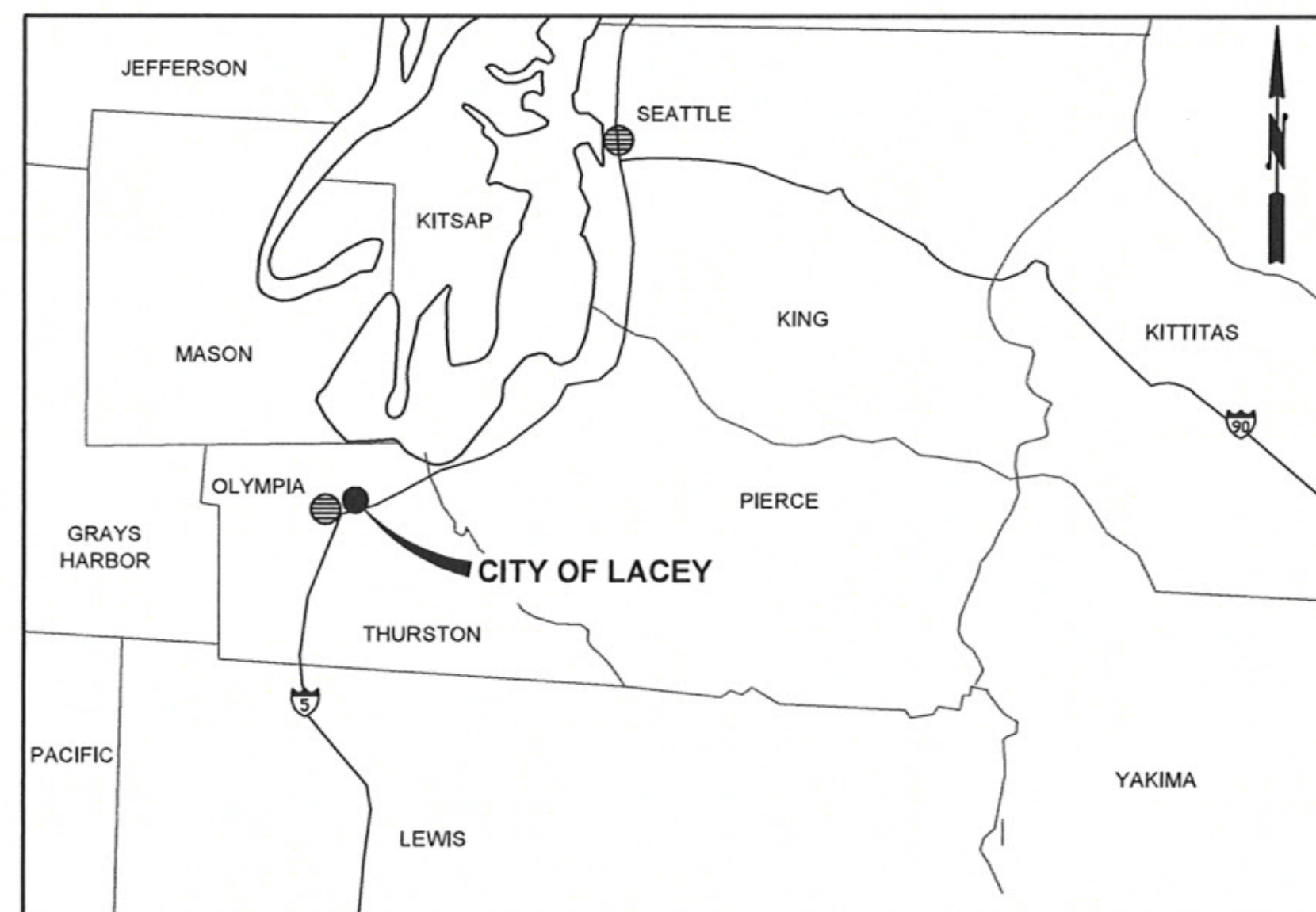


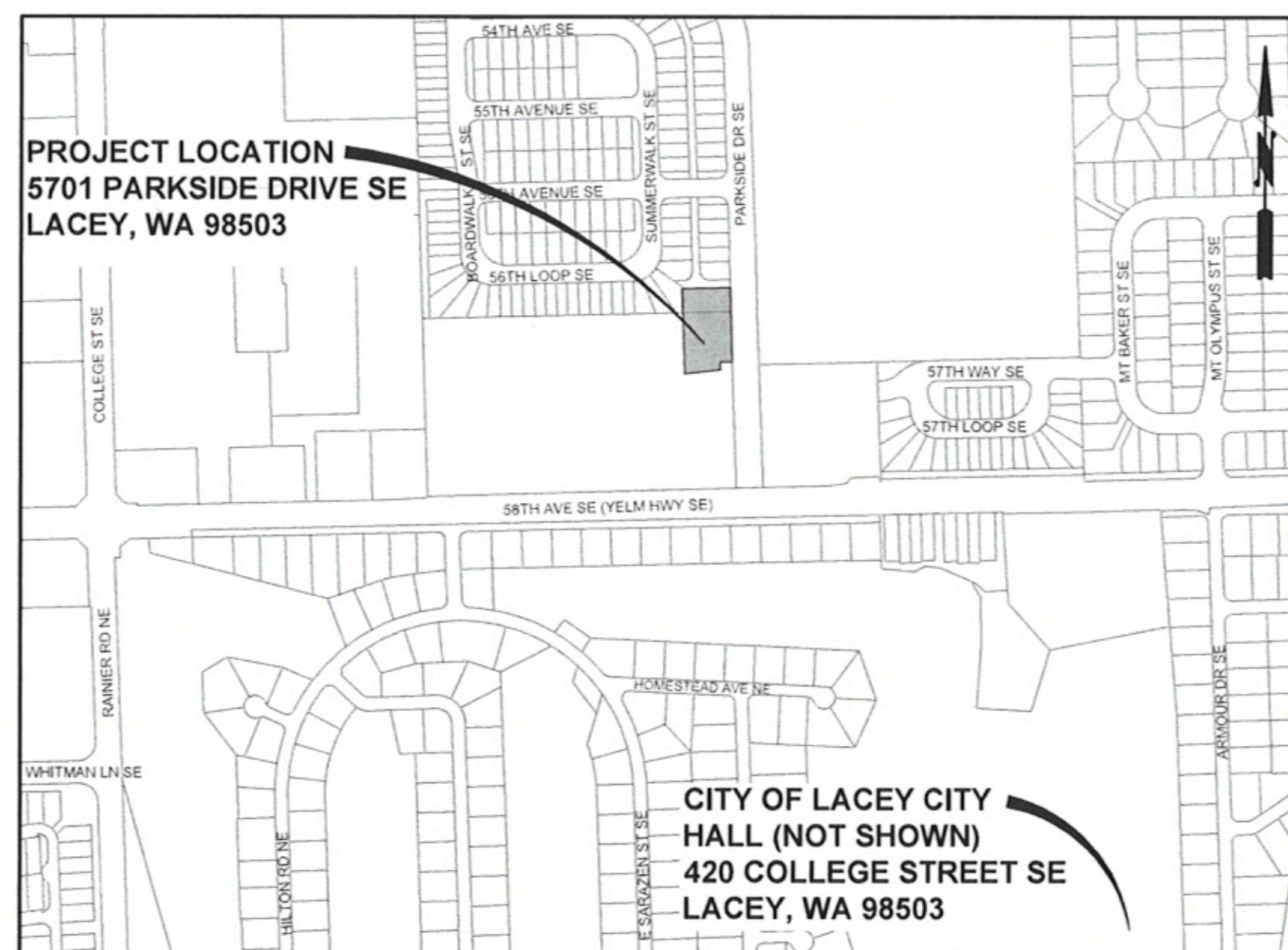
# CITY OF LACEY

## S10 GENERATOR, WELL PUMP, AND SITE IMPROVEMENTS

LACEY CONTRACT NO. PW2022-29  
LACEY DRAWING NO. D-23-13

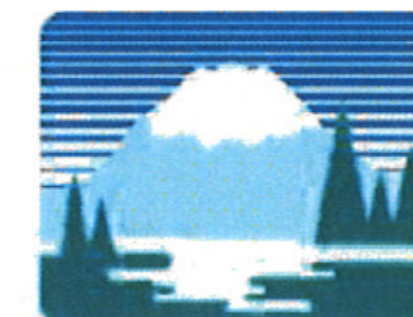


**VICINITY MAP**  
NOT TO SCALE



**LOCATION MAP**  
SCALE: 1"=400'

**CITY OF LACEY**



### CITY OFFICIALS:

**MAYOR:** ANDY RYDER  
**DEPUTY MAYOR:** MALCOLM MILLER  
**CITY COUNCIL:** LENNY GREENSTEIN  
MICHAEL STEADMAN  
CAROLYN COX  
ROBIN VAZQUEZ  
NICOLAS DUNNING  
**CITY MANAGER:** RICK WALK  
**CITY ATTORNEY:** DAVID SCHNEIDER  
**CITY ENGINEER:** AUBREY COLLIER, P.E./S.E.

**DIRECTOR OF  
PUBLIC WORKS:** SCOTT EGGER, P.E.

  
DIRECTOR OF PUBLIC WORKS

2/7/24  
DATE

  
**Gray & Osborne, Inc.**  
CONSULTING ENGINEERS  
1130 RAINIER AVENUE SOUTH SUITE 300  
SEATTLE, WASHINGTON 98144

### SHEET INDEX

SHEET NO.	SHEET	DESCRIPTION
<b>GENERAL</b>		
1	G-1	COVER, VICINITY AND LOCATION MAPS, AND SHEET INDEX
2	G-2	ABBREVIATIONS, SYMBOL LEGEND, AND GENERAL NOTES
3	G-3	PROCESS SCHEMATIC DIAGRAM
4	G-4	SURVEY CONTROL AND PROJECT SEQUENCING
5	G-5	EXISTING SITE PLAN
6	G-6	DEMOLITION AND TESC PLAN
7	G-7	PROPOSED SITE PLAN
8	G-8	GENERAL DETAILS
9	G-9	GENERAL DETAILS
10	G-10	GENERAL DETAILS
11	G-11	TESC NOTES
<b>MECHANICAL</b>		
12	M-1	MECHANICAL LEGEND AND SYMBOLS
13	M-2	PUMP BUILDING DEMOLITION PLAN
14	M-3	DEMOLITION PHOTO DETAILS
15	M-4	DEMOLITION PHOTO DETAILS
16	M-5	MODIFIED PUMP BUILDING PLAN
17	M-6	WELL MODIFICATIONS AND DETAILS
18	M-7	WELL MODIFICATIONS AND DETAILS
<b>ELECTRICAL</b>		
19	E-1	ELECTRICAL SYMBOLS, ABBREVIATIONS, GENERAL NOTES, SHEET LIST AND TAG LIST
20	E-2	MODIFIED ELECTRICAL SITE PLAN AND WORK SUMMARY
21	E-3	EXISTING AND PROPOSED ONE LINE DIAGRAMS
22	E-4	MODIFIED GROUNDING ONE LINE DIAGRAM
23	E-5	ELECTRICAL DEMOLITION PLAN
24	E-6	MODIFIED ELECTRICAL PLAN
25	E-7	PANELBOARD [01 XFMRP 01] SCHEDULE, SPECIFICATIONS, AND LOAD DISTRIBUTION
26	E-8	MOTOR STARTER NOTES AND DOOR ELEVATION
27	E-9	MOTOR STARTER ELEMENTARY WIRING DIAGRAM
28	E-10	PLC I/O
29	E-11	I/O AND ALARMING
30	EC-1	CABLE AND CONDUIT SCHEDULES
31	ED-1	ELECTRICAL DETAILS



DRAWING: **G-1** OF: **11**  
SHEET: **1** OF: **31**



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANS\General\G\_LEGEND.dwg, 2/2/2024 3:53 PM, PHILIP MARSHALL

ABBREVIATIONS

A	AIR
AB	ANCHOR BOLT
AC	ASPHALT CONCRETE
ACP	ACOUSTIC PANEL
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALTR	ALTERNATE
ALUM	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
ASSY	ASSEMBLY
AT	AERATION TOWER
AVE	AVENUE
AWS	AMERICAN WELDING SOCIETY

BGS	BELOW GROUND SURFACE
BI	BLACK IRON
BLD FLG	BLIND FLANGE
BLDG	BUILDING
BLK	BLOCK
BOD	BOTTOM OF DUCT
BOW	BOTTOM OF WALL
BTWN	BETWEEN

C	CONDUIT
CAP	CORRUGATED ALUMINUM PIPE
CB	CATCH BASIN
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON
CL	CLASS
CL	CENTER LINE
CLR	CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTRACTOR
CONV	CONVEYOR
CPLG	COUPLING
CONTIN	CONTINUED
COP	COPPER
CP	CORNER POST
CPTS	CATHODIC PROTECTION TEST STATION
CSH	CONCRETE SURFACE HARDENER
CTR	CENTER

D	DRAIN
DI	DUCTILE IRON
DIA	DIAMETER
DIR	DIRECTION
DISCH	DISCHARGE
DN	DOWN
DP	DIFFERENTIAL PRESSURE

E	EAST, ELECTRICAL (PIPING)
EA	EACH
ECC	ECCENTRIC
EL	ELEVATION
ELL	ELBOW
ELEC	ELECTRICAL
EMERG	EMERGENCY
EXIST	EXISTING
EXP	EXPANSION
EW	EACH WAY

FAB	FABRICATED
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FF	FACTORY FINISH, FINISHED FLOOR
FIG	FIGURE
FIN	FINISHED
FL	FLANGE
FLL	FLOW LINE
FLEX	FLEXIBLE
FLR	FLOOR
FM	FORCE MAIN
FPM	FEET PER MINUTE
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET
FT2	SQUARE FEET

GA	GAUGE
GALV	GALVANIZED
GEN	GENERAL
GI	GALVANIZED IRON
GOVT	GOVERNMENT
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GRD	GRADE
GRV	GROOVED PIPE OR COUPLING
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GWB	GYPSUM WALL BOARD

H	HEIGHT
HEX	HEXAGONAL
HMA	HOT MIX ASPHALT
HORIZ	HORIZONTAL
HP	HORSEPOWER
HR	HOOR
HDPE	HIGH DENSITY POLYETHYLENE

ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INF	INFLUENT
INV	INVERT

J BOX	JUNCTION BOX
-------	--------------

L	LENGTH
LB	POUND
LB/HR	POUNDS PER HOUR
LF	LINEAR FEET
MAG	MAGNETIC
MAX	MAXIMUM
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MFR, MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MG/L	MILLIGRAM PER LITER
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
MO	MID ORDINATE

N	NORTH
No.	NUMBER
NTS	NOT TO SCALE

OC	ON CENTER
OD	OUTSIDE DIAMETER
OPNG	OPENING
OPP	OPPOSITE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

PD	PLANT DRAIN
PE	PLAIN END
PERF	PERFORATED
PL	PLATE
PLYWD	PLYWOOD
POT	POTABLE
PRV	PRESSURE REDUCING VALVE
PPG	POTASSIUM PERMANGANATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PTS	PAINTED SURFACE
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWR	POWER

QT	QUARTER
QUAD	QUADRANT

R	RADIUS
RD	ROOF DRAIN
RED	REDUCER
REINF	REINFORCE
REQD	REQUIRED
RECTL	REINFORCING STEEL
RM	ROOM
RO	ROUGH OPENING
R/W	RIGHT-OF-WAY

S	SOUTH
SAM	SAMPLE (PIPING)
SCH	SCHEDULE
SF	SQUARE FEET
SFN	SURVEY FOUND NAIL
SHC	SODIUM HYPOCHLORITE
SHT	SHEET
SL	SLOPE
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SS	STAINLESS STEEL
SSNT	SURVEY SET NAIL/TAG
STA	STATION
STD	STANDARD
STL	STEEL
STRG	STRONG
SUC	SUSPENDED CEILING
SUP	SUPPORT

TAPD	TAPERED
TB	TOP AND BOTTOM
TC	TOP OF CURB
TDH	TOTAL DYNAMIC HEAD
TEL	TELEPHONE
THK	THICK
THRD	THREADED
THRU	THROUGH
TK	TANK
TOC	TOP OF CONCRETE
TOW	TOP OF WALL
TRANS	TRANSISTOR
TYP	TYPICAL

UGE	UNDERGROUND ELECTRICAL
UNO	UNLESS NOTED OTHERWISE
UPH	UNDERGROUND PHONE

VC	VERTICAL CURVE
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VIS	VINYL SHEET

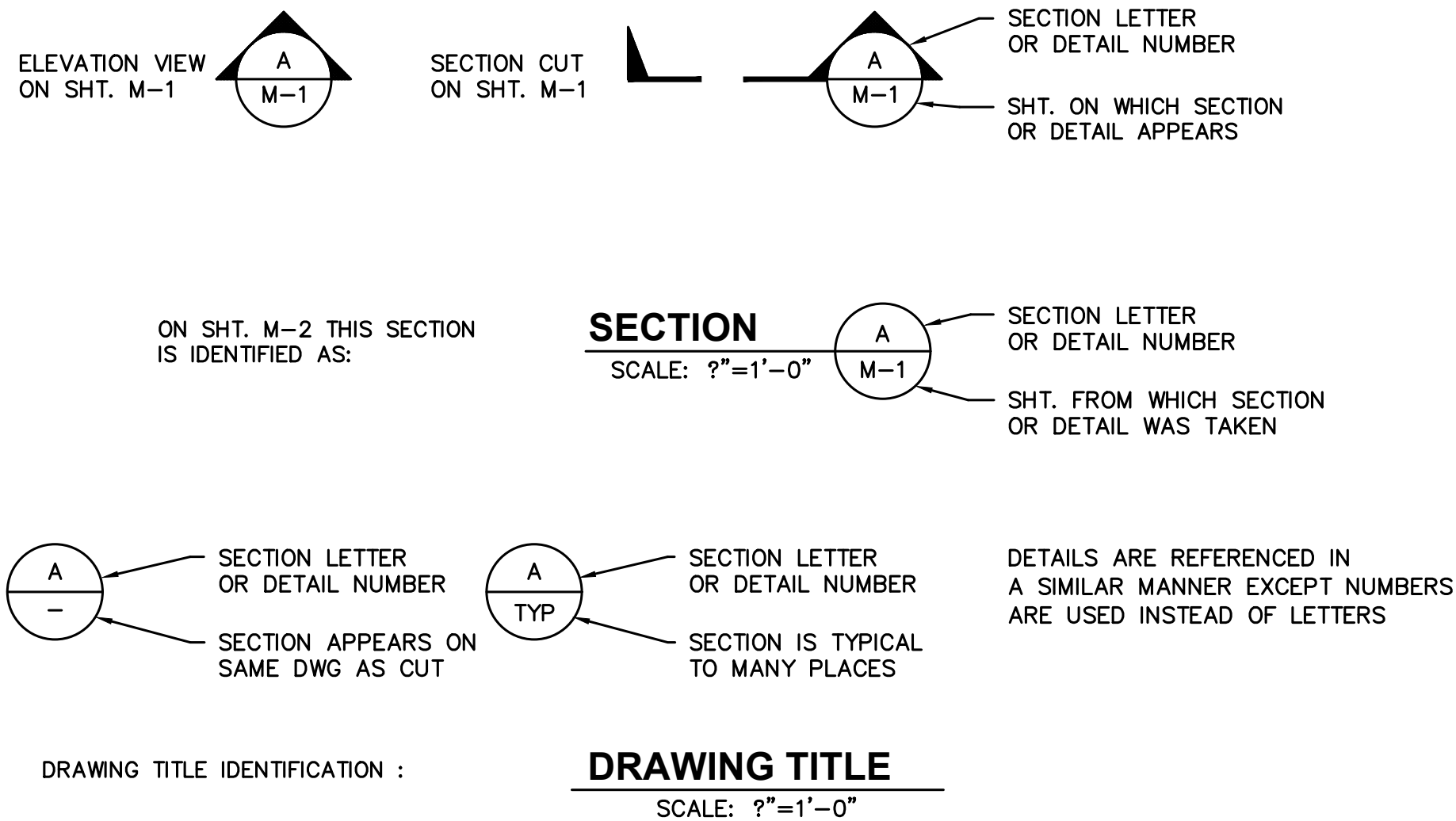
W	WIDTH, WEST, WATER (PIPING)
W/	WITH
WC	WATER COLUMN
WD	WIDE
WLD	WELDED
W/O	WITHOUT
WS	WATER SURFACE
WWM	WELDED WIRE MESH
WWF	WELDED WIRE FABRIC

GENERAL SYMBOLS

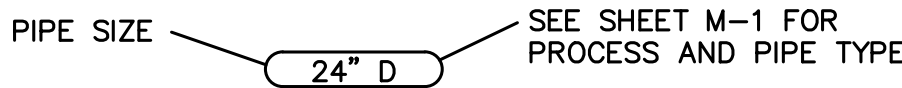
1/4" FT.	SLOPE 1/4" PER FOOT	□	SQUARE SECTION
→	FLOW DIRECTION	☯	PIPE SECTION
⊠	OPENING	⊙	SPACING CENTER ON CENTER
⚡	GROUND	⚡	SIZE OF DEFORMED BAR
≡	ASPHALT SECTION	∅	DIAMETER
▬	CONCRETE SECTION	▬	RECTANGULAR SECTION
≡	WATER SURFACE	∠	ANGLE
⊕	ELEVATION REFERENCE POINT	W	WIDE-FLANGE SHAPE
⬡	LEGEND/NOTE CALL OUTS	C	CHANNEL
⊙	PIPE SUPPORT	PL	PLATE
⊙	ELECTRICAL MAST	CL	CENTER LINE
*	MAGNAIL		
⊙	REBAR WITH CAP		

EXAMPLE OF SECTION NUMBERING SYSTEM AND PLAN/DRAWING TITLES

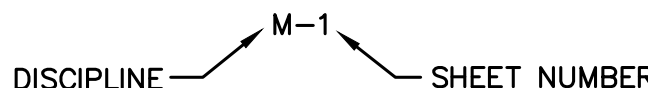
FOR DETAILS SUBSTITUTE DETAIL NUMBER FOR SECTION LETTER



PROCESS PIPING



SHEET AREA IDENTIFICATION



GENERAL NOTES:

- IN GENERAL, EXISTING STRUCTURES AND FACILITIES ARE NOTED AS "EXISTING" AND ARE SHOWN IN LIGHT LINE WEIGHTS OR AS SCREENED BACKGROUND. NEW CONSTRUCTION, STRUCTURES, FACILITIES, AND FEATURES ARE SHOWN IN HEAVY LINE WEIGHTS.
- MANY OF THE SYMBOLS SHOWN ON THIS LEGEND ARE USED ONLY WHERE THEY PROVIDE CLARITY AND ARE NOT NECESSARILY USED IN ALL APPLICATIONS. SOME CONTRACT DRAWINGS MAY HAVE ADDITIONAL LEGENDS APPLICABLE FOR THAT SPECIFIC DRAWING. SYMBOLS SHOWN ON SPECIFIC DRAWINGS GOVERN.
- THE CONTRACTOR SHALL VERIFY ALL PLANIMETRIC FEATURES AND DIMENSIONS PRIOR TO STARTING WORK AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL DIMENSIONS SHOWN ON THE CONTRACT DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS REFER TO THE HORIZONTAL AND VERTICAL PROJECTED PLANES, UNLESS OTHERWISE INDICATED.
- NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS.
- FOR QUESTIONS REGARDING THE WORK OUTLINED IN THESE PLANS AS WELL AS THE PROJECT SPECIFICATIONS, PLEASE CONTACT THE CITY OF LACEY AT (360) 491-5600.

SYMBOL LEGEND

EXISTING

PROPOSED

▬	CONCRETE SURFACING
▬	ASPHALT SURFACING
▬	GRAVEL SURFACING
—ABV—	UTILITY / PIPING (SEE ABBREVIATION ON THIS SHEET FOR TYPE)
---	RIGHT-OF-WAY LINE
---	CENTERLINE OF RIGHT-OF-WAY
---	PROPERTY LINE
---	PERMANENT EASEMENT LINE
→→→→	DITCH
—□—	WOODEN FENCE
—○—	CHAINLINK FENCE
---	CLEARING LIMITS
—*—*—	SILT FENCE
---	CENTER LINE
○	MANHOLE/DRYWELL
⊠	GATE VALVE
⊠	WATER METER
⊠	LUMINAIRE
—20—	CONTOUR
⊠	MONITORING WELL
★	TREE
▬	BUILDING
⊠	FIRE HYDRANT
⊠	BOLLARD

DEMOLITION LEGEND

▬	EXISTING EQUIPMENT TO BE ABANDONED IN PLACE, RELOCATED, OR SALVAGED TO OWNER.
▬	EXISTING EQUIPMENT TO BE DEMOLISHED

**Washington811**

Know what's below. Call or click before you dig. [www.washington811.com](http://www.washington811.com)

**1-800-424-5555 OR 811.com**

EXISTING UTILITIES SHOWN ARE FROM THE BEST AVAILABLE INFORMATION AND NO GUARANTEE IS MADE AS TO THE EXACT SIZE, TYPE, LOCATION OR DEPTH

**Gray & Osborne, Inc.**

CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860

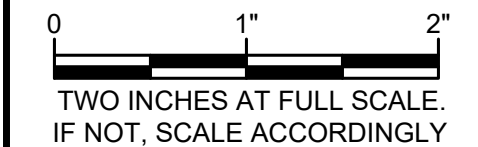


**CITY OF LACEY**

**S10 GENERATOR, WELL PUMP, & SITE IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
G_LEGEND.DWG		



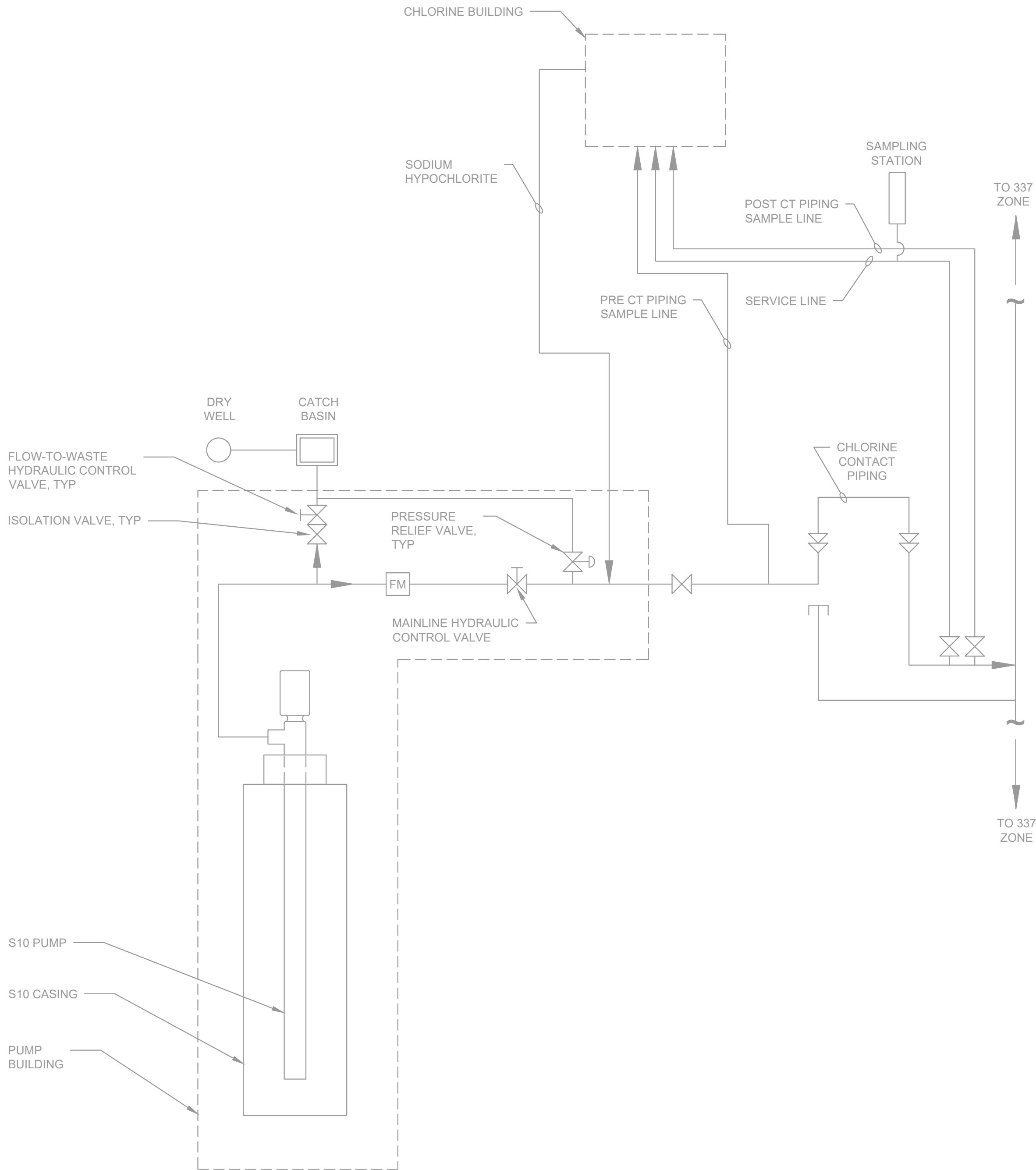
GENERAL		
ABBREVIATIONS, SYMBOL LEGEND, AND GENERAL NOTES		
DRAWING:	<b>G-2</b>	OF: <b>11</b>
SHEET:	<b>2</b>	OF: <b>31</b>

L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\General\G\_PFD.dwg, 2/2/2024 3:53 PM, PHILIP MARSHALL

EXISTING FACILITY

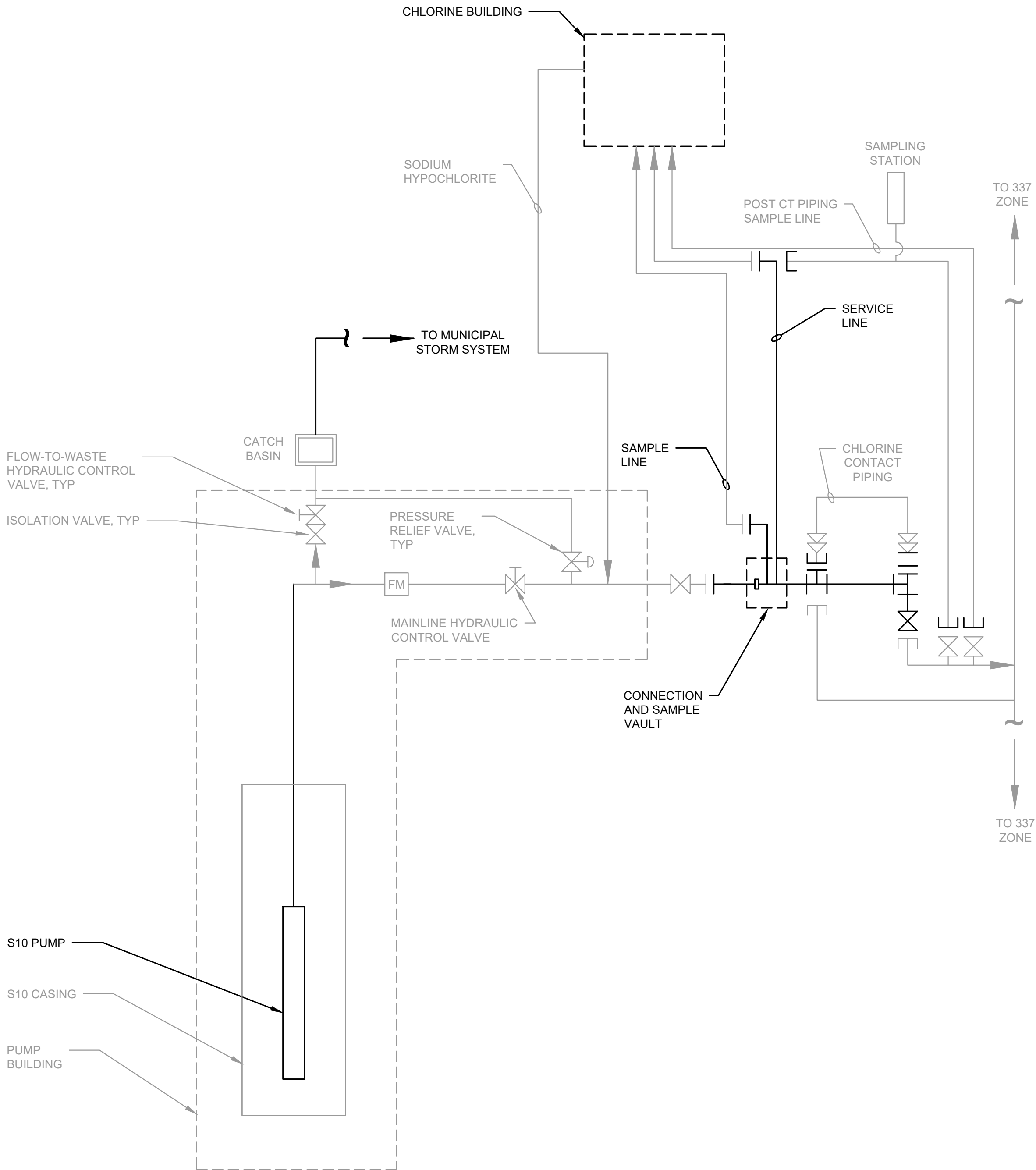
SOURCE 10 (S10)	
WELL DEPTH	210.0 FT
CASING DIAMETER	16 INCH STEEL
PUMP DEPTH	116.4' (BOWLS), 127.4 (INTAKE)
PUMP TYPE	VERTICAL LINESHAFT TURBINE
PUMP MODEL	GOULDS 12CHC-5 (8.3125" DIAM)
PUMP ELECTRICAL	125/200 HP**, 3-PH, 60 HZ, 1,800 RPM
RELIABLE CAPACITY	1,100 - 1,200 GPM
DRILLED	1981
REHABILITATED	2018-2020, 2022

\*\*EXISTING PUMP IS RATED FOR 125 HP MOTOR, HOWEVER, A 200 HP MOTOR IS CURRENTLY BEING UTILIZED.

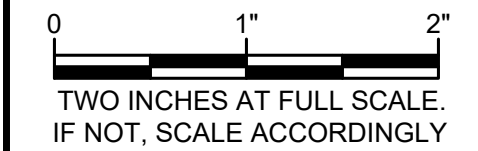


DESIGN PARAMETERS

SOURCE 10 (S10)	
PUMP DEPTH	152 FEET
PUMP TYPE	SUBMERSIBLE
PUMPING	1,200 GPM @ 337' TDH
PUMP ELECTRICAL	150 HP, 480VAC, 3-PH, 60 HZ, 1,800 RPM

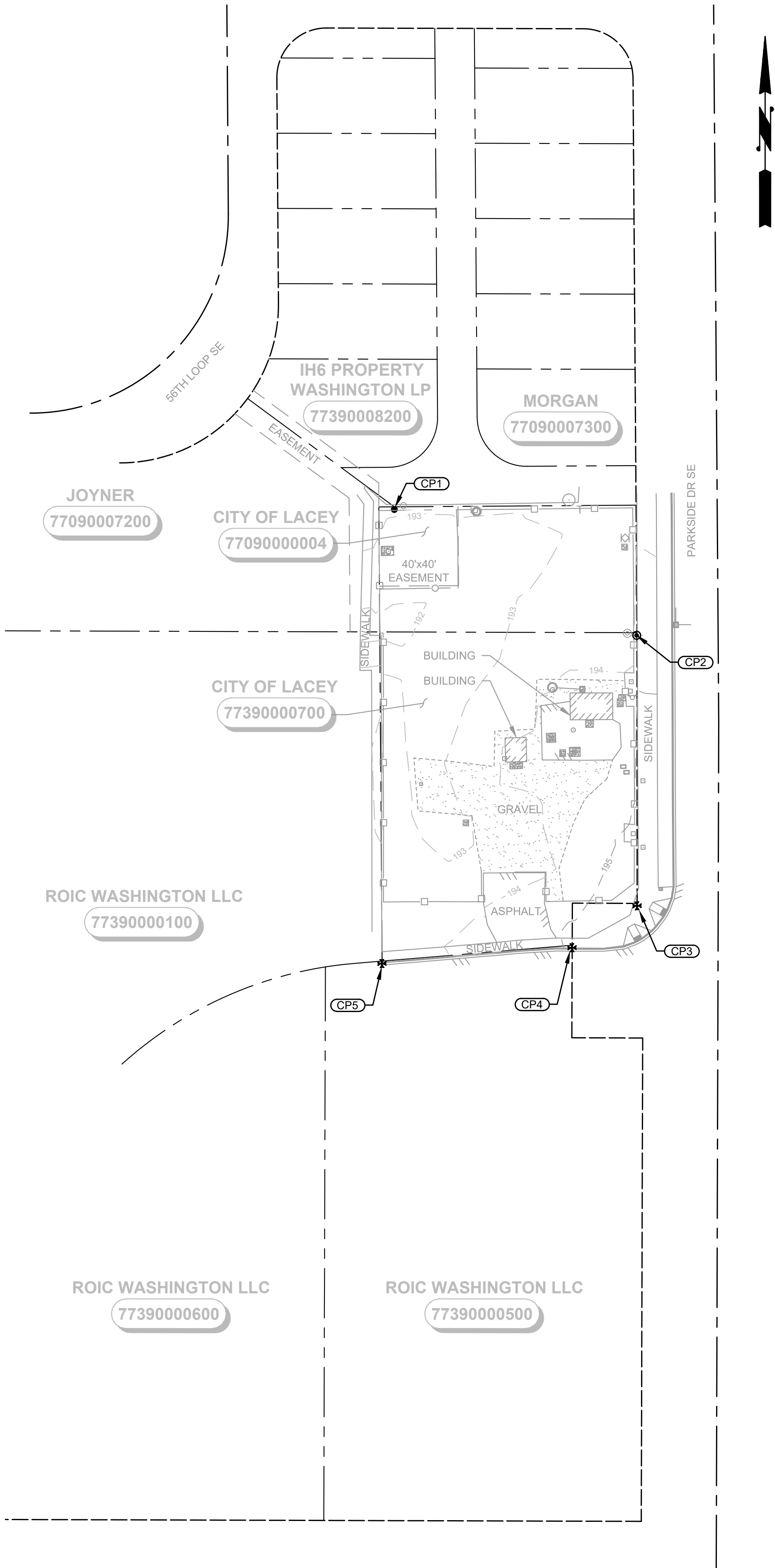


No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
G_PFD.DWG		





L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\General\G\_SURV\_CTRL.dwg, 2/2/2024 3:53 PM, PHILIP MARSHALL



**SURVEY CONTROL PLAN**  
SCALE: 1"=40'

SURVEY DATUM	
HORIZONTAL DATUM:	NGVD 29
VERTICAL DATUM:	NGVD 29

SURVEY CONTROL POINTS				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP-1	615507.08	62470.68	193.71	1/2-INCH REBAR WITH CAP (LS#41298)
CP-2	615439.26	62590.87	194.35	5/8-INCH REBAR WITH CAP (LS#2928)
CP-3	615302.67	62586.27	195.99	MAGNAIL WITH WASHER (LS#42683)
CP-4	615282.69	62552.68	195.31	MAGNAIL WITH WASHER (LS#42683)
CP-5	615278.05	62456.40	192.86	MAGNAIL WITH WASHER (LS#42683)
CP-6 (NOT SHOWN)	SEE NOTE 4	SEE NOTE 4	195.97	BENCHMARK: CITY OF LACEY BM# 1702

\* NORTHING AND EASTING VALUES FOR THE SURVEY CONTROL POINTS WERE NUMERICALLY EXTRAPOLATED FROM THEIR LOCATIONS IN THE SURVEY AND NOT PROVIDED DIRECTLY BY THE CITY. ALL NORTHING AND EASTING VALUES FOR SITE LOCATIONS IN THIS PLANSET ARE BASED ON THESE CALCULATED VALUES WHICH NEED TO BE VERIFIED BY THE CONTRACTOR BEFORE ANY SITE DEMOLITION OR STAKING IS PERFORMED.

**SURVEY NOTES:**

- SURVEY FILE, DATUM, AND CONTROL POINTS PROVIDED BY THE CITY OF LACEY ON 10/1/2022.
- CONTRACTOR SHALL PROTECT ALL PROPERTY CORNERS FOR THE DURATION OF CONSTRUCTION. IF REQUIRED, THE CITY OF LACEY WILL RESTAKE AND RESET PROPERTY CORNER MONUMENTS.
- CONTRACTOR SHALL FIELD VERIFY DATUM AND CONTROL POINTS AS REQUIRED TO COMPLETE THE WORK.
- BENCHMARK: CITY OF LACEY BM#1702. SURVEY MARKER NAIL 1' FROM EP ON NORTH SIDE OF 58TH AVE SE IN FRONT HSE #5029. ELEV.=195.97
- OTHER REFERENCES:  
SHORT SUB REFERENCED: AF#3782335  
BLA REFERENCED: AF#3443836  
BSP REFERENCED: AF#4538881  
PLATS REFERENCED: AF#3887941
- BASIS OF BEARING: AT-449 MERIDIAN IS WASHINGTON COORDINATE SYSTEM OF 1983/91 - SOUTH ZONE DERIVED FROM TIES TO HPGN STATIONS SANDERSON, MCKENNA AND CBL1110 AND TO WSDOT GPS STATIONS G259R, GP34005-2, GP34005-4, GP34101-32, GP34101-39, HC34-2, LUHR RM2, TS34-33, TS34-59 AND TO THURSTON COUNTY GPS STATIONS U-531, AT-194, AT-352, AT-355, AT-447, AT-449 AND AT-478.  
  
DISTANCES SHOWN ARE GROUND SCALE U.S. SURVEY FEET. COMBINED SCALE FACTOR (GROUND TO GRID) IS 0.999935701. SURVEY AF# 3111152 DATED 09-24-1997.
- METHOD OF SURVEY: SURVEY PERFORMED BY CONVENTIONAL FIELD TRAVERSE USING A LEICA TS-16 (THREE SECOND TOTAL STATION). LINEAR, AND ANGULAR CLOSURE OF THE TRAVERSE MEET THE STANDARDS OF WAC 332-130-090.
- BOUNDARY: THE BOUNDARY WAS COMPILED USING PHYSICAL FEATURES TIED IN THE FIELD AND DOCUMENTS OF RECORD AS SHOWN.

**PROJECT SEQUENCING:**

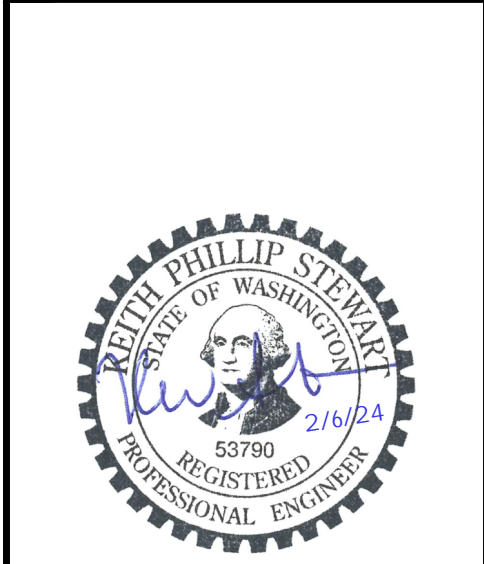
THIS SUMMARY OF WORK IS INCLUDED AS A COURTESY AND IS INTENDED TO PROVIDE A GENERAL UNDERSTANDING OF CONSTRUCTION TASKS. THE SPECIFIC METHODOLOGY AND TIMING OF TASKS OUTLINED IN THE PLANS AND SPECIFICATIONS ARE AT THE OPTION OF THE CONTRACTOR IN KEEPING WITH THE REQUIREMENTS STIPULATED IN THE CONTRACT DOCUMENTS.

FOR THE PROPOSED SEQUENCE OF WORK DESCRIBED BELOW, IT SHOULD BE NOTED THAT THE OWNER MUST HAVE THE EXISTING WELL FACILITY ONLINE AND OPERATIONAL BETWEEN MAY 15 AND SEPTEMBER 30. IF THE TASKS DESCRIBED BELOW CAN NOT BE COMPLETED OUTSIDE OF THIS TIMEFRAME, ADDITIONAL COORDINATION AND/OR SCHEDULING MAY BE REQUIRED.

- FURNISH PROJECT SCHEDULES, SUBMITTALS, WORK PLAN, AND OTHER TECHNICAL INFORMATION AS REQUIRED TO COMPLETE THE PROJECT. WELL PUMP AND GENERATOR SUBMITTALS ARE TIME-SENSITIVE AND SHOULD BE PROVIDED AS A FIRST ORDER OF WORK.
- REMOVE EXISTING PUMPING EQUIPMENT, PERFORM "DUMMY" TEST AND CONFIRM OR MODIFY DIMENSIONS FOR PROPOSED WELL PUMP AND GENERATOR SUBMITTALS, AS REQUIRED TO ACCOMMODATE WELL ALIGNMENT CONDITION. PERFORM WELL INVESTIGATION AND WELL REHABILITATION. COMPLETE OTHER CONTRACT WORK, INCLUDING, BUT NOT LIMITED TO, CT PIPING MODIFICATIONS, VAULT INSTALLATION, STORMWATER MODIFICATIONS, GENERATOR PAD INSTALLATION, AND SITE PREPARATIONS AS SCHEDULE AND MATERIAL AVAILABILITY ALLOWS
- COMPLETE PROPOSED ELECTRICAL MODIFICATIONS.
- PROCURE AND INSTALL NEW WELL PUMP. COMPLETE WELL STARTUP, TESTING, AND COMMISSIONING. PROCURE AND INSTALL NEW METERING PUMP AND ANALYZER EQUIPMENT.
- PROCURE AND INSTALL NEW GENERATOR EQUIPMENT. DEPENDING ON MANUFACTURING AND DELIVERY TIMES FOR NEW GENERATOR, CONTRACT MAY BE FROZEN DURING THIS PERIOD, PROVIDED THAT ALL OTHER WORK IS COMPLETED. COMPLETE STARTUP, TESTING, AND COMMISSIONING OF NEW GENERATOR AND WELL FACILITY.
- COMPLETE PROJECT CLOSEOUT.



