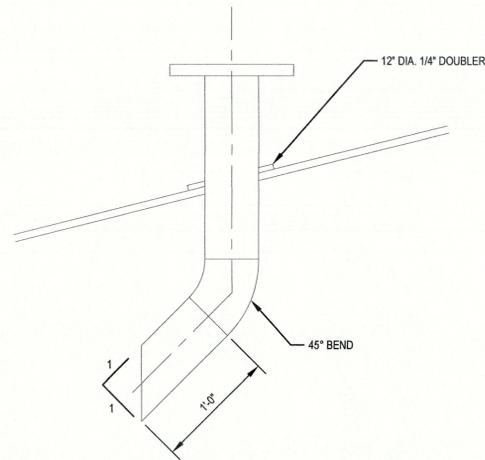


**1 HATCH DETAIL**  
M004 NOT TO SCALE

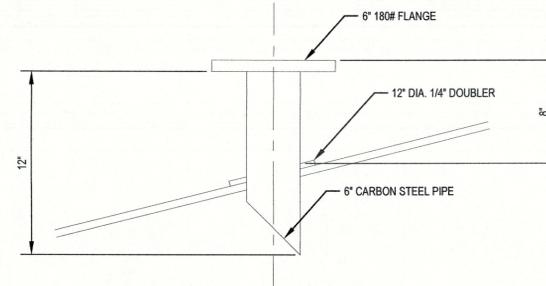
<p>0 ISSUED FOR BID</p> <p>No. Issue</p>	<p>CTF MCM MAY 2019</p> <p>Drawn Approved Date</p>	<p>SCALE: 3/8" = 1'-0" AT ORIGINAL SIZE</p>	<p>Bar is one inch on original size sheet</p> <p>0 1"</p>		<p>GHD Inc. 5904 Hampton Oaks Parkway, Suite F Tampa FL 33610 USA T 1 813 571 3852 W www.ghd.com</p>	<p>Drawn C. FORD Designer S. SNOW</p> <p>Drafting Check J. RIDDLE Design Check M. MUNZ</p> <p>Project Manager M. MUNZ Date MAY 2019</p> <p>This document shall not be used for construction unless signed and sealed for construction.</p>	<p>Client CITY OF TAMPA</p> <p>Project DLTWTF FERRIC SULFATE &amp; SULFURIC ACID TANK REHABILITATION</p> <p>Title FERRIC SULFATE TANK NO. 2 PROPOSED MODIFICATIONS ELEVATION &amp; ROOF PLAN</p> <p>Project No. 11152370</p> <p>Original Size Arch D</p>	<p>Scale AS SHOWN</p> <p>Sheet No. <b>M005</b></p>	<p>Sheet 15 of 20</p>
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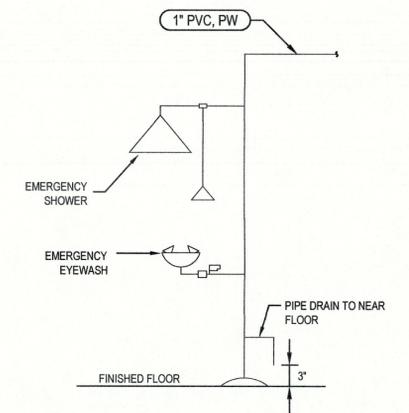
**1 PIPE SUPPORT DETAIL**  
NOT TO SCALE



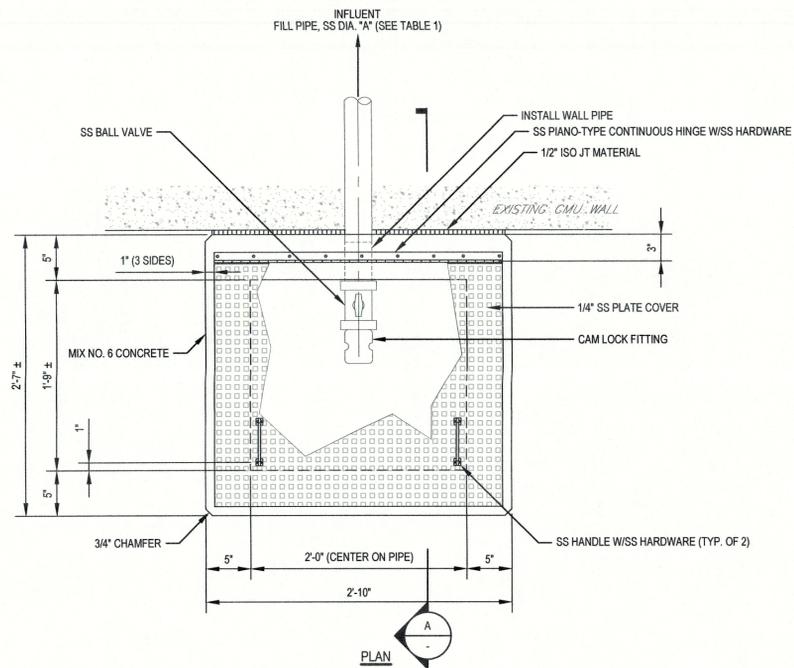
**2 PIPE CONNECTION DETAIL**  
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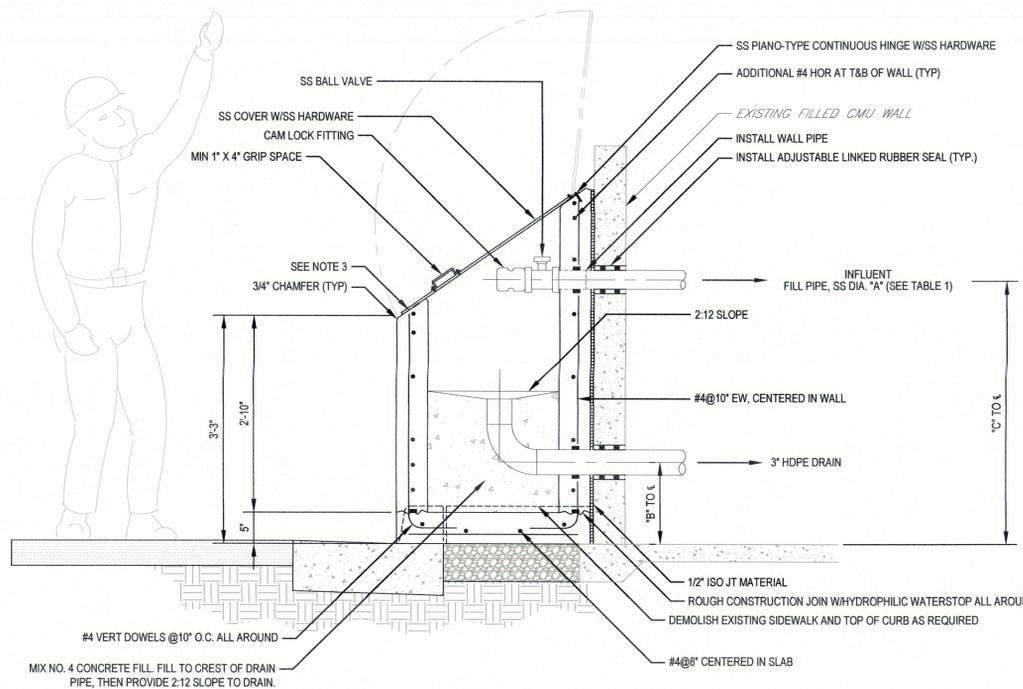
**3 LEVEL TRANSMITTER MOUNTING DETAIL**  
NOT TO SCALE



