SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

GENERAL

TITLE SHEET

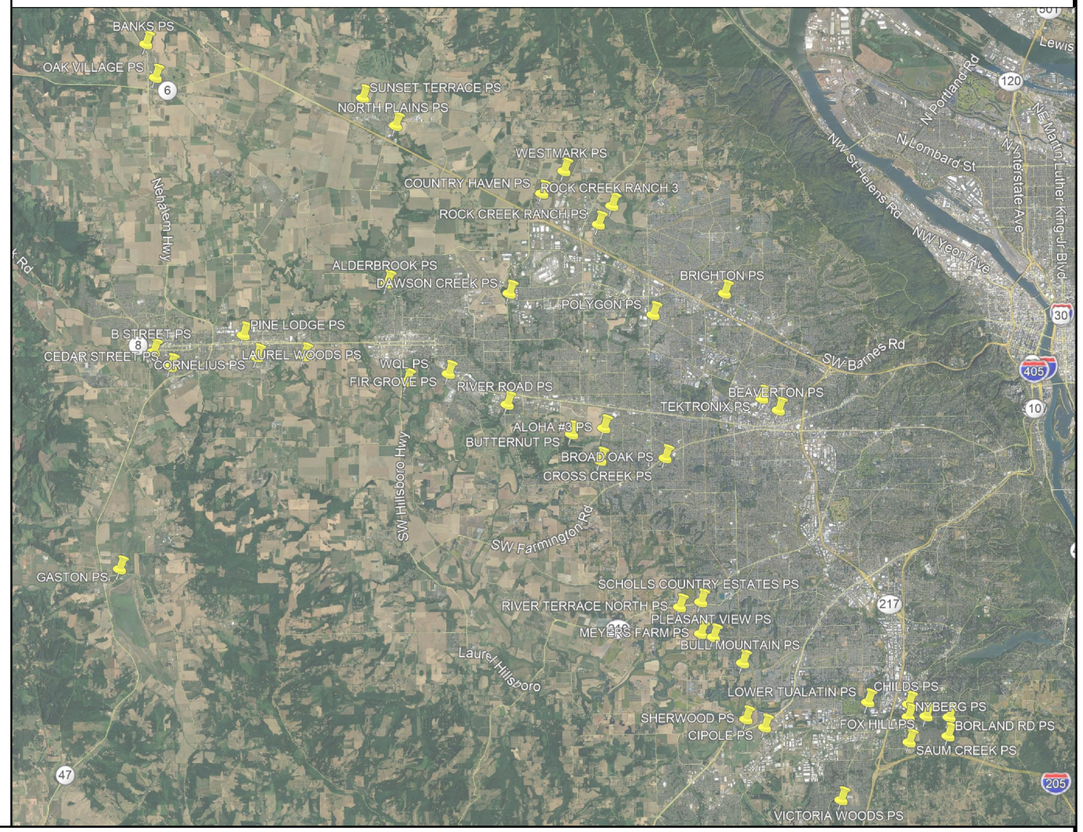
STANDARD DRAWING NO. 1070

Clean Water Services

PUMP STATION STANDARD DRAWINGS

JULY 2018

Location Map



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Plotted: 8/26/19 at 1:45pm By: eggleston
File: W:\TPS\CAD\drawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1070 DWG G00.dwg TAB:G00

DRN: ANV	ORIG DATE: 06/10/03		
DSN:	DWG #: PS G00		
CHK: JT	CAD FILE #: 1070PS00G00		
APPD: JTO	SCALE: NA		

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
2	02/17	CG	JT	STANDARD DRAWINGS UPDATE
1	2/07	CAD	DP	MINOR REVISIONS

Clean Water Services
Our commitment is clear.
2550 SW Hillsboro Hwy. Hillsboro, Oregon 97123-9379

PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: GENERAL TITLE SHEET

SHEET: 1 OF: 36
PLOT DATE: 8/26/19
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS G00

LAST UPDATE 07-25-2018

ENGR STAMP:

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

GENERAL
CES DRAFTING PROCEDURES
LAYERS, COLORS, & TEXT

STANDARD DRAWING NO. 1070B

CWS STANDARD DRAFTING PROCEDURES

Layers:

1. Insert all xrefs on one layer named "XREF". The color of this layer should be grey.
2. Put all paperspace viewports on one layer named "DEFPOINTS". Objects on this layer do not print, but are visible on screen. If for some reason you cannot use defpoints then use "PS-VPORTS".
3. Please put all paperspace objects on layers with a prefix "PS-XXXX" except the viewports if using defpoints. Ex: PS-TB for the titleblock.
4. All other layers should be set up according to the standard used by the client, as long as they are descriptive and somewhat close to the national standard. No numbered layers please. Preferrably discipline prefixes on layer titles.
5. **BLOCKS: When using blocks in our drawings please create them on layer '0' and set them to 'color by layer' before blocking them. Layer '0' should always be 'white'. This will allow blocks to take on the color of any layer they are added to. When creating projects or records from as-builts, it is often necessary to disassociate object colors to greyscale. It is very difficult to do this when there are multiple colors and layers attached to blocks.**

Colors:

1. Please DO NOT draft using the color YELLOW or anything similar. Yellows DO NOT print well if the plot styles are unavailable. People other than CAD operators often want to view and manipulate CAD dwgs via voloview or other programs. When there are yellow objects throughout the drawings they are illegible to simply view. A CAD operator is then needed to fix plotstyles, pens, or layers. Yellow is so light against a white screen and paper that it can't be read in voloview and again doesn't print well. Please DO NOT draft using the color YELLOW or anything similar.

Text:

1. "Arial" is our CWS standard text with a full size text height of 0.125 inches for regular text, 0.250 for titles, and 0.1875 with a 10 deg. obliquing angle for indentifiers and whatnot. Arial is the text style used in this document. All three sizes are represented here. Text on half size 11x17 drawings should be no smaller than 0.0625"
2. New text should ALWAYS be put on a layer set to color BLACK . Do not draft text in other colors and set pens to black. Draft text on a layer set to the black pen to ensure that important text info always prints and views clear. If there's a need to differentiate between new and existing text, place existing text on a grey , " ?-TEXT-E" layer.

Plotted: 8/26/19 at 1:29pm By: eggleston
File: W:\IPS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1070 DWG G01.dwg TAB:G01

DRN: ANV	ORIG DATE: 06/10/03				
DSN:	DWG #: PS G00				
CHK: JT	CAD FILE #: 1070BPS00G00				
APPD: JTO	SCALE: NA				

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
2	02/17	CG	JT	STANDARD DRAWINGS UPDATE
1	2/07	CAD	DP	MINOR REVISIONS

Clean Water Services
Our commitment is clear.
2550 SW Hillsboro Hwy. Hillsboro, Oregon 97123-9379

PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: GENERAL CWS DRAFTING PROCEDURES LAYERS, COLORS, & TEXT

SHEET: 2 OF: 36
PLOT DATE: 8/26/19
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS G01

LAST UPDATE 07-25-2018

ENGR STAMP:

BASIN CHARACTERISTICS	
Location:	Address and Cross Street
Basin Area:	XXX Acres
Equivalent Dwelling Units (EDU) Per Acre:	X.X
Persons Per EDU:	X.X
Population Equivalent	XXXX
Average Per Capita Flow:	XX GPD
Infiltration and Inflow, Peak Wet Weather Flow (PWWF)	XXX,XXX GPD
Average Daily Flow (ADF)	XXX,XXX GPD
Peak Hourly Flow:	XXX GPM
PUMP STATION	
Type:	Duplex submersible, non-clog, variable speed pumps
Capacity (per pump):	XXX GPM @ XX feet TDH (static head = XX ft)
Horsepower (HP):	XX HP Each with Variable Frequency Drives
Motor Data:	XXX volt xphase xx cycle
Firm Capacity of Pump Station:	X.XX MGD (XXX GPM)
Maximum Pump Starts Per Hour:	X
Wet Well Volume:	XXXX gallons (pumps off to lead pump on)
Level Control Type:	Pressure Transducer and backup floats
Overflow Point:	Manhole Number and Elevation
Overflow Location:	Description
Average Time To Overflow:	Time and Description xx hours at yy gpm Design Average Influent Flow
Telemetry:	Missions (owner-supply)
Transfer Switch:	Automatic
Standby Power Type:	XXX kW stationary diesel-powered standby generator
Fuel Tank Capacity:	xx Hrs (XXX Gallons)
EPA Reliability Class:	1
Flow Meter	X" Magnetic (Description)
Control	Constant Speed or VFD

WASTEWATER PUMP STATION & FORCE MAIN DESIGN DATA TABLE

DRAWING NO. 1001

REVISED 07-18

Clean Water Services

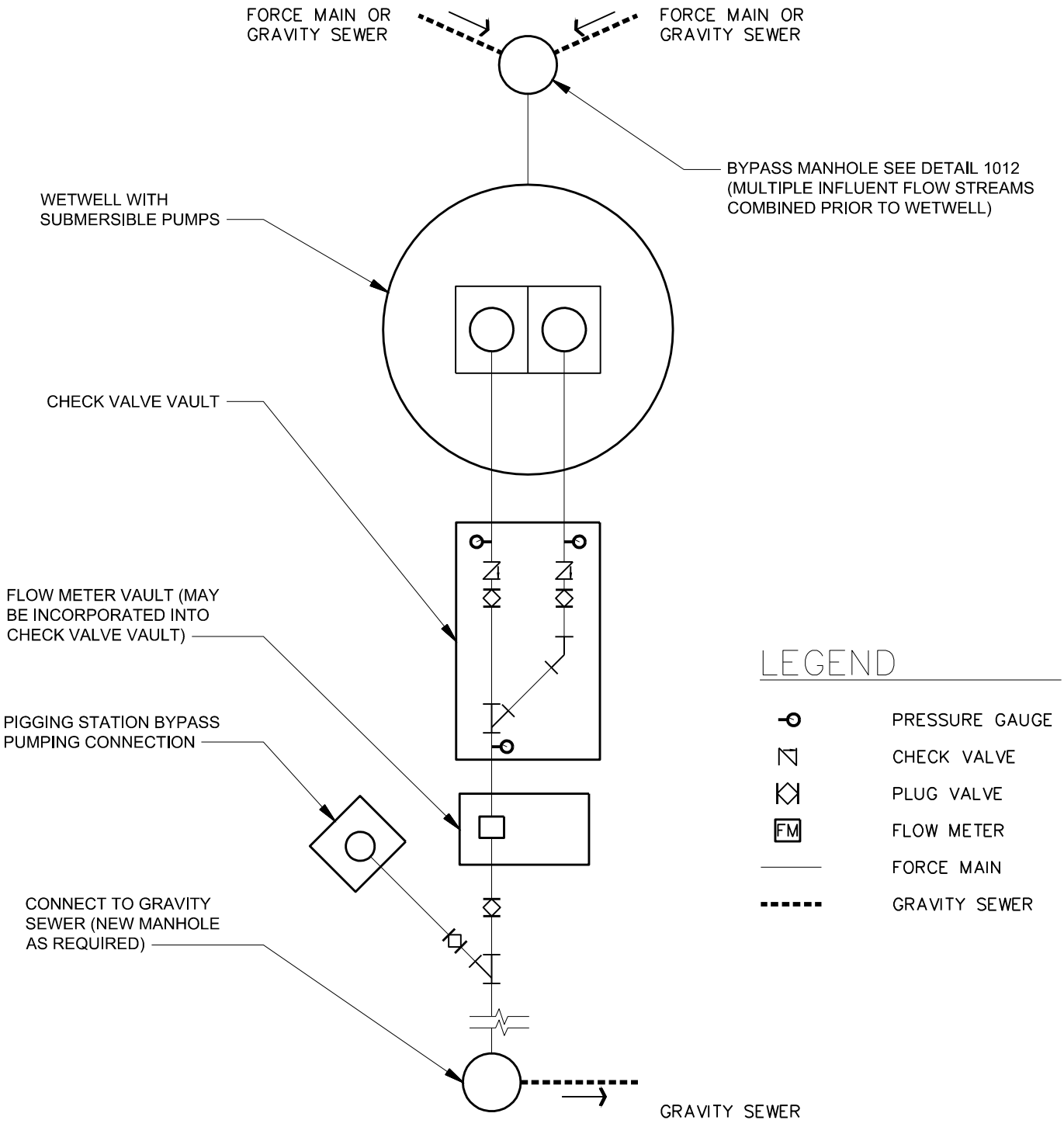
FORCE MAIN	
Type and Length:	XXXX feet (Type?)
Forcemain Velocity:	X.X feet per second
Profile:	Description
Air Release Valve:	Quantity? Description?
Discharge Location:	Manhole Number and Elevation
Average Detention Time:	XX hours
Sulfide Control System:	Description?
OPERATING LEVELS	
Ground Elevation	XXX.XX
Overflow Alarm Elevation	Float Control System? (backup) XXX.XX
Lag Pump On/High Water Alarm Elevation	XXX.XX (provide distance from wet well floor in feet) same as level indicator digital display.
Lead Pump On Elevation	XXX.XX (provide distance from wet well floor in feet) same as level indicator digital display.
All Pumps Off Elevation	XXX.XX (provide distance from wet well floor in feet) same as level indicator digital display.
Wetwell Floor Elevation	XXX.XX (provide distance from wet well floor in feet) same as level indicator digital display.
LANDSCAPING	
Landscaping Area:	Square feet and Description
Irrigation System:	Type
Control Valves:	Number and Type
Backflow Device	Size and Type

WASTEWATER PUMP STATION &
FORCE MAIN DESIGN DATA TABLE

DRAWING NO. 1002

REVISED 07-18

Clean Water Services



CONCEPTUAL SITE SCHEMATIC

DRAWING NO. 1003

REVISED 07-18

Clean Water Services

DRAWING NO. 1005

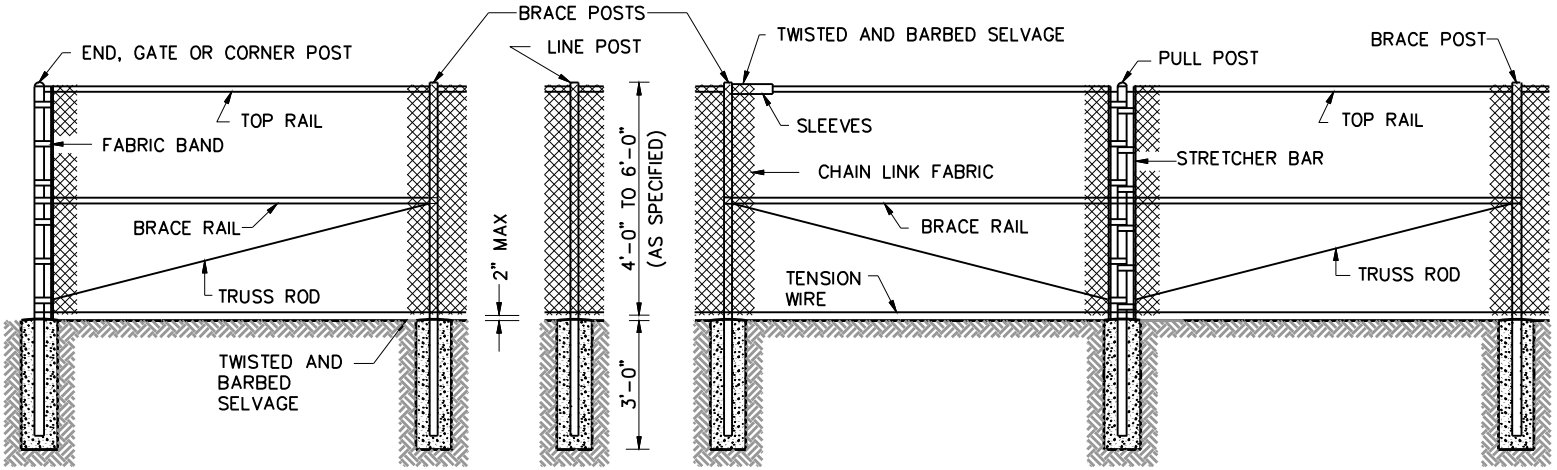
CHAIN LINK FENCE AND GATE

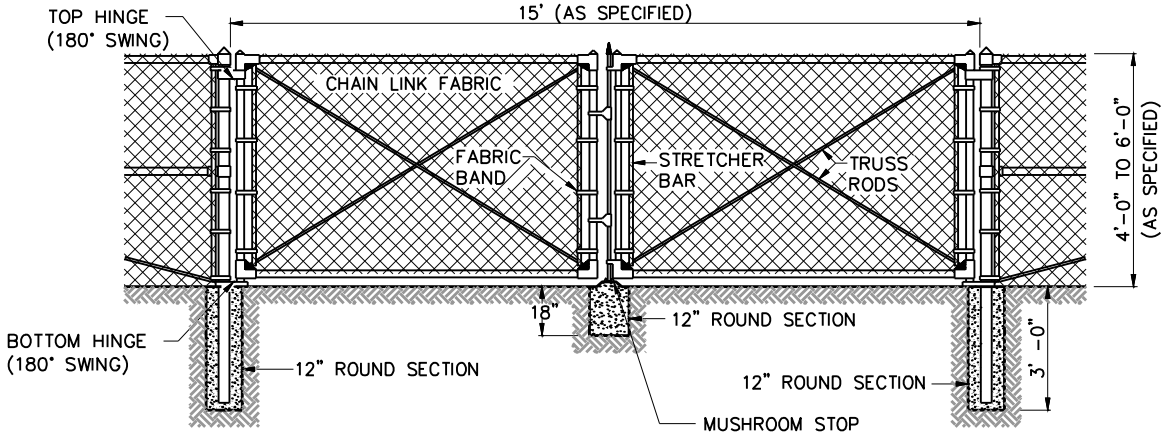
REVISED 07-18

MEMBER	NOMINAL DIA (IN)	MATERIAL	
BRACE RAIL	1.660	GALV TUBULAR STL	
GATE FRAME	2.00	GALV TUBULAR STL	
LINE POSTS	2.375	GALV TUBULAR STL	
END & CORNER POST	2.875	GALV TUBULAR STL	
CHAIN LINK FABRIC		9 GA. BLACK PVC COATING.	
	GATE OPENING (ft)	NOMINAL DIA (IN)	MATERIAL
GATE POST	15'	4	GALV TUBULAR STL

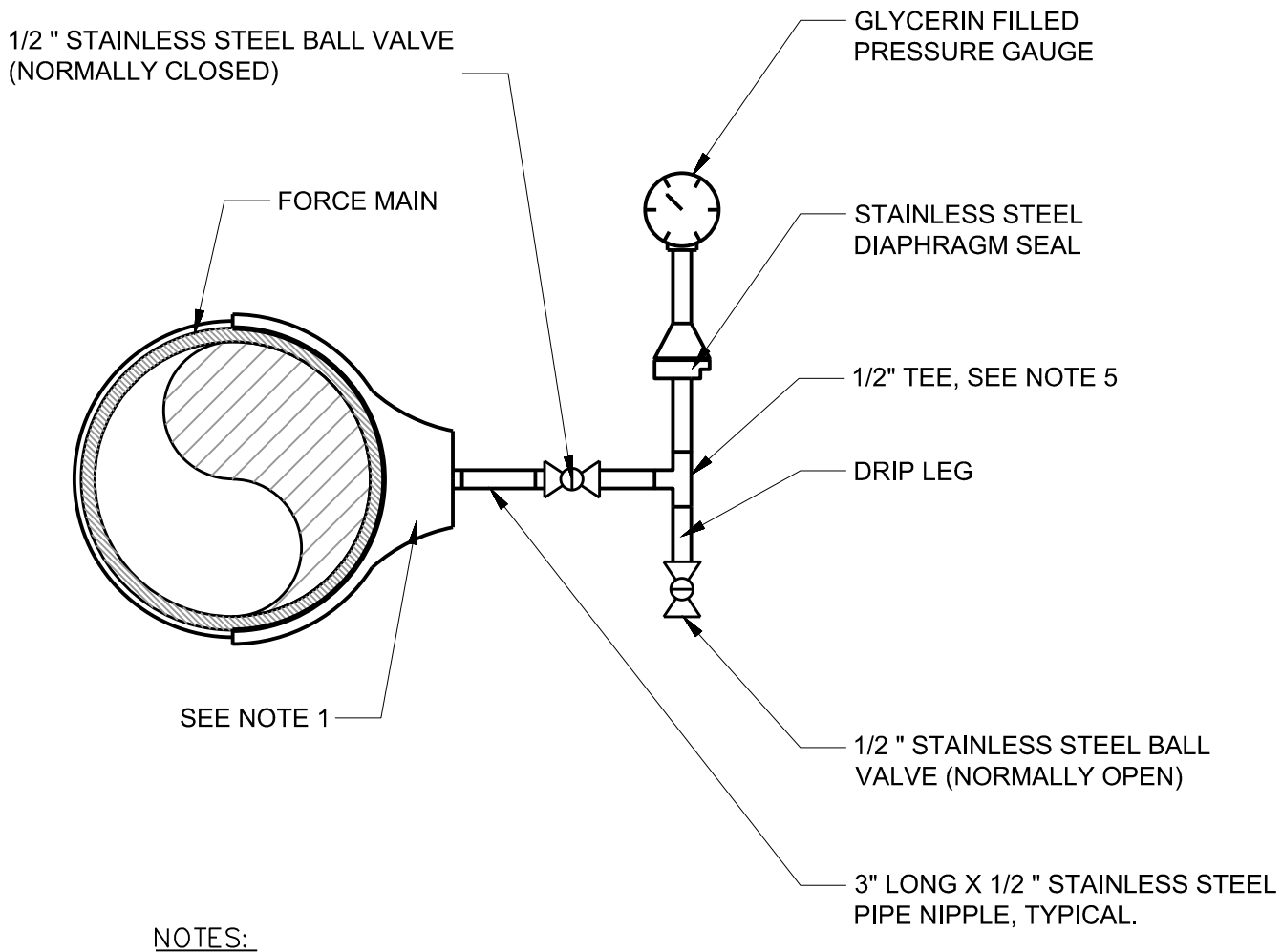
NOTES:

1. ALL FITTINGS, FASTENERS, & AND FABRIC TIES SHALL BE HOT DIP GALV.
2. CONC SHALL BE MIN 2500 PSI @ 28 DAYS.
3. PROVIDE BRACE RAIL BETWEEN END POSTS AND LINE POSTS. LENGTHS AS REQ'D.
4. PROVIDE GATE STOPS AND DROP RECEIVERS SET IN CONCRETE, EACH GATE.
5. PROVIDE EXTENSION ARMS ON LINE, END AND CORNER POSTS & GATE POSTS AS REQ'D.
6. CENTER BRACE RAIL NOT REQUIRED WITH FENCE HEIGHT OF 5' OR LESS.
7. ALL POSTS AND RAILS TO MATCH FENCE COLOR.