1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860



**CITY OF LACEY**  
**S10 GENERATOR,**  
**WELL PUMP, & SITE**  
**IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
G_SURV_CTRL.DWG		



**GENERAL**

**SURVEY CONTROL**  
**AND PROJECT**  
**SEQUENCING**

DRAWING: **G-4** OF: **11**

SHEET: **4** OF: **31**





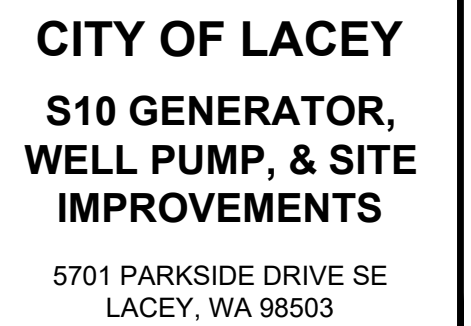




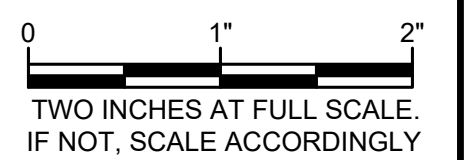
1. PHOTO IS TAKEN FROM PARKSIDE DRIVE, LOOKING NORTHWEST.
2. REMOVE AND WASTEHAUL CONCRETE SIDEWALK, CURB, AND GUTTER AS REQUIRED FOR STORM PIPING CONNECTION. SAWCUT AS REQUIRED AT NEAREST CONSTRUCTION/SIDEWALK JOINTS. SEE PROPOSED SITE PLAN AND ASSOCIATED DETAILS FOR INFORMATION ON MODIFICATIONS.
3. SAWCUT EXISTING ASPHALT PAVEMENT AS REQUIRED FOR STORM PIPING CONNECTION. SEE PROPOSED SITE PLAN AND ASSOCIATED DETAILS FOR INFORMATION ON MODIFICATIONS.
4. REMOVE & WASTEHAUL/REPLACE PLANTINGS AND LANDSCAPING.
5. REMOVE & WASTEHAUL/REPLACE EXISTING FENCING. EXISTING PILASTER AND POSTS SHALL REMAIN IN PLACE. PANEL MATERIALS MAY BE REUSED IF DESIRED. IF MATERIALS ARE TO BE REUSED, MATERIALS SHALL BE STORED UPRIGHT, AND COVERED. SEE MODIFIED SITE PLAN FOR ADDITIONAL INFORMATION.
6. CONTRACTOR SHALL LOCATE EXISTING UTILITIES AS REQUIRED TO COMPLETE THE WORK.

1 **PHOTO DETAIL: SITE DEMOLITION**  
- NOT TO SCALE

1. REMOVE AND WASTEHAUL COVERS, FRAMES, LADDERS, RISERS, AND CONE. CIRCULAR BASIN BODY MAY REMAIN IN PLACE. BACKFILL BASIN WITH BANK RUN GRAVEL AND COMPACT. BACKFILL EXCAVATION ABOVE THE BASIN WITH BANK RUN GRAVEL. PROVIDE UP TO 4-INCHES OF CSBC TO MATCH EXISTING SURROUNDING GRADES. CUT EXISTING DRAIN PIPING AND WASTEHAUL. SEE SHEET M-2 FOR ADDITIONAL INFORMATION ON DEMOLITION.
2. CUT EXISTING WATER PIPE AS REQUIRED. SEE PROPOSED SITE PLAN FOR INFORMATION ON MODIFICATIONS.
3. PIPING AND FITTING CONNECTIONS SHOWN ARE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY/POTHOLE AS REQUIRED TO CONFIRM.
4. SEE ELECTRICAL SHEETS FOR ADDITIONAL DEMOLITION WORK.
5. SEE SHEETS M-2, M-3, AND M-4 FOR ADDITIONAL DEMOLITION IN THE PUMP BUILDING.
6. SEE SHEET M-4 FOR ADDITIONAL DEMOLITION IN THE CHLORINE BUILDING.
7. PRIOR TO INITIATING SITE WORK, CONTRACTOR SHALL INSTALL TESC MEASURES PER PLANS AND SPECIFICATIONS. SEE SHEETS G-9 AND G-11 FOR TESC COMPONENTS AND INFORMATION.
8. AS REQUIRED FOR INSTALLATION OF PROPOSED GENERATOR, PAD, AND CONDUIT.



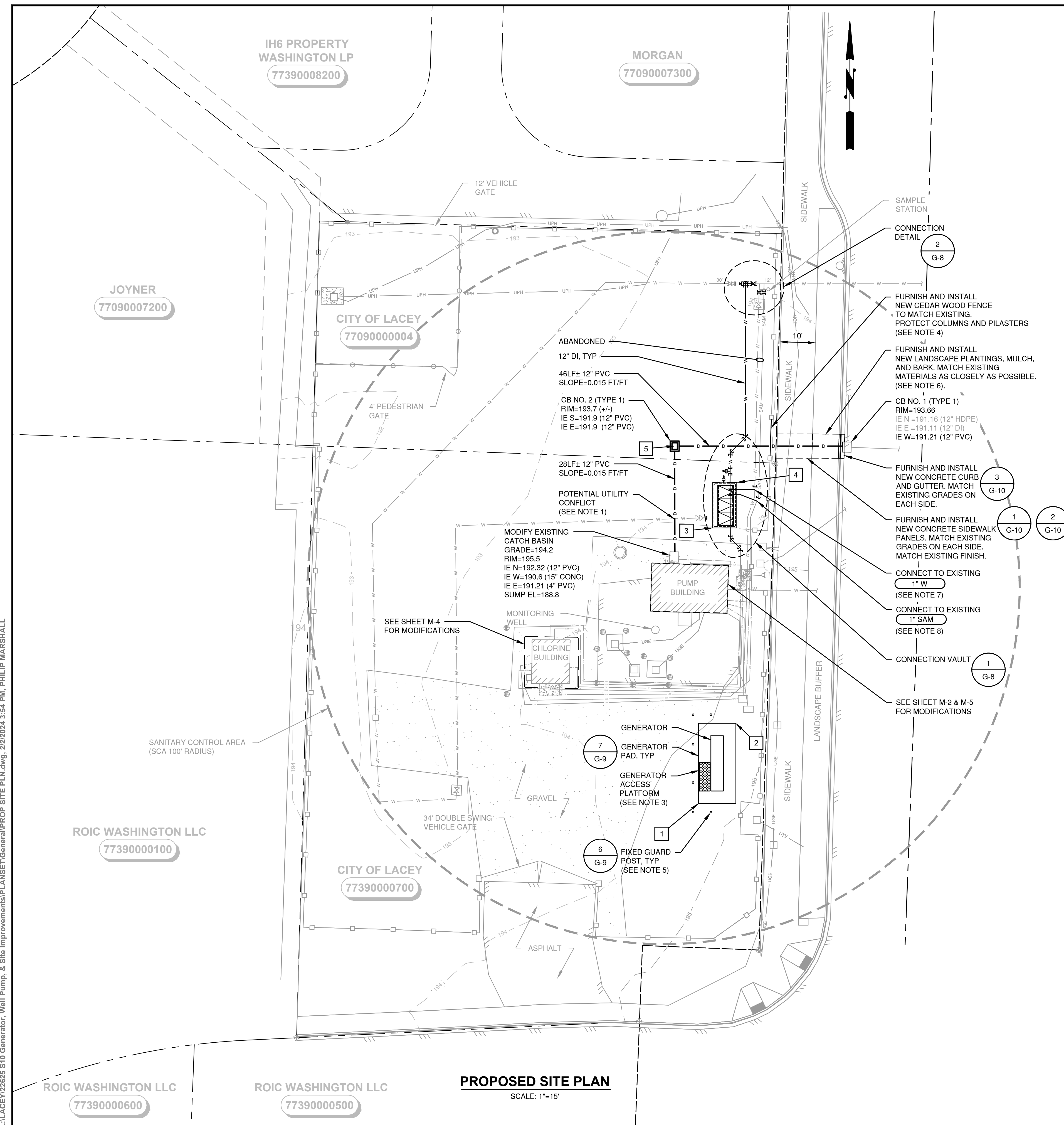
No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE: FEB 2024		
APPROVED BY: KPS		
CHECKED BY: RLP		
DRAWN BY: PGM		
DESIGNER: KPS		
G & O JOB NO.: 22625.00		
FILE: G_DEMO_SITE PLN.DWG		



## DEMOLITION AND TESC PLAN

SHEET: **6** OF: **31**





<b>1</b>	<b>NORTHING</b>	<b>EASTING</b>	<b>ELEVATION ±</b>	<b>DESCRIPTION</b>
1	615343.84	62569.27	194.90	GENERATOR PAD CORNER
2	615366.34	62579.77	194.90	GENERATOR PAD CORNER
3	615421.22	62573.26	194.00	CONNECTION VAULT CORNER
4	615433.97	62580.01	194.00	CONNECTION VAULT CORNER
5	615444.89	62562.60	193.7±	CB CENTER ±

NORTHING AND EASTING VALUES FOR THE SURVEY CONTROL POINTS WERE NUMERICALLY EXTRAPOLATED FROM THEIR LOCATIONS IN THE SURVEY AND NOT PROVIDED DIRECTLY BY THE CITY. ALL NORTHING AND EASTING VALUES FOR SITE LOCATIONS IN THIS PLANSET ARE BASED ON THESE CALCULATED VALUES WHICH NEED TO BE VERIFIED BY THE CONTRACTOR BEFORE ANY SITE DEMOLITION OR STAKING IS PERFORMED.

NOTES:

1. TOP OF EXISTING CT PIPING IS 4'-7" (+/-) BELOW GRADE AT THIS LOCATION. CONTRACTOR TO FIELD VERIFY PIPING LOCATION AND ELEVATION.
2. ALL NEW PIPING SHALL BE RESTRAINED JOINT, WHERE APPLICABLE.
3. SEE SPECIFICATION SECTION 16230 FOR ADDITIONAL INFORMATION.
4. CONTRACTOR MAY REUSE PANEL MATERIALS IF MAINTAINED DURING THE PROJECT AND REINSTALLED IN A MANNER ACCEPTABLE TO THE OWNER. IF MATERIALS ARE TO BE REUSED, MATERIALS SHALL BE STORED UPRIGHT, AND COVERED.
5. GUARD POSTS SHALL BE LOCATED IN THE FIELD BY THE ENGINEER.
6. FURNISH UP TO 12X MEDIUM SHRUB/GRASS, UP TO 1 CY PREMIUM TOPSOIL, AND UP TO 1 CY MEDIUM FINE BARK. PROVIDE LANDSCAPING PLAN TO THE ENGINEER PRIOR TO EXECUTION. MATCH EXISTING PLANTING SPACING AND FREQUENCY, AND TOPSOIL AND BARK THICKNESS AS CLOSELY AS POSSIBLE.
7. CONTRACTOR TO FIELD VERIFY PIPE LOCATION, SIZE, AND TYPE. FURNISH AND INSTALL WELDED CAP ON PIPING TO BE ABANDONED IN PLACE.
8. CONTRACTOR SHALL FIELD VERIFY PIPE LOCATION, SIZE, AND TYPE. FURNISH AND INSTALL WELDED CAP ON PIPING TO BE ABANDONED IN PLACE. SAMPLE PIPING MAY ACTUALLY BE 3/8-INCH VINYL TUBING WITHIN PVC CASING PIPE. FURNISH AND INSTALL MATERIALS AS REQUIRED FOR A COMPLETE AND WORKABLE SYSTEM.



**CITY OF LACEY**  
**S10 GENERATOR,**  
**WELL PUMP, & SITE**  
**IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
-----	------	----------

ISSUED FOR:

ISSUE DATE:	FEB 2024
-------------	----------

CHECKED BY: RLP

DESIGNER:	KPS
-----------	-----

FILE: PROP SITE PLN.DWG

IF NOT, SCALE ACCORDINGLY

## GENERAL



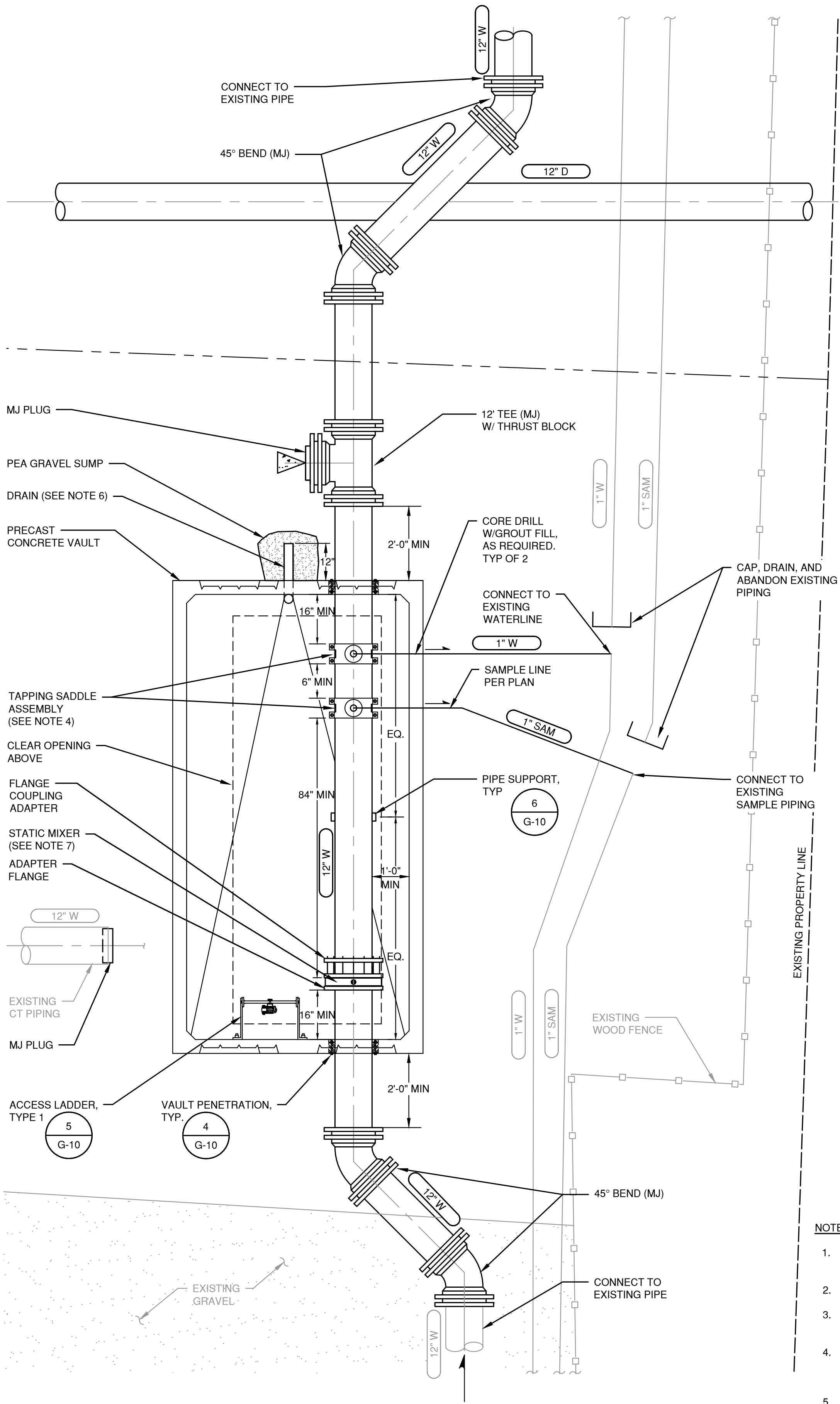
## PROPOSED SITE PLAN

DRAWING: **G-7** OF: **11**

SHEET: 7 OF: 31



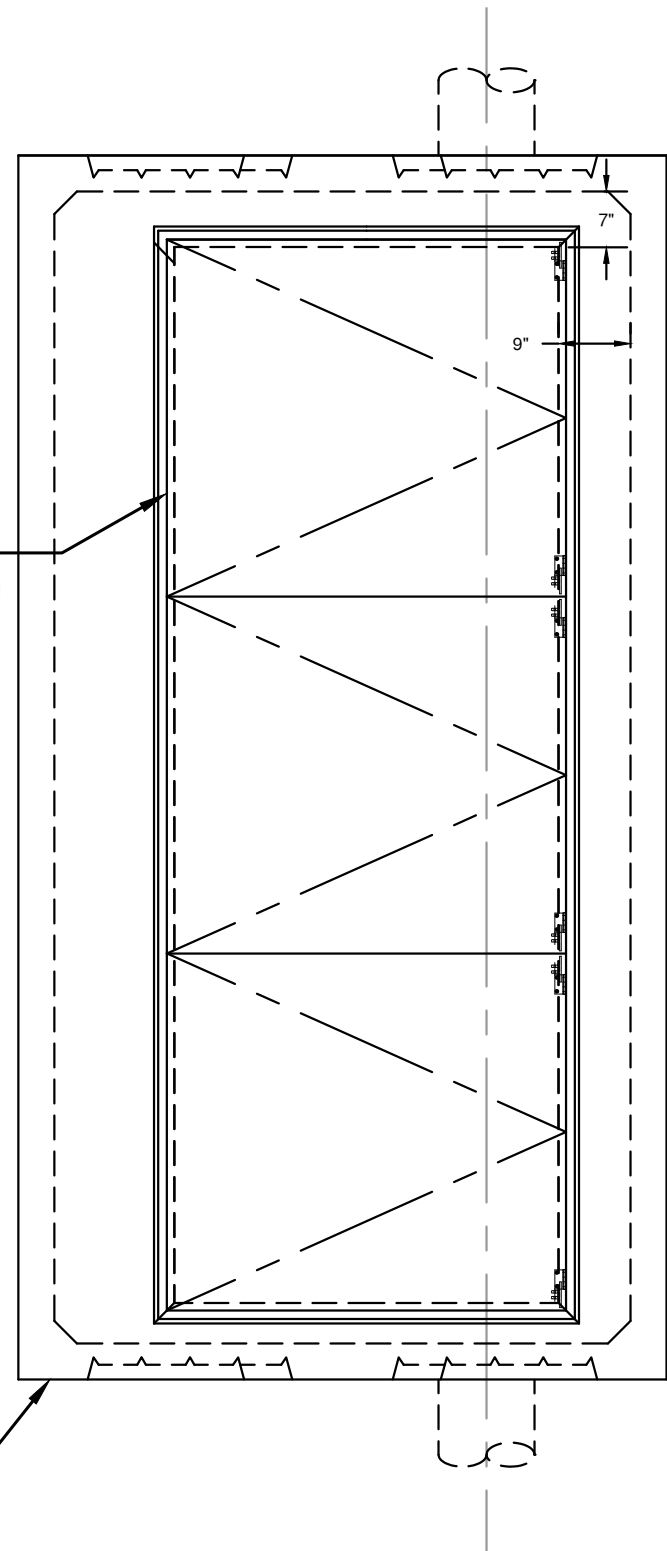
L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANS\General\PROP SITE PLN.dwg, 2/2/2024 3:54 PM, PHILIP MARSHALL



LOWER PLAN

1 CONNECTION VAULT DETAIL  
G-7  
SCALE: 1/2" = 1'-0"

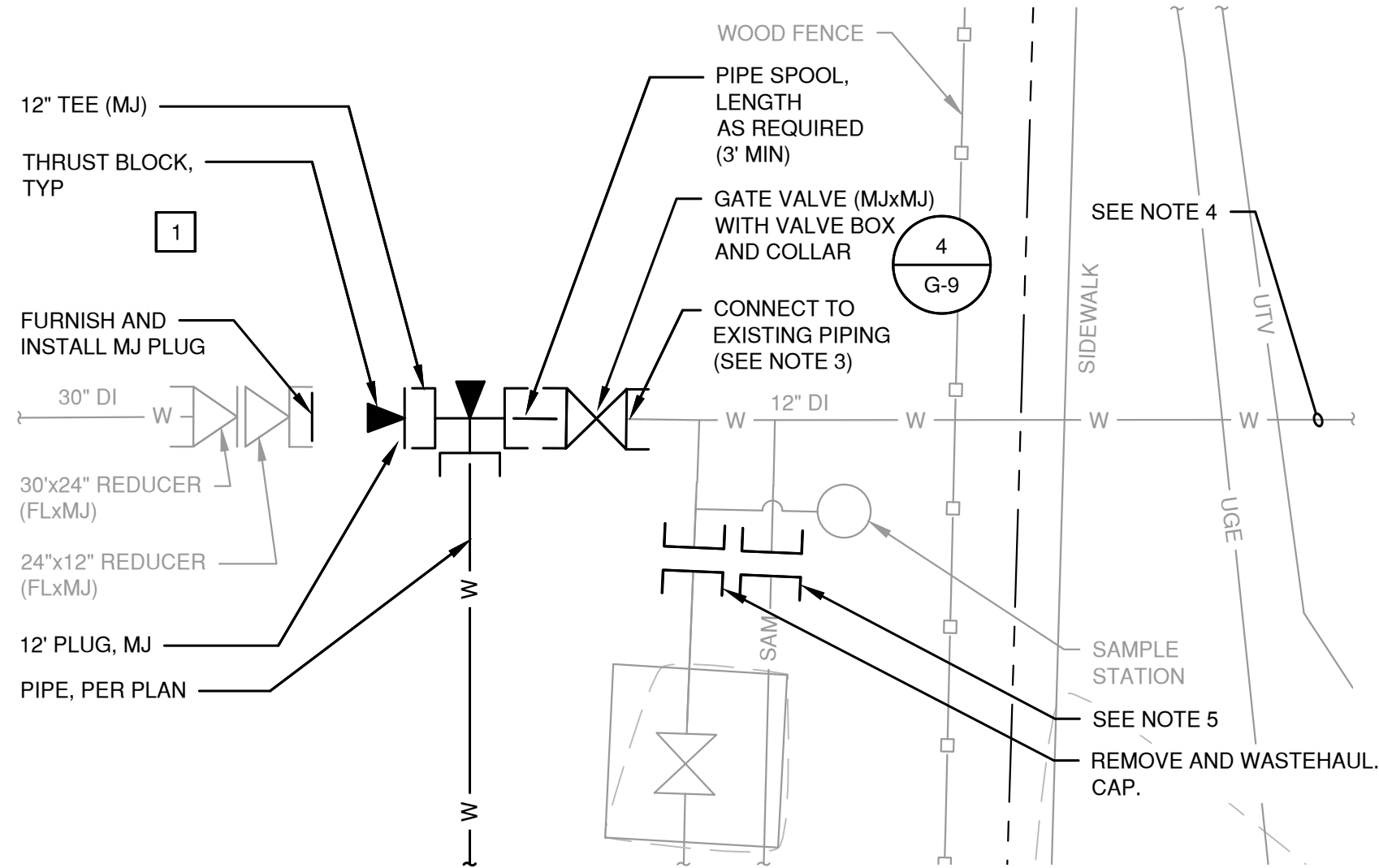
ACCESS HATCH W/  
48"x132" CLEAR OPENING  
WITH 48"x44". ROUTE  
DRAIN TO WITHIN 6" OF  
FLOOR W/ SCH 80 PVC



UPPER PLAN

NOTES:

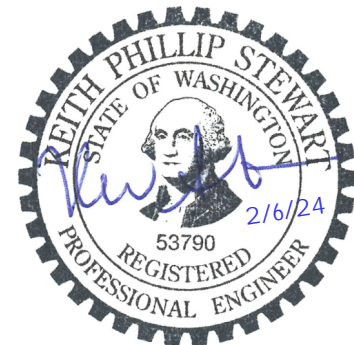
- ALL FITTINGS SHALL BE RESTRAINED JOINT STYLE. PIPING BETWEEN CONNECTION POINTS SHALL BE STRAIGHT AND CONSISTENT GRADE ALONG THE FULL LENGTH OF PIPE.
- PIPING SHALL BE 1'-6" CLEAR FROM VAULT FLOOR.
- FURNISH AND INSTALL UP TO 6-INCHES OF FLOOR GROUT TO PROMOTE SLOPE TO DRAIN CONNECTION.
- TAPPING SADDLE ASSEMBLY SHALL INCLUDE TAPPING SADDLE (ROMAC 202-NS OR EQUAL) AND CORP STOP (FORD FB-1101-6G-NL, MUELLER E25029N, OR AY-MCDONALD 74704B-33) WITH PACK JOINT (STAINLESS STEEL INSERTS).
- INVERT OF EXISTING 12-INCH PIPE IS APPROXIMATELY 72" BELOW GRADE (EL = 188.0). CONTRACTOR TO FIELD VERIFY. EXISTING PIPING IS DI MATERIAL.
- FURNISH AND INSTALL CAST IRON FLOOR DRAIN. EXTEND DRAIN PIPE AS SHOWN. INSTALL 1/2 CY PEA GRAVEL BELOW DRAIN.
- STATIC MIXER SHALL BE WESTFALL MODEL 2800, 0.8-BETA, PVC MATERIAL, WITH 2X 1/8-INCH EPDM GASKETS, 1X 3/4" NPT PORT W/PVC COUPLING, NIPPLE, CORP STOP, PVC SOLUTION TUBE WITH 45-DEG BEVEL, AND RETRACTION CHAIN. SOLUTION TUBE SHALL BE ABLE TO BE REMOVED WITH THE PIPING STILL IN SERVICE.



NOTES:

- PROVIDE SURFACE RESTORATION AS REQUIRED TO RESTORE THE SURFACE TO ITS ORIGINAL CONDITION. NATIVE/EXCAVATED MATERIAL MAY BE REUSED FOR SURFACE RESTORATION. COMPACT ALL MATERIALS PER SPECIFICATIONS. FILL TO GRADE WITH BANK RUN GRAVEL. PROVIDE 6-INCHES PREMIUM TOPSOIL. MATCH EXISTING GRADES ON ALL SIDES, THEN APPLY PREMIUM GRASS SEED PER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR TO POTHOLE AND FIELD VERIFY EXISTING FITTING CONNECTIONS PRIOR TO PROCUREMENT OF MATERIALS.
- INVERT OF EXISTING 12-INCH PIPE IS APPROXIMATELY 56" BELOW GRADE (EL = 188.83). CONTRACTOR TO FIELD VERIFY. EXISTING PIPING IS DI MATERIAL. CUT PIPE AS REQUIRED TO FACILITATE ALIGNMENT AND CONNECTION.
- EXISTING MAIN CONTAINS ISOLATION VALVE WITHIN PARKSIDE DRIVE, APPROXIMATELY 30 FEET EAST OF CONNECTION POINT.
- CLOSE EXISTING CORP-STOP VALVE. CUT SAMPLE PIPING, DRAIN AND FURNISH AND INSTALL CAP (WLD). EXISTING SAMPLE LINE IS BELIEVED TO BE 1-INCH SCH80 PVC.

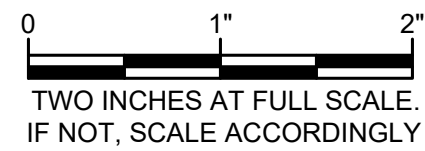
2 PIPE MODIFICATION DETAIL  
G-7  
NOT TO SCALE



CITY OF LACEY  
S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
PROP SITE PLN.DWG		



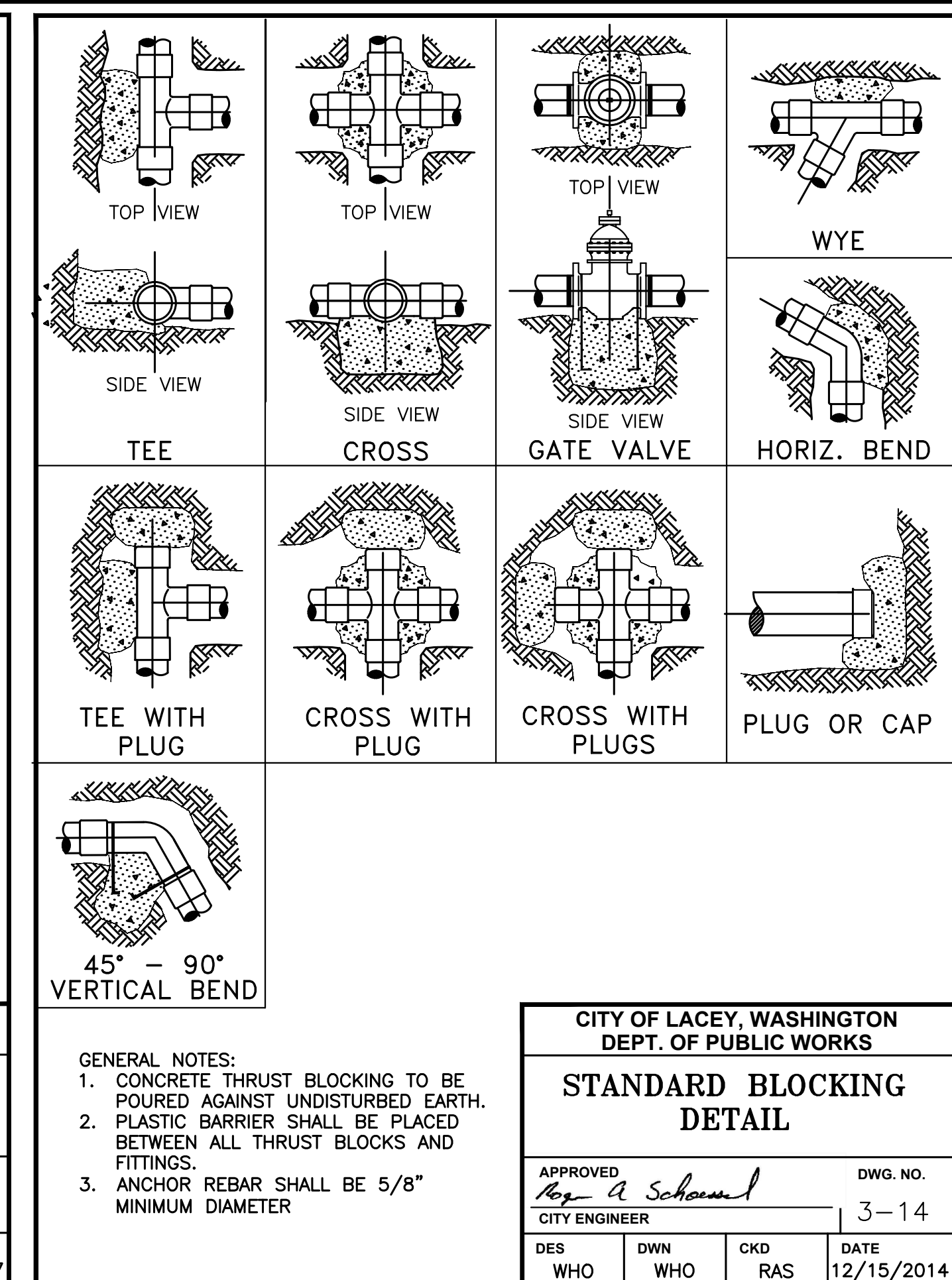
GENERAL

GENERAL DETAILS

DRAWING: G-8 OF: 11

SHEET: 8 OF: 31





**GENERAL NOTES:**

1. ALL VALVES HAVE A U.S.E. 12 GAUGE BLUE COATED COPPER TRACER WIRE TIED OFF AT VALVE BODY. THE WIRE SHALL BE EXTENDED UP ON THE OUTSIDE RISER PIPE A FOOT ABOVE THE VALVE HUB BEFORE THE WIRE IS PUT INTO THE RISER THROUGH A SLOT CUT INTO THE RISER. LEAVE 36" OF WIRE ABOVE THE TOP OF VALVE BOX.
2. ALL WELDS TO THE SHAFT SHALL BE FILLET WELD, AROUND THE ENTIRE PLATE PER #2 BELOW.
3. VALVE BOX AND LID SHALL BE DUCTILE IRON, MANUFACTURED IN THE USA AND SHALL BE A MATCHED SET FROM THE SAME MANUFACTURER.
4. EXISTING SURFACES PAVED WITH PERMEABLE MATERIALS SHALL BE REPLACED IN-KIND WHERE FEASIBLE IN CONFORMANCE WITH 48-180 TRENCH BACKFILL AND RESTORATION.

**VALVE STEM EXTENSION LEGEND:**

- ① VALVE OPERATING NUT OR 1-7/8" x 1-7/8" x 2" HIGH GRADE STEEL WELDED TO GUIDE PLATE.
- ② 3/16" THICK X 5 1/5" DIA STEEL GUIDE PLATE WELDED TO RISER SHAFT.
- ③ 2"x2" X 3/16" SQUARE STRUCTURAL STEEL TUBING TO FIT OPERATING NUT. LENGTH AS REQUIRED.

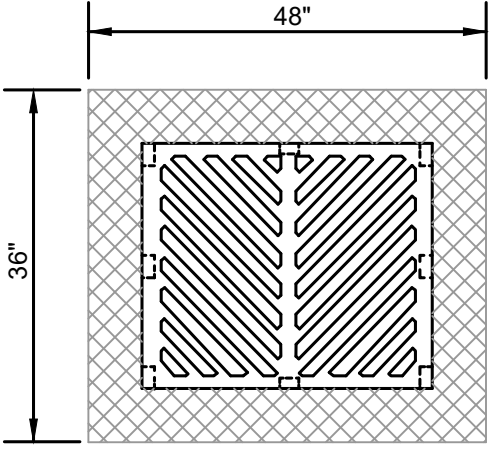
CITY OF LACEY, WASHINGTON DEPT. OF PUBLIC WORKS			
<b>STANDARD VALVE BOX INSTALLATION</b>			<b>DWG. NO.</b> 6-12.0
<b>APPROVED</b> <i>Reg. A Schaefer</i> CITY ENGINEER			<b>DATE</b> 08/24/2017
DES WHO	DWN WHO	CKD RAS	

1

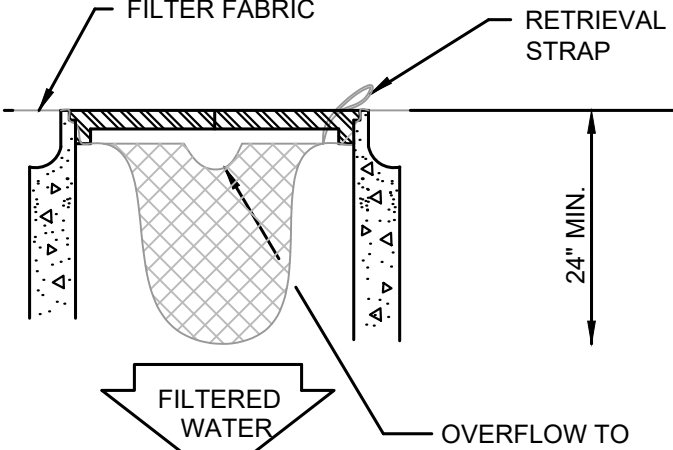
**PIPE TRENCH DETAIL**

TYP

NOT TO SCALE



PLAN



SECTION

NOTES:

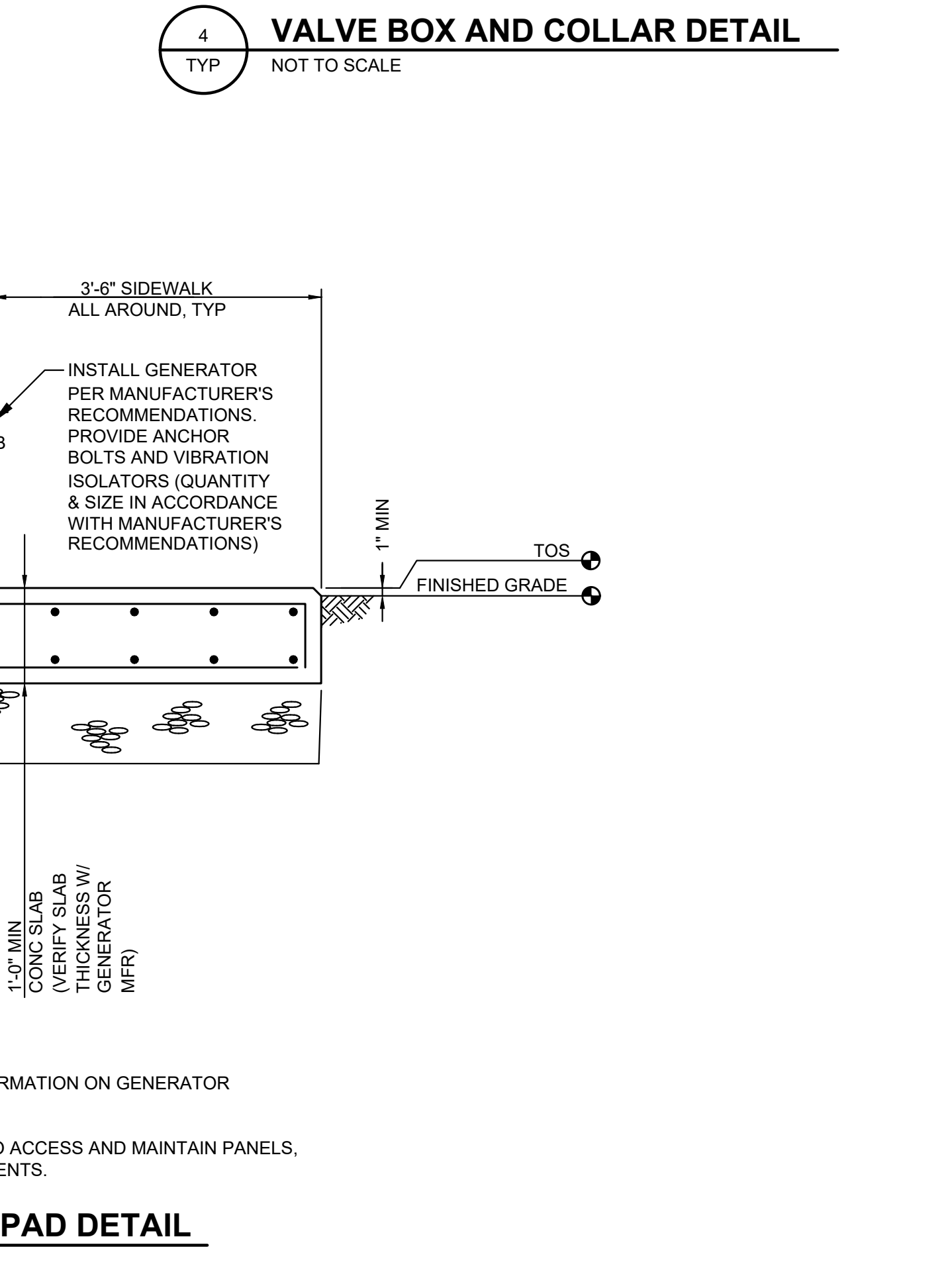
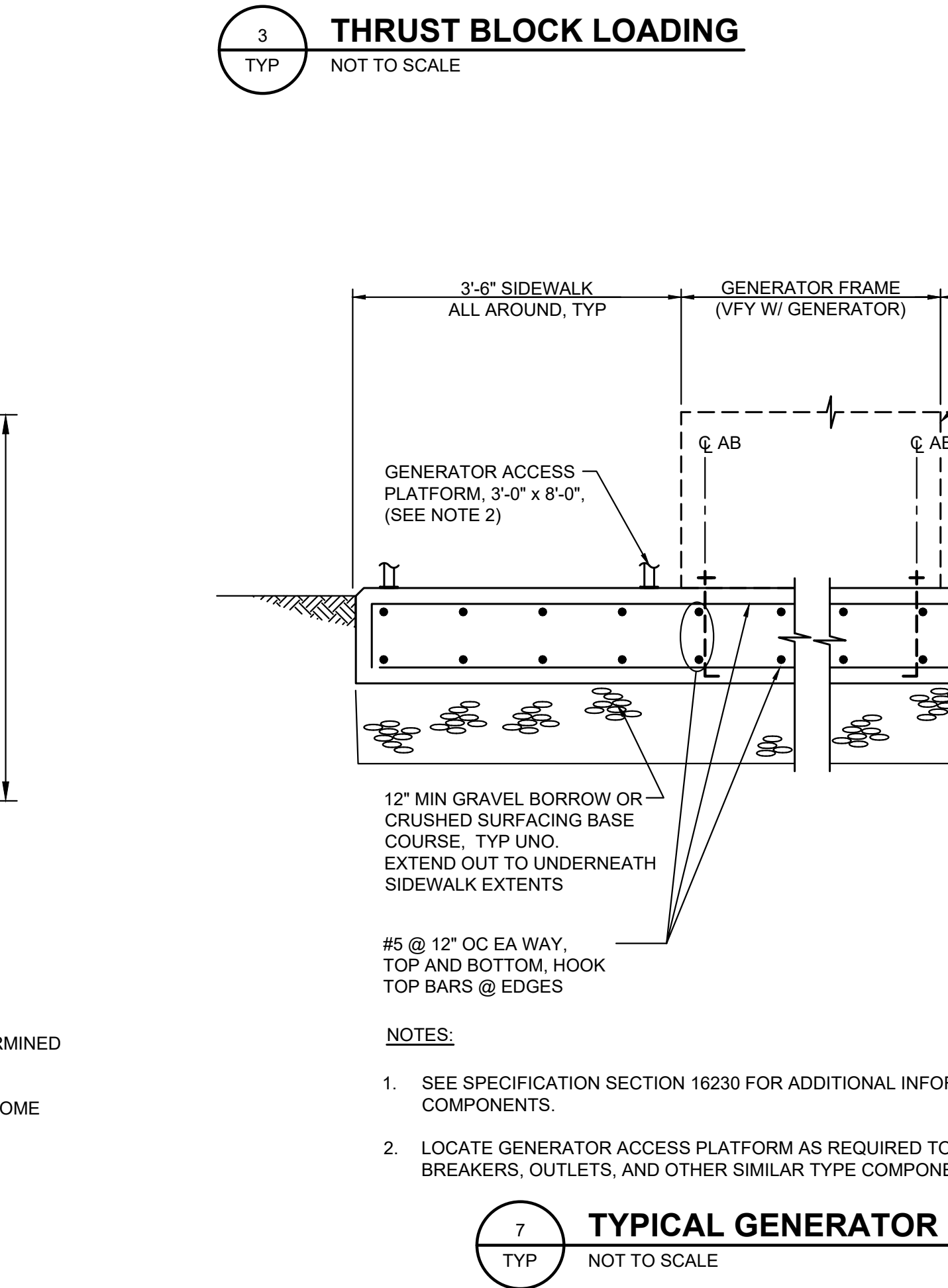
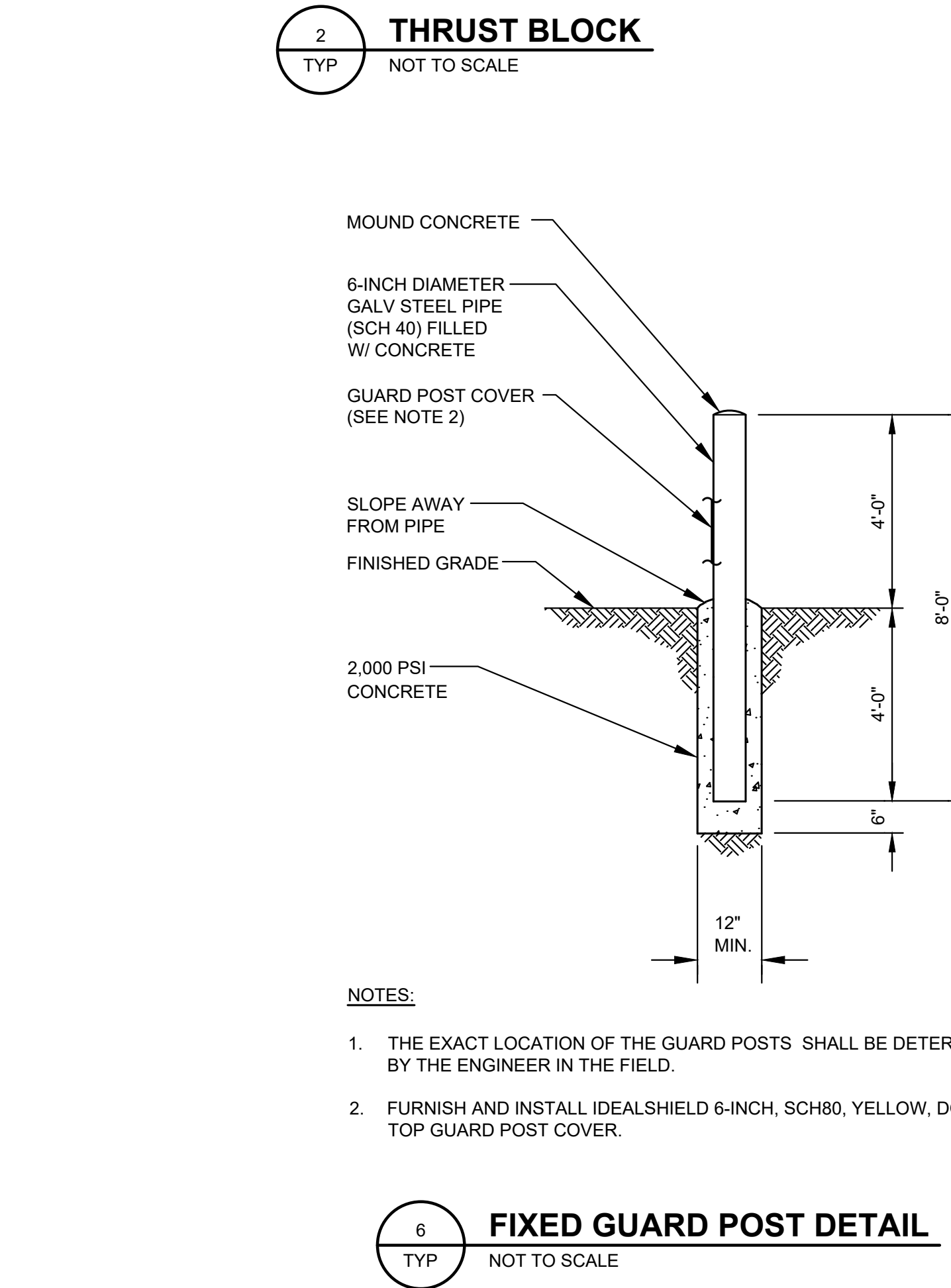
1. REMOVE CATCH BASIN GRATING.
2. CLEAN DIRT AND DEBRIS FROM GRATING LEDGE.
3. LAY THE CATCH BASIN INSERT INSIDE THE BASIN
4. REPLACE THE GRATING, PINCHING THE INSERT FABRIC BETWEEN THE GRATING AND THE CATCH BASIN FRAME.
5. CUT OFF THE EXCESS FABRIC. A 3 TO 5 INCH WIDE STRIP OF FABRIC SHALL BE LEFT AROUND THE OUTSIDE OF THE GRATING

