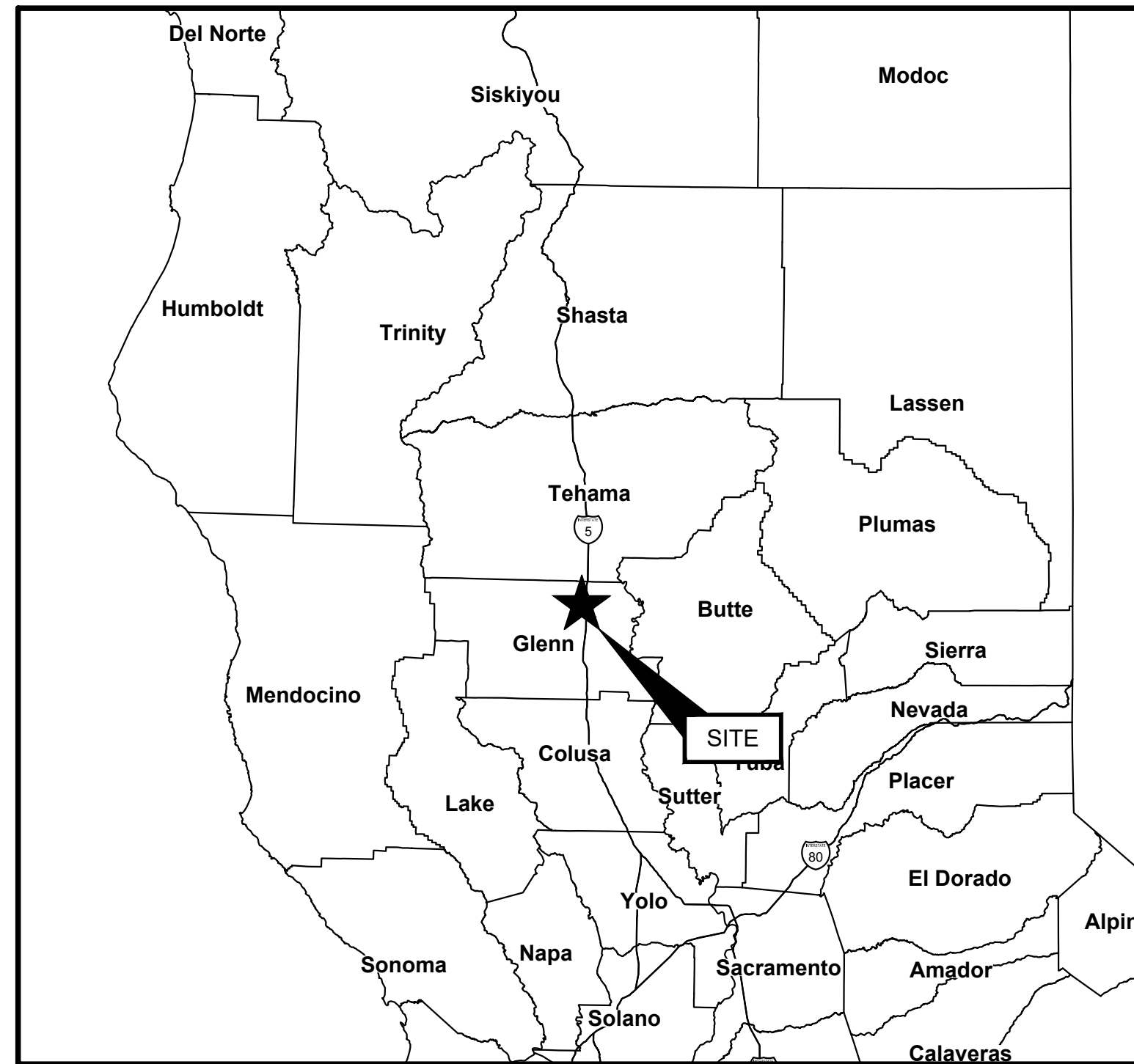
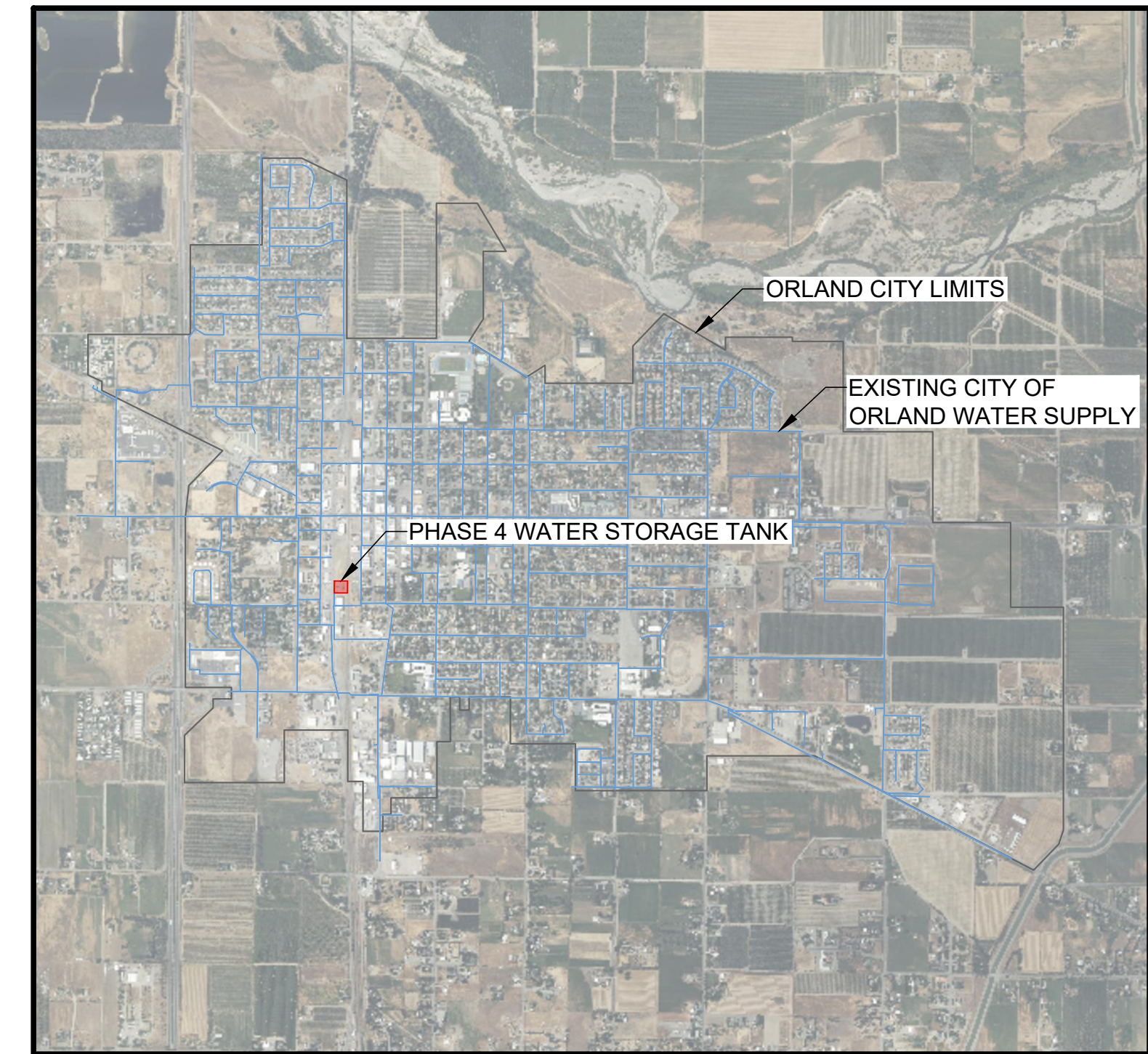


STATE OF CALIFORNIA  
 CALIFORNIA NATURAL RESOURCES AGENCY  
**DEPARTMENT OF WATER RESOURCES**

DIVISION OF REGIONAL ASSISTANCE WATER MANAGEMENT  
 SMALL COMMUNITY DROUGHT RELIEF PROGRAM  
 CITY OF ORLAND  
 ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT  
 PHASE 4



STATE or COUNTY MAP  
 (NOT TO SCALE)



SOURCE:  
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SITE LOCATION MAP  
 (NOT TO SCALE)

LEGEND

■ PHASE 4 WATER STORAGE TANK LOCATION

PREPARED FOR:  
  
 CITY OF ORLAND  
 815 FOURTH STREET  
 ORLAND, CA 95963  
 (530)865-1610



PREPARED BY:  
  
 GEI CONSULTANTS, INC  
 11010 WHITE ROCK ROAD  
 SUITE 200  
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GEI PROJECT NO. 2204930  
 APRIL, 2024

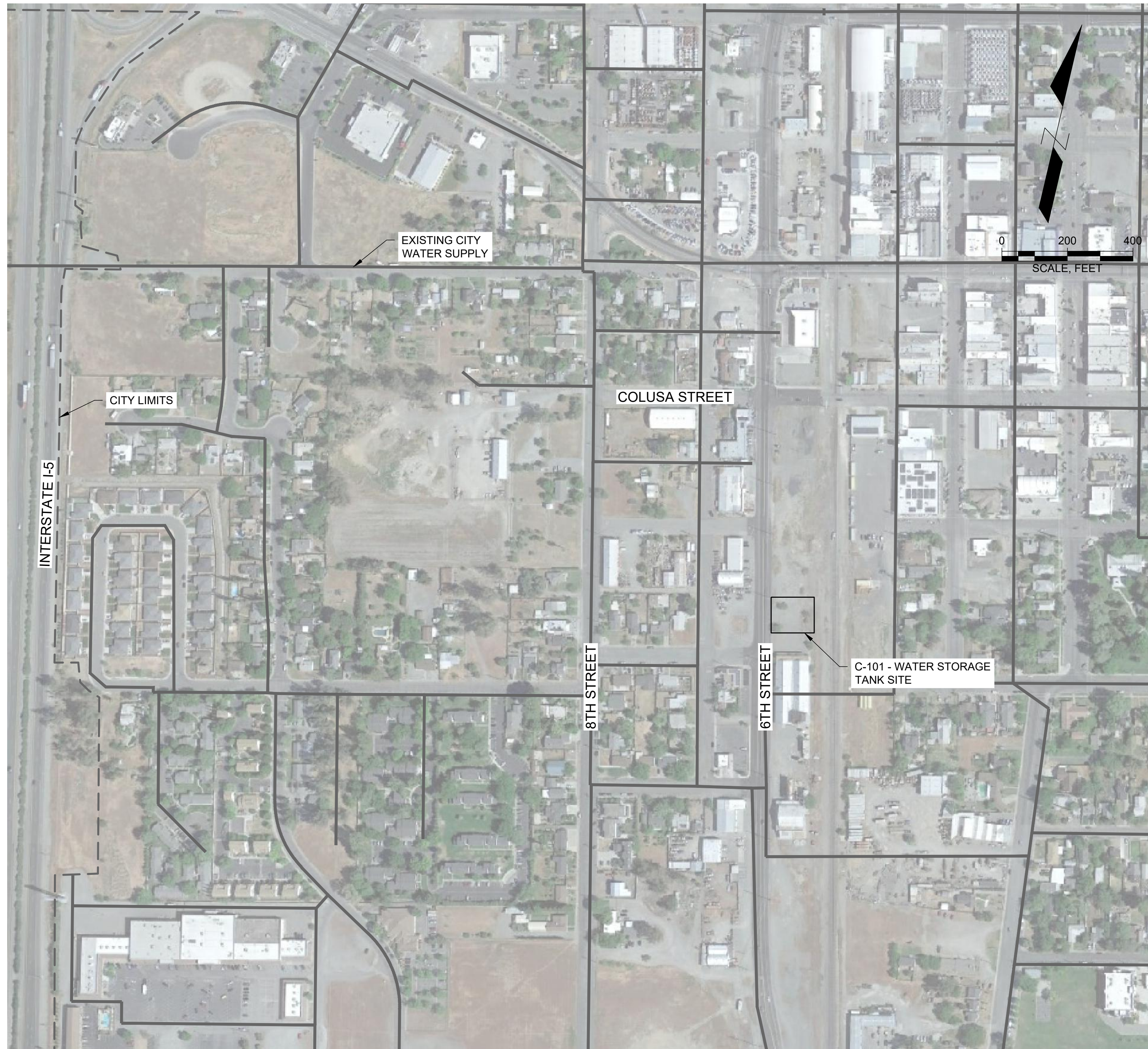
ISSUE FOR BID

	DWG. NO. <b>G-01</b>
	SHEET NO. 1 OF 42
	REV. NO. ----

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**ORLAND WATER SUPPLY**

Sheet Number	Drawing Number	Sheet Name
<b>GENERAL</b>		
1	G-01	COVER SHEET
2	G-02	DRAWING INDEX AND KEY MAP
3	G-03	CIVIL AND GENERAL LEGEND
4	G-04	PROCESS MECHANICAL ABBREVIATIONS AND SYMBOLS LEGEND
5	G-05	PROCESS MECHANICAL SYMBOLS LEGEND
6	G-06	GENERAL NOTES AND CONSTRUCTION NOTES
7	G-07	BASIS OF SURVEY
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8	CG-01	CONCRETE VAULT DETAILS
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10	CG-03	CHAIN LINK FENCE DETAILS
11	CG-04	THRUST BLOCK AND VALVE COVER DETAILS
12	CG-05	SITE DETAILS
13	CG-06	PIPE TRENCH DETAILS
14	CG-07	PIPING AND MECHANICAL STANDARD DETAILS
<b>CIVIL (SITE)</b>		
15	C-101	BOOSTER PUMP AND WATER STORAGE TANK SITE PLAN
16	C-102	BOOSTER PUMP AND WATER STORAGE TANK GRADING PLAN
<b>MECHANICAL</b>		
17	P-01	OVERALL SYSTEM FLOW DIAGRAM
18	P-02	BOOSTER PUMP AND GROUND STORAGE TANK FLOW DIAGRAM
19	M-01	BOOSTER PUMP PIPING PLAN AND SECTIONS
<b>STRUCTURAL</b>		
20	S-01	GENERAL STRUCTURAL NOTES AND CONSTRUCTION NOTES
21	S-02	PUMP BUILDING FOUNDATION AND EQUIPMENT PAD DETAILS
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23	S-04	WATER TANK ROOF PLAN
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<b>INSTRUMENTATION</b>		
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42	I-2	TANK AND BOOSTER PUMP P&ID



KEY MAP

**ISSUED FOR BID**

Attention:  
  
 If this scale bar does not measure 1" then drawing is not original scale.



Designed: C. TRUEBLOOD  
 Drawn: J. AVILA  
 Checked: M. MARTIN  
 Approved: S. GALA  
 P.E. No: C90942  
 GEI Project 2204930



**ORLAND EMERGENCY  
 GROUNDWATER  
 RESOURCE PROJECT  
 PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**DRAWING INDEX AND  
 KEY MAP**

SHEET NO.  
 2 OF 42  
**G-02**



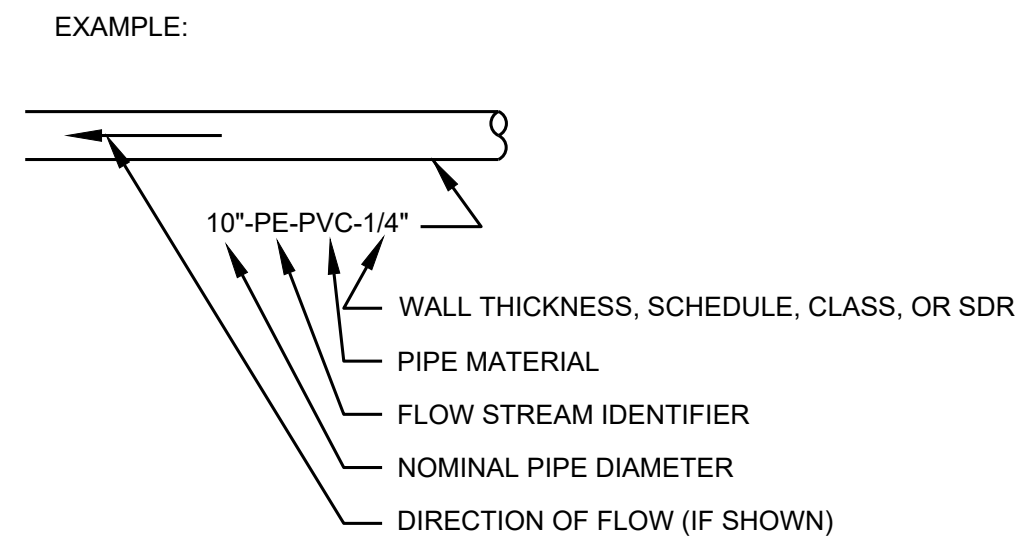
**ABBREVIATIONS**

AVG	AVERAGE
B/	BOTTOM OF
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
CL	CENTERLINE
CO	CLEAN OUT
CONT	CONTINUATION
CPVC	CHLORINATED POLYVINYL CHLORIDE
CT	COPPER TUBE
DEG or °	DEGREE
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DWG	DRAWING
ECC	ECCENTRIC
EL	ELEVATION
ELL	ELBOW
EXIST	EXISTING
EXP	EXPANSION
FCA	FLANGED COUPLING ADAPTER
FLG	FLANGE
FL	FLOOR
GALV	GALVANIZED
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
HWL	HIGH WATER LEVEL
ID	INSIDE DIAMETER
INV	INVERT
LP	LOW POINT
LR	LONG RADIUS
LWL	LOW WATER LEVEL
MAX	MAXIMUM
MFR	MANUFACTURER
MIN	MINIMUM
MJ	MECHANICAL JOINT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
P&ID	PROCESS AND INSTRUMENTATION DIAGRAM
PCP	PRESTRESSED CONCRETE PIPE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
SR	SHORT RADIUS
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
T/	TOP OF
TYP	TYPICAL
W/	WITH
W/O	WITHOUT
WL	WATER LEVEL
YR	YEAR

**FLOW STREAM IDENTIFIERS**

ACS	ACID SOLUTION	PD	PROCESS DRAIN
AHP	AIR, HIGH PRESSURE	PDG	PURIFIED DIGESTER GAS
AI	AIR, INSTRUMENT	PE	PRIMARY EFFLUENT
AL	ALUM	PI	PRIMARY INFLUENT
ALP	AIR, LOW PRESSURE	PL	PICKLE LIQUOR
ALS	ALUM SOLUTION	PLE	PLANT EFFLUENT
AM	LIQUID AMMONIA	PO	POLYMER SOLUTION
AMG	AMMONIA GAS-PRESSURE	PSU	PRIMARY SLUDGE UNDERFLOW
AMS	AMMONIA SOLUTION	PSM	PRIMARY SCUM
AMV	AMMONIA GAS-VACUUM		
		RAS	RETURN ACTIVATED SLUDGE
BD	BASIN DRAIN	RCS	RECARBONATION SLUDGE
BPW	BELT PRESS WASH WATER	RCY	RECYCLE
BWS	BACKWASH SUPPLY	RNS	RETURN NITRIFIED SLUDGE
BYP	BYPASS	RSD	RECIRCULATED SLUDGE
		RW	RAW WATER
CAG	COAGULANT	RWW	RAW WASTEWATER
CAR	COOLING AIR RETURN		
CAS	COOLING AIR SUPPLY	SA	SAMPLE
CD	CARBON DIOXIDE GAS	SAN	SANITARY SEWER
CDS	CARBON DIOXIDE SOLUTION	SAS	SODA ASH SOLUTION
CFE	CHLORINATED FINAL EFFLUENT	SB	SODIUM BISULFITE
CG	CHLORINE GAS-PRESSURE	SBE	SEDIMENTATION BASIN EFFLUENT
CGV	CHLORINE GAS-VACUUM	SC	SCUM
CHS	CHEMICAL SLUDGE	SCN	SCREENINGS
CL	LIQUID CHLORINE	SDG	SULFUR DIOXIDE GAS-PRESSURE
CNT	CENTRATE	SDL	SULFUR DIOXIDE-LIQUID
CRS	CARBON SLURRY	SDS	SULFUR DIOXIDE SOLUTION
CS	CHLORINE SOLUTION	SDV	SULFUR DIOXIDE GAS-VACUUM
CW	COOLING WATER	SE	SECONDARY EFFLUENT
CWR	COOLING WATER RETURN	SEB	SELENIUM BRINE
CWS	COOLING WATER SUPPLY	SH	SLUDGE HOT
		SHC	SODIUM HYPOCHLORITE SOLUTION
D	DRAIN	SI	SECONDARY INFLUENT
DCT	DECANT	SSM	SECONDARY SCUM
DFE	DECHLORINATED FINAL EFFLUENT	SBN	SUBNATANT
DG	DIGESTER GAS	SPN	SUPERNATANT
DS	DIGESTED SLUDGE	SW2	SOFTENED W2 WATER
DWS	DEWATERED SLUDGE	SWR	STORMWATER
F	FILTRATE	TS	TAILINGS SLURRY
FA	FLY ASH	TAS	THICKENED ACTIVATED SLUDGE
FB	FILTER BACKWASH WASTE WATER	TBS	THICKENED BOTTOM SLUDGE
FC	FERRIC CHLORIDE	TDS	THICKENED DIGESTED SLUDGE
FCE	FINAL CLARIFIER EFFLUENT	TFE	TRICKLING FILTER EFFLUENT
FCI	FINAL CLARIFIER INFLUENT	TFI	TRICKLING FILTER INFLUENT
FCS	FINAL CLARIFIER SCUM	TFR	TRICKLING FILTER RECYCLE
FE	FILTER EFFLUENT	TOF	THICKENER OVERFLOW
FI	FILTER INFLUENT	TPS	THICKENED PRIMARY SLUDGE
FW	FINISHED WATER	TUF	THICKENER UNDERFLOW
G	NATURAL GAS	UD	UNDERDRAIN
GR	GRIT		
GRS	GRIT SLURRY	V	VENT
GS	GREASE	VAC	VACUUM
GTS	GRAVITY THICKENED SLUDGE		
		W1	WATER (POTABLE)
HF	HYDRAULIC FLUID	W2	WATER (POTABLE WATER AFTER A BACKFLOW PREVENTER)
HP	HYDROGEN PEROXIDE	W3	WATER (PROCESS EFFLUENT USED FOR FLUSHING WATER OR OTHER UTILITY REQUIREMENTS)
HWR	HEATING WATER RETURN		
HWS	HEATING WATER SUPPLY	WAS	WASTE ACTIVATED SLUDGE
		WNS	WASTE NITRIFIED SLUDGE
LCO2	LIQUID CARBON DIOXIDE	WW	WELL WATER
LD	LIME DRY		
LOC	LUBE OIL CLEAN		
LOD	LUBE OIL DIRTY		
LPO	LIQUID POLYMER		
LS	LIME SLURRY		
LSD	LIME SLUDGE		
ML	MIXED LIQUOR		
NA	SODIUM HYDROXIDE		
NG	NATURAL GAS		
NML	NITRIFIED MIXED LIQUOR		
OA	ODOROUS AIR		
OF	OVERFLOW		

**PIPE IDENTIFICATION**



**LINE LEGEND**

	NON-PROCESS-MECHANICAL ITEM
	EXISTING PROCESS-MECHANICAL ITEM TO REMAIN
	EXISTING PROCESS-MECHANICAL ITEM RELOCATED OR TO BE RELOCATED
	NEW PROCESS-MECHANICAL ITEM OR EXISTING ITEM TO BE REMOVED
	NEW PROCESS-MECHANICAL ITEM HIDDEN FROM VIEW
	FUTURE ITEM OR ITEM TO BE PROVIDED UNDER OTHER CONTRACT

**VALVE SYMBOLS**

DOUBLE LINE	SINGLE LINE	TYPE
		GATE
		KNIFE GATE
		ECCENTRIC PLUG
		LUBRICATED PLUG
		BUTTERFLY
		BALL
		VEE-BALL
		GLOBE
		DIAPHRAGM
		PINCH
		NEEDLE
		SOLENOID
		SWING CHECK
		BALL CHECK
		SPLIT DISC CHECK
		PRESSURE CONTROL
		AIR RELEASE AND VACUUM RELIEF
		MUD (SHOWN IN TANKS & OPEN CHANNELS)

**NOTES**

- THIS IS A STANDARD LEGEND. NOT ALL THE INFORMATION SHOWN ON THIS LEGEND IS USED ON THIS PROJECT.
- ONLY FLANGED END CONNECTIONS FOR VALVES ARE SHOWN HERE. VALVES WITH OTHER END CONNECTIONS ARE SHOWN SIMILARLY ON THE "M" DRAWINGS.
- IN MANY INSTANCES WHERE 3D BLOCK FILES ARE AVAILABLE, THE BLOCK FILES ARE USED MORE ACCURATELY SHOW VALVES AND EQUIPMENT, AND SYMBOLS ARE NOT USED.

**ISSUED FOR BID**

Attention:  
0 1"  
If this scale bar does not measure 1" then drawing is not original scale.



Designed: J. BAL  
 Drawn: R. WARD  
 Checked: R. ANDERSON  
 Approved: C. TRUEBLOOD  
 P.E. No: C90942  
 GEI Project 2204930

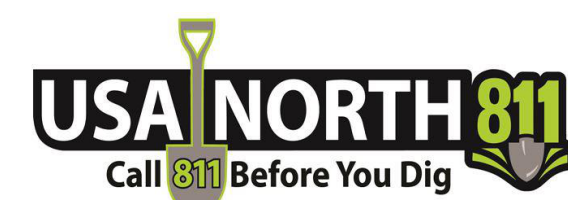


**ORLAND EMERGENCY  
 GROUNDWATER  
 RESOURCE PROJECT  
 PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

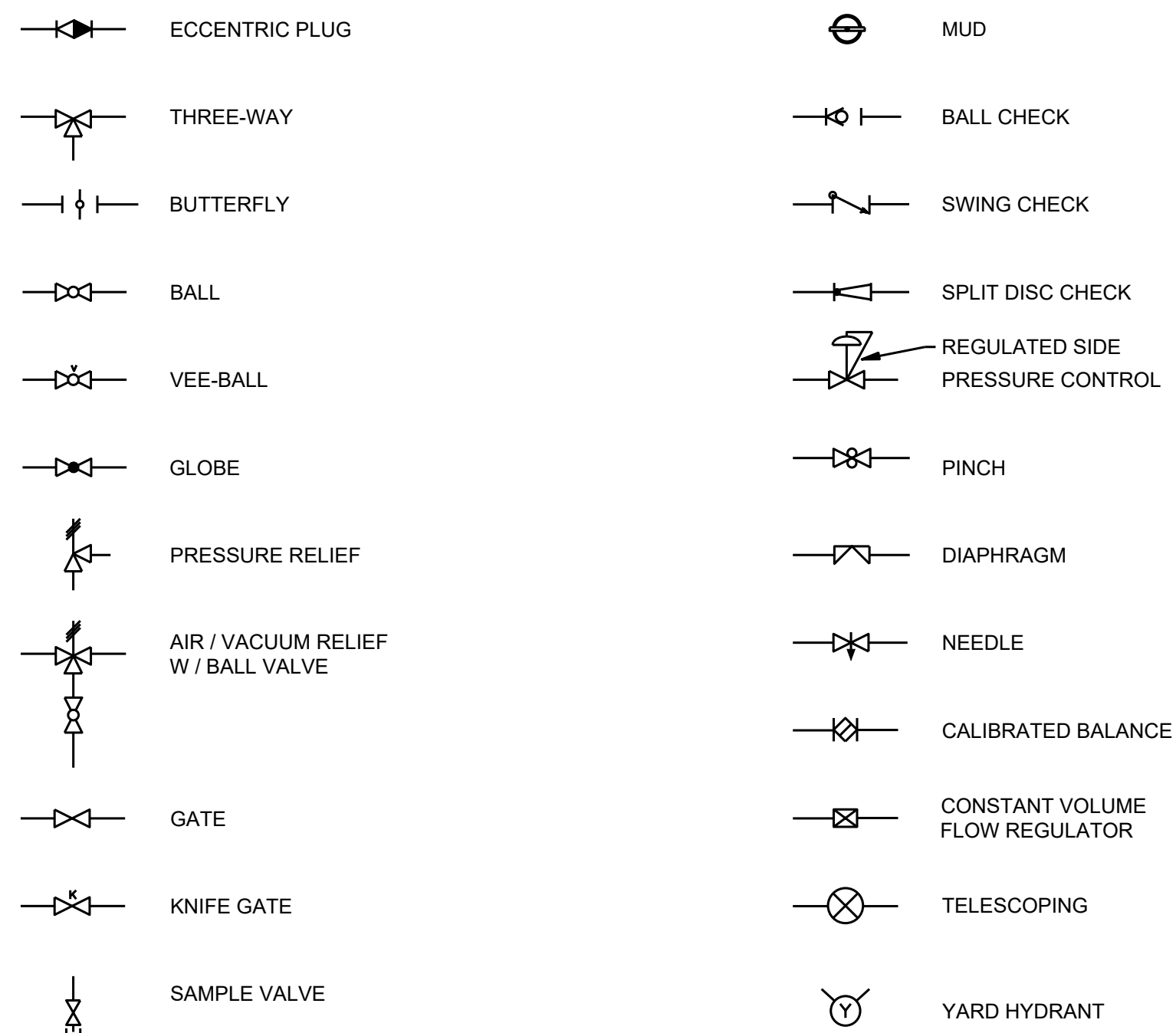
NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**PROCESS MECHANICAL  
 ABBREVIATIONS  
 AND SYMBOLS  
 LEDGEND**

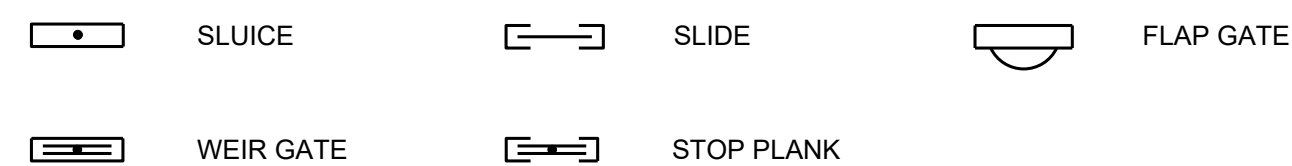
SHEET NO.  
 4 OF 42  
**G-04**



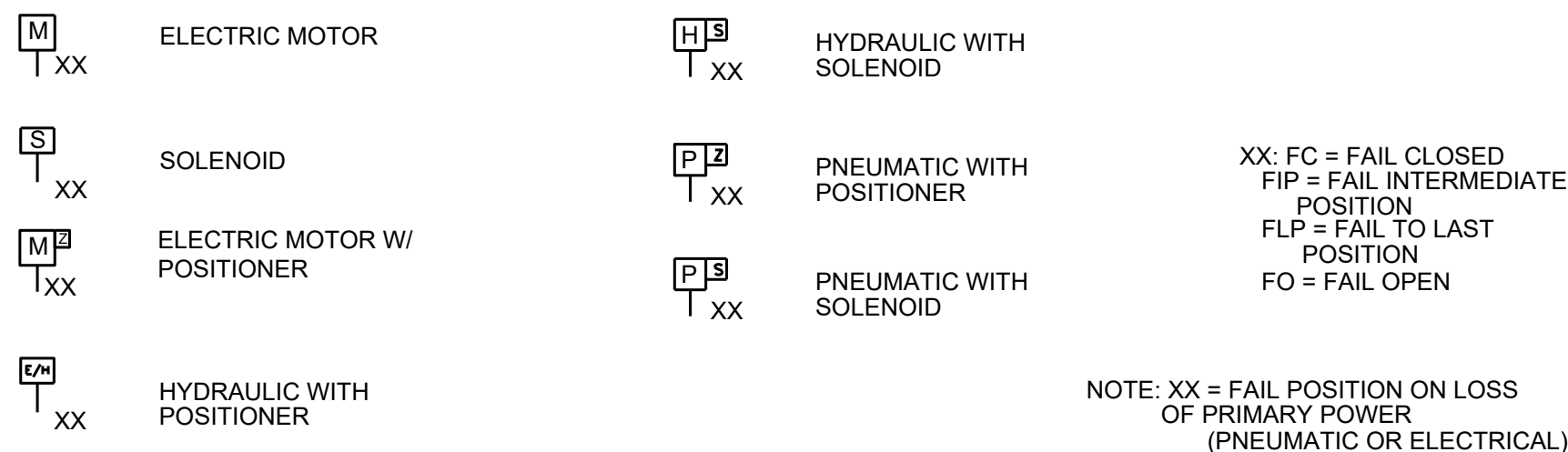
**VALVE SYMBOLS**



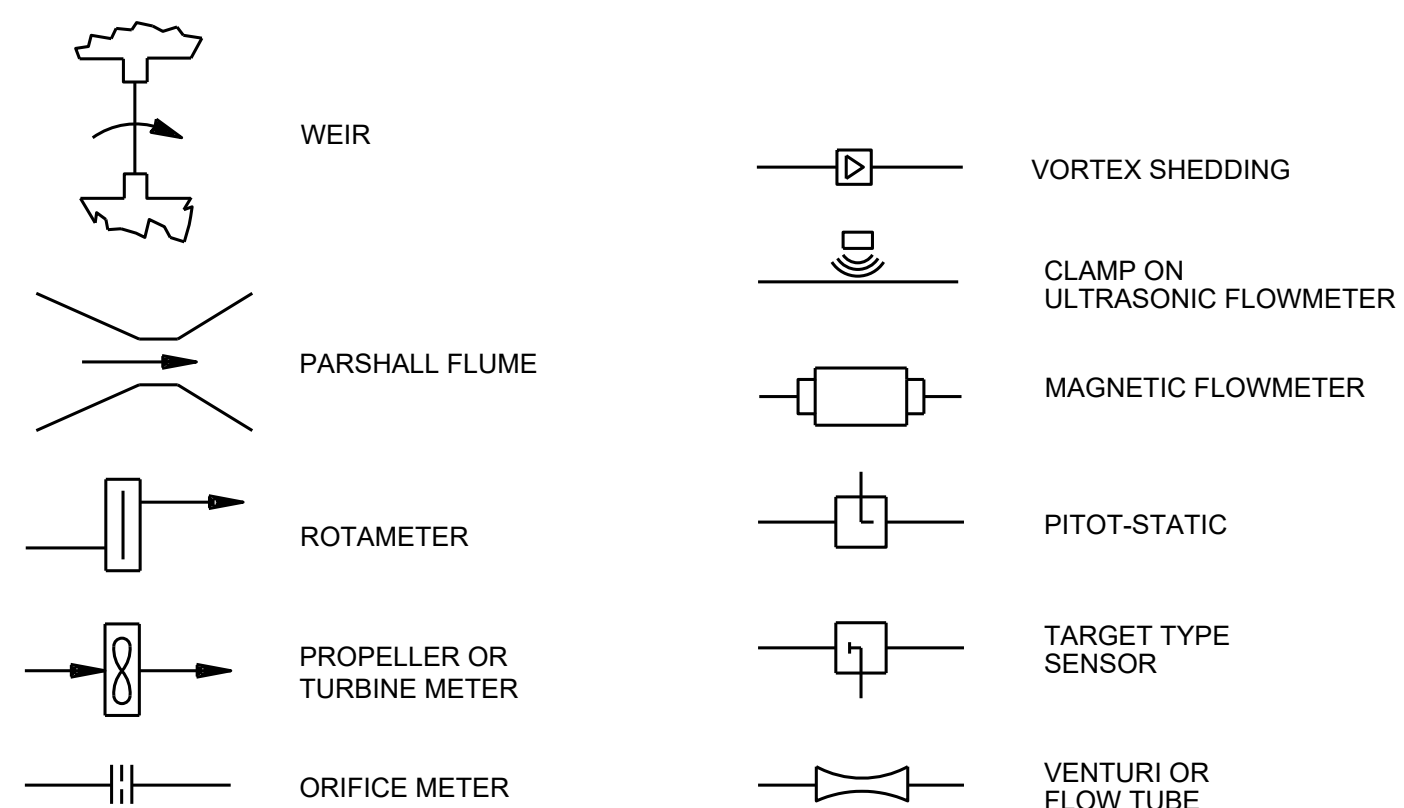
**GATE SYMBOLS**



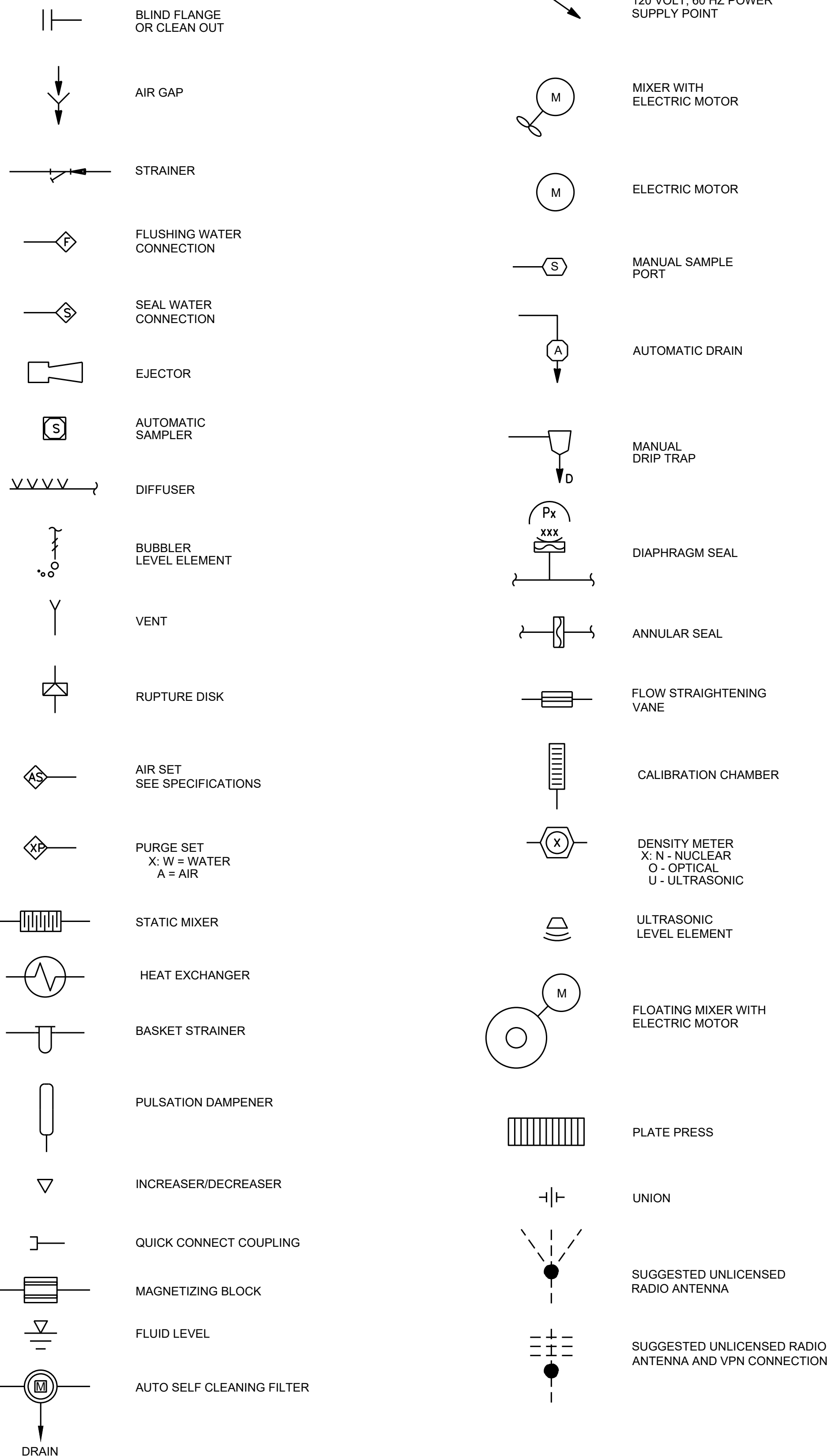
**VALVE AND GATE POWER ACTUATOR SYMBOLS**



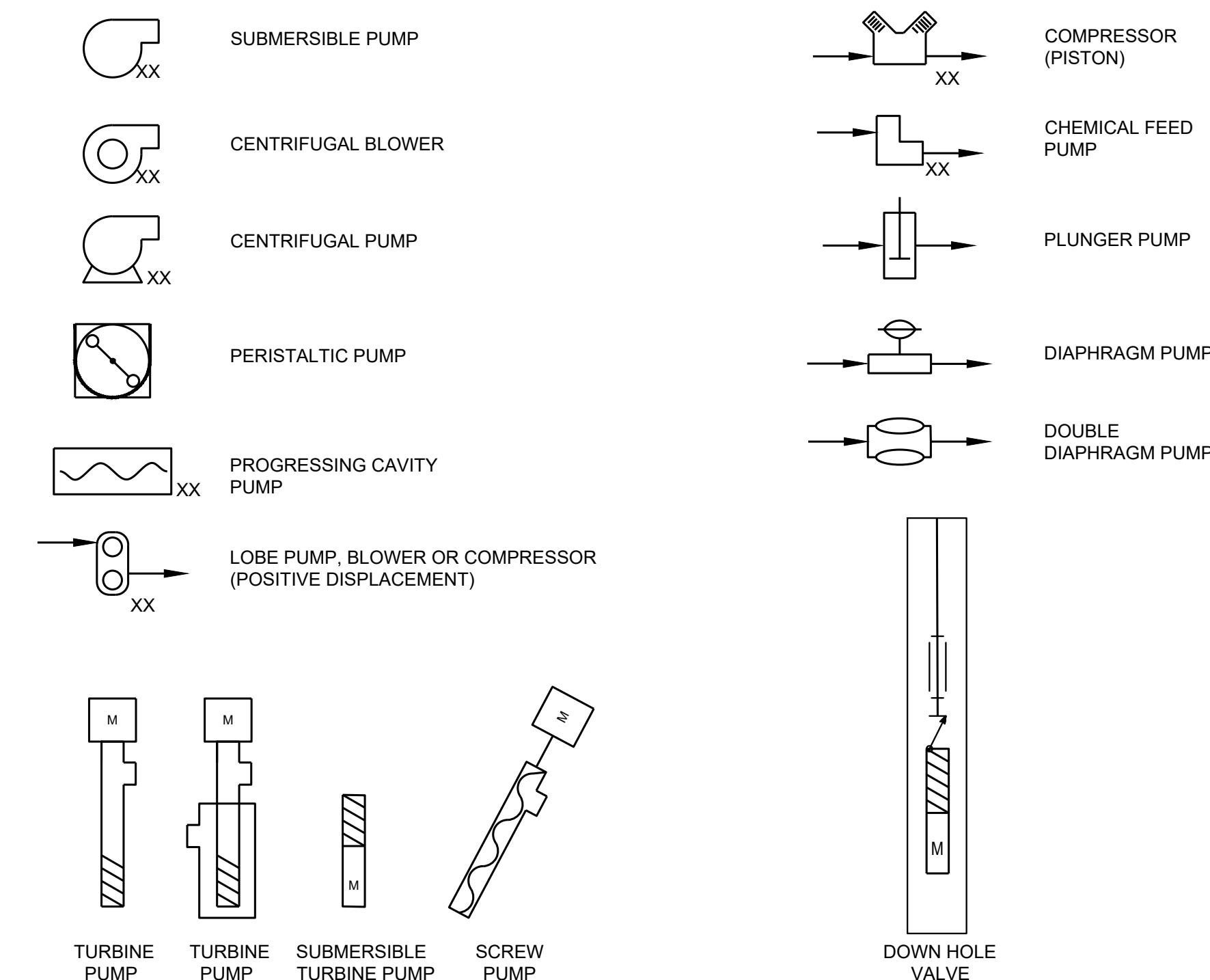
**FLOW ELEMENT SYMBOLS**



**MISCELLANEOUS SYMBOLS**



**PUMP & COMPRESSOR SYMBOLS**

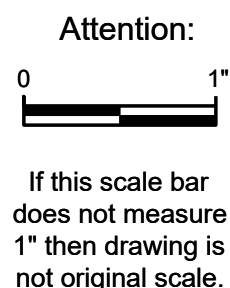


NOTE: XX = ADJUSTABLE SPEED  
 CS-1 = CONSTANT SPEED (SINGLE SPEED)  
 CS-2 = CONSTANT SPEED (TWO SPEED)  
 CS-R = CONSTANT SPEED (REVERSIBLE)

**GENERAL NOTES:**  
 1. THIS IS A STANDARD LEGEND. NOT ALL OF THE INFORMATION SHOWN ON THIS LEGEND IS USED IN THESE CONTRACT DRAWINGS.

**ISSUED FOR BID**

WARD, ROB B WorkingDWG1408250 DWG Drought Management00\_CADD\Design\Sheets\General Legend Sheets.dwg - 3/8/2024



Designed: J. BAL  
 Drawn: R. WARD  
 Checked: R. ANDERSON  
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 P.E. No: C90942  
 GEI Project 2204930



**ORLAND EMERGENCY  
 GROUNDWATER  
 RESOURCE PROJECT  
 PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

NO	DATE	ISSUE/REVISION	APP

SHEET NAME	SHEET NO.
<b>PROCESS MECHANICAL SYMBOLS LEGEND</b>	5 OF 42
	<b>G-05</b>

**GENERAL NOTES**

- PERFORM ALL CONSTRUCTION IN ACCORDANCE WITH THESE PLANS, PROJECT SPECIFICATIONS, THE CITY OF ORLAND'S STANDARD PLANS AND SPECIFICATIONS, AND GLENN COUNTY'S STANDARD PLANS AND SPECIFICATIONS.
- PERFORM CONSTRUCTION WORK IN ACCORDANCE WITH APPLICABLE SECTIONS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION, WHERE NOT IN CONFLICT WITH THESE PLANS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF ORLAND'S AND GLENN COUNTY'S REPRESENTATIVE TWO WORKING DAYS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL ALSO NOTIFY THE CITY OF ORLAND PUBLIC WORKS DEPARTMENT AND GLENN COUNTY PUBLIC WORKS AGENCY PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES WITHIN THEIR CORRESPONDING RIGHT-OF-WAY.
- THE CONTRACTOR SHALL OBTAIN AN ENCROACHMENT PERMIT AND ALL OTHER PERMITS REQUIRED BY THE CITY OF ORLAND AND GLENN COUNTY FOR WORK WITHIN THEIR RIGHT-OF-WAY. THE CONTRACTOR SHALL OBTAIN ALL OTHER PERMITS REQUIRED TO PERFORM THE WORK AND SHALL ABIDE BY THE CONDITIONS SET IN SAID PERMITS.
- PERFORM ALL CONSTRUCTION IN COMPLIANCE WITH THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY REGULATIONS, THE APPLICABLE REQUIREMENTS OF OSHA SAFETY AND HEALTH STANDARDS FOR CONSTRUCTION, AND THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- AN OSHA PERMIT IS REQUIRED WHEN WORKERS ENTER TRENCHES OR EXCAVATIONS FIVE (5) FEET IN DEPTH OR DEEPER. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND CONFORM TO THE REQUIREMENTS OF OSHA.
- THE LOCATION, SIZE, AND ELEVATIONS OF UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND BASED ON LIMITED AVAILABLE DATA. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES SO THAT THOSE COMPANIES MAY MARK THE LOCATIONS OF THEIR FACILITIES PRIOR TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONTACT UNDERGROUND UTILITIES SERVICE ALERT (USA) AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION. FIELD VERIFY THE LOCATION, SIZE, AND DEPTH OF EXISTING UTILITIES AND PROTECT IN PLACE PRIOR TO ANY CONSTRUCTION ACTIVITIES. THE FOLLOWING AGENCIES ARE KNOWN TO HAVE FACILITIES WITHIN THE CONSTRUCTION AREA:  
 AT&T  
 COMCAST  
 ORLAND UNIT WATER USERS ASSOCIATION  
 PG&E  
 GLENN COUNTY  
 CITY OF ORLAND  
 CONTRACTOR SHALL SEARCH TO DETERMINE IF ANY OTHER AGENCY HAS FACILITIES IN THE CONSTRUCTION AREA.
- ALL UNDERGROUND AND ABOVE GROUND UTILITIES SHALL BE PROTECTED IN PLACE. IF THE CONTRACTOR FINDS CONFLICT BETWEEN CONTRACT FACILITIES AND EXISTING FACILITIES, THE CONTRACTOR SHALL NOTIFY CITY OF ORLAND REPRESENTATIVE AND CITY OF ORLAND PUBLIC WORKS DEPARTMENT IN WRITING WITHIN 24 HOURS.
- CONDUCT ALL OPERATIONS IN A WAY THAT OFFERS THE LEAST POSSIBLE OBSTRUCTION AND INCONVENIENCE TO THE PUBLIC. ALL WORK SHALL BE PROSECUTED WITH DUE REGARD TO THE RIGHTS AND SAFETY OF THE PUBLIC.
- SAW CUT ALL CONCRETE FACILITIES AND PAVED AREAS TO BE REMOVED IN A NEAT, STRAIGHT LINE, PARALLEL TO THE NEW PIPELINE. PROTECT THE CUT EDGE FROM CRUSHING AND RE-CUT ALL BROKEN EDGES PRIOR TO PAVING OPERATIONS. REPLACE CONCRETE FACILITIES IN KIND.
- PROTECT FROM INJURY OR DAMAGE ALL TREES, SHRUBBERY, FENCES, SIGNS, SURVEY MARKERS AND MONUMENTS, BUILDINGS AND STRUCTURES, UNDER OR ABOVE GROUND UTILITIES, ALL HIGHWAY AND STREET FACILITIES, AND ANY OTHER FACILITIES THAT ARE NOT TO BE REMOVED WITHIN OR ADJACENT TO THE CONSTRUCTION AREA. PROVIDE AND INSTALL SUITABLE SAFEGUARDS TO PROTECT SUCH OBJECTS FROM INJURY OR DAMAGE. REPLACE OR RESTORE ALL OBJECTS, INJURED OR DAMAGED DURING THE PROSECUTION OF THE WORK, TO A CONDITION AS GOOD AS WHEN THE CONTRACTOR ENTERED UPON THE WORK, OR AS GOOD AS REQUIRED BY THE PLANS AND SPECIFICATIONS IF ANY SUCH OBJECTS ARE A PART OF THE WORK BEING PERFORMED. SURVEY MARKERS AND MONUMENTS DAMAGED OR REMOVED WILL BE REPLACED BY A LICENSED SURVEYOR AND PAID FOR BY THE CONTRACTOR.
- OBTAIN APPROVAL FROM THE CITY OF ORLAND REPRESENTATIVE AND CITY OF ORLAND PUBLIC WORKS DEPARTMENT PRIOR TO CONSTRUCTION OF ANY DEVIATION FROM THESE PLANS, PROJECT SPECIFICATIONS, AND THE CITY AND COUNTY STANDARD PLANS AND/OR STANDARD SPECIFICATIONS.
- NOTIFY THE CITY OF ORLAND PUBLIC WORKS DEPARTMENT TWENTY-FOUR (24) HOURS BEFORE WATER VALVE OPERATIONS ARE PERFORMED. ALL WATER SYSTEM VALVES SHALL BE OPERATED BY CITY STAFF ONLY.
- POTHOLE ALL UTILITY CROSSING LOCATIONS AHEAD OF WATER MAIN AND WATER SERVICE INSTALLATION. NOTIFY CITY OF ORLAND REPRESENTATIVE AND CITY OF ORLAND PUBLIC WORKS DEPARTMENT OF ANY DISCREPANCIES FROM THE PLANS IN WRITING WITHIN 24 HOURS.

**CONSTRUCTION NOTES**

- THE LOCATIONS OF WATER SERVICES AND BLOWOFFS ARE SHOWN IN PLANS AS A SCHEMATIC. FINAL LOCATIONS SHALL BE AS DIRECTED BY THE CITY OF ORLAND REPRESENTATIVE. CONTRACTOR SHALL COORDINATE LOCATION OF WATER SERVICES AND BLOWOFFS WITH THE CITY OF ORLAND REPRESENTATIVE AND THE CITY OF ORLAND PUBLIC WORKS DEPARTMENT 7 DAYS IN ADVANCE OF INSTALLATION.
- WHERE APPLICABLE: CURB, GUTTER, SIDEWALK, AND DRIVEWAY TO BE REPLACED/REPAIRED PER CITY OF ORLAND STANDARDS. WATER SERVICE TUBING MAY BE BORED WITH THE APPROVAL FROM THE CITY OF ORLAND. ALL OTHER INSTALLATIONS WILL REQUIRE REPLACEMENT/REPAIR OF CONCRETE.
- PAVEMENT PATCHES AND BACKFILL COMPACTION SHALL CONFORM TO PUBLIC ROAD STANDARDS, GLENN COUNTY ENCROACHMENT PERMIT REQUIREMENTS, AND TRENCH RESTORATION DETAILS SHOWN ON DWG. NO. CG-05. STRIPING SHALL BE REPAIRED IN ACCORDANCE TO CITY OF ORLAND AND GLENN COUNTY SPECIFICATIONS AS APPLICABLE.
- THRUST BLOCKS SHALL BE CONSTRUCTED AT PIPE TEES, BENDS, CROSSES, REDUCERS, DEAD-ENDS, AND VALVES PER DETAIL 1, DWG. NO. CG-04.
- FUGITIVE DUST CONTROL MEASURES SHALL COMPLY WITH REQUIREMENTS FROM THE GLENN COUNTY AIR POLLUTION CONTROL DISTRICT.
- WHERE APPLICABLE, IF WATER SERVICES LATERALS ARE INSTALLED VIA OPEN CUT INSTALLATION, THEN THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING CONCRETE CURB AND GUTTER, CONCRETE SIDEWALK, AND ASPHALT ROADWAY. NOTE THAT THE CONTRACTOR IS RESPONSIBLE FOR REPLACING ALL DISTURBED AND DAMAGED AREAS IN ACCORDANCE WITH CITY OF ORLAND AND GLENN COUNTY STANDARDS.
- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING SOIL AND GROUNDWATER LEVEL CONDITIONS AS NECESSARY TO ENSURE WELL-INFORMED TRENCH PLANNING AND CONSTRUCTION.
- CONTRACTOR SHALL NOT EXCEED A MAXIMUM OF 1" OF JOINT DEFLECTION AT EACH PIPE JOINT TO ACCOMMODATE MINOR VERTICAL AND HORIZONTAL CHANGES IN ELEVATION AND ALIGNMENT.
- CONTRACTOR SHALL MAINTAIN A 4' MINIMUM OF UNDISTURBED EARTH SURROUNDING ALL POWER AND UTILITY POLES.

**TRAFFIC CONTROL NOTES:**

- ALL PUBLIC STREETS THAT ARE TO BE CLOSED OR INTERRUPTED DUE TO CONSTRUCTION ACTIVITIES WILL REQUIRE COORDINATION WITH THE CITY OF ORLAND PUBLIC WORKS DEPARTMENT, GLENN COUNTY PUBLIC WORKS AGENCY, AND EMERGENCY SERVICES. A MINIMUM OF 72 HOURS NOTICE SHALL BE GIVEN TO THESE ENTITIES FOR SAID CLOSURES OR INTERRUPTIONS.
- PARKING RESTRICTIONS MUST BE POSTED 24 HOURS BEFORE WORK STARTS AND WILL BE AT THE EXPENSE OF THE CONTRACTOR. CONTACT THE POLICE DEPARTMENT, CITY OF ORLAND PUBLIC WORKS DEPARTMENT, AND GLENN COUNTY PUBLIC WORKS AGENCY WHEN RESTRICTIONS ARE PLACED.
- PROVIDE SAFE AND CONTINUOUS PASSAGE FOR LOCAL PEDESTRIAN AND VEHICULAR TRAFFIC AT ALL TIMES. PROVIDE TEMPORARY PAVING AS REQUIRED.
- BEFORE WORK CAN BE STARTED, THE CONTRACTOR MUST PROVIDE TRAFFIC CONTROL AND SIGNAGE IN ACCORDANCE WITH PART 6 OF THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES & OBTAIN AN ENCROACHMENT PERMIT FOR THE WORK WITHIN THE CITY AND COUNTY RIGHT OF WAY. FULL ROAD CLOSURES ARE PROHIBITED UNLESS APPROVED BY GLENN COUNTY DIRECTOR OF PUBLIC WORKS.

**EROSION AND SEDIMENT CONTROL NOTES:**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING, PAYING ALL FEES ASSOCIATED WITH, AND COMPLYING WITH A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND IMPLEMENTING ALL NECESSARY BEST MANAGEMENT PRACTICES (BMPs). CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER DISCHARGE PERMIT INCLUDING THE MONITORING PROGRAM. REFER TO CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL DISTURBED AREAS SHALL BE SODDED OR SEEDED IN ACCORDANCE WITH THE SWPPP.
- CONTRACTOR SHALL INSPECT EROSION AND SEDIMENT CONTROL BMPs AT START AND END OF EACH SHIFT. INSPECTION SHALL BE COMPLETED UNDER SUPERVISION OF A QUALIFIED SWPPP PRACTITIONER (QSP) AND/OR QUALIFIED SWPPP DEVELOPER (QSD).
- ALL MUD, DIRT, ROCKS, DEBRIS, ETC. SPILLED, TRACKED, OR OTHERWISE DEPOSITED ON EXISTING PAVED STREETS, DRIVES AND AREAS USED BY THE PUBLIC SHALL BE CLEANED UP IMMEDIATELY.

**STREET AND DRAINAGE NOTES:**

- STREET RIGHTS-OF-WAY SHALL BE GRADED AT A SLOPE TO PROVIDE POSITIVE DRAINAGE TOWARD THE CURB OR DITCH UNLESS OTHERWISE INDICATED DUE TO SPECIAL CIRCUMSTANCES.
- CONTRACTOR SHALL REPLACE AND REGRADE ANY DITCHES OR SWALES THAT HAVE BEEN TRENCHED THROUGH.

**WATER NOTES:**

- THE CONTRACTOR SHALL NOTIFY THE CITY OF ORLAND REPRESENTATIVE AND CITY OF ORLAND PUBLIC WORKS DEPARTMENT TO COORDINATE UTILITY MAIN, STRUCTURE, AND UTILITY TIE-INS AT LEAST 3 BUSINESS DAYS PRIOR FOR INSPECTION SERVICES.
- THE CONTRACTOR MUST OBTAIN A WATER METER FROM THE CITY OF ORLAND PUBLIC WORKS DEPARTMENT FOR ALL PUBLIC WATER USED DURING CONSTRUCTION.
- QUALITY AND PRESSURE TESTING SHALL BE CONDUCTED IN THE PRESENCE OF CITY OF ORLAND REPRESENTATIVE AND CITY OF ORLAND PUBLIC WORKS DEPARTMENT. THE CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY OF ORLAND REPRESENTATIVE AND CITY OF ORLAND PUBLIC WORKS DEPARTMENT AND PROVIDE NO LESS THAN 2 BUSINESS DAYS NOTICE PRIOR TO PERFORMING DISINFECTION, QUALITY TESTING, OR PRESSURE TESTING.

