

PLAN

DIMENSION TABLE

(A)	WETWELL INSIDE DIAMETER	
(M)	WETWELL HATCH OPENING	
(N)	WETWELL HATCH OPENING	
(Q)	SEPARATION OF DISCHARGE RISER PIPING	

NOTES:

1. ORIENTATION AND LOCATION OF PUMP STATION COMPONENTS MAY VARY, FIELD ADJUSTMENTS MAY BE REQUIRED.
2. SEE DETAIL LS-02 FOR SECTION VIEW.
3. CONTROL PANEL SIZE AND LOCATION MAY VARY, DEPENDING UPON STATION REQUIREMENTS. SEE SHEETS LS-06 AND LS-07.
4. ANTENNA SHALL BE ADJACENT TO CONTROL PANEL AND 3' MIN. FROM FENCE.

lift station details rev10-2021.dwg Apr-2022



TYPICAL LIFT STATION WITH DIESEL PUMP - PLAN

DETAIL

LS-01

SHEET 1 OF 2

EQUIPMENT SPECIFICATIONS

MARK

- 1-3 NOT USED
- 4 ALL PIPING IN THE WETWELL AND ABOVE GRADE SHALL BE HDPE. ALL HDPE FITTINGS SHALL BE MOLDED. CONNECTIONS TO FLANGED PIPING, VALVES, AND FITTINGS SHALL BE MADE WITH HDPE FLANGE ADAPTERS WITH STAINLESS STEEL BOLTING RINGS AND BOLTS.
- 5 TAPPED STAINLESS STEEL BLIND FLANGE OR COMPANION FLANGE FOR ARV CONNECTION. PROVIDE STAINLESS STEEL BALL VALVE AND PIPE NIPPLES TO CONNECT TO ARV.
- 6 COMBINATION SUCTION PIPE AND WETWELL VENT. SEE DETAIL LS-03.
- 7 NOT USED
- 8 CHECK VALVE
- 9 PLUG VALVE, COMPLETE WITH WRENCH
- 10 STAINLESS STEEL WALL PENETRATION ASSEMBLY, BLACK, SEE LS-03. ALL PENETRATIONS SHALL BE CORED IN THE FIELD.
- 11 DUCTILE IRON RISER WITH 6" CAM AND GROOVE MALE ADAPTER AND DUST CAP WITHIN METER BOX INSTALLED FLUSH WITH FINAL GRADE.
- 12 GENERATOR RECEPTACLE
- 13 2" AIR RELEASE VALVE EQUIPPED WITH ONE WAY CHECK VALVE MOUNTED ON 2" STAINLESS STEEL PIPING.
- 14 PUMP CONTROL PANEL. SEE DETAIL LS-06 AND LS-07.
- 15 ALL ELECTRICAL SERVICE TRANSFORMERS SHALL BE INSTALLED OUTSIDE OF PUMP STATION FENCE LINE
- 16 CHAIN LINK FENCE. SEE DETAIL LS-05.
- 17 POWER METER IN ALUMINUM METER ENCLOSURE.
- 18 SERVICE ENTRANCE RATED NON-FUSED DISCONNECT WITH PADLOCKABLE HINGE
- 19 NOT USED
- 20 120V PANELBOARD / MINI POWER ZONE AS REQUIRED.
- 21 NOT USED
- 22 GROUND TEST WELL (TYP). SEE DETAIL LS-08.
- 23 TELEMETRY ANTENNA, SEE DETAIL LS-10. PROVIDE NEW ANTENNA LIGHTNING ROD, CONDUIT, AND DOWN CONDUCTOR PER DETAIL. ROUTE LIGHTNING ROD DOWN CONDUCTOR TO GROUND ROD AT BOTTOM OF TOWER. BOND GROUND ROD TO STATION GROUND MAT. SITE LIGHTING SHALL BE MOUNTED ON TOWER SECTION.
- 24 #4/0 BARE COPPER. SEE DETAIL LS-08 FOR ADDITIONAL REQUIREMENTS (TYP.)
- 25 3/4" X 20' COPPER-CLAD GROUND ROD (TYP.) SEE DETAIL LS-08.
- 26 EXOTHERMICALLY WELDED CONNECTION (TYP.)
- 27 #2 SOLID TINNED COPPER JUMPER (TYP.)
- 28 FENCE POST/GATE BONDING. SEE DETAIL LS-08.
- 29 ODOR CONTROL PAD. SEE DETAIL LS-04.
- 30 GROUND SURFACE WITHIN PUMP STATION FENCE SHALL CONSIST OF <1" DIA STONE, 4" THICK, WITH GEOTEXTILE FILTER FABRIC
- 31 STAND-BY DIESEL PUMP WITH INTEGRATED FUEL TANK AND CONCRETE PAD. PER DETAIL LS-04.
- 32 NOT USED
- 32 HOSE BIBB. PROVIDE 1" WATER SERVICE PER PW-07. LOCATE METER AND BOX AT FENCE. THE RPZ BACKFLOW PREVENTER LOCATION SHALL BE COORDINATED WITH NPU STAFF.
- 33 RADAR LEVEL TRANSMITTER SHALL BE MOUNTED ON CABLE HANGER WITH SPLIT CLAMP CABLE HANGER. SEE DETAIL LS-03 FOR MOUNTING PLATE DETAIL.

NOTES:

1. ALL STAINLESS STEEL SHALL BE TYPE 316.
2. BELOW GRADE VALVES SHALL HAVE A VALVE COLLAR PER DETAIL G-04.
3. SITE LIGHTING SHALL BE MOUNTED ON TOWER SECTION OF TELEMETRY ANTENNA. LIGHT SHALL BE POSITIONED TO LIGHT AREA INSIDE THE FENCE.

lift station details rev10-2021.dwg Nov-2021

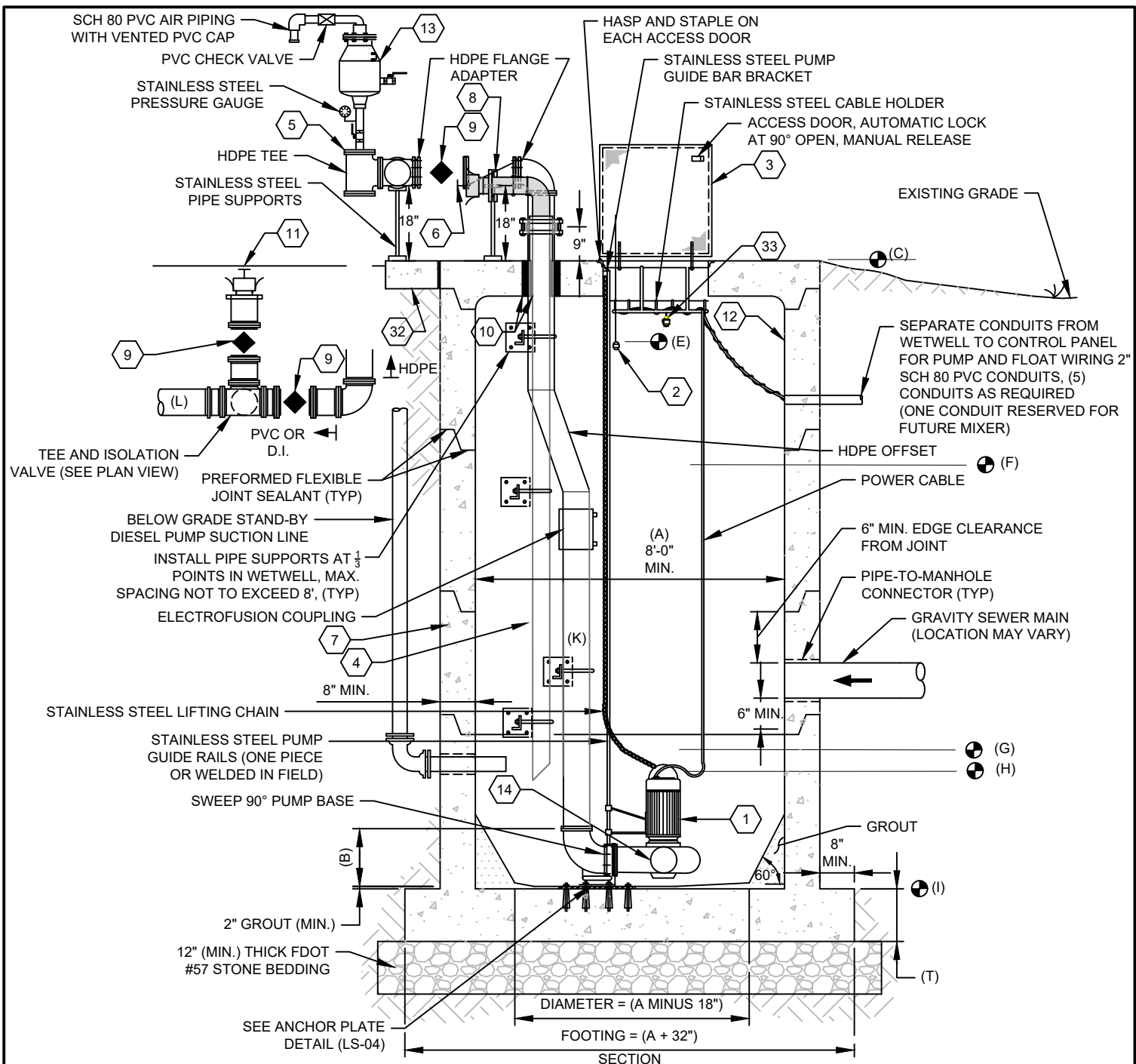


TYPICAL LIFT STATION WITH DIESEL PUMP - PLAN

DETAIL

LS-01

SHEET 2 OF 2



DIMENSION TABLE

(A)	WETWELL INSIDE DIAMETER	
(B)	DISTANCE FROM WETWELL FLOOR AND TOP OF DISCH. CONNECTION	
(C)	TOP OF WETWELL ELEVATION (SEE NOTE 1)	
(D)	INFLUENT PIPE INVERT ELEVATION	
(E)	HIGH WATER ALARM ELEVATION	
(F)	LAG PUMP ON ELEVATION (SEE NOTE 4)	
(G)	LEAD PUMP ON ELEVATION (SEE NOTE 4)	
(H)	ALL PUMPS OFF ELEVATION (SEE NOTE 2 & 4)	
(I)	TOP OF WETWELL FOOTING	
(K)	DIAMETER OF DISCHARGE RISER	
(L)	DIAMETER OF DISCHARGE FORCE MAIN	
(T)	THICKNESS OF FOOTING (MINIMUM 12")	