5

**FILTER FABRIC CATCH BASIN INSERT**

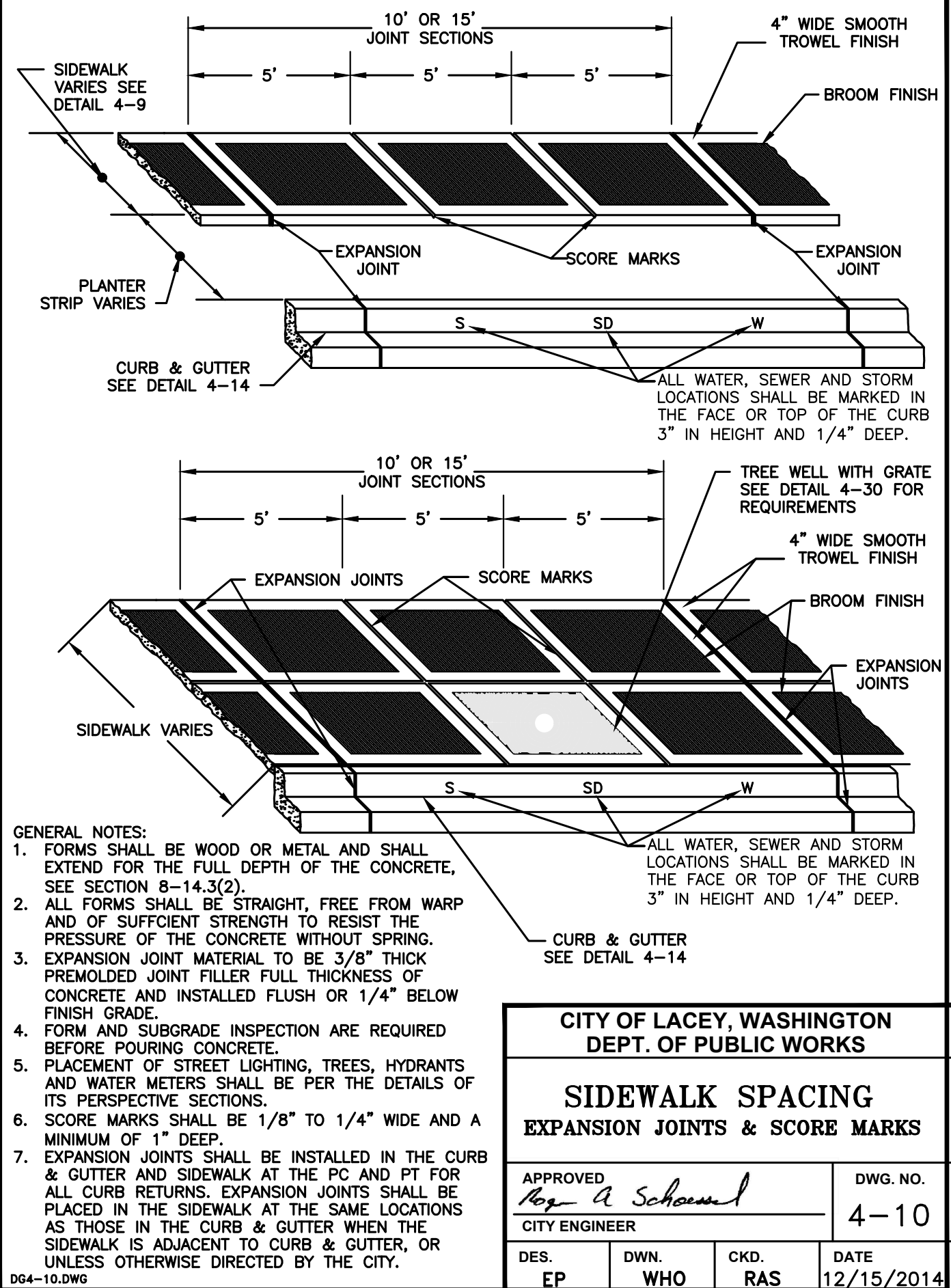
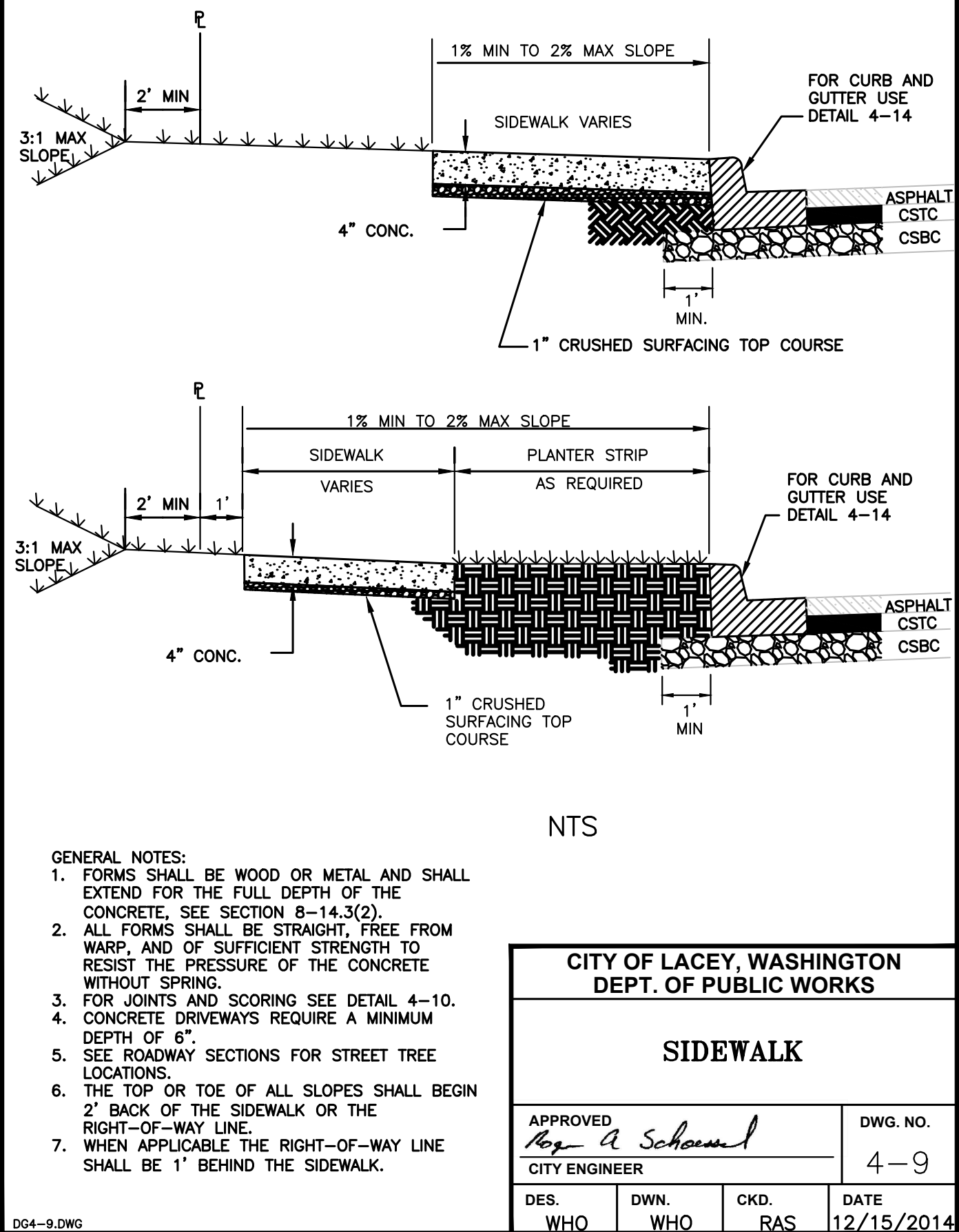
TYP

NOT TO SCALE

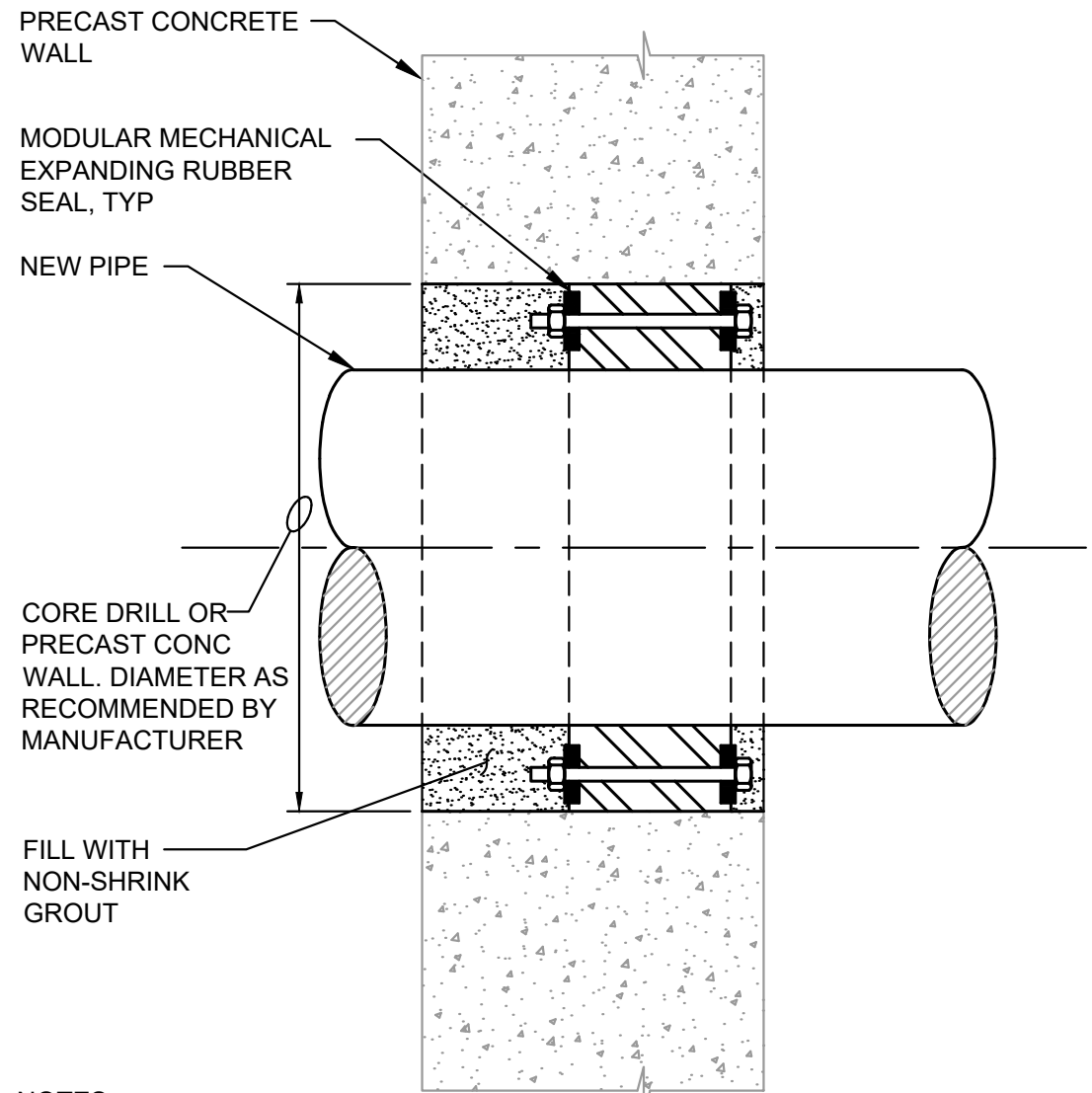
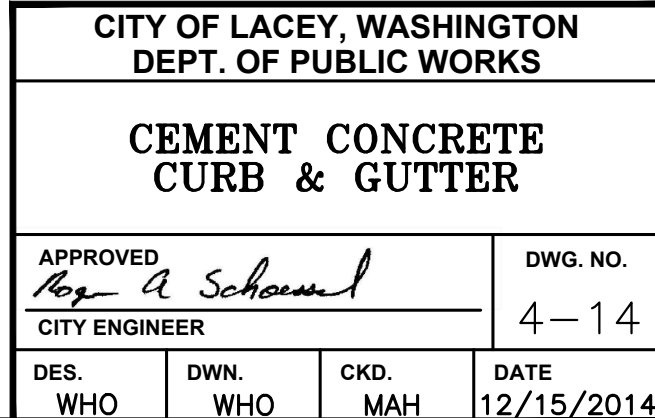




L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\General\G-DET.dwg, 2/2/2024 3:54 PM, PHILIP MARSHALL



- GENERAL NOTES:
1. EXPANSION JOINT MATERIAL TO BE 3/8" THICK PREMOLED. JOINT FILLER FULL THICKNESS OF CONCRETE SPACING.
  2. FORM AND SUBGRADE INSPECTION REQUIRED BEFORE POURING CONCRETE.
  3. TYPE I USED ON OUTSIDE LANES.
  4. TYPE II USED IN REVERSE SLOPE AREAS.
  5. SEE 48.025 FOR SPECIFICATIONS FOR CURBS AT MEDIANS.



- NOTES:
1. FOR PRECAST CONCRETE, AN OPENING SHALL BE PROVIDED OF ADEQUATE SIZE TO ALLOW FOR INSTALLATION OF PENETRATION SHOWN ON THIS DETAIL. THE OPENING SHALL BE FILLED WITH NON-SHRINK GROUT AFTER PIPE INSTALLATION. IF OPENING IS PROVIDED BY CORE DRILLING, RESULTING SMOOTH CONCRETE SURFACES SHALL BE ROUGHENED BEFORE FILLING WITH GROUT.
  2. MODULAR MECHANICAL EXPANDING RUBBER SEALS SHALL BE USED FOR ALL NEW PENETRATIONS IN EXISTING FLOORS AND WALLS FOR ALL PIPES WITH NOMINAL DIAMETER GREATER THAN OR EQUAL TO 1/2 INCH. ALL PIPING LESS THAN 1/2 INCH NOMINAL DIAMETER SHALL HAVE ANNULAR SPACE FILLED WITH NON-SHRINK GROUT. MODULAR MECHANICAL SEALS SHALL BE GPT INDUSTRIES S-316 LINK SEAL, OR EQUAL.

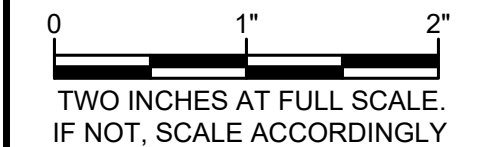


CITY OF LACEY

**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
G-DET.DWG		



## GENERAL

## GENERAL DETAILS

DRAWING: **G-10** OF: **11**

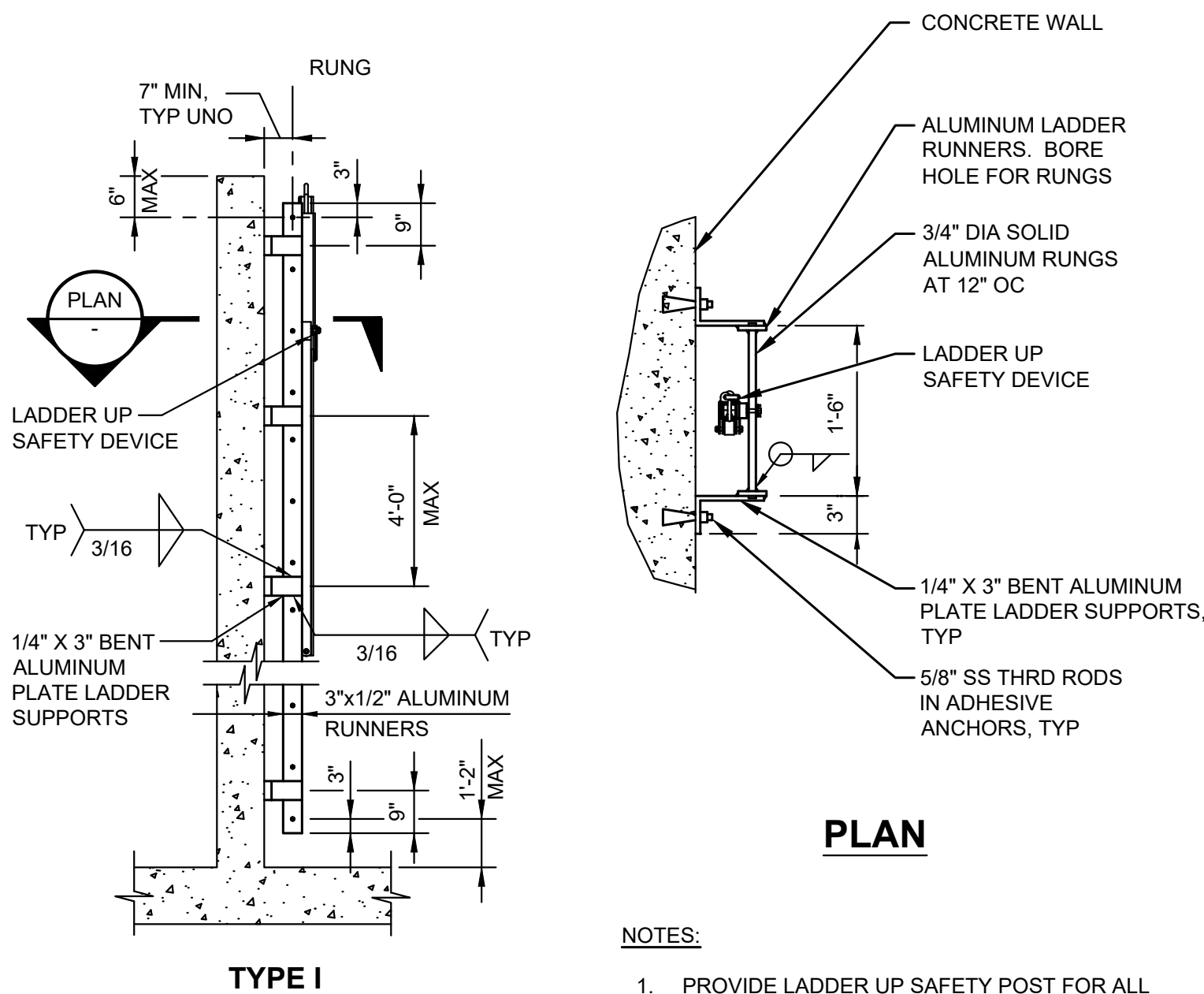
SHEET: **10** OF: **31**

1 **SIDEWALK DETAIL**  
TYP NOT TO SCALE

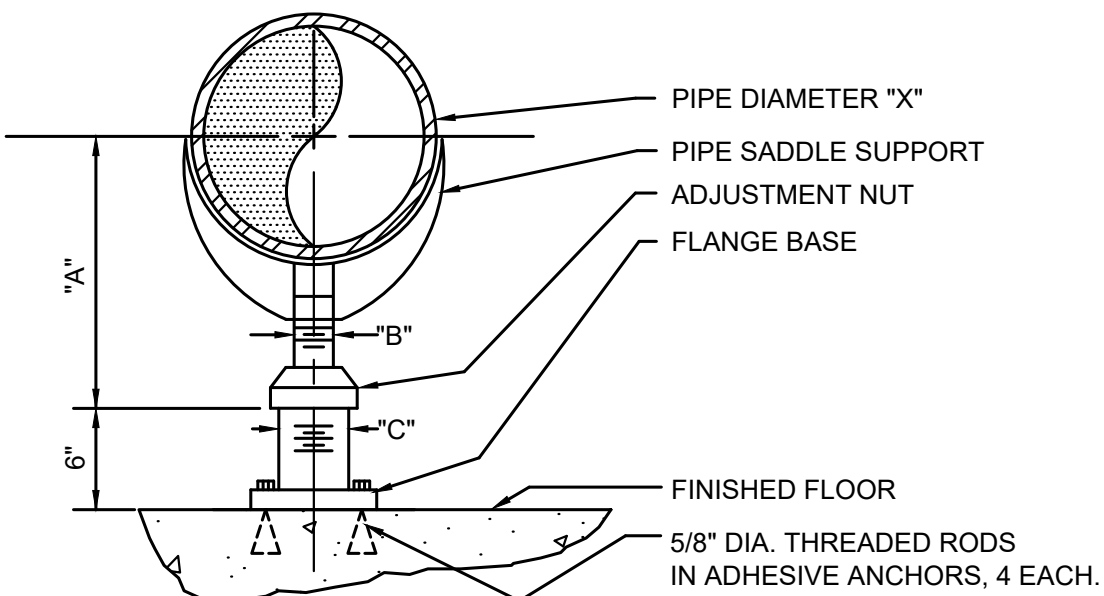
2 **SIDEWALK EXPANSION JOINT DETAIL**  
TYP NOT TO SCALE

3 **CEMENT CONCRETE CURB AND GUTTER**  
TYP NOT TO SCALE

4 **VAULT PENETRATION DETAIL**  
TYP NOT TO SCALE



5 **TYPICAL LADDER DETAIL**  
TYP NOT TO SCALE



PIPE SIZE "X"	MIN. LENGTH "A"	MAX. LENGTH "A"	PIPE DIAM. "B"	PIPE DIAM. "C"
3"	8-1/4"	1' 1-1/4"	1-1/2"	2-1/2"
4"	9-1/4"	1' 2"	2-1/2"	3"
6"	10-1/2"	1' 3-1/4"	2-1/2"	3"
8"	11-3/4"	1' 4-1/2"	2-1/2"	3"
10"	1' - 1-1/2"	1' 6-1/4"	2-1/2"	3"
12"	1' - 3"	1' 7-3/4"	2-1/2"	3"

- NOTES:
1. PIPE SUPPORT SHALL BE TYPE 304SS, STANDON S92, W/SADDLE PAD, SHOE, OR PLATE, OR EQUAL.
  2. PIPE "C" TO BE SET IN THREADED FLANGE BASE AND WELDED ALL AROUND.

6 **PIPE SUPPORT TYPE A**  
TYP NOT TO SCALE



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\General\G-DET.dwg, 2/2/2024 3:54 PM, PHILIP MARSHALL

CITY OF LACEY STANDARD STORMWATER NOTES

1.

A PRECONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF LAND DISTURBING ACTIVITY, CONSTRUCTION OR STAKING OF THE SITE. THE PRECONSTRUCTION MEETING SHALL INCLUDE STAFF FROM STORMWATER, WATER AND SEWER UTILITIES IF APPLICABLE.
2.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE THURSTON COUNTY DRAINAGE DESIGN AND EROSION CONTROL MANUAL (DDECM, 2016), OTHER COUNTY STANDARDS, AND THE MOST CURRENT COPY OF THE STATE OF WASHINGTON STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION (WSDOT/APWA), IN THAT ORDER
3.

CONSTRUCTION STORMWATER POLLUTION AND PREVENTION PLAN (SWPPP) CONSISTENT WITH THE REQUIREMENTS SET FORTH IN VOLUME II IN THE DDECM AND INCLUDES ALL 13 ELEMENTS OR AS REQUIRED IN THE CONSTRUCTION STORMWATER GENERAL PERMIT. BMPS SELECTED FOR IMPLEMENTATION ARE TO BE APPROVED BY ECOLOGY AND ARE TO CONFORM TO THE CURRENT STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON.
4.

THE SWPPP AND A COPY OF THE APPROVED STORMWATER PLANS SHALL BE ONSITE AT ALL TIMES WHEN CONSTRUCTION IS IN PROGRESS. WHENEVER INSPECTION AND/OR MONITORING REVEALS THAT THE BMPS ARE INADEQUATE, DUE TO DISCHARGE, TRACK OUT, OR POTENTIAL TO DISCHARGE, BMPS OR DESIGN CHANGES SHALL BE IMPLEMENTED AS SOON AS POSSIBLE.
- IF DEFICIENCIES ARE IDENTIFIED THE FOLLOWING ACTIONS SHALL BE TAKEN BY THE COUNTY. IT SHALL BE AT THE DISCRETION OF THE INSPECTOR WHICH ACTION WILL BE TAKEN BASED ON THE SEVERITY OR HISTORY OF THE SITE.

A.

1ST ACTION TAKEN IS A VERBAL WARNING TO THE FOREMAN OR PERSON OVERSEEING THE SITE.

B.

2ND ACTION TAKEN IS A WRITTEN INSPECTION WITH ACTIONS TO BE TAKEN SIGNED BY THE FOREMAN OR PERSON OVERSEEING THE SITE.

C.

3RD ACTION TAKEN IF CORRECTIVE ACTIONS ARE NOT TAKEN, COMPLETED OR ISSUES CONTINUE TO BE FOUND WILL BE A WRITTEN NOTICE AND A STOP WORK ORDER SHALL BE POSTED.
5.

SEASONAL WORK LIMITATIONS – FROM OCTOBER 1 THROUGH APRIL 30, CLEARING, GRADING, AND OTHER SOIL DISTURBING ACTIVITIES WILL NOT BE PERMITTED UNLESS IT IS SHOWN TO THE SATISFACTION OF THE COUNTY THAT SILT-LADEN RUNOFF WILL BE PREVENTED FROM LEAVING THE SITE THROUGH A COMBINATION OF THE FOLLOWING:
  - SITE CONDITIONS INCLUDING EXISTING VEGETATIVE COVERAGE, SLOPE, SOIL TYPE, AND PROXIMITY TO RECEIVING WATERS; AND
  - LIMITATIONS ON ACTIVITIES AND THE EXTENT OF DISTURBED AREAS; AND
  - PROPOSED EROSION AND SEDIMENT CONTROL MEASURESTHE COUNTY MAY EXPAND OR RESTRICT THE SEASONAL LIMITATION OR SITE DISTURBANCE BASED ON SITE INSPECTIONS, LOCAL WEATHER CONDITIONS, OR OTHER INFORMATION.
  - IF, DURING THE COURSE OF ANY CONSTRUCTION ACTIVITY OR SOIL DISTURBANCE DURING THE SEASONAL LIMITATION PERIOD, SILT-LADEN RUNOFF LEAVING THE CONSTRUCTION SITE CAUSES A VIOLATION OF THE SURFACE WATER QUALITY STANDARD; OR
  - IF CLEARING AND GRADING LIMITS OR EROSION AND SEDIMENT CONTROL MEASURES SHOWN IN THE APPROVED PLAN ARE NOT MAINTAINED, THE COUNTY MAY TAKE ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO A NOTICE OF VIOLATION, ADMINISTRATIVE ORDER, FINE/PENALTY, STOP-WORK ORDER, OR CORRECTION NOTICE.
6.

EXPPOSED SOILS SHALL NOT BE LEFT EXPOSED AND UNWORKED FOR MORE THAN 2 DAYS BETWEEN (OCTOBER 1 – APRIL 30) OR 7 DAYS BETWEEN (MAY 1 – SEPT. 30).
7.

ENSURE THAT CONCRETE WASHING AND CURING WATERS, WASTE STREAMS GENERATED FROM CONCRETE GRINDING AND SAWING, EXPOSED AGGREGATE PROCESSES, DEWATERING CONCRETE VAULTS, CONCRETE PUMPING AND MIXER WASHOUT IS PERFORMED OFFSITE OR IN DESIGNATED CONCRETE WASHOUT AREAS ONLY. DO NOT WASH OUT CONCRETE TRUCKS ONTO THE GROUND, OR INTO STORM DRAINS, OPEN DITCHES, STREETS, OR STREAMS. DO NOT DUMP EXCESS CONCRETE ON SITE, EXCEPT IN DESIGNATED CONCRETE WASHOUT AREAS. REFER TO THE DDECM OR STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON FOR BMPS. CONCRETE SPILLAGE OR CONCRETE DISCHARGE TO STORMWATER FACILITIES IS AN ILLICIT DISCHARGE.
8.

APPLICANT SHALL COMPLY WITH ALL OTHER PERMITS AND OTHER REQUIREMENTS OF THE GOVERNING AUTHORITY OR AGENCY.
9.

ALL STORM MAINS AND RETENTION/DETENTION AREAS SHALL BE STAKED FOR GRADE AND ALIGNMENT BY AN ENGINEERING OR SURVEY FIRM LICENSED TO PERFORM SUCH WORK.
10.

STORM DRAIN PIPE MATERIALS SHALL BE AS SPECIFIED IN THE DRAINAGE DESIGN AND EROSION CONTROL MANUAL. PIPE SIZE, SLOPE, COVER, ETC., SHALL BE AS SPECIFIED IN VOLUME III OF THE DDCEM.
11.

THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO APPROVED PLANS ON FILE WITH THE JURISDICTION. ANY MATERIAL DEVIATION FROM THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM THE JURISDICTION.
12.

SPECIAL STRUCTURES, OIL/WATER SEPARATORS, AND OUTLET CONTROLS SHALL BE INSTALLED PER PLANS AND MANUFACTURER'S RECOMMENDATIONS.
13.

WASHINGTON LAW REQUIRES THAT THE RULES ADOPTED BY WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION BE FOLLOWED. THOSE RULES ARE SET FORTH IN RCW 19.122 AND REQUIRES ANYONE PERFORMING ANY TYPE OF DIGGING TO CALL AT LEAST TWO BUSINESS DAYS BEFORE DIGGING. DIAL 811 OR 1-800-424-5555 OR VISIT WWW.CALLBEFOREYOU.DIG.ORG.
14.

ALL SURVEYING AND STAKING SHALL BE PERFORMED BY AN ENGINEERING OR SURVEYING FIRM CAPABLE OF PERFORMING SUCH WORK. THE ENGINEER OR SURVEYOR DIRECTING SUCH WORK SHALL BE LICENSED BY THE STATE OF WASHINGTON.
15.

THE MINIMUM STAKING OF STORM SEWER SYSTEMS SHALL BE AS FOLLOWS:
  - STAKE LOCATION OF ALL CATCH BASINS/MANHOLES AND OTHER FIXTURES FOR GRADE AND ALIGNMENT.
  - STAKE LOCATION, SIZE, AND DEPTH OF RETENTION/DETENTION FACILITY.
  - STAKE FINISHED GRADE OF ALL STORMWATER FEATURES, INCLUDING BUT NOT LIMITED TO CATCH BASIN/MANHOLE RIM ELEVATIONS, OVERFLOW STRUCTURES, WEIRS, AND INVERT ELEVATIONS OF ALL PIPES IN CATCH BASINS, MANHOLES, AND THOSE PIPES THAT DAYLIGHT.
16.

FINAL ELEVATIONS, LOCATIONS, SLOPES, GRADES, ROADWAY ALIGNMENTS, ETC., SHALL BE BASED ON A FIELD SURVEY CONDUCTED BY A LICENSED PROFESSIONAL SURVEYOR AND SHALL BE STAMPED BY THE SURVEYOR AS A RECORD OF THE FINAL CONSTRUCTED LOCATION AND ELEVATION OF FACILITIES SHOWN.
17.

A CONTINUOUS TONING WIRE SHALL BE BURIED THE ENTIRE LENGTH OF ALL STORMWATER PIPE AND BE LOCATED AND ATTACHED TO THE TOP OF THE PIPE. THE TONING WIRE SHALL BE 12-GAUGE INSULATED GREEN TONING WIRE. THE TONING WIRE SHALL END IN CATCH BASINS, MANHOLES, OTHER STRUCTURES, AND BE PLACED IN AN ORGANIZED MANNER ON A STAINLESS STEEL CONCRETE WEDGE ANCHOR AND/OR HOOK WITHIN SIX (6) INCHES OF LID OR GRATE OR END OF PIPE IF NO STRUCTURES PRESENT I.E., CROSS CULVERT WITH A MINIMUM OF FIVE (5) FOOT COIL OF WIRE SO IT WILL NOT FALL OFF AND CAN BE ACCESSED WITHOUT ENTERING THE STRUCTURE. THE TONING WIRE SHALL BE TESTED FOR CONTINUITY PRIOR TO ACCEPTANCE. ALL SPLICES WILL BE MADE WITH COPPERHEAD SNAKEBITE CONNECTORS OR 3M DBR MOISTURE DISPLACEMENT CONNECTORS SPLICE KITS DESIGNED FOR IN-GROUND USE.
18.

UNDERGROUND WARNING TAPE SHALL BE PLACED APPROXIMATELY TWELVE INCHES (12") ABOVE THE TOP OF PIPE INDICATING STORMWATER PIPE.
19.

ALL CULVERTS SHALL BE A MINIMUM OF TWELVE INCHES (12") DIAMETER AND OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM 3:1 SLOPE FROM THE EDGE OF THE DRIVEWAY OR ROADWAY TO THE BOTTOM OF THE DITCH. THE CULVERT SHALL EXTEND ONE FOOT OUTSIDE THE DRIVEWAY OR ROADWAY RADIUS BEFORE THE BEVEL TO ALLOW FOR RIPRAP ARMORING TO PREVENT SLOUGHING OF THE BASE/CRUSHED ROCK INTO THE DITCH. CULVERTS SHALL HAVE BEVELED ENDS TO MATCH THE SIDE SLOPE. DUCTILE IRON PIPE SHALL BE CUT SHORT TO ALLOW FOR TRANSITION TO PVC OR PE BEVELED PIPE ENDS THAT ARE EXPOSED IN OPEN CONVEYANCE SYSTEM.
20.

THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO ACCEPTED PLANS ON FILE WITH THE COUNTY. ANY MATERIAL DEVIATION FROM THE PLANS WILL REQUIRE WRITTEN ACCEPTANCE FROM THE DRAINAGE MANUAL ADMINISTRATOR OR DESIGNEE.
21.

CATCH BASIN GRATES SHALL BE DIRECTIONAL GRATES WHERE GRADE OR SLOPE IS GREATER THAN OR EQUAL TO 1%.
22.

A COPY OF THE ACCEPTED STORMWATER PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
23.

ALL BUILDING DOWNSPOUTS ON COMMERCIAL SITES SHALL BE CONNECTED TO THE STORM DRAINAGE SYSTEM, UNLESS OTHERWISE ACCEPTABLE TO THE COUNTY.
24.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE CURRENT WSDOT STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL OR MUTCD SHALL APPLY.
25.

IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN STREET USE AND OTHER RELATED OR REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION ACTIVITY IN THE COUNTY RIGHT-OF-WAY. IT SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS PRIOR TO ANY CONSTRUCTION.
26.

ALL NEW STORM DRAIN PIPELINES SHALL BE CLOSED-CIRCUIT TELEVISION (CCTV) INSPECTED AND AIR PRESSURE TESTED (APT) BY THE DEVELOPER, CONTRACTOR OR APPLICANT AFTER ALL UNDERGROUND UTILITIES ARE INSTALLED AND COMPACTION OF THE ROADWAY SUBGRADE IS COMPLETE. REQUIRED PRE-NOTIFICATION: THE CONTRACTOR SHALL NOTIFY THE COUNTY STORM AND SURFACE WATER UTILITY AT 360-867-2099 AT LEAST 3 WORKING DAYS IN ADVANCE OF THE FIRST TELEVISION INSPECTION.
27.

THERMO-PLASTIC DRAINAGE MARKINGS ARE REQUIRED FOR ALL STRUCTURES IN THE ROADWAY. PLEASE CONTACT THE STORM AND SURFACE WATER UTILITY AT 360-867-2099 FOR MARKING STANDARDS.
28.

THE PROJECT ENGINEER SHALL INSPECT DRAINAGE AND EROSION CONTROL FACILITIES PERIODICALLY DURING CONSTRUCTION. THE PROJECT ENGINEER SHALL PROVIDE, AT A MINIMUM, INSPECTION CERTIFICATION FOR THE DRAINAGE AND EROSION CONTROL FACILITIES FOLLOWING ANY STORM EVENT WITH PRECIPITATION EQUAL TO OR EXCEEDING 2 INCHES IN A 24-HOUR PERIOD. FAILURE TO SUBMIT CERTIFICATION TO THE COUNTY WITHIN 24 HOURS FOLLOWING SUCH AN EVENT MAY RESULT IN A STOP WORK ORDER BEING PLACED ON THE PROJECT.
29.

ALL CASTINGS OR STRUCTURES NOT IN PAVEMENT AREAS, AND NOT IN THE ROADWAY RIGHT-OF-WAY OF A PAVED ROAD, SHALL BE SET SIX INCHES (6") ABOVE FINISHED GRADE. THEY SHALL HAVE A CAST IRON FRAME AND COVER GROUTED TO JUST UNDER THE TOP OF THE FRAME AND A CONCRETE PAD EXTENDING OUT 2 FEET IN ALL DIRECTIONS.
30.

ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY STABILIZED TO THE SATISFACTION OF THURSTON COUNTY. FOR SITE WHERE GRASS HAS BEEN PLANTED THROUGH HYDROSEEDING, FINAL WILL NOT OCCUR UNTIL THE GRASS HAS BEEN THOROUGHLY ESTABLISHED (90% ESTABLISHMENT), UNLESS OTHERWISE APPROVED BY THE COUNTY.
31.

NO TREES OR SHRUBS MAY BE PLANTED WITHIN 25 FEET OF INLET OR OUTLET PIPES OR MANMADE DRAINAGE STRUCTURES SUCH AS SPILLWAYS OR FLOW SPREADERS. SPECIES WITH ROOTS THAT SEEK WATER, SUCH AS WILLOW OR POPLAR, SHALL BE AVOIDED WITHIN 50 FEET OF PIPES OR MANMADE STRUCTURES.
32.

TCC 18.16.020 BONDING OF DRAINAGE IMPROVEMENTS SHALL NOT BE ALLOWED AND FACILITIES WILL BE CONSTRUCTED AND COMPLETE PRIOR TO FINAL.

TEMPORARY COVER PRACTICES:

1.

DISTURBED AREAS WHICH ARE TO REMAIN WITHOUT PERMANENT COVER FOR MORE THAN 30 DAYS, SHALL BE STABILIZED BY PROVIDING TEMPORARY SEEDING, MULCHING, MATTING, OR CLEAR PLASTIC COVERING AS A GUARD AGAINST EROSION.

FILTER FENCE

1.

THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST.
2.

POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 30 INCHES (WHERE PHYSICALLY POSSIBLE).
3.

A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 8 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER. THE TRENCH SHALL BE CONSTRUCTED TO FOLLOW THE CONTOUR.
4.

WHEN SILT FILM FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING TIE WIRES, HOG RINGS, OR HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5.

SILT FILM FILTER FABRIC SHALL BE WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL EXTEND INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. OTHER TYPES OF FABRIC MAY BE STAPLED TO THE FENCE.
6.

WHEN EXTRA-STRENGTH OR MONOFILAMENT FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF FILTER FENCE NOTE 5 APPLYING. EXTRA CARE SHOULD BE USED WHEN JOINING OR OVERLAPPING THESE STIFFER FABRICS.
7.

FILTER FABRIC FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED. RETAINED SEDIMENT MUST BE REMOVED AND PROPERLY DISPOSED OF, OR MULCHED AND SEEDED.
8.

INSPECT IMMEDIATELY AFTER EACH RAINFALL, AND AT LEAST DAILY DURING PROLONGED RAINFALL. REPAIR AS NECESSARY.
9.

SEDIMENT MUST BE REMOVED WHEN IT REACHES APPROXIMATELY ONE THIRD THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED.
10.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE FILTER FENCE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.

STABILIZATION AND REMOVAL

1.

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY "BEST MANAGEMENT PRACTICES" ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.

HYDROSEEDING

1.

CONSTRUCTION ACCEPTANCE WILL BE SUBJECT TO A WELL-ESTABLISHED GROUND COVER THAT FULFILLS THE REQUIREMENT OF THE APPROVED CONSTRUCTION PLANS
2.

HYDROSEED (WITH MULCH) ALL DISTURBED AREA (2,000 LB/ACRE). APPLY EROSION CONTROL NETTING ON ALL SLOPES GREATER THAN 4:1, STAPLE NETTING TO SLOPES, AS REQUIRED.
3.

FERTILIZER SHALL BE APPLIED AT 400# PER ACRE OF 10-20-20 (10 POUNDS PER 1100 SQUARE FEET) OR EQUIVALENT. DEVELOPMENTS ADJACENT TO WATER BODIES SHALL USE NON-PHOSPHORUS FERTILIZER.

STANDARD EROSION AND SEDIMENT CONTROL (ESC) PLAN NOTES

1.

APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G., SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
2.

THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
3.

THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY A CONTINUOUS LENGTH OF SURVEY TAPE (OR FENCING, IF REQUIRED) PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
4.

THE ESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
5.

THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G., ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.).
6.

THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE ESC FACILITIES DURING THE WET SEASON (OCT. 1 TO APRIL 30) AND OF MONTHLY REVIEWS DURING THE DRY SEASON (MAY 1 TO SEPT. 30).
7.

ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED ESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).

8.

ANY AREA NEEDING ESC MEASURES THAT DO NOT REQUIRE IMMEDIATE ATTENTION SHALL BE ADDRESSED WITHIN FIFTEEN WORKING DAYS.
9.

THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN FORTY EIGHT HOURS FOLLOWING A STORM EVENT.
10.

AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
11.

WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF 3 INCHES.
12.

PRIOR TO BEGINNING OF THE WET SEASON (OCT. 1), ALL DISTURBED AREAS SHALL BE REVIEWED TO IDENTIFY WHICH ONES CAN BE SEEDED IN PREPARATION FOR THE WINTER RAINS. DISTURBED AREAS SHALL BE SEEDED WITHIN ONE WEEK OF THE BEGINNING OF THE WET SEASON. A SKETCH MAP OF THOSE AREAS TO BE SEEDED AND IN THOSE AREAS TO REMAIN UNCOVERED SHALL BE SUBMITTED TO THE INSPECTOR. THE INSPECTOR CAN REQUIRE SEEDING OF ADDITIONAL AREAS IN ORDER TO PROTECT SURFACE WATERS, ADJACENT PROPERTIES, OR DRAINAGE FACILITIES.

EROSION/SEDIMENTATION CONTROL NOTES

1.

ALL LIMITS OF CLEARING AND AREAS OF VEGETATION PRESERVATION SHALL BE OBSERVED DURING CONSTRUCTION.
2.

ALL REQUIRED SEDIMENTATION/EROSION CONTROL FACILITIES MUST BE IN OPERATION PRIOR TO LAND CLEARING AND/OR OTHER CONSTRUCTION TO INSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER THE NATURAL DRAINAGE SYSTEM. ALL EROSION AND SEDIMENT FACILITIES SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED AND THE POTENTIAL FOR ON-SITE EROSION HAS PASSED. THE IMPLEMENTATION, MAINTENANCE, REPLACEMENT AND ADDITIONS TO EROSION/SEDIMENTATION CONTROL SYSTEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3.

THE EROSION AND SEDIMENTATION CONTROL SYSTEMS DEPICTED ON THIS DRAWING ARE INTENDED TO BE MINIMUM REQUIREMENTS TO MEET ANTICIPATED SITE CONDITIONS. AS CONSTRUCTION PROGRESSES AND AS UNEXPECTED OR SEASONAL CONDITIONS DICTATE, THE CONTRACTOR SHOULD ANTICIPATE THAT MORE EROSION AND SEDIMENTATION CONTROL FACILITIES WILL BE NECESSARY TO INSURE COMPLETE SILTATION CONTROL ON THE PROPOSED SITE. DURING THE COURSE OF CONSTRUCTION, IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES, OVER AND ABOVE THE MINIMUM REQUIREMENTS, AS MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES AND THE WATER QUALITY OF THE RECEIVING DRAINAGE SYSTEM.
4.

AT NO TIME SHALL MORE THAN ONE FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND DISPOSING OF THE SEDIMENT. ALL CATCH BASINS, CONVEYANCE LINES AND DITCHES SHALL BE CLEANED PRIOR TO PAVING.
5.

THE CONTRACTOR SHALL REMOVE MATERIAL DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO THE COUNTY RIGHT-OF-WAY OR INTO THE EXISTING STORM DRAINAGE SYSTEM. DEBRIS SHALL NOT BE WASHED INTO THE STORM DRAINAGE SYSTEM.
6.

TEMPORARY EROSION CONTROL FACILITIES SHALL BE INSPECTED WEEKLY AND MAINTAINED WITHIN 24 HOURS FOLLOWING A STORM EVENT. SEDIMENT SHALL BE REMOVED TO INSURE THE FACILITIES WILL FUNCTION PROPERLY. THE FACILITIES SHALL BE SATISFACTORILY MAINTAINED UNTIL CONSTRUCTION IS COMPLETED AND THE POTENTIAL FOR ON-SITE EROSION HAS PASSED.
7.

ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT STORMWATER RUNOFF SHALL NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
8.

NO DISTURBED SOIL SHALL REMAIN UNSTABILIZED FOR MORE THAN TWO DAYS.

CONSTRUCTION SEQUENCE

A DETAILED CONSTRUCTION SEQUENCE IS NEEDED TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE APPLIED AT THE APPROPRIATE TIMES. A RECOMMENDED CONSTRUCTION SEQUENCE IS PROVIDED BELOW:

1.

HOLD THE PRE-CONSTRUCTION MEETING.
2.

FLAG OR FENCE CLEARING LIMITS.
3.

POST A SIGN WITH THE NAME AND PHONE NUMBER OF THE ESC SUPERVISOR AND THURSTON COUNTY PUBLIC WORKS.
4.

INSTALL PERIMETER PROTECTION (FILTER FENCE, BRUSH BARRIER, ETC.).
5.

CONSTRUCT SURFACE WATER CONTROLS (INTERCEPTOR DIKES, PIPE SLOPE DRAINS, ETC.) SIMULTANEOUSLY WITH CLEARING AND GRADING FOR PROJECT DEVELOPMENT.
6.

MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THURSTON COUNTY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
7.


RELOCATE SURFACE WATER CONTROLS OR EROSION CONTROL MEASURES, OR INSTALL NEW MEASURES SO THAT AS SITE CONDITIONS CHANGE, THE EROSION AND SEDIMENTATION CONTROL IS ALWAYS IN ACCORDANCE WITH THE THURSTON COUNTY EROSION AND SEDIMENT CONTROL STANDARDS.
8.

COVER ALL AREAS THAT WILL BE UNWORKED FOR MORE THAN SEVEN DAYS DURING THE DRY SEASON OR TWO DAYS DURING THE WET SEASON WITH STRAW, WOOD FIBER MULCH, COMPOST, PLASTIC SHEETING, OR EQUIVALENT.
9.

STABILIZE ALL AREAS WITHIN SEVEN DAYS OF REACHING FINAL GRADE.
10.


SEED ANY AREAS TO REMAIN UNWORKED FOR MORE THAN 30 DAYS.
11.

UPON COMPLETION OF THE PROJECT, STABILIZE ALL DISTURBED AREAS AND REMOVE BMPS IF APPROPRIATE.