**AGENCY CONTACTS**

AGENCY	CONTACT NAME	TELEPHONE NO.
CITY OF ORLAND REPRESENTATIVE	PAUL W. RABO	(530) 895-1422
CITY OF ORLAND PUBLIC WORKS DEPARTMENT	ED VONASEK	(530) 865-1600
ORLAND UNIFIED SCHOOL DISTRICT	OFFICE	(53) 865-1200
GLENN COUNTY REPRESENTATIVE	DONALD L. RUST	(530) 934-6530
GLENN COUNTY PUBLIC WORKS AGENCY	DONALD L. RUST	(530) 934-6530
GLENN COUNTY OFFICE OF EMERGENCY SERVICES	N/A	(530) 934-6431
CITY OF ORLAND - WASTE MANAGEMENT	N/A	(530) 865-4712
USA NORTH	N/A	811 OR (800) 642-2444
AT&T	N/A	(877) 563-3528
COMCAST	N/A	(888) 824-8219
ORLAND UNIT WATER USERS ASSOCIATION	RICK MASSA	(530) 865-4126
PG&E	TANNER PASCHKE	(530) 228-7222

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Attention:  
 0 1"  
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Designed: C. TRUEBLOOD  
 Drawn: J. AVILA  
 Checked: M. MARTIN  
 Approved: S. GALA  
 P.E. No: C90942  
 GEI Project 2204930



**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
 815 FOURTH STREET ORLAND, CA

0			
NO	DATE	ISSUE/REVISION	APP

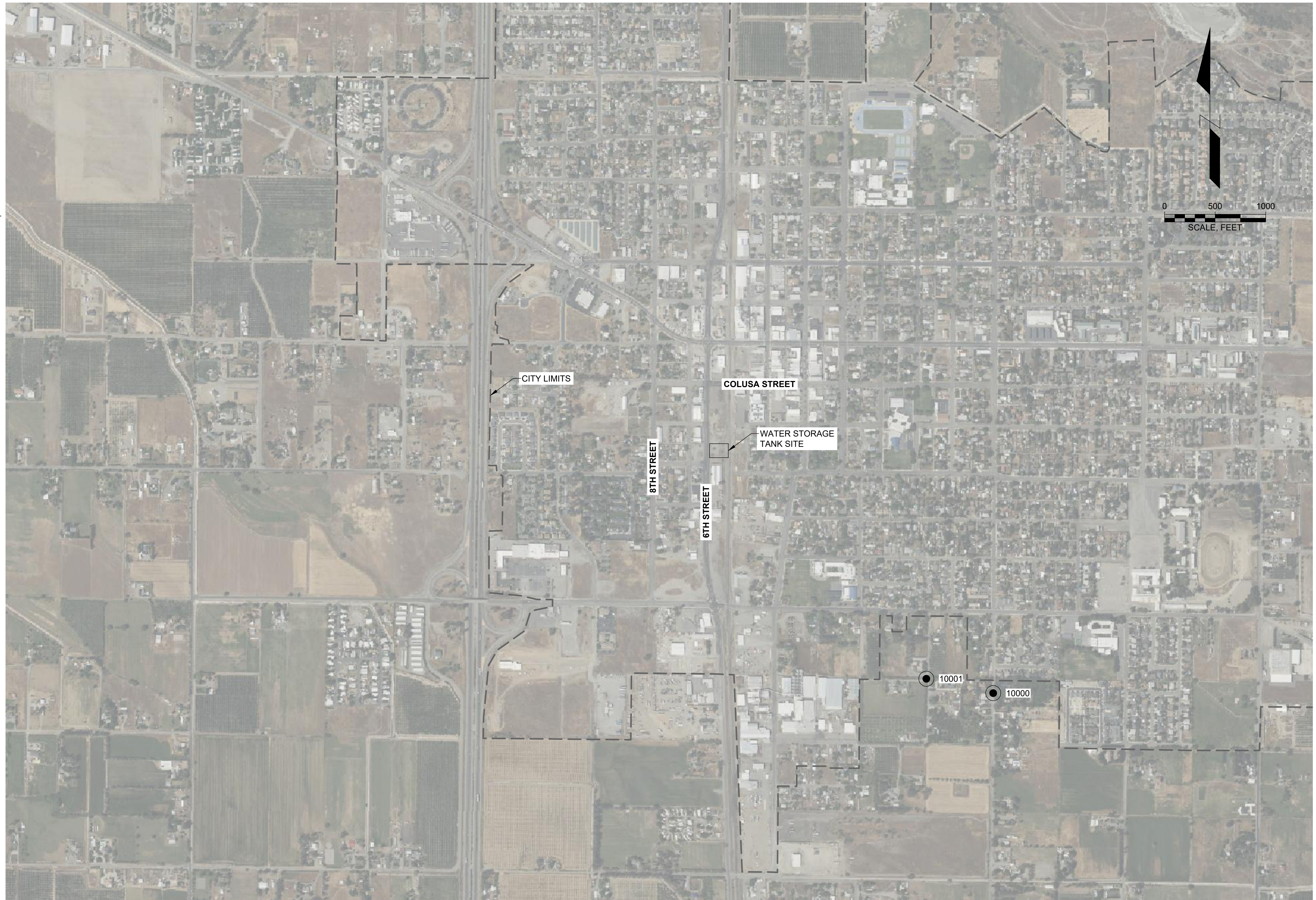
SHEET NAME  
**GENERAL NOTES AND CONSTRUCTION NOTES**

SHEET NO.  
 6 OF 42  
**G-06**

AVILA, JULIAN B:\Working\DWG\148520 DWR Drought Management\10 21-01 Small Community Relief\01\_CAD\Design\Sheets\_PHASE 4\G-08 Basis of Survey.dwg - 4/8/2024

POINT LOCATION DATA				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
10000	2394827.17	6508945.10	246.48	MON-PC+
10001	2394969.03	6508283.53	248.50	MON-PC+

BASIS OF SURVEY:  
 HORIZONTAL DATUM: NORTH AMERICAN DATUM OF 1983 (NAD83)  
 CALIFORNIA STATE PLANES, ZONE II US FOOT.  
 VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).  
 CITY OF ORLAND REPRESENTATIVE IS RESPONSIBLE FOR THE SURVEYING AND STAKING NECESSARY FOR LAYOUT AND CONSTRUCTION OF THE PROJECT.

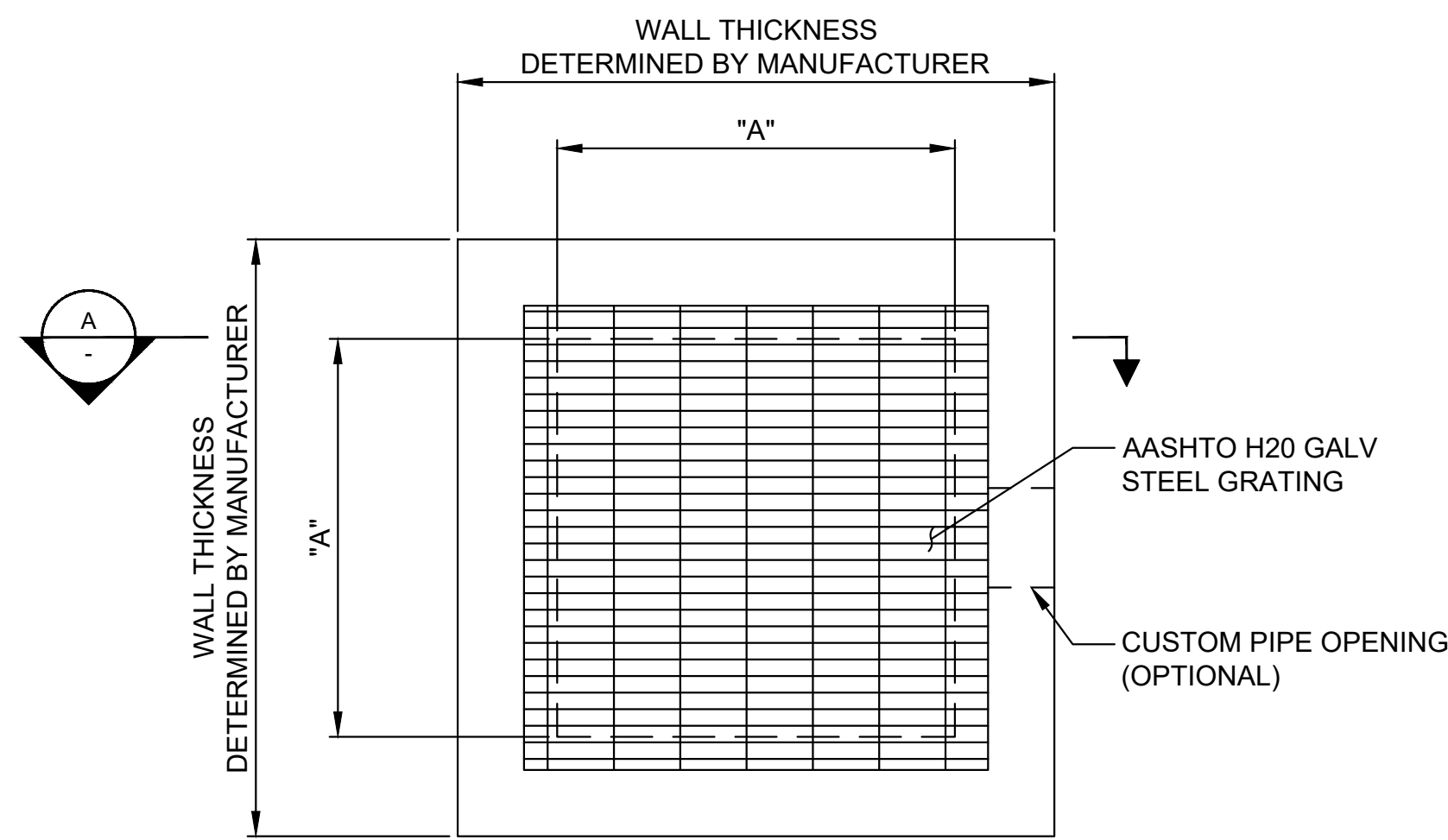


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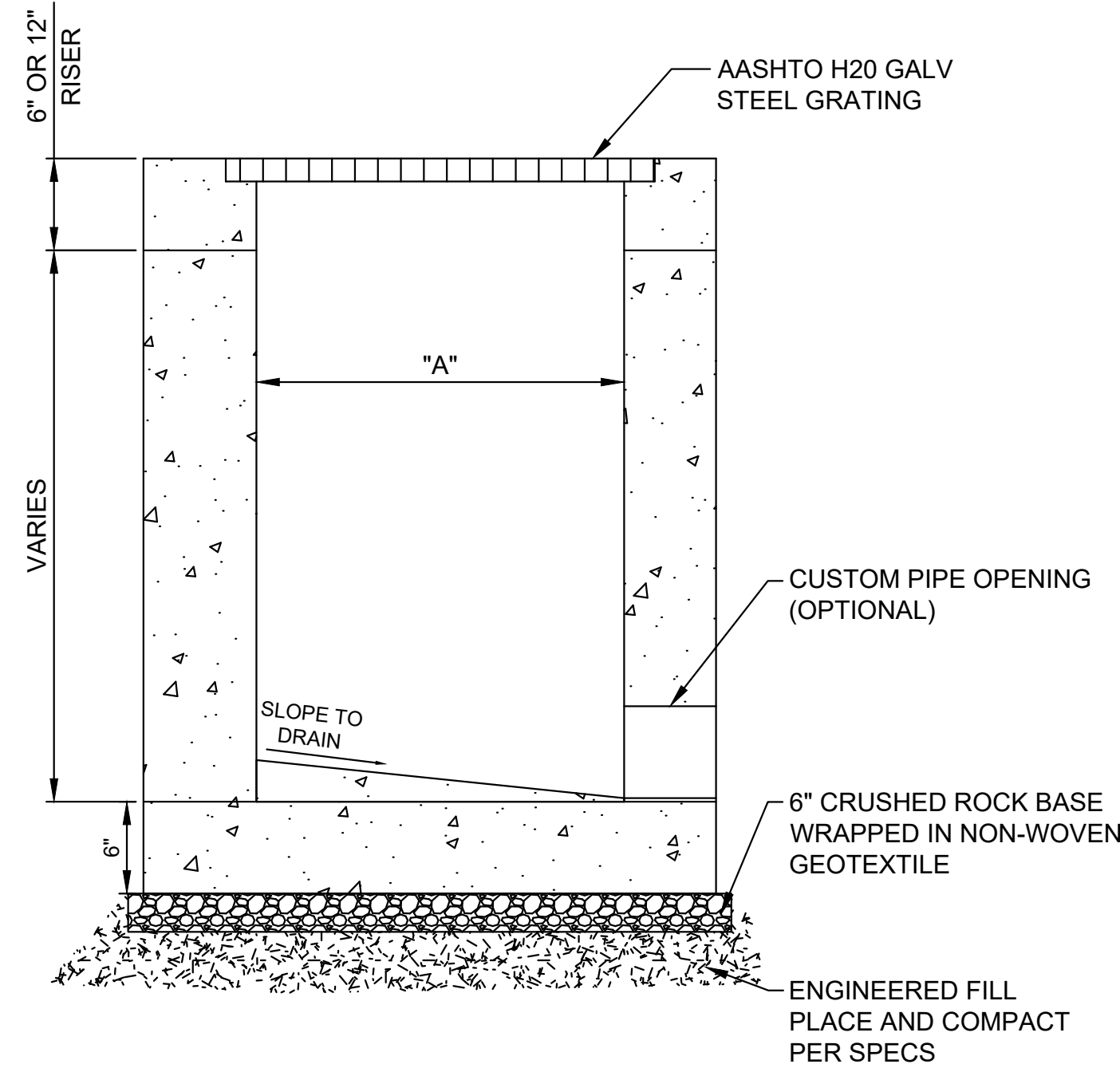


Attention:  If this scale bar does not measure 1" then drawing is not original scale.		Designed: C. TRUEBLOOD Drawn: J. AVILA Checked: M. MARTIN Approved: S. GALA P.E. No.: C90942 GEI Project: 2204930	 GEI CONSULTANTS, INC. 11010 WHITE ROCK ROAD SUITE 200 RANCHO CORDOVA, CA 95670 (916) 631-4500	 CITY OF ORLAND 815 FOURTH ST. ORLAND, CA 95963	<b>ORLAND EMERGENCY          GROUNDWATER          RESOURCE PROJECT          PHASE 4</b> 815 FOURTH STREET ORLAND, CA	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%;">NO</td> <td style="width: 15%;">DATE</td> <td style="width: 45%;">ISSUE/REVISION</td> <td style="width: 35%;">APP</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO	DATE	ISSUE/REVISION	APP																																	SHEET NAME <b>BASIS OF SURVEY</b>	SHEET NO. 7 OF 42  <b>G-07</b>
NO	DATE	ISSUE/REVISION	APP																																									

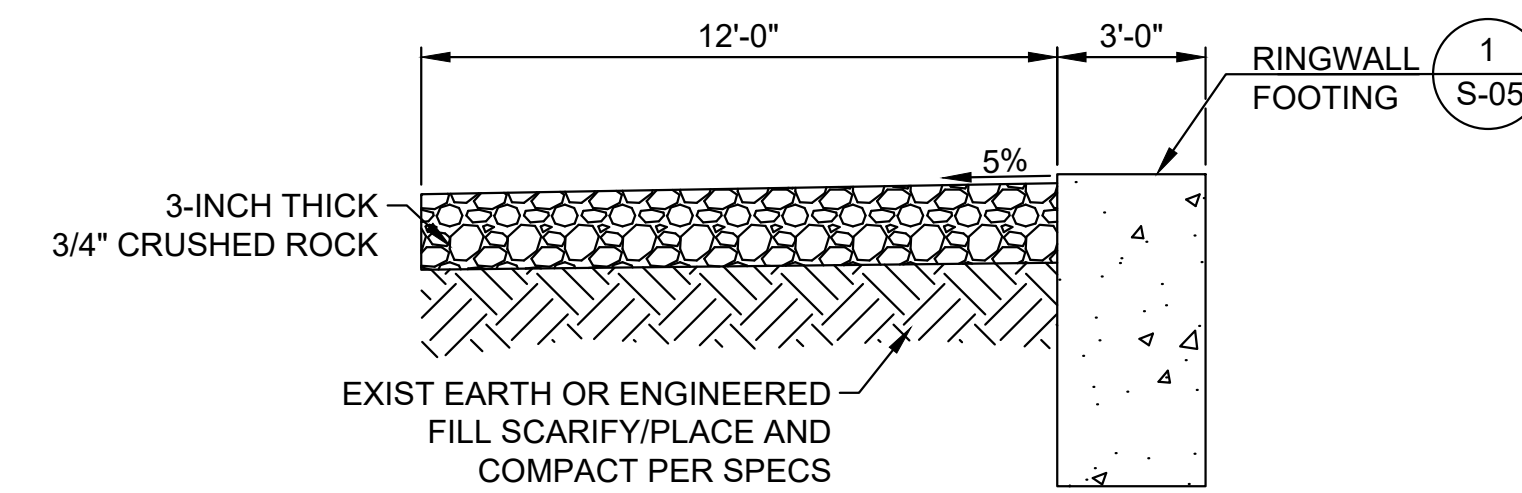
SQUARE PRECAST CONCRETE VAULT - MINIMUM SIZE			
VAULT SIZE PER PIPE Ø	UP TO 12"Ø PIPELINE	UP TO 18"Ø PIPELINE	UP TO 32"Ø PIPELINE
"A"	1'-6"	2'-0"	3'-0"



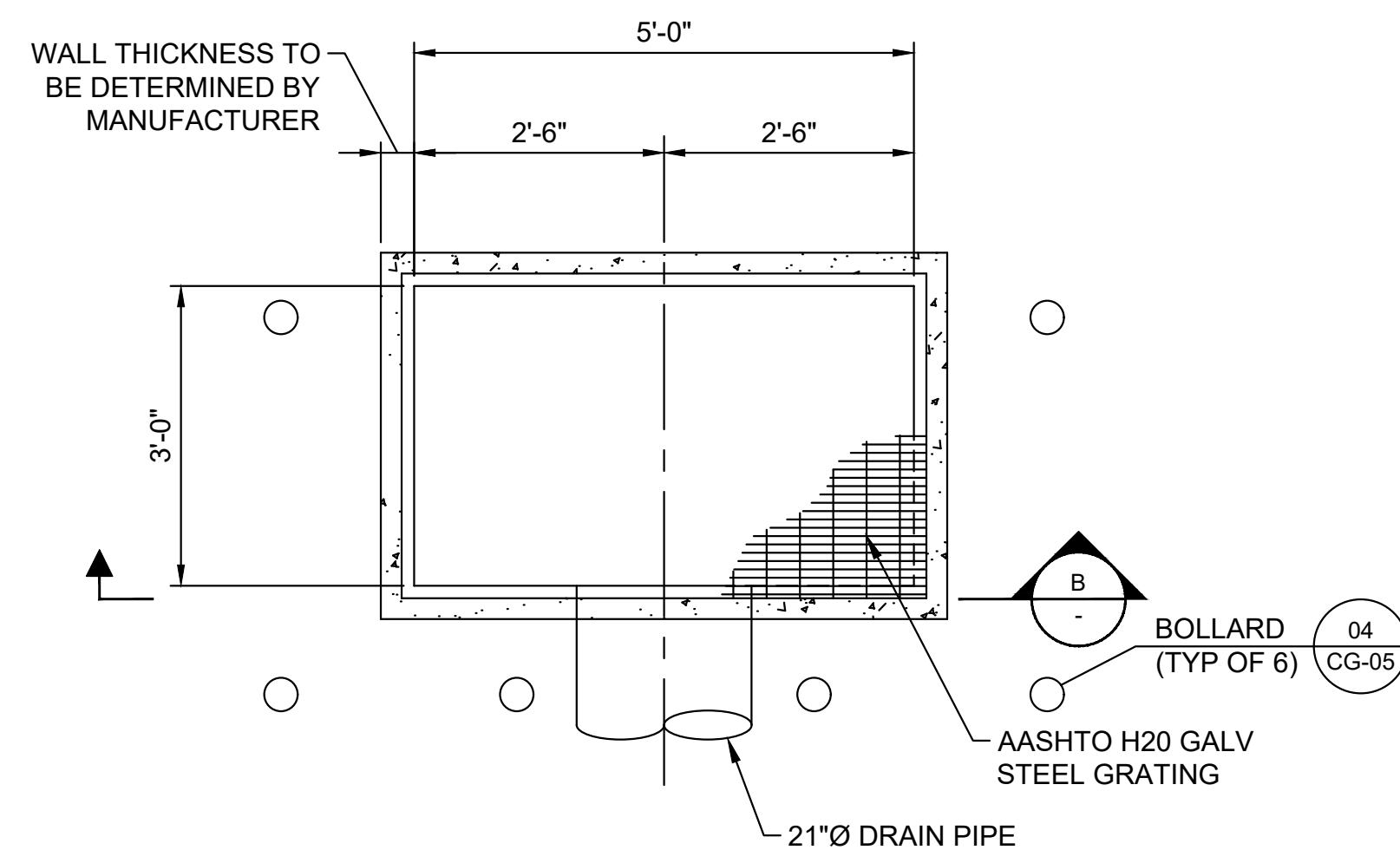
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- SQUARE PRECAST CONCRETE VAULT NO SCALE



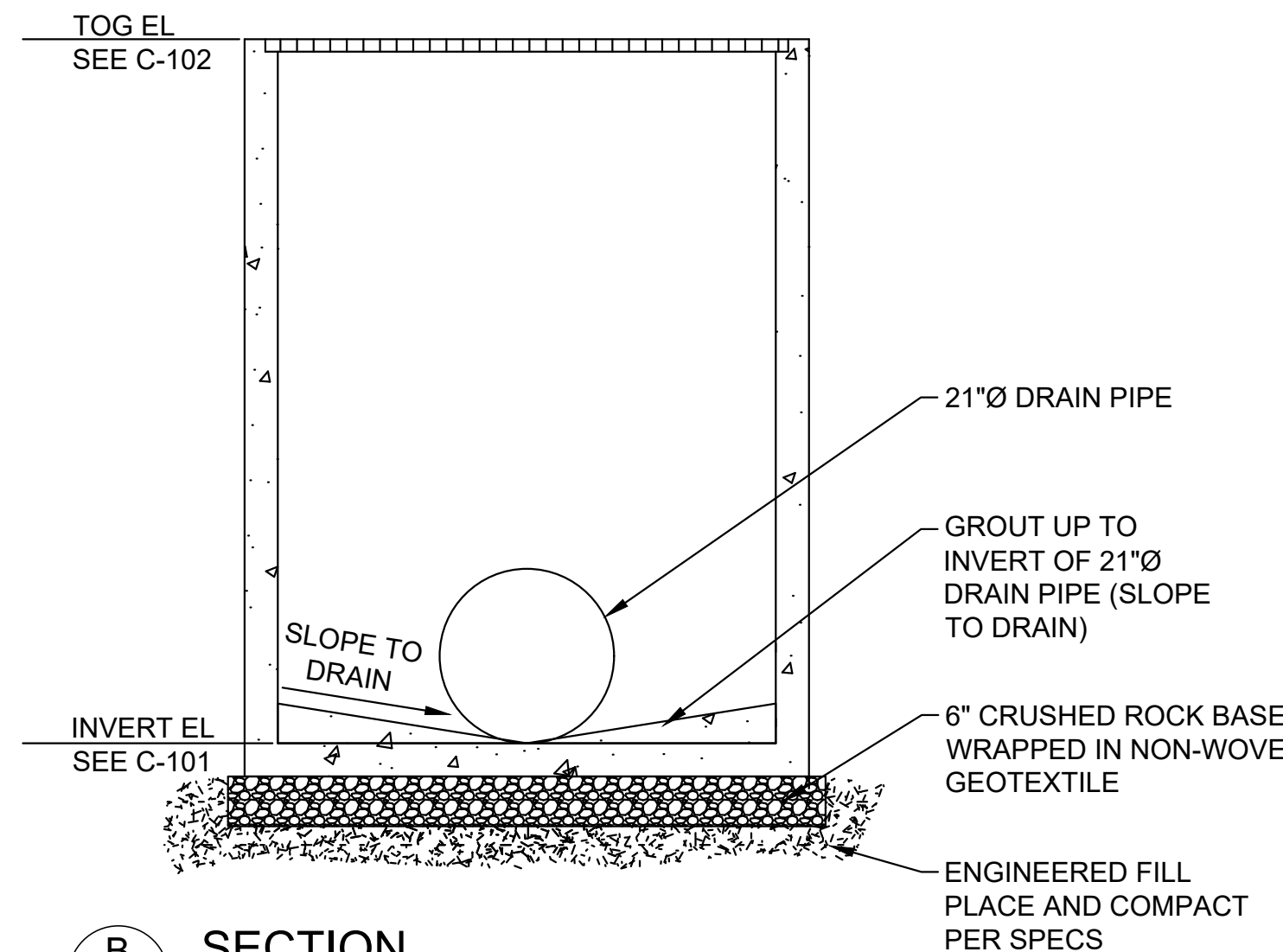
A SECTION  
- SQUARE PRECAST CONCRETE VAULT NO SCALE



2 DETAIL  
- TANK PERIMETER GRAVEL ROAD NO SCALE



3 DETAIL  
- 3'x5' PRECAST CONCRETE VAULT NO SCALE



B SECTION  
- 3'x5' PRECAST CONCRETE VAULT NO SCALE

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Checked: M. MARTIN  
Approved: S. GALA  
P.E. No: C90942  
GEI Project 2204930



ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4  
815 FOURTH STREET  
ORLAND, CA

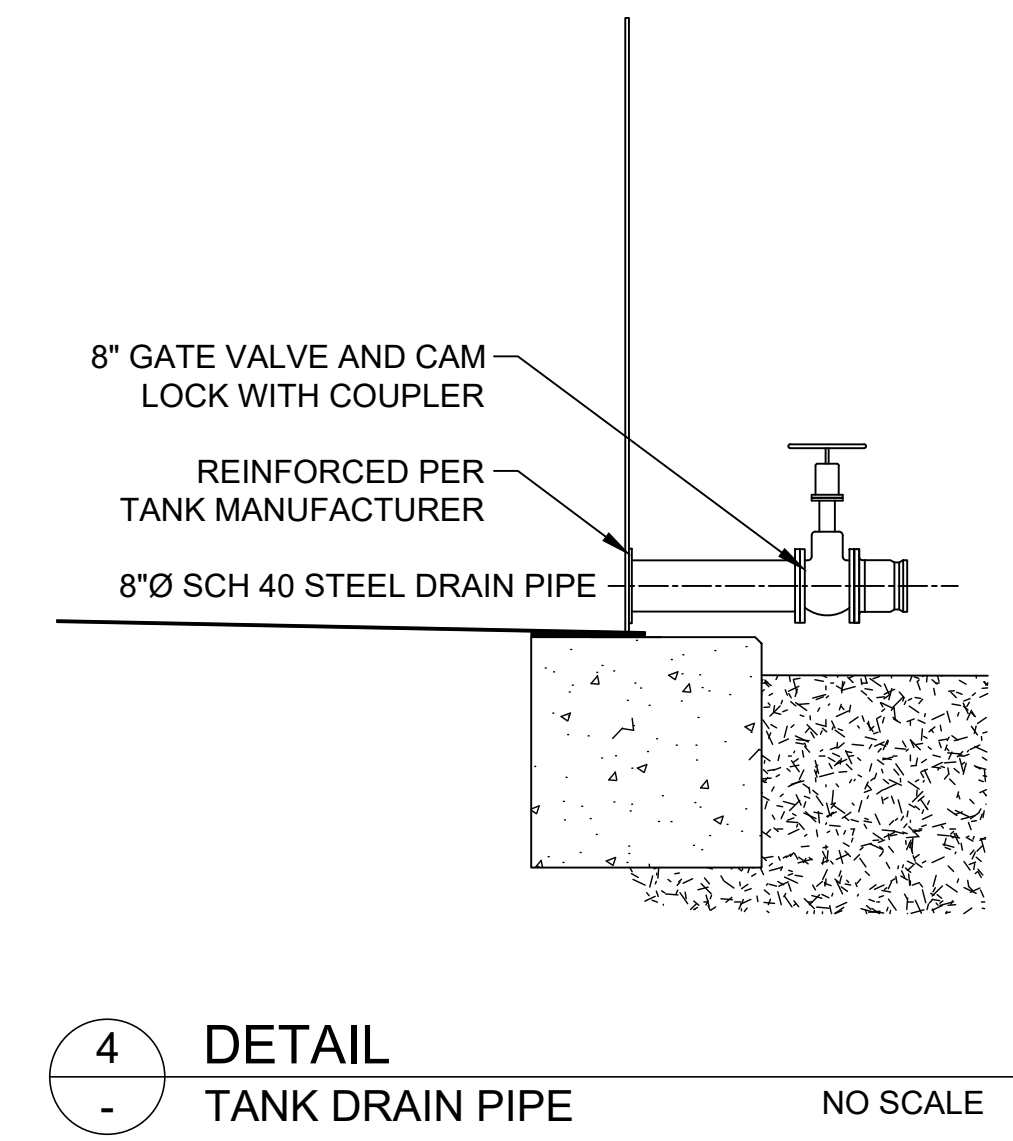
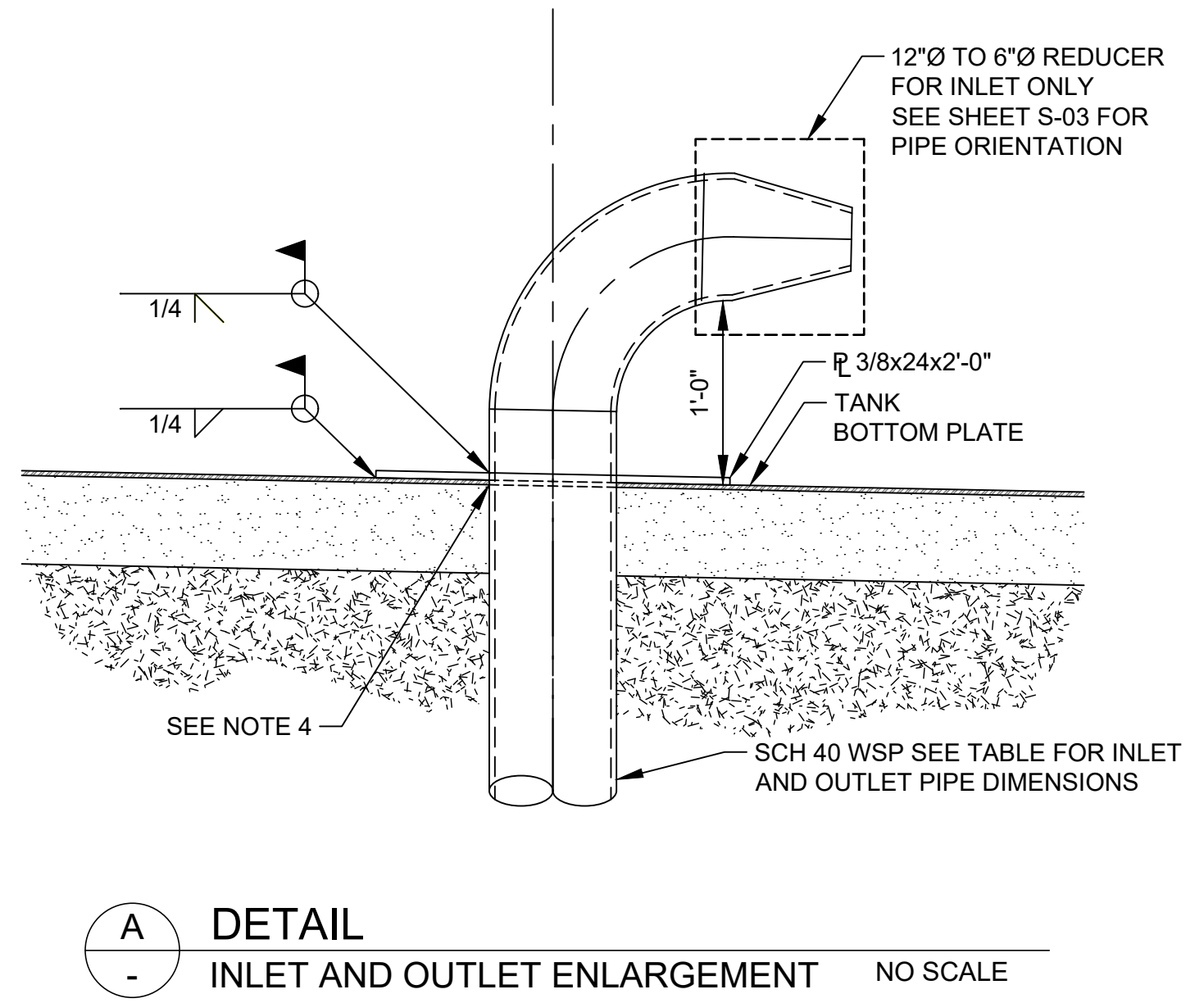
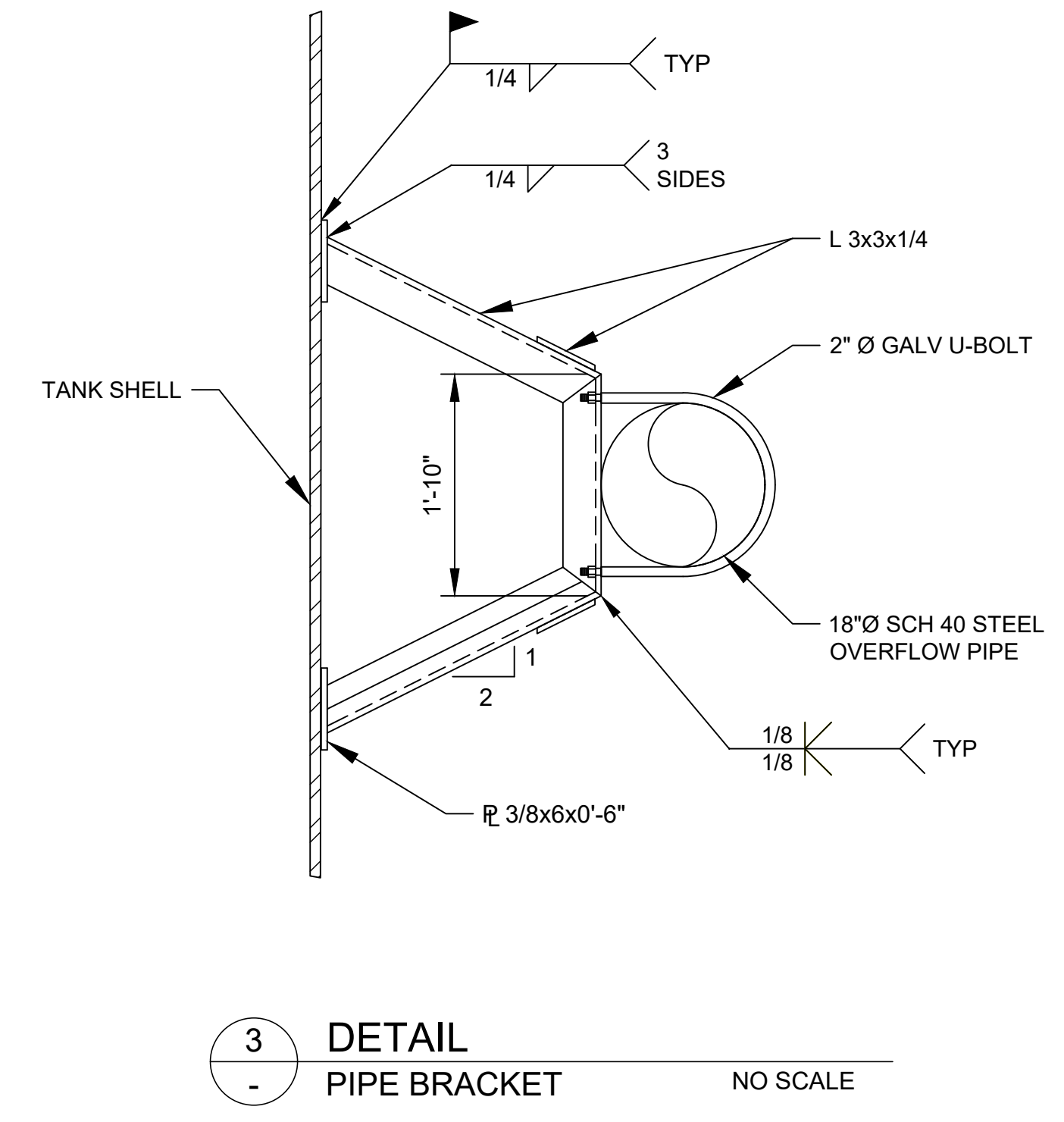
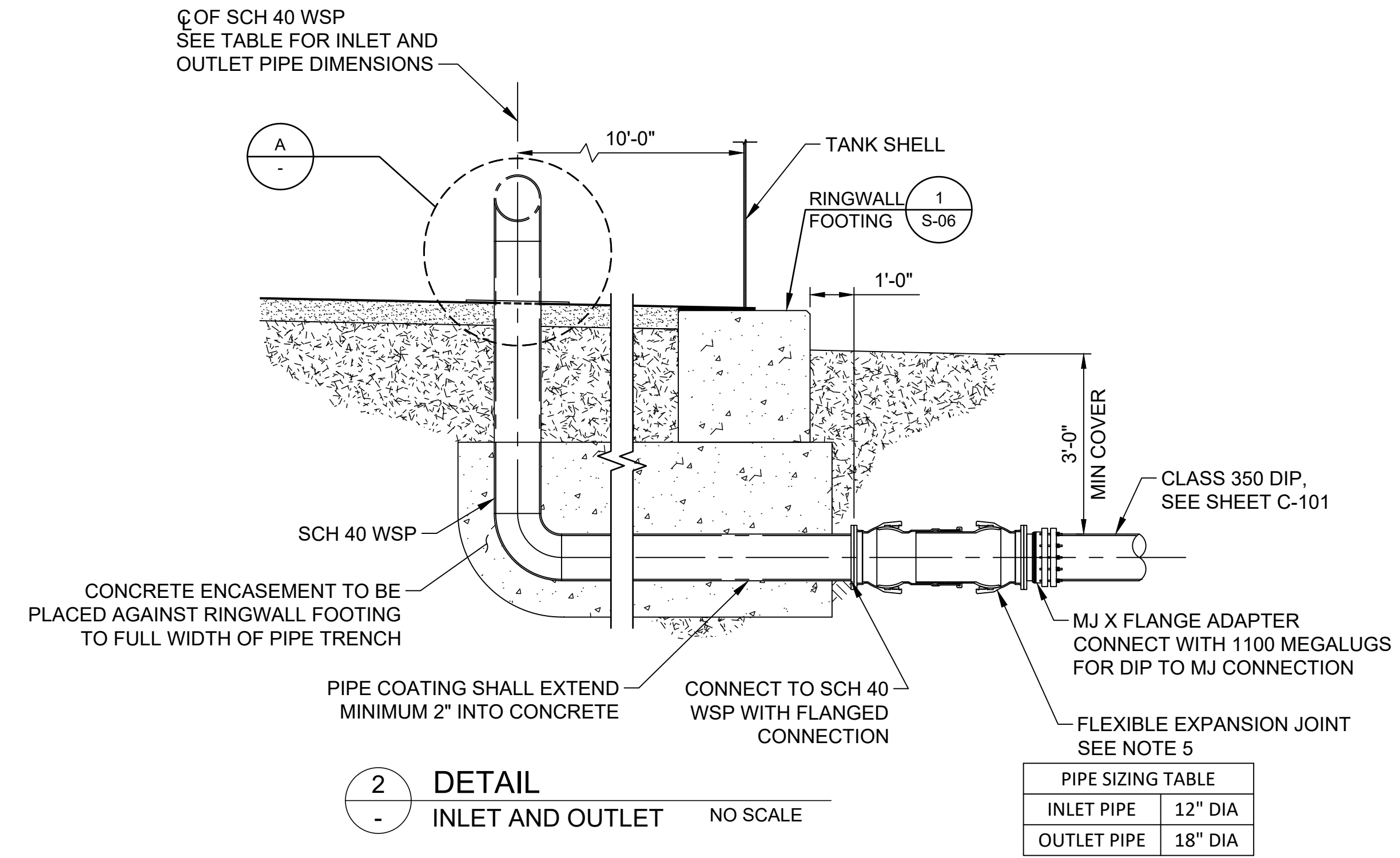
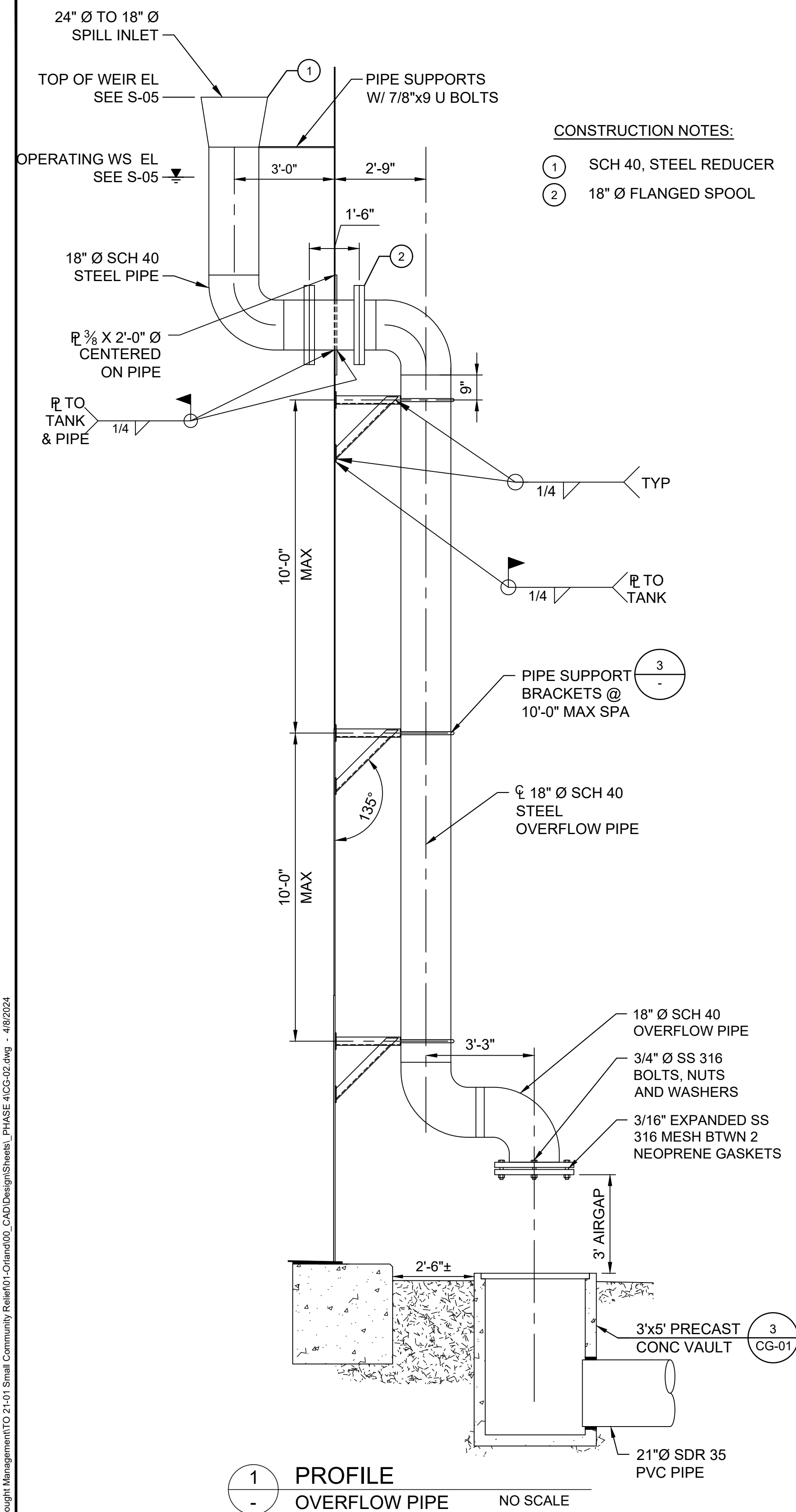
NO	DATE	ISSUE/REVISION	APP
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SHEET NAME  
**CONCRETE VAULT  
DETAILS**

SHEET NO.  
8 OF 42  
**CG-01**

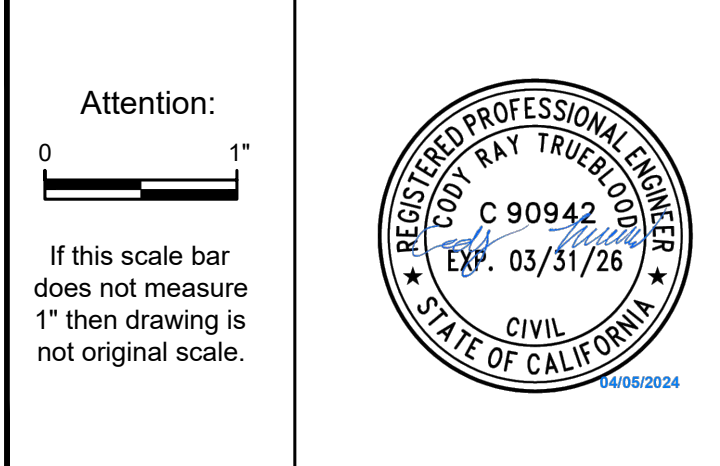


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- NOTES:**
- INSTALL TRACER WIRE PER CITY DETAIL 3 ON DRAWING CG-06.
  - BURIED METAL SHALL BE ENCASED WITH 8 MIL POLYETHYLENE SO THAT NO SOIL IS IN CONTACT WITH METAL.
  - STEEL PIPE SHALL BE FUSION BONDED EPOXY LINED AND COATED.
  - BELOW GRADE PIPE SHALL ALL BE WELDED STEEL. ABOVE GRADE PIPE MAY HAVE FLANGED CONNECTIONS.
  - CONNECTION SHALL BE AS RECOMMENDED BY MANUFACTURER.

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 P.E. No: C90942  
 GEI Project: 2204930



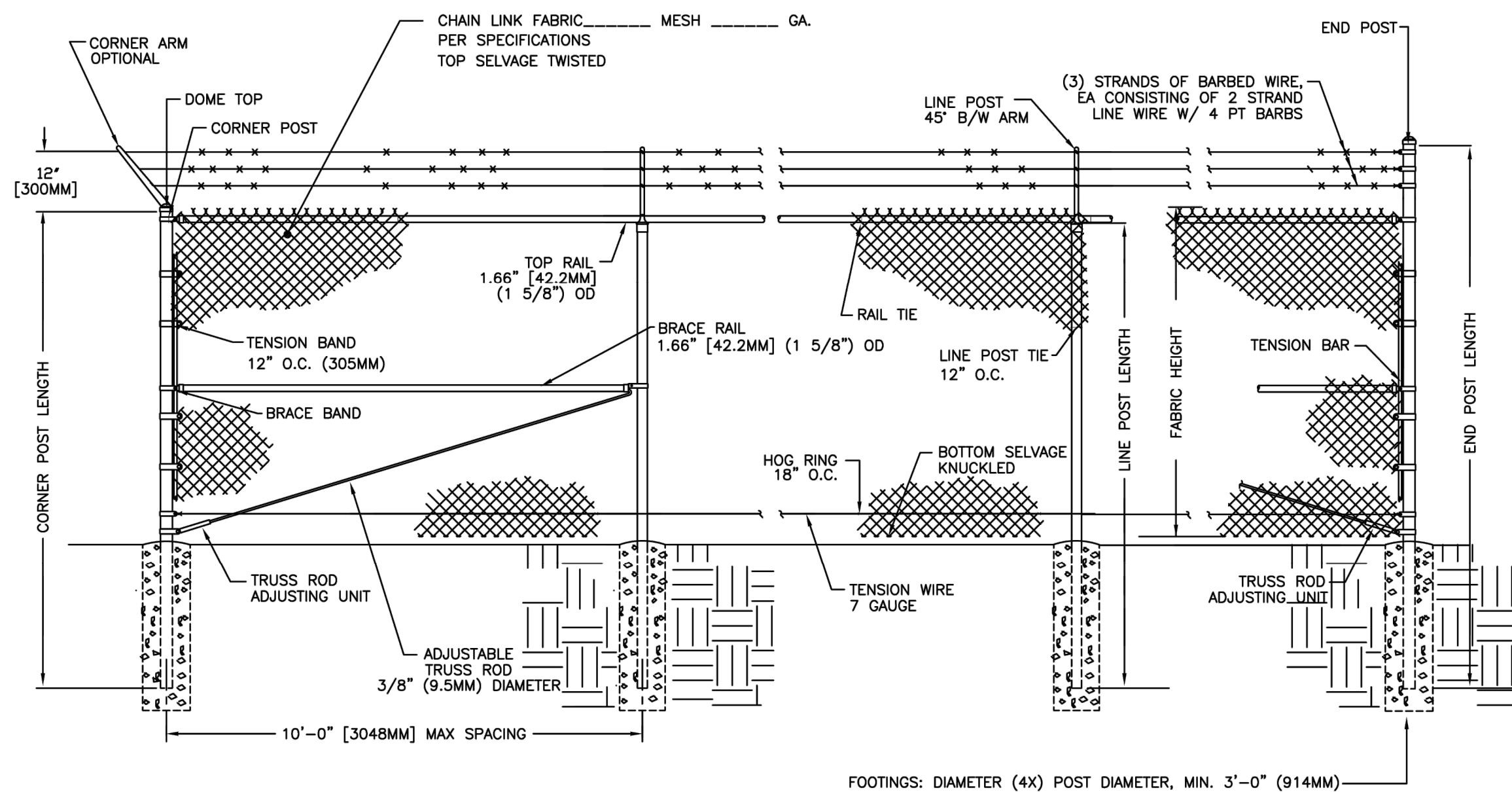
CITY OF ORLAND  
 815 FOURTH ST.  
 ORLAND, CA 95963

**ORLAND EMERGENCY  
 GROUNDWATER  
 RESOURCE PROJECT  
 PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

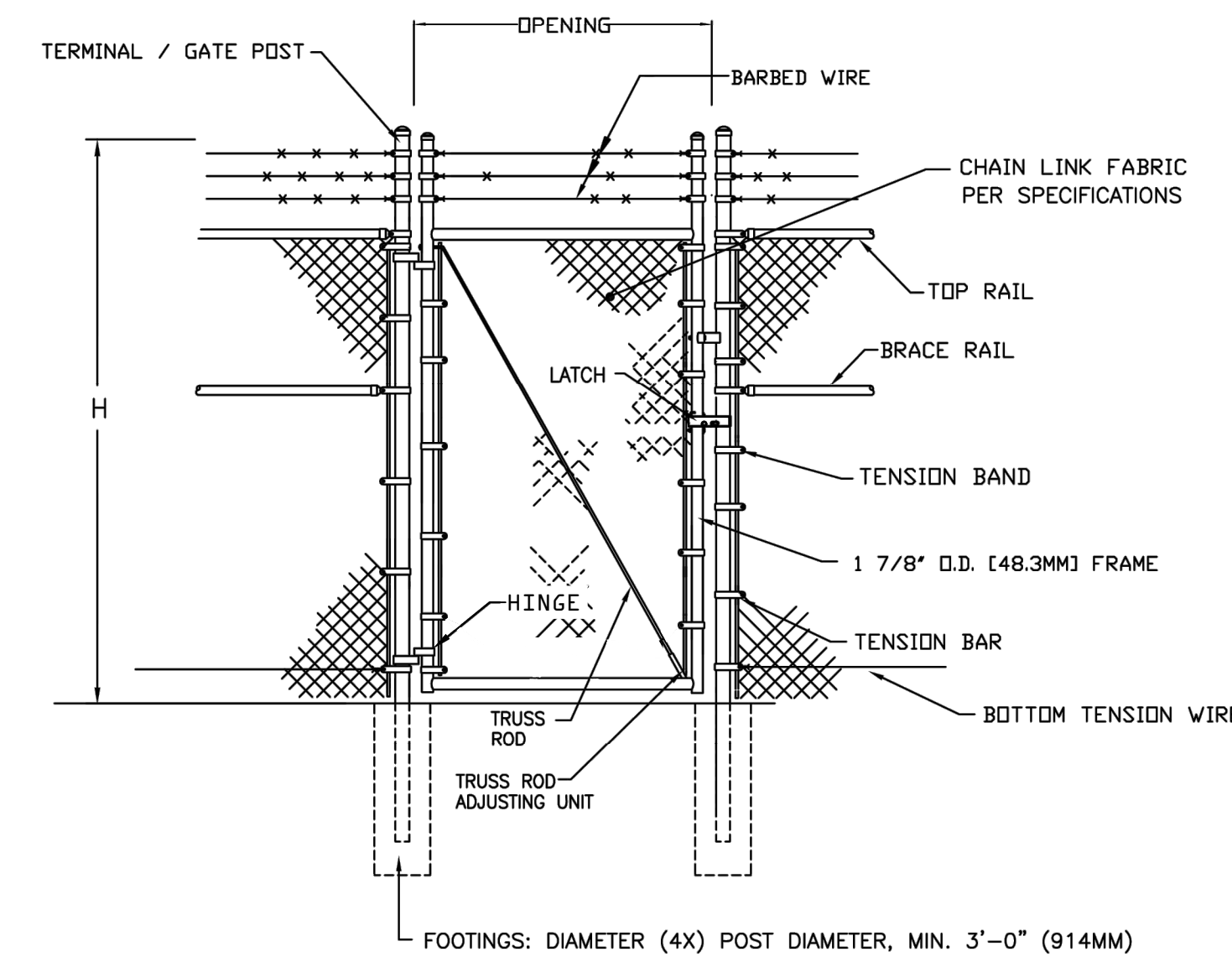
NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**TANK PIPING DETAILS**

SHEET NO.  
 9 OF 42  
**CG-02**



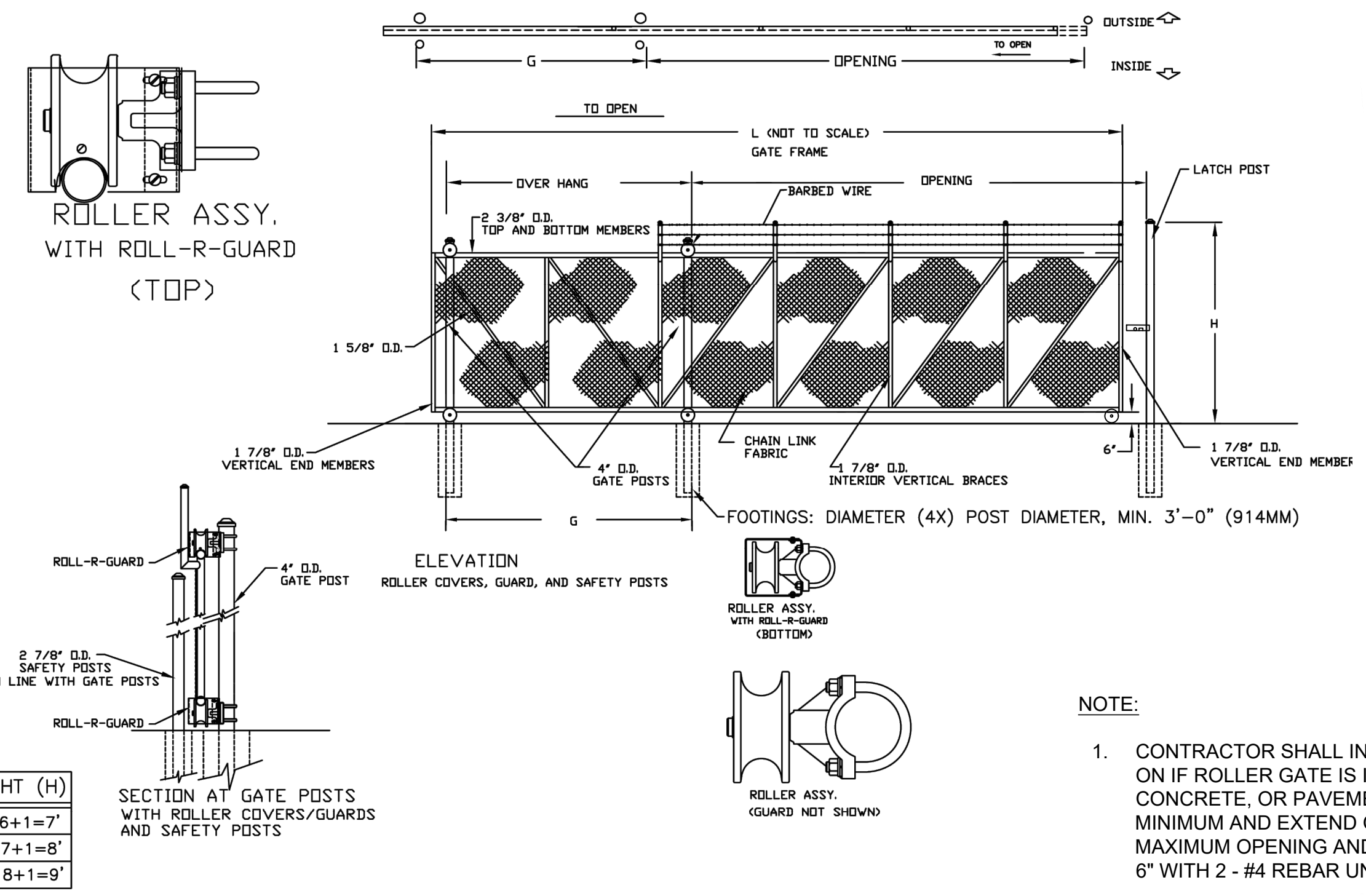
1 DETAIL  
- TYPICAL FENCE SECTION NTS



2 DETAIL  
- TYPICAL SINGLE SWING GATE NTS

NOTE:  
1. VERTICAL AND HORIZONTAL MEMBERS MAXIMUM 8' O.C.

NOM HEIGHT (H)
6'-0" OR 6+1=7'
7'-0" OR 7+1=8'
8'-0" OR 8+1=9'



3 DETAIL  
- SINGLE CANTILEVERED SLIDING GATE NTS

NOM HEIGHT (H)
6'-0" OR 6+1=7'
7'-0" OR 7+1=8'
8'-0" OR 8+1=9'

NOTE:  
1. CONTRACTOR SHALL INSTALL CONCRETE STRIP FOR GATE TO ROLL ON IF ROLLER GATE IS INSTALLED OUTSIDE AN AREA WITH CONCRETE, OR PAVEMENT. CONCRETE STRIP SHALL BE 12" WIDE MINIMUM AND EXTEND ONE (1) FOOT MINIMUM BEYOND THE MAXIMUM OPENING AND CLOSING OF GATE. STRIP DEPTH SHALL BE 6" WITH 2 - #4 REBAR UNDERLAIN WITH 12" CRUSHED ROCK.

