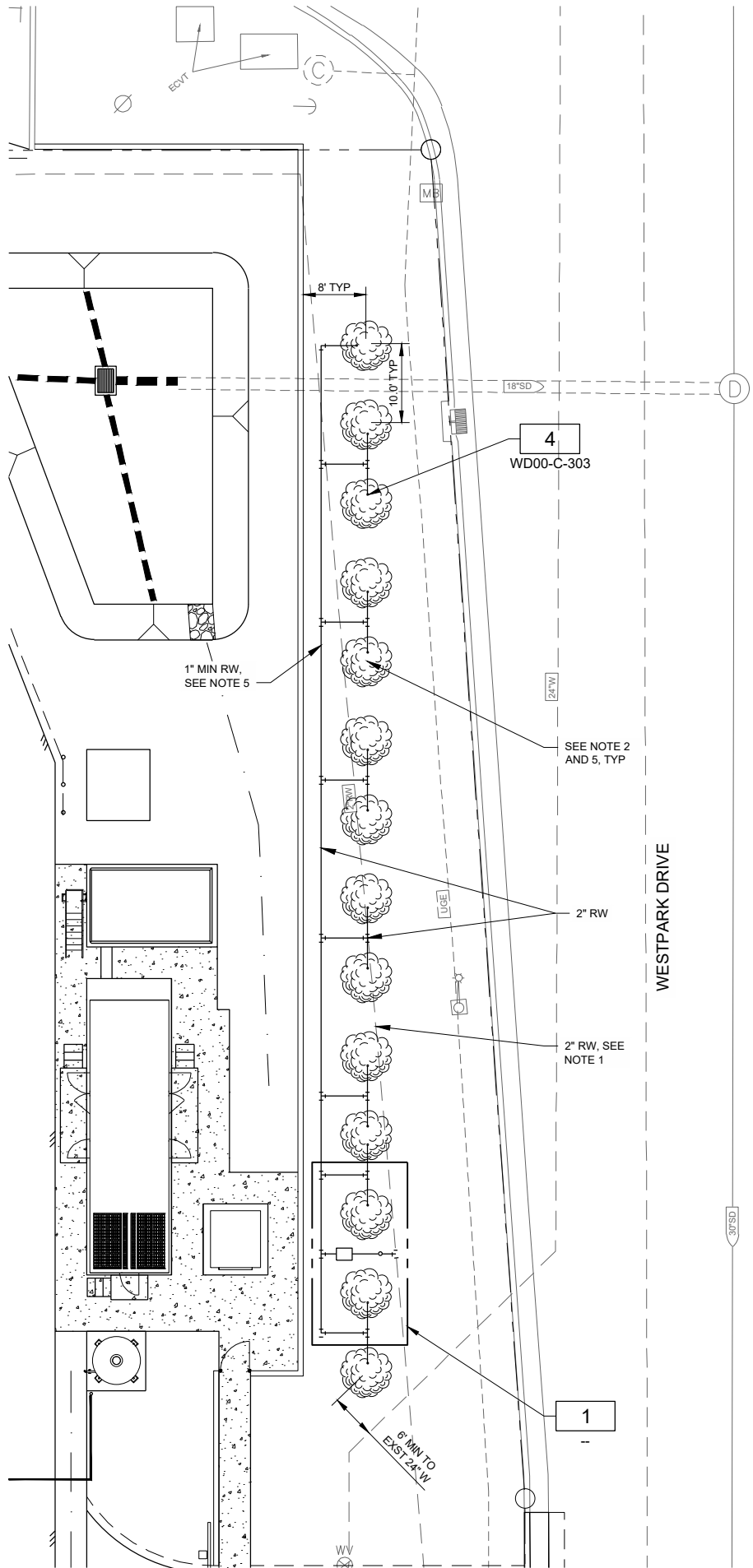
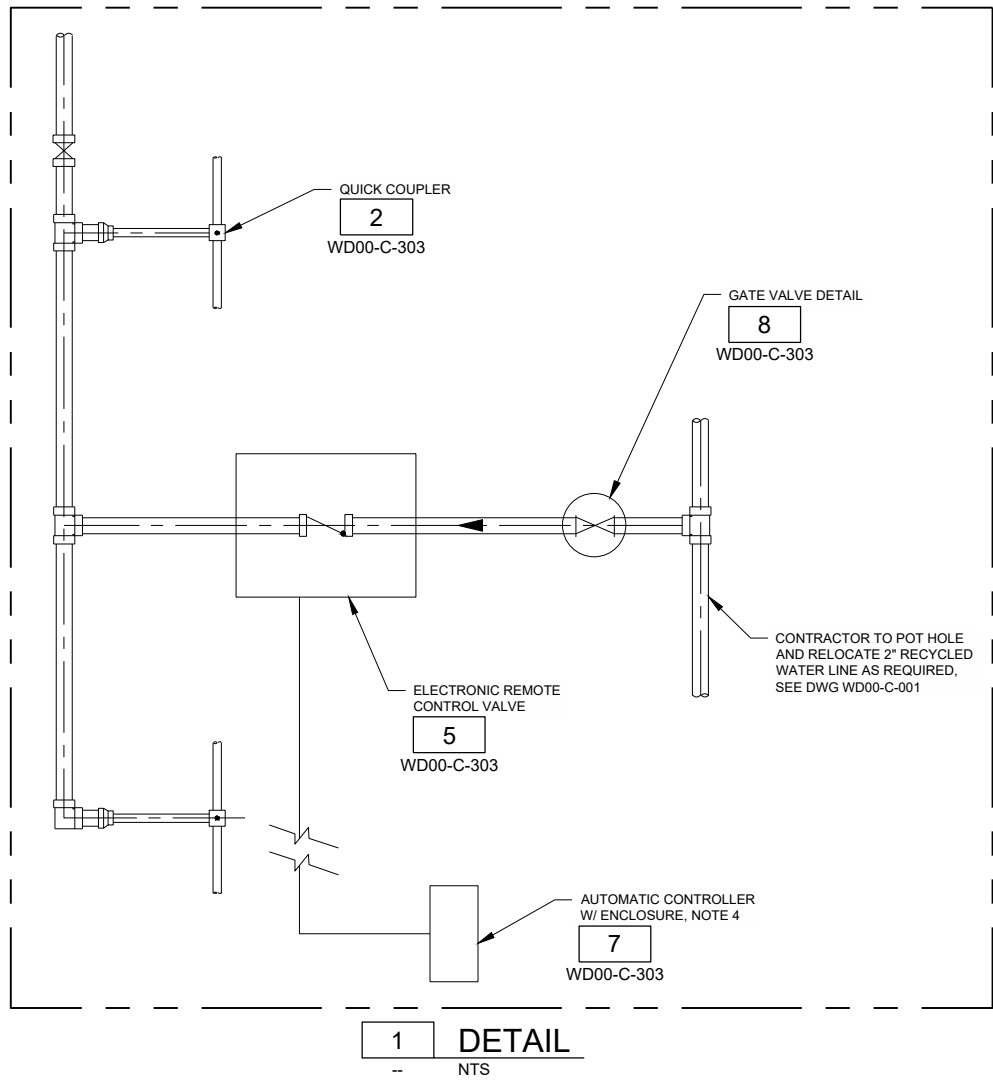
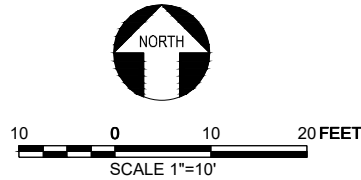


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NOTES:

- 2" RECYCLED WATER LINE EXACT DEPTH AND LOCATION IS UNKNOWN. CONTRACTOR SHALL FIELD VERIFY LOCATION PRIOR TO INSTALLING IRRIGATION SYSTEM.
- FIVE GALLON EUONYMUS COMPACTA AT 10 FOOT SPACING (14 TOTAL). PLANT 8 FEET FROM EXTERIOR WALL.
- INSTALL 3" LAYER OF MULCH OVER WEED BARRIER. SEE SPECIFICATION SECTION 02900.
- LOCATE CONTROLLER TO AVOID NEW LANDSCAPING. LOCATION SHALL BE APPROVED BY ENGINEER PRIOR TO INSTALLATION.
- CONTRACTOR SHALL PROVIDE IRRIGATION SYSTEM AND LANDSCAPE PLANTING IN ACCORDANCE WITH APPROVED SUBMITTALS PER SPECIFICATION SECTION 02810 AND 02900.



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JOB NUMBER: 17-083

FILENAME: WD5400C302.DWG

PLOT DATE: 11/7/19

PLOT TIME: 14:01:50

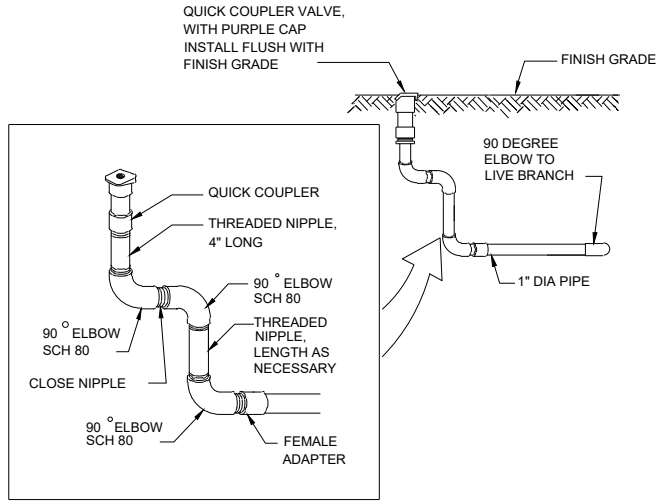
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CITY OF ROSEVILLE
WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2)
ROSEVILLE, CALIFORNIA

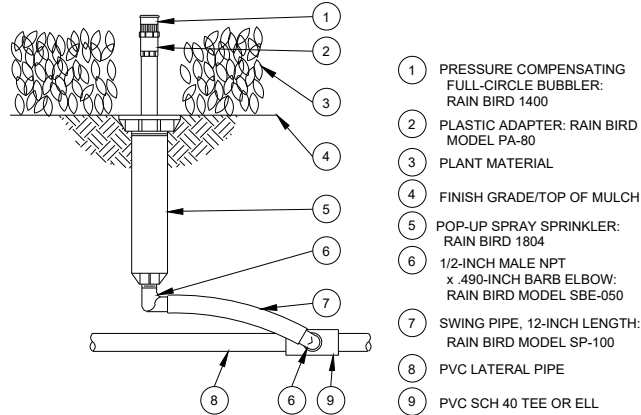
LANDSCAPING
LANDSCAPING AND IRRIGATION PLAN

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD00-C-302
SHEET NUMBER
76

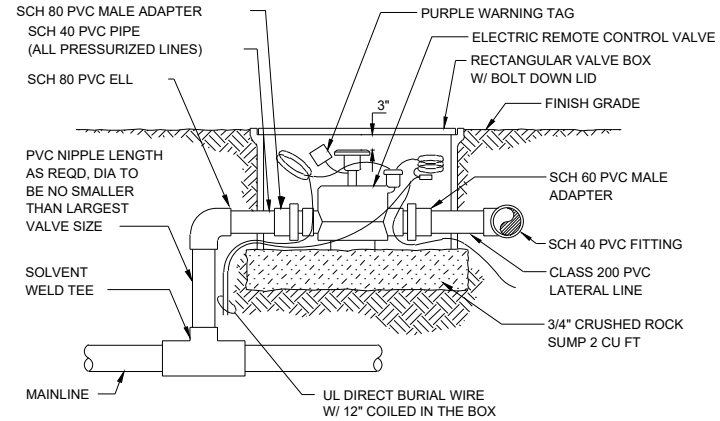
DESIGN
P WEBSTER
DRAWN
P WEBSTER
CHECKED
C BERTSCH
APPROVED
M FISHER



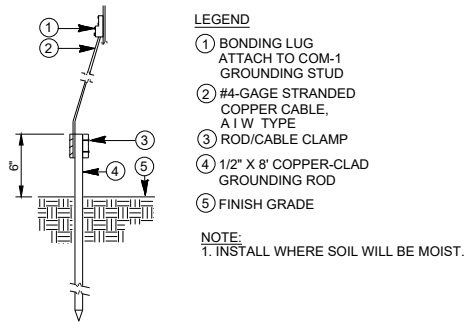
2 QUICK COUPLER VALVE DETAIL
WD00-C-302 NTS



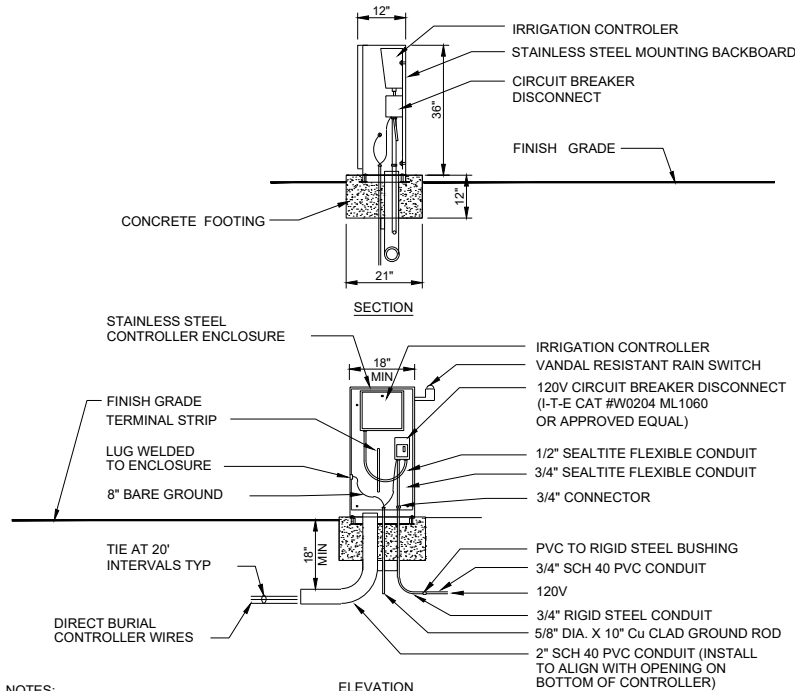
4 PRESSURE COMPENSATING FULL-CIRCLE BUBBLER DETAIL
WD00-C-302 NTS



5 ELECTRONIC REMOTE CONTROL VALVE DETAIL
WD00-C-302 NTS

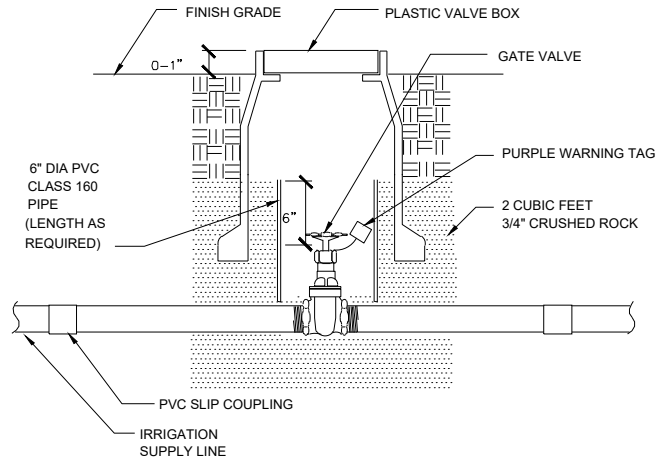


6 AUTOMATIC CONTROLLER GROUNDING ROD DETAIL
NTS

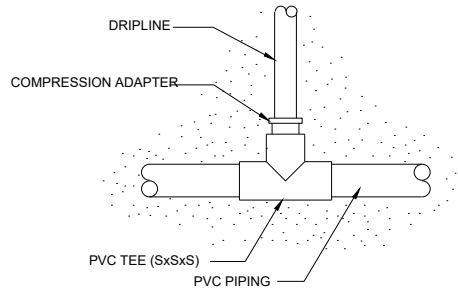


NOTES:
1. ALL ELECTRICAL WORK SHALL CONFORM TO CODES AND ORDINANCES.
2. EXACT PLACEMENT OF CONTROLLER SHALL BE COORDINATED WITH OWNER IN FIELD.

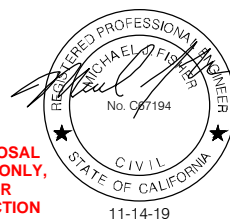
7 AUTOMATIC CONTROLLER DETAIL
WD00-C-302 NTS



8 GATE VALVE DETAIL
WD00-C-302 NTS



9 MANIFOLD CONNECTION (PVC TO ADAPTER) DETAIL
NTS



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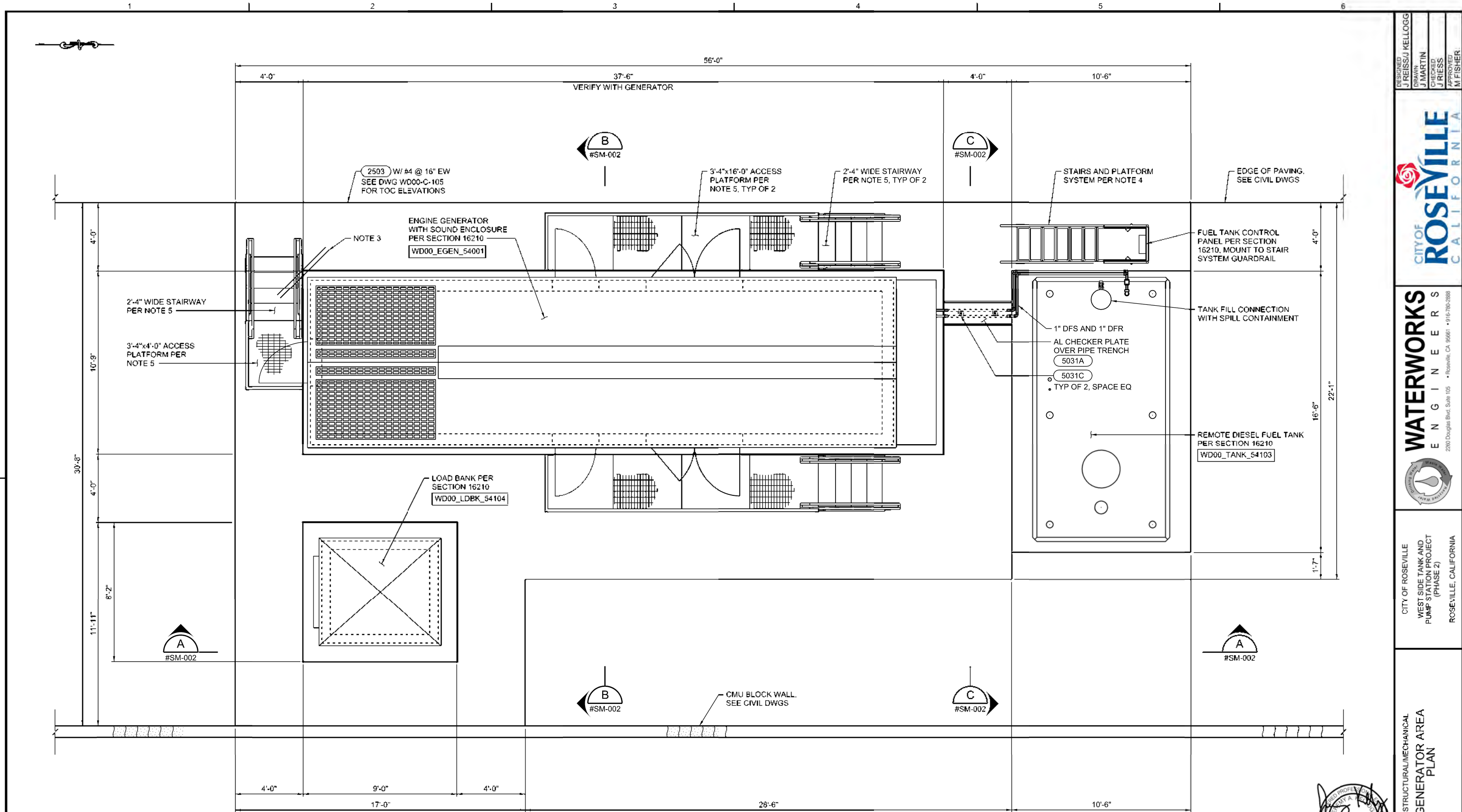
DESIGN
P WEBSTER
DRAWN
P WEBSTER
CHECKED
C BERTSCH
APPROVED
M FISHER



CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

LANDSCAPING
DETAILS

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD00-C-303
SHEET NUMBER 77



PLAN
3/8" = 1'-0"

NOTES:

1. REPLACE "R" IN DRAWING WITH "WD00-".
2. GENERATOR, FUEL TANK AND FUEL PIPING APPROXIMATELY SHOWN, BASED ON KOHLER KD SERIES GENERATOR AND 5,200 GALLON CONVAULT FUEL TANK. ACTUAL LAYOUT TO BE BASED ON APPROVED SHOP DRAWINGS.
3. PROVIDE (2) #4x4'-0" DIAGONAL BAR AT ±3" SPACING. TYPICAL AT EACH REENTRANT CORNER.
4. WILDECK TANK ACCESS STAIRS W/ PLATFORM AP-736, OR APPROVED EQUAL. HOT DIP GALVANIZED FINISH.
5. WILDECK JIFFYSTAIR MODULAR STAIR SYSTEM, OR APPROVED EQUAL. PROVIDE CALIFORNIA COMPLIANT STAIR SYSTEM WITH GUARDRAIL ON THREE SIDES OF PLATFORM. COORDINATE ± 28" PLATFORM HEIGHT WITH APPROVED GENERATOR. HOT DIP GALVANIZED FINISH.

2 0 2 4 FEET
SCALE 3/8"=1'-0"

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DESIGNED
J REISS/J KELLOGG
DRAWN
J MARTIN
CHECKED
J REISS
APPROVED
M FISHER

CITY OF
ROSEVILLE
CALIFORNIA

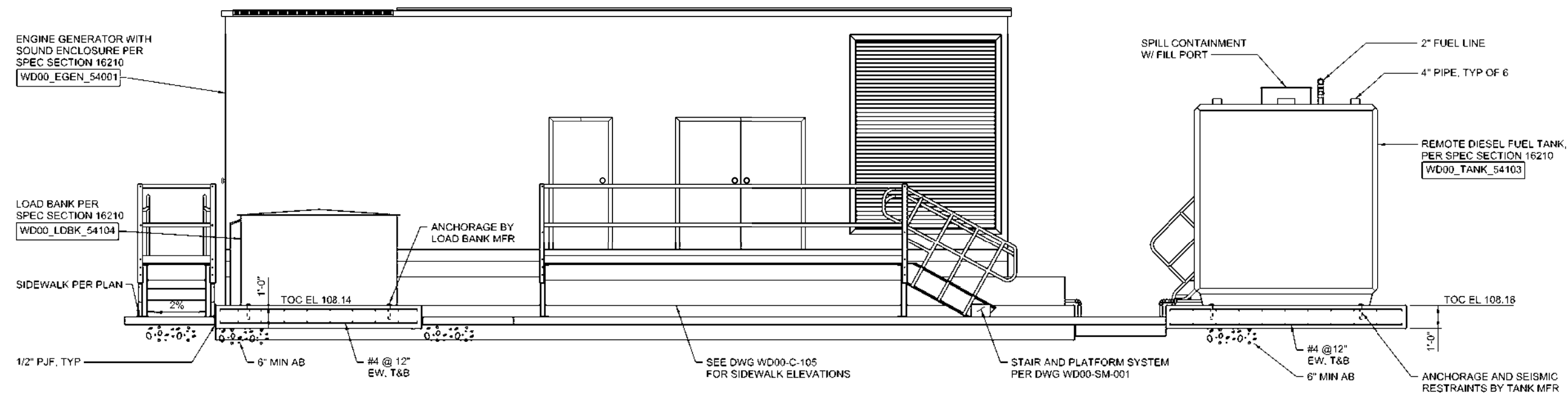
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CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

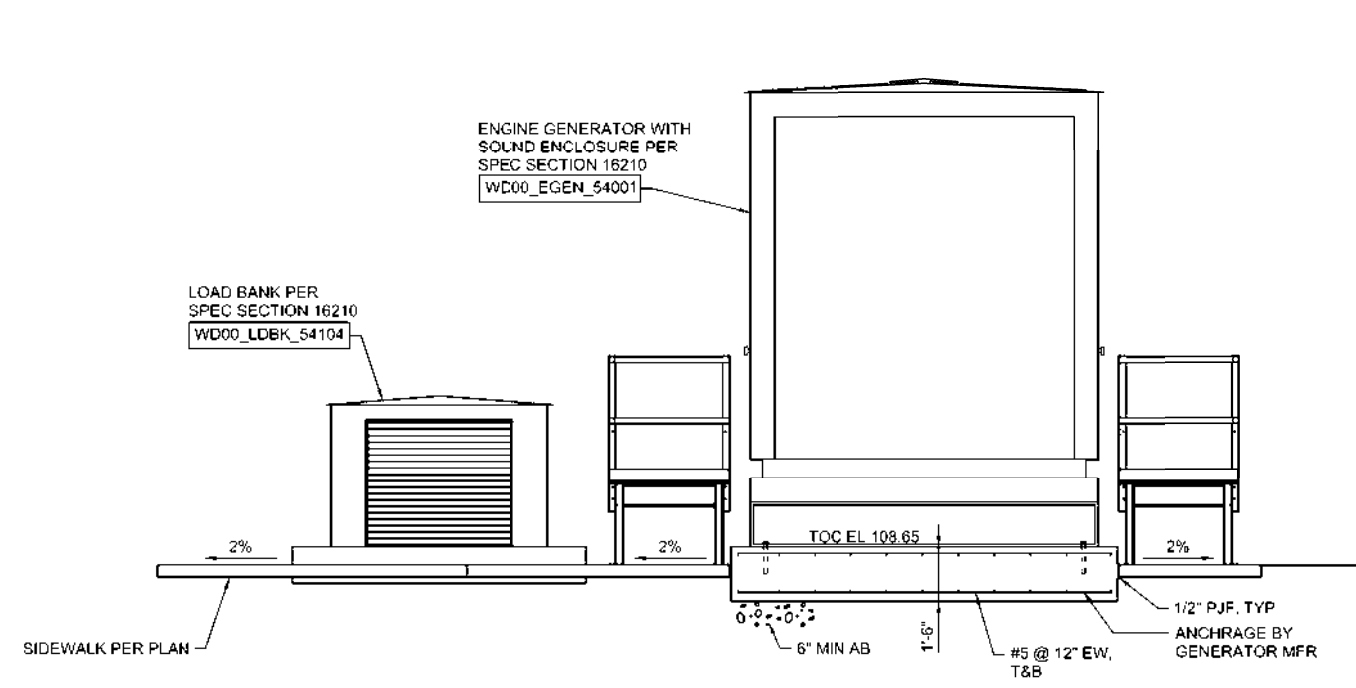
STRUCTURAL/MECHANICAL
GENERATOR AREA
PLAN

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD00-SM-001
SHEET NUMBER 78

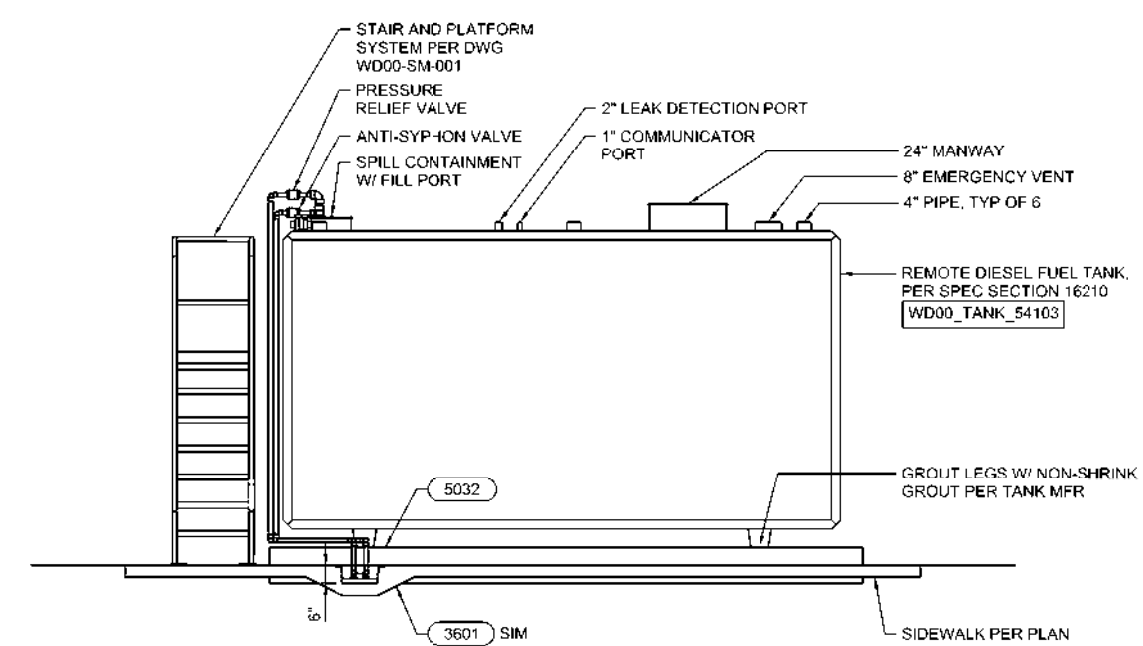
NOTES:
1. REPLACE "#" IN DRAWING WITH "WD00-".



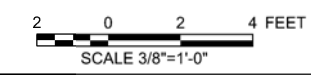
A SECTION
#SM-001 3/8" = 1'-0"



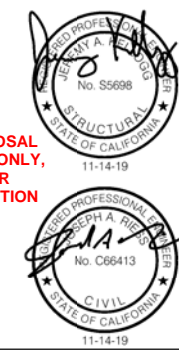
B SECTION
#SM-001 3/8" = 1'-0"



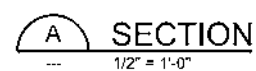
C SECTION
#SM-001 3/8" = 1'-0"



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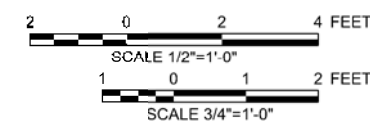


DESIGNED J. R. KELLOGG	DRAWN J. MARTIN	CHECKED J. REED	APPROVED M. FISHER
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
STRUCTURAL / MECHANICAL GENERATOR AREA SECTIONS			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD00-SM-002			
SHEET NUMBER 79			



- NOTES:**
- 1. CONTRACTOR TO VERIFY ALL TANK, SUPPORT, ANCHOR AND FOUNDATION DIMENSIONS WITH TANK MANUFACTURER PRIOR TO CONSTRUCTION.**
 - 2. PROVIDE STAINLESS STEEL INSECT SCREENS FOR ALL VENTS.**
 - 3. PROVIDE PROBE ASSEMBLY SUPPORT PER TANK MANUFACTURER.**
 - 4. INSTALL 24 MESH INSECT SCREEN ON END OF 2" DR.**

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FILENAME: WD5420SM001.dgn

PLOT DATE: 11/7/2019 2:21:20 PM

DESIGNED	J RIESS/J KELLOGG
DRAWN	J MARTIN
CHECKED	S KADER
APPROVED	M FISHER



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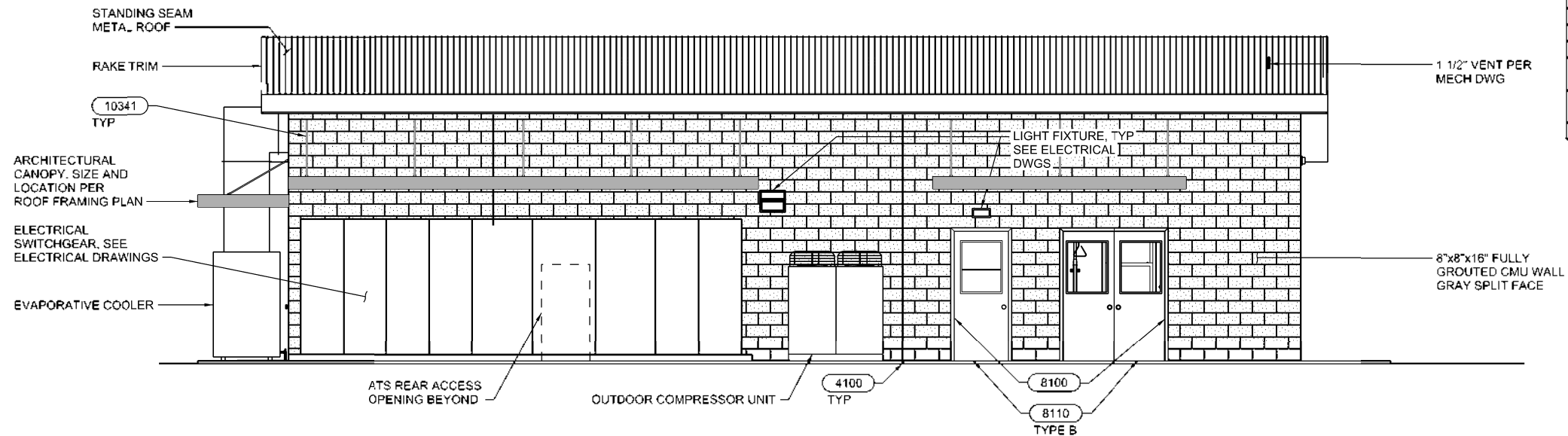


CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

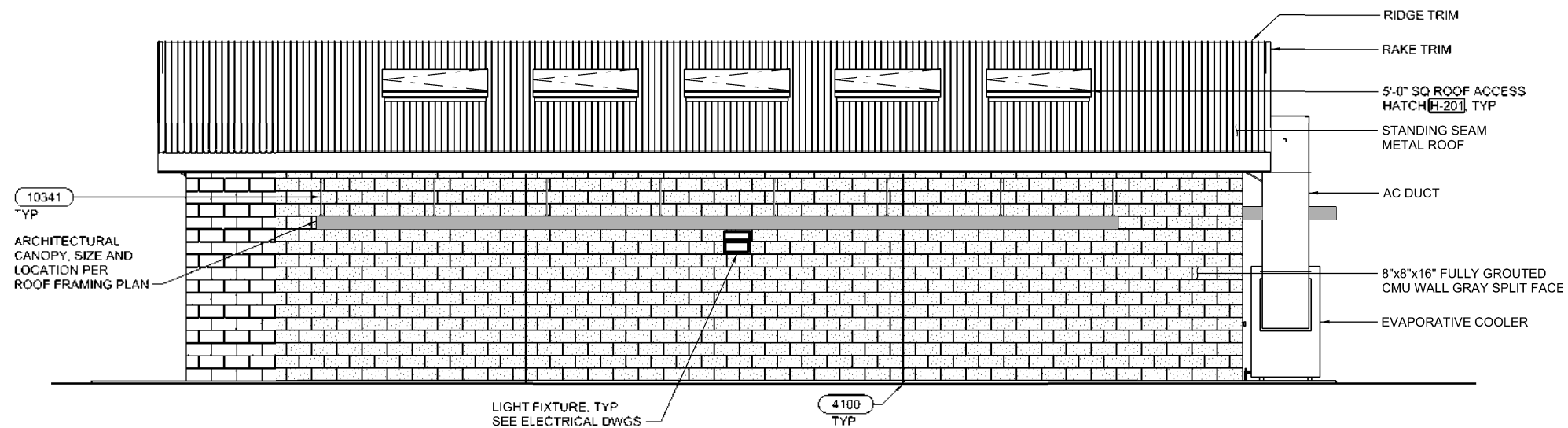
STRUCTURAL / MECHANICAL

HYDROPNEUMATIC TANK
PLAN AND SECTIONS

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD20-SM-001
SHEET NUMBER	80



NORTH ELEVATION
1/4" = 1'-0"
WD20-AS-003

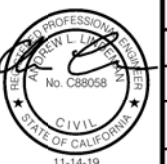


SOUTH ELEVATION
1/4" = 1'-0"
WD20-AS-003

2016 CBC CODE ANALYSIS	
OCCUPANCY CLASS	F-2
TYPE OF CONSTRUCTION	III-B
FIRE SUPPRESSION	FIRE EXTINGUISHERS
ACTUAL AREA	2,537 SQ FT
OCCUPANT LOAD FACTOR	100
OCCUPANT LOAD	28
EXITS PROVIDED	3
MAX EXIT TRAVEL DISTANCE	63 FT
HAZARDOUS MATERIALS	500 GALLONS 12.5% SODIUM HYPOCHLORITE
EXTERIOR WALLS	4-HOUR RATED

4 0 4 8 FEET
SCALE 1/4"=1'-0"

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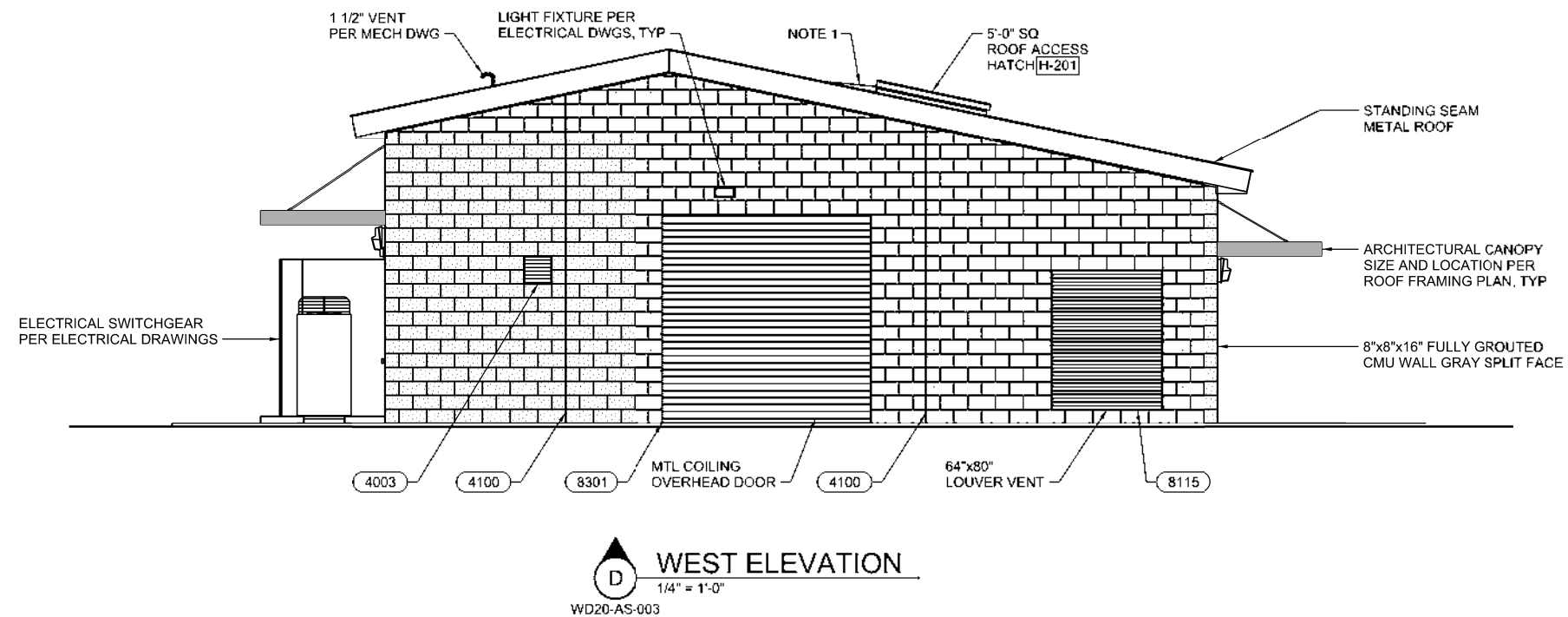
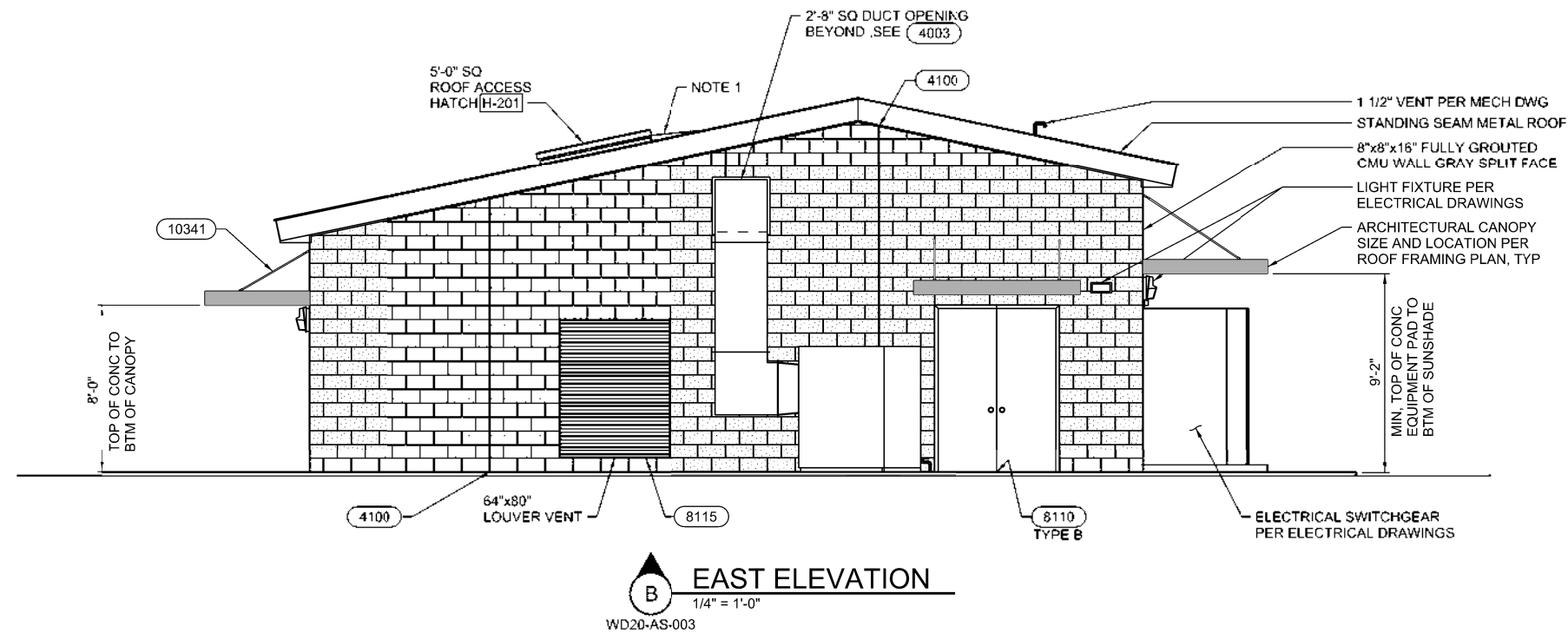


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CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ARCHITECTURAL/STRUCTURAL
BOOSTER PUMP STATION
ELEVATIONS

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD20-AS-001
SHEET NUMBER 81



- NOTES:
1. FABRICATED GALVANIZED SHEET METAL CRICKET, 11 GAUGE MINIMUM. COORDINATE CRICKET WITH HATCH CURB COUNTERFLASHING AND ROOFING FOR A COMPLETE WEATHERTIGHT INSTALLATION. SEE (7000), SIMILAR.

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WEST SIDE TANK AND
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(PHASE 2)
ROSEVILLE, CALIFORNIA

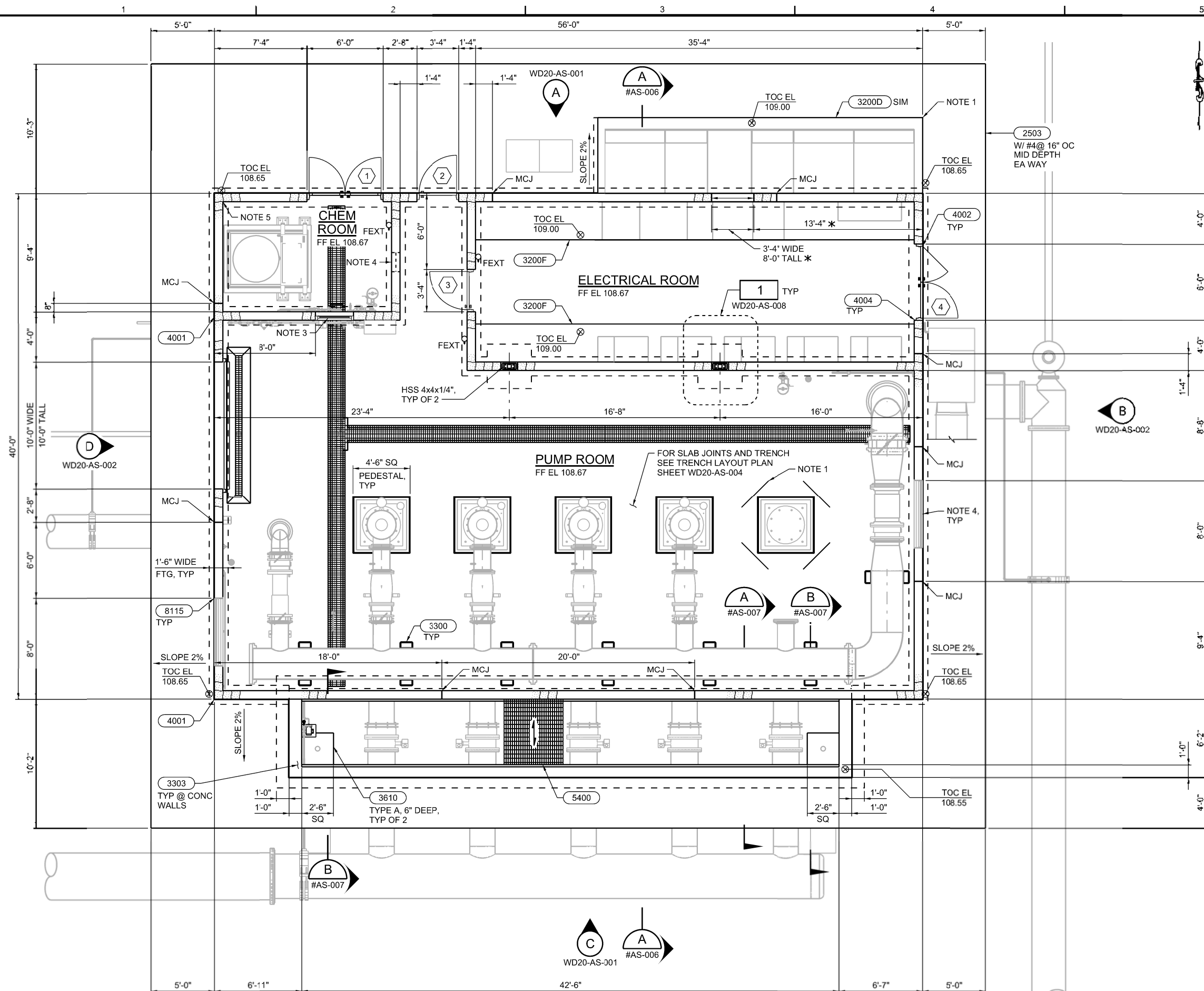
ARCHITECTURAL/STRUCTURAL
BOOSTER PUMP STATION
ELEVATIONS

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD20-AS-002
SHEET NUMBER 82

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4 0 4 8 FEET
SCALE 1/4" = 1'-0"



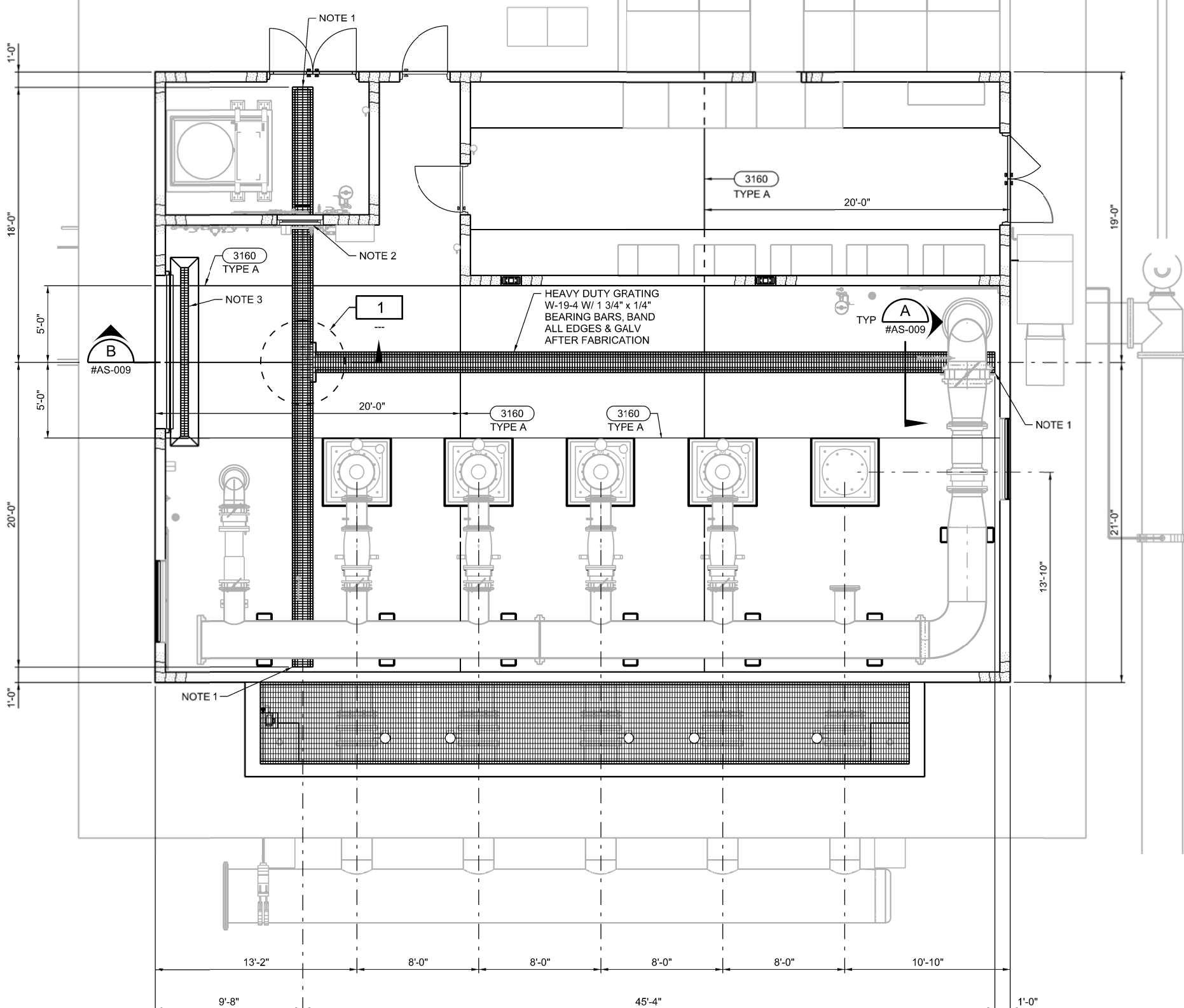
- NOTES:
1. PROVIDE #4 x 4'-0" DIAGONAL BAR AT MID SLAB DEPTH @ EA CORNER, TYPICAL AT ALL REENTRANT CORNERS.
 2. FOR SECTION CUTS, REPLACE " # " WITH " WD20- "
 3. 3'-4" WIDE BY 3'-4" WIDE FIXED VINYL FRAMED WINDOW WITH SILL HEIGHT AT 3'-4" ABOVE FINISH FLOOR.
 4. PROVIDE LOUVERS AND WALL GRILLS PER DWG WD20-H-001.
 5. AT CHEM ROOM, INSTALL POLY-TUF WATERPROOF WALL AND CEILING LINER PANEL (H&F MANUFACTURING GROUP) TO A HEIGHT OF 4'-0" MEASURED FROM FINISHED FLOOR. FOLLOW MANUFACTURE'S RECOMMENDATIONS FOR INSTALLATION, FASTENER REQUIREMENTS, ETC. CONTRACTOR TO PROVIDE MANUFACTURE'S STANDARD TRIM ACCESSORIES FOR PANEL INTERSECTIONS, CORNERS AND EDGES.
- * VERIFY ATS LOCATION & OPENING SIZE W/ ELECTRICAL SUBMITTAL PRIOR TO CONSTRUCTION. PROVIDE NON-SHRINK GROUT & CAULKING AS REQUIRED TO PROVIDE AIR-TIGHT SEAL BETWEEN EQUIPMENT HOUSING AND MASONRY WALL.

DESIGNED A LINDEMAN	DRAWN J MARTIN	CHECKED S KADER	APPROVED M FISHER
CITY OF ROSEVILLE CALIFORNIA			
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CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
ARCHITECTURAL/STRUCTURAL BOOSTER PUMP STATION FOUNDATION PLAN			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD20-AS-003			
SHEET NUMBER 83			

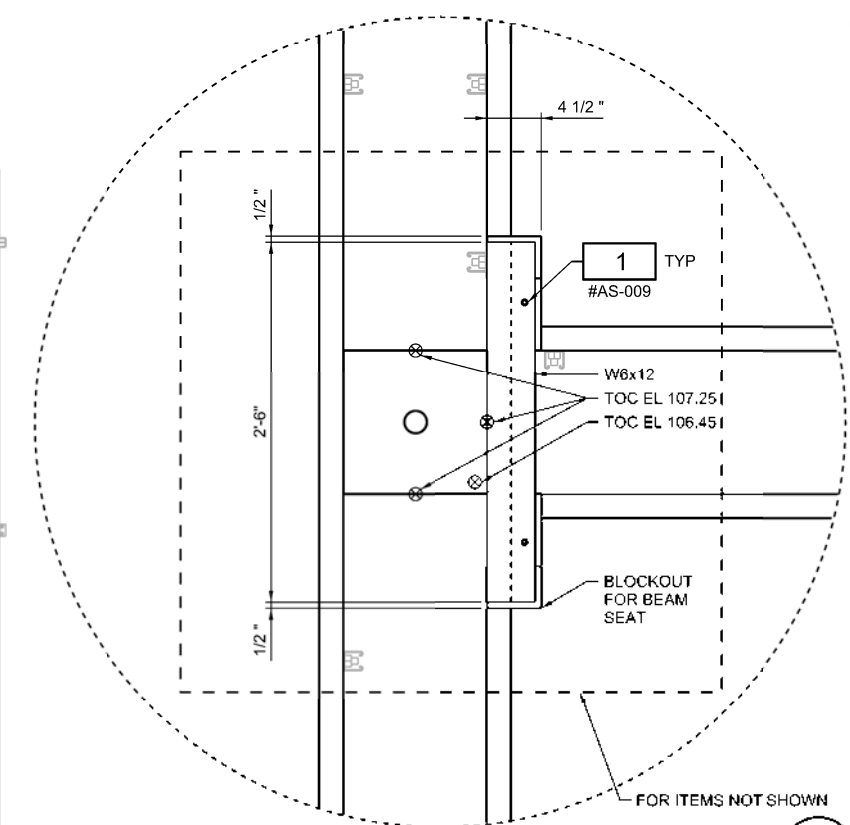
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SCALE 1/4" = 1'-0"

FILENAME: WD5420AS003.dgn PLOT DATE: 11/7/2019 2:24:50 PM

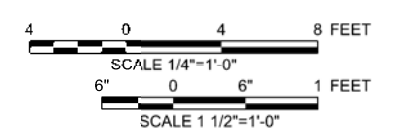


- NOTES:
1. TRENCH TCC EL 108.02.
 2. STOP AND START GRATING EA SIDE OF WALL. CONTINUE BTM WALL FTG REINF UNDER TRENCH.
 3. 6" PREFABRICATED TRENCH DRAIN. CENTER ON ROLL UP DOOR AND ENTEND 6" MIN BEYOND ENDS OF DOOR. ROUTE DRAIN TO SUMP.