Gray & Osborne, Inc.  
CONSULTING ENGINEERS

1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860



PHILIP MARSHALL  
2/6/24  
53790  
REGISTERED  
PROFESSIONAL ENGINEER



CITY OF LACEY

S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS



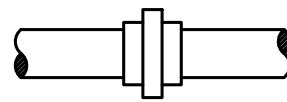

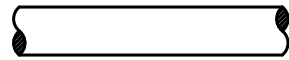
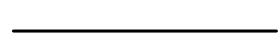



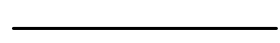



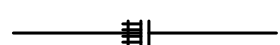



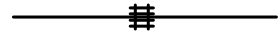
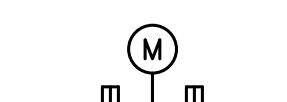
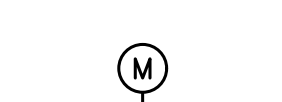

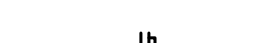
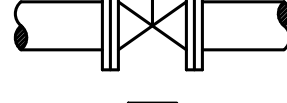
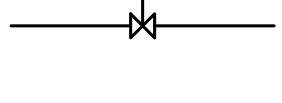


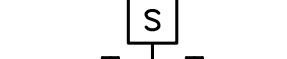

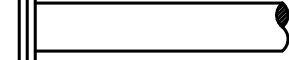
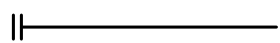



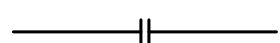


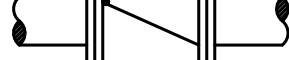
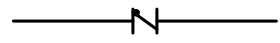
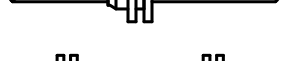



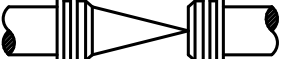
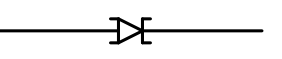

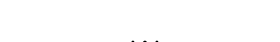


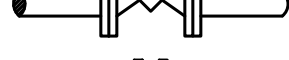







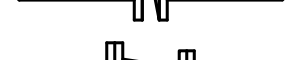


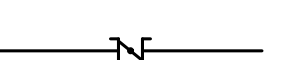

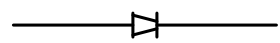


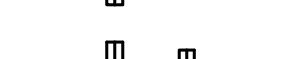


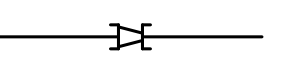

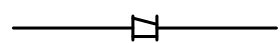








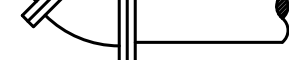
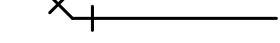
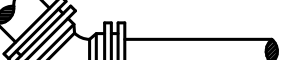



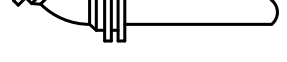

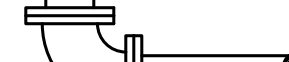


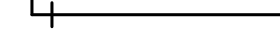


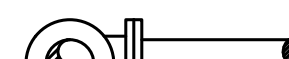



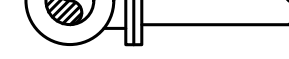

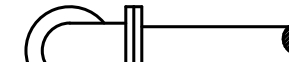

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
		BID SET
ISSUE DATE:		FEB 2024
APPROVED BY:		KPS
CHECKED BY:		RLP
DRAWN BY:		PGM
DESIGNER:		KPS
G & O JOB NO.:		22625.00
FILE:		G-DET.DWG
<div><div><div>0</div><div>1"</div><div>2"</div></div><div>TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY</div></div>		
GENERAL		
TESC NOTES		
DRAWING: <b>G-11</b> OF: <b>11</b>		
SHEET: <b>11</b> OF: <b>31</b>		



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Mechanical\M-1.dwg, 2/2/2024 3:54 PM, PHILIP MARSHALL

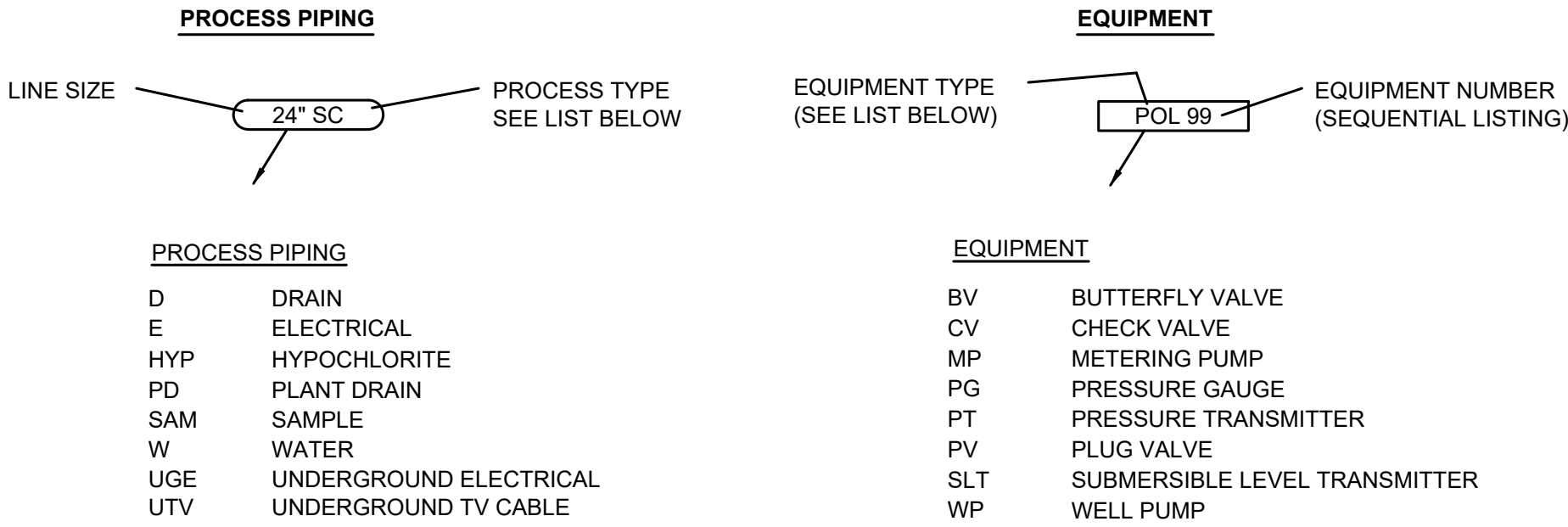
PIPING SYMBOLS

DOUBLE LINE	SINGLE LINE		DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE			UNION
		NEW PIPE			BELL UP
		WELDED			FLEXIBLE HOSE OR TUBING
		FLANGED COUPLING ADAPTER			BALL VALVE
		FLEXIBLE COUPLING			VALVE WITH MOTOR ACTUATOR
		ADAPTER FLANGE			SOLENOID VALVE
		RUBBER EXPANSION JOINT			SOLID SLEEVE
		BLIND FLANGE			MECHANICAL JOINT
		FLANGED			MECHANICAL JOINT CHECK VALVE
		FLANGED CHECK VALVE			MECHANICAL JOINT GATE VALVE
		FLANGED GATE VALVE			MECHANICAL JOINT PLUG VALVE
		FLANGED PLUG VALVE			MECHANICAL JOINT BUTTERFLY VALVE
		FLANGED BUTTERFLY VALVE			MECHANICAL JOINT CONCENTRIC REDUCER
		FLANGED CONCENTRIC REDUCER			MECHANICAL JOINT ECCENTRIC REDUCER
		FLANGED ECCENTRIC REDUCER			MECHANICAL JOINT ELBOW, 45°
		FLANGED ELBOW, 45°			MECHANICAL JOINT ELBOW, 90°
		FLANGED ELBOW, 90°			MECHANICAL JOINT ELBOW UP
		FLANGED ELBOW UP			MECHANICAL JOINT ELBOW DOWN
		FLANGED ELBOW DOWN			
		FLANGED TEE			MECHANICAL JOINT TEE
		FLANGED TEE UP			MECHANICAL JOINT TEE UP
		FLANGED TEE DOWN			MECHANICAL JOINT TEE DOWN
		FLANGED CROSS			
		FLANGED WYE			MECHANICAL JOINT CROSS
		DIAPHRAGM VALVE			MECHANICAL JOINT WYE
		SCREWED JOINT			
		GROOVED COUPLING			

EXISTING EQUIPMENT TO BE  
ABANDONED IN PLACE, RELOCATED,  
OR SALVAGED TO OWNER.

EXISTING EQUIPMENT TO BE  
DEMOLISHED

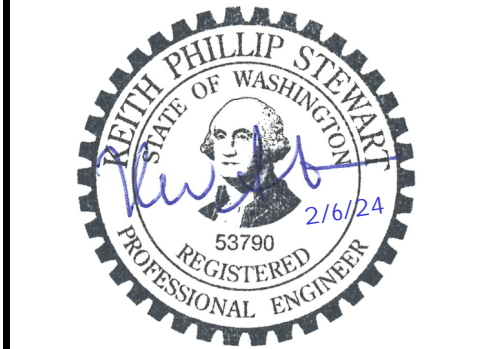
PROCESS PIPING / EQUIPMENT IDENTIFICATIONS



NOTES:

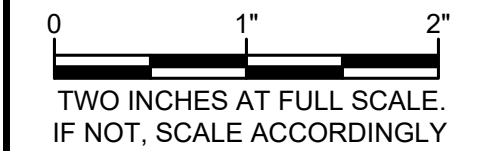
- FOR PIPE SCHEDULE SEE SPECIFICATION SECTION D AND SECTION E - 15050.
- FOR ADDITIONAL ABBREVIATIONS AND SYMBOLS SEE CORRESPONDING GENERAL AND ELECTRICAL SHEETS.

  
Gray & Osborne, Inc.  
CONSULTING ENGINEERS  
1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860



**CITY OF LACEY**  
**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
		BID SET
ISSUE DATE:		FEB 2024
APPROVED BY:		KPS
CHECKED BY:		RLP
DRAWN BY:		PGM
DESIGNER:		KPS
G & O JOB NO.:		22625.00
FILE:		M-1.DWG



**MECHANICAL**

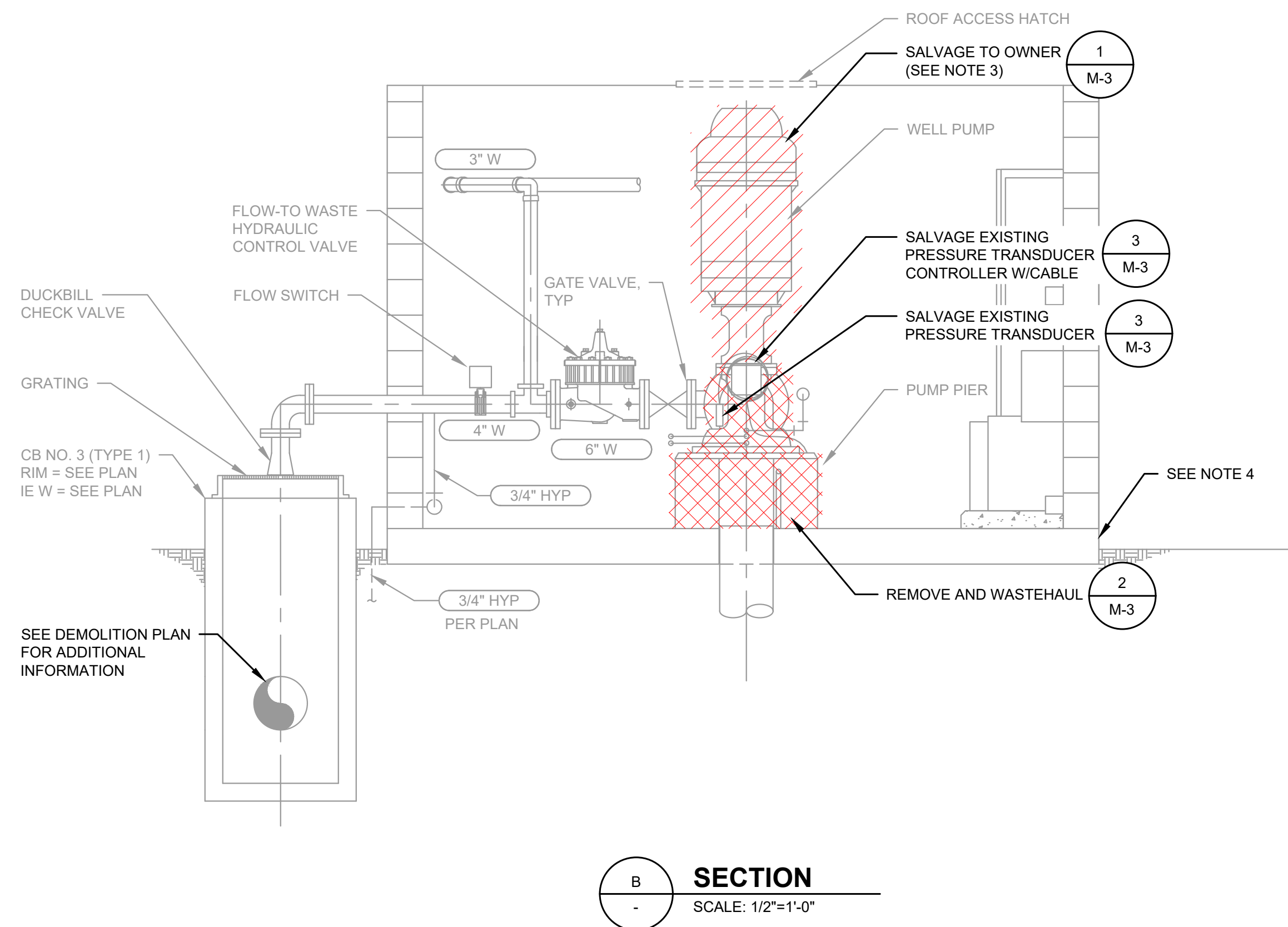
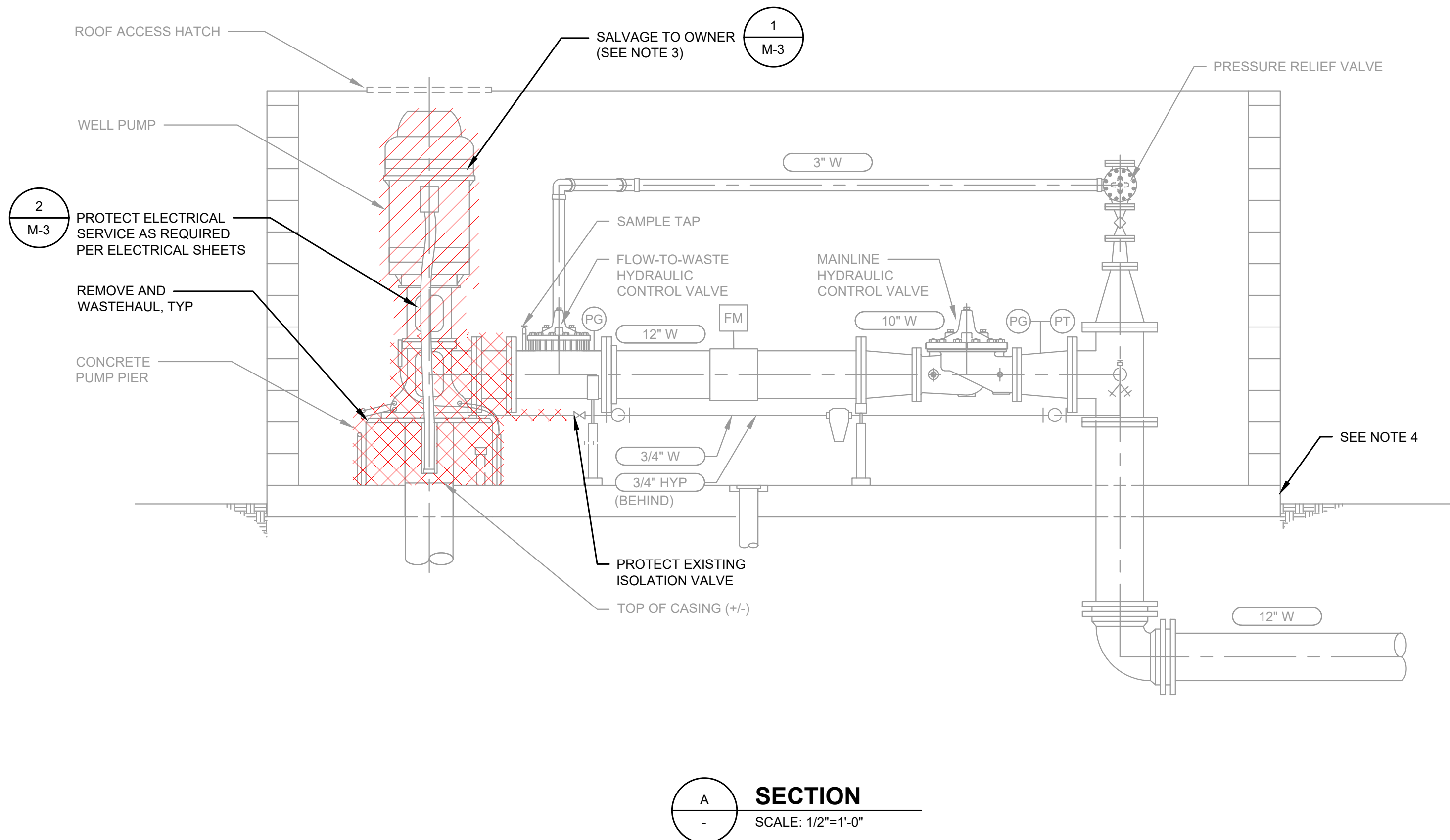
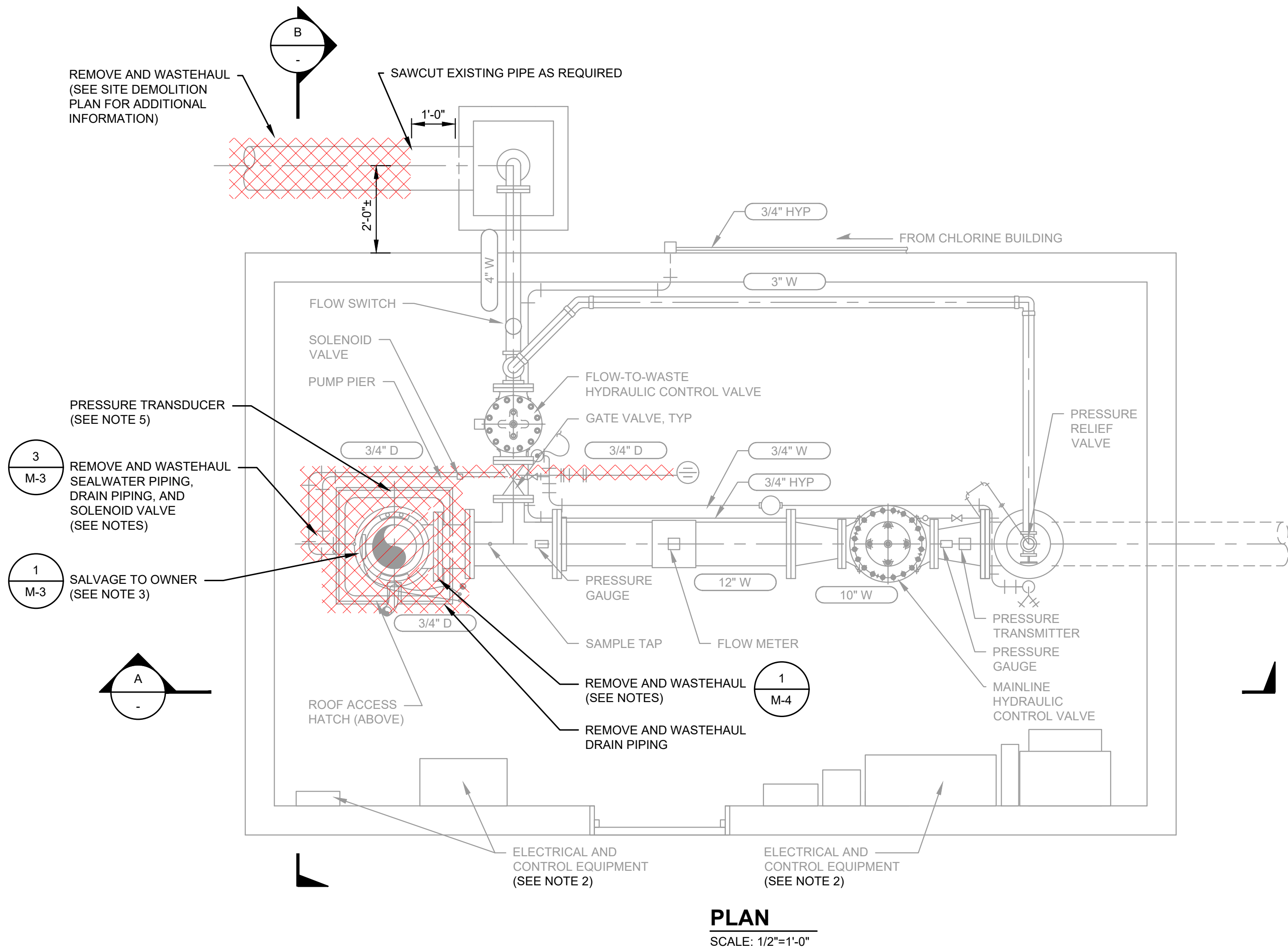
**MECHANICAL LEGEND  
AND SYMBOLS**

DRAWING: **M-1** OF: **7**

SHEET: **12** OF: **31**



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Mechanical\M-Pump Bldg.dwg, 2/5/2024 7:43 AM, PHILIP MARSHALL



**NOTES:**

1. REMOVE AND WASTEHAUL ALL PUMP COMPONENTS, INCLUDING, BUT NOT LIMITED TO PUMP, SOLE PLATES, SOUNDING TUBES, CABLES, FITTINGS, CONCRETE PIER, ANCHORS, AND APPURTENANCES. PROTECT EXISTING CASING AND BURIED PIPING AND ELECTRICAL CONDUITS. PROTECT EXISTING PRESSURE TRANSDUCER. EXISTING SEAL WATER SUPPLY PIPING SHALL BE DEMOLISHED BACK TO EXISTING ISOLATION VALVE.
2. SEE ELECTRICAL SHEETS FOR ADDITIONAL DEMOLITION WORK IN THIS AREA.
3. SALVAGE EXISTING MOTOR, MOTOR FRAME, AND CONNECTION ASSEMBLY TO OWNER. CONTRACTOR SHALL REMOVE COMPONENTS, SECURE TO A PALLET, AND REMOVE FROM PUMP BUILDING. OWNER WILL THEN LOAD, SECURE, AND TRANSPORT EQUIPMENT AS DESIRED.
4. BUILDING FOOTING AND FOUNDATION NOT SHOWN FOR CLARITY. CONTRACTOR TO FIELD VERIFY AS REQUIRED TO COMPLETE THE WORK.
5. PROTECT EXISTING PRESSURE TRANSDUCER FOR RE-INSTALLATION WITH NEW PUMPING EQUIPMENT.
6. NOT ALL SMALL DIAMETER (<3/4-INCH) PIPING SHOWN FOR CLARITY. CONTRACTOR SHALL REMOVE AND WASTEHAUL AS REQUIRED TO COMPLETE THE WORK.
7. WELL REHABILITATION WORK NOT SHOWN HERE, SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
8. WELL MODIFICATIONS HAVE SEASONAL RESTRICTIONS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
M-PUMP BLDG.DWG		

0 1" 2"  
TWO INCHES AT FULL SCALE.  
IF NOT, SCALE ACCORDINGLY

**MECHANICAL**

**PUMP BUILDING  
DEMOLITION PLAN**

DRAWING: **M-2** OF: **7**

SHEET: **13** OF: **31**



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Mechanical\M-Pump Bldg.dwg, 2/2/2024 3:55 PM, PHILIP MARSHALL



NOTES:

1. NOT ALL DEMOLITION MAY BE SHOWN IN THIS DETAIL. SEE ELECTRICAL SHEETS FOR ADDITIONAL WORK IN THIS AREA.
2. SALVAGE EXISTING MOTOR, MOTOR FRAME, AND CONNECTION ASSEMBLY TO OWNER. CONTRACTOR SHALL REMOVE COMPONENTS, SECURE TO A PALLET, AND REMOVE FROM PUMP BUILDING. OWNER WILL THEN LOAD, SECURE, AND TRANSPORT EQUIPMENT AS DESIRED.
3. REMOVE AND WASTEHAUL ALL PUMP COMPONENTS, INCLUDING, BUT NOT LIMITED TO PUMP, SOLE PLATES, SOUNDING TUBES, CABLES, FITTINGS, CONCRETE PIER, ANCHORS, AND APPURTENANCES. PROTECT EXISTING CASING AND BURIED PIPING AND ELECTRICAL CONDUITS. PROTECT EXISTING PRESSURE TRANSDUCER AND ASSOCIATED CABLE(S).

PHOTO DETAIL:  
PUMP BUILDING INTERIOR

1  
M-2  
NOT TO SCALE

PROTECT EXISTING  
TRANSDUCER,  
CABLE, AND CONDUIT

WELL PUMP  
(SEE NOTE 2)

AIR VENT

PROTECT  
CONDUIT

CONCRETE  
PUMP PIER

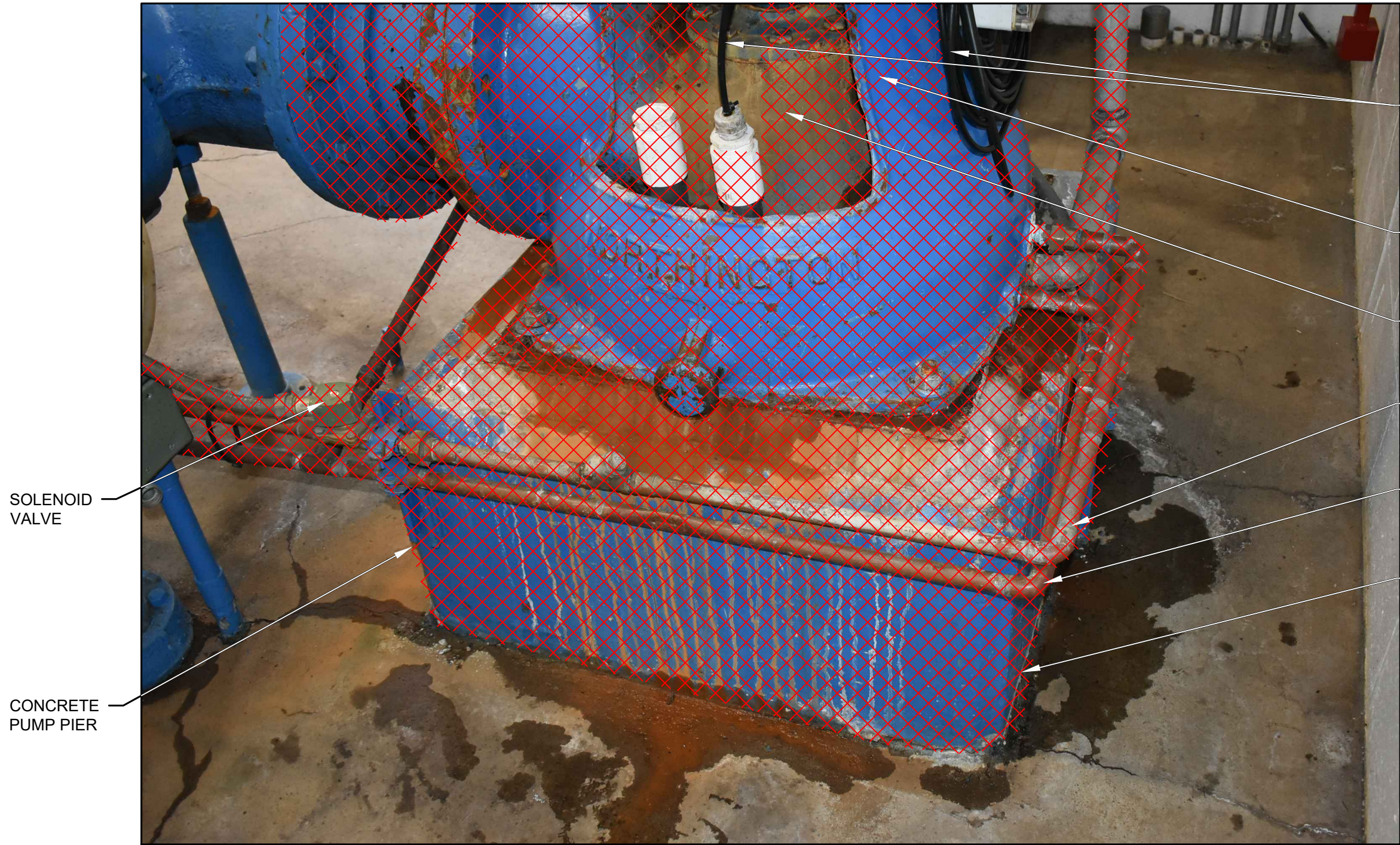


NOTES:

1. NOT ALL DEMOLITION MAY BE SHOWN IN THIS DETAIL. SEE ELECTRICAL SHEETS FOR ADDITIONAL WORK IN THIS AREA.
2. REMOVE AND WASTEHAUL ALL PUMP COMPONENTS, INCLUDING, BUT NOT LIMITED TO PUMP, SOLE PLATES, SOUNDING TUBES, CABLES, FITTINGS, CONCRETE PIER, ANCHORS, AND APPURTENANCES. PROTECT EXISTING CASING AND BURIED PIPING AND ELECTRICAL CONDUITS. PROTECT EXISTING PRESSURE TRANSDUCER AND ASSOCIATED CABLE(S).

PHOTO DETAIL:  
PUMP AND PUMP PIER

2  
M-2  
NOT TO SCALE



NOTES:

1. NOT ALL DEMOLITION MAY BE SHOWN IN THIS DETAIL. SEE ELECTRICAL SHEETS FOR ADDITIONAL WORK IN THIS AREA.
2. REMOVE AND WASTEHAUL ALL PUMP COMPONENTS, INCLUDING, BUT NOT LIMITED TO PUMP, SOLE PLATES, SOUNDING TUBES, CABLES, FITTINGS, CONCRETE PIER, ANCHORS, AND APPURTENANCES. PROTECT EXISTING CASING AND BURIED PIPING AND ELECTRICAL CONDUITS. PROTECT EXISTING PRESSURE TRANSDUCER AND ASSOCIATED CABLE(S).
3. EXISTING SEAL WATER SUPPLY SHALL BE DEMOLISHED BACK TO THE EXISTING ISOLATION VALVE.

PHOTO DETAIL:  
WATER SUPPLY AND SOLENOID VALVE

3  
M-2  
NOT TO SCALE

**CITY OF LACEY**  
**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
M-PUMP BLDG.DWG		

0 1" 2"  
TWO INCHES AT FULL SCALE.  
IF NOT, SCALE ACCORDINGLY

**MECHANICAL**

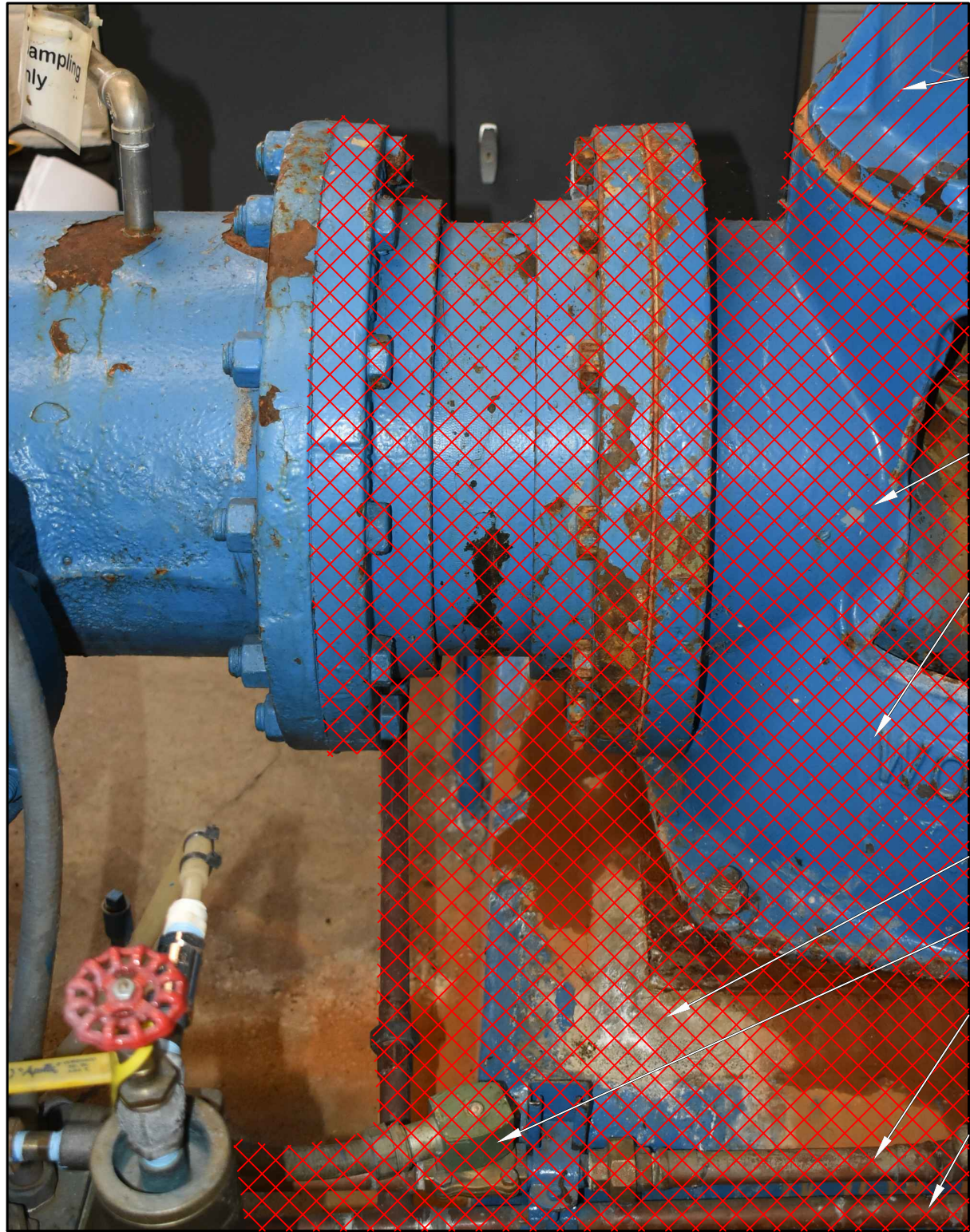
**DEMOLITION PHOTO  
DETAILS**

DRAWING: **M-3** OF: **7**

SHEET: **14** OF: **31**



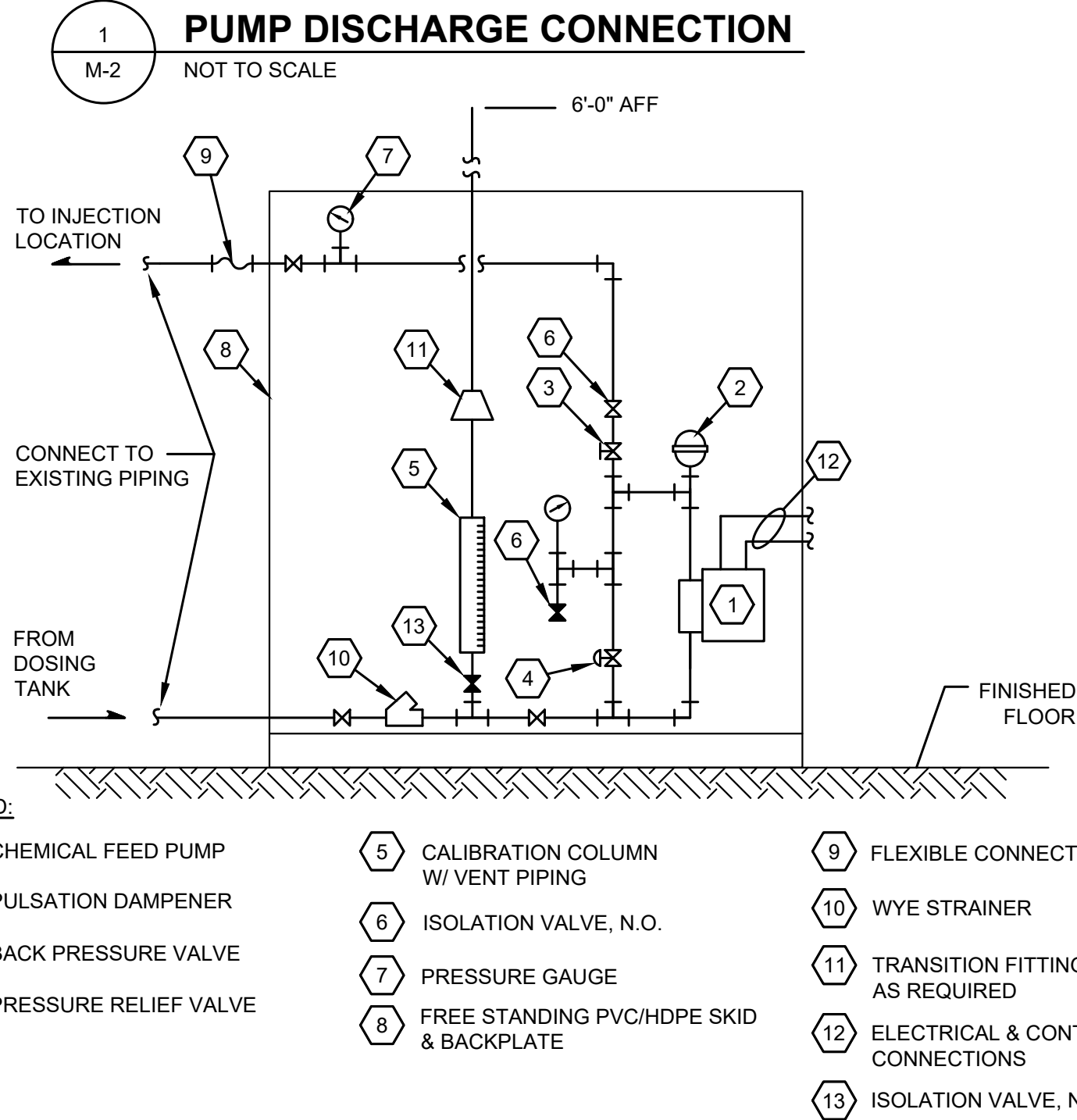
L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Mechanical\M-Pump Bldg.dwg, 2/2/2024 3:55 PM, PHILIP MARSHALL



NOTES:

- NOT ALL DEMOLITION MAY BE SHOWN IN THIS DETAIL. SEE ELECTRICAL SHEETS FOR ADDITIONAL WORK IN THIS AREA.
- SALVAGE EXISTING MOTOR, MOTOR FRAME, AND CONNECTION ASSEMBLY TO OWNER. CONTRACTOR SHALL REMOVE COMPONENTS, SECURE TO A PALLET, AND REMOVE FROM PUMP BUILDING. OWNER WILL THEN LOAD, SECURE, AND TRANSPORT EQUIPMENT AS DESIRED.
- REMOVE AND WASTEHAUL ALL PUMP COMPONENTS, INCLUDING, BUT NOT LIMITED TO PUMP, SOLE PLATES, SOUNDING TUBES, CABLES, FITTINGS, CONCRETE PIER, ANCHORS, AND APPURTENANCES. PROTECT EXISTING CASING AND BURIED PIPING AND ELECTRICAL CONDUITS. PROTECT EXISTING PRESSURE TRANSDUCER AND ASSOCIATED CABLE(S).
- EXISTING SEAL WATER SUPPLY SHALL BE DEMOLISHED BACK TO THE EXISTING ISOLATION VALVE.

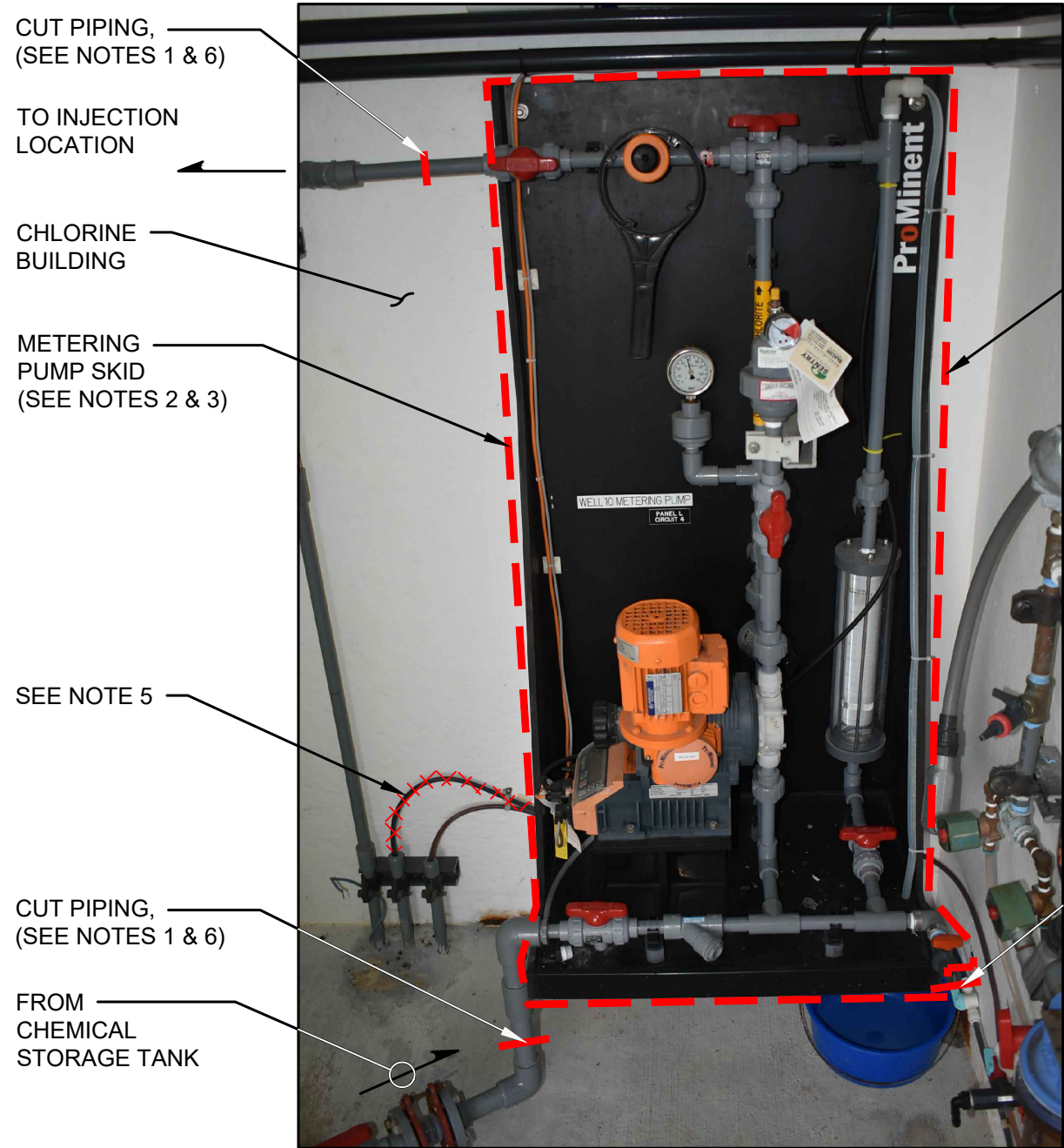
PHOTO DETAIL:  
PUMP DISCHARGE CONNECTION



NOTES:

- ALL PIPE AND VALVE MATERIALS SHALL BE SCH80 PVC UNO. CONNECTIONS SHALL BE WELDED UNO.

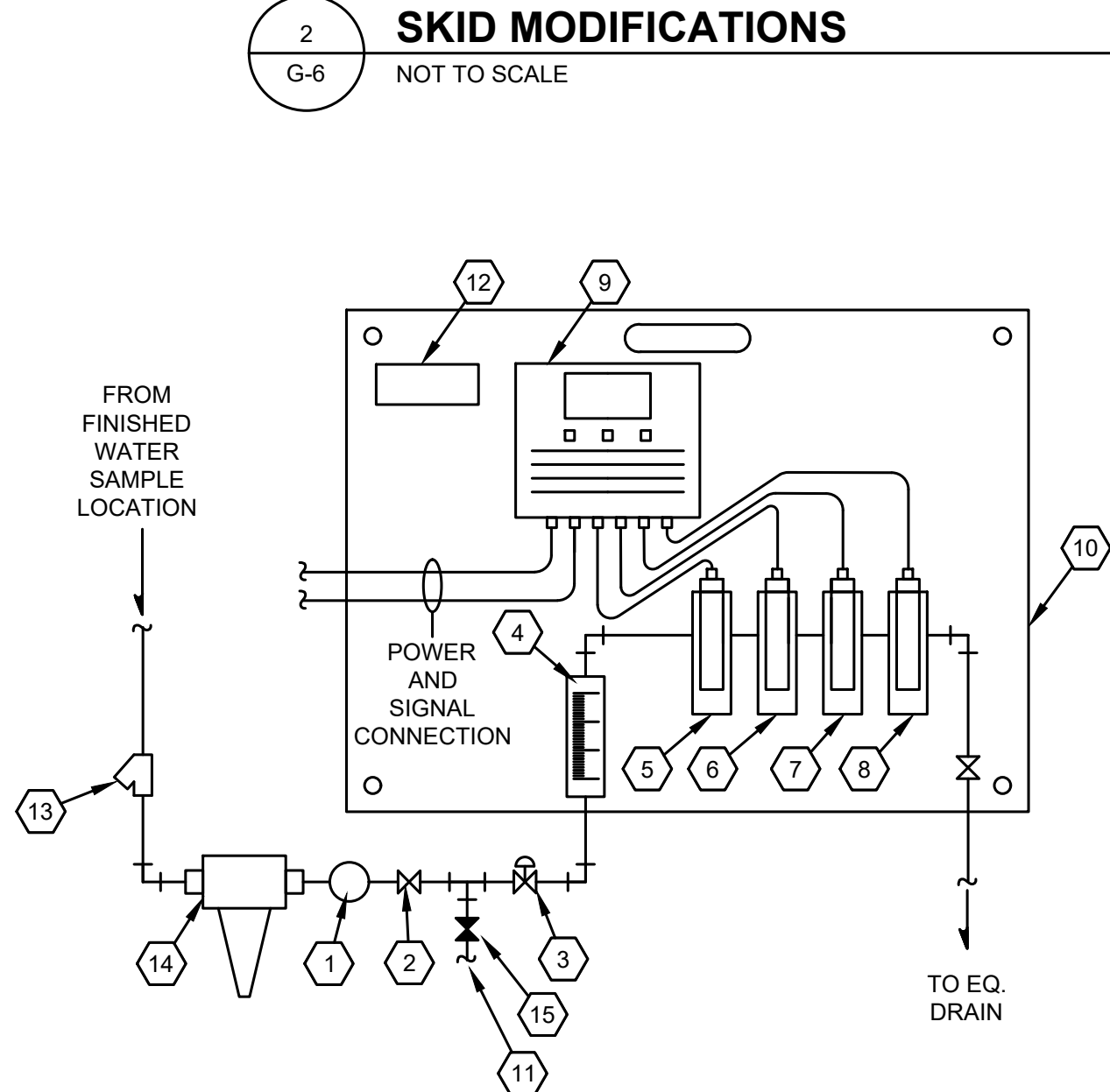
4  
TYP  
METERING PUMP SKID  
NOT TO SCALE



NOTES:

- CUT PIPE/TUBING AS REQUIRED FOR REMOVAL OF METERING PUMP SKID AND CONNECTION TO NEW EQUIPMENT.
- REMOVE METERING PUMP SKID AND ALL COMPONENTS AND SALVAGE TO OWNER.
- SALVAGE PUMP POWER CABLE TO OWNER. CONTRACTOR SHALL DE-TERMINATE CONTROL AND COMMUNICATION CABLE FROM ADJACENT TERMINAL BOX AND SALVAGE ALL CORDS AND CABLES TO OWNER.
- FURNISH AND INSTALL NEW POWER AND COMMUNICATION CABLES AS REQUIRED FOR A COMPLETE AND WORKABLE SYSTEM. SEE SPECIFICATION SECTION E - 11345 FOR ADDITIONAL INFORMATION.
- REMOVE AND WASTEHAUL SMALL DIAMETER TUBING. FURNISH AND INSTALL CAP FOR EXISTING CASING PIPE (3/4" SCH80 PVC). MULTIPLE SUPPLY TUBES EXIST FOR MULTIPLE SAMPLING LOCATIONS. CONFIRM CORRECT TUBING WITH OWNER PRIOR TO MODIFICATIONS.
- EXISTING PIPING MATERIALS ARE SCH80 PVC. CONTRACTOR SHALL FURNISH AND INSTALL TRANSITION FITTINGS AS REQUIRED TO CONNECT THE NEW PUMP SKID TO EXISTING SUCTION AND DISCHARGE PIPING.