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Attention:  
0 1"

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Checked:	M. MARTIN
Approved:	S. GALA
P.E. No.:	C90942
GEI Project	2204930

GEI CONSULTANTS, INC.  
11010 WHITE ROCK ROAD  
SUITE 200  
RANCHO CORDOVA, CA 95670  
(916) 631-4500

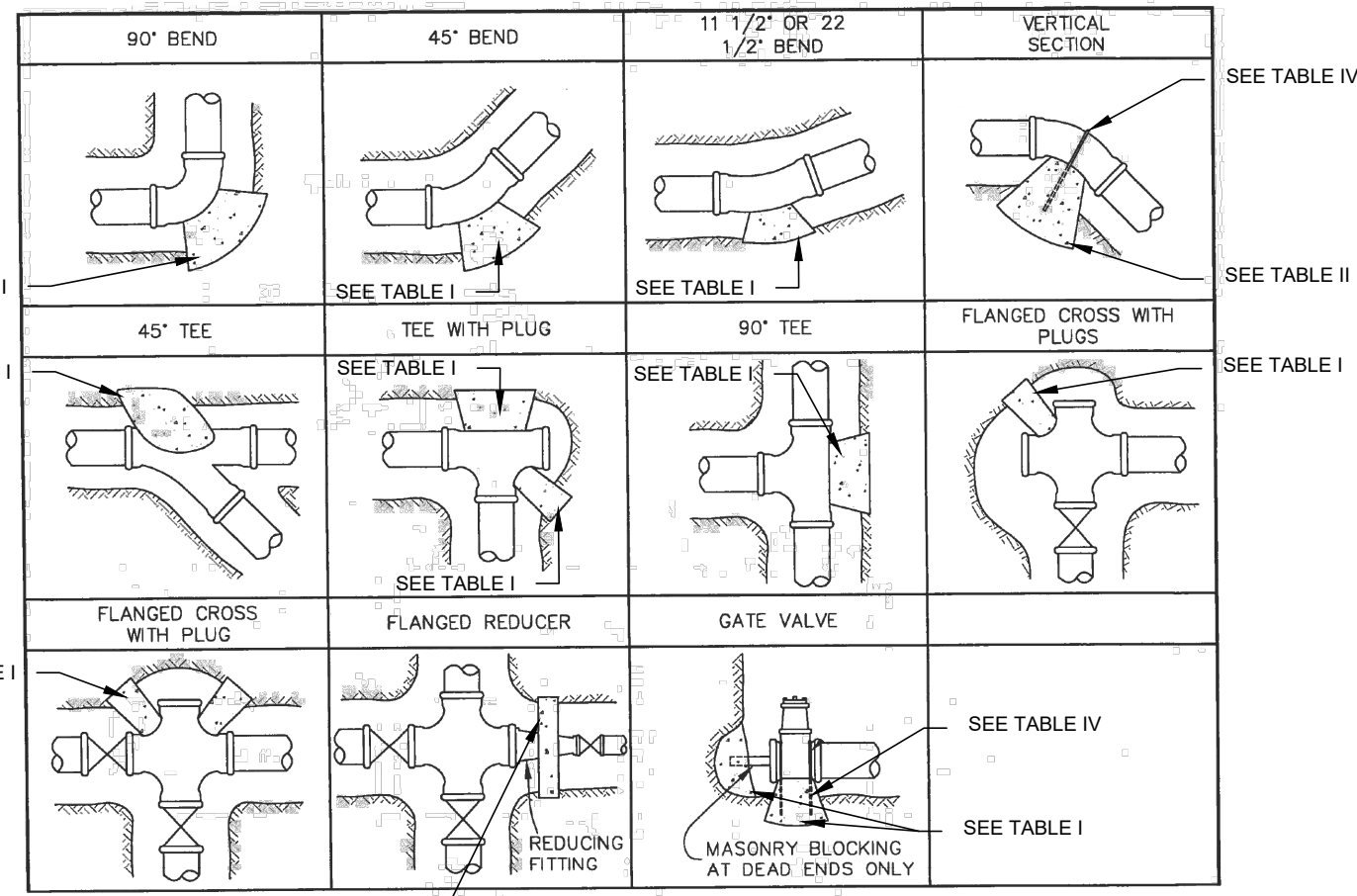
CITY OF ORLAND  
815 FOURTH ST.  
ORLAND, CA 95963

**ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
ORLAND, CA

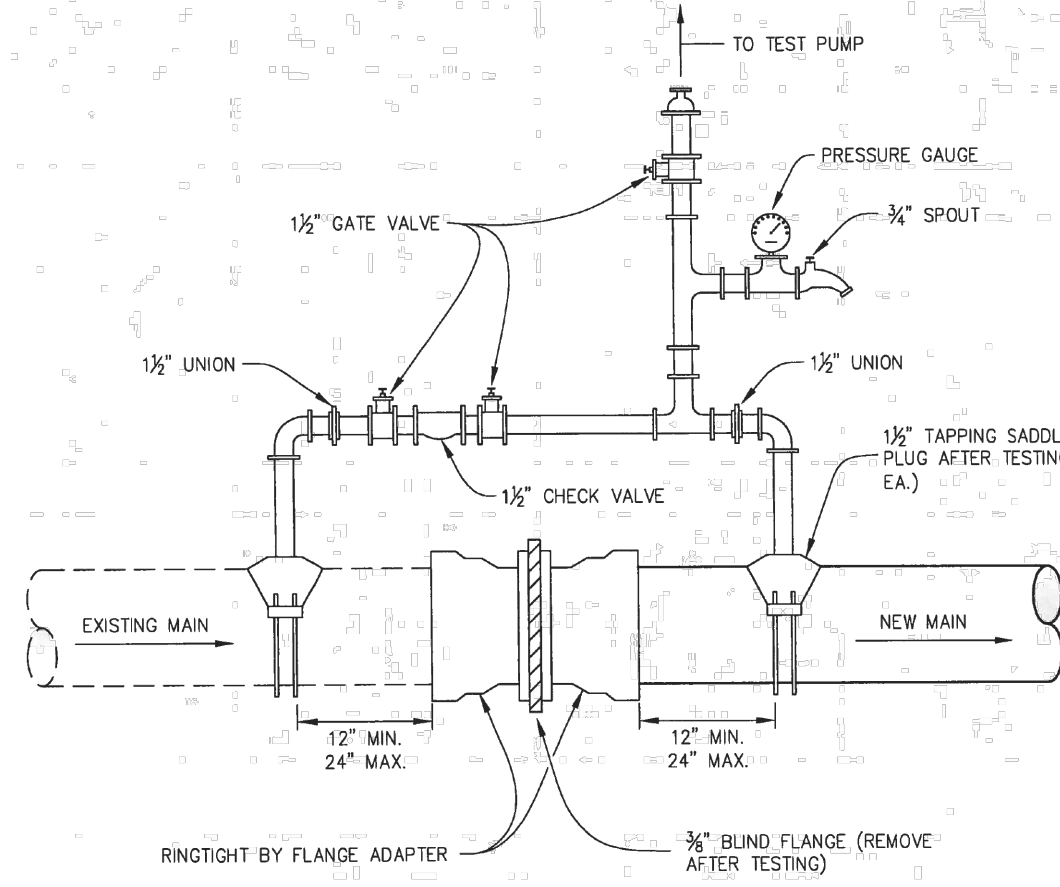
NO	DATE	ISSUE/REVISION	APP

SHEET NAME	CHAIN LINK FENCE DETAILS
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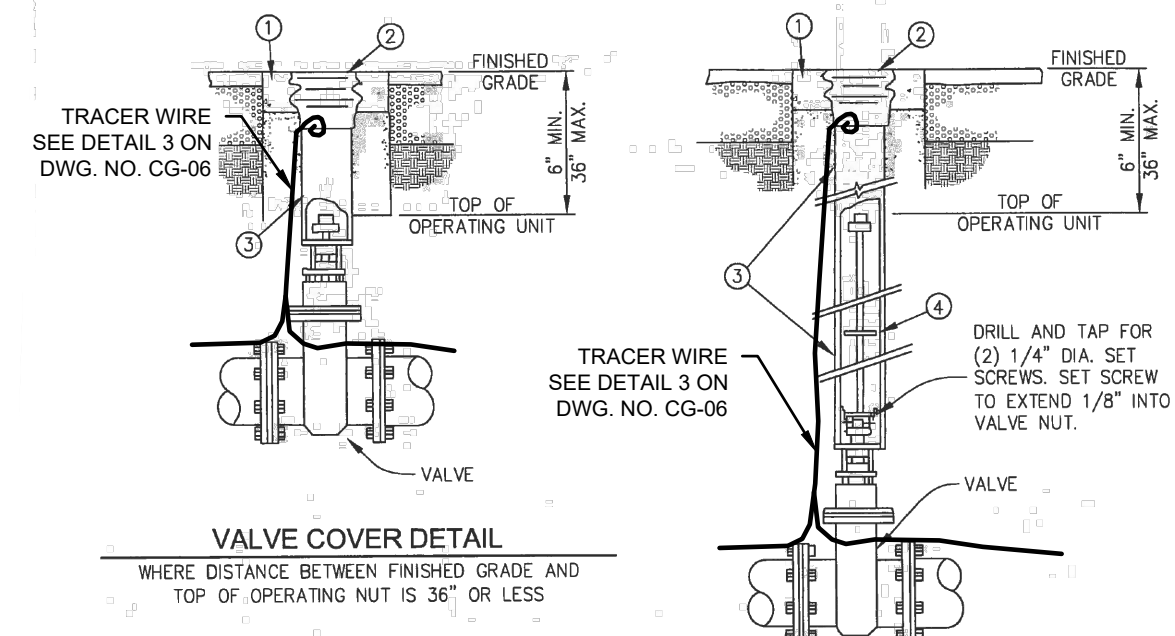
SHEET NO.	10 OF 42
<b>CG-03</b>	



- NOTES**
- THRUST BLOCKS SHALL BE CONSTRUCTED SO THAT THE BEARING SURFACE IS IN DIRECT LINE WITH THE MAJOR FORCE CREATED BY THE PIPE OR FITTING.
  - ALL CONCRETE SHALL BE CLASS C P.C.C.
  - CONCRETE SHALL BE FLUID ENOUGH SO THAT IT MAY BE WORKED AROUND THE FITTING.
  - CONCRETE SHALL BE KEPT BEHIND THE BELL OF THE FITTING AND AWAY FROM BOLTS AND FITTINGS.
  - THRUST BLOCK BEARING SURFACE SHALL BE PLACED AGAINST UNDISTURBED EARTH AND SHALL HAVE A MINIMUM VOLUME OF 6 CU. FT. AND A MINIMUM BEARING AREA OF 1 SF PER INCH OF DIAMETER. PIPES LARGER THAN 10\"/>
  - A CONCRETE PAD SHALL BE POURED UNDER ALL VALVES 12\"/>
  - ALL ANCHOR BLOCKS SHALL BE CONSTRUCTED AS SPECIFIED. SIZE OF BLOCK AND NUMBER OF STRAPS TO BE DESIGNED IN EACH SITUATION.



**NOTE**  
CONTRACTOR SHALL FURNISH AND INSTALL MATERIALS SHOWN FOR TESTING. WHEN TESTING IS COMPLETE AND RESULTS HAVE BEEN APPROVED THE CONTRACTOR SHALL FURNISH AND INSTALL REQUIRED MATERIALS TO COMPLETE THE CONNECTION BETWEEN EXISTING AND PROPOSED WATER MAINS.



**OPERATING NUT EXTENSION DETAIL**  
REQUIRED WHERE DISTANCE BETWEEN FINISHED GRADE AND TOP OF OPERATING NUT EXCEEDS 36\"/>

- NOTES**
- 24\"/>
  - VALVE BOX COVER (BROOKS PRODUCTS 3-RT, CHRISTY GS OR APPROVED EQUAL)
  - 8\"/>
  - OPERATING NUT EXTENSION WITH 7\"/>

**1 DETAIL**  
- THRUST BLOCKS - CITY STD DETAIL 303 NTS

**2 DETAIL**  
- TESTING BLOCK AND BYPASS - CITY STD DETAIL 304 NTS

**3 DETAIL**  
- VALVE COVER INSTALLATION - CITY STD DETAIL 305 NTS

**THRUST BLOCK NOTES:**

- THRUST BLOCK BEARING AREAS AND VOLUME ARE BASED ON A TEST PRESSURE OF 100 PSI AND SOIL BEARING CAPACITY OF 1000 PSF.
- WHERE THRUST BLOCKS OVERLAP, CONTRACTOR SHALL SUBMIT A DETAIL PRIOR TO CONSTRUCTION FOR ENGINEER REVIEW AND APPROVAL.
- THRUST BLOCKS SHALL BE KEYPED INTO THE TRENCH WALLS AND BASE.
- THRUST BLOCKS SHALL BE CONSTRUCTED USING FORMS.
- DISTANCE BETWEEN THRUST BLOCK BEARING FACE AND AN EXISTING FACILITY SHALL BE MINIMUM OF 10 FEET.
- JOINT RESTRAINTS SHALL BE USED ON ALL DIP WATERMAIN IN ADDITION TO THRUST BLOCKS.

**TABLE I**  
CONCRETE THRUST BLOCKING (HORIZONTAL)  
MIN BEARING AREA (SF)

DIA.	Δ = 90°	Δ = 45°	Δ = 22.5°	Δ = 11.25°	TEE, DEAD END, VALVE ANCHOR
10 in.	20.6	11.2	10.0	10.0	11.3
8 in.	13.7	8.0	8.0	8.0	8.0
6 in.	8.0	6.0	6.0	6.0	6.0
4 in.	4.0	4.0	4.0	4.0	4.0

**TABLE II**  
CONCRETE BLOCKING (VERTICAL)  
MIN CONCRETE VOLUME (CY)

DIA.	Δ = 90°	Δ = 45°	Δ = 22.5°	Δ = 11.25°
10 in.	3.6	2.5	1.4	0.7
8 in.	2.4	1.7	0.9	0.5
6 in.	1.4	1.0	0.5	0.3
4 in.	0.7	0.5	0.3	0.3

**TABLE III**  
CONCRETE THRUST BLOCKING (REDUCER)  
MIN BEARING AREA (SF)

LARGE DIA.	SMALL DIA.		
	8 in.	6 in.	4 in.
10 in.	4.9	9.0	11.9
8 in.	N/A	4.1	7.0
6 in.	N/A	N/A	2.9

**TABLE IV**  
MIN REBAR SIZE (VERTICAL & ANCHOR)

DIA.	Δ = 90°	Δ = 45°	Δ = 22.5°	Δ = 11.25°	VALVE ANCHOR
10 in.	2 - #5	2 - #4	2 - #4	2 - #4	2 - #4
8 in.	2 - #4	2 - #4	2 - #4	2 - #4	2 - #4
6 in.	2 - #4	2 - #4	2 - #4	2 - #4	2 - #4
4 in.	2 - #4	2 - #4	2 - #4	2 - #4	2 - #4

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P.E. No: C90942  
GEI Project 2204930



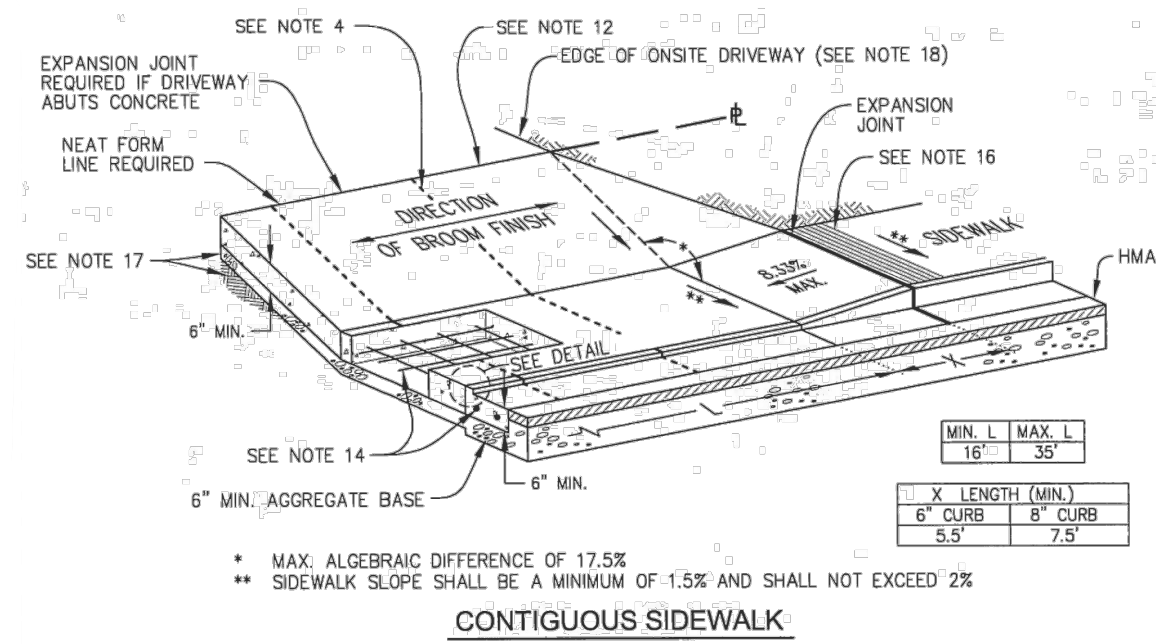
**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
815 FOURTH STREET  
ORLAND, CA

NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**THRUST BLOCK AND VALVE COVER DETAILS**

SHEET NO.  
11 OF 42  
**CG-04**

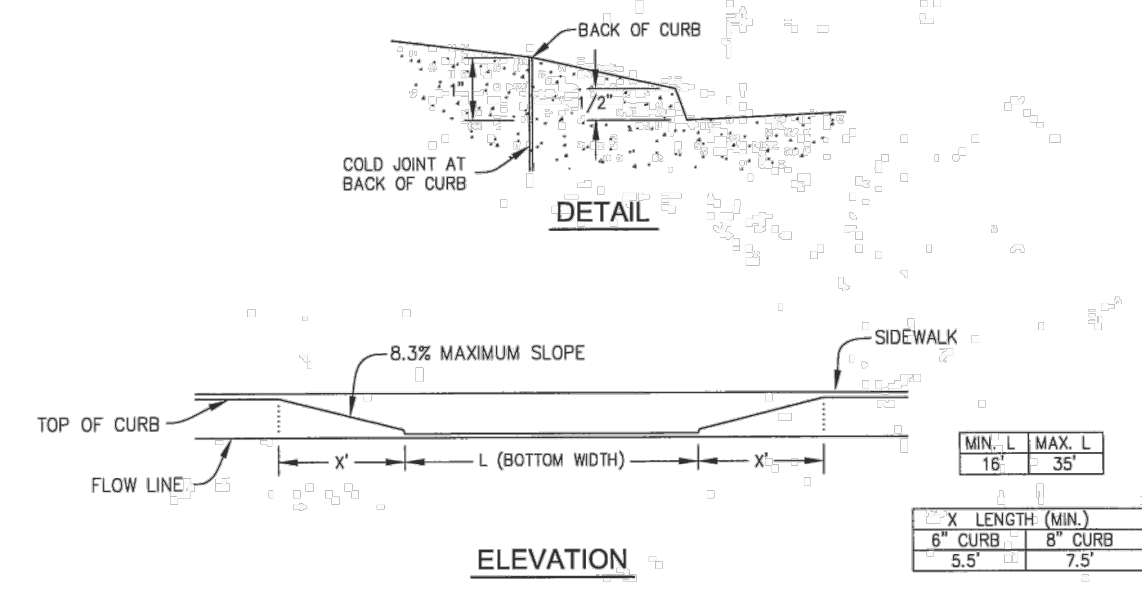
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MIN. L. MAX. L.  
16' 35'  
X LENGTH (MIN.)  
6' CURB 5.5' 8' CURB 7.5'  
6\"/>

MAX. ALGEBRAIC DIFFERENCE OF 17.5%  
SIDEWALK SLOPE SHALL BE A MINIMUM OF 1.5% AND SHALL NOT EXCEED 2%

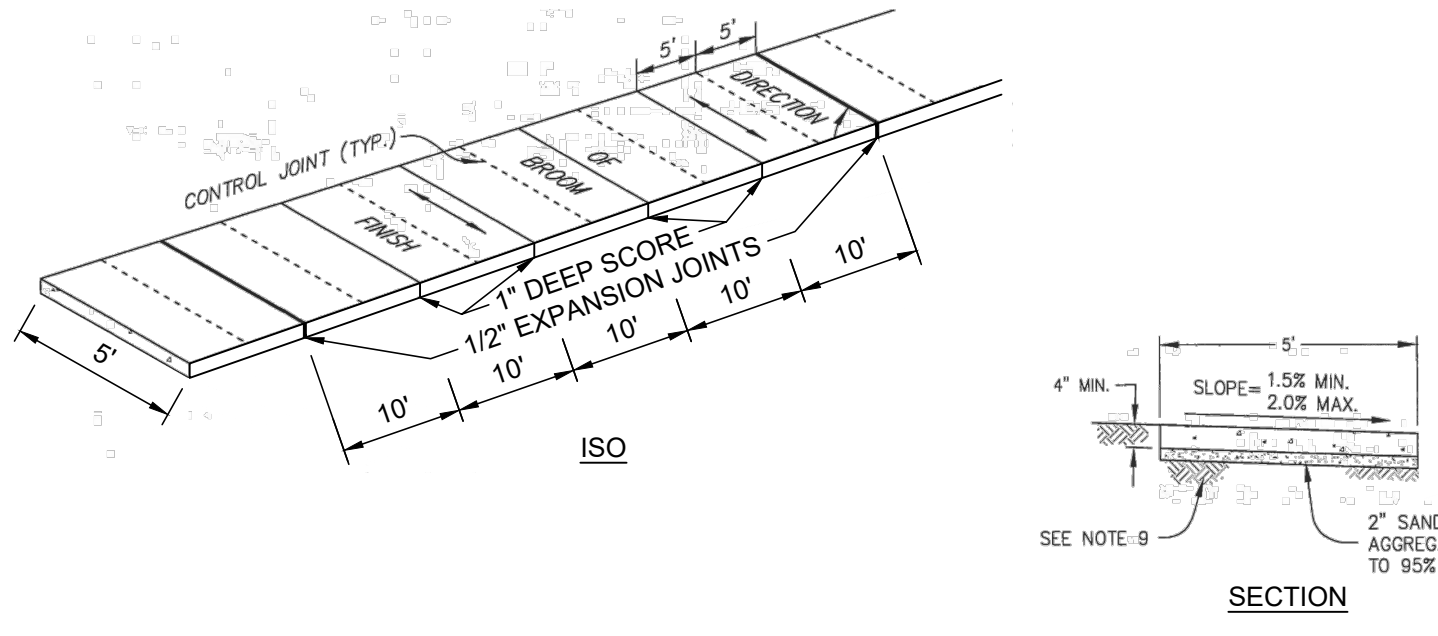
**CONTIGUOUS SIDEWALK**



**ELEVATION**

**NOTES**

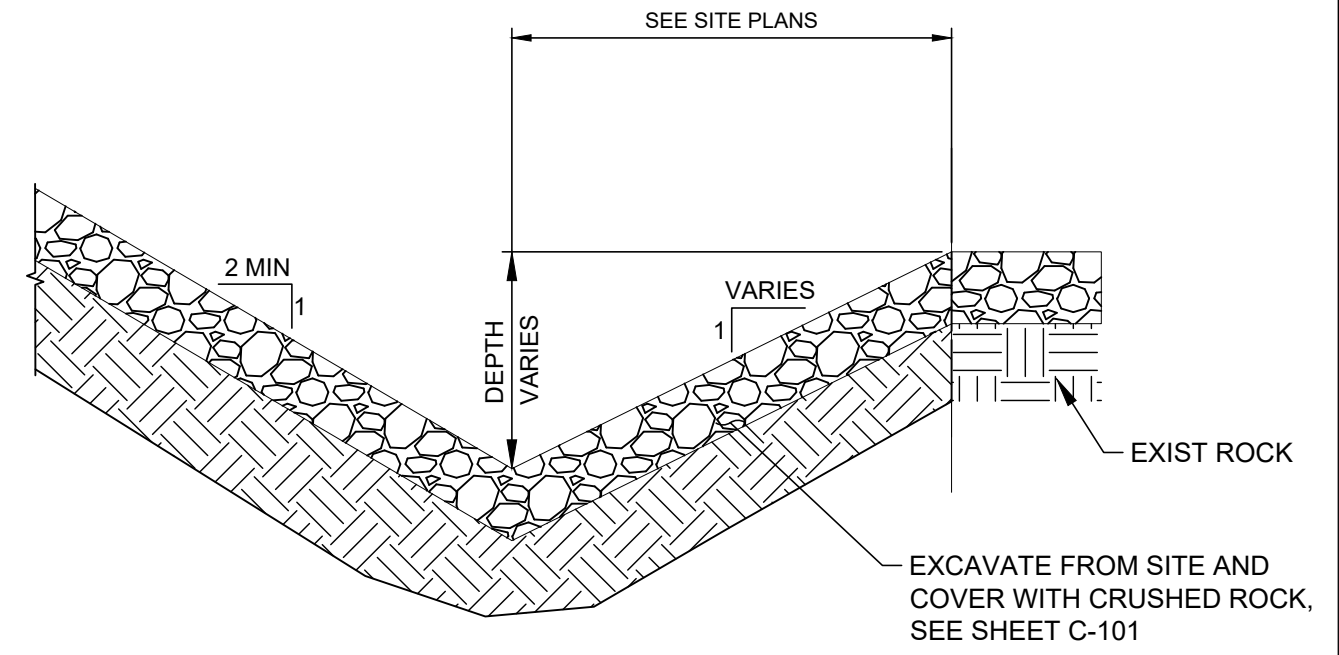
1. ALL WORK TO BE DONE AND ALL MATERIALS TO BE SUPPLIED SHALL CONFORM TO THE ORLAND PUBLIC WORKS CONSTRUCTION STANDARDS.
2. ALL CONCRETE SHALL BE CLASS B P.C.C.
3. THE AREA INCLUDED WITHIN THE SLOPES OF THE DRIVEWAY SHALL BE GIVEN A HEAVY BROOM FINISH AFTER BEING TROWELED.
4. CONTROL JOINTS SHALL EXTEND FROM LIP OF GUTTER TO THE BACK OF SIDEWALK UNLESS OTHERWISE SPECIFIED. CONTROL JOINTS SHALL BE EVENLY SPACED AT A MAXIMUM INTERVAL OF 8 FEET.
5. TOP OF LIP AT THE FLOWLINE TO BE TROWELED STRAIGHT AND TRUE.
6. WHERE CURB IS EXISTING AND NO DEPRESSION HAS BEEN PROVIDED, THE EXISTING CURB SHALL BE REMOVED TO THE FIRST EXPANSION JOINT BEYOND EITHER SIDE.
7. WHERE AN EXISTING SIDEWALK IS IN PLACE, IT SHALL BE REMOVED TO THE FIRST EXPANSION JOINT BEYOND EITHER SIDE.
8. ALLEY CURB RETURNS MAY BE DEPRESSED AS PART OF THE DRIVEWAY ONLY WHEN APPROVED BY THE CITY ENGINEER.
9. DRIVEWAYS SHALL NOT BE CONSTRUCTED CLOSER THAN 20 FEET TO THE END OF STREET CURB RETURNS UNLESS APPROVED BY THE CITY ENGINEER.
10. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON THE SAME LOT SHALL BE 24 FEET.
11. THE MINIMUM LENGTH OF FULL HEIGHT CURB BETWEEN DRIVEWAYS ON ADJACENT LOTS SHALL BE 6 FEET.
12. ON-SITE GRADING MAY BE REQUIRED TO ELIMINATE EXCESSIVE GRADE CHANGE AND TO MAINTAIN SUITABLE DRAINAGE.
13. MAXIMUM CURB OPENING MAY BE INCREASED DUE TO SPECIAL CONDITIONS WITH APPROVAL OF THE CITY ENGINEER.
14. ALL DRIVEWAYS SHALL HAVE 2 NO. 4 REBAR 12\"/>



**SECTION**

**NOTES**

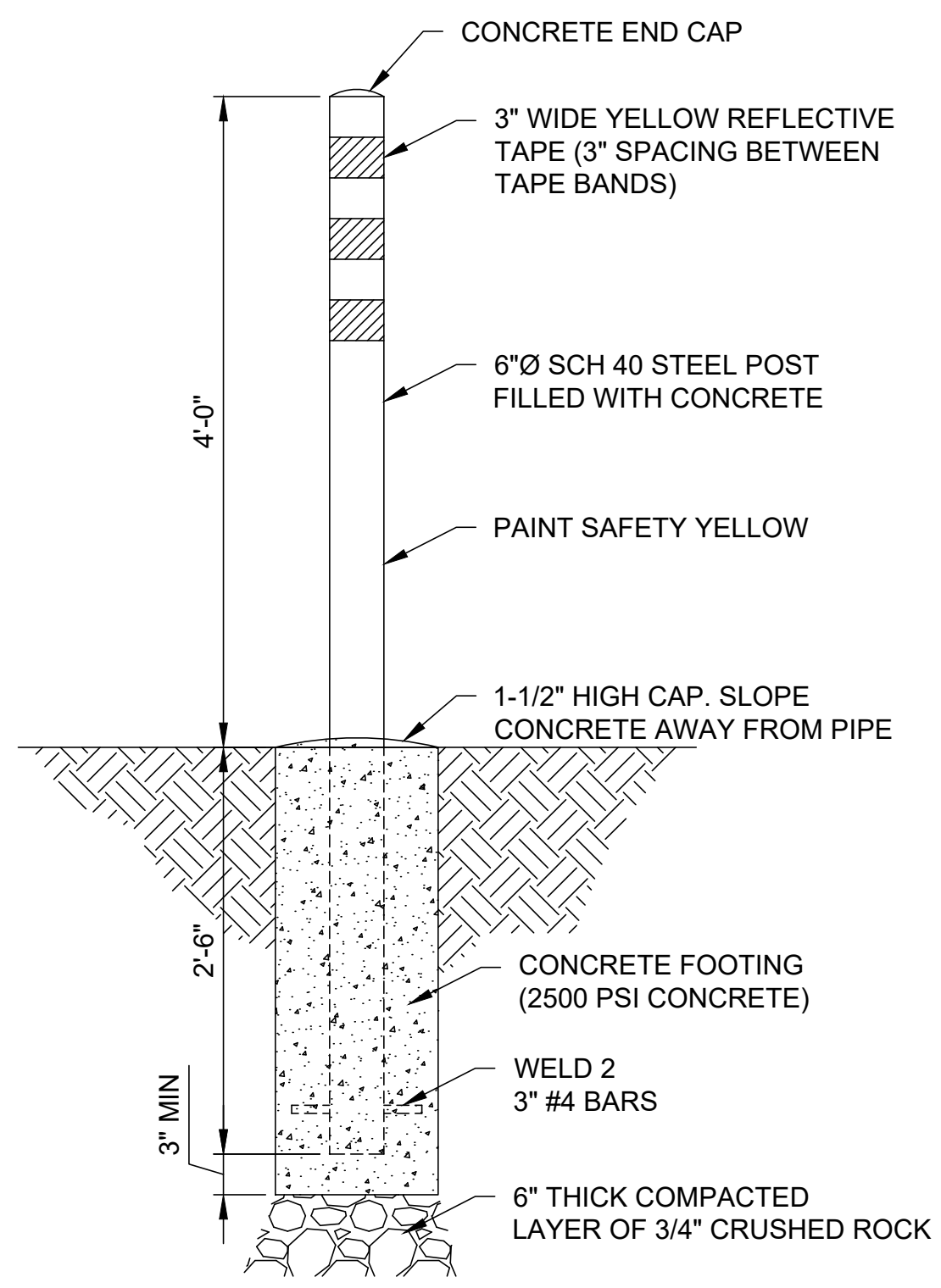
1. ALL CONCRETE SHALL BE CLASS B P.C.C.
2. 1/2 INCH, PRE-MOLDED JOINT FILLER SHALL BE INSTALLED IN EXPANSION JOINTS AT REGULAR INTERVALS NOT EXCEEDING 50 FEET, AT THE B.C. AND E.C. OF ALL CURB RETURNS AND AT THE END OF ALL DRIVEWAYS, AND SHALL BE FULL-DEPTH AND COMPLETELY FILL THE JOINT.
3. A MINIMUM OF 2 INCHES OF SAND, OR CLASS 2 AGGREGATE BASE, TO BE PLACED UNDER THE SIDEWALK. (SEE NOTE 6 BELOW)
4. ALL WORK DONE AND ALL MATERIALS SUPPLIED SHALL CONFORM TO THE ORLAND IMPROVEMENT STANDARDS.
5. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER FOR INSPECTION AT LEAST 24 HOURS PRIOR TO PLACING CONCRETE.
6. FOR SIDEWALK ABUTTING ROLLED CURB AND GUTTER, THE THICKNESS OF AGGREGATE BASE UNDER THE SIDEWALK SHALL BE THE SAME AS THE THICKNESS PLACED UNDER THE STREET PAVEMENT.
7. EXPANSION JOINTS IN SIDEWALK SHALL BE ADJACENT TO EXPANSION JOINT IN CURB AND GUTTER.
8. PROVIDE COLD JOINT AT BACK OF CURB. IF CURB, GUTTER, AND SIDEWALK ARE POURED MONOLITHICALLY, PROVIDE 1\"/>



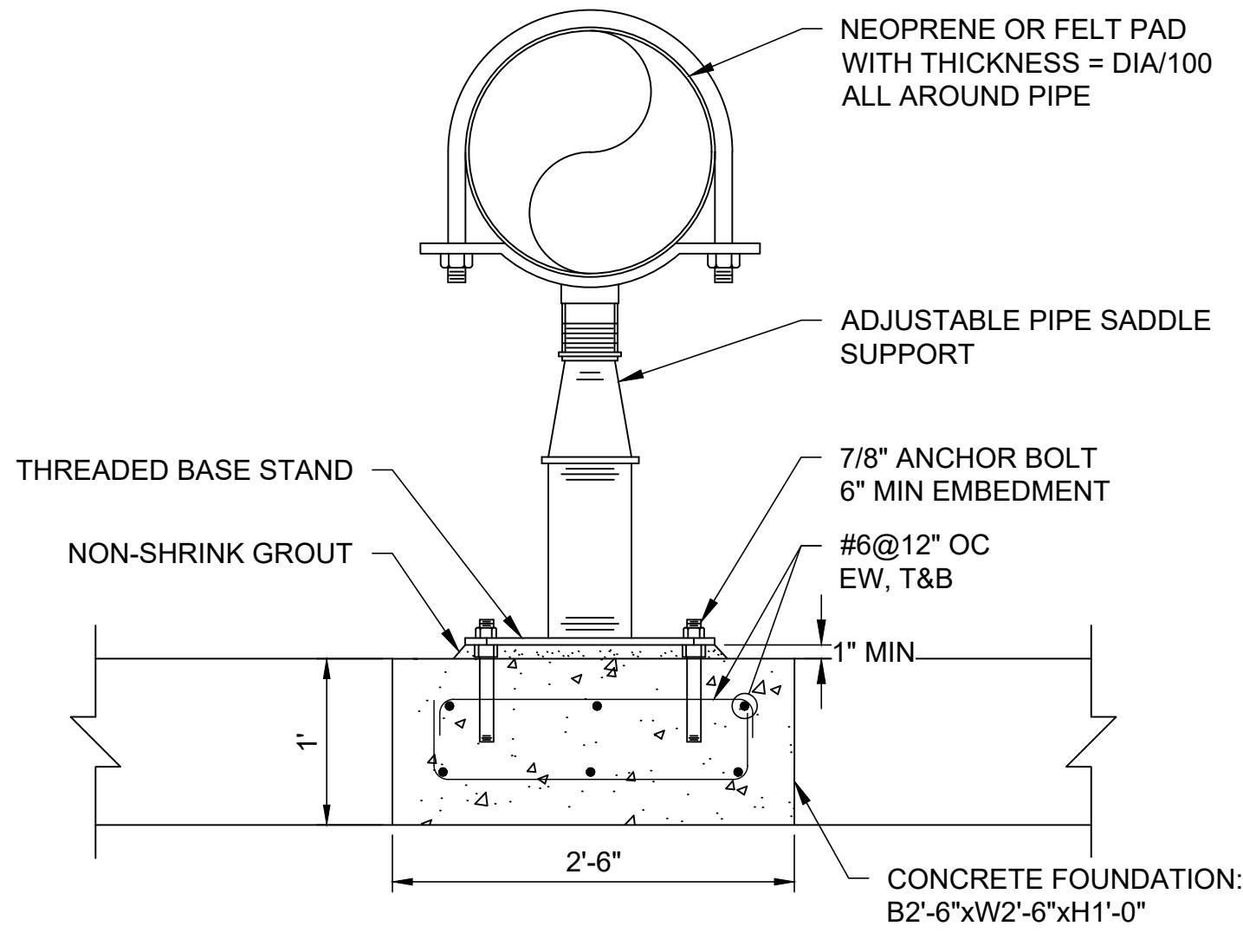
**3 DETAIL DRAINAGE SWALE**

**1 DETAIL COMMERCIAL DRIVEWAY - CITY STD DETAIL 206**

**2 DETAIL SIDEWALK - CITY STD DETAIL 204**



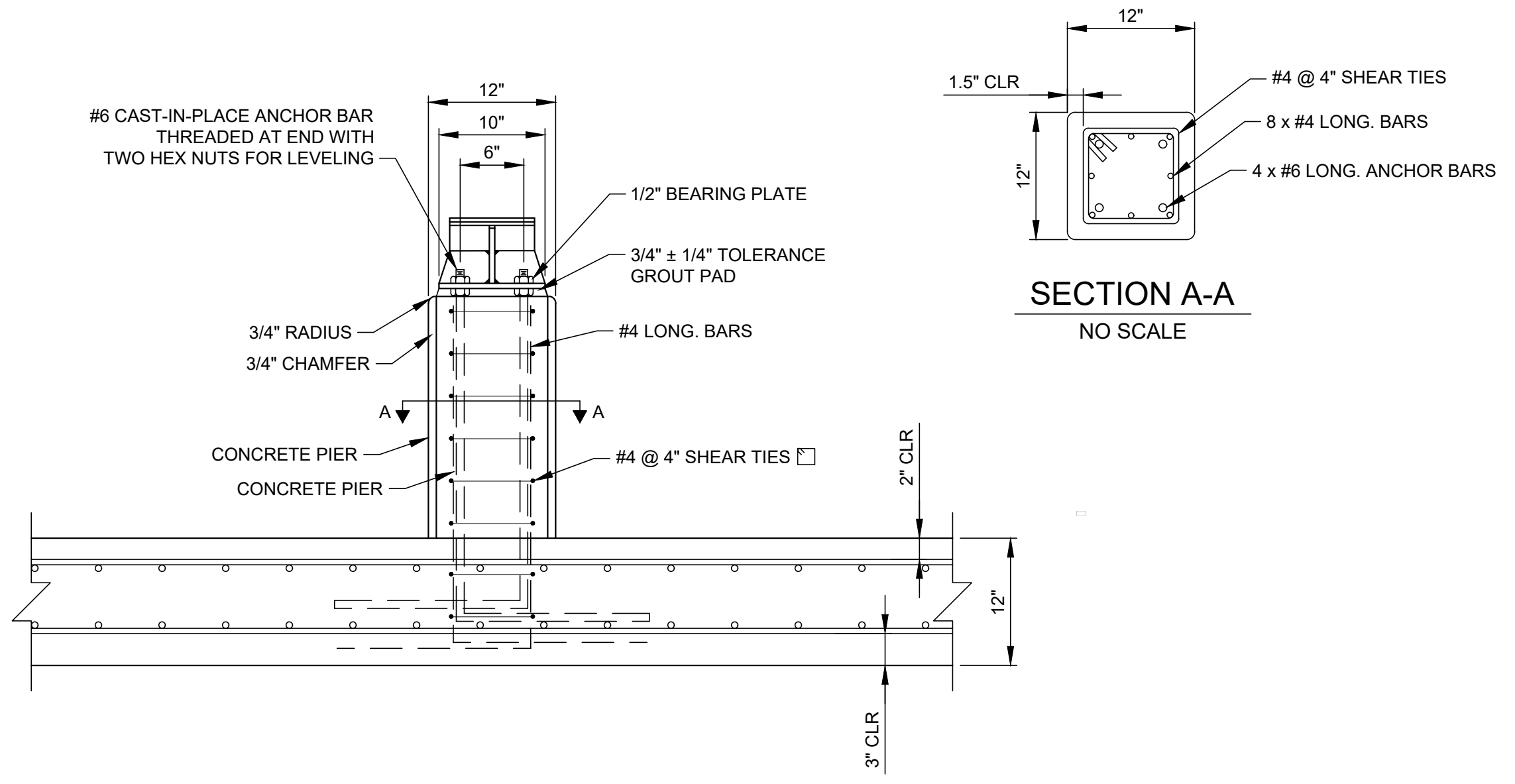
**4 DETAIL BOLLARD/GUARD POST**



**NOTES:**

1. ALL ADJUSTABLE PIPE SUPPORT COMPONENTS SHALL BE HOT HIP GALVANIZED STEEL.
2. ADJUSTABLE PIPE SUPPORT AND THREADED BASE STAND SHALL BE COOPER B-LINE SERIES OR APPROVED EQUAL.
3. ANCHORS SHALL BE HOT DIP GALVANIZED ALL THREAD (ASTM F1554 GR. 36), HILTI HAS-V-36. EPOXY SHALL BE HILTI HIT-RE 500 OR APPROVED EQUAL.

**5 DETAIL ADJUSTABLE PIPE SUPPORT**

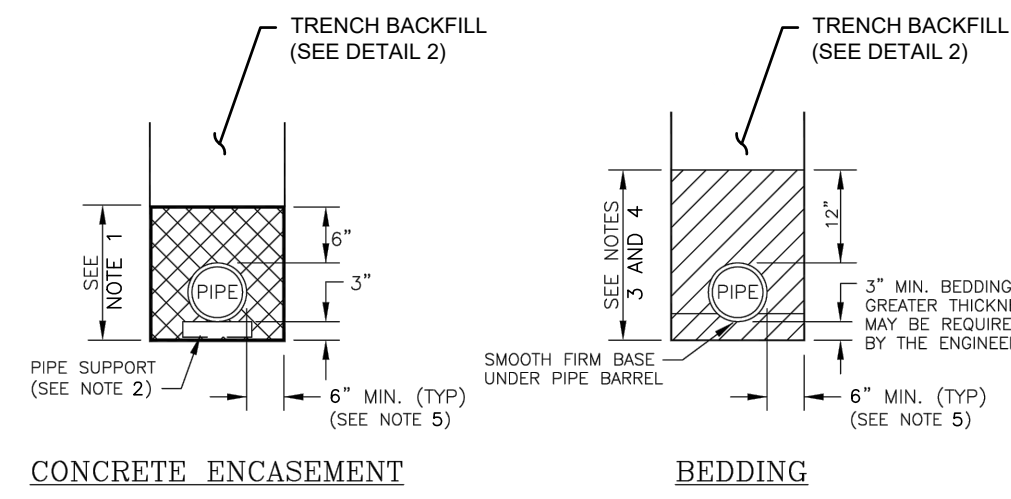


**6 DETAIL FLANGE AND PIPE SUPPORT**

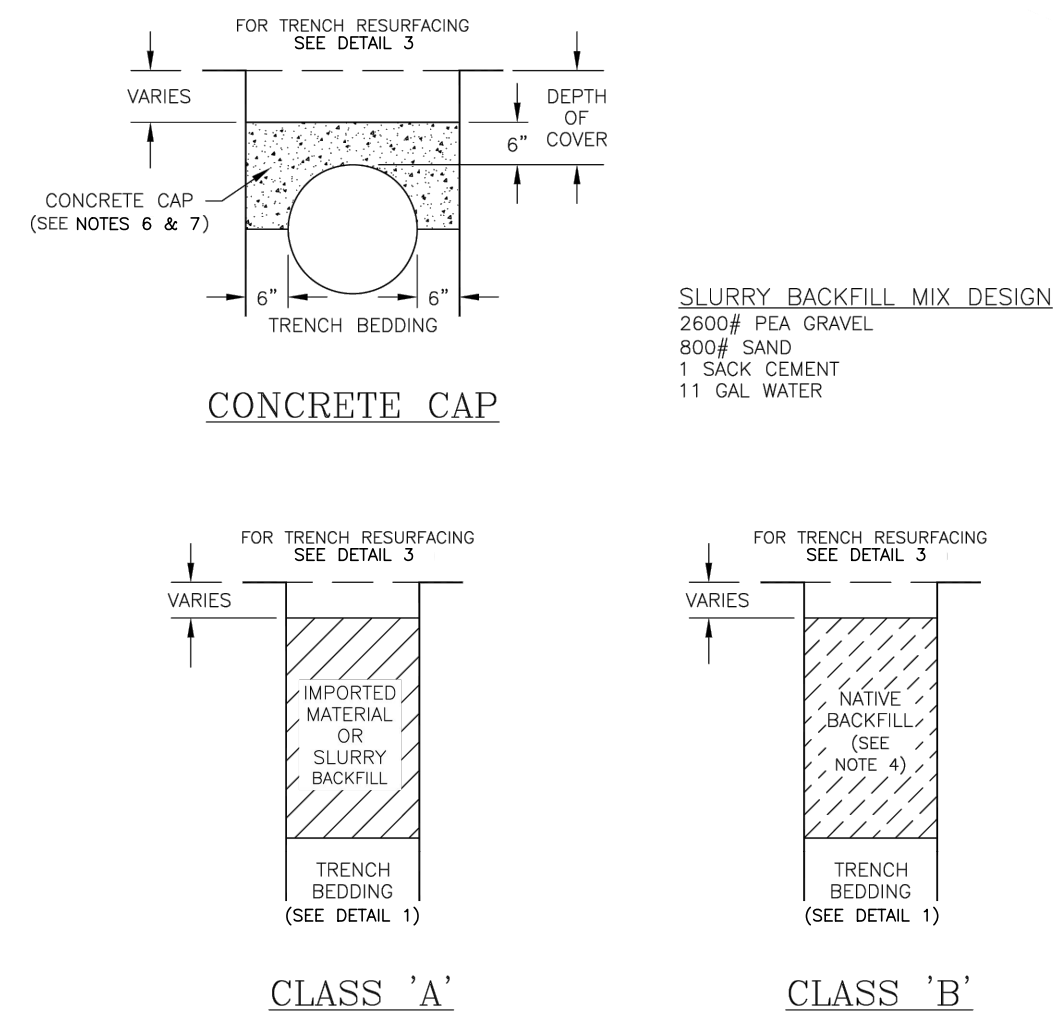
Attention:  If this scale bar does not measure 1" then drawing is not original scale.		Designed: C. TRUEBLOOD	 GEI CONSULTANTS, INC. 11010 WHITE ROCK ROAD SUITE 200 RANCHO CORDOVA, CA 95670 (916)631-4500	 CITY OF ORLAND 815 FOURTH ST. ORLAND, CA 95963	<b>ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT</b> <b>PHASE 4</b> 815 FOURTH STREET ORLAND, CA	SHEET NAME  <b>SITE DETAILS</b>	SHEET NO. 12 OF 42  <b>CG-05</b>		
		Drawn: J. AVILA Checked: M. MARTIN Approved: S. GALA P.E. No: C90942 GEI Project 2204930						<table border="1"> <tr> <th>NO</th> <th>DATE</th> <th>ISSUE/REVISION</th> <th>APP</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO
NO	DATE	ISSUE/REVISION	APP						

**ISSUED FOR BID**

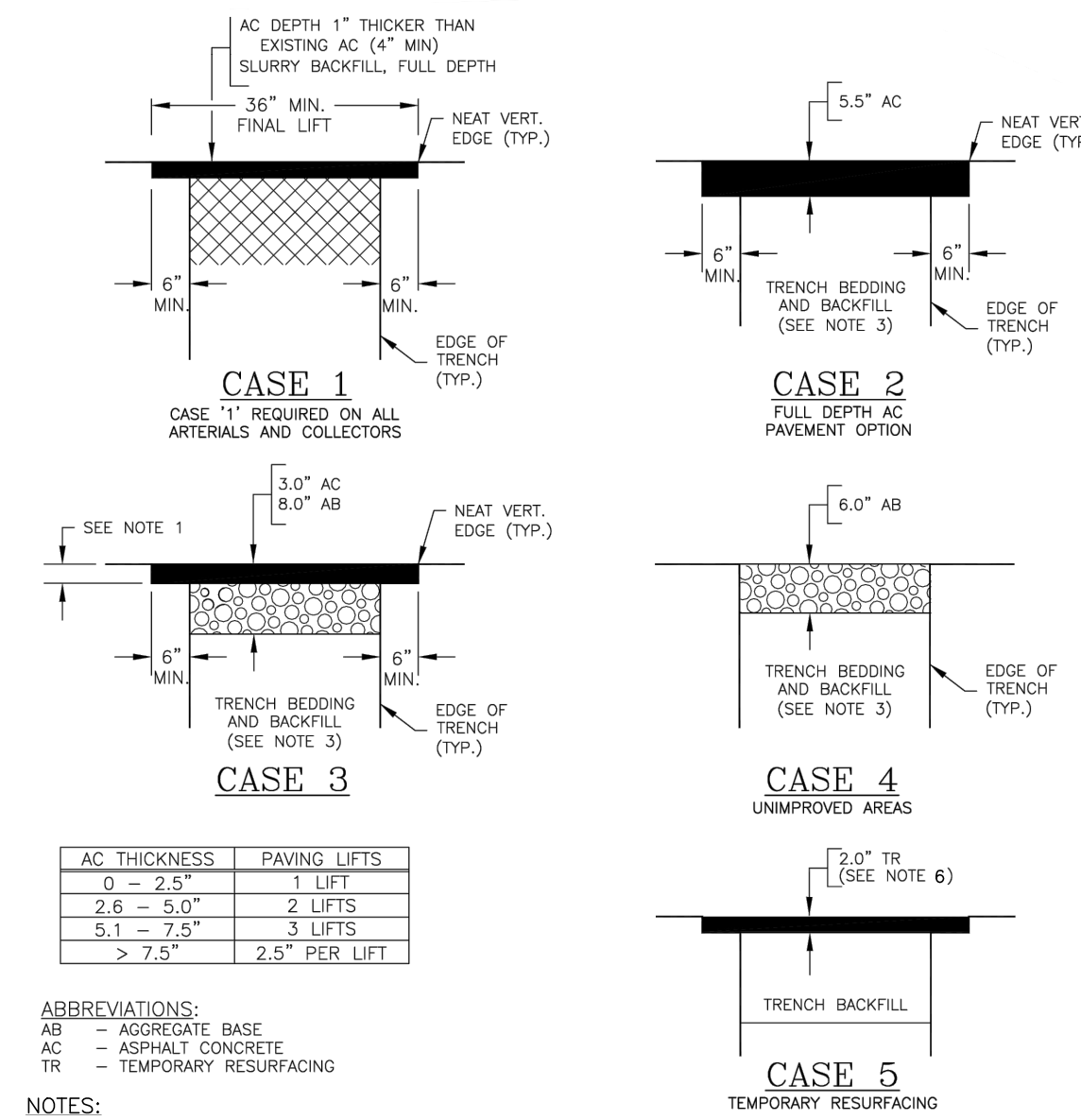
AVILA, JULIAN, B:\Working\DWG\148520-DWR-Drough Management\1021-01-Small Community Releaf\01-Civil\03-Draws\Sheet1\_PHASE4-CG-05.dwg - 4/8/2024



- NOTES:**
1. CONCRETE FOR ENCASING PIPE SHALL BE CLASS 450-C-2000 PER THE SPECIFICATIONS.
  2. ON ALL CONCRETE ENCASED PIPES, PIPE SHALL BE SUPPORTED ON CONCRETE BLOCKS, GROUT PADS, OR BY OTHER APPROVED METHOD. TWO SUPPORTS SHALL BE REQUIRED PER JOINT OF PIPE. CARE SHALL BE TAKEN NOT TO FLOAT PIPE WHILE PLACING CONCRETE.
  3. BACKFILL BY HAND, COMPACT OR CONSOLIDATE TO PROVIDE SOLID BEDDING UNDER AND AROUND PIPE.
  4. BEDDING MATERIAL
    - WATER MAINS SHALL BE PER THE SPECIFICATIONS.
  5. TRENCH WIDTH ON EACH SIDE OF THE PIPE SHALL BE A MINIMUM OF EITHER SIX (6) INCHES OR THE PIPE MANUFACTURER'S RECOMMENDED MINIMUM, WHICHEVER IS GREATER.



- NOTES:**
1. IMPORT BACKFILL MATERIAL PER THE SPECIFICATIONS.
  2. SLURRY BACKFILL SHALL BE PER MIX DESIGN ABOVE, AND SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING THREE (3) FEET.
  3. NATIVE BACKFILL MAY BE USED IN LIEU OF IMPORT BACKFILL ONLY IF AN INDEPENDENT GEOTECHNICAL ENGINEERING COMPANY MONITORS AND TESTS THE BACKFILL DURING THE ENTIRE BACKFILLING OPERATION.
  4. FOR REQUIRED COMPACTION DENSITY AND TESTING FREQUENCY, SEE CONTRACT SPECIFICATIONS.
  5. COMPACTION BY JETTING IS NOT PERMITTED.
  6. CONCRETE CAP SHALL BE PLACED OVER PIPE WHEN THE DEPTH OF COVER IS LESS THAN THE MINIMUM FOR THE SPECIFIC TYPE OF PIPE PER THESE STANDARDS.
  7. CONCRETE CAP SHALL BE CLASS 450-C-2000 PER THE CONTRACT SPECIFICATIONS.

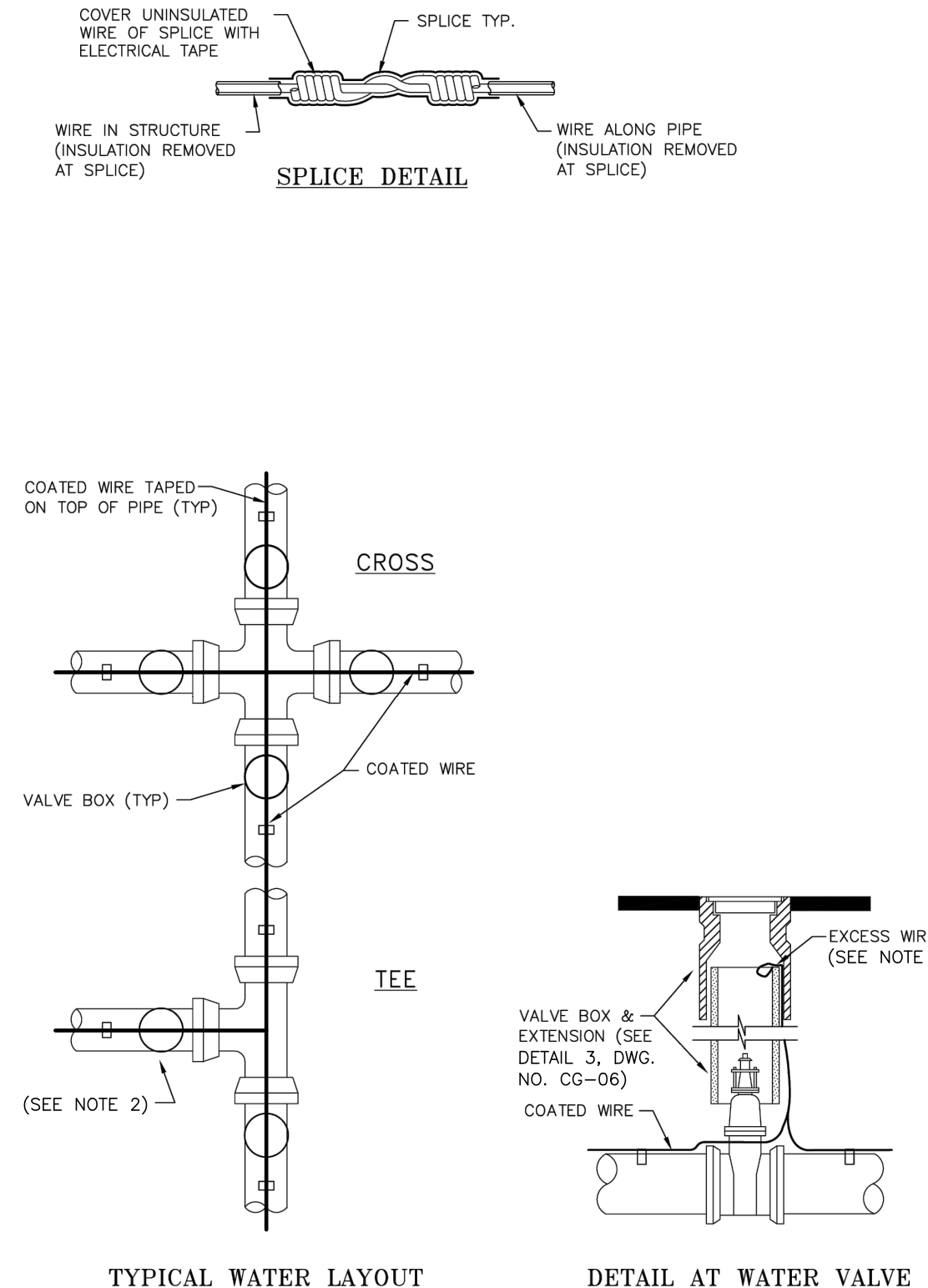
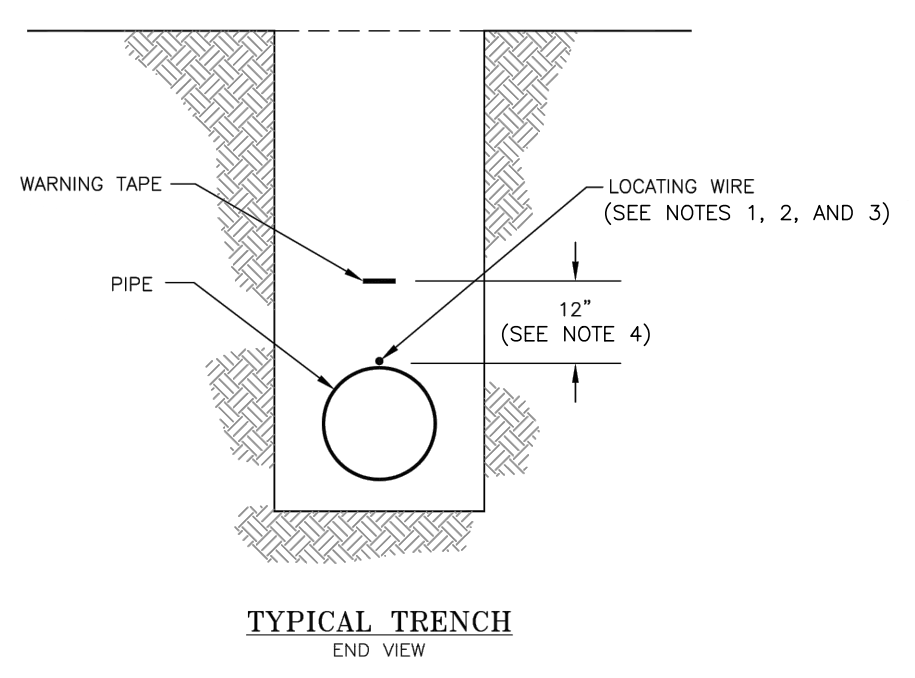


- ABBREVIATIONS:**  
 AB - AGGREGATE BASE  
 AC - ASPHALT CONCRETE  
 TR - TEMPORARY RESURFACING
- NOTES:**
1. EXCEPT AS NOTED IN CASE 1, MINIMUM THICKNESS OF AC RESURFACING IS THREE (3) INCHES OR MATCH EXISTING THICKNESS, WHICHEVER IS GREATER.
  2. FOR TRENCH BEDDING SEE DETAIL 1 AND FOR TRENCH BACKFILL SEE DETAIL 2.
  3. FOR REQUIRED COMPACTION DENSITY AND TESTING FREQUENCY, SEE THE CONTRACT SPECIFICATIONS.
  4. FOR ANY TRENCH CUT WITHIN TWO (2) FEET OF THE EDGE OF PAVEMENT AND/OR AN EXISTING PAVEMENT REPAIR, THE EXISTING AC SHALL BE REMOVED AND RESURFACED TO THE EDGE OF THE ADJACENT FEATURE.
  5. ANY PAVEMENT DELINEATION AND/OR MARKINGS REMOVED DURING TRENCHING OPERATIONS SHALL BE REPLACED IN KIND AS THERMOPLASTIC STRIPING AT 90 MIL (MIN) AND MARKINGS AT 120 MIL (MIN) THICK.
  6. TEMPORARY PAVEMENT RESURFACING SHALL CONFORM TO REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, (GREENBOOK) FOR TEMPORARY RESURFACING. THE TEMPORARY RESURFACING SHALL BE PLACED, ROLLED, MAINTAINED TO A SMOOTH FINISH, REMOVED AND DISPOSED OF BY THE CONTRACTOR.

**1** DETAIL  
 TRENCH BEDDING - COUNTY DETAIL 609 NTS

**2** DETAIL  
 TRENCH BACKFILL - COUNTY DETAIL 610 NTS

**3** DETAIL  
 TRENCH RESURFACING DETAILS - COUNTY DETAIL 611 NTS



- NOTES:**
1. LOCATING WIRE SHALL BE INSTALLED IN CONJUNCTION WITH WARNING TAPE ON ALL PIPELINES (INCLUDING LINES TO FIRE HYDRANTS, BLOWOFFS, WATER SERVICES, GATE VALVES, AND AIR VALVES).
  2. WIRE SHALL NOT TOUCH METALLIC STRUCTURES, VALVES, OR FITTINGS (MAINTAIN 3 INCHES CLEAR DISTANCE).
  3. WIRE SHALL BE PLACED WITHIN 6"-12" OF TOP OF STRUCTURES AND WITH SUFFICIENT EXCESS TO ALLOW FOR ABOVE GROUND CONNECTION TO LOCATING EQUIPMENT (2 FOOT MIN).
  4. LOCATING WARNING TAPE SHALL BE INSTALLED 12 INCHES ABOVE PIPELINE (INCLUDING LINES TO FIRE HYDRANTS, BLOWOFFS, WATER SERVICES, GATE VALVES, AND AIR VALVES) AND SHALL BE UNBROKEN FOR THE ENTIRE RUN OF THE PIPE.