1 PARTIAL PLAN
1 1/2"=1'-0"

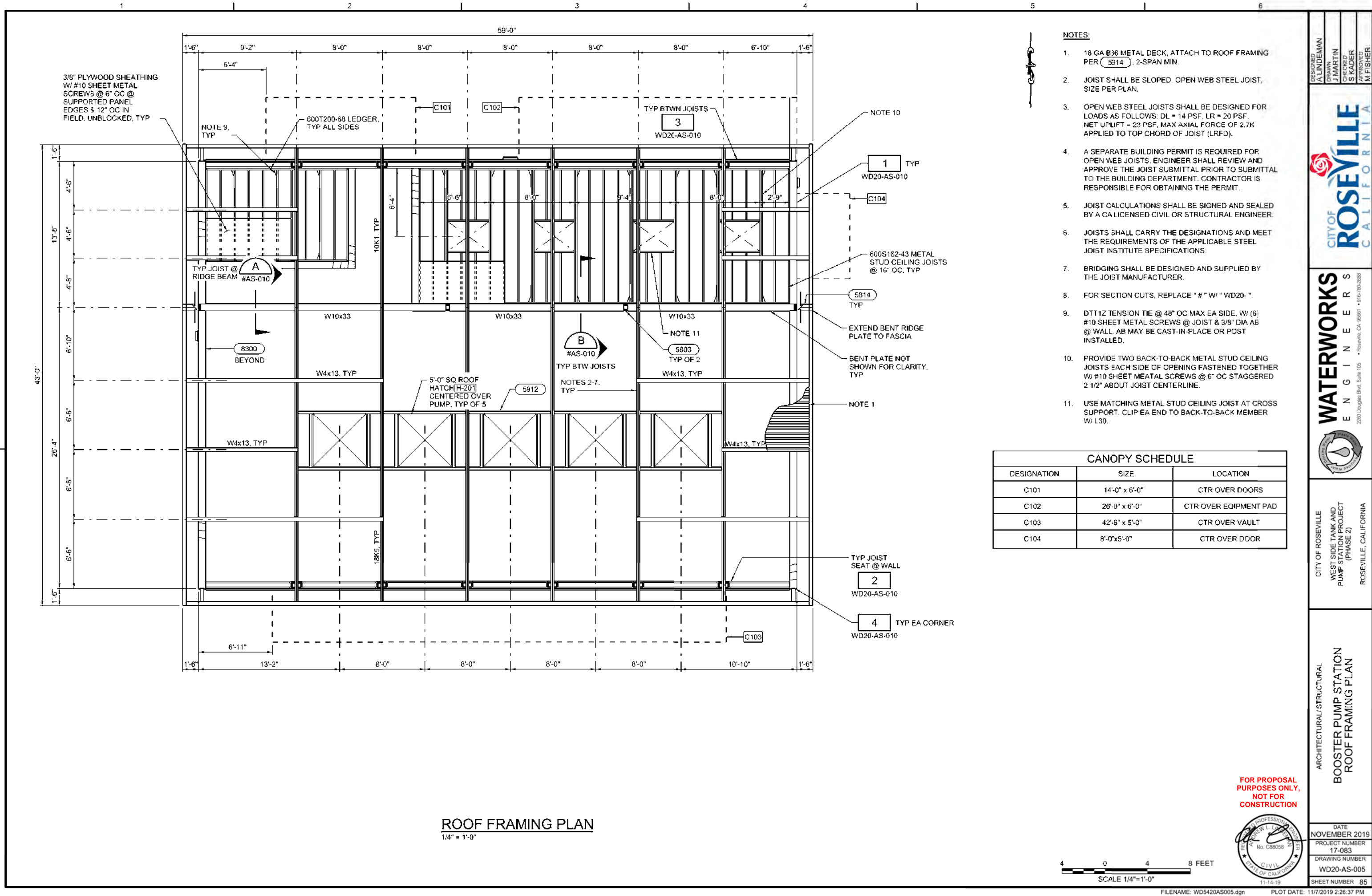
TRENCH LAYOUT PLAN
1/4" = 1'-0"



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 CITY OF ROSEVILLE CALIFORNIA			
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-2688			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
ARCHITECTURAL/STRUCTURAL BOOSTER PUMP STATION TRENCH LAYOUT PLAN AND PARTIAL PLAN			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD20-AS-004			
SHEET NUMBER 84			



- NOTES:**
- 18 GA B36 METAL DECK, ATTACH TO ROOF FRAMING PER (5914), 2-SPAN MIN.
 - JOIST SHALL BE SLOPED. OPEN WEB STEEL JOIST, SIZE PER PLAN.
 - OPEN WEB STEEL JOISTS SHALL BE DESIGNED FOR LOADS AS FOLLOWS: DL = 14 PSF, LR = 20 PSF, NET UPLIFT = 23 PSF, MAX AXIAL FORCE OF 2.7K APPLIED TO TOP CHORD OF JOIST (LRFD).
 - A SEPARATE BUILDING PERMIT IS REQUIRED FOR OPEN WEB JOISTS. ENGINEER SHALL REVIEW AND APPROVE THE JOIST SUBMITTAL PRIOR TO SUBMITTAL TO THE BUILDING DEPARTMENT. CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE PERMIT.
 - JOIST CALCULATIONS SHALL BE SIGNED AND SEALED BY A CALICENCED CIVIL OR STRUCTURAL ENGINEER.
 - JOISTS SHALL CARRY THE DESIGNATIONS AND MEET THE REQUIREMENTS OF THE APPLICABLE STEEL JOIST INSTITUTE SPECIFICATIONS.
 - BRIDGING SHALL BE DESIGNED AND SUPPLIED BY THE JOIST MANUFACTURER.
 - FOR SECTION CUTS, REPLACE " # " W/ " WD20- ".
 - DTT12 TENSION TIE @ 48" OC MAX EA SIDE, W/ (6) #10 SHEET METAL SCREWS @ JOIST & 3/8" DIA AB @ WALL. AB MAY BE CAST-IN-PLACE OR POST INSTALLED.
 - PROVIDE TWO BACK-TO-BACK METAL STUD CEILING JOISTS EACH SIDE OF OPENING FASTENED TOGETHER W/ #10 SHEET METAL SCREWS @ 6" OC STAGGERED 2 1/2" ABOUT JOIST CENTERLINE.
 - USE MATCHING METAL STUD CEILING JOIST AT CROSS SUPPORT. CLIP EA END TO BACK-TO-BACK MEMBER W/ L30.

CANOPY SCHEDULE		
DESIGNATION	SIZE	LOCATION
C101	14'-0" x 6'-0"	CTR OVER DOORS
C102	26'-0" x 6'-0"	CTR OVER EQUIPMENT PAD
C103	42'-6" x 5'-0"	CTR OVER VAULT
C104	8'-0" x 5'-0"	CTR OVER DOOR

ROOF FRAMING PLAN
1/4" = 1'-0"

4 0 4 8 FEET
SCALE 1/4"=1'-0"

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DESIGNED
A LINDEMAN

DRAWN
J MARTIN

CHECKED
S KADER

APPROVED
W FISHER

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ROSEVILLE
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CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)

ROSEVILLE, CALIFORNIA

ARCHITECTURAL/STRUCTURAL

BOOSTER PUMP STATION
ROOF FRAMING PLAN

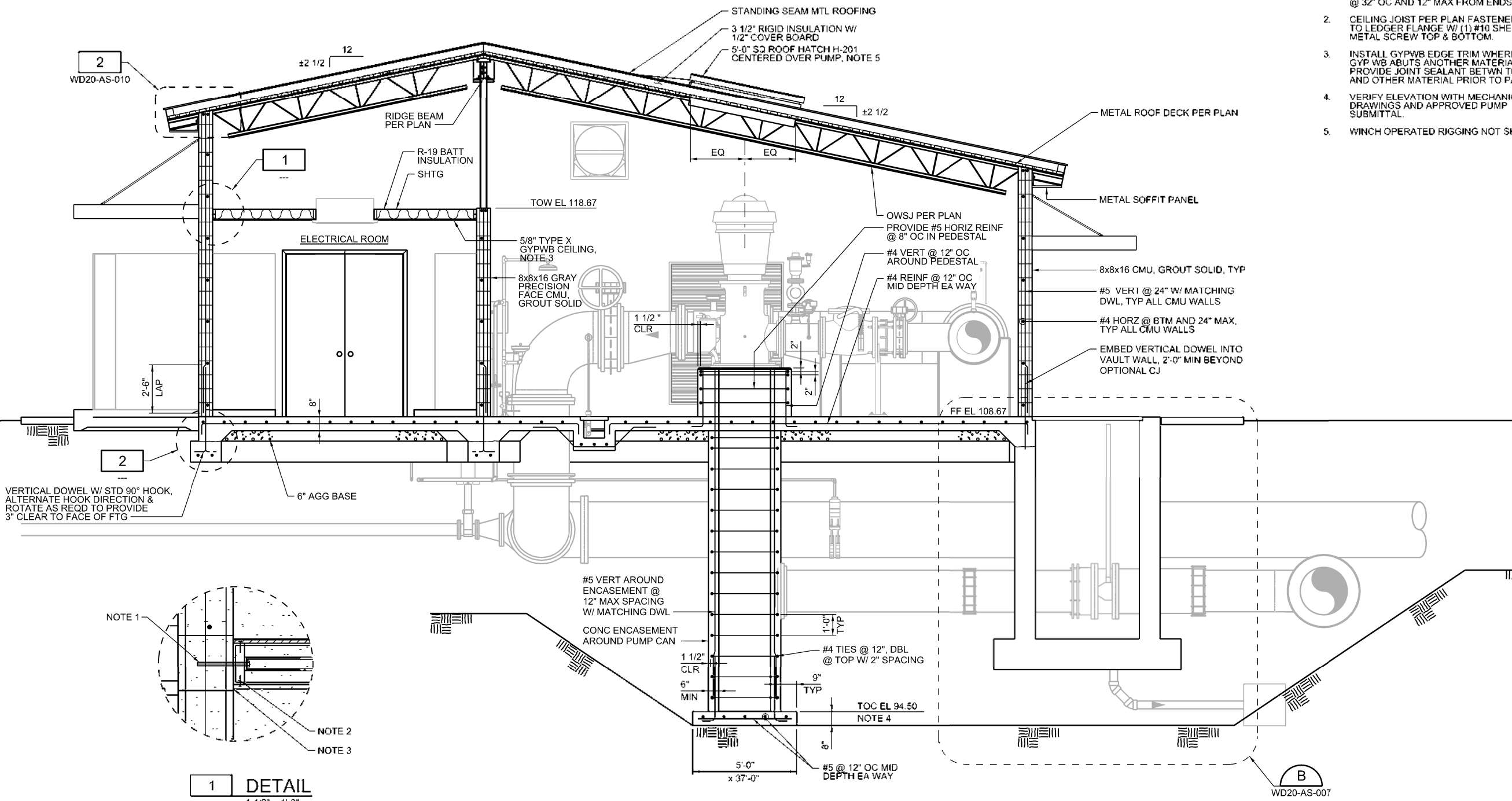
DATE
NOVEMBER 2019

PROJECT NUMBER
17-083

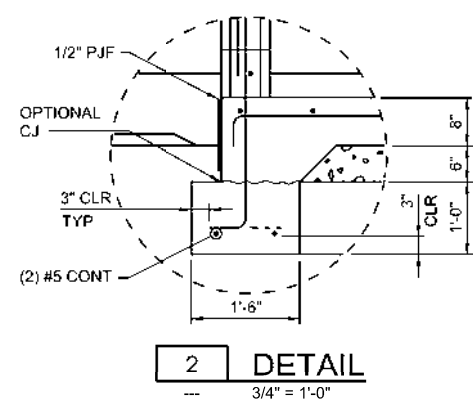
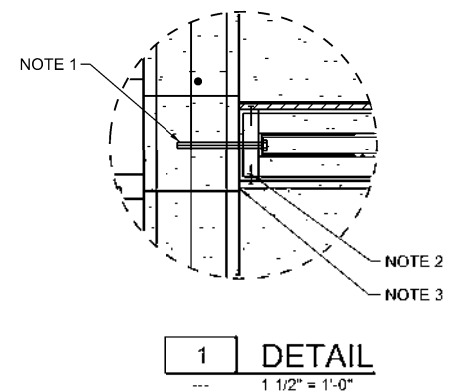
DRAWING NUMBER
WD20-AS-005

SHEET NUMBER
85

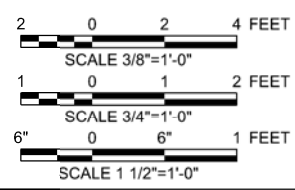
1 2 3 4 5 6



- NOTES:
1. LEDGER PER PLAN W/ 1/2" DIA AB @ 32" OC AND 12" MAX FROM ENDS.
 2. CEILING JOIST PER PLAN FASTENED TO LEDGER FLANGE W/ (1) #10 SHEET METAL SCREW TOP & BOTTOM.
 3. INSTALL GYPWB EDGE TRIM WHERE GYP WB ABUTS ANOTHER MATERIAL. PROVIDE JOINT SEALANT BETWN TRIM AND OTHER MATERIAL PRIOR TO PAINTING.
 4. VERIFY ELEVATION WITH MECHANICAL DRAWINGS AND APPROVED PUMP SUBMITTAL.
 5. WINCH OPERATED RIGGING NOT SHOWN.




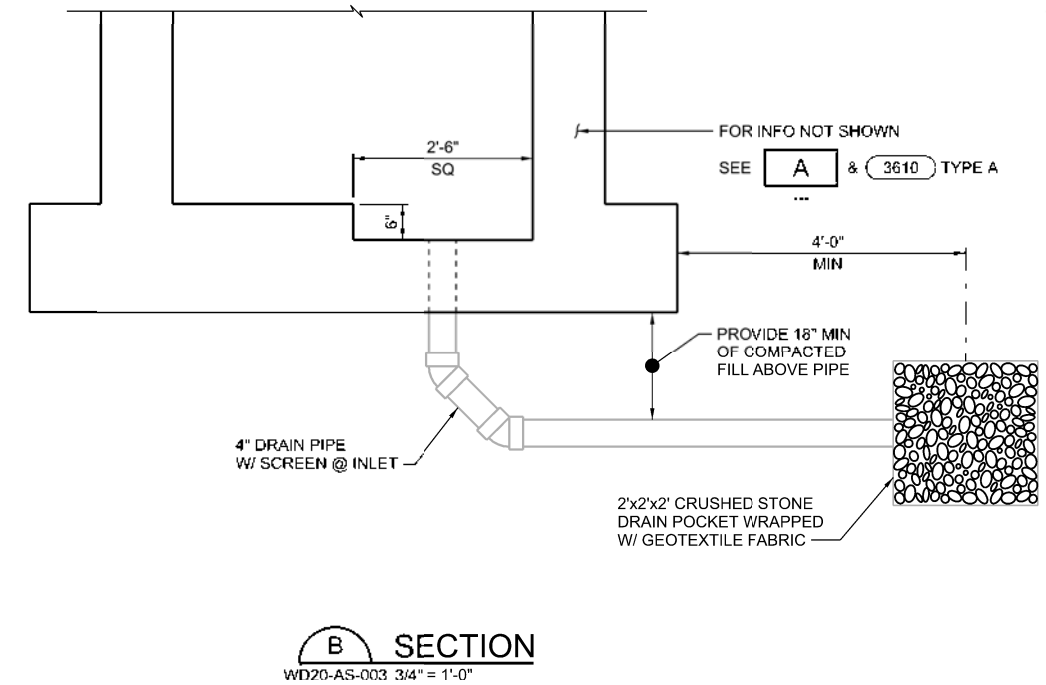
A SECTION
WD20-AS-003 3/8" = 1'-0"



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DESIGNED A LINDEMAN	DRAWN J MARTIN	CHECKED S KADER	APPROVED M FISHER
			
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CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
ARCHITECTURAL/STRUCTURAL BOOSTER PUMP STATION SECTION AND DETAILS			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD20-AS-006			
SHEET NUMBER 86			



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DRAWN J MARTIN
CHECKED S KADER
APPROVED M FISHER



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CALIFORNIA

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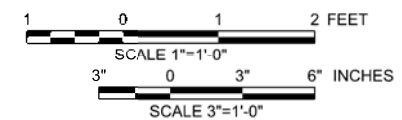
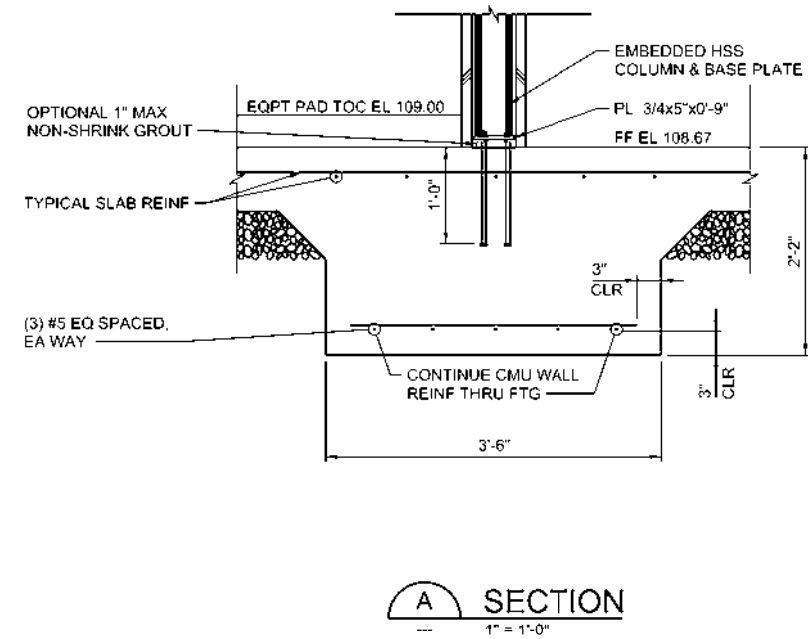
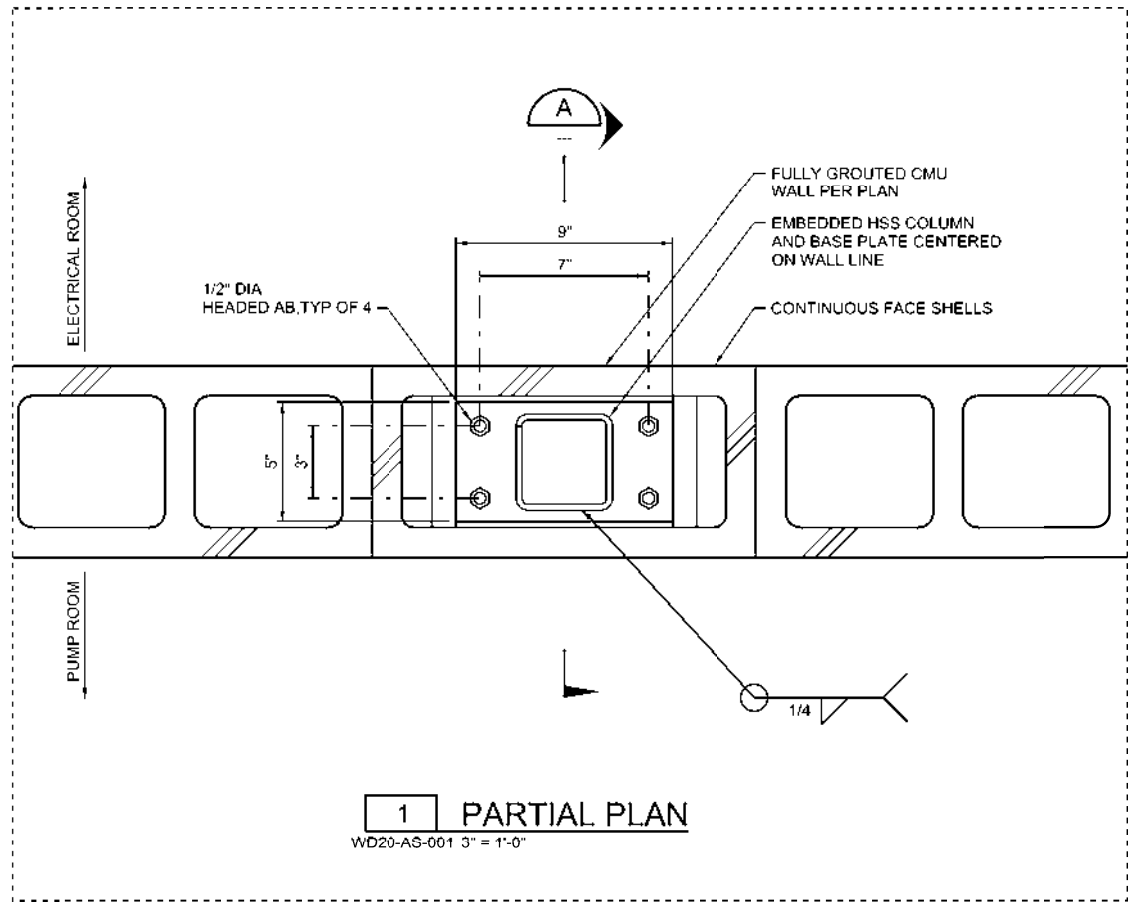


CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ARCHITECTURAL/STRUCTURAL
BOOSTER PUMP STATION
SECTIONS

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD20-AS-007
SHEET NUMBER	87

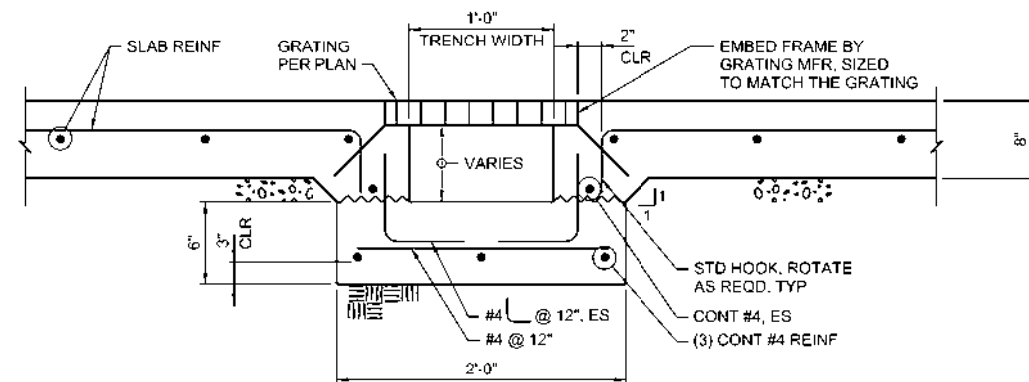
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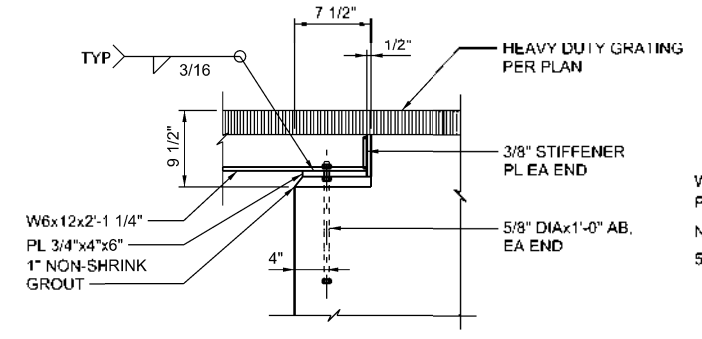
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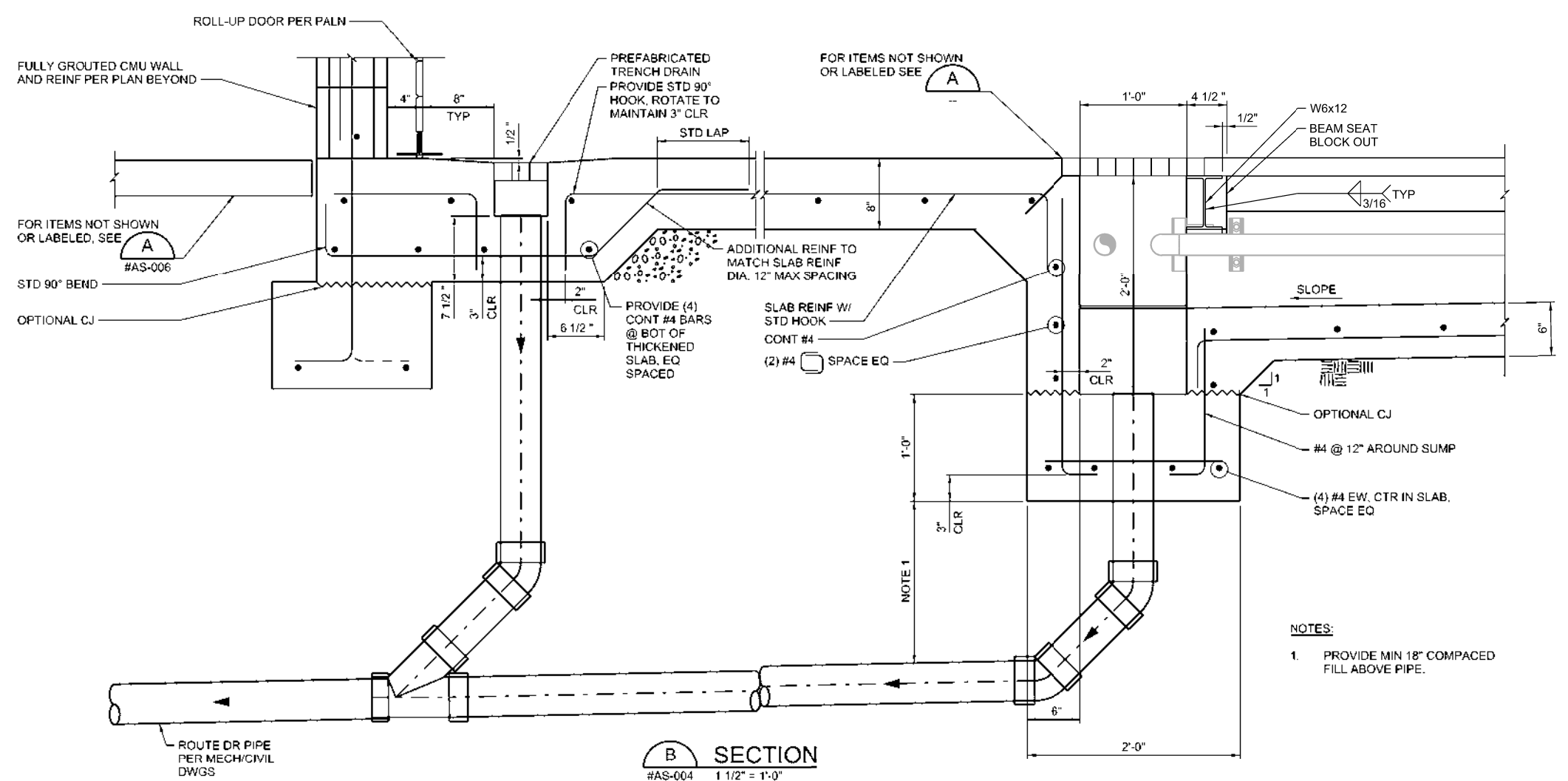
DESIGNED A LINDEMAN	DRAWN J MARTIN	CHECKED S KADER	APPROVED M FISHER
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
ARCHITECTURAL/STRUCTURAL BOOSTER PUMP STATION SECTIONS			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD20-AS-008			
SHEET NUMBER 88			



A SECTION
#AS-004 NTS

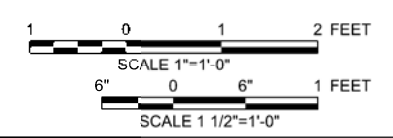


1 DETAIL
#AS-004 1" = 1'-0"



B SECTION
#AS-004 1 1/2" = 1'-0"

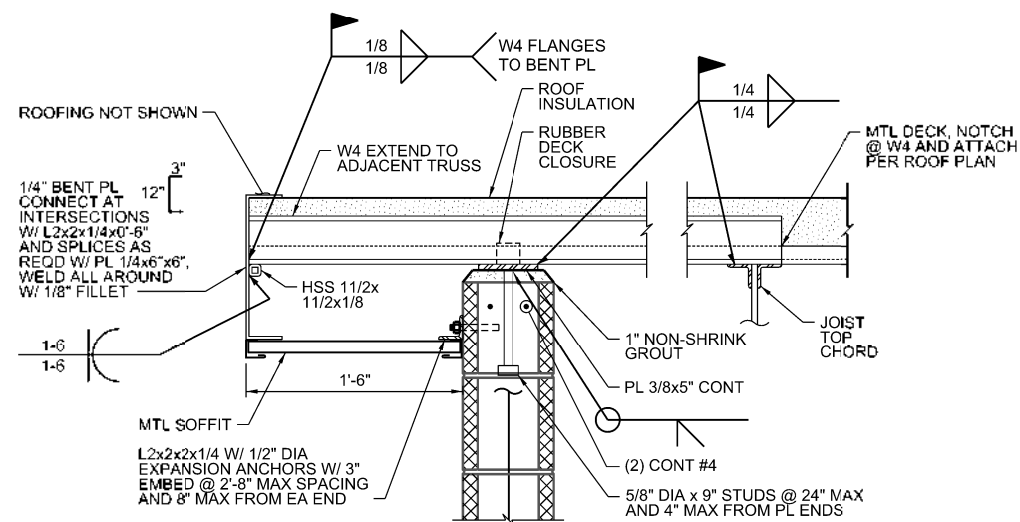
- NOTES:**
1. PROVIDE MIN 18" COMPACTED FILL ABOVE PIPE.



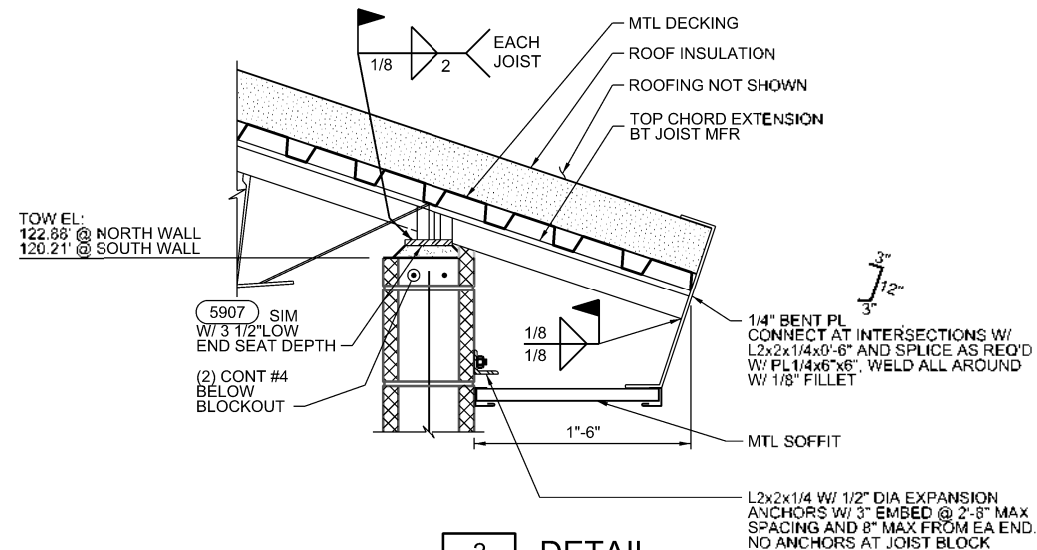
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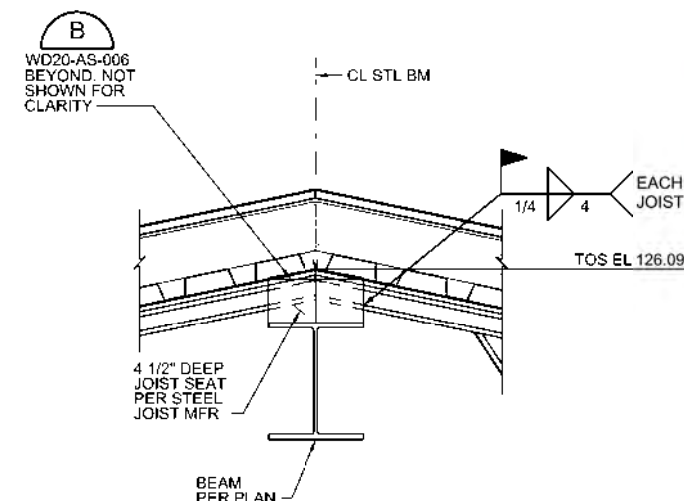
DESIGNED A LINDEMAN	DRAWN J MARTIN	CHECKED J KELLOGG	APPROVED W FISHER
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
ARCHITECTURAL / STRUCTURAL BOOSTER PUMP STATION SECTIONS			
DATE NOVEMBER 2019		PROJECT NUMBER 17-083	
DRAWING NUMBER WD20-AS-009		SHEET NUMBER 89	



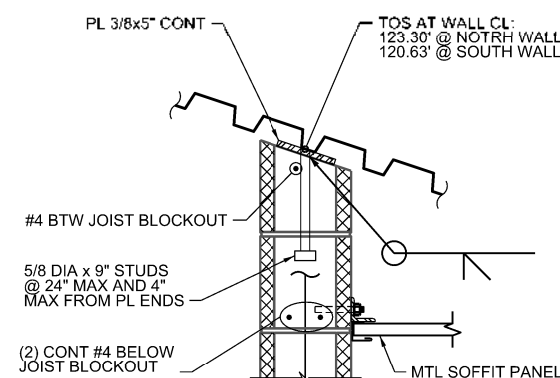
1 DETAIL
WD20-AS-005 1 1/2" = 1'-0"



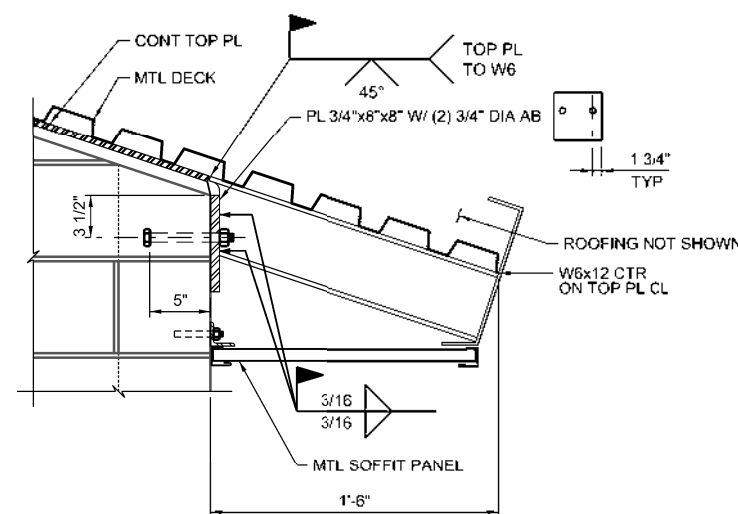
2 DETAIL
WD20-AS-005 NTS



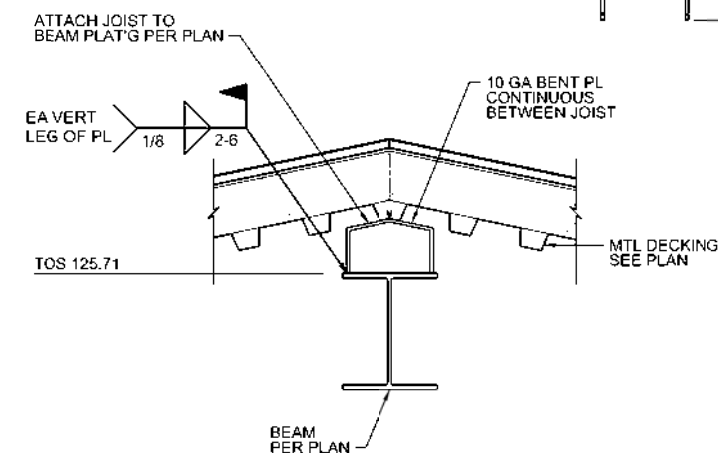
A SECTION
#AS-005 1 1/2" = 1'-0"



3 DETAIL
WD20-AS-005 1 1/2" = 1'-0"



4 DETAIL
WD20-AS-005 NTS

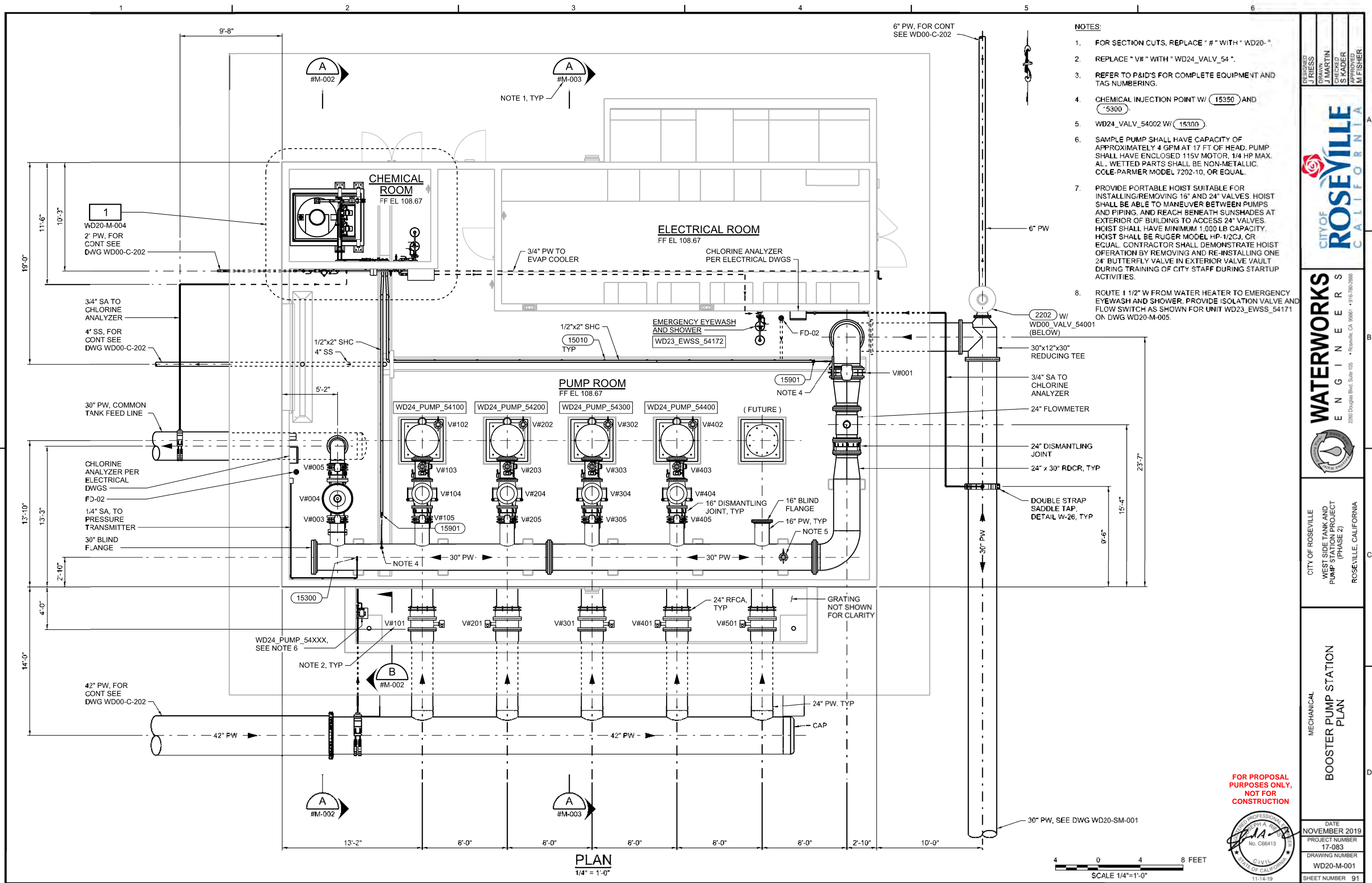


B SECTION
#AS-005 1 1/2" = 1'-0"

6" 0 6" 1 FEET
SCALE 1 1/2" = 1'-0"

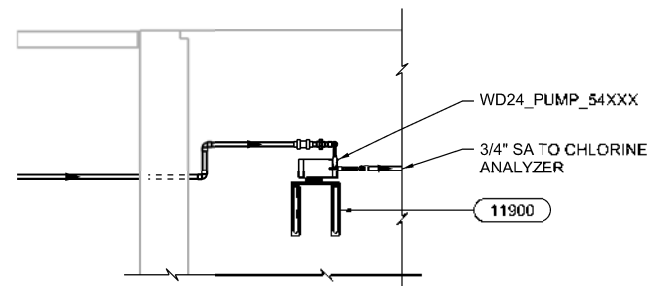
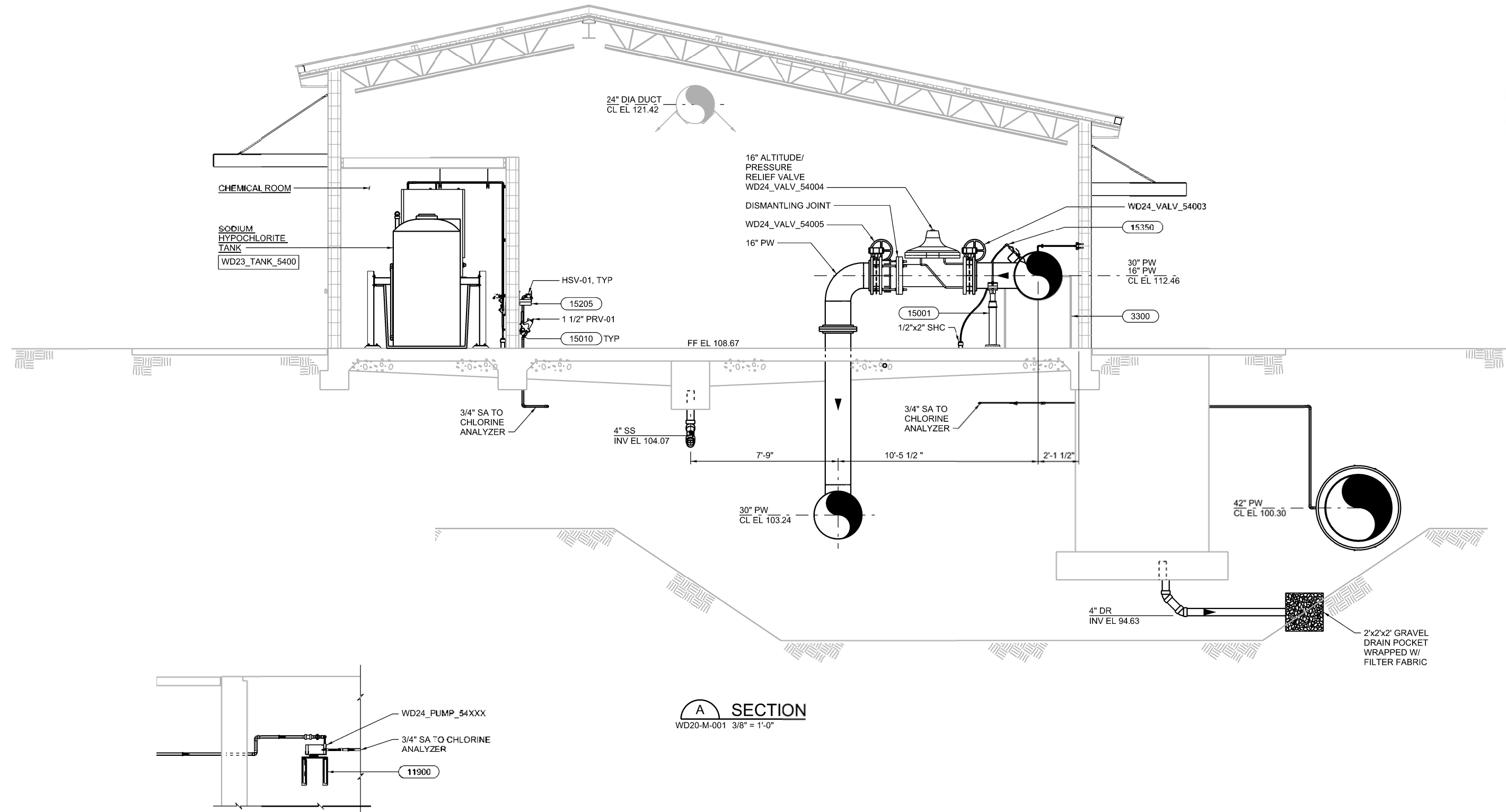
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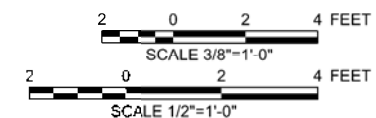
1 2 3 4 5 6

NOTE:
1. REFER TO P&ID'S FOR COMPLETE EQUIPMENT & TAG NUMBERING.




A SECTION
WD20-M-001 3/8" = 1'-0"

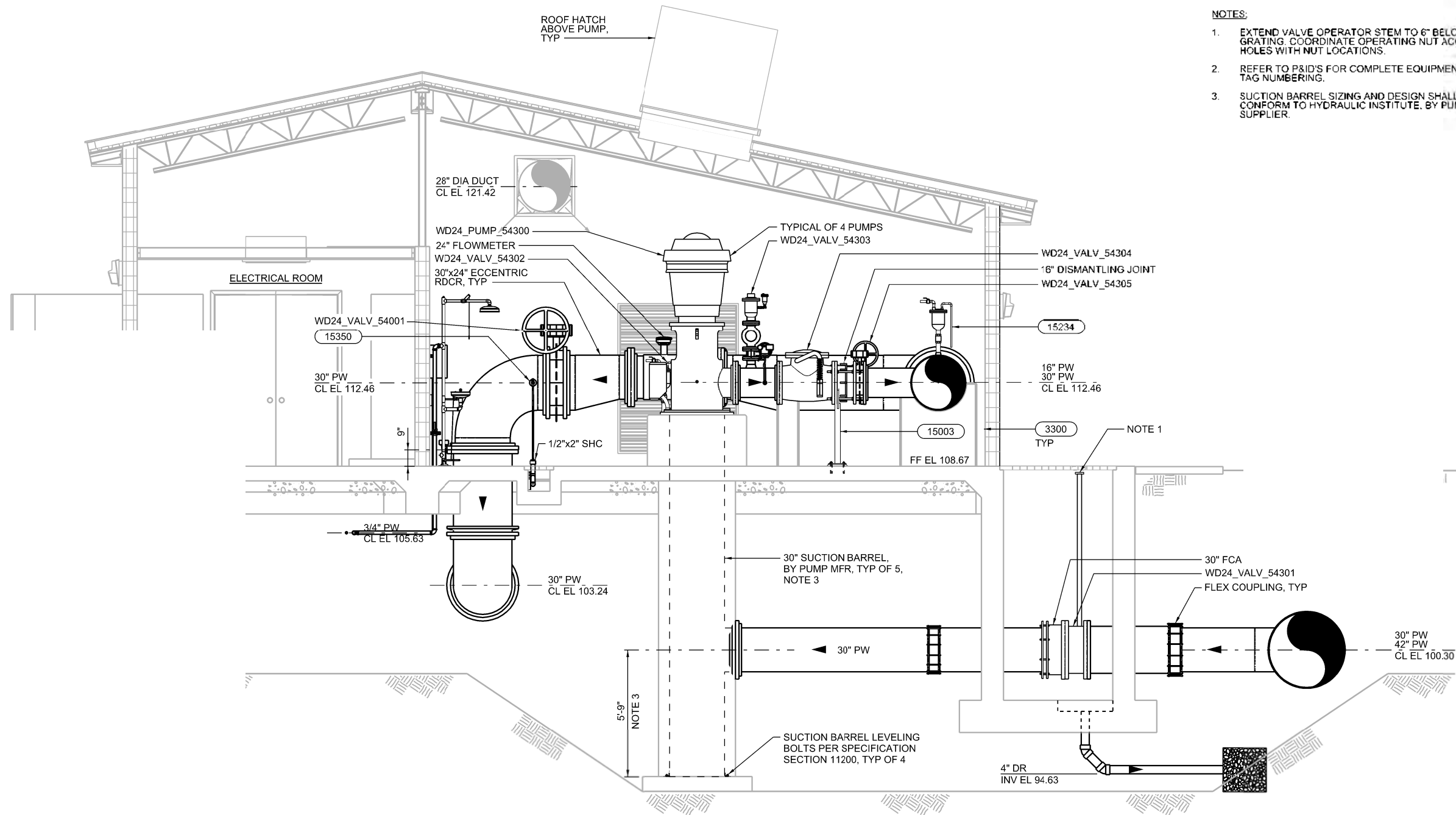
B SECTION
WD20-M-001 1/2" = 1'-0"



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DESIGNED J. RIOS	DRAWN J. MARTIN	CHECKED S. KADER	APPROVED M. FISHER
 CITY OF ROSEVILLE CALIFORNIA			
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 Roseville, CA 95661 • 916-789-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
MECHANICAL BOOSTER PUMP STATION SECTIONS			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD20-M-002			
SHEET NUMBER 92			



- NOTES:**
1. EXTEND VALVE OPERATOR STEM TO 6" BELOW GRATING. COORDINATE OPERATING NUT ACCESS HOLES WITH NUT LOCATIONS.
 2. REFER TO P&ID'S FOR COMPLETE EQUIPMENT & TAG NUMBERING.
 3. SUCTION BARREL SIZING AND DESIGN SHALL CONFORM TO HYDRAULIC INSTITUTE, BY PUMP SUPPLIER.

A SECTION
WD20-M-001 3/8" = 1'-0"

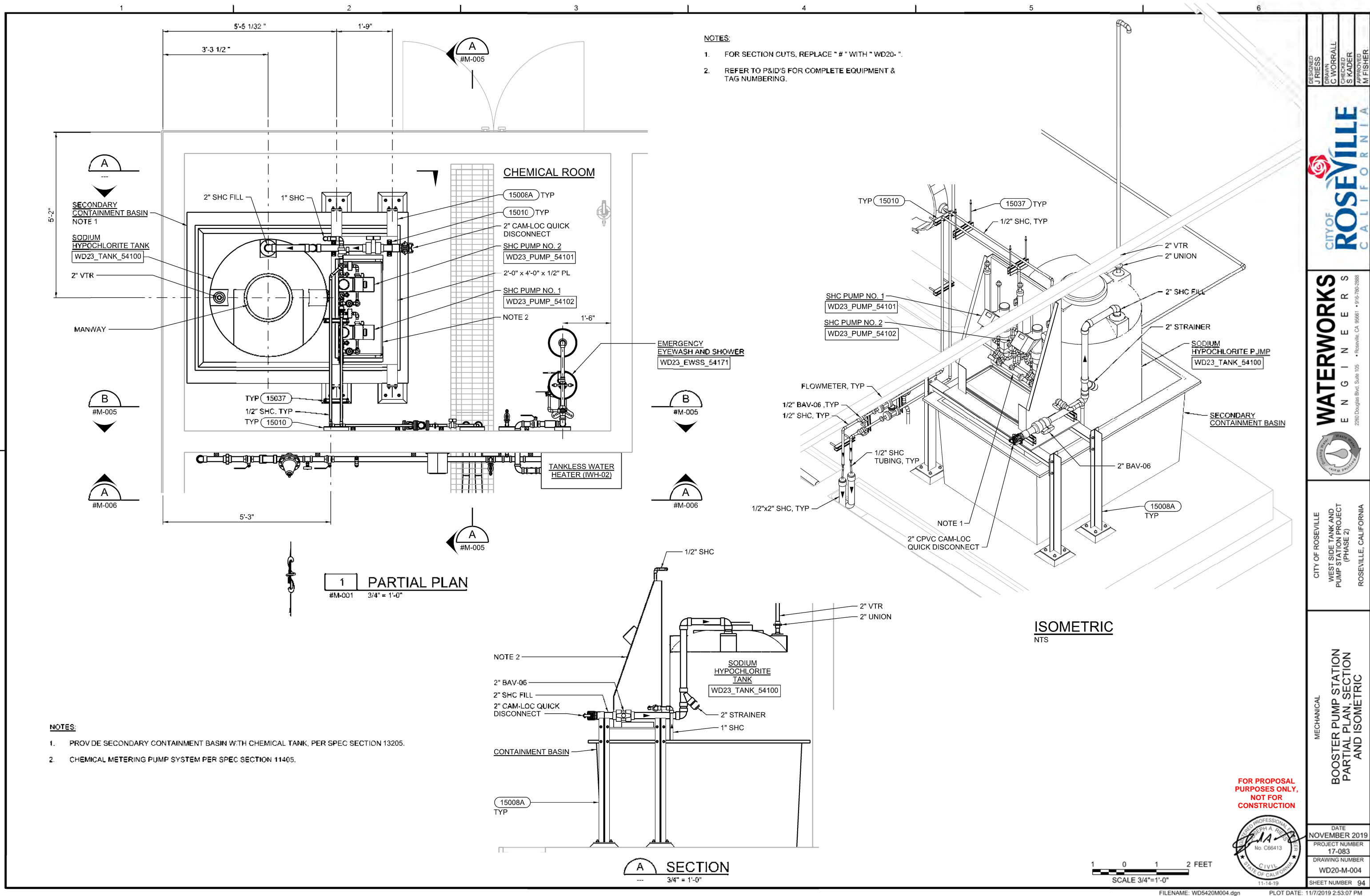
2 0 2 4 FEET
SCALE 3/8"=1'-0"

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FILENAME: WD5420M003.dgn PLOT DATE: 11/7/2019 2:51:51 PM

DESIGNED J. RIOS	DRAWN J. MARTIN	CHECKED S. KADER	APPROVED M. FISHER
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
MECHANICAL BOOSTER PUMP STATION SECTION			
DATE NOVEMBER 2019 PROJECT NUMBER 17-083 DRAWING NUMBER WD20-M-003 SHEET NUMBER 93			



1 2 3 4 5 6

- NOTES:
1. FOR SECTION CUTS, REPLACE " # " WITH " WD20-#".
 2. REFER TO P&ID'S FOR COMPLETE EQUIPMENT & TAG NUMBERING.