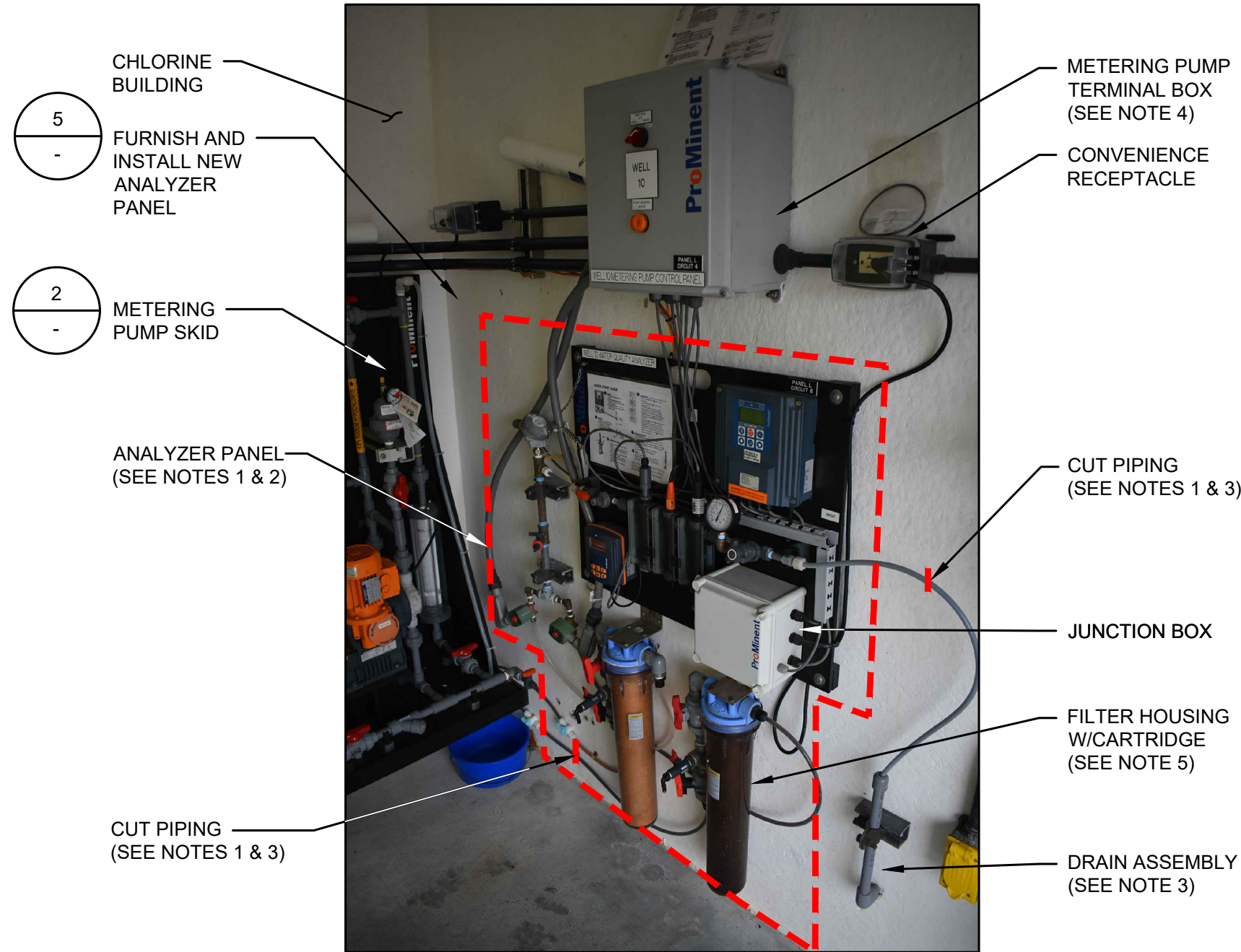
PHOTO DETAIL: CHLORINE METERING PUMP SKID MODIFICATIONS



NOTES:

- MANUAL SAMPLE TAPS SHALL INCLUDE SMOOTH NOSE HOSE BIB
- SEE SPECIFICATIONS FOR ADDITIONAL COMPONENT INFORMATION.

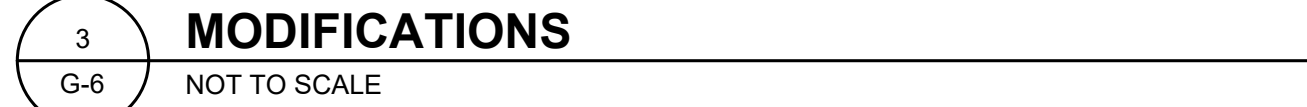
5  
TYP  
CHLORINE ANALYZER  
NOT TO SCALE



NOTES:

- CUT PIPE/TUBING AS REQUIRED FOR REMOVAL OF ANALYZER PANEL.
- REMOVE ANALYZER PANEL AND ALL COMPONENTS AND SALVAGE TO OWNER.
- CONNECT NEW ANALYZER PANEL TO EXISTING FEED AND DRAIN ASSEMBLY.
- SEE ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION.
- SALVAGE CARTRIDGE FILTER, BRACKETS, VALVES, AND FILTER HOUSING TO OWNER. REINSTALL 1x EXISTING FILTER HOUSING PER DETAIL 5. FURNISH AND INSTALL NEW CARTRIDGE FILTER.
- SEE SPECIFICATION SECTION 11345 FOR ADDITIONAL INFORMATION.

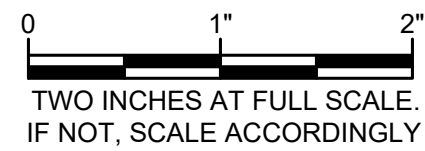
PHOTO DETAIL: CHLORINE INJECTION SYSTEM MODIFICATIONS



CITY OF LACEY  
S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
M-PUMP BLDG.DWG		



MECHANICAL

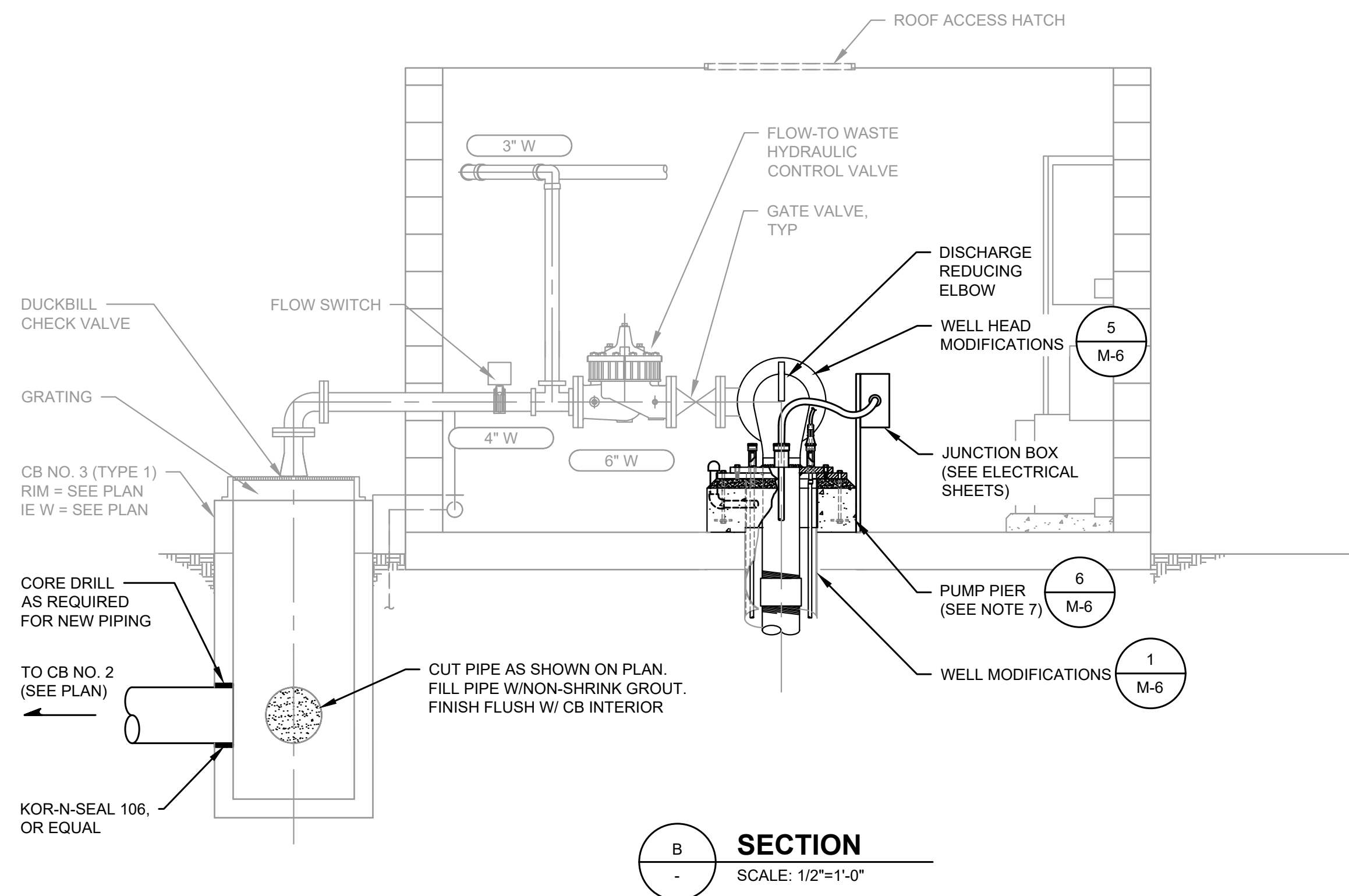
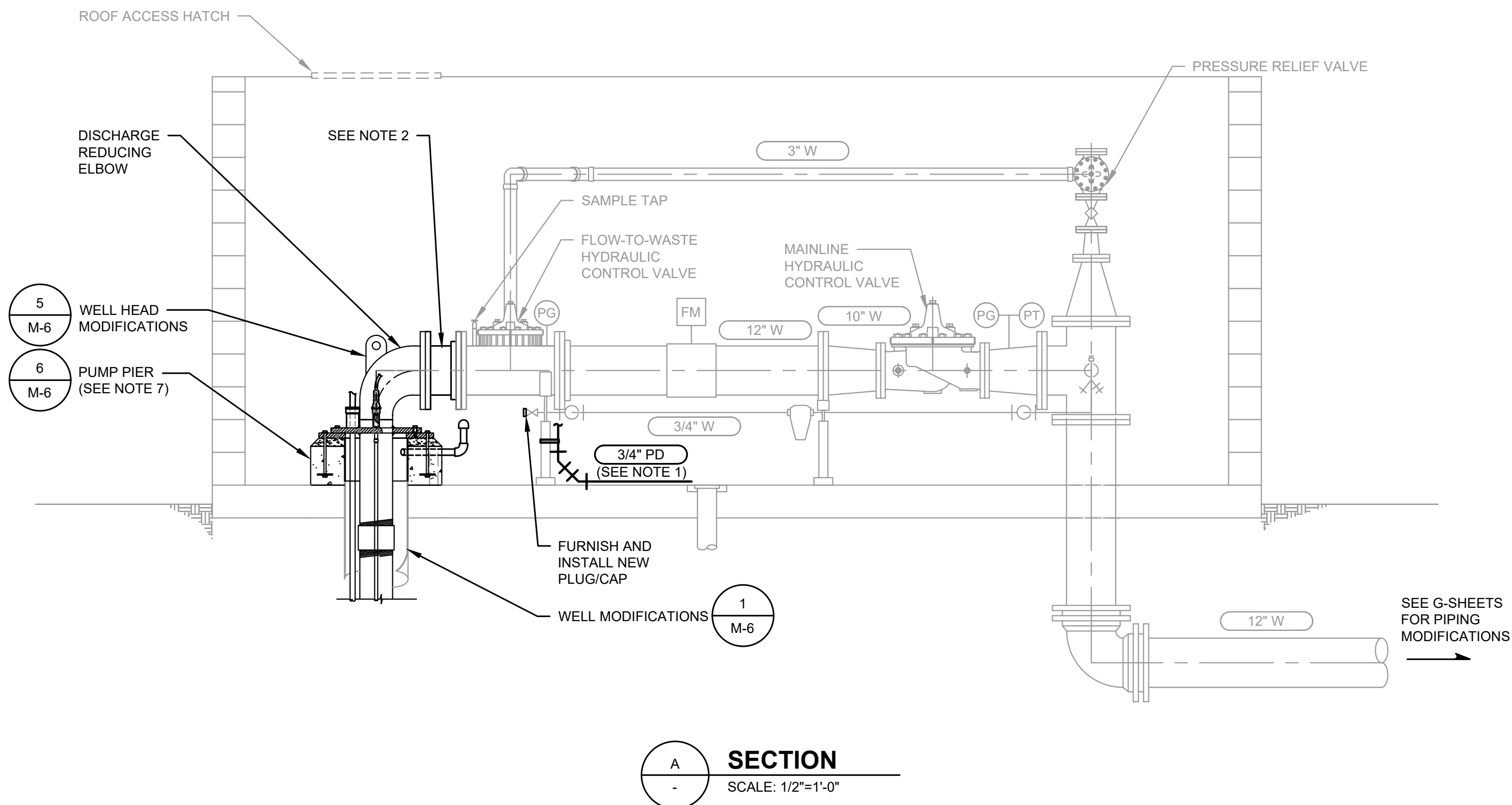
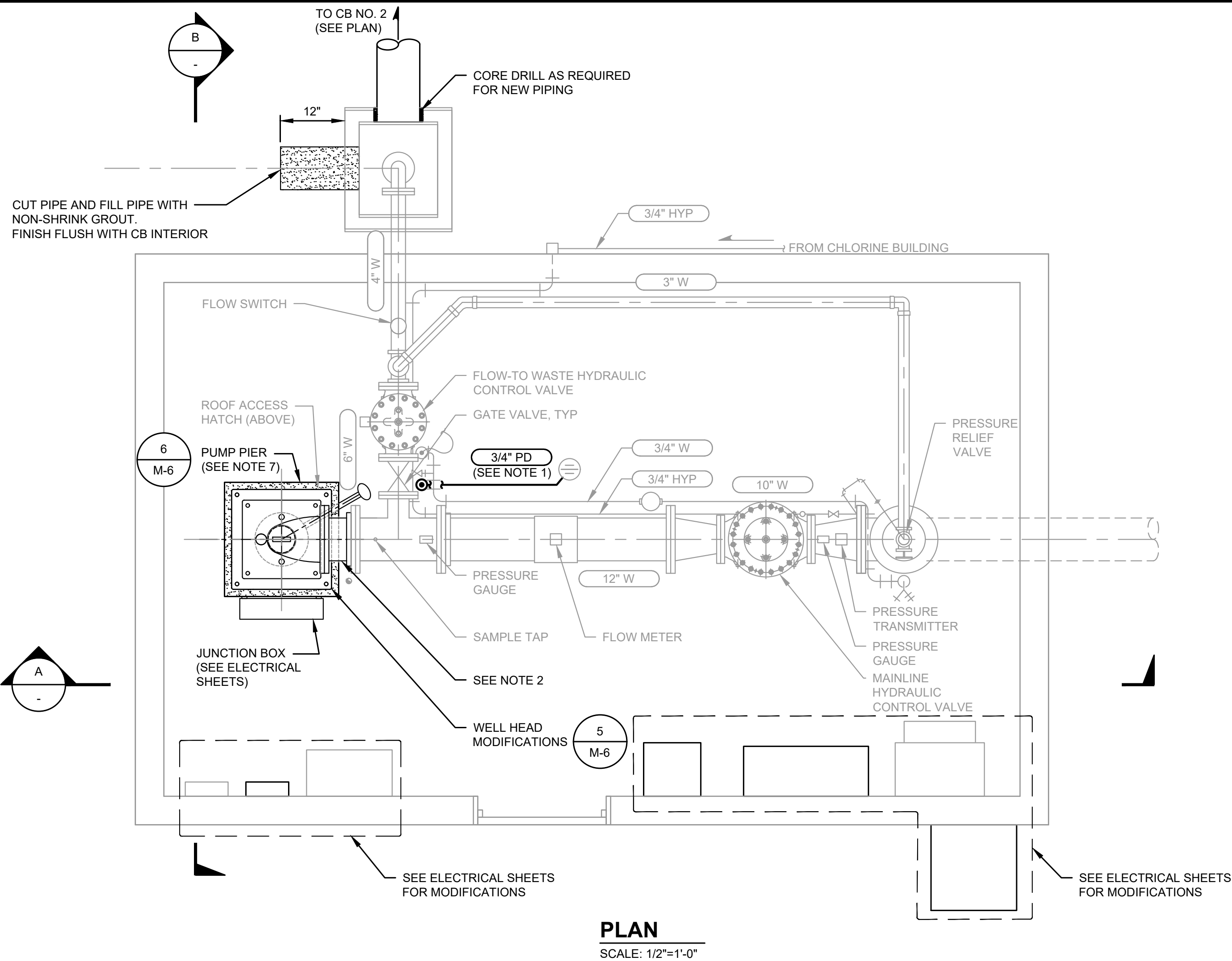
DEMOLITION PHOTO  
DETAILS

DRAWING: **M-4** OF: **7**

SHEET: **15** OF: **31**

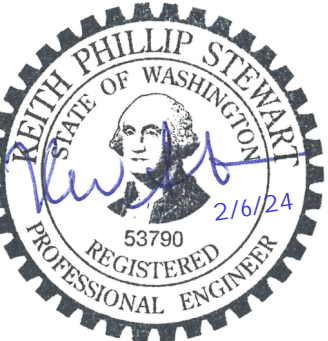


L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Mechanical\M-Pump Bldg.dwg, 2/2/2024 3:55 PM, PHILIP MARSHALL



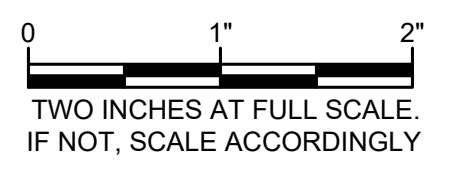
**NOTES:**

1. TERMINATE HEAD END OF DRAIN PIPING UP TO 30-INCHES AFF. PROVIDE 3/4 X 1-1/2-INCH BUSHING TO ACCEPT PUMP TO WASTE HYDRAULIC CONTROL VALVE DRAIN WATER TUBING. TERMINATE TAIL END OF DRAIN PIPING WITHIN 3-INCHES OF EXISTING FLOOR DRAIN. SECURE VERTICAL DRAIN PIPING TO EXISTING PIPE SUPPORT WITH PLASTIC TIES.
2. FURNISH AND INSTALL FLANGE ADAPTERS, FLANGE FILLERS, AND PIPING AS REQUIRED FOR CONNECTION TO EXISTING TEE.
3. WELL MODIFICATIONS HAVE SEASONAL RESTRICTIONS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. WELL REHABILITATION WORK NOT SHOWN. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. PUMP JUNCTION BOX NOT SHOWN IN SECTION A FOR CLARITY.
6. NOT ALL ELECTRICAL EQUIPMENT MAY BE SHOWN FOR CLARITY. SEE ELECTRICAL SHEET FOR ADDITIONAL INFORMATION.
7. PIER/SLAB CONSTRUCTION IS SHOWN BASED ON BEST INFORMATION AVAILABLE FOR EXISTING FACILITIES. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ACTUAL CONDITIONS DIFFER FROM THAT SHOWN. SEISMIC ISOLATION APPURTENANCES MAY VARY DEPENDING ON THE FINAL, CONSTRUCTED SLAB/PIER COMBINATION.



**CITY OF LACEY**  
**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
M-PUMP BLDG.DWG		

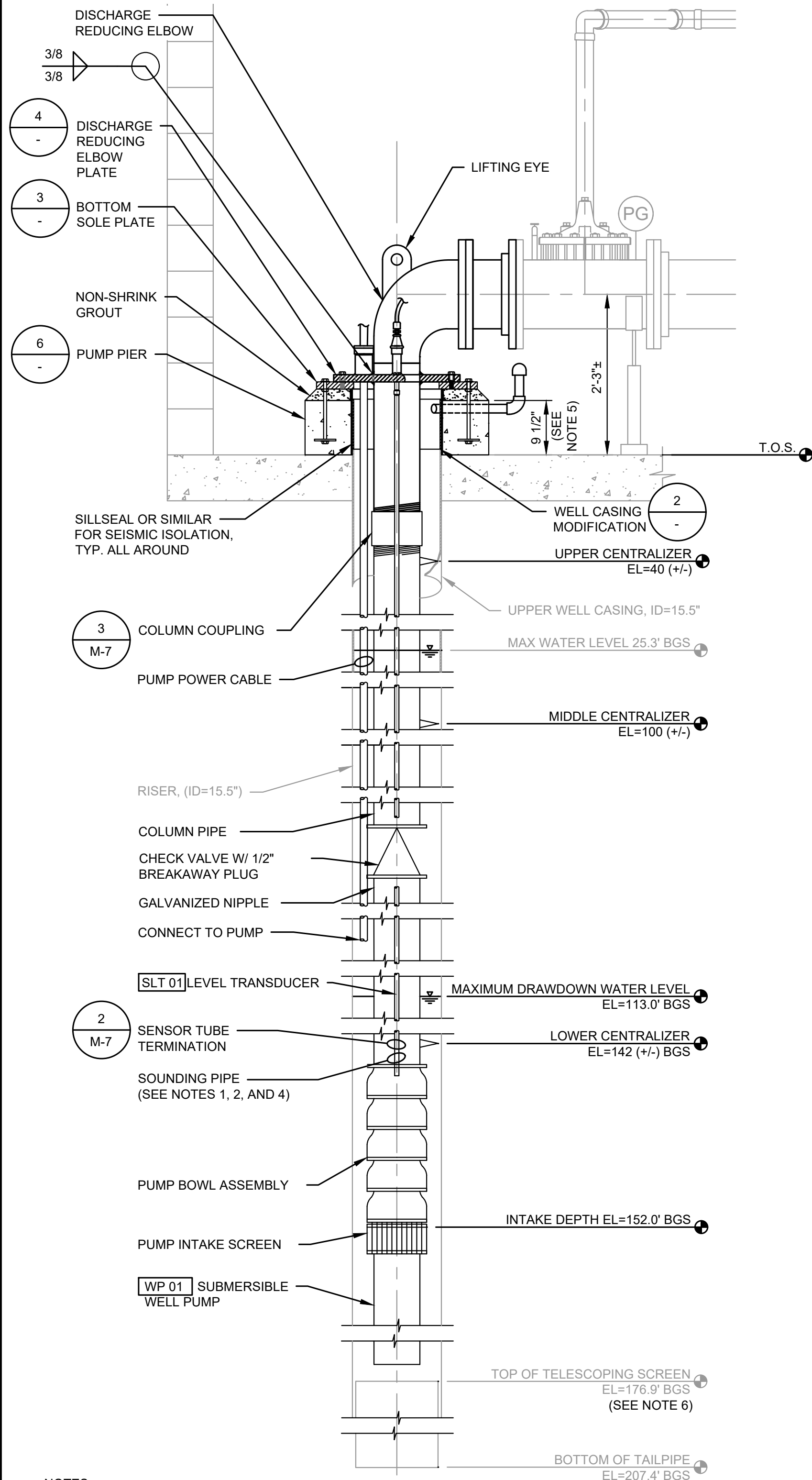


**MECHANICAL**

**MODIFIED PUMP  
BUILDING PLAN**



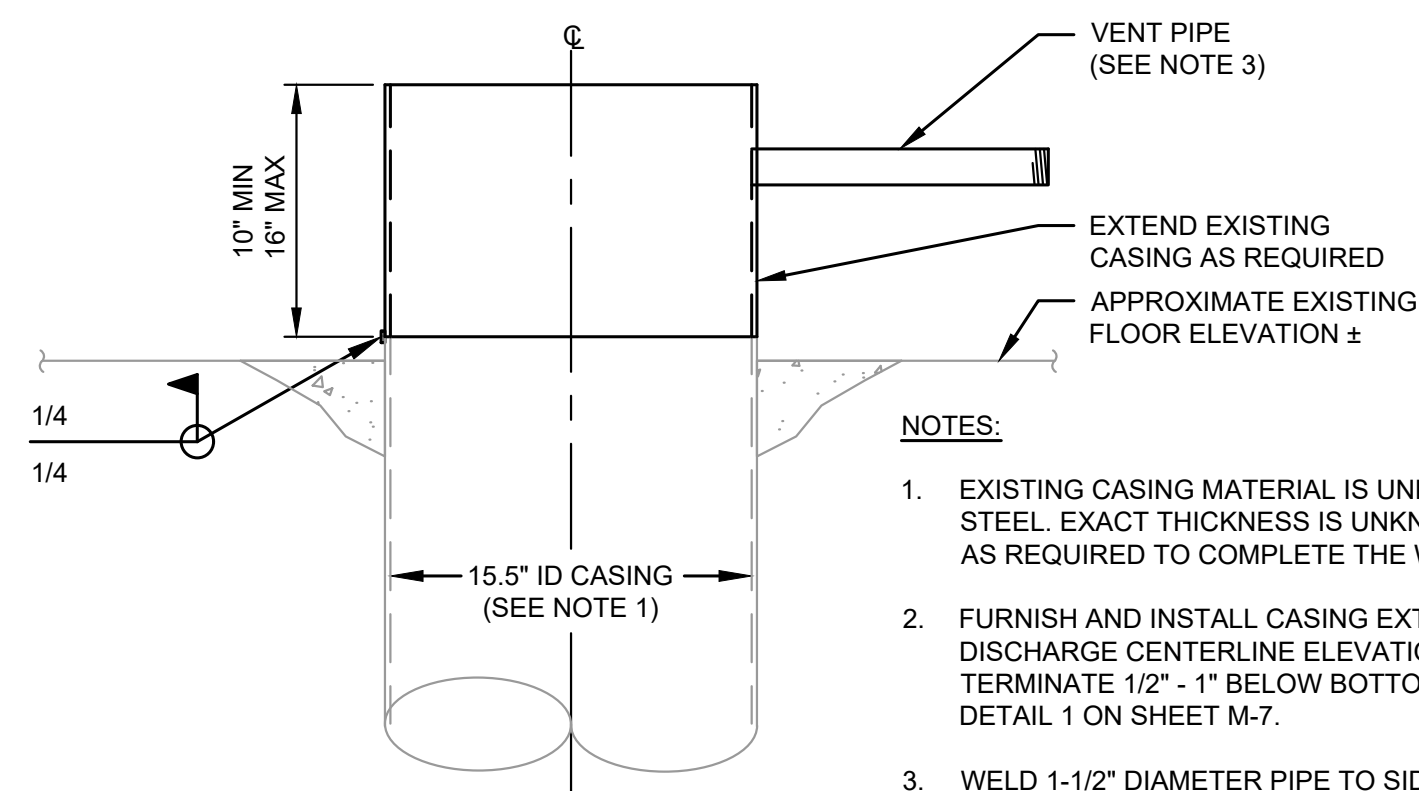
L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Mechanical\M\_WELL\_DET.DWG, 2/2/2024 3:55 PM, PHILIP MARSHALL



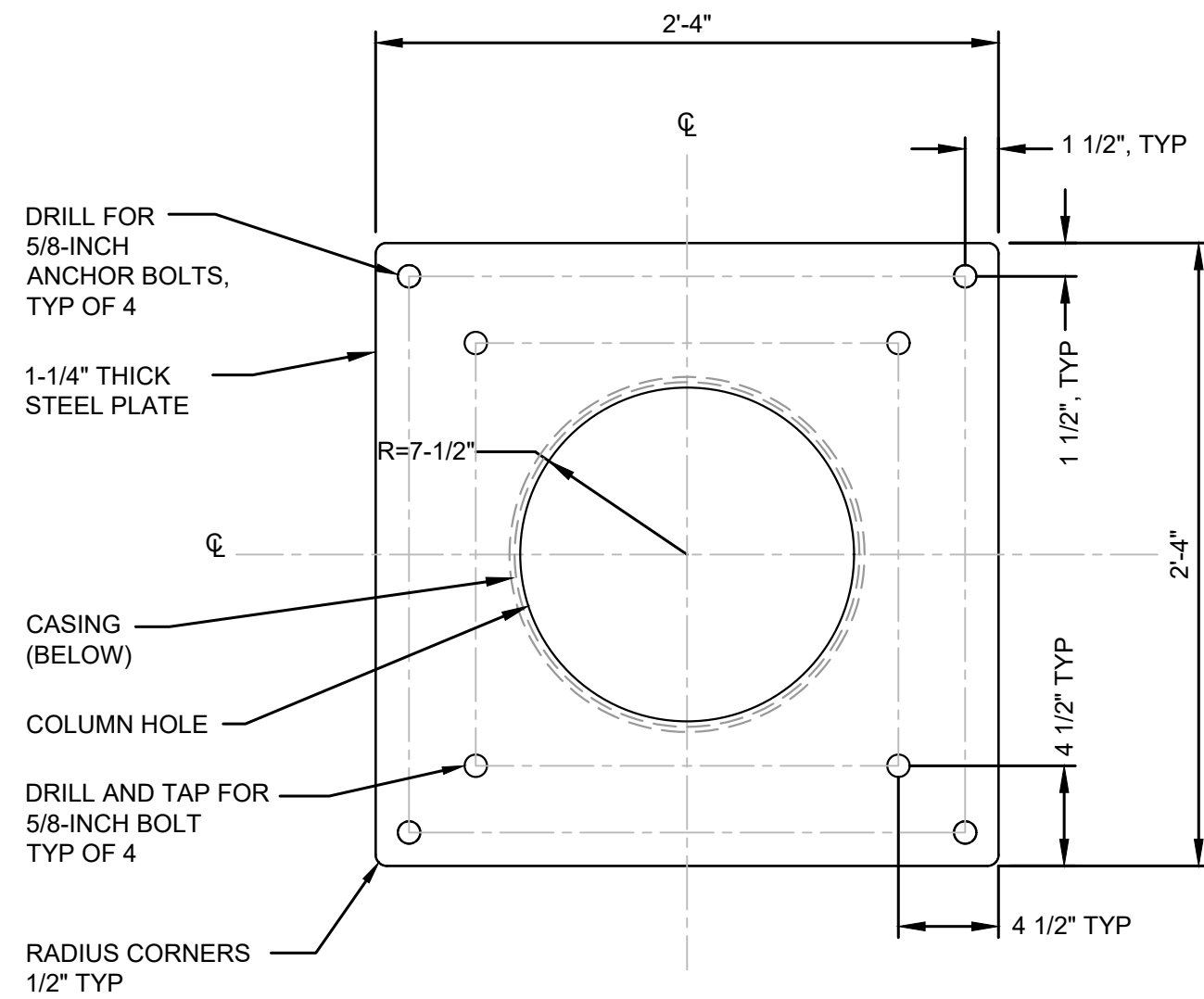
NOTES:

1. SENSOR AND SOUNDING PIPE MATERIALS SHALL BE FLUSH THREAD SCH80 PVC.
2. BOTTOM OF SOUNDING PIPE SHALL BE POSITIONED AT THE TOP OF THE PUMP.
3. PRIOR TO PUMP INSTALLATION THE CONTRACTOR SHALL ALSO PROVIDE WELL REHABILITATION. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
4. NOT SHOWN IN TRUE POSITION FOR CLARITY. SOME ELEMENTS MAY BE ROTATED FOR CLARITY. SEE PLAN FOR ORIENTATION.
5. CONTRACTOR TO COORDINATE PIER HEIGHT WITH PROPOSED WELLHEAD MODIFICATIONS TO CONNECT TO EXISTING PIPING ALIGNMENT.
6. VALUE BASED ON BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY AS REQUIRED TO COMPLETE THE WORK.
7. FIELD "DUMMY" TEST FOR NEW PIPING EQUIPMENT REQUIRED. SEE SECTION 11211 FOR ADDITIONAL INFORMATION AND SEQUENCING.
8. PIER/SLAB CONSTRUCTION IS SHOWN BASED ON BEST INFORMATION AVAILABLE FOR EXISTING FACILITIES. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ACTUAL CONDITIONS DIFFER FROM THAT SHOWN. SEISMIC ISOLATION APPURTENANCES MAY VARY DEPENDING ON THE FINAL, CONSTRUCTED SLAB/PIER COMBINATION.

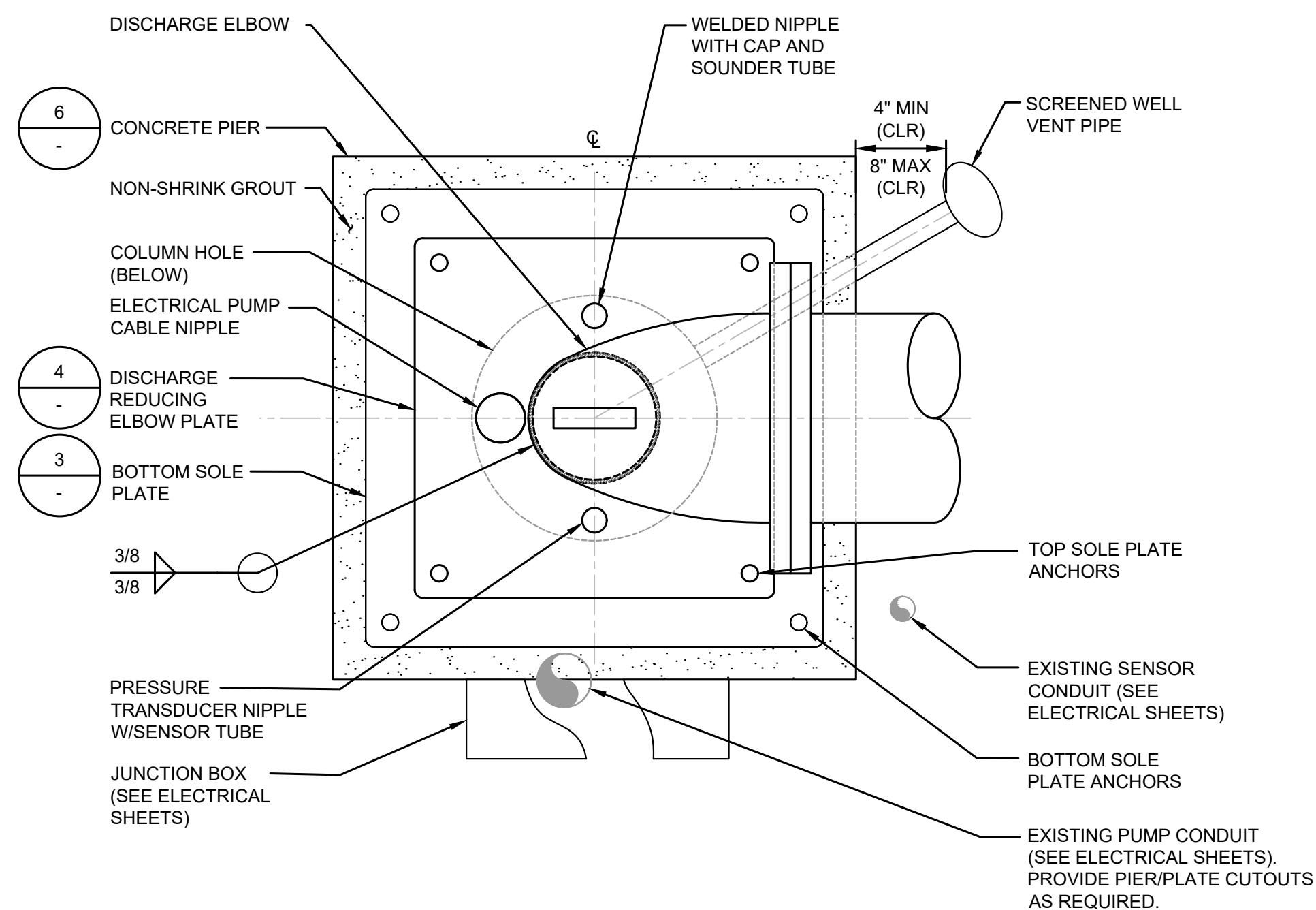
1  
M-2  
**S10 MODIFICATIONS**  
NOT TO SCALE



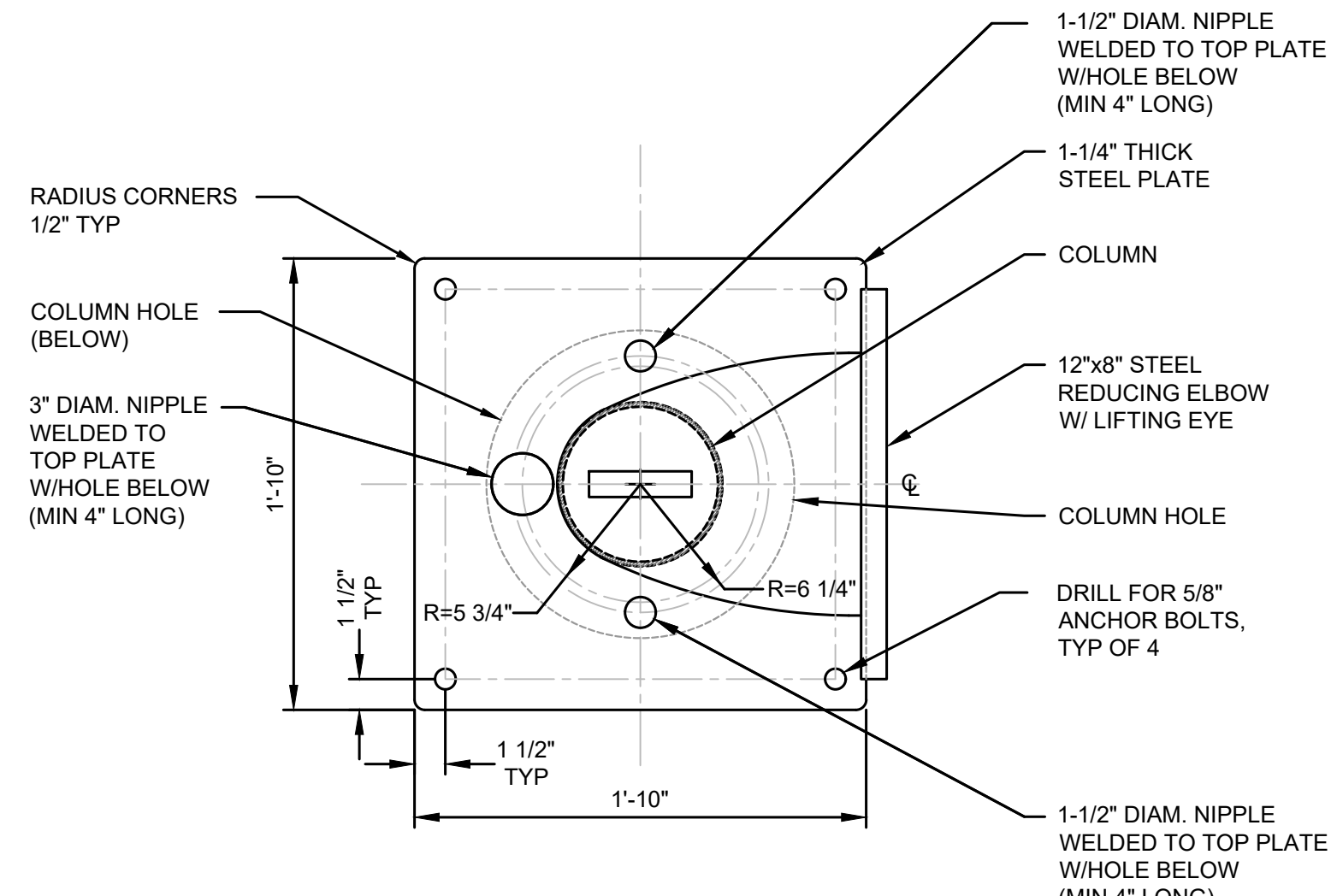
2  
-  
**S10 WELL CASING MODIFICATION DETAIL**  
SCALE: 1-1/2" = 1'-0"



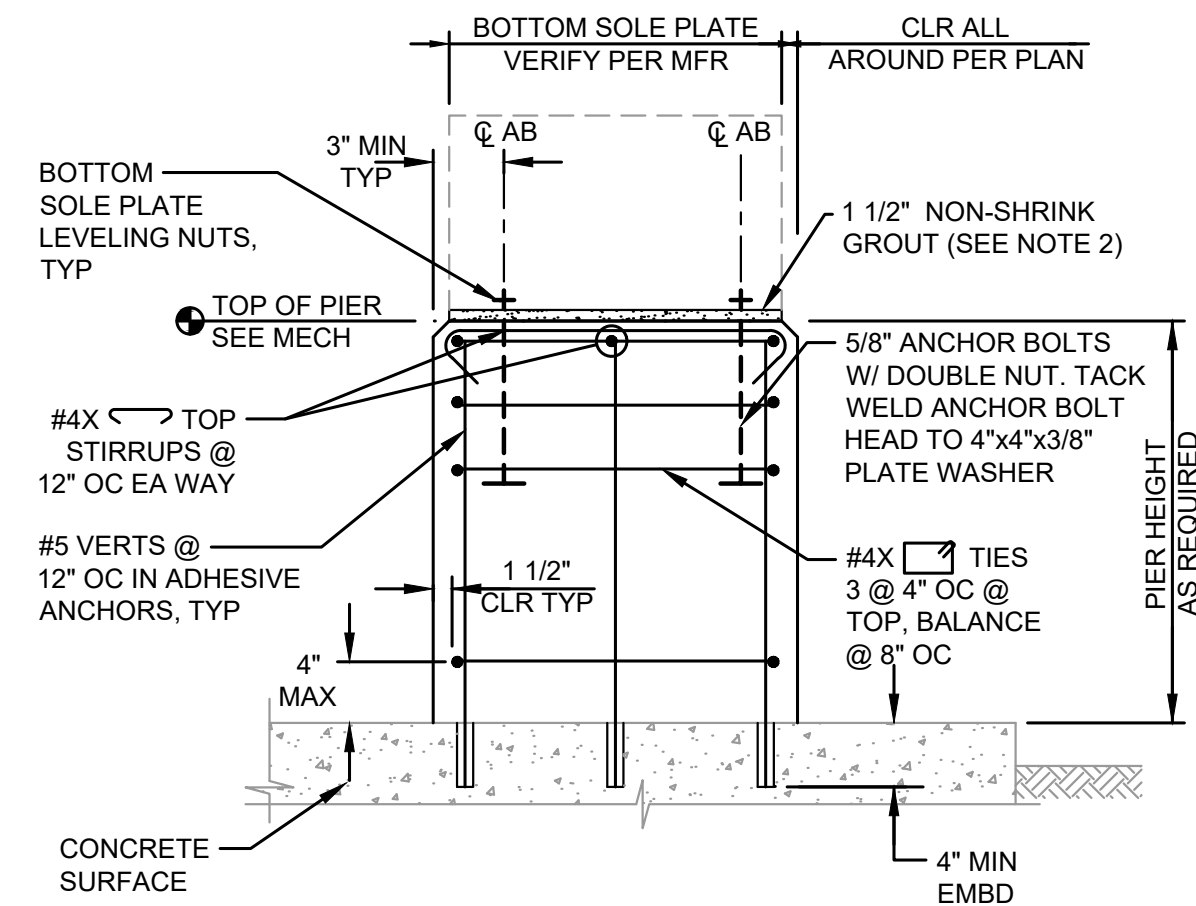
3  
-  
**S10 BOTTOM SOLE PLATE**  
SCALE: 1-1/2" = 1'-0"



5  
-  
**S10 DISCHARGE HEAD ACCESS PORT PLAN**  
SCALE: 1-1/2" = 1'-0"



4  
-  
**S10 DISCHARGE REDUCING ELBOW PLATE**  
SCALE: 1-1/2" = 1'-0"



NOTES:

1. CHAMFER ALL EXPOSED CORNERS OF PUMP PIERS.
2. PROVIDE BACKER RING. SEE DETAIL 1 ON SHEET M-7 FOR ADDITIONAL INFORMATION.
3. MINOR ADJUSTMENTS TO BAR LOCATION MAY BE REQUIRED TO ACCOMMODATE CONDUIT OR PIPING.
4. PIER/SLAB CONSTRUCTION IS SHOWN BASED ON BEST INFORMATION AVAILABLE FOR EXISTING FACILITIES. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ACTUAL CONDITIONS DIFFER FROM THAT SHOWN. SEISMIC ISOLATION APPURTENANCES MAY VARY DEPENDING ON THE FINAL, CONSTRUCTED SLAB/PIER COMBINATION.