Clean Water Services



NOTES:

1. INSTALL GAUGE AS SHOWN ON 1/2" DUCTILE IRON PIPE SADDLE WITH STAINLESS STEEL STRAP.

2. ALL PIPE AND FITTINGS SHALL BE SCHEDULE 80 STAINLESS STEEL WITH THREADED ENDS.

3. INSTALL PRESSURE GAUGE AND DIAPHRAGM SEAL PER MANUFACTURERS' REQUIREMENTS.

4. ACCEPTABLE ALTERNATIVE IS FLANGED ANNULAR SEAL, RED VALVE SERIES 45 OR APPROVED EQUAL WITH GLYCERIN FILL.

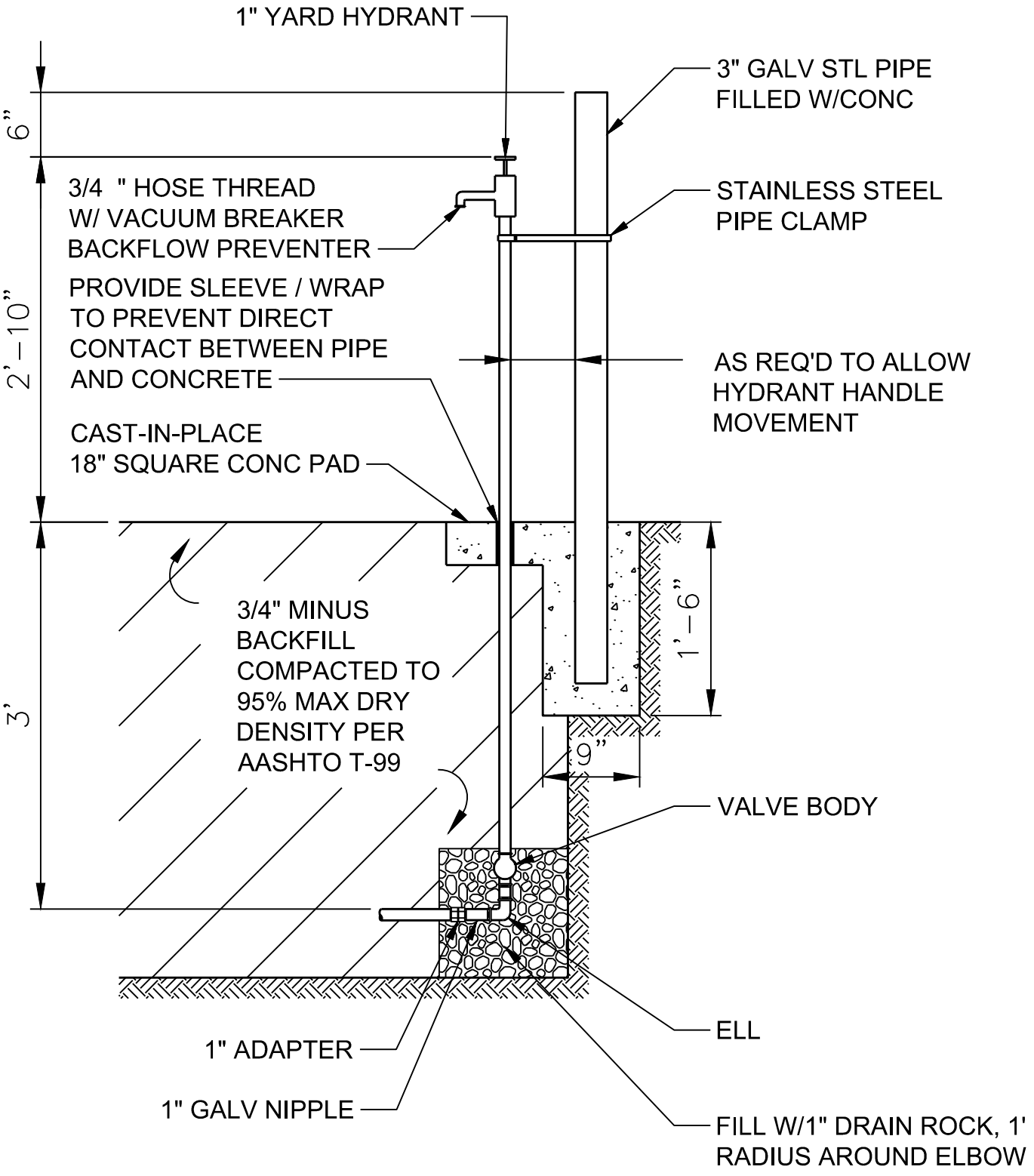
5. ANGLE ½" TEE AT 45° SO PRESSURE GAUGE CAN BE VIEWED FROM ABOVE.

FORCE MAIN PRESSURE GAUGE

DRAWING NO. 1007

REVISED 07-18

Clean Water Services

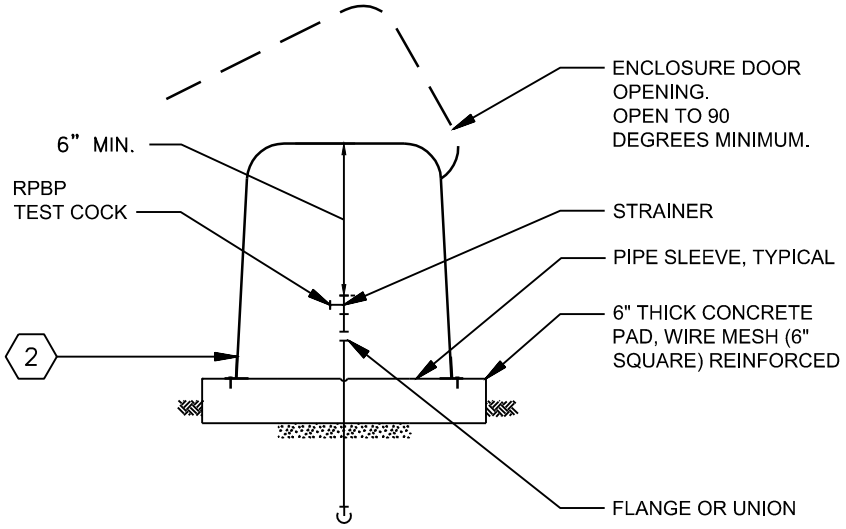


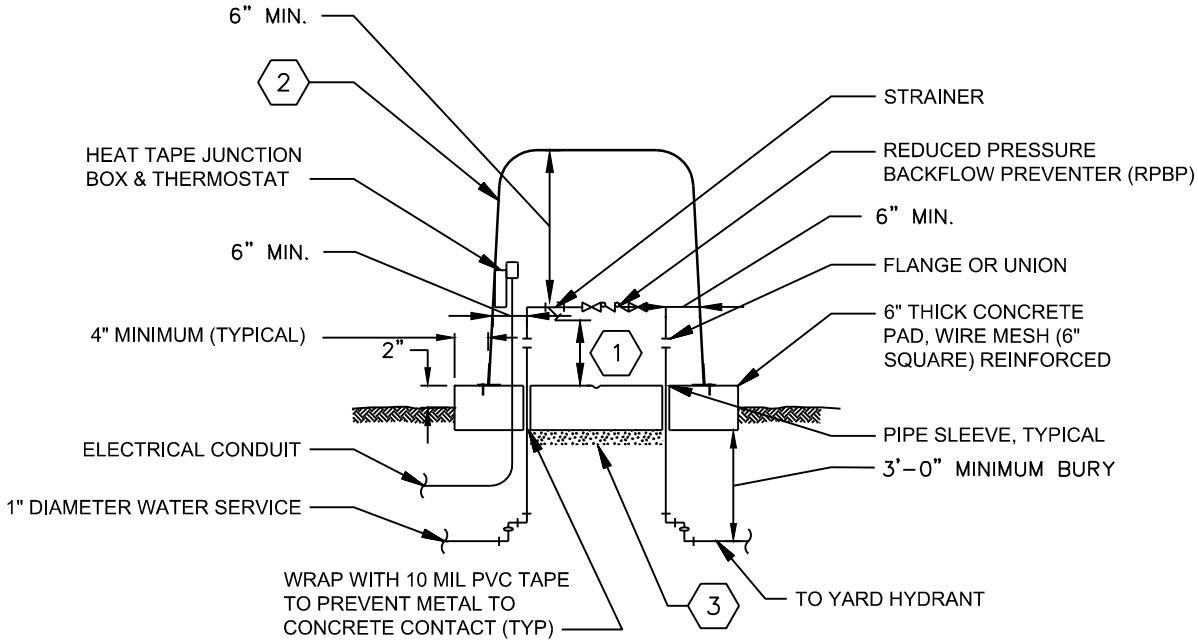
YARD HYDRANT

DRAWING NO. 1009

REVISED 12-18

Clean Water Services





KEY NOTES:

1. 12" MIN TO LOWEST POINT OF RPBP OR STRAINER, WHICHEVER IS LOWER
2. MOLDED FIBERGLASS ENCLOSURE, INSTALL ACCORDING TO MANUFACTURER INSTRUCTIONS. SECURE TO PAD WITH STAINLESS STEEL ANCHOR BOLTS.
3. 6" OF 3/4" MINUS CRUSHED ROCK, COMPACTED TO 95% MAXIMUM DRY DENSITY (STD PROCTOR)

NOTE:

1. WRAP EXPOSED WATER PIPE WITH HEAT TAPE AND PVC COATED PIPE INSULATION.
2. FOLLOW LOCAL PLUMBING CODE.

REDUCED PRESSURE BACKFLOW PREVENTER

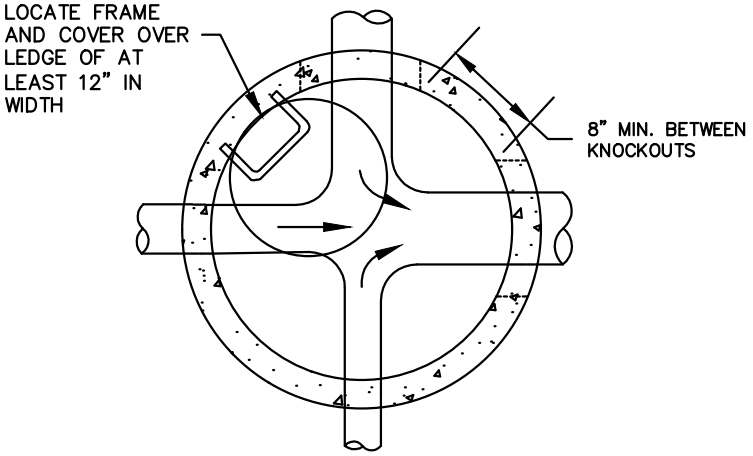
DRAWING NO. 1011

REVISED 012-18

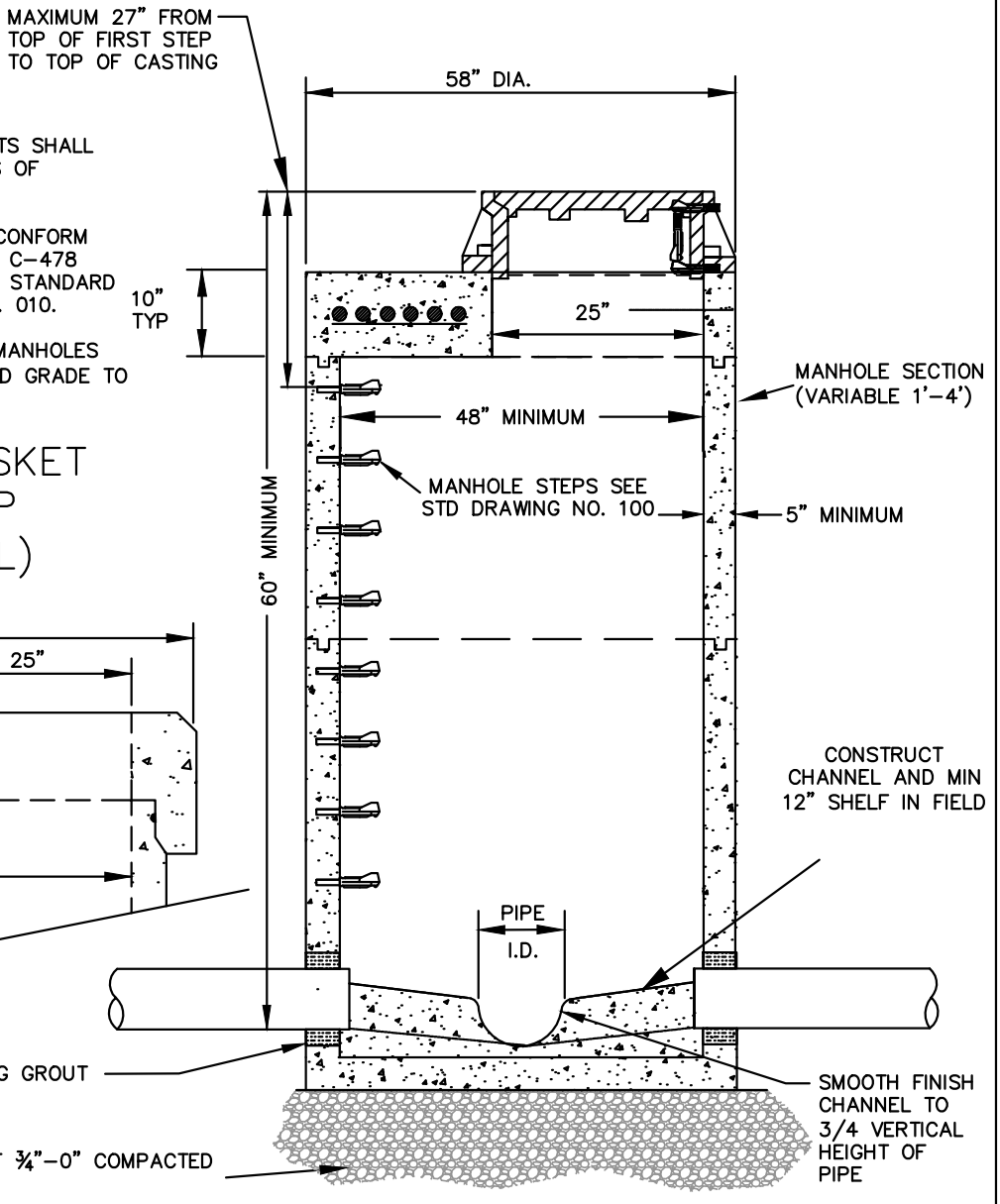
Clean Water Services

BYPASS MANHOLE
FLAT TOP
W/REINFORCEMENT
OR
RUBBER GASKET FLAT TOP
W/REINFORCEMENT

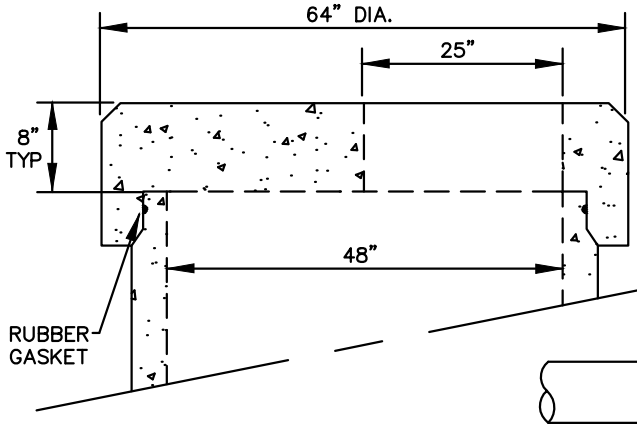
#6 BAR AROUND OUTSIDE OF OPENING
#6 DIAGONALS BOTH SIDES OF OPENING
#6 6" O.C. BOTH WAYS



NOTES:
1. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-433.
2. ALL MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STANDARD MANHOLE, SEE STD DRAWING NO. 010.
3. STEPS REQUIRED ON FLAT TOP MANHOLES DEEPER THAN 48" FROM FINISHED GRADE TO I.E. OUT.



RUBBER GASKET FLAT TOP (OPTIONAL)



BYPASS MANHOLE

DRAWING NO. 1012

REVISED 08-18

Clean Water Services

SHEET NOTES:

1. PLACE NEW ANODE BAGS IN NATIVE SOIL AS PER SPECS. THERMITE WELD ANODE LEADS TO SERVICE SADDLE.

2. ALL STAINLESS STEEL PIPING SHALL BE SCHEDULE 40. ALL SMALL DIAMETER PVC SHALL BE SCHEDULE 80, SOLVENT WELDED JOINTS.

3. ALL ELECTRICALLY CONTINUOUS FITTINGS CONNECTED TO FORCE MAIN SHALL BE 316 STAINLESS STEEL, ALL OTHER FITTINGS, HARDWARE AND FASTENERS SHALL BE 304 STAINLESS STEEL UNLESS OTHERWISE NOTED.

4. SLOPE CONCRETE PAD MINIMUM 2% TOWARD 6" FLOOR DRAIN.

5. ORIENT DOOR AND LID OPENING LOCATION ON ENCLOSURE PER CWS DIRECTIONS AT EACH ARV LOCATION.

6. INSTALL DRAIN LINE IN SHARED TRENCH PER ENGINEER DETAIL. INSTALL STANDARD CLEANOUTS, PER DRAWING NO. 500, EVERY 300', OR WHERE SHOWN ON PLANS. DRAIN TO DISCHARGE TO NEAREST SANITARY SEWER MANHOLE AS SHOWN ON PLANS.

7. RAISE GRADE OF ARV BRANCH PIPING IF REQ'D TO AVOID CONFLICT W/ CROSSING UTILITIES. PROVIDE MINIMUM 5' COVER OVER PIPING W/IN ROADWAY.

8. ALL BURIED STAINLESS STEEL PIPING AND APPURTENANCES TO BE ELECTRICALLY CONTINUOUS AND COATED WITH WAX TAPE PER SPECIFICATIONS.

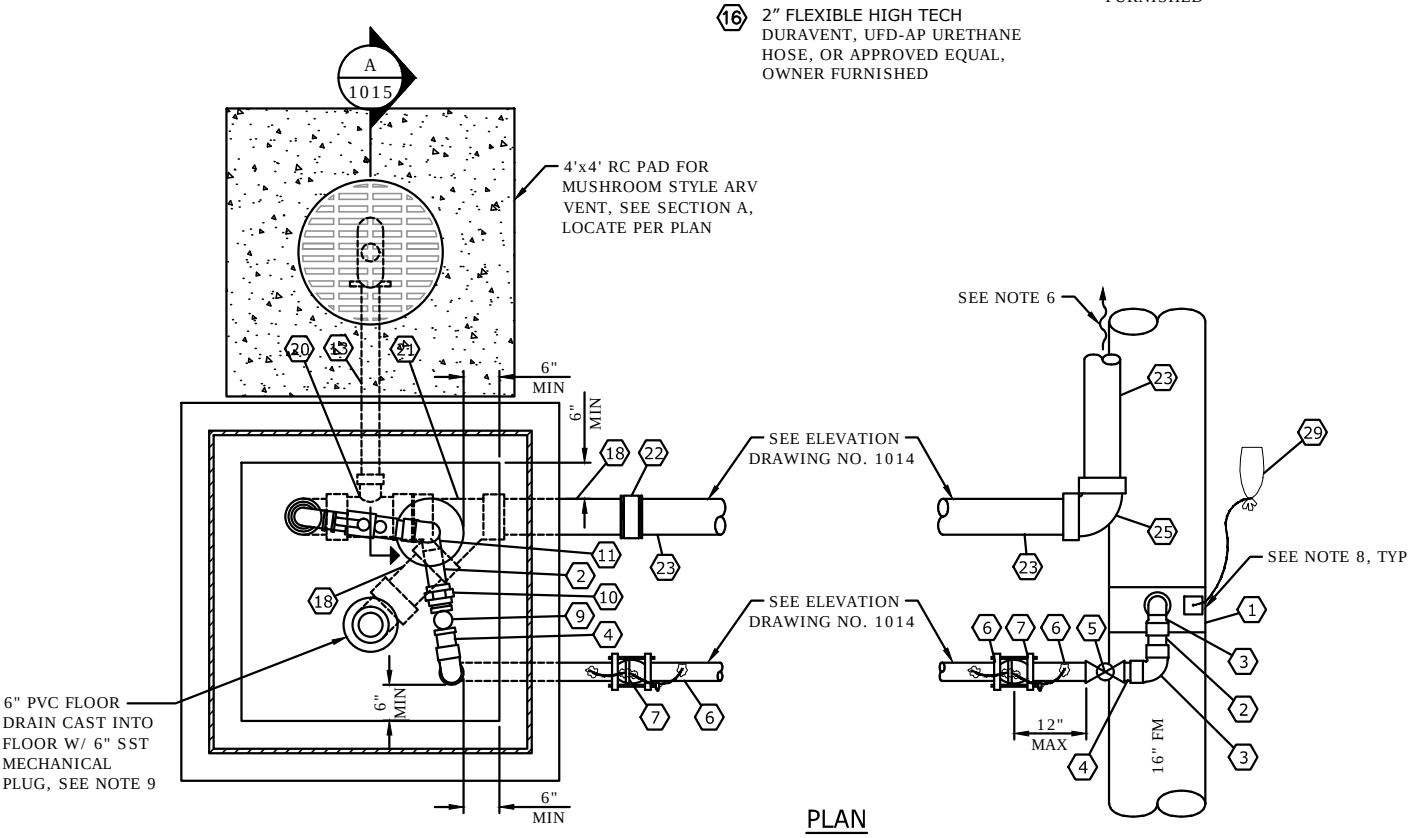
9. PROVIDE PERMANENT CAP ON 6" ARV DRAIN WHERE NOTED ON PLANS AND ALSO PROVIDE SIGN ON FLOOR DRAIN THAT IT IS NON-FUNCTIONAL.

10. ALL ITEMS NOTED ON TO BE FURNISHED BY OWNER SHALL BE INSTALLED BY CONTRACTOR

11. PROVIDE TRACER WIRE FOR 16'' FM, 6'' ARV DRAIN, AND 3'' ARV PIPE, AS SHOWN ON DRAWING NO. 1016

KEY NOTES:

1. 316 SST TAPPING SLEEVE W/ 3" OUTLET, SEE SPECS
2. 3" SST NIPPLE, MIPT, OR 3" SST SPOOL, LENGTH AS REQUIRED
3. 3" SST 90° BEND, FIPT
4. 3" SST CLOSE NIPPLE
5. 3" BURIED SST BALL VALVE
6. 3" SST NIPPLE, MIPT X PE, LENGTH AS REQ'D
7. 3" SST COMPRESSION COUPLING, SEE SPEC
8. 3" SST 45° BEND, FIPT
9. 3" SST BALL VALVE W/ LEVER HANDLE, MIPT
10. 3" SST UNION
11. 3" SST TEE, FIPT
12. 2" ARV, VENT-O-MAT, OWNER FURNISHED, SEE NOTE 10, TYP
13. 2" PVC NIPPLE, ADAPTER, OR SPOOL, AS REQ'D, OWNER FURNISHED
14. 2" CAM-LOCK FITTING, FIPT, OWNER FURNISHED
15. 2" POLYPROPYLENE CAM-LOCK FEMALE COUPLER, OWNER FURNISHED
16. 2" FLEXIBLE HIGH TECH DURAVENT, UFD-AP URETHANE HOSE, OR APPROVED EQUAL, OWNER FURNISHED
17. 6" X 2" PVC RDCR BUSHING, SCHED 80
18. 6" PVC SPOOL, SCHED 80
19. 6" PVC 90° BEND, SCHED 80
20. 6" X 3" PVC TEE, ROLLED UP TO VENT, SCHED 80
21. 6" PVC WYE, SCHED 80
22. 6" FERNCO COUPLING, SCHED 80 PVC TO D3034 PVC OR PERMANENT 6" PVC CAP PER NOTE 9
23. 6" D3034 SDR 35 PVC PIPE
24. 6" D3034 SDR 35 PVC ELBOW FITTING, DEFL ANGLE AS REQ'D
25. 6" D3034 SDR 35 PVC ELBOW FITTING, 90° ROLLED TO 2% MIN, OR AS REQ'D
26. 3" SST BOLTED FLOOR FLG, FASTEN TO FLOOR W/ SST EPOXY ANCHORS
27. 3"x2" SST HEX BUSHING, MNPTxFNPT
28. ARV ENCLOSURE, HOT BOX LB8FEM, COLOR PER SPEC, SEE NOTE 5
29. ANODE BAG, SEE NOTE 1
30. 2" SST 90° BEND, FIPT, OWNER FURNISHED



PLAN

AIR RELEASE VALVE ASSEMBLY PLAN VIEW

DRAWING NO. 1013

REVISED 08-18

Clean Water Services

SHEET NOTES:

1. PLACE NEW ANODE BAGS IN NATIVE SOIL AS PER SPECS. THERMITE WELD ANODE LEADS TO SERVICE SADDLE.

2. ALL STAINLESS STEEL PIPING SHALL BE SCHEDULE 40. ALL SMALL DIAMETER PVC SHALL BE SCHEDULE 80, SOLVENT WELDED JOINTS.

3. ALL ELECTRICALLY CONTINUOUS FITTINGS CONNECTED TO FORCE MAIN SHALL BE 316 STAINLESS STEEL, ALL OTHER FITTINGS, HARDWARE AND FASTENERS SHALL BE 304 STAINLESS STEEL UNLESS OTHERWISE NOTED.

4. SLOPE CONCRETE PAD MINIMUM 2% TOWARD 6" FLOOR DRAIN.

5. ORIENT DOOR AND LID OPENING LOCATION ON ENCLOSURE PER CWS DIRECTIONS AT EACH ARV LOCATION.

6. INSTALL DRAIN LINE IN SHARED TRENCH PER ENGINEER DETAIL. INSTALL STANDARD CLEANOUTS, PER DRAWING NO. 500, EVERY 300', OR WHERE SHOWN ON PLANS. DRAIN TO DISCHARGE TO NEAREST SANITARY SEWER MANHOLE AS SHOWN ON PLANS.

7. RAISE GRADE OF ARV BRANCH PIPING IF REQ'D TO AVOID CONFLICT W/ CROSSING UTILITIES. PROVIDE MINIMUM 5' COVER OVER PIPING W/IN ROADWAY.

8. ALL BURIED STAINLESS STEEL PIPING AND APPURTENANCES TO BE ELECTRICALLY CONTINUOUS AND COATED WITH WAX TAPE PER SPECIFICATIONS.

9. PROVIDE PERMANENT CAP ON 6" ARV DRAIN WHERE NOTED ON PLANS AND ALSO PROVIDE SIGN ON FLOOR DRAIN THAT IT IS NON-FUNCTIONAL.