DESIGNED J. RESS	DRAWN C. WORRALL	CHECKED S. KADER	APPROVED M. FISHER
---------------------	---------------------	---------------------	-----------------------



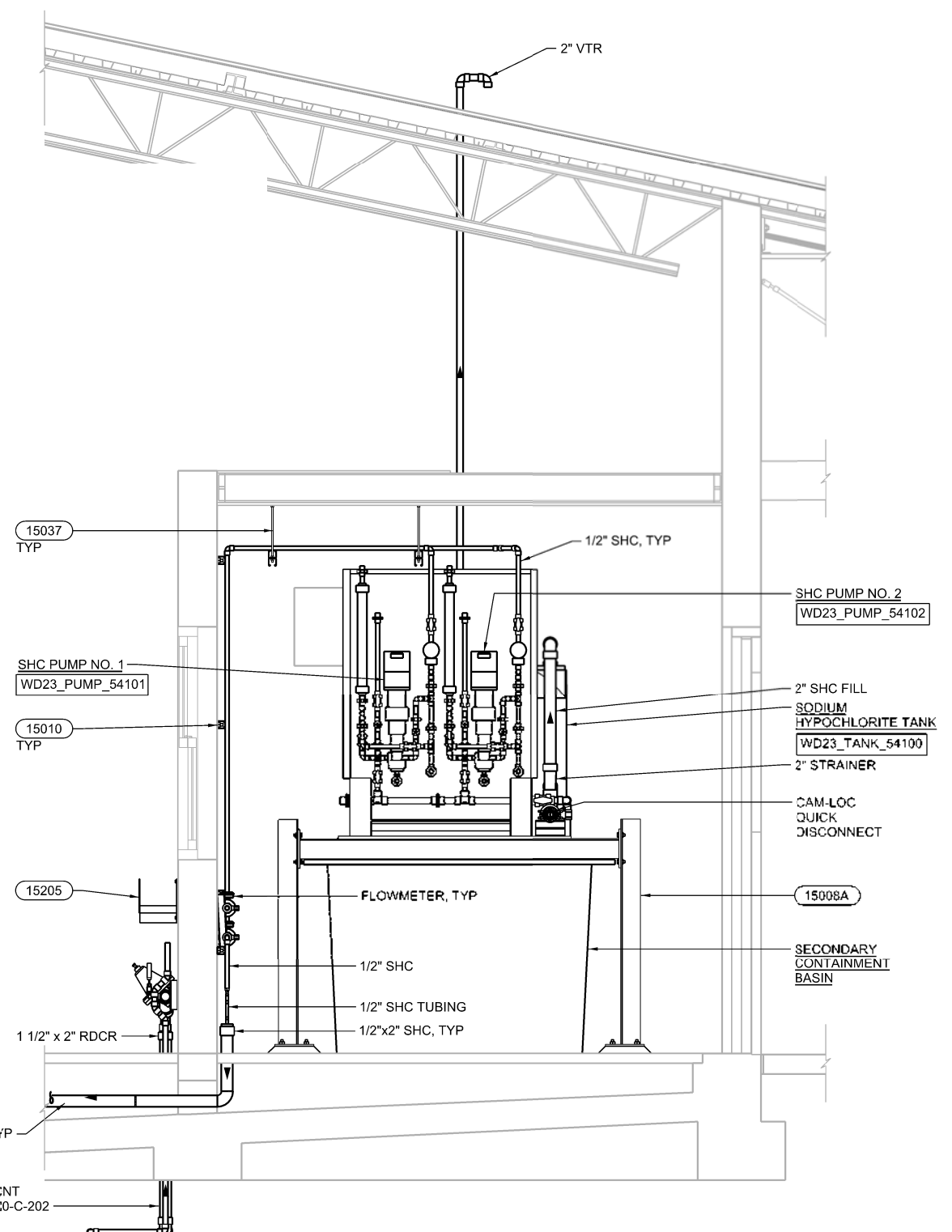
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Roseville, CA 95661 • 916-780-2888



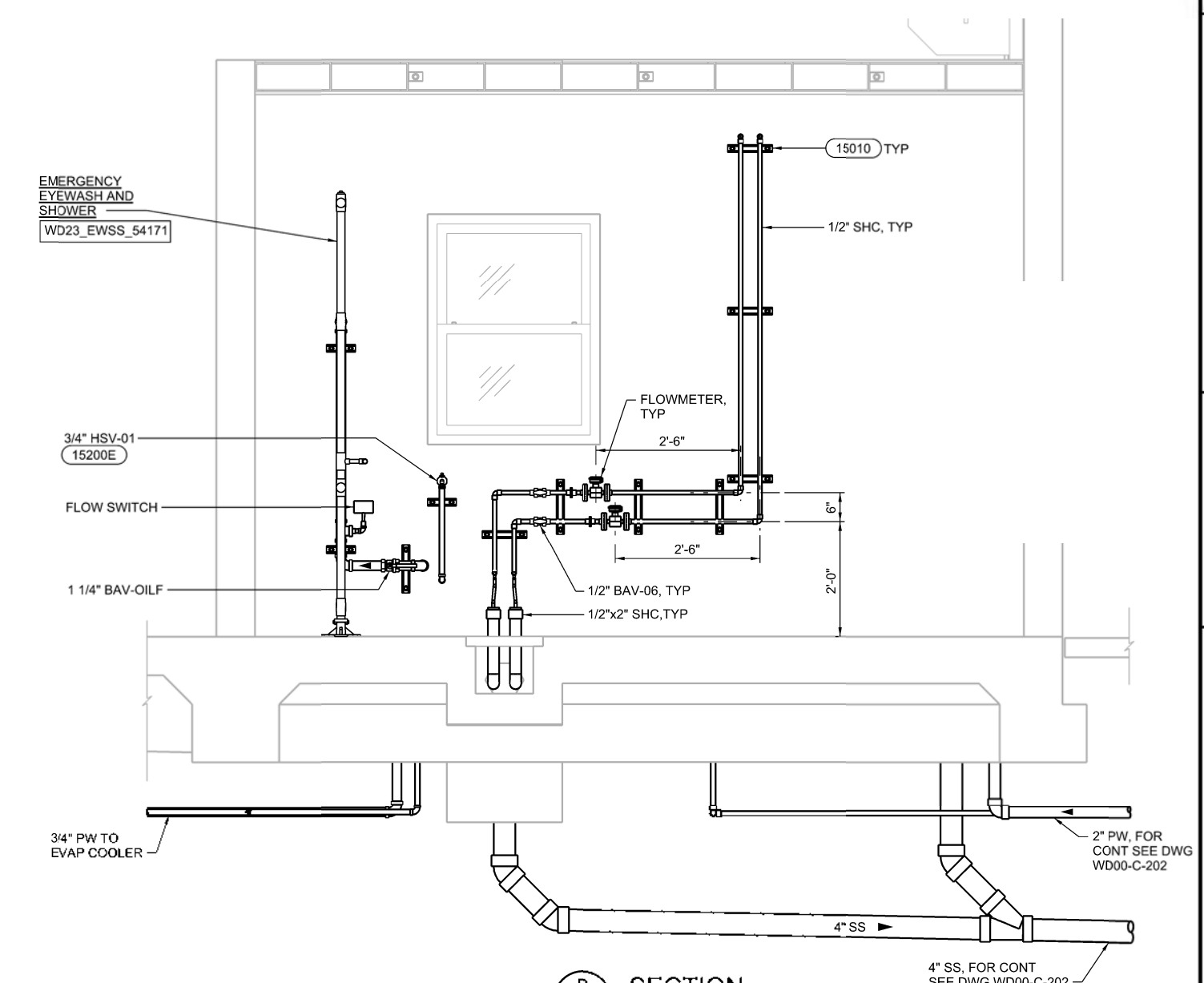
CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

MECHANICAL
BOOSTER PUMP STATION
SECTIONS

DATE NOVEMBER 2019
PROJECT NUMBER 17-083
DRAWING NUMBER WD20-M-005
SHEET NUMBER 95



A SECTION
#M-001 3/4" = 1'-0"

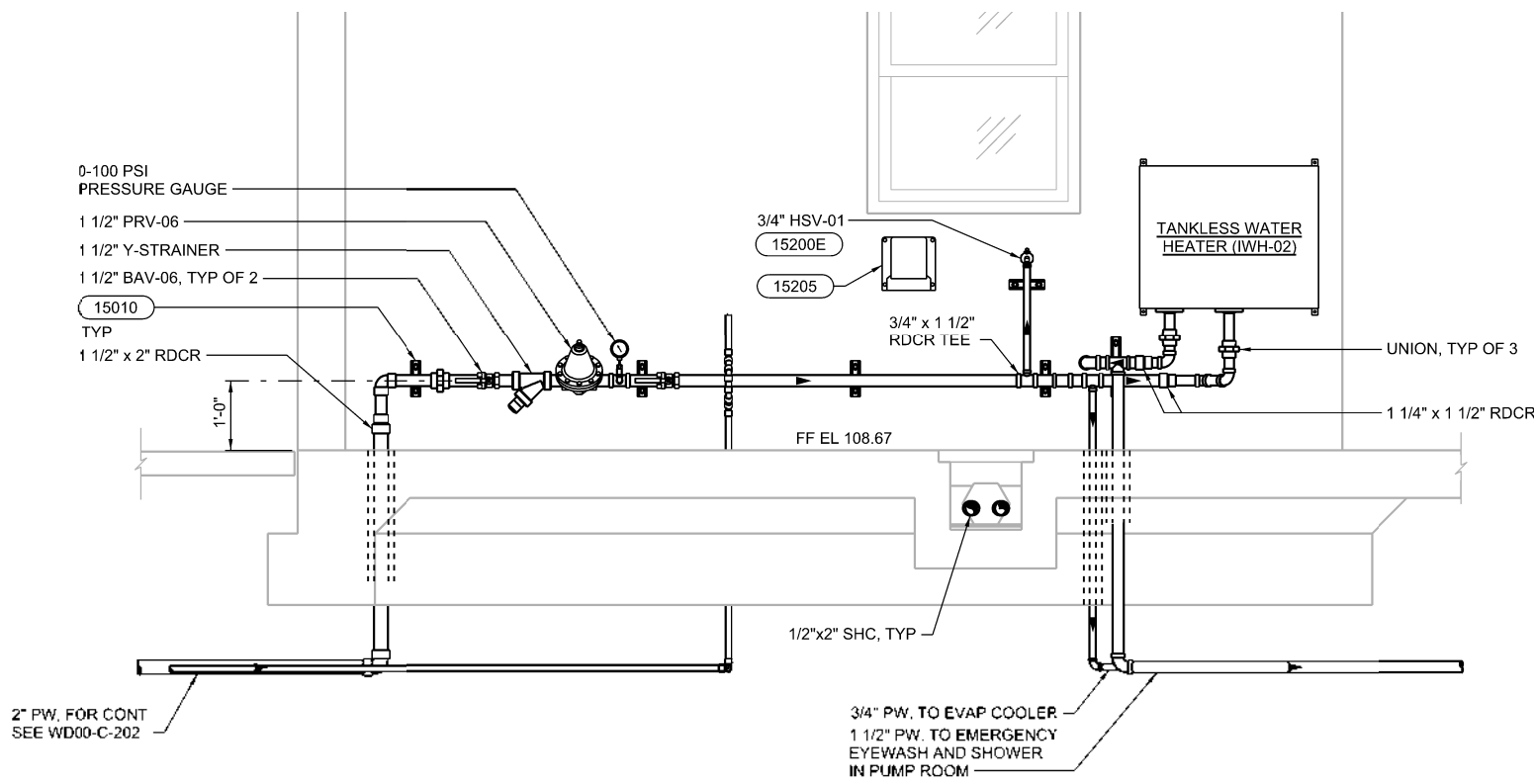


B SECTION
#M-001 3/4" = 1'-0"

1 0 1 2 FEET
SCALE 3/4"=1'-0"

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PROFESSIONAL ENGINEER
JOSEPH A. RESSLER
No. C66413
CIVIL
STATE OF CALIFORNIA
11-14-19



A SECTION
#M-004 3/4" = 1'-0"

- NOTE:**
- 1. FOR SECTION CUTS, REPLACE " # " WITH " WD20- ".
 - 2. REFER TO P&ID'S FOR COMPLETE EQUIPMENT & TAG NUMBERING.

DESIGNED	J. RESS
DRAWN	J. MARTIN
CHECKED	S. KADER
APPROVED	M. FISHER



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CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

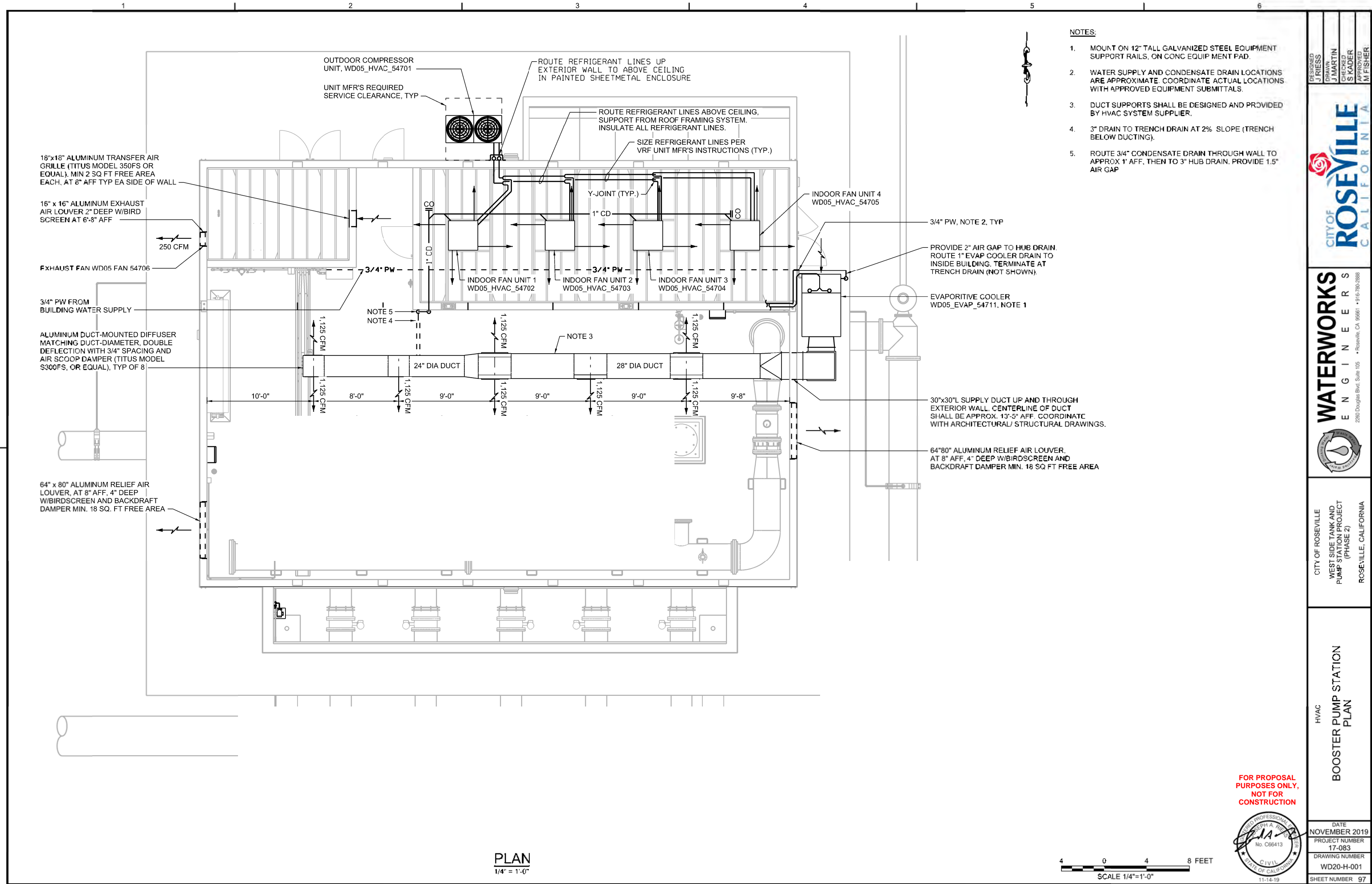
MECHANICAL
BOOSTER PUMP STATION
SECTION

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1 0 1 2 FEET
SCALE 3/4"=1'-0"

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD20-M-006
SHEET NUMBER	96



- NOTES:
1. MOUNT ON 12" TALL GALVANIZED STEEL EQUIPMENT SUPPORT RAILS, ON CONC EQUIPMENT PAD.
 2. WATER SUPPLY AND CONDENSATE DRAIN LOCATIONS ARE APPROXIMATE. COORDINATE ACTUAL LOCATIONS WITH APPROVED EQUIPMENT SUBMITTALS.
 3. DUCT SUPPORTS SHALL BE DESIGNED AND PROVIDED BY HVAC SYSTEM SUPPLIER.
 4. 3" DRAIN TO TRENCH DRAIN AT 2% SLOPE (TRENCH BELOW DUCTING).
 5. ROUTE 3/4" CONDENSATE DRAIN THROUGH WALL TO APPROX 1' AFF, THEN TO 3" HUB DRAIN. PROVIDE 1.5" AIR GAP

DESIGNED	J. RESS
DRAWN	J. MARTIN
CHECKED	S. KADER
APPROVED	M. FISHER



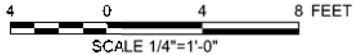
WATERWORKS
ENGINEERS
2200 Douglas Blvd, Suite 105
Roseville, CA 95661 • 916-795-2888

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

HVAC
**BOOSTER PUMP STATION
PLAN**

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD20-H-001
SHEET NUMBER	97

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EVAPORATIVE COOLER SCHEDULE																		
LABEL	MAKE	MODEL	COOLING			FAN			DUCT OUTLET CONFIG.	ELECTRICAL								OPER. WEIGHT LBS.
			MEDIA	LAT*	EFFICIENCY	CFM	ESP	HP		FAN MOTOR				PUMP				
										VOLT	PH	HZ	AMPS	VOLT	PH	HZ	AMPS	
WD05_EVAP_5471 1	PHOENIX MFG	IS500 w/ WS100	12" STD. RIGID	74.1	90%	9,000	0.5"	3	SIDE	480	3	60	8	240	1	60	1.1	565
* AT 102/71 OAT DB/WB																		
OPTIONS: 1. UL RATED 2. PUMP KIT PK2LA																		

VRF OUTDOOR UNIT SCHEDULE																
LABEL	MAKE	MODEL	SYSTEM CONNECTED CAPACITY	COOLING				HEATING			ELECTRICAL					OPER. WEIGHT LBS.
				NOMINAL TONS	TOTAL* BTU/HR	IEER	EER	NOMINAL** BTU/HR	COP	EER	VOLT	PH	HZ	MCA	MOCP	
WD05_HVAC_54701	CARRIER-TOSHIBA	MMY-MAP1686HT6P-UL	100%	14	153,458	22.4	11	136,809	3.7	11.1	460	3	60	31	40	838
* AT 105°F OAT AND 80°F/67°F EAT DB/WB																
** AT 27°F OAT DB																
OPTIONS: 1. R-410a REFRIGERANT 2. REFRIGERANT Y-POINTS AS REQUIRED																

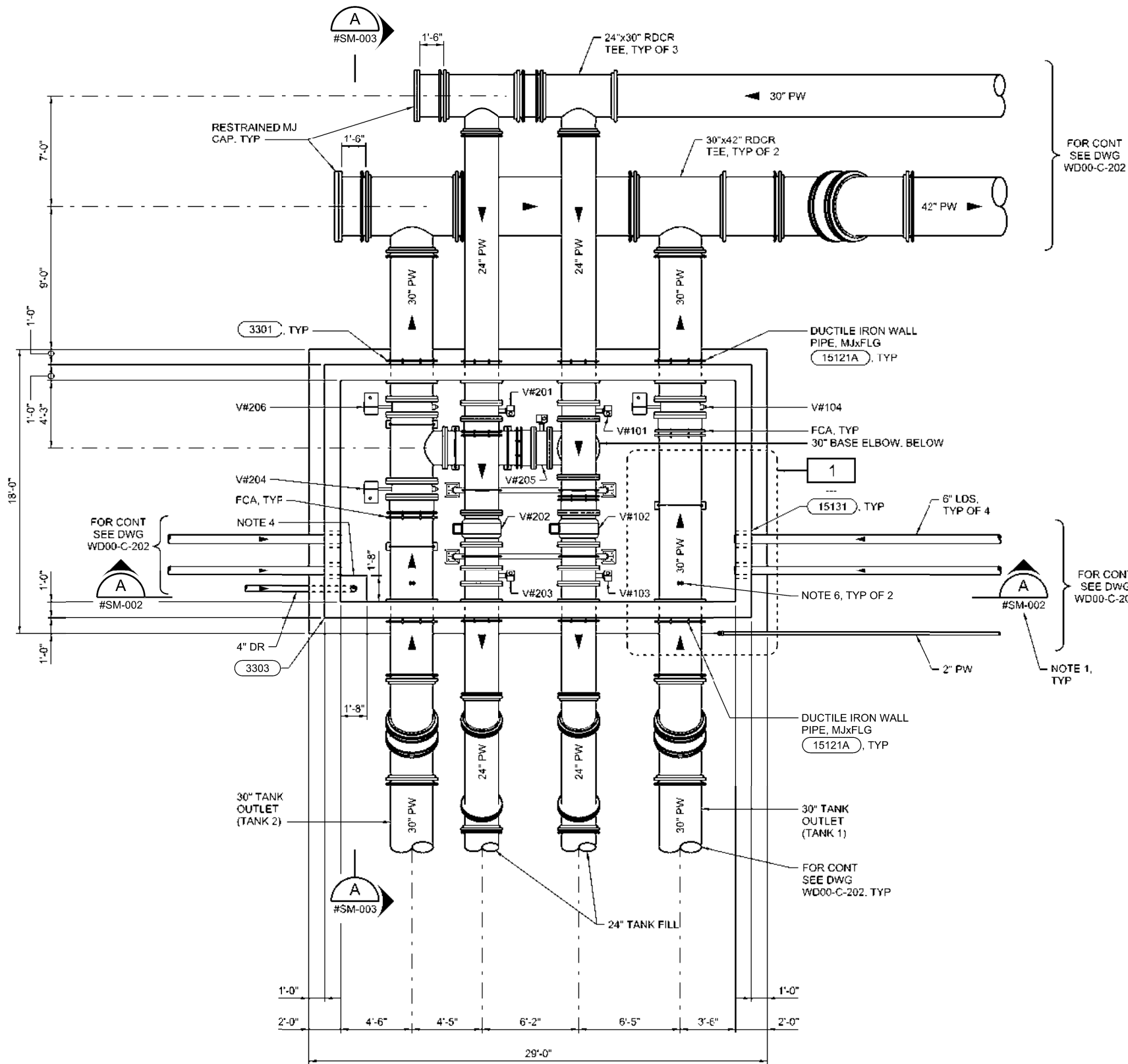
VRF FAN COIL UNIT SCHEDULE																	
LABEL	MAKE	MODEL	TYPE	MATCHING OUTDOOR UNIT	COOLING		HEATING*	SUPPLY FAN		MIN. OA	ELECTRICAL						OPER.
					NOMINAL TONS	SENSIBLE* BTU/HR	BTU/HR	CFM	ESP	CFM	VOLT	PH	HZ	FLA	MCA	MOCP	WEIGHT LBS.
WD05_HVAC_54702	CARRIER-TOSHIBA	MMU-AP0422H2UL	4-WAY CASSETTE	WD05_HVAC_54702	3.5	26,851	34,202	1,250	0.0"	0	208	1	60	1.0	1.3	15	69
WD05_HVAC_54703	CARRIER-TOSHIBA	MMU-AP0422H2UL	4-WAY CASSETTE		3.5	26,851	34,202	1,250	0.0"	0	208	1	60	1.0	1.3	15	69
WD05_HVAC_54704	CARRIER-TOSHIBA	MMU-AP0422H2UL	4-WAY CASSETTE		3.5	26,851	34,202	1,250	0.0"	0	208	1	60	1.0	1.3	15	69
WD05_HVAC_54705	CARRIER-TOSHIBA	MMU-AP0422H2UL	4-WAY CASSETTE		3.5	26,851	34,202	1,250	0.0"	0	208	1	60	1.0	1.3	15	69
* AT 105°F OAT AND 80°F/67°F EAT DB/WB																	
** AT 27°F OAT DB																	
OPTIONS: 1. 24V INTERFACE 2. GRILLE																	

EXHAUST FAN SCHEDULE									
LABEL	MAKE	MODEL	CFM	ESP	ELECTRIC				OPER. WEIGHT
					VOLT	PH	HZ	HP	
WD05_FANx_54705	GREENHECK	SE1-10-428-P	250	0.2	115	1	60	1/20	59
* AT 102 OAT DB,									
<u>OPTIONS:</u> 1. BACKDRAFT DAMPER 2. UL LISTED 3. WALL HOUSING W/ OSHA GUARD 4. SPEED CONTROLLER 5. DISCONNECT SWITCH 6. MOTOR ACCESS FROM INSIDE									

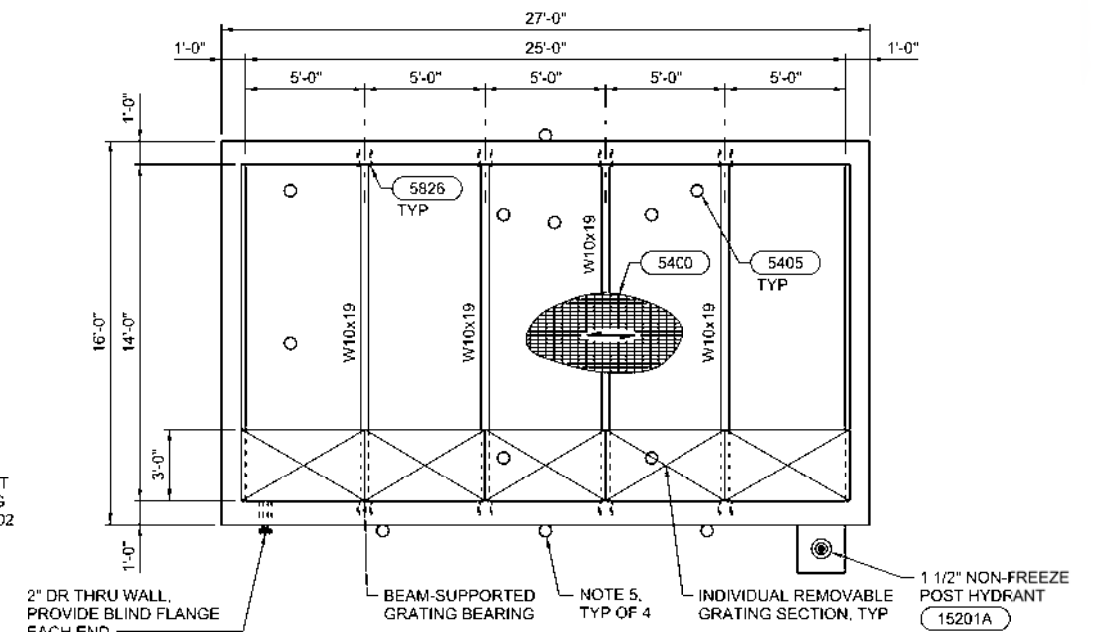
NOTES:
1. VRF = VARIABLE REFRIGERANT FLOW

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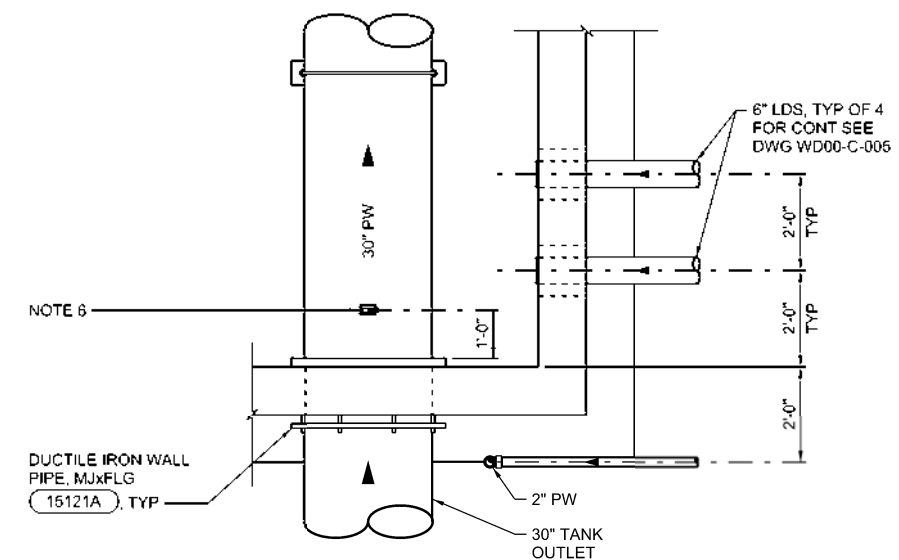




LOWER PLAN
1/4" = 1'-0"

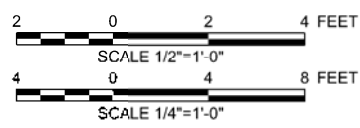


UPPER PLAN
1/4" = 1'-0"

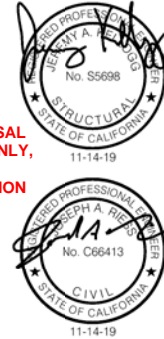


1 DETAIL
1/2" = 1'-0"

- NOTES:**
1. REPLACE " # " IN DRAWING REFERENCES WITH " WD40-".
 2. REPLACE "V#" WITH "WD44_VALV_54".
 3. GRATING AND SUPPORT BEAMS ARE SIZED FOR A 125 PSF LIVE LOAD.
 4. 3" DEEP-IN SLAB SUMP PER 3610 TYPE A.
 5. WALL-MOUNT BASE FOR PORTABLE ENSIGN 1000 ELECTRIC DAVIT. CONFIRM LOCATION WITH OWNER.
 6. 1" PIPE TAP PER 15300 FOR PRESSURE TRANSDUCER, SEE ELECTRICAL DRAWINGS.



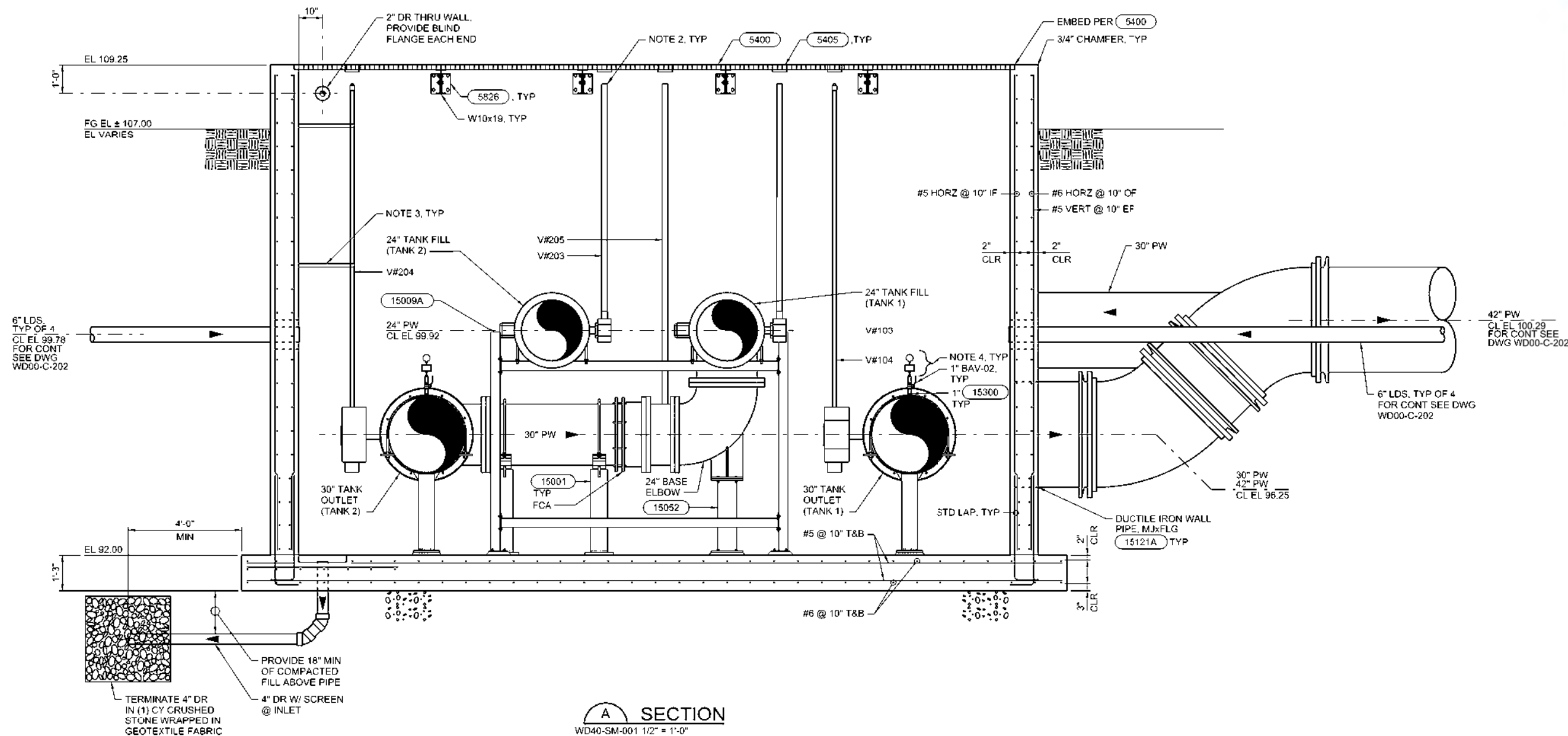
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DESIGNED J. RIESSEN KELLOGG DRAWN J. MARTIN CHECKED S. KADER APPROVED M. FISHER	 CITY OF ROSEVILLE CALIFORNIA
	WATERWORKS ENGINEERS 2200 Douglas Blvd., Suite 105 Roseville, CA 95661 • 916-780-2888
	CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA
	STRUCTURAL / MECHANICAL TANK VALVE VAULT PLANS AND DETAIL
DATE NOVEMBER 2019 PROJECT NUMBER 17-083 DRAWING NUMBER WD40-SM-001 SHEET NUMBER 99	

1 2 3 4 5 6

- NOTES:
1. REPLACE "V#" WITH "WD44_VALV_54".
 2. EXTEND VALVE OPERATOR STEM TO 6" BELOW GRATING. COORDINATE OPERATING NUT ACCESS HOLES WITH NUT LOCATIONS.
 3. PROVIDE STEM SUPPORTS AS NECESSARY AND AS RECOMMENDED BY VALVE MANUFACTURER. STEM SUPPORT DESIGN SHALL BE BY CONTRACTOR.
 4. PRESSURE TRANSDUCER AND BLOCK-AND-BLEED VALVE PER ELECTRICAL DRAWINGS.



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2 0 2 4 FEET
SCALE 1/2"=1'-0"



DESIGNED
J. RISS/SJ KELLOGG
DRAWN
J. MARTIN
CHECKED
S. KADER
APPROVED
M. FISHER

CITY OF
ROSEVILLE
CALIFORNIA

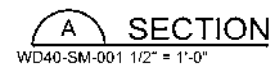
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Roseville, CA 95661 • 916-780-2888

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

STRUCTURAL / MECHANICAL
TANK VALVE VAULT
SECTION

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD40-SM-002
SHEET NUMBER 100

FILENAME: WD4040SM002.dgn PLOT DATE: 11/7/2019 3:02:23 PM



WD40-SM-001 1/2" = 1'-0"

- | | |
|----------|-------------------|
| DESIGNED | J RIESS/J KELLOGG |
| DRAWN | J MARTIN |
| CHECKED | S KADER |
| APPROVED | M FISHER |



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2260 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-2888



CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

STRUCTURAL / MECHANICAL
TANK VALVE VAULT
SECTION

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD40-SM-003
SHEET NUMBER	101

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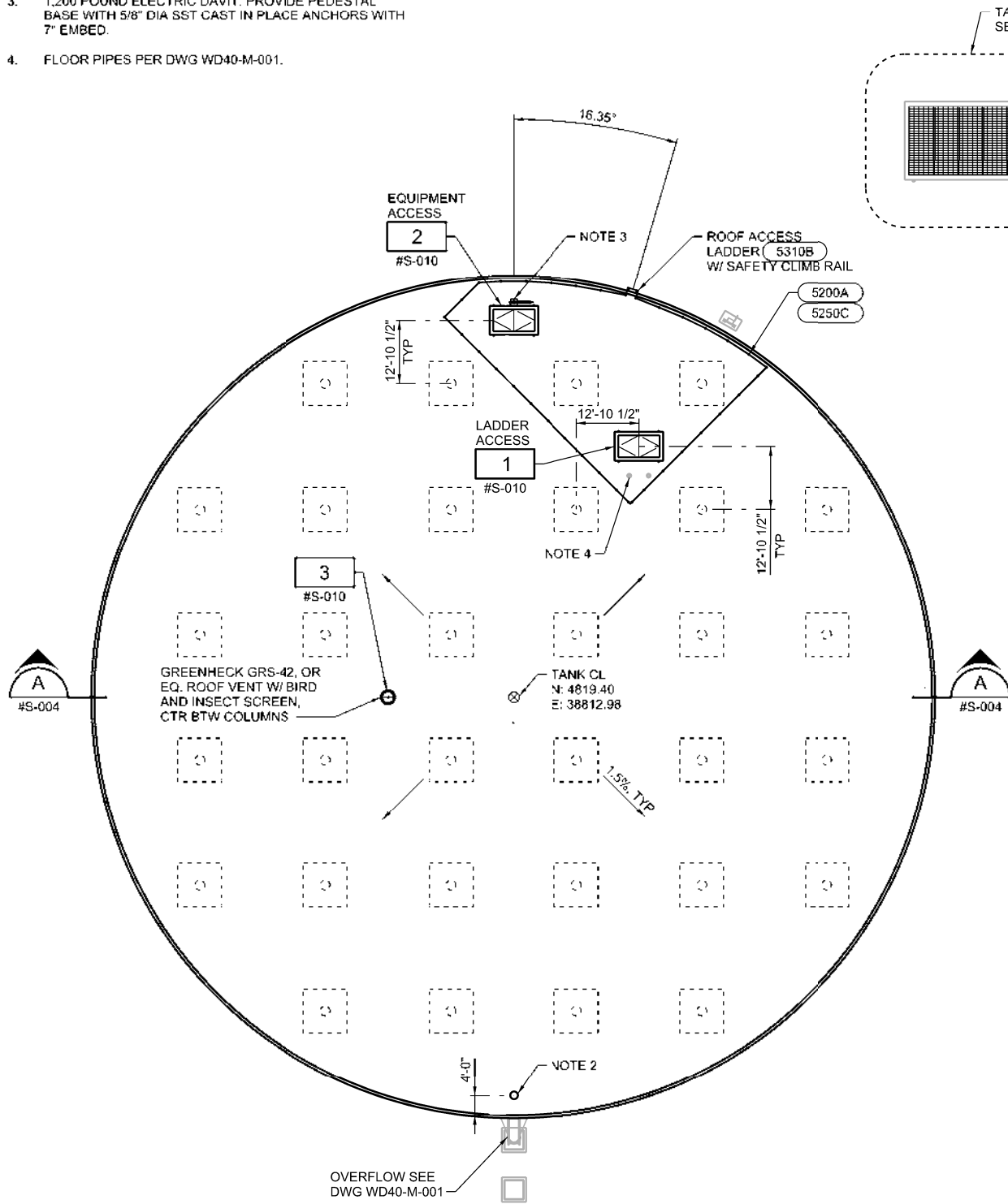
2 0 2 4 FEET
SCALE 1/2"=1'-0"

FILENAME: WD5440SM003.dg

PLOT DATE: 11/7/2019 3:03:55 PM

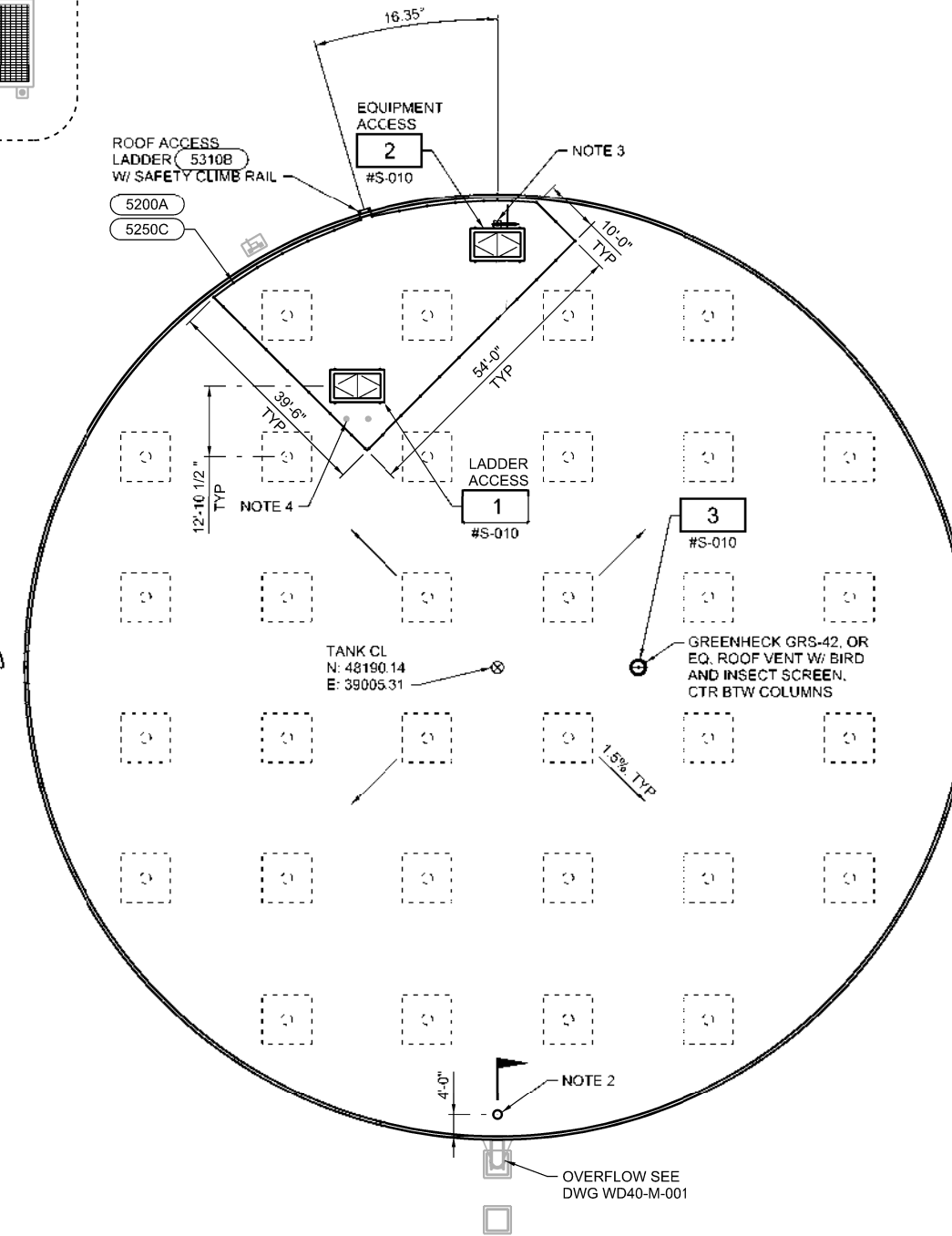
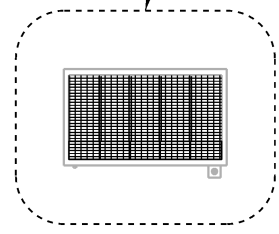
NOTES:

1. REPLACE "S" IN DRAWING WITH "WD40-".
2. 18" DIA CAST IN PLACE SST PIPE SLEEVE WITH SEEP RING CENTERED IN THE SLAB AND BLIND FLANGE AT THE ROOF SURFACE.
3. 1,200 POUND ELECTRIC DAVIT. PROVIDE PEDESTAL BASE WITH 5/8" DIA SST CAST IN PLACE ANCHORS WITH 7" EMBED.
4. FLOOR PIPES PER DWG WD40-M-001.



TANK NO 2 TOP PLAN
1/16" = 1'-0"

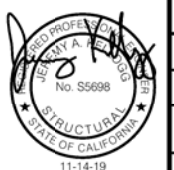
TANK VALVE VAULT
SEE DWG WD40-SM-001



TANK NO 1 TOP PLAN
1/16" = 1'-0"

16 0 16 32 FEET
SCALE 1/16"=1'-0"

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CONSTRUCTION



1 2 3 4 5 6

NOTES:

1. REPLACE "S" IN DRAWING WITH "WD40-S".
2. THE TANK FLOOR IS SHOWN TO BE CONSTRUCTED WITHOUT CONSTRUCTION JOINTS. SHOULD THE CONTRACTOR REQUIRE A CONSTRUCTION JOINT TO FACILITATE THE SCHEDULE PROVIDE A CONSTRUCTION JOINT PER **1** WD40-S-009

DESIGNED	J. KELLOGG
DRAWN	J. MARTIN
CHECKED	S. KADER
APPROVED	M. FISHER



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Roseville, CA 95661 • 916-780-2888

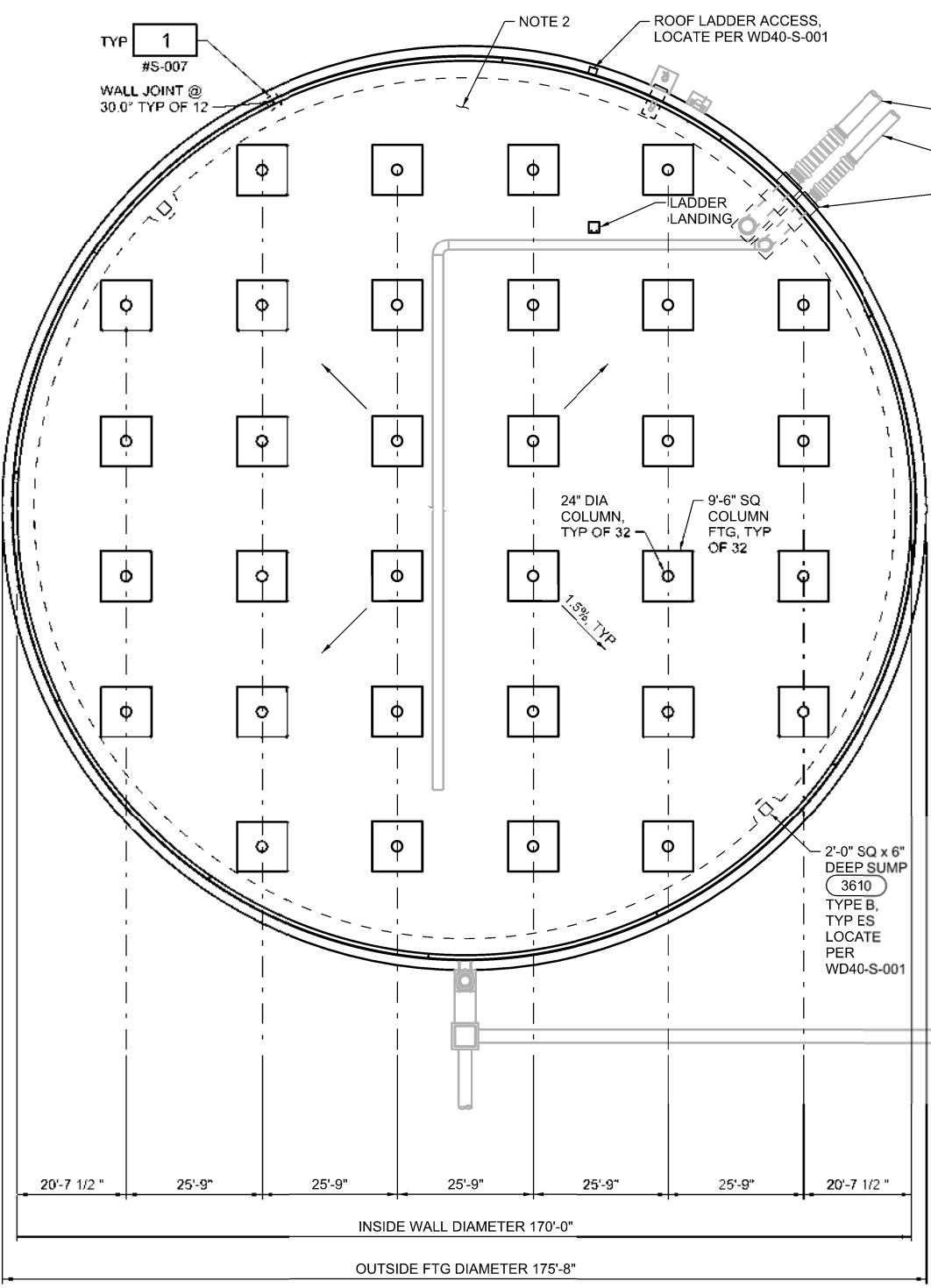


CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

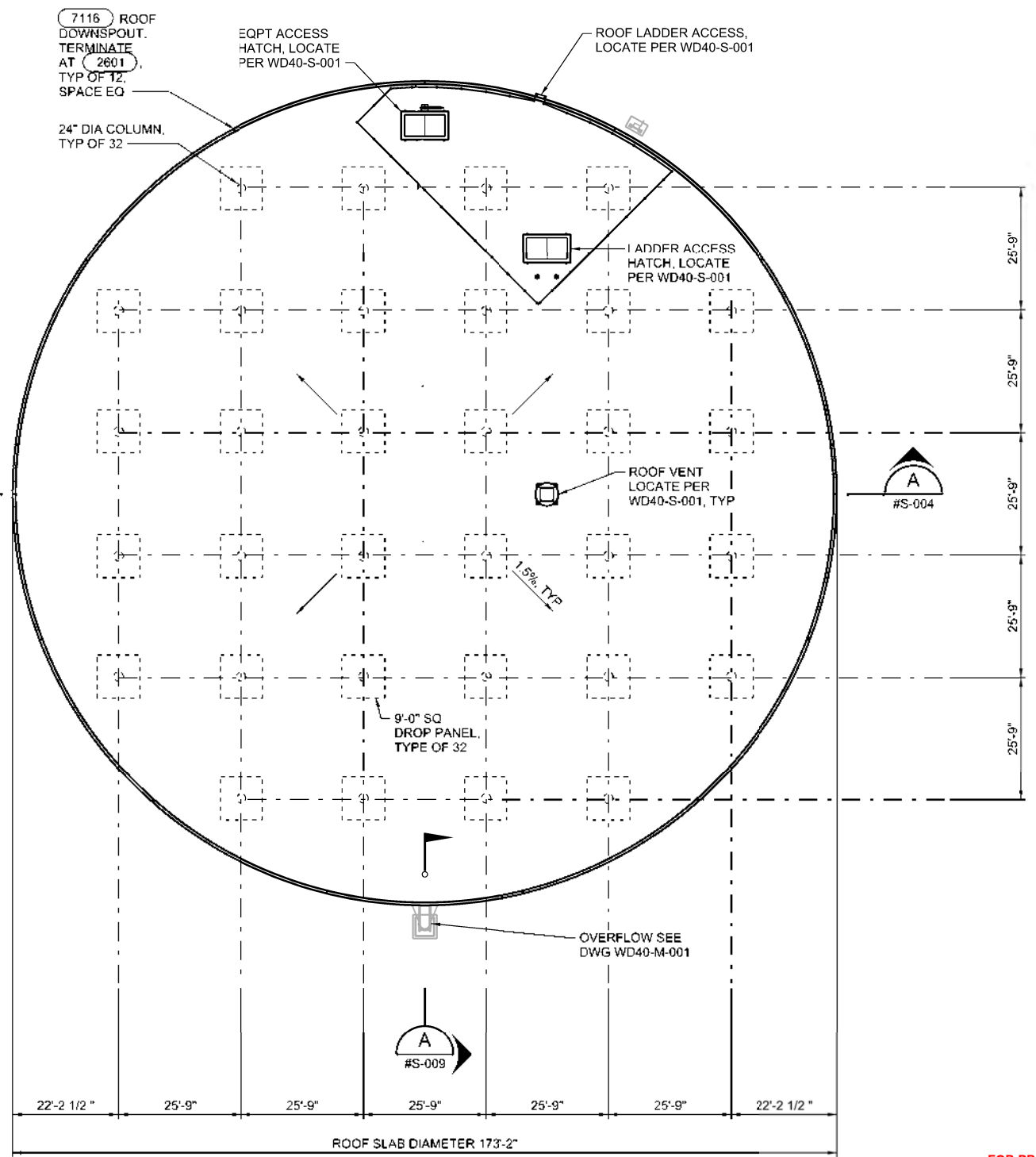
STRUCTURAL
FOUNDATION AND ROOF
PLANS

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD40-S-002
SHEET NUMBER	103

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CONSTRUCTION

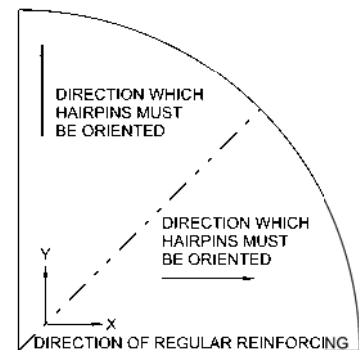
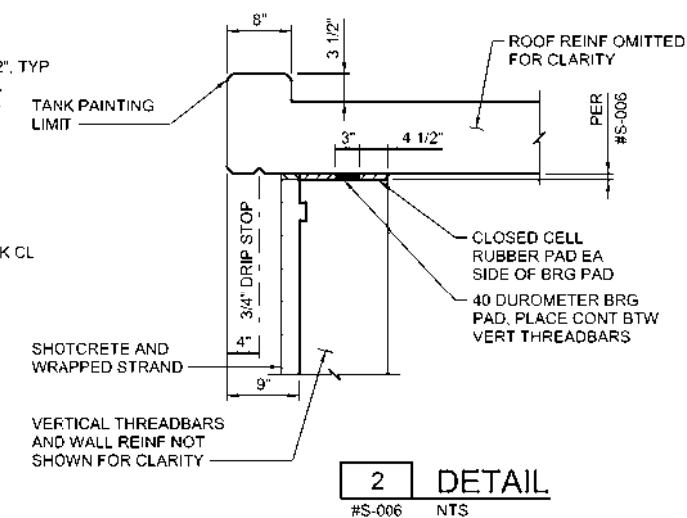
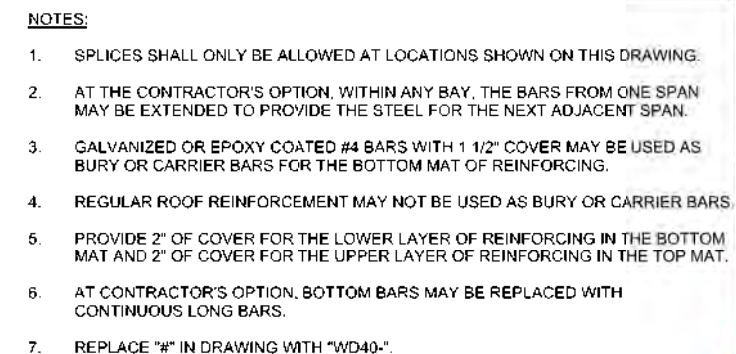


TANK NO 1 & 2 FOUNDATION PLAN
1/16" = 1'-0"

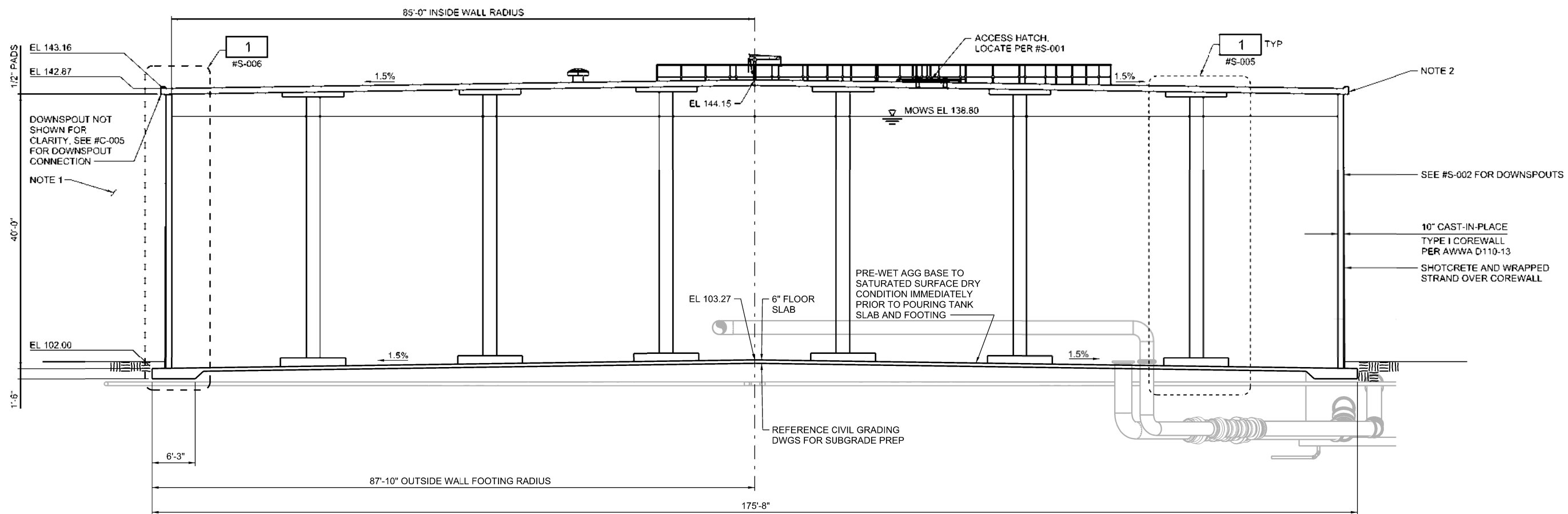


TANK NO 1 & 2 ROOF PLAN
1/16" = 1'-0"

16 0 16 32 FEET
SCALE 1/16"=1'-0"



- NOTES:
- 10'-0" MIN CLEARANCE FOR PRESTRESSING ECPT.
 - EXTERIOR TANK WALLS SHALL BE PAINTED UNIFORMLY FROM ONE FOOT BELOW FINISH GRADE TO THE TOP OF THE ROOF CURB.
 - REPLACE "W" IN DRAWING WITH "WD40".