6  
-  
**PUMP PIER DETAILS**  
NOT TO SCALE



**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
M_WELL_DET.DWG		



**MECHANICAL**

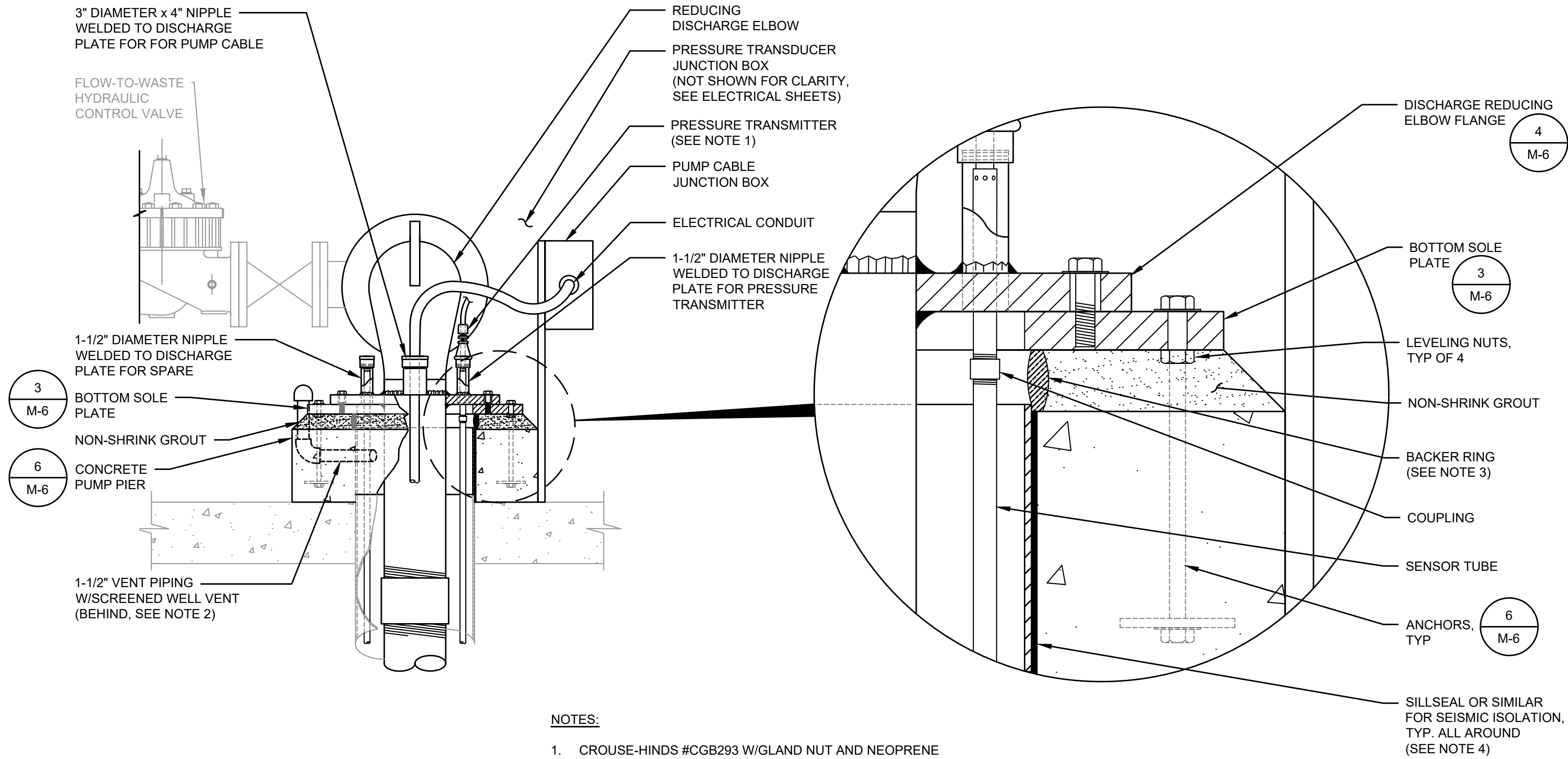
**WELL MODIFICATIONS  
AND DETAILS**

DRAWING: **M-6** OF: **7**

SHEET: **17** OF: **31**



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Mechanical\M\_WELL\_DET.S.dwg, 2/2/2024 3:55 PM, PHILIP MARSHALL



NOTES:

1. CROUSE-HINDS #CGB293 W/GLAND NUT AND NEOPRENE BUSHING, OR EQUAL. CONTRACTOR TO REINSTALL EXISTING PRESSURE TRANSDUCER. SEE ELECTRICAL SHEETS FOR ADDITIONAL INFORMATION.
2. VENT PIPING SHALL BE SCH40 STEEL (WLD). FURNISH AND INSTALL NPT ADAPTER AND SCREENED (24 MESH MIN) MUSHROOM WELL VENT CAP.
3. BACKER RING SHALL PREVENT GROUT FROM ENTERING THE CASING.
4. PIER/SLAB CONSTRUCTION IS SHOWN BASED ON BEST INFORMATION AVAILABLE FOR EXISTING FACILITIES. CONTRACTOR SHALL NOTIFY THE ENGINEER IF ACTUAL CONDITIONS DIFFER FROM THAT SHOWN. SEISMIC ISOLATION APPURTENANCES MAY VARY DEPENDING ON THE FINAL, CONSTRUCTED SLAB/PIER COMBINATION.

1  
TYP

**S10 ACCESS PORT DETAIL**

SCALE: 1" = 1'-0"

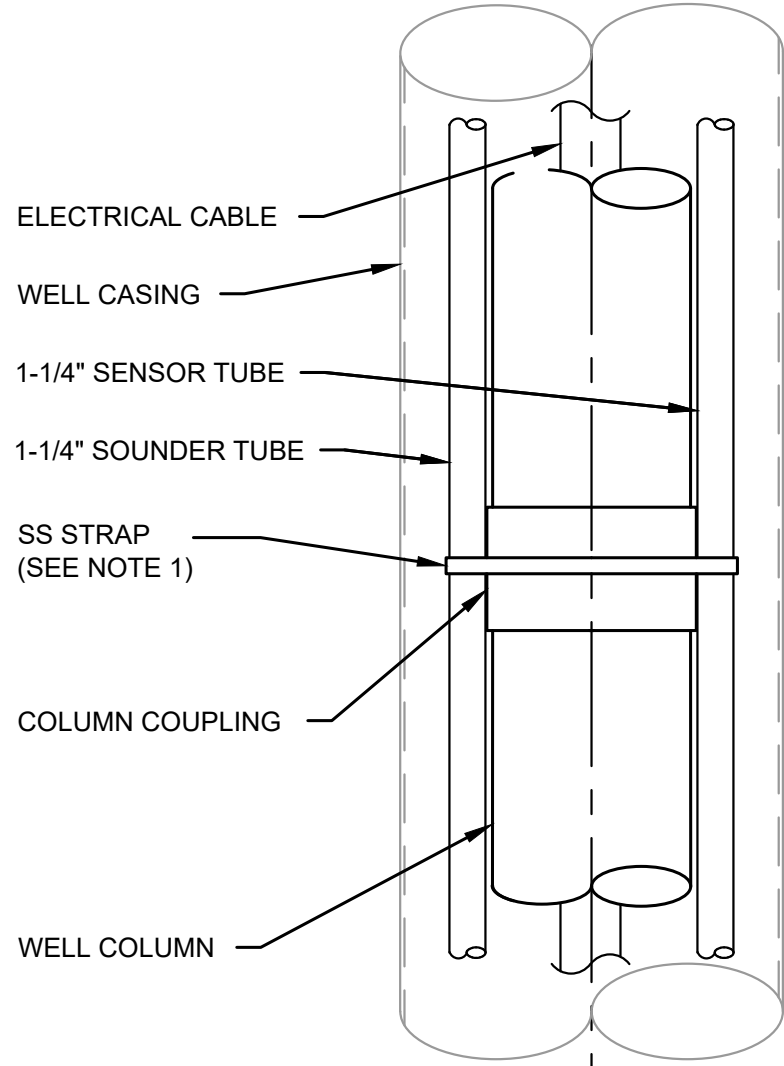
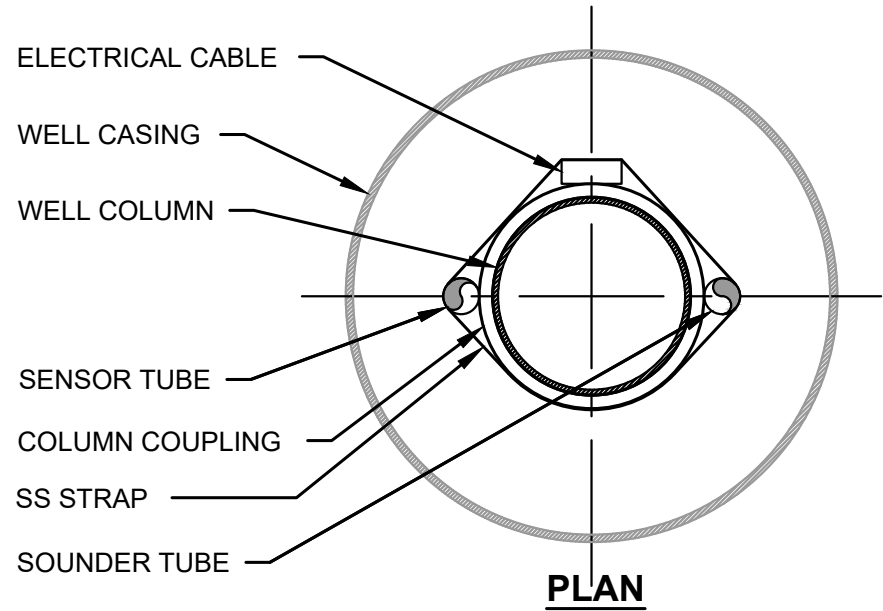
NOTES:

1. SENSOR TUBE MATERIALS SHALL BE SCH80 PVC UNO.
2. CAP SHALL BE WELDED CONNECTION.

2  
TYP

**SENSOR AND SOUNDER TUBE TERMINATION DETAIL**

NOT TO SCALE



NOTES:

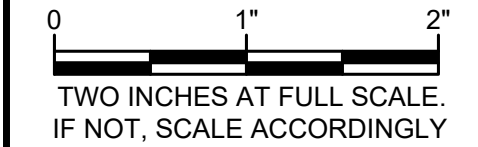
1. STRAPS SHALL BE SECURED TO COLUMN COUPLING WITH SS FASTENERS AT 10 FEET O.C., MIN.

3  
TYP

**COLUMN COUPLING DETAIL**

































































































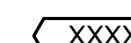
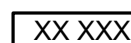









SCALE: 1-1/2" = 1'-0"

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
KPS		
CHECKED BY:		
RLP		
DRAWN BY:		
PGM		
DESIGNER:		
KPS		
G & O JOB NO.:		
22625.00		
FILE:		
M_WELL_DET.S.DWG		





L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_SYM\_ABBR.dwg, 2/5/2024 2:20 PM, PHILIP MARSHALL

ABBREVIATIONS									
A AC AF AI AIC AL AM AO AT ATS AWG BATT BKR CP CPT CST CT CU DC DI DIST DO DTWV EIOM ETC ETM ENCL EXIST FDR FLA FU	AMPERE (AMP) ALTERNATING CURRENT BREAKER FRAME SIZE (IN AMPS) ANALOG INPUT AMPERES-INTERRUPTING CAPACITY ALUMINUM AMMETER ANALOG OUTPUT BREAKER TRIP (SETTING IN AMPS) AUTOMATIC TRANSFER SWITCH AMERICAN WIRE GAUGE BATTERY BREAKER CONTROL PANEL CONTROL POWER TRANSFORMER CONTROL STATION CURRENT TRANSFORMER COPPER DIRECT CURRENT DISCRETE INPUT DISTRIBUTION DISCRETE OUTPUT DISCHARGE-TO-WASTE VALVE EXTENDED I/O MODULE ELAPSED TIME/COUNTER METER ELAPSED TIME METER ENCLOSURE EXISTING FEEDER FULL LOAD AMPS FUSE	FVNR FVR FY G GEC GFCI GND H HA HIM HMI HOA HOR HP JCXXX JPXXX JSXXX KA KAIC KCM KV kVA kVAh kVAR kVARh kW kWh LA LAN LFMC LINE	FULL VOLTAGE NON REVERSING FULL VOLTAGE REVERSING FLOW COMPUTATION GROUND CONDUCTOR GROUNDING ELECTRODE CONDUCTOR GROUND FAULT CIRCUIT INTERRUPTER GROUND HORN HAND-AUTO HUMAN INTERFACE MODULE HUMAN MACHINE INTERFACE HAND-OFF-AUTO HAND-OFF-REMOTE HORSEPOWER JUNCTION BOX, CONTROL JUNCTION BOX, POWER JUNCTION BOX, SIGNAL KILOAMPERES KILOAMPERES-INTERRUPTING CAPACITY THOUSAND CIRCULAR MILLS KILOVOLT KILOVOLT-AMPERE KILOVOLT-AMPERE HOUR KILOVAR (REACTIVE KILOVOLT-AMPERE) KILOVAR-HOUR KILOWATT KILOWATT-HOUR LIGHTNING ARRESTOR LOCAL AREA NETWORK LIQUIDTIGHT FLEXIBLE METAL CONDUIT POWER LINE/POWER BLOCK	LV M mA MCC MCM MCP MOV MS MSDS MTS MTU mV MW N NEC NEMA NESC NFPA OCPD OE OIU OL OLR P PF PH PLC PMR PMU POT	LOW VOLTAGE MAGNETIC CONTACTOR MILLIAMPERES MOTOR CONTROL CENTER THOUSAND CIRCULAR MILLS MOTOR CIRCUIT PROTECTOR METAL OXIDE VARISTOR MOTOR STARTER MOTOR SAFETY DISCONNECT SWITCH MANUAL TRANSFER SWITCH MASTER TELEMETRY UNIT MILLIVOLT MEGAWATT NEUTRAL CONDUCTOR NATIONAL ELECTRICAL CODE NATIONAL ELECTRIC MANUFACTURERS ASSOC. NATIONAL ELECTRICAL SAFETY CODE NATIONAL FIRE PROTECTION AGENCY OVERCURRENT PROTECTION DEVICE OVERHEAD ELECTRIC OPERATOR INTERFACE UNIT OVERLOAD, THERMAL OVERLOAD RELAY POLE POWER FACTOR PHASE PROGRAMMABLE LOGIC CONTROL PHASE MONITOR RELAY POWER MONITOR UNIT POTENTIOMETER	PT PVC PVC-RGS RGS RVSS RTU s SHD SPD SS SUSE TB TDAD TDAE TQS TP TSP TST TT T/M UPS V VA VFD VMR W WAN Wh WP XFMR	POTENTIAL TRANSFORMER POLYVINYL CHLORIDE CONDUIT PVC COATED RGS RIGID GALVANIZED STEEL CONDUIT REDUCED-VOLTAGE SOFT START REMOTE TELEMETRY UNIT SECOND SHIELDED SURGE PROTECTION DEVICE STAINLESS STEEL SUITABLE FOR USE AS A SERVICE ENTRANCE TERMINAL BLOCK TIME DELAY AFTER DE-ENERGIZATION TIME DELAY AFTER ENERGIZATION TORQUE SWITCH TWISTED PAIR TWISTED SHIELDED PAIR TWISTED SHIELDED TRIAD TWISTED TRIAD THERMAL MAGNETIC UNINTERRUPTIBLE POWER SUPPLY VOLT VOLT-AMPERE VARIABLE FREQUENCY DRIVE VOLTAGE MONITORING RELAY WATT WIDE AREA NETWORK WATT-HOUR WEATHER PROOF POWER TRANSFORMER		
SYMBOL LEGEND									
PLAN SYMBOLS		ELEMENTARY WIRING DIAGRAM SYMBOLS				ONE LINE SYMBOLS			
 CONDUIT DOWN  CONDUIT UP  CONDUIT STUB UP/END CAP  DISCONNECT SWITCH  FUSED DISCONNECT SWITCH  COMMUNICATION OUTLET  TELEPHONE OUTLET  SPECIAL OUTLET  SIMPLEX RECEPTACLE  DUPLEX RECEPTACLE  DUPLEX RECEPTACLE (HIDDEN)  QUAD RECEPTACLE  QUAD RECEPTACLE (HIDDEN)  FLOOR MOUNTED RECEPTACLE   LED LIGHT POLES SINGLE                      DUAL   #12 AWG GROUND CONDUCTOR  #12 AWG NEUTRAL CONDUCTOR  #12 AWG BRANCH CONDUCTOR  CROSSMARKS INDICATE QUANTITY AND USE OF CONDUCTORS  S <sub>x</sub> LIGHT SWITCH, X = 3 = 3-WAY K = KEY 4 = 4-WAY M = MOTION   SEAL OFF   MOTOR X = HORSE POWER   XX= CV    CHECK VALVE FE    FLOW ELEMENT FI    FLOW INDICATOR FIT   FLOW INDICATOR/TRANSMITTER FS    FLOW SWITCH FT    FLOW TRANSMITTER HD    HEAT DETECTOR IS    INTRUSION SWITCH J    JUNCTION BOX L    LIMIT SWITCH LE    LEVEL ELEMENT LI    LEVEL INDICATOR LIT   LEVEL INDICATOR/TRANSMITTER LS    LEVEL SWITCH/FLOAT LT    LEVEL TRANSDUCER MDT   MOTION DETECTOR MFM   MAGNETIC FLOW METER MOV   MOTOR OPERATED VALVE PC    PHOTO CELL PE    PRESSURE ELEMENT PI    PRESSURE INDICATOR PIT   PRESSURE INDICATOR TRANSMITTER PS    PRESSURE SWITCH PT    PRESSURE TRANSMITTER SD    SMOKE DETECTOR SV    SOLENOID VALVE T    THERMOSTAT	 CONNECTION POINT  TERMINAL POINT  SCREW TERMINAL  MOUNTED ON OUTER DOOR  MOUNTED ON INNER DOOR  LOCKABLE DEVICE  NC CONTACT  NC CONTACTOR  NO CONTACT  NO CONTACTOR  SOLID STATE CONTACTOR   ALTERNATING RELAY  CONTROL RELAY  CONTACTOR  "BYPASS" CONTACTOR  "ISOLATION" CONTACTOR  SOLID STATE CONTACT RELAY  MOTOR RELAY  TIME DELAY RELAY (TDAE)  TIME DELAY RELAY (TDAD)  LIGHT EMITTING DIODE  OR  DIODE  LIGHT FIXTURE X = REFERENCE LIGHTING SCHEDULE IF APPLICABLE   "PUSH TO TEST" LED PILOT LIGHT A = AMBER                      R = RED B = BLUE                        W = WHITE G = GREEN   SELECTOR SWITCHES   HAND-OFF-AUTO SWITCHES   ON-OFF-RESET SWITCH	 GFCI DUPLEX OUTLET  DUPLEX OUTLET  FUSE  FUSED SWITCH W/ LED   N.O. TOGGLE SPST SWITCH   N.C. TOGGLE SPST SWITCH   N.O. TEMPERATURE SWITCH   N.C. TEMPERATURE SWITCH   N.O. PRESSURE SWITCH   N.C. PRESSURE SWITCH   N.O. LIMIT SWITCH   N.C. LIMIT SWITCH   N.O. FLOW SWITCH   N.C. FLOW SWITCH   N.O. FLOAT SWITCH   N.C. FLOAT SWITCH   N.O. DIFFERENTIAL PRESSURE SWITCH   N.C. DIFFERENTIAL PRESSURE SWITCH   N.O. PUSHBUTTON   N.C. PUSHBUTTON   N.O. MUSHROOM PUSHBUTTON   N.C. MUSHROOM PUSHBUTTON   TDAE, N.O., TIME DELAY CLOSE, INSTANTANEOUS RE-OPEN   TDAE, N.C., TIME DELAY OPEN, INSTANTANEOUS RE-CLOSE   TDAD, N.O., INSTANTANEOUS CLOSE, TIME DELAY RE-OPEN   TDAD, N.C., INSTANTANEOUS OPEN, TIME DELAY RE-CLOSE   GROUND EQUIPMENT/CHASSIS   GROUND, ISOLATED   RESISTOR   POTENTIOMETER   SOLENOID VALVE COIL   METAL OXIDE VARISTOR (MOV)   TRANSFORMER WINDING/ REACTOR/CHOKE	 CAPACITOR   REACTOR/CHOKE   CIRCUIT BREAKER, MAGNETIC ONLY   CIRCUIT BREAKER, THERMAL-MAGNETIC   CONNECTION POINT   CONTACTOR   CURRENT TRANSFORMER   FUSE   FUSIBLE DISCONNECT   ANALOG AMMETER   THERMAL OVERLOAD RELAY   GROUND EQUIPMENT/CHASSIS   SOLID NEUTRAL   TRANSFORMER						
GENERAL SYMBOLS									
 XXXXXX    CONDUIT		 XX XXXX XX    TAG LABEL							
 GFCI    GFCI PANELBOARD CIRCUIT		 X    AREA ID TAG							
 XXXXXX    DEMOLITION (DEMO)		 INTRINSICALLY SAFE AREA							
 CLEARANCE AREA									
LINETYPES									
 EXPOSED CONDUIT		 UNDERGROUND (BURIED) CONDUIT							
 GROUNDING ELECTRODE CONDUCTORS		 EMBEDDED CONDUIT (WALLS, CONCRETE, ETC.)							
NOTE: UNLESS NOTED OTHERWISE.									
NOTE: THIS IS A GENERAL LEDGER SHEET. ALL SYMBOLS MAY NOT APPLY.									

#### GENERAL ELECTRICAL NOTES:

##### SITE AND BUILDING PLANS:

- CONDUIT ROUTING IS SHOWN FOR CLARITY. ACTUAL ROUTING MAY BE MORE DIRECT AND IS LEFT TO THE CONTRACTOR FOLLOWING SPECIFICATIONS 16130. NON-ELECTRICAL BURIED PIPING HAS ROUTING PRIORITY OVER ELECTRICAL BURIALS.
- ALL TRENCHING SHALL BE PER ELECTRICAL TRENCHING DETAIL, REFERENCE ED-SHEETS.
- THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO PROTECT EXISTING UTILITIES.
- THROUGHOUT THIS DOCUMENT, THE TERMS "DEMO" AND "DEMOLISH" MEAN TO REMOVE, THEN WASTEHAUL OR RETURN TO THE OWNER, PER THE OWNER'S DIRECTION.
- THROUGHOUT THIS DOCUMENT, THE TERMS "PROVIDE" AND "INSTALL" MEAN TO PROVIDE AND INSTALL.

##### GENERAL CONTROL PANEL NOTES:

- UNLESS SPECIFICALLY NOTED OTHERWISE ON THE CONTROL PANEL DETAILS, THE FOLLOWING NOTES APPLY.
  - ALL ENCLOSURES SHALL BE PROVIDED WITH AN ENGRAVED NAMEPLATE CORRESPONDING TO THE ASSOCIATED TAG ID NUMBER AND TAG DESCRIPTION.

TAG DESCRIPTION

[TAG NUMBER]

1/4" TEXT

3/16" TEXT
  - WHERE PANELS CONTAIN POWER FROM MULTIPLE SOURCES, PROVIDE A YELLOW SAFETY STICKER, APPROXIMATELY 2" x 3", AS SHOWN BELOW.

CAUTION

THIS DEVICE IS POWERED FROM SEVERAL SOURCES

THE DISCONNECT SWITCH WILL NOT SHUT OFF ALL SOURCES OF ELECTRICAL ENERGY

##### INDOOR INSTALLATIONS:

- ALL EXPOSED PORTIONS OF CONDUITS FROM UNDERGROUND SHALL BE RGS.
- PANELS MOUNTED ON INTERIOR WALLS SHALL BE SUPPORTED TO THE WALL WITH 1/2-INCH (MINIMUM) GALVANIZED UNISTRUT.

##### PULLBOX/VAULT/OUTDOOR INSTALLATIONS:

- ALL MOUNTING FASTENERS (NUTS, BOLTS SCREWS, WASHERS, ETC.) SHALL BE 316 STAINLESS STEEL.
- ALL MOUNTING BRACKETS AND BRACING SHALL BE 316L STAINLESS STEEL.
- ALL EXPOSED PORTIONS OF CONDUITS SHALL BE PVC-COATED RGS UNLESS SPECIFICALLY NOTED OTHERWISE.
- CONSTRUCTION PRIORITY SHALL BE TO ENTER THE BOTTOM OF ENCLOSURES. ALL CONNECTION INTO ENCLOSURES SHALL BE WATERTIGHT. WHERE SIDE OR TOP ENTRY IS USED CONNECTIONS SHALL BE MADE USING MYERS-TYPE HUBS. REFERENCE SPECIFICATION 16130.
- PANELS MOUNTED ON VERTICAL WALLS SHALL BE SUPPORTED TO THE WALL WITH 1/2-INCH (MINIMUM) 316L STAINLESS STEEL UNISTRUT.

##### CABLE AND CONDUIT NOTES:

- REFERENCE SPECIFICATION 16120 FOR CONDUCTORS, INSTRUMENTATION, COMMUNICATION, AND OTHER SPECIAL CABLES AND CONDUCTORS.
- REFERENCE SPECIFICATION 16130 FOR RACEWAYS, BOXES, AND JUNCTION BOX TYPES, AND HANDHOLE, PULLBOX, AND VAULT CONDUIT INSTALLATION METHODS.
- CONDUIT NUMBERS ARE FORMATTED AS:

TAANN(S) WHERE: T = TYPE (P=POWER; C=CONTROL; S=SIGNAL/INSTRUMENTATION)  
AA= AREA NUMBER (01-99)  
NN= CONDUIT NUMBER WITHIN THE AREA (01-99)  
S = SPARE CONDUIT (~ "TILDE") (IF APPLICABLE)

P0319~

= AREA 03 POWER CONDUIT NO. 19, SPARE

C0112

= AREA 01 CONTROL CONDUIT NO. 12

S0521~

= AREA 05 INSTRUMENTATION CONDUIT NO. 21, SPARE
- REGARDLESS OF THE TYPE OF CONDUIT BEING ROUTED TO A MOTOR, THE LAST 18 INCHES OF THE CONDUIT CONNECTING TO THE MOTOR SHALL BE LFMC.

#### READING ELECTRICAL SHEETS:

##### ELEMENTARY DIAGRAMS:

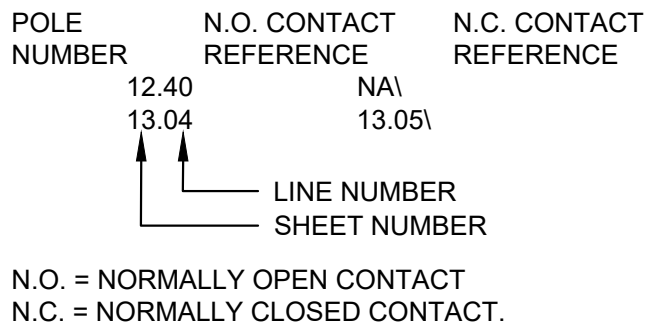
- ELEMENTARY DIAGRAMS ARE SHOWN IN LADDER LOGIC FORM WITH LINE NUMBERS FORMATTED AS:

SS.LL WHERE SS = SHEET NUMBER AND LL = LINE NUMBER
- RELAY COIL "TYPES" ARE INDICATED INSIDE THE COIL SYMBOL AS PER THE SYMBOL SCHEDULE ON THIS SHEET. THE COIL NUMBER IS OF THE FORMAT:

TTSS.LL.AA WHERE TT = RELAY TYPE (PER SYMBOL SCHEDULE)  
SS.LL = AS DESCRIBED ABOVE  
AA = ASSOCIATION WITH A DRIVE, CONTROLLER, CONTROL PANEL, ETC.
- RELAY CONTACTS ARE NUMBERED IN ASSOCIATION WITH THEIR COILS FOLLOWED BY \*-X\* WHERE X IS THE CONTACT POLE NUMBER.

#### ELEMENTARY DIAGRAMS (CONTINUED):

- EXAMPLE: RELAY CONTACTS FOR A DPDT RELAY




- CONTACTS AND ANALOG SIGNALS CONNECTED TO PLC I/O ARE FORMATTED AS:

\*RR:SS:CC WHERE \* DENOTES A PLC I/O CONNECTION  
RR = PLC RACK NUMBER  
SS = RACK SLOT NUMBER  
CC = SLOT CHANNEL NUMBER


\*TT:CC WHERE \* DENOTES A PLC I/O CONNECTION  
TT = I/O TYPE:  
AI = ANALOG INPUT  
AO = ANALOG OUTPUT  
DI = DIGITAL INPUT  
DO = DIGITAL OUTPUT  
CC = EMBEDDED CHANNEL NUMBER

SHEET LIST	
SHEET	SHEET DESCRIPTION
E-1	ELECTRICAL SYMBOLS, ABBREVIATIONS, GENERAL NOTES, SHEET LIST AND TAG LIST
E-2	MODIFIED ELECTRICAL SITE PLAN AND WORK SUMMARY
E-3	EXISTING AND PROPOSED ONE LINE DIAGRAMS
E-4	MODIFIED GROUNDING ONE LINE DIAGRAM
E-5	ELECTRICAL DEMOLITION PLAN
E-6	MODIFIED ELECTRICAL PLAN
E-7	PANELBOARD [01 XFMRP 01] SCHEDULE, SPECIFICATIONS AND LOAD DISTRIBUTION
E-8	MOTOR STARTER NOTES AND DOOR ELEVATION
E-9	MOTOR STARTER ELEMENTARY WIRING DIAGRAM
E-10	PLC I/O
E-11	I/O AND ALARMING
EC-1	CABLE AND CONDUIT SCHEDULES
ED-1	ELECTRICAL DETAILS

DEVICE TAG LIST		
TAG ID#	TAG DESCRIPTION	VINTAGE
01 ATS 01	AUTOMATIC TRANSFER SWITCH	NEW
01 CL2 01	CHLORINATION SYSTEM	NEW
01 GADP 01	GENERATOR ACCESSORY DEVICE PANEL	NEW
01 GCB 01	GENERATOR CIRCUIT BREAKER	NEW
01 GCB 02	GENERATOR CIRCUIT BREAKER, LOAD BANK	NEW
01 GEN 01	GENERATOR	NEW
01 MS 01	MOTOR STARTER	NEW
01 MTR 01	WELL PUMP	NEW
01 PNLA 01	480/277 PANELBOARD, "PANEL A"	EXISTING
01 PNLL 01	240/120 PANELBOARD, "PANEL L"	EXISTING
01 PT 01	PRESSURE TRANSDUCER	EXISTING
RTU 06	CONTROL PANEL	EXISTING
01 SDB 01	SERVICE DISCONNECT BREAKER	NEW
01 SPD 01	SURGE PROTECTION DEVICE	NEW
01 TP 01	TERMINAL BLOCK PANEL, CHLORINATION BUILDING, "CL2 BUILDING INTERFACE"	EXISTING
01 UT 01	UTILITY TRANSFORMER	EXISTING
01 XFMRP 01	TRANSFORMER AND PANELBOARD 480/240-120, 1PH	NEW



1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860



CITY OF LACEY

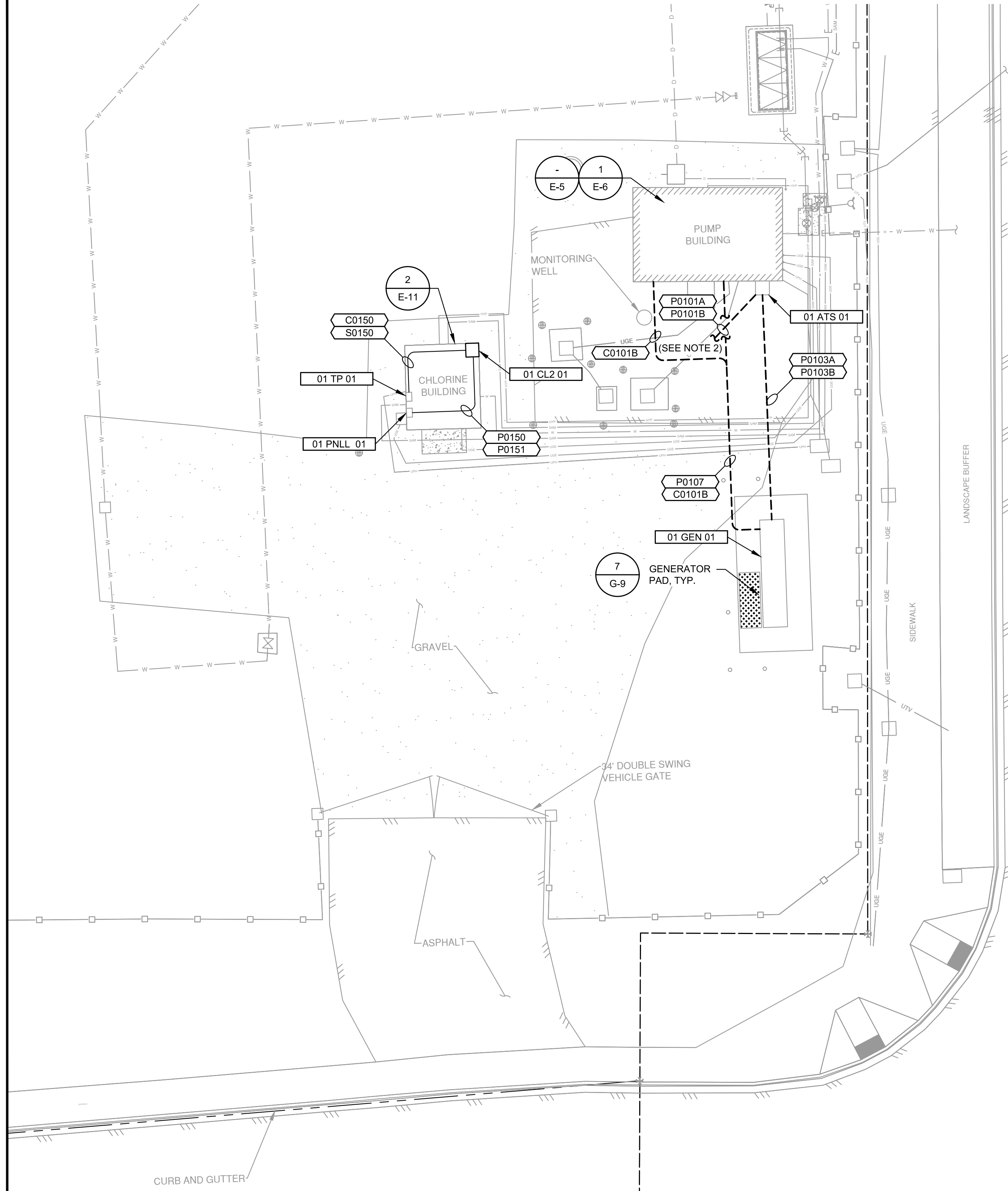
**S10 GENERATOR, WELL PUMP, & SITE IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_SYM_ABBR.DWG		
<div><div>0</div><div>1"</div><div>2"</div></div> <div>TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY</div>		
<b>ELECTRICAL</b>		
<b>ELECTRICAL SYMBOLS, ABBREVIATIONS, GENERAL NOTES, SHEET LIST AND TAG LIST</b>		
DRAWING:	<b>E-1</b>	OF: <b>11</b>
SHEET:	<b>19</b>	OF: <b>31</b>



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_SP.dwg, 2/5/2024 12:06 PM, PHILIP MARSHALL



NOTES:

- REFERENCE M-SHEETS FOR EXISTING SITE PLAN AND NON-ELECTRICAL MODIFICATIONS.
- INTERCEPT EXISTING UTILITY FEED AND RE-ROUTE TO NEW ATS.
- REFERENCE SHEET G-6 FOR NON-ELECTRICAL SITE DEMO.

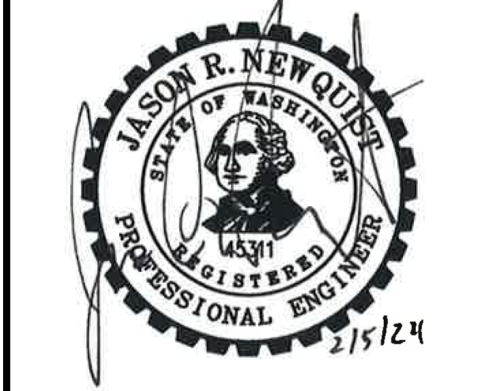
MODIFIED ELECTRICAL SITE PLAN

SCALE: 1"=10'

ELECTRICAL WORK SUMMARY:

THIS SUMMARY OF ELECTRICAL WORK IS INCLUDED AS A COURTESY AND IS INTENDED TO PROVIDE A GENERAL UNDERSTANDING OF ELECTRICAL DESIGN INTENT AND MAJOR ELECTRICAL CONSTRUCTION TASKS. IT IS NOT PROVIDED AS A COMPLETE LIST OF WORK AND SHALL NOT BE USED FOR BIDDING PURPOSES. REFER TO ALL PLANS AND SPECIFICATIONS.

- A NEW OUTDOOR, DIESEL GENERATOR WITH INTEGRAL FUEL TANK WILL BE INSTALLED.
- TO ACCOMMODATE THE GENERATOR ACCESSORY HEATER(S), THE TRANSFORMER AND ASSOCIATED PANELBOARD WILL BE REPLACED WITH A LARGER CAPACITY COMBINATION UNIT.
- EXISTING WELL PUMP MOTOR AND STARTER WILL BE REPLACED. STARTER PANEL WILL BE A CUSTOM UL 508/A PANEL FROM TECHNICAL SYSTEMS INC. (TSI) OR SYSTEMS INTERFACE INC. (SI).
- PROGRAMMING CHANGES ARE VIA CITY CONTRACT DIRECTLY WITH THE INTEGRATOR AND SEPARATE FROM THIS ONE.
- EXISTING CHLORINE PUMP AND DOSING/MONITORING SKID WILL BE REPLACED WITH NEW.
- PLC AND HMI PROGRAMMING WILL BE MODIFIED FOR ADDITIONAL ALARMING AND CHANGES TO WELL STARTUP SEQUENCE. THIS WORK IS PART OF THE CONTRACT BUT PROGRAMMER IS SOLE SOURCED.



CITY OF LACEY  
S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_SP.DWG		

0 1" 2"  
TWO INCHES AT FULL SCALE.  
IF NOT, SCALE ACCORDINGLY

ELECTRICAL

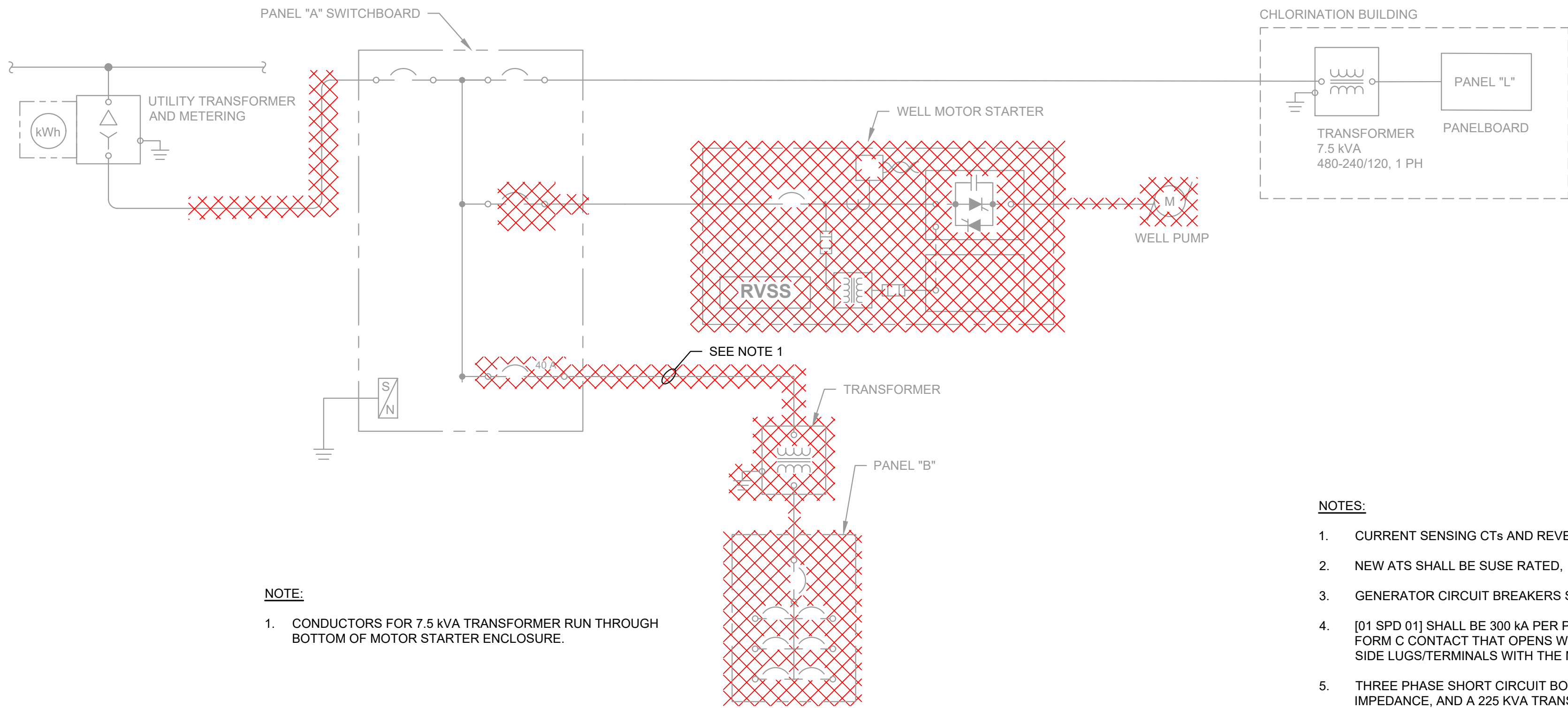
MODIFIED ELECTRICAL  
SITE PLAN AND WORK  
SUMMARY

DRAWING: E-2 OF: 11

SHEET: 20 OF: 31



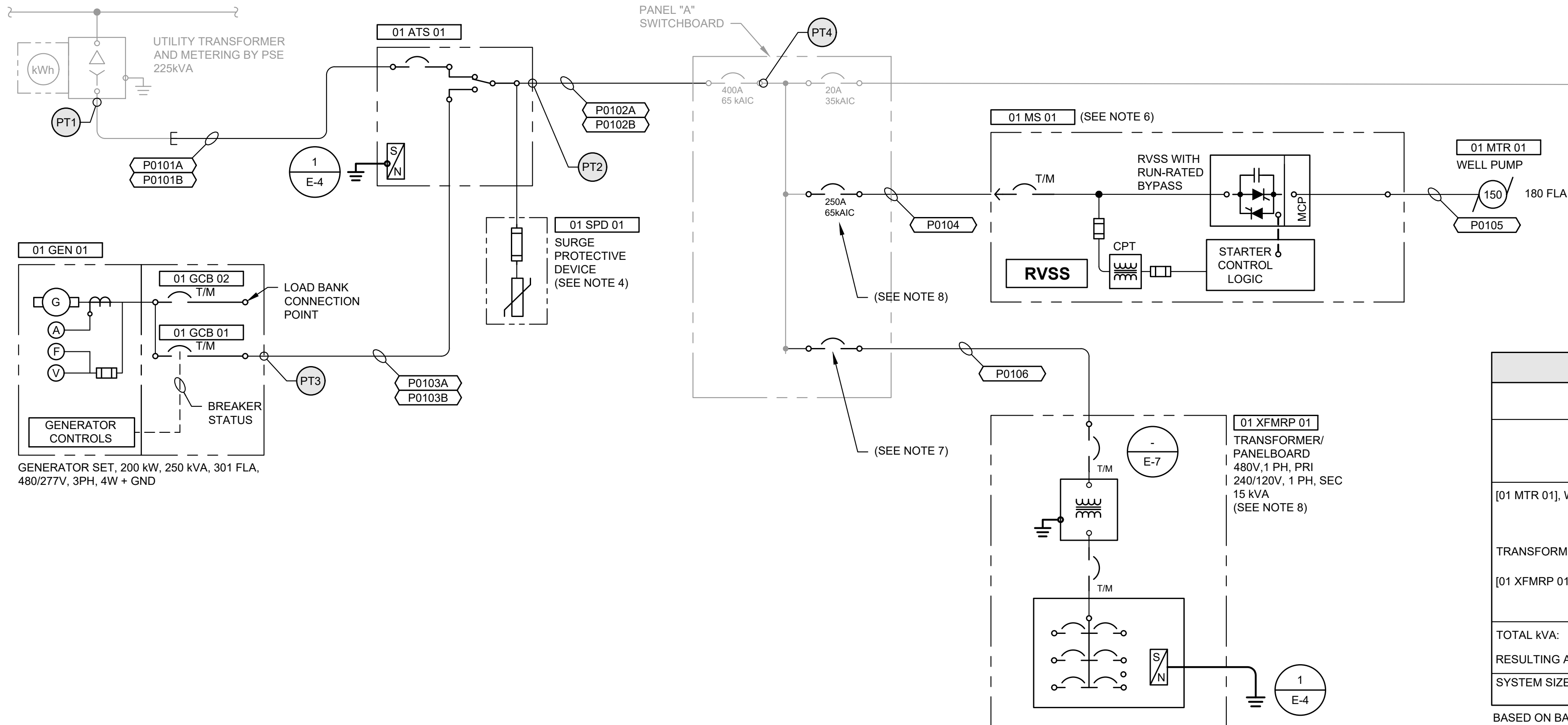
L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANS\Electrical\OLD.dwg, 2/5/2024 12:06 PM, PHILIP MARSHALL



NOTE:

- CONDUCTORS FOR 7.5 KVA TRANSFORMER RUN THROUGH BOTTOM OF MOTOR STARTER ENCLOSURE.

1  
-  
NTS  
**EXISTING ONE LINE DIAGRAM**



2  
-  
NTS  
**PROPOSED ONE LINE DIAGRAM**

POWER DEVICE SIZING						
TAG NUMBER	RATED VOLTAGE	OPERATING VOLTAGE	POLES/ PHASES	AMPACITY	MIN. INTERRUPT AND WITHSTAND RATING	ENCLOSURE TYPE
01 ATS 01	600 V	480 V	3	400 AT/ 400 AF	65 kAIC	NEMA 4X
01 GCB 01	600 V	480 V	3	400 AT/ 400 AF	10 kAIC	IN [01 GEN 01]
01 GCB 02	600 V	480 V	3	400 AT/ 400 AF	10 kAIC	IN [01 GEN 01]
01 MS 01	MAGNETIC ONLY, TRIP SIZED BY STARTER MANUFACTURER					

BOLTED FAULT TABLE	
FAULT POINT	3PH SHORT CIRCUIT VALUES
PT1	22.0 kAIC
PT2	20.1 kAIC
PT3	5.2 kAIC
PT4	19.8 kAIC

(SEE NOTE 5)

NOTES:

- CURRENT SENSING CTs AND REVENUE METER ARE EXISTING.
- NEW ATS SHALL BE SUSE RATED, INCLUDE SERVICE DISCONNECT BREAKER ON THE UTILITY LINE SIDE, SIZED PER TABLE ABOVE.
- GENERATOR CIRCUIT BREAKERS SHALL BE PROVIDED WITH A LOCKABLE HANDLE AND AN AUXILIARY CONTACT THAT OPENS WHEN THE BREAKER IS IN ITS OPEN/TRIPPED POSITION.
- [01 SPD 01] SHALL BE 300 kA PER PHASE/150 kA PER MODE, FULL MODE, WITH FILTER AND SHALL INCLUDE INTERNAL DISCONNECT WITH OVERCURRENT PROTECTION AND A FORM C CONTACT THAT OPENS WHEN THE UNIT IS FAULTED. UNIT SHALL BE ALLOWED TO BE PROVIDED AS INTEGRAL TO [01 ATS 01]. DO NOT EXTEND MFR'S LEADS. COORDINATE LOAD SIDE LUGS/TERMINALS WITH THE MANUFACTURER OF THE ATS TO FACILITATE THIS CONNECTION.
- THREE PHASE SHORT CIRCUIT BOLTED FAULT CALCULATIONS ARE BASED ON INFINITE UTILITY CONTRIBUTION, +10% VARIANCE IN UTILITY VOLTAGE, -10% VARIANCE IN TRANSFORMER IMPEDANCE, AND A 225 KVA TRANSFORMER WITH 1.7% ASSUMED IMPEDANCE. FAULT CALCULATIONS ALSO INCLUDE 2312 AIC MOTOR REGENERATIVE CONTRIBUTION FROM THE 150 HP MOTOR ADDED TO FAULT POINT. ALL CALCULATIONS ARE BASED ON 480 V.
- REFERENCE MOTOR STARTER NOTES ON SHEET E-8.
- REPLACE EXISTING BREAKER WITH 2P, 60A, 480, 35KAIC BREAKER COMPATIBLE WITH EXISTING CUTLER HAMMER SWITCHBOARD PANEL "A".
- NEW COMBINATION TRANSFORMER AND PANELBOARD SHALL BE 480-240/120V SINGLE PHASE, 15 kVA WITH INTEGRAL PRIMARY AND SECONDARY BREAKERS IN NEMA 3R ENCLOSURE, EATON P48G11S1526 OR EQUAL.
- EXISTING BREAKER IS CUTLER-HAMMER CATALOG NUMBER HKD3400F. REUSE EXISTING 400A FRAME UNIT, BUT EXCHANGE THE EXISTING 350A TRIP MODULE WITH NEW 250A TRIP MODULE FROM CUTLER-HAMMER.