10. ALL ITEMS NOTED ON TO BE FURNISHED BY OWNER SHALL BE INSTALLED BY CONTRACTOR

11. PROVIDE TRACER WIRE FOR 16'' FM, 6'' ARV DRAIN, AND 3'' ARV PIPE, AS SHOWN ON DRAWING NO. 1016

KEY NOTES:

1. 316 SST TAPPING SLEEVE W/ 3" OUTLET, SEE SPECS
2. 3" SST NIPPLE, MIPT, OR 3" SST SPOOL, LENGTH AS REQUIRED
3. 3" SST 90° BEND, FIPT
4. 3" SST CLOSE NIPPLE
5. 3" BURIED SST BALL VALVE
6. 3" SST NIPPLE, MIPT X PE, LENGTH AS REQ'D
7. 3" SST COMPRESSION COUPLING, SEE SPEC
8. 3" SST 45° BEND, FIPT
9. 3" SST BALL VALVE W/ LEVER HANDLE, MIPT
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11. 3" SST TEE, FIPT
12. 2" ARV, VENT-O-MAT, OWNER FURNISHED, SEE NOTE 10, TYP
13. 2" PVC NIPPLE, ADAPTER, OR SPOOL, AS REQ'D, OWNER FURNISHED
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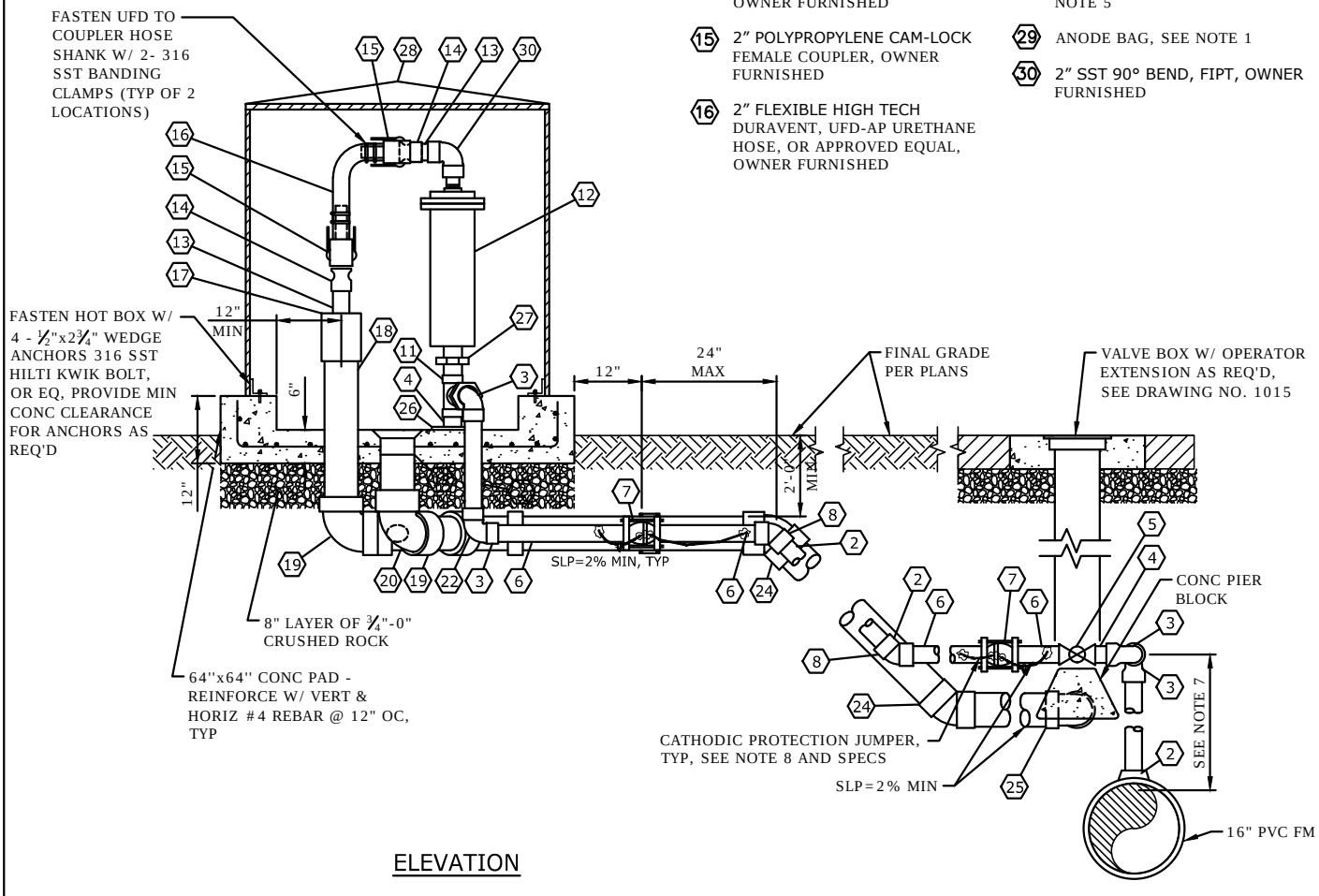
21. 6" PVC WYE, SCHED 80
22. 6" FERNCO COUPLING, SCHED 80 PVC TO D3034 PVC OR PERMANENT 6" PVC CAP PER NOTE 9
23. 6" D3034 SDR 35 PVC PIPE
24. 6" D3034 SDR 35 PVC ELBOW FITTING, DEFL ANGLE AS REQ'D
25. 6" D3034 SDR 35 PVC ELBOW FITTING, 90° ROLLED TO 2% MIN, OR AS REQ'D
26. 3" SST BOLTED FLOOR FLG, FASTEN TO FLOOR W/ SST EPOXY ANCHORS
27. 3"x2" SST HEX BUSHING, MNPTxFNPT
28. ARV ENCLOSURE, HOT BOX LB8FEM, COLOR PER SPEC, SEE NOTE 5
29. ANODE BAG, SEE NOTE 1
30. 2" SST 90° BEND, FIPT, OWNER FURNISHED



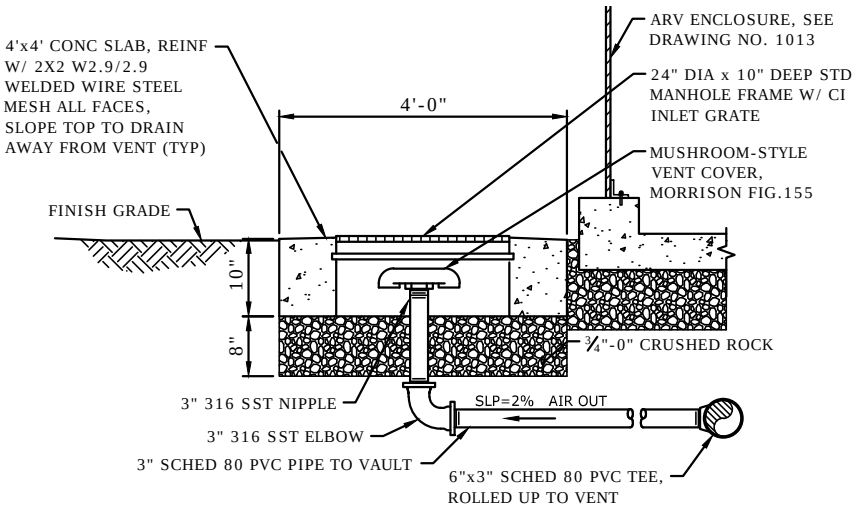
ELEVATION

AIR RELEASE VALVE ASSEMBLY ELEVATION VIEW

DRAWING NO. 1014

REVISED 08-18

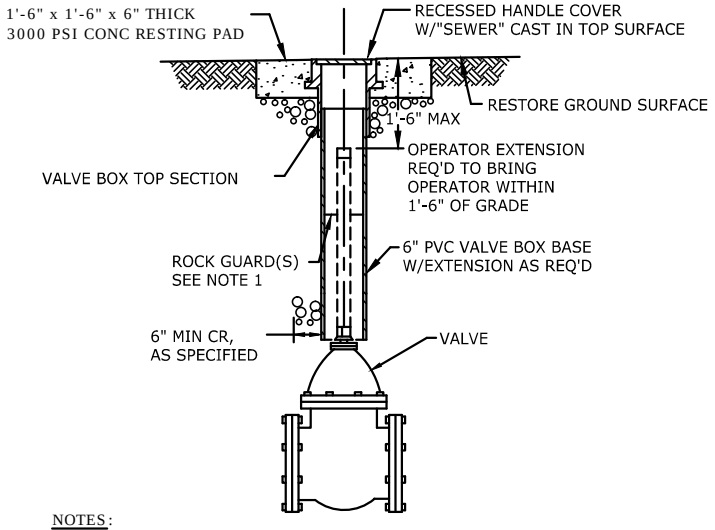
Clean Water Services



MUSHROOM STYLE ARV VENT SECTION

SCALE: NTS

A / 1013



NOTES:

1. NO ROCK GUARD REQUIRED IF OPERATOR NUT WITHIN 36" OF FINISH GRADE. WHERE DEPTH FROM ROCK GUARD TO OPERATOR NUT IS GREATER THAN 6'-0", INSTALL SECOND ROCK GUARD.

VALVE BOX DETAIL

SCALE: NTS

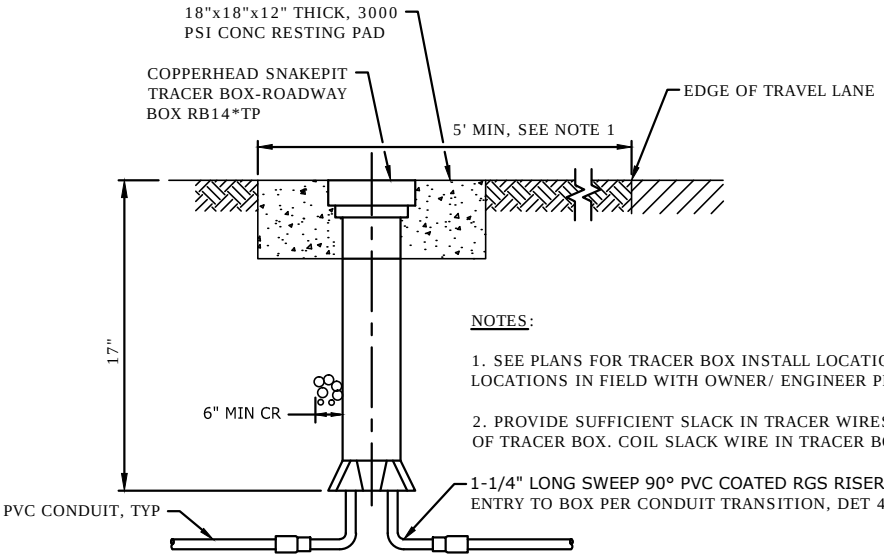
4 / 1014

MUSHROOM STYLE ARV VENT & VALVE BOX DETAILS

DRAWING NO. 1015

REVISED 08-18

Clean Water Services



NOTES:

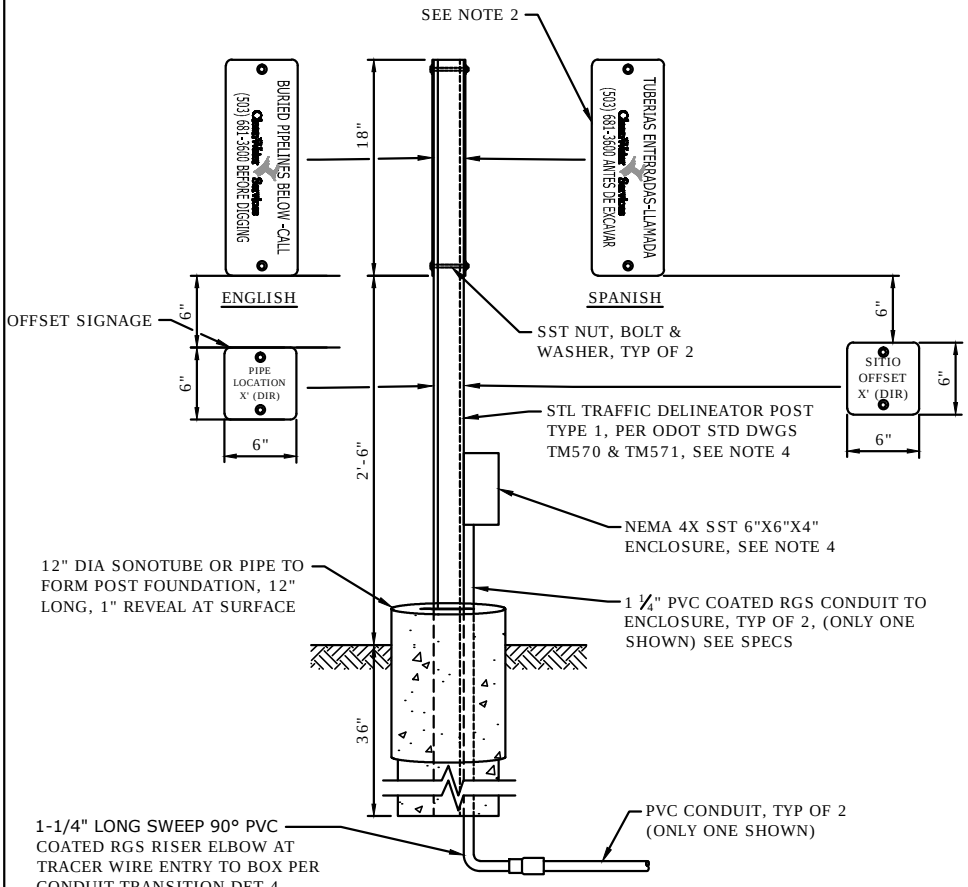
1. SEE PLANS FOR TRACER BOX INSTALL LOCATIONS. CONFIRM PLAN LOCATIONS IN FIELD WITH OWNER/ ENGINEER PRIOR TO INSTALLATION.

2. PROVIDE SUFFICIENT SLACK IN TRACER WIRES TO EXTEND 18" OUT OF TRACER BOX. COIL SLACK WIRE IN TRACER BOX.

TRACER BOX DETAIL

SCALE: NTS

1 / -



NOTES:

1. PROVIDE SIGNS AT LOCATIONS SHOWN ON PLAN SHEETS.

2. SIGNS SHALL BE ALUMINUM OR FIBERGLASS (0.10-INCH THICK) WITH EMBEDDED FADE-PROOF LEGENDS. SIGN LETTERING SHALL BE ONE-INCH HIGH. LETTERING SHALL BE RED ON WHITE BACKGROUND.

3. LABEL TRACER WIRES IN NEMA ENCLOSURE PER FORCE MAIN DIRECTION (N,S,E,W,NW,SE,ETC.). LABELS SHALL BE SAME MATERIALS AS ELECTRICAL AND SIGNAGE WIRE LABELS.

4. ATTACH SST ENCLOSURE TO POST USING SST HARDWARE PER ENCLOSURE MFR'S RECOMMENDATION. COIL A MIN LENGTH OF 12" OF TRACER WIRE IN THE ENCLOSURE.

PIPE WARNING SIGN DETAIL

SCALE: NTS

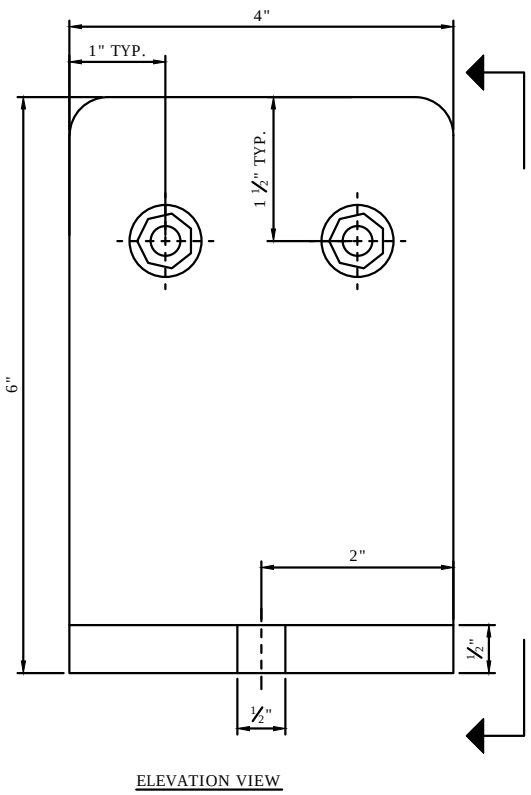
2 / -

TRACER BOX & PIPE WARNING SIGN DETAILS

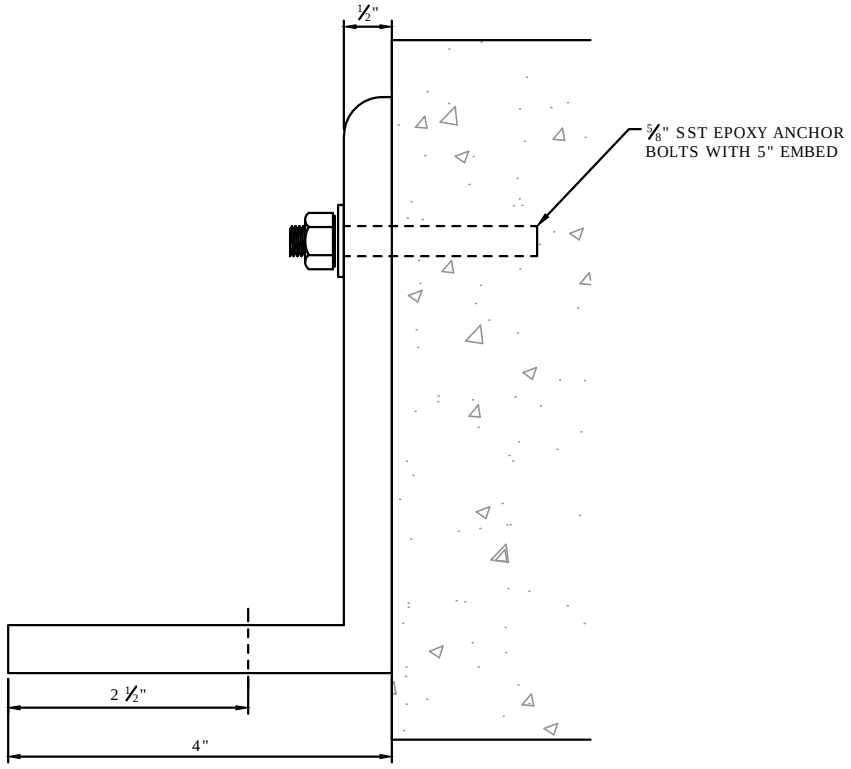
DRAWING NO. 1016

REVISED 08–18

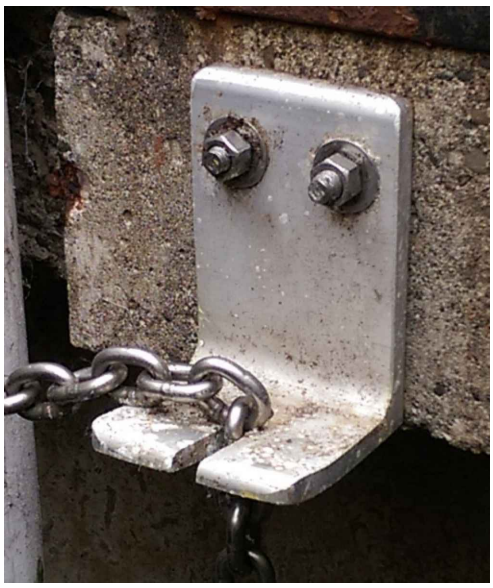
Clean Water Services



ELEVATION VIEW



SECTION



NOTES:

1. MATERIAL: 316 STAINLESS STEEL

2. COORDINATE WITH OWNER AND ENGINEER ON LOCATION OF PUMP CHAIN HOLDER.

3. 1 PER PUMP, INSTALL AS HIGH AS POSSIBLE WITH OUT CONFLICTING WITH ACCESS HATCH.

HEAVY DUTY CHAIN HOLDER DETAIL

SCALE: NTS

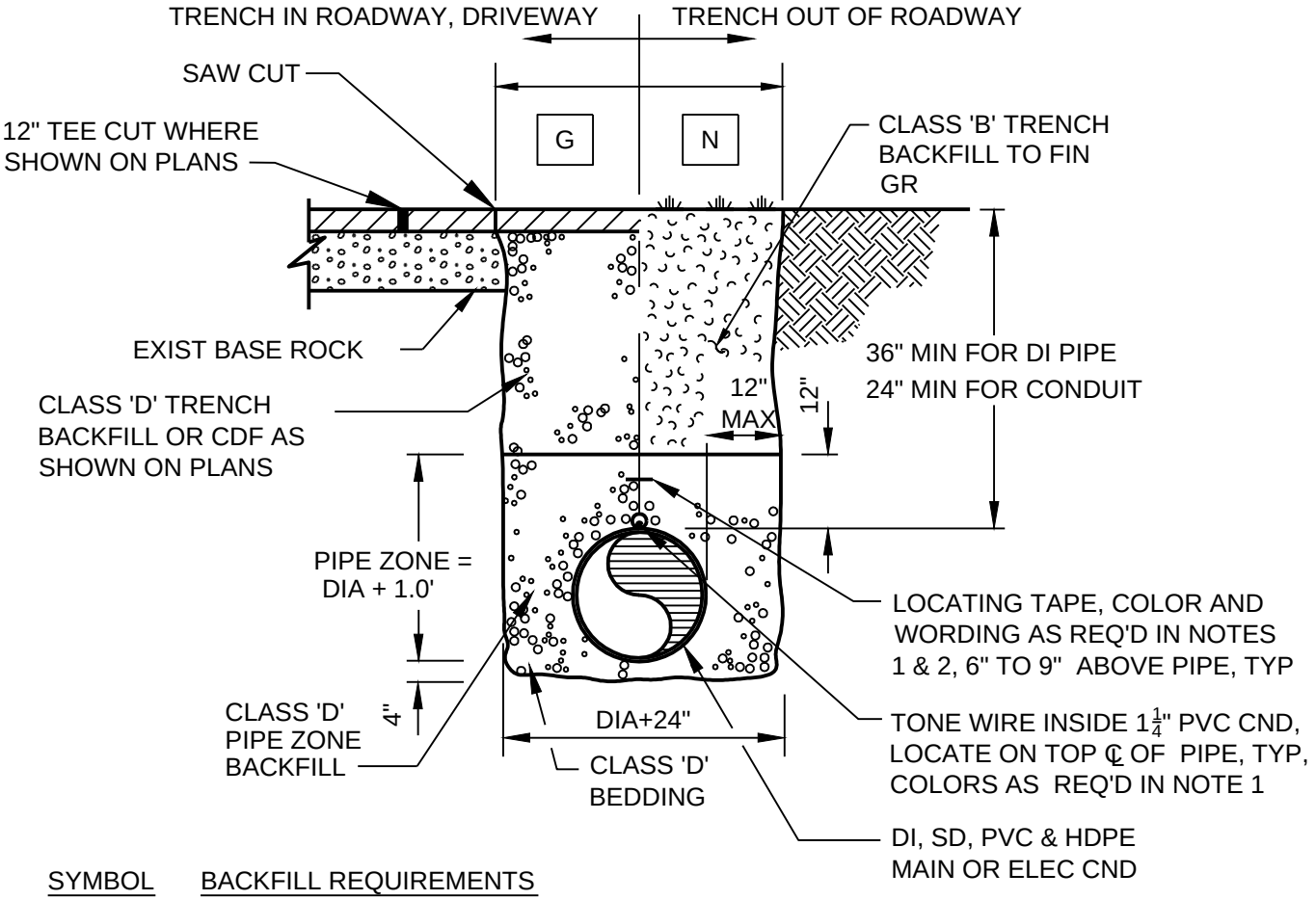
A
1017

HEAVY DUTY CHAIN HOLDER

Clean Water Services

DRAWING NO. 1017

REVISED 07-18



SYMBOL	BACKFILL REQUIREMENTS
G	FURNISH AND INSTALL CLASS 'D' BEDDING & PIPE ZONE & CLASS 'D' OR CLASS 'E' TRENCH BACKFILL AS SHOWN ON PLANS, TO PAVEMENT BASE. COMPACT MATERIAL IN LIFTS TO ACHIEVE 100% OF MAX DENSITY IN ACCORDANCE W/ AASHTO T-99. REPLACE REMOVED ASPHALT W/ 6" LEVEL 3 AC, SEE SPECS.
N	FURNISH & INSTALL CLASS 'D' BEDDING & PIPE ZONE BACKFILL COMPACTED TO 95% OF MAX DENSITY PER AASHTO T-99. FURNISH & INSTALL CLASS 'B' NATIVE TRENCH BACKFILL TO FIN GR COMPACTED TO 95% MAX DENSITY PER AASHTO T-99. REPLACE TOPSOIL & BACKFILL W/ CLASS 'B' NATIVE MATERIAL. FINISH TRENCH SURFACE TO MATCH ORIGINAL CONTOURS. REPLACE EXIST LANDSCAPING.