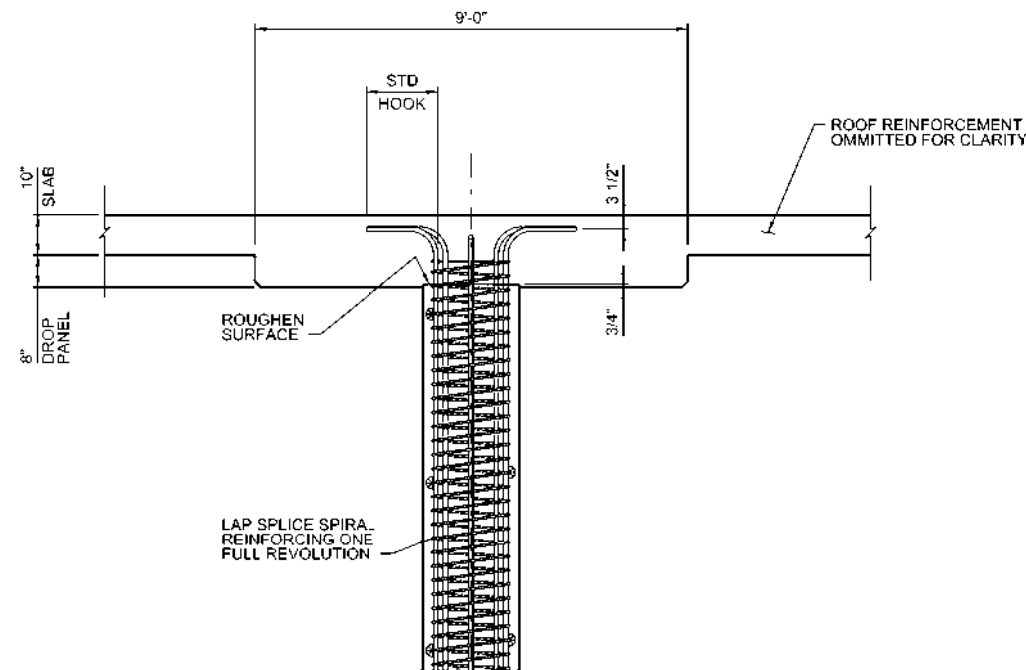
A SECTION
#S-001
#S-002
1/8" = 1'-0"

8 0 8 16 FEET
SCALE 1/8"=1'-0"

FOR PROPOSAL
PURPOSES ONLY,
NOT FOR
CONSTRUCTION



DESIGNED J. KELLOGG	DRAWN J. MARTIN	CHECKED S. KADER	APPROVED M. FISHER
CITY OF ROSEVILLE CALIFORNIA			
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 Roseville, CA 95661 • 916-789-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
STRUCTURAL TANK SECTION			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD40-S-004			
SHEET NUMBER 105			



8 - #8 VERTICAL BARS
#4 SPIRAL REINFORCING AT 3" PITCH
2" CLR
24" DIA COLUMN

REBAR SPACER, USE 6 SPACERS AT 60" HORIZONTALLY. START AT TOP AND BOTTOM. PLACE HORIZONTAL ROWS AT 36" MAX VERTICAL SPACING

LAP SPlice STEEL FROM FOOTING 48" TO COLUMN VERTICAL STEEL

#5 @ 8" EW

2" DEEP CIRCULAR RECESS. ROUGHEN SURFACE

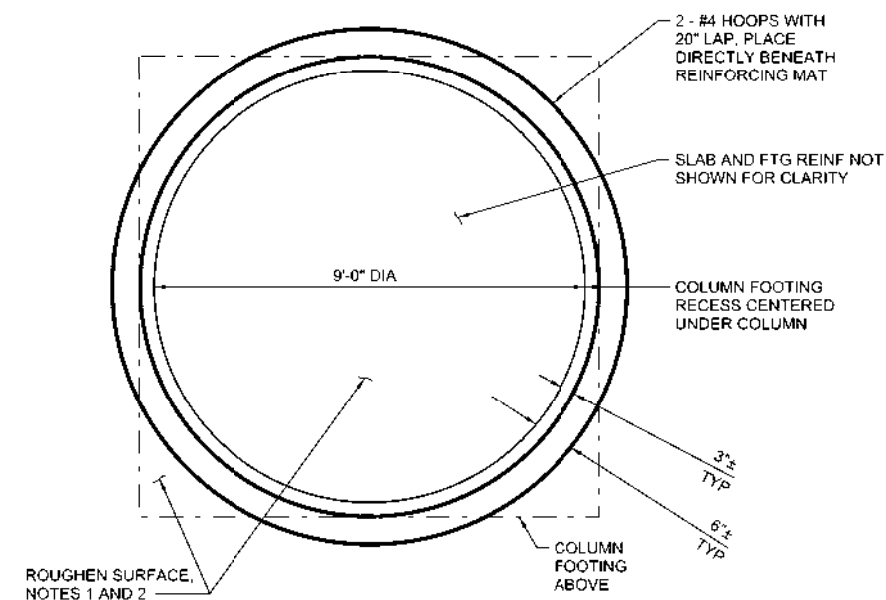
TYP SLAB REINFORCING

(19) ADDL #4x11'-0" ALT FOR 3" SPACING. EW, CTR UNDER COLUMN

1 DETAIL
#S-004 1/2" = 1'-0"

NOTES:

1. CONCRETE CONSTRUCTION JOINTS SHALL BE ADEQUATELY ROUGHENED TO EXPOSED AGGREGATE AND CLEANED BY SANDBLASTING, OR APPROVED EQUAL, PRIOR TO POURING THE COLUMN FOOTING.
2. REPLACE "4" IN DRAWING WITH "WD40-".



2 DETAIL
1/2" = 1'-0"

FOR PROPOSAL PURPOSES ONLY, NOT FOR CONSTRUCTION



2 0 2 4 FEET
SCALE 1/2"=1'-0"

FILENAME: WD5440S005.dgn

PLOT DATE: 11/7/2019 3:16:33 PM

DESIGNED
J. KELLOGG
DRAWN
J. MARTIN
CHECKED
S. KADER
APPROVED
M. FISHER

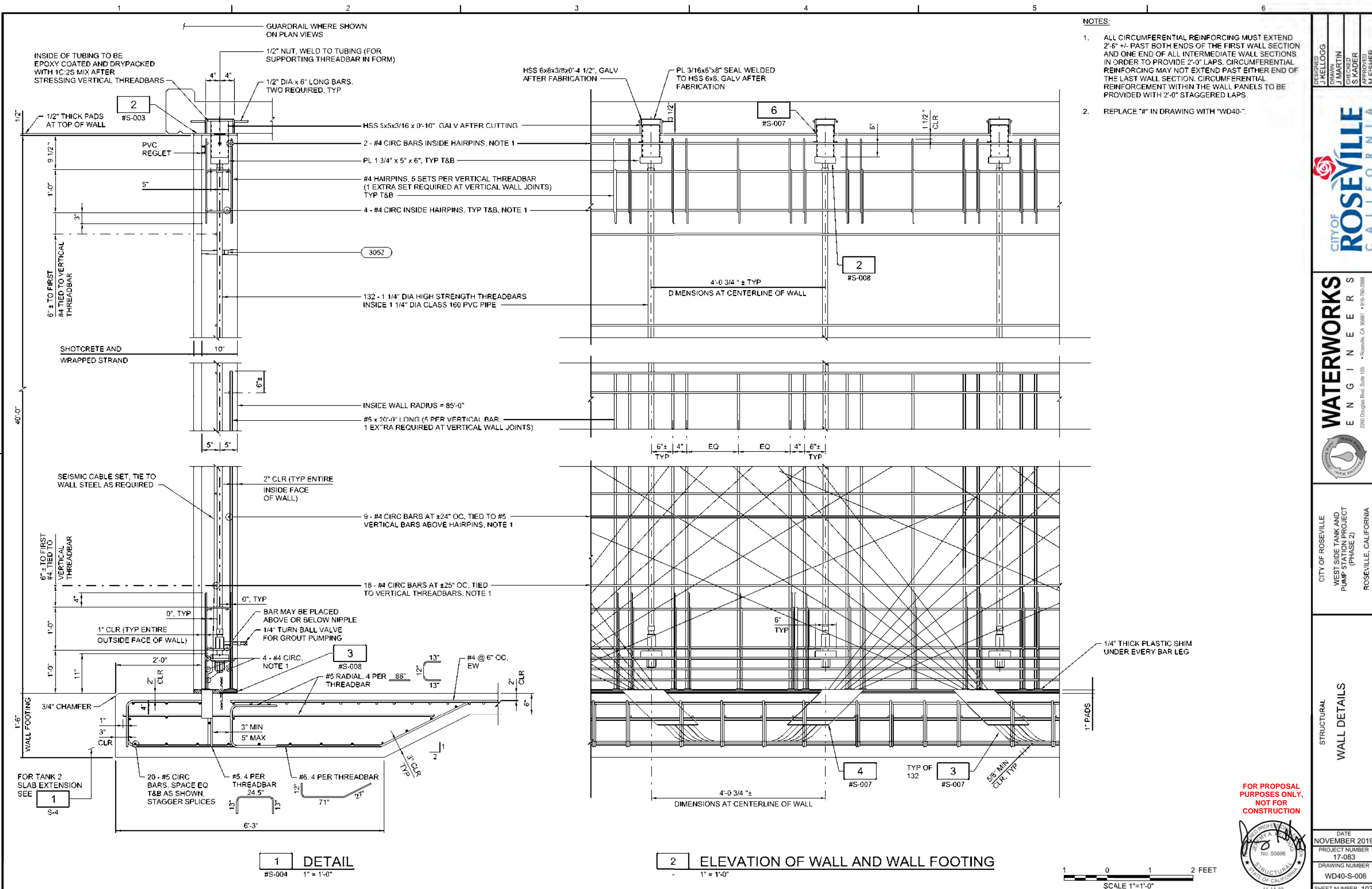
CITY OF
ROSEVILLE
CALIFORNIA

WATERWORKS
ENGINEERS
2200 Douglas Blvd, Suite 105
Roseville, CA 95661 • 916-780-2888

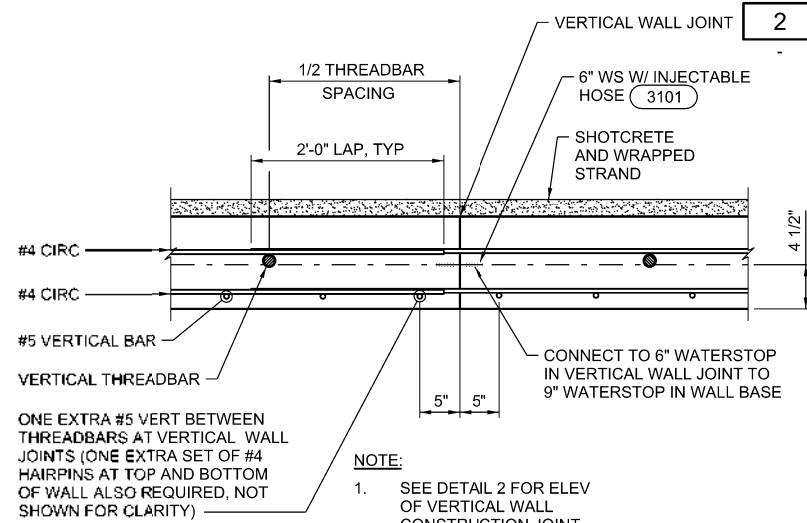
CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

STRUCTURAL
COLUMN AND FOOTING
DETAIL

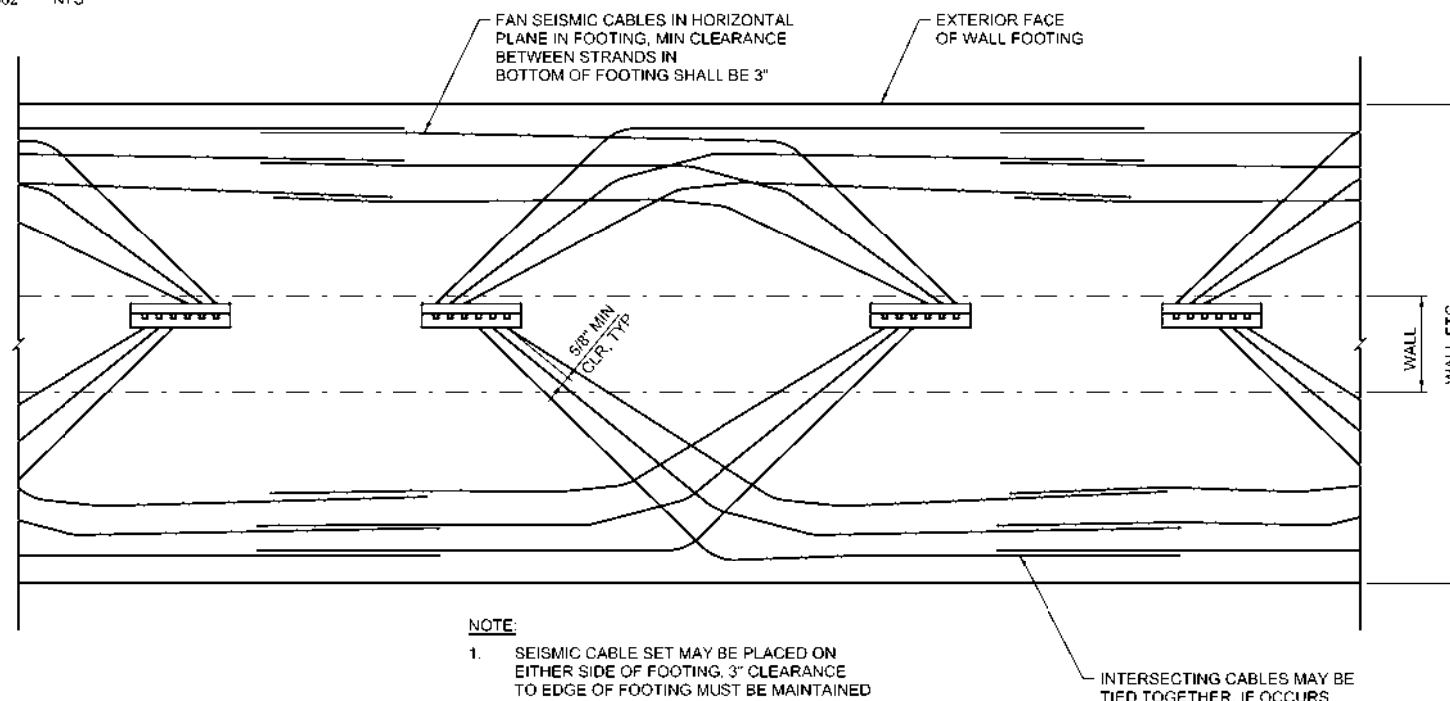
DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD40-S-005
SHEET NUMBER 106



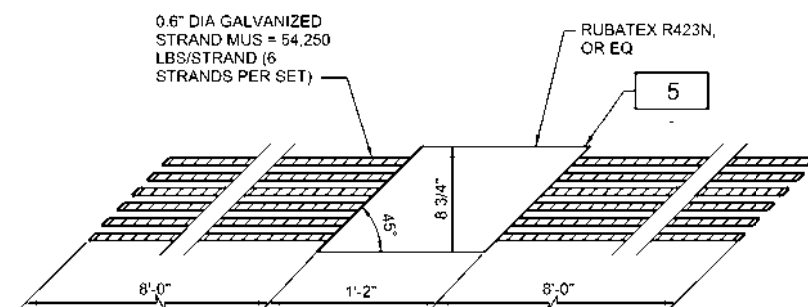
DESIGNED J. KELLOGG	DRAWN J. MARTIN	CHECKED S. KADER	APPROVED M. FISHER
CITY OF ROSEVILLE CALIFORNIA			
WATERWORKS ENGINEERS 220 Douglas Blvd, Suite 105 Roseville, CA 95661 • 916-785-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
STRUCTURAL WALL DETAILS			
DATE NOVEMBER 2019 PROJECT NUMBER 17-083 DRAWING NUMBER WD40-S-006 SHEET NUMBER 107			



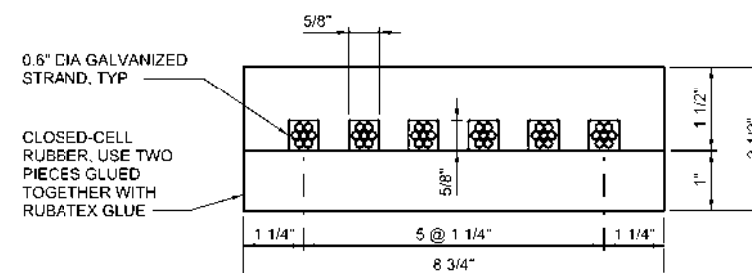
1 DETAIL
#S-002 NTS



3 DETAIL
#S-006 NTS

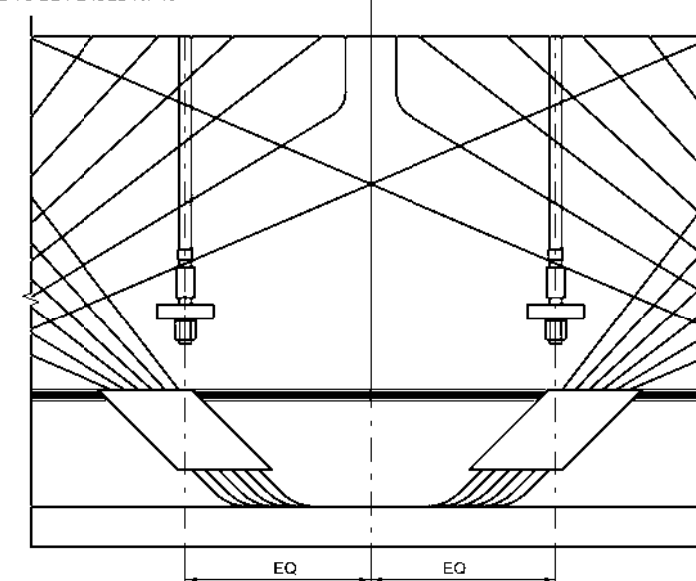


4 DETAIL
#S-006 NTS



5 DETAIL
NTS

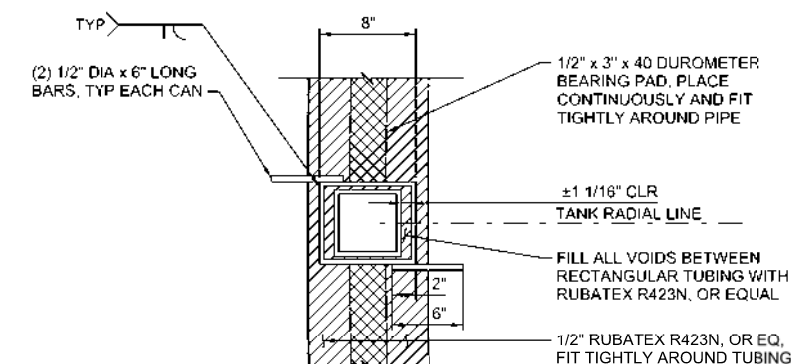
VERTICAL WALL JOINT, AT THE CONTRACTOR'S OPTION SOME OR ALL OF THE SEISMIC CABLES AT THE WALL JOINT MAY BE BENT BACK SO THEY DO NOT INTERFERE WITH THE WALL JOINT. IF CABLES ARE TO BE BENT BACK, BOTTOM 18" (MIN) OF CABLE TO BE PLACED AT 45°



NOTE:

1. WALL AND FOOTING REINFORCING OMITTED FOR CLARITY, WALL JOINTS EVENLY SPACED.

2 DETAIL
NTS

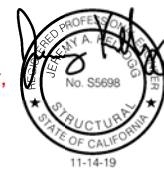


WALL TO ROOF CONNECTION NOTES:

- GLUE ALL PADS TO TOP OF WALL WITH BONDING AGENT.
- FILL ALL VOIDS BETWEEN WALL, ROOF PADS AND TUBING WITH A SOFT MASTIC.
- VERTICAL THREADBARS NUTS, AND BEARING PLATES OMITTED FOR CLARITY, VERIFY ALIGNMENT AND CLEARANCES DURING WALL POUR.

6 DETAIL
#S-006 NTS

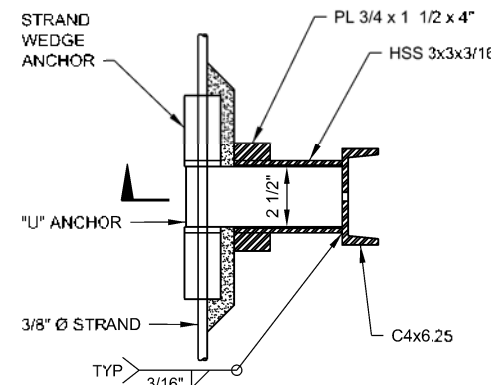
FOR PROPOSAL PURPOSES ONLY, NOT FOR CONSTRUCTION



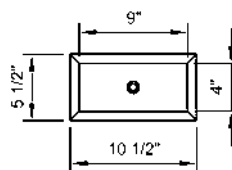
DESIGNED J. KELLOGG	DRAWN J. MARTIN	CHECKED S. KADER	APPROVED M. FISHER
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
STRUCTURAL WALL DETAILS			
DATE NOVEMBER 2019 PROJECT NUMBER 17-083 DRAWING NUMBER WD40-S-007 SHEET NUMBER 108			

CIRCUMFERENTIAL PRESTRESSING NOTES

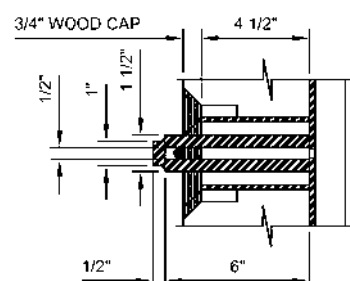
- 1) THE MAXIMUM STRESS TOLERANCE IN ANY STRAND AT ANY POINT AT ANY ELEVATION ON THE TANK WALL AT ANY TIME DURING THE WRAPPING OPERATION SHALL NOT EXCEED ± 320 POUNDS FROM THE AVERAGE FORCE SETTING OF $\pm 4,950$ POUNDS.
- 2) THE CONTRACTOR SHALL PROVIDE A CONTINUOUSLY ELECTRONICALLY RECORDED FORCE APPLICATION GRAPH FOR THE FULL LENGTH OF ALL WRAPPED STRAND AS PERMANENT DOCUMENTED EVIDENCE THAT THE FORCE APPLICATION REQUIREMENTS HAVE BEEN MET. ALL SUCH FORCE READINGS MUST BE BASED ON CONTINUOUS SENSING OF THE STRAND BETWEEN THE TENSIONING DRUM AND THE WALL AS THE STRAND IS BEING LAID ON THE WALL.
- 3) MANUAL, INDIVIDUAL, OR INTERMITTENT FORCE READINGS TAKEN WHEN THE STRAND IS IN FULL BODILY CONTACT WITH THE WALL WILL NOT BE ACCEPTED.
- 4) FORCE READINGS BASED ON ANYTHING OTHER THAN INSTANTANEOUS MONITORING AS THE STRAND IS BEING TENSIONED WILL NOT BE ACCEPTED.
- 5) INTERNAL TENDONS PLACED CIRCUMFERENTIALLY INSIDE THE COREWALL WILL NOT BE ACCEPTED.
- 6) THE STRAND SHALL BE $3/8"$ Ø BEFORE GALVANIZING WITH A MINIMUM GALVANIZING OF 0.85 OUNCES PER SQUARE FOOT AND A MINIMUM BREAKING STRENGTH OF 21,400 POUNDS AFTER GALVANIZING.
- 7) THE STRAND SHALL BE INSTALLED AS INDICATED BY THE WALL WRAPPING REQUIREMENTS.
- 8) PRIOR TO PLACING ANY STRAND OR SHOTCRETE ON THE WALL, ALL EXTERIOR SURFACES OF THE CONCRETE COREWALL WHICH WILL RECEIVE STRANDWRAPPING SHALL BE ABRASIVELY BLASTED WITH A SELF-CONTAINED WATER-BLASTING SYSTEM TO REMOVE ALL LAITANCE, FORMOIL, OR OTHER TYPES OF COATINGS. THE SURFACE SHALL BE CUT TO A MINIMUM CSP5 SURFACE PROFILE AS ESTABLISHED BY ICRI OVER A MINIMUM OF 90% OF THE SURFACE BEING PREPARED. ONCE THE ABRASIVE BLASTING IS COMPLETE THE TANK WALL SURFACE SHALL BE PRESSURE WASHED TO REMOVE ALL DUST RESIDUE ON THE WALL SURFACE.
- 9) PROVIDE 1 1/2" MINIMUM OF SHOTCRETE COVERAGE OVER THE OUTER LAYER OF STRAND.
- 10) ALL SHOTCRETE TO BE APPLIED WITH AN AUTOMATED PROCESS KEEPING THE NOZZLE AT A CONSTANT DISTANCE AND ANGLE AS IT TRAVELS AT A UNIFORM BI-DIRECTIONAL SPEED. FINAL SHOTCRETE COVER TO HAVE A NATURAL GUN FINISH.



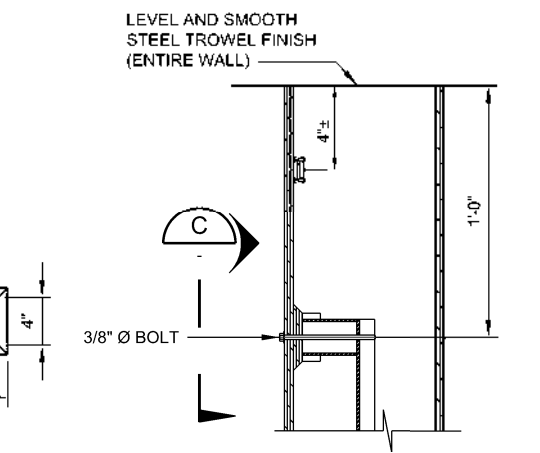
SECTION A
NTS



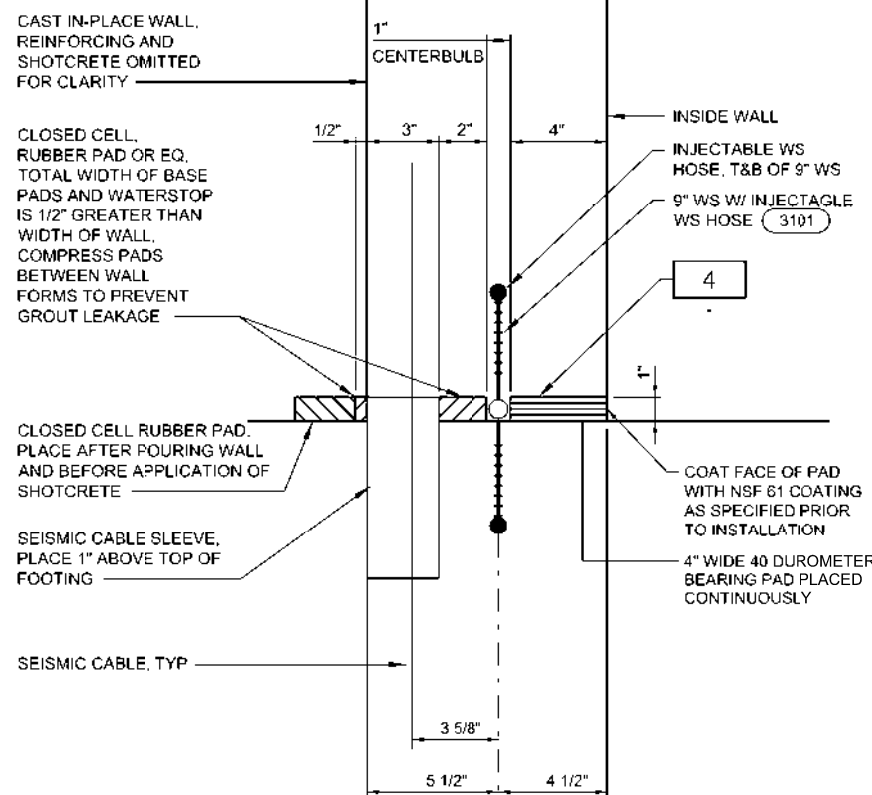
SECTION C
NTS



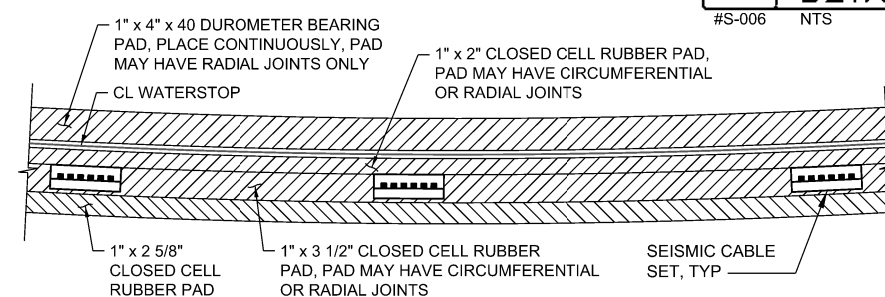
SECTION B
NTS



1
NTS



3
#S-006 3\"/>

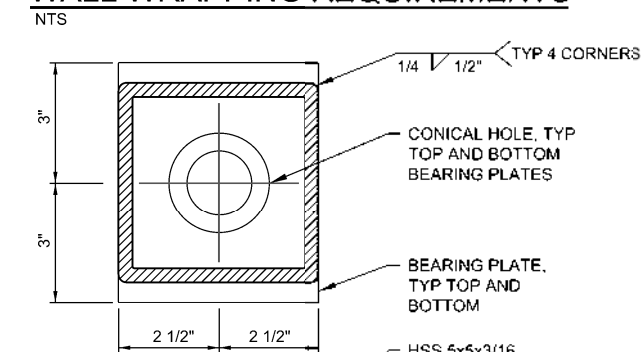


4
1\"/>

TANK WRAPPING SCHEDULE		
NUMBER OF WRAPS	NUMBER OF WRAPS	HEIGHT ABOVE TOP OF FOOTING
2ND LAYER	1ST LAYER	40'-0"
12" NO WRAPS	-	39'-0"
36" NO WRAPS	13	35'-4"
-	42	32'-4"
-	40	27'-0"
8 @ 6" SPACING	51	22'-0"
14	42	12'-0"
28	38	8'-0"
33	33	4'-6"
36	36	0'-0"
119	295	414

NOTE:
THE 2ND LAYER OF WRAPPING MAY BE PLACED FIRST AT THE CONTRACTOR'S OPTION.

WALL WRAPPING REQUIREMENTS



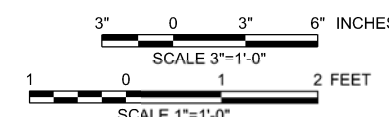
NOTE:
TOP ANCHOR SHOWN. BOTTOM ANCHOR SIMILAR

2
#S-006 NTS

WALL BASE JOINT NOTES:

1. GLUE ALL PADS TO TOP OF WALL FOOTING WITH NSF 61 ADHESIVE.
2. FILL ALL VOIDS BETWEEN BASE PADS, SEISMIC CABLE SLEEVE AND WATERSTOP WITH JOINT SEALANT.

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NOT FOR CONSTRUCTION



FILENAME: WD5440S008.dgn

PLOT DATE: 11/7/2019 3:19:32 PM

VERTICAL PRESTRESSING NOTES

- 1) PRESTRESSING STEEL SHALL BE 1 1/4" DIA THREADBARS MEETING THE TENSILE, PHYSICAL, AND DEFORMATION REQUIREMENTS FOR ASTM A722 TYPE II BARS.
- 2) THREADBARS WITH QUENCHED OR TEMPERED STEELS WILL NOT BE ALLOWED.
- 3) THREADBARS SHALL BE COATED WITH 75 SOLUBLE OIL 10, OR EQUAL, PRIOR TO INSTALLATION INTO PVC PIPE.
- 4) THREADBARS SHALL HAVE A MAXIMUM CARBON CONTENT OF 0.55%.
- 5) DEFORMATIONS SHALL BE UNIFORM AND SUCH THAT ANY LENGTH OF BAR MAY BE CUT AT ANY POINT AND THE INTERNAL THREADS OF THE PROPER NUT CAN BE FREELY THREADED ONTO THE BAR.
- 6) MINIMUM ULTIMATE STRENGTH OF THE NUT MUST EQUAL AT LEAST 95% OF THE MINIMUM ULTIMATE STRENGTH OF THE BAR.
- 7) DURING EACH WALL POUR, FLUSH THE VERTICAL THREADBARS WITH CLEAN WATER FROM A HOSE PLACED THROUGH AN OPENING IN THE WOODEN CAP OVER THE SQUARE TUBING.
- 8) EACH VERTICAL THREADBAR SHALL BE STRESSED AS FOLLOWS:

	INITIAL FORCE	ELONGATION
BEFORE WRAPPING:	137.3 K (\pm) 2.80K	1.71"

- 9) VERTICAL POST-TENSION OPERATION MAY COMMENCE ONCE TANK CONCRETE COREWALL HAS REACHED A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 5,000 PSI.
- 10) GROUT PUMP EACH VERTICAL THREADBAR FROM THE BOTTOM GROUT CONNECTION WITH A 2-PART WATER INSENSITIVE EPOXY UNTIL THE ENTIRE NUT AT THE TOP ANCHOR CONNECTION HAS BEEN COVERED. DRYPACK THE REMAINDER OF THE TUBING WITH A 1C:2S MIX IMMEDIATELY AFTER THE INSIDE OF THE TUBING HAS BEEN COATED WITH GROUT. IN LIEU OF DRYPACKING, THE TUBING MAY BE FILLED WITH PEAGRAVEL PRIOR TO GROUT PUMPING AND THE ENTIRE TUBING MAY BE PUMPED FULL OF GROUT.

NOTES:

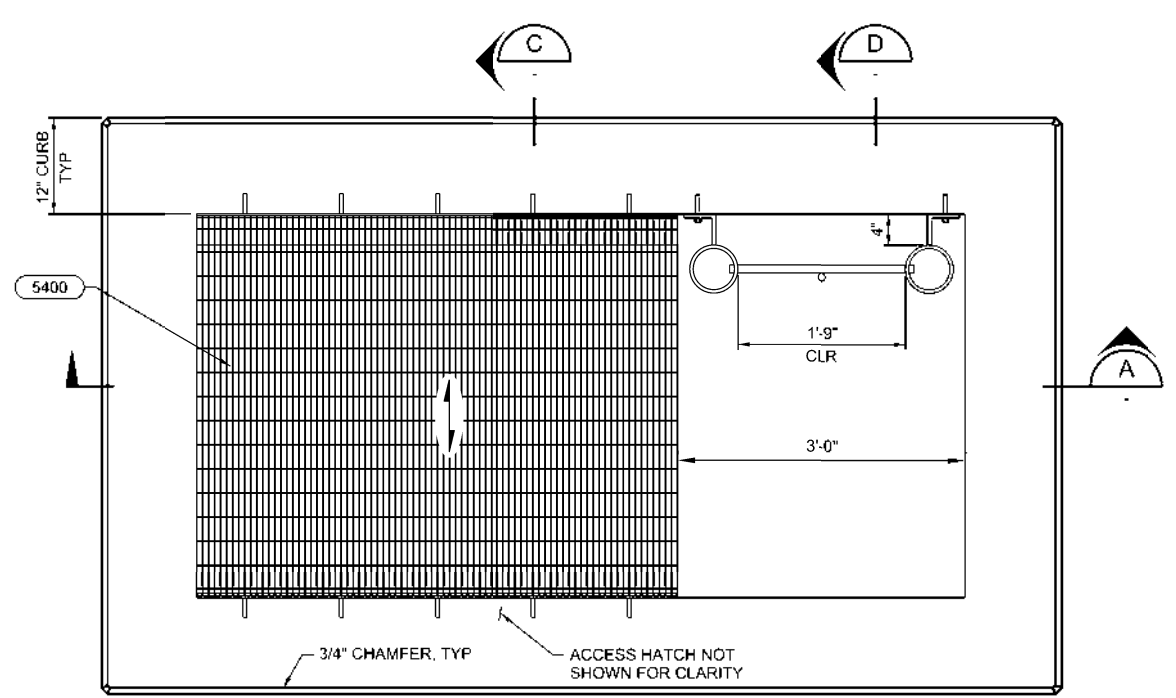
1. REPLACE "H" IN DRAWING WITH "WD40".

WATERWORKS
ENGINEERS
2200 Douglas Blvd, Suite 105
Roseville, CA 95661 • 916-785-2888

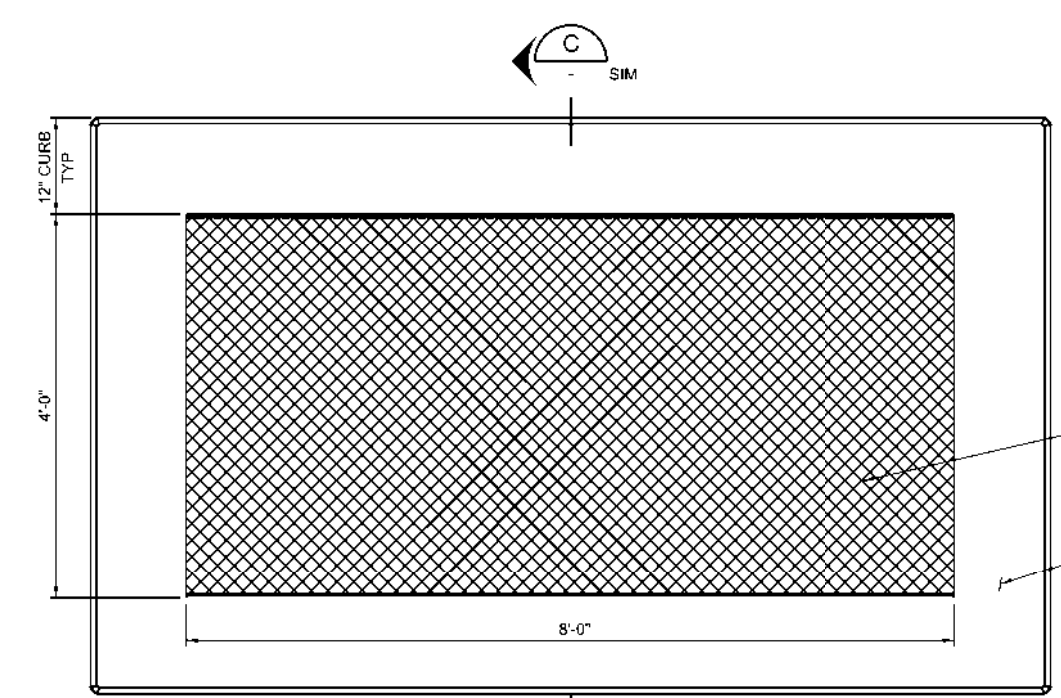
CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

STRUCTURAL
TANK PRESTRESSING
SECTIONS AND DETAILS

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD40-S-008
SHEET NUMBER 109

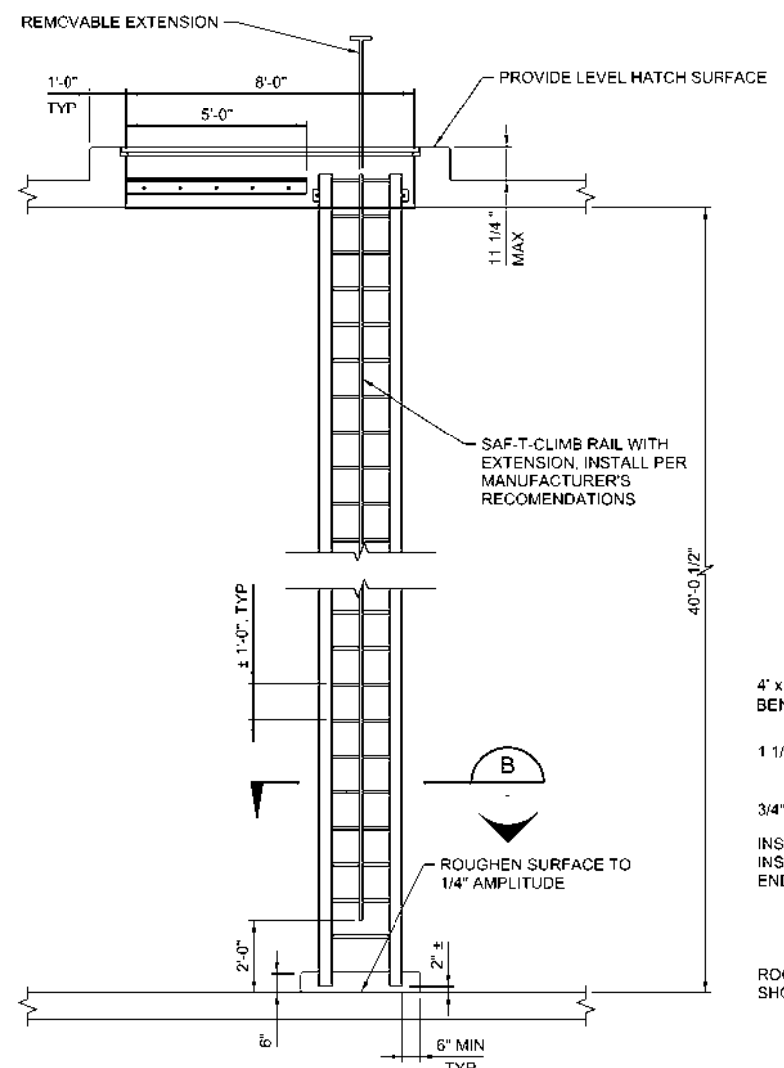


1 DETAIL
#S-001 1" = 1'-0"

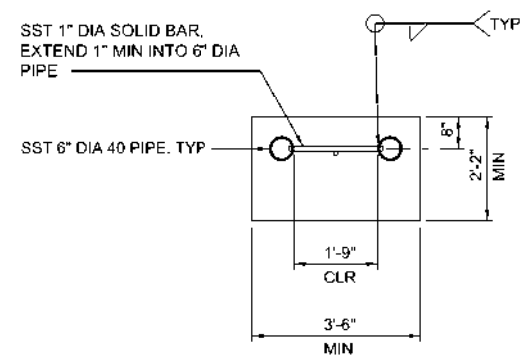


2 DETAIL
#S-001 1" = 1'-0"

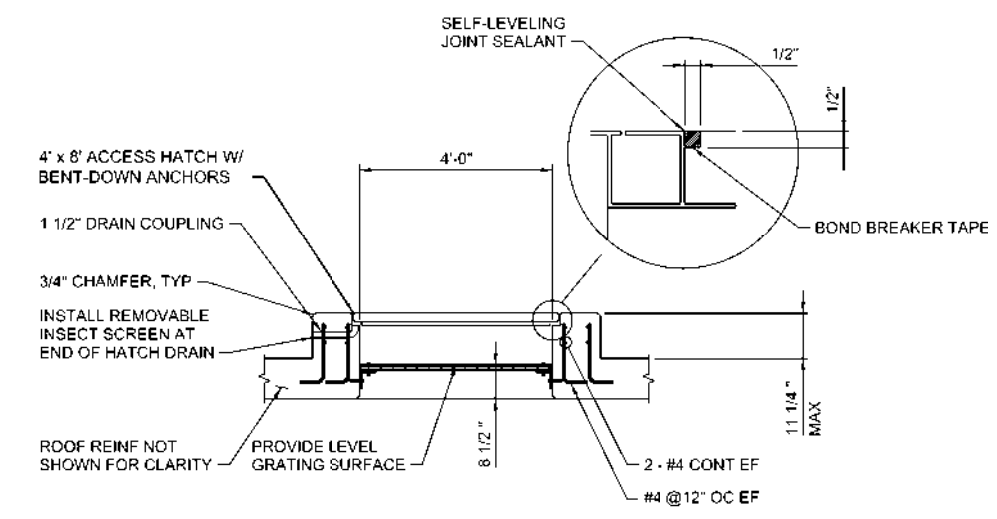
NOTES:
1. REPLACE "#" IN DRAWING WITH "WD40-"



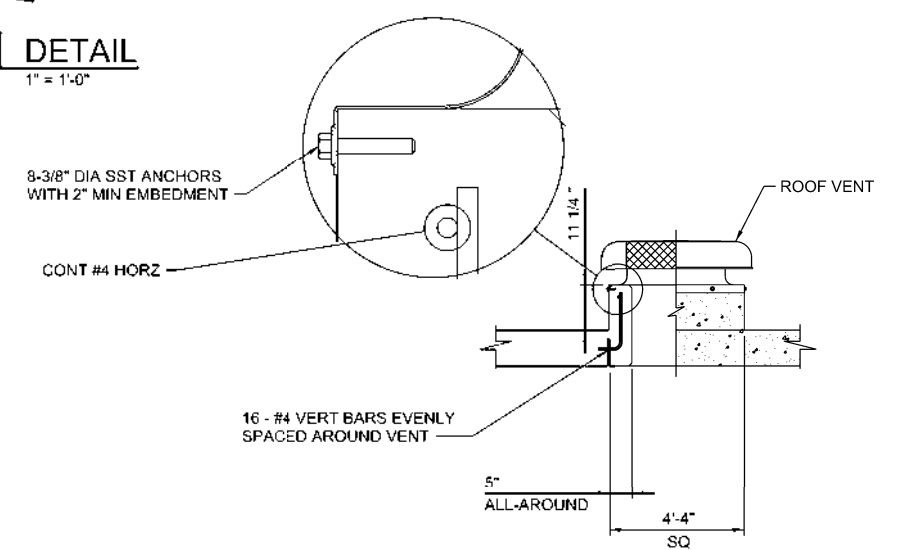
A SECTION
3/8" = 1'-0"



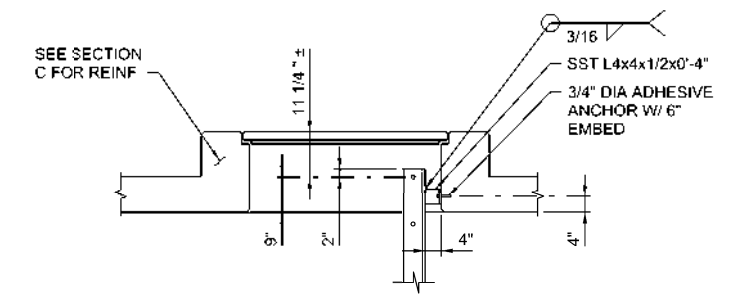
B SECTION
1/2" = 1'-0"



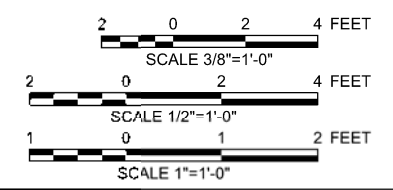
C SECTION
1/2" = 1'-0"



3 DETAIL
#S-001 NTS



D SECTION
1/2" = 1'-0"



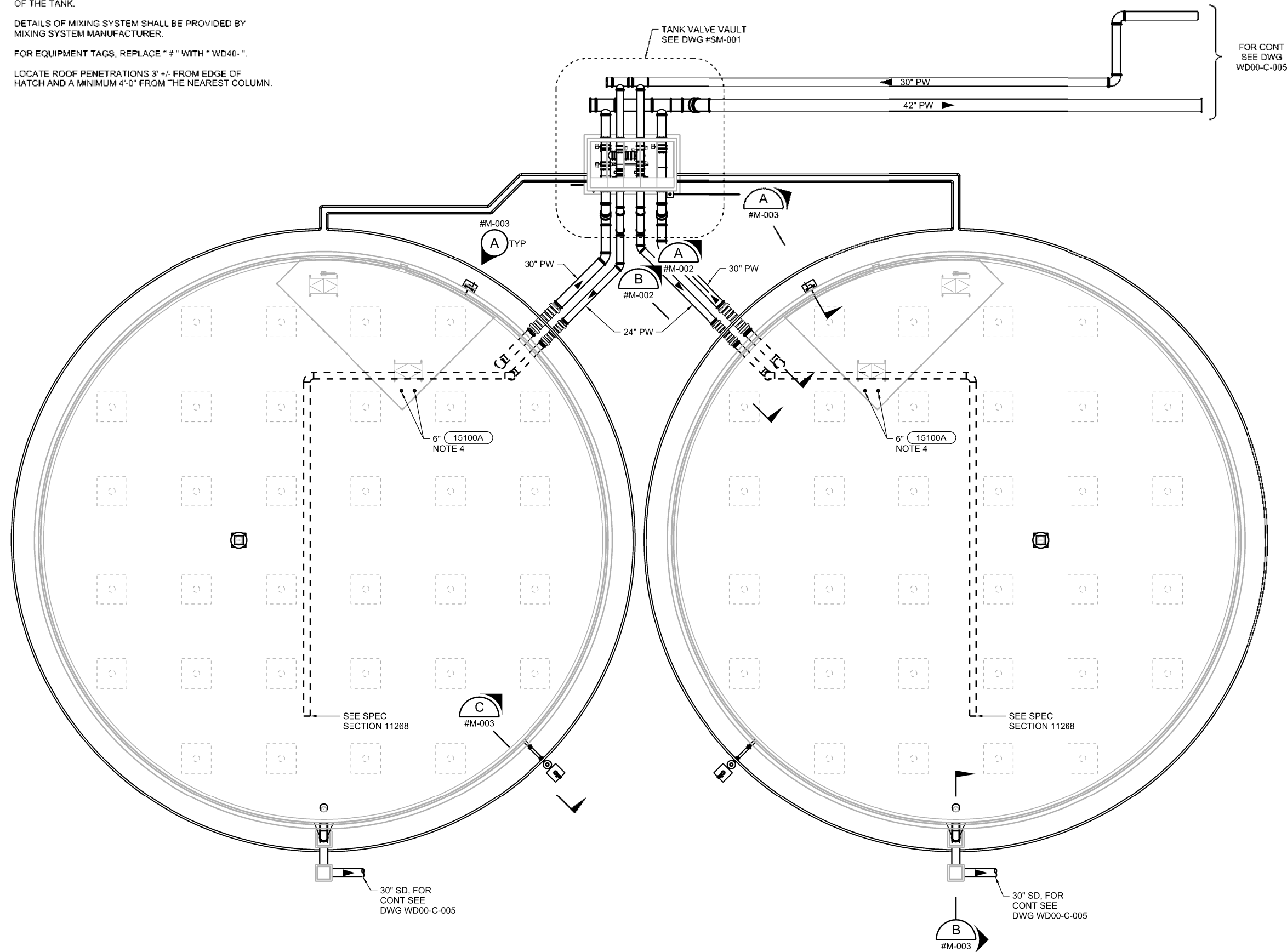
FOR PROPOSAL PURPOSES ONLY, NOT FOR CONSTRUCTION



DESIGNED J KELLOGG	DRAWN J MARTIN	CHECKED S KADER	APPROVED M FISHER
WATERWORKS ENGINEERS 220 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
STRUCTURAL MISCELLANEOUS TANK DETAILS #2			
DATE NOVEMBER 2019		PROJECT NUMBER 17-083	
DRAWING NUMBER WD40-S-010		SHEET NUMBER 111	

NOTES:

1. RESERVOIR HYDRODYNAMIC MIXING SYSTEM TO BE INSTALLED BETWEEN COLUMNS TOWARDS THE CENTER OF THE TANK.
2. DETAILS OF MIXING SYSTEM SHALL BE PROVIDED BY MIXING SYSTEM MANUFACTURER.
3. FOR EQUIPMENT TAGS, REPLACE "#" WITH "WD40-".
4. LOCATE ROOF PENETRATIONS 3' +/- FROM EDGE OF HATCH AND A MINIMUM 4'-0" FROM THE NEAREST COLUMN.