LOAD SUMMARY							
(CALCULATIONS BASED ON 480 V)							
LOAD DESCRIPTION	CONNECTED LOADS			UTILITY LOAD DEMAND		GENERATOR LOADS	
	STARTER	HP	kVA	D.F.	kVA	D.F.	kVA
[01 MTR 01], WELL PUMP	RVSS	150.0	143.4	100%	143.4	100%	143.4
TRANSFORMER, CHLORINATION BUILDING, 480-240/120, 1PH, 7.5KVA			7.5	100%	7.5	100%	7.5
[01 XFMRP 01], TRANSFORMER AND PANELBOARD 480/240-120, 1PH			15.0	100%	15.0	100%	15.0
TOTAL kVA:			165.9		165.9		165.9
RESULTING AMPACITY AT 480 VAC, 3 PH (SEE NOTE):			199.6		199.6		199.6
SYSTEM SIZED AT: 400 A							
				SPARE CAPACITY: 120.4 A / 320 A*, 37.6% *SYSTEM DERATED BY 25%			

BASED ON BALANCED LOADING, NOTE PHASE CURRENTS WILL LIKELY BE HIGHER DUE TO SINGLE PHASE TRANSFORMERS



**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_OLD.DWG		

0 1" 2"  
TWO INCHES AT FULL SCALE.  
IF NOT, SCALE ACCORDINGLY

**ELECTRICAL**

**EXISTING AND  
PROPOSED ONE LINE  
DIAGRAMS**

DRAWING: **E-3** OF: **11**

SHEET: **21** OF: **31**

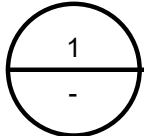


L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_OLD.dwg, 2/5/2024 12:06 PM, PHILIP MARSHALL

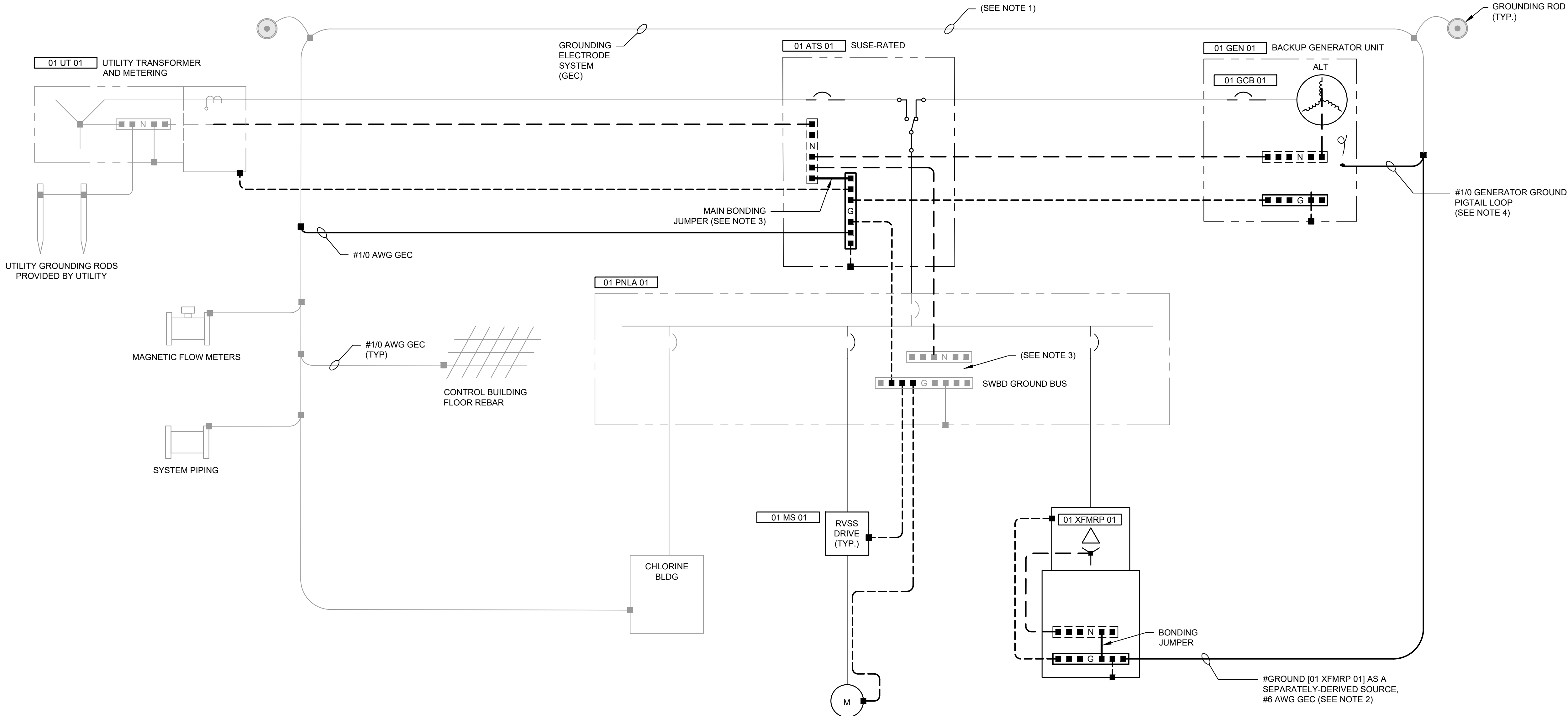
NOTES:

- REFERENCE GROUNDING SPECIFICATION 16060. FIELD VERIFY EXISTING SERVICE GROUND IS 1/0 AWG MIN.
- ALL POWER TRANSFORMERS ARE CONSIDERED SEPARATELY DERIVED SOURCES AND SHALL BE GROUNDED APPROPRIATELY. SMALL CONTROL TRANSFORMERS DEDICATED TO DRIVES AND CONTROLS ARE NOT CONSIDERED SEPARATELY DERIVED. GROUND SEPARATELY-DERIVED SOURCE [01 XFMRP 01] TO THE GROUND LOOP USING AN INSULATED, GREEN, #6 AWG GEC.
- DEMOLISH EXISTING BONDING JUMPER AT SWITCHBOARD. MAKE NEW BONDED SUSE POINT IN NEW ATS AS SHOWN AND RECONNECT TO EXISTING SERVICE GROUND SYSTEM.
- PROVIDE A GROUND PIGTAIL FROM THE GROUND LOOP JUST UNDER GENERATOR CIRCUIT BREAKER [01 GCB 01]. CONNECT TO GENERATOR GROUND BUS IF REQUIRED BY L&I INSPECTOR.

GROUNDING LEGEND	
	POWER CONDUCTORS
	NEUTRAL CONDUCTORS
	EQUIPMENT GROUND CONDUCTORS
	GROUNDING ELECTRODE CONDUCTORS (GEC)
	GROUNDING ELECTRODE TAP
	NEUTRAL BUS
	GROUND BUS



MODIFIED GROUNDING ONE LINE DIAGRAM  
NOT TO SCALE



**Gray & Osborne, Inc.**  
CONSULTING ENGINEERS  
1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860

**CITY OF LACEY**  
**S10 GENERATOR, WELL PUMP, & SITE IMPROVEMENTS**  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR: BID SET		
ISSUE DATE: FEB 2024		
APPROVED BY: JRN		
CHECKED BY: PAM		
DRAWN BY: PEB		
DESIGNER: JRN		
G & O JOB NO.: 22625.00		
FILE: E_OLD.DWG		

TWO INCHES AT FULL SCALE.  
IF NOT, SCALE ACCORDINGLY

**ELECTRICAL**

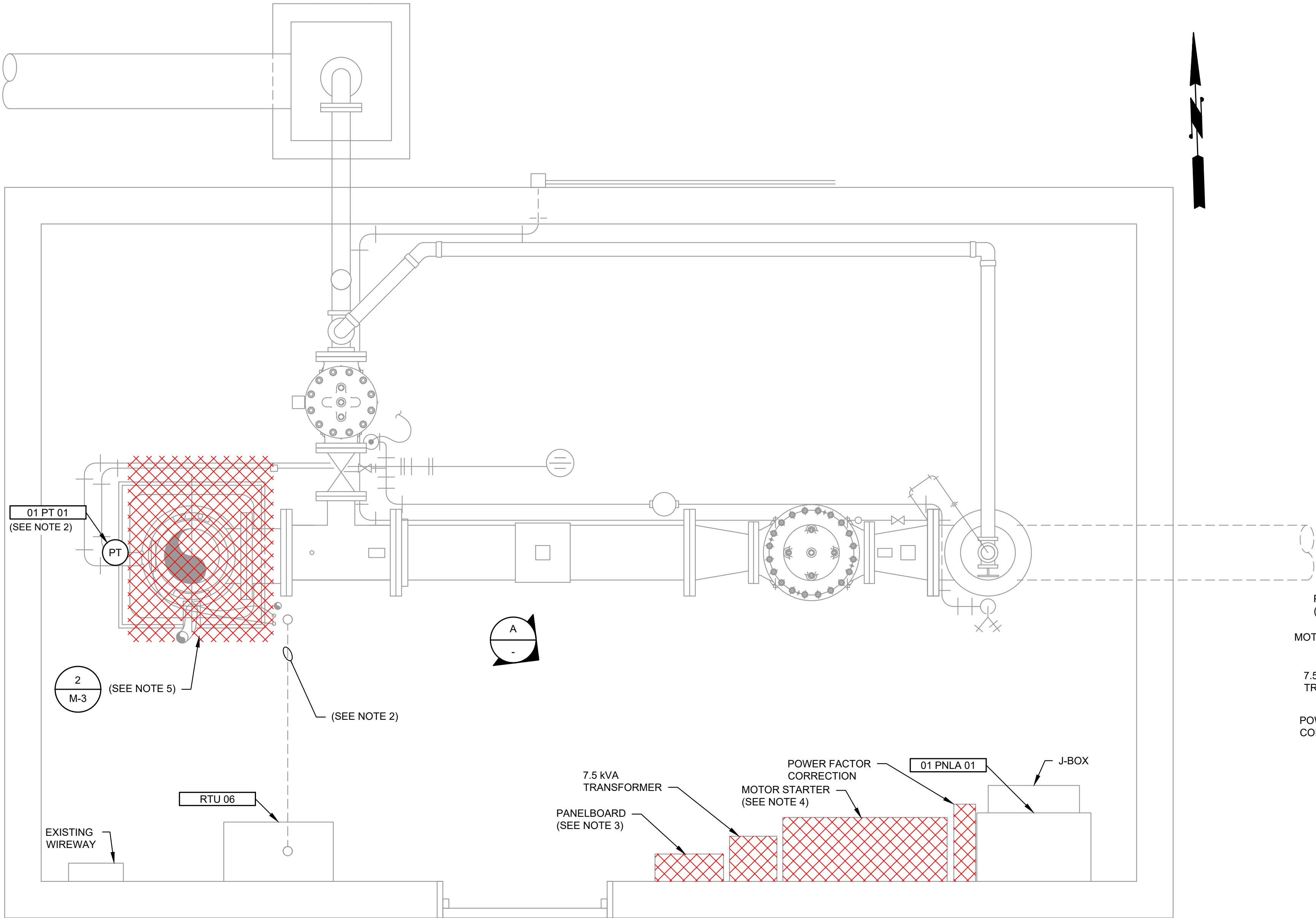
**MODIFIED GROUNDING ONE LINE DIAGRAM**

DRAWING: **E-4** OF: **11**

SHEET: **22** OF: **31**



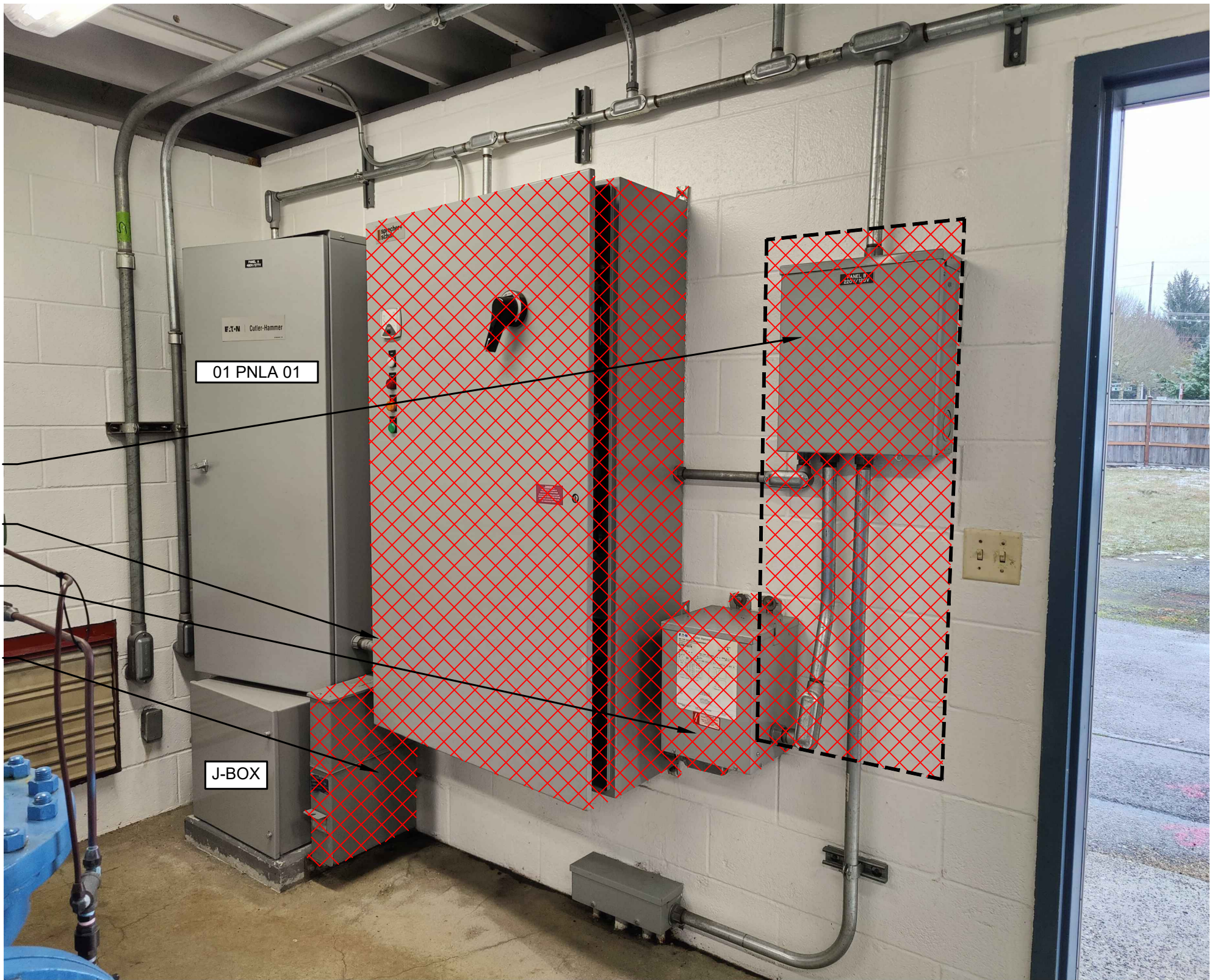
L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_BLDG.dwg, 2/5/2024, 12:07 PM, PHILIP MARSHALL



NOTES:

- REFERENCE M-SHEETS FOR ADDITIONAL DEMOLITION.
- SALVAGE EXISTING TRANSDUCER FOR RE-USE AND RE-INSTALLATION ON SITE. PROVIDE NEW LFMC AND J-BOX TO SPLICE TO MANUFACTURER'S CABLE. CONDUCTORS FROM CONTROL PANEL TO CONDUIT STUB UP MAY BE RE-USED.
- PULL BACK EXISTING CONDUCTORS BEFORE DEMOLITION OF PANELBOARD TO FACILITATE RECONNECTION OF EXISTING CIRCUITS. PER CABLE AND CONDUIT SCHEDULE NOTES SHORT SECTIONS OF NEW CONDUIT MAY BE NECESSARY TO REMAKE CONNECTIONS TO NEW PANELBOARD.
- REMOVE ALL CIRCUITS BETWEEN MOTOR STARTER AND RTU-06.
- PROTECT MOTOR CONDUIT DURING DEMOLITION OF PEDESTAL. REFERENCE M-SHEETS FOR DEMO AND SALVAGE IN THIS AREA.
- ALL DEMOLITION IS WASTEHAUL OR SALVAGE AT OWNER'S DIRECTION. PANELBOARD, 7.5KVA TRANSFORMER, AND MOTOR STARTER ARE OWNER IDENTIFIED ITEMS OF NOTE FOR SALVAGE TO OWNER.

**ELECTRICAL DEMOLITION PLAN**  
SCALE: 3/4"=1'-0"



**DEMOLITION DETAIL**  
NOT TO SCALE

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_BLDG.DWG		

0 1" 2"  
TWO INCHES AT FULL SCALE.  
IF NOT, SCALE ACCORDINGLY

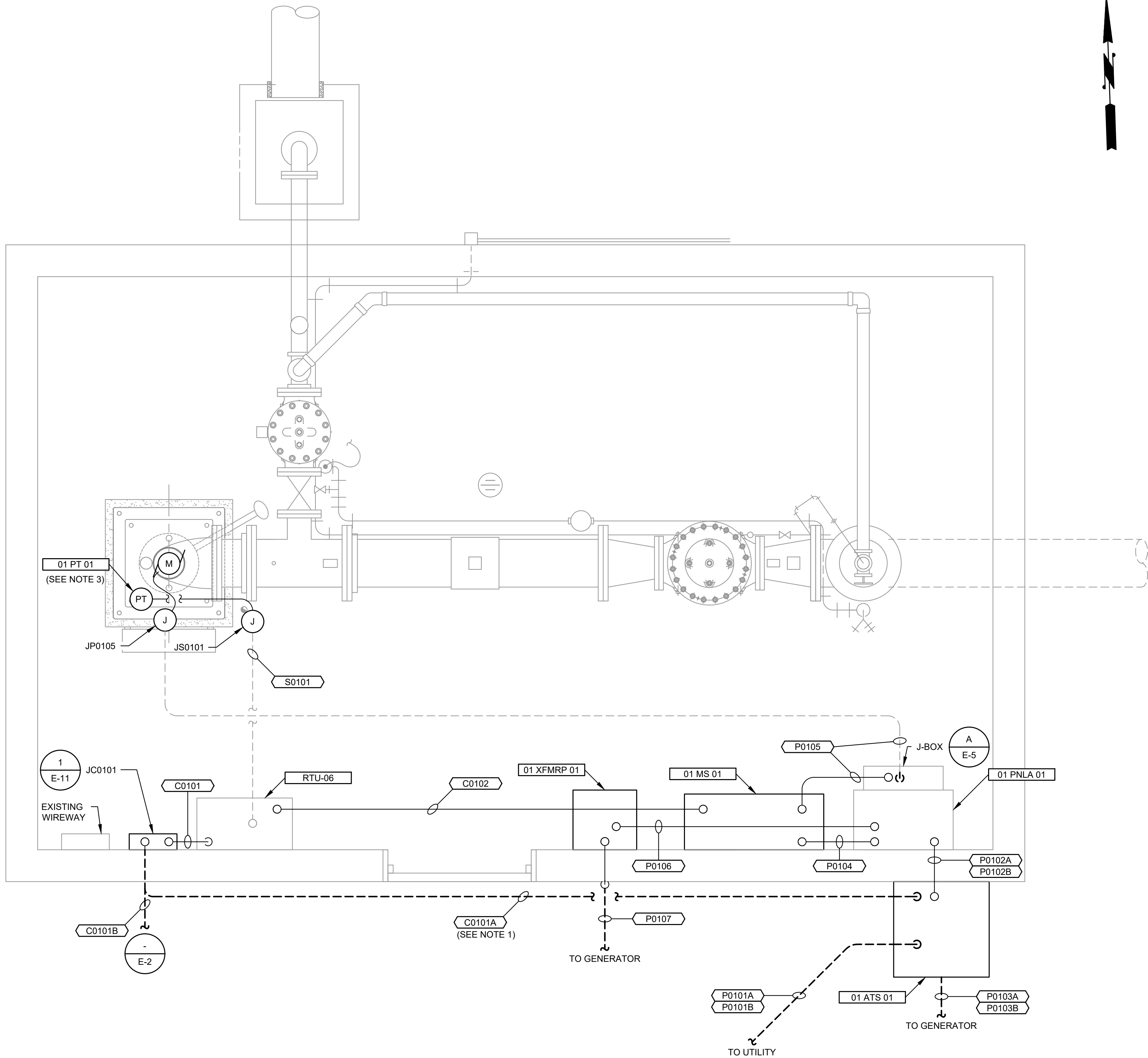
**ELECTRICAL**

**ELECTRICAL  
DEMOLITION PLAN**

DRAWING: **E-5** OF: **11**

SHEET: **23** OF: **31**





NOTES:

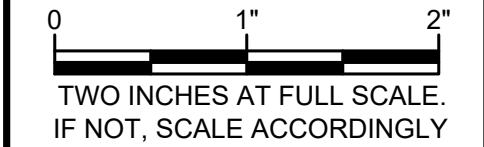
- CONDUIT SHOWN OUTSIDE BUILDING FOR CLARITY BUT MAY BE RUN ALONG INTERIOR WALL.
- ONLY NEW CONDUITS ARE SHOWN HERE. DESIGN INTENT IS FOR [01 XFMRP 01] TO BE INSTALLED IN THE SAME LOCATION AS THE EXISTING PANELBOARD SO THAT EXISTING CONDUCTORS TO EXISTING ANCILLARY LOADS MAY BE REUSED WITH MINIMUM CONDUIT MODIFICATION.
- DUE TO REUSE OF EXISTING TRANSDUCER CONDUIT, AS AN EXCEPTION TO THE SPECIFICATIONS, THIS LENGTH OF LFMC SHALL BE ALLOWED TO EXCEED 18".

1  
-  
MODIFIED ELECTRICAL PLAN  
SCALE: 3/4"=1'-0"



CITY OF LACEY  
S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_BLDG.DWG		



ELECTRICAL  
  
MODIFIED ELECTRICAL  
PLAN



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_PB\_130.dwg, 2/5/2024 12:07 PM, PHILIP MARSHALL

PANELBOARD [01 XFMRP 01] SCHEDULE																
CKT. NO.	DIRECTORY	PHASE A		PHASE B		LOAD TYPE	BKR AMPS	BUS	BKR AMPS	LOAD TYPE	PHASE A		PHASE B		DIRECTORY	CKT. NO.
		VA	A	VA	A						VA	A	VA	A		
1	MAIN	-	-			Z	2/60	A	---	Z	-	-			COVERED SPACE	2
3	MAIN			-	-	Z		B	2/30	H			2,500	20.8	HEATER	4
5	[01 CP 01], CONTROL PANEL	1,200	10.0			Z	1/15	A		H	2,500	20.8			HEATER	6
7	LIGHTS			256	2.1	L	1/15	B	1/20	R			720	6.0	INTERIOR OUTLETS	8
9	CHLORINE PUMP	1,127	9.8			M	1/20	A	1/0	R	-	-			OUTSIDE OUTLET (OFF POSITION	10
11	[01 GADP 01], GENERATOR ACCESSORY DEVICE PANEL			1,250	10.4	Z	2/20	B	1/20	M			667	5.8	EXHAUST FAN	12
13	[01 GADP 01], GENERATOR ACCESSORY DEVICE PANEL	1,250	10.4			Z		A	1/20	Z	-	-			SPARE BREAKER	14
15	SPARE BREAKER			-	-	Z	1/20	B	1/20	Z			-	-	SPARE BREAKER	16
17	SPARE BREAKER	-	-			Z	1/20	A	1/20	Z	-	-			SPARE BREAKER	18
19	COVERED SPACE			-	-	Z	---	B	---	Z			-	-	COVERED SPACE	20
21	COVERED SPACE	-	-			Z	---	A	---	Z	-	-			COVERED SPACE	22
23	COVERED SPACE			-	-	Z	---	B	---	Z			-	-	COVERED SPACE	24
25	COVERED SPACE	-	-			Z	---	A	---	Z	-	-			COVERED SPACE	26
	SUM OF PHASE LOADS	3,577	30.2	1,506	12.6						2,500	20.8	3,887	32.6	SUM OF PHASE LOADS	

[01 XFMRP 01] ELECTRICAL AND CONSTRUCTION SPECIFICATIONS:

CONFIGURATION:	240/120 VAC, 1 PH, 60 Hz
POWER BUS:	100 A, COPPER
NEUTRAL BUS:	100 A (100% OF POWER BUS), ISOLATED FROM GROUND, SOLDERLESS CONNECTIONS
GROUND BUS:	PROVIDE PER UL 67
BUS BRACING:	22 KAIC, MINIMUM
MAIN BREAKER:	70 AT, 100 AF, 1 PH, 2 P, 22 KAIC, MOLDED CASE, PART OF DISTRIBUTION BREAKERS
GROUND BONDING:	SUITABLE FOR SERVICE ENTRY
ENCLOSURE:	NEMA 3R
NUMBER OF CIRCUITS:	26
POWER DERIVED FROM:	[01 XFMRP 01], TRANSFORMER, WELL BUILDING, 480-240/120, 1PH, 15kVA

NOTES:

- THE CONTRACTOR SHALL PROVIDE A TYPED PANELBOARD SCHEDULE FOR ALL ACTUAL LOAD ASSIGNMENTS.
- AIC RATING OF BRANCH CIRCUIT BREAKERS MAY BE REDUCED WHEN SUBMITTED TO ENGINEERING IF THEY ARE SHOWN TO BE PART OF A TESTED AND LISTED COMBINATION WITH MAIN PANELBOARD BREAKER AND COMPLIANT TO NEC 240.86 AND MARKED PER NEC 110.22. BRANCH BREAKERS SHALL BE NO LESS THAN 10 KAIC.
- FADED CIRCUITS REPRESENT RECONNECTION OF EXISTING CIRCUITS. BOLD CIRCUITS ARE NEW. CIRCUITS MAY BE REORDERED FROM WHAT IS SHOWN TO FACILITATE RE-CONNECTION.
- EXISTING LOADS ARE ESTIMATED.

LOAD DISTRIBUTION:

BY PHASE:

TOTAL LOAD, PHASE A:	51.1 A	6,077 VA	53.0%
TOTAL LOAD, PHASE B:	45.2 A	5,393 VA	47.0%

BY LOAD TYPE:


TOTAL LIGHTING (L):	256 VA	2.2%
TOTAL MOTOR (M):	1,794 VA	15.6%
TOTAL HVAC (H):	5,000 VA	43.6%
TOTAL RECEPTACLE (R):	720 VA	6.3%
TOTAL OTHER (Z):	3,700 VA	32.3%
TOTAL CONNECTED LOAD:	11.47 kVA	100.0%
TOTAL CALCULATED (NEC) LOAD:	11.82 kVA	

XFMR LOADING (CONNECTED) =	11.5 kVA / 15 kVA =	76.5 %
XFMR LOADING (NEC) =	11.8 kVA / 15 kVA =	78.8 %

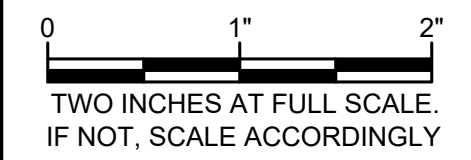


Gray & Osborne, Inc.  
CONSULTING ENGINEERS  
1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860





CITY OF LACEY  
S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE: FEB 2024		
APPROVED BY: JRN		
CHECKED BY: PAM		
DRAWN BY: PEB		
DESIGNER: JRN		
G & O JOB NO.: 22625.00		
FILE: E_PB_130.DWG		
		

ELECTRICAL

PANELBOARD [01  
XFMRP 01] SCHEDULE,  
SPECIFICATIONS, AND  
LOAD DISTRIBUTION

DRAWING: E-7 OF: 11

SHEET: 25 OF: 31



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_MSEWD.dwg, 2/5/2024 2:21 PM, PHILIP MARSHALL

MOTOR STARTER GENERAL NOTES:

- G.1. REFERENCE MOTOR STARTER AND CONTROL PANEL SPECIFICATIONS.
- G.2. METAL OXIDE VARISTORS SHALL PARALLEL EACH 120 VAC CONTROL RELAY, TIMER COIL, AND SOLENOID VALVE. REVERSE-BIASED DIODES SHALL PARALLEL EACH 24 VDC CONTROL RELAY.
- G.3. ALL PILOT LIGHTS SHALL BE PUSH-TO-TEST LED STYLE.
- G.4. THE "POWER-UP DELAY" TIMER DISABLES THE DRIVE FOLLOWING A POWER UP TO ALLOW DRIVES TO CHARGE UP, REBOOT, AND STABILIZE BEFORE BEING PLACED INTO OPERATION.
- G.5. PROVIDE AN ELECTRO-MECHANICAL ELAPSED TIME METER AND MOTOR START COUNTER ON A SINGLE METER PER SPECIFICATION.
- G.6. SIZE STARTER CONTROL TRANSFORMERS TO HANDLE ALL DRIVE/STARTER CONTROL DEVICES AS PER REFERENCED ELEMENTARY WIRING DIAGRAMS PLUS 25%. UPSIZE FOR PILOT LIGHTS, COOLING FANS, AND ETC. WHERE APPLICABLE.
- G.7. ALL MOTOR STARTER CONTROLLERS SHALL BE CONFIGURED TO RESET FROM A DOOR-MOUNTED STANDARD PUSHBUTTON - NOT FROM A MANUFACTURER'S CONTROL MODULE. PROVIDE A SEPARATE RESET PUSHBUTTON ON THE STARTER DOOR FOR THIS PURPOSE.
- G.8. SIZE AND SET MOTOR STARTER BREAKERS AND MOTOR OVERLOAD PROTECTION DEVICES BASED ON NEC AND MOTOR MANUFACTURER'S REQUIREMENTS.

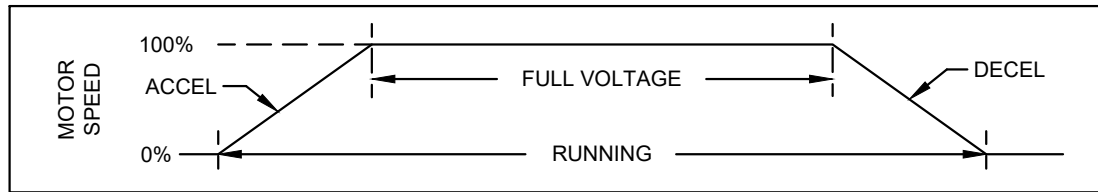
OVERLOAD RELAYS, NOT NETWORKED, ELECTRONIC RELAY:

- OL.1 THE OVERLOAD RELAY SHALL BE CONFIGURED TO TRIP THE STARTER ON THE FOLLOWING CONDITIONS:
- |                  |                     |
|------------------|---------------------|
| TRIP ON:         | TRIP ON:            |
| THERMAL OVERLOAD | UNDER-VOLTAGE (L-L) |
| PHASE LOSS       | OVER-VOLTAGE (L-L)  |
| PHASE ROTATION   | CURRENT IMBALANCE   |
- OL.2 THE OVERLOAD RELAY SHALL INCLUDE A N.C. "DISABLE" OUTPUT AND A N.O. "FAULT" OUTPUT. THE DISABLE OUTPUT SHALL BE OPENED AND THE FAULT OUTPUT CLOSED ON ANY COMBINATION OF CONDITIONS IDENTIFIED IN NOTE OL.1. THIS "TRIPPED" STATUS SHALL BE MAINTAINED UNTIL THE OVERLOAD RELAY IS ELECTRICALLY OR MANUALLY RESET (SEE NOTE OL.4).
- OL.3 THE OVERLOAD RELAYS SHOWN IN THESE MOTOR ELEMENTARY WIRING DIAGRAMS ARE TYPICAL AND MAY NOT REPRESENT ALL APPROVED MANUFACTURERS. SELECTED MANUFACTURERS SHALL SUBMIT ELECTRICAL WIRING DIAGRAMS SHOWING DETAILED CONNECTIONS THAT FOLLOW THE DESIGN INTENT AND OPERATION OF THOSE SHOWN HEREIN. MODIFICATIONS OR COMPROMISES TO THE DESIGN FUNCTION WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- OL.4 OVERLOAD RELAYS SHALL BE CONFIGURED TO RESET FROM TEMPORARY CLOSURE OF A DOOR-MOUNTED PUSHBUTTON, NOT FROM MANUFACTURER'S DOOR-MOUNTED CONTROL MODULES. PROVIDE A RESET PUSHBUTTON ON THE STARTER DOOR PER SPECIFICATION 16940.
- OL.5 THE STARTER MANUFACTURER SHALL PROVIDE INDEPENDENT DRY CONTACTS CONNECTED TO A CONTROL OUTPUT TERMINAL STRIP WITH A COMMON CONNECTION AS SHOWN.

RVSS SPECIFIC NOTES:

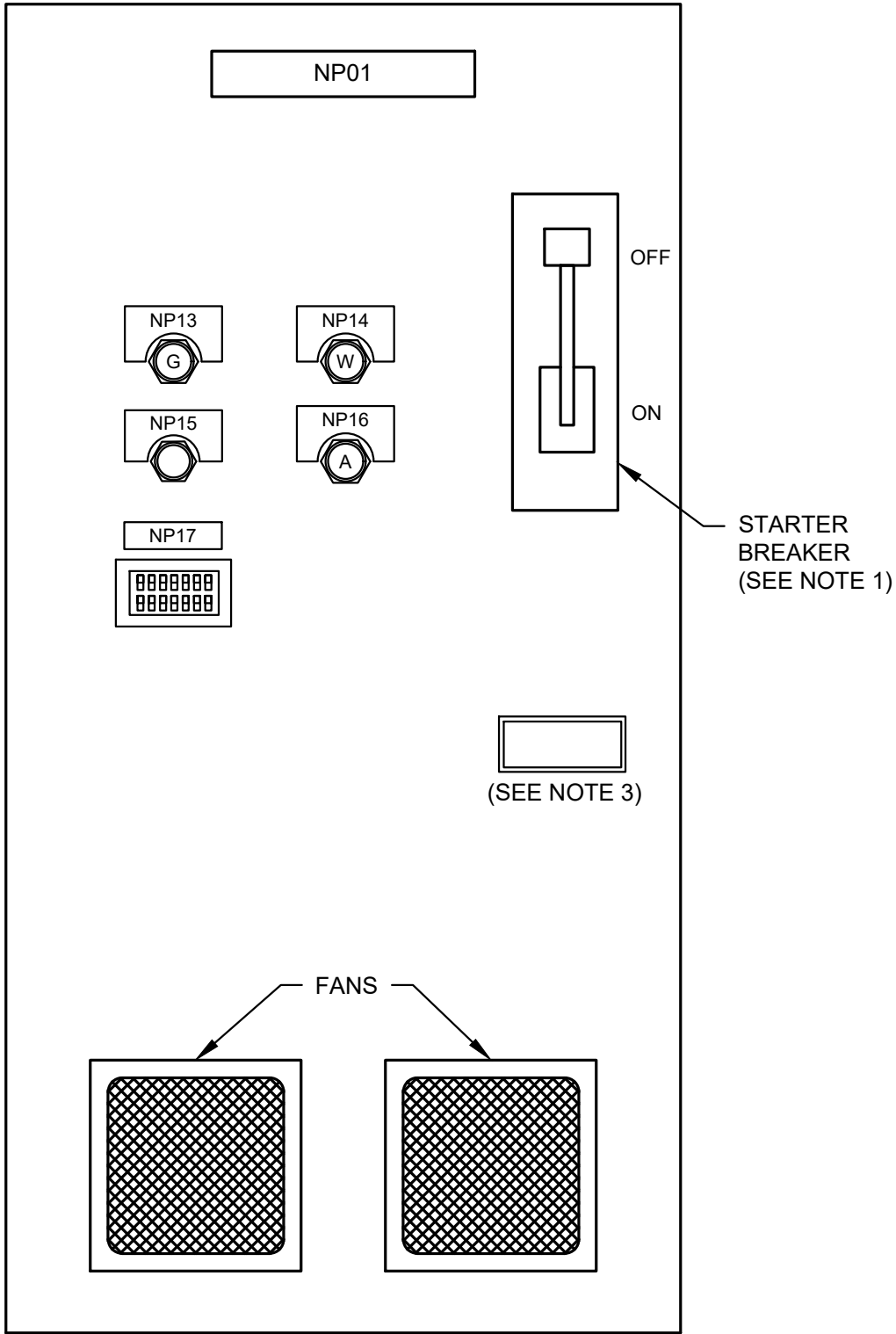
- R.1 THE RVSS DRIVE SHALL BE DISABLED, AND THE FAULT STATUS INDICATOR MADE, ON INTERNALLY SENSED THERMAL OVERLOAD OR DRIVE FAULT CONDITIONS.
- R.2 THE MOTOR STARTER MANUFACTURER SHALL PROVIDE SEPARATE STATUS RELAYS FOR THE FULL VOLTAGE AND RUN STATUS CONDITIONS. REFERENCE SPECIFICATION 16420 AND THE DIAGRAM BELOW.

RVSS STATUS DIAGRAM



RUN = ACCEL + FULL VOLTAGE + DECEL

- R.3 RVSS PROGRAMMING REQUIREMENTS:
- R.3.1 PROGRAM FOR AUTO RESET
- R.3.2 PROGRAM RAMP RATES PER SPECIFICATION.
- R.4 THE HIM SHALL BE MOUNTED ON THE RVSS UNIT, NOT ON THE DOOR.
- R.5 THE RVSS BYPASS POWER CONTACTOR SHALL BE RUN-RATED.
- R.6 DRIVE MANUFACTURER SHALL SIZE AND PROVIDE ENCLOSURE COOLING FANS, THERMOSTAT AND ASSOCIATED CONTROL LOGIC AS SHOWN. THERMOSTAT SHALL BE FACTORY SET BY THE MANUFACTURER. ENCLOSURE FANS WILL NOT BE REQUIRED IF VERIFIED BY THE MANUFACTURER IN A WRITTEN LETTER DURING SUBMITTAL.
- R.7 PROVIDE A SEPARATE DRIVE RESET PUSHBUTTON ON THE STARTER DOOR PER SPECIFICATION (DRIVE RESET SHALL NOT BE INTEGRATED INTO THE HIM).



PANEL DOOR NAMEPLATE SCHEDULE	
ITEM NUMBER	ITEM FUNCTION
NP01	WELL PUMP MOTOR STARTER
NP13	MOTOR RUNNING (PILOT, GREEN)
NP14	CONTROL POWER (PILOT, WHITE)
NP15	RESET ALL (PUSHBUTTON, RED)
NP16	MOTOR FAULT (PILOT, AMBER)
NP17	ELAPSED TIME/COUNTER METER

NOTES:

1. STARTER BREAKERS SHALL BE LOCKABLE IN THE OPEN POSITION AND SHALL BE PROVIDED WITH A DOOR LATCHING MECHANISM THAT ALLOWS THE DOOR TO OPEN UNDER POWER WITH A SPECIAL TOOL. PROVIDE AN AUXILIARY CONTACT ON BREAKERS THAT IS OPEN WHEN THE BREAKER IS OPEN AND CLOSED WHEN THE BREAKER IS CLOSED.
2. THESE DETAILS ARE INTENDED TO SHOW A GENERAL LAYOUT OF DEVICES EXPECTED ON THE STARTER DOORS AND ARE NOT INTENDED TO REPRESENT ACTUAL STARTER OR STARTER DOOR SIZES.
3. PROVIDE AN ARC FLASH WARNING LABEL ON THE DOOR.



CITY OF LACEY  
S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_MSEWD.DWG		
0 1" 2"		
TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY		

ELECTRICAL

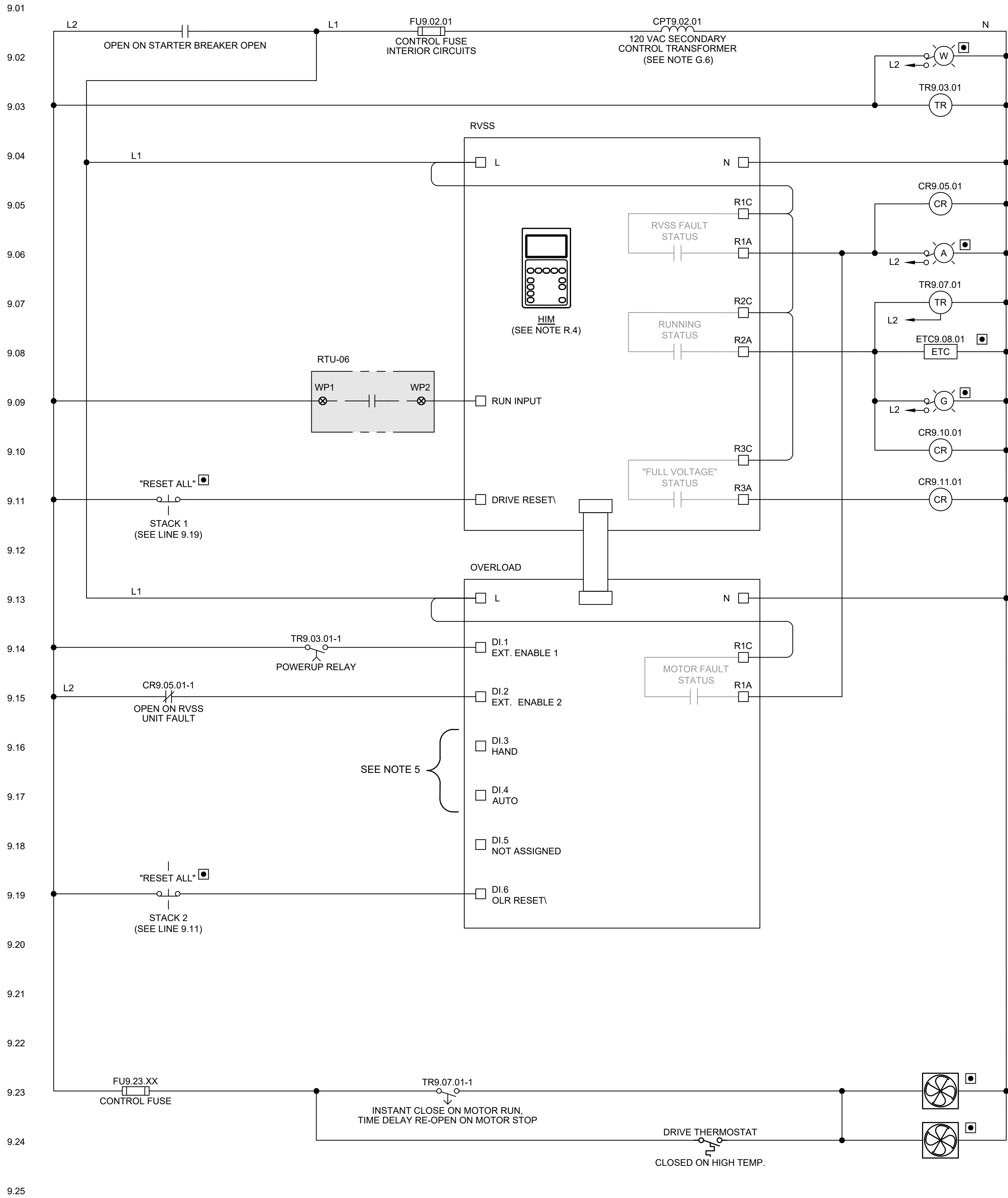
MOTOR STARTER  
NOTES AND DOOR  
ELEVATION

DRAWING: E-8 OF: 11

SHEET: 26 OF: 31



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_MSEWD.dwg, 2/5/2024 2:22 PM, PHILIP MARSHALL



**MOTOR STARTER [01 MS 01] ELEMENTARY WIRING DIAGRAM**  
WELL NO. 10, SUBMERSIBLE, SOFT START

**CONTROL "POWER" STATUS INDICATOR**

**POWERUP DELAY TIMER**  
DELAY STARTER ENABLE FOLLOWING A POWERUP.  
(SEE TIMER TABLE AND NOTE G.4)

**RVSS FAULT STATUS RELAY**  
ENERGIZED ON RVSS FAULT, SHUTDOWN  
THE STARTER

**"RVSS FAULT" STATUS INDICATOR**  
ACTIVE ON RVSS FAULT CONDITIONS  
(SEE NOTE G.3, R.3)

**DRIVE FAN CONTROL TIMER**  
ENERGIZED ON MOTOR RUNNING  
(SEE TIMER TABLE, SEE NOTE R.6)

**ELAPSED TIME/COUNTER METER**  
(SEE NOTE G.5)

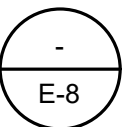
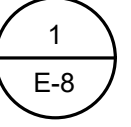
**"MOTOR RUNNING" STATUS INDICATOR**  
ACTIVE ON MOTOR RUNNING CONDITIONS  
(SEE NOTE G.3, R.3)

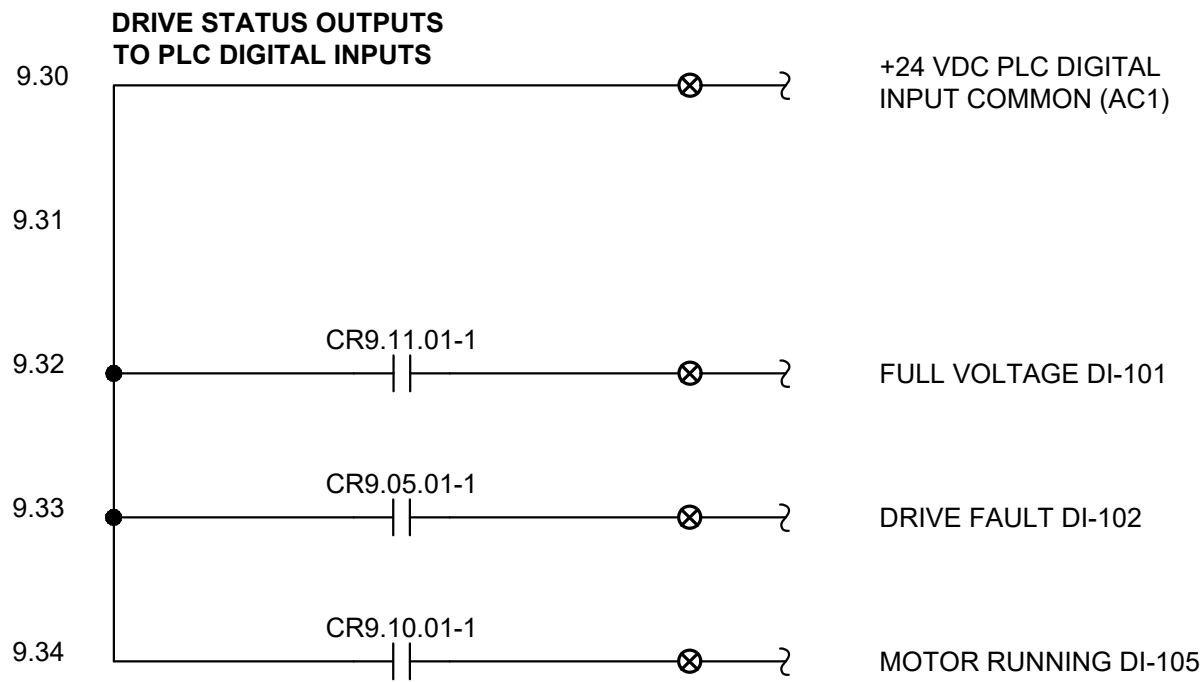
**RUNNING STATUS RELAY**  
ENERGIZED ON RVSS IN RUN MODE.