**4 EYEWASH STATION DETAIL**  
NOT TO SCALE

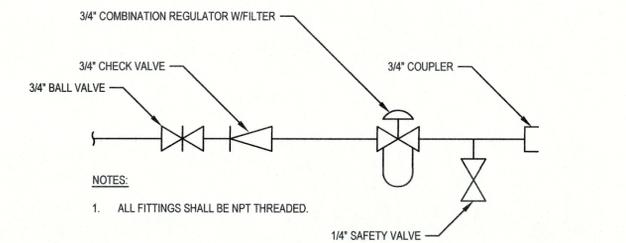


- NOTES:**
- COAT ENTIRE INNER CONCRETE SURFACE OF FILL STATION AND TOP OF WALL PERIMETER WITH CHEMICAL RESISTANT FINISH.
  - FORM TOP OF WALL FLUSH TO SLOPE AS SHOWN TO PROMOTE TIGHT SEAL OF COVER.
  - INSTALL 1" WIDE X 1/8" THICK SOFT NEOPRENE GASKET AROUND TOP OF WALL.
  - COVER SHALL BE PROVIDED WITH STAINLESS STEEL HATCH SUPPORT SPRING TO HOLD COVER OPEN IN VERTICAL POSITION.

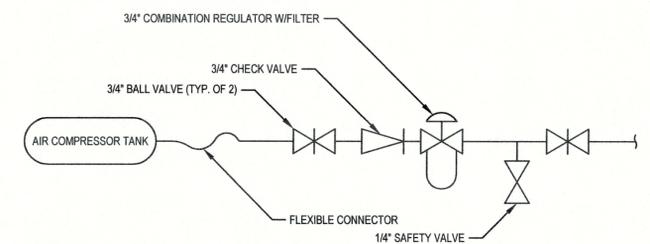


**5 CHEMICAL FILL STATION DETAIL**  
NOT TO SCALE

DIMENSION	SULFURIC ACID FILL STATION	FERRIC SULFATE FILL STATION
"A"	0'-2"	0'-3"
"B"	0'-11"	1'-0"
"C"	2'-4"	3'-3"



**6 AIR SERVICE DETAIL**  
NOT TO SCALE



**7 AIR COMPRESSOR CONNECTION DETAIL**  
NOT TO SCALE

No.	Issue	Drawn	Approved	Date
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Bar is one inch on original size sheet  
0 1"

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Drafting Check	J. RIDDLE	Design Check	M. MUNZ
Project Manager	M. MUNZ	Date	MAY 2019
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Client	CITY OF TAMPA		
Project	DLTWTFF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	MECHANICAL DETAILS		
Project No.	11152370		
Original Size	Arch D	Sheet No.	M006
Sheet	16	of	20

ABBREVIATIONS

ELECTRICAL LEGEND

SYMBOLS

A or AMP	AMPERE, AMPS	mA	MILLIAMPS
AC	ALTERNATING CURRENT	MFR	MANUFACTURER
AE	ANALYZER ELEMENT	MMS	MANUAL MOTOR STARTER
AF	AMPERE FRAME SIZE	MS	MOTOR STARTER
AFF	ABOVE FINISHED FLOOR	MSCP	MOTOR STARTER CONTROL PANEL
AFG	ABOVE FINISHED GRADE	MTG	MOUNTING
AI	ANALOG INPUT	MWTS	MOTOR WINDING TEMPERATURE SWITCH
AIC	AMPS INTERRUPTING CURRENT	N	NEUTRAL
AIT	ANALYSIS INDICATING TRANSMITTER	NC	NORMALLY CLOSED
AO	ANALOG OUTPUT	NCTO	NORMALLY CLOSED TIMED OPEN
AT	AMPERE TRIP RATING	NEC	NATIONAL ELECTRICAL CODE
AUX	AUXILIARY	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
AWG/GA/#	AMERICAN WIRE GAUGE	NFPA	NATIONAL FIRE PROTECTION ASSOC.
C OR COND	CONDUIT OR CONDUCTOR	NO	NORMALLY OPEN
CB	CIRCUIT BREAKER	NOTC	NORMALLY OPEN TIMED CLOSED
CC	CONTROL CIRCUIT	NP	NAMEPLATE
CEP	CONCRETE EQUIPMENT PAD	OEM	ORIGINAL EQUIPMENT MANUFACTURER
CKT	CIRCUIT	OL	OVERLOAD
COMP	COMPARTMENT	φ	PHASE
CP	CONTROL PANEL	P	POLE
CS	CONTROL STATION	PB	PUSHBUTTON OR PULL BOX
CPT	CONTROL POWER TRANSFORMER	PC	POWER & CONTROL OR POWER CIRCUIT
CR-##	CIRCUIT RELAY (W/## DESIGNATION)	PR	PAIR
DC	DIRECT CURRENT	PVC	SCHEDULE 40 RIGID NON METALLIC CONDUIT
DI	DIGITAL INPUT	RECEPT	RECEPTACLE
DO	DISCRETE OUTPUT/DISSOLVED OXYGEN	SN	SOLID NEUTRAL
DS	DISCONNECT SWITCH	SEL OR SEL SW	SELECTOR SWITCH
DWG	DRAWING	SS	STAINLESS STEEL
EA	EACH	SPD	SURGE PROTECTION DEVICE
EGC	EQUIPMENT GROUNDING CONDUCTOR	TSP	TWISTED SHIELDED PAIR
EL	ELEVATION	TYP	TYPICAL
ELEC	ELECTRICAL	ULS	ULTRASONIC LEVEL SENSOR
EMR	EQUIPMENT MOUNTING RACK	V	VOLTS
EX	EXISTING	VA	VOLT-AMPERES
FE	FLOW ELEMENT	VAC	VOLTAGE AC
FF	FINISHED FLOOR	VD	VOICE/DATA
FIT	FLEXIBLE	VFD	VARIABLE FREQUENCY DRIVE
FLEX	FLOW INDICATING TRANSMITTER	VM	VOLTMETER
FVNR	FULL VOLTAGE NON REVERSING	VS	VOLTMETER SWITCH OR VACUUM SWITCH
FVR	FULL VOLTAGE REVERSING	W	WITH
G OR GRD	GROUND	WP	WEATHERPROOF, WATERPROOF
GEC	GROUNDING ELECTRODE CONDUCTOR	WS	WORKSTATION
GF	GROUND FAULT	XP	EXPLOSION-PROOF
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	XFMR	TRANSFORMER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER		
GGCC	GROUND GRID CONNECTING CONDUCTOR		
HOA	HAND-OFF-AUTO SELECTOR SWITCH		
HP	HORSEPOWER		
HTC-XXX-##	HEAT TRACE CONTROLLER (w/ AREA AND # DESIGNATION)		
HZ	HERTZ		
IL	INDICATING LIGHT		
I/O	INPUT/OUTPUT		
J OR JB	JUNCTION BOX		
KCMIL	THOUSANDS CIRCULAR MILS		
KV	KILOVOLT		
KVA	KILOVOLT AMPERES		
KW	KILOWATT		
LE	LEVEL ELEMENT		
LIT	LEVEL INDICATING TRANSMITTER		
LOC	LOCATION		
LO	LOCKOUT		
LS	LIMIT SWITCH/LEVEL SWITCH		
LSH	HIGH-LEVEL LEVEL SWITCH		
LSL	LOW-LEVEL LEVEL SWITCH		