PLAN
1/16" = 1'-0"

16 0 16 32 FEET
SCALE 1/16"=1'-0"



DESIGNED M FISHER	DRAWN J MARTIN	CHECKED S KADER	APPROVED M FISHER
CITY OF ROSEVILLE CALIFORNIA			
WATERWORKS ENGINEERS 2200 Douglas Blvd, Suite 105 • Roseville, CA 95661 • 916-780-2888			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
MECHANICAL WATER STORAGE TANKS PLAN			
DATE NOVEMBER 2019		PROJECT NUMBER 17-083	
DRAWING NUMBER WD40-M-001		SHEET NUMBER 112	

1

2

3

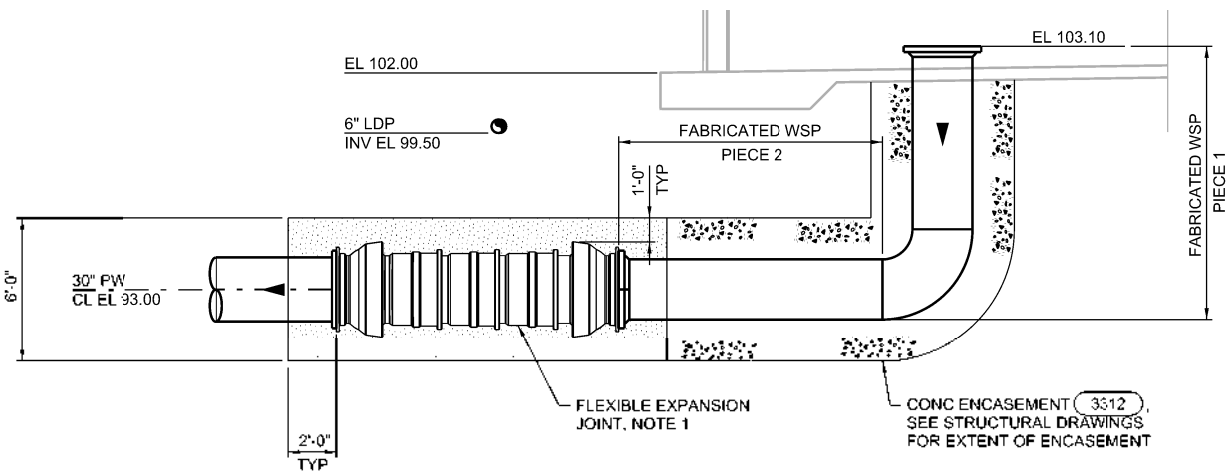
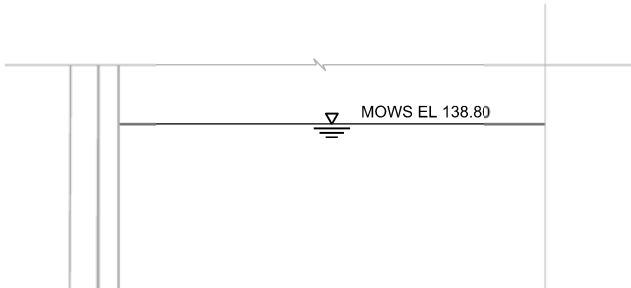
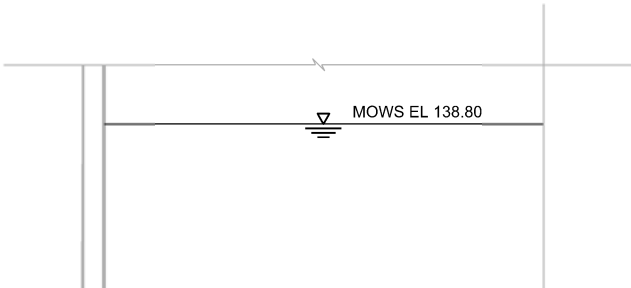
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5

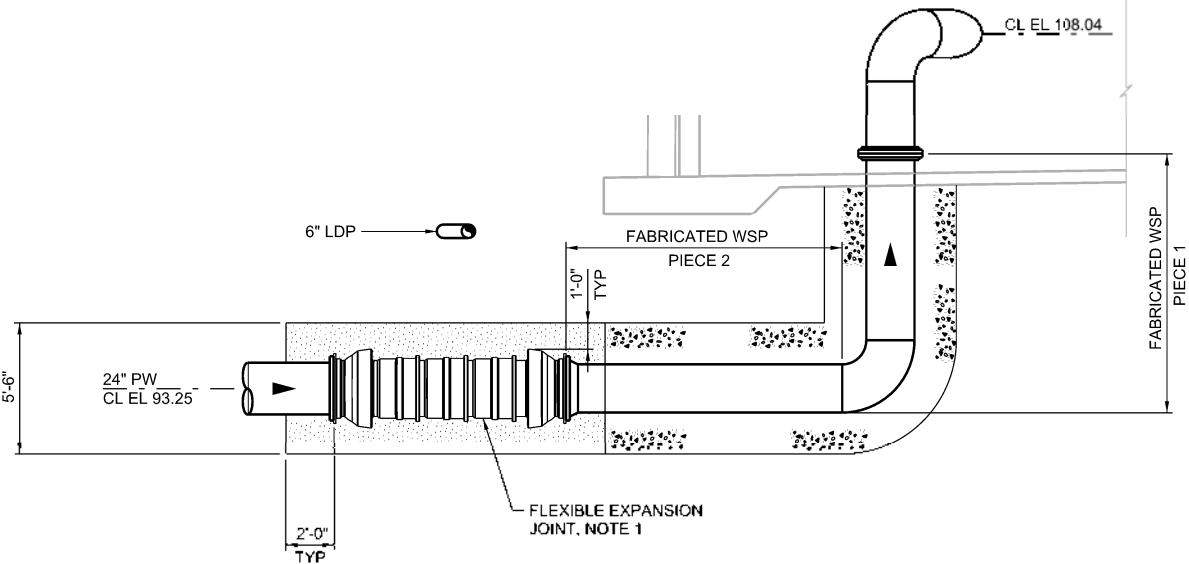
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NOTES:

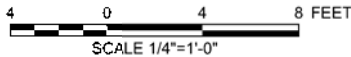
1. WRAP THE FLEXIBLE EXPANSION JOINT WITH POLYETHYLENE WRAP IN AT LEAST TWO LAYERS. WRAP PROVIDED BY MANUFACTURER.
2. THE FLANGE FACE SHALL BE MACHINED AND NOT COATED. THE REMAINDER OF THE FLANGE SHALL BE COATED. FLANGE CONNECTION MUST BE 2'-0" MIN OUTSIDE OF TANK FOOTING.



A SECTION
WD40-M-001 1/4" = 1'-0"



B SECTION
WD40-M-001 1/4" = 1'-0"



FOR PROPOSAL
PURPOSES ONLY,
NOT FOR
CONSTRUCTION



DESIGNED	M. FISHER
DRAWN	J. MARTIN
CHECKED	S. KADER
APPROVED	M. FISHER



WATERWORKS
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2200 Douglas Blvd, Suite 105
Roseville, CA 95661 • 916-780-2888



CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

MECHANICAL
TANK
SECTIONS

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD40-M-002
SHEET NUMBER	113



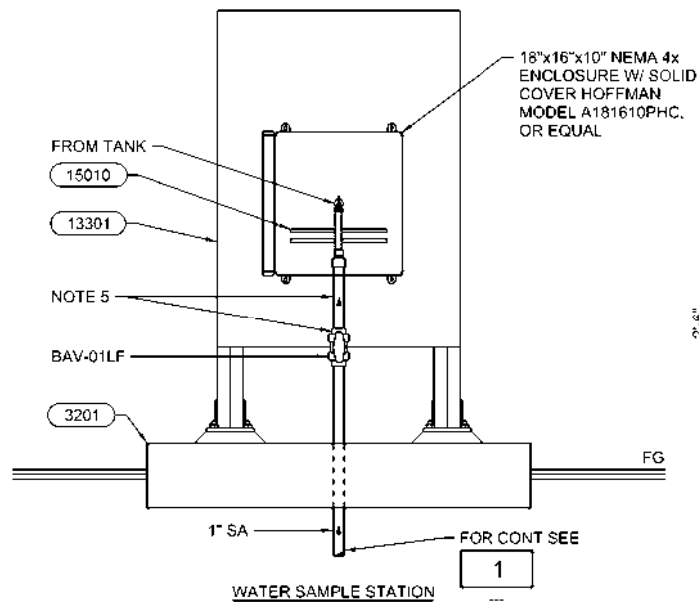
1 PHOTO
NTS



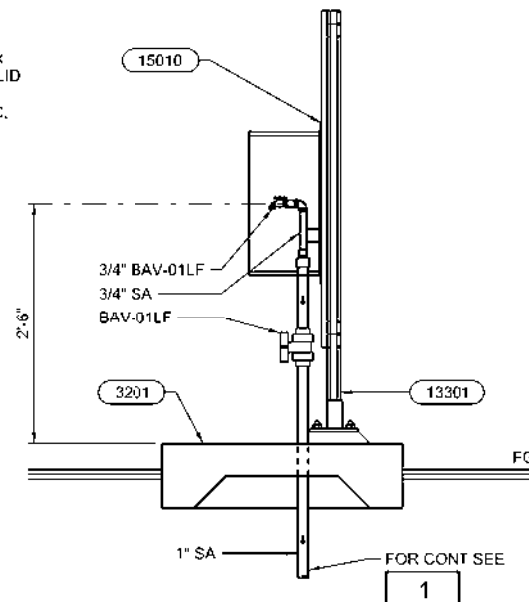
2 PHOTO
NTS

2 SCREEN TO BE VISIBLE TO OPERATOR WITHOUT TAKING VENT APART

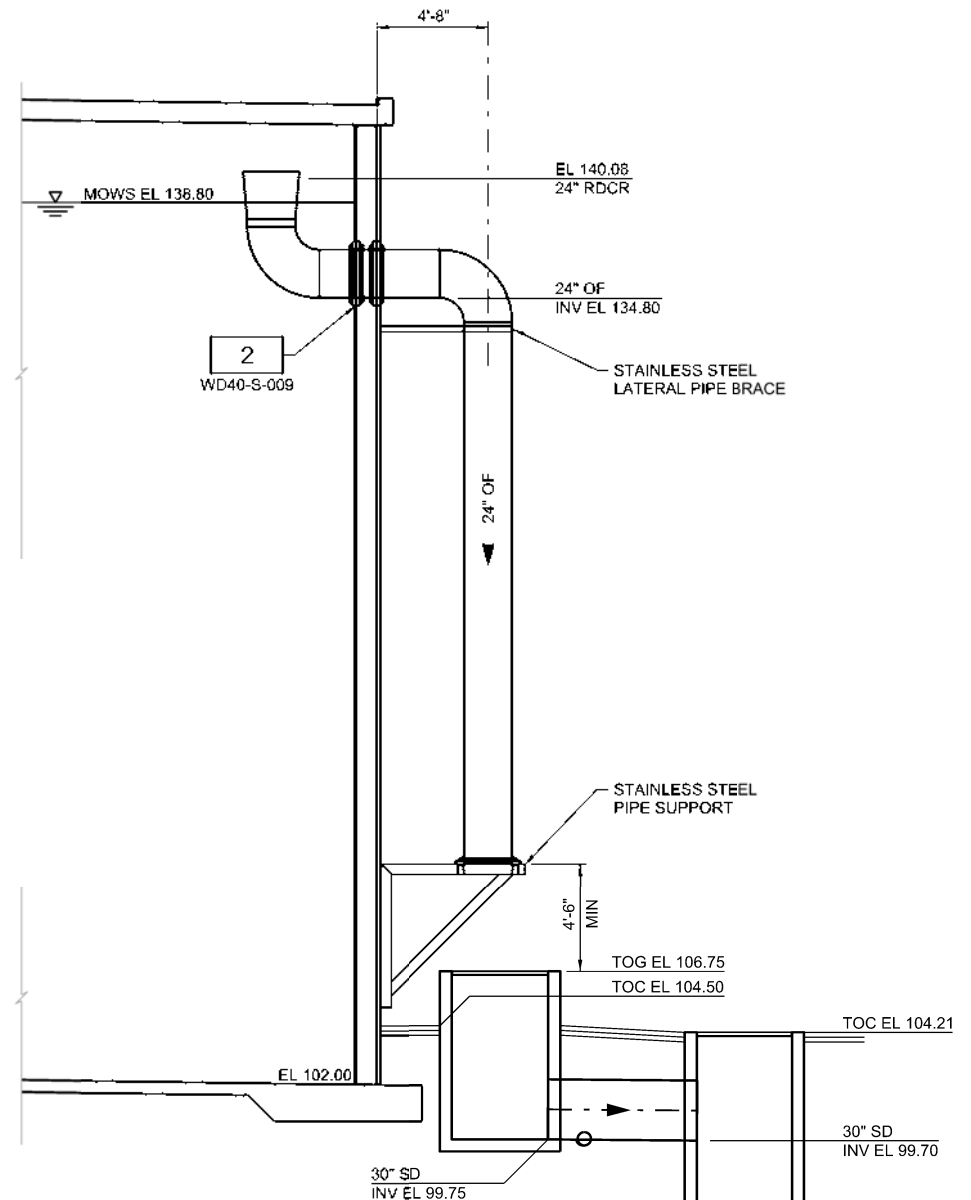
SAMPLE OF INSTALLED BIRD AND INSECT SCREEN. INSECT SCREEN SHALL BE 24 MESH 316 SS. BIRD SCREEN SHALL BE 4 MESH 316 SS.



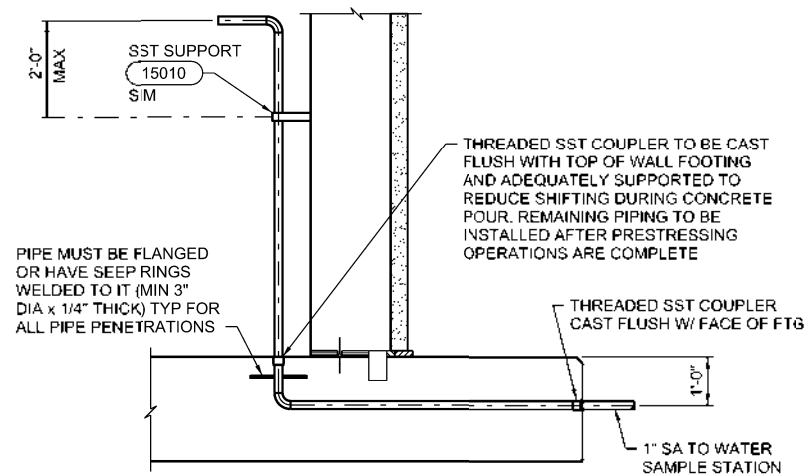
A ELEVATION
3/4" = 1'-0"
WD40-M-001



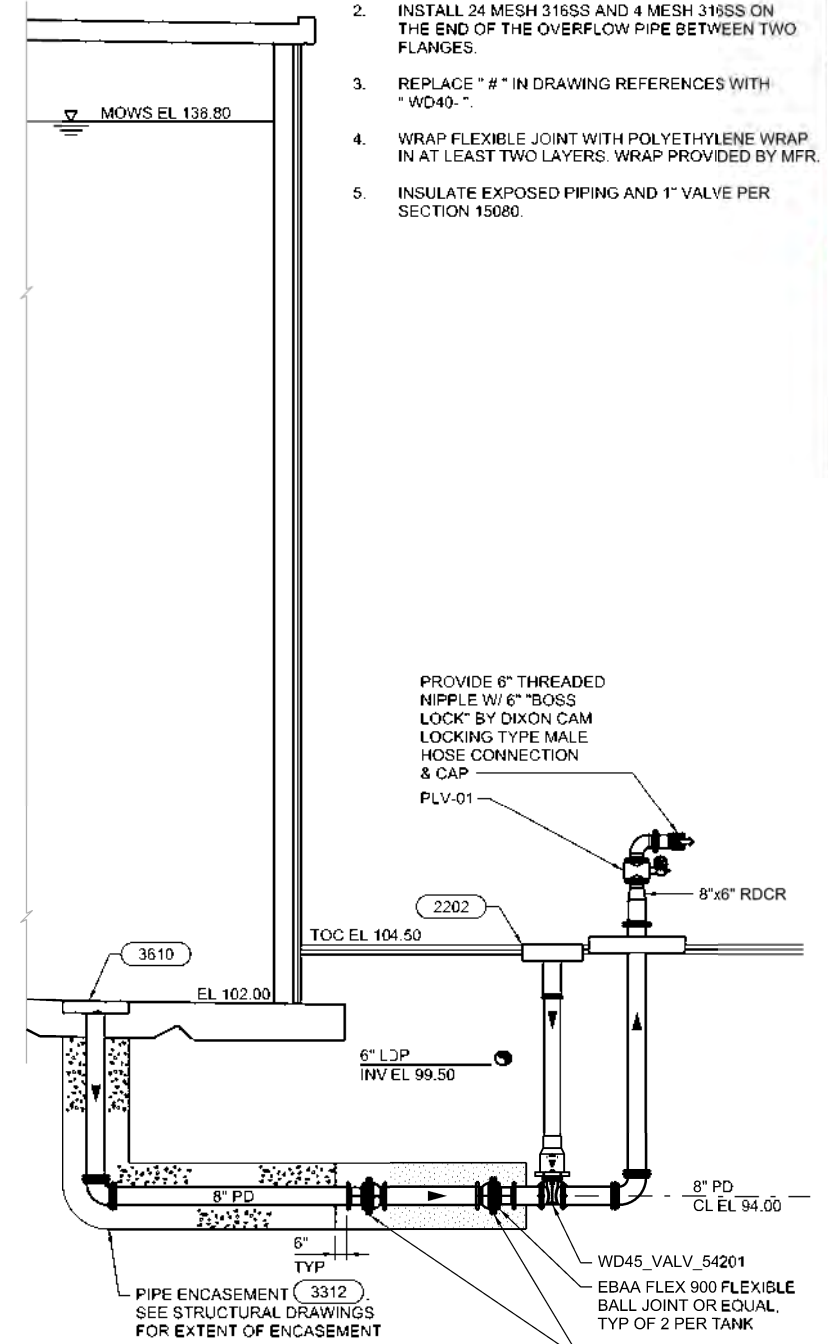
A SECTION
3/4" = 1'-0"
WD40-M-001



B SECTION
WD40-M-001 1/4" = 1'-0"



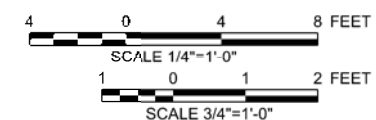
1 DETAIL
NTS



C SECTION
WD40-M-001 1/4" = 1'-0"

- NOTES:
- 10'-0" MIN CLEARANCE FOR PRESTRESSING EQPT.
 - INSTALL 24 MESH 316SS AND 4 MESH 316SS ON THE END OF THE OVERFLOW PIPE BETWEEN TWO FLANGES.
 - REPLACE " # " IN DRAWING REFERENCES WITH " WD40- ".
 - WRAP FLEXIBLE JOINT WITH POLYETHYLENE WRAP IN AT LEAST TWO LAYERS. WRAP PROVIDED BY MFR.
 - INSULATE EXPOSED PIPING AND 1" VALVE PER SECTION 15080.

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NOT FOR CONSTRUCTION



DESIGNED M FISHER	DRAWN J MARTIN	CHECKED S KADER	APPROVED M FISHER
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CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
MECHANICAL TANK SECTIONS, ELEVATION AND PHOTOS			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD40-M-003			
SHEET NUMBER 114			

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
COMPONENTS		SWITCHES – PROCESS		DEVICES – RELAY		WIRING – CONNECTIONS	
	RESISTOR		FLOW SWITCH – CLOSSES UPON INCREASING FLOW		CONTACTOR OR STARTER M1		PANEL OR EQUIPMENT WIRING
	SOLENOID COIL		FLOW SWITCH – OPENS UPON INCREASING FLOW		CONTROL RELAY CR1		FIELD WIRING
	HEATER		LEVEL SWITCH – CLOSSES UPON INCREASING LEVEL		TIME DELAY RELAY TR2 – ADJUSTABLE TIME DELAY RANGE & SETTING AS SHOWN		CONDUCTORS – NOT CONNECTED
	CAPACITOR		LEVEL SWITCH – OPENS UPON INCREASING LEVEL		TIME DELAY ON ENERGIZATION		CONDUCTORS – CONNECTED
	DIODE		PRESSURE SWITCH – CLOSSES UPON INCREASING PRESSURE (DECREASING VACUUM)		TIME DELAY ON DE-ENERGIZATION		GROUND CONNECTION
	DIODE, ZENER		PRESSURE SWITCH – OPENS UPON INCREASING PRESSURE (DECREASING VACUUM)		REFERENCED RELAY WITH N.O. CONTACT ON LINE 107 N.C. CONTACT ON LINE 121		PLUG AND RECEPTACLE
	METAL OXIDE VARISTOR		TEMPERATURE SWITCH – CLOSSES UPON INCREASING TEMPERATURE		NORMALLY OPEN, RELAY CONTACT – ACTUATED BY RELAY CR1 COIL LOCATED ON LINE 105		INCOMING LINE
	AUDIBLE ALARM		TEMPERATURE SWITCH – OPENS UPON INCREASING TEMPERATURE		NORMALLY CLOSED, RELAY CONTACT – ACTUATED BY RELAY CR1		TERMINAL BLOCKS WITH TERMINAL NUMBER AS SHOWN
	3 PHASE MOTOR ? = MOTOR HP		LIMIT SWITCH – CLOSSES AT SET LIMIT		NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT CLOSSES AFTER TR2 IS ENERGIZED		TERMINAL BLOCKS WITH TERMINAL NUMBER DETERMINED BY SUBMITTAL
	3 PHASE MOTOR		LIMIT SWITCH – OPENS AT SET LIMIT		NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS ENERGIZED		SHIELDED CABLE
	SINGLE PHASE MOTOR		TORQUE SWITCH – CLOSSES UPON INCREASING TORQUE		NORMALLY OPEN, TIME DELAY RELAY CONTACT – CONTACT OPENS AFTER TR2 IS DE-ENERGIZED	PLAN – SYMBOLS	
	SINGLE PHASE MOTOR		TORQUE SWITCH – OPENS UPON INCREASING TORQUE		NORMALLY CLOSED, TIME DELAY RELAY CONTACT – CONTACT CLOSSES AFTER TR2 IS DE-ENERGIZED		
	TRANSFORMER SIZE AND VOLTAGE AS SHOWN		TORQUE SWITCH – OPENS UPON INCREASING TORQUE		CONTACT OPENS AND CLOSSES IN A TIMED REPEAT CYCLE		CONDUIT, EXPOSED
	UTILITY POWER METER						CONDUIT, IN SLAB OR BELOW GRADE
	UFER GROUND						CONDUIT, CONCEALED IN WALL OR CEILING
	GROUND ROD						CONDUIT STUBBED OUT & CAPPED
	CURRENT TRANSFORMER RATIO AS NOTED						CONDUIT BENDS TOWARD OBSERVER
	DISCONNECT SWITCH SIZED PER FEEDER						CONDUIT BENDS AWAY FROM OBSERVER
SWITCHES – OPERATOR		DEVICES – FRONT PANEL		DEVICES – PROTECTIVE			CONDUIT ENDS
	TOGGLE OR DISCONNECT SWITCH		INDICATING LIGHT, LETTER "X" INDICATES COLOR: R=RED G=GREEN, A=AMBER, W=WHITE Y=YELLOW, B=BLUE		LOW VOLTAGE MOLDED CASE, INSULATED CASE OR POWER CIRCUIT BREAKER, RATINGS AS SHOWN IN DRAWINGS AND AS DEFINED BELOW: xA: CIRCUIT BREAKER AMERAGE xAT: AMPERAGE TRIP xAf: AMPERAGE FRAME xP: NUMBER OF POLES xT: TRIP PROTECTION MCP: MOTOR CIRCUIT PROTECTION TM: THERMAL MAGNETIC L: LONG TIME DELAY S: SHORT TIME DELAY I: INSTANTANEOUS TRIP G: GROUND FAULT A: ARC FLASH PROTECTION 100% DUTY RATED y: BREAKER FEATURES / OPTIONS – SHUNT TRIP – KIRK-KEY INTERLOCK – MANUALLY CHARGED PUSHBUTTON OPERATION – ELECTRICALLY CHARGED PUSHBUTTON OPERATION		FLEXIBLE CONDUIT CONNECTION FROM J-BOX TO EQUIPMENT
	PUSHBUTTON – NORMALLY OPEN, MOMENTARY ACTION		INDICATING LIGHT, PUSH TO TEST		THERMOSTAT		CONDUIT CHANGE IN ELEVATION
	PUSHBUTTON – NORMALLY CLOSED, MOMENTARY UNLESS LOS (LOCK OUT STOP) WHERE MECHANICALLY HELD		ELAPSED TIME METER		EYS SEAL		GROUND CONNECTION BOLTED TYPE
	PUSHBUTTON, MECHANICALLY CONNECTED, DOUBLE CIRCUIT – NORMALLY CLOSED AND NORMALLY OPEN				JUNCTION BOX		GROUND CONNECTION EXOTHERMIC WELD TYPE
	SELECTOR SWITCH, 3 POSITION – CONTACT STATUS SHOWN EXISTS I.E. AT POSITION OF HAND, OFF, OR AUTO				FIELD MOUNTED DEVICE		DISCONNECT SWITCH
	SELECTOR SWITCH, 2 POSITION – MIDDLE POSITION IS DELETED				TELEPHONE/DATA RECEPTACLE 2 PORT TA568A, 2 CAT 6 CABLES		CONDUIT REFERENCE TO SCHEDULE
	POTENTIOMETER				CONDUIT REFERENCE TO SCHEDULE		THERMOSTAT
					EYS SEAL		JUNCTION BOX
					PULL BOX OF SIZE SHOWN (CHRISTY BOX SIZE MINIMUM)		LIGHTING FIXTURE
					DUPLEX RECEPTACLE # – CIRCUIT BREAKER NUMBER A – FIXTURE SCHEDULE REF. a – CONTROL SWITCH REFERENCE		LIGHTING FIXTURE
					TOGGLE SWITCH a – FIXTURES CONTROLLED 3 – 3 WAY M = MOTION DETECTOR T = TIMER SWITCH		LIGHTING FIXTURE
					THERMAL OVERLOAD CONTACT		LIGHTING FIXTURE
					FUSE		LIGHTING FIXTURE
					TRIP FUNCTIONS PER DRAWINGS AND SPECIFICATIONS		LIGHTING FIXTURE
					MULTIFUNCTION RELAY PER SPECIFICATIONS		LIGHTING FIXTURE

MISCELLANEOUS ABBREVIATIONS			
&	AND	MTR	MOTOR
@	AT	MUX	MULTIPLEXER
A	AMBER, AMPERES	MV	MERCURY VAPOR, MEDIUM VOLTAGE
AC	ALTERNATING CURRENT	N	NEUTRAL
ACK	ACKNOWLEDGE	NC	NORMALLY CLOSED
AFF	ABOVE FINISHED FLOOR	NHC	NORMALLY HELD CLOSED
AH	AMP HOUR	NHO	NORMALLY HELD OPEN
AI	ANALOG INPUT	NIC	NOT IN CONTRACT
AIC	AMP INTERRUPTING CAPACITY SYMMETRICAL	NL	NIGHT LIGHT
AM	AMP METER	NO	NORMALLY OPEN
AO	ANALOG OUTPUT	NTS	NOT TO SCALE
AWG	AMERICAN WIRE GAUGE	(N)	NEW
ATS	AUTOMATIC TRANSFER SWITCH	OC	ON CENTER
BATT	BATTERY	OI	OPERATOR INTERFACE
(B)	PROVIDED BY OWNER – INSTALLED BY CONTRACTOR	OL	OVERLOAD
BFC	BELOW FINISHED CEILING	ORP	OXIDATION REDUCTION POTENTIAL
BOD	BIOCHEMICAL OXYGEN DEMAND	P	POLE
BPF	BAND PASS FILTER	PB	PUSHBUTTON
BYP	BYPASS	PBX	PUSH BOX
C	CONDUIT	PDB	POWER DISTRIBUTION BLOCK
CAP	CAPACITOR	PF	POWER FACTOR
CB	CIRCUIT BREAKER	PFR	POWER FAIL RELAY
CKT	CIRCUIT	PH	HYDROGEN ION CONCENTRATION
COAX	COAXIAL CABLE	PLC	PROGRAMMABLE LOGIC CONTROLLER
COMM	COMMUNICATION	PM	POWER MONITOR
CR	CONTROL RELAY	PNL	PANEL
CT	CURRENT TRANSFORMER	POT	POTENTIOMETER
CS	CONSTANT SPEED	PRESS	PRESSURE
CU	COPPER	PR	PAIR, TWISTED AND SHIELDED
DC	DIRECT CURRENT	PRI	PRIMARY
DET	DETAIL	PROVIDE	FURNISH, INSTALL, AND CONNECT
DI	DIGITAL INPUT	PS	PRESSURE SWITCH
DISC	DISCONNECT	PT	POTENTIAL TRANSFORMER
DO	DIGITAL OUTPUT	PTT	PUSH TO TEST
DPDT	DOUBLE POLE DOUBLE THROW	PVC	POLYVINYLCHLORIDE
DWG	DRAWING	PWR	POWER
E-DTL	ELECTRICAL DRAWING DETAIL	REF	REFERENCE
ELEV	ELEVATION	RFI	RADIO FREQUENCY INTERFERENCE
ENET	ETHERNET	RMS	ROOT MEAN SQUARE
ETM	ELAPSED TIME METER	RTD	RESISTANCE TEMPERATURE DETECTOR
ESW	ETHERNET SWITCH	RST	RESET
(E)	EXISTING	RVAT	REDUCE VOLTAGE AUTO TRANSFORMER
FCS	FIELD CONTROL STATION	RTU	REMOTE TERMINAL UNIT
FLA	FULL LOAD AMPS	(R)	REWIRE, RELOCATE, REVISE, REUSE
FLEX	FLEXIBLE LIQUID TIGHT CONDUIT	SCH	SCHEDULE
FRP	FIBERGLASS REINFORCED PLASTIC	SEC	SECONDARY, SECOND
FS	FULL SPEED	SECS	SECONDS
FVNR	FULL VOLTAGE NON-REVERSING	SEL	SELECTOR
FVR	FULL VOLTAGE REVERSING	SFA	SERVICE FACTOR AMPS
FWD	FORWARD	SPEC	SPECIFICATION
(F)	FUTURE	SS	STAINLESS STEEL
GALV	GALVANIZED	SSRC	STAINLESS STEEL RIGID CONDUIT
GFI	GROUND FAULT INTERRUPTER	SSS	SOLID STATE STARTER
GND	GROUND	STT	START
GRS	GALVANIZED RIGID STEEL CONDUIT	STP	STOP
GRS-PVC	PVC COATED GRS CONDUIT	SV	SOLENOID VALVE
HI	HIGH	SW	SWITCH
HIM	HUMAN INTERFACE MODULE	SWBD	SWITCHBOARD
HOA	HAND OFF AUTO	SYMM	SYMMETRICAL
HP	HORSE POWER	TB	TERMINAL BLOCK
HPS	HIGH PRESSURE SODIUM	TC	TIME CLOCK
HS	HAND SWITCH	TDOD	TIME DELAY ON DE-ENERGIZATION
HTR	HEATER	TDOE	TIME DELAY ON ENERGIZATION
HZ	HERTZ	TELCO	TELEPHONE COMPANY
HZD	HAZARD	TM	THERMAL MAGNETIC
I	INTERLOCK	TEMP	TEMPERATURE
I-DTL	INSTRUMENTATION DRAWING DETAIL	TR	TIME DELAY RELAY
I/O	INPUT/OUTPUT	TRIAD	TWISTED AND SHIELDED 3 CONDUCTOR
INST	INSTANTANEOUS	TS	TEMPERATURE SWITCH
ISR	INTRINSICALLY SAFE RELAY	TSPR	TWISTED AND SHIELDED PAIR
IS	INTRINSICALLY SAFE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
J	JUNCTION BOX	TYP	TYPICAL
K	KILO, PREFIX	UG	UNDERGROUND
LA	LIGHTNING ARRESTOR	ULH	ULTRA LOW HARMONIC
LC	LIGHTING CONTACTOR	UON	UNLESS OTHERWISE NOTED
LEL	LOWER EXPLOSION LIMIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
LO	LOW	V	VOLTAGE
LOS	LOCK OUT STOP	VA	VOLT AMPS
LR	LATCHING RELAY	VAR	VOLT AMPS REACTIVE
LS	LIMIT SWITCH	VFD	VARIABLE FREQUENCY DRIVE
M	MOTOR CONTACTOR	VLV	VALVE
MAG	MAGNETIC FLOWMETER	VM	VOLTMETER
MAX	MAXIMUM	VMR	VOLTAGE MONITOR RELAY
MCM	THOUSAND CIRCULAR MILS	VR	VOLTAGE RELAY
MCP	MOTOR CIRCUIT PROTECTOR	W	WATTS
MCS	MOLDED CASE SWITCH	WP	WEATHER PROOF, NEMA 3R
MH	MANHOLE	WTP	WATER TREATMENT PLANT
MIN	MINIMUM, MINUTE	WWTP	WASTE WATER TREATMENT PLANT
MODEM	MODEM	XFMR	TRANSFORMER
MOV	MOTOR OPERATED VALVE	Z	IMPEDANCE
		ZS	LIMIT SWITCH

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DATE: NOV 08, 2019 TIME: 10:45:09AM

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

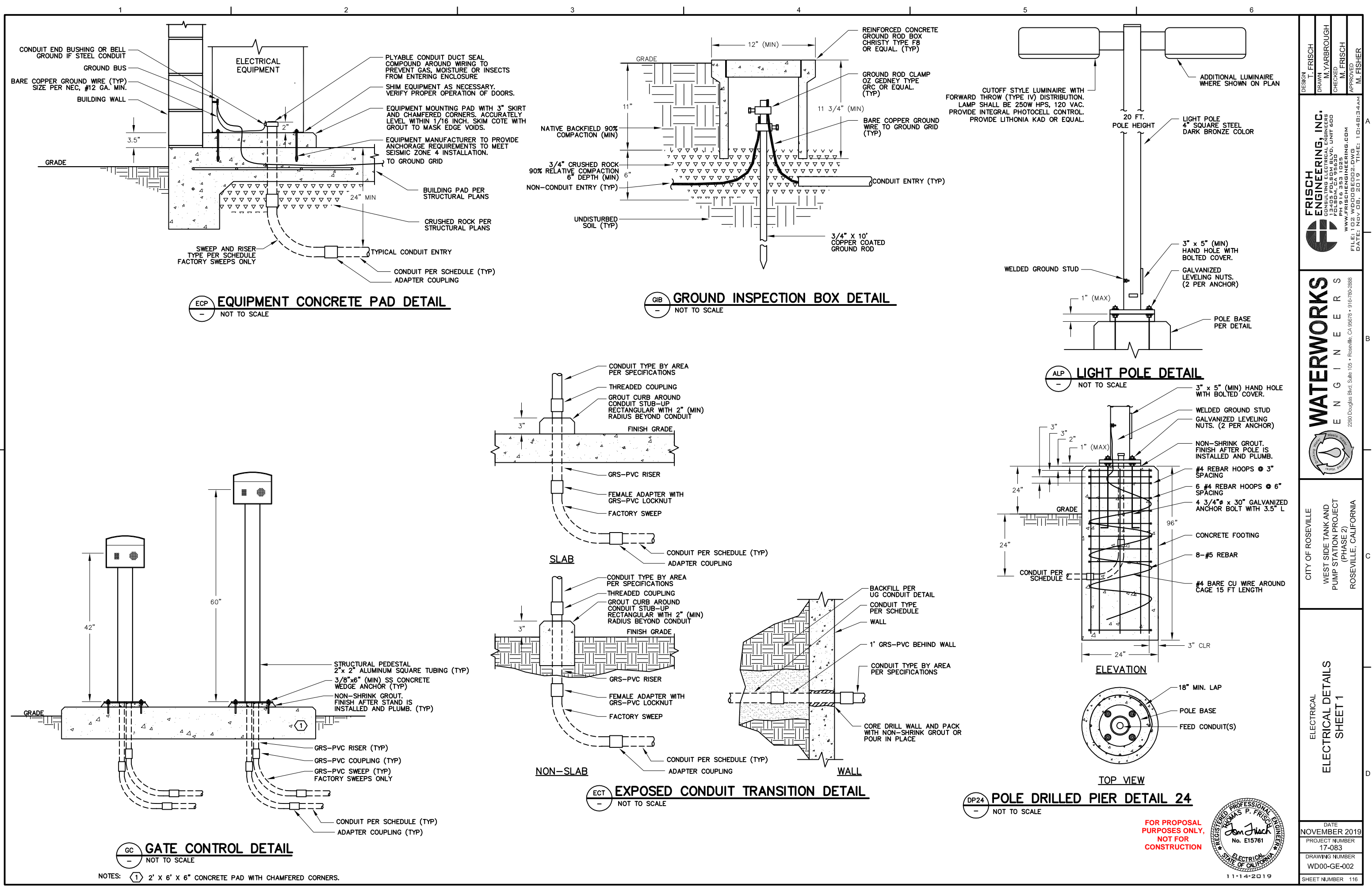
ELECTRICAL
SYMBOLS AND
ABBREVIATIONS

DATE
NOVEMBER 2019

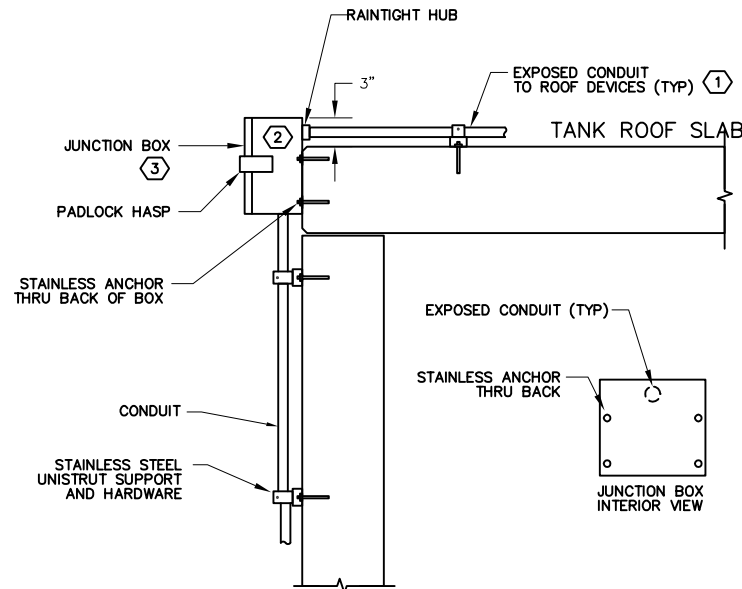
PROJECT NUMBER
17-083

DRAWING NUMBER
WD00-GE-001

SHEET NUMBER 115

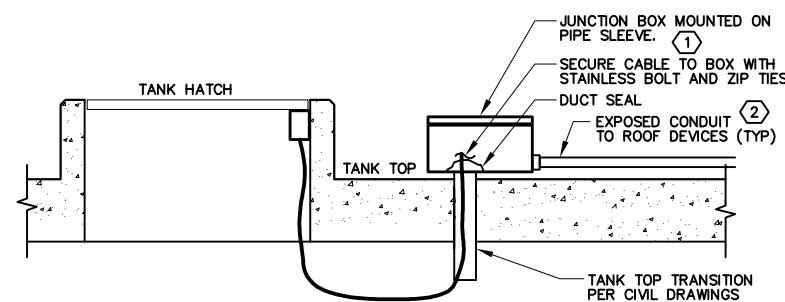


DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESBY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 102 WD00 GE002.DWG DATE: NOV 08, 2019 TIME: 10:48:34 AM
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CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA	
ELECTRICAL ELECTRICAL DETAILS SHEET 1	
DATE NOVEMBER 2019 PROJECT NUMBER 17-083 DRAWING NUMBER WD00-GE-002 SHEET NUMBER 116	



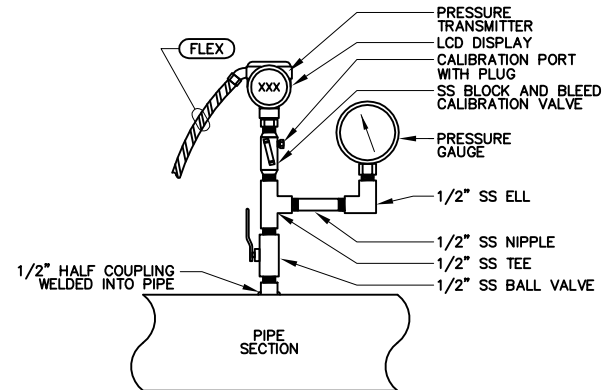
TJB STORAGE TANK LID TRANSITION/JUNCTION BOX DETAIL
NOT TO SCALE

- NOTES: ① EXPOSED CONDUIT ON TANK SHALL BE GRS-PVC WITH STAINLESS STEEL SUPPORTS AND HARDWARE. SUPPORT CONDUIT WITH SINGLE BOLT CLAMPS WITH CLAMP-BACK SPACERS. NO CONDULETS OR SCREW COVER FITTINGS SHALL BE USED ON TANK TOP.
② BOX SHALL BE SECURED WITH NO EXTERNAL MOUNTING BOLTS OR SCREWS SHOWING. USE ALL STAINLESS STEEL HARDWARE.
③ 16"H X 14"W X 8"D, NEMA 4X STAINLESS STEEL JUNCTION BOX. JUNCTION BOX SHALL BE HOFFMAN CHNFSS OR EQUAL. PROVIDE PADLOCK HASP, MASTER LOCK MODEL 722 OR EQUAL.

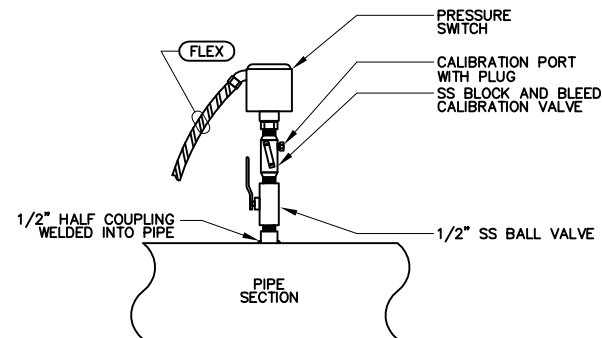


RHD STORAGE TANK HATCH DETAIL
SECTION VIEW, NOT TO SCALE

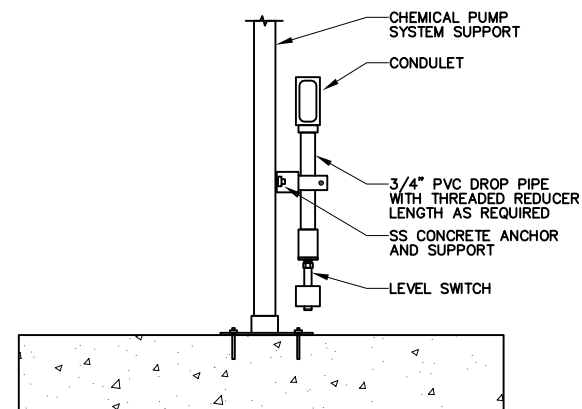
- NOTES: ① 12"H X 12"W X 6"D, NEMA 4X STAINLESS STEEL JUNCTION BOX. JUNCTION BOX SHALL BE HOFFMAN CHNFSS OR EQUAL. PROVIDE PADLOCK HASP, MASTER LOCK MODEL 722 OR EQUAL.
② EXPOSED CONDUIT ON TANK SHALL BE GRS-PVC WITH STAINLESS STEEL SUPPORTS AND HARDWARE. SUPPORT CONDUIT WITH SINGLE BOLT CLAMPS WITH CLAMP-BACK SPACERS. NO CONDULETS OR SCREW COVER FITTINGS SHALL BE USED ON TANK TOP.



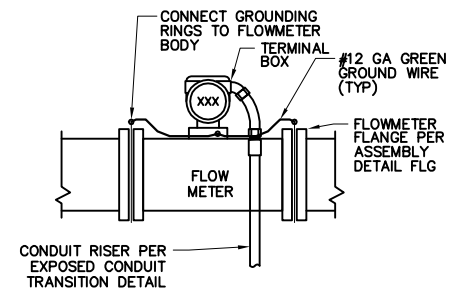
PTD PRESSURE TRANSMITTER DETAIL
NOT TO SCALE



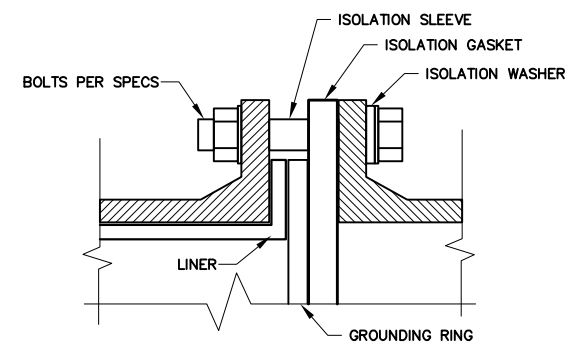
PSD PRESSURE SWITCH DETAIL
NOT TO SCALE



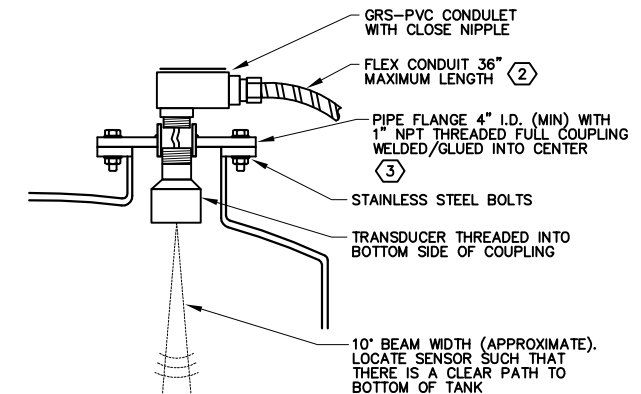
CLS CONTAINMENT LEVEL SWITCH DETAIL
NOT TO SCALE



FM FLOWMETER DETAIL
NOT TO SCALE



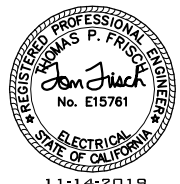
FLG FLOWMETER FLANGE ASSEMBLY
NOT TO SCALE



ULS ULTRASONIC TRANSMITTER DETAIL
NOT TO SCALE

- ① TANK NOZZLE LENGTH AND DIAMETER SHALL BE COORDINATED WITH TANK MANUFACTURER TO BE WITHIN TRANSMITTER MANUFACTURER GUIDELINES.
② PROVIDE UNISTRUT MOUNTING LOCATIONS EVERY 3 FT FOR CONDUIT MOUNTING ON TANK OUTSIDE WALL. COORDINATE WITH TANK MANUFACTURER PRIOR TO TANK MANUFACTURING.
③ OPTIONAL: CONTRACTOR MAY USE 1" NPT THREADED BULKHEAD FITTING WITH GLUED LOCKNUT. TRANSDUCER MUST BE PERPENDICULAR TO LIQUID LEVEL.

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11-14-2019

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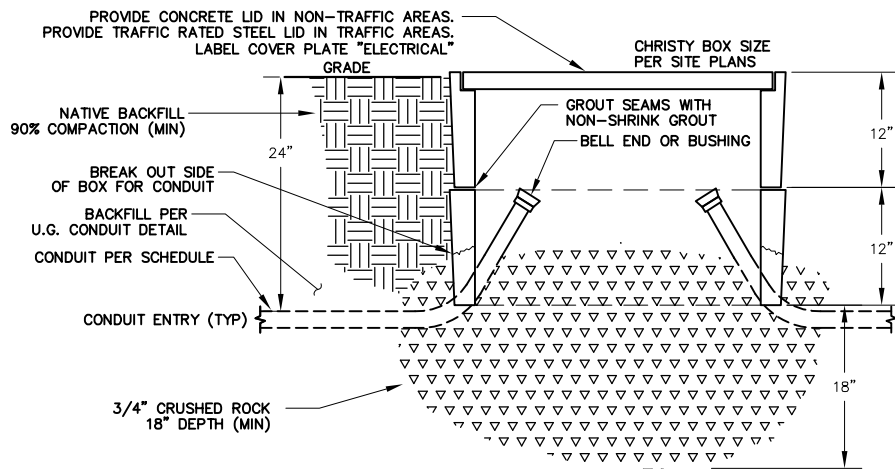
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DATE: NOV 08, 2019 TIME: 10:48:48AM

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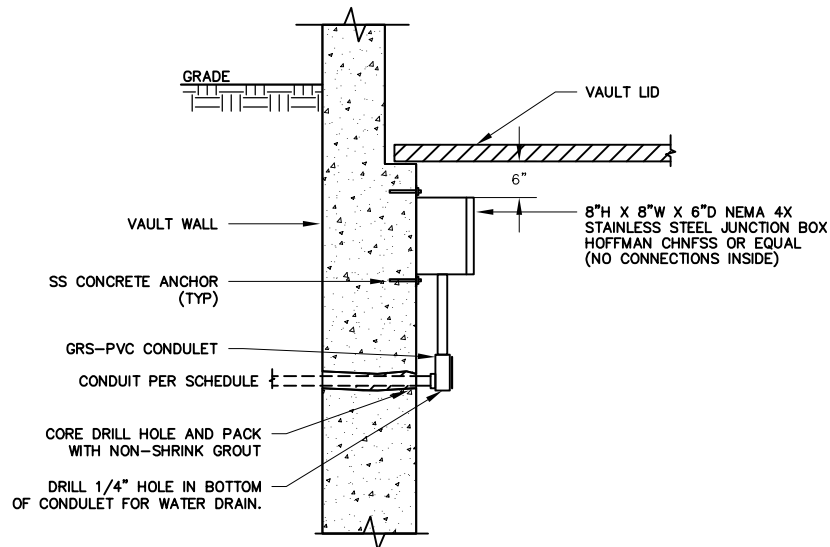
CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL
ELECTRICAL DETAILS
SHEET 2

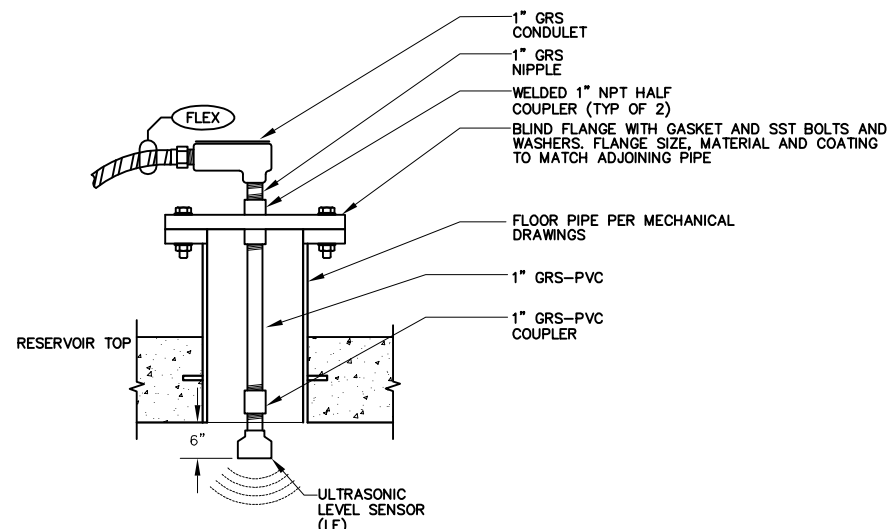
DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD00-GE-003
SHEET NUMBER 117



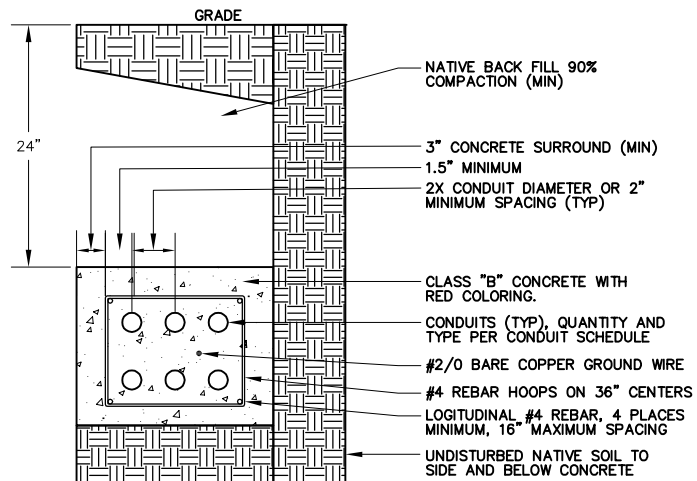
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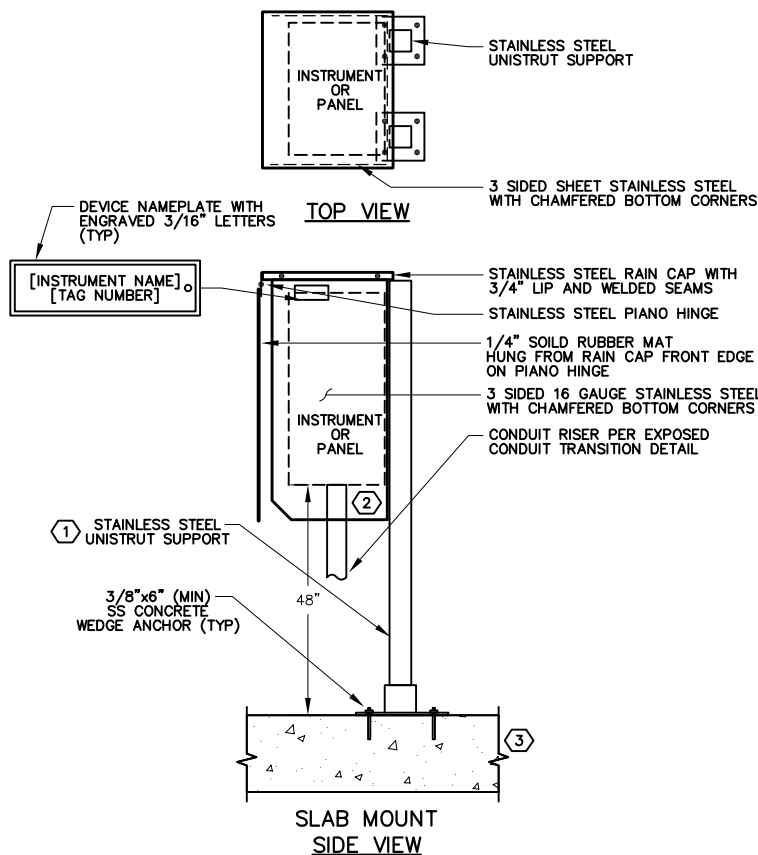
VJD
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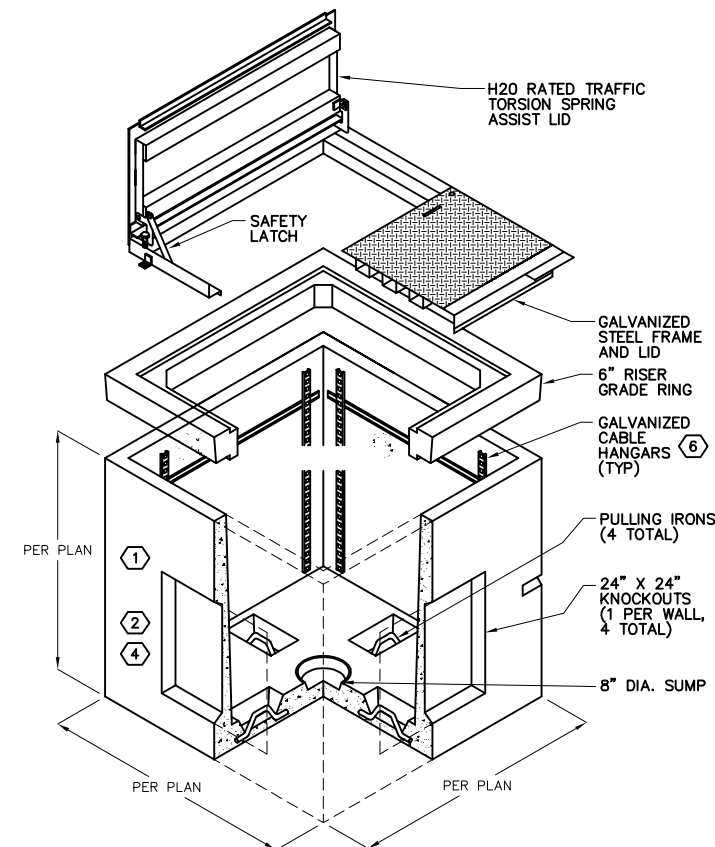


RCE
NOT TO SCALE



ESD
NOT TO SCALE

- NOTES:
- 1 ALL STAINLESS STEEL CONSTRUCTION WITH STAINLESS MACHINE HARDWARE.
 - 2 SUNSHADE SHALL BE CUSTOM SIZED FOR INSTRUMENT OR CONTROL PANEL. PROVIDE 3" SPACE AROUND ALL SIDES OF PROTECTED EQUIPMENT
 - 3 2' X 3' X 6" CONCRETE PAD (MINIMUM) WITH CHAMFERED CORNERS.
 - 4 NOTES TYPICAL FOR WALL AND RAIL MOUNT



PSV
NOT TO SCALE

- NOTES:
- 1 WIRES IN "P", "L" & "C" SERIES CONDUITS, SHALL BE SUPPORTED ON ONE SIDE OF VAULT AND WIRES FOR "A", "D" & "S" SERIES ON OTHER SIDE. ALL WIRE SHALL BE STRAPPED TO CABLE SUPPORTS.
 - 2 VAULTS SHALL BE CONSTRUCTED OF RE-INFORCED CONCRETE. PROVIDE VAULT BASE AND GRADE RING(S) AS NECESSARY TO MEET OR EXCEED REQUIRED DEPTH.
 - 3 ACCESS COVERS SHALL BE 1/4" GALVANIZED STEEL CHECKER PLATE, HINGED, 2 PIECE, BOLT DOWN, WITH SPRING ASSIST. COVERS SHALL BE H2O TRAFFIC LOAD RATED. LABEL LID "SECONDARY ELECTRICAL" OR "SIGNAL" WITH WELDED LETTERING.
 - 4 CAULK AND GROUT SEAMS AND AROUND CONDUIT ENTRIES TO SMOOTH FINISH AND PREVENT LEAKS. CONDUIT ENTRANCES SHALL BE PER ENCASED CONDUIT END DETAIL. ATTACH CONDUIT LABELS TO WALL ABOVE CONDUIT.
 - 5 OVER-EXCAVATE AND BACKFILL 18" OF 3/4" CRUSHED ROCK BELOW VAULT. BACKFILL AROUND VAULT WALLS WITH NATIVE SOIL.
 - 6 RACKS SHALL BE INSTALLED INSIDE THE MANHOLE FOR TRAINING, SUPPORTING AND ROUTING OF CONDUCTORS. RACKS SHALL BE INSTALLED TO SUPPORT CONDUCTORS AT 2 FOOT INTERVALS AND BE MADE OF HEAVY DUTY NON-METALLIC MATERIALS AS APPROPRIATE OF THE ANTICIPATED LOAD.