**FULL VOLTAGE RELAY**  
ENERGIZED ON FULL VOLTAGE

**STARTER DRIVE COOLING FANS (TYP.)**  
(SEE NOTE R.6)

**NOTES:**

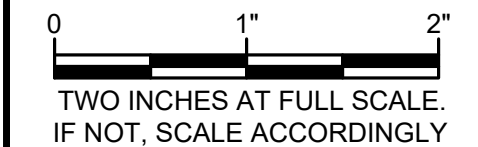
- REFERENCE SPECIFICATION 16420.
- REFERENCE MOTOR STARTER NOTES ON  WHERE:  
G.n = GENERAL NOTES,  
R.n = RVSS NOTES.
- REFERENCE  FOR DOOR PANEL LAYOUTS.
- ISOLATION CONTACTORS ARE NOT SHOWN. THESE CIRCUITS MAY VARY BETWEEN MANUFACTURERS. ALL OTHER RELAYS AND TIMERS SHALL BE PROVIDED AS SHOWN.
- HOA FUNCTION IS REMOTE AT RTU-06.



TIMER TABLE					
TIMER	FUNCTION	TYPE	AKA	MINIMUM RANGE	INITIAL SETTING
TR9.03.01	POWER-UP DELAY	TDAE	ON DELAY	0-100 SECONDS	2 SECONDS
TR9.07.01	STARTER ENCLOSURE FAN DELAY	TDAD	OFF DELAY	0-100 MINUTES	5 MINUTES



No.	DATE	REVISION
ISSUED FOR: BID SET		
ISSUE DATE: FEB 2024		
APPROVED BY: JRN		
CHECKED BY: PAM		
DRAWN BY: PEB		
DESIGNER: JRN		
G & O JOB NO.: 22625.00		
FILE: E_MSEWD.DWG		

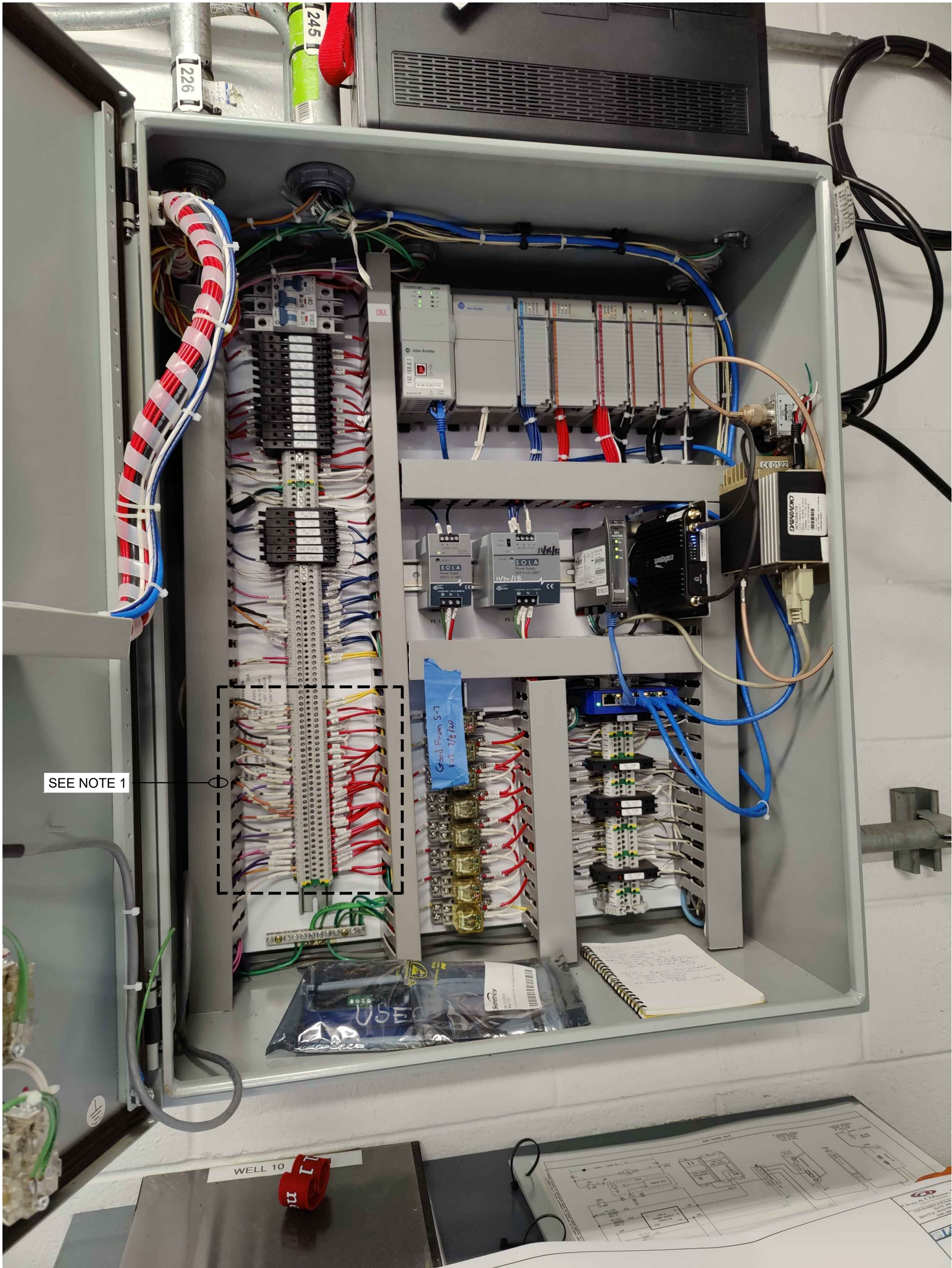
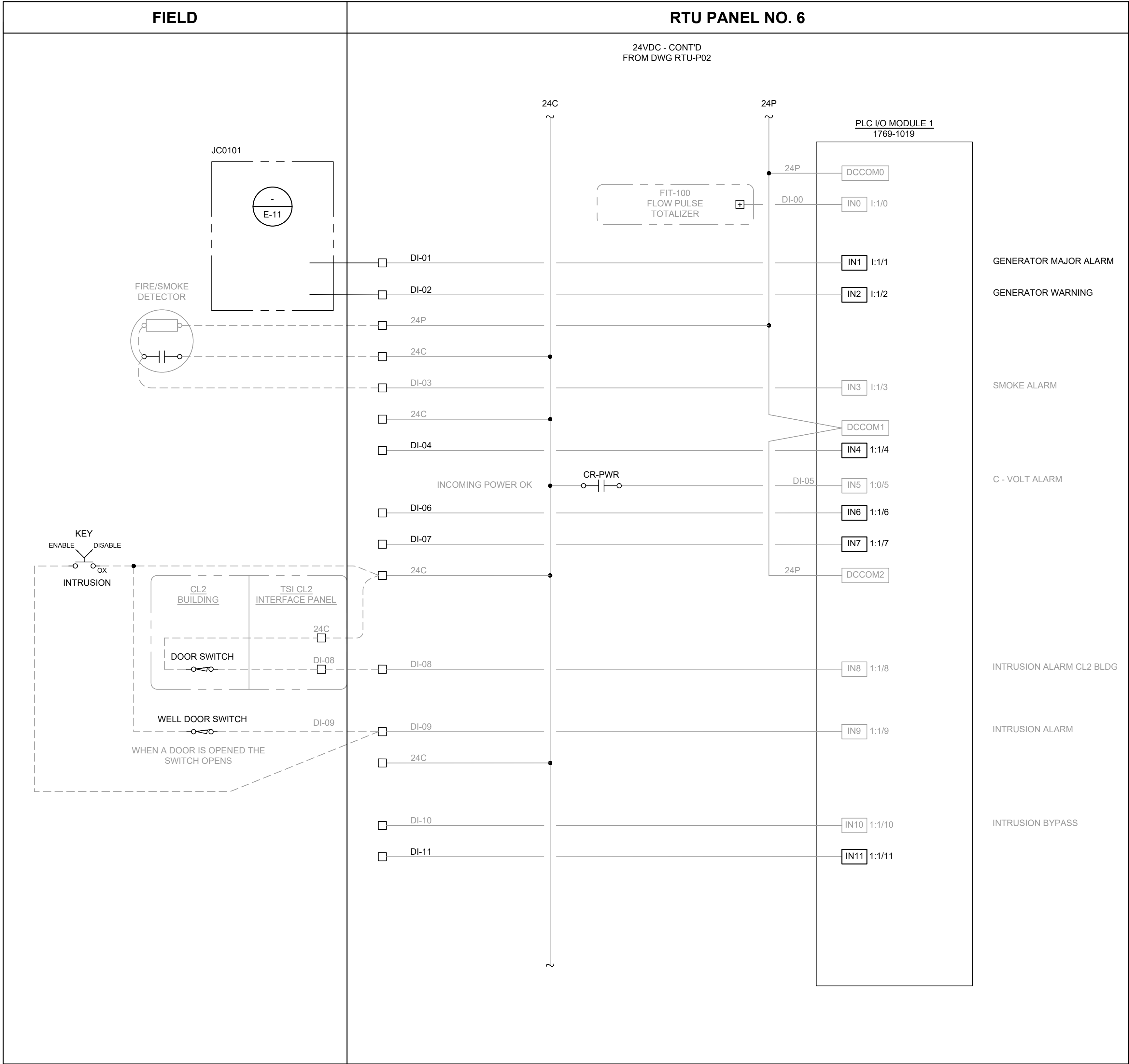


**ELECTRICAL**

**MOTOR STARTER  
ELEMENTARY WIRING  
DIAGRAM**



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\Electrical\E\_PLCIO.dwg, 2/5/2024 12:07 PM, PHILIP MARSHALL



**SHEET NOTES:**

- I/O SHOWN IS A RE-CREATION OF TSI RECORD DOCUMENTATION OF TSI JOB #7005, DATED AUG 2007. TERMINALS NOTED FOR USE WERE FIELD IDENTIFIED AS EXISTING SPARE INPUTS, DEC 2022.
- MOTOR STARTER I/O IS ALSO LOCATED IN THIS PORTION OF THE PANEL. MOTOR STARTER I/O WILL BE REPLACED IN KIND WITH NEW SIGNALS, WITH THE EXCEPTION OF MOTOR OVERTEMP TERMINAL DI-106.



**CITY OF LACEY**  
**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_PLCIO.DWG		



**ELECTRICAL**

**PLC I/O**

DRAWING: **E-10** OF: **11**

SHEET: **28** OF: **31**



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANS\Electrical\E\_PLCIO.dwg, 2/5/2024 12:07 PM, PHILIP MARSHALL

DISCRETE TERMINATIONS IN JC0101			
TERMINALS	TAG NUMBER	TAG DESCRIPTION	I/O FUNCTION
0, 1	01 ATS 01	AUTOMATIC TRANSFER SWITCH/MAIN SERVICE DISCONNECT	TRUE = ATS IN UTILITY POSITION
2, 3	01 ATS 01	AUTOMATIC TRANSFER SWITCH/MAIN SERVICE DISCONNECT	TRUE = ATS IN GENERATOR POSITION
4, 5	01 ATS 01	AUTOMATIC TRANSFER SWITCH/MAIN SERVICE DISCONNECT	TRUE = ATS FAULT
6, 7	----	SPARES	
8, 9	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = RUNNING
10, 11	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = GENERAL ALARM
12,13	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = GENERATOR FAIL
14, 15	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = LOW BATTERY
16, 17	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = LOW OIL PRESSURE
18, 19	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = HIGH COOLANT TEMP
20, 21	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = LOW FUEL ALARM
22, 23	01 GCP 01	GENERATOR CONTROL PANEL	TRUE = FUEL TANK LEAK
24, 25	----	SPARE	
26, 27	----	SPARE	
28, 29	----	SPARE	
30, 31	----	SPARE	

NOTES:

1. PROVIDE ONE 12"x12"x4" (MINIMUM) NEMA 12 METALLIC JUNCTION BOX BELOW ADJACENT TO THE EXISTING CONTROL PANEL AND LABEL AS JC0101. DESIGN INTENT IS TO BRING MULTIPLE DISCRETE SIGNALS TO TERMINAL STRIPS MOUNTED IN JC0101 SUCH THAT THEY MAY BE JUMPERED IN ANY COMBINATION TO EASILY MODIFY THE ALARMS GOING TO THE PLC.
2. TERMINAL NUMBERS USED ABOVE ARE FOR CLARITY ONLY. RECORD DOCUMENTATION SHALL LIST TERMINAL NUMBERS AND THE ASSOCIATED SIGNALS AS LABELED IN THE FIELD BY CONTRACTOR.
3. SEVERAL PLC SIGNALS ARE DERIVED FROM A COMBINATION OF SIGNALS. JUMPER THE TERMINALS OF SIGNALS IN JCO101 AS NECESSARY TO CREATE THE FOLLOWING FUNCTIONALITY:

A. GENERATOR MAJOR ALARM SHALL BE NORMALLY OPEN, WIRED IN PARALLEL SUCH THAT [GENERATOR GENERAL ALARM] OR [GENERATOR FAIL] OR [LOW FUEL ALARM] OR [HIGH COOLANT TEMP] WILL GENERATE AN INPUT TO THE AUTODIALER.

B. GENERATOR MINOR ALARM SHALL BE NORMALLY OPEN, WIRED IN PARALLEL SUCH THAT [LOW BATTERY] OR [LOW OIL PRESSURE] OR [FUEL TANK LEAK] WILL GENERATE AN INPUT TO THE AUTODIALER.

1

-

JC0101 FABRICATION DETAIL

NTS



NOTES:

1. AUDIT EXISTING POWER AND CONTROL CONNECTIONS BEFORE ANY DEMOLITION. DEMOLITION IS SHOWN ON M-SHEETS.
2. MANUFACTURER'S STATEMENT IS THAT THE POWER AND CONTROL REQUIREMENTS FOR THE NEW CHLORINATION EQUIPMENT, FROM PANELBOARD [01 PNLL 01] AND PLC I/O WILL BE "IN KIND".
3. INTERCONNECTIONS BETWEEN CHLORINATION DEVICES, SUCH AS OPENING AND CLOSING OF CHEMICAL SOLENOIDS, OR SIGNALS BETWEEN MANUFACTURER SUPPLIED CONTROLLER AND ANALYZER SHALL BE INSTALLED PER MANUFACTURER'S DIRECTIONS.
4. DEDICATED RECEPTACLE FOR CHLORINATION EQUIPMENT SHALL NOT HAVE GFI PROTECTION.

2

-

PHOTO DETAIL - CHLORINE  
METERING PUMP REPLACEMENT

NTS

RTU PANEL NO. 6 AND CL2 INTERFACE RECORDS			
I/O CHANNEL	WIRE NUMBER	I/O FUNCTION	NOTES
I:1/ 12	DI-112	CL2 ANALYZER FAULT	
I:1/ 13	DI-113	CL2 PUMP FAULT	
I:1/ 14	DI-114	CL2 PUMP IN REMOTE	
I:1/ 15	DI-115	CL2 RUNNING STATUS	
-	AC1	-	AC COMMON FOR DI-112 - DI-115
O:0/ 3	DO-03A DO-03B	CL2 PUMP START	
I:3/ 0	500S04 500S03	CL2 RESIDUAL	
I:3/ 1	600S04 600S03	PH LEVEL	
I:3/ 2	700S04 700S03	CL2 PUMPED FLOW	
I:3/ 3	DC-FU9 800S04	CL2 WATER TEMP	
-	200S09 200S10	FLOW PACING TO CL2 PUMP	CONNECTED TO ANALOG FLOW SPLITTER/ISOLATOR IN RTU 06

NOTES:

1. I/O SHOWN IS A PARTIAL RE-CREATION OF TSI RECORD DOCUMENTATION OF TSI JOB #7005, DATED AUG 2007. COPY OF TSI DOCUMENTATION IS AVAILABLE TO ASSIST IN CONTRACTORS AUDIT WORK WHEN REQUESTED IF FROM ENGINEERING DURING CONSTRUCTION.
2. WIRING BETWEEN RTU 6 IN THE PUMP BUILDING, AND CL2 INTERFACE PANEL IN THE CHLORINE BUILDING IS EXISTING AND NO CHANGES ARE EXPECTED.



Gray & Osborne, Inc.  
CONSULTING ENGINEERS  
1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860



CITY OF LACEY

**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**

5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR: BID SET		
ISSUE DATE: FEB 2024		
APPROVED BY: JRN		
CHECKED BY: PAM		
DRAWN BY: PEB		
DESIGNER: JRN		
G & O JOB NO.: 22625.00		
FILE: E_PLCIO.DWG		
<div>012</div> <div>TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY</div>		

ELECTRICAL

I/O AND ALARMING

DRAWING: E-11 OF: 11

SHEET: 29 OF: 31



L:\LACEY\22625 S10 Generator, Well Pump, & Site Improvements\PLANSET\ElectricalE\_CCS.dwg, 2/20/2024 10:17 AM, JASON NEWQUIST

POWER CABLE AND CONDUIT SCHEDULE						
NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	E-1	NOTES
P0101A	[01 UT 01], UTILITY TRANSFORMER	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #3 AWG XHHW-2 G		NEW CONDUCTORS, PARTIAL EXISTING CONDUIT
P0101B	[01 UT 01], UTILITY TRANSFORMER	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #3 AWG XHHW-2 G		NEW CONDUCTORS, PARTIAL EXISTING CONDUIT
P0102A	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	[01 PNLA 01], 480/277 PANELBOARD, "PANEL A"	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #3 AWG XHHW-2 G		
P0102B	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	[01 PNLA 01], 480/277 PANELBOARD, "PANEL A"	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #3 AWG XHHW-2 G		
P0103A	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	[01 GEN 01], GENERATOR	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #3 AWG XHHW-2 G		
P0103B	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	[01 GEN 01], GENERATOR	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 N; 1X #3 AWG XHHW-2 G		
P0104	[01 PNLA 01], 480/277 PANELBOARD, "PANEL A"	[01 MS 01], MOTOR STARTER	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 G		
P0105	[01 MS 01], MOTOR STARTER	[01 MTR 01], WELL PUMP	2"	3X #4/0 AWG XHHW-2; 1X #4 AWG XHHW-2 G		PATH RUNS THROUGH JBOX UNDER SWITCHBOARD. USE J-BOX TO TRANSITION FROM EXISTING CONDUIT TO NEW LFMC FOR FINAL MOTOR CONNECTION.
P0106	[01 PNLA 01], 480/277 PANELBOARD, "PANEL A"	[01 XFMRP 01], TRANSFORMER AND PANELBOARD 480/240-120, 1PH	3/4"	2X #4 AWG XHHW-2; 1X #8 AWG XHHW-2 G		
P0107	[01 XFMRP 01], TRANSFORMER AND PANELBOARD 480/240-120, 1PH	[01 GEN 01], GENERATOR	3/4"	2X #10 AWG XHHW-2; 1X #10 AWG XHHW-2 N; 1X #10 AWG XHHW-2 G		
P0150	[01 PNLL 01], 240/120 PANELBOARD, "PANEL L"	[01 CL2 01], CHLORINATION SYSTEM	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		METERING PUMP POWER, RE-USE CIRCUIT BREAKER IN POSITION 4
P0151	[01 PNLL 01], 240/120 PANELBOARD, "PANEL L"	[01 CL2 01], CHLORINATION SYSTEM	3/4"	1X #12 AWG XHHW-2; 1X #12 AWG XHHW-2 N; 1X #12 AWG XHHW-2 G		CL ANALYZER AND CONTROL, RE-USE CIRCUIT BREAKER IN POSITION 6

CONTROL CABLE AND CONDUIT SCHEDULE						
NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	E-1	NOTES
C0101	[RTU 06], CONTROL PANEL	J-BOX JC0101	3/4"	6X #14 AWG XHHW-2		INCLUDES SPARES
C0101A	J-BOX JC0101	[01 ATS 01], AUTOMATIC TRANSFER SWITCH	3/4"	6X #14 AWG XHHW-2; 1X #12 AWG XHHW-2 G		
C0101B	J-BOX JC0101	[01 GEN 01], GENERATOR	3/4"	14X #14 AWG XHHW-2		INCLUDES SPARES
C0102	[01 MS 01], MOTOR STARTER	[RTU 06], CONTROL PANEL	3/4"	12X #14 AWG XHHW-2		INCLUDES SPARES
C0150	[01 TP 01], TERMINAL BLOCK PANEL, CHLORINATION BUILDING, "CL2 BUILDING INTERFACE"	[01 CL2 01], CHLORINATION SYSTEM	3/4"	12X #14 AWG XHHW-2		DISCRETE CONTROL, INCLUDES 5 SPARES

INSTRUMENTATION CABLE AND CONDUIT SCHEDULE						
NUMBER	SOURCE	DESTINATION	SIZE	CONDUCTORS	E-1	NOTES
S0101	[RTU 06], CONTROL PANEL	[01 PT 01], PRESSURE TRANSDUCER	3/4"	MANUFACTURER'S CABLE	* 3	INSTALL NEW J-BOX JS0101 TO FACILITATE TRANSITION FROM EXISTING CONDUIT TO NEW
S0150	[01 TP 01], TERMINAL BLOCK PANEL, CHLORINATION BUILDING, "CL2 BUILDING INTERFACE"	[01 CL2 01], CHLORINATION SYSTEM	1-1/4"	7X 2-C, 1-TP, #18 AWG, OS	* 3	ANALOG I/O INCLUDES 2 SPARES

NOTES:

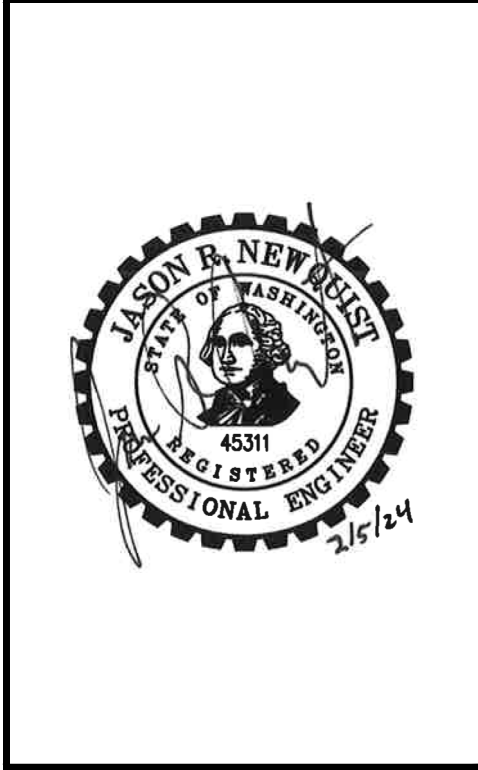
- CONDUITS TO BE MODIFIED TO RECONNECT EXISTING LOADS SUCH AS WELL BUILDING LIGHTS, HEAT, ETC. ARE NOT GIVEN A CONDUIT NUMBER. REFERENCE NOTES ON SHEET E-6. ASSUME 50 FEET OF 3/4" RGS FOR UNNUMBERED CONDUIT REWORK.
- ALL PORTIONS OF NEW CONDUITS IN THE CHLORINE BUILDING SHALL BE PVC-RGS OR LFMC.
- ALL PORTIONS OF NEW, UNDERGROUND CONDUITS, SHALL BE PVC-RGS EXCEPT FOR THOSE EXCLUSIVELY CONTAINING GROUNDING ELECTRODE CONDUCTORS (BARE COPPER ASSOCIATED WITH GROUND RODS)


GENERAL ELECTRICAL NOTES - CONDUIT AND CONDUCTOR REUSE:

- UNLESS SPECIFICALLY STATED OTHERWISE, ALL BOLD CONDUITS AND CONDUITS LISTED IN THE CABLE AND CONDUIT SCHEDULES SHOWN ON THESE PLANS SHALL BE PROVIDED AS NEW. FOR THESE CONDUITS THE CONTRACTOR MAY USE EXISTING CONDUITS OR PORTIONS OF EXISTING CONDUITS IN LIEU OF NEW PROVIDING THAT ALL OF THE CONDITIONS BELOW ARE MET:
  - CABLES AND CONDUCTORS ADDED TO EXISTING CONDUITS SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND MEET THE CONDITIONS OF SPECIFICATION 16120.
  - THE EXISTING CONDUIT SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND MEET THE CONDITIONS OF SPECIFICATION 16130.
  - THE USE OF EACH EXISTING CONDUIT SHALL BE PREAPPROVED BY THE OWNER AND ENGINEERING.
  - CONDUITS SHALL BE FREE FROM DAMAGE. ANY CONDUIT'S CONDITION SHALL NOT ADVERSELY AFFECT THE CONDUCTORS PULLED INSIDE.
  - ANY ASSOCIATED COST SAVINGS OF USING EXISTING CONDUITS INSTEAD OF INSTALLING NEW SHALL BE PROVIDED AS A CREDIT TO THE OWNER.
- UNLESS SPECIFICALLY STATED OTHERWISE, ALL CONDUCTORS SHOWN IN THE CABLE AND CONDUIT SCHEDULES SHALL BE PROVIDED AS NEW. THE CONTRACTOR MAY USE EXISTING CONDUCTORS IN LIEU OF NEW PROVIDING THAT ALL OF THE CONDITIONS BELOW ARE MET:
  - NO EXISTING CABLES AND CONDUCTORS SHALL BE REUSED IN AN ENTIRELY NEW CONDUIT.
  - CABLES AND CONDUCTORS IN EXISTING CONDUITS SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE AND MEET THE CONDITIONS OF SPECIFICATION 16120.
  - ANY CONDUCTORS THAT MAY NEED TO BE REROUTED OR REPULLED SHALL BE REPLACED WITH NEW.
  - ANY POWER CONDUCTOR BEING REUSED SHALL BE MEGGERED AND REPLACED IF LESS THAN 50 MΩ. MEGGER READINGS SHALL BE DOCUMENTED AND APPROVED BY THE ENGINEER. REFER TO SPECIFICATION 16120 FOR THE INSULATION REQUIREMENTS OF CONDUCTORS USED FOR CONTROL AND INSTRUMENTATION.
  - NO SPLICES SHALL BE USED.
  - ANY ASSOCIATED COST SAVINGS OF USING EXISTING CABLE AND CONDUCTORS INSTEAD OF INSTALLING NEW SHALL BE PROVIDED AS A CREDIT TO THE OWNER.




Gray & Osborne, Inc.  
CONSULTING ENGINEERS  
1130 RAINIER AVENUE SOUTH,  
SUITE 300  
SEATTLE, WASHINGTON 98144  
(206) 284-0860





CITY OF LACEY  
**S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS**  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR: BID SET		
ISSUE DATE: FEB 2024		
APPROVED BY: JRN		
CHECKED BY: PAM		
DRAWN BY: PEB		
DESIGNER: JRN		
G & O JOB NO.: 22625.00		
FILE: E_CCS.DWG		
 <p>TWO INCHES AT FULL SCALE. IF NOT, SCALE ACCORDINGLY</p>		

**ELECTRICAL**

**CABLE AND CONDUIT  
SCHEDULES**

DRAWING: **EC-1** OF: **1**

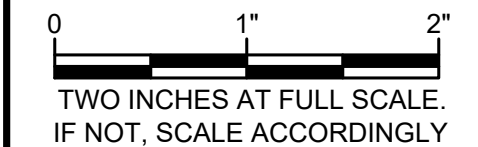
SHEET: **30** OF: **31**





CITY OF LACEY  
S10 GENERATOR,  
WELL PUMP, & SITE  
IMPROVEMENTS  
5701 PARKSIDE DRIVE SE  
LACEY, WA 98503

No.	DATE	REVISION
ISSUED FOR:		
BID SET		
ISSUE DATE:		
FEB 2024		
APPROVED BY:		
JRN		
CHECKED BY:		
PAM		
DRAWN BY:		
PEB		
DESIGNER:		
JRN		
G & O JOB NO.:		
22625.00		
FILE:		
E_DET.DWG		

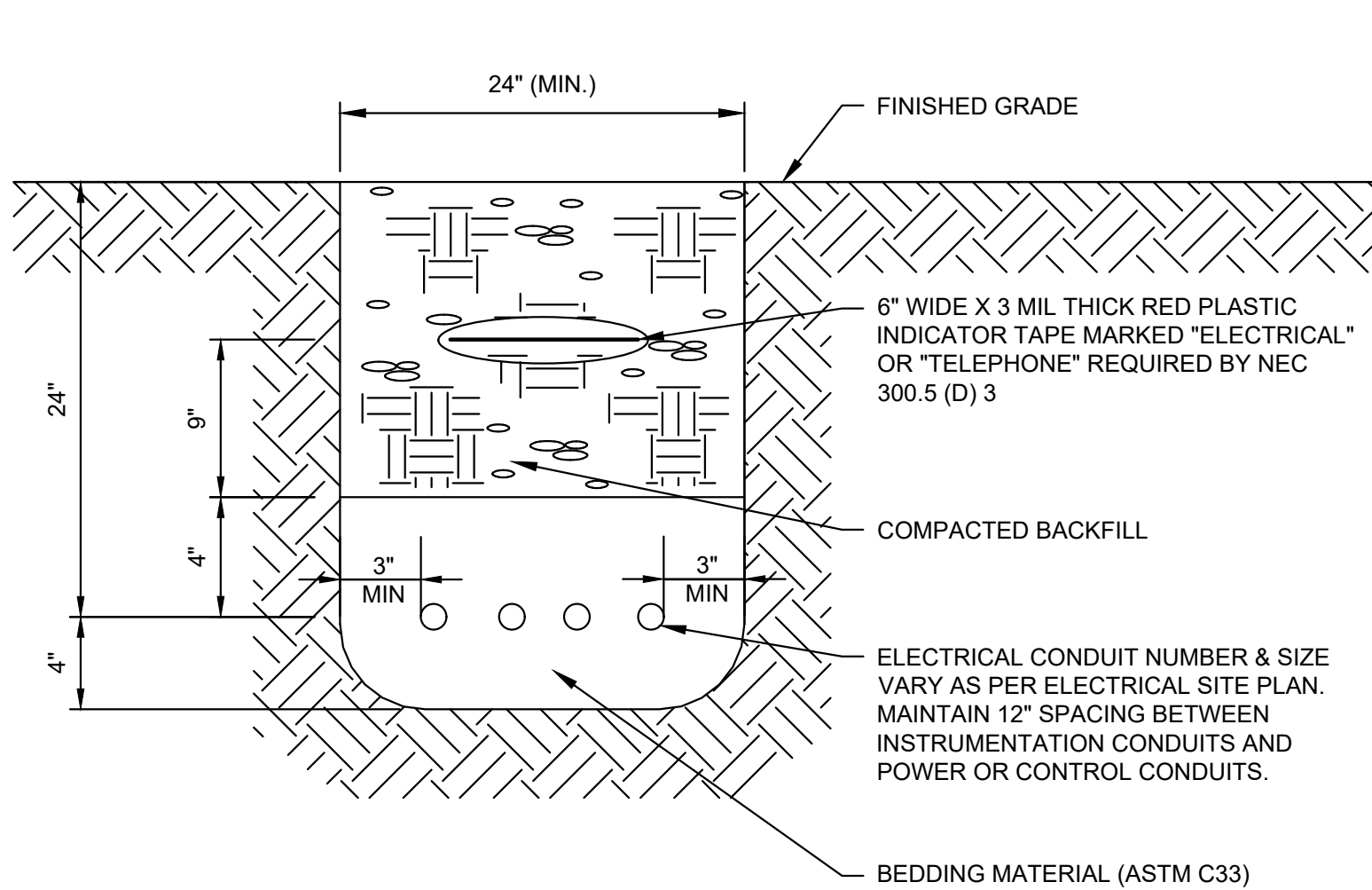


ELECTRICAL

ELECTRICAL DETAILS

DRAWING: **ED-1** OF: **1**

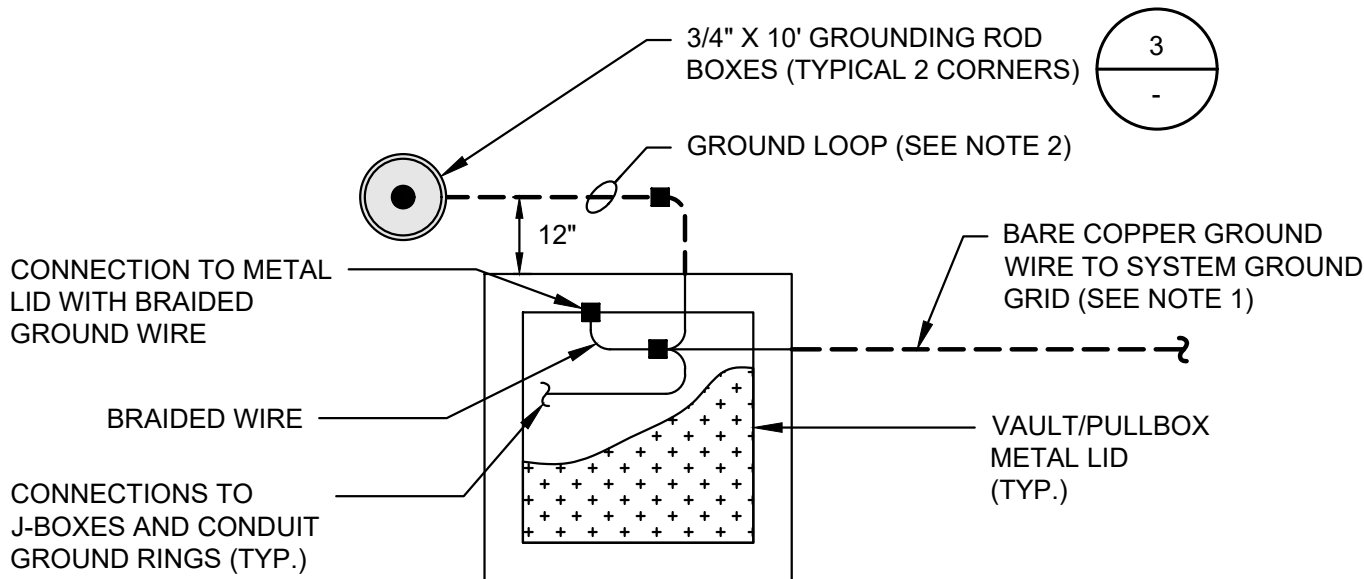
SHEET: **31** OF: **31**



NOTE:

- SPACING BETWEEN CONDUITS AND OTHER UTILITIES SHALL BE IN COMPLIANCE WITH THE UTILITIES OR 24 INCHES MINIMUM, WHICHEVER IS THE GREATER.
- SEE CIVIL SHEETS FOR SURFACING RESTORATION.

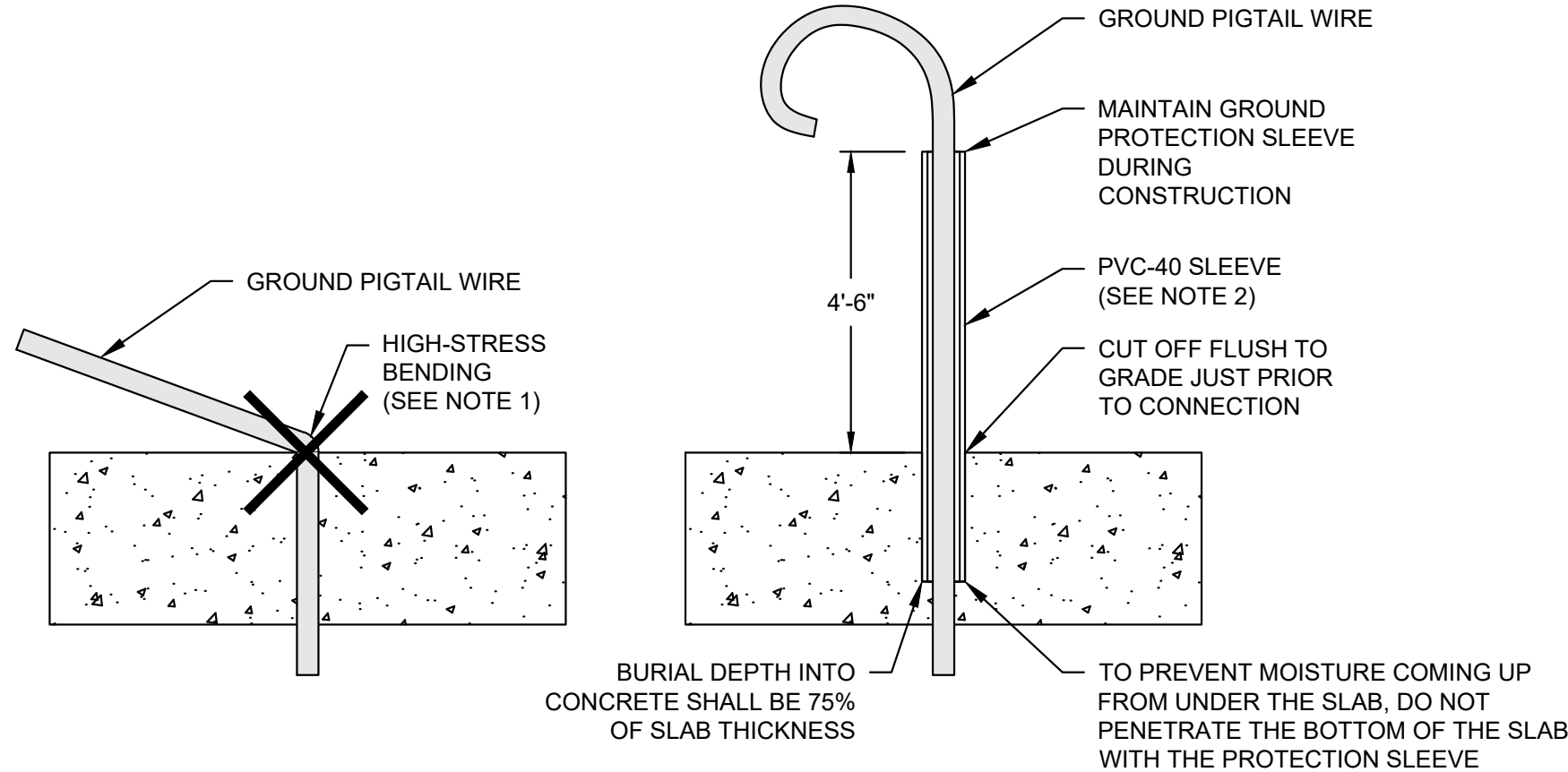
1  
TYP  
**ELECTRICAL TRENCHING DETAIL**  
NOT TO SCALE



NOTES:

- PROVIDE AND SIZE GROUND CONDUCTOR FROM SYSTEM GROUND DISTRIBUTION PER E-4.
- PROVIDE BARE COPPER GROUND LOOP AROUND THE VAULT/PULLBOX 12-INCHES OUT AND 12-INCHES DEEP.
- GROUND ALL METAL COMPONENTS AS PER "VAULT AND PULLBOX GROUNDING" IN SPECIFICATION 16060.
- ALL GROUND CONDUCTORS SHALL BE STRANDED WITH THE EXCEPTION OF THE FLEXIBLE BRAIDED GROUND CONDUCTOR TO THE METAL HATCH LIDS.

4  
TYP  
**VAULT AND PULL BOX  
EXTERIOR GROUNDING DETAIL**  
NOT TO SCALE



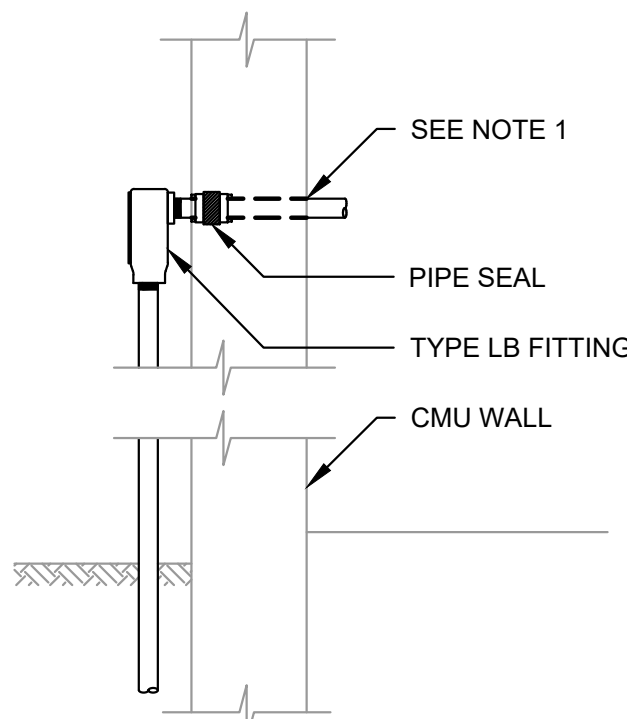
**DETAIL A**

**DETAIL B**

NOTES:

- BARE COPPER GROUND WIRES SHALL NOT PENETRATE DIRECTLY OUT OF CONCRETE FLOORS. CONSTRUCTION ACTIVITIES CAN CAUSE TIGHT WIRE BENDING AND POSSIBLE GROUND WIRE DEGRADATION. DETAIL "A" IS NOT ACCEPTABLE.
- PROTECT THE GROUND PIGTAIL DURING CONSTRUCTION WITH A PVC-40 SLEEVE INSTALLED AS DESCRIBED IN DETAIL "B".
- JUST PRIOR TO SETTING EQUIPMENT OVER, OR MAKING THE FINAL CONNECTION OF THE GROUND WIRE, CUT OFF THE SLEEVE FLUSH TO THE FLOOR TAKING CARE NOT TO CUT INTO THE GROUND WIRE.

2  
TYP  
**GROUND PIGTAIL  
CONSTRUCTION PROTECTION SLEEVE DETAIL**  
NOT TO SCALE

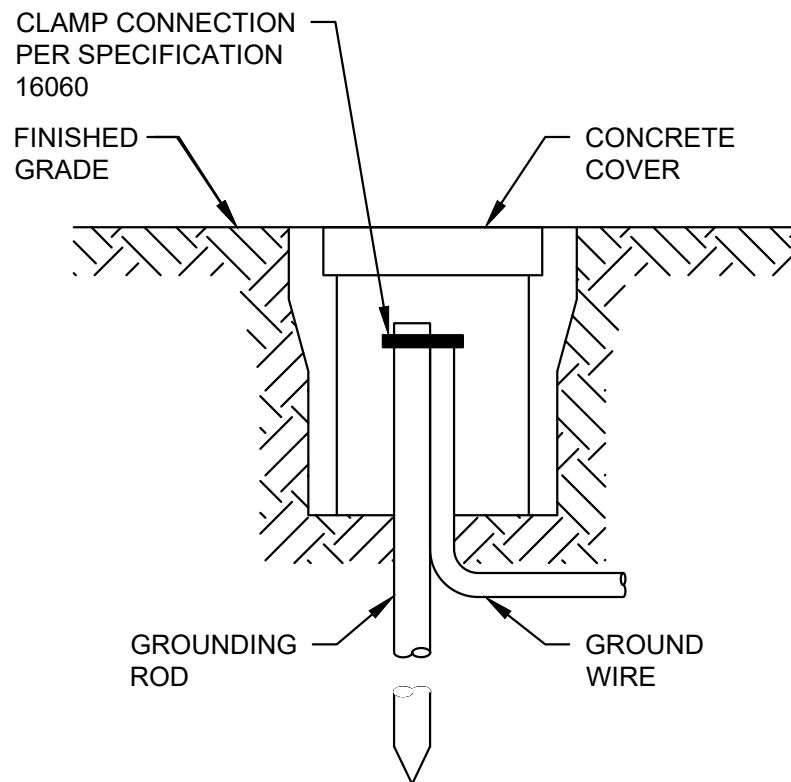


**CMU WALL**

NOTE:

- DRILL OR CORE-DRILL THROUGH ROOF/WALL, SEAL AROUND CONDUIT WITH NON-SHRINK GROUT AND FINISH THE SURFACE AS PER WALL SURFACE.
- MOUNTING HARDWARE SHALL BE 316L STAINLESS STEEL.

5  
TYP  
**CONDUIT PENETRATION DETAIL**  
NOT TO SCALE



NOTES:

- GROUND ROD BOX SHALL BE FOGTITE GROUND ROD BOX WITH ROAD RATING EQUAL TO THE DEVICE OR STRUCTURE IT SUPPORTS (H20 MINIMUM).

3  
TYP  
**GROUND ROD BOX DETAIL**  
NOT TO SCALE