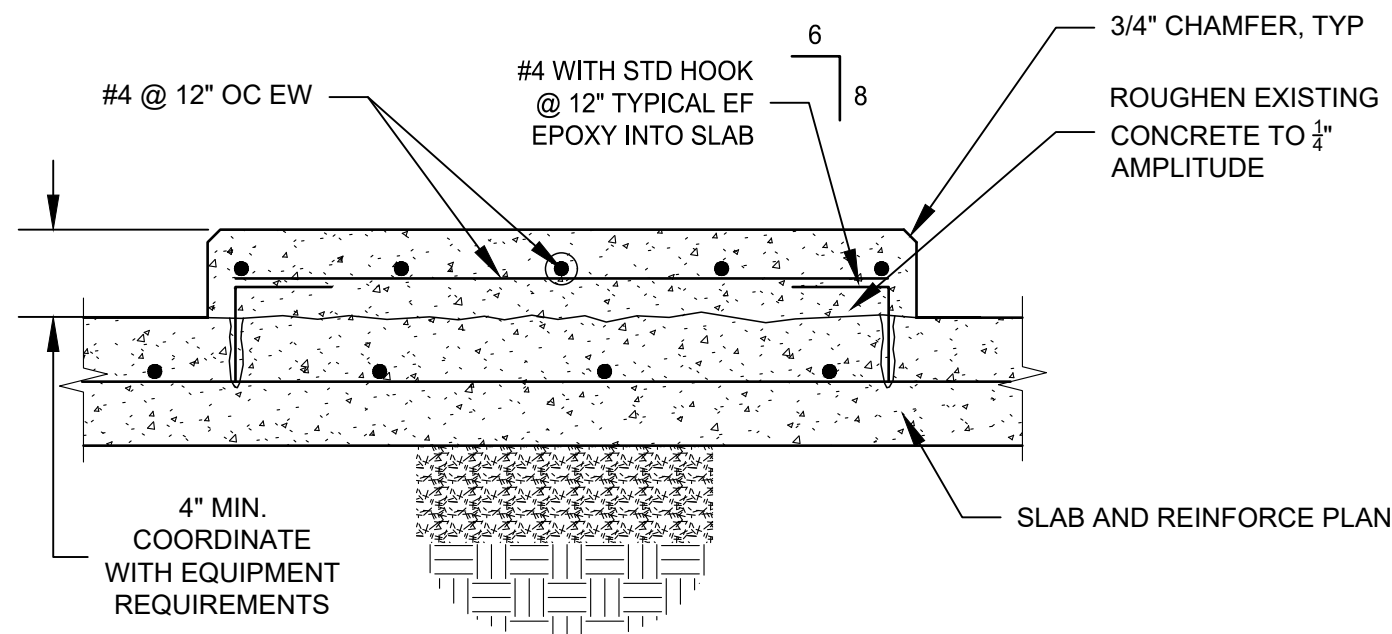
**4** DETAIL  
 LOCATING WIRE AND WARNING TAPE - COUNTY DETAIL 608 NTS

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		Drawn: J. AVILA						Checked: M. MARTIN	Approved: S. GALA
						NO	DATE	ISSUE/REVISION	APP

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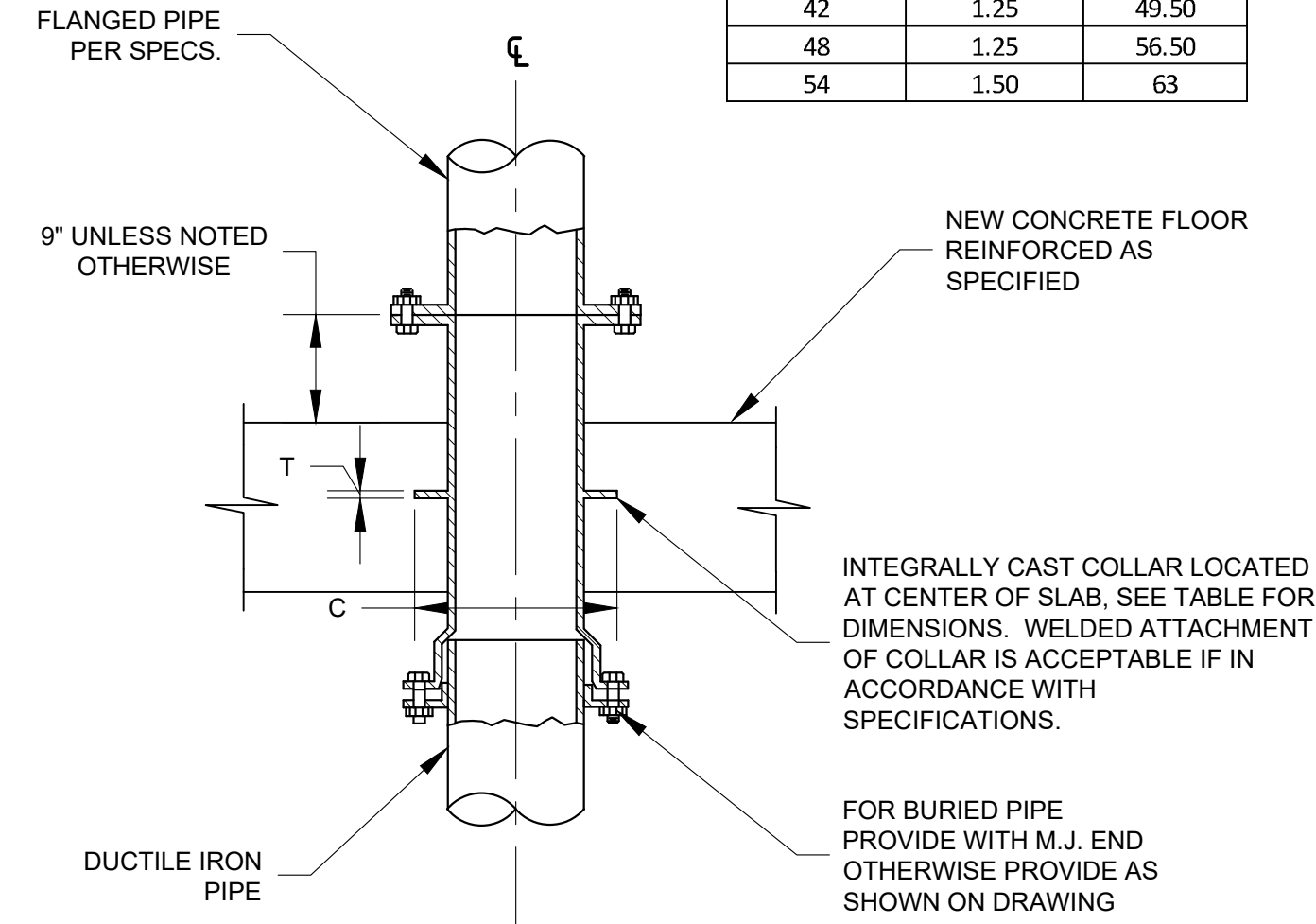
AVILA, JULIAN\_B:\Working\DWG\148520 DWG Drought Management\10 21-01 Small Community Resilient\01-Orland\03\_CAD\Design\Sheet\PHASE 4\CG-06.dwg - 4/8/2024

NOTE:  
 1. IF HOUSEKEEPING PAD HEIGHT EXCEEDS 1'-0" USE #5 REBAR @12" OC EW, COORDINATE WITH EQUIPMENT ANCHOR BOLTS TO ELIMINATE INTERFERENCE.  
 2. SEE DETAIL ECP ON SHEET E-11 FOR ELECTRICAL EQUIPMENT AND CONDUIT DETAILS THROUGH HOUSEKEEPING PAD.



03-510 HOUSEKEEPING PAD  
NO SCALE

MINIMUM DIMENSIONS		
NOMINAL PIPE DIA. (IN)	T, THICKNESS (IN)	C, DIAMETER (IN)
4	0.50	8.00
6	0.50	0.00
8	0.50	12.50
10	0.50	14.50
12	0.50	16.50
14	0.75	18.50
16	0.75	21.75
18	0.75	23.75
20	0.75	25.75
24	0.75	30.25
30	1.00	36.50
36	1.00	43.00
42	1.25	49.50
48	1.25	56.50
54	1.50	63



15-050 DUCTILE IRON FLOOR PIPE, MJ/FLG  
NO SCALE

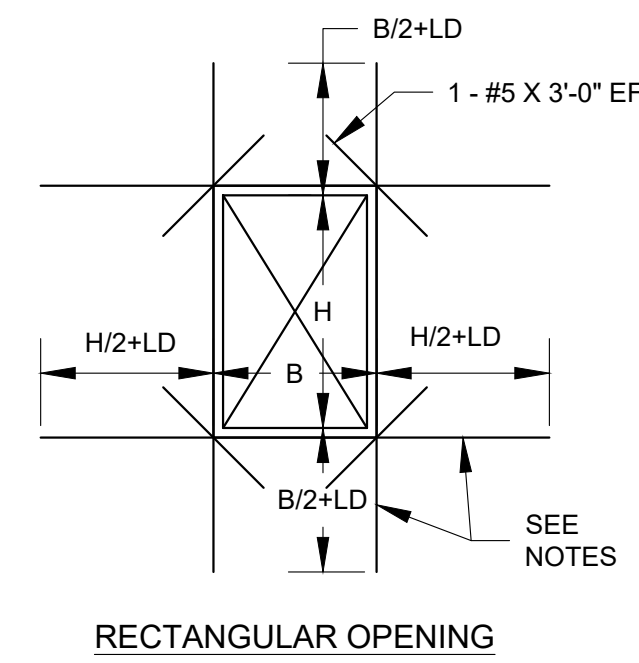
NOTES:

- THESE DETAILS APPLY TO ALL OPENINGS IN CONCRETE WALLS AND SLABS WHEN LARGEST OPENING DIMENSION IS GREATER THAN TWO TIMES SECTION THICKNESS OR GREATER THAN REINFORCEMENT SPACING IN THE SECTION, UNLESS OTHERWISE INDICATED IN THE DRAWINGS.
- THE AREA OF ADDITIONAL REINFORCING REQUIRED IN EACH FACE ON EACH SIDE OF AN OPENING SHALL EQUAL OR EXCEED ONE-HALF OF THE AREA OF THE INTERCEPTED BARS IN EACH FACE, IN EACH DIRECTION, RESPECTIVELY WITH A MINIMUM OF 1 - #5 BAR EACH FACE.
- PLACE THE ADDED BARS IN THE SAME LAYERS AS THE WALL OR SLAB REINFORCING.
- LD - EMBEDMENT LENGTH

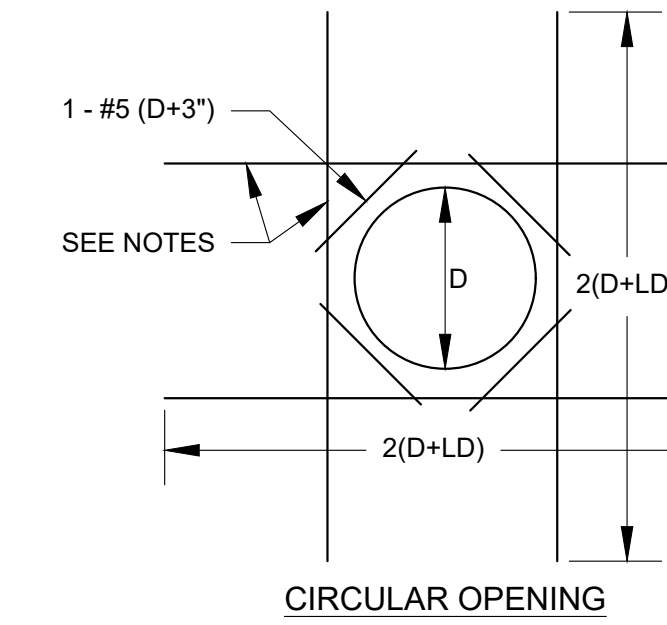
BAR SIZE	EMBEDMENT LENGTH	
	TOP BARS	OTHERS
3	14	12
4	19	15
5	23	18
6	28	22
7	33	26
8	44	34
9	56	43
10	70	54
11	86	67

TABLE NOTES:

- TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR..
- FOR BARS SPACED LESS THAN 6 BAR DIAMETERS O.C. INCREASE LENGTH BY 25%.
- WHEN LAPPING TWO DIFFERENT SIZE BARS USE THE LAP LENGTH OF THE SMALLER BAR UNLESS NOTED OTHERWISE.
- EMBEDMENT LENGTH IS MINIMUM LENGTH OF EMBEDMENT FOR STRAIGHT DOWELS WHERE END HOOK IS NOT SHOWN, UNLESS OTHERWISE NOTED.
- HOOKS SHALL BE ACI STANDARD UNLESS OTHERWISE NOTED.
- FOR EPOXY COATED REINFORCEMENT INCREASE LENGTH BY 30%.

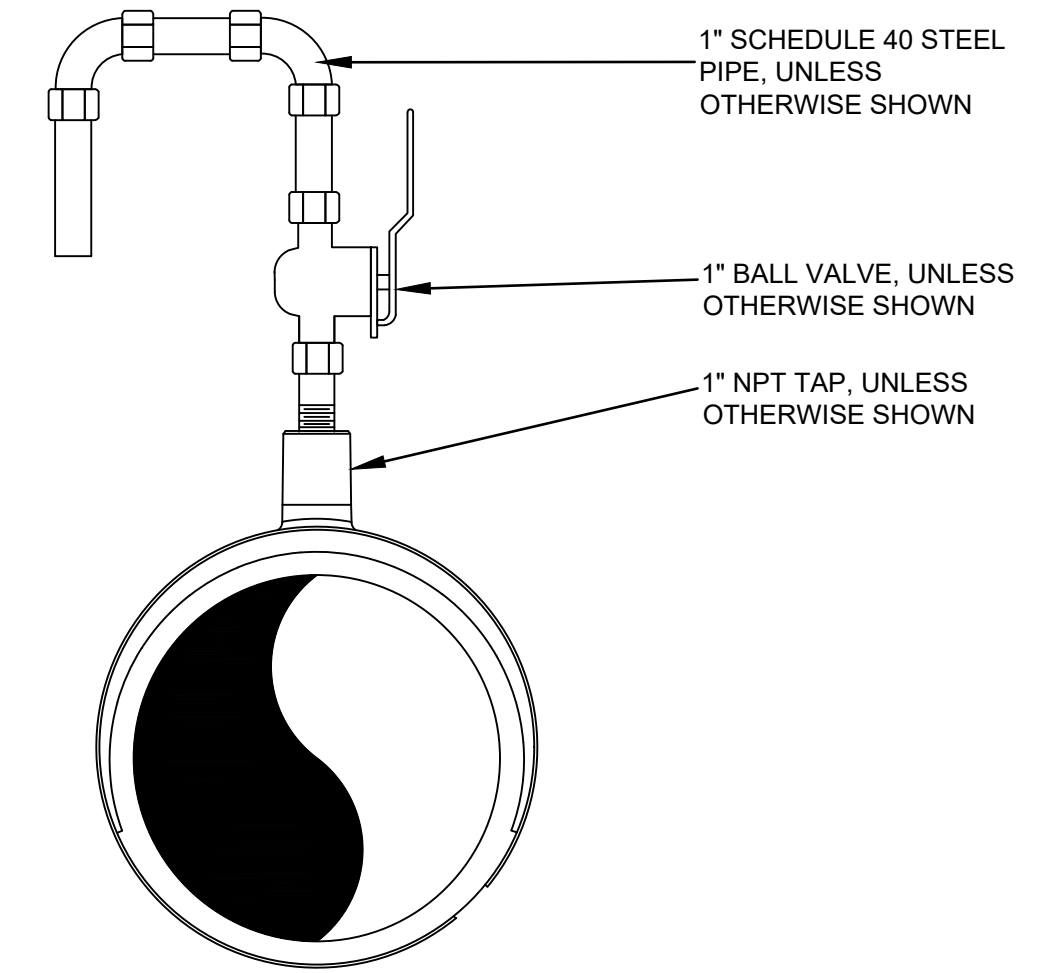


RECTANGULAR OPENING



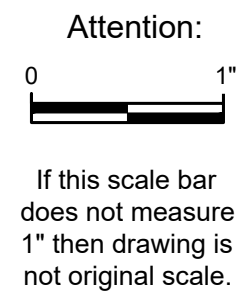
CIRCULAR OPENING

15-070 ADDITIONAL REINFORCEMENT AT OPENINGS IN WALLS AND SLABS  
NO SCALE



15-491 SAMPLING VALVE / AIR RELEASE ON DUCTILE IRON PIPE  
NO SCALE

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Designed: J. BAL  
 Drawn: R. WARD  
 Checked: R. ANDERSON  
 Approved: C. TRUEBLOOD  
 P.E. No: C90942  
 GEI Project: 2204930



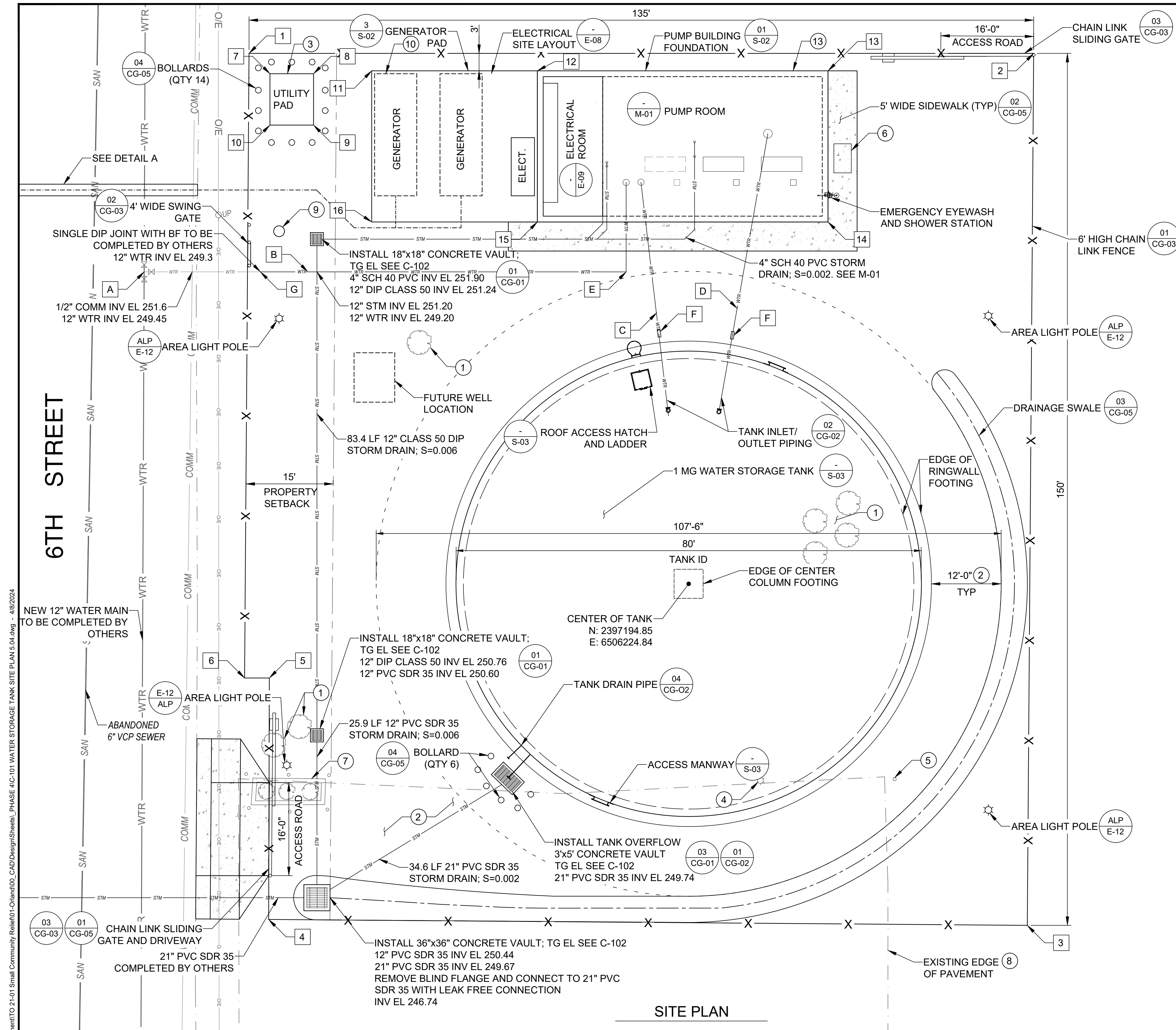
**ORLAND EMERGENCY  
 GROUNDWATER  
 RESOURCE PROJECT  
 PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**PIPING AND MECHANICAL STANDARD DETAILS**

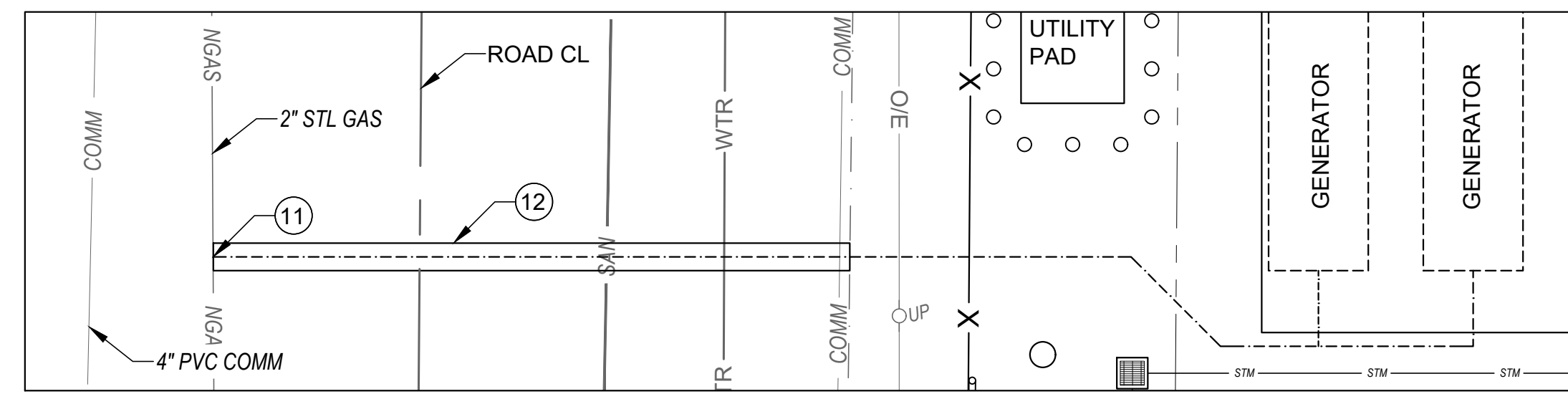
SHEET NO.  
 14 OF 42  
**CG-07**

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- WATER CONSTRUCTION NOTES:**
- A CONNECT TO NEW 12" WATERMAIN TO BE COMPLETED BY OTHERS. TEE WITH GATE VALVES INSTALLED BY OTHERS.
  - B 80 LF± 12" DIA. FULLY RESTRAINED DIP INLET/OUTLET WATERMAIN. SEE DRAWING P-02.
  - C 26 LF± 12" DIA. FULLY RESTRAINED DIP TANK INLET. SEE DRAWING P-02.
  - D 36 LF± 18" DIA. FULLY RESTRAINED DIP TANK OUTLET. SEE DRAWING P-02.
  - E 12" RESTRAINED DI ELBOW WITH THRUST BLOCK, SEE DETAIL 1 ON DRAWING CG-04.
  - F FLEXIBLE EXPANSION JOINT 1' FROM RINGWALL FOOTING, SEE DETAIL 2 ON DRAWING CG-02.
  - G REMOVE BLIND FLANGE AND CONNECT TO 12" DIP.
- SITE CONSTRUCTION NOTES:**
- 1 REMOVE EXISTING TREES.
  - 2 3-INCH LAYER OF COMPACTED (95%) CRUSHED ROCK OVER THE UNIMPROVED ENTIRE SITE. SCARIFY TOP 8-INCHES OF EXISTING GRADE AND COMPACT TO 95% (RELATIVE) PRIOR TO PLACING CRUSHED ROCK. DISPOSE OF NATIVE SOIL AS REQUIRED TO MEET ELEVATION, GRADING, AND DRAINAGE REQUIREMENTS.
  - 3 UTILITY PAD SHALL BE INSTALLED PER PG&E DRAWINGS AND STANDARDS.
  - 4 REMOVE EXISTING LAMP POST.
  - 5 REMOVE EXISTING WOOD POST.
  - 6 CHLORINATION AREA TO INCLUDE ELECTRONIC CHLORINE METERING PUMP ON TOP OF 40 GALLON VERTICAL STORAGE TANK MOUNTED INSIDE WEATHER RESISTANT PLASTIC STORAGE SHED.
  - 7 REMOVE EXISTING BRICK PLANTER AND BOLLARDS.
  - 8 REMOVE EXISTING PAVEMENT FROM PROJECT AREA.
  - 9 NEW DROP POLE FOR SERVICE TO BE INSTALLED BY CITY.
  - 10 ADD ADDITIONAL, GENERATOR INSTALLATION AND NATURAL GAS SERVICE.
  - 11 ADD ADDITIONAL, CONNECT TO EXISTING GAS MAIN AND INSTALL 105LF± OF NATURAL GAS SERVICE TO GENERATOR. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING GAS MAIN AND COORDINATE CONNECTION AND INSPECTION OF GAS SERVICE WITH PG&E. THE PROPOSED LOCATION OF THE GAS SERVICE TO GENERATOR SHALL BE VERIFIED BY PG&E AND INSTALLED PER PG&E REQUIREMENTS.
  - 12 ADD ADDITIONAL, SAWCUT NEAT LINE, REMOVE AND DISPOSE OF EXISTING ASPHALT CONCRETE AS REQUIRED BY THE CITY OF ORLAND AND BACKFILL TRENCH PER DETAIL 1 ON SHEET CG-06 (98SF± TOTAL).
  - 13 ADD ADDITIONAL, PREFABRICATED BUILDING EXTENSION OVER PUMP ROOM.

HORIZONTAL CONTROL POINT		
NO	NORTHING	EASTING
1	2397286.10	6506149.22
2	2397286.10	6506284.18
3	2397136.10	6506283.09
4	2397137.12	6506152.59
5	2397178.65	6506152.59
6	2397178.65	6506148.45
7	2397282.60	6506152.82
8	2397282.60	6506160.32
9	2397273.76	6506160.32
10	2397273.76	6506152.82
11	2397283.10	6506170.32
12	2397283.10	6506198.82
13	2397283.10	6506248.82
14	2397257.10	6506248.82
15	2397257.10	6506198.82
16	2397257.10	6506170.32



DETAIL A  
SCALE: 1" = 10'

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Attention:

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Designed:	C. TRUEBLOOD
Drawn:	J. AVILA
Checked:	M. MARTIN
Approved:	S. GALA
P.E. No.:	C90942
GEI Project:	2204930

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CITY OF ORLAND  
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ORLAND, CA 95963

**ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
ORLAND, CA

NO	DATE	ISSUE/REVISION	APP

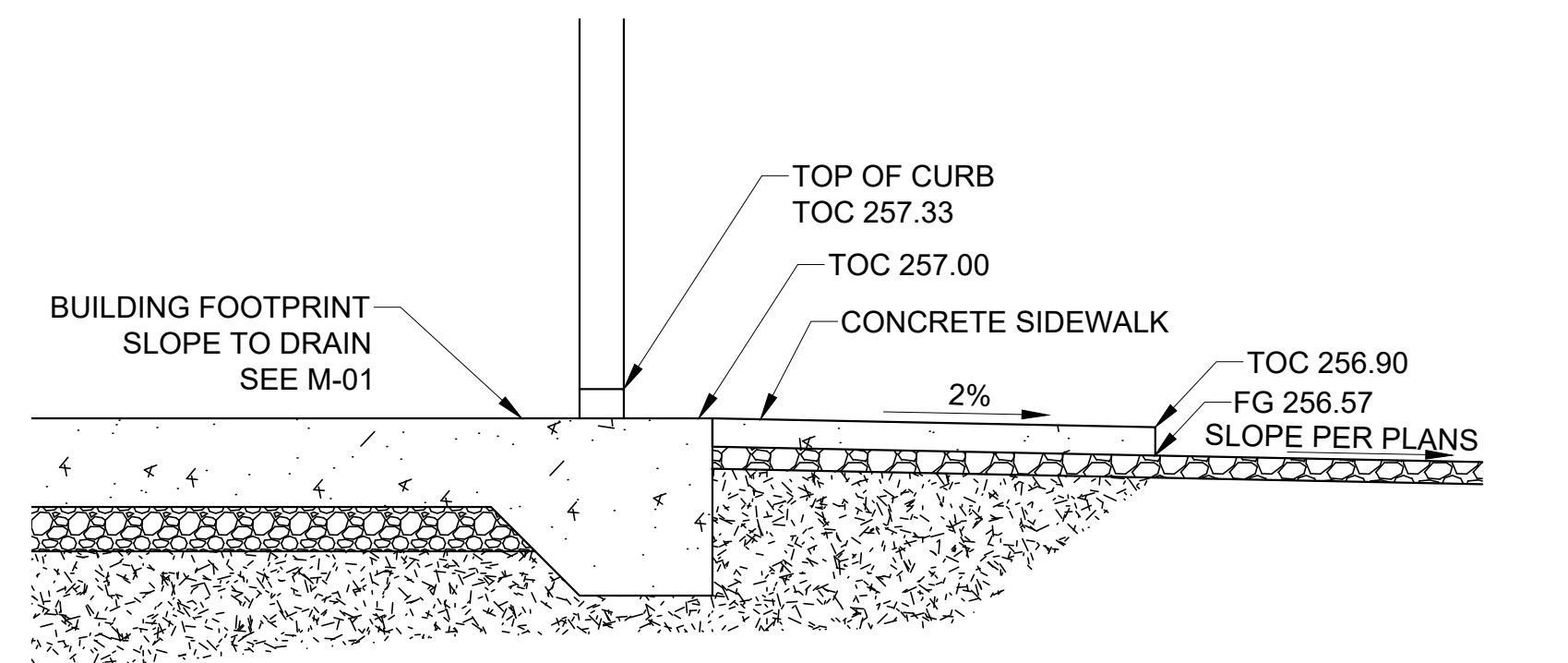
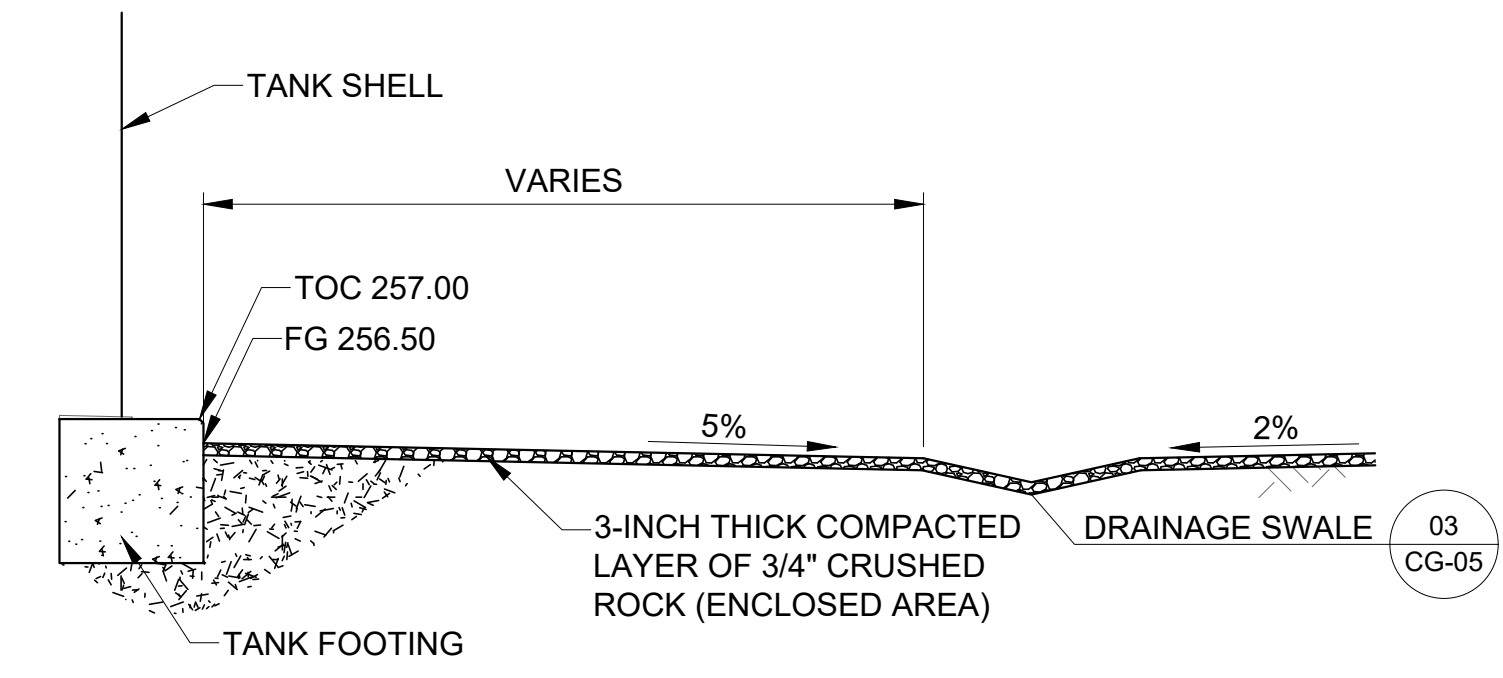
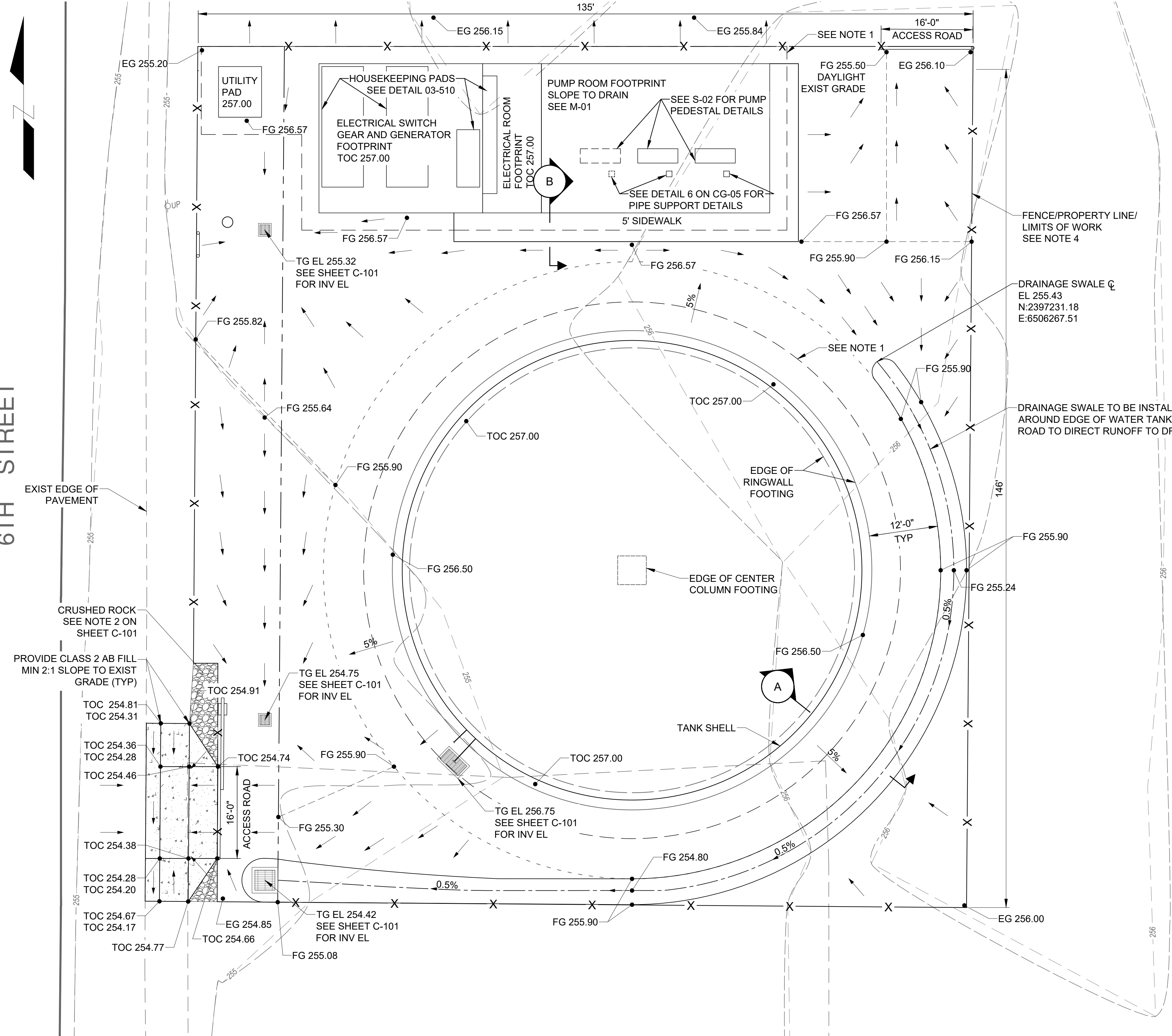
SHEET NAME  
**BOOSTER PUMP AND  
WATER STORAGE TANK  
SITE PLAN**

SHEET NO.  
15 OF 42  
**C-101**

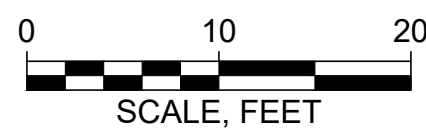
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6TH STREET



- NOTES:**
- SEE SPECIFICATIONS FOR EXCAVATION, BACKFILL, AND COMPACTION REQUIREMENTS OF STRUCTURES.
  - SITE SHOULD BE SLOPED TO PREVENT RUNOFF EAST OR SOUTH OF THE PROPERTY. SLOPES SHALL BE 1% MINIMUM AND 11% MAXIMUM.
  - ELEVATIONS SHOWN HEREON ARE FINISH GRADES THAT INCLUDE THE 3-INCHES OF CRUSHED ROCK GROUND COVER. IN AREAS OF GROUND SURFACING SUBTRACT 3-INCHES FOR SUBGRADE ELEVATION. SCARIFY TOP 8-INCHES OF EXISTING GRADE AND RE-COMPACT TO 95% (RELATIVE) PRIOR TO PLACING AGGREGATE BASE.
  - 6-FOOT TALL CHAIN LINK FENCE WITH BARBED WIRE, SEE DETAIL 1 ON DRAWING CG-03.
  - ALL EXCAVATION SOIL AND ROCK NOT USED AS FILL SHALL BE DISPOSED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS, IN ADDITION TO THE SPECIFICATIONS.
  - SEE DWG C-101 FOR SITE PLAN.
  - SOIL GROUND SURFACE SHOULD BE SLOPED AT LEAST 5% (2% FOR PAVEMENT) DOWN AND AWAY FROM THE STRUCTURES FOR AT LEAST 10 FEET BEYOND THE PERIMETER OF THE STRUCTURE OR PAVEMENT.



Attention:  
0 1"  
If this scale bar does not measure 1" then drawing is not original scale.

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Drawn:	J. AVILA
Checked:	M. MARTIN
Approved:	S. GALA
P.E. No.:	C90942
GEI Project:	2204930

**GEI** CONSULTANTS  
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CITY OF ORLAND  
815 FOURTH ST.  
ORLAND, CA 95963

**ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
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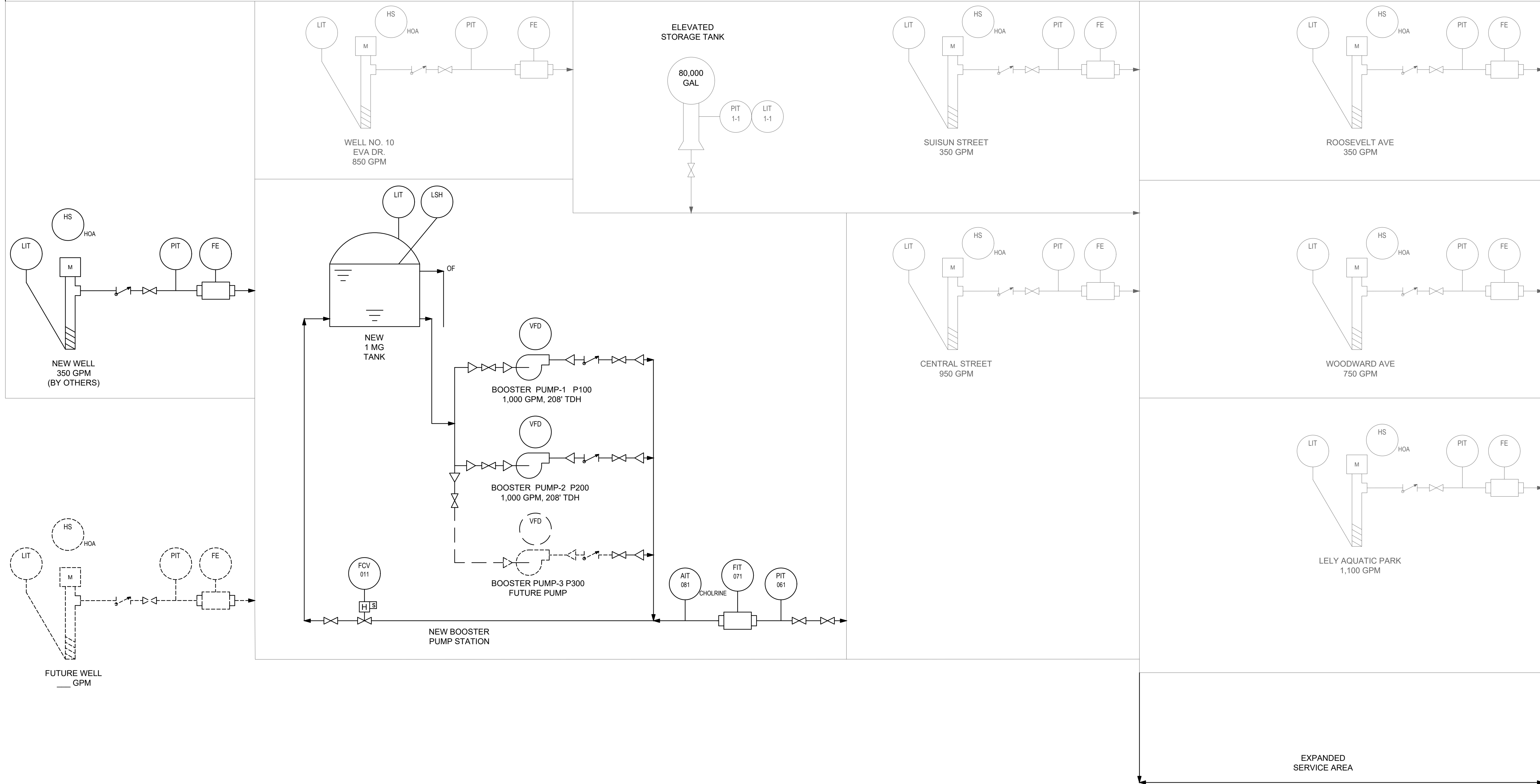
SHEET NAME  
**BOOSTER PUMP AND  
WATER STORAGE TANK  
GRADING PLAN**

SHEET NO.  
16 OF 42  
**C-102**

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EXPANDED SERVICE AREA



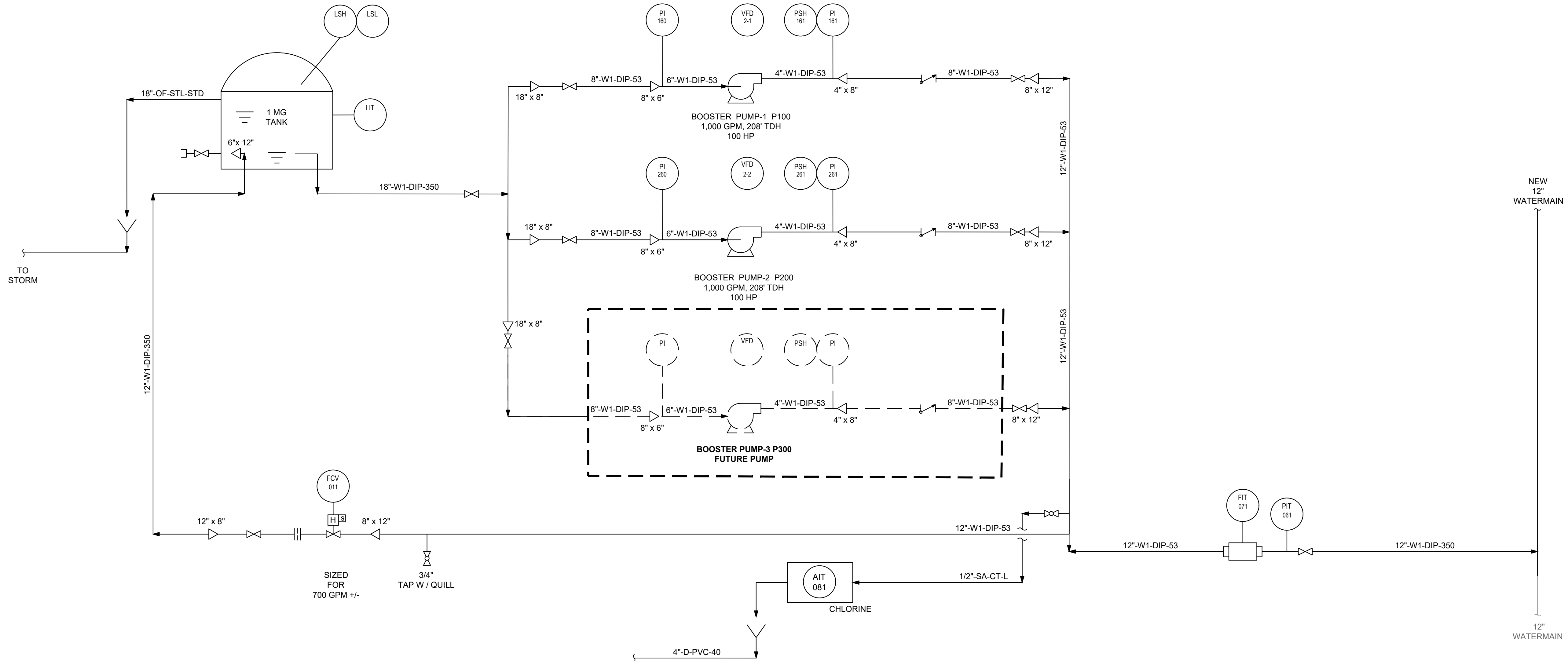
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		Drawn: R. WARD												
		Checked: R. ANDERSON												
		Approved: C. TRUEBLOOD												
		P.E. No: C90942												
GEI Project: 2204930														



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**Attention:**

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

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*Drawn:* R. WARD  
*Checked:* R. ANDERSON  
*Approved:* C. TRUEBLOOD  
*P.E. No.:* C90942  
*GEI Project:* 2204930

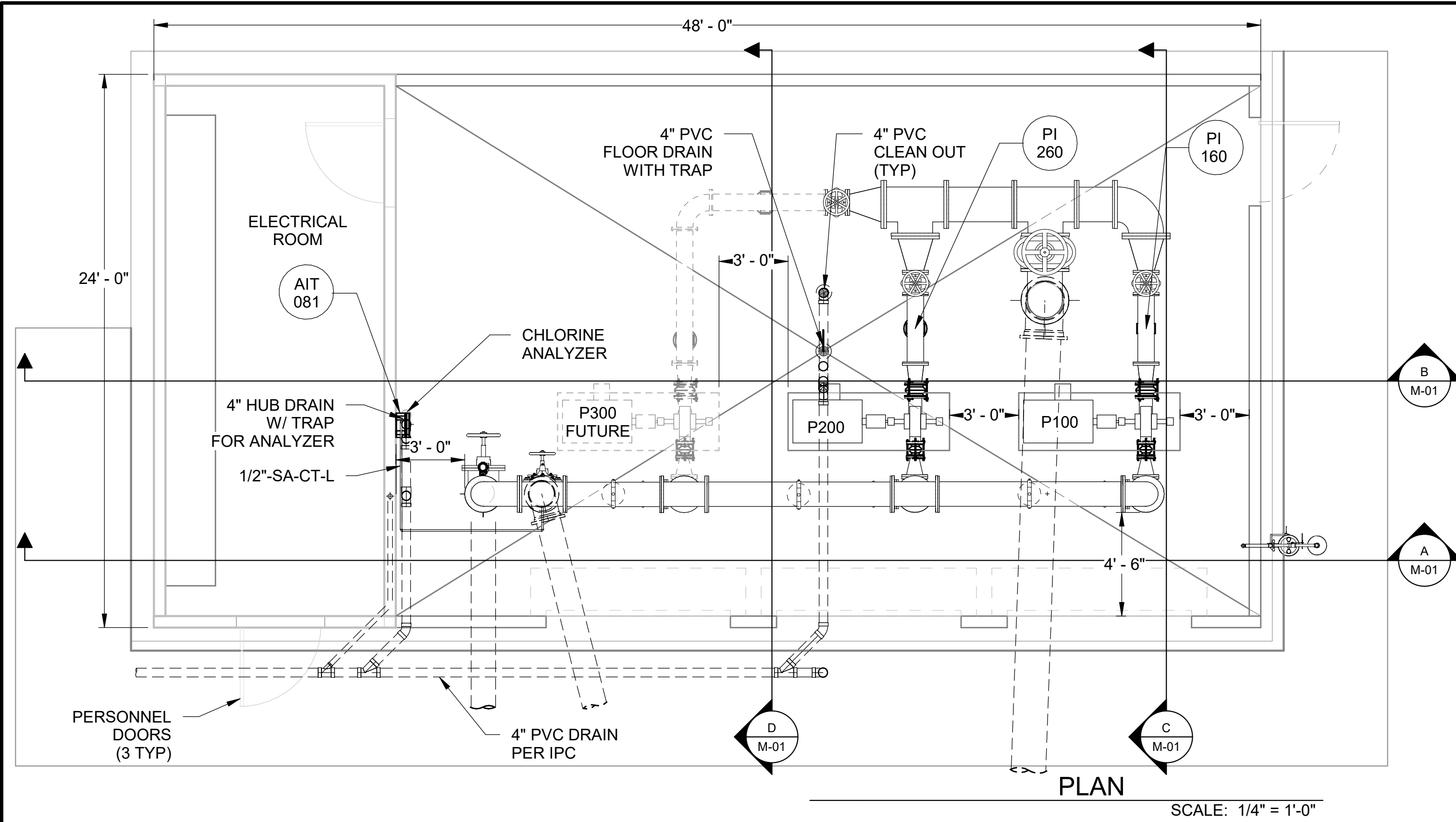


**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

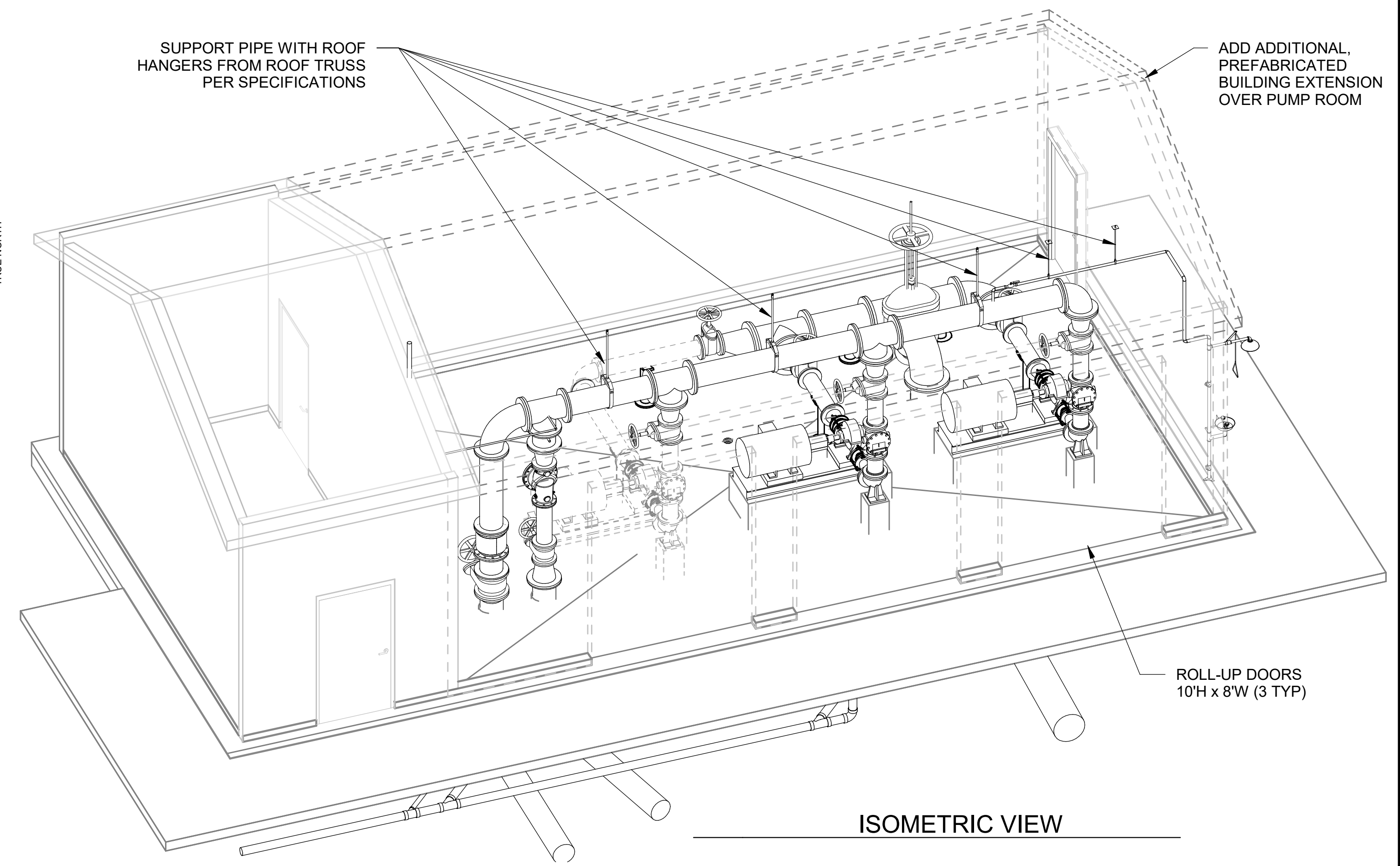
NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**BOOSTER PUMP AND GROUND STORAGE TANK FLOW DIAGRAM**

SHEET NO.  
 18 OF 42  
**P-02**

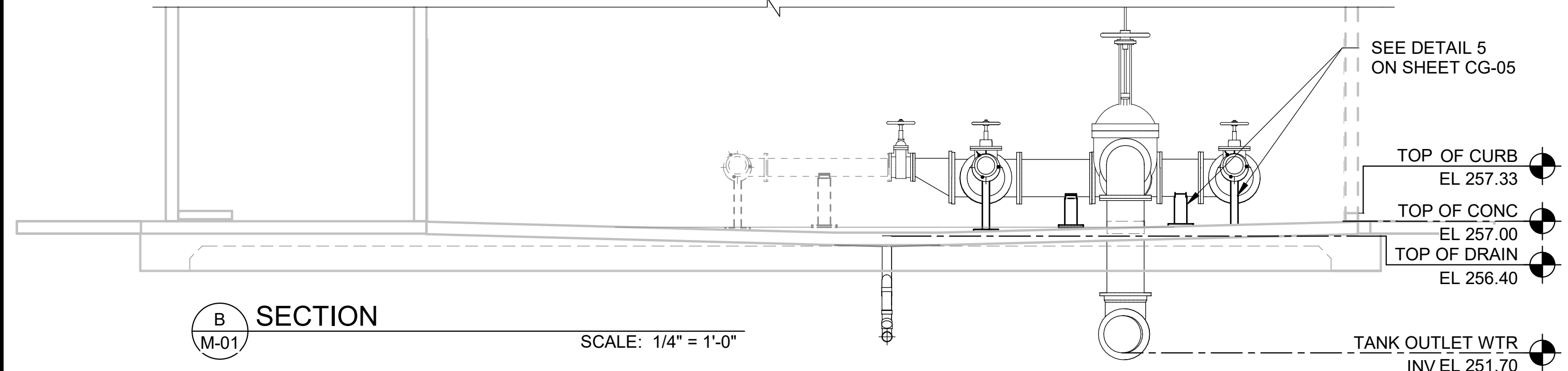


PLAN  
SCALE: 1/4" = 1'-0"

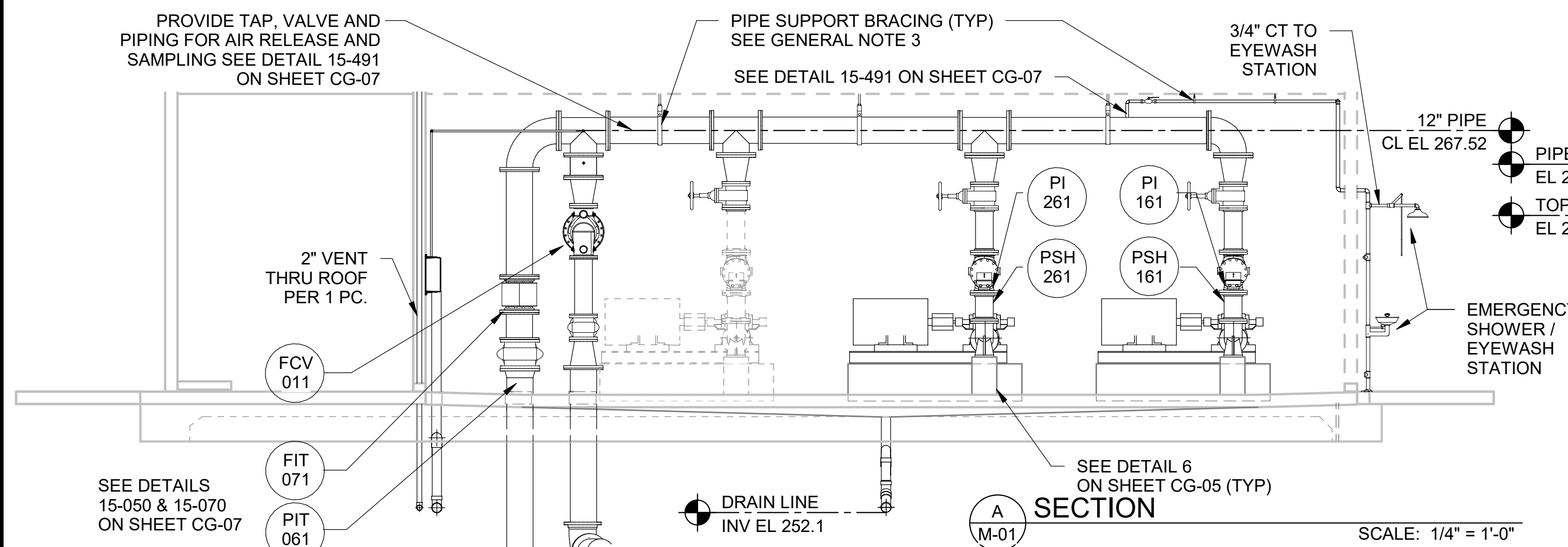


ISOMETRIC VIEW

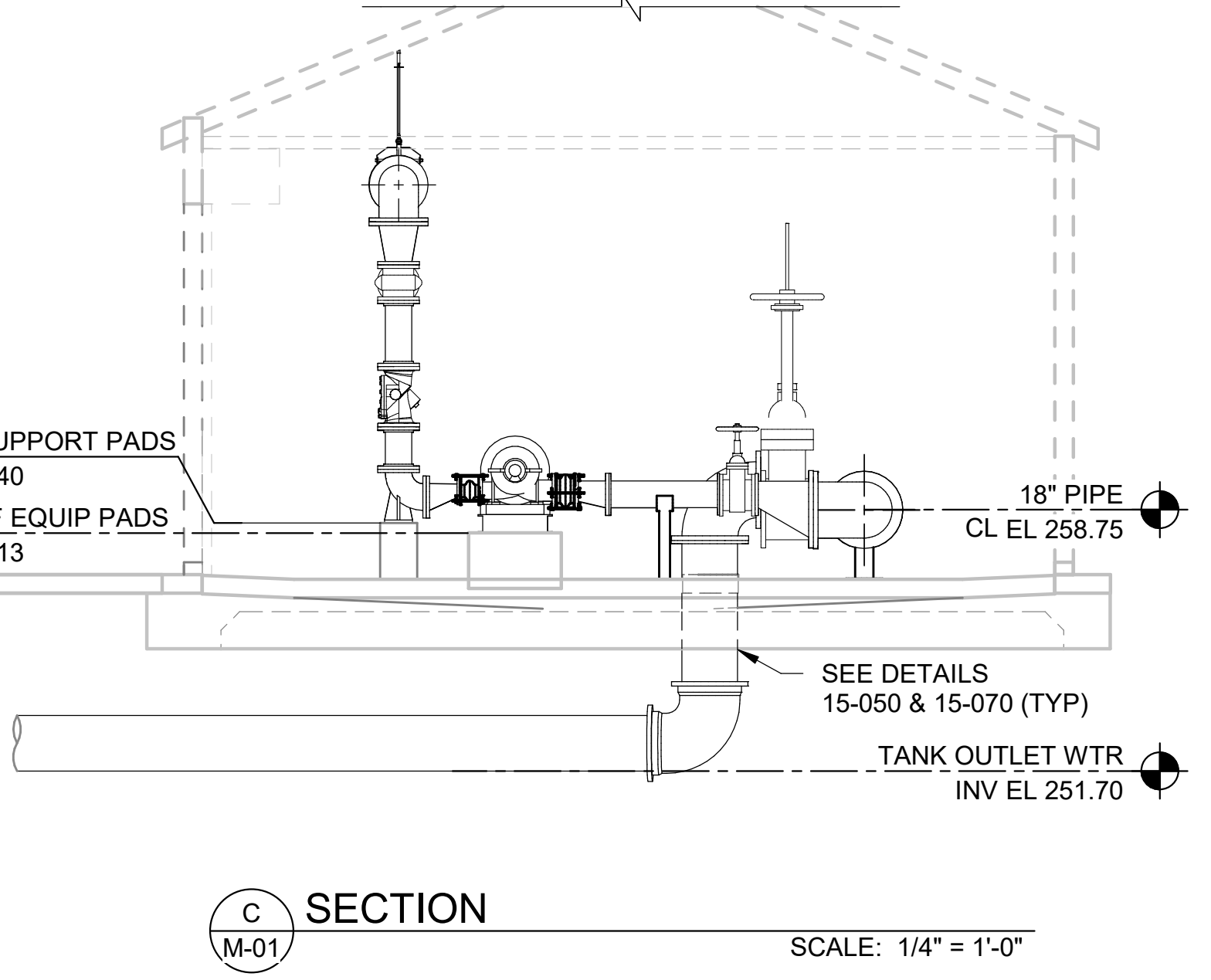
- GENERAL NOTES:
- SEE DRAWING P-02 FOR PIPING SIZES AND MATERIAL SPECS.
  - SEE DRAWING CG-09 FOR REFERENCED STANDARD DETAILS.
  - EACH PIPE SUPPORT BRACING AND ALL COMPONENTS SHALL BE CAPABLE OF TRANSFERRING A MINIMUM 3 KIPS LOAD FOR PIPE DIAMETERS GREATER THAN 5 INCHES, AND A MINIMUM 1 KIPS LOAD FOR PIPE DIAMETERS LESS THAN 5 INCHES. REFER TO SPECIFICATION 15006 - PIPE SUPPORTS.