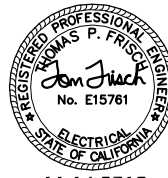
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CONDUIT & WIRE ROUTING SCHEDULE (PRELIMINARY)														
REV	CONDUIT DETAILS						POWER WIRE		CONTROL WIRE		SIGNAL WIRE		GROUND	NOTES
	TAG NO.	FROM	TO	QTY	SIZE	TYPE	QTY	SIZE	QTY	SIZE	QTY	SIZE	SIZE	
	21 - E - 150	SWITCHBOARD 2 POWER DISTRIBUTION	FUTURE PUMP 5 SSS CONTROL PANEL	1	3"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 151	SWITCHBOARD 2 POWER DISTRIBUTION	FUTURE PUMP 5 SSS CONTROL PANEL	1	3"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 152	CONTROL PANEL	FUTURE PUMP 5 SSS CONTROL PANEL	1	1"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 153	COMMUNICATIONS PANEL	FUTURE PUMP 5 SSS CONTROL PANEL	1	1"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 250	FUTURE PUMP 5 SSS CONTROL PANEL	FUTURE BOOSTER PUMP 5	1	3"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 251	FUTURE PUMP 5 SSS CONTROL PANEL	FUTURE BOOSTER PUMP 5	1	3"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 251	CONTROL PANEL	FUTURE BOOSTER PUMP 5	1	1"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 252	FUTURE PUMP 5 SSS CONTROL PANEL	FUTURE BOOSTER PUMP 5	1	1"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 401	CONTROL PANEL	FUTURE OPERATIONS CREW FACILITY	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 402	CONTROL PANEL	FUTURE OPERATIONS CREW FACILITY	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 403	COMMUNICATIONS PANEL	FUTURE OPERATIONS CREW FACILITY	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 404	CONTROL PANEL	FUTURE OPERATIONS CREW FACILITY	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 405	SWITCHBOARD 2 POWER DISTRIBUTION	FUTURE OPERATIONS CREW FACILITY	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 501	PANELBOARD "LP-A"	PBX-P02	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB AND CAP
	21 - E - 501A	PBX-P02	VALVE VAULT JBOX	1	3/4"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 501G	PBX-C02	STUB UP TANK 1	1	3/4"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB AND CAP
	21 - E - 501H	PBX-C02	STUB UP TANK 2	1	3/4"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB AND CAP
	21 - E - 502	CONTROL PANEL	PBX-C02	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB AND CAP
	21 - E - 502A	PBX-C02	TANK 1	1	1"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB AND CAP
	21 - E - 502B	PBX-C02	TANK 2	1	1"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB AND CAP
	21 - E - 503	CONTROL PANEL	PBX-C02	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB AND CAP
	21 - E - 503A	PBX-C02	VALVE VAULT JBOX	1	3/4"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 602	CONTROL PANEL	SAMPLE PUMP	1	3/4"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 610	PANELBOARD "LP-A"	PBX-P03	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 610A	PBX-P03	GENERATOR	1	1"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 614	COMMUNICATIONS PANEL	PBX-C03	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 614A	PBX-C03	LOAD BANK	1	3/4"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 614B	PBX-C03	FUEL TANK CONTROL PANEL	1	3/4"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 621	PANELBOARD "LP-A"	PBX-C04	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE
	21 - E - 701	PANELBOARD "LP-A"	NORTH GATE AREA	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - E - 702	CONTROL PANEL	NORTH GATE AREA	1	2"	SPEC	-	-	-	-	-	-	-	PULL ROPE, STUB OUT CAP
	21 - P - 101	PANELBOARD "LP-A"	COMMUNICATION PANEL	1	1"	SPEC	4	#12	-	-	-	-	#12	
	21 - P - 102	PANELBOARD "LP-A"	CONTROL PANEL	1	1"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 103	PANELBOARD "LP-A"	CONTROL PANEL	1	1"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 104	PANELBOARD "LP-A"	SWITCHBOARD 1	1	1"	SPEC	4	#12	-	-	-	-	#12	
	21 - P - 105	SWITCHBOARD 2 POWER DISTRIBUTION	HVAC OUTDOOR UNIT DISCONNECT	1	1 1/2"	SPEC	3	#6	-	-	-	-	#10	
	21 - P - 106	PANELBOARD "LP-A"	SECURITY PANEL	1	1"	SPEC	4	#12	-	-	-	-	#12	
	21 - P - 110	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 1 VFD CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 111	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 1 VFD CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 120	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 2 SSS CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 121	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 2 SSS CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 130	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 3 VFD CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 131	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 3 VFD CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 140	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 4 SSS CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 141	SWITCHBOARD 2 POWER DISTRIBUTION	PUMP 4 SSS CONTROL PANEL	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 201	PANELBOARD "LP-A"	SCADA TERMINAL	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 202	PANELBOARD "LP-A"	STORAGE RESIDUAL CL2 ANALYZER	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 203	PANELBOARD "LP-A"	DISTRIBUTION RESIDUAL CL2 ANALYZER	1	3/4"	SPEC	2	#12	-	-	-	-	#12	

NOTES PERTAINING TO CONDUIT SCHEDULE:

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- FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS 16110.
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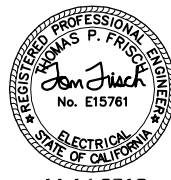
11-14-2019

DESIGN T. FRISCH	DRAWN M. YARBROUGH	CHECKED M. FRISCH	APPROVED M. FISHER
FRISCH ENGINEERING, INC. 13405 FOLESON BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 103 WD00GE005.DWG DATE: NOV 08, 2019 TIME: 11:34:50AM			
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95678 • 916-790-2688			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
ELECTRICAL CONDUIT AND WIRE ROUTING SCHEDULE (PRELIMINARY)			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD00-GE-005			
SHEET NUMBER 119			

CONDUIT & WIRE ROUTING SCHEDULE (PRELIMINARY)														
REV	CONDUIT DETAILS							POWER WIRE		CONTROL WIRE		SIGNAL WIRE		NOTES
	TAG NO.	FROM	TO	QTY	SIZE	TYPE	QTY	SIZE	QTY	SIZE	QTY	SIZE	SIZE	
	21 - P - 210	PUMP 1 VFD CONTROL PANEL	BOOSTER PUMP 1	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 211	PUMP 1 VFD CONTROL PANEL	BOOSTER PUMP 1	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 220	PUMP 2 SSS CONTROL PANEL	BOOSTER PUMP 2	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 221	PUMP 2 SSS CONTROL PANEL	BOOSTER PUMP 2	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 230	PUMP 3 VFD CONTROL PANEL	BOOSTER PUMP 3	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 231	PUMP 3 VFD CONTROL PANEL	BOOSTER PUMP 3	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 240	PUMP 4 SSS CONTROL PANEL	BOOSTER PUMP 4	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 241	PUMP 4 SSS CONTROL PANEL	BOOSTER PUMP 4	1	3"	SPEC	3	#250	-	-	-	-	#2	
	21 - P - 302	PANELBOARD "LP-A"	SODIUM HYPO PUMP 1 VFD	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 303	PANELBOARD "LP-A"	SODIUM HYPO PUMP 2 VFD	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 304	SWITCHBOARD 2 POWER DISTRIBUTION	WATER HEATER	1	3"	SPEC	3	#3/0	-	-	-	-	#6	
	21 - P - 501	PANELBOARD "LP-A"	PBX-P02	1	2"	SPEC	6	#12	-	-	-	-	#12	
	21 - P - 501A	PBX-P02	VALVE VAULT AREA LIGHT POLE	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 501B	PBX-P02	VALVE VAULT RECEPTACLE	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 501C	PBX-P02	TANK AREA LIGHT POLE	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 502	PANELBOARD "LP-A"	PBX-P02	1	2"	SPEC	4	#12	-	-	-	-	#12	
	21 - P - 502A	PBX-P02	TANK 1 DAVIT CRANE RECEPTACLE	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 502B	PBX-P02	TANK 2 DAVIT CRANE RECEPTACLE	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 601	PANELBOARD "LP-A"	SAMPLE PUMP	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 601A~H	UTILITY TRANSFORMER	SWITCHBOARD 1 METER/MAIN	8	4"	SPEC	3	#500	-	-	-	-	#350	
	21 - P - 602A~B	UTILITY UG VAULT	UTILITY TRANSFORMER	2	5"	SPEC	-	-	-	-	-	-	-	PER UTILITY REQUIREMENTS
	21 - P - 603A~H	AUTOMATIC TRANSFER SWITCH	SWITCHBOARD 2 ATS TRANSITION	8	4"	SPEC	3	#500	-	-	-	-	#350	
	21 - P - 610	PANELBOARD "LP-A"	PBX-P03	1	2"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 610A	PBX-P03	GENERATOR	1	2"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 611	PANELBOARD "LP-A"	PBX-P03	1	2"	SPEC	4	#12	-	-	-	-	#12	
	21 - P - 611A	PBX-P03	GENERATOR	1	2"	SPEC	4	#12	-	-	-	-	#12	
	21 - P - 612A~H	SWITCHBOARD 1 GENERATOR BREAKER	GENERATOR	8	4"	SPEC	3	#500	-	-	-	-	#350	
	21 - P - 613	PANELBOARD "LP-A"	FUEL TANK CONTROL PANEL	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 614	PANELBOARD "LP-A"	LOAD BANK	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 615A~H	GENERATOR	LOAD BANK	8	4"	SPEC	3	#500	-	-	-	-	#350	
	21 - P - 616	SWITCHBOARD 2 POWER DISTRIBUTION	EVAP COOLER DISCONNECT	1	1 1/2"	SPEC	3	#6	-	-	-	-	#10	
	21 - P - 617	SWITCHBOARD 2 POWER DISTRIBUTION	EVAP COOLER TRANSFORMER	1	3/4"	SPEC	3	#12	-	-	-	-	#12	
	21 - P - 620	GENERATOR	FUEL TANK	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 631	PANELBOARD "LP-A"	PBX-P03	1	2"	SPEC	6	#12	-	-	-	-	#12	
	21 - P - 631A	PBX-P03	GENERATOR AREA LIGHT	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 631B	PBX-P03	PBX-P05	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 631C	PBX-P05	EAST GATE AREA SITE LIGHT	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 631D	PBX-P05	AREA SITE LIGHT	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 632	PANELBOARD "LP-A"	PBX-P05	1	2"	SPEC	2	#10	-	-	-	-	#12	
	21 - P - 632A	PBX-P05	EAST GATE SLIDE GATE OPERATOR	1	1"	SPEC	2	#10	-	-	-	-	#12	
	21 - P - 701	PANELBOARD "LP-A"	NORTH GATE AREA LIGHT	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 702	PANELBOARD "LP-A"	PARKING AREA LIGHT 1	1	3/4"	SPEC	4	#12	-	-	-	-	#12	
	21 - P - 702A	PARKING AREA LIGHT 1	PARKING AREA LIGHT 2	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 750A	PBX-C01	CAMERA 751	1	3/4"	SPEC	2	#12	-	-	-	-	#12	
	21 - P - 750B	PBX-C01	CAMERA 752	1	3/4"	SPEC	2	#12	-	-	-	-	#12	

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DESIGN T. FRISCH	DRAWN M. YARBROUGH	CHECKED M. FRISCH	APPROVED M. FISHER
FRISCH ENGINEERING, INC. 13405 FOLESON BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 103 WD00GE006.DWG DATE: NOV 08, 2019 TIME: 5:06:34PM			
WATERWORKS ENGINEERS 2260 Douglas Blvd, Suite 105 • Roseville, CA 95678 • 916-790-2688			
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA			
ELECTRICAL CONDUIT AND WIRE ROUTING SCHEDULE (PRELIMINARY)			
DATE NOVEMBER 2019			
PROJECT NUMBER 17-083			
DRAWING NUMBER WD00-GE-006			
SHEET NUMBER 120			

CONDUIT & WIRE ROUTING SCHEDULE (PRELIMINARY)														
REV	CONDUIT DETAILS						POWER WIRE		CONTROL WIRE		SIGNAL WIRE		GROUND	NOTES
	TAG NO.	FROM	TO	QTY	SIZE	TYPE	QTY	SIZE	QTY	SIZE	QTY	SIZE	SIZE	
	21 - S - 101	CONTROL PANEL	COMMUNICATION PANEL	1	1"	SPEC	-	-	-	-	3	CAT 6e	#12	
	21 - S - 102	SWITCHBOARD 1	COMMUNICATION PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	#12	
	21 - S - 103	SWITCHBOARD 2 ATS	COMMUNICATION PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	#12	
	21 - S - 104	CONTROL PANEL	SWITCHBOARD 2 ATS	1	3/4"	SPEC	-	-	8	#14	-	-	#14	
	21 - S - 105	CONTROL PANEL	HVAC OUTDOOR UNIT	1	1"	SPEC	-	-	-	-	1	#16 TSPR	-	
	21 - S - 106	CONTROL PANEL	SECURITY PANEL	1	2"	SPEC	-	-	6	#14	-	-	#14	
	21 - S - 110	CONTROL PANEL	PUMP 1 VFD CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 111	COMMUNICATIONS PANEL	PUMP 1 VFD CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 120	CONTROL PANEL	PUMP 2 SSS CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 121	COMMUNICATIONS PANEL	PUMP 2 SSS CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 130	CONTROL PANEL	PUMP 3 VFD CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 131	COMMUNICATIONS PANEL	PUMP 3 VFD CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 140	CONTROL PANEL	PUMP 4 SSS CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 141	COMMUNICATIONS PANEL	PUMP 4 SSS CONTROL PANEL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 181	CONTROL PANEL	ELECTRICAL ROOM TEMP TRANSMITTER	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-	#TIT-*783
	21 - S - 182	CONTROL PANEL	OUTDOOR TEMP TRANSMITTER	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-	#TIT-*781
	21 - S - 182A	CONTROL PANEL	PUMP ROOM MAN DOOR INTRUSION JBOX	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-	#TIT-*791
	21 - S - 192	CONTROL PANEL	PUMP ROOM MAN TEMP TRANSMITTER	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-	#TIT-*782
	21 - S - 193	CONTROL PANEL	PUMP ROOM MAN DOOR INTRUSION JBOX	1	3/4"	SPEC	-	-	6	#14	-	-	#14	#ZSB-*793
	21 - S - 194	CONTROL PANEL	ELECTRICAL ROOM SMOKE DETECTOR JBOX	1	3/4"	SPEC	-	-	6	#14	-	-	#14	#SS-*98C
	21 - S - 194A	ELECTRICAL ROOM SMOKE DETECTOR JBOX	PUMP ROOM SMOKE DETECTOR JBOX	1	3/4"	SPEC	-	-	4	#14	-	-	#14	#SS-*98B
	21 - S - 194B	PUMP ROOM SMOKE DETECTOR JBOX	PUMP ROOM SMOKE DETECTOR JBOX	1	3/4"	SPEC	-	-	2	#14	-	-	#14	#SS-*98A
	21 - S - 195	CONTROL PANEL	ELECTRICAL ROOM MAN DOOR INTRUSION JBOX	1	3/4"	SPEC	-	-	2	#14	-	-	#14	#ZSA-*793
	21 - S - 201	CONTROL PANEL	SCADA TERMINAL	1	1"	SPEC	-	-	-	-	1	CAT 6e	-	
	21 - S - 202	CONTROL PANEL	STORAGE RESIDUAL CL2 ANALYZER	1	1"	SPEC	-	-	-	-	1	#16 TSPR	#14	~AIT-*081
	21 - S - 203	CONTROL PANEL	DISTRIBUTION RESIDUAL CL2 ANALYZER	1	1"	SPEC	-	-	-	-	1	#16 TSPR	#14	~AIT-*082
	21 - S - 205	CONTROL PANEL	DISCHARGE PRESSURE TRANSMITTER	1	1"	SPEC	-	-	-	-	1	#16 TSPR	#14	#PIT-*063
	21 - S - 206	CONTROL PANEL	PRESSURE SUSTATING VALVE	1	1"	SPEC	-	-	2	#14	1	#16 TSPR	#14	
	21 - S - 207	CONTROL PANEL	DISTRIBUTION FLOWMETER	1	1"	SPEC	-	-	-	-	1	#16 TSPR	#14	#FIT-*071
	21 - S - 210	PUMP 1 VFD CONTROL PANEL	BOOSTER PUMP 1	1	3/4"	SPEC	-	-	4	#14	-	-	#14	
	21 - S - 211	CONTROL PANEL	BOOSTER PUMP 1 JBOX	1	1"	SPEC	-	-	4	#14	1	#16 TSPR	#14	#ZSO-*100, #PSH-*161, #VIT-*100
	21 - S - 220	PUMP 2 SSS CONTROL PANEL	BOOSTER PUMP 2	1	3/4"	SPEC	-	-	4	#14	-	-	#14	
	21 - S - 221	CONTROL PANEL	BOOSTER PUMP 2 JBOX	1	1"	SPEC	-	-	4	#14	1	#16 TSPR	#14	#ZSO-*200, #PSH-*261, #VIT-*200
	21 - S - 230	PUMP 3 VFD CONTROL PANEL	BOOSTER PUMP 3	1	3/4"	SPEC	-	-	4	#14	-	-	#14	
	21 - S - 231	CONTROL PANEL	BOOSTER PUMP 3 JBOX	1	1"	SPEC	-	-	4	#14	1	#16 TSPR	#14	#ZSO-*300, #PSH-*361, #VIT-*300
	21 - S - 240	PUMP 4 SSS CONTROL PANEL	BOOSTER PUMP 4	1	3/4"	SPEC	-	-	4	#14	-	-	#14	
	21 - S - 241	CONTROL PANEL	BOOSTER PUMP 4 JBOX	1	1"	SPEC	-	-	4	#14	1	#16 TSPR	#14	#ZSO-*400, #PSH-*461, #VIT-*400
	21 - S - 293	PUMP ROOM MAN DOOR INTRUSION JBOX	CL2 ROOM MAN DOOR INTRUSION JBOX	1	3/4"	SPEC	-	-	4	#14	-	-	#14	#ZSC-*793
	21 - S - 293A	CL2 ROOM MAN DOOR INTRUSION JBOX	PUMP ROOM ROLLUP DOOR INTRUSION JBOX	1	3/4"	SPEC	-	-	2	#14	-	-	#14	#ZSD-*793
	21 - S - 301	CONTROL PANEL	SODIUM HYPO LEVEL TRANSMITTER	1	1"	SPEC	-	-	-	-	1	#16 TSPR	-	#LIT-*151
	21 - S - 302	CONTROL PANEL	SODIUM HYPO PUMP 1 VFD	1	1 1/2"	SPEC	-	-	6	#14	3	#16 TSPR	#14	#FIT-*171
	21 - S - 303	CONTROL PANEL	SODIUM HYPO PUMP 2 VFD	1	1 1/2"	SPEC	-	-	6	#14	3	#16 TSPR	#14	#FIT-*271
	21 - S - 304	CONTROL PANEL	CONTAINMENT LEVEL SWITCH	1	3/4"	SPEC	-	-	2	#14	-	-	#14	#LSH-*151
	21 - S - 305	CONTROL PANEL	EYE WASH FLOW SWITCH	1	3/4"	SPEC	-	-	2	#14	-	-	#14	#EWSS-*171

NOTES PERTAINING TO CONDUIT SCHEDULE:

- CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION 16110 FOR NON-EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
- SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
- CONDUITS OVER 15 FT LENGTH (EITHER EMPTY OR WITH CONDUCTORS SIZED LESS THAN #8 AWG), SHALL INCLUDE A POLY PULL STRING. STRING SHALL BE TIED OFF AT EACH END.
- FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS 16110.
- WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
- SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

FOR PROPOSAL
PURPOSES ONLY,
NOT FOR
CONSTRUCTION

11-14-2019

DESIGN	T. FRISCH
DRAWN	M. YARBROUGH
CHECKED	M. FRISCH
APPROVED	M. FISHER

FRISCH ENGINEERING, INC. 13405 FOLESDEN BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM DATE: NOV 08, 2019 TIME: 11:32:47AM

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIAELECTRICAL
CONDUIT AND WIRE ROUTING
SCHEDULE (PRELIMINARY)

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD00-GE-007
SHEET NUMBER	121

CONDUIT & WIRE ROUTING SCHEDULE (PRELIMINARY)													
REV	CONDUIT DETAILS						POWER WIRE		CONTROL WIRE		SIGNAL WIRE		NOTES
	TAG NO.	FROM	TO	QTY	SIZE	TYPE	QTY	SIZE	QTY	SIZE	QTY	SIZE	
	21 - S - 501	CONTROL PANEL	PBX-C02	1	2"	SPEC	-	-	12	#14	6	#16 TSPR	#14
	21 - S - 501A	PBX-C02	TANK 1 LADDER INTRUSION SWITCH	1	3/4"	SPEC	-	-	2	#14	-	-	#ZS-*191
	21 - S - 501B	PBX-C02	TANK 1 HATCH 1 JBOX	1	3/4"	SPEC	-	-	2	#14	-	-	#ZSA-*192
	21 - S - 501C	TANK 1 HATCH 1 JBOX	TANK 1 HATCH 2 INTRUSION SWITCH	1	3/4"	SPEC	-	-	2	#14	-	-	#ZSB-*192
	21 - S - 501D	PBX-C02	TANK 2 LADDER INTRUSION SWITCH	1	3/4"	SPEC	-	-	2	#14	-	-	#ZS-*291
	21 - S - 501E	PBX-C02	TANK 2 HATCH 1 JBOX	1	3/4"	SPEC	-	-	2	#14	-	-	#ZSA-*292, #LSH-*251, #LSL-*251
	21 - S - 501F	TANK 2 HATCH 1 JBOX	TANK 2 HATCH 2 INTRUSION SWITCH	1	3/4"	SPEC	-	-	2	#14	-	-	#ZSB-*292
	21 - S - 501J	PBX-C02	TANK 1 LEVEL TRANSMITTER	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-
	21 - S - 501K	PBX-C02	TANK 2 LEVEL TRANSMITTER	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-
	21 - S - 550	SECURITY PANEL	PBX-C02	1	2"	SPEC	-	-	-	-	3	CAT 6E	-
	21 - S - 550A	PBX-C02	CAMERA 551	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 550B	PBX-C02	CAMERA 552	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 550C	PBX-C02	CAMERA 553	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 610	COMMUNICATIONS PANEL	PBX-C03	1	2"	SPEC	-	-	-	-	1	CAT 6e	-
	21 - S - 610A	PBX-C03	GENERATOR	1	3/4"	SPEC	-	-	-	-	1	CAT 6e	-
	21 - S - 611	CONTROL PANEL	PBX-C03	1	2"	SPEC	-	-	4	#14	-	-	#14
	21 - S - 611A	PBX-C03	GENERATOR	1	3/4"	SPEC	-	-	4	#14	-	-	#14
	21 - S - 612	SWITCHBOARD 2 ATS	PBX-C03	1	2"	SPEC	-	-	2	#14	-	-	#14
	21 - S - 612A	PBX-C03	GENERATOR	1	3/4"	SPEC	-	-	2	#14	-	-	#14
	21 - S - 613	CONTROL PANEL	FUEL TANK CONTROL PANEL	1	3/4"	SPEC	-	-	6	#14	1	#16 TSPR	#14
	21 - S - 614	CONTROL PANEL	LOAD BANK	1	2"	SPEC	-	-	4	#14	1	CAT 6e	#14
	21 - S - 615	GENERATOR	LOAD BANK	1	3/4"	SPEC	-	-	4	#14	-	-	#14
	21 - S - 621	CONTROL PANEL	PBX-C04	1	2"	SPEC	-	-	-	-	2	#16 TSPR	-
	21 - S - 621A	PBX-C04	HYDRO TANK PRESSURE TRANSMITTER	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-
	21 - S - 621B	PBX-C04	HYDRO TANK LEVEL TRANSMITTER	1	3/4"	SPEC	-	-	-	-	1	#16 TSPR	-
	21 - S - 631	CONTROL PANEL	PBX-C05	1	2"	SPEC	-	-	20	#14	-	-	#14
	21 - S - 631A	PBX-C05	EAST GATE SLIDE GATE OPERATOR	1	3/4"	SPEC	-	-	8	#14	-	-	#14
	21 - S - 631B	PBX-C05	GATE ACCESS STATION 1	1	3/4"	SPEC	-	-	6	#14	-	-	#14
	21 - S - 631C	PBX-C05	GATE ACCESS STATION 2	1	3/4"	SPEC	-	-	6	#14	-	-	#14
	21 - S - 632	COMMUNICATIONS PANEL	PBX-C05	1	2"	SPEC	-	-	-	-	2	CAT 6E	-
	21 - S - 632A	PBX-C05	GATE ACCESS STATION 1	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 632B	PBX-C05	GATE ACCESS STATION 2	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 650	SECURITY PANEL	PBX-C03	1	2"	SPEC	-	-	-	-	2	CAT 6E	-
	21 - S - 650A	PBX-C03	CAMERA 651	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 650B	PBX-C03	CAMERA 652	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 750	SECURITY PANEL	PBX-C01	1	2"	SPEC	-	-	-	-	2	CAT 6E	-
	21 - S - 750A	PBX-C01	CAMERA 751	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-
	21 - S - 750B	PBX-C01	CAMERA 752	1	3/4"	SPEC	-	-	-	-	1	CAT 6E	-

NOTES PERTAINING TO CONDUIT SCHEDULE:

1. CONDUIT TYPE "SPEC" IS AS DEFINED IN SPECIFICATIONS SECTION 16110 FOR NON-EXPOSED AND EXPOSED PORTIONS OF CONDUIT RUN.
2. SEE SPECIFICATIONS AND EXPOSED TRANSITION DETAIL OR EQUIPMENT SPECIFIC DETAIL FOR CONDUIT TRANSITION MATERIALS AND METHODS FROM BELOW GROUND TO EXPOSED PORTIONS OF RUN.
3. CONDUITS OVER 15 FT LENGTH (EITHER EMPTY OR WITH CONDUCTORS SIZED LESS THAN #8 AWG), SHALL INCLUDE A POLY PULL STRING. STRING SHALL BE TIED OFF AT EACH END.
4. FITTINGS, CONDULETS, BOXES AND COVERS SHALL MATCH DUTY OF ADJACENT PIPE, SEE SPECIFICATIONS 16110.
5. WIRE SIZING IN TABLE IS BASED ON COPPER CONDUCTORS, THHN INSULATION, WITH TYPE C STRANDING. OTHER CONDUCTOR TYPES, IF ALLOWED OR REQUIRED PER SPECIFICATION, MAY REQUIRE CONDUITS TO BE UPSIZED BY CONTRACTOR AND SUBMITTED FOR APPROVAL.
6. SEE GENERAL NOTES ON LIGHTING AND RECEPTACLE PLAN FOR CONDUIT REQUIREMENTS FOR ELECTRICAL DEVICES WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.

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PURPOSES ONLY,
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11-14-2019

DESIGN
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M. FISHER

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WATERWORKS
ENGINEERS

2260 Douglas Blvd, Suite 105 • Roseville, CA 95678 • 916-790-2688

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL
CONDUIT AND WIRE ROUTING
SCHEDULE (PRELIMINARY)

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD00-GE-008
SHEET NUMBER 122

1. EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
2. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
3. FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMING PLATES TO ALL DEVICES AND BREAKERS WHERE NOTED, ON EXTERIOR DOORS AT MINIMUM, WITH A REFERRED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. LETTERED ONE-LINE DIAGRAM FOR LABEL.

-
- UTILITY METERING
(ROSEVILLE ELECTRIC)
TEST BLOCKS
UTILITY CTS
480V, 3φ, 4W
65 KAIC (MIN)
1
- 480V, 3φ, 2500A
CU BUS RATED 65 KAIC (MIN)
2500A
3P
LSIGA
UTILITY BREAKER
WD00-BKRx-*101
NEUTRAL DISCONNECT LINK
N
G
2
- CONTINUED TO ATS
(NEXT PAGE)
3
- 480V, 3φ, 2500A
CU BUS RATED 65 KAIC (MIN)
2500A
3P
LSIGA
GENERATOR BREAKER
WD00-BKRx-*102
5
- 6
- CUBICLE LOCATION (TYP)
(SECTION AND BOTTOM ELEVATION)
- UTILITY SERVICE
4W
UTILITY METER
GROUND GRID
- LOAD BANK
WD00-LDBK-*104
DIESEL GENERATOR
2500:5
WD00-EGEN-*103
G
- ## SWITCHBOARD ONE—LINE

METER/MAIN WEATHERWRAP
 1. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.

5051 W PARK DRIVE
ROSEVILLE CA 95747

UTILITY METERING

UTILITY PULL SECTION

STRUCTURE NAMEPLATE WITH 1/2" ENGRAVED LETTERING (TYP)

UTILITY DISCONNECT

UTILITY TRANSITION

ATS SWITCH REAR ACCESS

ATS REAR DOOR

SECTION NUMBER (TYP)

GENERATOR TRANSITION

GENERATOR DISCONNECT

48" D

1

2

3

4

5

6

93"

90"

M

M

UTILITY METER

TEST BLOCKS

TEST BLOCKS

UTILITY BREAKER

SPD

UTILITY TRANSITION

ATS REAR ACCESS

GENERATOR TRANSITION

GENERATOR BREAKER

A

B

GROUND BUS

GROUND BUS

3"

51"

6"

51"

6"

36"

3"

42"

3"

36"

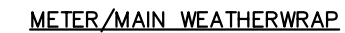
6"

51"

3"

SWITCHBOARD ELEVATION
 OUTDOOR, NEMA 3R

12"x24" OPEN WINDOW WITH EDGE GUARD GASKET (TYP OF 2)



1. ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.

1. NEMA 3R WEATHER—PROOF FOR OUTDOOR INSTALLATION.
2. OUTER DOORS SHALL BE SEALED WITH RUBBERIZED FOAM GASKET.
3. EXTERIOR FABRICATED FROM GALVANEAL (PAINT BOND) SHEET STEEL.
4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
5. ALL SEAMS SHALL HAVE CONTINUOUS WELD, GROUND SMOOTH.
6. OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
7. DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE STAINLESS STEEL.
10. PAINT APPLICATION SHALL BE AS FOLLOWS:
 - A. TWO STAGE CHEMICAL BATH CLEANING.
 - B. ELECTROSTATICALLY APPLIED POWDER COAT PAINT FINISH.
 - C. OVEN CURED FOR TWO HOURS.
 - D. EXTERIOR COLOR SHALL BE: HOSPITAL WHITE
11. PHENOLIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL OUTER DOOR SECTIONS.
12. FABRICATION, COMPONENTS, AND WIRING SHALL CONFORM TO UL, NEC AND NEMA STANDARDS. PANEL SHALL BE APPROPRIATELY LABELLED.
13. ALL WIRING SHALL BE LABELLED ON BOTH ENDS OF WIRE.
14. AS—BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH PANEL.
15. PROVIDE DRAWING POCKET ON INSIDE OF CONTROL PANEL DOOR.

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
Tom Frisch
No. E15761
ELECTRICAL
STATE OF CALIFORNIA

11-14-2019

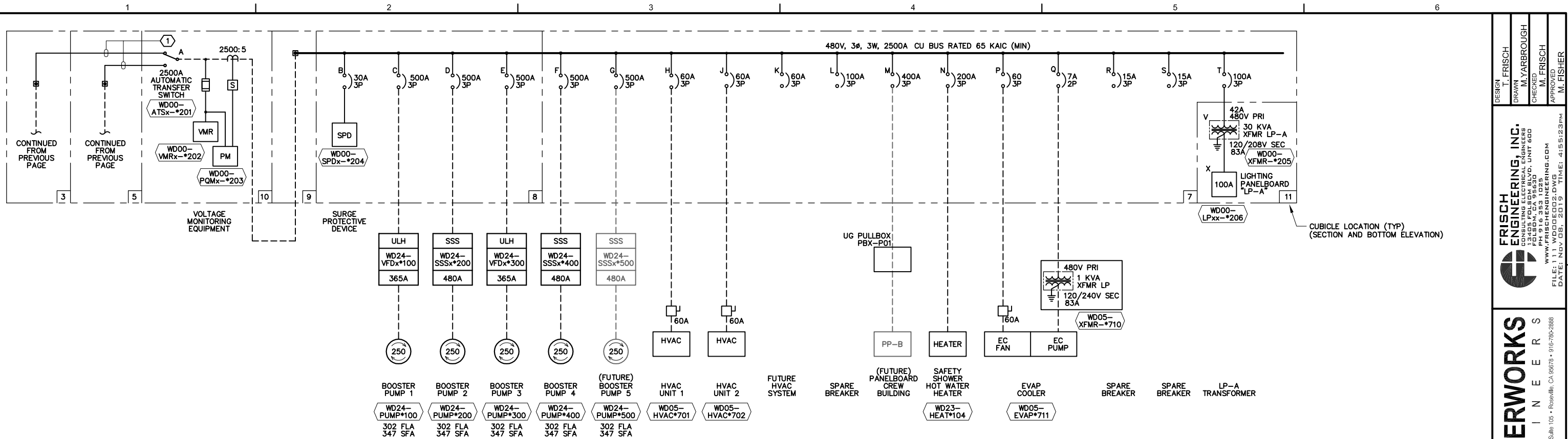
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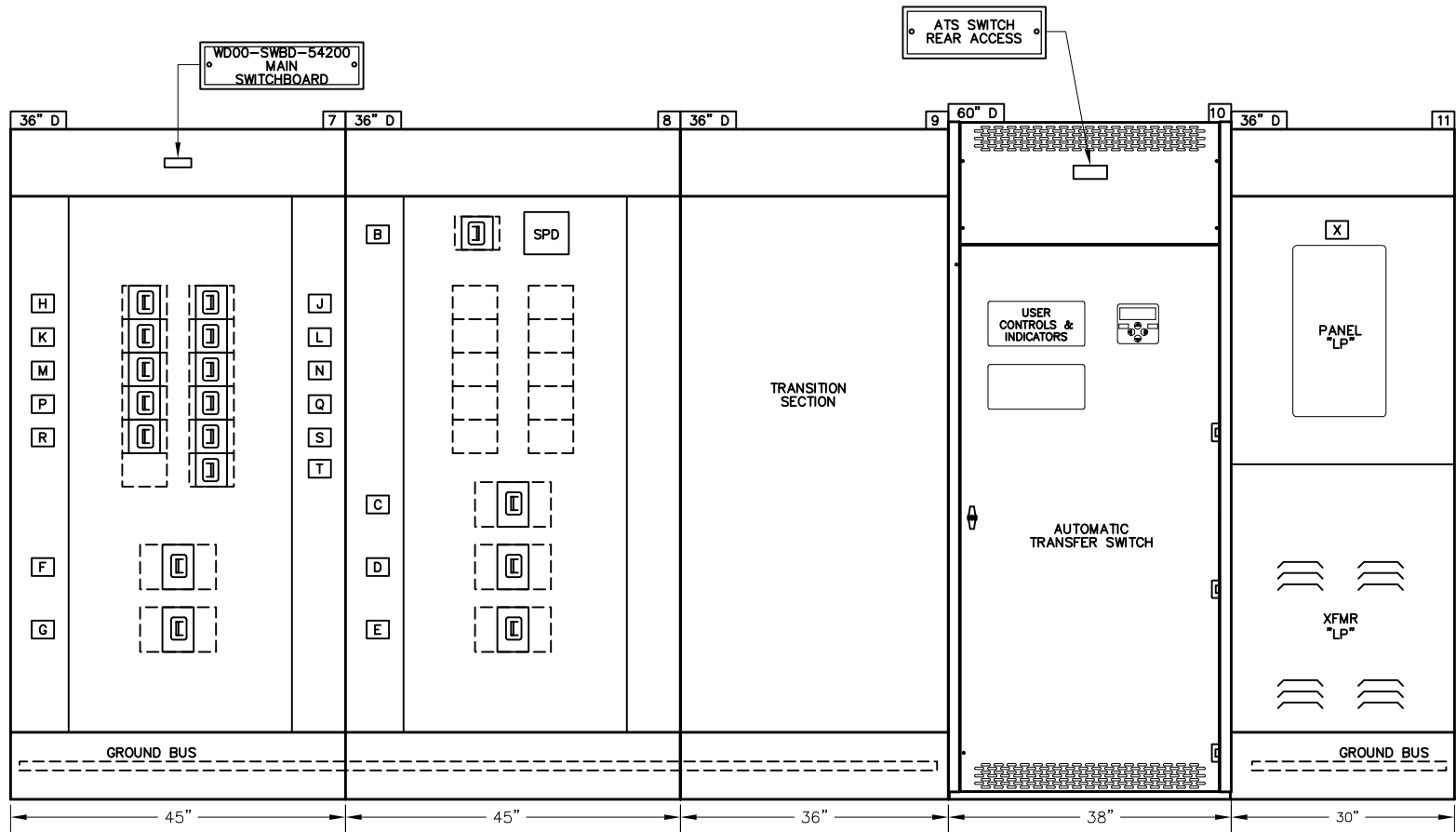
CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL SWITCHBOARD ONE-LINE AND ELEVATION

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD00-E-001
SHEET NUMBER	123



ATS AND DISTRIBUTION ONE-LINE DIAGRAM



ATS AND DISTRIBUTION ELEVATION

INDOOR, NEMA 1

LEGEND

- VMR VOLTAGE MONITORING RELAY
PM POWER MONITOR
SPD SURGE PROTECTIVE DEVICE, 300KA (MIN)

GENERAL NOTES:

- REAR ACCESS SHALL NOT BE REQUIRED TO SERVICE OR REPLACE SWITCHBOARD COMPONENTS.
- EACH BREAKER SHALL HAVE A PADLOCKABLE HASP TO LOCK BREAKER IN THE OFF POSITION.
- ALL DIMENSIONS ARE APPROXIMATE. ACTUAL DIMENSIONS SHALL BE PER MANUFACTURER APPROVED IN SUBMITTAL.
- FURNISH AND APPLY ENGRAVED WHITE LETTERING ON BLACK PLASTIC NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFERENCE ONE-LINE DIAGRAM FOR LABEL.
- FURNISH CODE REQUIRED WARNING LABELS AND EQUIPMENT RATINGS LABELS.
- SEE TAGGING CONVENTIONS ON P&IDS TO COMPLETE EQUIPMENT TAG NUMBERS.

NOTES REFERENCED IN DRAWING:

- ① CABLES SHALL BE FIELD CUT TO LENGTH, STRIPPED, AND FIT. BRACE WIRES TO MAINTAIN 65K AIC RATING. PROVIDE 6 SETS 535 MCM TYPE K STRANDED CABLE PER PHASE WITH COMPRESSION LUG CONNECTORS.

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NOT FOR
CONSTRUCTION



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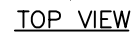
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CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL
ATS AND DISTRIBUTION
ONE-LINE AND ELEVATION

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD00-E-002
SHEET NUMBER 124



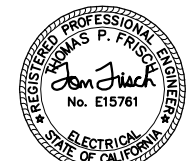
Ø.625 MOUNTING HOLES 6 PLACES.
1/2" MOUNTING HARDWARE MUST BE
GRADE 5. USE 1/2" BASE MOUNTING PLATE
SIMILAR TO POWER-STRUT P/N PS619.

1. TYPE 1 ENCLOSURE WITH CUSTOM RAIN SHIELD AND REAR ACCESS PANEL. FREE STANDING, FORMED FRAME CONSTRUCTION.
2. NEC STANDARD GAUGE PAN TYPE DOOR WITH LOCKABLE HANDLE.
3. FINISH: ANSI 61 GRAY, POLYESTER POWDER STANDARD. OTHER ANSI COLORS AVAILABLE CONSULT FACTORY UL RECOGNIZED.
4. CONSTRUCTION IS IN ACCORDANCE WITH APPLICABLE REQUIREMENTS OF UL 1008.
5. RECOMMENDED CLEARANCES: FRONT: 48 INCHES REAR: 36 INCHES A 20% RATED GROUND BUS IS PROVIDED.
7. UNIT IS DESIGNED FOR COMBINATION TOP AND BOTTOM CABLE ENTRY. THE STANDARD SWITCH CONFIGURATION IS FOR TOP LUGS EMERGENCY AND LOAD AND BOTTOM LUGS NORMAL. OPTIONALLY, THE SWITCH MAY BE SUPPLIED WITH BOTH NORMAL & EMERGENCY LUGS. (REFER TO THE WIRING DIAGRAM FURNISHED WITH EACH TRANSFER SWITCH TO DETERMINE TERMINATION POSITIONS).
8. NEUTRAL CONFIGURATIONS:
AN OPTIONAL FULL RATED NEUTRAL CONFIGURATION FOR EACH SOURCE AND THE LOAD MAY BE PROVIDED. WHEN EQUIPPED IT IS IN ONE OF THE FOLLOWING FORMATS AS SPECIFIED BY THE CATALOG NUMBER NO. NEUTRAL TYPE:
 - (A) SOLID (COPPER BUS) NEUTRAL
 - (B) SWITCHED NEUTRAL POLE
 - (C) OVERLAPPING NEUTRAL POLE (NOT AVAILABLE ON ACTS/ADTS UNITS)

1. ALL SIZES SUPPLIED STANDARD WITH MECHANICAL (SCREW TYPE) LUGS. (SEE AMP SIZE BELOW)
 - A. LUG MATERIAL: ALUMINUM ALLOY 8061-T6 WITH ELECTRO TIN PLATED FINISH.
 - B. SCREW MATERIAL: ALUMINUM ALLOY 6262-T9 WITH ELECTRO TIN PLATED FINISH.
 - C. UL LISTED, CSA CERTIFIED.
 - D. LUG SCREW TIGHTENING TORQUE PER UL 486B: 19 FT.-LBS.
 - E. SUITABLE WIRE BENDING SPACE IS PROVIDED. (SEE AMP SIZE BELOW)
2. OPTIONAL COPPER CRIMP LUGS MAY BE SUPPLIED. (SEE AMP SIZE BELOW)
 - A. LUG MATERIAL: HIGH CONDUCTIVITY WROUGHT COPPER FINISH, ELECTRO TIN PLATED.
 - B. UL LISTED, CSA CERTIFIED.
 - C. LUG MOUNTING HARDWARE TIGHTENING TORQUE: (REFER TO WITHSTAND CURRENT RATING LABEL PROVIDED ON EACH TRANSFER SWITCH).
 - D. SUITABLE WIRE BENDING SPACE IS PROVIDED. (SEE AMP SIZE BELOW)
3. CONSULT FACTORY FOR OTHER TERMINATION REQUIREMENTS.
4. GROUND LUGS ARE PROVIDED STANDARD AS FOLLOWS. (SEE AMP SIZE BELOW).
5. CUSTOMER TERMINAL BLOCKS:
 - FOR ALL 7000 SERIES UNITS THE TB WILL BE MOUNTED ON THE UPPER RIGHT INSIDE OF ENCLOSURE.
 - FOR 4000 SERIES UNITS TB WILL BE MOUNTED ON THE TRANSFER SWITCH FRAME AS INDICATED.

1. SUPPLIED WITH STANDARD MECHANICAL (SCREW TYPE) LUGS ON THE NORMAL, EMERGENCY & LOAD BUS STABS. TWO (2) LUG PER PHASE AND NEUTRAL EACH SUITABLE FOR CONNECTION OF TWELVE (12) 1/0 - 750MCM CU/AL CABLE (SEE NOTE "E" BELOW).
 - A. SUITABLE WIRE BENDING SPACE IS PROVIDED FOR UP TO TWELVE (12) 750MCM CABLES PER TERMINAL PER TABLE 373-6(a) OF NFPA 70 OF THE NEC.
2. OPTIONAL COPPER CRIMP LUGS MAY BE SUPPLIED. UP TO EIGHT (8) TWO HOLE, LONG BARREL CU CRIMP LUGS RATED FOR UP TO 600MCM. (REFER TO CRIMP LUG INSTALLATION DATA PROVIDED WITH UNIT FOR FULL INSTALLATION DETAILS).
 - A. SUITABLE WIRE BENDING SPACE IS PROVIDED FOR UP TO EIGHT (8) 600MCM CABLES PER TERMINAL PER TABLE 373-6(b) OF NFPA 70 OF THE NEC.
3. GROUND LUGS ARE PROVIDED STANDARD AS FOLLOWS;
(36) 1/0 - 750MCM CU/AL CABLE

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11-14-2019

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APPROVED	M. FISHER

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WATERWORKS
ENGINEERS

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL

AUTOMATIC TRANSFER
SWITCH DETAIL

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD00-E-003
SHEET NUMBER	125

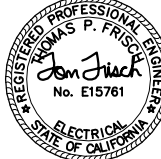
PANEL "LP-A"																																																																																							
LOCATION: PUMP BUILDING ENCLOSURE: SURFACE AIC RATING: 22 KAIC					120/208 VOLTS, 3 PHASE, 4 WIRE 200 AMP BUS 200 AMP MAIN BREAKER																																																																																		
BKR NO.	DESCRIPTION	LOAD VA	PHASE A	AMPS B	AMPS C	AMPS/POLE	BKR NO.	DESCRIPTION	BKR NO.																																																																														
1	LIGHTING - PUMP ROOM	420	3.5			20/1	1																																																																																
3	RECEPT - PUMP ROOM	1500		12.5		20/1*	3																																																																																
5	LIGHTING - CHEM & ELECTRICAL ROOM	420			3.5	20/1	5																																																																																
7	RECEPT - ELECTRICAL ROOM	750	6.3			20/1	7																																																																																
9	LIGHTING - AREA POLES	420		3.5		20/1	9																																																																																
11	RECEPT - SITE	1500			12.5	20/1*	11																																																																																
13	EXHAUST FAN - CHEMICAL AREA	1500	12.5			20/1	13																																																																																
15	RECEPT - OUTDOOR	1200		10.0		20/1	15																																																																																
17	LIGHTING OUTDOOR WALL	500			4.2	20/1	17																																																																																
19	RESIDUAL CHLORINE ANALYZER-STORAGE	350	2.9			20/1	19																																																																																
21	RESIDUAL CHLORINE ANALYZER-DIST	350		2.9		20/1	21																																																																																
23	SCADA TERMINAL	500			4.2	20/1	23																																																																																
25	SAMPLE PUMP	850	7.1			20/1	25																																																																																
27	TANK 1 LIT-151 HEATER	700		5.8		20/1	27																																																																																
29	TANK 2 LIT-251 HEATER	700			5.8	20/1	29																																																																																
31	TANK 1 DAVIT CRANE	1350	11.3			20/1	31																																																																																
33	FRONT GATE	1200		10.0		20/1	33																																																																																
35	TANK 2 DAVIT CRANE	1350			11.3	20/1	35																																																																																
37	SPACE	0	0.0			20/1	37																																																																																
39	SPACE	0		0.0		20/1	39																																																																																
41	SPACE	0			0.0	20/1	41																																																																																
<table><tr><td colspan="2">PHASE</td><td>A</td><td>B</td><td>C</td><td rowspan="2">NEUTRAL</td><td>A</td><td>B</td><td>C</td><td rowspan="3">PHASE</td></tr><tr><td>LEFT SIDE AMPS</td><td></td><td>43.5</td><td>44.8</td><td>41.4</td><td>25.8</td><td>38.8</td><td>51.3</td></tr><tr><td>LEFT SIDE KVA</td><td></td><td>5.22</td><td>5.37</td><td>4.97</td><td rowspan="7">GROUND</td><td>3.10</td><td>4.65</td><td>6.15</td></tr><tr><td>TOTAL PHASE KVA</td><td></td><td>8.32</td><td>10.02</td><td>11.12</td><td>29.46</td><td></td><td></td><td rowspan="2">TOTAL KVA</td></tr><tr><td>TOTAL PHASE AMPS</td><td></td><td>69.3</td><td>83.5</td><td>92.7</td><td>81.77</td><td></td><td></td></tr><tr><td>% OF AVERAGE</td><td></td><td>85</td><td>102</td><td>113</td><td>0.80</td><td></td><td></td><td rowspan="2">DEMAND FACTOR</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>23.57</td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td rowspan="2">LOAD KVA</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>										PHASE		A	B	C	NEUTRAL	A	B	C	PHASE	LEFT SIDE AMPS		43.5	44.8	41.4	25.8	38.8	51.3	LEFT SIDE KVA		5.22	5.37	4.97	GROUND	3.10	4.65	6.15	TOTAL PHASE KVA		8.32	10.02	11.12	29.46			TOTAL KVA	TOTAL PHASE AMPS		69.3	83.5	92.7	81.77			% OF AVERAGE		85	102	113	0.80			DEMAND FACTOR						23.57											LOAD KVA								
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NOTES: 1 MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210 (4)
2 ASTERISK (*) DENOTES GFI BREAKER REQUIRED WITH 5 MA SENSITIVITY
3 TILDA (~) DENOTES GFI BREAKER REQUIRED WITH 30 MA SENSITIVITY

LOAD CALCULATIONS									
CONNECTED LOAD				DEMAND LOAD			GENERATOR LOAD		
LOAD DESCRIPTION	LOAD	QTY	TOTAL	LOAD	QTY	TOTAL	LOAD	QTY	TOTAL
250HP PUMP	302.00	A 5	1255390.4 VA	302.00	A 4	1004312.3 VA	302.00	A 4	1004312.3 VA
126kW WATER HEATER	151.00	A 1	125539.0 VA	151.00	A 1	125539.0 VA	151.00	A 1	125539.0 VA
56KW HVAC SYSTEM	68.00	A 1	56534.1 VA	68.00	A 1	56534.1 VA	68.00	A 1	56534.1 VA
PANELBOARD LP	120/208	35.43	A 1 29460.0 VA	28.35	A 1	23568.0 VA	28.35	A 1	23568.0 VA
PANELBOARD PP	277/480	72.17	A 1 60000.0 VA	57.74	A 1	48000.0 VA	57.74	A 1	48000.0 VA
TOTAL LOAD =				1836.60	A <	1526923.6 VA	1513.08	A <	1257953.5 VA
LOAD CORRECTION FACTORS									
LARGEST MOTOR LOAD x 25%:									
250HP HP => 0.25 x	251078.1	VA	=	75.50	A	62769.5 VA	75.50	A	62769.5 VA
80% BREAKER DERATING =	TOTAL x 0.25 =	478.03	A	397423.3	VA	397.15	A	330180.8	VA
FOR CONTINUOUS LOADS NEC 210-20									
SERVICE SIZE (MIN) =				2390.13	A	1987116.4VA	1985.73	A	1650903.8VA
UTILITY SERVICE SIZE REQUIRED =				2500	AMP				
480V, 3 PHASE, 4 WIRE									
GENERATOR SIZE									
NAMEPLATE = 1500 KW 1875 KVA									
TEMP OF 100 deg F									
ELEVATION OF 200 FT ASL									
DERATED SIZE = 1465.5 KW 1831.9 KVA									
AMPERAGE = 2203 A @ 0.8 PF									
UTILIZATION % = 77 % @ 0.90 PF									