NOTES:

1. TOP OF WETWELL SHALL BE ABOVE THE FEMA 1-PERCENT-ANNUAL-CHANCE FLOOD ELEVATION.
2. SET ELEVATION H SO THAT THE MINIMUM SUBMERGENCE OF THE PUMPS IS 18", OR THE DEPTH RECOMMENDED BY THE MANUFACTURER, WHICHEVER IS GREATER.
3. ALL CONDUITS SHALL BE SEALED WITH DUCT SEAL PUTTY.
4. CONTROLLED BY RADAR LEVEL TRANSMITTER.

lift station details rev10-2021.dwg Nov-2021



TYPICAL LIFT STATION - SECTION

DETAIL
LS-02
SHEET 1 OF 2

EQUIPMENT SPECIFICATIONS

MARK

- 1 DUPLEX ___ INCH DISCHARGE SUBMERSIBLE SEWAGE PUMPS EQUIPPED WITH 230/460 VOLT OR 480 VOLT MOTORS. EACH PUMP SHALL HAVE THE CAPACITY AND RANGE SET FORTH ON THIS SHEET AS THE "REQUIRED PUMP PERFORMANCE CURVE". VERIFY PUMP LOCAL VOLTAGE PRIOR TO PLACEMENT OF PUMP ORDER.
- 2 LIQUID LEVEL REGULATORS, EACH PROVIDED WITH 60 FEET OF ELECTRICAL CABLE.
- 3 ACCESS DOOR WITH HINGED AND HASP EQUIPPED COVER, AUTOMATIC LOCK AT 90° OPEN, MANUAL RELEASE, TWO UPPER GUIDE HOLDERS, CHAIN HOLDERS, AND CABLE HOLDERS.
- 4 ALL PIPING IN THE WET WELL AND ABOVE GRADE SHALL BE HDPE. ALL HDPE FITTINGS SHALL BE MOLDED. CONNECTIONS TO FLANGED PIPING, VALVES, AND FITTINGS SHALL BE MADE WITH HDPE FLANGE ADAPTERS WITH STAINLESS STEEL BOLTING RINGS AND BOLTS.
- 5 TAPPED STAINLESS STEEL BLIND FLANGE OR COMPANION FLANGE FOR ARV CONNECTION. PROVIDE STAINLESS STEEL BALL VALVE AND STAINLESS STEEL PIPE NIPPLES TO CONNECT TO ARV.
- 6 COMBINATION SUCTION PIPE AND WETWELL VENT. SEE DETAIL LS-03. SUCTION PIPE TO BE SET 1' ABOVE WETWELL BOTTOM.
- 7 WETWELL WITH TWO COATS OF APPROVED BITUMINOUS OR EPOXY SEALER ON EXTERIOR SURFACES PER NPU TECHNICAL SPECIFICATION 336020.
- 8 CHECK VALVE
- 9 PLUG VALVE, COMPLETE WITH WRENCH.
- 10 STAINLESS STEEL WALL PENETRATION ASSEMBLY, BLACK, SEE LS-03. ALL PENETRATIONS SHALL BE CORED IN THE FIELD.
- 11 DUCTILE IRON RISER WITH 6" CAM AND GROOVE MALE ADAPTER AND DUST CAP WITHIN METER BOX INSTALLED FLUSH WITH FINAL GRADE.
- 12 INTERIOR COATING PER NPU TECHNICAL SPECIFICATION 336020.
- 13 2" AIR RELEASE VALVE EQUIPPED WITH ONE WAY CHECK VALVE MOUNTED ON 2" SCH 40 316 STAINLESS STEEL PIPING.
- 14 VOLUTE PORT WITH BOLTED COVER FOR FUTURE MIX FLUSH SYSTEM (ONE PUMP ONLY).
- 15-31 NOT USED
- 32 CONCRETE SLAB FOR PIPE SUPPORT. 6" THICK WITH #5 @ 12" OC EW MID-DEPTH.
- 33 RADAR LEVEL TRANSMITTER SHALL BE MOUNTED ON CABLE HANGER WITH SPLIT CLAMP CABLE HANGER. SEE DETAIL LS-03 FOR MOUNTING CLAMP

NOTES:

- 1. ALL STAINLESS STEEL SHALL BE TYPE 316.
- 2. BELOW GRADE VALVES SHALL HAVE A VALVE COLLAR PER DETAIL G-04.

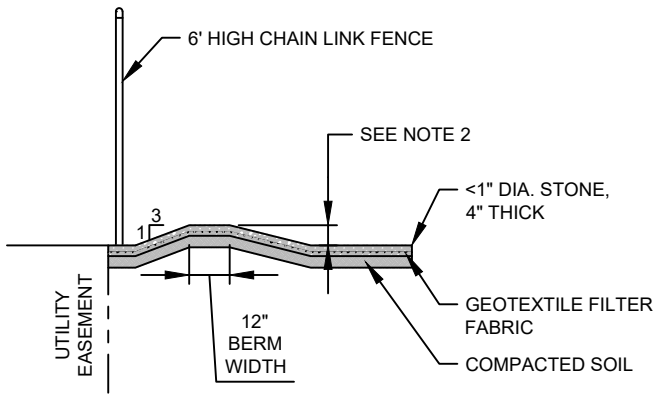


TYPICAL LIFT STATION - SECTION

DETAIL

LS-02

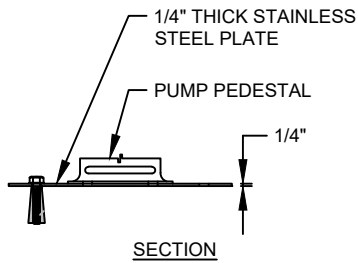
SHEET 2 OF 2



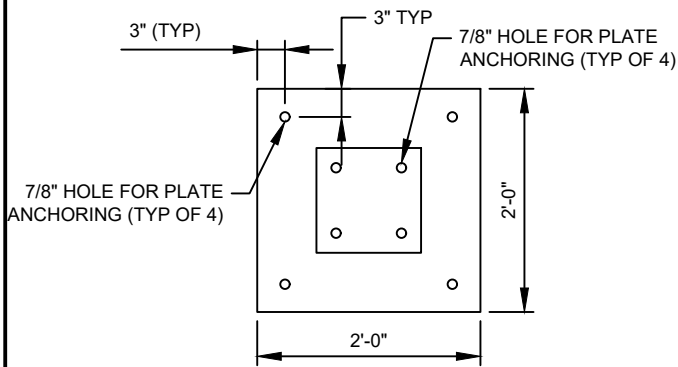
NOTES:

1. BERM SHALL BE CONSTRUCTED AT PERIMETER OF UTILITY EASEMENT TO DIVERT SURFACE RUNOFF TOWARDS RIGHT-OF-WAY OR PUBLIC DRAINAGE EASEMENT.
2. WHERE CURB IS PRESENT, TOP OF BERM SHALL BE 6" (MIN) HIGHER THAN BACK OF CURB. WHERE A CURB IS NOT PRESENT, BERM SHALL BE 6" (MIN) HIGHER THAN EDGE OF PAVEMENT.

BERM DETAIL (FROM LS-01)

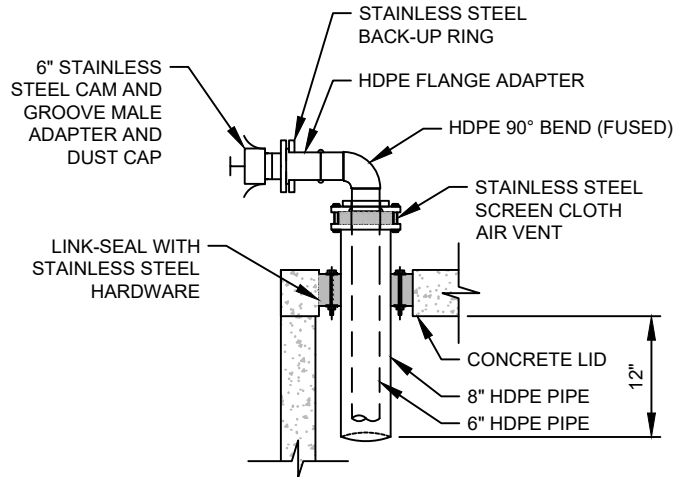


SECTION

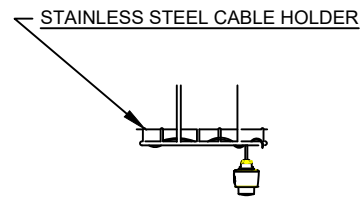


PLAN

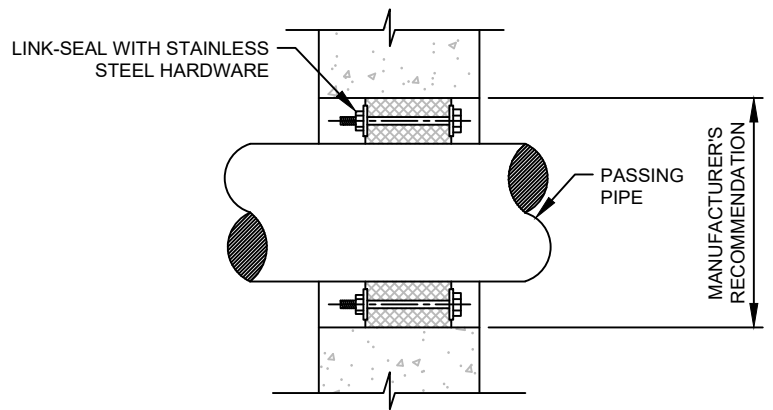
ANCHOR PLATE DETAIL (FROM LS-02)