**PLANS AND SCHEMATICS**

**ELEMENTARY**

\*REFER TO DETAILS FOR GROUNDING SYMBOLS

GENERAL NOTES:

- G1 ENCLOSURE DIMENSIONS SHOWN ON THE DRAWINGS ARE MINIMUM REQUIRED DIMENSIONS. ENCLOSURES SHALL BE SIZED TO ACCOMMODATE EQUIPMENT, CONTROLS AND COMPONENTS AS SHOWN, SPECIFIED AND REQUIRED FOR AN OPERABLE SYSTEM.
- G2 EQUIPMENT, FEEDERS, AND BRANCH CIRCUITS ON THE DOWNSTREAM SIDE OF THE PANELBOARDS ARE NOT SHOWN ON THE ONE-LINE AND SCHEMATIC DIAGRAMS. REFER TO THE PANELBOARD SCHEDULES AND THE PLANS FOR RELATED INFORMATION.
- G3 EVERY EFFORT HAS BEEN MADE TO IDENTIFY REMOTE ITEMS TO BE CONNECTED BY THE ELECTRICAL CONTRACTOR, EITHER IN THE ELEMENTARIES OR IN THE SCHEDULES. HOWEVER, NOT ALL OF THE REMOTE DEVICES MAY HAVE BEEN SHOWN ON THE ELECTRICAL PLAN DRAWINGS. REFER TO THE DRAWINGS OF RESPECTIVE TRADES TO LOCATE OR CONFIRM EQUIPMENT LOCATIONS.
- G4 GROUNDING ELECTRICAL SYSTEMS SHALL BE GROUNDED AS SPECIFIED AND SHOWN ON THE CONTRACT DRAWINGS. WORK SHALL ALSO BE PERFORMED IN ACCORDANCE WITH ARTICLE 250 OF THE MOST RECENT REVISION OF THE NATIONAL ELECTRIC CODE. REFER TO DETAILS FOR GROUNDING SCHEMATICS AND FOR GENERAL GROUNDING REQUIREMENTS OF ELECTRICAL EQUIPMENT. GROUND GRID CONNECTIONS SHOWN ON THE INDIVIDUAL PLANS ARE MINIMUM REQUIREMENTS. ALL REQUIRED CONNECTIONS ARE NOT SHOWN ON PLANS FOR BREVITY. CONTRACTOR SHALL COORDINATE NEW CONNECTIONS TO THE EXISTING GROUND GRIDS AS NECESSARY. REFER TO GROUNDING NOTES BELOW AND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION.
- G5 EXACT EQUIPMENT CONDUIT CONNECTIONS ARE TO BE DETERMINED BY THE ELECTRICAL INSTALLER BASED UPON THE ACTUAL FIELD LOCATION OF EQUIPMENT. INSTALL CONDUIT IN ACCORDANCE WITH SPECIFICATIONS.
- G6 ALL PENETRATIONS THROUGH EXISTING SOLID CONCRETE STRUCTURES WHERE SLEEVES HAVE NOT BEEN PROVIDED SHALL BE CORE DRILLED AND SIZED TO ACCEPT MECHANICAL LINK SEALS. THROUGH NON-FIRE RATED WALLS, CORE HOLE AND SEAL AROUND CONDUIT WITH NON-SHRINK GROUT. THROUGH EXTERIOR WALL SEAL WATER TIGHT WITH SILICONE MASONRY SEALANT.
- G7 EQUIPMENT MOUNTING RACK (EMR): THE FINAL LOCATION OF THE EMR'S SHALL BE COORDINATED IN THE FIELD TO AVOID INTERFERENCE WITH ACCESS TO THE PROCESS EQUIPMENT. REFER TO DETAILS FOR INDIVIDUAL APPLICATIONS AND LOCATIONS.
- G8 EQUIPMENT REMOVALS: DISCONNECT AND REMOVE POWER/CONTROL CIRCUITS AND CONDUITS FROM THE RESPECTIVE EQUIPMENT.
- G9 CONDUIT REMOVALS: DISCONNECT AND REMOVE EXPOSED PORTIONS OF CONDUIT FOR EQUIPMENT TO BE REMOVED AND/OR RELOCATED. CUT, THREAD, COUPLE AND CAP EXISTING CONDUITS ADJACENT TO THE PENETRATION POINT WHERE THE CONDUITS ARE CONCEALED (IN WALLS, CONCRETE SLABS, BELOW GRADE). REPAIR WALL PENETRATIONS TO A WEATHER-TIGHT CONDITION MATCHING EXISTING WALL MATERIALS.
- G10 EQUIPMENT TO REMAIN: PROVIDE NEW FEEDER OR BRANCH CIRCUIT CONDUIT AND WIRING TO EXISTING/RELOCATED EQUIPMENT REQUIRED TO REMAIN IN SERVICE. CUT AND REUSE EXISTING CONDUIT RUNS WHERE PRACTICAL. CIRCUIT CONDUCTORS SHALL BE REPLACED THE ENTIRE LENGTH OF THE CIRCUIT RUN.
- G11 ELECTRICAL PLANS: CONTRACTOR SHALL REFER TO ONE-LINES, SCHEMATICS, CONDUIT RISER DIAGRAMS AND DUCT BANK SECTIONS TO COORDINATE CONDUIT AND CIRCUIT REQUIREMENTS FOR EACH SYSTEM.
- G12 CONDUIT PENETRATIONS: WHERE CONDUITS ARE TOO LARGE FOR TERMINATION INTO CABINETS, CONTROL PANELS, INSTRUMENT ENCLOSURES OR OTHER ENCLOSURES DUE TO STANDARD KNOCK OUT SIZE, THE CONTRACTOR SHALL PROVIDE AN INTERMEDIATE PULL BOX IN ORDER TO COORDINATE A TRANSITION IN CONDUIT SIZE. THIS SHALL BE COORDINATED WITH THE ENGINEER IN THE FIELD ON A CASE BY CASE BASIS.
- G13 SPARE WIRING: WHERE SPARE POWER AND CONTROL WIRING IS REQUIRED PER THE DRAWINGS AND/OR SPECIFICATIONS, SPARE WIRE SHALL BE PROVIDED WITH SUFFICIENT LENGTH TO EXTEND TO THE FURTHEST TERMINAL BLOCK/BUCKET/AREA OF THE ENCLOSURE BEING SERVED.