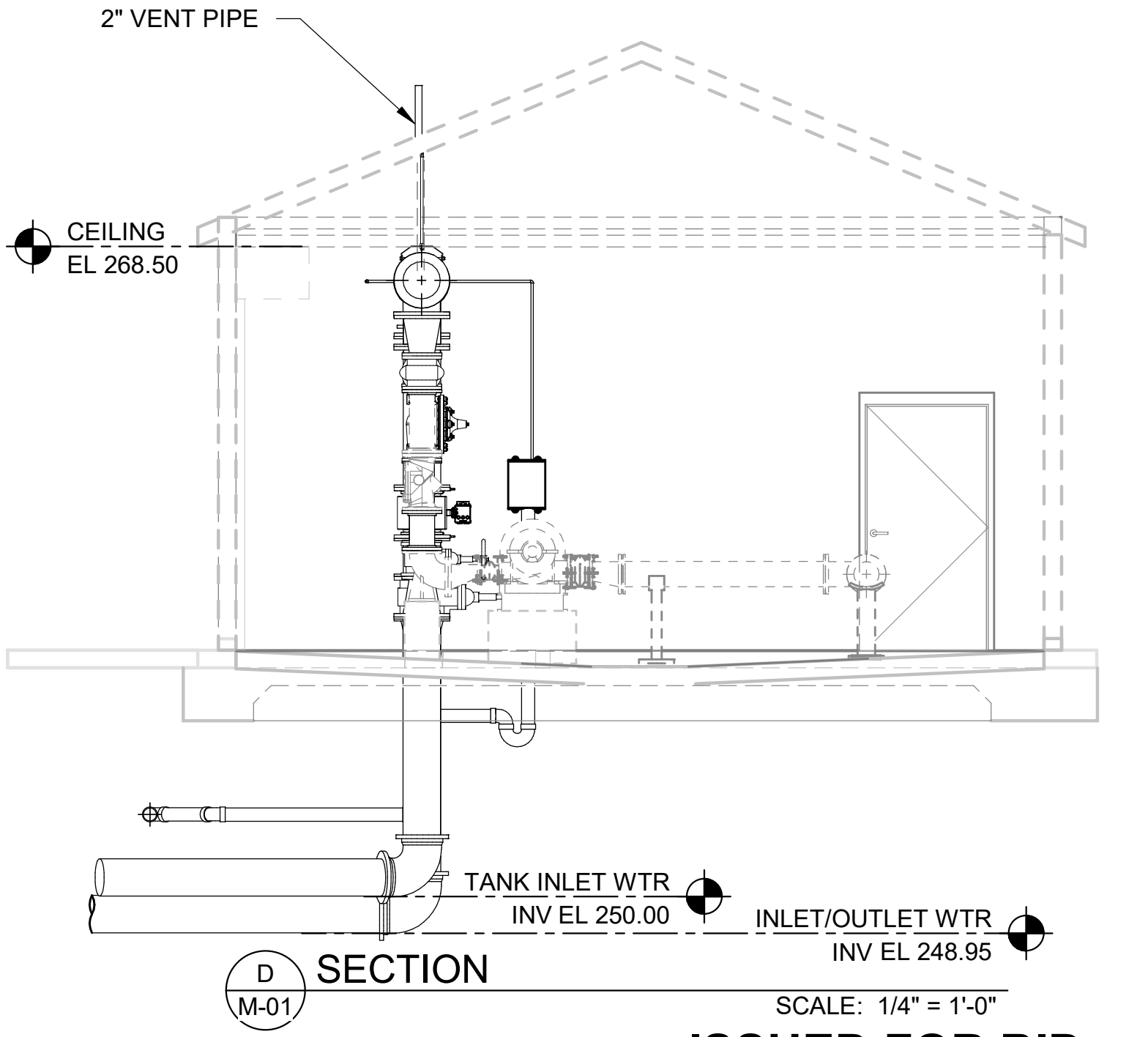
B SECTION  
SCALE: 1/4" = 1'-0"



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



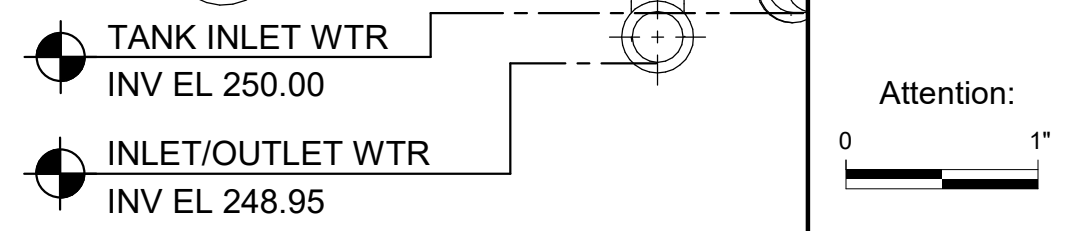
C SECTION  
SCALE: 1/4" = 1'-0"



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

ISSUED FOR BID

WARD, ROB K:\GEI\_PlanDetail\1408520-CITY OF ORLAND WATER SYSTEM\00\_CAD\_XREF\DWG\GEI-34422-H-TBLK Revit.dwg



Designed: J. BAL  
 Drawn: R. WARD  
 Checked: R. ANDERSON  
 Approved: C. TRUEBLOOD  
 P.E. No: C90942  
 GEI Project 2204930



**ORLAND EMERGENCY  
 GROUNDWATER  
 RESOURCE PROJECT  
 PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**BOOSTER PUMP  
 PIPING PLAN  
 AND  
 SECTIONS**

SHEET NO.  
 19 OF 42  
**M-01**

**GENERAL STRUCTURAL NOTES**

- THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT, EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.
- APPLICABLE CODES
  - AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318-19.
  - AMERICAN INSTITUTE OF STEEL CONSTRUCTION, AISC STEEL CONSTRUCTION MANUAL, 15TH ED.
  - AMERICAN WATER WORKS ASSOCIATION, AWWA-D100, WELDED CARBON STEEL TANKS FOR WATER STORAGE, 2011.
  - AMERICAN SOCIETY OF CIVIL ENGINEER, MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES, ASCE 7-16.
  - CALIFORNIA BUILDING CODE, CBC 2022.
- DESIGN CRITERIA
 

A. DEAD LOAD:	ACTUAL TRIBUTARY STRUCTURE WEIGHT
B. LIVE LOAD:	
1. HANDRAILS:	50 PLF OR 200 LBF CONCENTRATED LOAD, WHICHEVER GOVERNS
2. ELEVATED PLATFORMS AND WALKWAYS:	100 PSF
3. STAIRWAYS:	100 PSF
4. ROOF:	25 PSF
C. RISK CATEGORY:	
1. STORAGE TANK	IV
2. OTHERS	II
D. WIND	
1. BASIC WIND SPEED	VULT = 104 MPH (3-SECOND GUST)
2. EXPOSURE	VASD = 81 MPH (3-SECOND GUST)
E. SEISMIC:	
1. SEISMIC IMPORTANCE FACTOR	Ie = 1.5
2. SPECTRAL RESPONSE ACCELERATION:	SS = 0.842
3. SPECTRAL RESPONSE ACCELERATION:	S1 = 0.355
4. SITE CLASS:	D
5. SEISMIC USE AS PER AWWA D100-11 (STORAGE TANK):	GROUP III (I,II,III)
6. SPECTRAL RESPONSE COEFFICIENT:	SDS = 0.653
7. SPECTRAL RESPONSE COEFFICIENT:	SD1 = 0.4603
- SAFETY  
SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LIVE LOADS ONLY AS A COMPLETED STRUCTURE.
- OPENINGS  
OPENINGS FOR PIPES, DUCTS, CONDUITS, ETC. ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE AND PROVIDE OPENINGS AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.
- STANDARD DETAILS  
THE STANDARD DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. IF CONDITIONS ARE NOT EXPLICITLY SHOWN ON THE DRAWINGS THEY SHALL BE MADE SIMILAR TO THE STANDARD DETAILS. OBTAIN APPROVAL OF ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION AS REQUIRED TO COORDINATE NEW CONSTRUCTION. SUBMIT REQUIRED CHANGES FOR REVIEW AND OBTAIN APPROVAL OF ENGINEER IN WRITING PRIOR TO CONSTRUCTION.
- CONTRACTOR TO SUBMIT FOR REVIEW ALL EQUIPMENT SIZES, OPERATING WEIGHTS, VIBRATION FORCES, SUPPORT LOCATIONS, ALONG WITH ANY FLOOR OPENINGS, NOTCHES, AND RECESSES REQUIRED BY SUCH EQUIPMENT. CONCRETE SUPPORT PADS AND/OR FRAMING REQUIRED TO SUPPORT SAID EQUIPMENT SHALL NOT BE FABRICATED AND PLACED UNTIL THE CONCRETE SUPPORT PADS AND/OR FRAMING IS APPROVED TO SUPPORT THE EQUIPMENT.
- CONFLICTS  
IN CASES WHERE CONFLICTS OCCUR BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE MOST STRINGENT REQUIREMENTS SHALL CONTROL FOR BID PURPOSES. SUBMIT QUESTIONS IN WRITING TO THE ENGINEER FOR CLARIFICATION PRIOR TO CONSTRUCTION.

**STEEL NOTES**

- DESIGN STRENGTHS:  
WIDE FLANGE AND TEES: ASTM A992 Fy=50 KSI  
PIPES: ASTM A53 GR.B Fy=35 KSI  
HSS SECTIONS: ASTM A500 GR.B Fy=46 KSI  
HP PILES: ASTM A572 GR.50 Fy=50 KSI  
ALL OTHER PLATES AND SHAPES: ASTM A36 Fy=36 KSI
- ALL STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION UNLESS OTHERWISE NOTED.
- BOLTS SHALL CONFORM TO ASTM F3125 GRADE A 325 AND SHALL BE HOT DIPPED GALVANIZED.
- ALL BOLTED STRUCTURAL CONNECTIONS ARE BEARING TYPE CONNECTIONS UNLESS OTHERWISE SPECIFIED TO BE SLIP-CRITICAL.
- DIMENSIONS ARE TO CENTERLINES OF COLUMNS AND BEAMS, TOP SURFACES OF BEAMS AND BACKS OF CHANNELS AND ANGLES UNLESS OTHERWISE NOTED.
- ALL WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY D1.1 (AWS) CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. QUALIFICATIONS OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.
- E70XX WELDING ELECTRODES BY AWS

**CONCRETE NOTES**

- ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI AT 28 DAYS, UNLESS OTHERWISE NOTED.
- ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO THE REQUIREMENTS OF ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED.
- ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
- THE FIRST AND LAST BARS IN SLABS AND WALLS, STIRRUPS IN BEAMS, AND TIES IN COLUMNS SHALL START AND END A MAXIMUM OF ONE HALF OF THE ADJACENT BAR SPACING OR 3-INCHES, WHICHEVER IS LESS, FROM THE START OR END OF THE MEMBER.
- ALL CONSTRUCTION JOINTS SHALL BE ROUGHENED TO AN AMPLITUDE OF 1/4 INCH AND THOROUGHLY CLEANED FOR BOND PRIOR TO PLACING CONCRETE.
- TOLERANCES FOR PLACING REINFORCING STEEL SHALL BE: ± 3/8 INCH FOR MEMBERS < 8 INCHES THICK. ± 1/2 INCH FOR MEMBERS > 8 INCHES THICK.
- DOWELS, PIPING, WATERSTOPS, AND OTHER EMBEDS SHALL BE HELD SECURELY IN PLACE WHILE THE CONCRETE IS BEING POURED.
- ALL EXTERIOR CORNERS SHALL HAVE A 3/4 INCH CHAMFER.
- ALL GROUT SHALL BE NON-SHRINK, UNLESS OTHERWISE NOTED.
- BAR SUPPORTS, SPACERS, AND OTHER ACCESSORIES ARE NOT SHOWN ON THE DESIGN DRAWINGS.
- METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR SUBGRADE. CONCRETE BLOCKS OR DOBIES SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS ON THE SUBGRADE WITHOUT SETTLEMENT. IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.
- ALUMINUM FORMS SHALL NOT BE USED FOR PLACEMENT OF CONCRETE.
- DOWELS SHALL BE SET AND WIRED OR OTHERWISE HELD IN PLACE PRIOR TO PLACING THE CONCRETE. DOWELS SHALL NOT BE INSERTED INTO FRESHLY PLACED CONCRETE.
- A MINIMUM CLEAR DISTANCE OF 2 INCHES SHALL BE MAINTAINED BETWEEN THE REINFORCING STEEL AND ALL PIPES, PIPE FLANGES, OR OTHER METAL PARTS EMBEDDED IN THE CONCRETE.
- ALL ITEMS EMBEDDED IN THE CONCRETE SHALL BE SPACED AT NO LESS THAN 4 TIMES THE OUTSIDE DIMENSION OF THE LARGEST ITEM. THE OUTSIDE DIMENSION SHALL NOT EXCEED ONE THIRD THE CONCRETE MEMBER THICKNESS.
- UNLESS OTHERWISE SHOWN ON THE DRAWINGS, CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:  
  
CONCRETE PLACED AGAINST EARTH.....3"  
  
FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH.....2"  
  
FOR CONCRETE NOT EXPOSED TO WEATHER OR CONTACT WITH WATER OR EARTH.....2"
- UNLESS OTHERWISE NOTED, WHERE A SINGLE LAYER OF REINFORCING STEEL IS SHOWN IN A WALL OR SLAB THE REINFORCING SHALL BE CENTERED.
- SLAB THICKNESS CALLED OUT ON THE DRAWINGS ARE MINIMUMS. WHERE SLABS HAVE A SLOPING SURFACE THE SLAB BOTTOM MAY BE FLAT OR IT MAY BE SLOPED TO MAINTAIN A CONSTANT THICKNESS. REINFORCING STEEL IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED DISTANCES FROM THE SLAB SURFACES.
- ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL IN WRITING FROM THE STRUCTURAL ENGINEER.
- ANCHOR BOLTS NOT SPECIFIED BY THE ENGINEER SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF CALIFORNIA, RETAINED BY THE CONTRACTOR, IN ACCORDANCE WITH THIS PROJECT AND REQUIRED CODE REQUIREMENTS. SUBMIT AS A SHOP DRAWING FOR REVIEW AND APPROVAL BY THE ENGINEER. COORDINATE LOCATION, SIZE AND EMBEDMENT PRIOR TO CASTING CONCRETE.
- THE MINIMUM REINFORCEMENT SHALL BE #5 REBAR AT 12" UNLESS OTHERWISE NOTED.

**SOIL NOTES**

- BACKFILL REQUIREMENTS:  
BACKFILL SHALL BE ENGINEERED FILL PLACED AND COMPACTED IN ACCORDANCE TO THE SPECIFICATIONS.

**SCHEDULE OF DEVELOPMENT & LAP SPlice LENGTHS**

BAR SIZE	EMBEDMENT LENGTH (L <sub>e</sub> )		CLASS B LAP SPlice (L <sub>l</sub> )		STANDARD HOOKS IN TENSION
	BARS OTHER THAN TOP BARS*	TOP BARS*	BARS OTHER THAN TOP BARS*	TOP BARS*	
#3	1'-1"	1'-5"	1'-5"	1'-11"	0'-6"
#4	1'-6"	1'-11"	1'-11"	2'-6"	0'-6"
#5	1'-10"	2'-5"	2'-5"	3'-2"	0'-7"
#6	2'-3"	2'-11"	2'-11"	3'-9"	0'-10"
#7	3'-3"	4'-3"	4'-3"	5'-6"	1'-0"
#8	3'-9"	4'-10"	4'-10"	6'-4"	1'-3"
#9	4'-2"	5'-6"	5'-6"	7'-1"	1'-6"
#10	4'-9"	6'-2"	6'-2"	8'-0"	1'-9"
#11	5'-3"	6'-10"	6'-10"	8'-11"	2'-1"

- Notes:
- "TOP BARS" ARE HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST BELOW.
  - TABLES ARE VALID FOR CONCRETE WITH COMPRESSIVE STRENGTH @ 28 DAYS OF F<sub>c</sub> = 4,500 PSI AND GRADE 60 REINFORCING STEEL WITH F<sub>y</sub> = 60,000 PSI.
  - TO SPlice BARS OF DIFFERENT DIAMETERS USE A LAP LENGTH EQUAL TO THE LARGER OF THE EMBEDMENT LENGTH OF THE LARGER BAR AND THE LAP LENGTH OF THE SMALLER BAR.
  - SPlice BARS LARGER THAN #11 WITH REBAR COUPLERS.
  - EXTEND DOWEL BARS AN EMBEDMENT LENGTH INTO THE SECOND MEMBER OR ACROSS THE CONSTRUCTION JOINT UNLESS IT IS SHOWN TO SPlice WITH OTHER BARS OR EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK.
  - NON-EPOXY-COATED BARS.
  - NORMAL WEIGHT CONCRETE.

AVILA, JULIAN, B:\Working\DW\148520 DW\ Drought Management\TO 21-01 Small Community Resilience\01-General Notes.dwg - 4/22/2024

**ISSUED FOR BID**



Attention:  
0 1"  
If this scale bar does not measure 1" then drawing is not original scale.



Designed: N. ZIVKOVIC  
 Drawn: J. AVILA  
 Checked: M. MARTIN  
 Approved: K. AMIRINENI  
 P.E. No: C78724  
 GEI Project 2204930



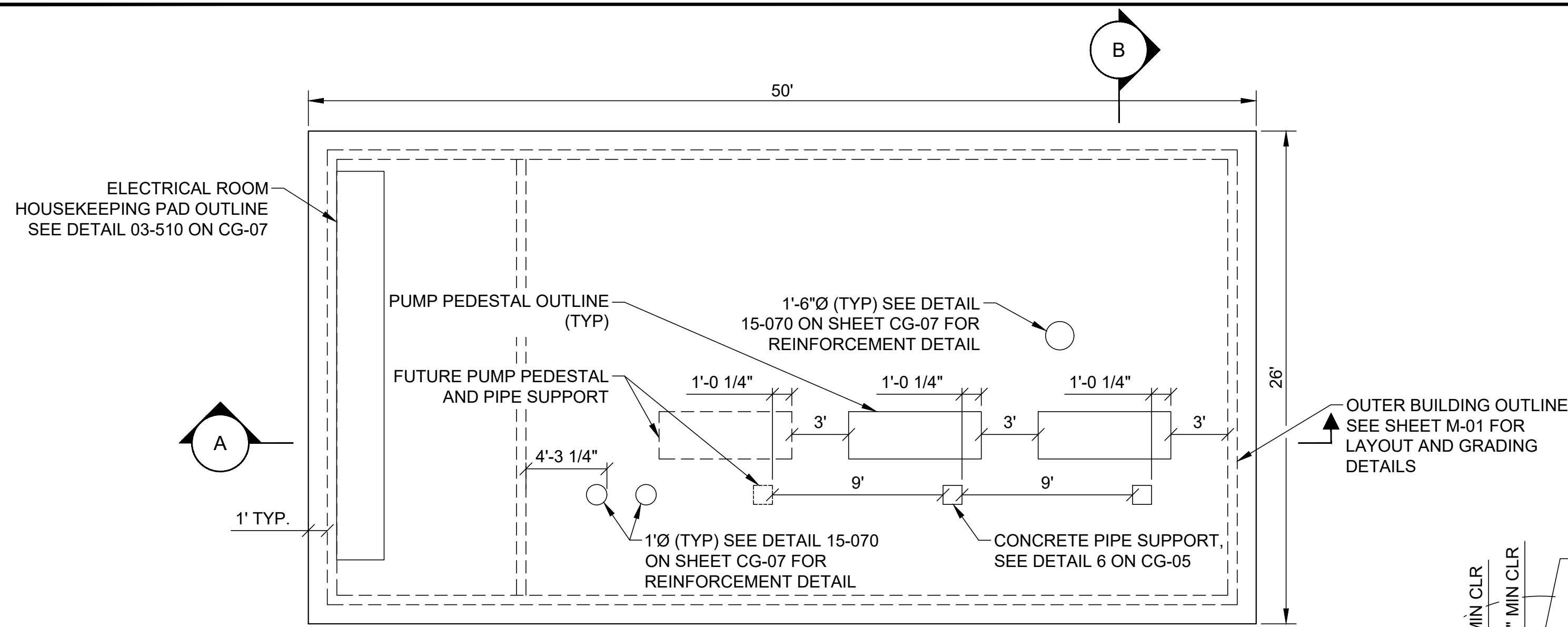
**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
 815 FOURTH STREET ORLAND, CA

NO	DATE	ISSUE/REVISION	APP
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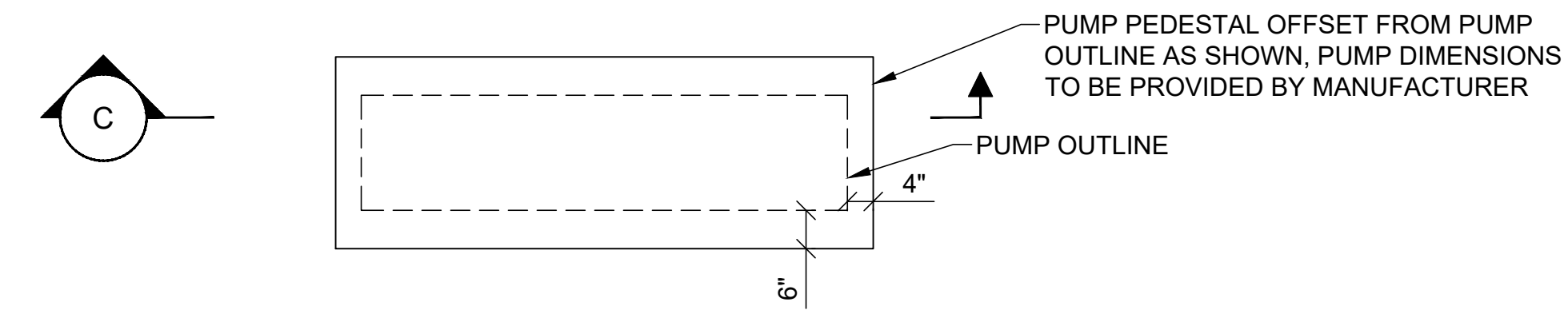
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**GENERAL NOTES AND CONSTRUCTION NOTES**

SHEET NO.  
20 OF 42  
**S-01**

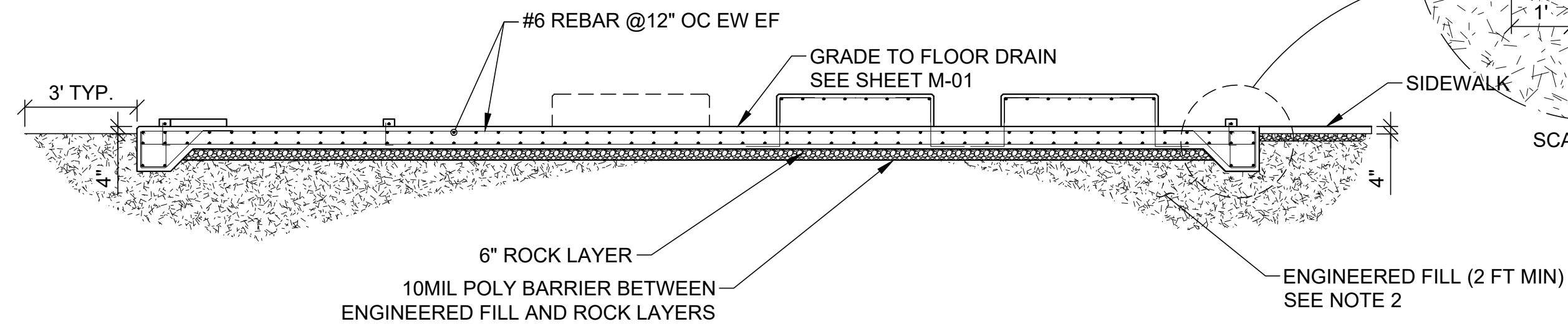
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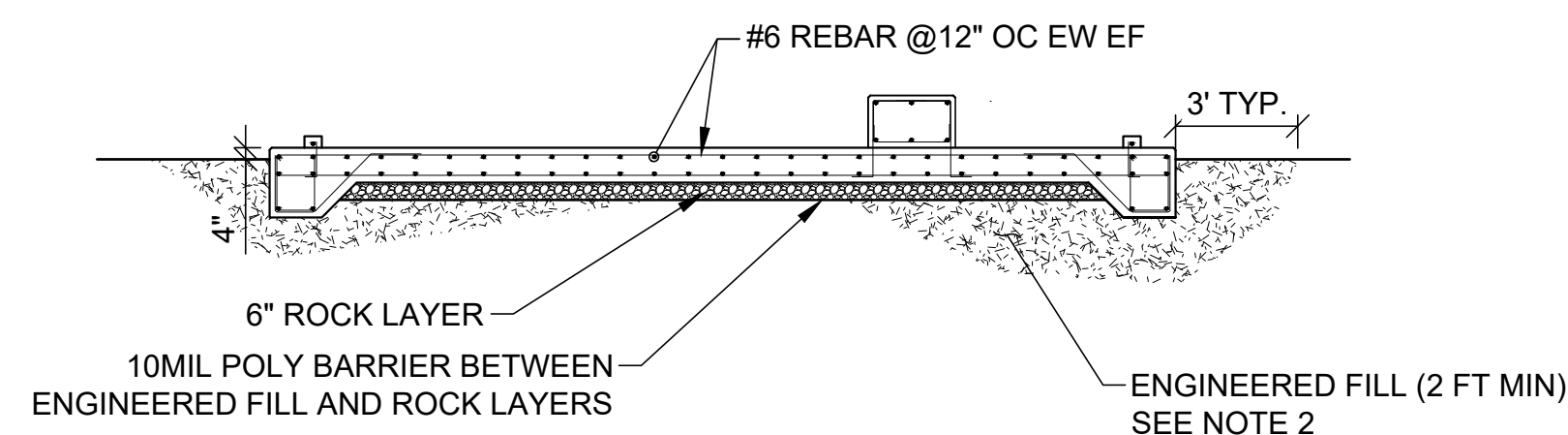
01 PUMP BUILDING FOUNDATION PLAN  
SCALE: 1" = 5'



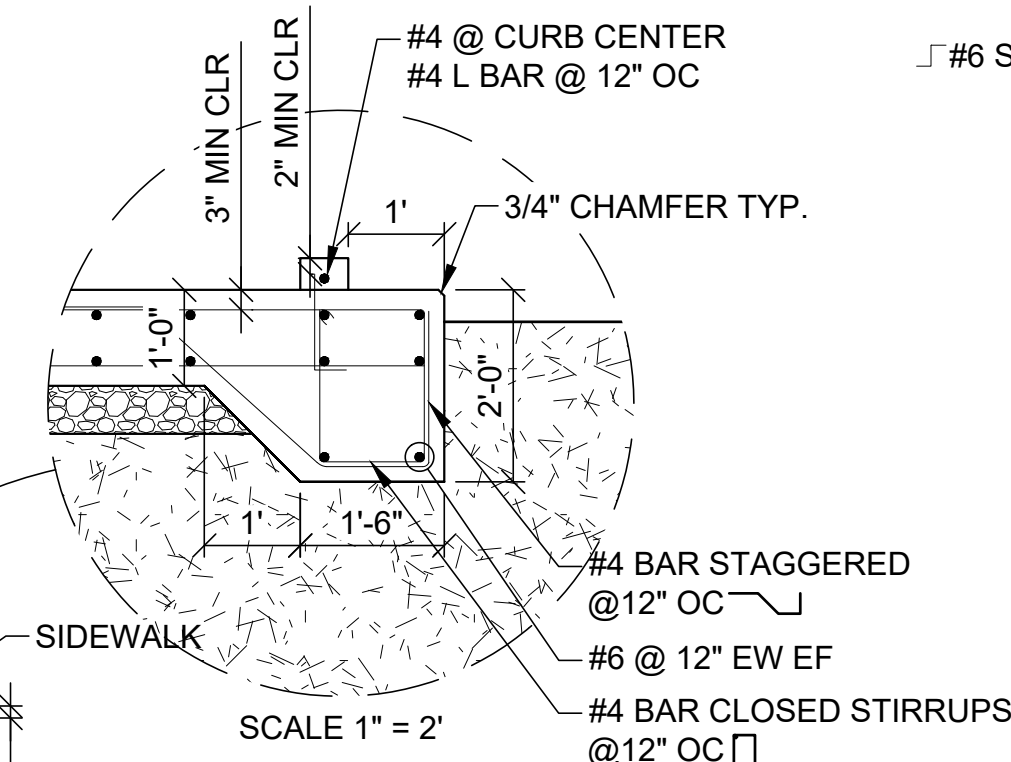
02 BOOSTER PUMP PEDASTAL PLAN  
SCALE: 1" = 2'



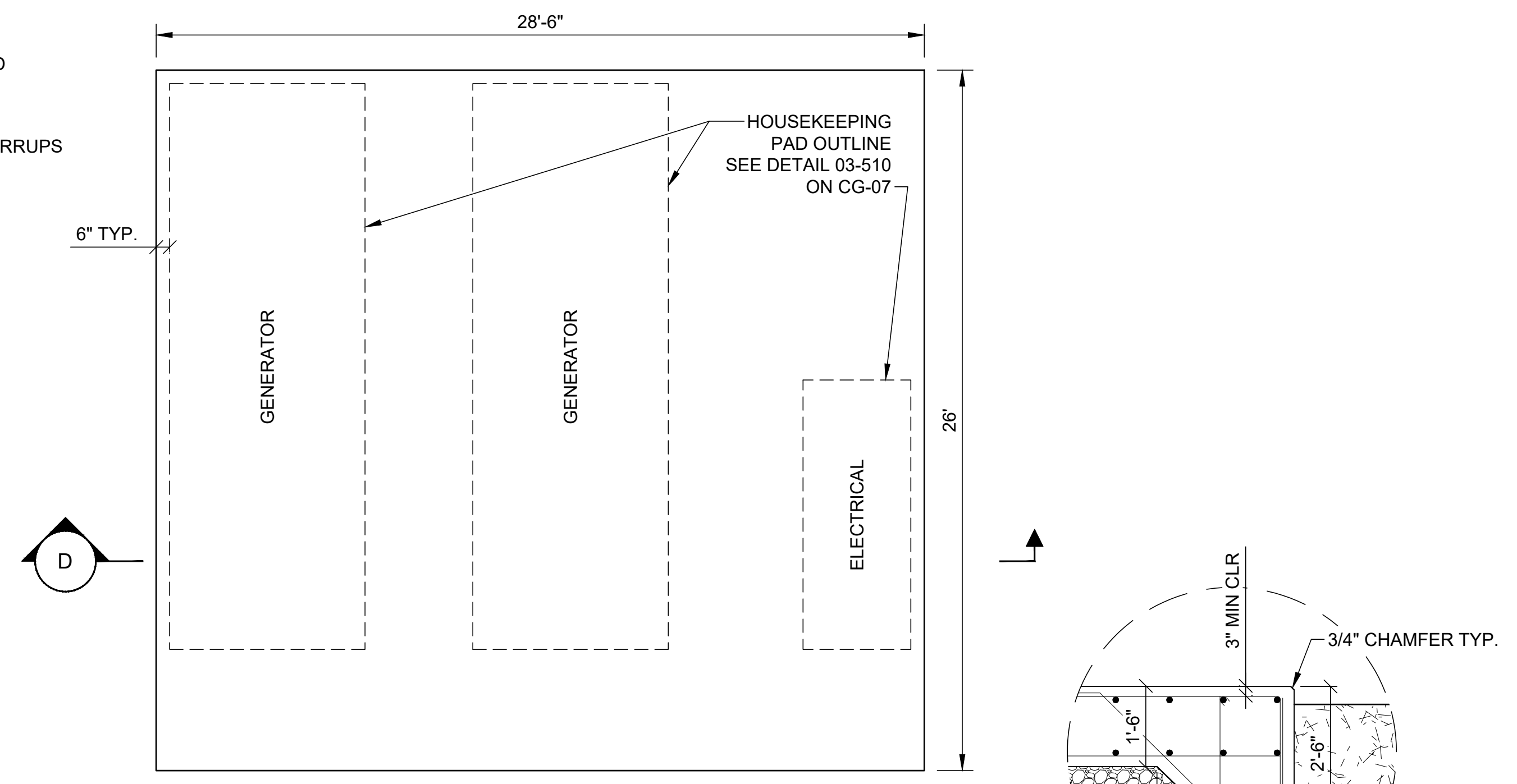
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PUMP BUILDING FOUNDATION  
SCALE: 1" = 5'



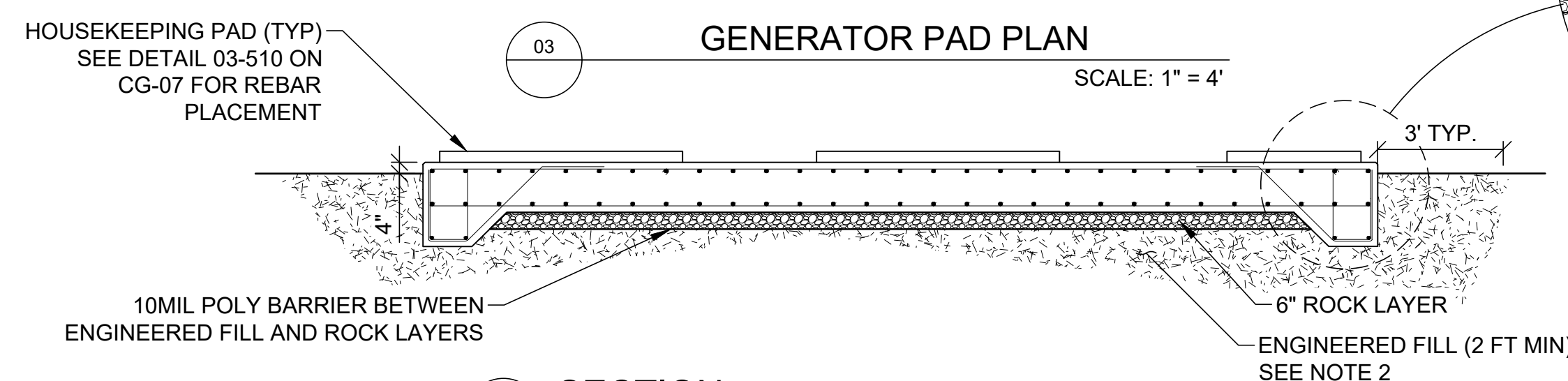
B SECTION  
PUMP BUILDING FOUNDATION  
SCALE: 1" = 5'



C SECTION  
BOOSTER PUMP PEDASTAL  
SCALE: 1" = 2'



03 GENERATOR PAD PLAN  
SCALE: 1" = 4'



D SECTION  
GENERATOR PAD  
SCALE: 1" = 4'

- NOTES:
- SEE SPECIFICATIONS FOR EARTHWORK AND BACKFILL.
  - BOTTOM OF EXCAVATION SHALL BE SCARIFIED AT LEAST 8-INCHES AND COMPACTED TO AT LEAST 95% RELATIVE COMPACTION.

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Attention:  
0 1"

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Drawn: J. AVILA  
Checked: M. MARTIN  
Approved: K. AMIRINENI  
P.E. No: C78724  
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GEI CONSULTANTS, INC.  
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**ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
ORLAND, CA

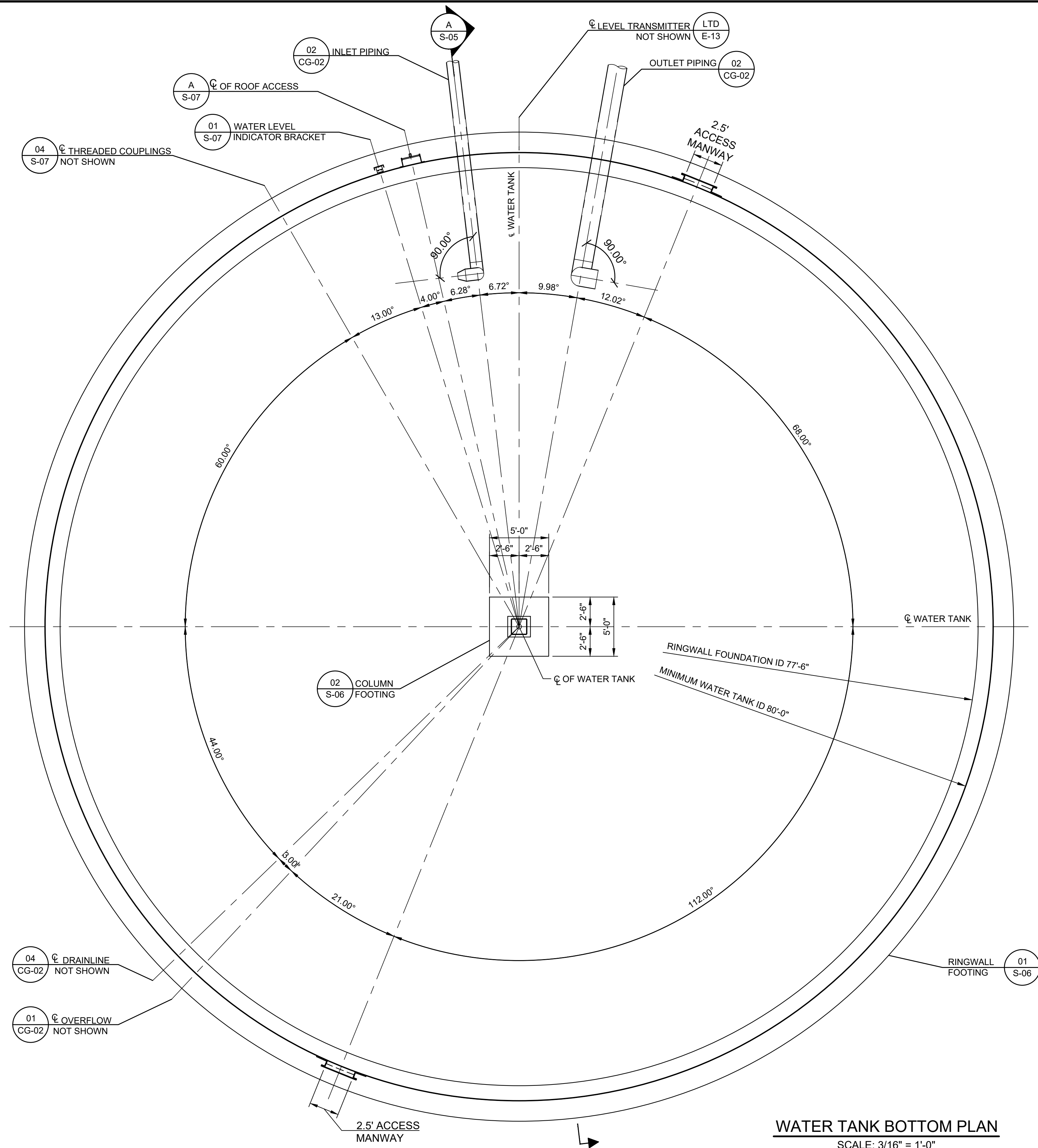
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SHEET NAME  
**PUMP BUILDING  
FOUNDATION AND  
EQUIPMENT PAD  
DETAILS**

SHEET NO.  
21 OF 42

**S-02**

AVILA, JULIAN\_B:\Working\DWG\148520 DWR Drought Management\10 21-01 Small Community Relief\01\_Chan\03\_CAD\Design\Sheets\3 WATER TANK BOTTOM PLAN.dwg - 4/8/2024



**WATER TANK BOTTOM PLAN**  
SCALE: 3/16" = 1'-0"

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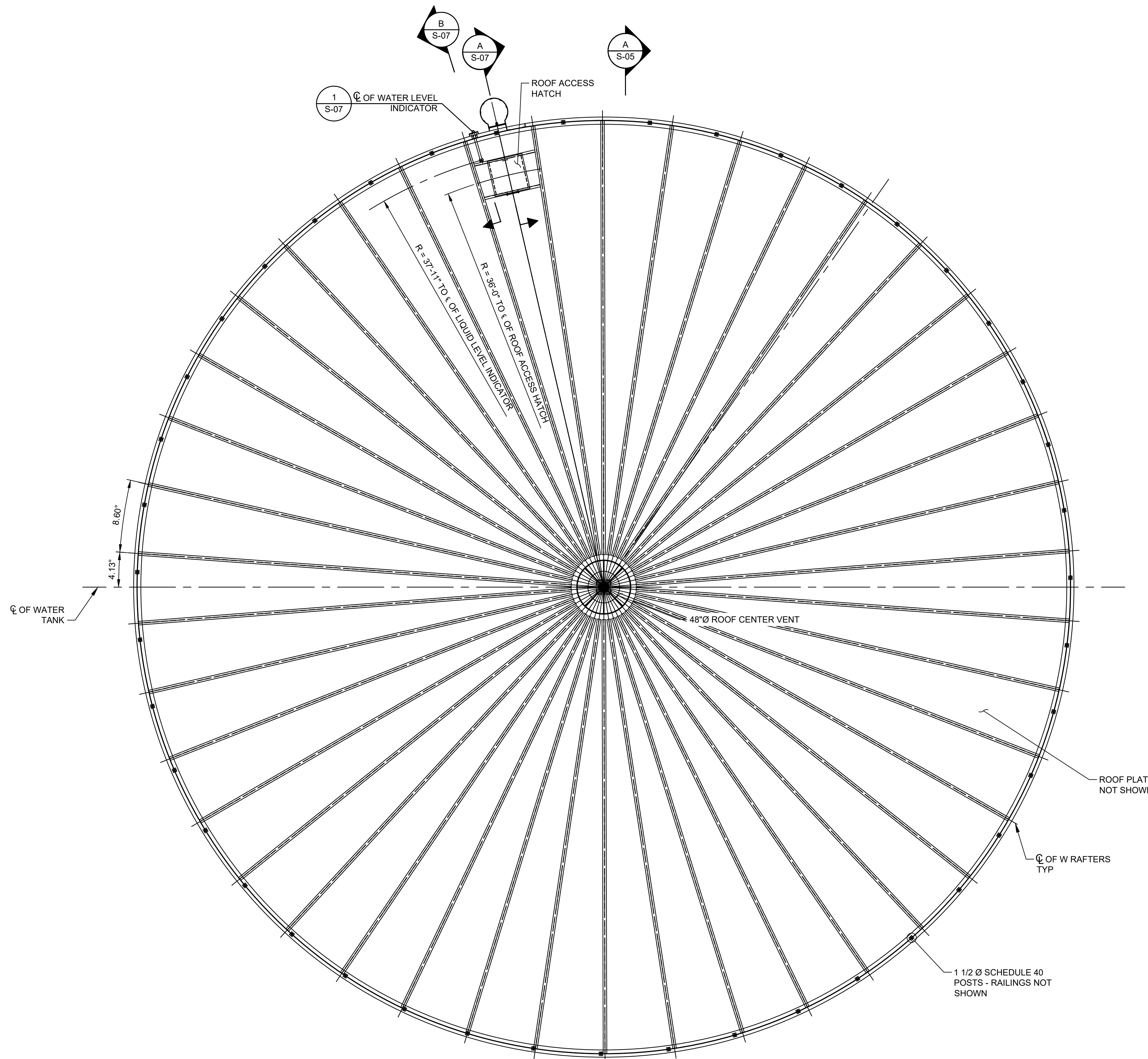
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GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
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NO	DATE	ISSUE/REVISION	APP

SHEET NAME  
**WATER TANK  
BOTTOM PLAN**

SHEET NO.  
22 OF 42  
**S-03**

AVILA, JULIAN, B:\Working\DWG\1408220 DWR Drought Management\10-21-01 Small Community Relief\01-Orland\00\_CAD\Design\Sheets\S-04 WATER TANK ROOF PLAN.dwg - 4/8/2024



NOTE:  
ROOF LAYOUT IS FOR REFERENCE ONLY. DETAIL  
DESIGN TO BE PERFORMED BY TANK SUPPLIER.

**WATER TANK ROOF PLAN**  
SCALE: 3/16" = 1'-0"

**ISSUED FOR BID**



Attention:  
0 1"  
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P.E. No: C78724  
GEI Project 2204930



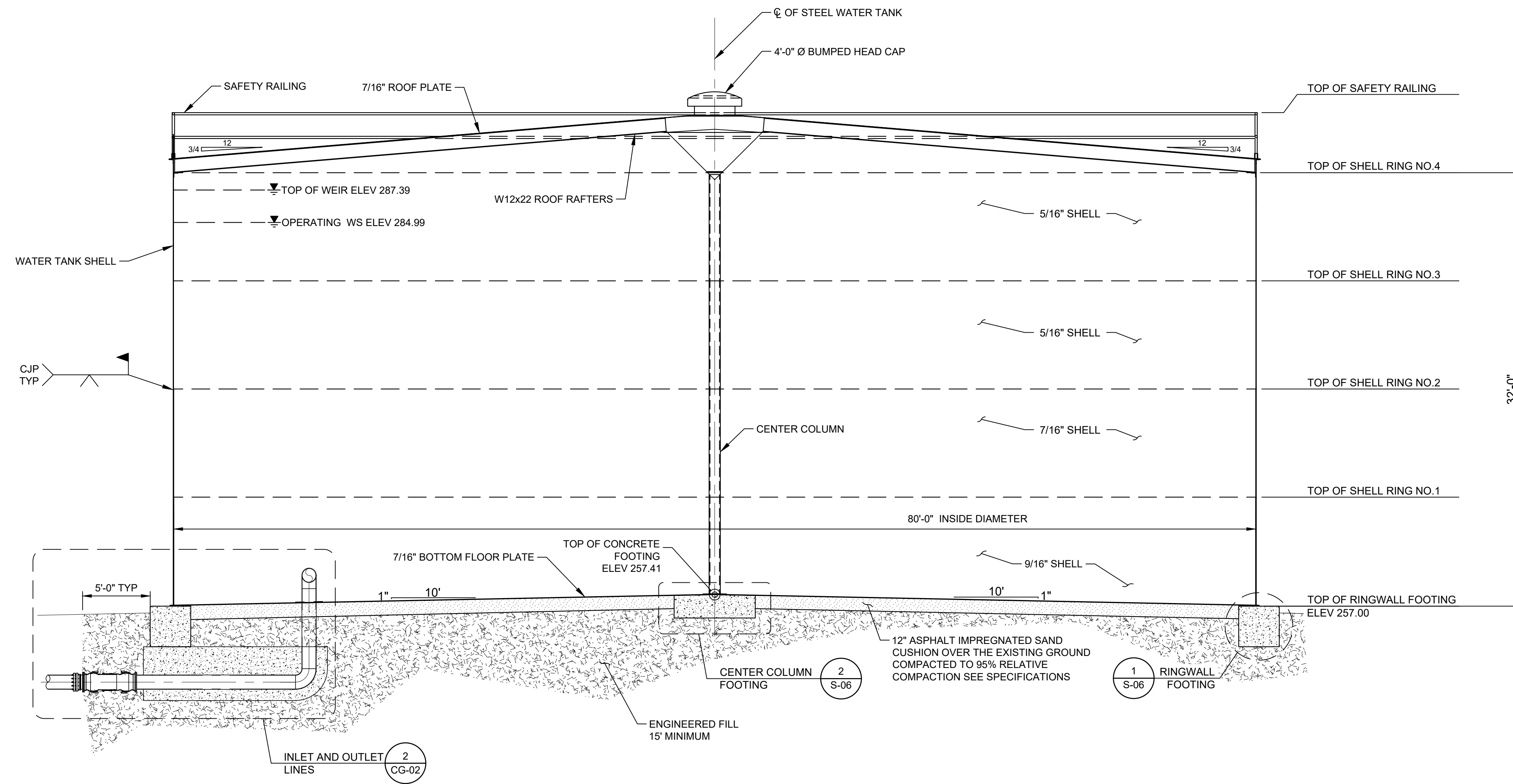
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RESOURCE PROJECT  
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ORLAND, CA

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SHEET NAME  
**WATER TANK  
ROOF PLAN**

SHEET NO.  
23 OF 42  
**S-04**

AVILA, JULIAN, B:\Working\DWG\0820 DWR Drought Management\TO 21-01-Small Community Relief\01-Chan\003\_CAD\Design\Sheets\05 WATER TANK SECTION.dwg - 4/8/2024



**A SECTION**  
**WELDED WATER TANK**  
 SCALE: 3/16" = 1'-0"

NOTE:

1. TANK SHELL LAYOUT AND THICKNESS ARE FOR REFERENCE ONLY. DETAIL DESIGN TO BE PERFORMED BY TANK SUPPLIER.
2. SEE SPECIFICATIONS FOR EARTHWORK AND BACKFILL.

**ISSUED FOR BID**



Attention:  
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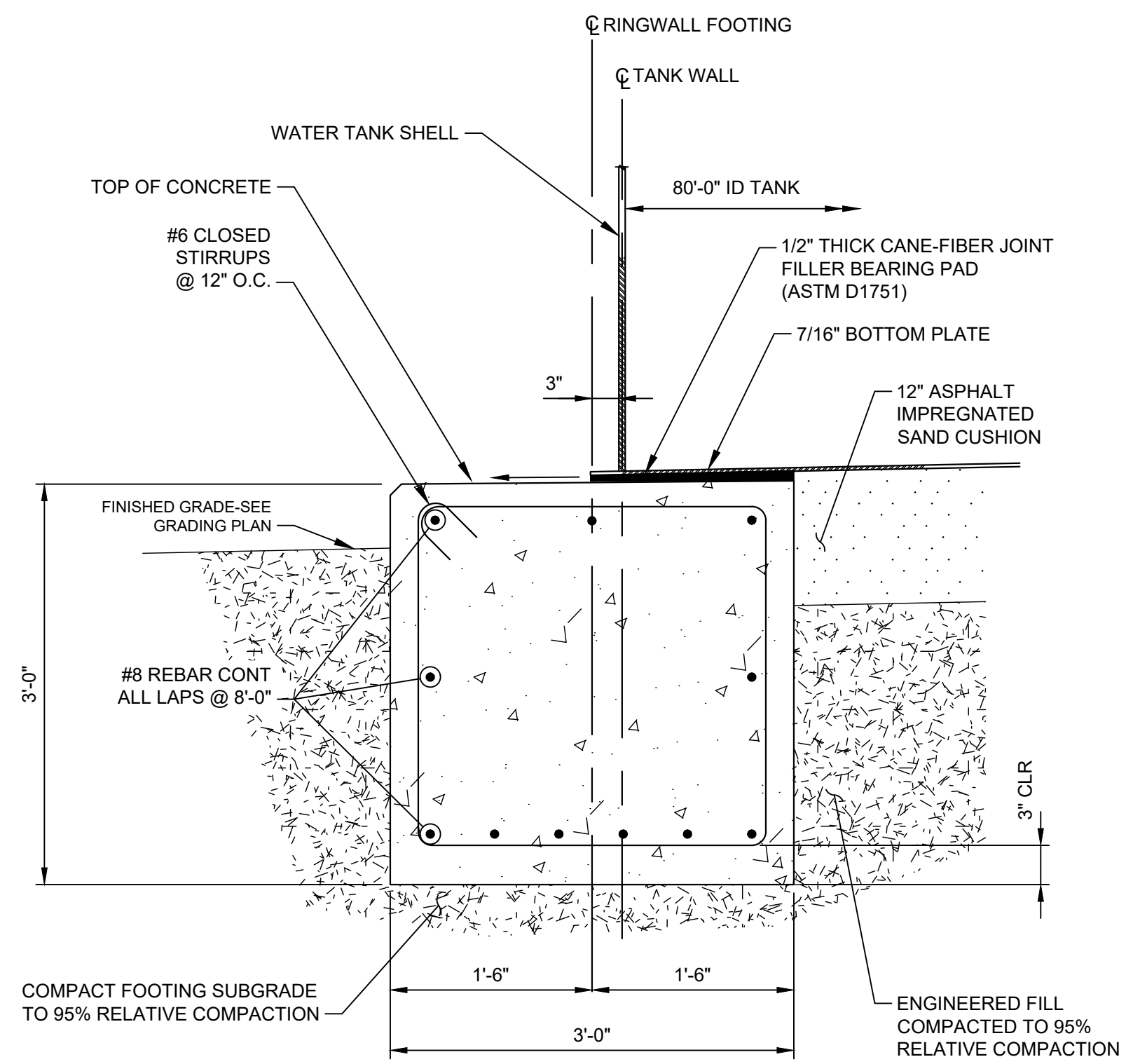
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 GROUNDWATER  
 RESOURCE PROJECT  
 PHASE 4**  
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SHEET NAME: **WATER TANK SECTION**  
 SHEET NO.: **S-05**  
 24 OF 42

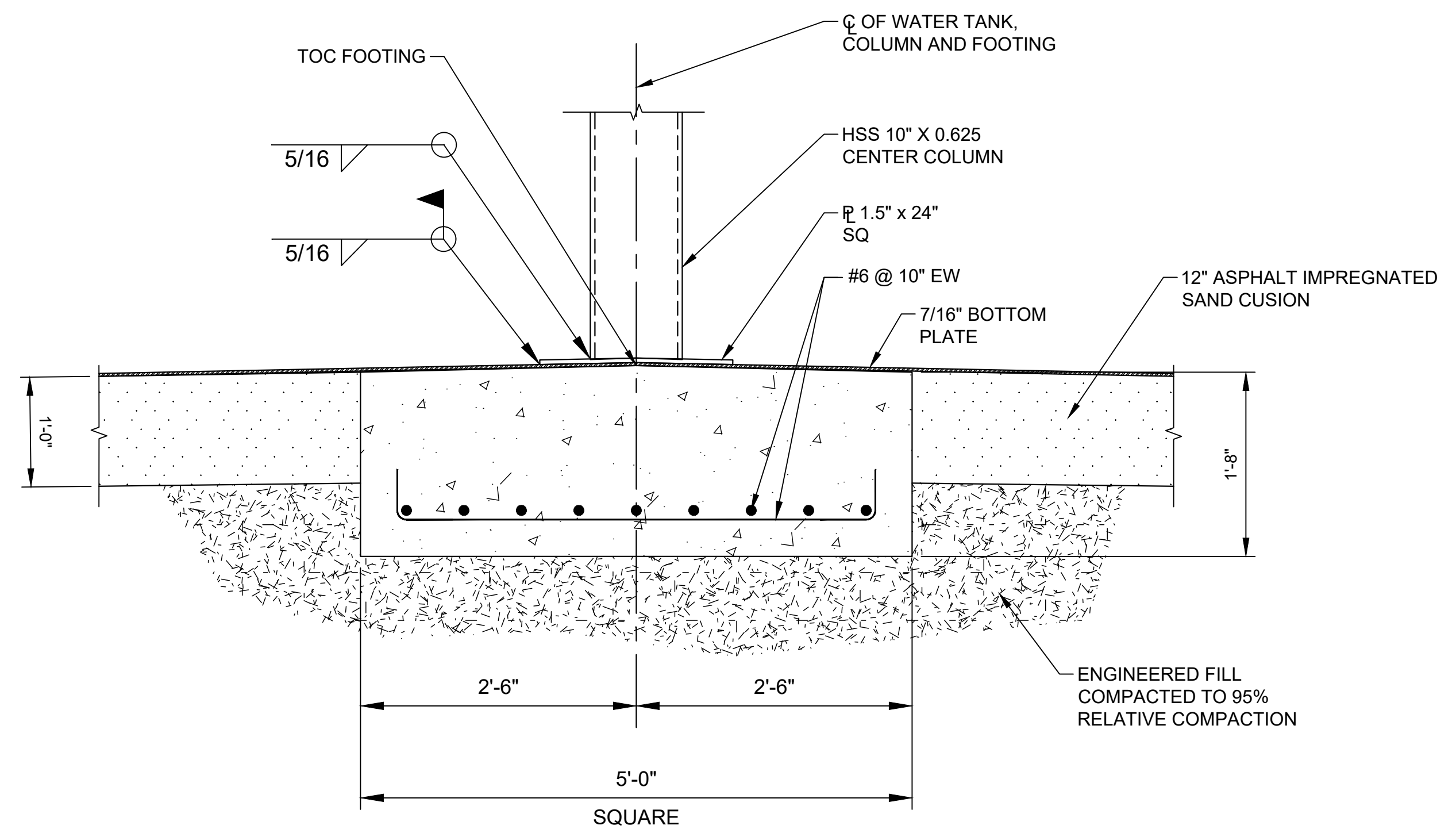


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1  
-  
DETAIL  
RINGWALL FOOTING  
SCALE: 1" = 1'-0"

NOTE:  
FOR REFERENCE ONLY. DETAIL DESIGN TO  
BE PERFORMED BY TANK SUPPLIER.