NOTES:

1. TAPE TRACER WIRE CONDUIT TO TOP OF PIPE EVERY 10-FEET. COLOR OF TONE WIRE INSULATION AND LOCATING TAPE SHALL BE AS FOLLOWS:

SAN FM:	GREEN
ELEC CONDUIT:	RED
FM ARV PIPE:	GREEN
SAN GRAVITY:	GREEN
PVC STORM:	GREEN

2. WORDING ON LOCATING TAPE SHALL BE AS FOLLOWS:

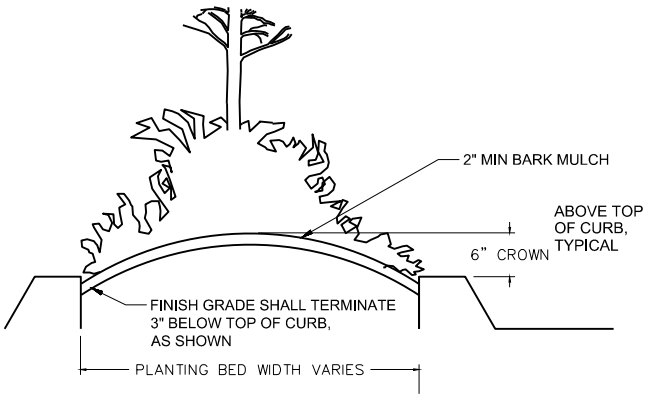
SAN FM:	CAUTION BURIED SEWER LINE BELOW
ELEC CONDUIT:	CAUTION BURIED ELECTRICAL LINE BELOW
FM ARV PIPE:	CAUTION BURIED SEWER LINE BELOW
SAN GRAVITY:	CAUTION BURIED SEWER LINE BELOW
PVC STORM:	CAUTION BURIED SEWER LINE BELOW

SINGLE PIPE TRENCH DETAIL

Clean Water Services

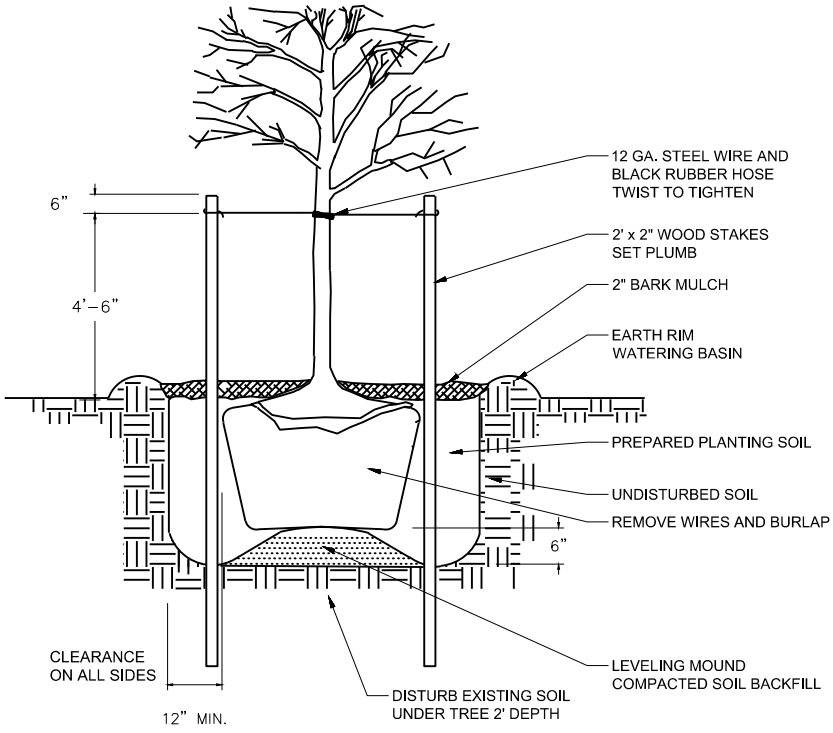
DRAWING NO. 1018

REVISED 02-19



PAVEMENT/CURB EDGE & PLANTING BED SECTION DETAIL (A)

SCALE: NTS



TREE PLANTING DETAIL (B)

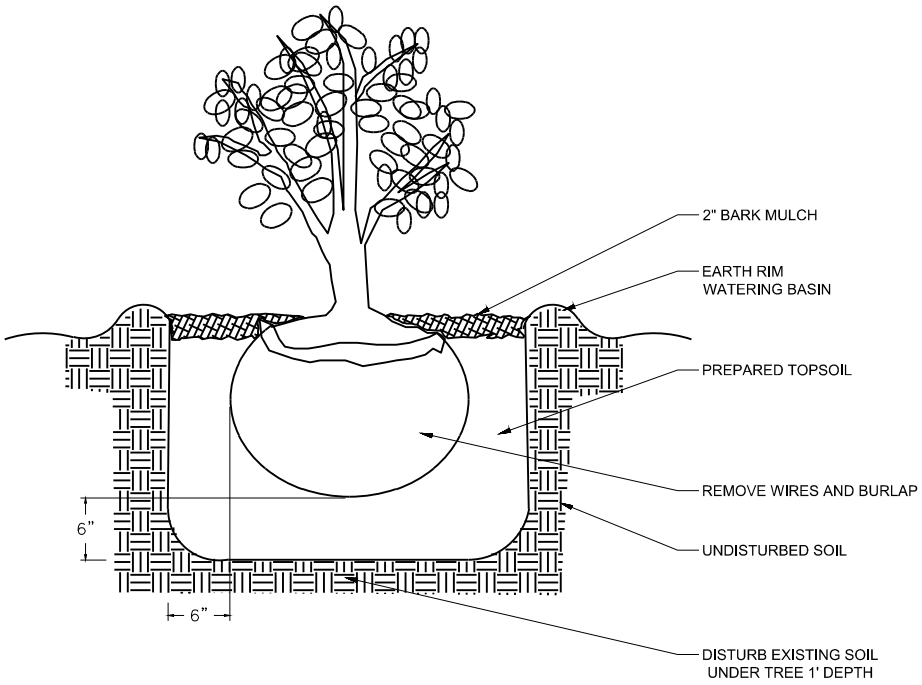
SCALE: NTS

LANDSCAPE DETAILS

DRAWING NO. 1020

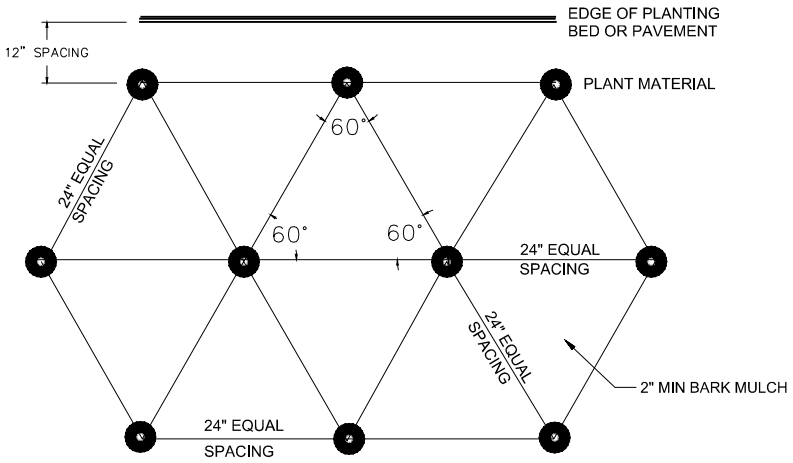
REVISED 08-18

Clean Water Services



SHRUB PLANTING DETAIL C

SCALE: NTS



GROUNDCOVER SPACING DETAIL B

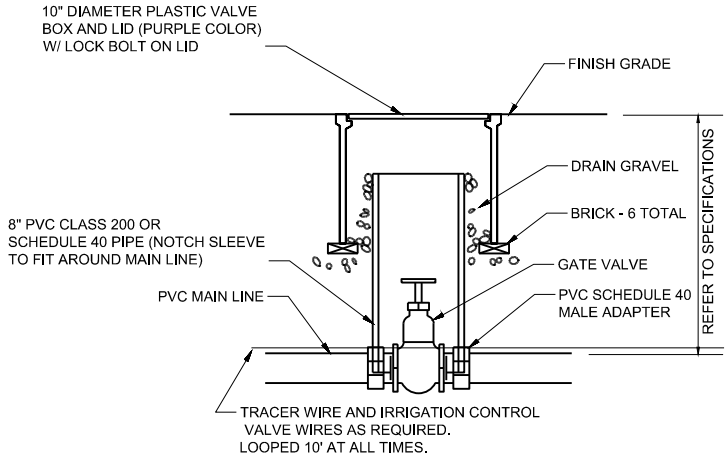
SCALE: NTS

LANDSCAPE DETAILS

DRAWING NO. 1021

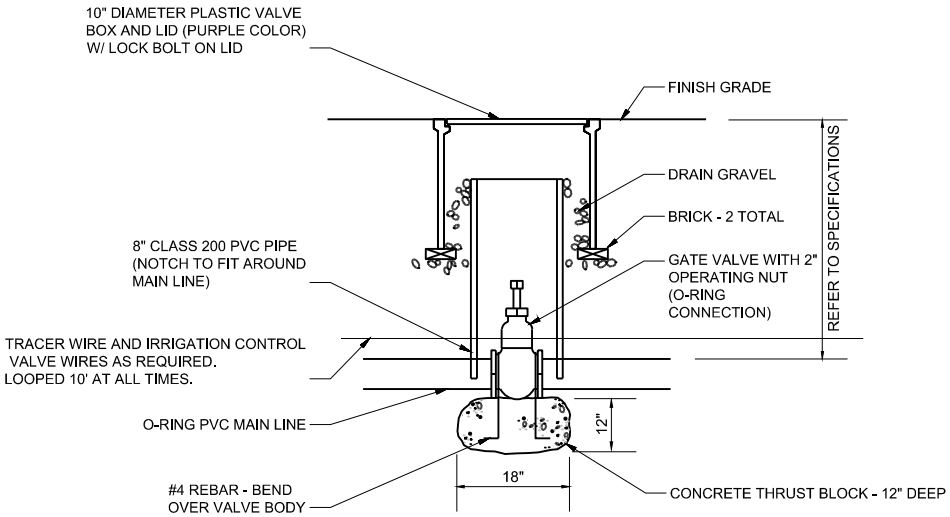
REVISED 08-18

Clean Water Services



2 1/2" OR SMALLER GATE VALVE DETAIL (E)

SCALE: NTS



3" OR LARGER GATE VALVE DETAIL (F)

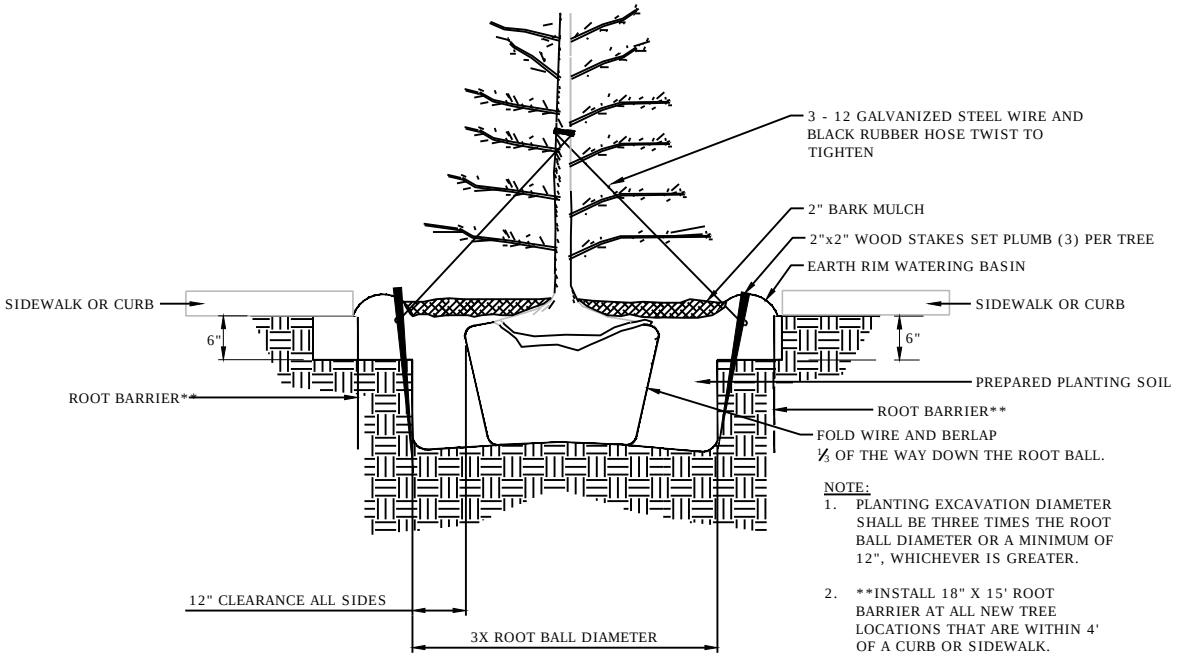
SCALE: NTS

LANDSCAPE DETAILS

DRAWING NO. 1022

REVISED 08-18

Clean Water Services

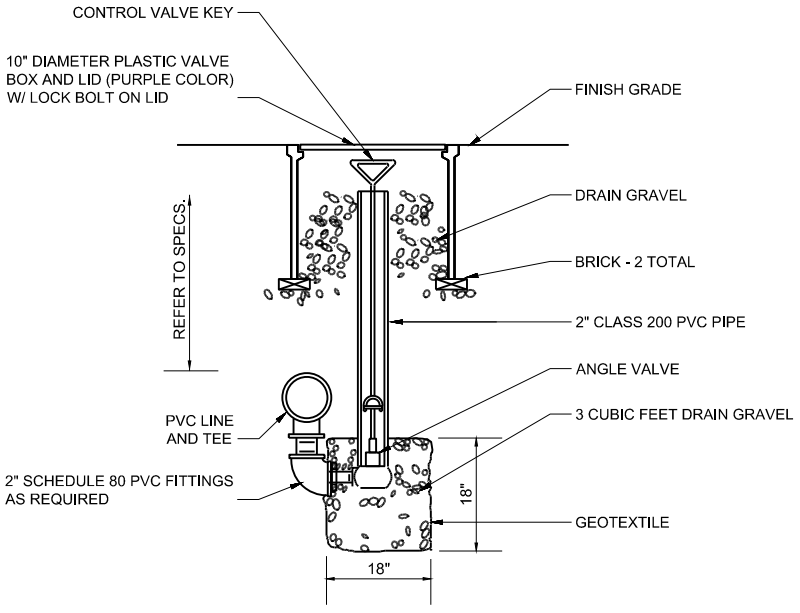


NOTE:

1. PLANTING EXCAVATION DIAMETER SHALL BE THREE TIMES THE ROOT BALL DIAMETER OR A MINIMUM OF 12", WHICHEVER IS GREATER.
2. **INSTALL 18" X 15' ROOT BARRIER AT ALL NEW TREE LOCATIONS THAT ARE WITHIN 4' OF A CURB OR SIDEWALK.
   APPROVED ROOT BARRIERS:-
   DEEPROOT UB 18-2
   NDS EP-1850 OR EQUIVALENT

EVERGREEN TREE PLANTING DETAIL G

SCALE: NTS



MANUAL DRAIN VALVE DETAIL H

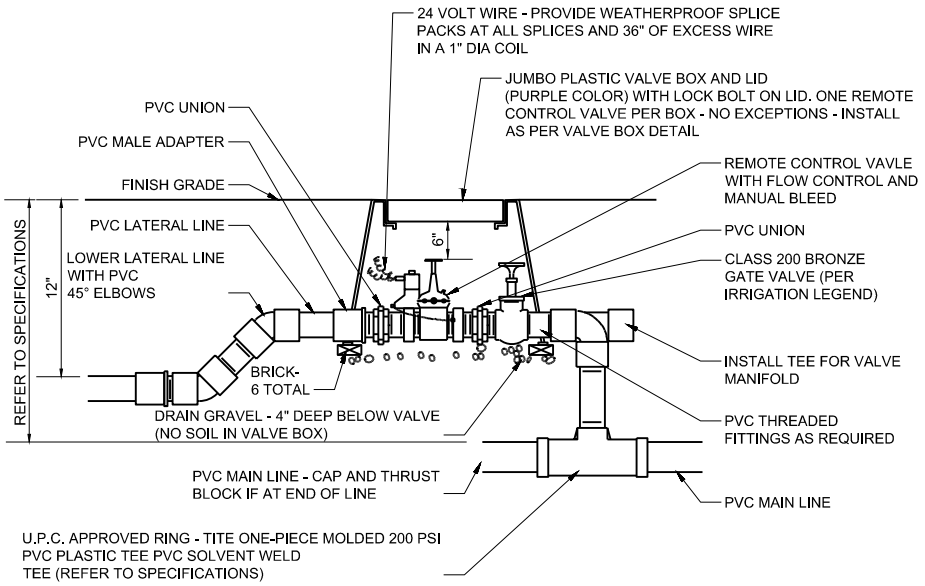
SCALE: NTS

LANDSCAPE DETAILS

DRAWING NO. 1023

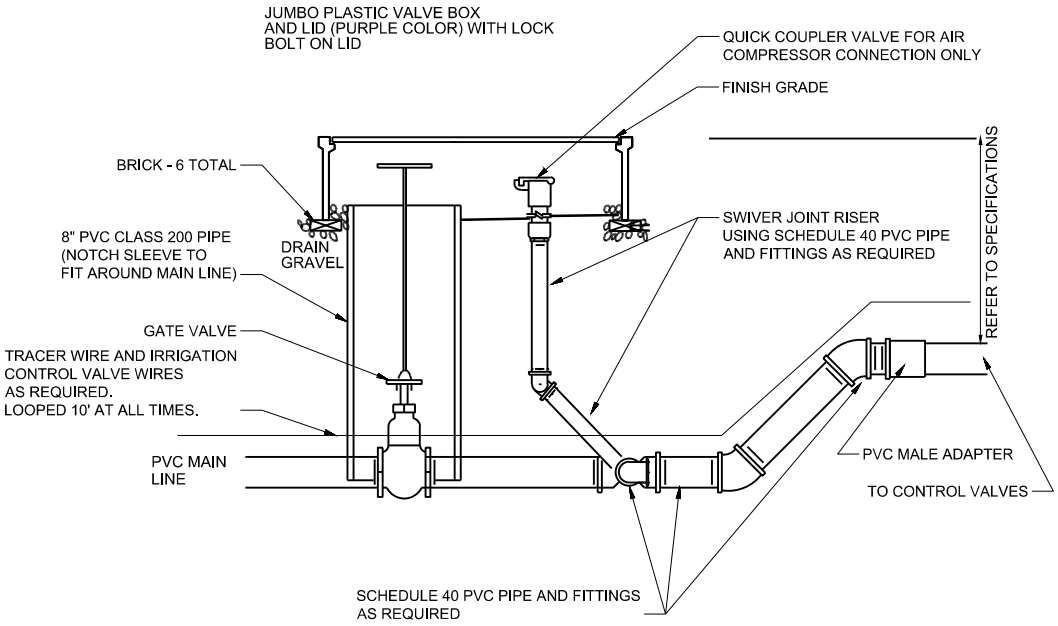
REVISED 08-18

Clean Water Services



REMOTE CONTROL VALVE DETAIL I

SCALE: NTS



WINTERIZATION ASSEMBLY @ ALL MAIN VALVES DETAIL J

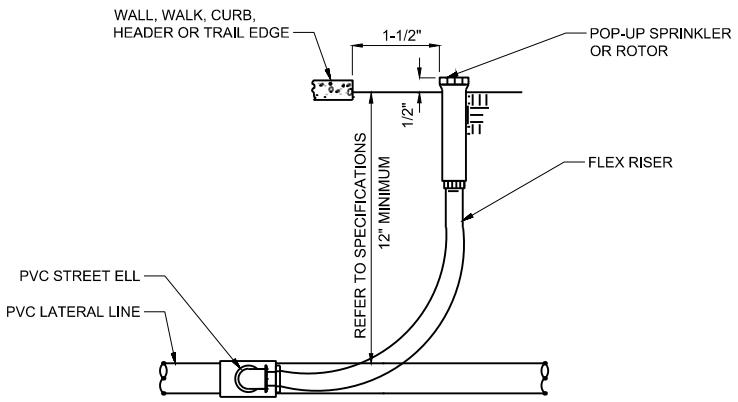
SCALE: NTS

LANDSCAPE DETAILS

DRAWING NO. 1024

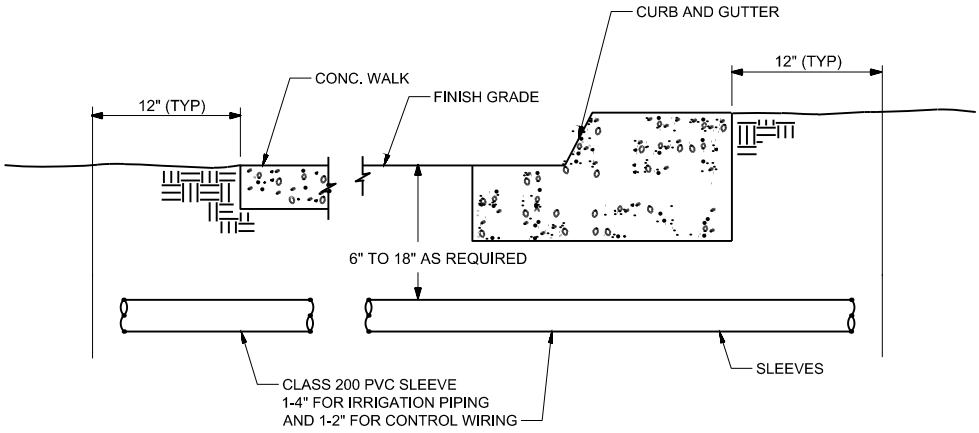
REVISED 08-18

Clean Water Services



TYPICAL RISER DETAIL K

SCALE: NTS



IRRIGATION AND CONTROL SLEEVE DETAIL L

SCALE: NTS

LANDSCAPE DETAILS

DRAWING NO. 1025

REVISED 08-18

Clean Water Services

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

ELECTRICAL
ABBREVIATIONS, & SYMBOLS

STANDARD DRAWING NO. 1070B

ONE-LINE DIAGRAM SYM.

- LIGHTNING ARRESTOR
- CURRENT TRANSFORMER (X) X = NO. OF PHASES
- POTENTIAL/VOLTAGE TRANSFORMER (X) X = NO. OF PHASES
- DRAW OUT OR STAB-IN CONNECTION
- 20/3/50 — LOW VOLTAGE CIRCUIT BREAKER, TRIP AMPERAGE/POLES/FRAME SIZE
- 30/3/60 — FUSED SWITCH, FUSE RATING/POLES/SWITCH RATING, NF = NON FUSED
- LOW VOLTAGE DRAW OUT CIRCUIT BREAKER
- 52 — MEDIUM VOLTAGE DRAW OUT BREAKER
- 480 / 120/240V, 7.5 KVA — TRANSFORMER WITH PRIMARY VOLTAGE, SECONDARY VOLTAGE, AND KVA RATING SHOWN
- TRANSFER SWITCH, ATS = AUTOMATIC, MTS = MANUAL
- MAGNETIC STARTER W/THERMAL OVERLOADS
- GEN X — GENERATOR. X=RATING
- HP — MOTOR
- AS — INSTRUMENT SWITCH
  SUBSCRIPT:
  AS = AMMETER SWITCH
  VS = VOLTMETER SWITCH
- VM — SWITCHBOARD INSTRUMENT, TYPE AS INDICATED
- W/M — METERING, TYPE AS INDICATED
- 7.5 KW — NON-MOTOR LOAD WITH KW OR AMPERES RATING
- CS — AUXILIARY OR CONTROL DEVICE (CONTROL STATION SHOWN).
- VFD — VARIABLE FREQUENCY DRIVE
- DISCONNECT OR SAFETY SWITCH, NON-FUSED UNLESS OTHERWISE INDICATED
- CONTROL PANEL SUPPLIED W/OTHER EQUIPMENT
- SEPERATLY MOUNTED COMBINATION MOTOR STARTER OR CONTROLLER, SEE ELECTRICAL ONE LINE DIAGRAM OR SCHEDULE FOR DESCRIPTION
- FIELD WIRING EXTERNAL TO CONTROL PANEL
- OFF / HAND / AUTO / XOO — SELECTOR SWITCH
- ## — MOTOR CONTROLLER TERMINAL
- ## — FIELD DEVICE TERMINAL

CONTROL SCHEMATIC SYM.