GROUNDING NOTES:

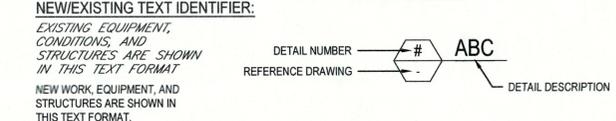
- 1. THE GROUNDING SYSTEM IS SHOWN DIAGRAMMATICALLY. EXACT LOCATION OF CABLE, GROUND RODS AND CONNECTIONS SHALL BE DETERMINED IN THE FIELD.
- 2. ALL BURIED GROUNDING CABLE CONNECTIONS SHALL BE CADWELD OR THERMOWELD. THE WELDED CONNECTIONS SHALL BE LEFT EXPOSED FOR INSPECTION BY ENGINEER PRIOR TO BACKFILLING.
- 3. WHERE EXPOSED TO MECHANICAL INJURY, THE GROUNDING CONDUCTOR SHALL BE SUITABLY PROTECTED BY PIPE OR OTHER MECHANICAL PROTECTION. EACH END OF PROTECTING CONDUIT (IF METALLIC) SHOULD BE GROUNDED TO THE BARE CABLE.
- 4. ALL EXPOSED CABLE LUGS AND CONNECTORS SHALL BE OF THE COMPRESSION TYPE UNLESS OTHERWISE NOTED.
- 5. STEEL MUST BE CLEANED THOROUGHLY AND CABLE MUST BE COMPLETELY DRY BEFORE MAKING WELD CONNECTIONS.

GENERAL CIRCUIT/CONDUIT TAG ID		
TAG	CONDUIT SIZE	CONDUCTORS
CP2	3/4"	2-#12, 1-#12G
CP3	3/4"	3-#12, 1-#12G
CX	3/4" (x=2 THRU 18) 1" (x=19 THRU 30) 2" (x=31 THRU 100) 3" (x=101 THRU 200)	x-#14, 1-#12G
C-TSP-X	3/4" (x=1-2) 1" (x=3-4) 2" (x=5 THRU 16)	x-#16 TWISTED SHIELDED PAIR

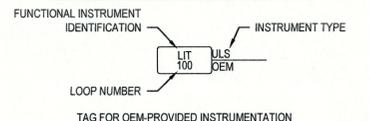
**CIRCUIT IDENTIFICATION:**  
**PF-##-##**  
 PF=CIRCUIT DESIGNATION  
 ##=CIRCUIT TYPE: CC=CONTROL CIRCUIT; PF=POWER FEEDER; IC=INSTRUMENTATION CIRCUIT

**PANELBOARD CIRCUIT IDENTIFICATION:**  
**A-##**  
 A=PANELBOARD CIRCUIT DESIGNATION  
 ##=PANELBOARD DESIGNATION

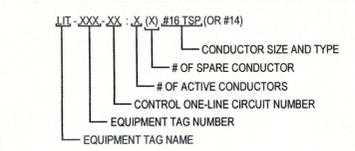
DETAIL CALLOUT



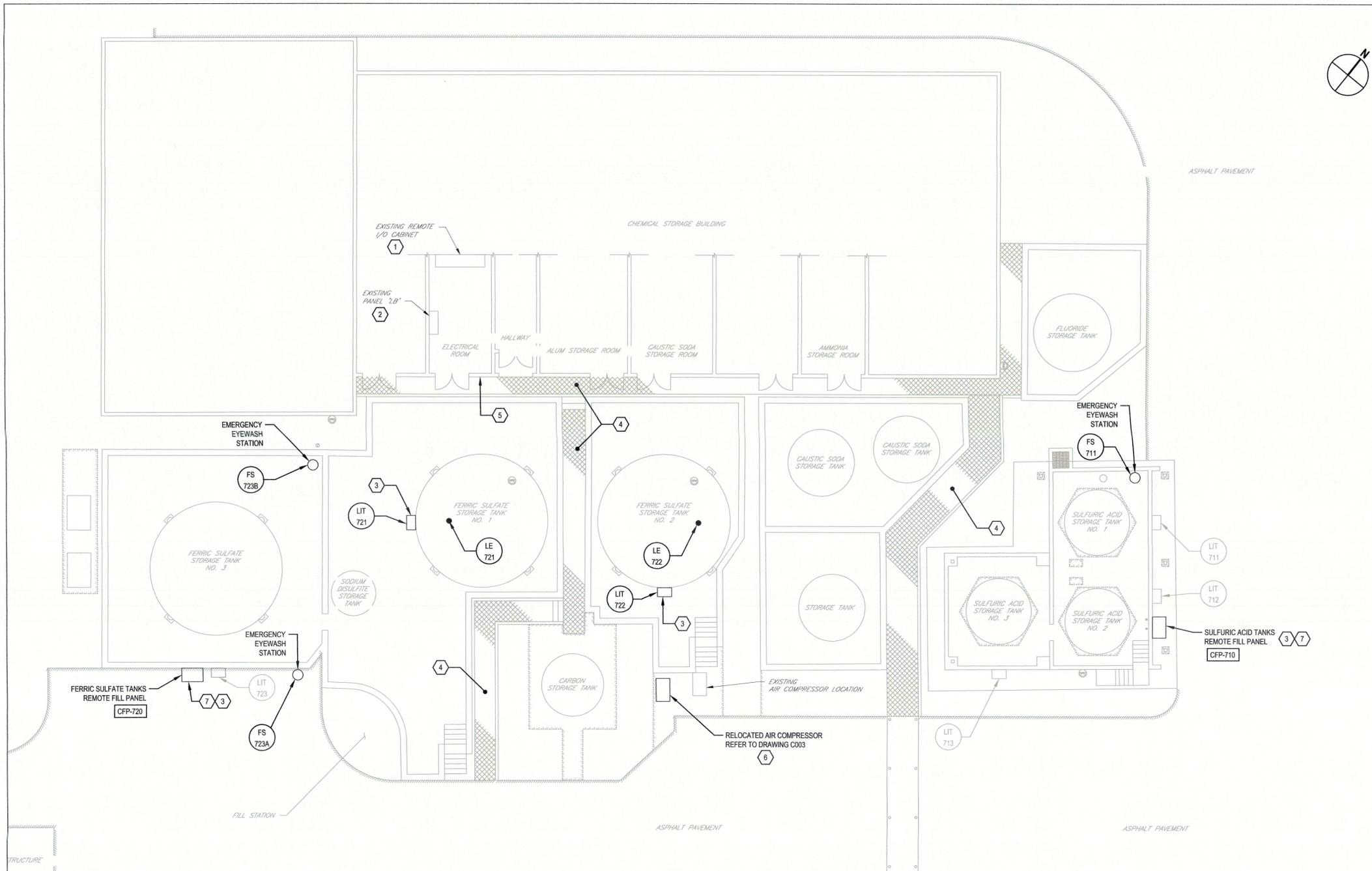
INSTRUMENT AND FUNCTION TAGGING:



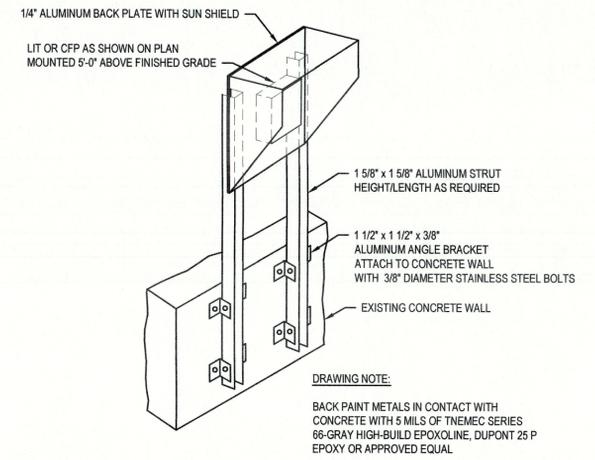
EQUIPMENT AND CONDUCTOR IDENTIFICATION:



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Drafting Check <b>J. RIDDLE</b> Design Check <b>I. DIAZ</b>	Project Manager <b>M. MUNZ</b> Date <b>MAY 2019</b>	Project <b>DLTWF FERRIC SULFATE &amp; SULFURIC ACID TANK REHABILITATION</b>					
0 ISSUED FOR BID	Drawn <b>DNC</b> Approved <b>TJK</b> Date <b>MAY 2019</b>	Title <b>ELECTRICAL LEGEND, ABBREVIATIONS, SYMBOLS &amp; GENERAL NOTES</b>	Project No. <b>11152370</b>				
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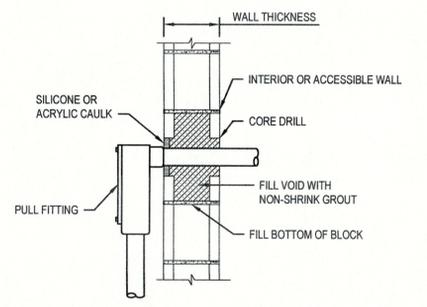


- DRAWING NOTES:**
- EXISTING REMOTE I/O CABINET LOCATED IN ELECTRICAL ROOM TO BE USED TO TERMINATE NEW INSTRUMENT I/O. CONTRACTOR TO PROVIDE CONDUCTORS AND CONDUIT TO THE INSIDE OF REMOTE I/O CABINET AND LEAVE ADEQUATE CONDUCTOR LENGTH TO BE TERMINATED AND PROGRAMMED BY OWNER.
  - UTILIZE SPARE 20A, 1-POLE CIRCUIT BREAKERS IN EXISTING PANEL LB TO FEED NEW LEVEL TRANSMITTERS WITH 2-#12, 1-#12 GND, 3/4" CONDUIT.
  - REFER TO TYPICAL MOUNTING STAND DETAIL ON THIS DRAWING.
  - IF POSSIBLE, UTILIZE EXISTING PIPE CHASE TO ROUTE NEW CONDUIT FROM EXISTING REMOTE I/O CABINET AND PANEL LB TO NEW INSTRUMENTS. COORDINATE INSTALLATION WITH AIR/WATER LINE INSTALLATION.
  - CONDUIT(S) TO/FROM PIPE CHASE INTO EXISTING ELECTRICAL ROOM. COORDINATE PENETRATION(S) WITH EXISTING EQUIPMENT INSIDE AND OUTSIDE REFER TO BUILDING PENETRATION DETAIL LOCATED ON THIS SHEET.
  - EXISTING POWER AND CONTROL WIRES AND EXISTING CONDUIT TO BE CUT AND SHORTENED TO FACILITATE RELOCATION OF EXISTING AIR COMPRESSOR. INSTALL NEW 60A, NON-FUSED DISCONNECT SWITCH IN A NEMA 4X STAINLESS STEEL ENCLOSURE. DESIGN BASIS: SqD HU362DS OR EQUAL.
  - REMOTE FILL PANELS SHOWN APPROXIMATELY ADJACENT TO FILL STATIONS ON THIS SHEET. REFER TO MECHANICAL DRAWINGS FOR FINAL LOCATION. CONTRACTOR SHALL COORDINATE FINAL MOUNTING OF REMOTE FILL PANELS AND FILL STATION TO PROVIDE FULL ACCESSIBILITY AND WORKING SPACE TO BOTH.