2  
-  
DETAIL  
CENTER COLUMN FOOTING  
SCALE: 1" = 1'-0"

ISSUED FOR BID



Attention:  
0 1"  
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GEI Project 2204930



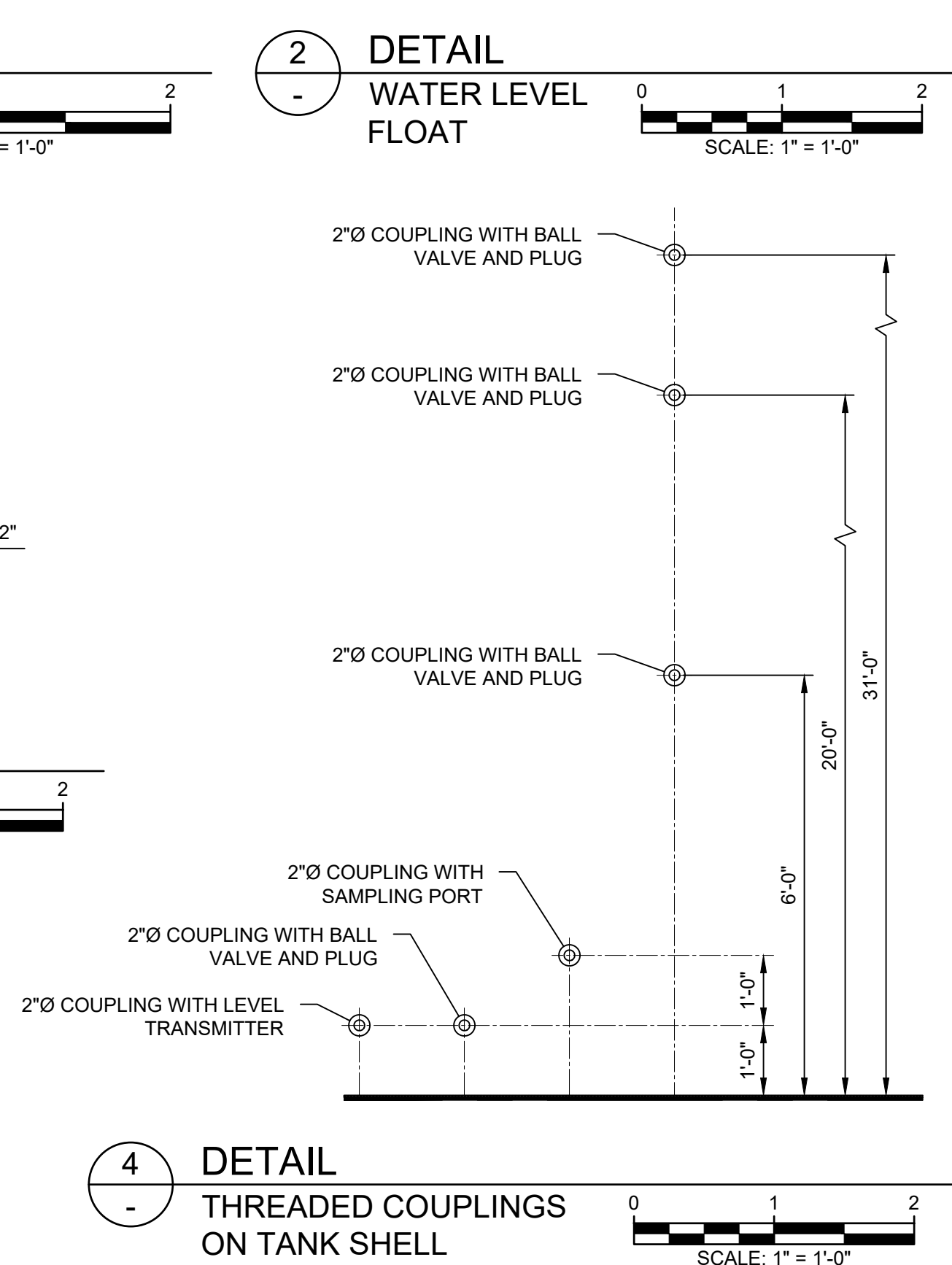
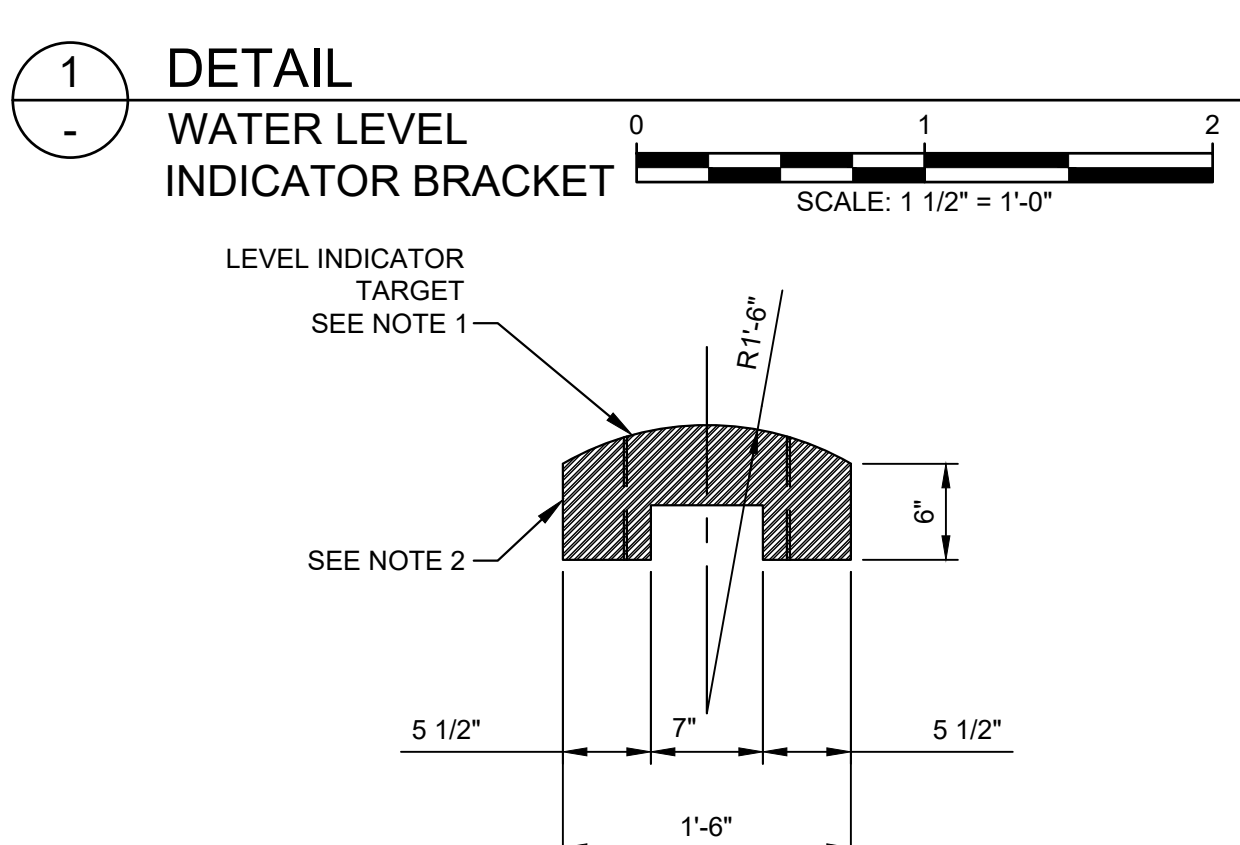
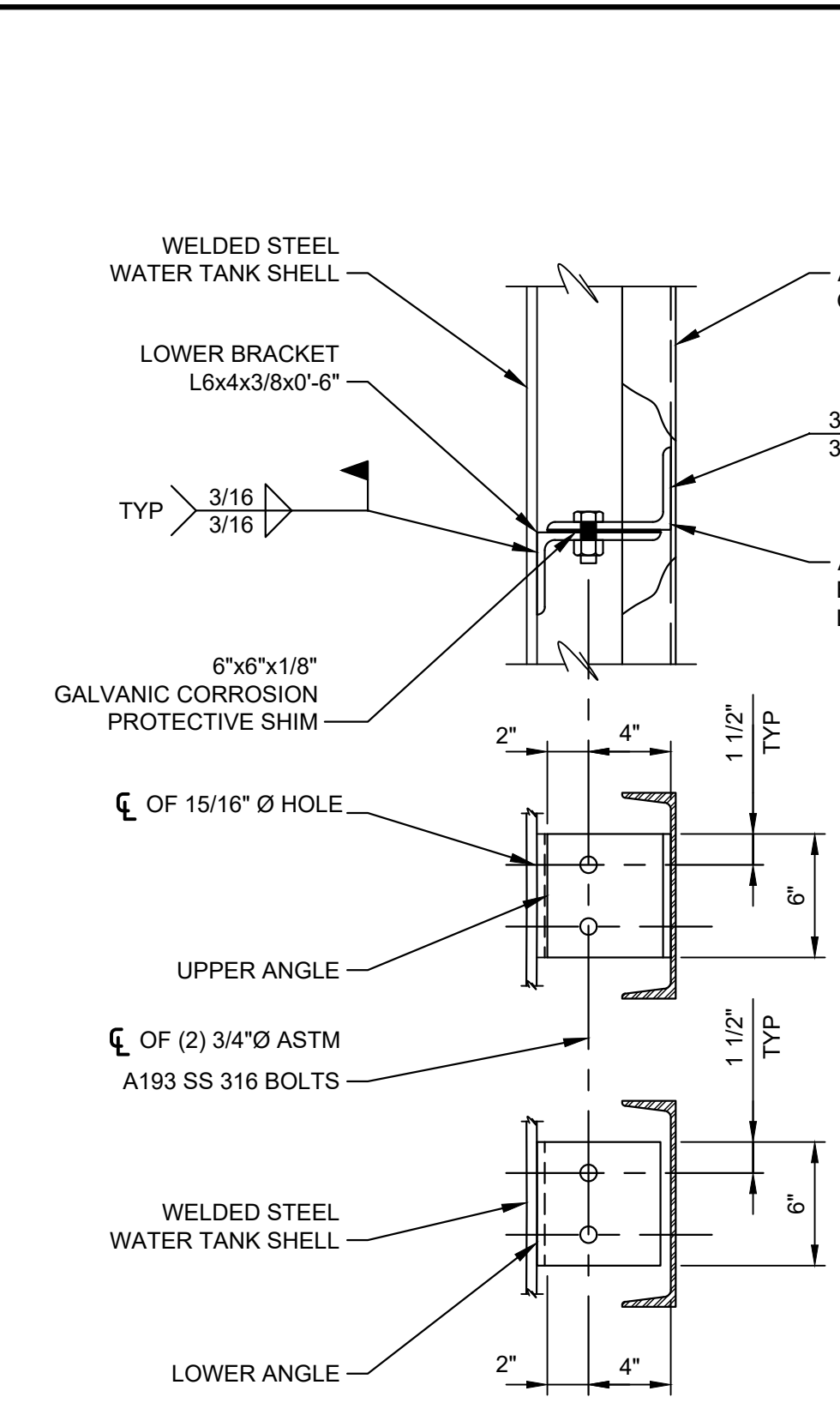
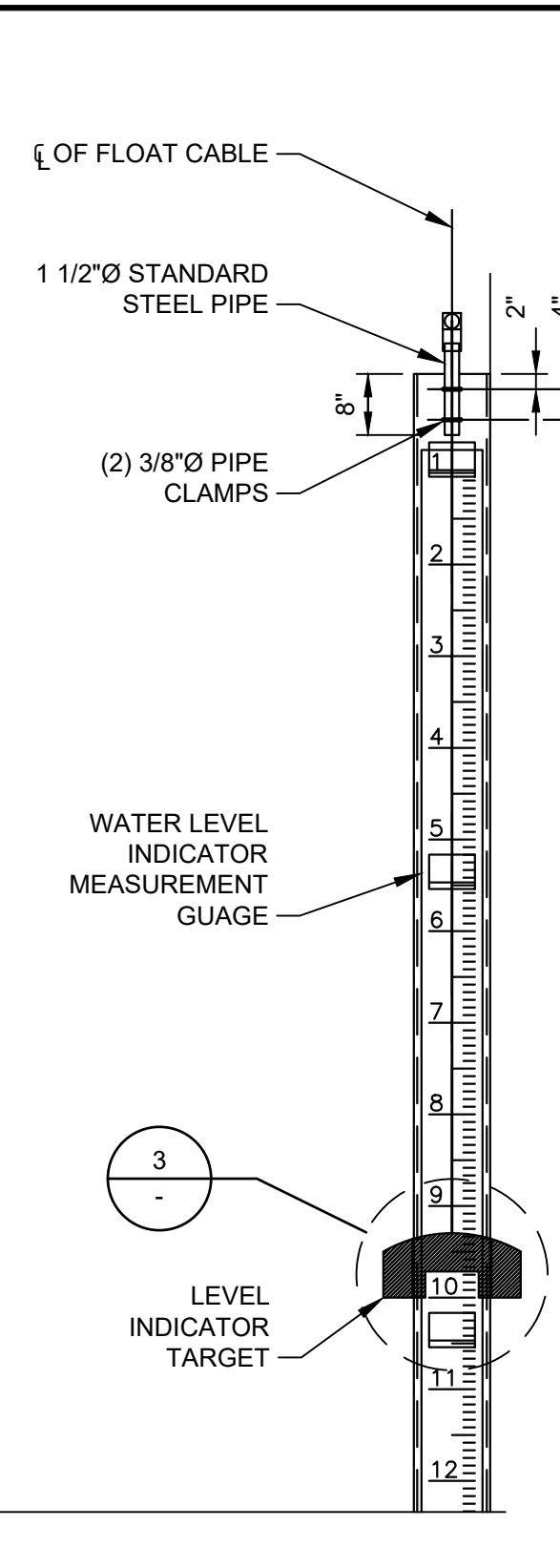
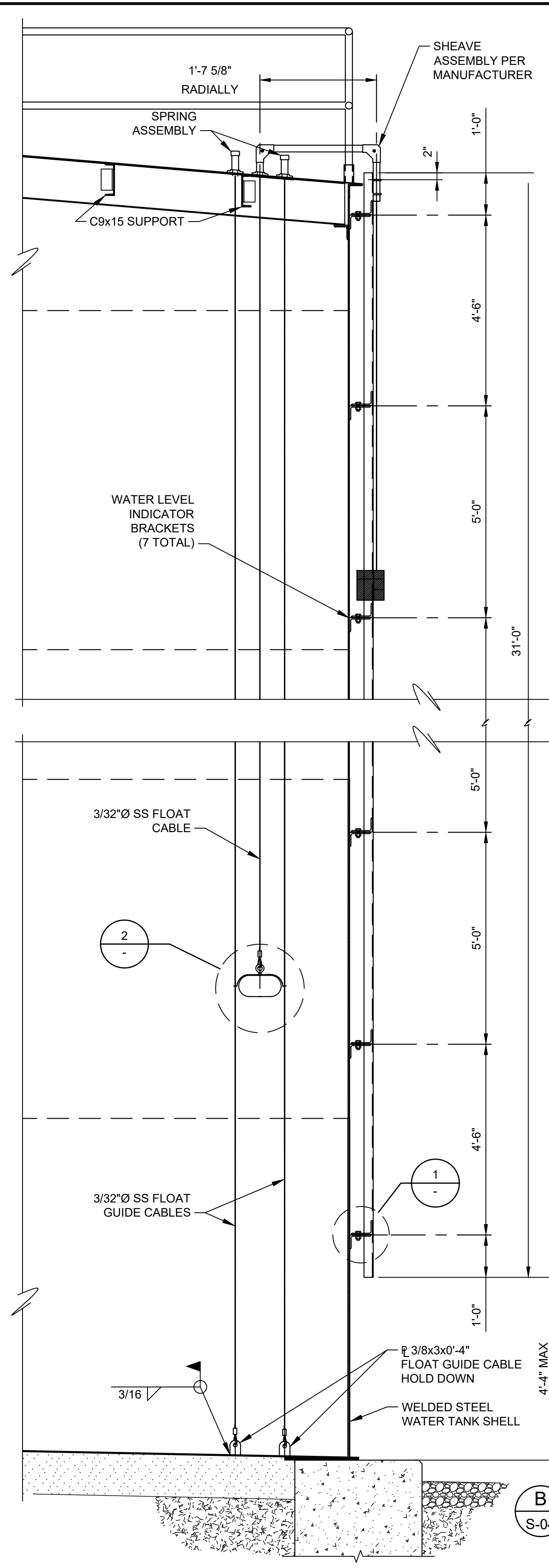
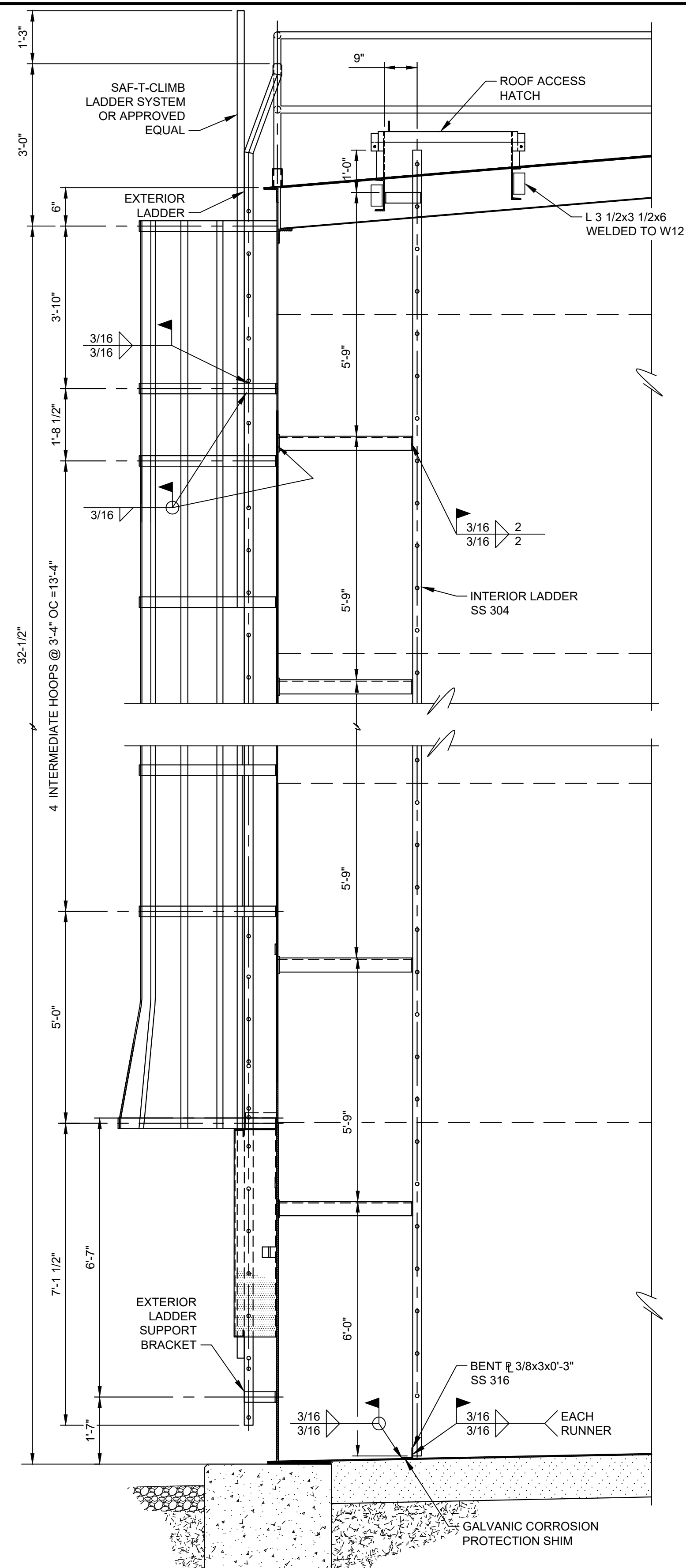
**ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
ORLAND, CA

NO	DATE	ISSUE/REVISION	APP
0			

SHEET NAME  
**WATER TANK  
FOUNDATION SECTION  
AND STRUCTURAL  
DETAILS 1**

SHEET NO.  
25 OF 42  
**S-06**

AVILA, JULIAN, B:\Working\DWG\148520 DWG Drought Management\21-01-Small Community Relief\01-Channel\03-Water Tank Structural Details 2.dwg - 4/8/2024



- NOTES:**
- MEASUREMENTS SHOWN ARE FOR INFORMATION ONLY. FLOAT AND TARGET TO BE SIZED BY LEVEL INDICATOR MANUFACTURER.
  - PROVIDE 3/16" THICK UHMW MATERIAL BETWEEN TARGET SURFACES AND GAUGE.
  - FOR REFERENCE ONLY. DETAIL DESIGN TO BE PERFORMED BY TANK SUPPLIER.

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

Attention:  
 If this scale bar does not measure 1" then drawing is not original scale.

**USA NORTH 811**  
 Call 811 Before You Dig



Designed: N. ZIVKOVIC  
 Drawn: J. AVILA  
 Checked: M. MARTIN  
 Approved: K. AMIRINENI  
 P.E. No: C78724  
 GEI Project: 2204930



**CITY OF ORLAND**  
 815 FOURTH ST.  
 ORLAND, CA 95963

**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

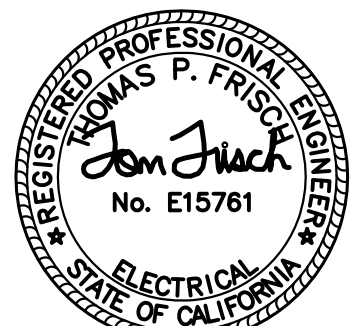
NO	DATE	ISSUE/REVISION	APP

SHEET NAME: **WATER TANK STRUCTURAL DETAILS 2**  
 SHEET NO.: 26 OF 42  
**S-07**

**ISSUED FOR BID**

Table with 4 columns: SYMBOL, DESCRIPTION, SYMBOL, DESCRIPTION. Sections include COMPONENTS, SWITCHES - PROCESS, DEVICES - RELAY, WIRING - CONNECTIONS, SWITCHES - OPERATOR, DEVICES - FRONT PANEL, DEVICES - PROTECTIVE, and PLAN - SYMBOLS.

MISCELLANEOUS ABBREVIATIONS table with 4 columns: SYMBOL, DESCRIPTION, SYMBOL, DESCRIPTION. Lists various abbreviations like &, @, A, AC, ACK, etc.



FRISCH ENGINEERING, INC. CONSULTING ELECTRICAL ENGINEERS 13405 FOLSOM BLVD., UNIT 600 FOLSOM, CA 95630



Table with 2 columns: Field (Attention, Designed, Drawn, Checked, Approved By, P.E. No., GEI Project) and Value (M.YARBROUGH, T.FRISCH, E15761, 2204930).



ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4 815 FOURTH STREET ORLAND, CA

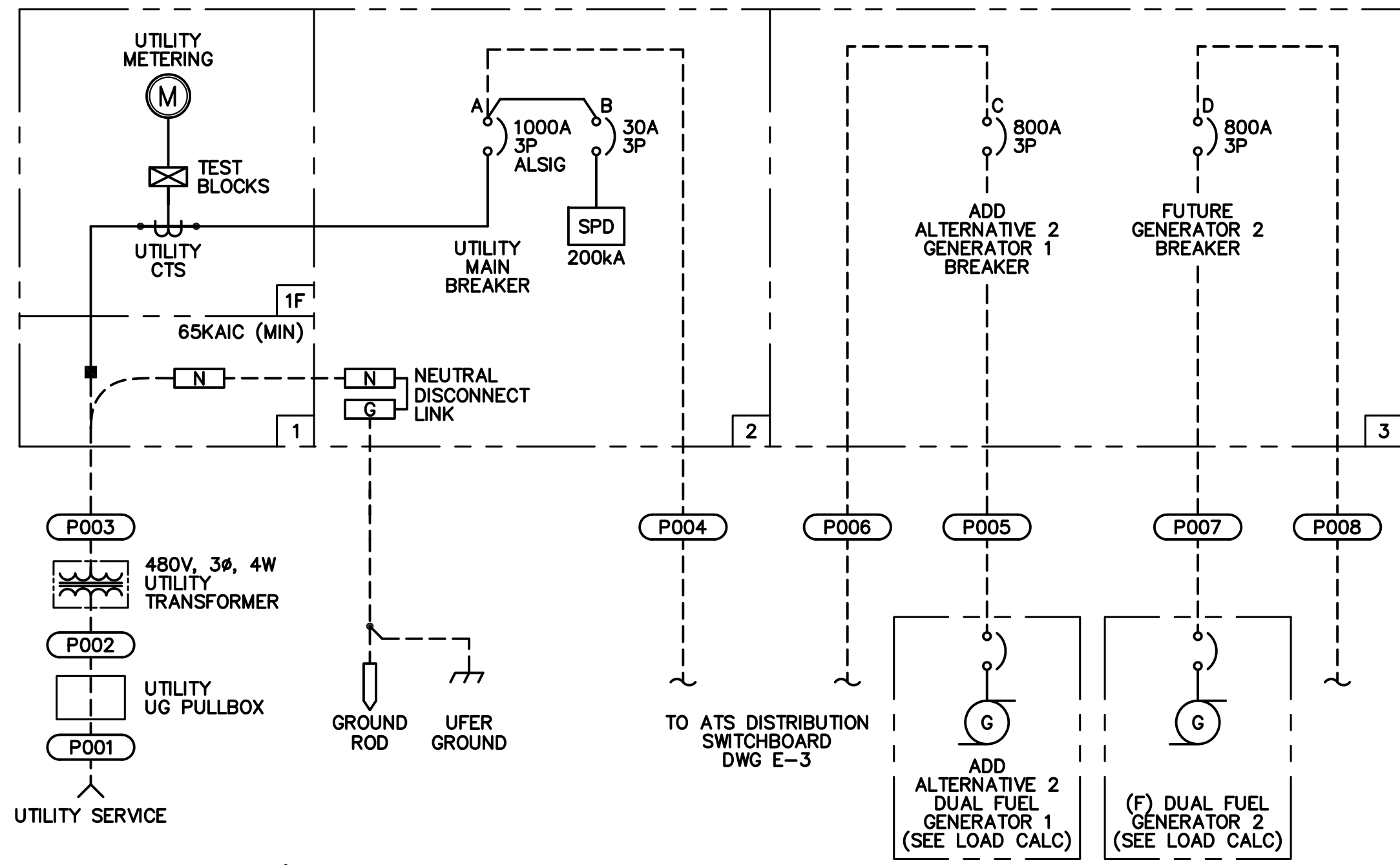
Table with 4 columns: NO, DATE, ISSUE/REVISION, APP. Contains revision information.

ELECTRICAL SYMBOLS AND ABBREVIATIONS

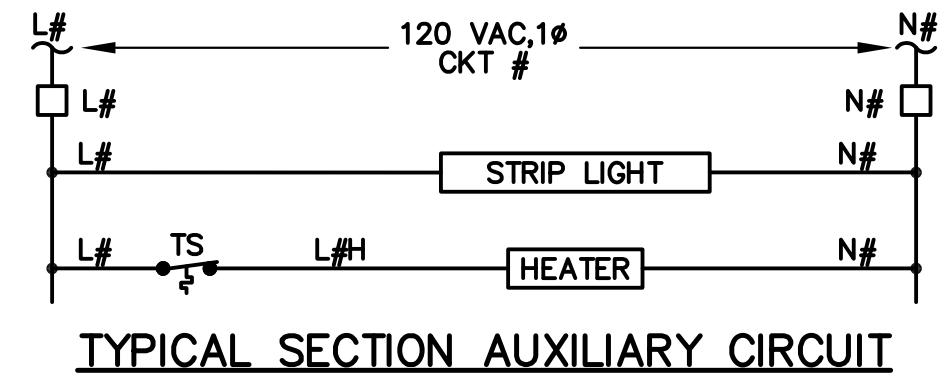
SHEET NO. 27 OF 42

E-1

ISSUED FOR BID



**METER/MAIN SWITCHBOARD ONE-LINE DIAGRAM**



**TYPICAL SECTION AUXILIARY CIRCUIT**

- NOTES:  
 1. TYPICAL AUXILIARY CIRCUIT CIRCUIT NUMBERS PER PANELBOARD SCHEDULE. REPLACE # WITH CIRCUIT NUMBER TO COMPLETE WIRE AND TERMINAL BLOCK TAGS.  
 2. APPLIES TO NON-METER SECTIONS ONLY

LOAD DESCRIPTION	CONNECTED LOAD			DEMAND LOAD			GENERATOR LOAD		
	LOAD	QTY	TOTAL	LOAD	QTY	TOTAL	LOAD	QTY	TOTAL
200HP FUTURE WELL PUMP	240.00 A	1	199532.3 VA	240.00 A	0	0.0 VA	240.00 A	0	0.0 VA
100HP BOOSTER PUMP	124.00 A	2	206183.3 VA	124.00 A	2	206183.3 VA	124.00 A	2	206183.3 VA
100HP FUTURE BOOSTER PUMP	124.00 A	1	103091.7 VA	124.00 A	0	0.0 VA	124.00 A	0	0.0 VA
3KW HVAC SYSTEM	3.61 A	1	3000.0 VA	3.61 A	1	3000.0 VA	3.61 A	1	3000.0 VA
PANELBOARD LP	12.24 A	1	10174.0 VA	9.79 A	1	8139.2 VA	9.79 A	1	8139.2 VA
<b>TOTAL LOAD =</b>			<b>627.85 A &lt;</b>	<b>521981.2 VA</b>	<b>261.40 A &lt;</b>	<b>217322.5 VA</b>	<b>261.40 A &lt;</b>	<b>217322.5 VA</b>	

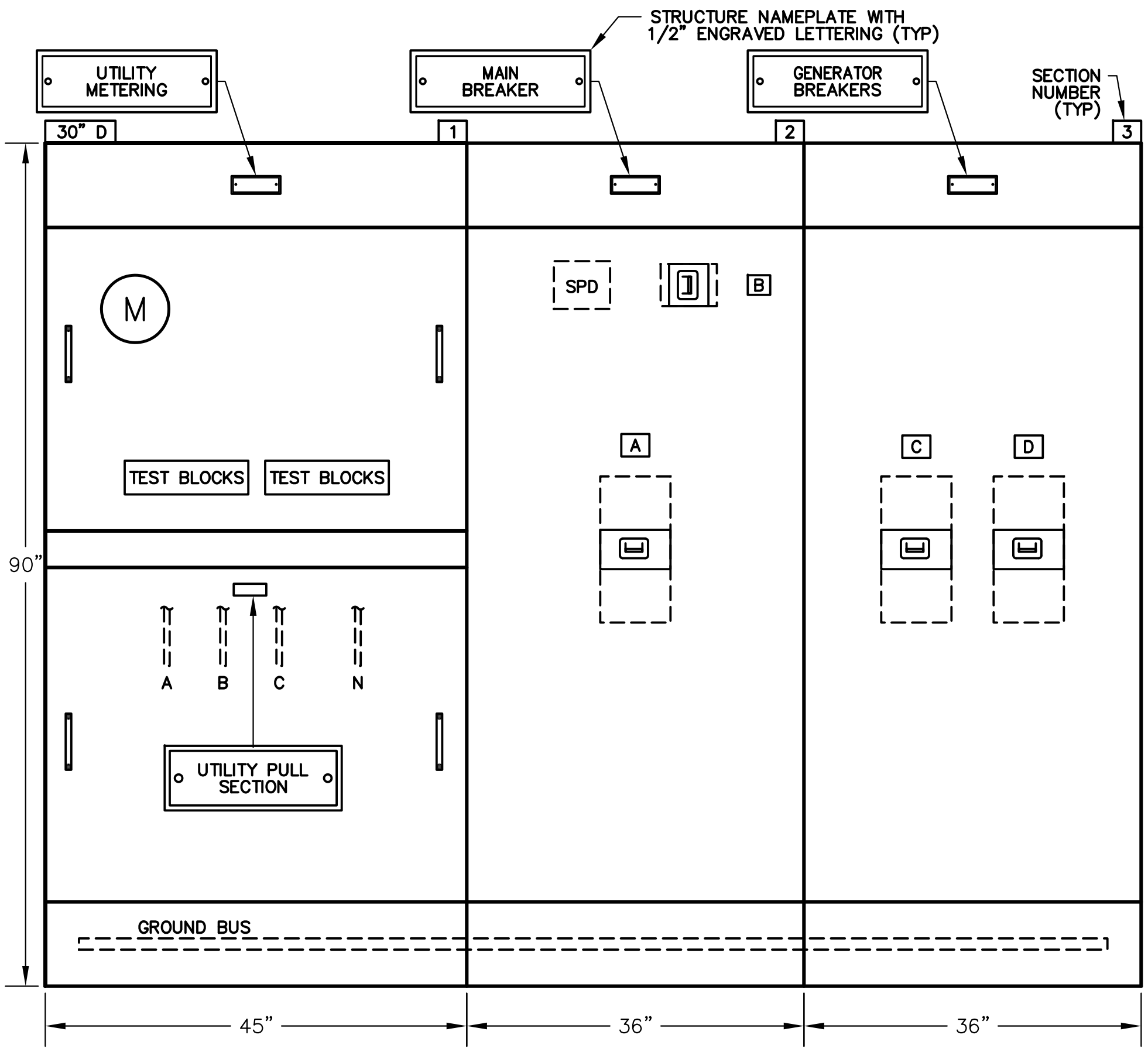
  

LOAD CORRECTION FACTORS		
LARGEST MOTOR LOAD x 25%		
200HP HP => 0.25 x 199532.3 VA	=	60.00 A
80% BREAKER DERATING = TOTAL x 0.25 =		142966.1 VA
FOR CONTINUOUS LOADS NEC 210-20		
SERVICE SIZE (MIN) =	859.81 AMP	714830.4 VA
UTILITY SERVICE =	1000 AMP	
480V, 3 PHASE, 4 WIRE		

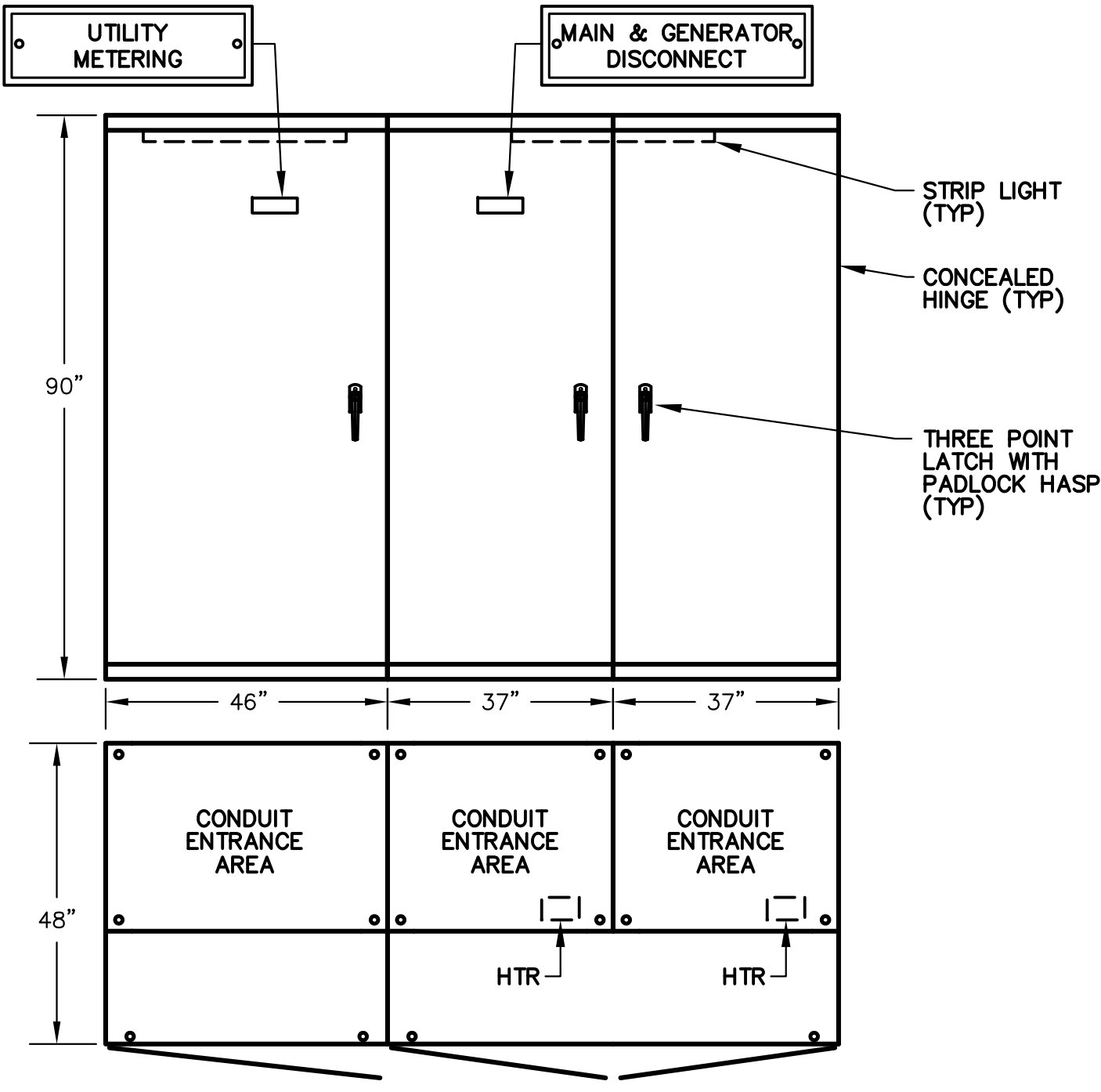
  

DUAL FUEL GENERATOR SIZE		
NAMEPLATE =	400 KW	500 KVA
TEMP OF	100 deg F	
ELEVATION OF	200 FT ASL	
DERATED SIZE =	390.8 KW	488.5 KVA
AMPERAGE =	588 A @ 0.8 PF	
UTILIZATION % =	65 % @ 0.90 PF	
VOLT DIP % =	15% MAXIMUM	

LOCATION: MCC SECTION				ENCLOSURE: NEMA 1A				AIC RATING: 10 KAIC				PANEL "LP"				120/ 240 VOLTS, 1 PHASE, 3 WIRE				100 AMP BUS				100 AMP MAIN BREAKER																																																																							
BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS	AMPS/ POLE	BKR NO.	BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS	AMPS/ POLE	BKR NO.	BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS	AMPS/ POLE	BKR NO.	BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS	AMPS/ POLE	BKR NO.	BKR NO.	DESCRIPTION	LOAD VA	LINE AMPS	AMPS/ POLE	BKR NO.																																																																		
1	LIGHTING ELECTRICAL ROOM	124	1.0	20/1	1	2	CONTROL PANEL	800	6.7	20/1	2	4	CONTROL PANEL AUXILIARY	500	4.2	20/1	4	6	UTILITY METER AUXILIARY	500	4.2	20/1	6	8	MAIN/GENERATOR AUXILIARY	500	4.2	20/1	8																																																																		
3	LIGHTING MECHANICAL ROOM	558	4.7	20/1	3	10	SPARE	0	0.0	20/1	10	12	(F) GENERATOR 1 BATTERY CHARGER	0	0.0	20/1	12	14	(F) GENERATOR 1 BLOCK HEATER	0	0.0	40/2	14	16	SPARE	0	0.0	20/1	16																																																																		
5	LIGHTING OUTDOOR	480	4.0	20/1	5	18	(F) GENERATOR MAIN CONTROL PANEL	0	0.0	20/1	18	20	SPARE	0	0.0	20/1	20	22	SPARE	0	0.0	20/1	22	24	SPARE	0	0.0	20/1	24																																																																		
7	RECEPTACLE ELECTRICAL ROOM	900	7.5	20/1*	7	26	LEVEL TRANSMITTER HEATER	650	5.4	20/1	26	28	CL2 ANALYZER	600	5.0	20/1	28	30	CHEMICAL PUMP RECEPTACLE	300	2.5	20/1	30	32	SPACE	0	0.0	20/1	32																																																																		
9	RECEPTACLE MECHANICAL ROOM	1800	15.0	20/1*	9	34	SPACE	0	0.0	20/1	34	36	SPACE	0	0.0	20/1	36	38	SPACE	0	0.0	20/1	38	40	SPACE	0	0.0	20/1	40																																																																		
11	RECEPTACLE OUTDOOR	1200	10.0	20/1	11	42	SPACE	0	0.0	20/1	42	<table border="1"> <thead> <tr> <th colspan="2">PHASE</th> <th>A</th> <th>B</th> <th colspan="2">NEUTRAL</th> <th>A</th> <th>B</th> <th colspan="2">PHASE</th> </tr> <tr> <th>LEFT SIDE AMPS</th> <th>LEFT SIDE KVA</th> <td>21.38</td> <td>31.32</td> <td>2.57</td> <td>3.76</td> <td>18.75</td> <td>13.33</td> <th>RIGHT SIDE AMPS</th> <th>RIGHT SIDE KVA</th> </tr> <tr> <td colspan="2">TOTAL PHASE KVA</td> <td>4.82</td> <td>5.36</td> <td colspan="2">TOTAL KVA</td> <td>10.17</td> <td></td> <td colspan="2">TOTAL KVA</td> </tr> <tr> <td colspan="2">TOTAL PHASE AMPS</td> <td>40</td> <td>45</td> <td colspan="2">TOTAL AMPS @ 240V, 1P</td> <td>42.39</td> <td></td> <td colspan="2">TOTAL AMPS @ 240V, 1P</td> </tr> <tr> <td colspan="2">% OF AVERAGE</td> <td>95</td> <td>105</td> <td colspan="2">DIVERSITY FACTOR</td> <td>0.80</td> <td></td> <td colspan="2">DIVERSITY FACTOR</td> </tr> <tr> <td colspan="2"></td> <td></td> <td></td> <td colspan="2">LOAD KVA</td> <td>8.14</td> <td></td> <td colspan="2">LOAD KVA</td> </tr> </thead> <tbody> <tr> <td colspan="10">           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         </td> </tr> </tbody> </table>														PHASE		A	B	NEUTRAL		A	B	PHASE		LEFT SIDE AMPS	LEFT SIDE KVA	21.38	31.32	2.57	3.76	18.75	13.33	RIGHT SIDE AMPS	RIGHT SIDE KVA	TOTAL PHASE KVA		4.82	5.36	TOTAL KVA		10.17		TOTAL KVA		TOTAL PHASE AMPS		40	45	TOTAL AMPS @ 240V, 1P		42.39		TOTAL AMPS @ 240V, 1P		% OF AVERAGE		95	105	DIVERSITY FACTOR		0.80		DIVERSITY FACTOR						LOAD KVA		8.14		LOAD KVA		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									
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**METER/MAIN SWITCHBOARD ELEVATION**  
NEMA 3R, OUTDOOR



**METER/MAIN WEATHERWRAP**

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

**WEATHERWRAP FABRICATION METHODS**

- NEMA 3R WEATHER-PROOF FOR OUTDOOR INSTALLATION.
- OUTER DOORS SHALL BE SEALED WITH RUBBERIZED FOAM GASKET.
- EXTERIOR FABRICATED FROM GALVANEAL (PAINT BOND) SHEET STEEL.
- 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
- ALL SEAMS SHALL HAVE CONTINUOUS WELD, GROUND SMOOTH.
- OUTER HINGES TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
- DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
- NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
- INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE STAINLESS STEEL.
- 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: ANSI 61 GRAY
- PHENOLIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL OUTER DOOR SECTIONS.
- FABRICATION, COMPONENTS, AND WIRING SHALL CONFORM TO UL, NEC AND NEMA STANDARDS. PANEL SHALL BE APPROPRIATELY LABELLED.
- ALL WIRING SHALL BE LABELLED ON BOTH ENDS OF WIRE.
- AS-BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH PANEL.
- PROVIDE DRAWING POCKET ON INSIDE OF CONTROL PANEL DOOR.

**GENERAL NOTES:**

- 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, ON EXTERIOR DOORS 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.

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

**FRISCH ENGINEERING, INC.**  
 CONSULTING ELECTRICAL ENGINEERS  
 13405 FOLSOM BLVD, UNIT 600  
 FOLSOM, CA 95630  
 PH 916 353 1025  
 WWW.FRISCHENGINEERING.COM  
 FILE: 2207-K-BPS-E02.DWG  
 DATE: MAR 08, 2024 TIME: 2:00:57PM



Attention:

If this scale bar does not measure 1" then drawing is not original scale.

Designed:	M.YARBROUGH
Drawn:	M.YARBROUGH
Checked:	M.FRISCH
Approved By:	T.FRISCH
P.E. No:	E15761
GEI Project	2204930

**GEI** Consultants  
 11010 WHITE ROCK ROAD  
 SUITE 200  
 RANCHO CORDOVA, CA 95670  
 (916) 552-0640

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 ORLAND, CA 95963

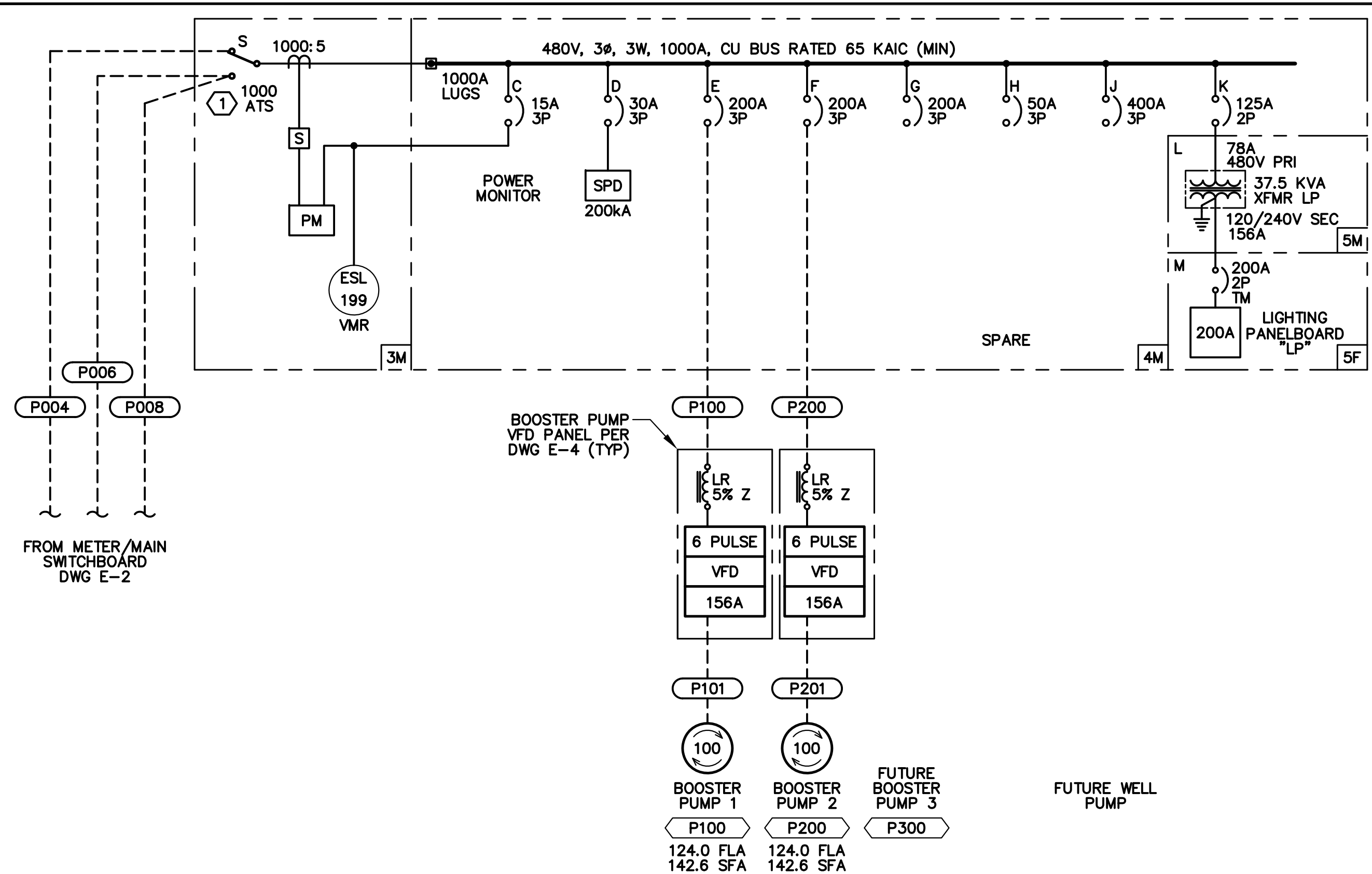
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 PHASE 4**  
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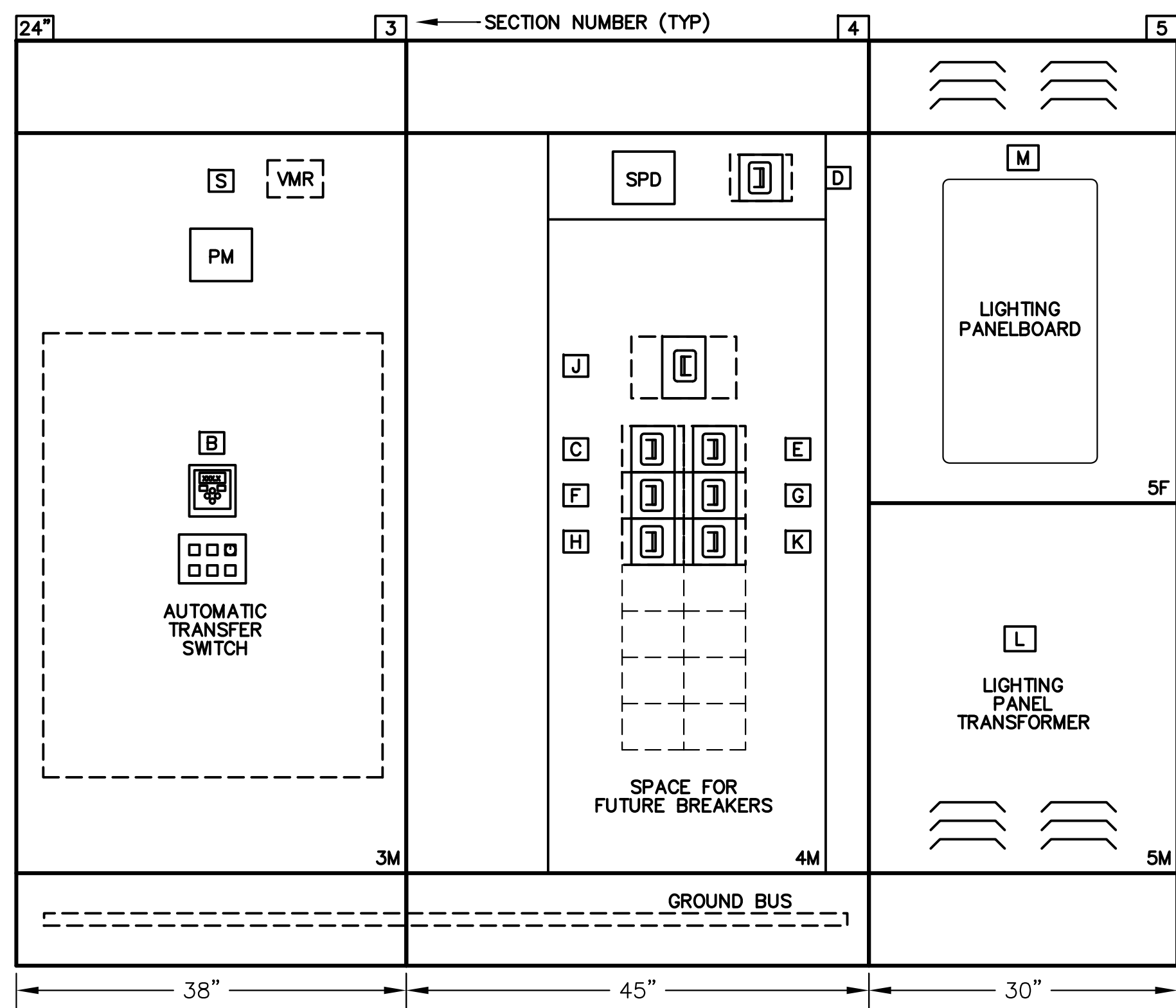
ELECTRICAL  
  
 MAIN SWITCHBOARD  
 ONE-LINE & ELEVATION

SHEET NO.  
28 OF 42  
  
 E-2

ISSUED FOR BID



**ATS AND POWER DISTRIBUTION ONE-LINE DIAGRAM**



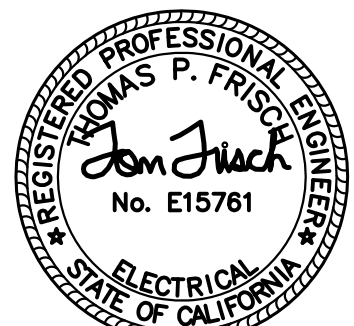
**ATS AND DISTRIBUTION ELEVATION**  
NEMA 1, INDOOR

**GENERAL NOTES:**

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 NAMEPLATES FOR DEVICES AND BREAKERS WHERE NOTED, ON EXTERIOR DOORS AT MINIMUM, WITH A LETTERED BOX. TEXT HEIGHT SHALL BE 1/4 INCH MINIMUM. REFERENCE ONE-LINE DIAGRAM FOR LABEL.
4. FURNISH CODE REQUIRED WARNING LABELS AND EQUIPMENT RATINGS LABELS.

**DRAWING REFERENCED NOTES:**

- 1 FURNISH 6 HOLE LUGS PER PHASE FOR UP TO 500 MCM CONDUCTORS. PROVIDE GROUND LUGS FOR 2 #2/0 CONDUCTORS.



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CONSULTING ELECTRICAL ENGINEERS  
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FOLSOM, CA 95630  
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WWW.FRISCHENGINEERING.COM  
FILE: 2207K-BPS-E03.DWG  
DATE: MAR 08, 2024 TIME: 2:01:31 PM



Attention:  If this scale bar does not measure 1" then drawing is not original scale.	Designed: M.YARBROUGH
	Drawn: M.YARBROUGH
	Checked: M.FRISCH
	Approved By: T.FRISCH
	P.E. No: E15761
GEI Project 2204930	



**ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
ORLANDO, CA

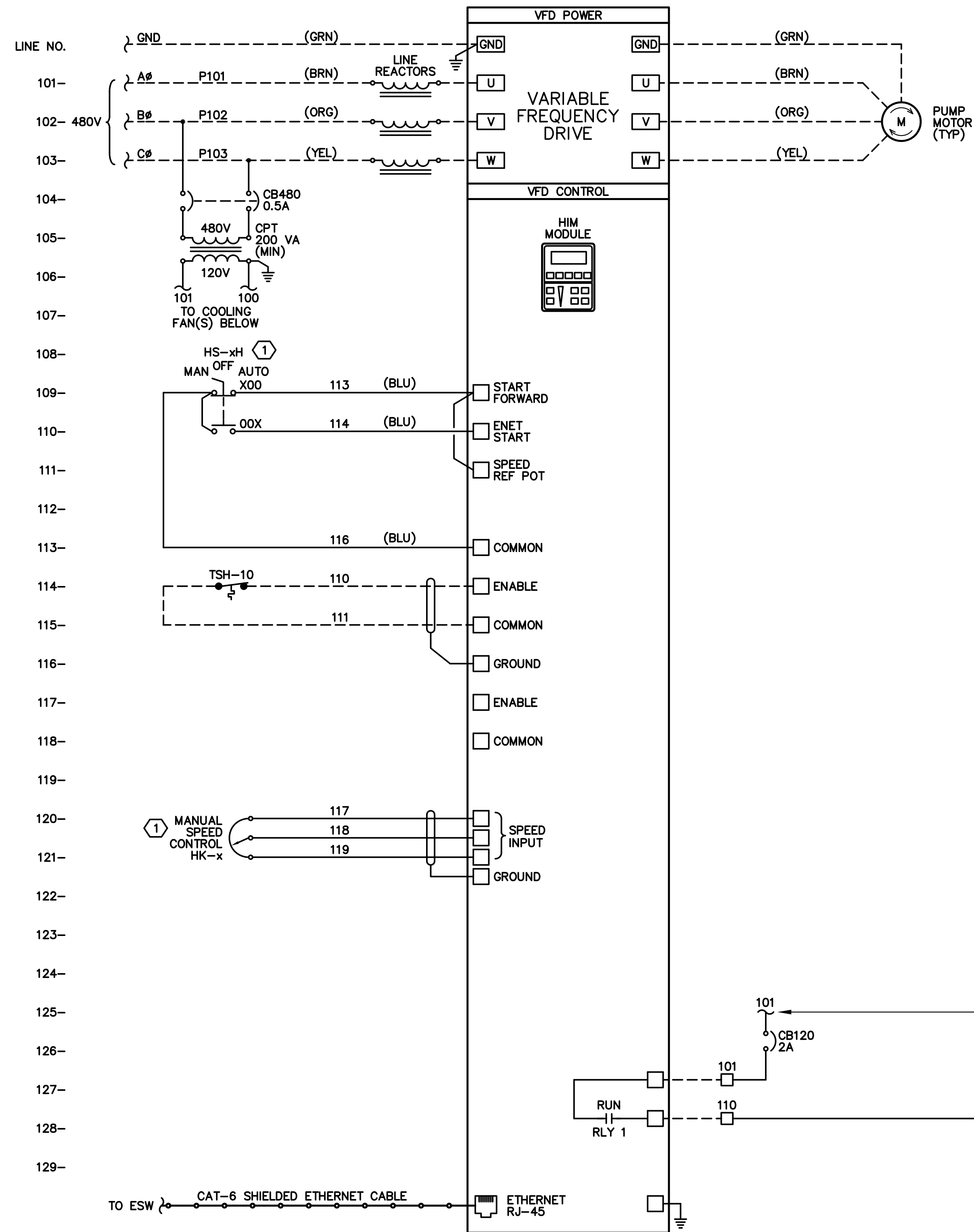
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ELECTRICAL  
  
POWER DISTRIBUTION  
ONELINE & ELEVATION

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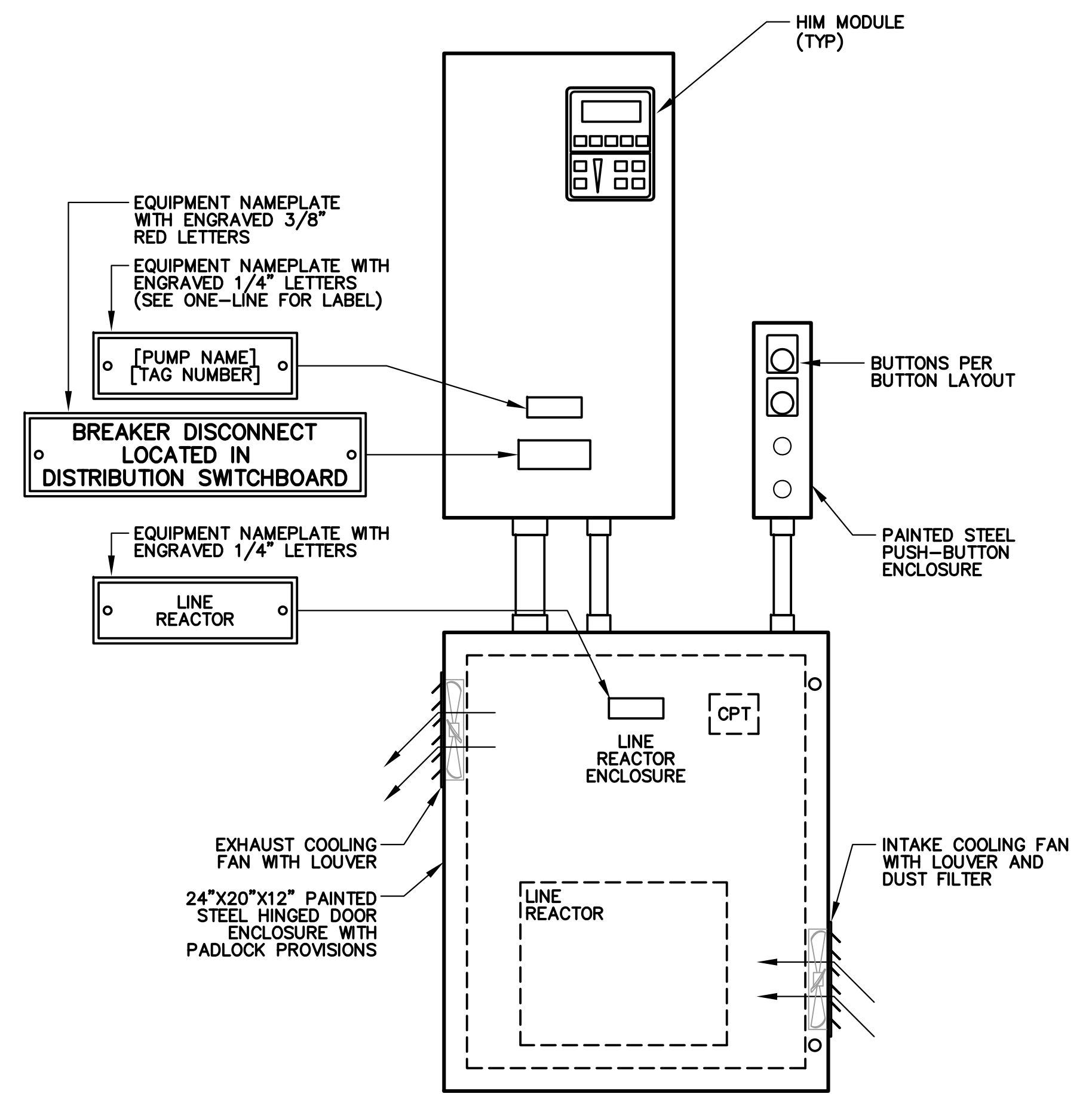
SHEET NO.  
29 OF 42

E-3

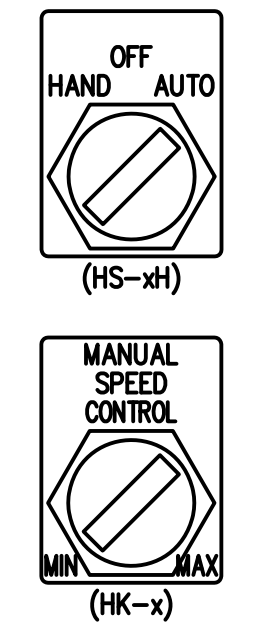


**VFD MOTOR ELEMENTARY DIAGRAM** P100 P200

- NOTES REFERENCED IN DRAWING:**  
 ① LOCATED IN PUSHBUTTON ENCLOSURE.
- GENERAL NOTES:**
- SIMILAR DIAGRAM FOR BOOSTER PUMP NO. 2.
  - USE 2, 20 & 200 SERIES NUMBERING FOR PUMP NO. 2 DEVICES
  - TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPTON: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.