- ON - OFF SWITCH
- FLOAT SWITCH, CLOSE ON RISING LEVEL
- FLOAT SWITCH, CLOSE ON FALLING LEVEL
- PRESSURE SWITCH, CLOSE ON INCREASING PRESSURE
- PRESSURE SWITCH, CLOSE ON DECREASING PRESSURE
- LIMIT SWITCH, CLOSE WHEN POSITION REACHED
- LIMIT SWITCH, OPEN WHEN POSITION REACHED
- TEMPERATURE SWITCH, CLOSE ON RISING TEMPERATURE
- TEMPERATURE SWITCH, OPEN ON RISING TEMPERATURE
- FLOW SWITCH, CLOSE ON INCREASING FLOW
- FLOW SWITCH, OPEN ON INCREASING FLOW
- TOGGLE SWITCH (OPEN & CLOSED)
- XX — CONTACTOR COIL, CONTROL RELAY COIL, MOTOR STARTER COIL, OR SOLENOID VALVE COIL
- CONTACTS, CONTACTOR, CONTROL RELAY OR MOTOR STARTER, CONTACTS, NORMALLY OPEN & NORMALLY CLOSED
- OL — THERMAL OVERLOAD RELAY AUXILIARY CONTACT
- THERMAL OVERLOAD ELEMENT
- X — PUSH TO TEST INDICATING LIGHT, X INDICATES LENS COLOR

  LENS COLORS:

R - RED	Y - YELLOW
G - GREEN	W - WHITE
B - BLUE	A - AMBER

- SINGLE CIRCUIT PUSHBUTTONS, NORMALLY OPEN & NORMALLY CLOSED
- XO / OX — SELECTOR SWITCH (3-WAY SHOWN)
- PLC INPUT / AUTO — PROGRAMMABLE CONTROLLER INPUT ("AUTO" STATUS INDICATED)
- PLC OUTPUT / RUN — PROGRAMMABLE CONTROLLER OUTPUT ("RUN" COMMAND INDICATED)

CONTROL SCHEMATIC SYM. CONT.

- TRX, TDAE, 0 – 60 SEC — TIME DELAY RELAY, TRX, TIMING RANGE AS NOTED
  TDAE = TIME DELAY PICK UP AFTER ENERGIZATION
  TDAD = TIME DELAY DROP OUT AFTER DE-ENERGIZATION
- TRX — TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSE AFTER TIME DELAY ON ENERGIZATION
- TRX — TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPEN AFTER TIME DELAY ON ENERGIZATION
- TRX — TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSE ON ENERGIZATION, OPEN AFTER TIME DELAY ON DE-ENERGIZATION
- TRX — TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPEN ON ENERGIZATION, CLOSE AFTER TIME DELAY ON DE-ENERGIZATION
- HORN
- RUNNING TIME METER; MAY BE TAGGED RTM, ETM OR KC
- BATTERY
- MOTOR, (3 PHASE MOTOR SHOWN)
- 480 / 120/240V CPT — CONTROL POWER TRANSFORMER, PRIMARY AND SECONDARY VOLTAGES AS NOTED, SIZE AS REQUIRED UNLESS NOTED
- BROAD BAND FILTER FOR HARMONIC MITIGATION
- X — POWER REACTOR, X = NO. OF PHASES
- METAL OXIDE VARISTER
- FUSE, FUSEBLOCK AND BLOWN FUSE INDICATOR
- SEAL-OFF
- H — HEATING ELEMENT
- 480V / 120V AC — CPT (CONTROL POWER TRANSFORMER)
- ## — INTERNAL CONNECTION

ELECTRICAL PLAN SYM.

- GROUND
- ELECTRICAL CONNECTION
- CONDUIT SEAL
- CONDUIT TURNED DOWN
- CONDUIT TURNED UP
- HOME RUN EXPOSED
- HOME RUN CONCEALED
- EXPOSED WIRING RUN, 3/4"C, 2 #12 W/ #12 `G', UNLESS OTHERWISE NOTED
- — E — UNDERGROUND ELECTRICAL DUCT BANK CONCRETE-ENCASED UNLESS OTHERWISE NOTED)
- GROUND GRID OR CABLE
- GROUND ROD
- E E — EXISTING UNDERGROUND ELECTRICAL DUCT BANK
- TEL — UNDERGROUND TELEPHONE CONDUIT (CONCRETE ENCASED UNLESS OTHERWISE NOTED)
- OH — OVERHEAD ELECTRICAL
- ANTENNA
- TRANSFORMER
- POWER OR LIGHTING PANEL BOARD
- CONTROL PANEL SUPPLIED WITH OTHER EQUIPMENT
- 20/3/30 — DISCONNECT OR SAFETY SWITCH, NON-FUSED UNLESS OTHERWISE INDICATED
  20A FUSE, 3 POLE, 30 AMP SWITCH INDICATED
- XX — JUNCTION BOX
  P = PULLBOX
  TB = TERMINAL BOX
- T — THERMOSTAT
- XX – XX — CONDUIT TAG OR CIRCUIT NUMBER
- CS — AUXILIARY OR CONTROL DEVICE (CONTROL STATION SHOWN).
- SV — SOLENOID VALVE
- XX — INSTRUMENTATION

FS	- FLOW SWITCH
H	- HEATER
IL	- INDICATION LIGHT
LE,LS	- LEVEL SWITCH
PB	- PUSHBUTTON STATION
PE	- PNEUMATIC ELECTRIC STATION
PS	- PRESSURE SWITCH
SC	- SPEED CONTROL DEVICE
SI	- SPEED INDICATOR
SS	- SPEED SWITCH
SL	- SEAL LEAK
HS,SW	- SELECTOR SWITCH
TE	- TEMPERATURE ELEMENT
TG	- TACHOMETER GENERATOR
TS	- TEMPERATURE SWITCH
XS,ZS	- LIMIT SWITCH
XT	- POSITION TRANSMITTER

LIGHTING PLAN SYM.

- Z X Y — LUMINAIRE (HID OR INC)
- EXIT SIGN, SHADED AREAS INDICATE FACE(S)
- FLUORESCENT LIGHT FIXTURE
- SELF CONTAINED EMERGENCY LIGHT
- EMERGENCY LIGHT, REMOTE MOUNTED HEAD
- POLE MOUNTED LUMINAIRE
- SWITCH
- X — EMERGENCY LIGHT, 2 ATTACHED HEADS SHOWN

LUMINAIRE SUBSCRIPTS:

X = FIXTURE TYPE, SEE FIXTURE SCHEDULE
Y = CIRCUIT NUMBER FROM PANELBOARD
Z = CONTROLLING SWITCH

SWITCH SUBSCRIPTS:

NONE = SINGLE-POLE SWITCH
3 = THREE-WAY SWITCH
4 = FOUR-WAY SWITCH
M = MANUAL MOTOR STARTER WITH THERMAL ELEMENT FOR SMALL HORSEPOWER MOTOR
PE = PHOTOELECTRIC
WP = WEATHERPROOF SWITCH
XP = EXPLOSIONPROOF SWITCH

RECEPTACLE SYM.

- DUPLEX TELEPHONE JACK (UNLESS OTHERWISE SHOWN ON DRAWINGS)
- TELEPHONE JACK (UNLESS OTHERWISE SHOWN ON DRAWINGS)
- 125V, 20A DUPLEX RECEPTACLE,
- SPECIAL PURPOSE RECEPTACLE (AS DEFINED ON DRAWINGS)
- PLUG-IN RECEPTACLE STRIP
- HEAVY DUTY RECEPTACLE
- HEAVY DUTY DUPLEX

RECEPTACLE SUBSCRIPTS:

GFCI = GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE
WP = WEATHERPROOF RECEPTACLE
XP = EXPLOSIONPROOF RECEPTACLE

GENERAL NOTES

1. THIS IS A STANDARD ELECTRICAL SYMBOLS SHEET. ILLUSTRATION OF SYMBOL DOES NOT IMPLY ALL SYMBOLS HAVE BEEN USED ON THIS PROJECT.
2. EMPTY CONDUITS SHALL BE PROVIDED WITH PULL ROPE AND BE CAPPED OR PLUGGED, TO PREVENT WATER ENTRY.
3. LIGHTING & RECEPTACLE CIRCUIT CONDUITS & CONDUCTORS ARE NOT SHOWN ON DRAWINGS. CONTRACTOR TO PROVIDE AND INSTALL LIGHTING & RECEPTACLE CONDUITS AND CONDUCTORS REQUIRED TO OPERATE CIRCUITS.

DRN: ANV	ORIG DATE: 01/22/02	PROJ NAME: PUMP STATION STANDARD DRAWINGS	SHEET TITLE: ELECTRICAL ABBREVIATIONS & SYMBOLS
DSN: JTO	DWG #: E00		
CHK: JT	CAD FILE #: 1070B PS E00		
APPD: JTO	SCALE: 1:1		

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
1	02-14-17	CG	JT	DRAWING STANDARDS UPDATE

Clean Water Services — Our commitment is clear.
2550 SW Hillsboro Hwy. Hillsboro, Oregon 97123-9379

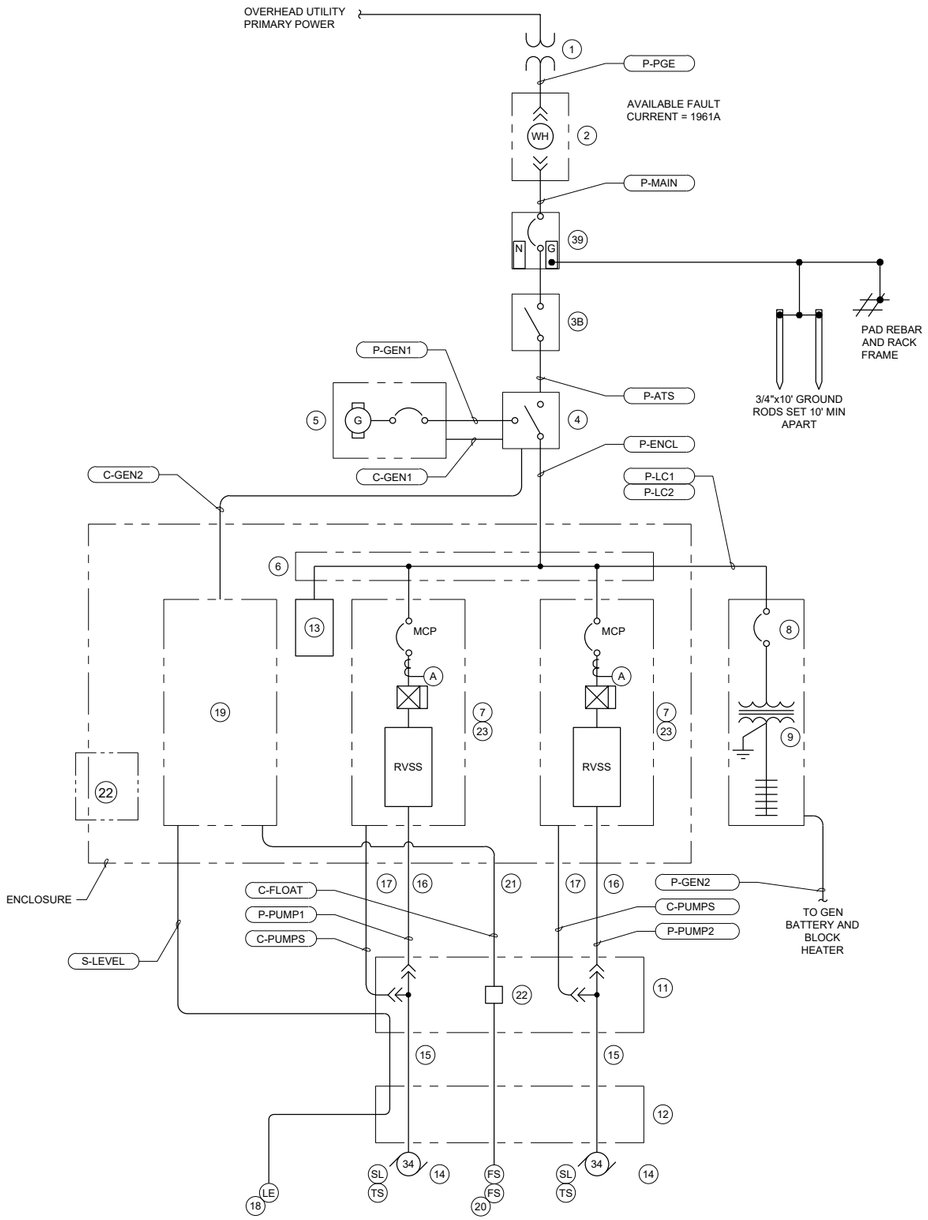
SHEET: 3 OF: 16
PLOT DATE: 8/26/19
PLC #: NA
CWS PROJ #: XXXX
DWG #: PS E00
LAST UPDATE 07-25-2018
ENGR STAMP:

Plotted: 8/26/19 at 1:28pm By: eggleston
File: W:\TPS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1070C DWG E00.dwg TAB:E00

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

STANDARD DRAWING NO. 1071



1 ONE-LINE DIAGRAM

SCALE: NTS

PANELBOARD NO:	LOAD CENTER														
VOLTAGE:	120/240		BUS RATING (A):			100		ENCLOSURE:	NEMA 1						
PHASE:	1		MAIN OC DEVICE:			60/2		MOUNTING:	SURFACE						
WIRE:	3+GND		INTERRUPTING RATING (KA):			10		LOCATION:	ECNLOSURE 1						
200% NEUTRAL:	NO		SERVICE ENTRANCE LABEL:			NO									

CKT NO.	DESCRIPTION	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	OCP AMPS	P		OCP AMPS	P	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	DESCRIPTION	CKT NO.
2	CONTROL POWER				600	20	1	A	20	1		360			WEATHER PROOF DUPLEX	2
4	ENCLOSURE 1 LIGHTS & HEATER	300				20	1	B	20	1		300			MISSION RTU	4
6	ENCLOSURE 1 DUPLEX OUTLET		360			20	1	A	20	1				100	FLOW TRANSMITTER	6
8	ENCLOSURE 2 LIGHTS & HEATER	300				20	1	B	20	1				100	WETWELL LEVEL	8
10	ENCLOSURE 2 DUPLEX OUTLET		360			20	1	A	20	1				1,000	GENERATOR BATTERY CHARGER	10
12	SPACE					20	1	B	20	1				1,500	GENERATOR BLOCK HEATER	12

LOAD SUMMARY

	LTS	REC	MECH	MISC	SPARE	TOTAL			PHASE BALANCE	
CONNECTED LOAD (KVA)	0.6	1.4	0.0	3.3	---	5.3	240	LINE-TO-LINE VOLTS	PHASE A (KVA)	###
DEMAND FACTOR	1.25	NEC	1.00	1.00	20%	---	22	CONNECTED AMPS	PHASE B (KVA)	###
DESIGN LOAD (KVA)	0.8	1.4	0.0	3.3	1.1	6.5	27	DESIGN AMPS		

KEY NOTES:

ITEM	DESCRIPTIONS	COMMENTS
1	UTILITY XMFR POWER	480V, 3PHASE, 4W, 60HZ UNDERGROUND SECONDARY SERVICE %X IMPEDANCE
2	METER ENCLOSURE	PER UTILITY STANDARDS
3	MAIN SERVICE BREAKER	SUITABLE FOR SERVICE ENTRANCE, SS NEMA 3R
3B	NON-FUSED DISCONNECT	NEMA 3R ENCLOSURE
4	AUTOMATIC TRANSFER SWITCH	
5	STANDBY GENERATOR	PROVIDED WITH IN-LINE BREAKER
6	POWER DISTRIBUTION BLOCK	480V, 3PHASE, NEMA 1 ENCLOSURE
7	COMBINATION MOTOR STARTER PANEL	PROVIDED WITH AMMETER (RANGE TWICE FLA)
8	DRY TYPE XMFR PRIMARY BREAKER	
9	DRY TYPE XMFR	MIN 3 KVA, 480V-120/240V, 1PH
10	LOAD CENTER	MIN 100AMPS, 120/240V, 1PH, 3W, 12 POLES
11	DISCONNECT AIR GAP J-BOX	AIR GAP JUNCTION BOX CONFIGURATION
12	UNDERGROUND CABLE TRENCH	
13	3-PHASE SECONDARY SURGE ARRESTOR	
14	PUMP SUBMERSIBLE MOTOR	MOTOR PROVIDED WITH MOTOR OVER TEMP AND SEAL LEAK
15	PUMP SUBMERSIBLE POWER AND CONTROL CABLES	SUPPLIED BY PUMP MFR
16	PUMP POWER WIRES	PROVIDE IN CONDUITS
17	PUMP CONTROL WIRES	PROVIDE IN CONDUITS
18	LEVEL SENSOR	CABLE BY MFR, NO SPLICE
19	PUMP SEQUENCE CONTROL PANEL (PSCP)	
20	FLOATS	OVER FLOW AND HIGH LEVEL
21	FLOAT CONTROL WIRES	
22	LEVEL TRANSMITTER	
23	PROVIDE PUMP NAMEPLATE ON FRONT OF STARTER PANEL	

LEGEND:

MTR	MOTOR
SL	SEAL LEAK
TS	MOTOR OVER TEMP SWITCH
MCP	MOTOR CIRCUIT PROTECTOR

GENERAL NOTE:

A. SHOW EQUIPMENT SHORT CIRCUIT RATING.

Plotted: 8/26/19 at 1:30pm By: eggletonv
File: W:\PS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1071 DWG E01.dwg TAB:E01

DRN: ANV	ORIG DATE: 06/10/03	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.	
DSN:	DWG #: PS E01		
CHK: SW	CAD FILE #: 1071PS00E01		
APPD: JTO	SCALE: NA		

REV #	DATE	DRN	APPD	DESCRIPTION
1	02/17	CG	JT	STANDARD DRAWINGS UPDATE

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL ONE-LINE DIAGRAM

SHEET: 24 OF: 36
PLOT DATE: 7/30/18
PLC #: NA
CWS PROJ #: 6076

DWG #: PS E01

LAST UPDATE 07-25-2018

ENGR STAMP:

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
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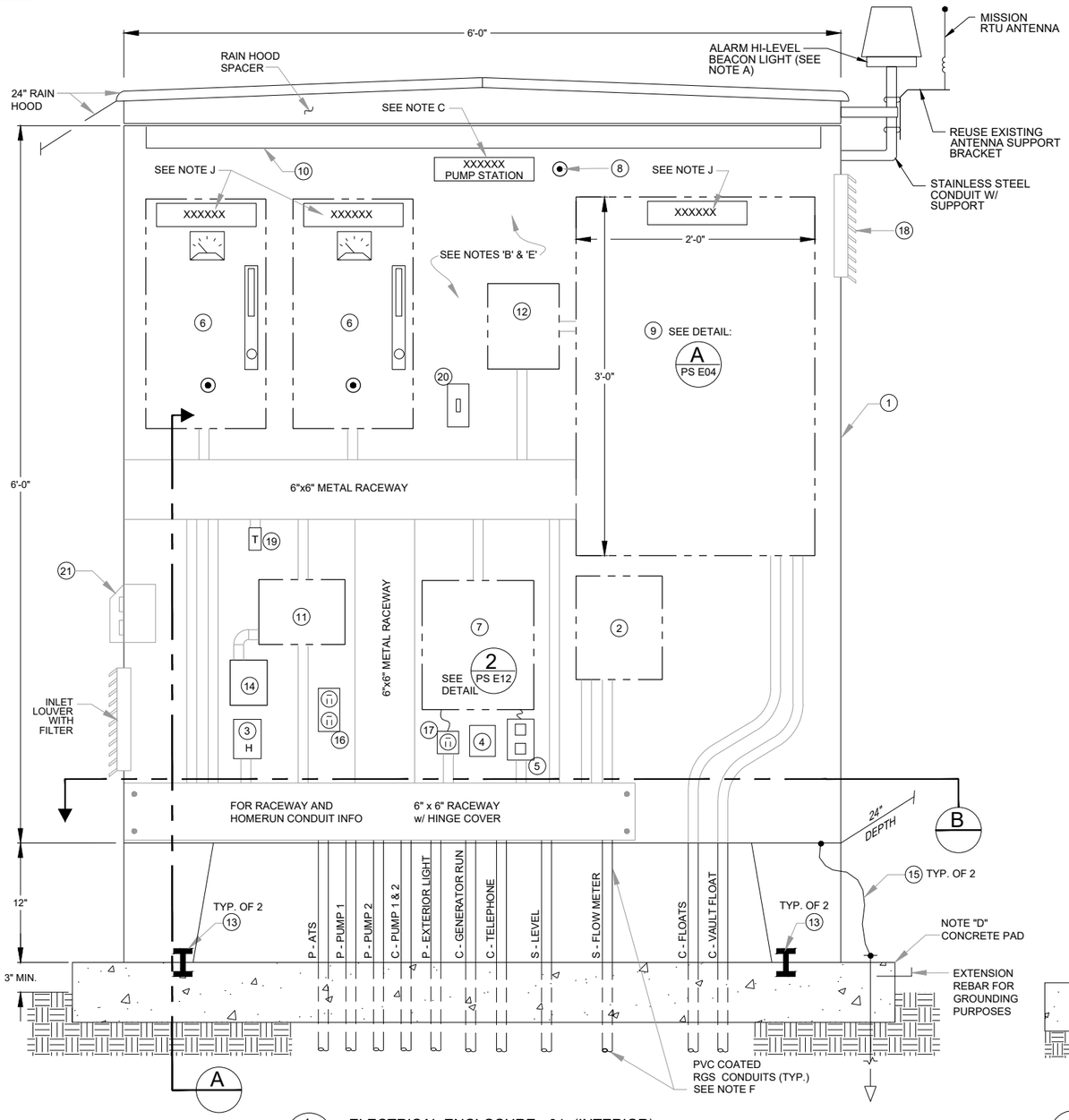
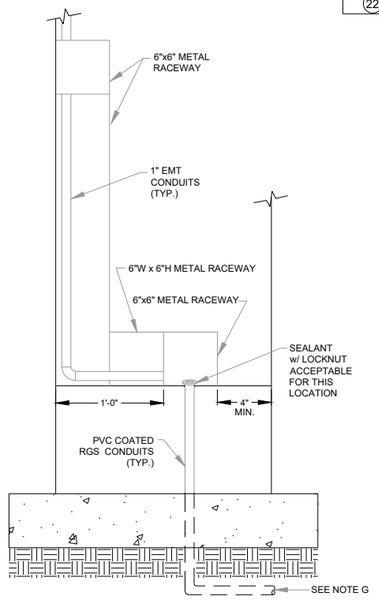
STANDARD DRAWING NO. 1072



1 ELECTRICAL ENCLOSURE - 01 (INTERIOR)
SCALE: NTS



A ELECTRICAL ENCLOSURE 01 (RACEWAY PROFILE)
SCALE: NTS

KEYED NOTES & NAMEPLATE DESIGNATIONS:

ITEM NO.	DEVICE	NAMEPLATES
1	WEATHER PROOF ENCLOSURE	XXX PUMP STATION PS XX
2	FLOW TRANSMITTER	FLOW METER
3	PANEL HEATER WITH INTEGRAL THERMOSTAT	
4	NETWORK INTERFACE DEVICE (PROVIDED BY TELEPHONE SERVICE PROVIDER)	
5	DUPLEX TELEPHONE JACK RADIO SHACK # 279-448	
6	COMBINATION MOTOR STARTER, LOCKABLE DISCONNECT, AMMETER AND OVERLOAD RESET	PUMP 1 OR PUMP 2
7	MISSION RTU	SEE RTU WIRING DIAGRAM
8	PANEL LIGHT ON/OFF (ACTIVATED BY DOOR OPENING)	
9	PUMP CONTROL PANEL	PUMP SEQUENCE CONTROL PANEL
10	2' x 4' PANEL LED LIGHTS	
11	POWER DISTRIBUTION BLOCK	POWER DISTRIBUTION BLOCK
12	LEVEL CONTROLLER	LEVEL CONTROLLER
13	MINIMUM 1/2" ANCHOR BOLTS (STAINLESS STEEL)	
14	3PH SURGE ARRESTOR	
15	GROUND RODS & GROUND WIRE, #1	
16	GFCI DUPLEX RECEPTACLE	
17	SIMPLEX RECEPTACLE FOR MISSIONS	MISSIONS
18	PANEL EXHAUST FAN WITH FILTER AND LOUVER	
19	PANEL EXHAUST THERMOSTAT	
20	EXTERIOR POLE LIGHT CONTROL STATION	EXTERIOR LIGHT CONTROL
21	WEATHERPROOF DUPLEX OUTLET w/ RECESSED BOX	
22	LOAD CENTER	LOAD CENTER

GENERAL NOTES

A. HIGH LEVEL ALARM, EXTERIOR BEACON LIGHT MOUNTED ON TOP OF PANEL. MUST BE SEEN FROM STREET LEVEL. FIELD ADJUST HEIGHT AS REQUIRED.