COMBINATION SUCTION PIPE AND WETWELL VENT DETAIL (FROM LS-01 AND LS-02)



RADAR LEVEL TRANSMITTER MOUNTING (FROM LS-01 AND LS-02)



STAINLESS STEEL WALL PENETRATION DETAIL (FROM LS-02)

lift station details rev10-2021.dwg Nov-2021

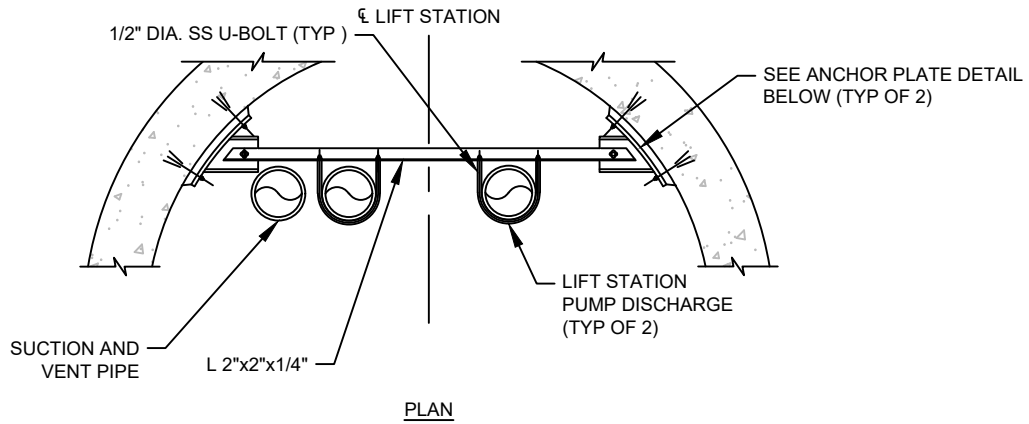


LIFT STATION DETAILS

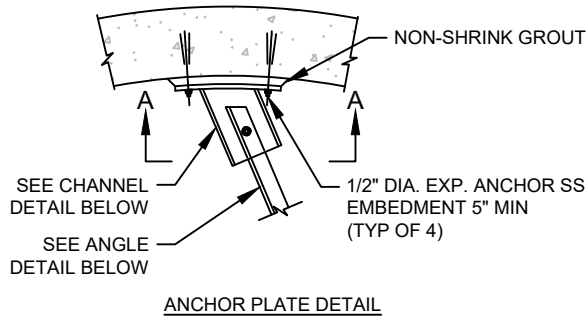
DETAIL

LS-03

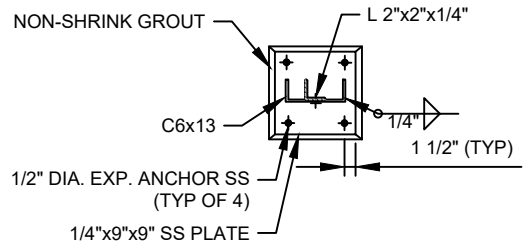
SHEET 1 OF 2



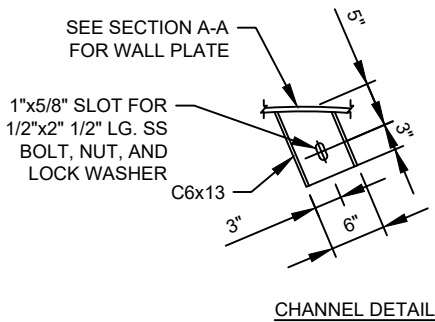
PLAN
DISCHARGE PIPE SUPPORT DETAIL (FROM LS-01)



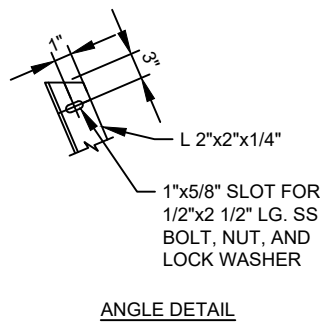
ANCHOR PLATE DETAIL



SECTION A-A



CHANNEL DETAIL



ANGLE DETAIL

NOTES:

1. ALL STAINLESS STEEL SHALL BE TYPE 316.

lift station details rev10-2021.dwg Nov-2021



LIFT STATION DETAILS

DETAIL

LS-03

SHEET 2 OF 2

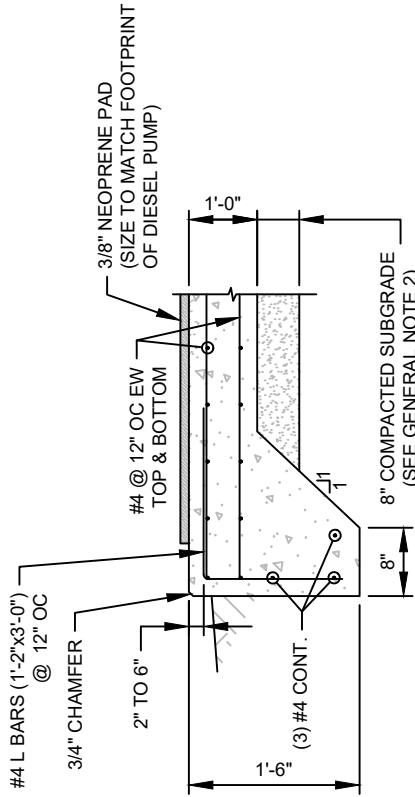
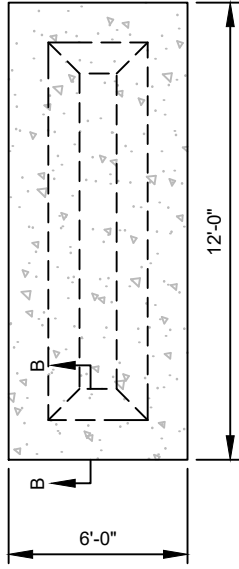
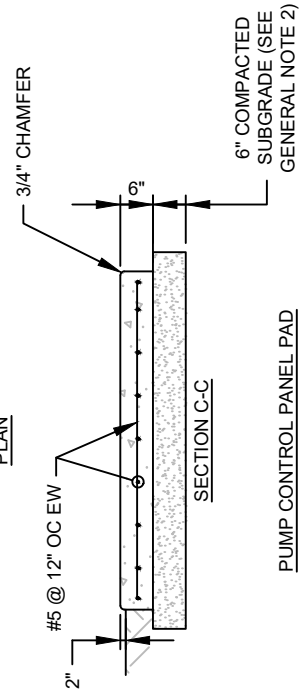
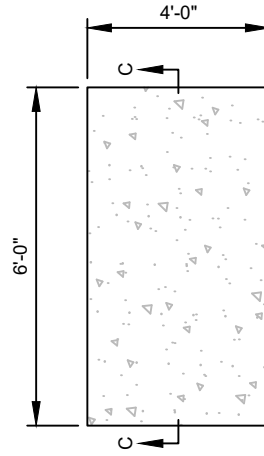
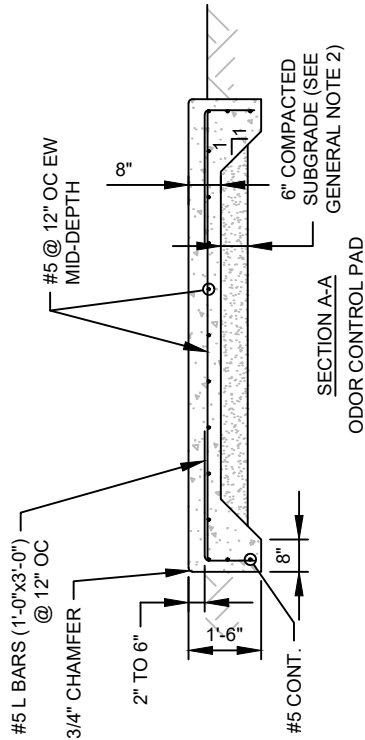
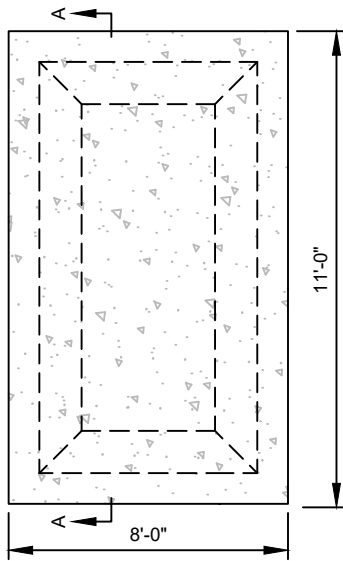


LIFT STATION CONCRETE DETAILS

DETAIL

LS-04

SHEET 1 OF 1

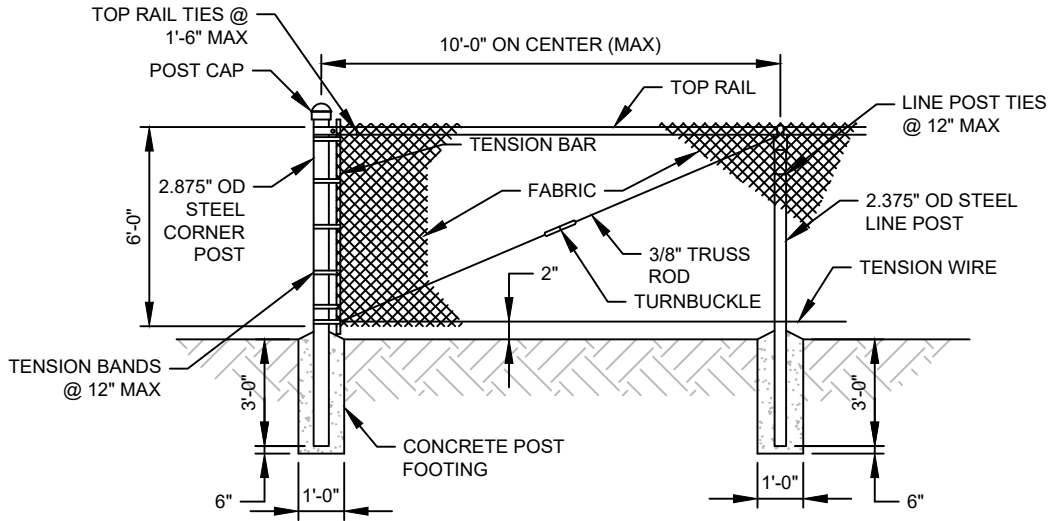


GENERAL NOTES:

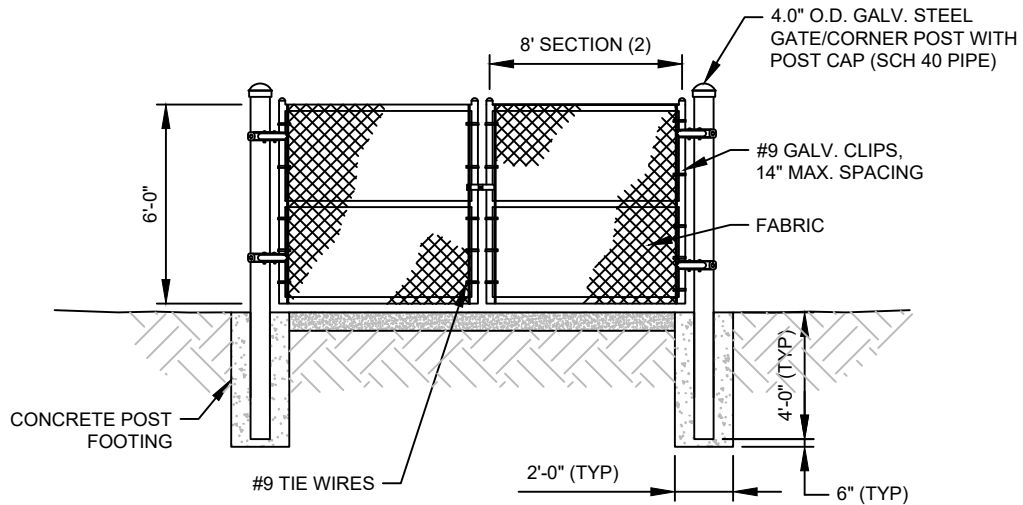
1. TOP OF CONCRETE PADS SHALL BE ABOVE THE FEMA 1-PERCENT-ANNUAL-CHANCE FLOOD ELEVATION.
2. SUBGRADE MATERIAL SHALL BE CRUSHED STONE PER NPU SPECIFICATION SECTION 311030. SUBGRADE SHALL BE COMPACTED TO MINIMUM 98% AS DETERMINED BY FDOT METHOD 1-T-180.
3. CONCRETE PADS SHALL HAVE A BROOM FINISH

STRUCTURAL NOTES:

1. ALL DIMENSIONS SHOWN ARE TYPICAL ONLY. CONTRACTOR TO VERIFY OVERALL SLAB SIZE WITH EQUIPMENT MANUFACTURER AND ENGINEER PRIOR TO CONSTRUCTION.



CHAIN LINK FENCE DETAIL



16' SWING GATE DETAIL

NOTES:

1. FABRIC SHALL BE IN ACCORDANCE WITH ASTM F668, CLASS 2B, WITH 2" MESH AND 9 GAUGE CORE WIRE.
2. FRAMEWORK SHALL BE SCHEDULE 40 GALVANIZED STEEL PER ASTM F1043, GROUP IA. FRAMEWORK SHALL HAVE A PVC COATING PER ASTM F1043.
3. TENSION WIRE SHALL BE 7 GAUGE POLYMER COATED STEEL COMPLYING WITH ASTM F1664.
4. FITTINGS SHALL BE POLYMER COATED COLOR FITTINGS IN ACCORDANCE WITH ASTM F626.
5. TIE WIRE AND HOG RINGS SHALL BE 9 GAUGE STEEL WIRE IN COMPLIANCE WITH ASTM F626.
6. COLOR OF FABRIC, FRAMEWORK, TENSION WIRE, FITTINGS, TIE WIRE, AND HOG RINGS SHALL BE BLACK PER ASTM F934.
7. GATE SECTIONS SHALL BE HORIZONTALLY CROSS-BRACED AT THE MIDPOINT WITH 1.660" DIA. SCHEDULE 80 STEEL PIPE.
8. GATE POST: 4" OUTSIDE DIAMETER PIPE.

lift station details rev10-2021.dwg Apr-2022



LIFT STATION FENCE AND GATE

DETAIL

LS-05

SHEET 1 OF 1

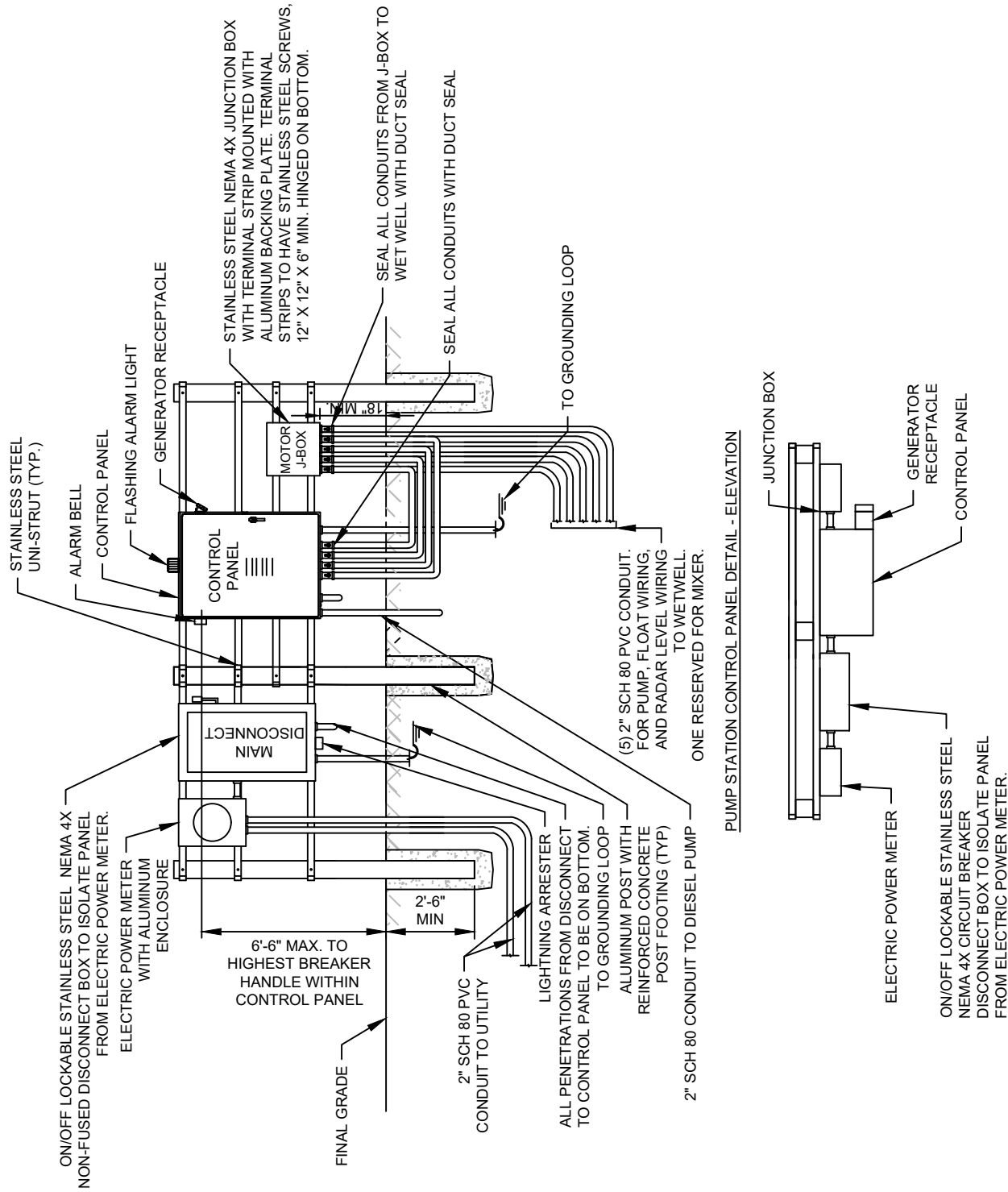


PUMP STATION CONTROL PANEL

DETAIL

LS-06

SHEET 1 OF 1



PLAN VIEW

NOTES:

- #10 STRAND MINIMUM FROM CONTROL PANEL TO J-BOX.
- LIGHTNING ARRESTER MUST BE INSTALLED EXTERNALLY ON LOAD SIDE OF DISCONNECT BETWEEN DISCONNECT AND MAIN BREAKER. THE PENETRATION THROUGH THE DISCONNECT MUST BE MADE BELOW THE WORKING MECHANISM OF THE DISCONNECT.
- PUMP CONTROL PANEL WITH ALL COMPONENTS FOR OPERATING TWO PUMPS AND LIQUID LEVEL REGULATORS; GENERATOR RECEPTACLE AND ANGLE ADAPTER AND NEMA 4X STAINLESS STEEL ENCLOSURE.
- SEE DETAIL LS-10 FOR TELEMETRY ANTENNA MOUNT DETAIL.
- GROUND WIRE FROM SERVICE SHALL BE INSTALLED IN SCH 80 PVC CONDUIT.
- ALL CONDUIT SHALL BE SCH 80 PVC.