**VFD PANEL ELEVATION**  
NEMA 1, NOT TO SCALE



**BUTTON LAYOUT** ①  
NOT TO SCALE



Attention:	Designed: M.YARBROUGH
	Drawn: M.YARBROUGH
	Checked: M.FRISCH
	Approved By: T.FRISCH
	P.E. No: E15761
	GEI Project 2204930

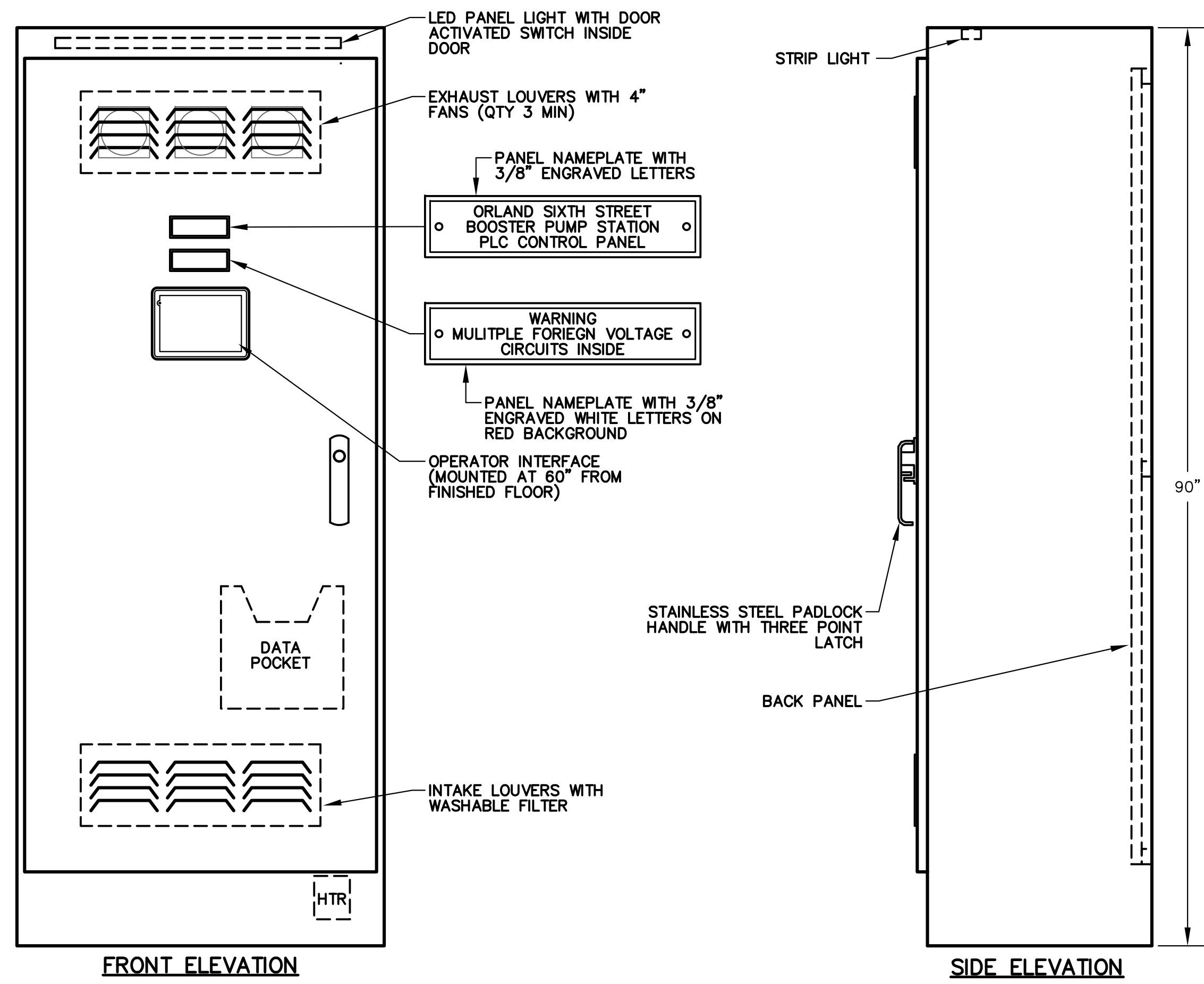


**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
 815 FOURTH STREET  
 ORLAND, CA

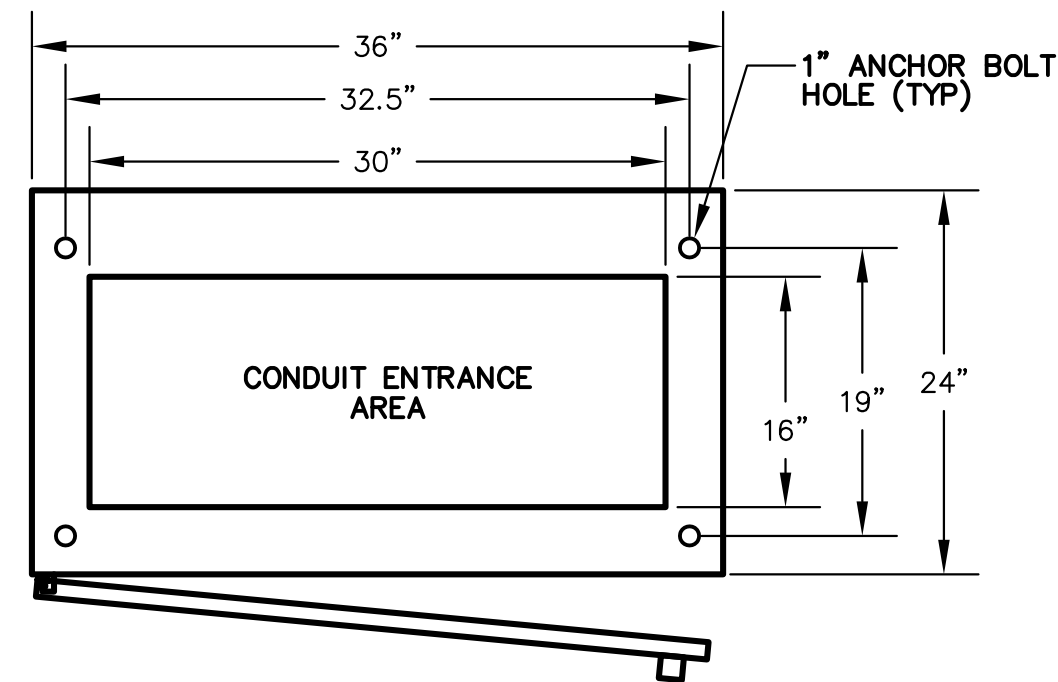
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ELECTRICAL  
 VFD ELEMENTARY DIAGRAM

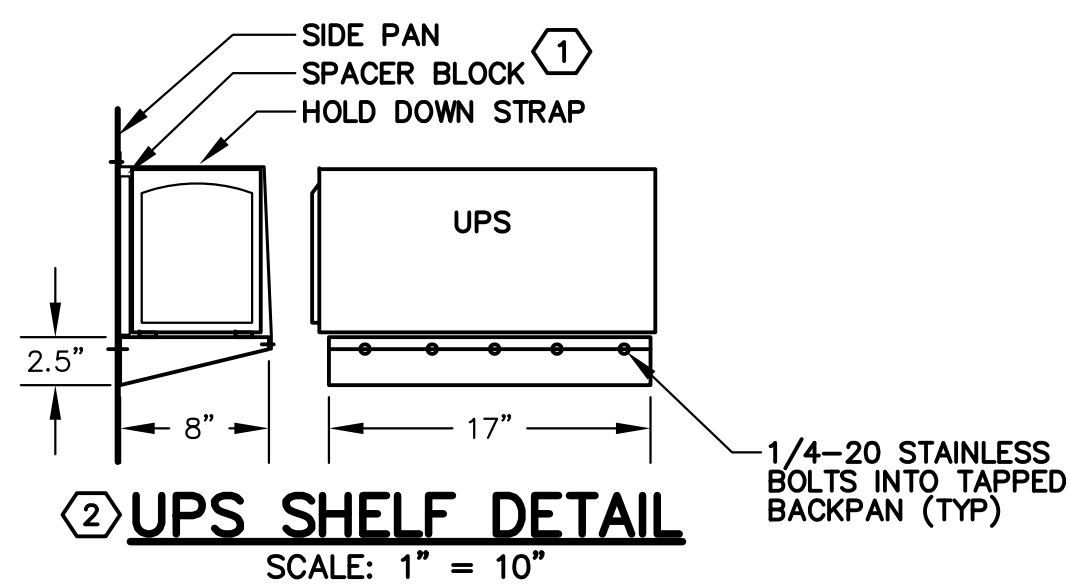
ISSUED FOR BID  
 SHEET NO. 30 OF 42  
 E-4



FRONT ELEVATION  
ELEVATION ②  
SCALE: 1" = 10"



BASE PLAN



UPS SHELF DETAIL ②  
SCALE: 1" = 10"

PANEL FABRICATION METHODS

- NEMA 4X, STAINLESS STEEL.
- OUTER DOOR SEALED WITH RUBBERIZED FOAM GASKET.
- PANEL SHALL BE FABRICATED FROM BRUSHED STAINLESS STEEL.
- 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
- ALL SEAMS SHALL HAVE CONTINUOUS WELD GROUND SMOOTH.
- DOOR TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCH.
- DOOR HINGES AND PINS SHALL BE CONTINUOUS, HEAVY DUTY.
- NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
- INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE MACHINE THREAD INTO TAPPED BACKPAN.
- EXTERIOR PANEL COLOR: NA
- MOUNTING PAN AND INTERIOR DOOR COLOR: WHITE.
- FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
- ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
- WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
- AS - BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

GENERAL NOTES:

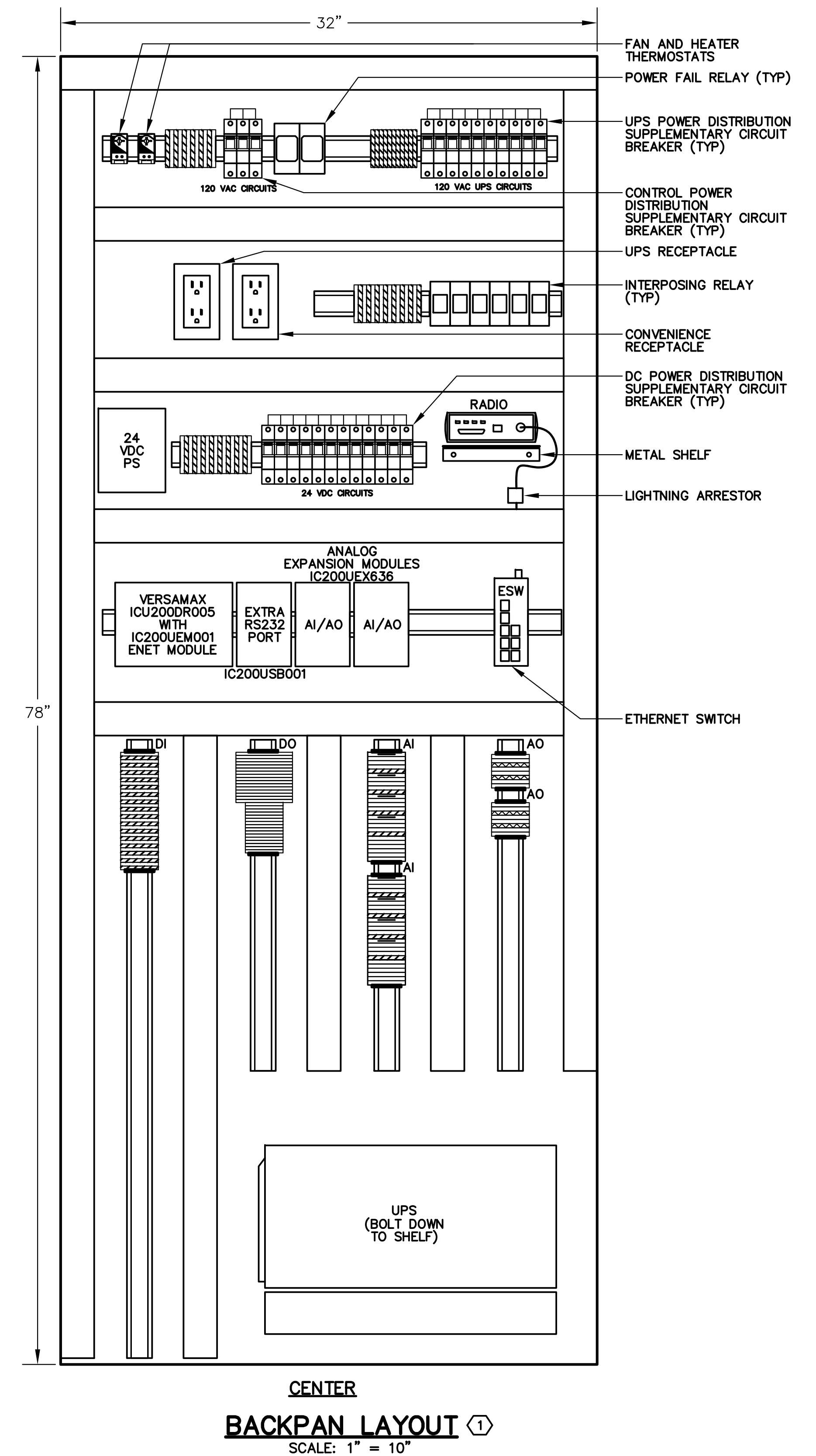
- REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ACTUAL BACKPAN LAYOUT SHALL BE SIMILAR TO LAYOUT SHOWN. SUBMIT SCALED BACKPAN LAYOUT FOR REVIEW BY ENGINEER.
- QUANTITY OF TERMINAL BLOCKS AND RELAYS SHALL BE AS DETERMINED BY P&IDS AND EXAMPLE I/O WIRING DIAGRAM.

LAYOUT REFERENCED NOTES:

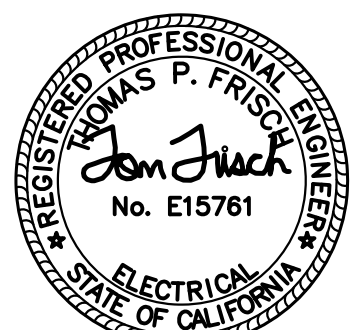
- WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.
- CONTROL ENCLOSURE SHALL BE FREESTANDING PAINTED STEEL. PROVIDE SAGINAW MODEL NUMBER SCE 903624FS OR EQUAL. PROVIDE PADLOCKABLE 3-POINT DOOR LATCH, SWINGOUT PANEL, BACKPAN AND ANY OTHER PARTS TO COMPLETE PANEL.

UPS DETAIL NOTES:

- DO NOT BLOCK VENTS WITH SPACER BLOCK. USE TWO.
- FABRICATED FROM 14 GA (MIN) PAINTED GALVANEAL OR STAINLESS STEEL SOLID SIDES, TOP, BACK AND FRONT WITH CONTINUOUS WELDED SEAMS.



CENTER  
BACKPAN LAYOUT ①  
SCALE: 1" = 10"



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	P.E. No: E15761
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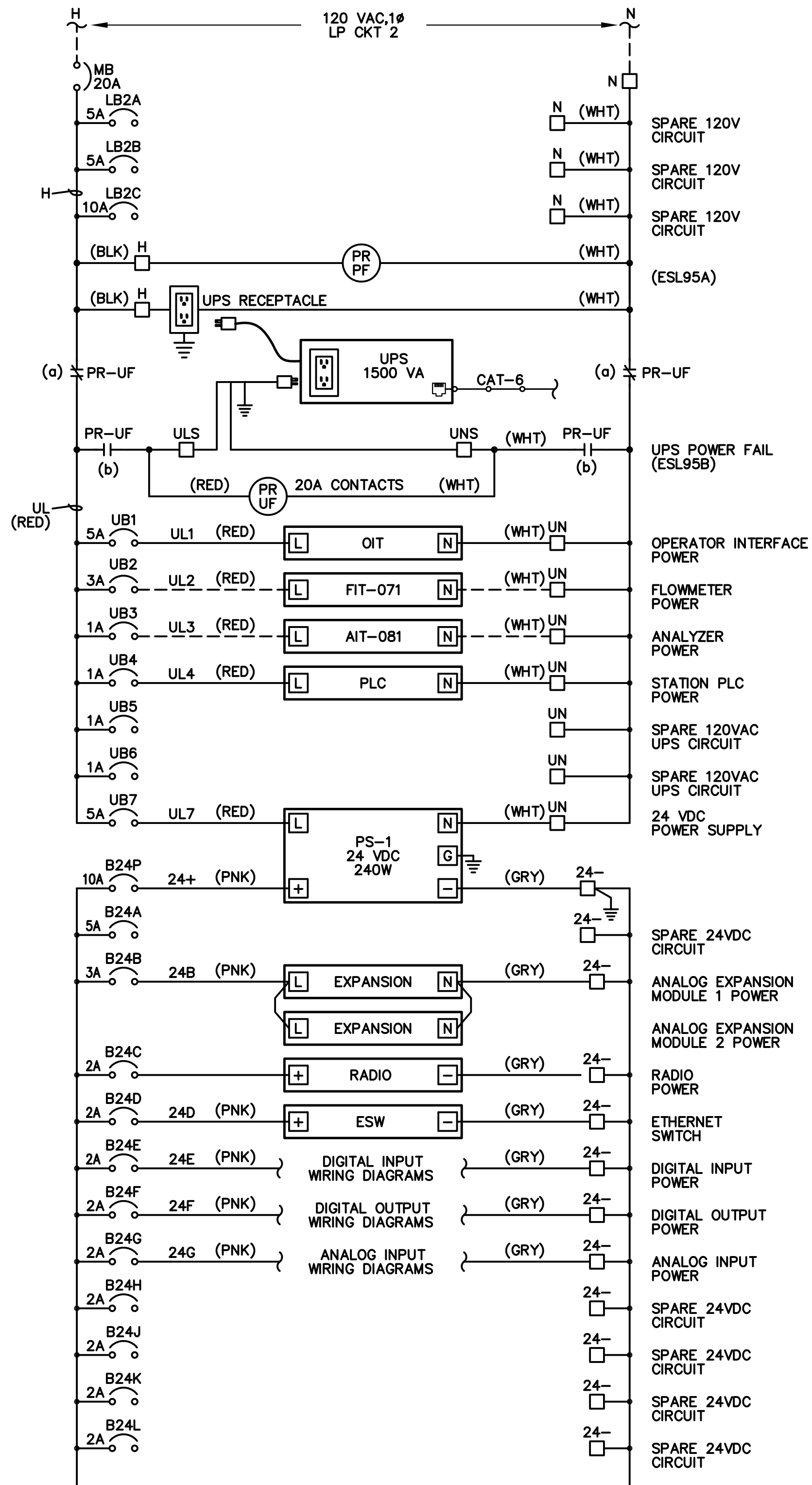


**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
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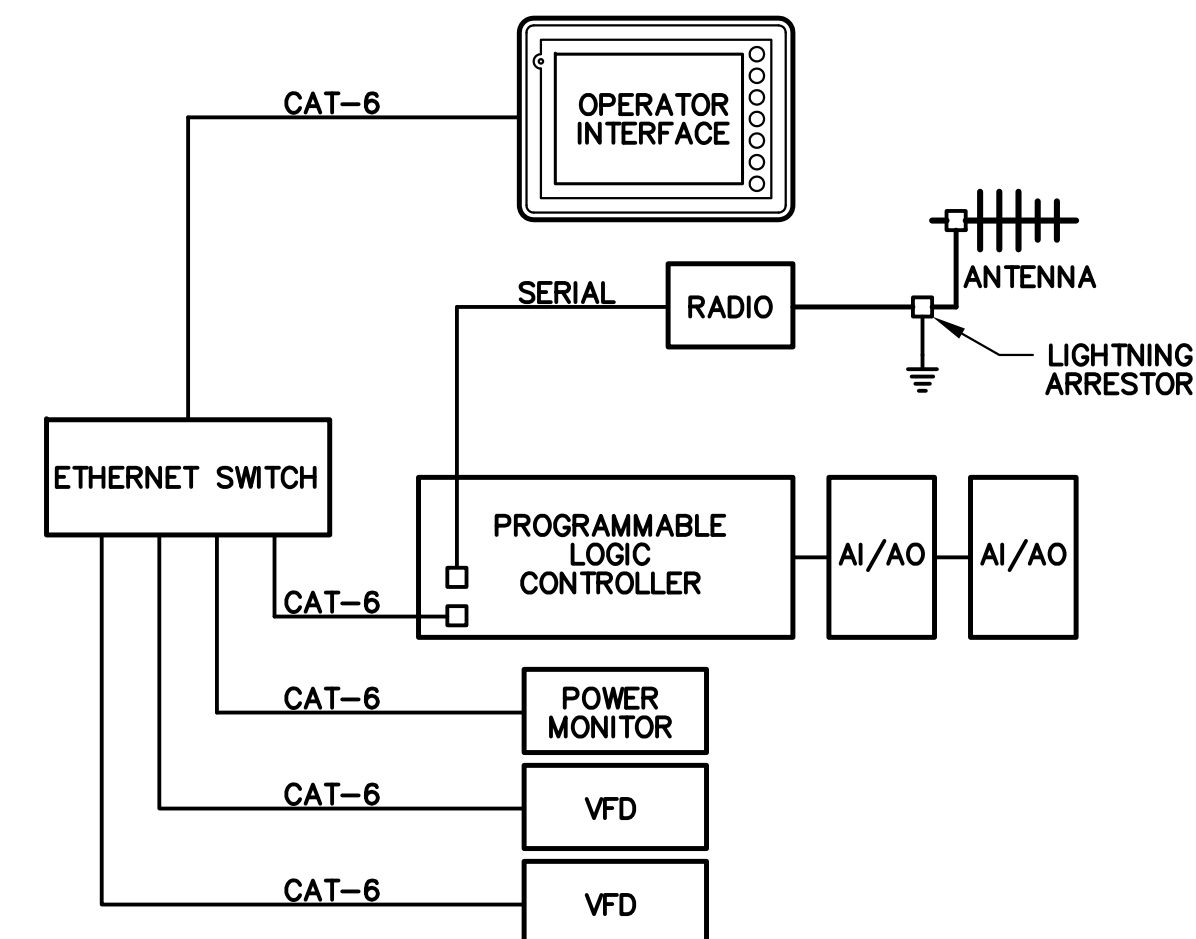
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ELECTRICAL  
PLC CONTROL PANEL ELEVATION & BACKPAN LAYOUT

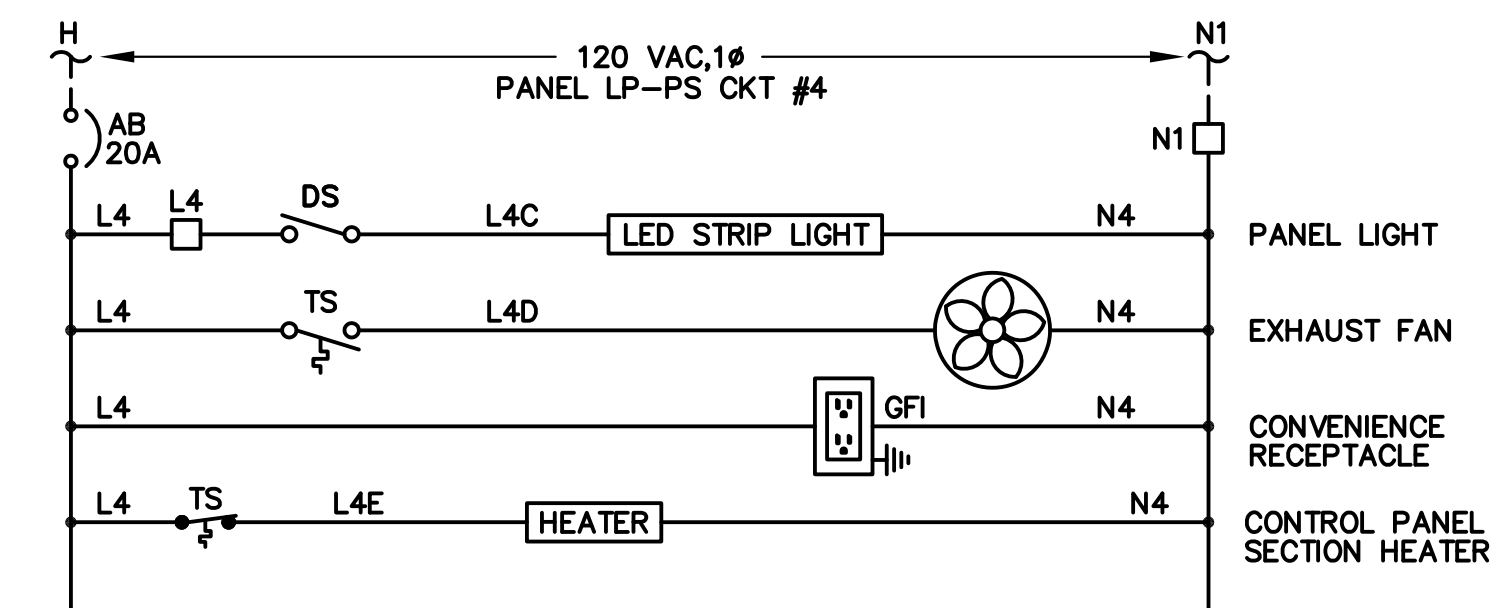
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SHEET NO. 31 OF 42  
E-5



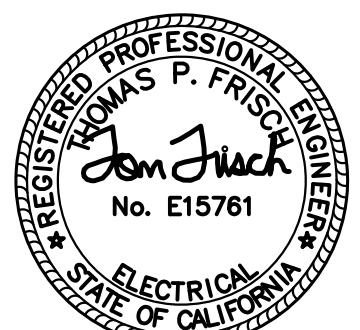
**POWER DISTRIBUTION DIAGRAM**



**COMMUNICATION BLOCK DIAGRAM**



**AUXILLIARY POWER DIAGRAM**



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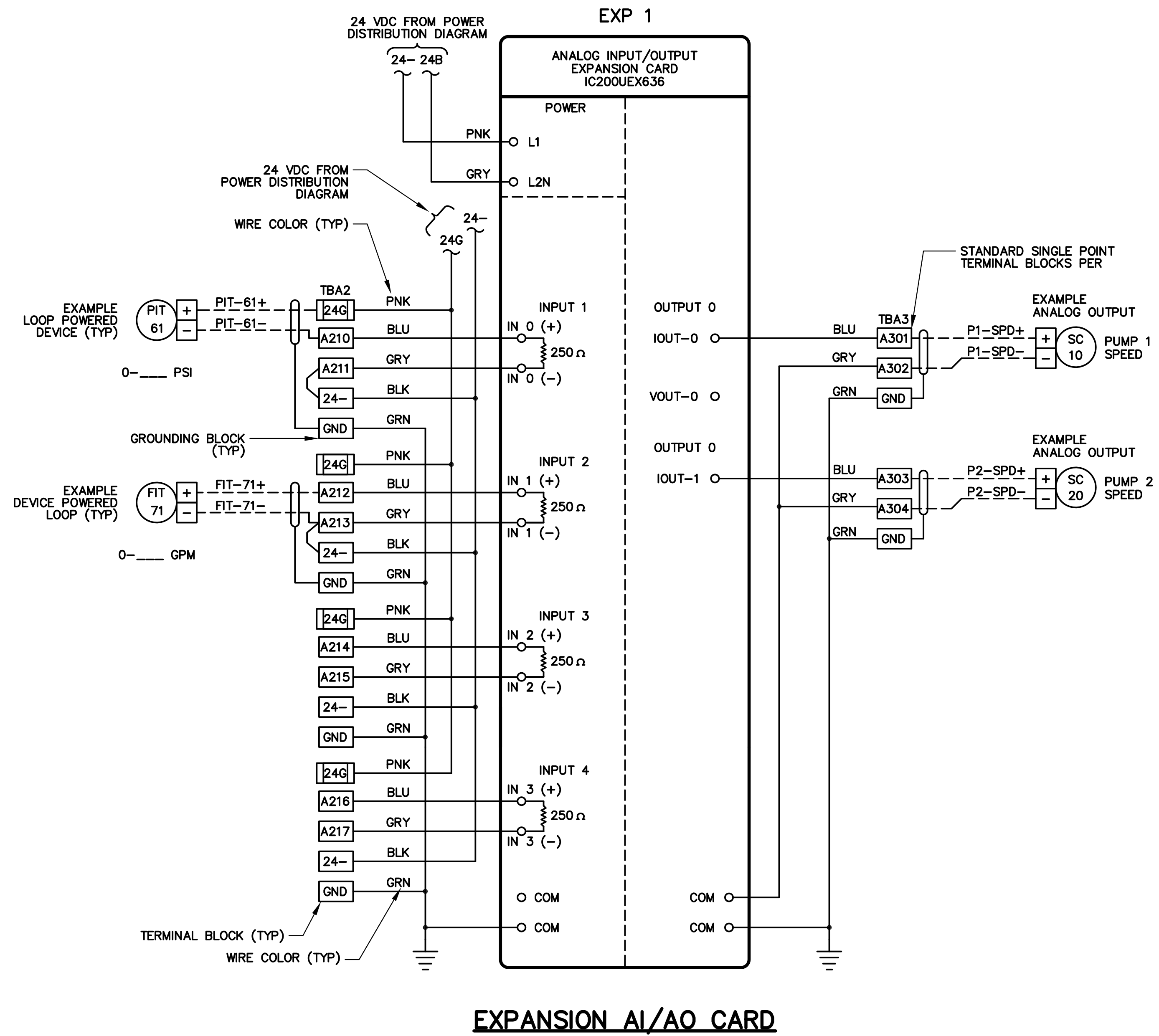
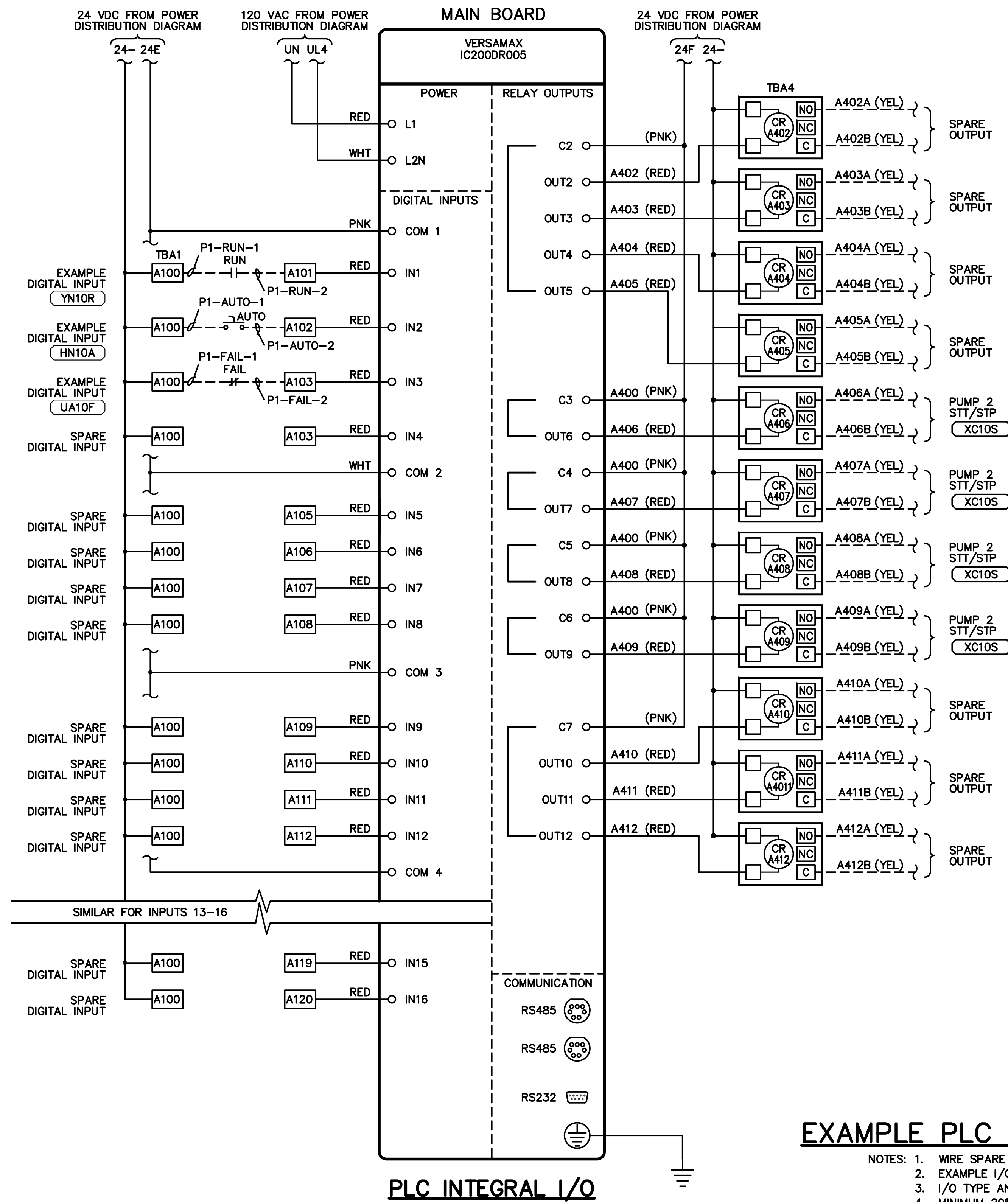
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 PLC CONTROL PANEL POWER DISTRIBUTION

SHEET NO. 32 OF 42

E-6

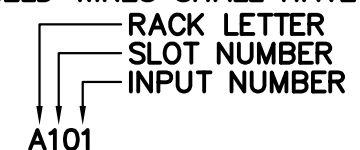
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**EXAMPLE PLC I/O WIRING DIAGRAMS**

- NOTES:
1. WIRE SPARE I/O POINTS TO TERMINAL BLOCKS.
  2. EXAMPLE I/O POINTS SHOWN. THIS DRAWING INTENDED TO SHOW I/O WIRING ONLY.
  3. I/O TYPE AND NUMBER OF POINTS AND CARDS REQUIRED IS DETERMINED BY P&ID DRAWINGS.
  4. MINIMUM 20% SPARE I/O POINTS PER I/O TYPE.
  5. PLC I/O CARD WIRE NUMBERS SHALL BE BUILT AS SHOWN IN EXAMPLE BELOW. FIELD WIRES SHALL HAVE SAME NUMBER AS TERMINAL NUMBER.



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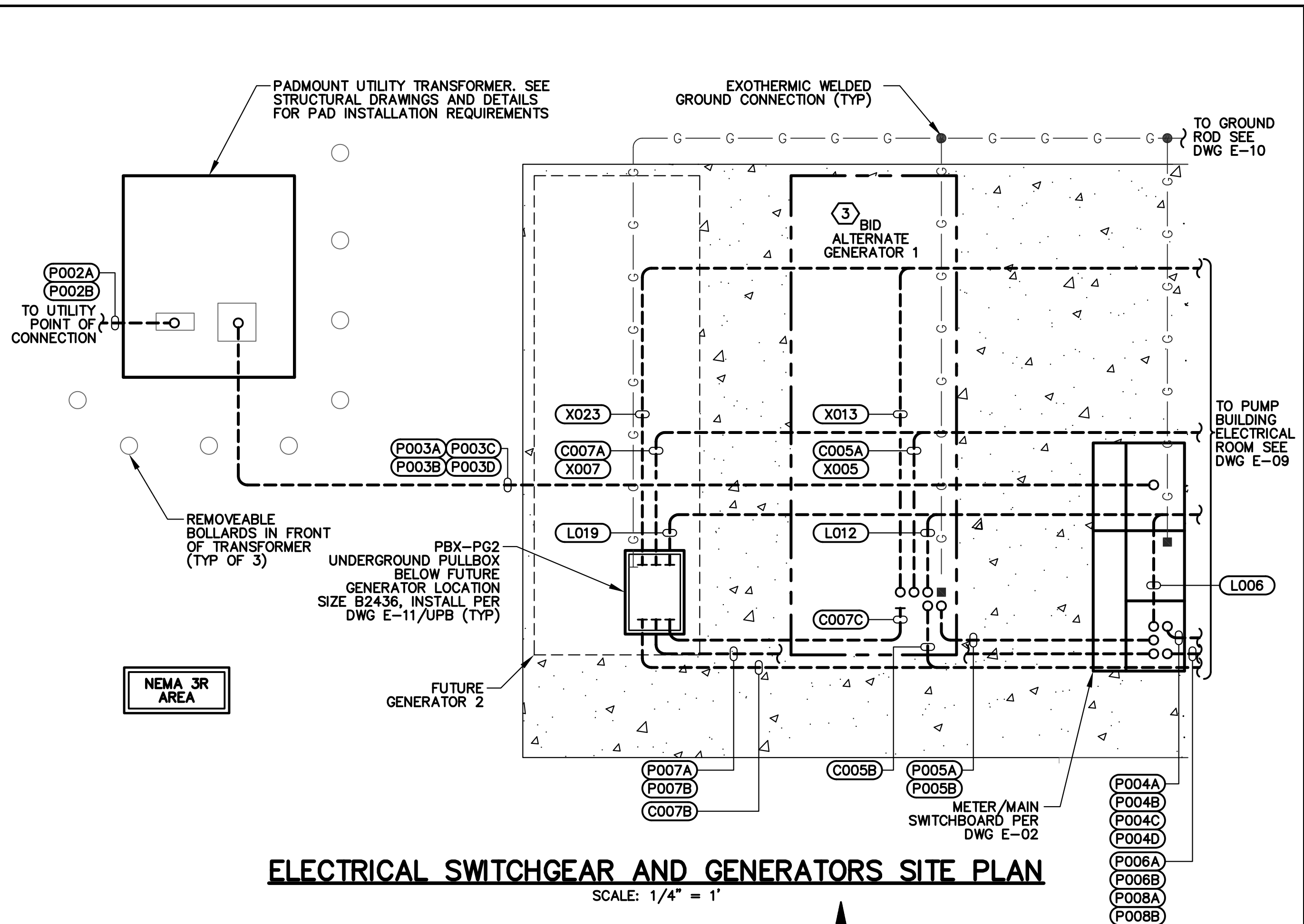
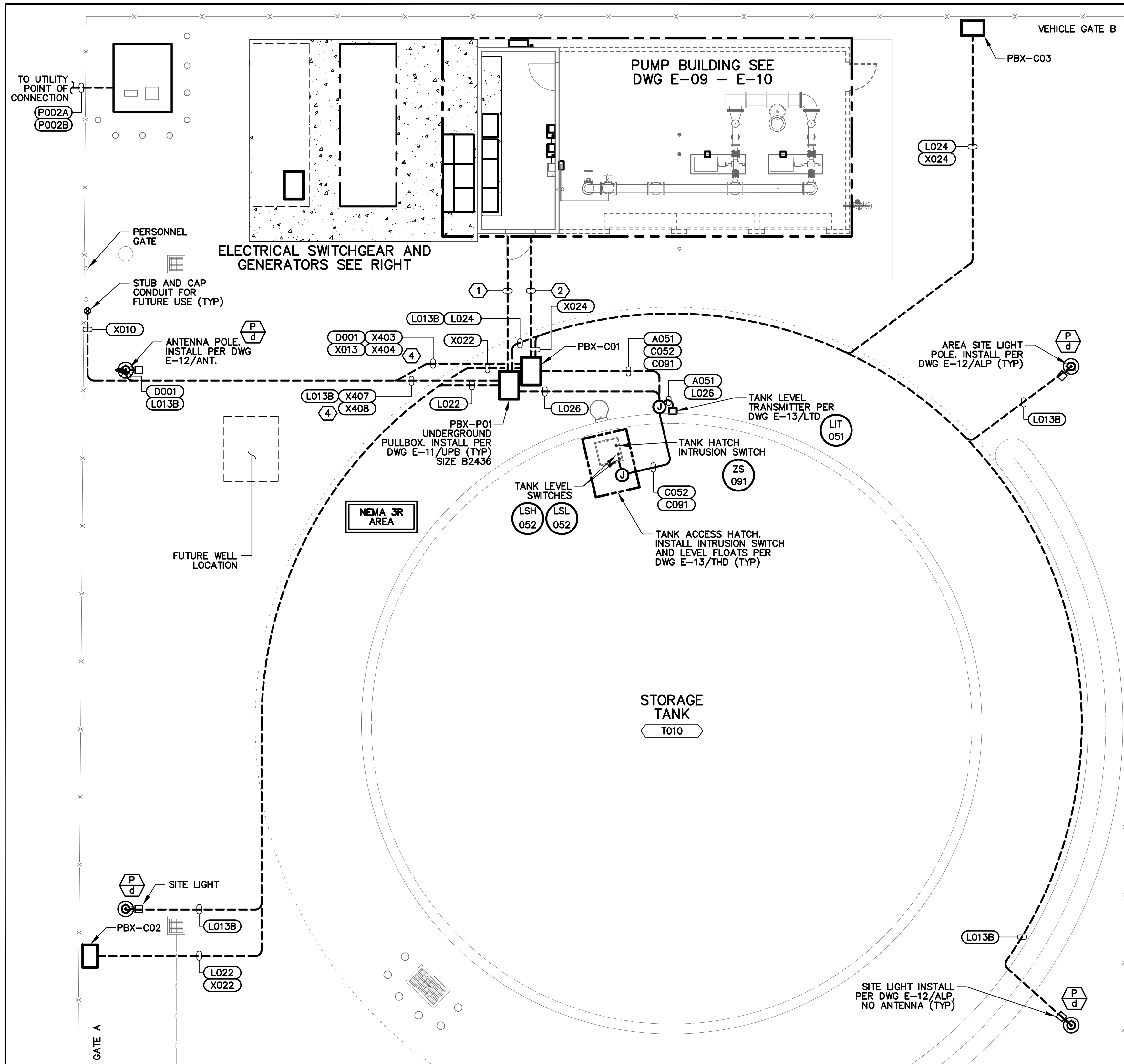
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PHASE 4**  
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ELECTRICAL  
**EXAMPLE PLC I/O  
WIRING DIAGRAM**

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33 OF 42  
**E-7**



**DRAWING REFERENCED NOTES:**

- ① CONDUITS: L013B L024 X407 L022 L026 X408
- ② CONDUITS: A051 C052 C091 D001 X010 X022 X024 X403 X404
- ③ INSTALL B2436 SIZE UNDERGROUND PULLBOX (PBX-PG1) SIMILAR TO (F) GENERATOR 2 AND REMOVE WIRE FILL IN POWER, SIGNAL AND CONTROL CONDUITS ASSOCIATED WITH GENERATOR 1 IF GENERATOR ADD ALTERNATE IS NOT SELECTED.
- ④ EXTEND CONDUITS X403, X404, X407 AND X408 5 FEET FROM EDGE OF DRIVEWAY AND CAP BELOW GRADE FOR FUTURE WELL CONNECTIONS.

**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 26 01 10.
7. CONDUITS SIZE, TYPE AND FILL DEFINED BY TAG NAME IN CONDUIT AND WIRE ROUTING SCHEDULE.
8. INSTALL UNDERGROUND NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
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.
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.
14. STUB UP CONDUITS BENEATH GENERATOR FRAME PER MANUFACTURER RECOMMENDATIONS. USE FLEXIBLE CONDUIT FOR TRANSITION BETWEEN EXPOSED CONDUIT TRANSITION AND ELECTRICAL CONNECTION BOX AND GENERATOR CONTROL PANEL.
15. UTILITY PRIMARY AND SECONDARY CONDUITS, TRANSFORMER PAD, PULL BOXES AND REMOVABLE BOLLARDS SHALL BE INSTALLED PER POWER UTILITY ENGINEERED DRAWINGS AND STANDARDS.
16. ASSUME 100 FT. OF UNDERGROUND RUN BEYOND DRAWING FOR UTILITY CONNECTIONS. CONNECTION POINT SHALL BE AS DETERMINED BY UTILITY.

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

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**ORLAND EMERGENCY  
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RESOURCE PROJECT  
PHASE 4**  
815 FOURTH STREET  
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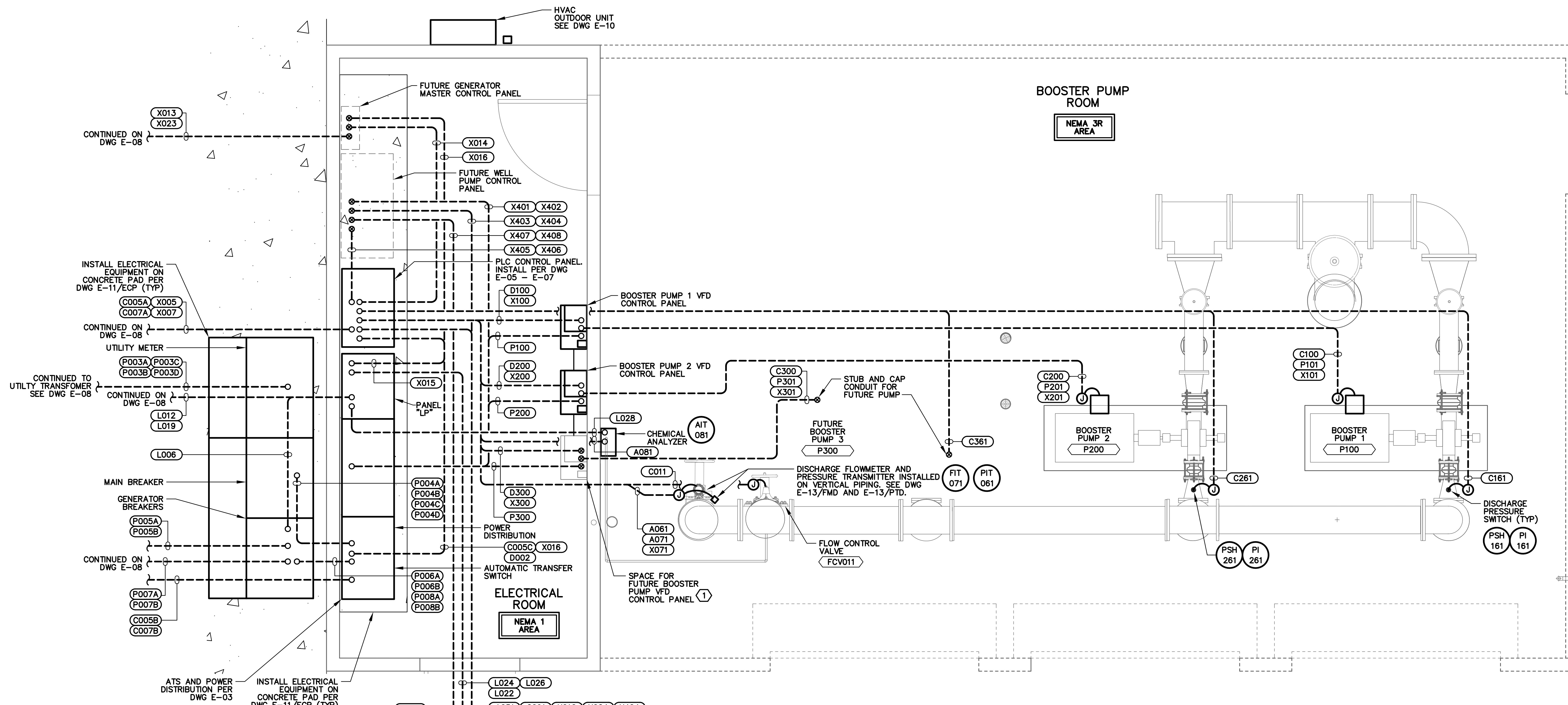
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ELECTRICAL

**OVERALL ELECTRICAL  
SITE PLAN**

SHEET NO.  
34 OF 42

**E-8**



**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 NON-DUCTBANK CONDUITS PER ELECTRICAL DETAIL LVC.
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.

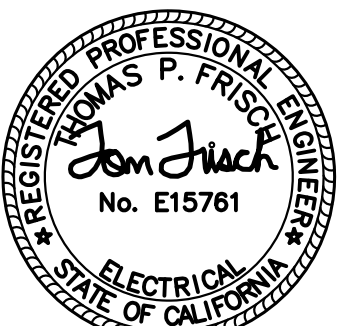
**PUMP BUILDING POWER PLAN**

SCALE: 1/2" = 1'



**DRAWING REFERENCED NOTES:**

1. TERMINATE CONDUITS FOR PUMP 3 VFD INTO WIREWAY. LEAVE SPACE ABOVE WIREWAY FOR FUTURE PUMP 3 VFD.



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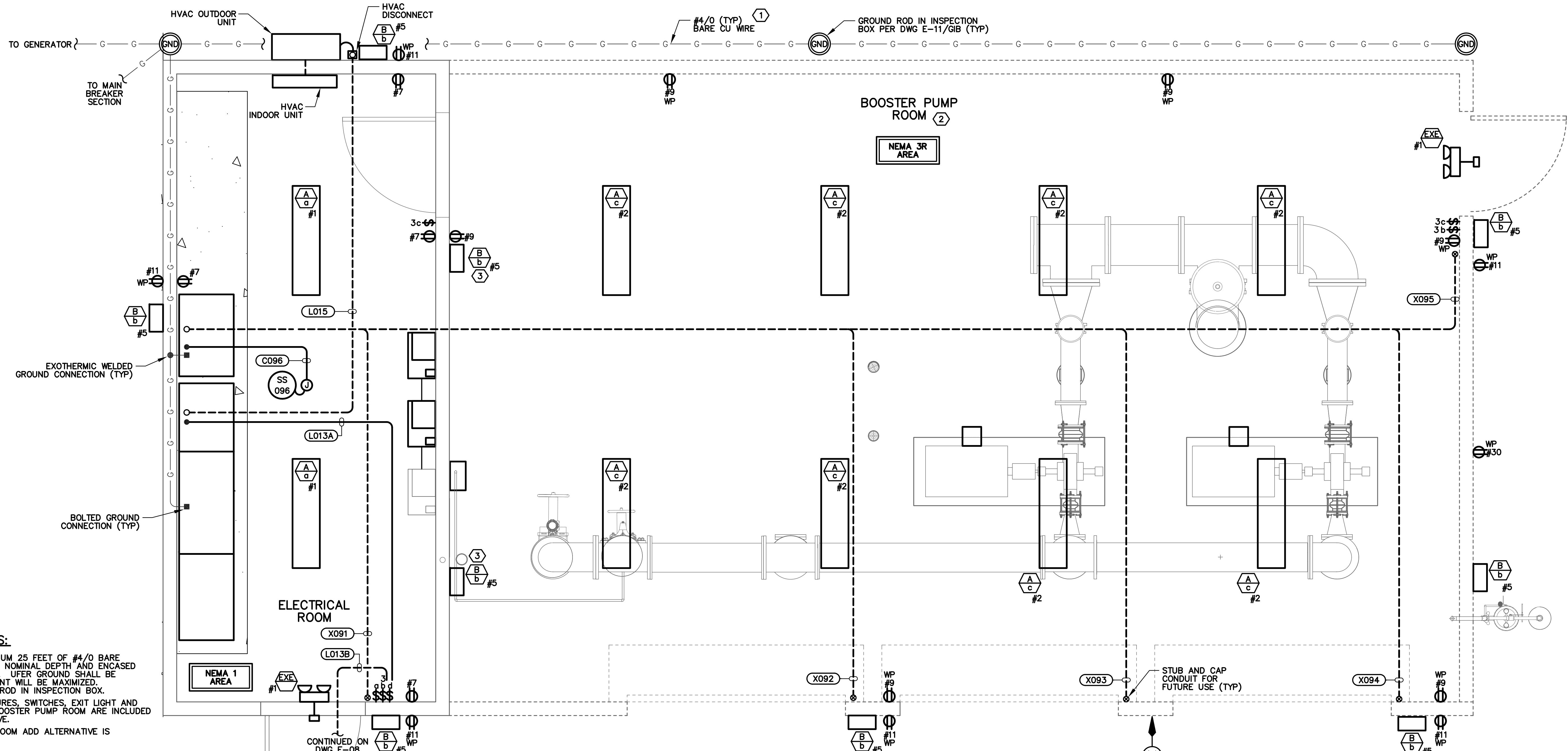


**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT**  
**PHASE 4**  
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ELECTRICAL  
 PUMP BUILDING POWER PLAN  
 OVERALL ELECTRICAL SITE PLAN

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 SHEET NO. 35 OF 42  
**E-9**



**DRAWING REFERENCED NOTES:**

- ① THE UFER SHALL CONSIST OF AT MINIMUM 25 FEET OF #4/0 BARE COPPER WIRE CONDUCTOR LAID AT 36" NOMINAL DEPTH AND ENCASED WITH GROUND ENHANCEMENT MATERIAL. UFER GROUND SHALL BE LOCATED WHERE SOIL MOISTURE CONTENT WILL BE MAXIMIZED. TERMINATE UFER GROUND AT GROUND ROD IN INSPECTION BOX.
- ② INTERIOR AND EXTERIOR LIGHTING FIXTURES, SWITCHES, EXIT LIGHT AND RECEPTACLES ASSOCIATED WITH THE BOOSTER PUMP ROOM ARE INCLUDED WITH THE PUMP ROOM ADD ALTERNATIVE.
- ③ REMOVE LIGHT FIXTURE IF THE PUMP ROOM ADD ALTERNATIVE IS SELECTED.

**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) CONDUIT 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. CONDUITS ABOVE CEILING SHALL BE EMT WITH COMPRESSION STYLE FITTINGS. CONDUITS BELOW CEILING SHALL BE GR. 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.

**PUMP BUILDING LIGHTING AND RECEPTACLE PLAN**

SCALE: 1/2" = 1'

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 4000K	120V 50W	ATLAS ILW48LED4D RAB SEAL4-50/D10 METALUX 4VT2	CEILING MOUNT	U.L. LISTED FOR WET LOCATIONS -20F TO 140F
B	WALL PACK LIGHT - MEDIUM DARK BRONZE COLOR ALUMINUM CASE	7000 LUMEN 4000K	120V 64W	ATLAS WPM64LED RAB WPLEDFC80N/PCS LUMARK AXCS6A-PC	WALL MOUNT 15 FT AFF	U.L. LISTED FOR WET LOCATIONS PHOTOCELL CONTROL FULL CUTOFF
EXE	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 BRONZE POLE AND LAMP TYPE IV DISTRIBUTION	LED, 4000K > 14000 LM	MVOLT ~130W	LITHONIA LUMARK	POLE MOUNT POLE BASE PER DETAILS	LAMP HEIGHT 15 FT OR AS SHOWN ON PLANS

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**ORLAND EMERGENCY  
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PHASE 4**  
815 FOURTH STREET  
ORLAND, CA

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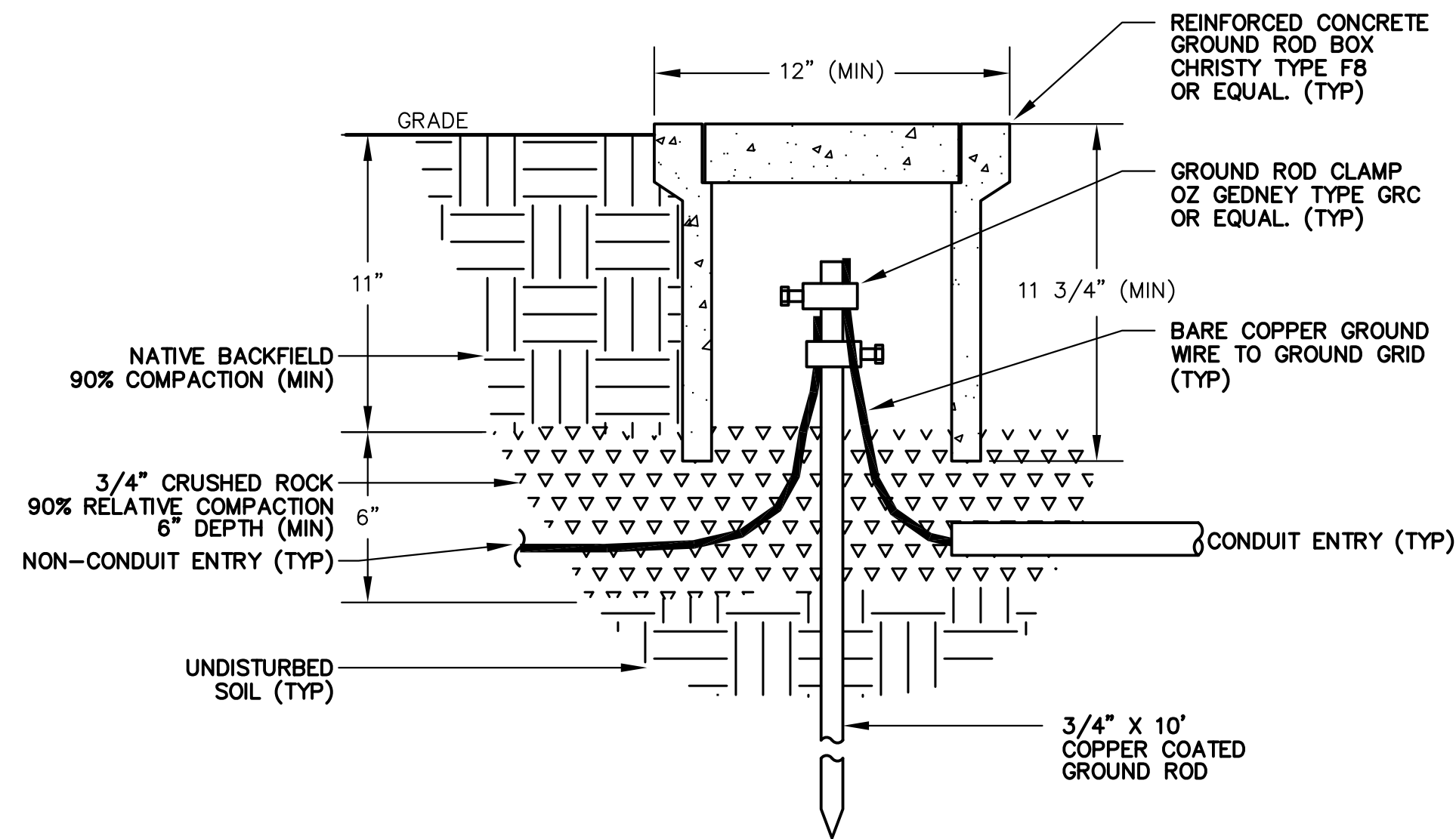
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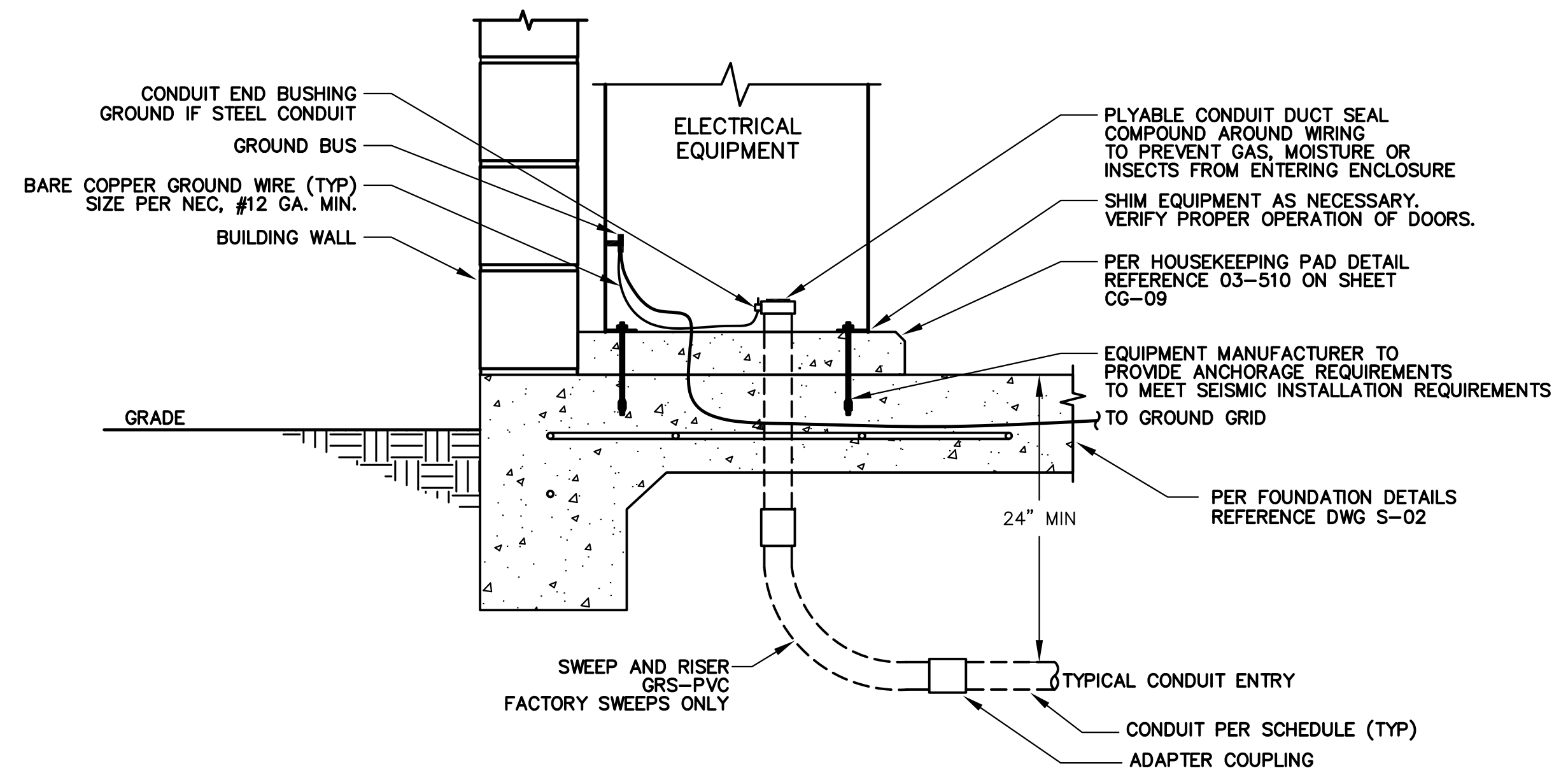
PUMP BUILDING  
LIGHTING AND  
RECEPTACLE PLAN

SHEET NO.  
36 OF 42

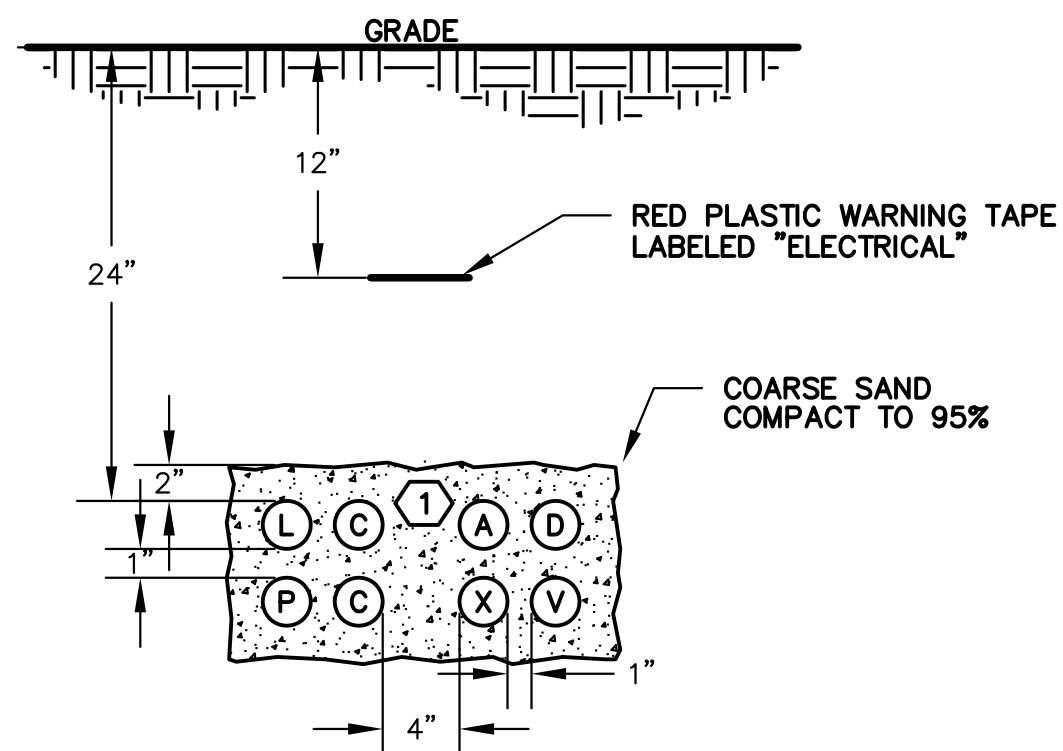
E-10



**GIB GROUND INSPECTION BOX DETAIL**  
NOT TO SCALE

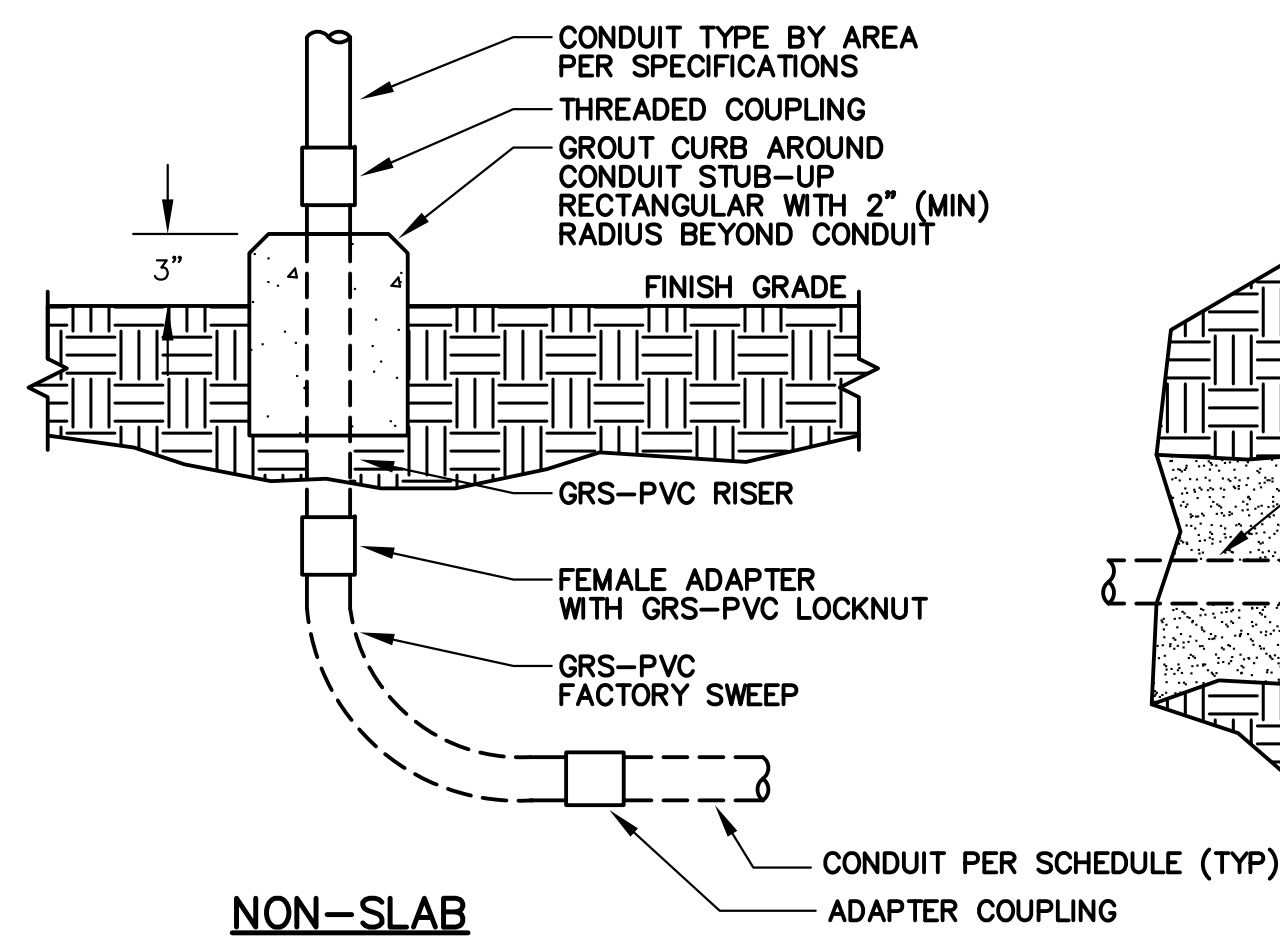
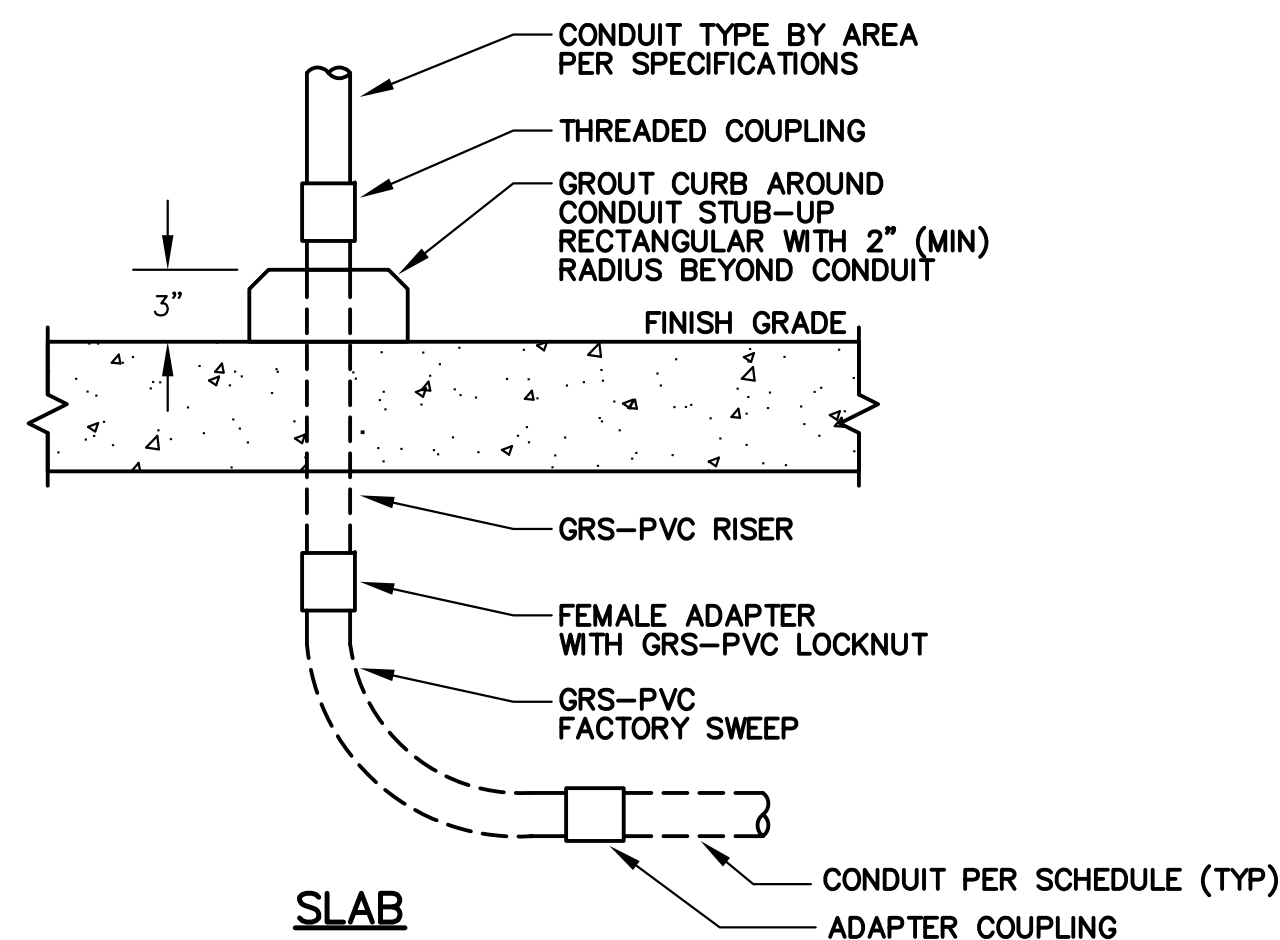


**ECP EQUIPMENT CONCRETE PAD DETAIL**  
NOT TO SCALE

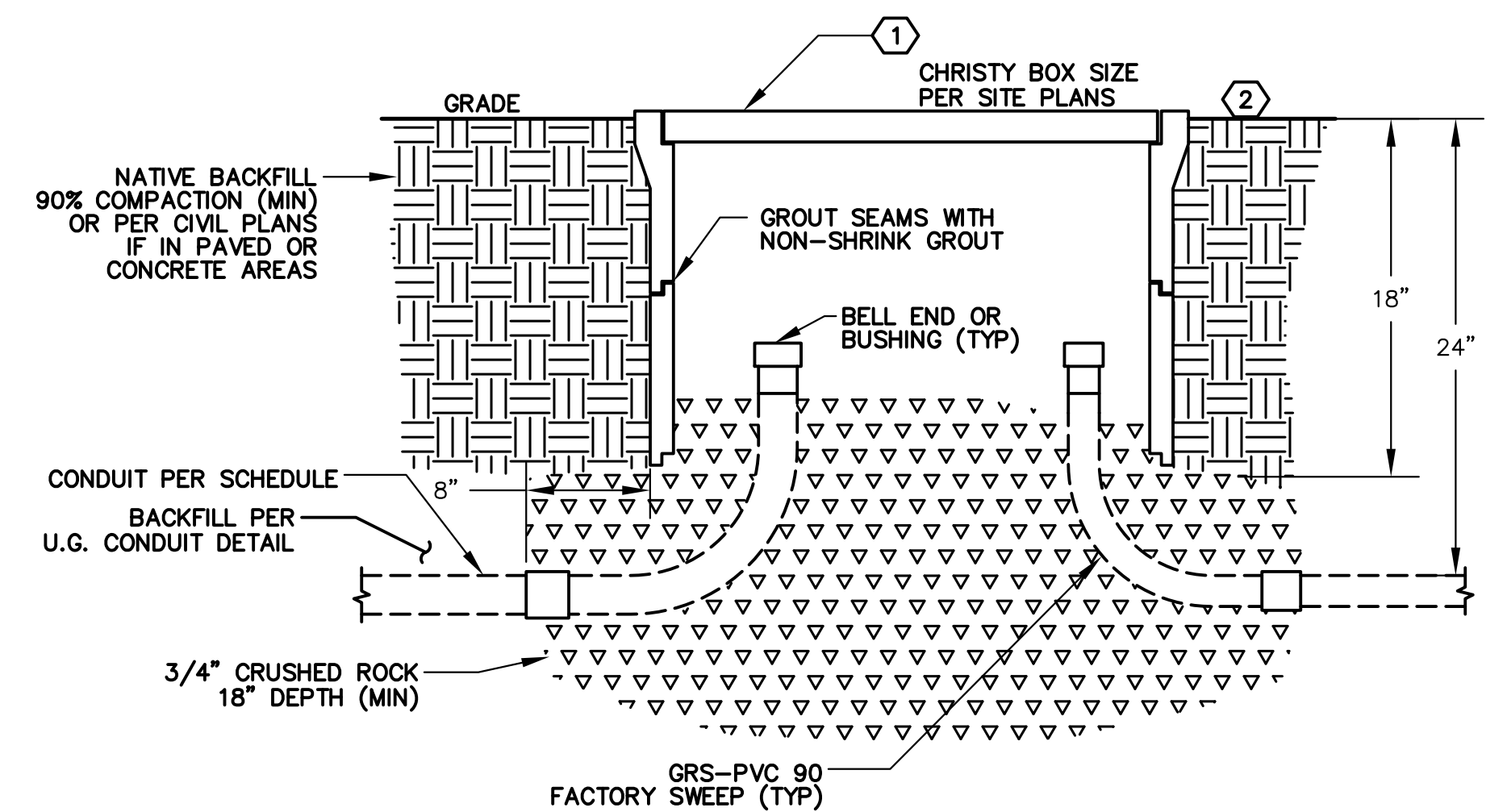
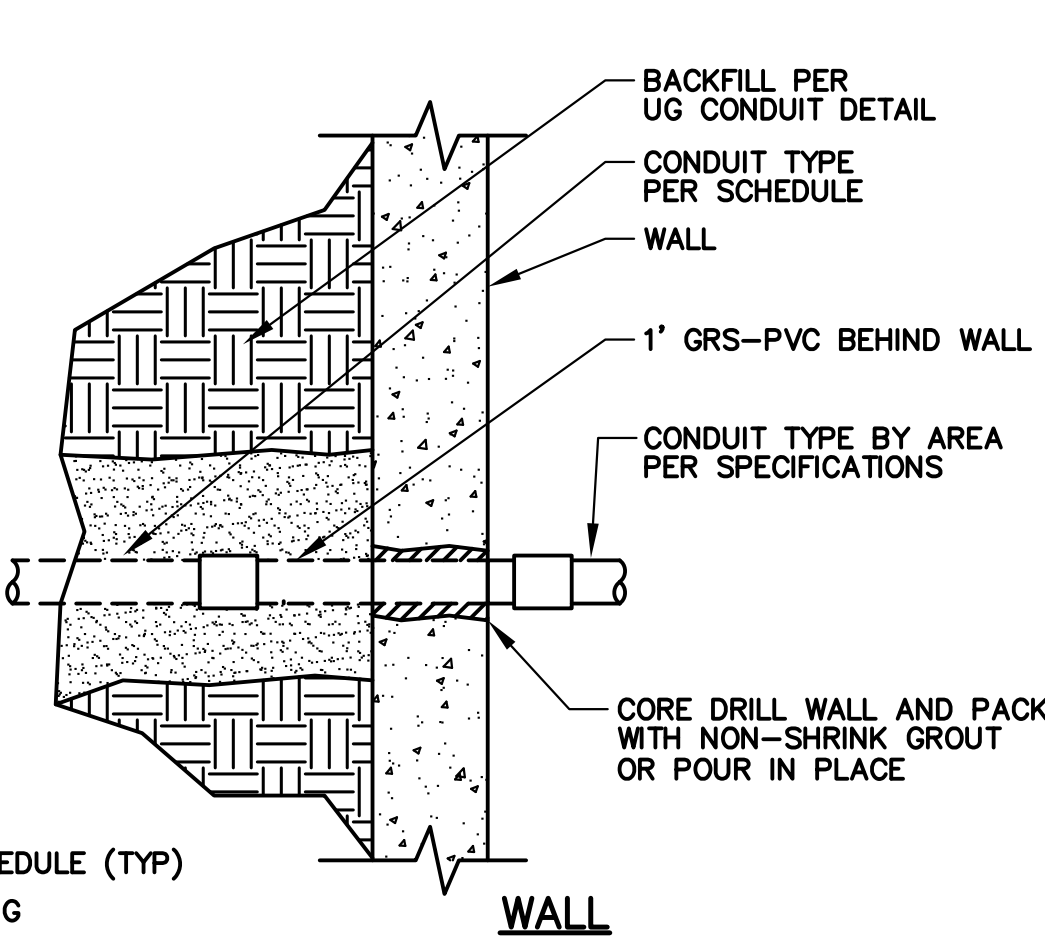


**LVC LOW VOLTAGE NON-DUCT BANK SECTION**  
NOT TO SCALE

- NOTES:
- NUMBER OF CONDUITS PER PLANS AND SCHEDULE. MAXIMUM DEPTH OF TRENCH SHALL BE 42". DESIGN TRENCH DESIGN AND INSTALL TRENCH TO MAINTAIN 6" VERTICAL CLEARANCE AND 12" HORIZONTAL CLEARANCE FROM PIPES.
  - P, L, OR C DESIGNATION FOR POWER OR CONTROL CONDUITS.
  - A, D, V, OR X DESIGNATION FOR COMMUNICATION (TELEPHONE, DATA, VIDEO, OR INSTRUMENTATION) CONDUITS.
  - USE CONDUIT SPACERS TO SUPPORT CONDUITS AND MAINTAIN SPACING (3" INTERVALS)

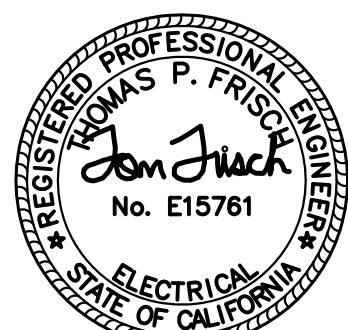


**ECT EXPOSED CONDUIT TRANSITION DETAIL**  
NOT TO SCALE



**UPB UNDERGROUND PULL BOX DETAIL**  
NOT TO SCALE

- NOTES:
- PROVIDE CONCRETE LID IN NON-TRAFFIC AREAS. PROVIDE TRAFFIC RATED STEEL LID IN TRAFFIC AREAS. LABEL COVER PLATE "ELECTRICAL"
  - COLLAR TO BE 1/4" ABOVE SURROUNDING GRADE AND TOP OF PULL BOX



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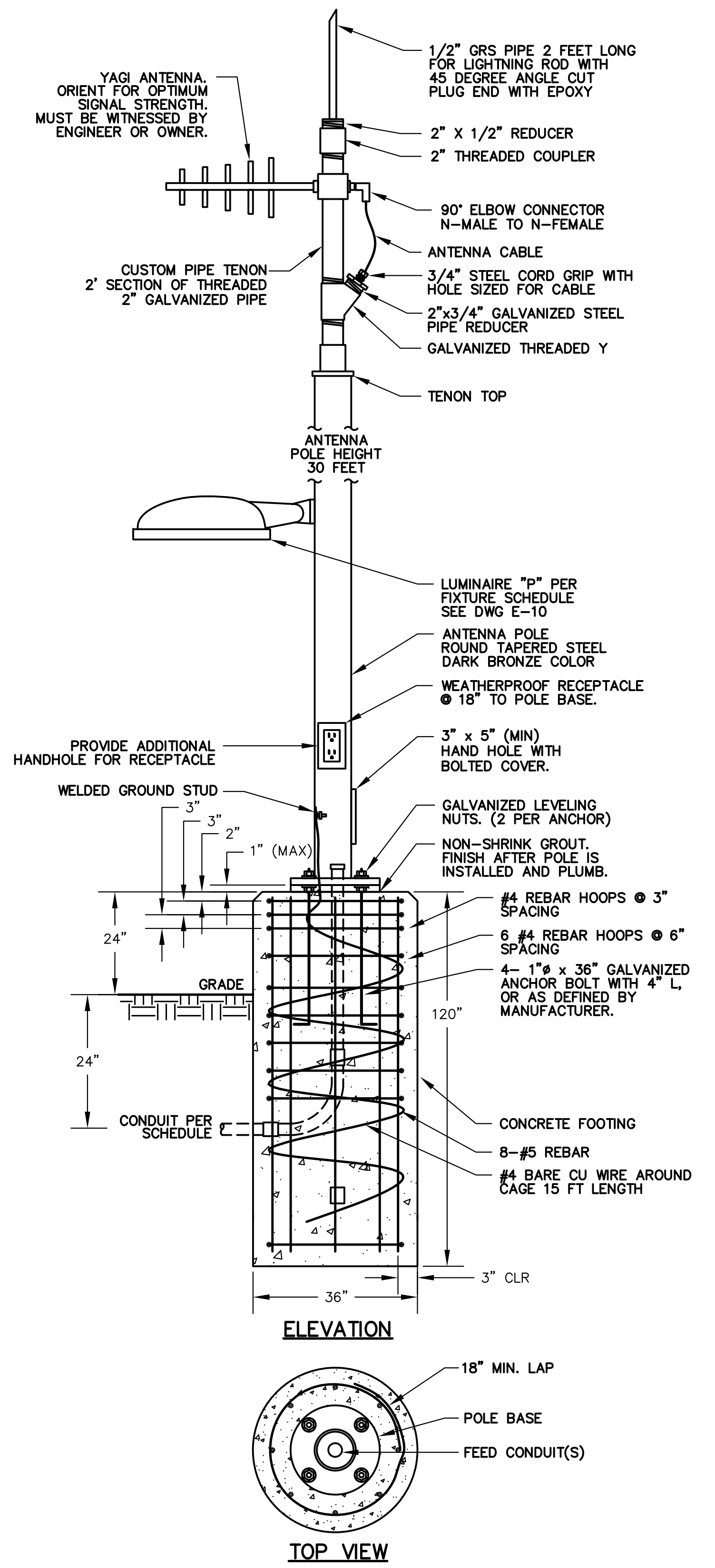


**ORLAND EMERGENCY  
GROUNDWATER  
RESOURCE PROJECT  
PHASE 4**  
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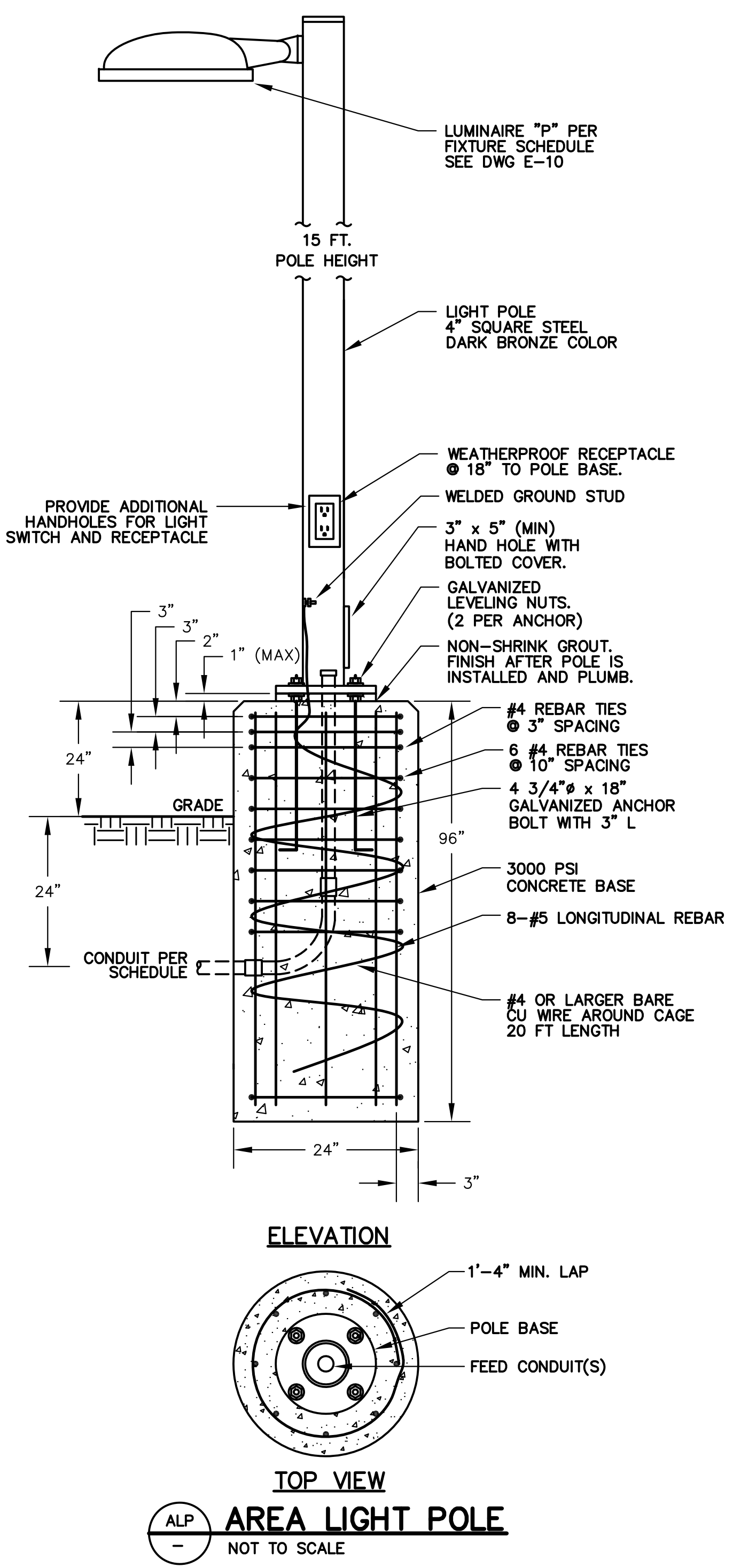
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ELECTRICAL  
ELECTRICAL DETAILS  
SHEET 1

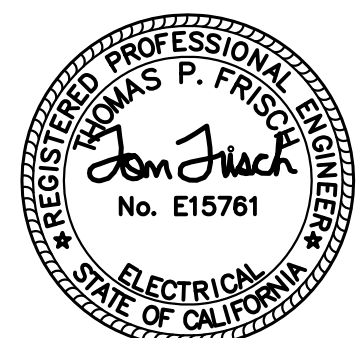
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37 OF 42  
E-11



ANT LIGHT/ANTENNA POLE DETAIL  
NOT TO SCALE



ALP AREA LIGHT POLE  
NOT TO SCALE



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FILE: 2207K-BPS-E12.DWG  
DATE: MAR 08, 2024 TIME: 2:11:45PM



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	Drawn: M.YARBROUGH
	Checked: M.FRISCH
	Approved By: T.FRISCH
	P.E. No: E15761
	GEI Project 2204930

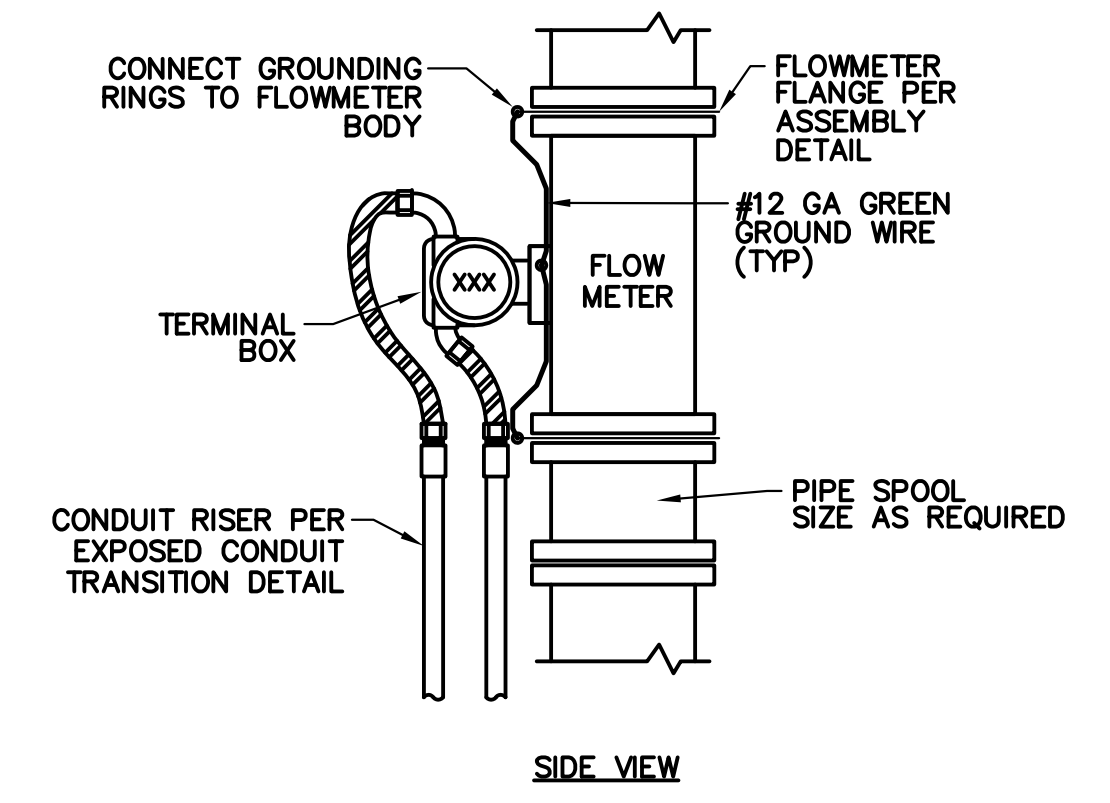


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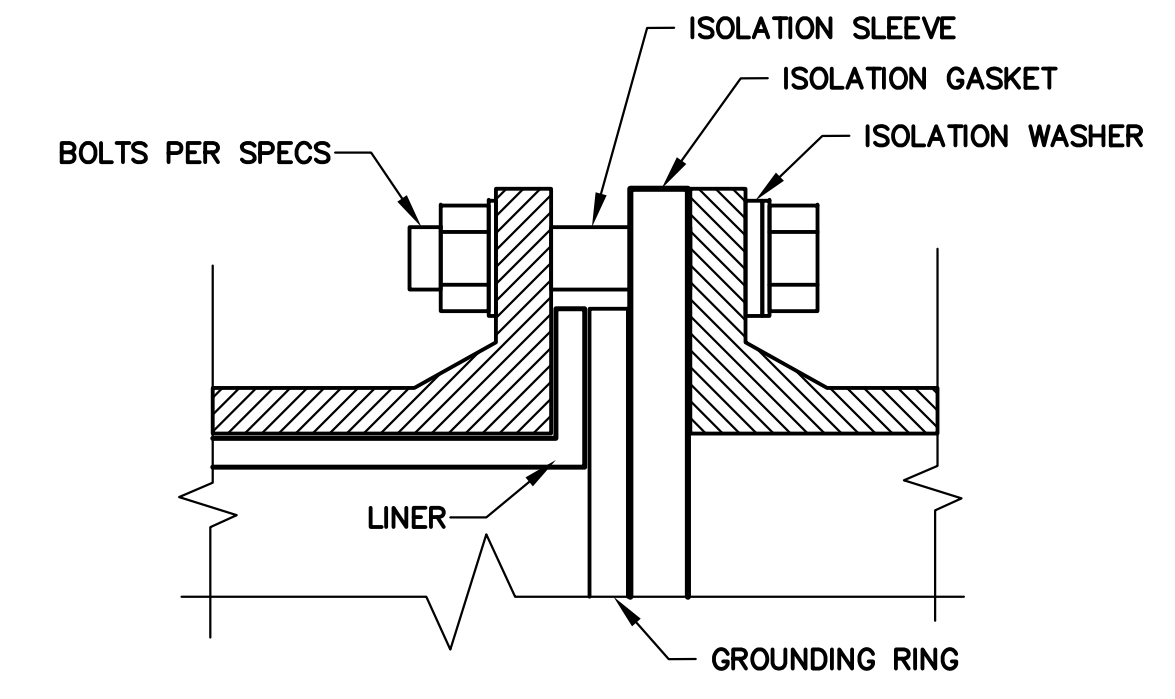
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ELECTRICAL  
ELECTRICAL DETAILS SHEET 2

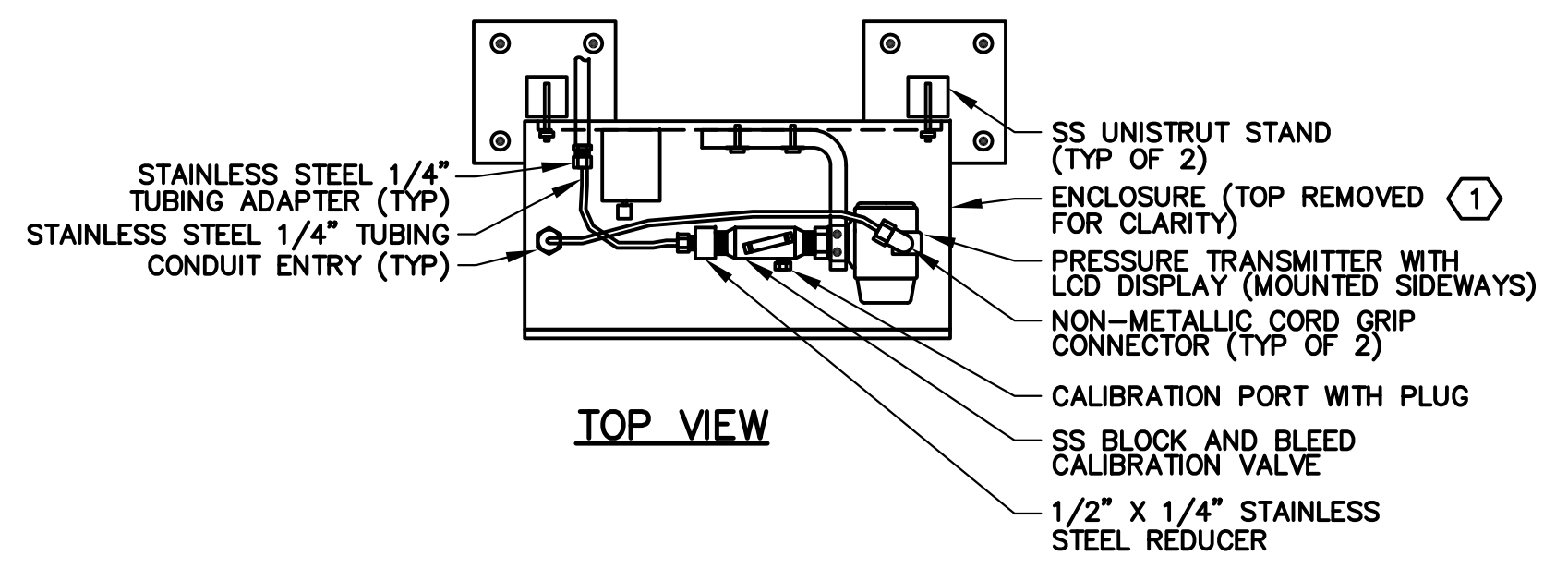
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E-12



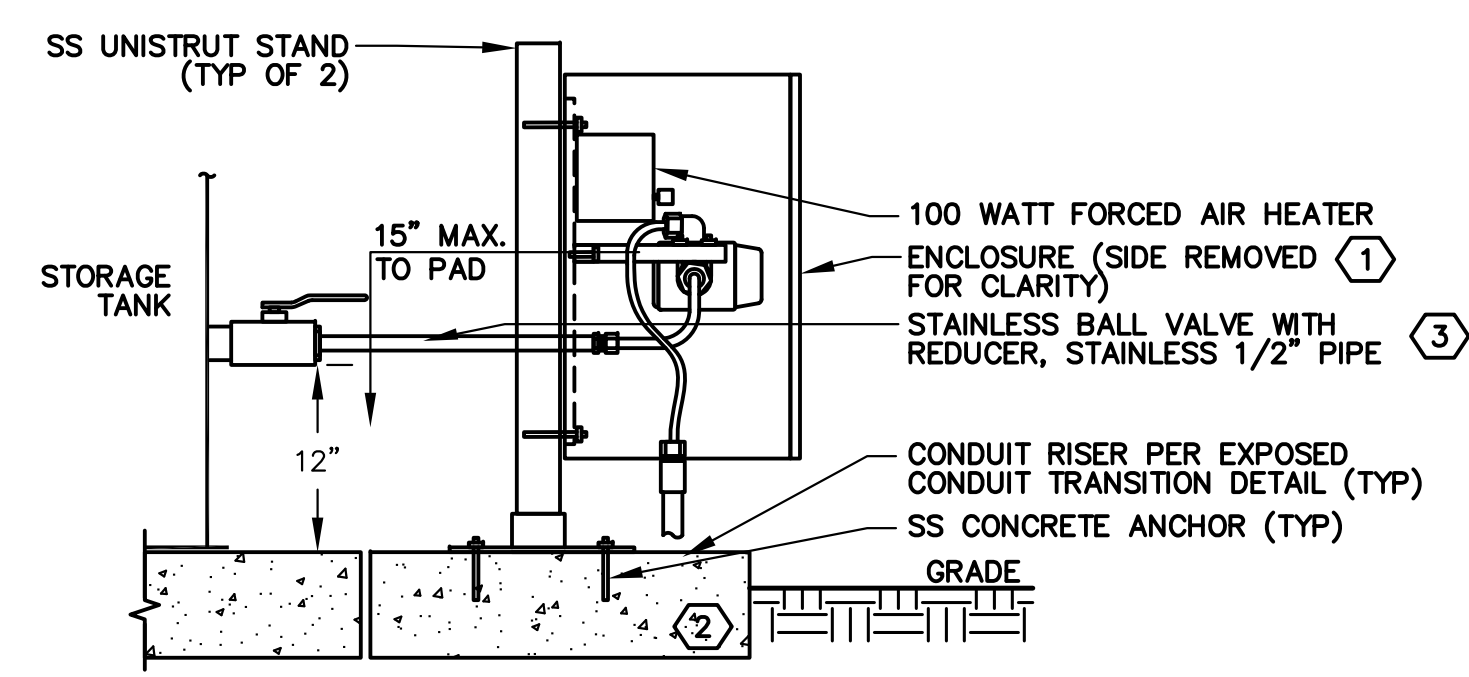
**FMD FLOWMETER DETAIL**  
NOT TO SCALE



**FLG FLOWMETER FLANGE ASSEMBLY**  
NOT TO SCALE



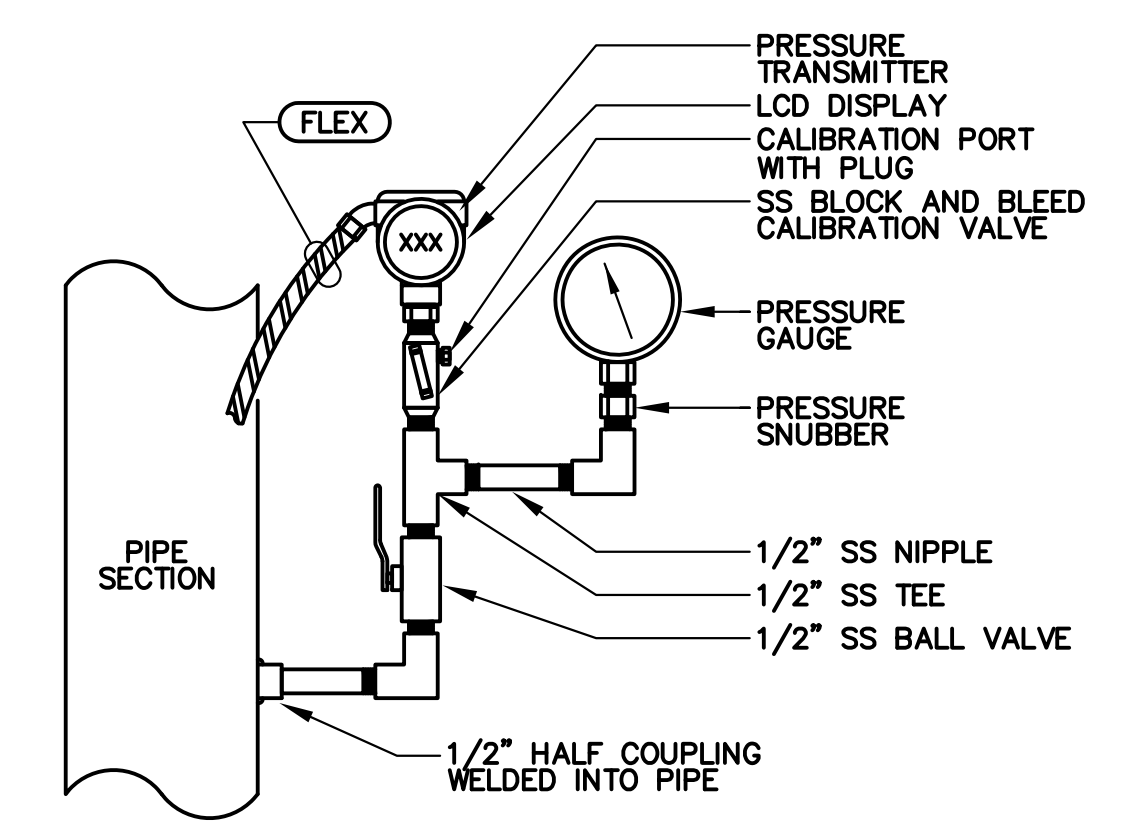
**TOP VIEW**



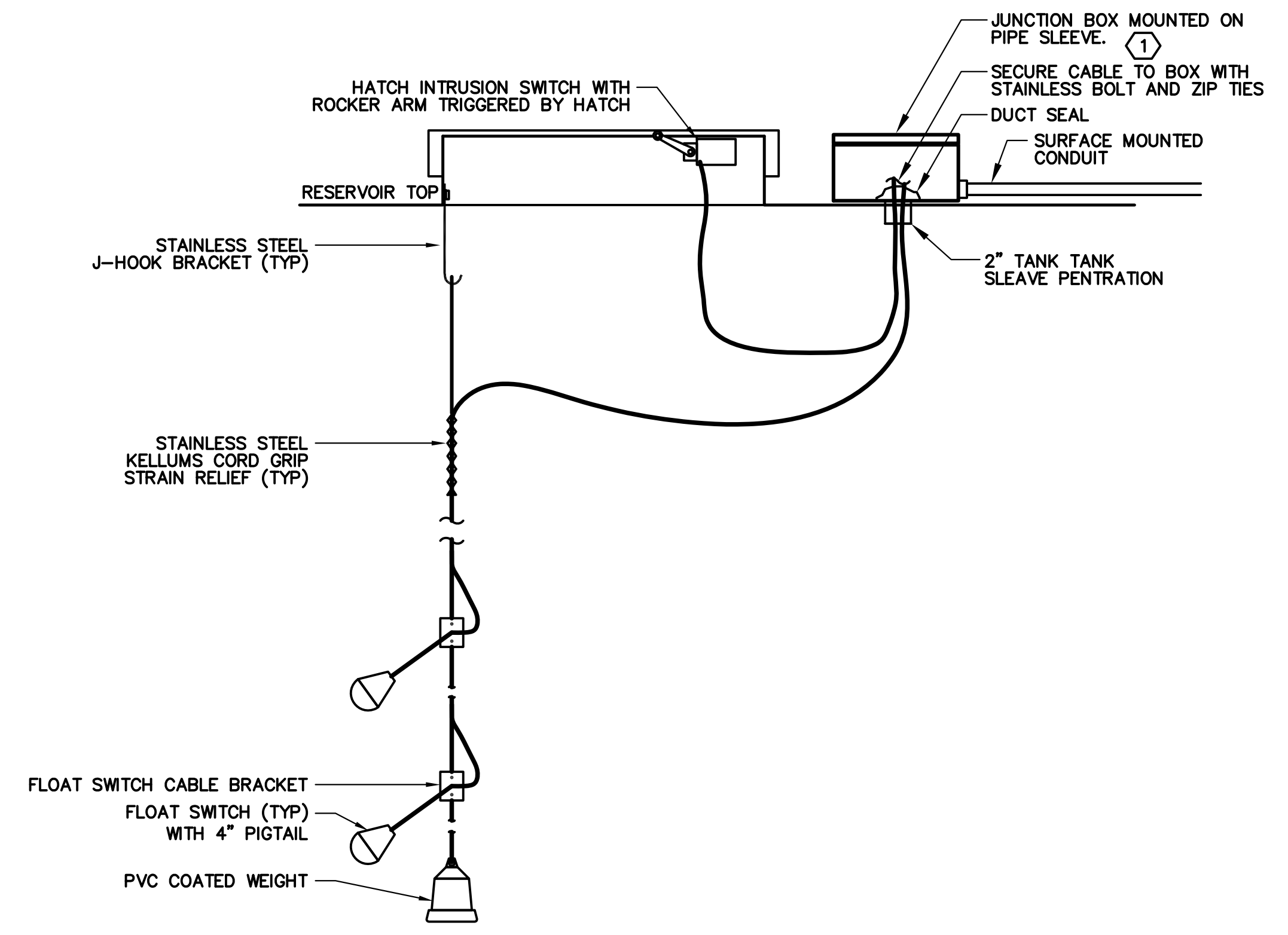
**SIDE VIEW**

**LTD LEVEL TRANSMITTER DETAIL**  
NOT TO SCALE

- NOTES:
- 1 24"H x 20"W x 12"D NEMA 4X STAINLESS STEEL ENCLOSURE WITH BACKPAN FOR MOUNTING OF INSTRUMENT. PROVIDE HOFFMAN CONCEPT OR APPROVED EQUAL WITH PADLOCK HASP. LEFT HAND HINGE.
  - 2 24" x 24" x 5.5" CONCRETE PAD. LOCATE ADJACENT TO TANK RING.
  - 3 INSULATE PIPING AND VALVE WITH 1/2" FOAM INSULATION AND 2" x 10 MIL PVC PIPE WRAP TAPE HALF LAPPED. PENETRATE REAR OF ENCLOSURE AND INSTALL LOCKING COLLAR.

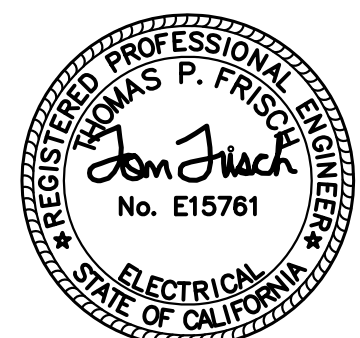


**PTD PRESSURE TRANSMITTER DETAIL**  
NOT TO SCALE



**THD TANK HATCH DETAIL**  
NOT TO SCALE

- NOTES:
- 1 10"H x 8"W x 6"D, NEMA 4X STAINLESS STEEL JUNCTION BOX. JUNCTION BOX SHALL BE HOFFMAN CHNFS OR EQUAL.



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ELECTRICAL  
ELECTRICAL DETAILS SHEET 3

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SHEET NO. 39 OF 42  
E-13





P&ID ABBREVIATIONS				
FIRST LETTER		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ALARM		
B	BURNER, COMBUSTION	USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROLLER
D	DENSITY	DIFFERENTIAL		
E	VOLTAGE		SENSOR, PRIMARY ELEMENT	
F	FLOW	RATIO		
G	GENERAL		GLASS VIEWING DEVICE	
H	HAND			HIGH, OPENED
I	CURRENT		INDICATING, INDICATOR	
J	POWER	SCAN		
K	TIME, TIME SCHEDULED	TIME RATE OF CHANGE		CONTROL STATION
L	LEVEL		LIGHT	LOW, CLOSED
M	MOISTURE	MOMENTARY		MIDDLE
N	STATUS		STATUS	USER'S CHOICE
O	OPERATOR		ORIFICE, RESTRICTION	USER'S CHOICE
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	
Q	QUANTITY	INTEGRATE, TOTALIZE		
R	RESET		RECORD	
S	SPEED, FREQUENCY	SAFETY		SWITCH
T	TEMPERATURE			TRANSMITTER TEST
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION			VAVE, DAMPER, LOUVER
W	WEIGHT		WELL	
X	SWITCH	X AXIS	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OF PRESENCE	Y AXIS		RELAY, COMPUTER, CONVERTER
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT

P&ID ABBREVIATIONS			
SWITCH IDENTIFIER			
F/R	FORWARD/REVERSE	OPN	OPEN
HOA	HAND-OFF-AUTO	CLS	CLOSE
HOR	HAND-OFF-REMOTE	SEL	SELECTOR
LOS	LOCK OUT STOP	S/S	START / STOP
L/R	LOCAL / REMOTE	%	PERCENT ADJUSTMENT
MOA	MANUAL-OFF-AUTO		
OCA	OPEN-CLOSE-AUTO		
O/C	OPEN / CLOSE		
O/O	ON / OFF		

P&ID SYMBOLS							
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
<b>ISA SYMBOLS</b>				<b>VALVES</b>			
	FIELD MOUNTED INSTRUMENT		GATE VALVE	<b>PUMPS</b>			
	INSTRUMENT MOUNTED ON DOOR OF LOCAL PANEL, OPERATOR ACCESSIBLE		CHECK VALVE		CENTRIFUGAL PUMP OR BLOWER	<b>SENSORS</b>	
	INSTRUMENT MOUNTED ON DOOR OF FIELD PANEL, OPERATOR ACCESSIBLE		PLUG VALVE		SUBMERSIBLE SEWAGE PUMP		MAGNETIC FLOWMETER
	INSTRUMENT MOUNTED WITHIN PANEL, OPERATOR INACCESSIBLE		BALL VALVE		VERTICAL TURBINE PUMP OR WELL PUMP		DENSITY METER
	INSTRUMENT MOUNTED WITHIN FIELD PANEL, OPERATOR INACCESSIBLE		BALL CHECK VALVE		SUBMERSIBLE WELL PUMP		ULTRASONIC FLOWMETER
	OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES		BUTTERFLY VALVE		GEAR PUMP		TURBINE OR PROPELLER METER
	ASSOCIATED MOTOR CONTROL ELEMENTARY IF APPLICABLE		ANGLE VALVE		POSITIVE DISPLACEMENT PUMP OR BLOWER		VENTURI TUBE
	VISUAL DISPLAY OF PLC ANALOG REGISTER SCALE TO UNITS AS SHOWN		NEEDLE VALVE		PERISTALTIC PUMP		THERMAL DISPERSION FLOWMETER OR SWITCH
	VISUAL DISPLAY OF PLC ANALOG ALARM REGISTER		RELIEF VALVE		MOTOR		PADDLE WHEEL FLOWMETER
	VISUAL DISPLAY OF PLC DIGITAL REGISTER		DIAPHRAGM VALVE	<b>SENSORS</b>			
	VISUAL DISPLAY OF PLC DIGITAL ALARM REGISTER		3-WAY VALVE		ORIFICE PLATE		PIPE REDUCER
	TAG DESCRIPTION		FLOW CONTROL VALVE		ULTRASONIC LEVEL TRANSMITTER (FLOW IF OVER FLUME OR WEIR)		RUPTURE DISC
	PLC I/O TAG		PINCH VALVE		CONDUCTANCE TYPE LEVEL ELEMENTS		PRESSURE OR VACUUM RELIEF VALVE
	PLC DIGITAL INPUT		CONE VALVE		RADAR TYPE LEVEL TRANSMITTER		DIAPHRAGM SEAL
	PLC DIGITAL OUTPUT		ANTISIPHON/BACKPRESSURE VALVE		GUIDED OPTION		ANNULAR SEAL
	ANALOG INPUT		SOLENOID VALVE (2-WAY) (S->M FOR MOTORIZED VALVE)		CAPACITANCE TYPE LEVEL TRANSMITTER		DRAIN TO WASTE
	ANALOG OUTPUT		SOLENOID VALVE (3-WAY) (S->M FOR MOTORIZED VALVE)				
	AUDIBLE ALARM (BUZZER OR HORN)		SOLENOID VALVE (4-WAY) (S->M FOR MOTORIZED VALVE)				
	LAMP INDICATION COLOR DENOTED BY "X" RED, BLU, GRN, WHT, AMBER		PNEUMATIC DIAPHRAGM CONTROL VALVE				
	CONTINUATION TAG FROM ONE AREA TO ANOTHER AREA OF DIFFERENT DRAWINGS "G" TAG IDENTIFIER TO POINT ON DRAWING NUMBER XXXX.		PRESSURE SUSTAINING VALVE				
	CONTINUED ON DWG I-X		PRESSURE REGULATING VALVE				
<b>LINE TYPES</b>							
	PRIMARY PROCESS LINE		MULTIFUNCTION VALVE				
	SECONDARY PROCESS LINE		SLUICE GATE (SG) OR SLIDE GATE (SLG)				
	ELECTRICAL SIGNAL LINE (DIGITAL OR ANALOG)		AIR RELIEF VALVE (ARV)				
	SOFTWARE OR DATA LINK		FLOAT VALVE				
	BOUNDARY OF EQUIPMENT PACKAGE SYSTEM		STRAINER				
	COMMUNICATION CONNECTION		BACKFLOW PREVENTER				
				<b>ACTUATORS</b>			
					MOTORIZED SOLENOID		
					PNEUMATIC OPERATOR S- SOLENOID OPEN/CLOSE A- POSITIONER - MODULATING		

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Call 811 Before You Dig

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	P.E. No: E15761
	GEI Project 2204930

11010 WHITE ROCK ROAD  
SUITE 200  
RANCHO CORDOVA, CA 95670  
(916)552-0640

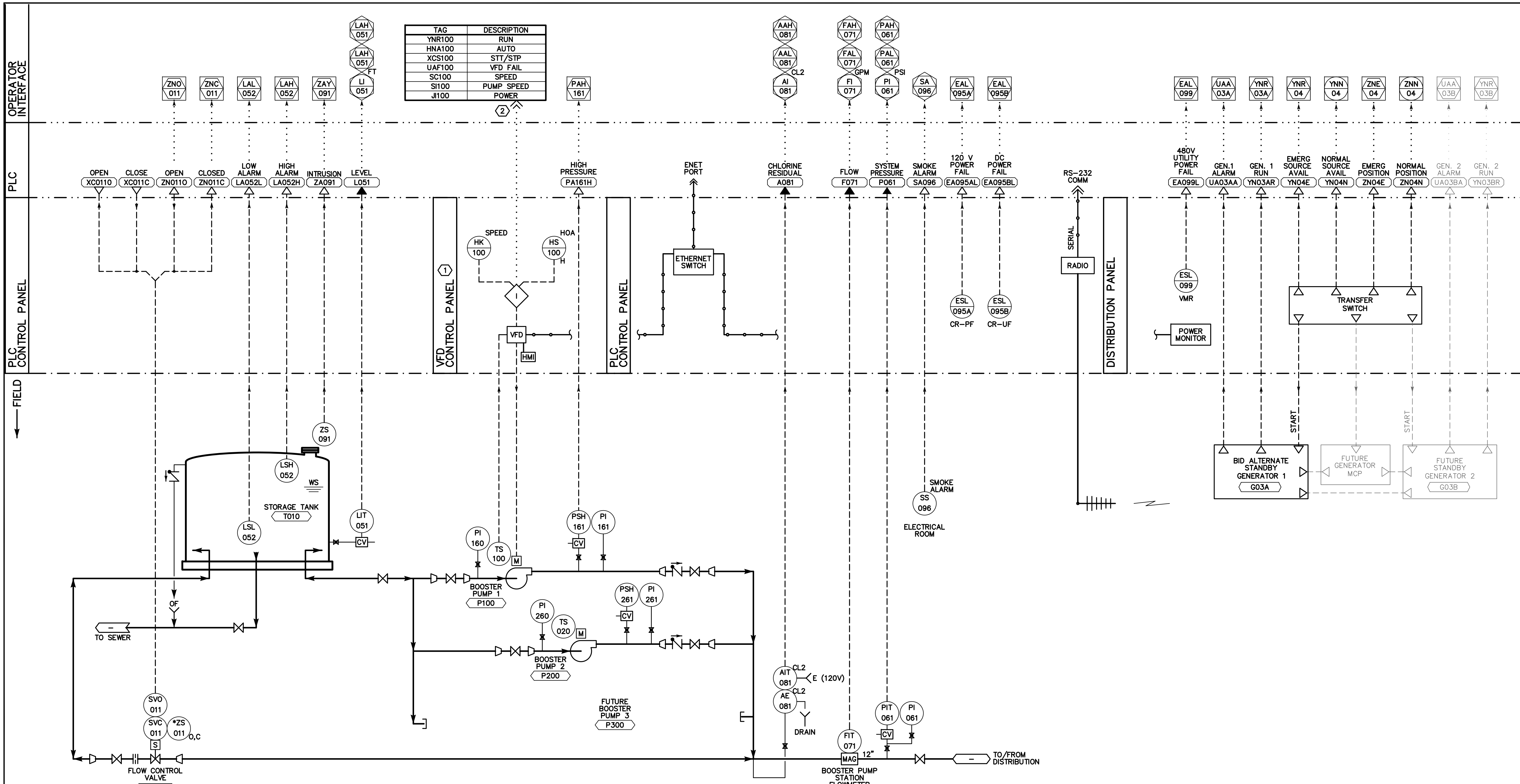
CITY OF ORLAND  
815 FOURTH ST.  
ORLAND, CA 95963

**ORLAND EMERGENCY GROUNDWATER RESOURCE PROJECT PHASE 4**  
815 FOURTH STREET  
ORLAND, CA

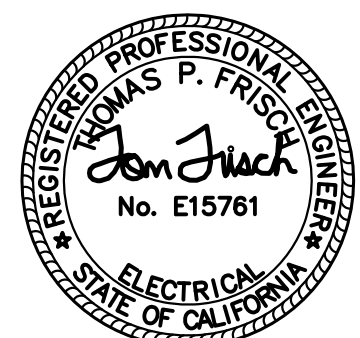
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INSTRUMENTATION  
SYMBOLS AND ABBREVIATIONS

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SHEET NO. 41 OF 42  
I-1

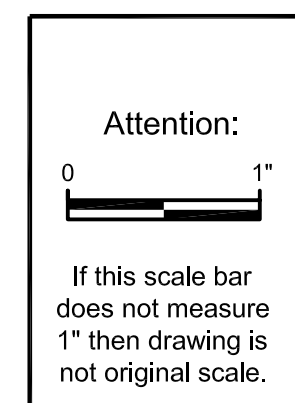


**TANK AND BOOSTER PUMP P&ID**



**NOTES REFERENCED IN DRAWING:**  
 ① VFD PANEL SIMILAR FOR BOTH BOOSTER PUMPS.  
 ② TYPICAL I/O FOR BOTH BOOSTER PUMPS.

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GEI Project	2204930



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INSTRUMENTATION  
 TANK AND BOOSTER PUMP P&ID

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