B. INTERIOR RACEWAY ROUTING BETWEEN PANELS WITHIN ENCLOSURE SHALL PROVIDED AS SHOWN AND SHALL BE EMT TYPE.

C. PROVIDE DESIGNATED PUMPSTATION NAMEPLATE ON OUTSIDE FRONT OF ENCLOSURE i.e. XXXX PUMPSTATION.

D. PAD DETAILS AND CONNECTION TO PAD SHOULD BE DESIGNED TO RESIST SEISMIC AND WIND LOADS. THE DETAILS SHOWN SHOULD BE CONSIDERED MINIMUMS. SEE DETAIL DWG PS E11.

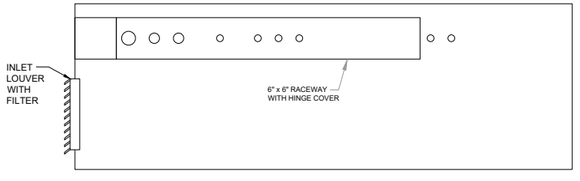
E. RUNNING THREAD CONDUIT SHALL NOT BE USED.

F. PVC COATED CONDUITS FROM FIELD EQUIPMENT SHALL BE INTERCEPTED WITH THE 6" METAL RACEWAY. COORDINATE THE ACTUAL RACEWAY LOCATION PRIOR TO HOME RUN CONDUITS INSTALLATION. SEE CONDUIT SCHEDULE.

G. TRANSITION FROM UNDERGROUND OR CONCRETE EMBEDDED TO EXPOSED: PVC-COATED STEEL CONDUIT TO 12" BELOW GRADE. TYP.

H. EXPOSED WIRE **IS NOT** ACCEPTABLE.

J. NAMPLATES PER SPECIFICATIONS FOR ALL PANELS.



B ELECTRICAL ENCLOSURE 01 (RACEWAY PLAN)
SCALE: NTS

Plotted: 8/26/19 at 1:31pm By: egglestonv
File: W:\TPS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1072 DWG E02.dwg TAB:E02

DRN: ANV	ORIG DATE: 06/10/03				
DSN:	DWG #: PS E02				
CHK: SW / DP	CAD FILE #: 1072PS00E02				
APPD: JTO	SCALE: NA				

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
3	02/17	CG	JT	STANDARD DRAWINGS UPDATE
2	4/07	CAD	DP	MINOR REVISIONS
1	2/07	CAD	DP	MINOR REVISIONS

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL INTERIOR ENCLOSURE - 01

SHEET: 25 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E02

LAST UPDATE 07-25-2018

ENGR STAMP:

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
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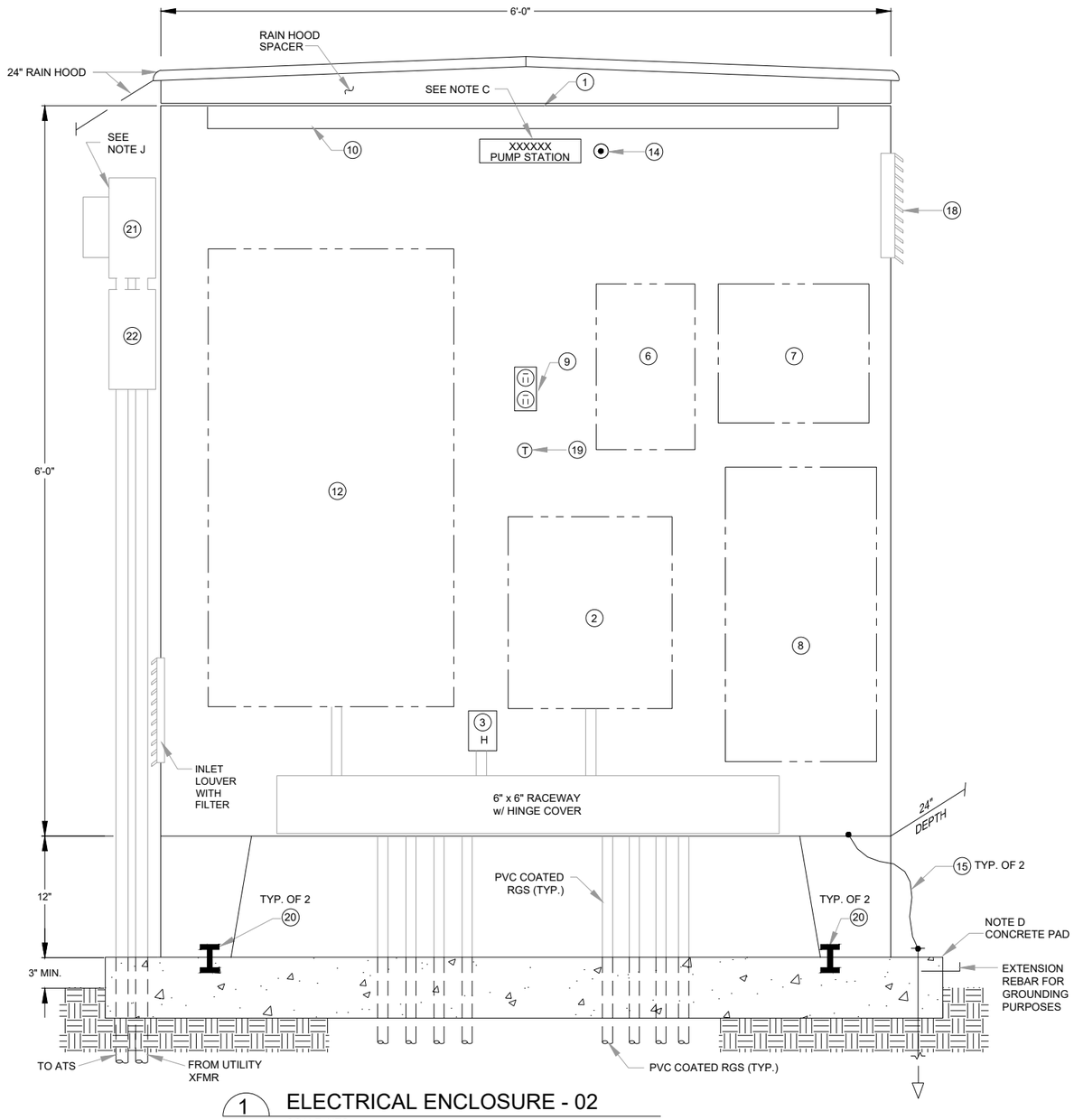
STANDARD DRAWING NO. 1073



1 ELECTRICAL ENCLOSURE - 02

SCALE: NTS

KEYED NOTES & NAMEPLATE DESIGNATIONS:

ITEM NO.	DEVICE	NAMEPLATE
1	WEATHER PROOF ENCLOSURE	PUMP STATION XXXX
2	LOAD CENTER	LOAD CENTER
3	PANEL HEATER WITH INTEGRAL THERMOSTAT	CIRCUIT LP-7
4	NOT USED	
5	NOT USED	
6	DRY TYPE XMFR PRIM BREAKER	DRY TYPE XMFR PRIM BREAKER
7	DRY TYPE XMFR	
8	O & M RACK	O & M RACK
9	DUPLEX RECEPTACLE	CIRCUIT LP-9
10	2'x4' FLOURESCENT LIGHTS	
11	NOT USED	
12	AUTOMATIC TRANSFER SWITCH	AUTOMATIC TRANSFER SWITCH
13	NOT USED	
14	PANEL LIGHT ON/OFF (ACTIVATED BY DOOR OPENING)	
15	GROUND RODS & GROUND WIRE, #1	
16	NOT USED	
17	NOT USED	
18	PANEL EXHAUST FAN WITH FILTER AND LOUVER	CIRCUIT LP-7
19	PANEL EXHAUST THERMOSTAT	
20	MINIMUM 1/2" ANCHOR BOLT (STAINLESS STEEL)	
21	KWH METER BASE PER PGE STANDARDS	
22	MAIN BREAKER SS NEMA 4X	

GENERAL NOTES:

A. NOT USED

B. INTERIOR RACEWAY ROUTING BETWEEN PANELS WITHIN ENCLOSURES SHALL BE WELL COORDINATED AND SHAL BE EMT TYPE.

C. PROVIDE DESIGNATED PUMPSTATION NAMEPLATE ON OUTSIDE FRONT ENCLOSURE i.e. XXXX PUMPSTATION.

D. PAD DETAILS AND CONNECTION TO PAD SHOULD BE DESIGNED TO RESIST SEISMIC AND WIND LOADS. THE DETAILS SHOWN SHOULD BE CONSIDERED MINIMUMS. SEE DETAIL DWG E11.

E. RUNNING THREAD CONDUIT SHALL NOT BE USED.

F. PVC COATED CONDUITS FROM FIELD EQUIPMENT SHALL BE INTERCEPTED WITH THE 6" METAL RACEWAY. COORDINATE THE ACTUAL RACEWAY LOCATION PRIOR TO HOME RUN CONDUITS INSTALLATION. SEE CONDUIT SCHEDULE.

G. TRANSITION FROM UNDERGROUND OR CONCRETE EMBEDDED TO EXPOSED: PVC-COATED STEEL CONDUIT TO 12" BELOW GRADE. TYP.

H. EXPOSED WIRE IS NOT ACCEPTABLE.

J. KWH METER INSTALLED PER PGE MAX HEIGHT. MAIN BREAKER INSTALLED IMMEDIATELY BELOW METER.

Plotted: 8/26/19 at 1:32pm By: eggleston
File: W:\TPS\CAD\drawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1073 DWG E03.dwg TAB:E03

DRN: ANV	ORIG DATE: 06/10/03	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.	
DSN:	DWG #: PS E03		
CHK: SW / DP	CAD FILE #: 1073PS00E03		
APPD: JTO	SCALE: NA		

REV #	DATE	DRN	APPD	DESCRIPTION
3	02/17	CG	JT	STANDARD DRAWINGS UPDATE
2	4/07	CAD	DP	MINOR REVISIONS
1	2/07	CAD	DP	MINOR REVISIONS

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL
INTERIOR ENCLOSURE - 02

SHEET: 26 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E03

LAST UPDATE 07-25-2018

ENGR STAMP:

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
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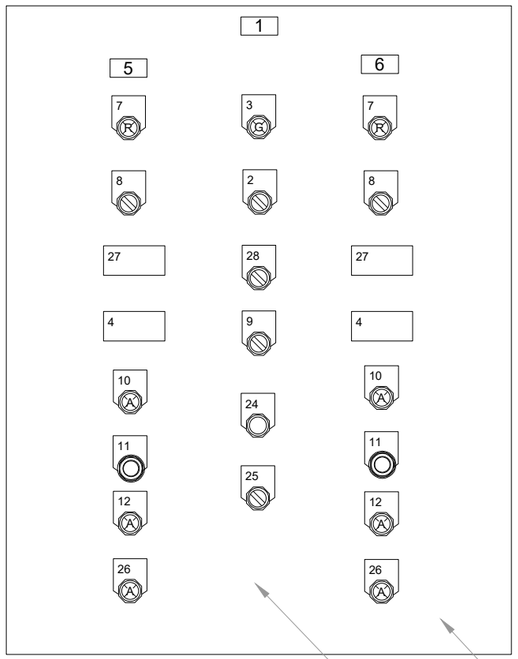
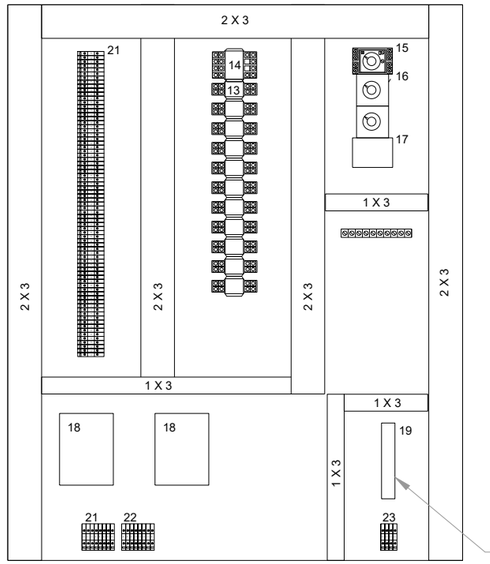
STANDARD DRAWING NO. 1074



FRONT

APPROXIMATE
ENCLOSURE SIZE
36"X24"X8"



INTERIOR

33"X23
BACKPANEL
(SEE NOTES 1& 2)

KEYED NOTES & NAMEPLATE DESIGNATIONS (PSCP):

ITEM NO.	DEVICE	NAMEPLATE
1	PUMP SEQUENCE CONTROL PANEL	PUMP CONTROL PANEL
2	SELECTOR SWITCH	CONTROL POWER ON/OFF
3	GREEN LIGHT	CONTROL POWER ON
4	RUN TIME METER	-
5	-	PUMP 1
6	-	PUMP 2
7	RED LIGHT	RUNNING
8	SELECTOR SWITCH	H-O-A
9	ALTERNATOR SELECTOR SWITCH	LEAD SELECTOR PUMP1-ALT-PUMP2
10	AMBER LIGHT	SEAL LEAK
11	RESET PUSHBUTTON	OVER TEMP RESET
12	AMBER LIGHT	MOTOR OVER TEMP
13	RELAYS, 2 POLE	
14	RELAYS, 4 POLE	
15	TIMER, OFF DELAY	
16	TIMERS, ON DELAY	
17	ALTERNATING RELAY	
18	SEAL LEAK DETECTOR	
19	INTRINSICALLY SAFE RELAYS	
20	FLOAT SWITCHES, NO	
21	TERMINALS, PUMP SEQUENCE CONTROL PANEL WIRING	
22	TERMINALS, SEAL LEAK & OVERTEMP WIRING	
23	TERMINALS, INTRINSICALLY SAFE WIRING	
24	PUSHBUTTON, 1 N.O., 1 N.C.	HIGH LEVEL ALARM TEST
25	SELECTOR SWITCH, 2 POS, 1 N.O., 1 N.C.	HIGH LEVEL BEACON ALARM ENABLE-DISABLE
26	AMBER LIGHT	PUMP FAIL (OVERLOAD)
27	PUMP DIGITAL AMP DISPLAY	120 VAC
28	WELL LEVEL DIGITAL DISPLAY	

NOTES:

1. PROVIDE PSCP WITH 10% EXTRA SPACE AND DOOR STOP
2. PROVIDE NAMEPLATES PER SPECIFICATION.
3. PROVIDE WETWELL OPERATING ELEVATION TABLE SETPOINTS ON FRONT OF PSCP PANEL
4. PROVIDE LABEL FOR EACH PILOT DEVICE ON THE BACK OF THE PANEL DOOR.

A PUMP SEQUENCE CONTROL PANEL (PSPC) - FRONT AND INTERIOR DETAILS

SCALE: NTS

SEE SHEET E02

Plotted: 8/26/19 at 1:32pm By: eggleston
File: W:\PS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1074 DWG E04.dwg TAB:E04

DRN: ANV	ORIG DATE: 06/10/03				
DSN:	DWG #: PS E04				
CHK: SW / DP	CAD FILE #: 1074PS00E04				
APPD: JTO	SCALE: NA				

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
2	01/17	CG	JT	STANDARD DRAWINGS UPDATE
1	2/07	CAD	DP	MINOR REVISIONS

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL
CONTROL PANEL DETAIL

SHEET: 27 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E04

LAST UPDATE 07-25-2018

ENGR STAMP:

SAMPLE DRAWING

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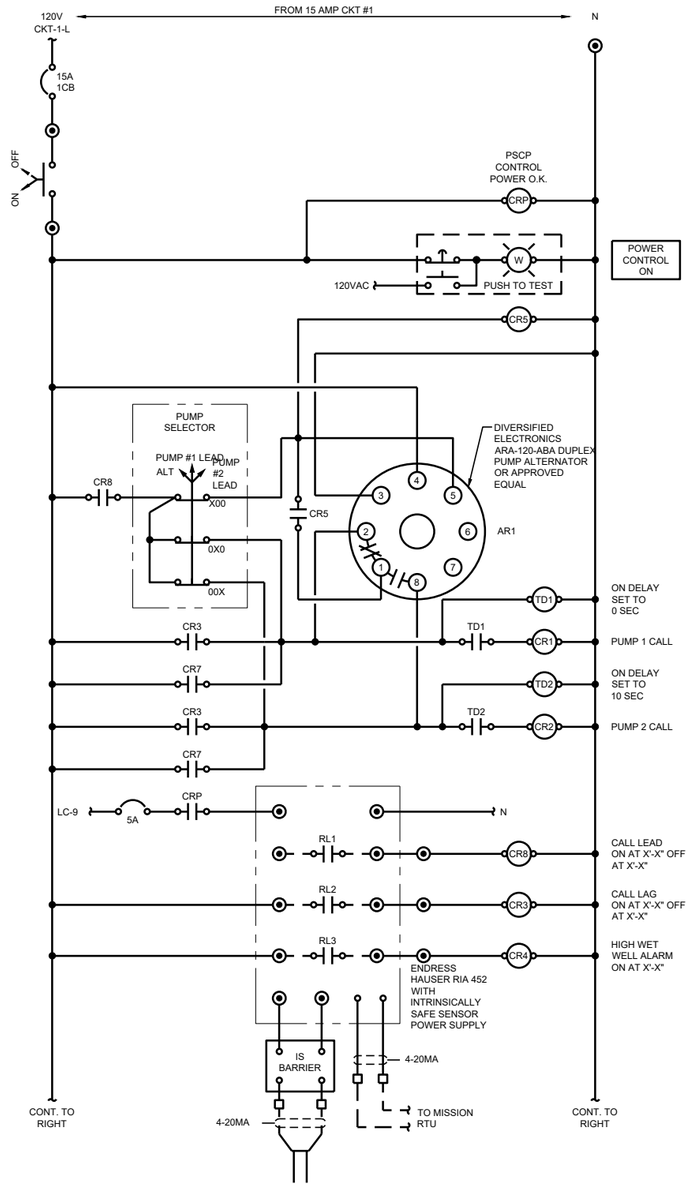
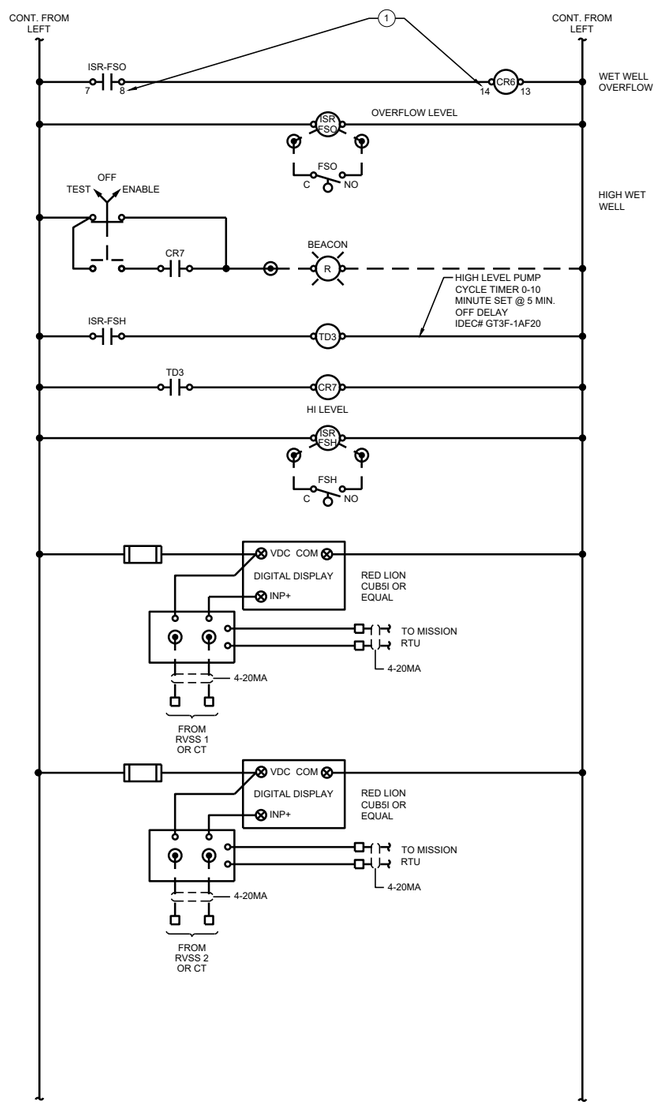
STANDARD DRAWING NO. 1075





KEYED NOTES:

1. PROVIDE ACTUAL RELAY CONTACT TERMINAL NUMBERS FOR ALL RELAYS FURNISHED.

1 / E09 PUMP SEQUENCE CONTROL PANEL (PSCP) - CONTROL DIAGRAM

NOT TO SCALE

Plotted: 8/26/19 at 1:33pm By: eggleston
File: W:\PTS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1075 DWG E05.dwg TAB:E05

DRN: ANV	ORIG DATE: 06/10/03				
DSN:	DWG #: PS E05				
CHK: SW / DP	CAD FILE #: 1075PS00E05				
APPD: JTO	SCALE: NA				

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
2	01/17	CG	JT	STANDARD DRAWINGS UPDATE
1	2/07	CAD	DP	MINOR REVISIONS

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL
SEQUENCE CONTROL DIAGRAM

SHEET: 28 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E05

LAST UPDATE
07-25-2018

ENGR STAMP:

SAMPLE DRAWING

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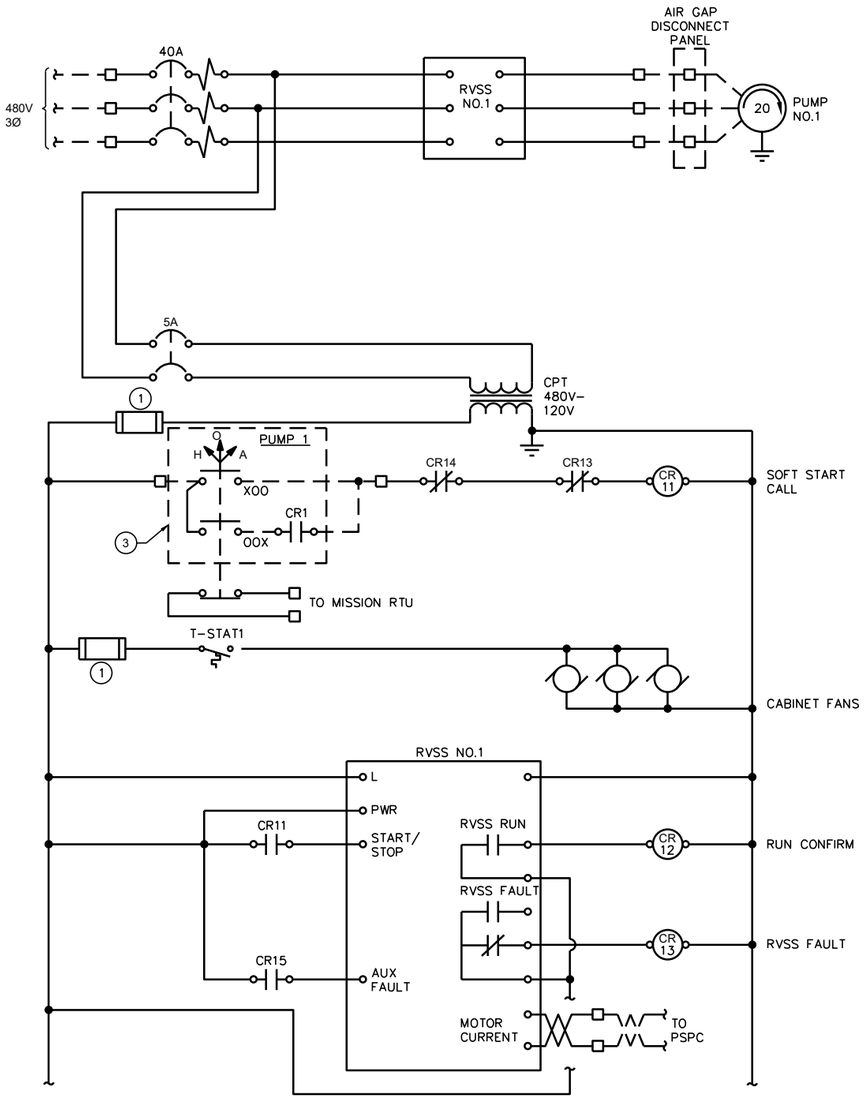
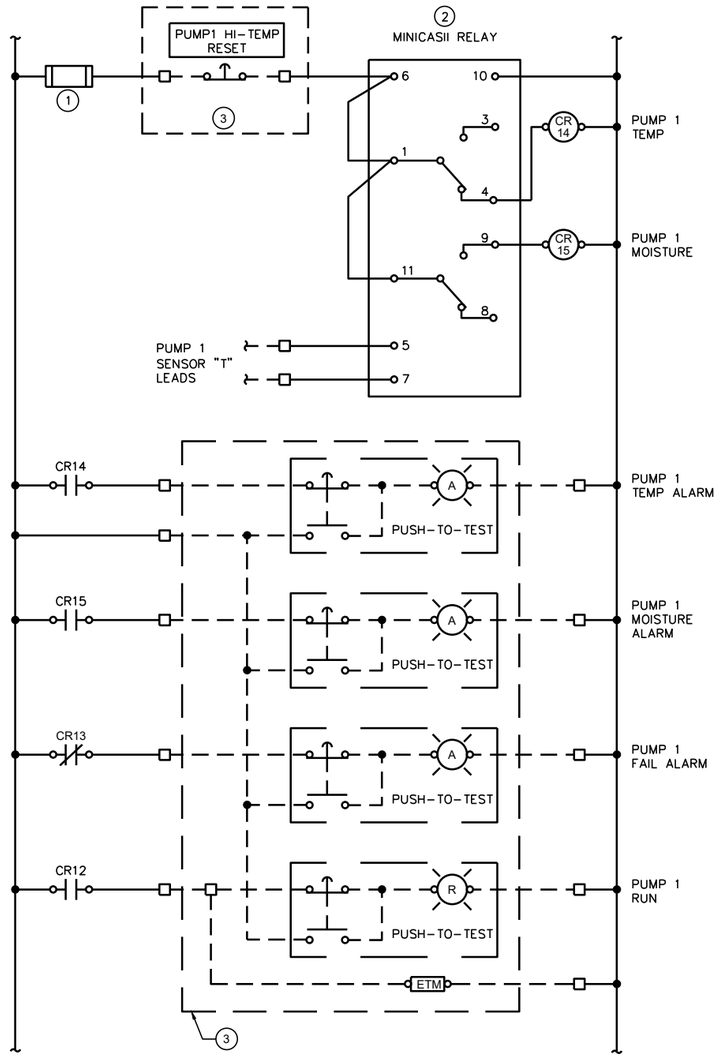
STANDARD DRAWING NO. 1076





GENERAL NOTES

A. DESIGN IS BASED ON FLYGT PUMP CONTROL EQUIPMENT. CONTRACTOR TO PROVIDE ALTERNATE CONTROL EQUIPMENT IF OTHER PUMP MANUFACTURER IS SELECTED.