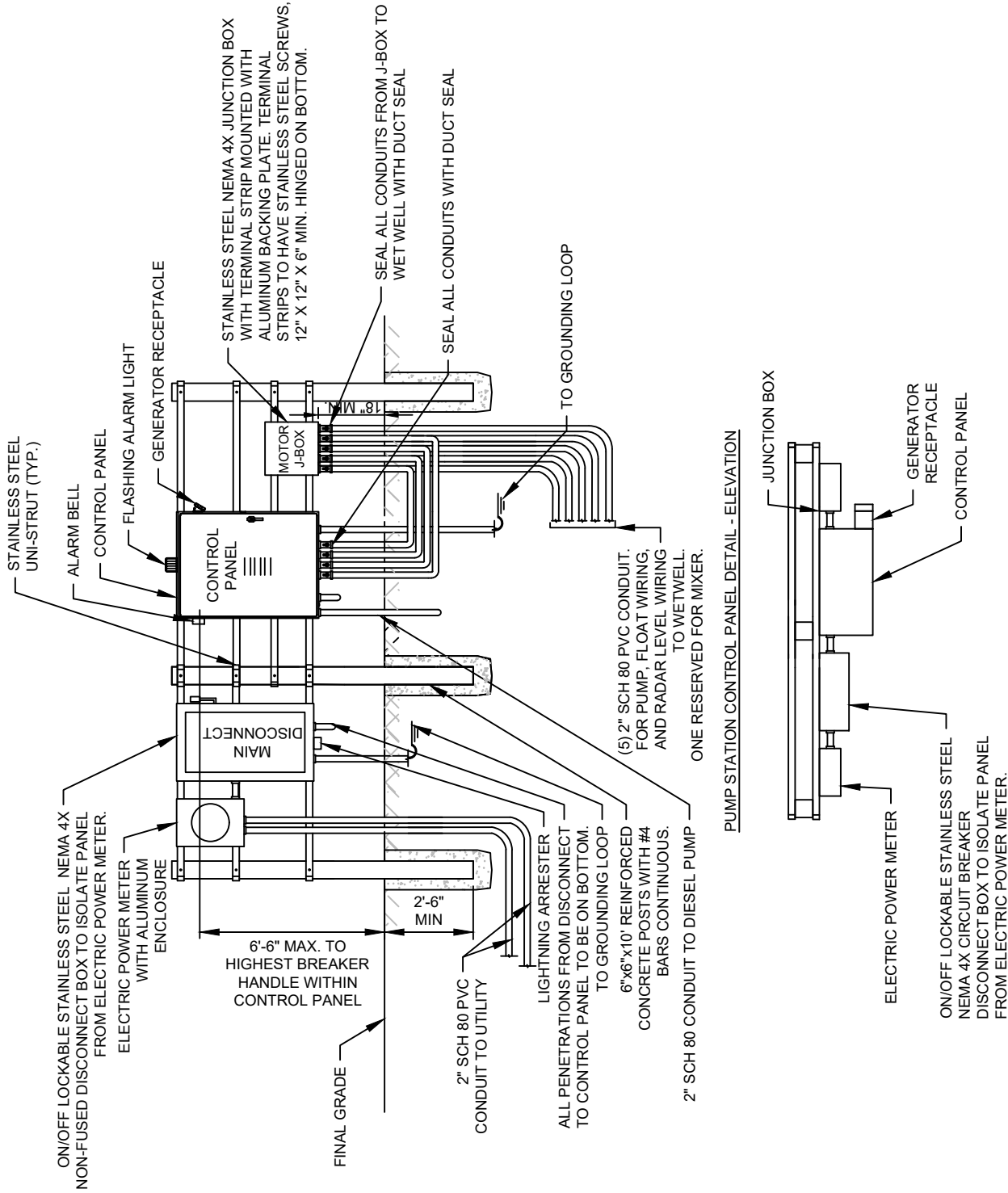


PUMP STATION CONTROL PANEL

DETAIL

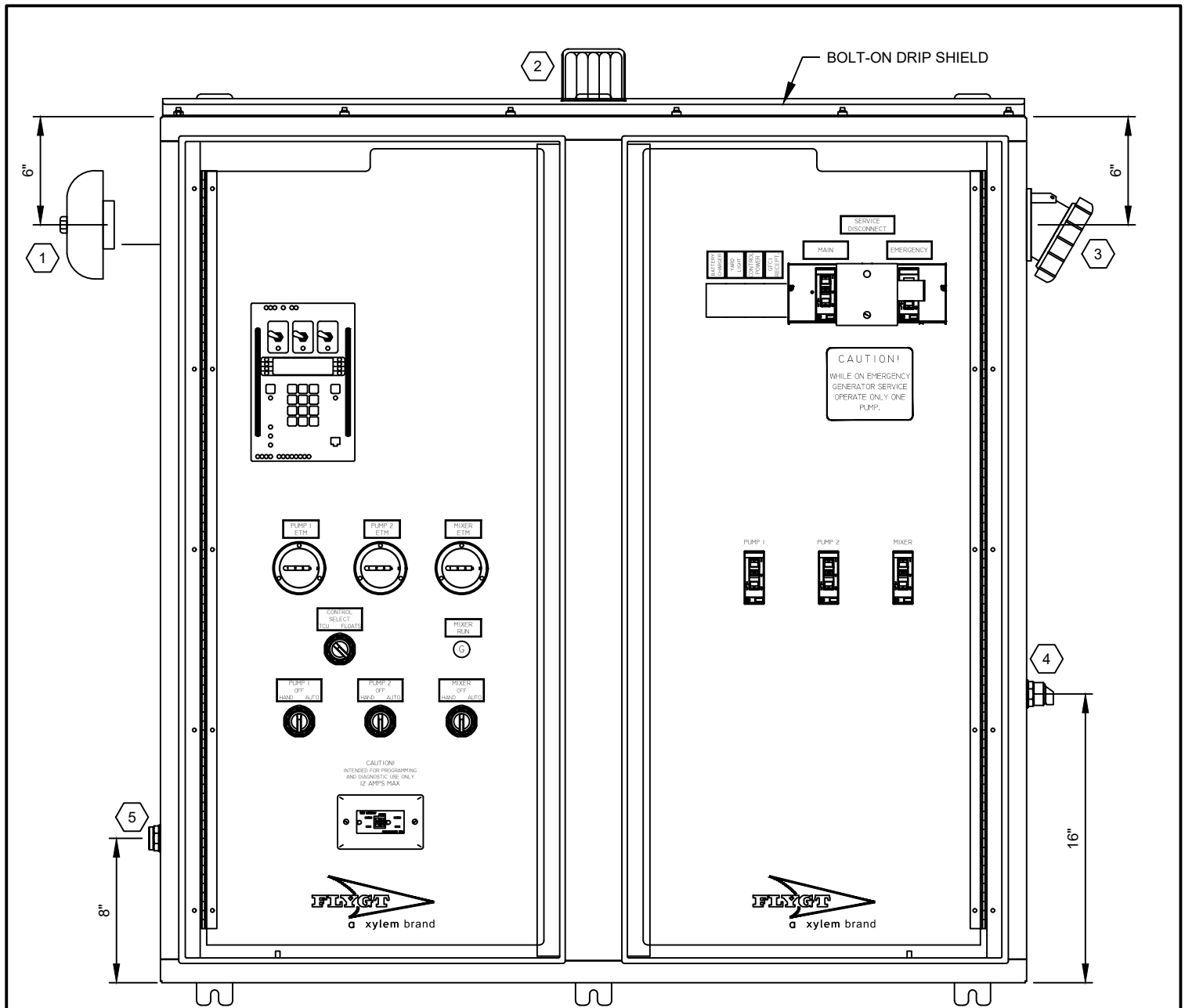
LS-06

SHEET 1 OF 1



NOTES:

1. #10 STRAND MINIMUM FROM CONTROL PANEL TO J-BOX.
2. LIGHTNING ARRESTER MUST BE INSTALLED EXTERNALLY ON LOAD SIDE OF DISCONNECT AND MAIN BREAKER. THE PENETRATION THROUGH THE DISCONNECT MUST BE MADE BELOW THE WORKING MECHANISM OF THE DISCONNECT.
3. PUMP CONTROL PANEL WITH ALL COMPONENTS FOR OPERATING TWO PUMPS AND LIQUID LEVEL REGULATORS; GENERATOR RECEPTACLE AND ANGLE ADAPTER AND NEMA 4X STAINLESS STEEL ENCLOSURE.
4. SEE DETAIL LS-10 FOR TELEMETRY ANTENNA MOUNT DETAIL.
5. GROUND WIRE FROM SERVICE SHALL BE INSTALLED IN SCH 80 PVC CONDUIT.
6. ALL CONDUIT SHALL BE SCH 80 PVC.

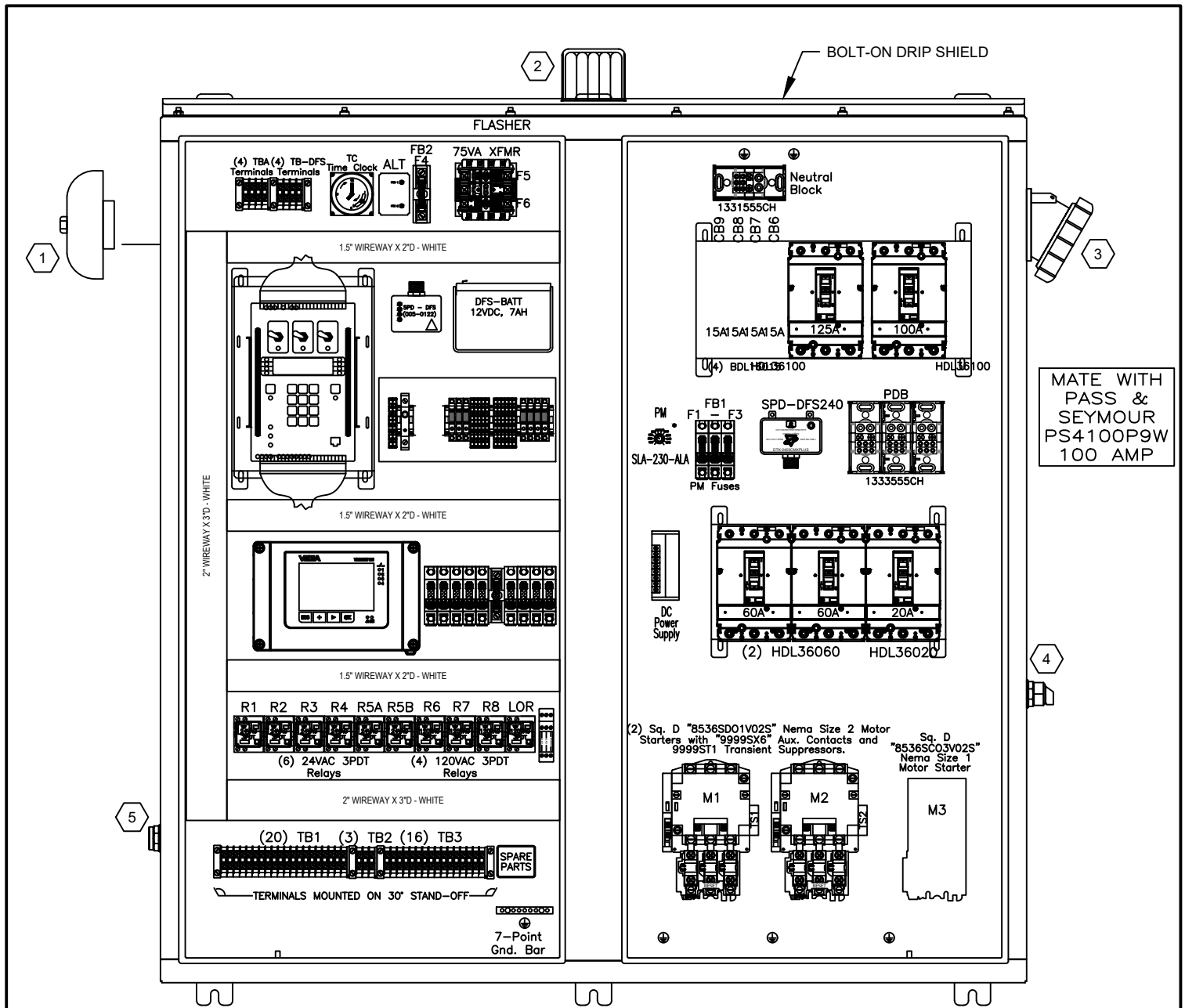


INNER DOOR LAYOUT
 (OUTER DOOR SHOWN REMOVED FOR CLARITY)

NOTES:

1. INNER DOOR SHALL BE PAINTED WHITE.
2. NAMEPLATES ARE BLACK WITH WHITE ENGRAVED LETTERS AND ATTACH WITH ADHESIVE TAPE
3. 90° INNER DOOR STOP LOCATION

liff station details rev10-2021.dwg Nov-2021



BACK PANEL LAYOUT

SQ. D "SDSA2040D"
Surge Protection Device



SHIPPED LOOSE
INSTALLED BY OTHERS.

EQUIPMENT SPECIFICATIONS

MARK

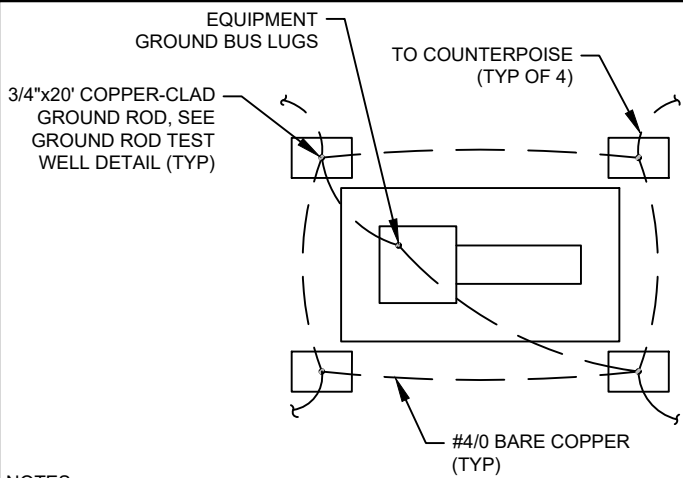
- 1 6 INCH ALARM BELL W/ W.P. BACK BOX (WHEELOCK 43T-G6-115-S WITH WBB-S)
- 2 FLASHING ALARM LIGHT (C.D.I. R40-XLS-40F)
- 3 100A GENERATOR RECEPTACLE (PASS & SEYMOUR, PS4100R9W)
- 4 2-POSITION YARD LIGHT SWITCH (SQ. D 9001 SKS11B)
- 5 ALARM SILENCE PUSHBUTTON WITH PROTECTIVE BOOT (SQ. D 9001 SKR1U WITH 9001 KU7)



PUMP STATION CONTROL PANEL

LS-07

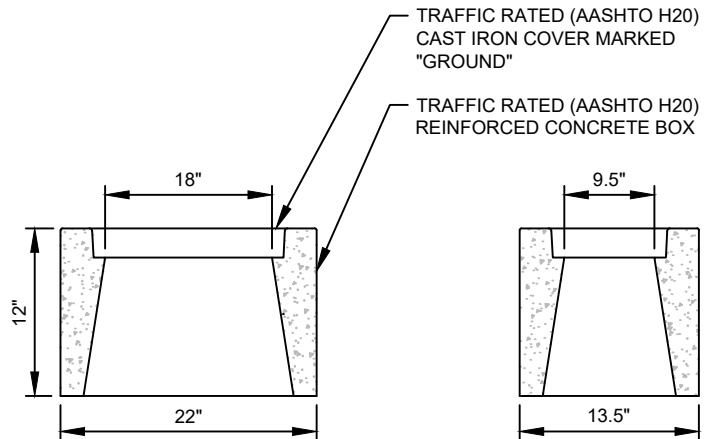
SHEET 2 OF 2



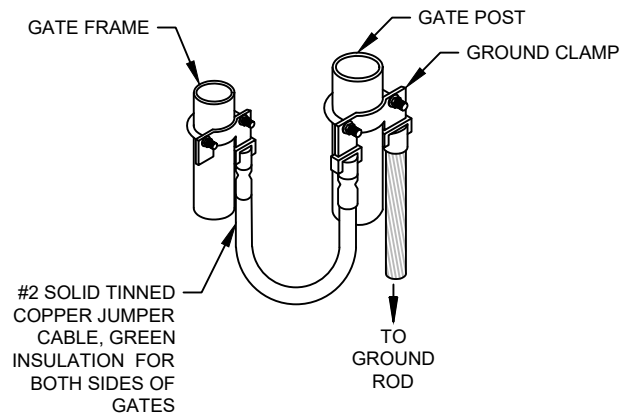
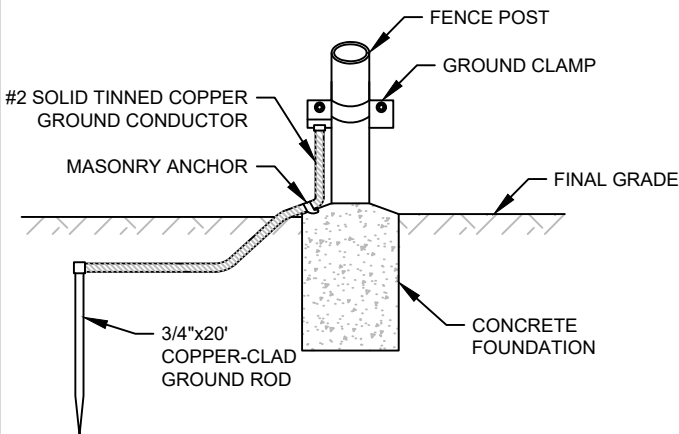
NOTES:

1. ADDITIONAL CONCENTRIC RINGS SHALL BE ADDED AS REQUIRED TO MEET THE FIVE (5) OHM (OR LESS) SPECIFIED RESISTANCE. EACH RING TO HAVE FOUR GROUND RODS MIN. AND SPACED 10 FEET FROM THE INNER RING.

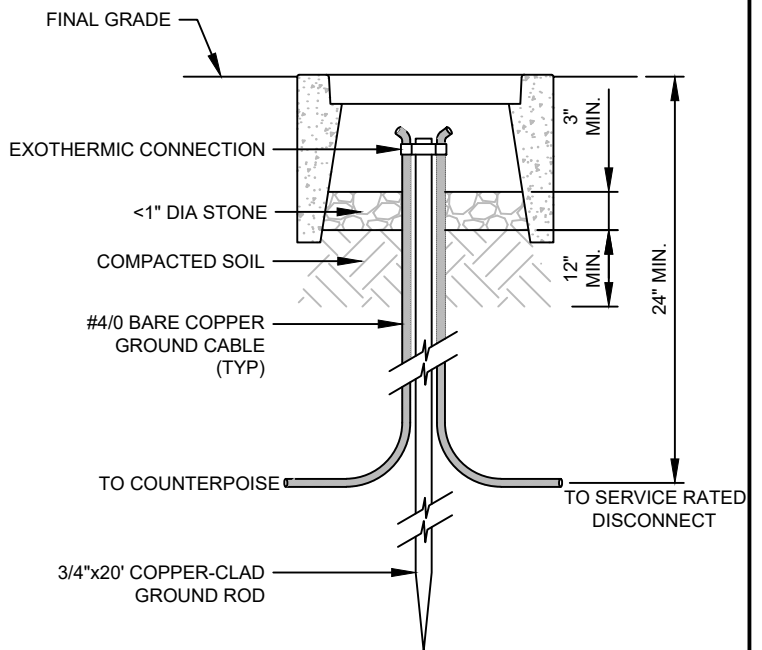
GROUND MAT DETAIL



GROUND TEST WELL BOX DETAIL



FENCE POST/GATE BONDING DETAIL



GROUND TEST WELL DETAIL

liff station details rev10-2021.dwg Nov-2021

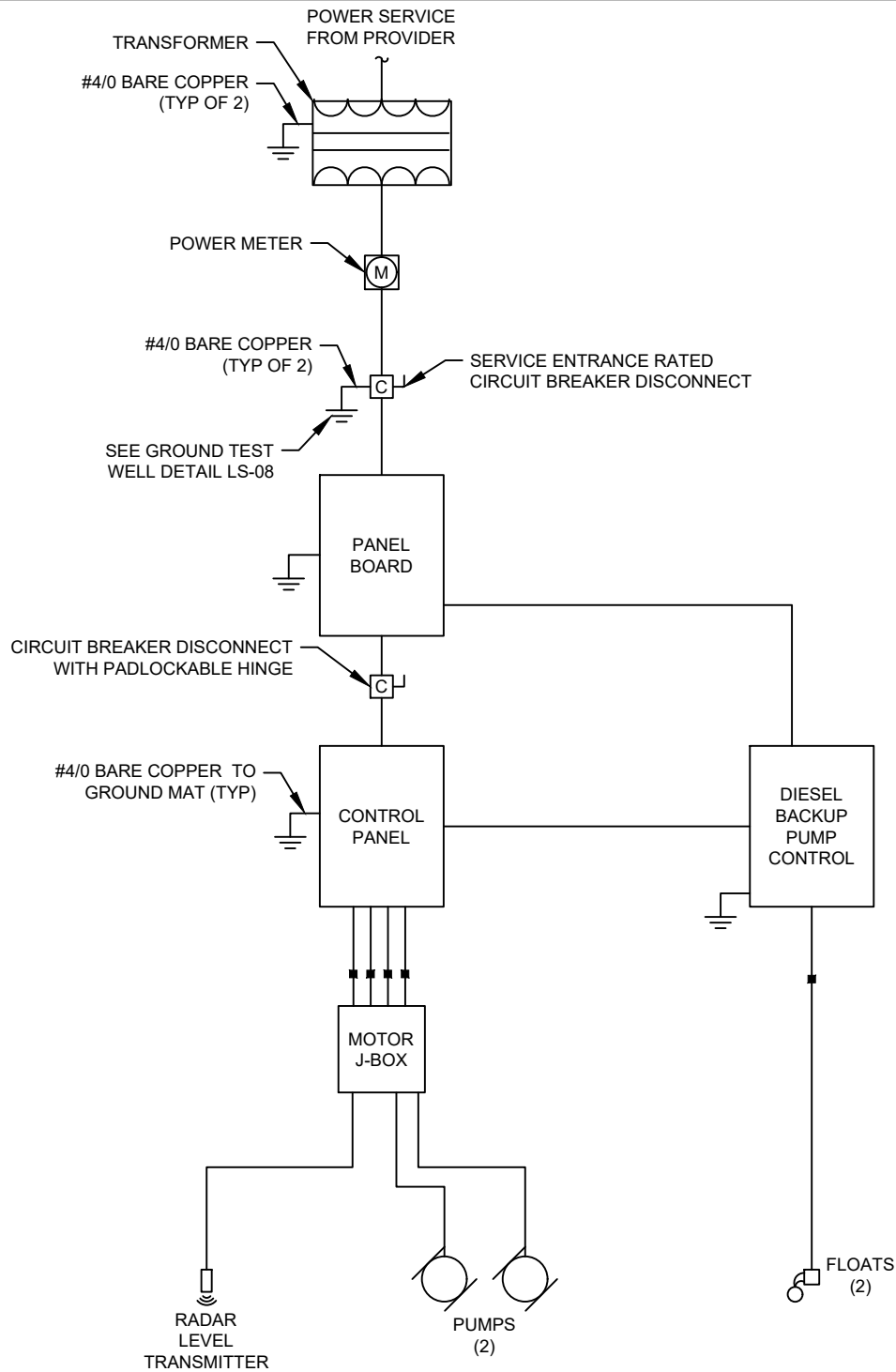


PUMP STATION LIGHTNING PROTECTION DETAILS

DETAIL

LS-08

SHEET 1 OF 1



NOTES:

1. BOND FENCE AND ACCESS GATE TO COUNTERPOISE.
2. PROVIDE LIGHTNING PROTECTION FOR SCADA ANTENNA.
3. SURGE PROTECTION SHALL BE MOUNTED IN A FASHION THAT THE PHASE LIGHTS ARE VISIBLE.
4. EXOTHERMICALLY BOND GROUNDING JUMPERS TO COUNTERPOISE. GROUND POTENTIAL SHALL BE CONSISTENT FOR ENTIRE SITE. GROUNDING JUMPERS AND COUNTERPOISE SHALL BE #4/0 BARE COPPER. GROUND RODS SHALL BE 3/4"x20' COPPER-CLAD GROUND RODS. EXOTHERMICALLY WELD CONNECTIONS BELOW GRADE. MECHANICALLY CONNECT CONNECTIONS ABOVE GRADE. MECHANICAL LUGS SHALL ONLY HAVE ONE WIRE LANDED IN EACH TERMINATION. EACH LUG SHALL BE FASTENED WITH A STAINLESS STEEL NUT AND BOLT. STACKING OF INDIVIDUAL LUGS WILL NOT BE ACCEPTABLE. EXPOSED GROUNDING SHALL BE IN 1" SCHEDULE 80 PVC OR LIQUID TIGHT FLEXIBLE CONDUIT.
5. PROVIDE NPU SIGNED INSPECTION OR PHOTO OF ALL CAD-WELDED SPLICES AND UNDERGROUND TAPS. PROVIDE GROUND TEST REPORT TO NPU VERIFYING COUNTERPOISE RESISTANCE IS LESS THAN 5 OHMS.

liff station details rev10-2021.dwg Nov-2021

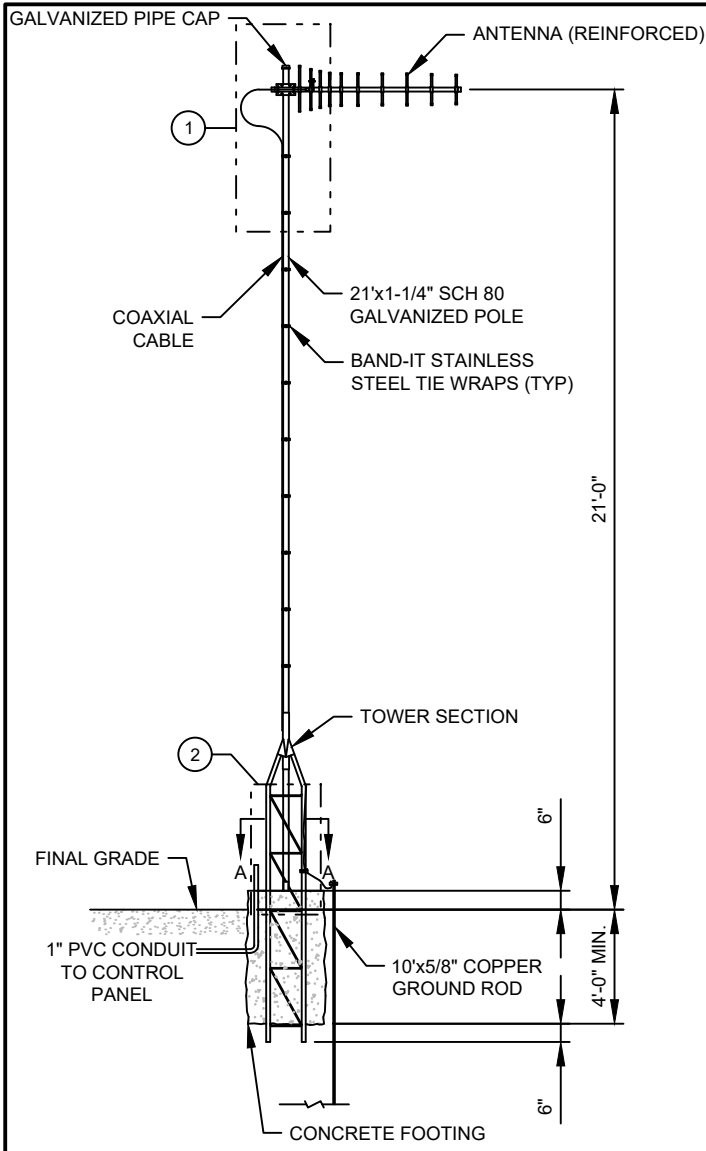


COMMUNITY PUMP STATION - RISER DIAGRAM WITH DIESEL BACKUP PUMP

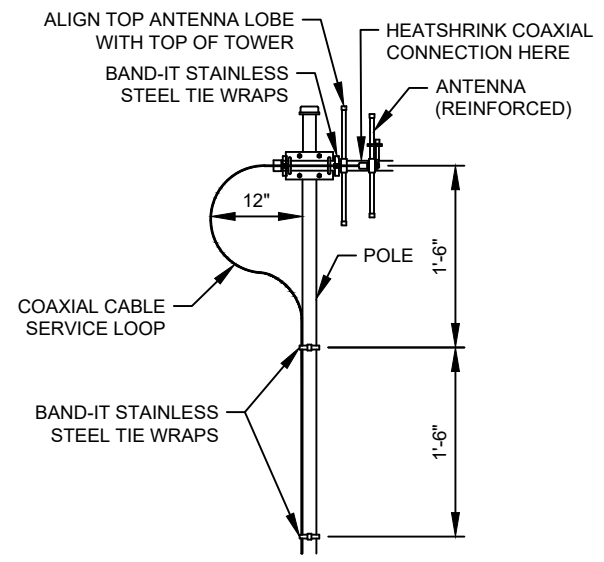
DETAIL

LS-09

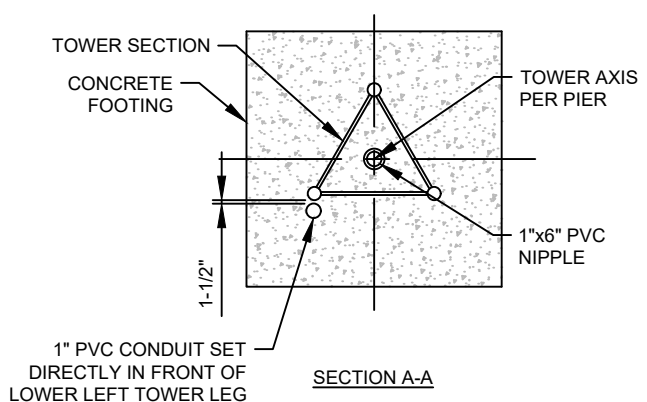
SHEET 1 OF 1



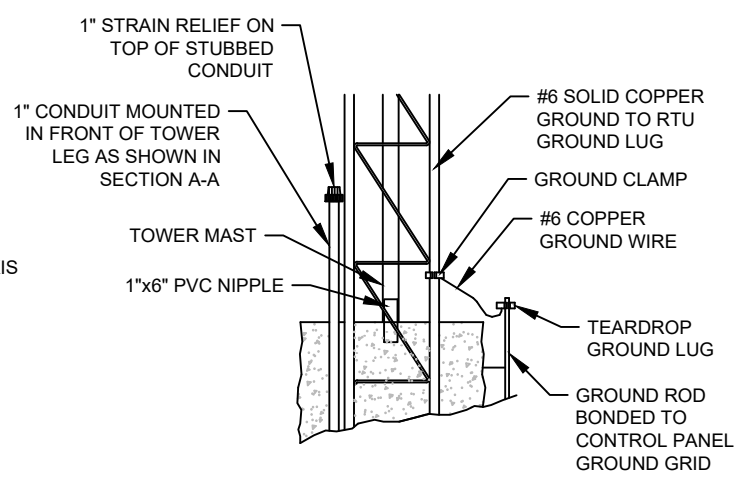
ELEVATION



1 COAXIAL MOUNTING AND ROUTING



SECTION A-A



2 GROUNDING DETAIL

NOTES:

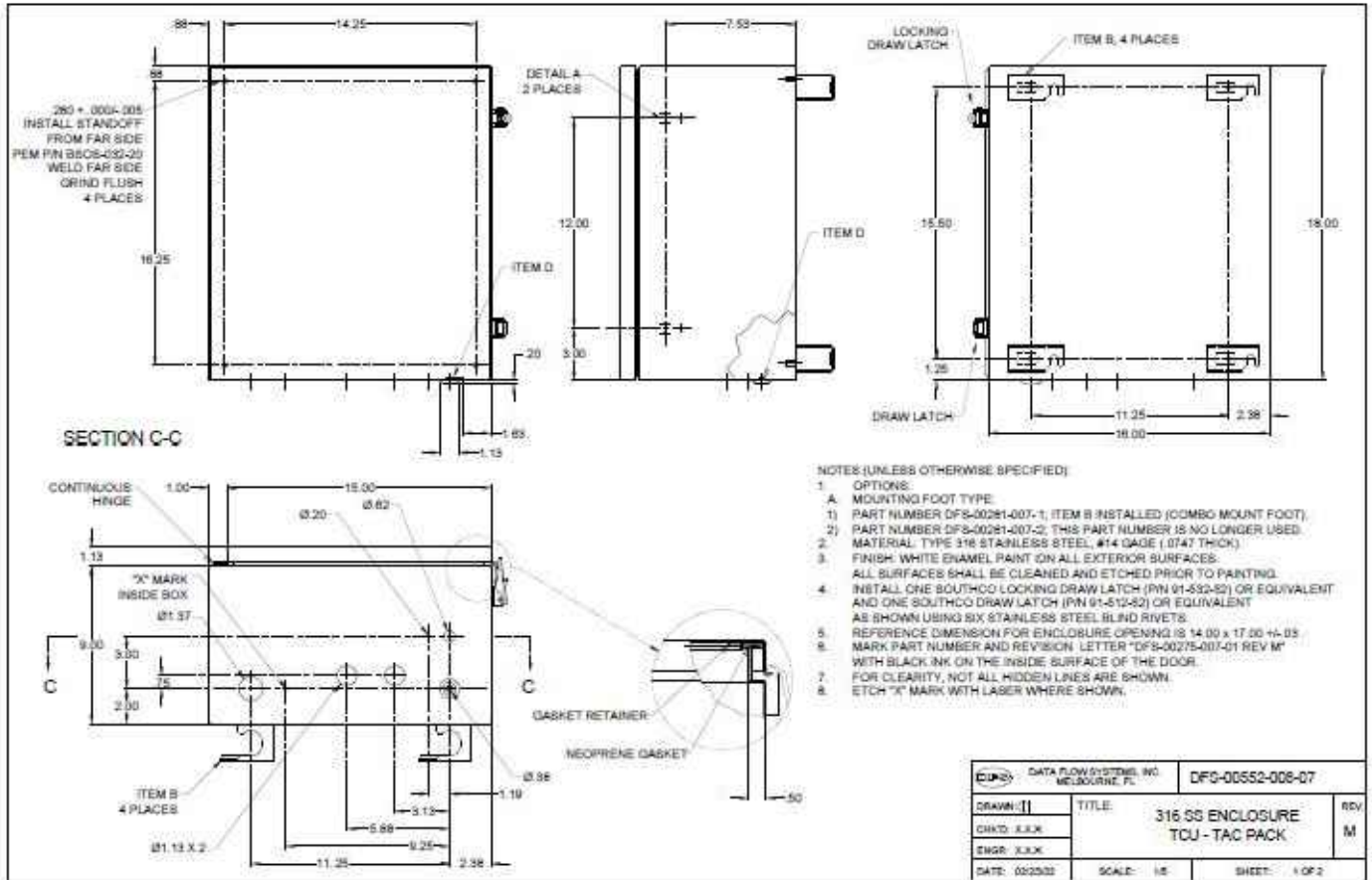
1. SITE LIGHTING SHALL BE MOUNTED ON TOWER SECTION OF THE TELEMETRY ANTENNA. LIGHT SHALL BE POSITIONED TO LIGHT AREA INSIDE THE FENCE.

liff station details rev10-2021.dwg Nov-2021



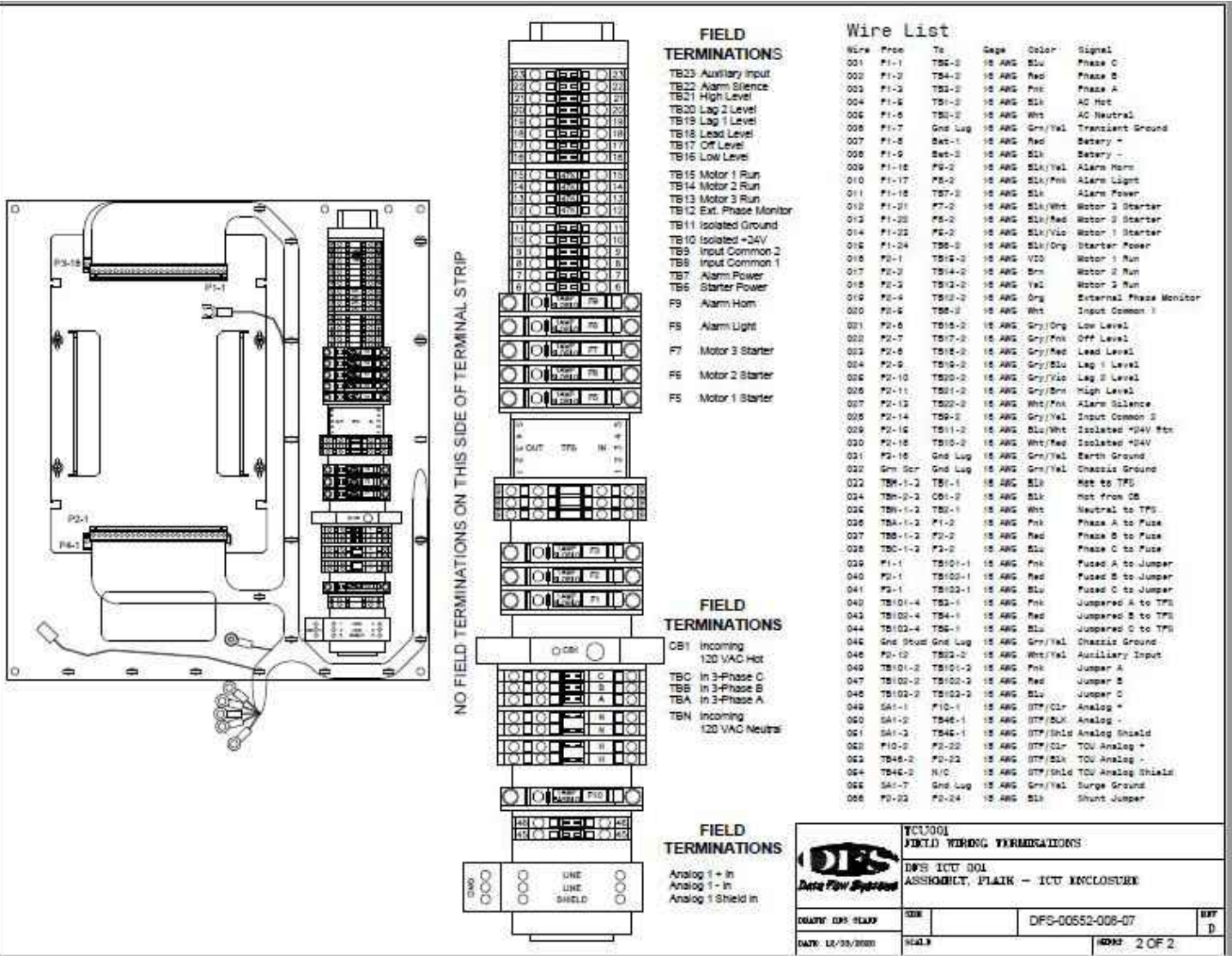
TELEMETRY ANTENNA MOUNT DETAIL

DETAIL
LS-10
SHEET 1 OF 1



NOTES:

1. THIS DETAIL IS FOR LIFT STATIONS WITH VFDs.



NOTES:

1. THIS DETAIL IS FOR LIFT STATIONS WITH VFDs.



TELEMETRY CONTROL UNIT ENCLOSURES

DETAIL

LS-11

SHEET 2 OF 2