FIXTURE SCHEDULE						
CODE LETTER	FIXTURE TYPE	FIXTURE LAMPS	WATTS/ FIXTURE	MANUFACTURER OR APPROVED EQUAL	MOUNTING ARRANGEMENT	NOTES
A	STRIP LUMINAIRE, 4 FT, VAPORTIGHT MOLDED POLYCARBONATE HOUSING FROSTED LENS, MEDIUM DISTRIBUTION	6000 LUMEN 4500K	120V 50W	ATLAS ILW48LED40 RAB SEAL4-50/D10	CEILING MOUNT FIXTURE	U.L. LISTED -20F TO 140F
B	WALL PACK LIGHT DARK BRONZE COLOR ALUMINUM CASE	4000 LUMEN 4000K	120V 37W	ATLAS WSPS40LED RAB SLIM FC	WALL MOUNT 10 FT AFF	U.L. LISTED FOR WET LOCATIONS PHOTOCELL CONTROL FULL CUTOFF
E	EXIT LIGHT PACK WITH EGRESS LAMPS AND REMOTE OUTDOOR EGRESS FIXTURE LED LAMPS WITH RED LED SIGN INTEGRAL BATTERY AND CHARGER	2 LED 3W	120V 5W	DUAL-LITE HCX-U-R-W-03L-RC12 CPRSB0603L	WALL MOUNT 9 FT AFF	WHITE INTERIOR, BROWN EXTERIOR DUAL LED LAMPS INDOORS AND OUT 12W REMOTE LIGHT CAPACITY
P	POLE MOUNTED CUTOFF LUMINAIRE 4" SQUARE STEEL POLE BRONZE POLE AND LAMP HMF DISTRIBUTION	LED 40K COLOR 18992 LM	MVOLT 183W	LITHONIA D-SERIES SIZE 3	MOUNT ON POLE BASE PER DETAILS	POLE HEIGHT 20 FT OR AS SHOWN ON PLANS PHOTOCELL CONTROL

FOR PROPOSAL
PURPOSES ONLY,
NOT FOR
CONSTRUCTION



11-14-2019

DESIGN
T. FRISCH

DRAWN
M. YARBROUGH

CHECKED
M. FRISCH

APPROVED
M. FISHER

FRISCH ENGINEERING, INC.
13405 FOLESON BLVD., UNIT 600
FOLSOM, CA 95630
WWW.FRISCHENGINEERING.COM
FILE: 113 WD00E004.DWG
DATE: NOV 08, 2019 TIME: 11:07:57AM

WATERWORKS
ENGINEERS

2260 Douglas Blvd. Suite 105 • Roseville, CA 95678 • 916-790-2688

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

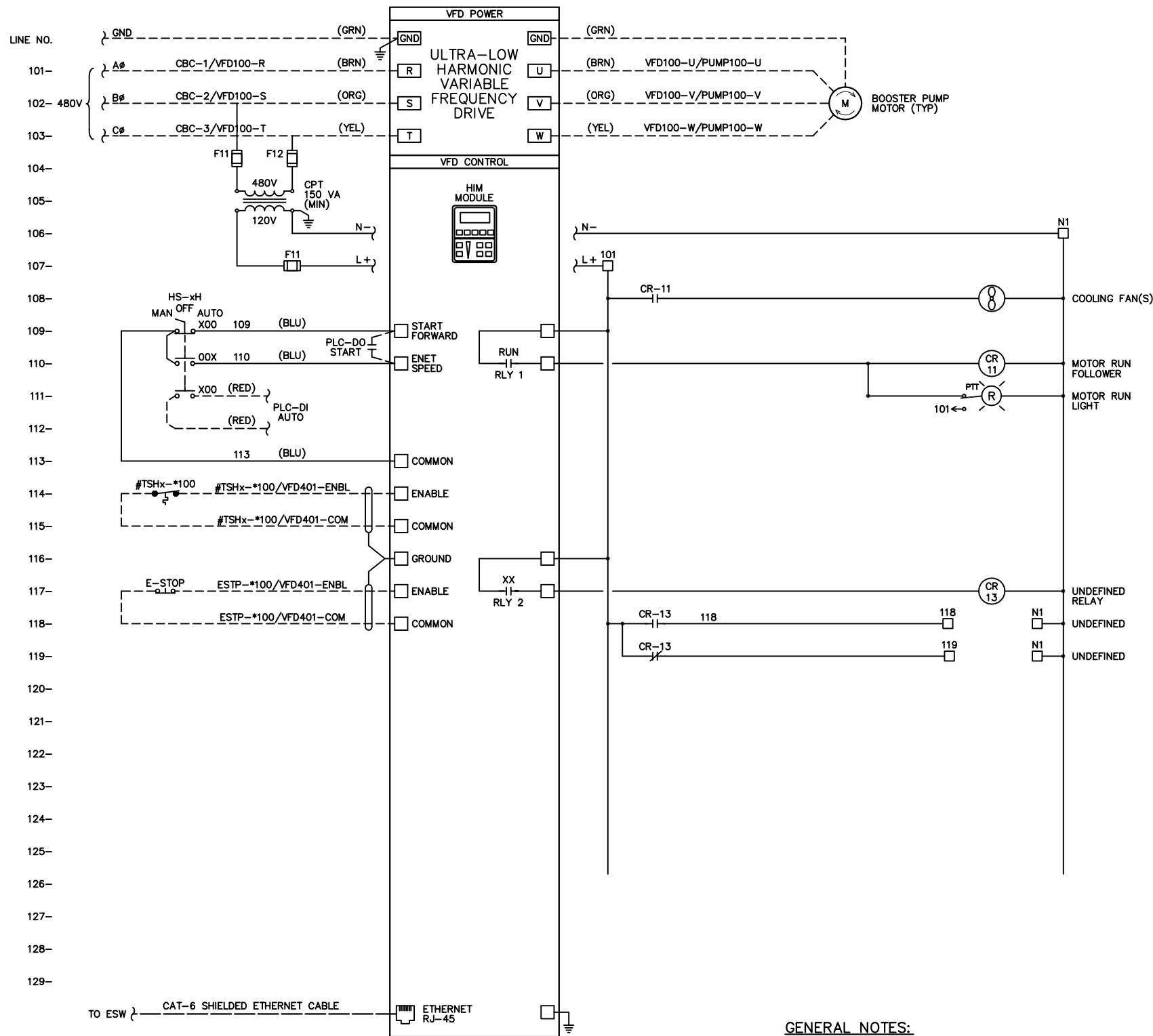
ELECTRICAL
PANEL SCHEDULES,
LOAD CALCULATIONS
AND FIXTURE SCHEDULE

DATE
NOVEMBER 2019

PROJECT NUMBER
17-083

DRAWING NUMBER
WD00-E-004

SHEET NUMBER 126

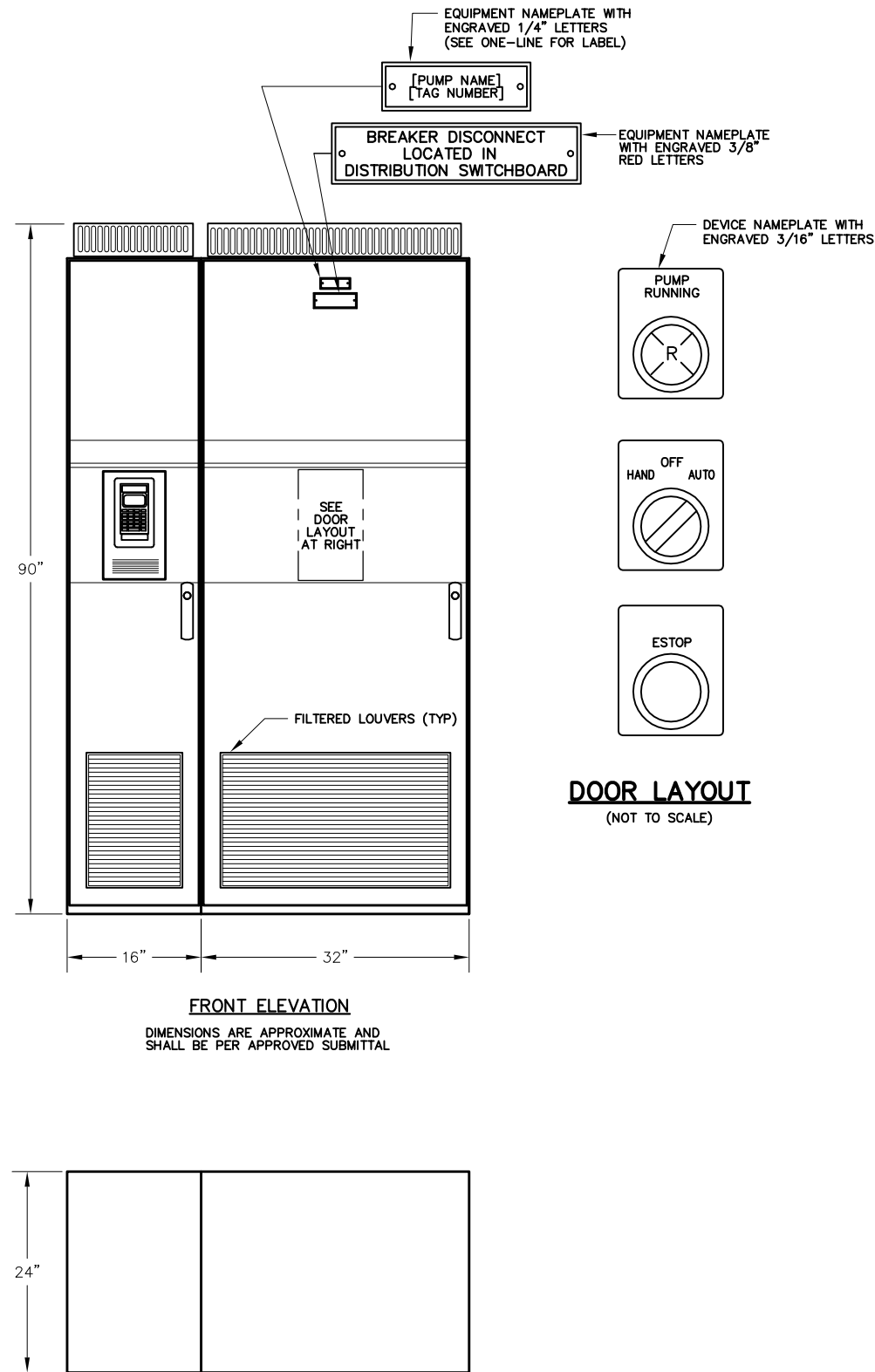


VFD PUMP MOTOR ELEMENTARY DIAGRAM

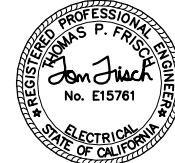
WD24-VFDx*100 WD24-VFDx*300

GENERAL NOTES:

1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPT: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.
2. DOOR LAYOUT IS DIAGRAMMATICAL AND IS INTENDED TO SHOW DEVICES REQUIRED. ACTUAL LAYOUT SHALL BE SUBMITTED FOR APPROVAL AND MAY DIFFER FROM THAT SHOWN ABOVE.
2. SIMILAR DIAGRAM FOR BOOSTER PUMPS 3
3. USE 3, 30 & 300 SERIES NUMBERING FOR PUMP NO. 3 DEVICES



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11-14-2019

DESIGN	T. FRISCH
DRAWN	M. YARBROUGH
CHECKED	M. FRISCH
APPROVED	M. FISHER

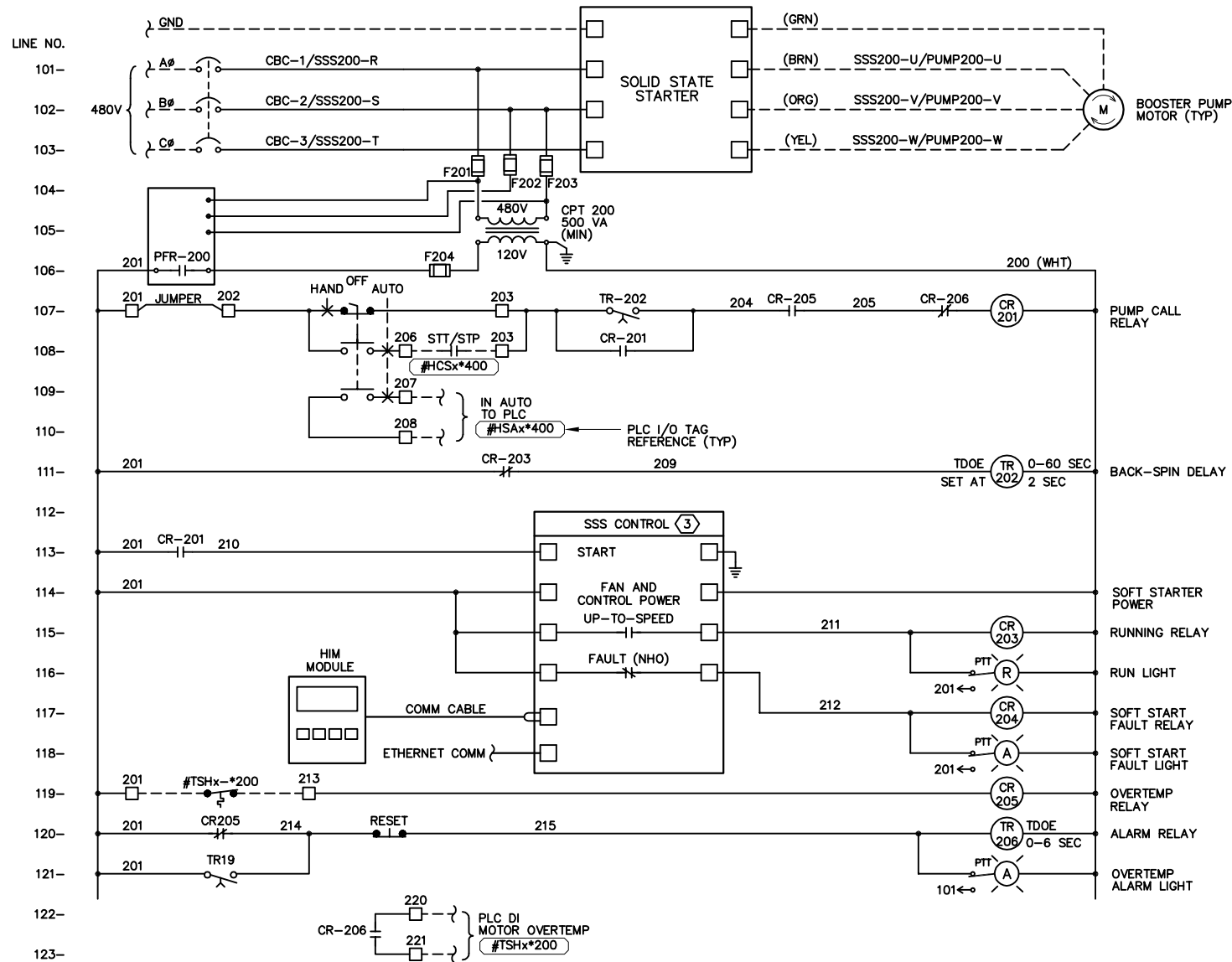
FRISCH ENGINEERING, INC.
13405 FOLESBOM BLVD., UNIT 600
FOLSOM, CA 95630
WWW.FRISCHENGINEERING.COM
FILE: 11-14-WD00E005.DWG
DATE: NOV 08, 2019
TIME: 11:08:12AM

WATERWORKS ENGINEERS
2260 Douglas Blvd., Suite 105 • Roseville, CA 95678 • 916-790-2688

CITY OF ROSEVILLE
WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2)
ROSEVILLE, CALIFORNIA

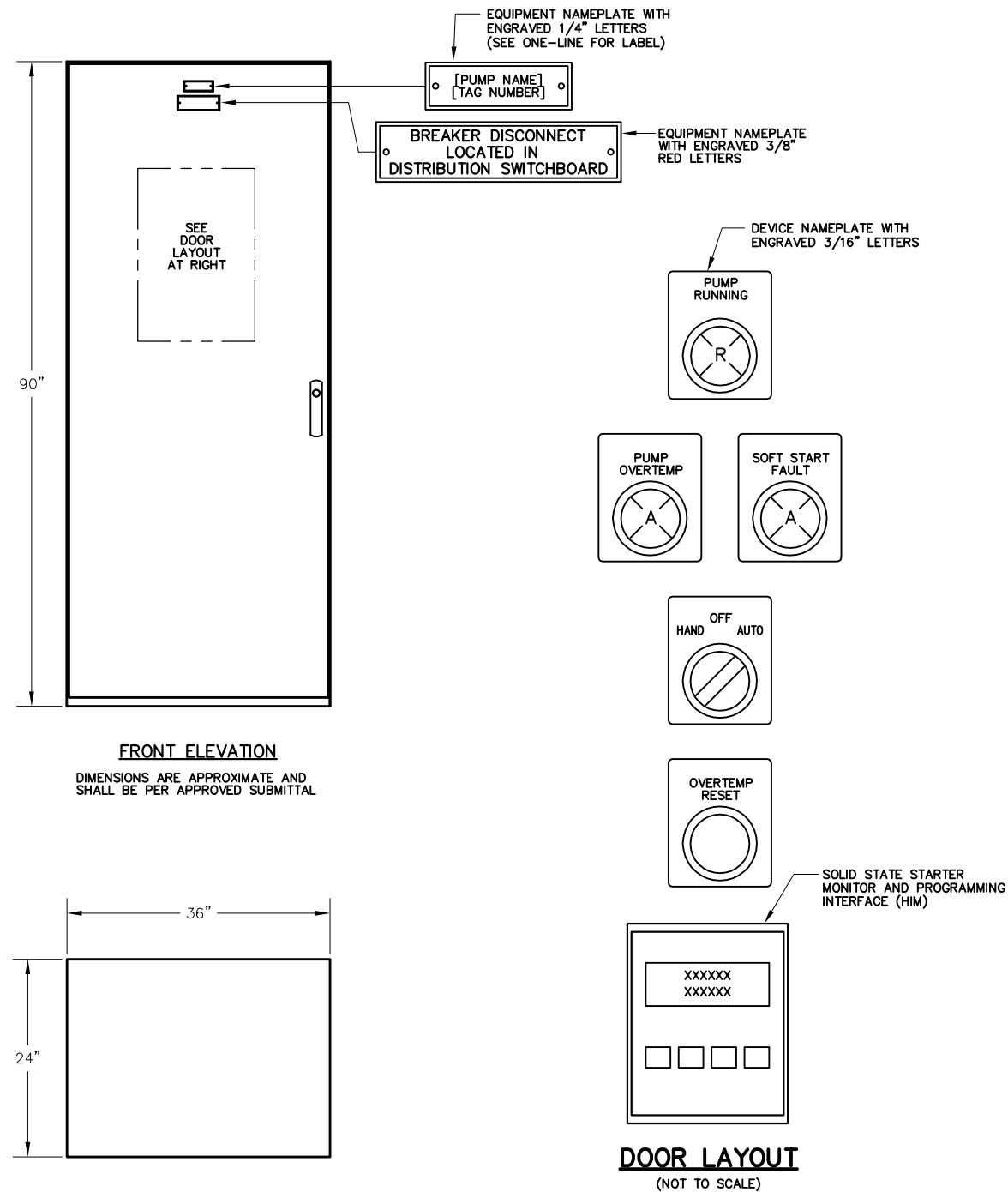
ELECTRICAL
VFD PUMP MOTOR
ELEMENTARY DIAGRAM

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD00-E-005
SHEET NUMBER	127



SSS PUMP MOTOR ELEMENTARY DIAGRAM

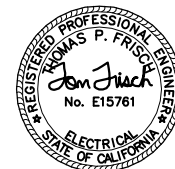
WD24-SSSx*200 WD24-SSSx*400 WD24-VFDx*500



GENERAL NOTES:

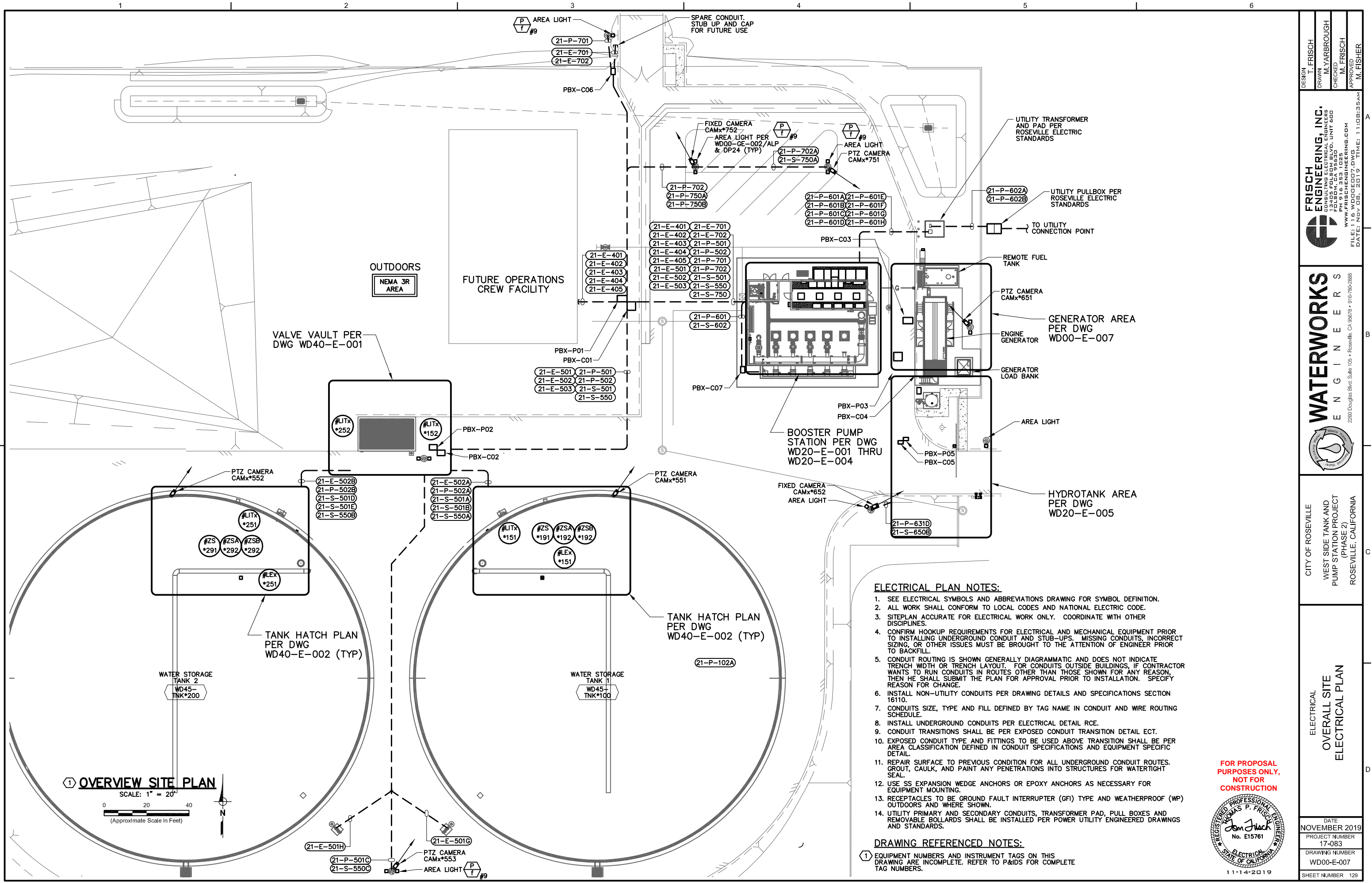
1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME. EXCEPTION: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.
2. DOOR LAYOUT IS DIAGRAMMATICAL AND IS INTENDED TO SHOW DEVICES REQUIRED. ACTUAL LAYOUT SHALL BE SUBMITTED FOR APPROVAL AND MAY DIFFER FROM THAT SHOWN ABOVE.
2. SIMILAR DIAGRAM FOR BOOSTER PUMPS 4 & 5
3. USE 4, 40 & 400 SERIES NUMBERING FOR PUMP NO. 4 DEVICES
USE 5, 50 & 500 SERIES NUMBERING FOR PUMP NO. 5 DEVICES

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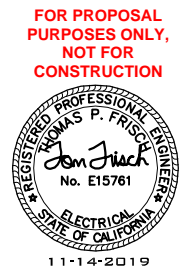


11-14-2019

DESIGN	T. FRISCH
DRAWN	M. YARBROUGH
CHECKED	M. FRISCH
APPROVED	M. FISHER
DATE	NOV 08, 2019
TIME	11:08:23AM
FRISCH ENGINEERING, INC. 13405 FOLESBY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 115 WD00E006.DWG	
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95678 • 916-790-2888	
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA	
ELECTRICAL SSS PUMP MOTOR ELEMENTARY DIAGRAM	
DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD00-E-006
SHEET NUMBER	128



DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESBY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 116 WD00E007.DWG DATE: NOV 08, 2019 TIME: 11:08:35AM	A
DRAWN M. YARBROUGH		
CHECKED M. FRISCH		
APPROVED M. FISHER		
WATERWORKS ENGINEERS 2260 Douglas Blvd. Suite 105 • Roseville, CA 95678 • 916-790-2888		
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA		
ELECTRICAL OVERALL SITE ELECTRICAL PLAN		
DATE NOVEMBER 2019		
PROJECT NUMBER 17-083		
DRAWING NUMBER WD00-E-007		
SHEET NUMBER 129		

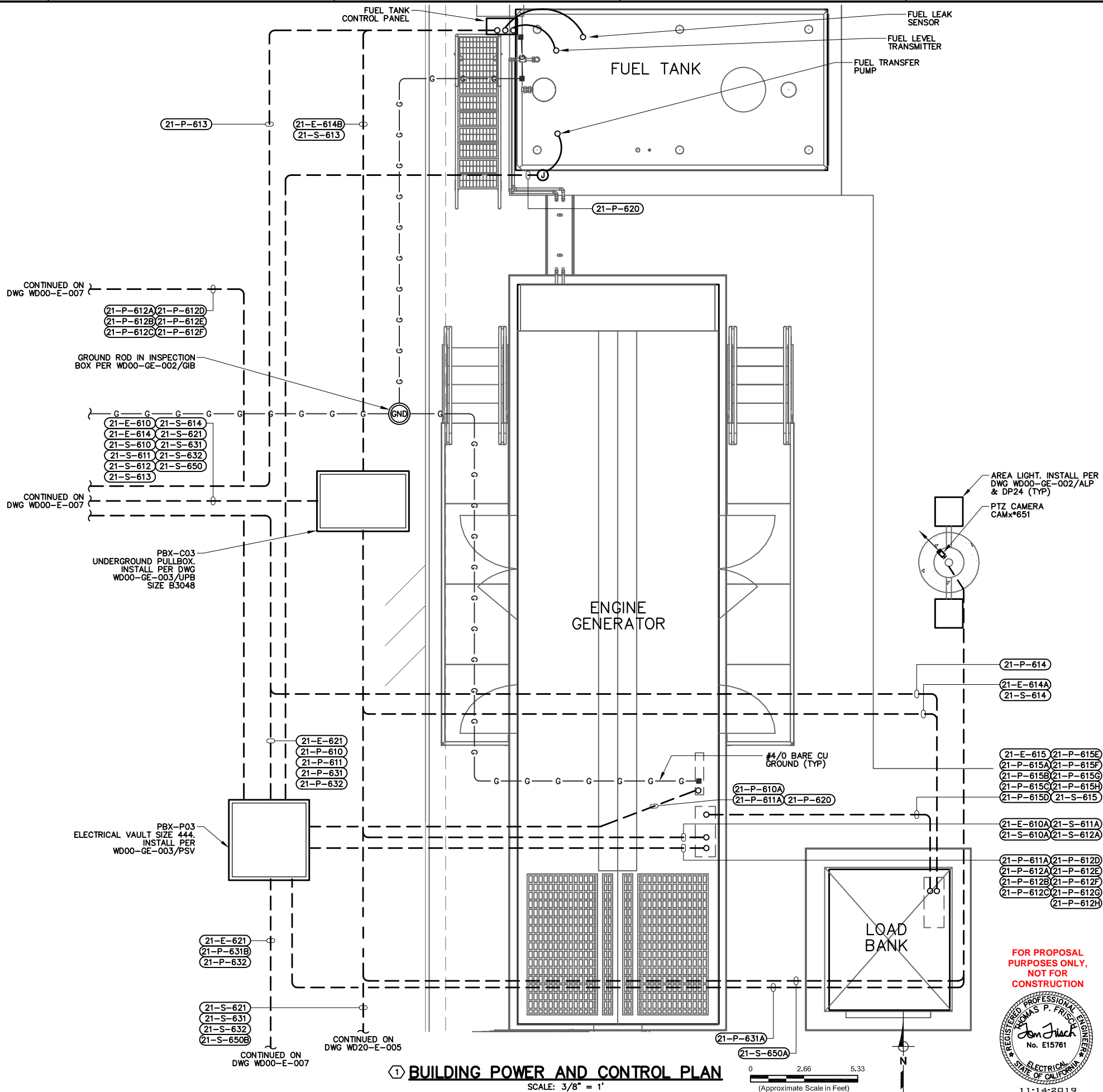


ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND CONDUITS PER ELECTRICAL DETAIL RCE.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.

DRAWING REFERENCED NOTES:

- 1 EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.
- 2 ALL TYPE A FIXTURES TO BE MOUNTED AT 10 FEET AFF (TYPICAL).



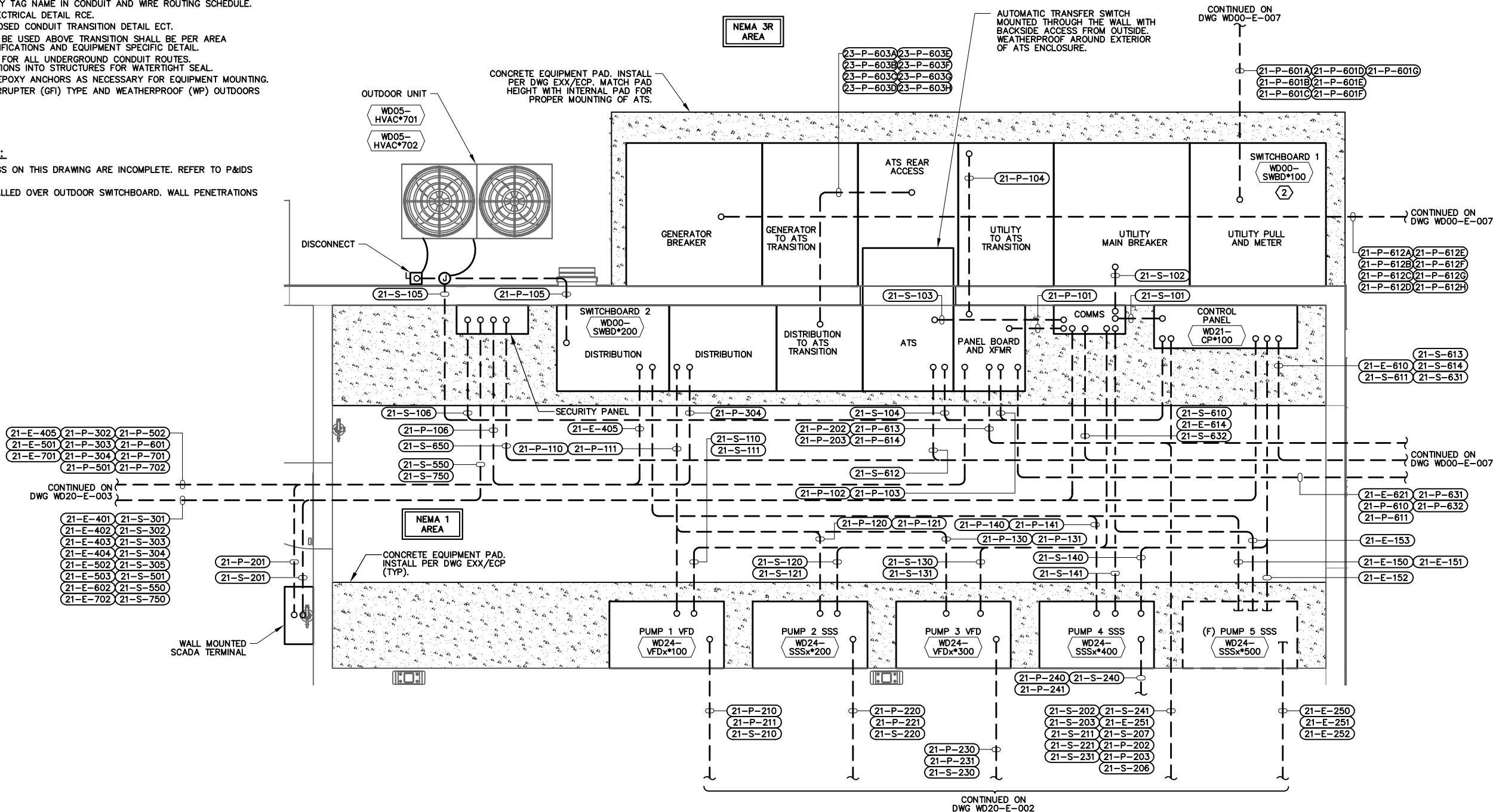
DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESBY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM DATE: NOV 08, 2019 TIME: 11:08:49AM	WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95678 • 916-790-2688	CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA	ELECTRICAL GENERATOR AREA ELECTRICAL PLAN	DATE NOVEMBER 2019
DRAWN M. YARBROUGH	CHECKED M. FRISCH				PROJECT NUMBER 17-083
SHEET NUMBER 130					DRAWING NUMBER WD00-E-008

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
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11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.

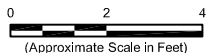
DRAWING REFERENCED NOTES:

- 1 EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.
- 2 CUSTOM FLANGE OR HOOD SHALL BE INSTALLED OVER OUTDOOR SWITCHBOARD. WALL PENETRATIONS SHALL BE WATERPROOF.

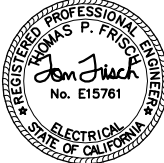


1 ELECTRICAL ROOM POWER AND CONTROL PLAN

SCALE: 1/2" = 1'



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CONSTRUCTION



11-14-2019

DESIGN	T. FRISCH
DRAWN	M. YARBROUGH
CHECKED	M. FRISCH
APPROVED	M. FISHER

FRISCH ENGINEERING, INC.
13405 FOLESBY BLVD., UNIT 500
FOLSOM, CA 95630
WWW.FRISCHENGINEERING.COM
FILE: 120 WD20E001.DWG
DATE: NOV 08, 2019 TIME: 4:58:13PM



CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL
ELECTRICAL ROOM POWER
AND CONTROL PLAN

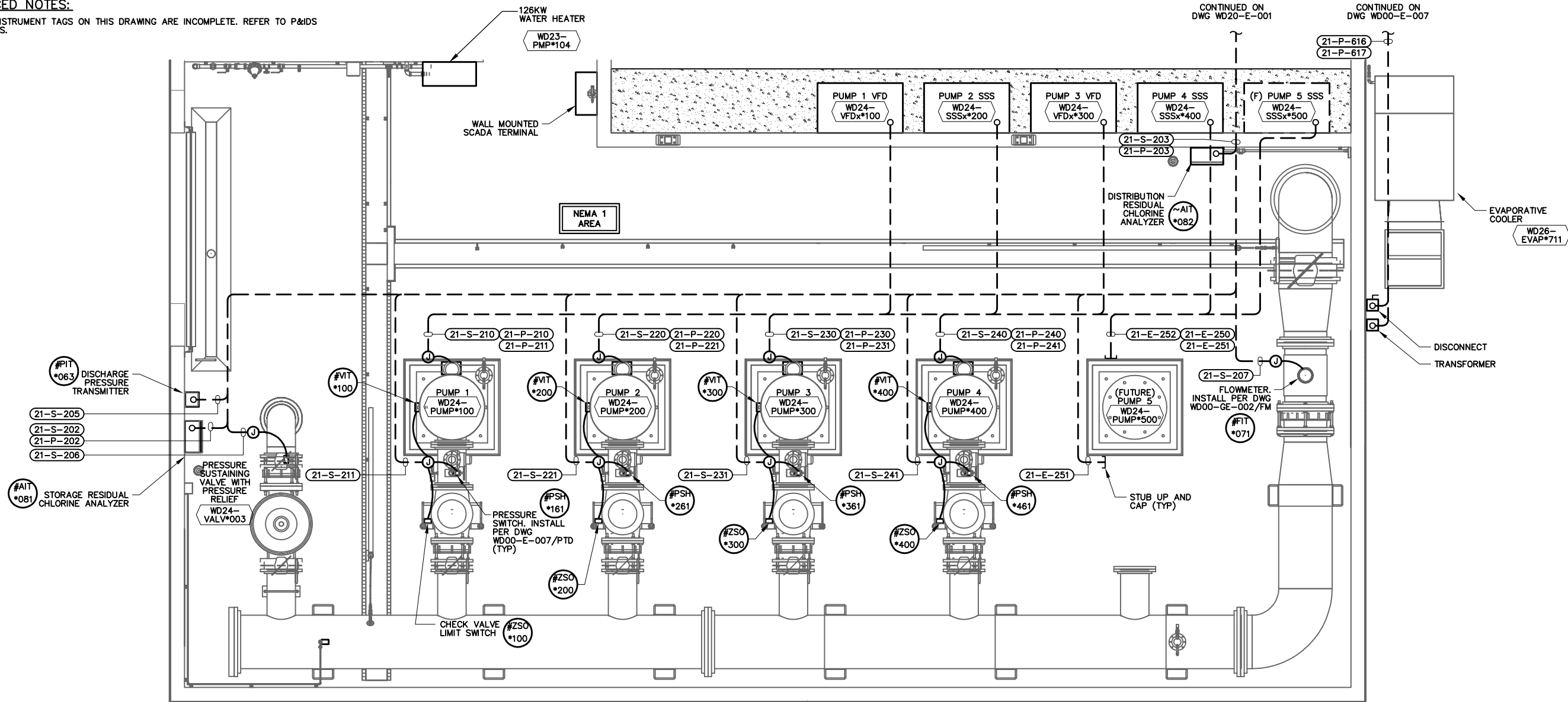
DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD20-E-001
SHEET NUMBER	131

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
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DRAWING REFERENCED NOTES:

- ① EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.



① PUMP ROOM POWER AND CONTROL PLAN

SCALE: 3/8" = 1'

0 2.66 5.33
(Approximate Scale in Feet)



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CONSTRUCTION



11-14-2019

DESIGN	T. FRISCH
DRAWN	M. YARBROUGH
CHECKED	M. FRISCH
APPROVED	M. FISHER

FRISCH ENGINEERING, INC.
13405 FOLESBY BLVD., UNIT 600
FOLSOM, CA 95630
WWW.FRISCHENGINEERING.COM
FILE: 120 WD20E001.DWG
DATE: NOV 08, 2019 TIME: 11:13:07AM



CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL
PUMP ROOM POWER
AND CONTROL PLAN

DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD20-E-002
SHEET NUMBER	132

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND CONDUITS PER ELECTRICAL DETAIL RCE.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.

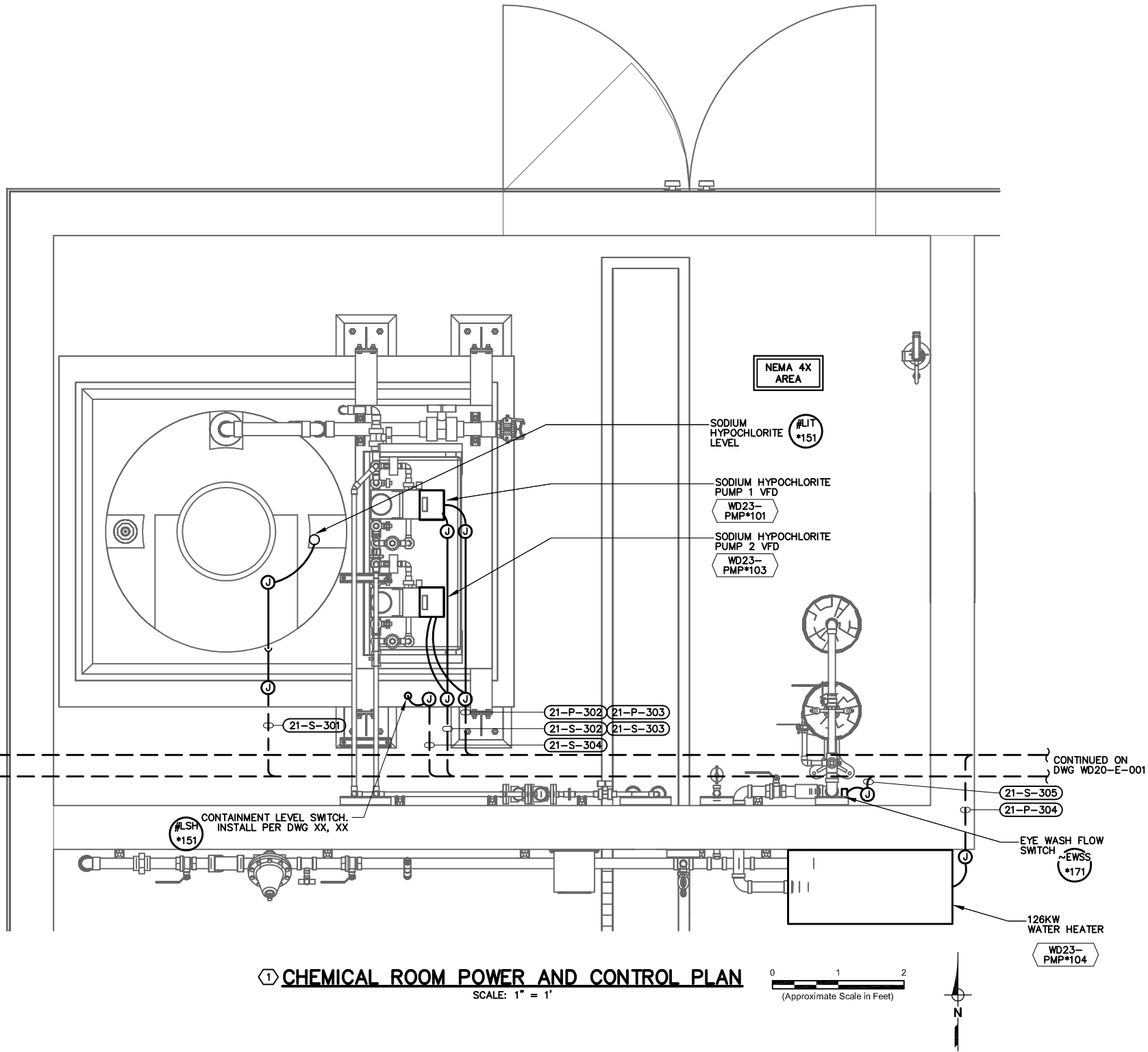
DRAWING REFERENCED NOTES:

- ① EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.

21-E-405 21-P-502
21-E-501 21-P-601
21-E-701 21-P-701
21-P-501 21-P-702

CONTINUED ON
DWG WD00-E-007

21-E-401 21-E-503
21-E-402 21-E-602
21-E-403 21-E-702
21-E-404 21-S-501
21-E-502 21-S-550
21-S-750



① CHEMICAL ROOM POWER AND CONTROL PLAN
SCALE: 1" = 1'

0 1 2
(Approximate Scale in Feet)



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11-14-2019

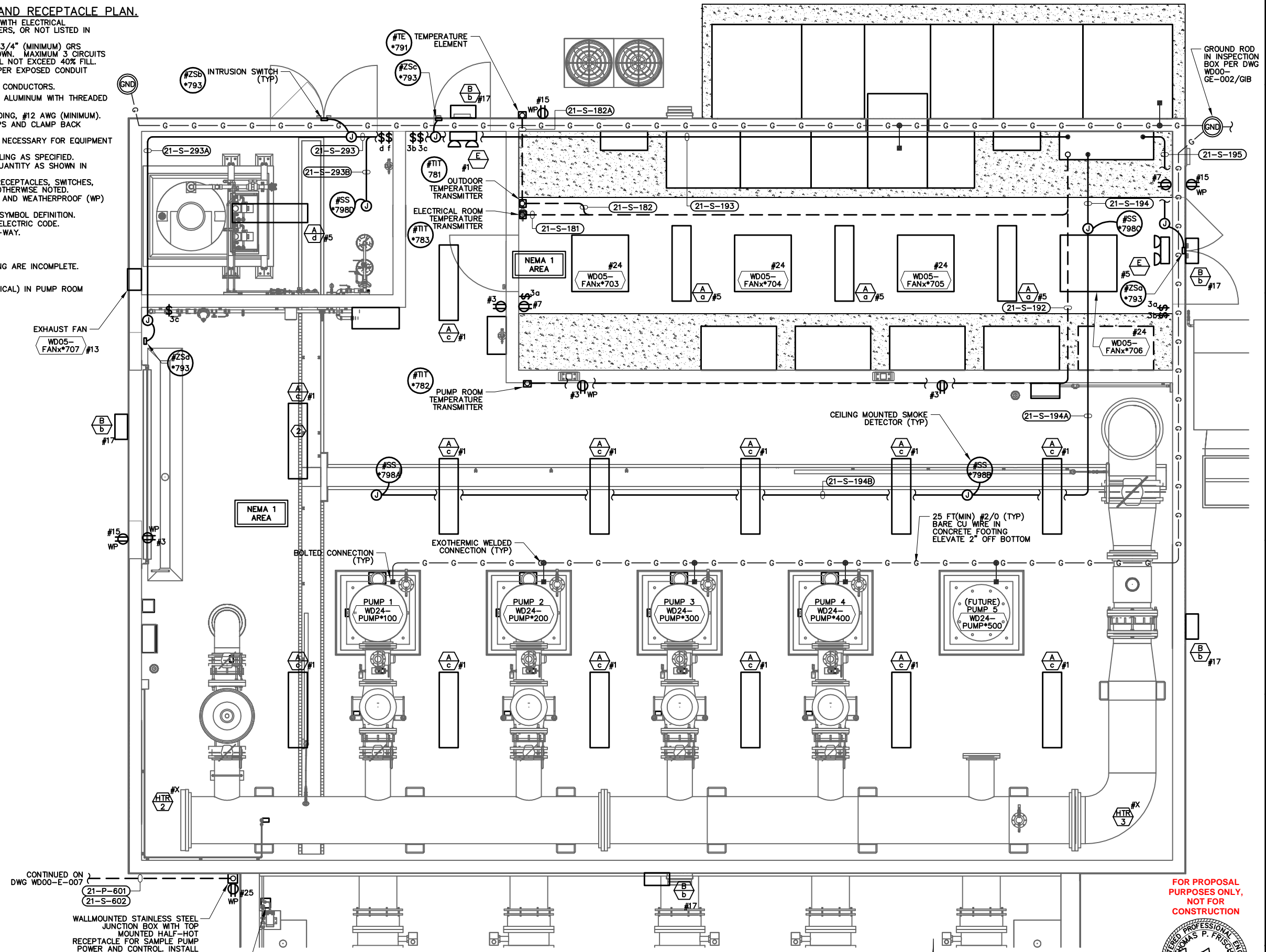
DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESON BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 120 WD20E001.DWG DATE: NOV 08, 2019 TIME: 11:13:19AM	A
DRAWN M. YARBROUGH		
CHECKED M. FRISCH		B
APPROVED M. FISHER		
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95678 • 916-790-2688		C
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA		
ELECTRICAL CHEMICAL ROOM POWER AND CONTROL PLAN		D
DATE NOVEMBER 2019 PROJECT NUMBER 17-083 DRAWING NUMBER WD20-E-003 SHEET NUMBER 133		

GENERAL NOTES THAT APPLY TO LIGHTING AND RECEPTACLE PLAN.

1. THESE NOTES SHALL APPLY TO ALL EQUIPMENT OR FIXTURES WITH ELECTRICAL CONNECTIONS BUT WITHOUT CONDUITS SHOWN, CONDUIT NUMBERS, OR NOT LISTED IN SCHEDULE.
2. PROVIDE AND INSTALL NECESSARY WIRES IN SURFACE MOUNT 3/4" (MINIMUM) GRS CONDUIT FOR FOR ELECTRICAL FIXTURE ARRANGEMENT AS SHOWN. MAXIMUM 3 CIRCUITS PER CONDUIT SECTION OVER 24" IN LENGTH. CONDUITS SHALL NOT EXCEED 40% FILL.
3. CONDUITS UNDER SLAB SHALL BE PVC-40 WITH STUB-OUTS PER EXPOSED CONDUIT TRANSITION DETAIL.
4. ACCESS TO ATTIC AREA SHALL NOT BE REQUIRED TO INSTALL CONDUCTORS.
5. DEVICE BOXES AND CONDUIT BODIES SHALL BE CAST IRON OR ALUMINUM WITH THREADED HUB.
6. CONDUCTORS SHALL BE COPPER TYPE THHN, CLASS C STRANDING, #12 AWG (MINIMUM).
7. MOUNT CONDUITS USING SINGLE BOLT GALVANIZED PIPE STRAPS AND CLAMP BACK SPACERS.
8. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
9. EXPOSED CONDUIT SHALL BE PAINTED WITH WALL AND/OR CEILING AS SPECIFIED.
10. PROVIDE AND INSTALL FIXTURES PER SCHEDULE THIS PAGE, QUANTITY AS SHOWN IN DRAWINGS.
11. PROVIDE AND INSTALL ALL DEVICE BOXES, JUNCTION BOXES, RECEPTACLES, SWITCHES, AND COVERS MOUNT ALL RECEPTACLES AT 48" AFF UNLESS OTHERWISE NOTED.
12. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) WHERE SHOWN.
13. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
14. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
15. SWITCH TYPE: T= TIME SWITCH, M= MOTION DETECTOR, 3= 3-WAY.

DRAWING REFERENCED NOTES:

1. EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.
2. ALL TYPE A FIXTURES TO BE MOUNTED AT 10 FEET AFF (TYPICAL) IN PUMP ROOM AND ON CEILING IN ELECTRICAL AND CHEMICAL ROOMS.



1 BUILDING POWER AND CONTROL PLAN
SCALE: 3/8" = 1'

0 2.66 5.33
(Approximate Scale in Feet)



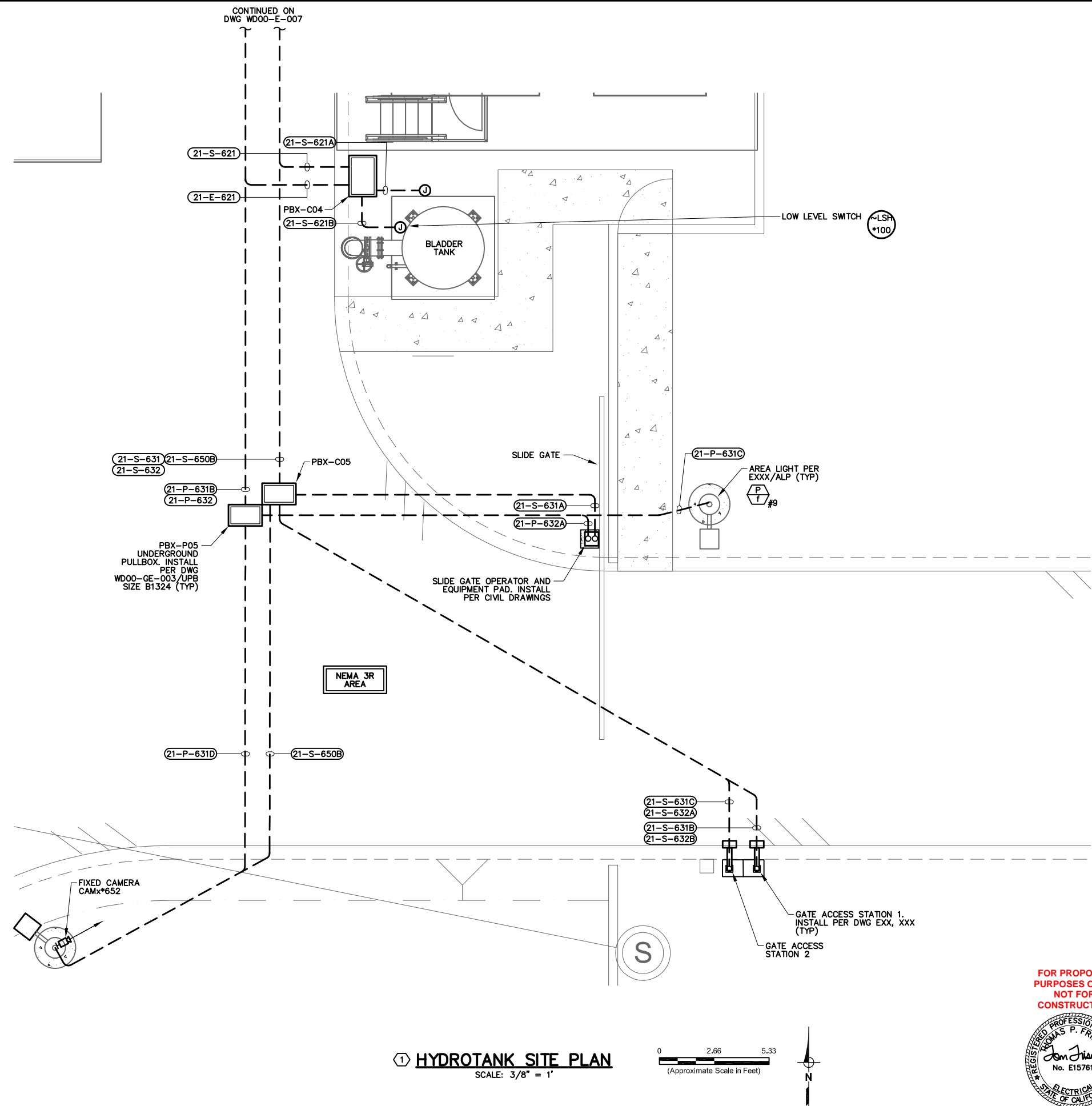
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CONSTRUCTION



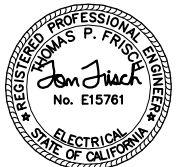
DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLEY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM DATE: NOV 08, 2019 TIME: 11:31:32AM	CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA	ELECTRICAL BUILDING LIGHTING AND RECEPTACLE PLAN	DATE NOVEMBER 2019
DRAWN M. YARBROUGH	CHECKED M. FRISCH			APPROVED M. FISHER
				DRAWING NUMBER WD20-E-004
				SHEET NUMBER 134

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR CONDUIT LENGTH. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN 3" CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND CONDUITS PER ELECTRICAL DETAIL RCE.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTABLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.



1 EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.



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11-14-2019

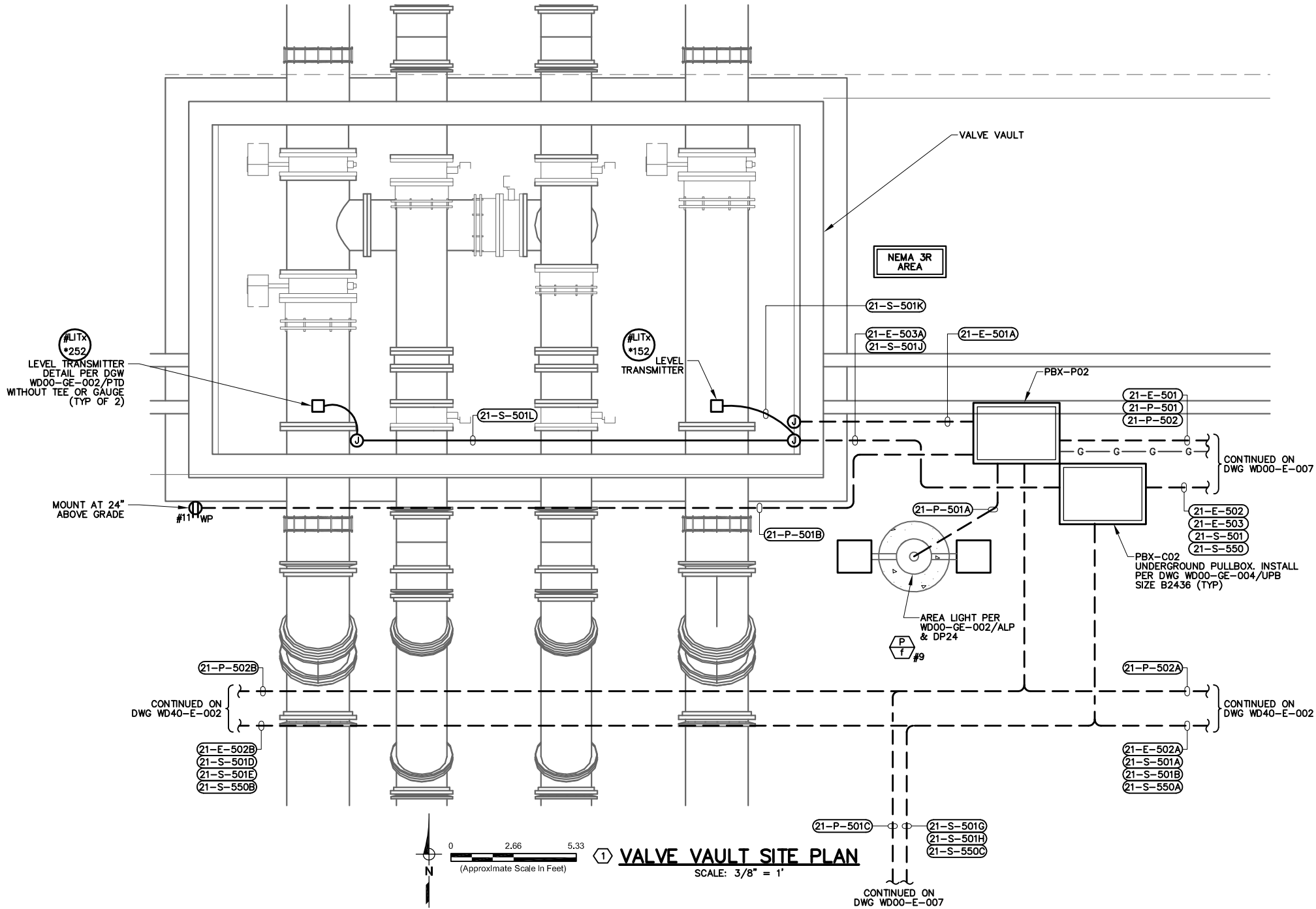
ELECTRICAL BLADDER TANK AREA ELECTRICAL PLAN	CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA		WATERWORKS ENGINEERS 2290 Douglas Blvd, Suite 105 • Roseville, CA 95678 • 916-760-2888	 FRISCH ENGINEERING, INC. CONSULTING ELECTRICAL ENGINEERS 73405 VOLCOM BLVD, UNIT 500 FOLSOM, CA 95630 PH 916 353 1025 WWW.FRISCHEENGINEERING.COM	DATE: NOVEMBER 2019	DRAWN T. FRISCH
					PROJECT NUMBER 17-083	CHECKED M. YARBROUGH
DRAWING NUMBER WD20-E-005					FILE: 17-083.DWG DATE: NOV 08, 2019 TIME: 11:13:44AM	APPROVED M. FRISCH
SHEET NUMBER 135						APPROVED M. FISHER

ELECTRICAL PLAN NOTES:

1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
5. CONDUIT ROUTING IS SHOWN GENERALLY DIAGRAMMATIC AND DOES NOT INDICATE TRENCH WIDTH OR TRENCH LAYOUT. FOR CONDUITS OUTSIDE BUILDINGS, IF CONTRACTOR WANTS TO RUN CONDUITS IN ROUTES OTHER THAN THOSE SHOWN FOR ANY REASON, THEN HE SHALL SUBMIT THE PLAN FOR APPROVAL PRIOR TO INSTALLATION. SPECIFY REASON FOR CHANGE.
6. INSTALL NON-UTILITY CONDUITS PER DRAWING DETAILS AND SPECIFICATIONS SECTION 16110.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND CONDUITS PER ELECTRICAL DETAIL RCE.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
10. EXPOSED CONDUIT TYPE AND FITTINGS TO BE USED ABOVE TRANSITION SHALL BE PER AREA CLASSIFICATION DEFINED IN CONDUIT SPECIFICATIONS AND EQUIPMENT SPECIFIC DETAIL.
11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.

DRAWING REFERENCED NOTES:

- ① EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.



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11-14-2019

DESIGN	T. FRISCH
DRAWN	M. YARBROUGH
CHECKED	M. FRISCH
APPROVED	M. FISHER

FRISCH ENGINEERING, INC.
13405 FOLEY BLVD., UNIT 600
FOLSOM, CA 95630
WWW.FRISCHENGINEERING.COM
FILE: 121 WD40E001.DWG
DATE: NOV 08, 2019 TIME: 11:14:13AM



CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

ELECTRICAL
TANK AREA VALVE VAULT
ELECTRICAL PLAN

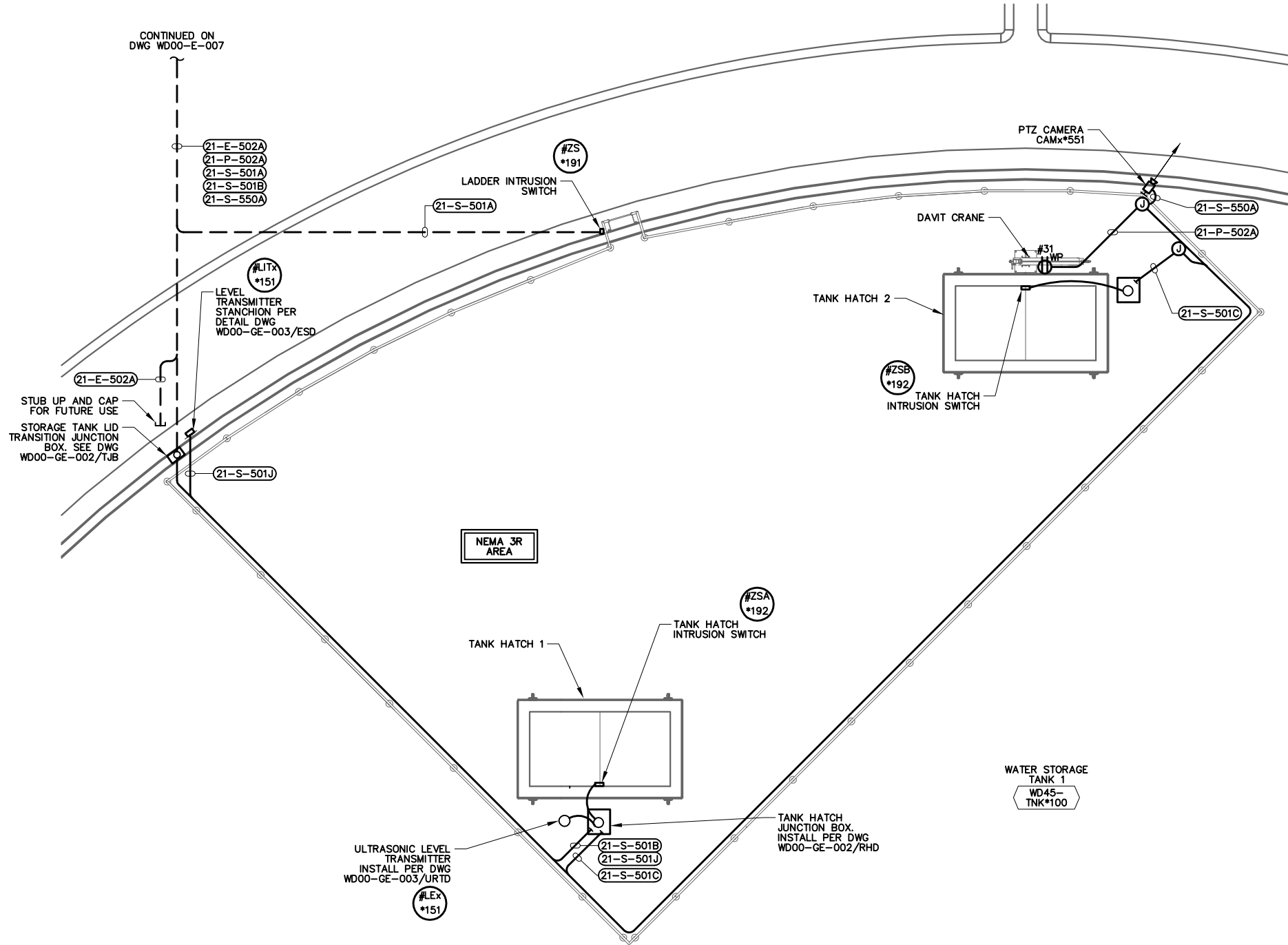
DATE	NOVEMBER 2019
PROJECT NUMBER	17-083
DRAWING NUMBER	WD40-E-001
SHEET NUMBER	136

ELECTRICAL PLAN NOTES:

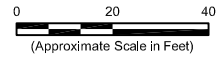
1. SEE ELECTRICAL SYMBOLS AND ABBREVIATIONS DRAWING FOR SYMBOL DEFINITION.
2. ALL WORK SHALL CONFORM TO LOCAL CODES AND NATIONAL ELECTRIC CODE.
3. SITEPLAN ACCURATE FOR ELECTRICAL WORK ONLY. COORDINATE WITH OTHER DISCIPLINES.
4. CONFIRM HOOKUP REQUIREMENTS FOR ELECTRICAL AND MECHANICAL EQUIPMENT PRIOR TO INSTALLING UNDERGROUND CONDUIT AND STUB-UPS. MISSING CONDUITS, INCORRECT SIZING, OR OTHER ISSUES MUST BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO BACKFILL.
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7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND CONDUITS PER ELECTRICAL DETAIL RCE.
9. CONDUIT TRANSITIONS SHALL BE PER EXPOSED CONDUIT TRANSITION DETAIL ECT.
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11. REPAIR SURFACE TO PREVIOUS CONDITION FOR ALL UNDERGROUND CONDUIT ROUTES. GROUT, CAULK, AND PAINT ANY PENETRATIONS INTO STRUCTURES FOR WATERTIGHT SEAL.
12. USE SS EXPANSION WEDGE ANCHORS OR EPOXY ANCHORS AS NECESSARY FOR EQUIPMENT MOUNTING.
13. RECEPTACLES TO BE GROUND FAULT INTERRUPTER (GFI) TYPE AND WEATHERPROOF (WP) OUTDOORS AND WHERE SHOWN.

DRAWING REFERENCED NOTES:

1. EQUIPMENT NUMBERS AND INSTRUMENT TAGS ON THIS DRAWING ARE INCOMPLETE. REFER TO P&IDS FOR COMPLETE TAG NUMBERS.
2. CONDUITS AND EQUIPMENT MOUNTED TO TANK WALL SHALL BE PER DETAIL 15010A IN ORDER TO AVOID PRESTRESS STRANDS. SEE CIVIL DETAILS.



1 STORAGE TANK 1 HATCH PLAN
SCALE: 1" = 20'
(SIMILAR FOR TANK 2 HATCH PLAN)

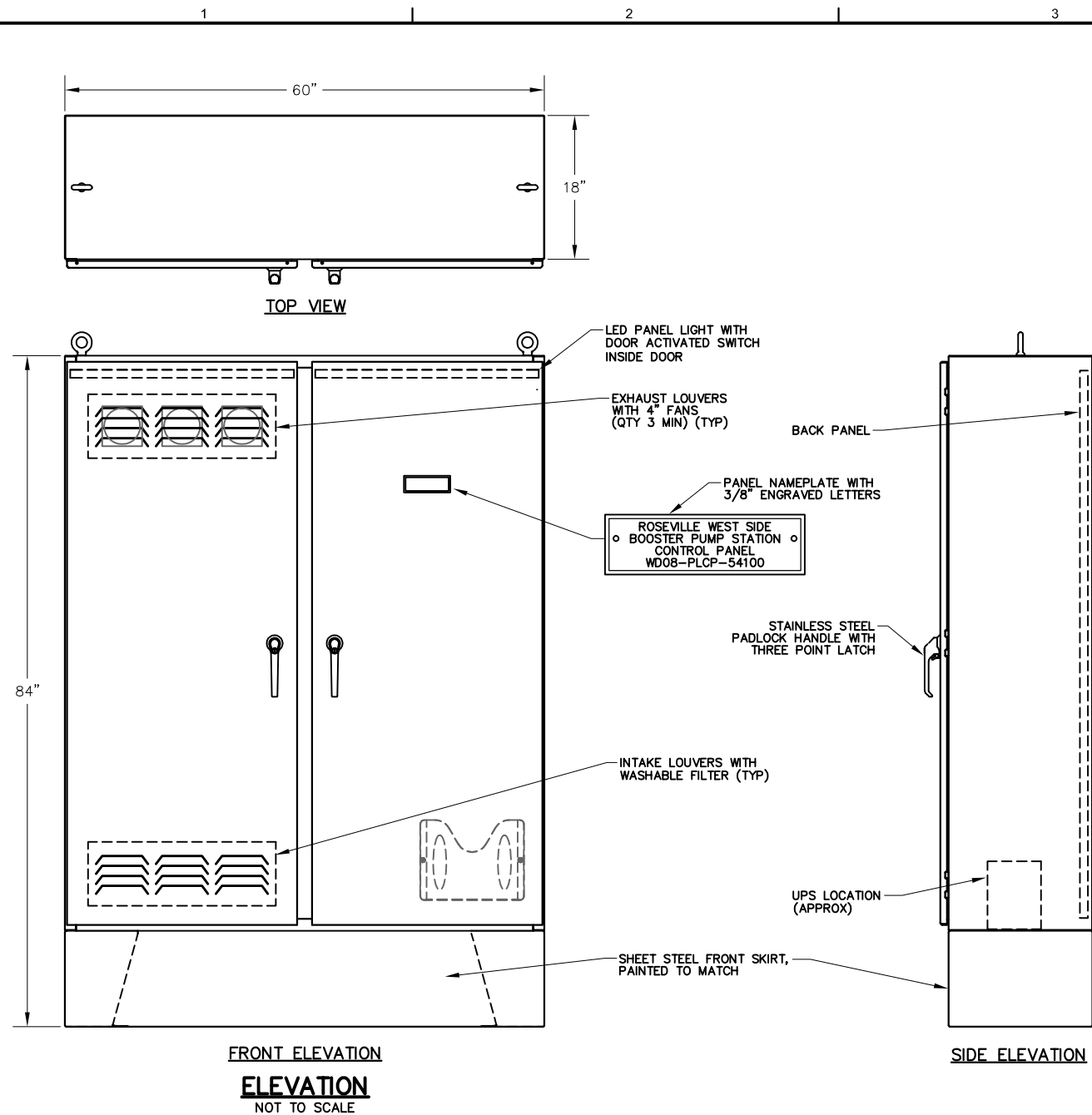


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DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESON BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM DATE: NOV 08, 2019 TIME: 11:14:21AM	CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA	ELECTRICAL STORAGE TANK TOP (TYPICAL) ELECTRICAL PLAN	DATE NOVEMBER 2019
DRAWN M. YARBROUGH	CHECKED M. FRISCH			PROJECT NUMBER 17-083
APPROVED M. FISHER				DRAWING NUMBER WD40-E-002
				SHEET NUMBER 137



PANEL FABRICATION METHODS

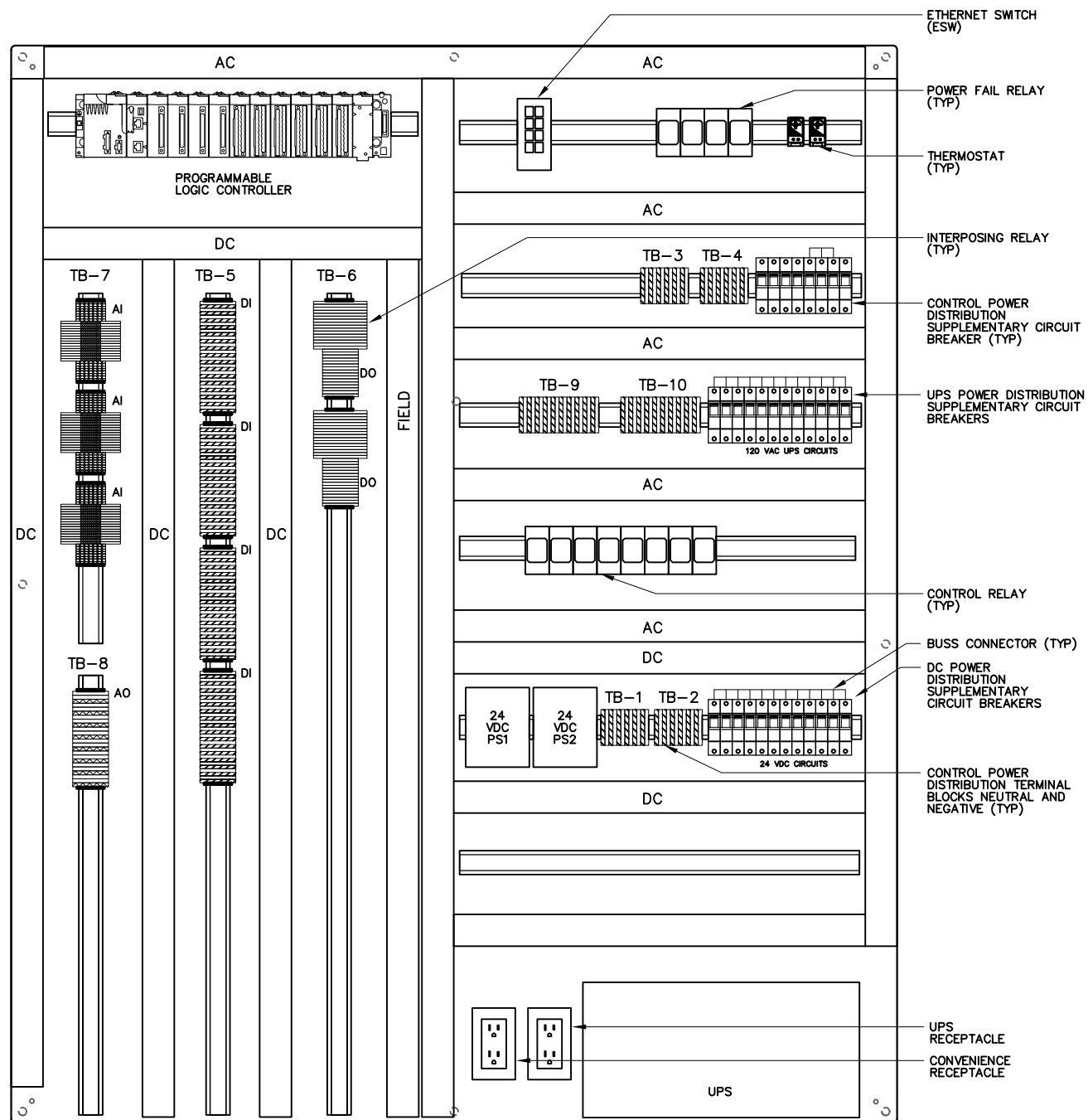
1. NEMA 12.
2. OUTER DOOR SEALED WITH RUBBERIZED FOAM GASKET.
3. PANEL SHALL BE FABRICATED FROM PAINT BOND GALVANEAL SHEET STEEL.
4. 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
5. ALL SEAMS SHALL HAVE CONTINUOUS WELD GROUND SMOOTH.
6. DOOR TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCH.
7. DOOR HINGES AND PINS SHALL BE CONTINUOUS, HEAVY DUTY.
8. NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
9. INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE MACHINE THREAD INTO TAPPED BACKPAN.
10. EXTERIOR PANEL COLOR: ANSI 61 GRAY.
11. MOUNTING PAN AND INTERIOR DOOR COLOR: WHITE.
12. FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
13. ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
14. WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
15. AS - BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.
16. SAGINAW ENVIROLINE TYPE 12 FLOOR MOUNT, OR EQUAL.

GENERAL NOTES:

1. REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ACTUAL BACKPAN LAYOUT SHALL BE SIMILAR TO LAYOUT SHOWN. SUBMIT SCALED BACKPAN LAYOUT FOR REVIEW BY ENGINEER.
2. QUANTITY OF TERMINAL BLOCKS AND RELAYS SHALL BE AS DETERMINED BY P&IDS AND EXAMPLE I/O WIRING DIAGRAM

LAYOUT REFERENCED NOTES:

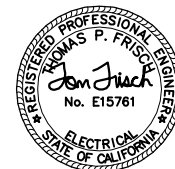
- ① WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.





BACKPAN LAYOUT ①

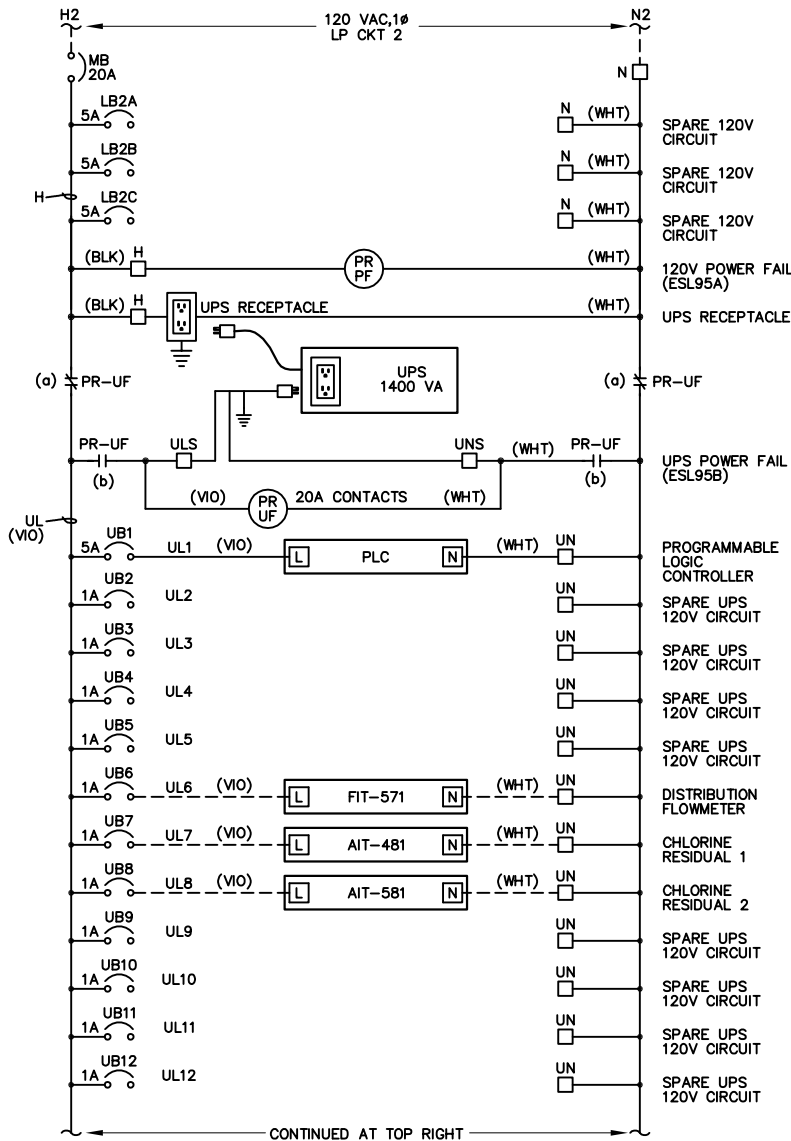
NOT TO SCALE

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CONSTRUCTION

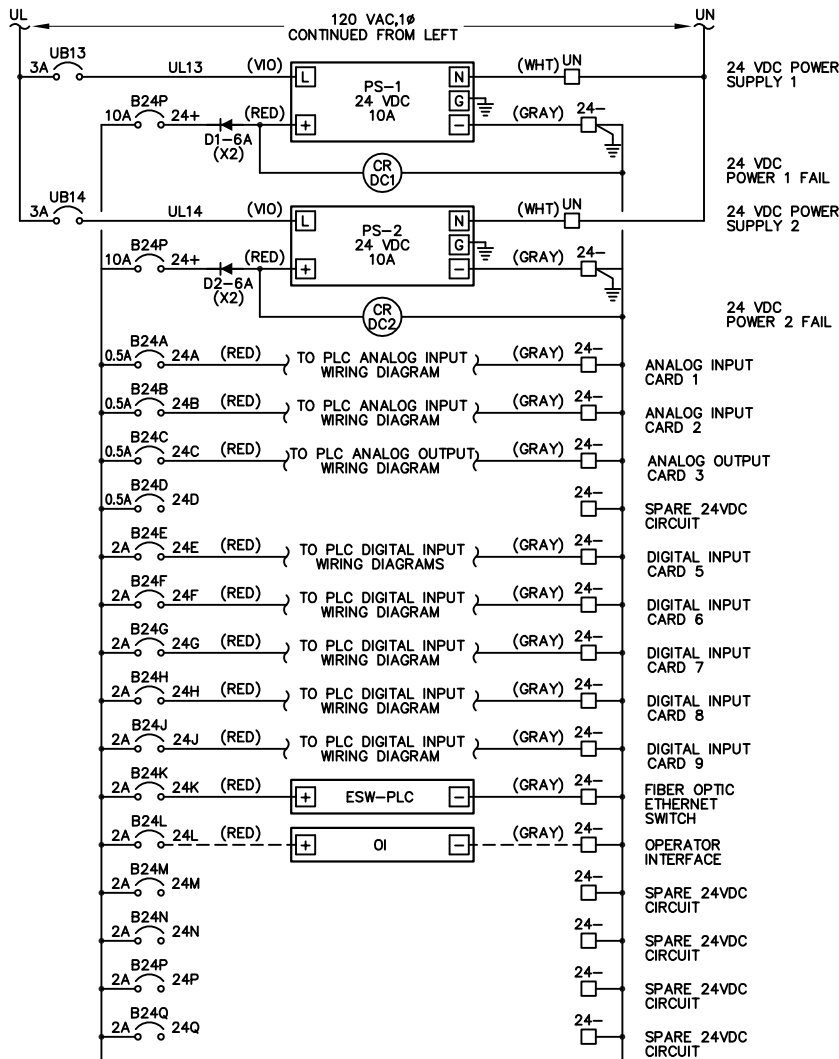


11-14-2019

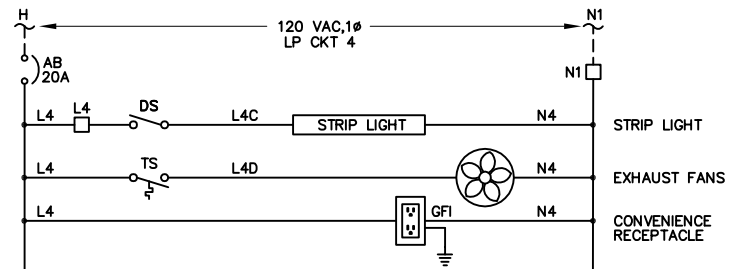
ELECTRICAL CONTROL PANEL ELEVATION AND BACKPAN LAYOUT		CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA		 WATERWORKS E N G I N E E R S 2260 Douglas Blvd, Suite 105 • Roseville, CA 95678 • 916-769-2888		 FRISCH ENGINEERING, INC. CONSULTING ELECTRICAL ENGINEERS 13405 FOLESON BLVD., UNIT 600 FOLSOM, CA 95630 PH 916.353.1025 WWW.FRISCHENGINEERING.COM FILE: 20190801.DWG DATE: NOV 08, 2019 TIME: 11:15:12AM		DESIGN T. FRISCH DRAWN M. YARBROUGH CHECKED M. FRISCH APPROVED M. FISHER	
DATE NOVEMBER 2019		PROJECT NUMBER 17-083		DRAWING NUMBER WD20-I-001		SHEET NUMBER 138			



POWER DISTRIBUTION DIAGRAM

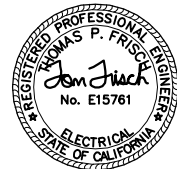


POWER DISTRIBUTION DIAGRAM - CONTINUED



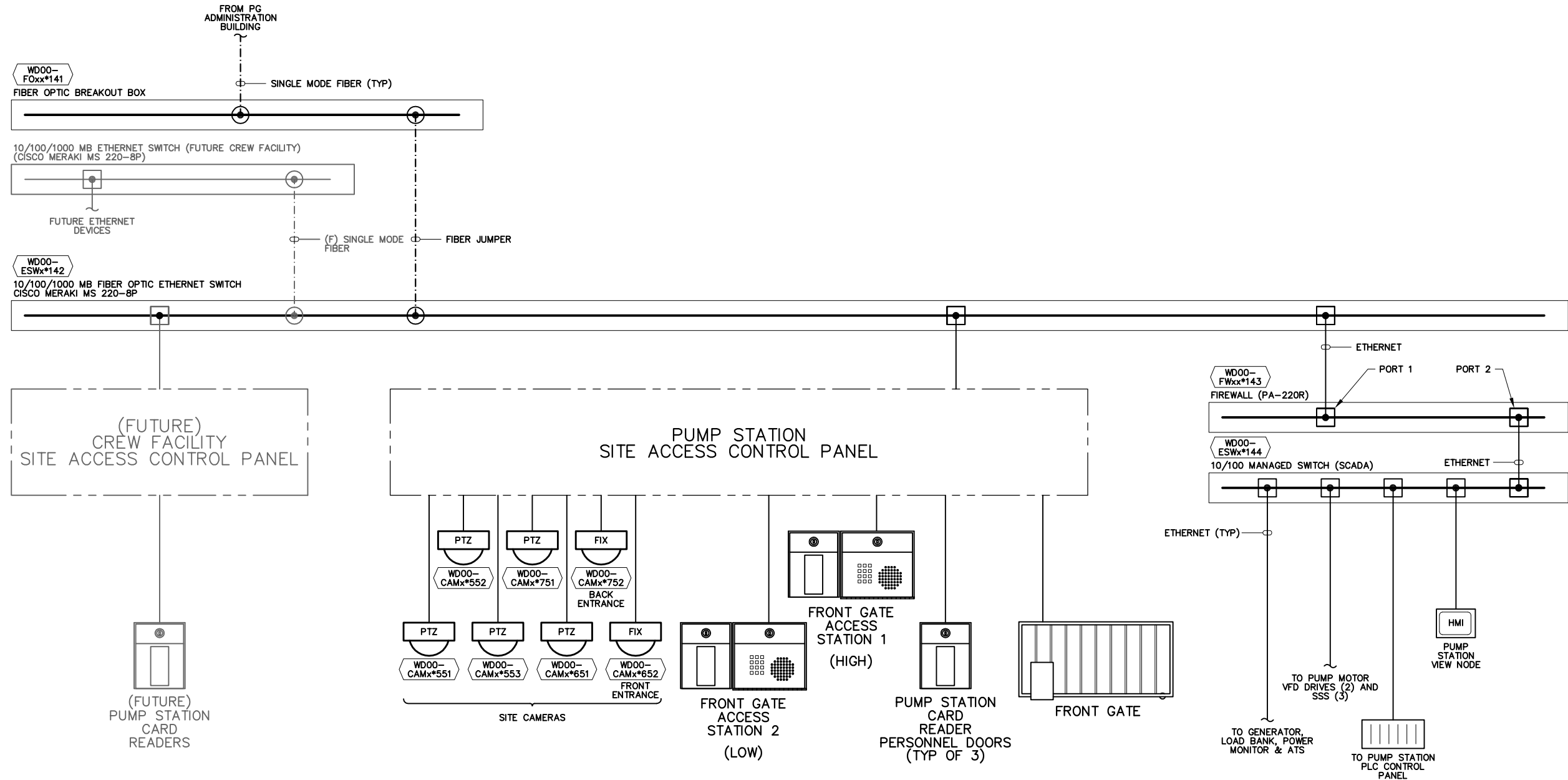
AUXILLIARY POWER DIAGRAM

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11-14-2019

DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESBY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 131 WD201002.DWG DATE: NOV 08, 2019 TIME: 11:15:23AM
DRAWN M. YARBROUGH	WATERWORKS ENGINEERS 2260 Douglas Blvd. Suite 105 • Roseville, CA 95678 • 916-790-2688
CHECKED M. FRISCH	
APPROVED M. FISHER	
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA	
ELECTRICAL CONTROL PANEL POWER DISTRIBUTION DIAGRAMS	
DATE NOVEMBER 2019	
PROJECT NUMBER 17-083	
DRAWING NUMBER WD20-I-002	
SHEET NUMBER 139	



LEGEND	
SYMBOL	DESCRIPTION
PLC	PLC CONTROL PANEL
OI	OPERATOR INTERFACE LOCAL TOUCHSCREEN PANEL
FIX	FIXED POSITION CAMERA
PTZ	PAN/TILT/ZOOM CAMERA
●	FIBER OPTIC LC SFP MODULE GIGABIT CONNECTION
■	ETHERNET CONNECTION
▲	BNC CONNECTION
●	NETWORK CONNECTION
—	ETHERNET UNLESS OTHERWISE NOTED
- - -	FIELD ETHERNET UNLESS OTHERWISE NOTED
- · - · -	FIBER OPTIC

DESIGN
T. FRISCH

DRAWN
M. YARBROUGH

CHECKED
M. FRISCH

APPROVED
M. FISHER

FRISCH ENGINEERING, INC.
13405 FOLESON BLVD., UNIT 600
FOLSOM, CA 95630
WWW.FRISCHENGINEERING.COM
DATE: NOV 08, 2019 TIME: 11:15:35AM

WATERWORKS
ENGINEERS

2260 Douglas Blvd, Suite 105 • Roseville, CA 95678 • 916-790-2688

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

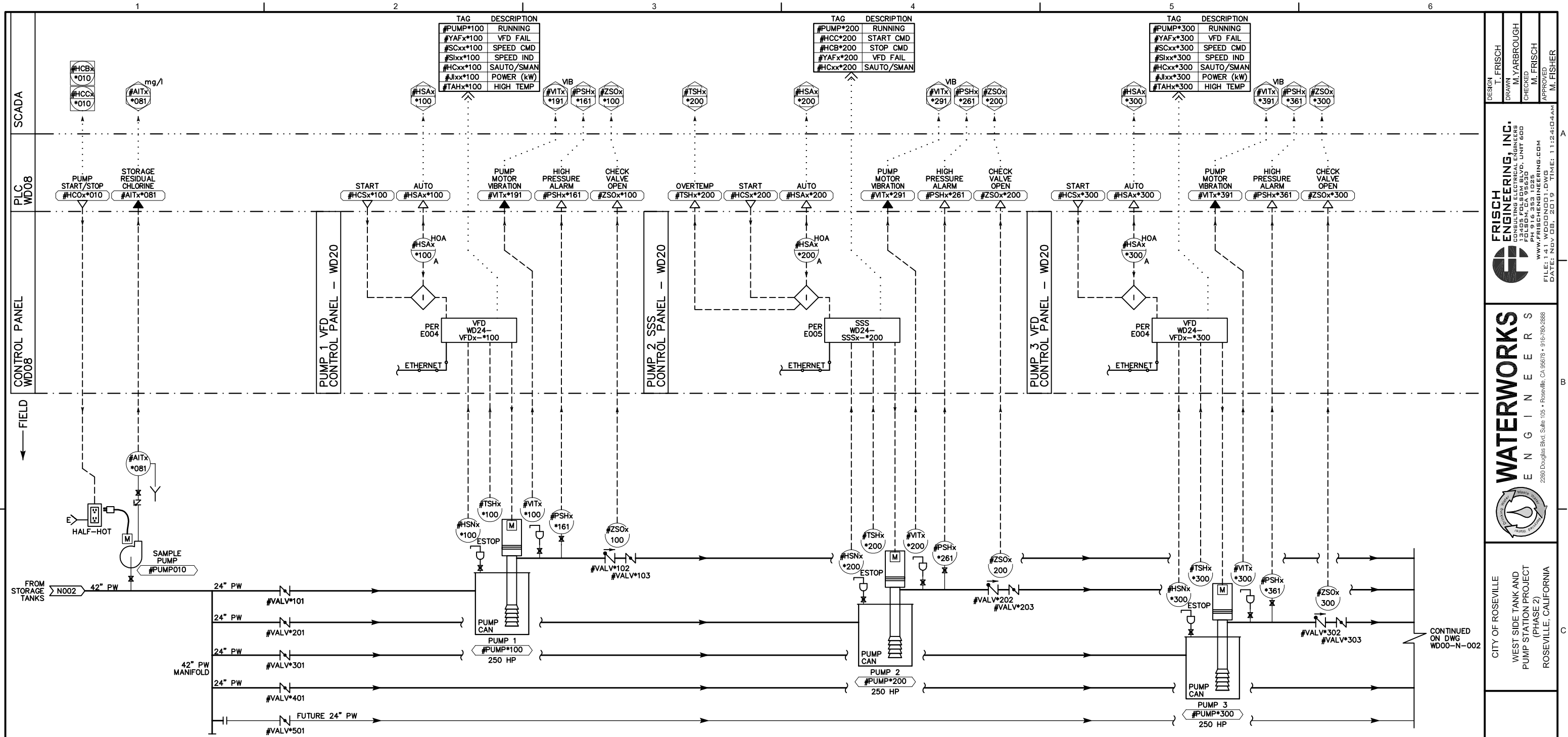
ELECTRICAL
COMMUNICATION BLOCK DIAGRAM

DATE
NOVEMBER 2019
PROJECT NUMBER
17-083
DRAWING NUMBER
WD20-I-003
SHEET NUMBER 140

COMMUNICATION BLOCK DIAGRAM

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CONSTRUCTION

REGISTERED PROFESSIONAL ENGINEER
THOMAS P. FRISCH
No. E15761
ELECTRICAL
STATE OF CALIFORNIA
11-14-2019



BOOSTER PUMPS SHEET 1

TAG CONVENTION

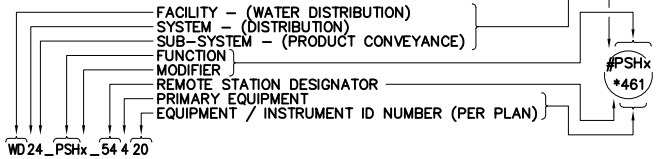
EACH EQUIPMENT AND INSTRUMENT TAG NUMBER SHALL BE CONSTRUCTED PER THE TAG EXAMPLE SHOWN AT RIGHT.

FOR THIS SHEET REPLACE:

"#" WITH "WD24_" (FACILITY/SYSTEM/SUB-SYSTEM)

"*" WITH "_54" (REMOTE STATION DESIGNATOR)

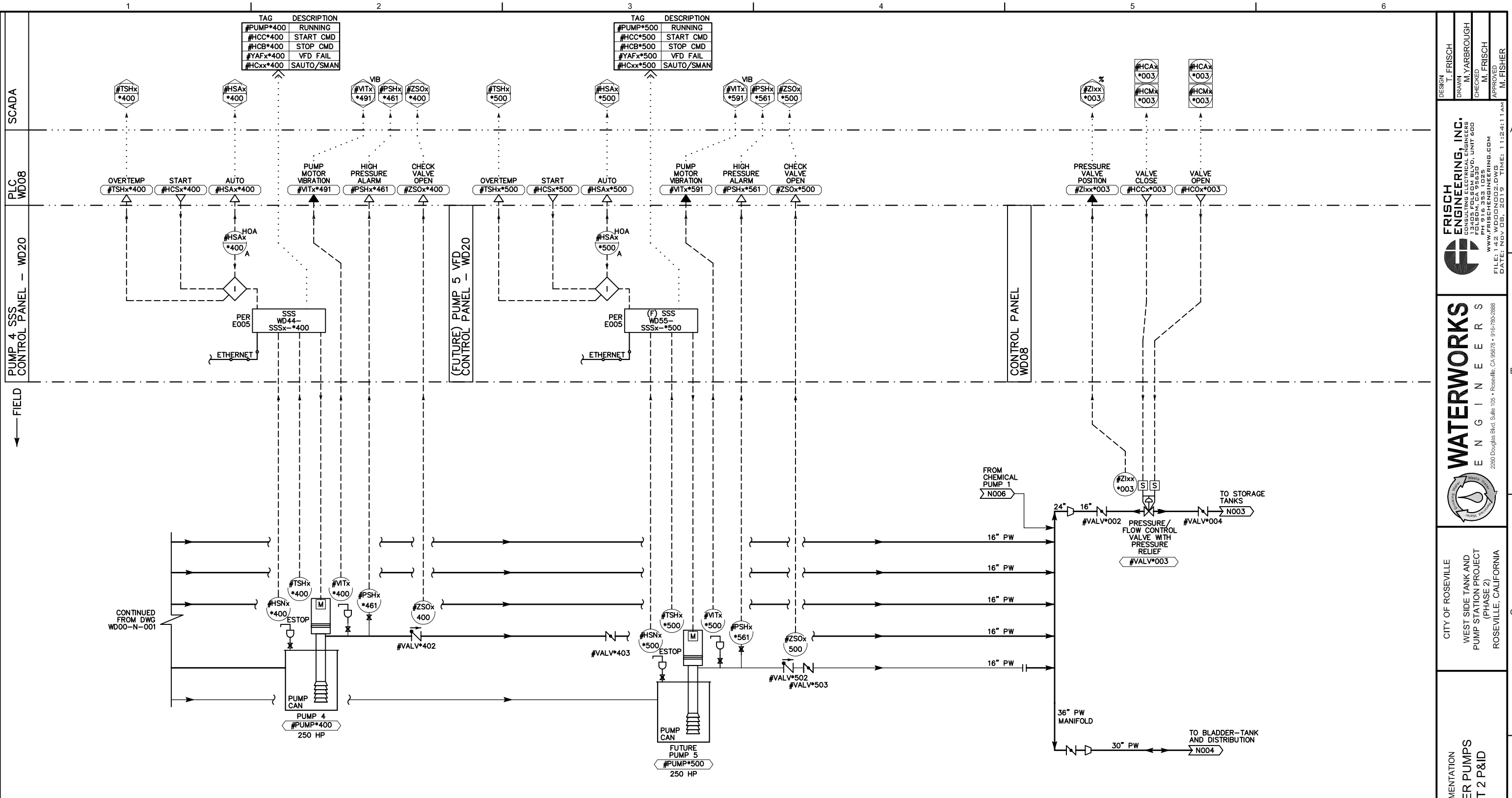
TAG EXAMPLE



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CONSTRUCTION

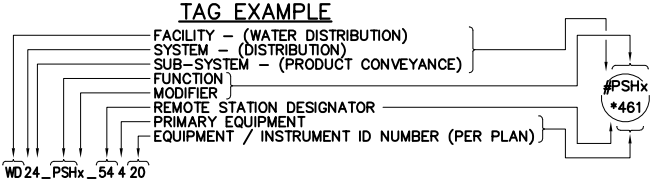


DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESBY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM DATE: NOV 08, 2019 TIME: 11:24:04AM
DRAWN M. YARBROUGH	
CHECKED M. FRISCH	
APPROVED M. FISHER	
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95678 • 916-790-2688	
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA	
INSTRUMENTATION BOOSTER PUMPS SHEET 1 P&ID	
DATE NOVEMBER 2019	
PROJECT NUMBER 17-083	
DRAWING NUMBER WD00-N-001	
SHEET NUMBER 143	



BOOSTER PUMPS SHEET 2

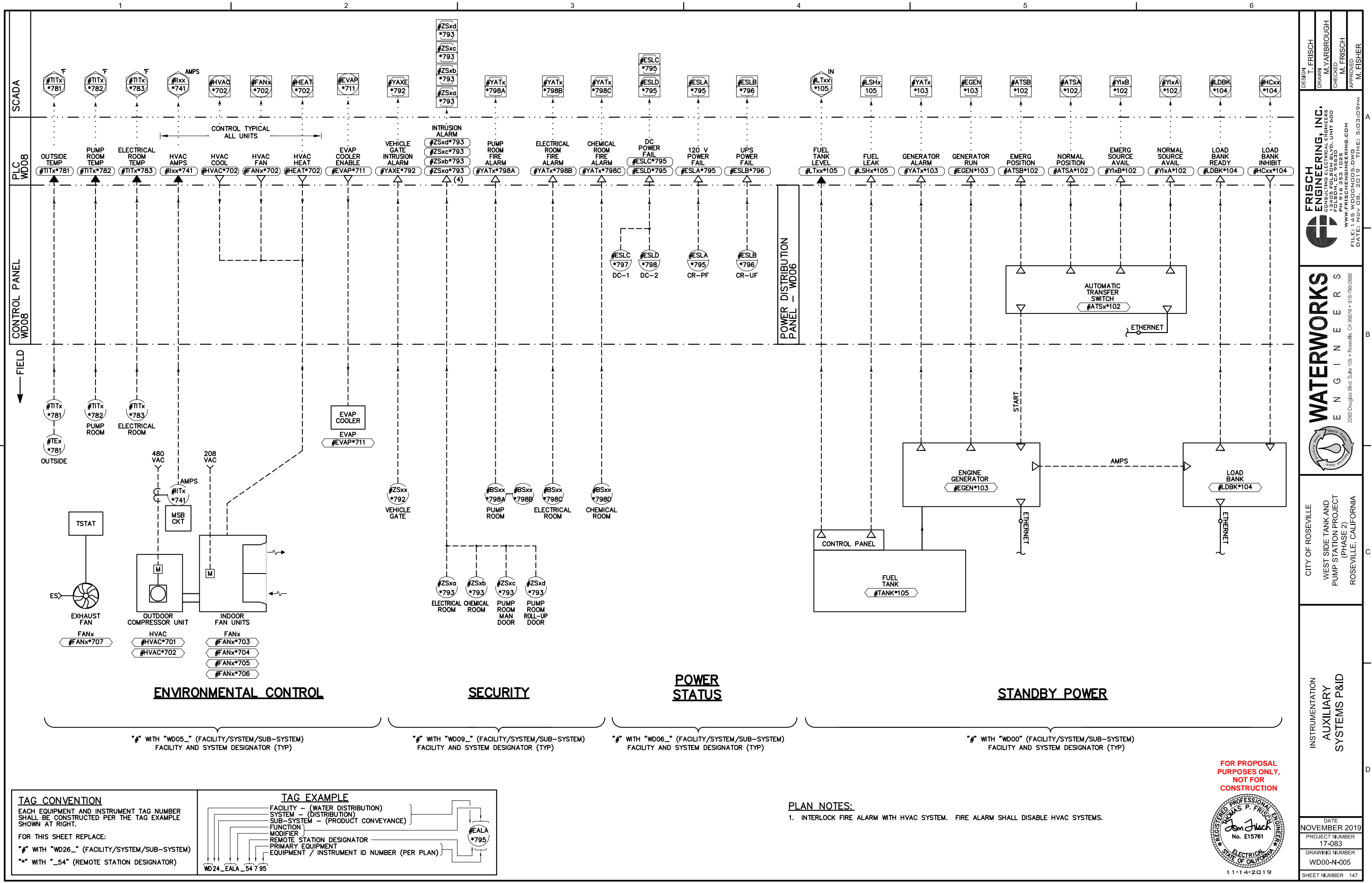
TAG CONVENTION
EACH EQUIPMENT AND INSTRUMENT TAG NUMBER SHALL BE CONSTRUCTED PER THE TAG EXAMPLE SHOWN AT RIGHT.
FOR THIS SHEET REPLACE:
"#" WITH "WD24_" (FACILITY/SYSTEM/SUB-SYSTEM)
"#" WITH "_54" (REMOTE STATION DESIGNATOR)



FOR PROPOSAL
PURPOSES ONLY,
NOT FOR
CONSTRUCTION



DESIGN T. FRISCH	FRISCH ENGINEERING, INC. 13405 FOLESBY BLVD., UNIT 600 FOLSOM, CA 95630 WWW.FRISCHENGINEERING.COM FILE: 1142 WD00N002.DWG DATE: NOV 08, 2019	DATE NOVEMBER 2019
DRAWN M. YARBROUGH		PROJECT NUMBER 17-083
CHECKED M. FRISCH		DRAWING NUMBER WD00-N-002
APPROVED M. FISHER		SHEET NUMBER 144
WATERWORKS ENGINEERS 2260 Douglas Blvd., Suite 105 • Roseville, CA 95678 • 916-790-2688		INSTRUMENTATION BOOSTER PUMPS SHEET 2 P&ID
CITY OF ROSEVILLE WEST SIDE TANK AND PUMP STATION PROJECT (PHASE 2) ROSEVILLE, CALIFORNIA		



TAG CONVENTION

EACH EQUIPMENT AND INSTRUMENT TAG NUMBER SHALL BE CONSTRUCTED PER THE TAG EXAMPLE SHOWN AT RIGHT.

FOR THIS SHEET REPLACE:

"#" WITH "WD26_" (FACILITY/SYSTEM/SUB-SYSTEM)

"*" WITH "_54" (REMOTE STATION DESIGNATOR)

TAG EXAMPLE

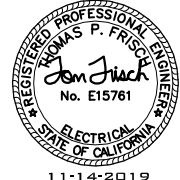
FACILITY - (WATER DISTRIBUTION)
SYSTEM - (DISTRIBUTION)
SUB-SYSTEM - (PRODUCT CONVEYANCE)
FUNCTION
MODIFIER
REMOTE STATION DESIGNATOR
PRIMARY EQUIPMENT
EQUIPMENT / INSTRUMENT ID NUMBER (PER PLAN)

WD24_EALA_54795

PLAN NOTES:

1. INTERLOCK FIRE ALARM WITH HVAC SYSTEM. FIRE ALARM SHALL DISABLE HVAC SYSTEMS.

FOR PROPOSAL
PURPOSES ONLY,
NOT FOR
CONSTRUCTION



DESIGN: T. FRISCH
DRAWN: M. YARBROUGH
CHECKED: M. FRISCH
APPROVED: M. FISHER

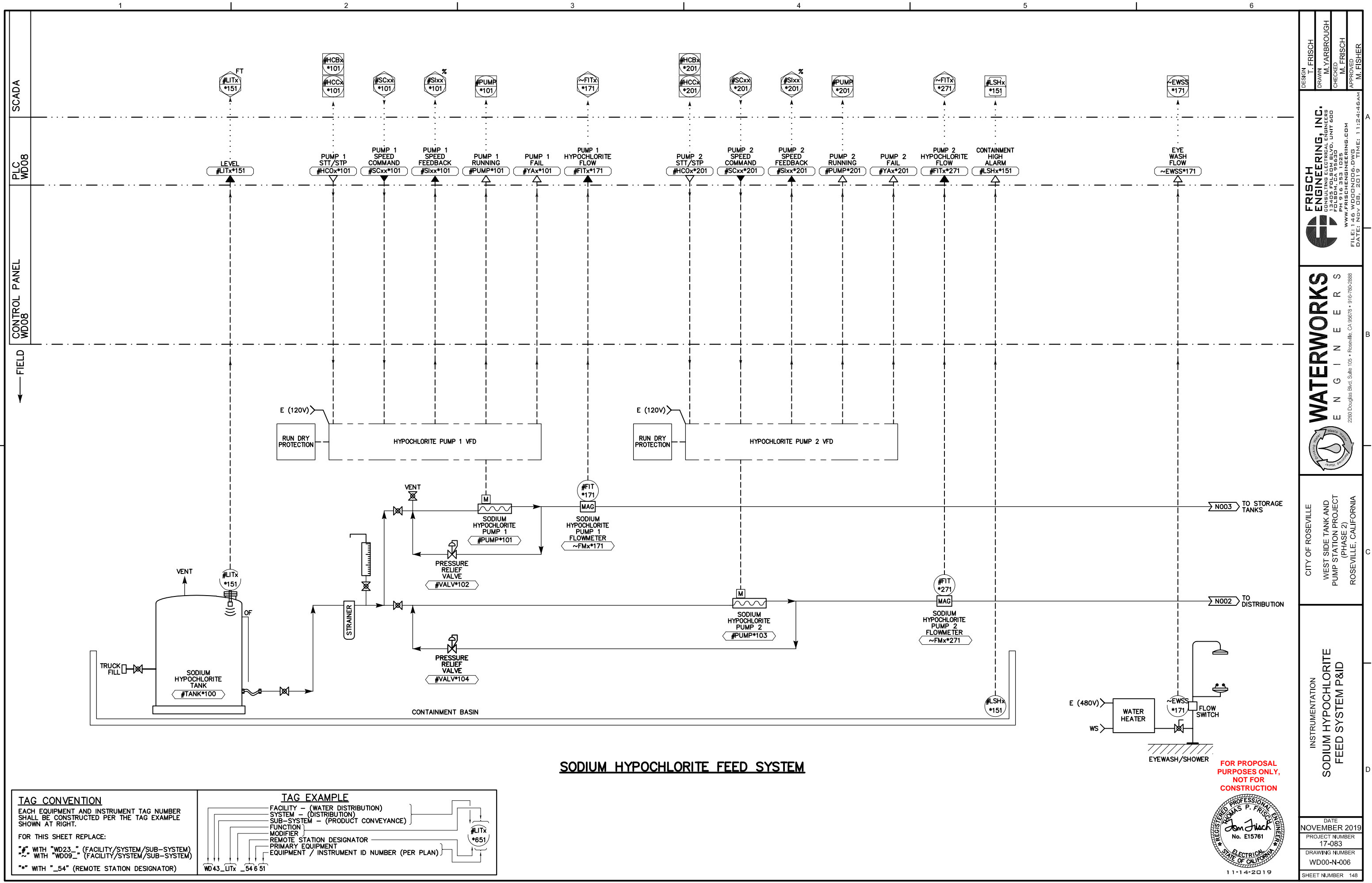
FRISCH ENGINEERING, INC.
13405 FOLESDEN BLVD., UNIT 600
FOLSOM, CA 95630
WWW.FRISCHENGINEERING.COM
FILE: 1145 WD00N005.DWG
DATE: NOV 08, 2019 TIME: 5:03:09PM

WATERWORKS
ENGINEERS
2260 Douglas Blvd, Suite 105 • Roseville, CA 95678 • 916-790-2888

CITY OF ROSEVILLE
WEST SIDE TANK AND
PUMP STATION PROJECT
(PHASE 2)
ROSEVILLE, CALIFORNIA

INSTRUMENTATION
AUXILIARY
SYSTEMS P&ID

DATE: NOVEMBER 2019
PROJECT NUMBER: 17-083
DRAWING NUMBER: WD00-N-005
SHEET NUMBER: 147



TAG CONVENTION

EACH EQUIPMENT AND INSTRUMENT TAG NUMBER SHALL BE CONSTRUCTED PER THE TAG EXAMPLE SHOWN AT RIGHT.

FOR THIS SHEET REPLACE:

"#" WITH "WD23_" (FACILITY/SYSTEM/SUB-SYSTEM)

"~" WITH "WD09_" (FACILITY/SYSTEM/SUB-SYSTEM)

"*" WITH "_54" (REMOTE STATION DESIGNATOR)

TAG EXAMPLE

FACILITY - (WATER DISTRIBUTION)

SYSTEM - (DISTRIBUTION)

SUB-SYSTEM - (PRODUCT CONVEYANCE)

FUNCTION

MODIFIER

REMOTE STATION DESIGNATOR

PRIMARY EQUIPMENT

EQUIPMENT / INSTRUMENT ID NUMBER (PER PLAN)

WD43_LITx_54651

SODIUM HYPOCHLORITE FEED SYSTEM