B. CPT SHALL BE 480V OR 230V PER UTILITY PROVIDED POWER

KEY NOTES

ITEM	DESCRIPTIONS	COMMENTS
1	FUSES	FUSES TO BE SIZED PER MANUFACTURER'S RECOMMENDATIONS.
2	PUMP PROTECTION RELAY	FLYGT MINICAS 120 SENSOR. (PANEL MOUNTED). THERMAL CONTACT CLOSED IN "NORMAL" STATE, OPENING ON FAULT. MOISTURE CONTACT OPEN IN "NORMAL" STATE, CLOSING ON FAULT.
3	REMOTE DEVICE AND WIRING	DEVICES IN OUTLINED AREA ARE LOCATED IN THE PSCP. DASHED WIRING SHOWN IS REPRESENTATIVE OF NECESSARY WIRING BETWEEN RVSS CABINET AND PSCP CABINET.
4	RESISTOR	CONTRACTOR WILL PROVIDE AND INSTALL 1k OHM RESISTER PER RTU MFR REQUIREMENTS. SEE SHEET A-E-11.
5	BYPASS CONTACTOR	PROVIDE AND INSTALL NEMA SIZE 4, MINIMUM, BYPASS CONTACTOR.

1 / E-06 CONTROL DIAGRAM MOTOR STARTER SUBMERSIBLE PUMP #1
NOT TO SCALE

DRN: ANV	ORIG DATE: 06/10/03			
DSN:	DWG #: PS E06			
CHK: SW / DP	CAD FILE #: 1076PS00E06A			
APPD: JTO	SCALE: NA			

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

REV #	DATE	DRN	APPD	DESCRIPTION
3	02/17	CG	JT	STANDARD DRAWINGS UPDATE
2	4/07	CAD	DP	MINOR REVISIONS
1	2/07	CAD	DP	MINOR REVISIONS

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL STARTER SCHEMATICS

SHEET: 29 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E06A

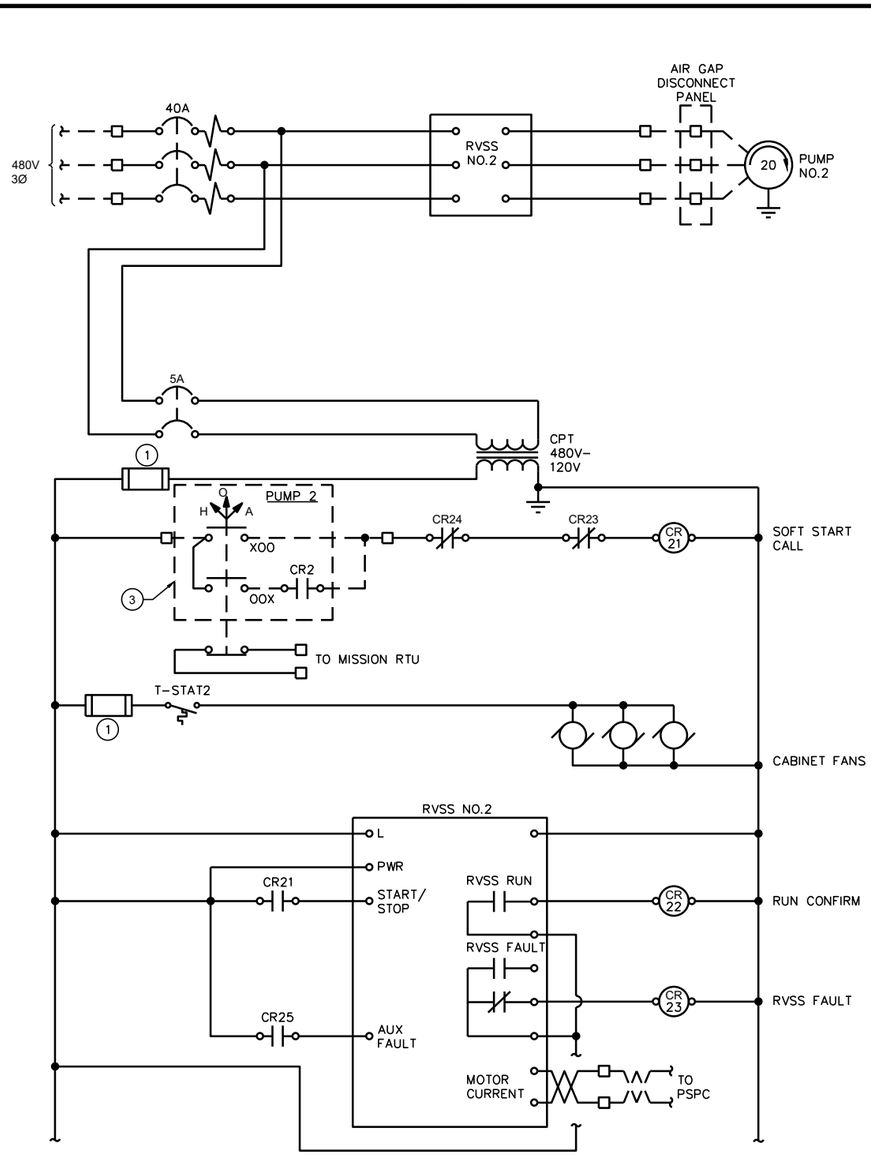
LAST UPDATE 07-28-2018

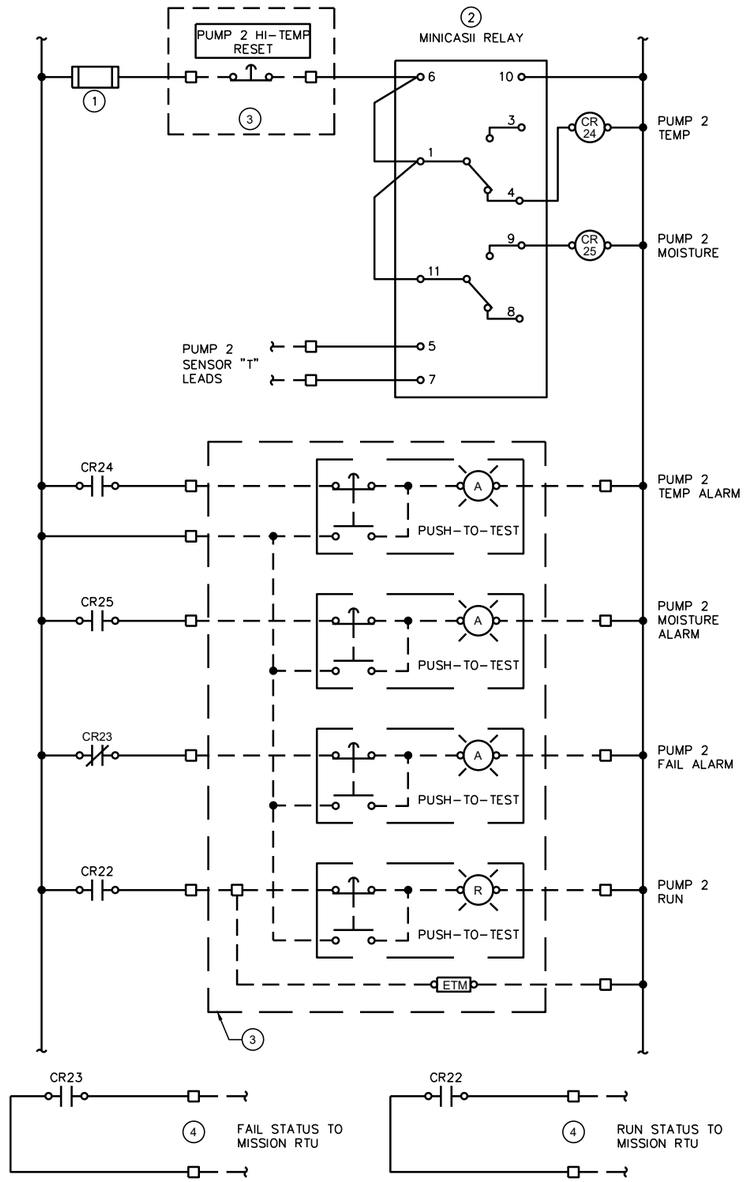
ENGR STAMP:

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

STANDARD DRAWING NO. 1076





GENERAL NOTES

A. DESIGN IS BASED ON FLYGT PUMP CONTROL EQUIPMENT. CONTRACTOR TO PROVIDE ALTERNATE CONTROL EQUIPMENT IF OTHER PUMP MANUFACTURER IS SELECTED.

KEY NOTES

ITEM	DESCRIPTIONS	COMMENTS
1	FUSES	FUSES TO BE SIZED PER MANUFACTURER'S RECOMMENDATIONS.
2	PUMP PROTECTION RELAY	FLYGT MINICAS 120 SENSOR. (PANEL MOUNTED). THERMAL CONTACT CLOSED IN "NORMAL" STATE, OPENING ON FAULT. MOISTURE CONTACT OPEN IN "NORMAL" STATE, CLOSING ON FAULT.
3	REMOTE DEVICE AND WIRING	DEVICES IN OUTLINED AREA ARE LOCATED IN THE PSCP. DASHED WIRING SHOWN IS REPRESENTATIVE OF NECESSARY WIRING BETWEEN RVSS CABINET AND PSCP CABINET.
4	RESISTOR	CONTRACTOR WILL PROVIDE AND INSTALL 1k OHM RESISTER PER RTU MFR REQUIREMENTS. SEE SHEET A-E-11.
5	BYPASS CONTACTOR	PROVIDE AND INSTALL NEMA SIZE 4, MINIMUM, BYPASS CONTACTOR.

CONTROL DIAGRAM MOTOR STARTER SUBMERSIBLE PUMP #2

2 E-06B NOT TO SCALE

DRN: ANV	ORIG DATE: 06/10/03	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.	PROJ NAME: PUMP STATION STANDARD DRAWINGS	SHEET TITLE: ELECTRICAL STARTER SCHEMATICS
DSN:	DWG #: PS E06			
CHK: SW / DP	CAD FILE #: 6076PS00E06			
APPD: JTO	SCALE: NA			

REV #	DATE	DRN	APPD	DESCRIPTION
3	02/17	CG	JT	STANDARD DRAWINGS UPDATE
2	4/07	CAD	DP	MINOR REVISIONS
1	2/07	CAD	DP	MINOR REVISIONS

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SHEET: 30 OF: 36
PLOT DATE: 8/26/19
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E06B

LAST UPDATE
07-25-2018

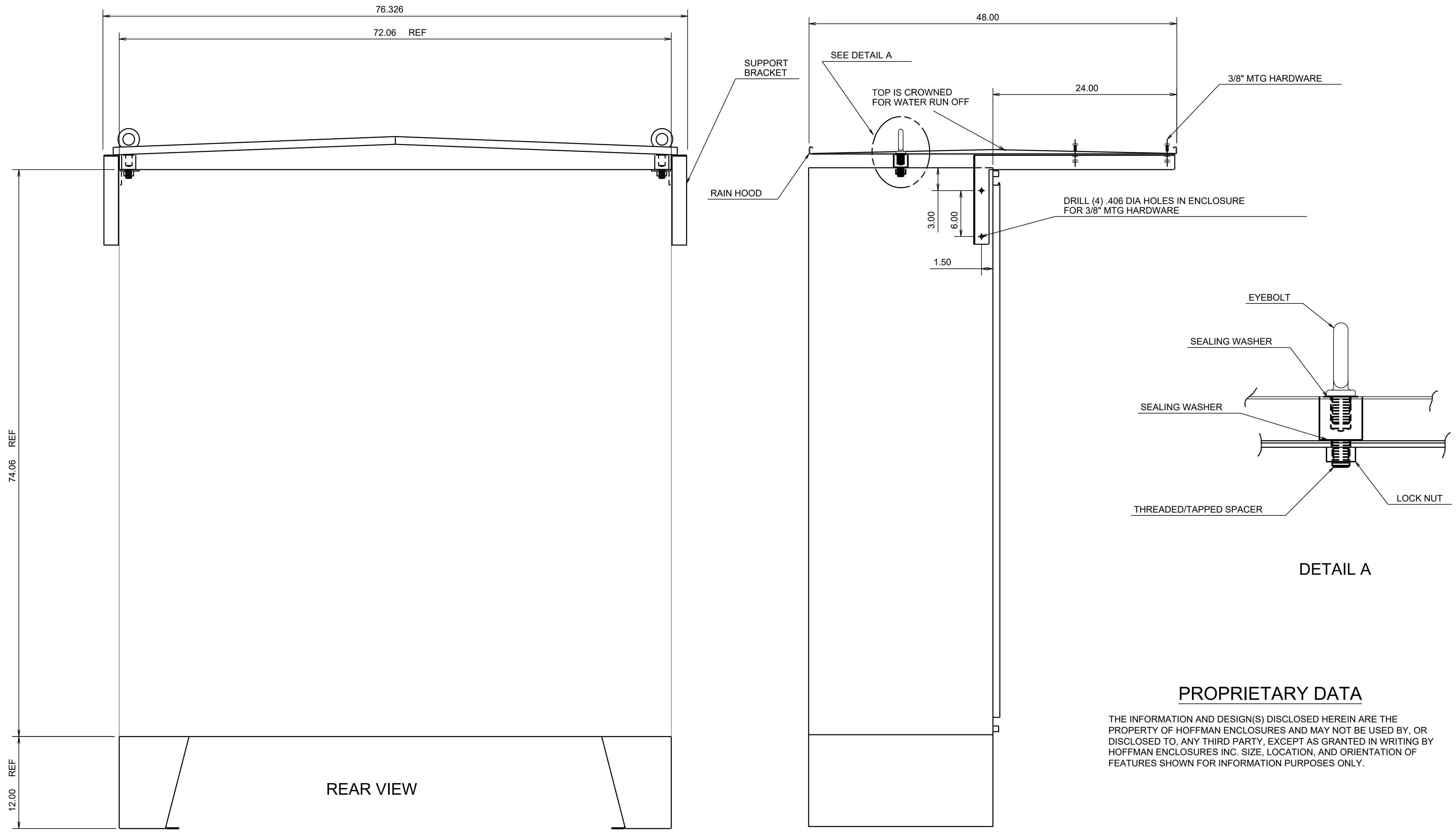
ENGR STAMP:

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

ELECTRICAL
ENCLOSURE AND RAIN HOOD
DETAIL REFERENCE

STANDARD DRAWING NO. 1077



PROPRIETARY DATA

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NOTES:

1. ENCLOSURE TO BE A HOFFMAN CUSTOM STAINLESS STEEL NEMA 3R A727224USSLPSPC ENCLOSURE WITH CUSTOM RAIN HOOD AND CUSTOM L30 PADLOCKING HANDLE, SUPPORT BRACKETS, SPACERS, MTG HARDWARE, & DOORSTOPS. REFERENCE HOFFMAN QUOTE OVERALL #154966 FOR ENCLOSURE AND QUOTE #133563 FOR RAIN HOOD.
2. DOORS NOT SHOWN.
3. PROVIDE SPACER FRONT AND BACK BETWEEN RAIN HOOD AND ENCLOSURE TO KEEP VERMIN OUT.

PART NO. N/A				
MATERIAL SEE NOTES				
REFERENCE				
	A	ORIG ISSUE	11/01/02	TA
	REV	DESCRIPTION	DATE	BY

Hoffman — A Pentair Company
Hoffman Engineering Company
900 Ehlen Drive
Anoka, Minnesota, 55303-7504, U.S.A.
Phone(612)421-2240 Fax(612)421-1556

TOLERANCE UNLESS NOTED			
ONE PLACE (.X) ±	.1	SCALE	NONE
TWO PLACE (.XX) ±	.03	DRAWN	TA
THREE PLACE (.XXX) ±	.015	CHECKED	TA
ANGLES ±	2°	APPROVED	TA
HOLE DIA ±	.003	DATE	11/01/02

2D I-DEAS DRAWING

THIRD ANGLE PROJECTION

DO NOT SCALE DRAWING

TITLE
APPROVAL DWG
(CLEAN WATER SEVICES)

SIZE D — DRAWING NO. QUOTE 133563

SHEET OF

DRN: ANV	ORIG DATE: 06/10/03		2	02/17	CG	JT	STANDARD DRAWINGS UPDATE
DSN:	DWG #: 1077PS00E07		1	2/07	CAD	DP	MINOR REVISIONS
CHK: SW / DP	CAD FILE #:		REV #	DATE	DRN	APPD	DESCRIPTION
APPD: JTO	SCALE: NA						

THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL
ENCLOSURE AND RAIN HOOD DETAIL REFERENCE

SHEET: 31 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E07

LAST UPDATE
07-25-2018

ENGR STAMP:

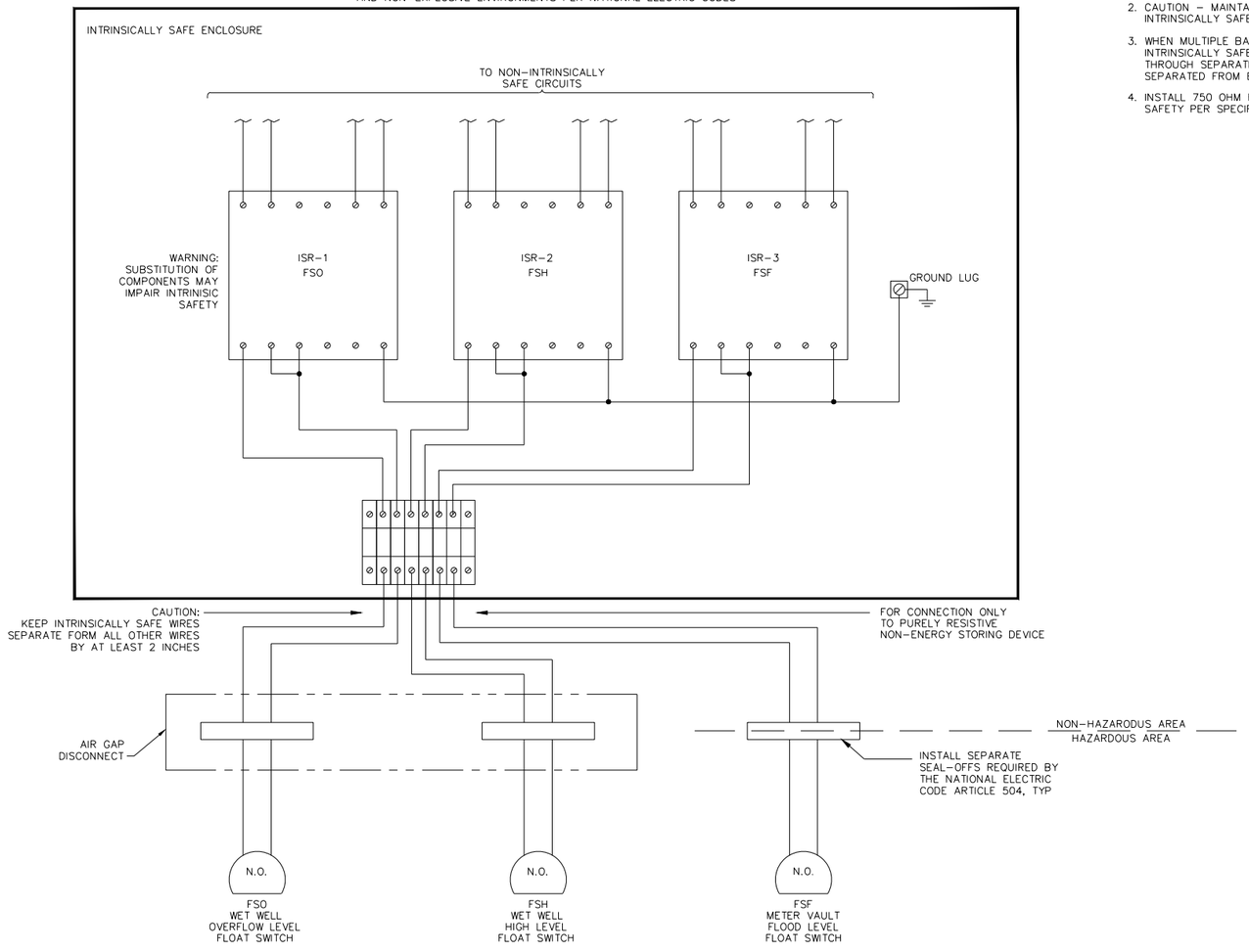
Plotted: 8/26/19 at 1:37pm By: egglestonv
File: W:\TPS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1077 DWG E07.dwg TAB:E7

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

STANDARD DRAWING NO. 1078

CAUTION
THIS CONTROL PANEL IS DESIGNED TO BE MOUNTED
IN A NON-EXPLOSIVE ENVIRONMENT. INSTALL PROPER
CONDUIT RUNS AND SEALING FITTINGS BETWEEN EXPLOSIVE
AND NON-EXPLOSIVE ENVIRONMENTS PER NATIONAL ELECTRIC CODES



NOTES:

1. CABINET TO BE CONNECTED TO A GOOD GROUND
2. CAUTION – MAINTAIN SEPARATION BETWEEN INTRINSICALLY SAFE WIRING AND OTHER WIRING
3. WHEN MULTIPLE BARRIER MODULES ARE USED THE INTRINSICALLY SAFE CIRCUITS MUST EXIT THROUGH SEPARATE CONDUITS AND BE SEPARATED FROM EACH OTHER
4. INSTALL 750 OHM RESISTORS FOR INSTRINSIC SAFETY PER SPECIFICATIONS.