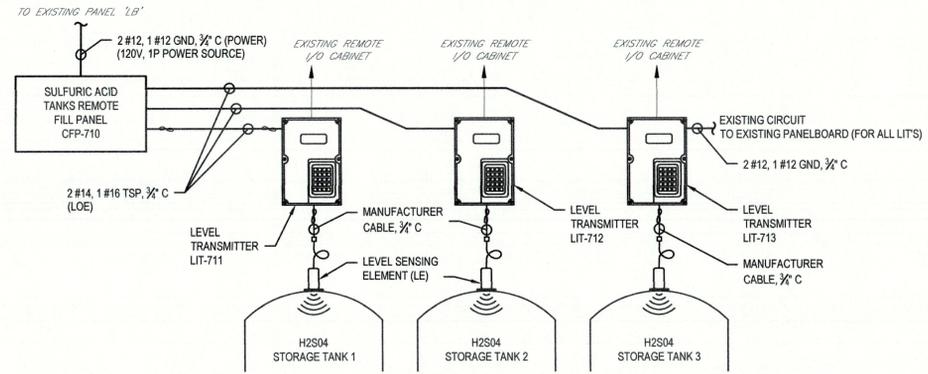
**1 MOUNTING STAND DETAIL**  
NOT TO SCALE

**1 OVERALL ELECTRICAL SITE PLAN**  
SCALE: 1" = 10'

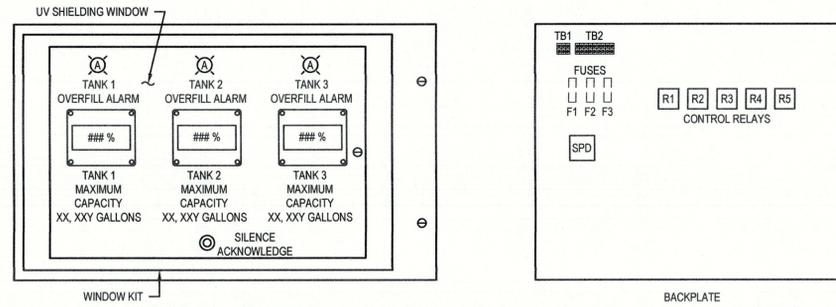


**2 TYPICAL CONDUIT THROUGH MASONRY WALL**  
NOT TO SCALE

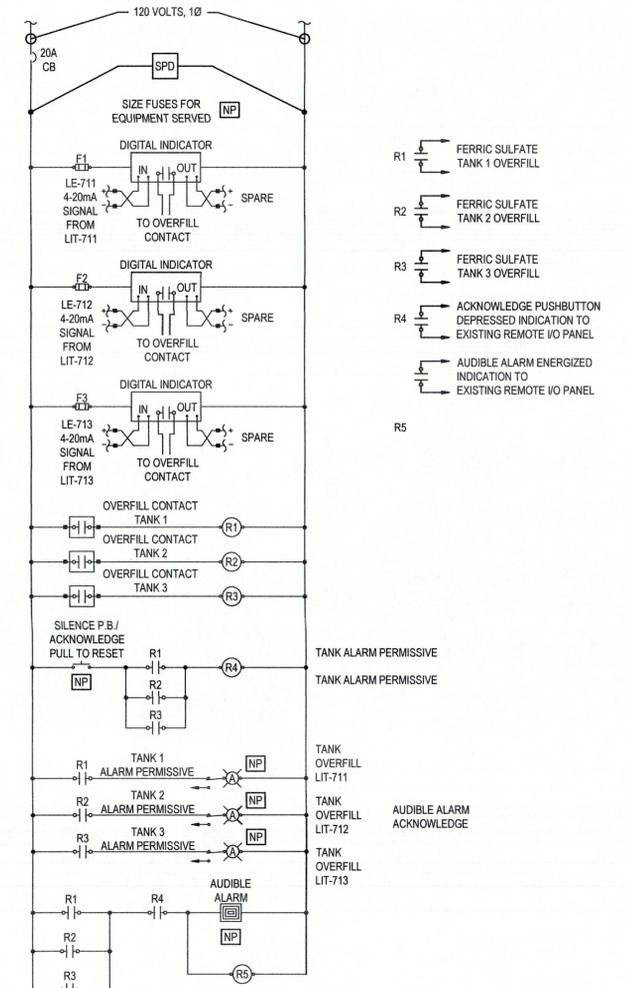
<p>Bar is one inch on original size sheet 0 1"</p> <p>SCALE: 1"=10' AT ORIGINAL SIZE</p>				<p>GHD Inc. 5904 Hampton Oaks Parkway, Suite F Tampa FL 33610 USA T 1 813 971 3882 W www.ghd.com</p>		<p>Drawn D. CLELAND Drafting Check J. RIDDLE Project Manager M. MUNZ</p>	<p>Designer M. MOORE Design Check I. DIAZ Date MAY 2019</p>	<p>Client CITY OF TAMPA Project DLTWTF FERRIC SULFATE &amp; SULFURIC ACID TANK REHABILITATION Title OVERALL ELECTRICAL SITE PLAN &amp; DETAIL Project No. 11152370 Original Size Arch D Sheet No. E002</p>	<p>Scale AS SHOWN</p>	<p>This document shall not be used for construction unless signed and sealed for construction.</p>	<p>Sheet 18 of 20</p>
<p>0 ISSUED FOR BID</p>	<p>DNC TJK MAY 2019</p>	<p>Reuse of Documents This document and the ideas and designs incorporated herein, as an instrument of professional service, is the property of GHD and shall not be reused in whole or in part for any other project without GHD's written authorization. © 2019 GHD</p>									



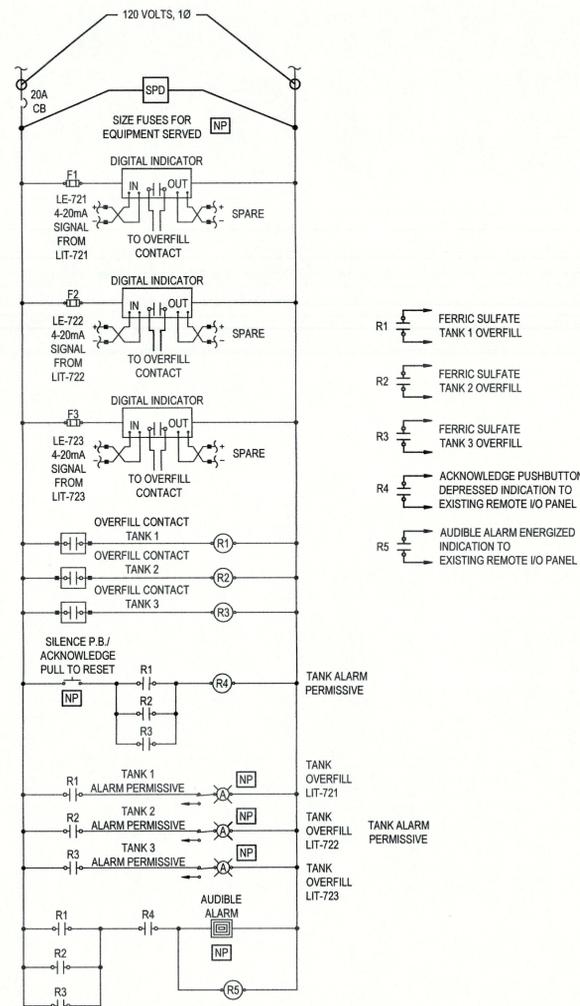
1 SULFURIC ACID TANKS REMOTE FILL PANEL SCHEMATIC DIAGRAM  
NOT TO SCALE



2 SULFURIC ACID TANKS REMOTE FILL PANEL ENCLOSURE DETAILS (CFP-710)  
NOT TO SCALE



4 SULFURIC ACID TANKS REMOTE FILL PANEL ELEMENTARY DIAGRAM (CFP-710)  
NOT TO SCALE

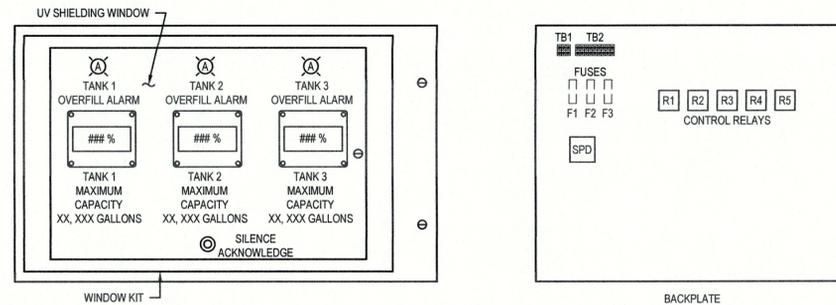


5 FERRIC SULFATE TANKS FILL PANEL ELEMENTARY DIAGRAM (CFP-720)  
NOT TO SCALE

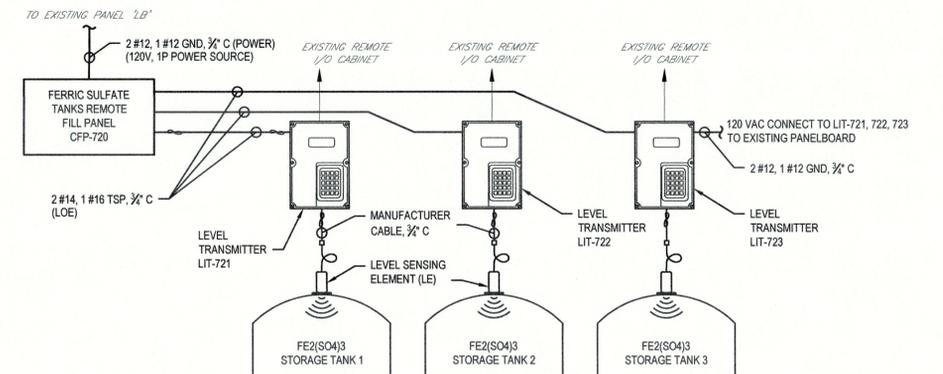
Equipment Tag	Letter	Number	Tag	Description	Analog/Digital (True) Condition	Signal	Range/Off Status	Units/On Status	Source	Destination	Remarks
EXISTING REMOTE I/O CABINET											
CFP	710	A		SULFURIC ACID CHEMICAL FILL PANEL	TANK 1 OVERFILL	DI	NORMAL	OVERFILL	CFP-710	EXISTING R-4-O	1
CFP	710	C		SULFURIC ACID CHEMICAL FILL PANEL	TANK 2 OVERFILL	DI	NORMAL	OVERFILL	CFP-710	EXISTING R-4-O	1
CFP	710	D		SULFURIC ACID CHEMICAL FILL PANEL	TANK 3 OVERFILL	DI	NORMAL	OVERFILL	CFP-710	EXISTING R-4-O	1
CFP	710	E		SULFURIC ACID CHEMICAL FILL PANEL	AUDIBLE ALARM	DI	NORMAL	ALARM	CFP-710	EXISTING R-4-O	1
CFP	710	F		SULFURIC ACID CHEMICAL FILL PANEL	ALARM ACKNOWLEDGE	DI	ACKNOWLEDGE	ALARM	CFP-710	EXISTING R-4-O	1
LIT	711	A		SULFURIC ACID TANK #1 LEVEL	LEVEL	AI	0-120	INCHES	LIT-711	EXISTING R-4-O	1
LIT	712	B		SULFURIC ACID TANK #2 LEVEL	LEVEL	AI	0-120	INCHES	LIT-712	EXISTING R-4-O	1
LIT	713	C		SULFURIC ACID TANK #3 LEVEL	LEVEL	AI	0-120	INCHES	LIT-713	EXISTING R-4-O	1
CFP	720	A		FERRIC SULFATE CHEMICAL FILL PANEL	TANK 1 OVERFILL	DI	NORMAL	OVERFILL	CFP-720	EXISTING R-4-O	1
CFP	720	B		FERRIC SULFATE CHEMICAL FILL PANEL	TANK 2 OVERFILL	DI	NORMAL	OVERFILL	CFP-720	EXISTING R-4-O	1
CFP	720	C		FERRIC SULFATE CHEMICAL FILL PANEL	TANK 3 OVERFILL	DI	NORMAL	OVERFILL	CFP-720	EXISTING R-4-O	1
CFP	720	D		FERRIC SULFATE CHEMICAL FILL PANEL	AUDIBLE ALARM	DI	NORMAL	ALARM	CFP-720	EXISTING R-4-O	1
CFP	720	E		FERRIC SULFATE CHEMICAL FILL PANEL	ALARM ACKNOWLEDGE	DI	ACKNOWLEDGE	ALARM	CFP-720	EXISTING R-4-O	1
LIT	721	A		FERRIC SULFATE TANK #1 LEVEL	LEVEL	AI	0-120	INCHES	LIT-721	EXISTING R-4-O	1
LIT	722	B		FERRIC SULFATE TANK #2 LEVEL	LEVEL	AI	0-120	INCHES	LIT-722	EXISTING R-4-O	1
LIT	723	C		FERRIC SULFATE TANK #3 LEVEL	LEVEL	AI	0-120	INCHES	LIT-723	EXISTING R-4-O	1
FS	711	A		SULFURIC ACID EMERGENCY EYEWASH STATION	EMER EYEWASH	DI	NORMAL	EMERGENCY	FS-711	EXISTING R-4-O	1
FS	723A	A		FERRIC SULFATE EMERGENCY EYEWASH STATION #1	EMER EYEWASH	DI	NORMAL	EMERGENCY	FS-723A	EXISTING R-4-O	1
FS	723B	A		FERRIC SULFATE EMERGENCY EYEWASH STATION #2	EMER EYEWASH	DI	NORMAL	EMERGENCY	FS-723B	EXISTING R-4-O	1

1 Indicates that the I/O is to be placed in contiguous registers so that the System Integrator may utilize this point at the HMI.

3 I/O LIST  
NOT TO SCALE



7 FERRIC SULFATE TANKS REMOTE FILL PANEL ENCLOSURE DETAIL (CFP-720)  
NOT TO SCALE



6 FERRIC SULFATE TANKS REMOTE FILL PANEL SCHEMATIC DIAGRAM  
NOT TO SCALE

No.	Issue	Drawn	Approved	Date
0	ISSUED FOR BID	DNC	TJK	MAY 2019

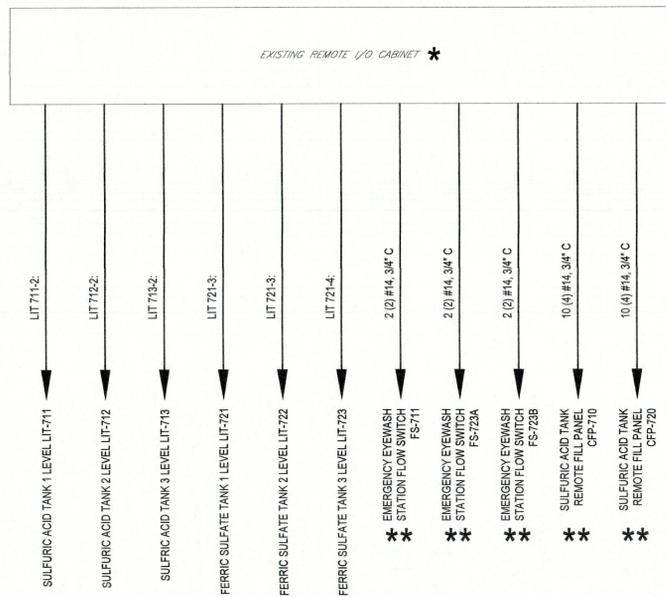
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0 1"

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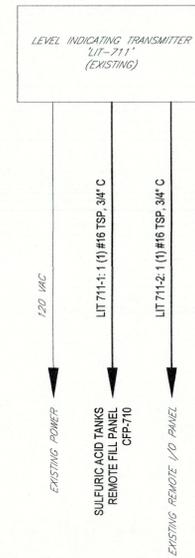
Drawn	D. CLELAND	Designer	M. MOORE	Client	CITY OF TAMPA
Drafting	J. RIDDLE	Design	I. DIAZ	Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION
Project	M. MUNZ	Date	MAY 2019	Title	ELECTRICAL DETAILS
Project No.	11152370	Scale	NOT TO SCALE	Original Size	Arch D
Sheet No.	E003	Sheet	19	of	20



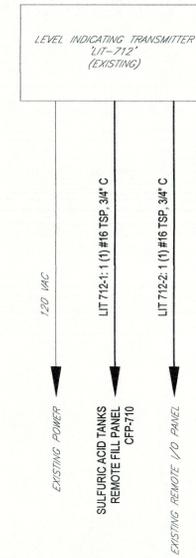
\* CONTRACTOR TO COORDINATE WITH OWNER FOR SPARE TERMINATION POINTS IN EXISTING REMOTE I/O CABINET.

\*\* CONTRACTOR TO COORDINATE WITH OWNER FOR PROVIDING 120VAC, 24VAC OR 24VDC.

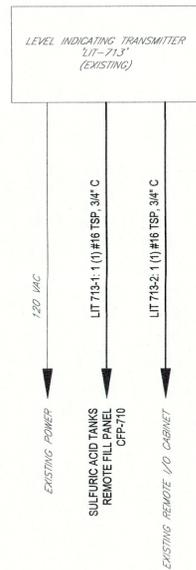
**1** EXISTING REMOTE I/O CABINET  
NOT TO SCALE



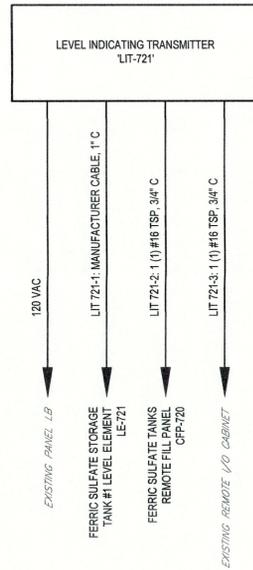
**2** EXISTING LEVEL INDICATING TRANSMITTER 'LIT-711'  
NOT TO SCALE



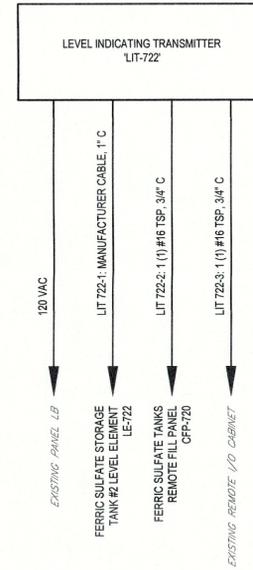
**3** EXISTING LEVEL INDICATING TRANSMITTER 'LIT-712'  
NOT TO SCALE



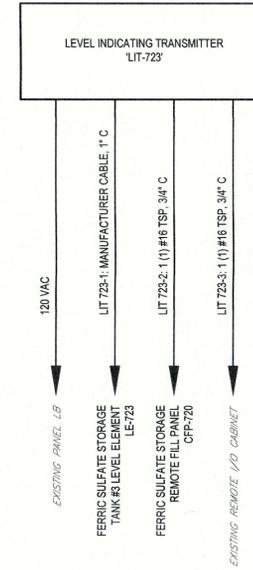
**4** EXISTING LEVEL INDICATING TRANSMITTER 'LIT-713'  
NOT TO SCALE



**5** LEVEL INDICATING TRANSMITTER 'LIT-721'  
NOT TO SCALE



**6** LEVEL INDICATING TRANSMITTER 'LIT-722'  
NOT TO SCALE



**7** LEVEL INDICATING TRANSMITTER 'LIT-723'  
NOT TO SCALE

No.	Issue	Drawn	Approved	Date
0	ISSUED FOR BID	DNC	TJK	MAY 2019

Bar is one inch on original size sheet  
0 1"

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Drawn	D. CLELAND	Designer	M. MOORE
Drafting Check	J. RIDDLE	Design Check	I. DIAZ
Project Manager	M. MUNZ	Date	MAY 2019
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Client	CITY OF TAMPA		
Project	DLTWF FERRIC SULFATE & SULFURIC ACID TANK REHABILITATION		
Title	CONTROL ONE-LINE DIAGRAMS		
Project No.	11152370		
Original Size	Arch D	Sheet No.	E004
		Scale	NOT TO SCALE
		Sheet	20 of 20