2	02/17	CG	JT	STANDARD DRAWINGS UPDATE
1	2/07	CAD	DP	MINOR REVISIONS
REV #	DATE	DRN	APPD	DESCRIPTION

DRN: ANV | ORIG DATE: 06/10/03
DSN: | DWG #: PS E08
CHK: SW / DP | CAD FILE #: 1078PS00E08
APPD: JTO | SCALE: NA

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL
INTRINSICALLY SAFE EXAMPLE

SHEET: 32 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E08

LAST UPDATE 07-25-2018

ENGR STAMP:

Plotted: 8/26/19 at 1:37pm By: egglestonv
File: W:\PS\CAD\drawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STDCAD\1078 DWG E08.dwg TAB:E8

SAMPLE DRAWING

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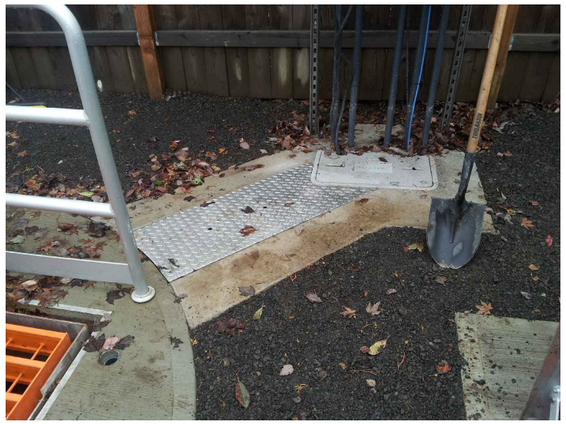
STANDARD DRAWING NO. 1079



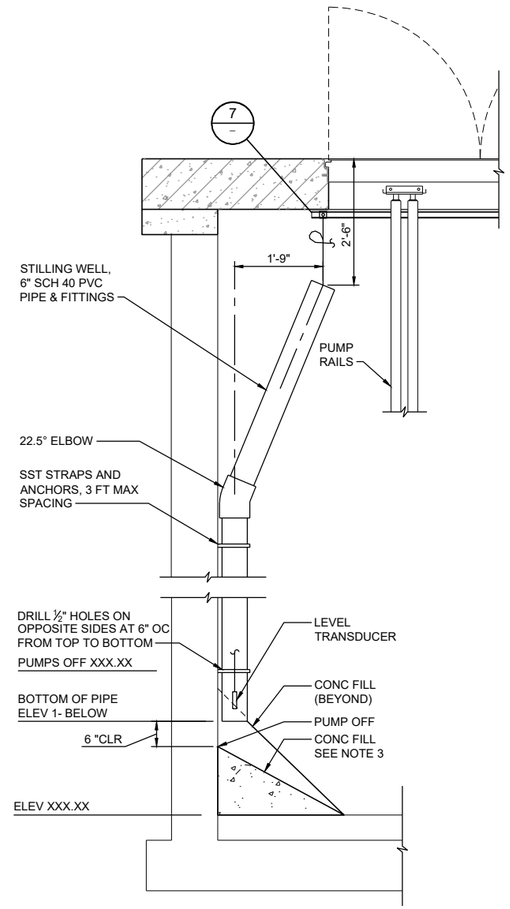
4 CABLE TRENCH PHOTOS
SCALE: NONE

NOTES:
1. ALL HARDWARE GRADE 316 STAINLESS STEEL.

2. CABLE HANGER SHALL BE PROVIDED FOR FLOATS, LEVEL SENSORS AND PUMPS. PROVIDE A TOTAL OF 6 HANGERS.

3. INSTALL CABLE HANGER AS HIGH AS POSSIBLE WITHOUT CONFLICTING WITH ACCESS HATCH.

7 CABLE HANGER SECTION
SCALE: NONE



NOTES:
1. ALL BRACKETS AND MOUNTING HARDWARE TO BE 316 STAINLESS STEEL.
2. PROVIDE WIRING METHODS SUITABLE FOR AREA CLASSIFICATION.
3. TRANSITION CONCRETE FILL TO PROVIDE 6" CLEARANCE FROM END OF STILLING WELL.
4. SEE ELECTRICAL DETAIL DWG PS10 NOTE 4 FOR CABLE TRENCH DETAIL.

6 LEVEL SENSOR MOUNTING DETAIL
SCALE: NONE

Plotted: 9/10/19 at 6:36am By: sonnen
File: W:\PS\CADdrawings\Pump Stations\STANDARDS\2018 PS-STD\CAD\1079 DWG E09.dwg TAB:E9

DRN: ANV	ORIG DATE: 06/10/03	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.				
DSN:	DWG #: PS E09		3	02/17	CG	JT	STANDARD DRAWINGS UPDATE
CHK: SW / DP	CAD FILE #: 1079PS00E09		2	4/07	CAD	DP	MINOR REVISIONS
APPD: JTO	SCALE: NA		1	2/07	CAD	DP	MINOR REVISIONS
			REV #	DATE	DRN	APPD	DESCRIPTION

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL MECHANICAL DETAILS

SHEET: 33 OF: 36
PLOT DATE: 9/10/19
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E09

LAST UPDATE 07-25-2018

ENGR STAMP:

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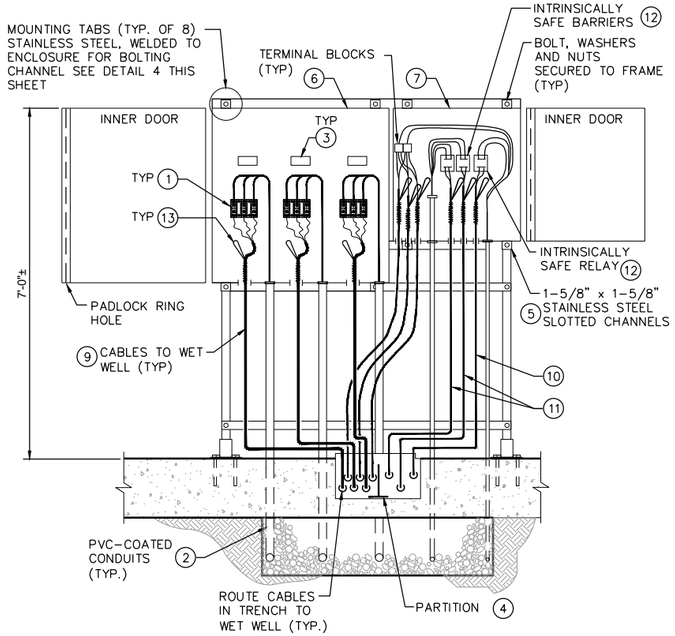
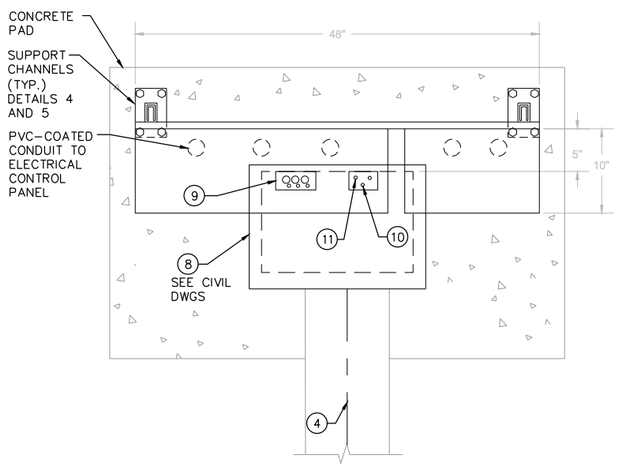
TREATMENT PLANT SERVICES AND SHALL BE USED BY DESIGN ENGINEER
IN PREPARING PUMP STATION CONSTRUCTION DRAWINGS.

STANDARD DRAWING NO. 1080

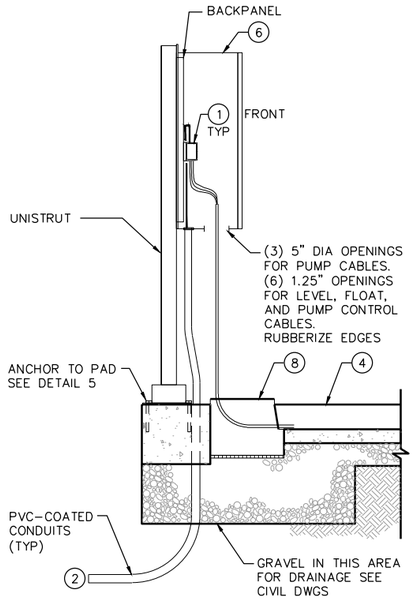


1 FRONT VIEW DETAIL
NTS

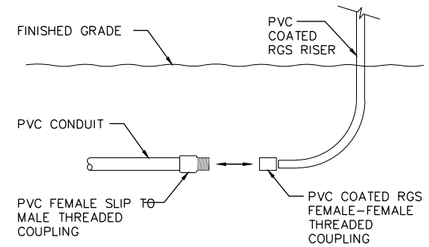


2 PLAN VIEW DETAIL
NTS

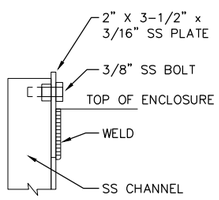
2a DISCONNECT AIR-GAP BOX
NTS



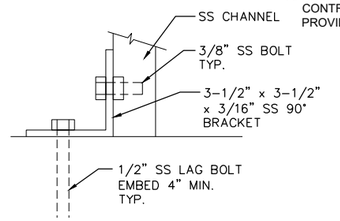
3 SIDE VIEW DETAIL
NTS



4 CONDUIT TRANSITION DETAIL
NTS



4a CONNECTION DETAIL
NTS



4b MOUNTING DETAIL
NTS

KEY NOTES

ITEM	DESCRIPTIONS	COMMENTS
1	POWER DISTRIBUTION BLOCK	POWER DISTRIBUTION BLOCK WITH LUGS SIZED FOR MANUFACTURER'S PROVIDED POWER CABLING.
2	CONDUITS	CONDUITS TO VFD AND BACKUP CONTROL PANEL. ROUTE CONDUITS DOWN INTO GROUND WITHOUT FITTINGS.
3	NAMEPLATES	INSTALL EQUIPMENT NAMEPLATES ABOVE EACH POWER DISTRIBUTION BLOCK FOR EACH PUMP.
4	CABLE CHANNEL	CABLE CHANNEL TO WET WELL OLDCASTLE MOULDED PRODUCTS MODEL NO 128 PLASTIBETON CHANNEL SYSTEM COMPLETE WITH REMOVABLE COVER BUILT-IN SLOPE 1" HEAVY DUTY H-12 LOADING AND SMC DIVIDER TO PARTITION POWER CABLES FROM INSTRUMENTATION CABLES. SEE CIVIL DRAWINGS FOR PENETRATION TO WETWELL DETAIL.
5	HARDWARE	ALL HARDWARE, FRAMEWORK, ETC., SHALL BE STAINLESS STEEL.
6	AIR GAP POWER ENCLOSURE	30"H x 30"W x 10"D (MIN), 14GA, 304 STAINLESS ENCLOSURE WITH PADLOCK LOCKING RING FOR DOOR ATTACHED TO ENCLOSURE DOOR SHALL OPEN GREATER THAN 90 DEG. INSET SWING DOOR 2" FOR DRIP LIP.
7	AIR GAP CONTROL ENCLOSURE	20"H x 16"W x 10"D (MIN), 14GA, 304 STAINLESS ENCLOSURE WITH PADLOCK LOCKING RING FOR DOOR ATTACHED TO ENCLOSURE DOOR SHALL OPEN GREATER THAN 90 DEG. INSET SWING DOOR 2" FOR DRIP LIP.
8	HANDHOLE	HANDHOLE. 18"L x 12"W x 12"D. 2" THICK, MIN. WITH REINFORCING WIRE MESH, AND REMOVABLE COVER. NOTCH LID TO SEPARATE POWER AND CONTROL CABLES.
9	PUMP CABLES	VENDOR CABLES (POWER AND CONTROL) TO SUBMERSIBLE PUMPS LOCATED IN WET WELL.
10	FLOAT CABLE	VENDOR CABLES TO FLOAT SWITCH MOUNTED IN WETWELL.
11	LEVEL CABLES	VENDOR CABLES TO LEVEL TRANSDUCERS MOUNTED IN WETWELL.
12	I.S. SPACE	ENSURE SPACING OR PROVIDE BARRIER TO MAINTAIN DISTANCE FROM INTRINSICALLY SAFE WIRING TO OTHER WIRING PER NEC.
13	CORD GRIPS	PROVIDE J-HOOKS & KELLUMS GRIPS TO SUPPORT ALL FLEXIBLE CORDS.

GENERAL NOTES:

A. RECEPTACLES AND MATCHING PLUGS FOR PUMP CONTROL CABLES SHALL MATCH THE ACTUAL PUMP PROVIDED CONTROL VOLTAGE.

Plotted: 8/26/19 at 1:39pm By: eggleston
File: W:\TPS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1080 DWG E10.dwg TAB:E10

DRN: ANV	ORIG DATE: 06/10/03	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.	PROJ NAME: PUMP STATION STANDARD DRAWINGS
DSN:	DWG #: PS E10		SHEET TITLE: ELECTRICAL — DISCONNECT AIR-GAP JUNCTION BOX DETAIL
CHK: SW / DP	CAD FILE #: 1080PS00E10		SHEET: 34 OF: 36
APPD: JTO	SCALE: NA		PLOT DATE: 7/30/18
			PLC #: NA
			CWS PROJ #: XXXX
			DWG #: PS E10
			LAST UPDATE 07-30-2018
			ENGR STAMP:

REV #	DATE	DRN	APPD	DESCRIPTION
2	02/17	CG	JT	STANDARD DRAWINGS UPDATE
1	2/07	CAD	DP	MINOR REVISIONS

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SAMPLE DRAWING

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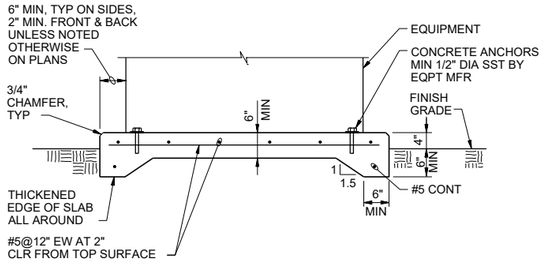
ELECTRICAL DETAILS

STANDARD DRAWING NO. 1081

CONDUIT SCHEDULE							
TAG NO.	CONDUIT			CONDUCTORS			COMMENTS
	FROM	TO	SIZE	DESCRIPTION	FROM	TO	
C/P-GEN	ENCLOSURE 02	GENERATOR	1"	6# 10, 1# 10G	LOAD CENTER CKTS 10, 12, 14	APPROPRIATE DEVICE	SEE LOAD CENTER SCHEDULE ON SHEET 7 FOR CIRCUIT DESCRIPTIONS
				2# 12	ATS	GENERATOR CONTROL PANEL	FOR GENERATOR START CONTROL
				2# 12	WIREWAY	GENERATOR CONTROL PANEL	FOR GENERATOR RUNNING MONITORING- CONDUCTORS SHALL BE ROUTED TO AUTO DIALER VIA CONDUIT C-PSCP
C-FLOATS	ENCLOSURE 01	DISCONNECT AIR GAP J-BOX	1"	4# 14, 1# 14G	PSCP	FLOAT SWITCH CABLES RECEPTACLES	
C-PSCP	ENCLOSURE 01	ENCLOSURE 02	1"	2# 14, 1# 14G	MISSIONS	WIREWAY	CONDUCTORS SHALL BE ROUTED TO GENERATOR CONTROL PANEL VIA CONDUIT C/P-GEN
C-PUMPS	ENCLOSURE 01	DISCONNECT AIR GAP J-BOX	1"	4# 14, 1# 14G	PSCP	MOTOR SENSOR CABLES RECEPTACLES	
C-VAULT	ENCLOSURE 01	VALVE/METER VAULT	1"	4# 14, 1# 14G	PSCP	FLOOD SWITCHES IN VAULTS	SEE VAULT WIRING DIAGRAM, THIS SHEET
P-ATS	ENCLOSURE 01	ENCLOSURE 02	1-1/2"	3# 1, 1# 6G	POWER DISTRIBUTION BLOCK	ATS	
P-BFP HEAT	ENCLOSURE 02	BACKFLOW PREVENTOR	1"	2# 12, 1# 12G	LOAD CENTER CKT 13	HEAT TAPE	SEE NOTE 3
P-ENCL $\frac{1}{2}$	ENCLOSURE 01	ENCLOSURE 2	2"	PULLSTRING	N/A	N/A	SPARE
P-GEN	ENCLOSURE 02	GENERATOR	1"	3# 4, 1# 8G	ATS	GENERATOR BREAKER	
P-LC-1-7	ENCLOSURE 01	ENCLOSURE 2	1"	8# 10, 1# 10G	LOAD CENTER CKTS 1,3, 5, 7	APPROPRIATE DEVICE	SEE LOAD CENTER SCHEDULE ON SHEET 7 FOR CIRCUIT DESCRIPTION
P-LC-2-8	ENCLOSURE 01	ENCLOSURE 02	1"	8# 10, 1# 10G	LOAD CENTER CKTS 2, 4 ,6, 8	APPROPRIATE DEVICE	SEE LOAD CENTER SCHEDULE ON SHEET 7 FOR CIRCUIT DESCRIPTIONS
P-PGE	METER/ ENCLOSURE 02	PGE SERVICE TRANSFORMER	4"	PULLSTRING	METER	PGE SERVICE TRANSFORMER	PROVIDE PER PGE REQUIREMENTS AND NOTE 1 ON SHEET 2
P-PUMP 1	ENCLOSURE 01	DISCONNECT AIR GAPJ-BOX	1"	3# 12, 1# 12G	PUMP 1 MOTOR STARTER	PUMP 1 DISCONNECT SWITCH	
P-PUMP 2	ENCLOSURE 01	DISCONNECT AIR GAP J-BOX	1"	3# 12, 1# 12G	PUMP 2 MOTOR STARTER	PUMP 2 DISCONNECT SWITCH	
P-TX BKR	ENCLOSURE 01	ENCLOSURE 02	1"	2# 10, 1# 10G	POWER DISTRIBUTION BLOCK	TRANSFORMER PRIMARY BREAKER	
S-FLOW	ENCLOSURE 01	VALVE/METER VAULT	1-1/2"	MSC & 1-TSP	FLOW TRANSMITTER	FLOW ELEMENT	NO SPLICES VIA JUNCTION BOX
S-LEVEL	ENCLOSURE 01	DISCONNECT AIR GAP J-BOX	1"	MSC	LEVEL TRANSMITTER	LEVEL ELEMENT	NO SPLICES

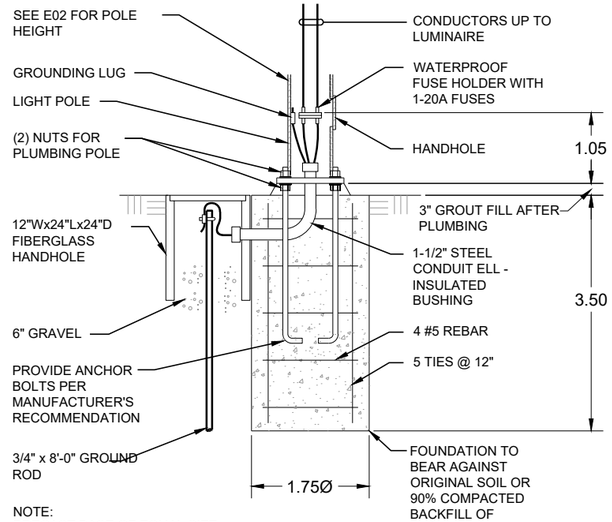
NOTE: THIS IS A SAMPLE CONDUIT SCHEDULE. PROVIDE PER SPECIFIC PROJECT.



CONCRETE PAD 2
NTS

KEYED NOTES:

1. PROVIDE SEAL-OFF FOR CLASS 1, DIV 2 AREA
2. PROVIDE JUNCTION BOX WITH 1/2" DRAIN HOLE IN BOTTOM FOR CABLES TO FLOW ELEMENT MOUNTED BELOW FLOW ELEMENT ELEVATION.



NOTE:
PRECAST BASE OF EQUAL SIZE MAY BE SUBSTITUTED FOR POURED IN PLACE BASE SHOWN.

TYPICAL LIGHT POLE BASE 3
NTS

Plotted: 8/26/19 at 1:40pm By: eggleston
File: W:\PS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1081 DWG E11.dwg TAB:E11

DRN: ANV	ORIG DATE: 06/10/03	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.	
DSN:	DWG #: PS E11		
CHK: SW / DP	CAD FILE #: 1081PS00E11		
APPD: JTO	SCALE: NA		

REV #	DATE	DRN	APPD	DESCRIPTION
2	02/17	CG	JT	STANDARD DRAWINGS UPDATE
1	2/07	CAD	DP	MINOR REVISIONS

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL DETAILS

SHEET: 35 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: 6076

DWG #: PS E11

LAST UPDATE 07-25-2018

ENGR STAMP:

SAMPLE DRAWING

FULL SIZE DRAWING WILL BE PROVIDED IN AUTOCAD FORMAT BY
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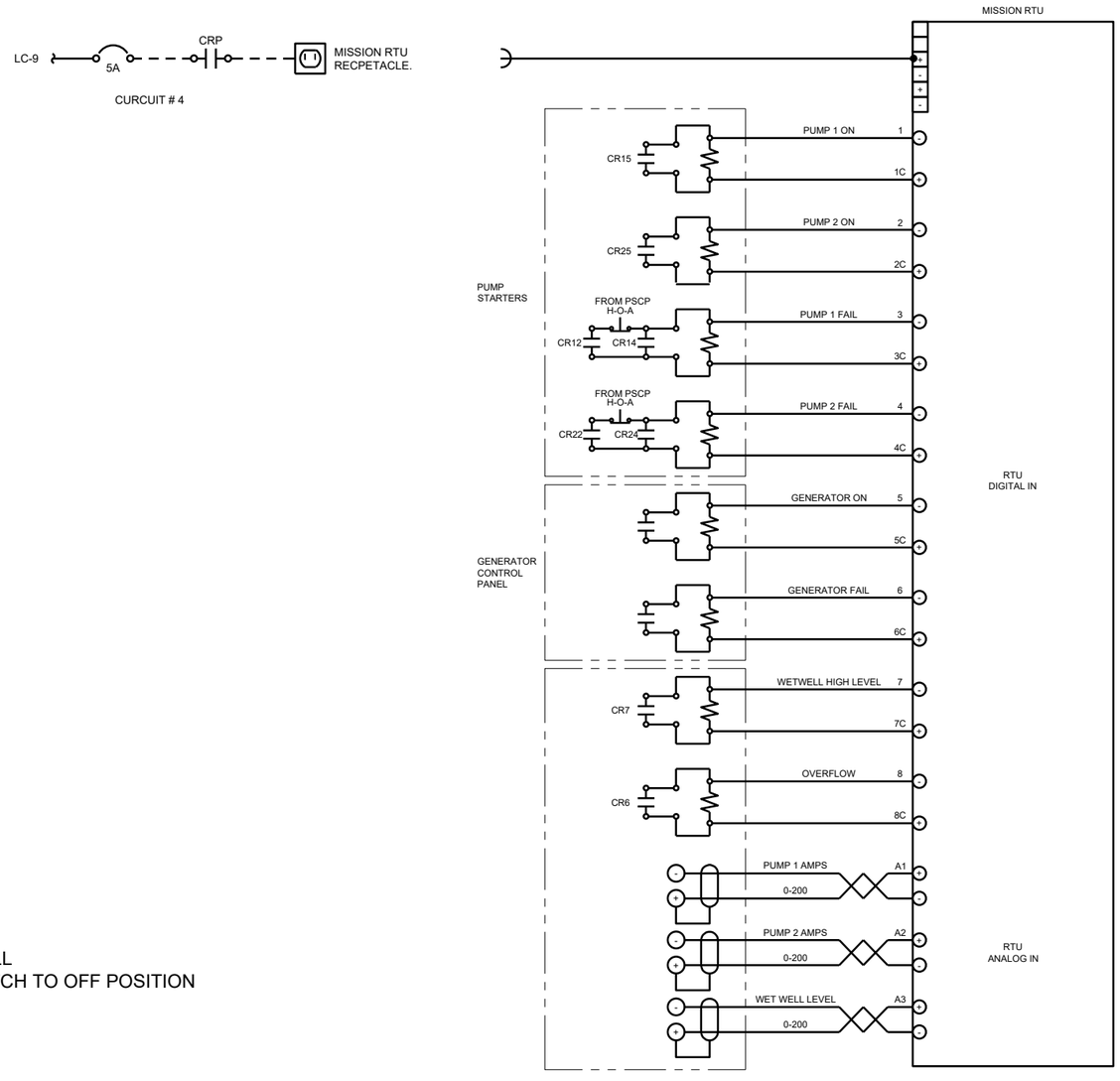
STANDARD DRAWING NO. 1082



NOTE 1:
THE CONTACT (H-O-A) SHALL
OPEN WHEN H-O-A "A" SWITCH TO OFF POSITION

Plotted: 8/26/19 at 1:41pm By: egglestonv
File: W:\TPS\CADdrawings\Pump Stations\STANDARDS\ELECTRICAL\2018 PS-STD\CAD\1081 DWG E12.dwg TAB:E12

DRN: CG	ORIG DATE: 02/14/17	THIS BAR IS ONE INCH WHEN DRAWING IS FULL SCALE.	REV #	DATE	DRN / APPD / DESCRIPTION
DSN:	DWG #: PS E12				
CHK: JT	CAD FILE #: 1082PS00E12				
APPD: JT	SCALE: NA				

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PROJ NAME: PUMP STATION STANDARD DRAWINGS

SHEET TITLE: ELECTRICAL MISSION RTU INTERCONNECTION DIAGRAM

SHEET: 36 OF: 36
PLOT DATE: 7/25/18
PLC #: NA
CWS PROJ #: XXXX

DWG #: PS E12

LAST UPDATE 07-25-2018

ENGR STAMP: