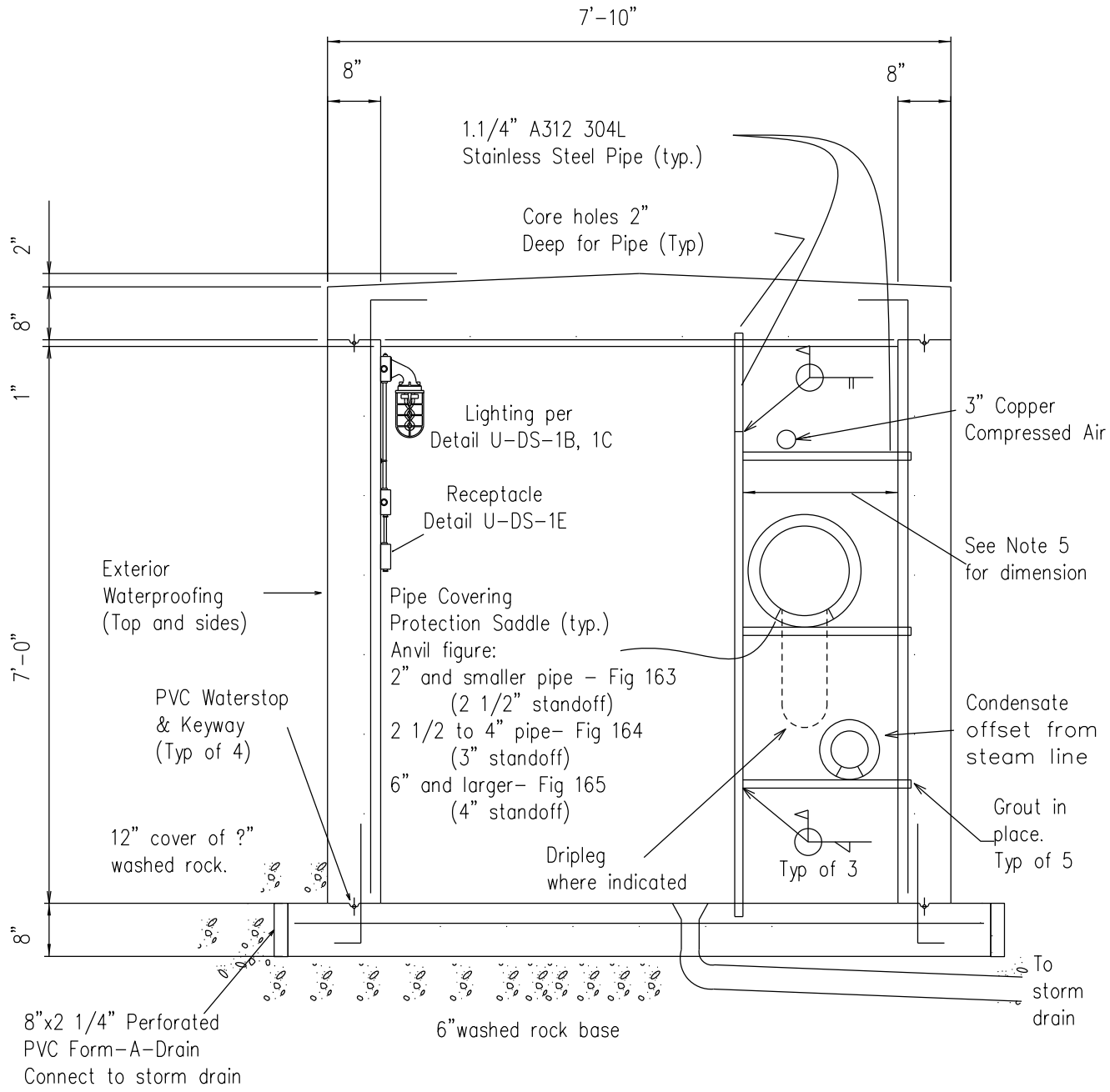


NOTE:

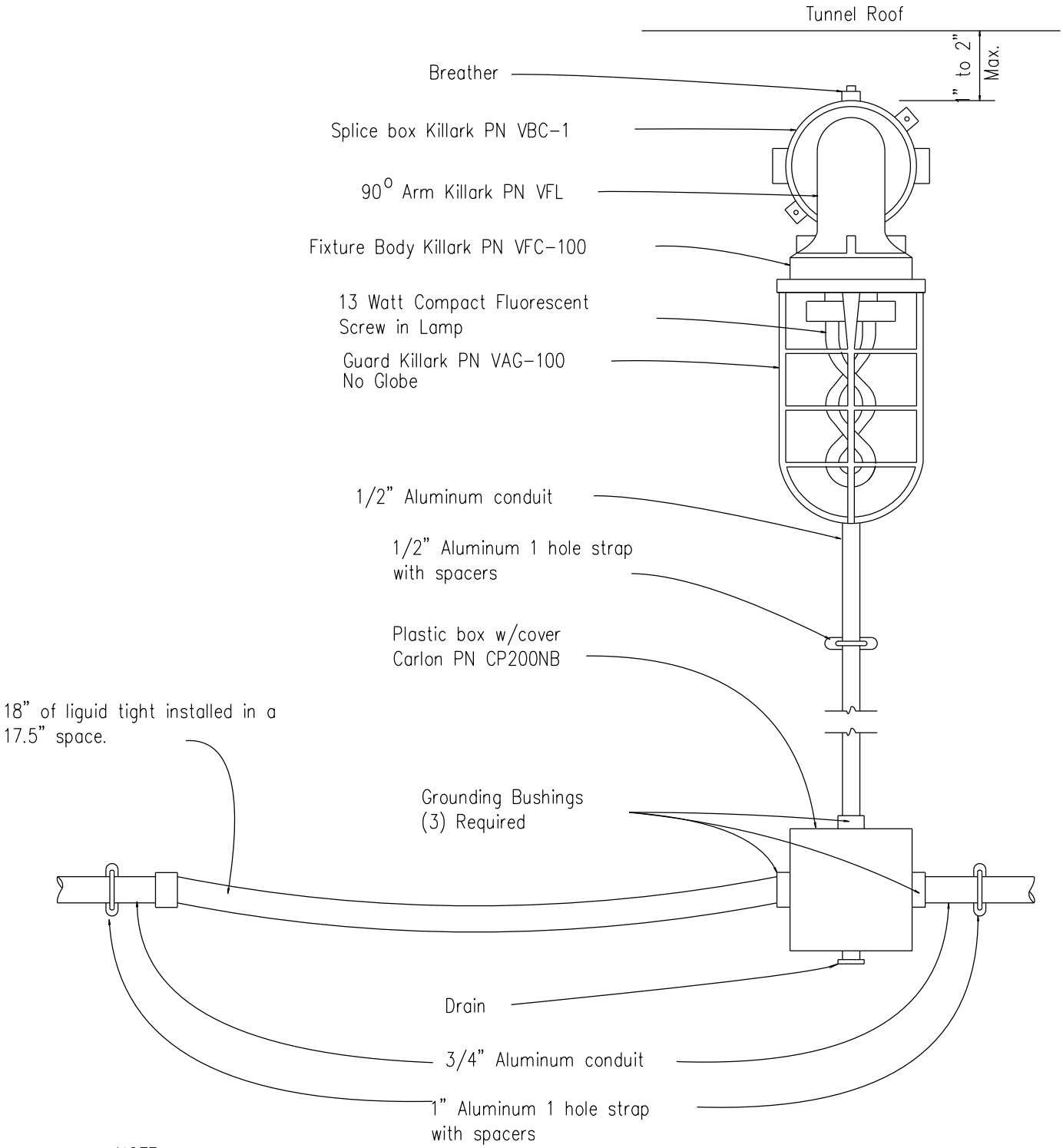
1. All rebar epoxy coated.
2. See Civil drawings for rebar design.
3. Install floor drains every 100 ft.
4. Stanchion width = Pipe and insulation diameter + 12" (minimum of 18" wide).

WALK TUNNEL CROSS SECTION

Mechanical Detail

U-DS-1a

Rev 7/14/11



NOTE:

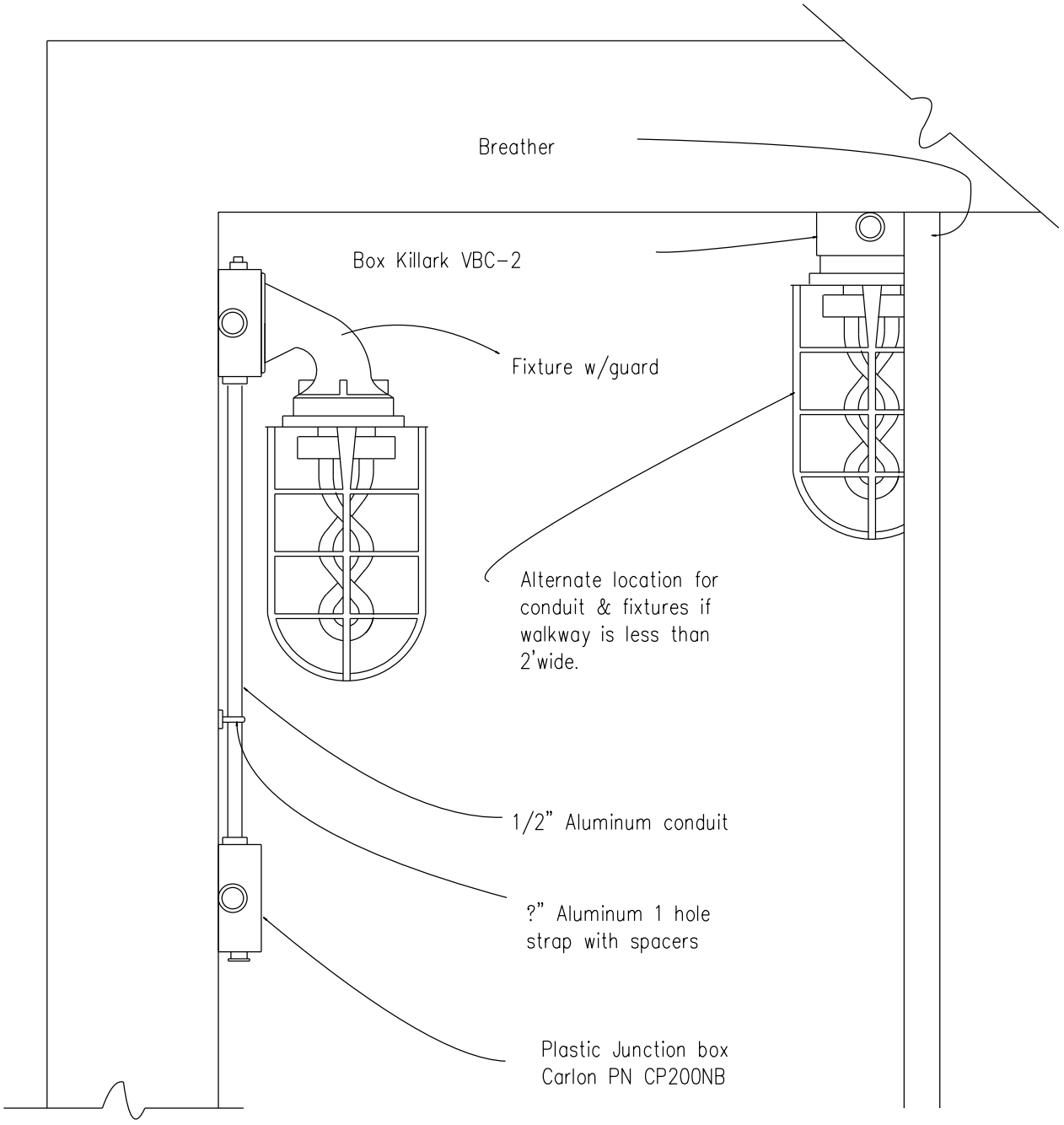
1. Power to come from a contactor in building machine room.
2. Control wire to contactor to come from upstream lighting circuit in tunnel.
3. Space approximately every 30 ft.

STANDARD TUNNEL LIGHT FIXTURE
Front View

Mechanical Detail

U-DS-1b

Rev 8/16



TYPICAL SQUARE TUNNEL

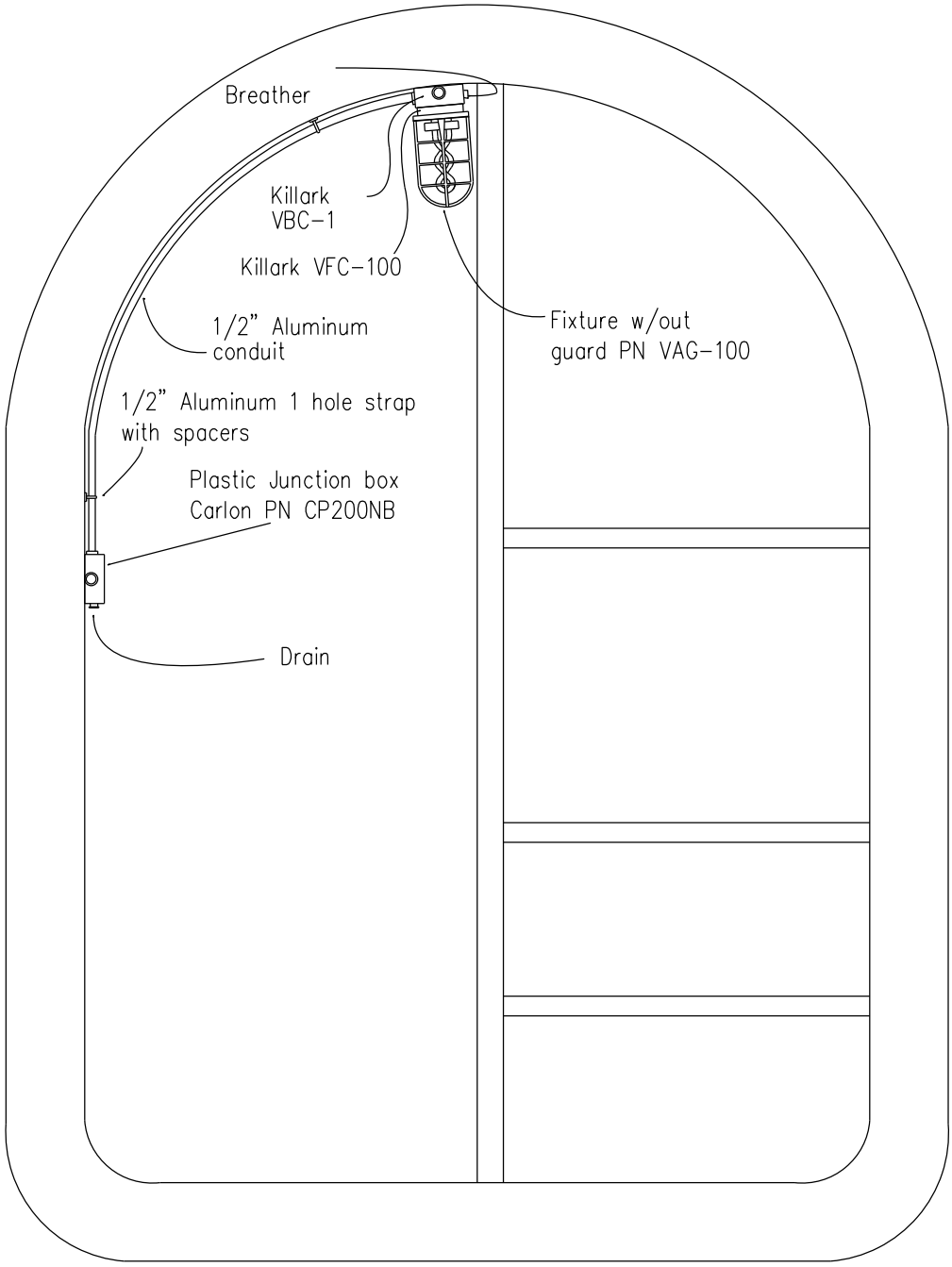
NOTE: If alternate location is used – 3/4" conduit & flex shall be ceiling installed between fixture boxes – plastic junction boxes will not be utilized.

STANDARD TUNNEL LIGHT FIXTURE
Profile

Mechanical Detail

U–DS–1c

Rev 2/07

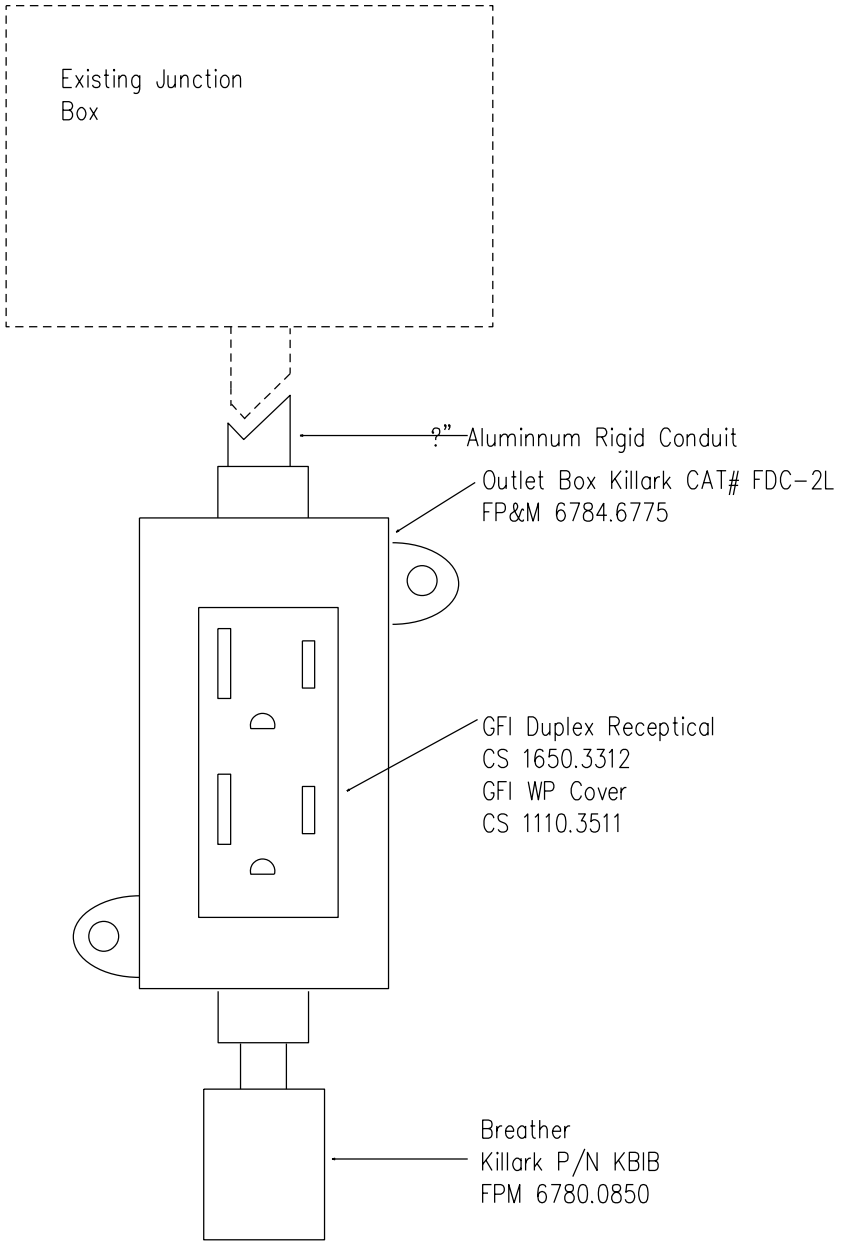


LIGHTING FOR EXISTING ARCH TUNNEL

Mechanical Detail

U-DS-1d

Rev 2/07



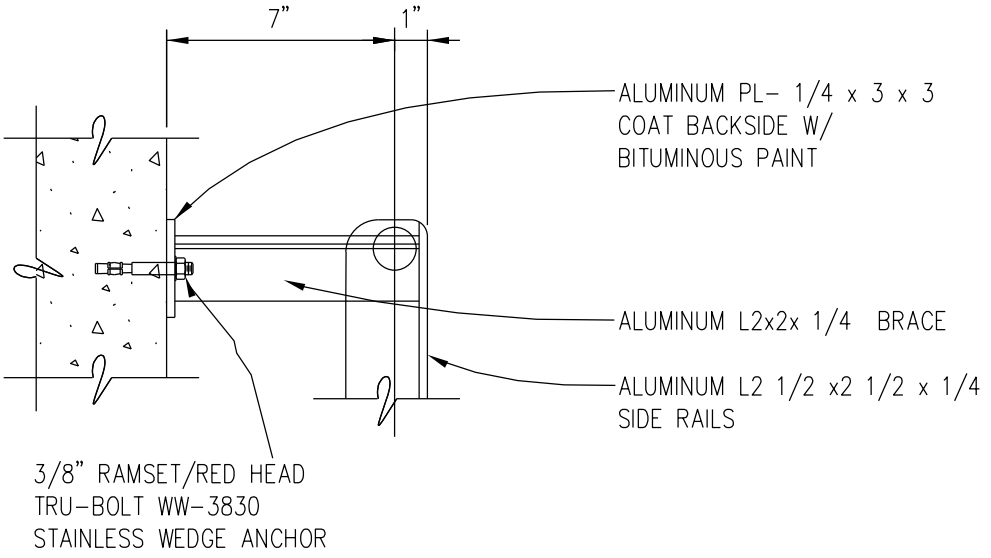
1. To be installed every 50 feet on lighting conduit.
2. Power to outlets to be on separate circuit.

STANDARD TUNNEL OULET

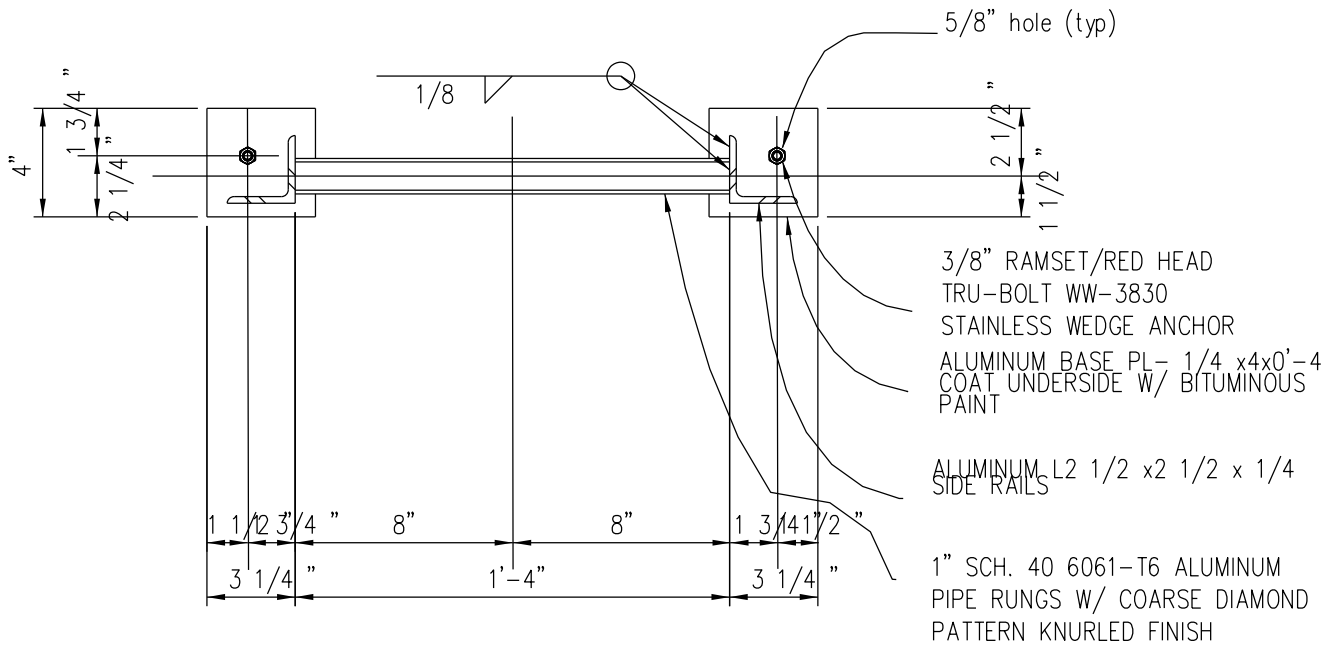
Mechanical Detail

U-DS-1e

Rev 2/14/03



LADDER WALL ANCHORAGE DETAIL
Side view, Top of Ladder



LADDER BASE ANCHORAGE DETAIL
Top View, Bottom of ladder

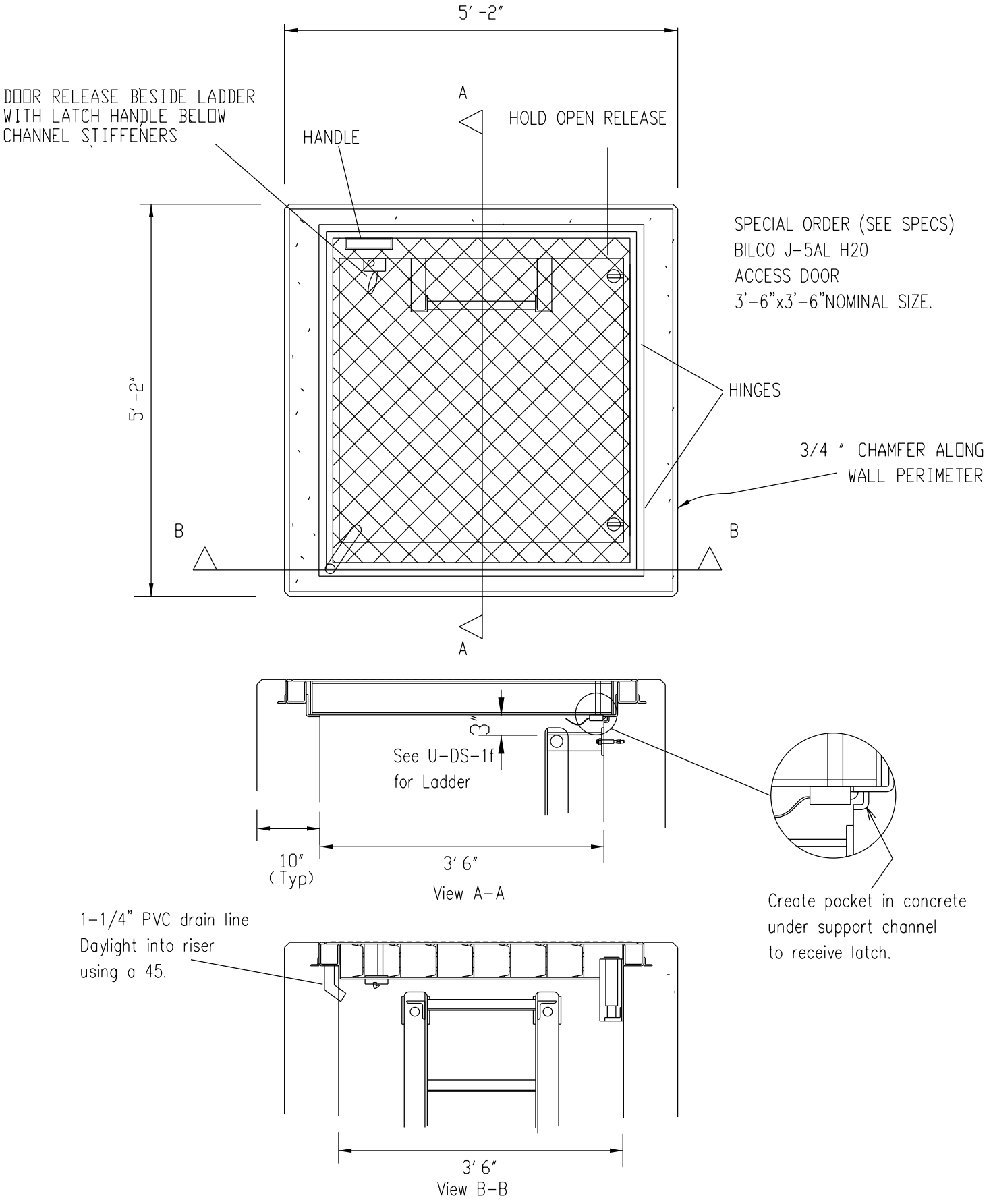
Notes:
1. Aluminum shapes and plates to be 6061-T6 with mill finsh
2. Rungs spacing to be 12"
3. 3" clearance between top of ladder and bottom of manhole or hatch.

STANDARD ALUMINUM LADDER

Mechanical Detail

U-DS-1f

Rev 4/13/06

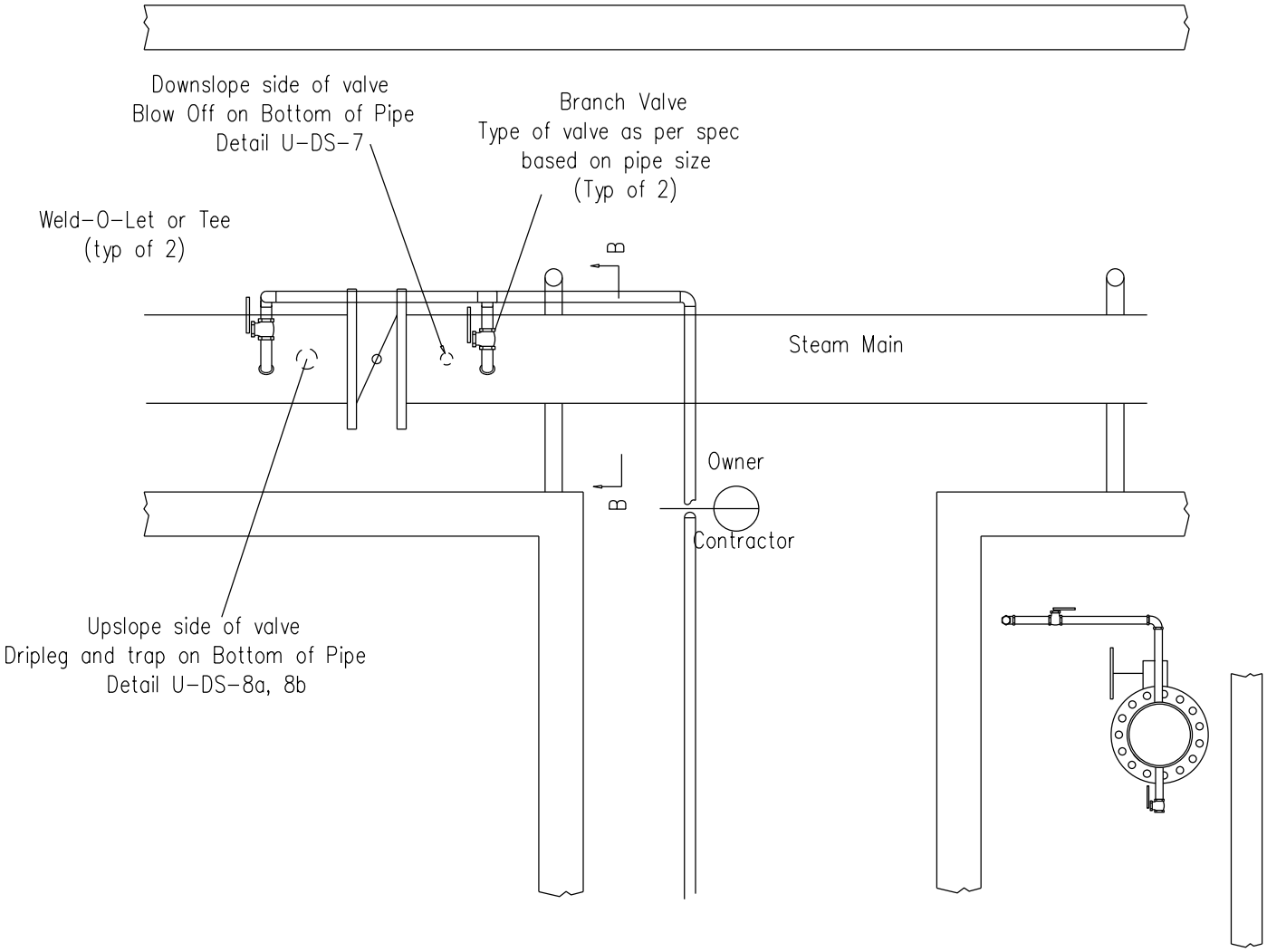


TUNNEL ACCESS HATCH

Mechanical Detail

U-DS-1g

Rev 11/21/18



Section B-B

1. If new steam connection is to be made on an operating steam line, Owner is to install piping up to indicated point and Contractor is to follow these instructions:
   A. Contractor to align new piping with owner provided branch.
   B. Contractor to cap his piping for hydro-test.
   C. Contractor to install high point vent at cap if needed.
   D. Owner to hydro-test contractor's pipe, cut cap, and make final connection.

2. If Contractor is installing new main and new branch line, all piping is to be installed by Contractor and Contractor is to follow these instructions:
   A. Pipe configuration shown in this detail is for reference only. Consult with Owner on final configuration for each installation.
   B. Contractor to submit planned piping configuration to Owner for approval before fabricating piping.
   C. All piping to be completed before Owner performs hydrotest.

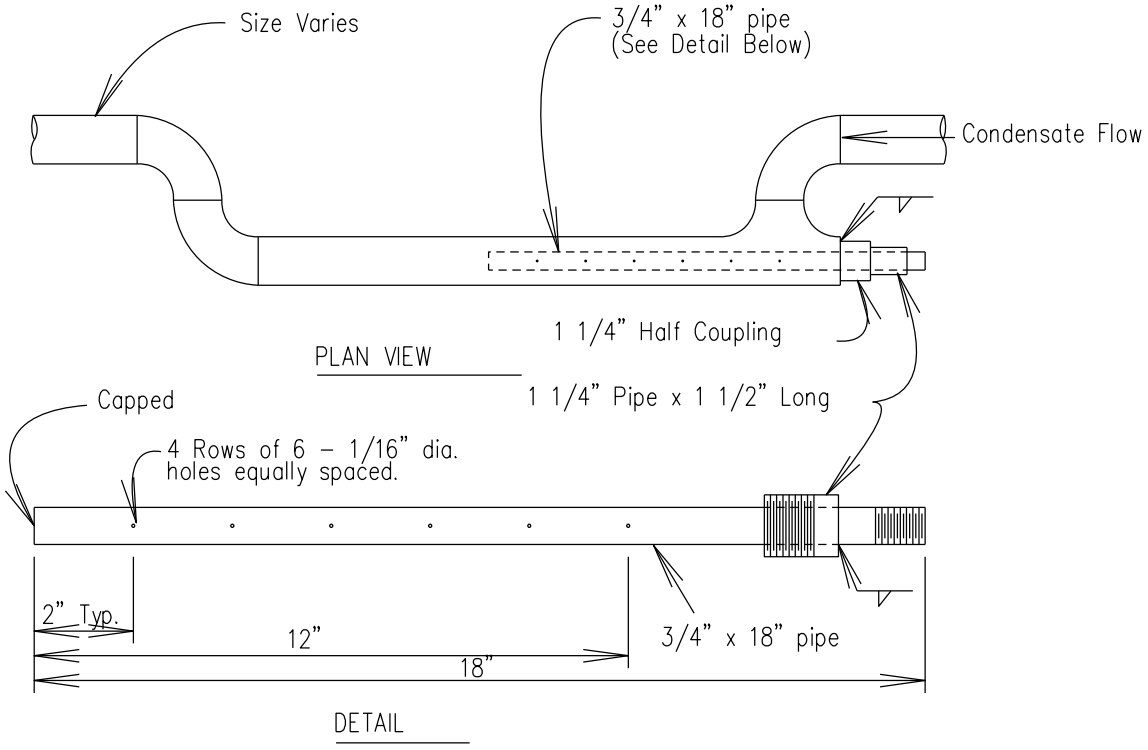
Layout is for general information ONLY.
Specific connection, anchoring, and expansion shall be dsigned by Consultant in coordiabntion with Owner for each location.

TYPICAL STEAM CONNECTION

Mechanical Detail

U-DS-2

Rev 8/17/14



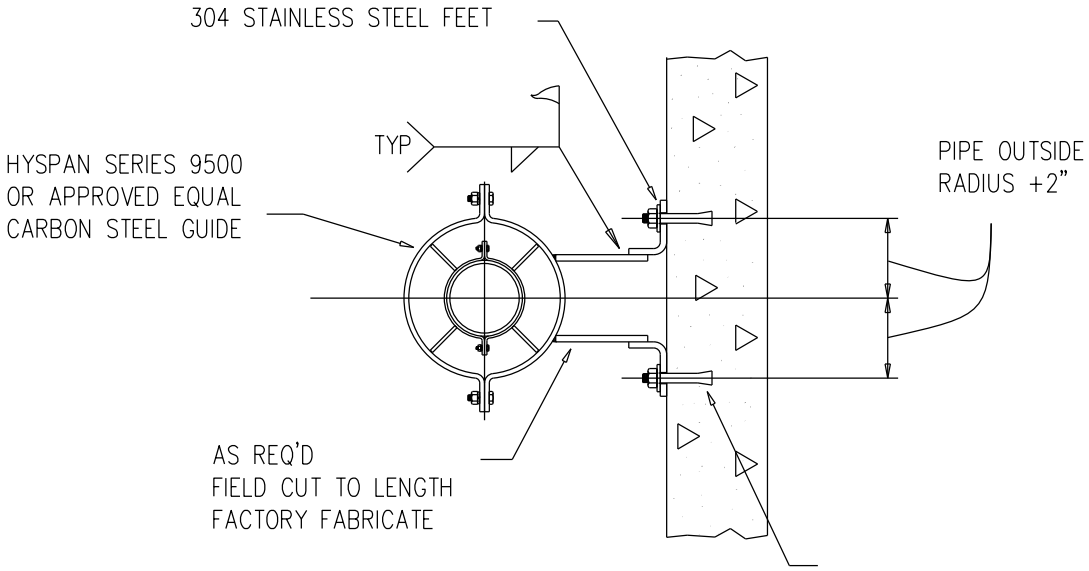
1. INSTALL WHERE TRAPS DISCHARGE INTO FLOODED CONDENSATE LINES
2. INSTALL VALVES UPSTREAM AND DOWNSTREAM OF DIFFUSER TUBE.

STANDARD DIFFUSER TUBE

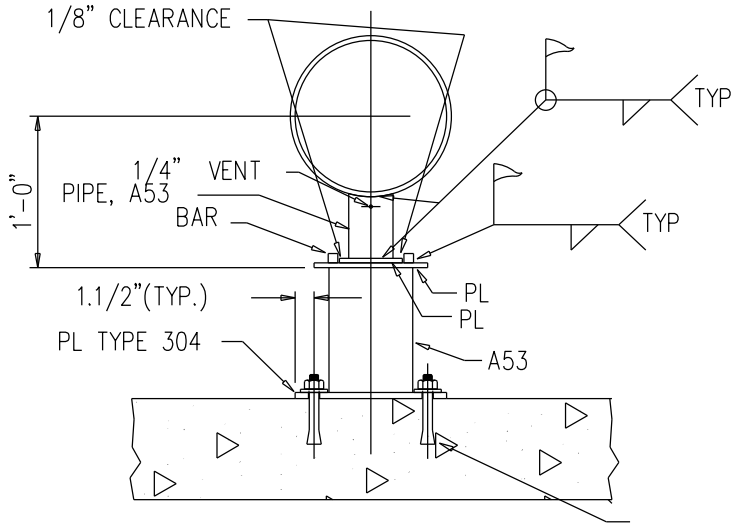
Mechanical Detail

U–DS–3

Rev 8/17/14



TYPICAL PIPE GUIDE



NOTE: APPLY GRAPHITE GREASE
BETWEEN SLIDING SURFACES.

STAINLESS STEEL ANCHOR BOLT
PER SPEC
(4 REQ'D)
SIZE AS REQ'D

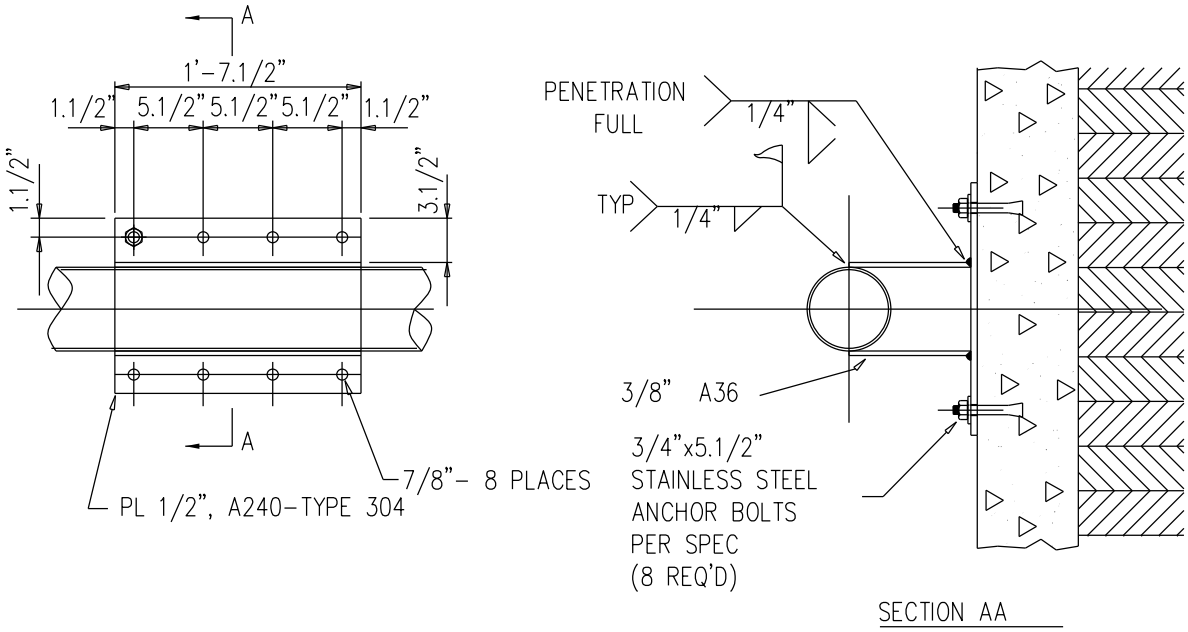
TYPICAL BOTTOM GUIDE

STANDARD STEAM LINE GUIDE

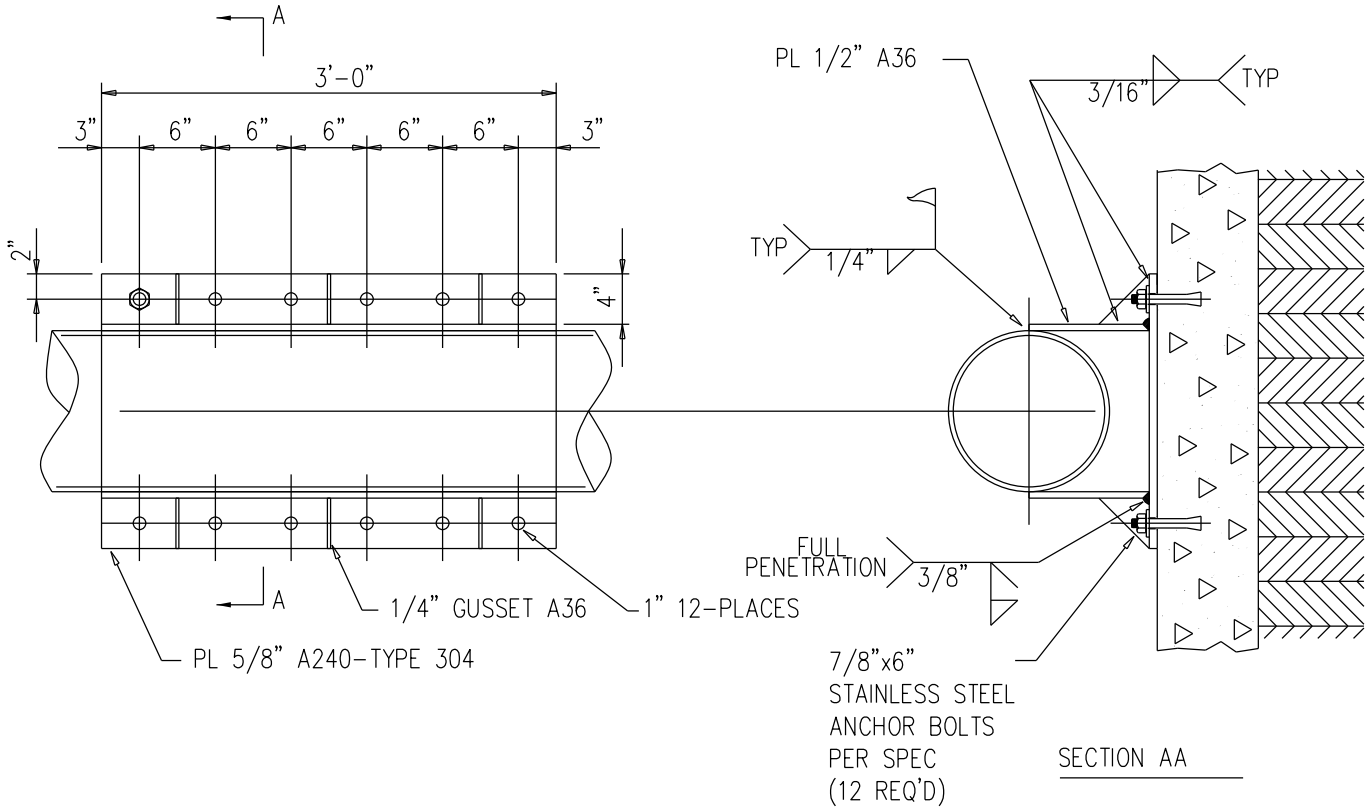
Mechanical Detail

U-DS-4

Rev 7/16/09



4" & 6" PIPE
TYPICAL HPSL ANCHOR



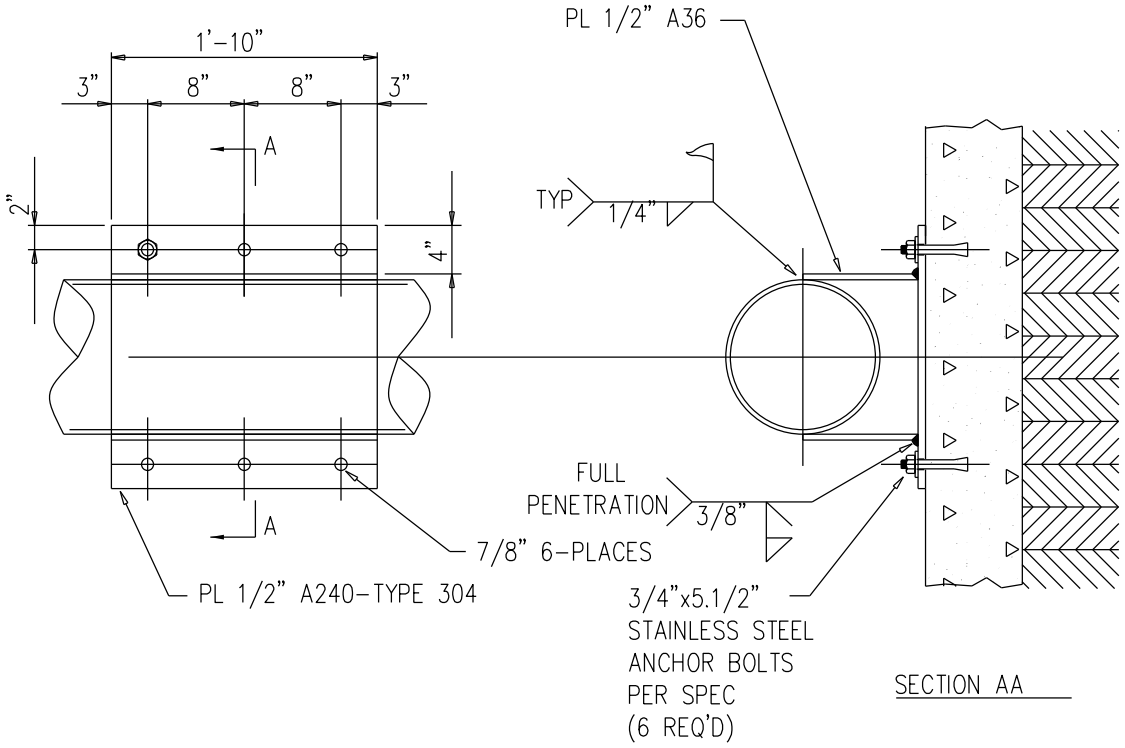
TYPICAL HPSL ANCHOR
8", 10", & 12" PIPE

STANDARD 90 PSIG STEAM LINE ANCHOR

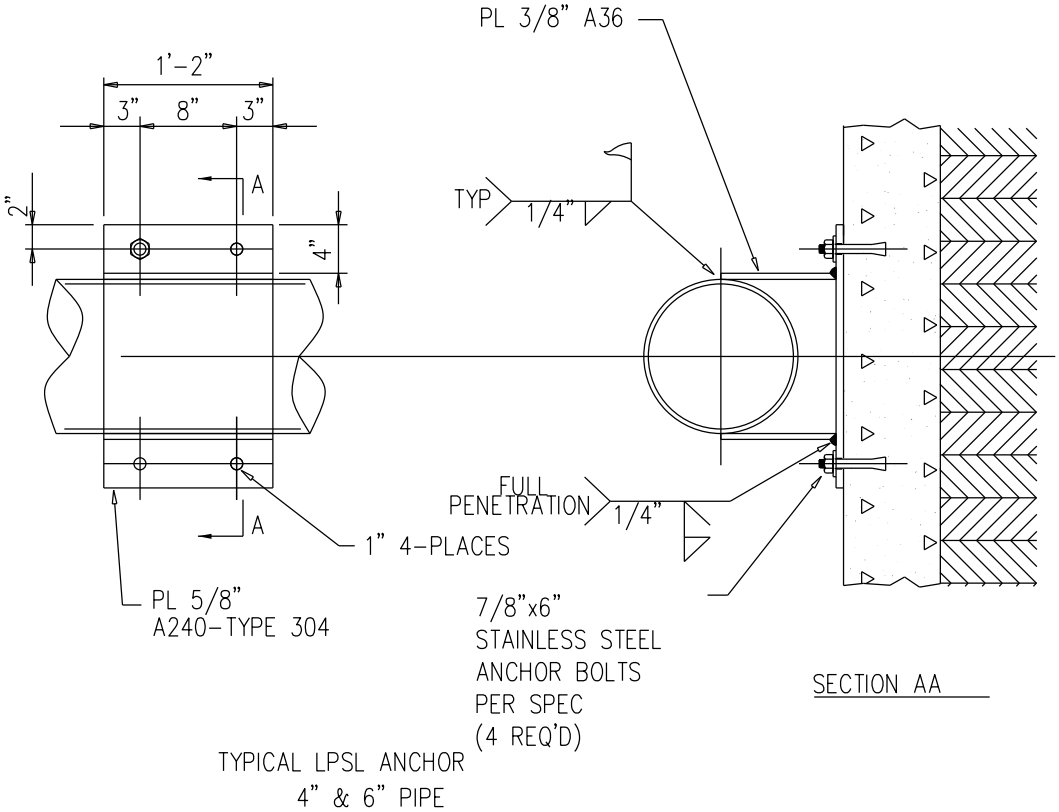
Mechanical Detail

U-DS-5

Rev 7/16/09



TYPICAL LPSL ANCHOR
8", 10", & 12" PIPE



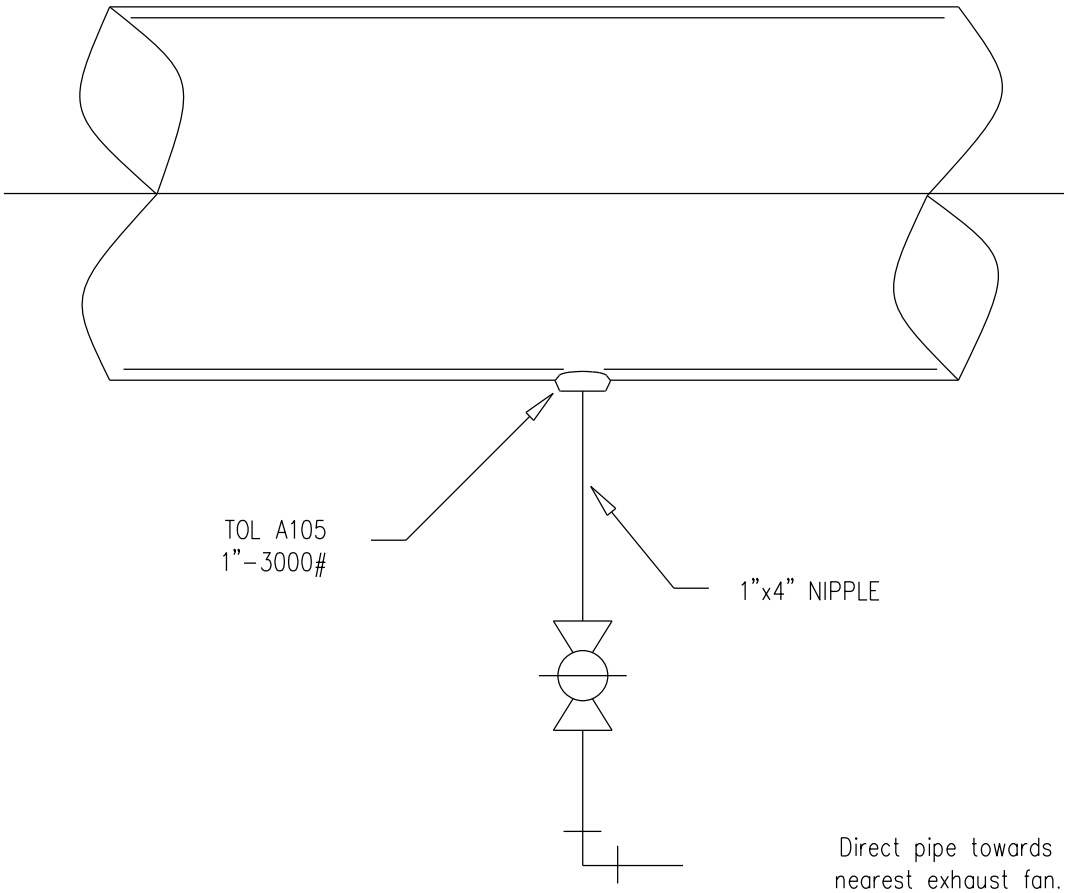
TYPICAL LPSL ANCHOR
4" & 6" PIPE

STANDARD 6 PSIG STEAM LINE ANCHOR

Mechanical Detail

U-DS-6

Rev 7/16/09

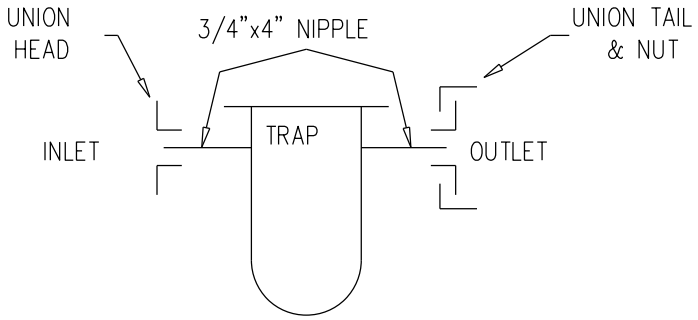


TYPICAL STEAM BLOW OFF DETAIL

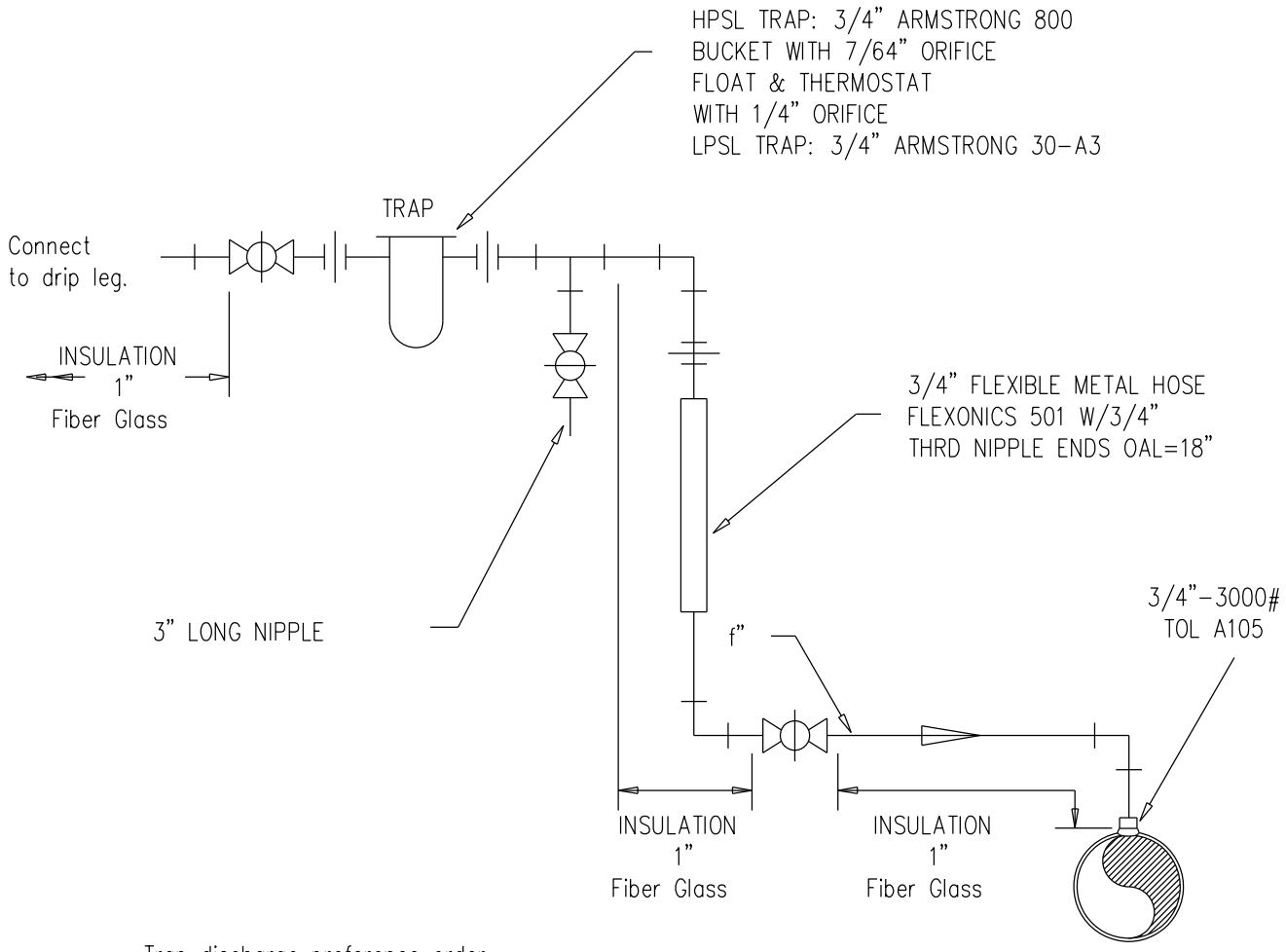
Mechanical Detail

U-DS-7

Rev 2/14/03



TRAP CONNECTION
DETAIL



Trap discharge preference order
1: Discharge HP traps into LP lines
2: Discharge into top of gravity return condensate lines.
3: Discharge into condensate receiver tanks.
4: Discharge into pumped condensate lines (See Detail U-DS-3)

NOTE:
Flexible hose must be perpendicular to steam line.

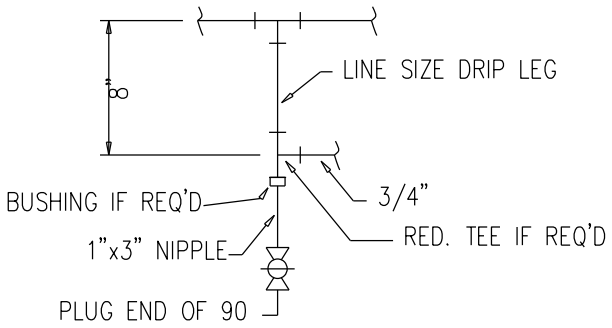
STANDARD STEAM TRAP DETAIL

Mechanical Detail

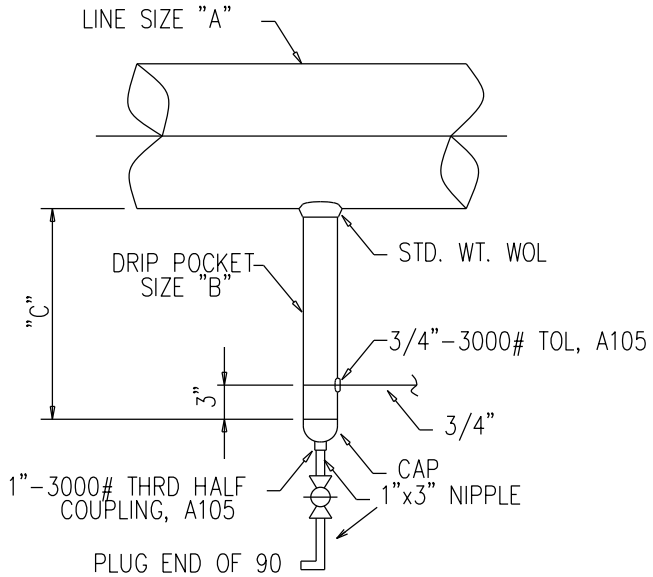
U-DS-8a

Rev 9/08/08

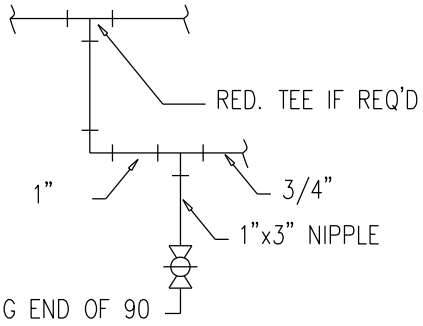
LINE "A"	POCKET "B"	DIM "C"
2"	2"	8"
3"	3"	8"
4"	4"	10"
6"	4"	10"
8"	4"	16"
10"	6"	16"
12"	6"	16"
14"	6"	16"



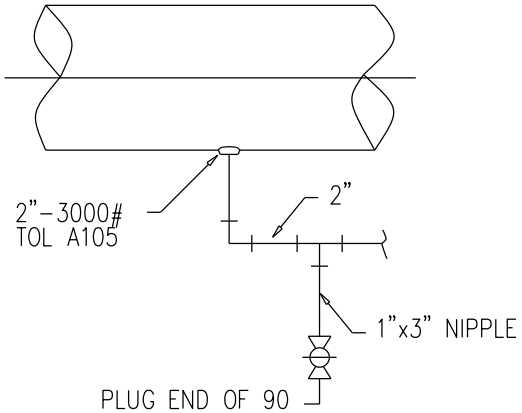
LINE SIZE 2" & SMALLER



LINE SIZE 2.1/2" & LARGER



LINE SIZE 2" & SMALLER
INSUFFICIENT SPACE AVAILABLE
FOR REQ'D DRIP POCKET
(Use only where specifically directed)



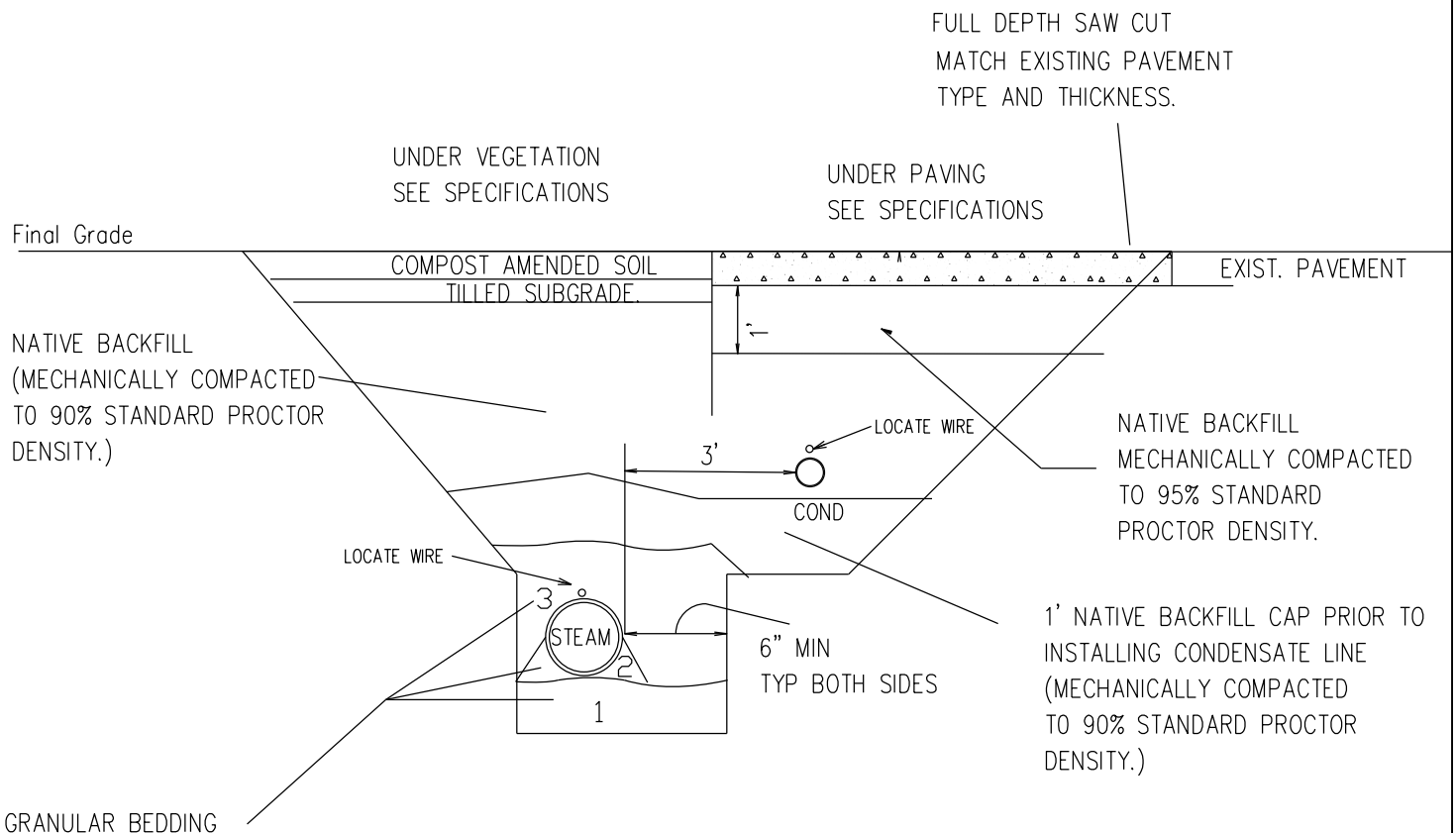
LINE SIZE 2.1/2" & LARGER
INSUFFICIENT SPACE AVAILABLE
FOR REQ'D DRIP POCKET
(Use only where specifically directed)

STEAM DRIPLEG

Mechanical Detail

U-DS-8b

Rev 8/17/14



SECTION 1: MECHANICALLY COMPACT BEDDING TO 95% STANDARD PROCTOR DENSITY PRIOR TO SETTING PIPE.

SECTION 2: SPECIAL HAND COMPACTION OF FILL IN PIPE HAUNCH PER MANUFACTURER'S INSTRUCTIONS.

SECTION 3: MECHANICALLY COMPACT FILL TO 90% STANDARD PROCTOR DENSITY WITH SMALL COMPACTION EQUIPMENT IN LIFTS LESS THAN THE DIAMETER OF THE STEAM CASING PIPE. FILL TO 8-12" OVER STEAM LINE

1: TRENCH SLOPES SHALL CONFORM TO OSHA STANDARDS

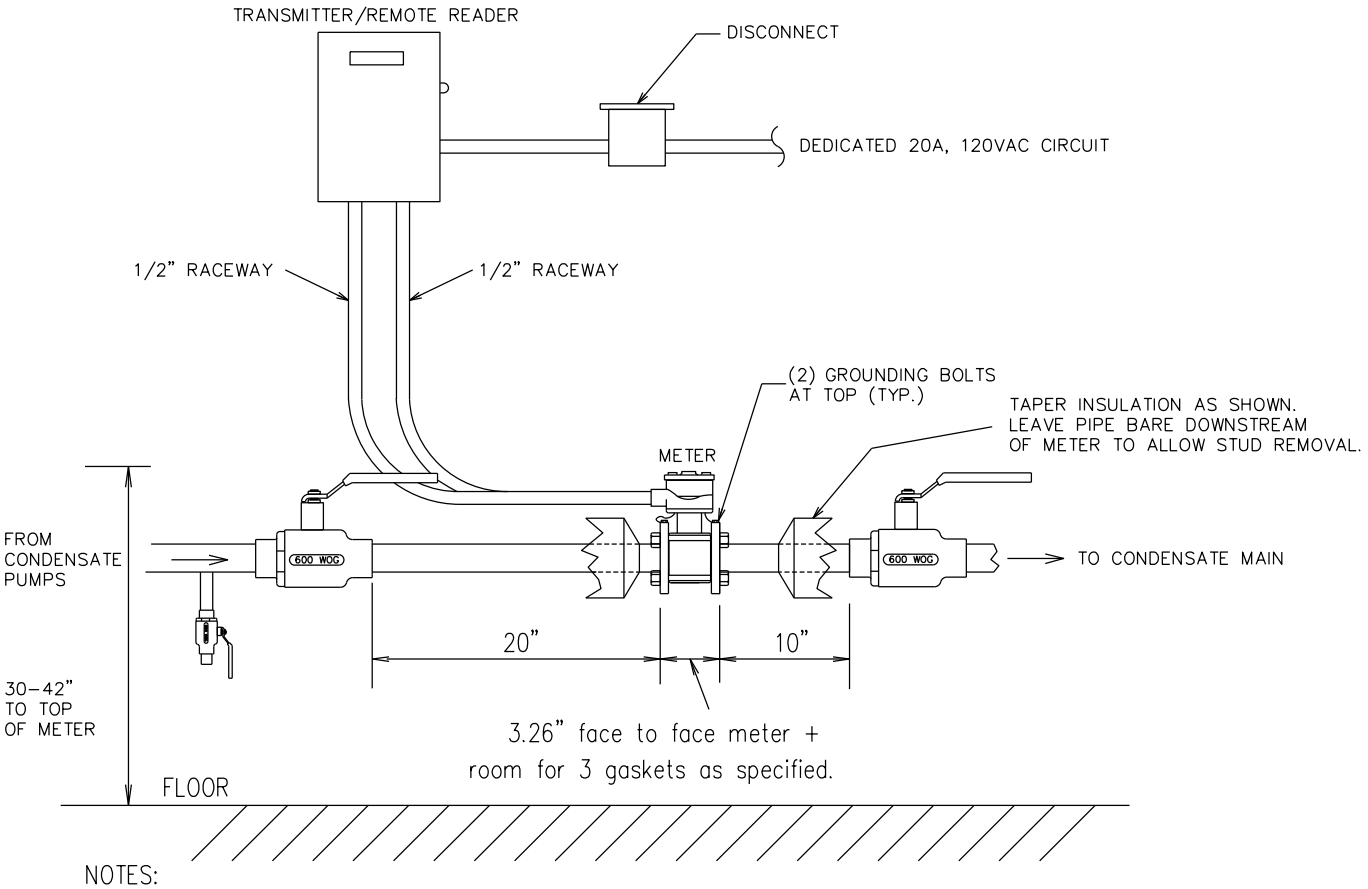
2: DEPTHS SHALL BE AS PER PROFILE SHEET

STEAM AND COND TRENCH

Mechanical Detail

U-DS-10

Rev 8/17/14



NOTES:

1. METER TO BE PIPED UP AT A LOCATION APPROVED BY OWNER. METER BODY AND HEAD TO BE NO CLOSER THAN 12" TO ANY WALL OR OBSTRUCTION.
2. CONTRACTOR MAY INSTALL A CONTRACTOR PROVIDED SPOOL PIECE TO FIT UP PIPE PRIOR TO RECEIVING METER. IF SPOOL PIECE IS BEING INSTALLED, OWNER WILL PROVIDE THE FLANGES AND GASKETS WHEN REQUIRED.
3. USE DOUBLED UP GASKET ON THE DOWNSTREAM FLANGE.
4. WAFER STYLE METER, ALIGNMENT RINGS, STUDS, AND NUTS, (AND GASKETS AND FLANGES IF NOT PROVIDED EARLIER) TO BE FURNISHED BY OWNER AFTER JUNCTION BOX IS INSTALLED AND POWER IS ACTIVE. METER INSTALLED BY CONTRACTOR.
5. USE NEVERSEIZE ON GROUNDING BOLTS.
6. TRANSMITTER AND DISCONNECT TO BE PROVIDED BY OWNER AT A LOCATION COORDINATED WITH CONTRACTOR AFTER METER IS INSTALLED.
7. OWNER WILL SET UP METER ELECTRONICS.
8. SEE DETAIL U-DS-11C FOR ELECTRICAL CONNECTIONS.

PARTS LIST:

ISU FP&M STORES

6647. 2500	OWNER PROVIDED 5A DISCONNECT.
6647.4705	2" WAFER MAG
6647.7470	REMOTE TRANSMITTER AND READOUT FOR METER.
6646.2702	2" COMPRESSED FIBER EPDM BINDER GASKETS RATED FOR 212F.
7900.2710	2" 150# RAISED FACE THREADED STEEL FLANGES
	OWNER TO TAP TOP OF FLANGES FOR 1/4" X 20 X 1/2" GROUNDING BOLT

ISU CENTRAL STORES (CS PART # Listed for internal projects only. Not provided by Owner)

CS 7807.1061	2" FULL PORT BALL VALVE APOLLO 77-108-01, THREADED, Handle extensions.

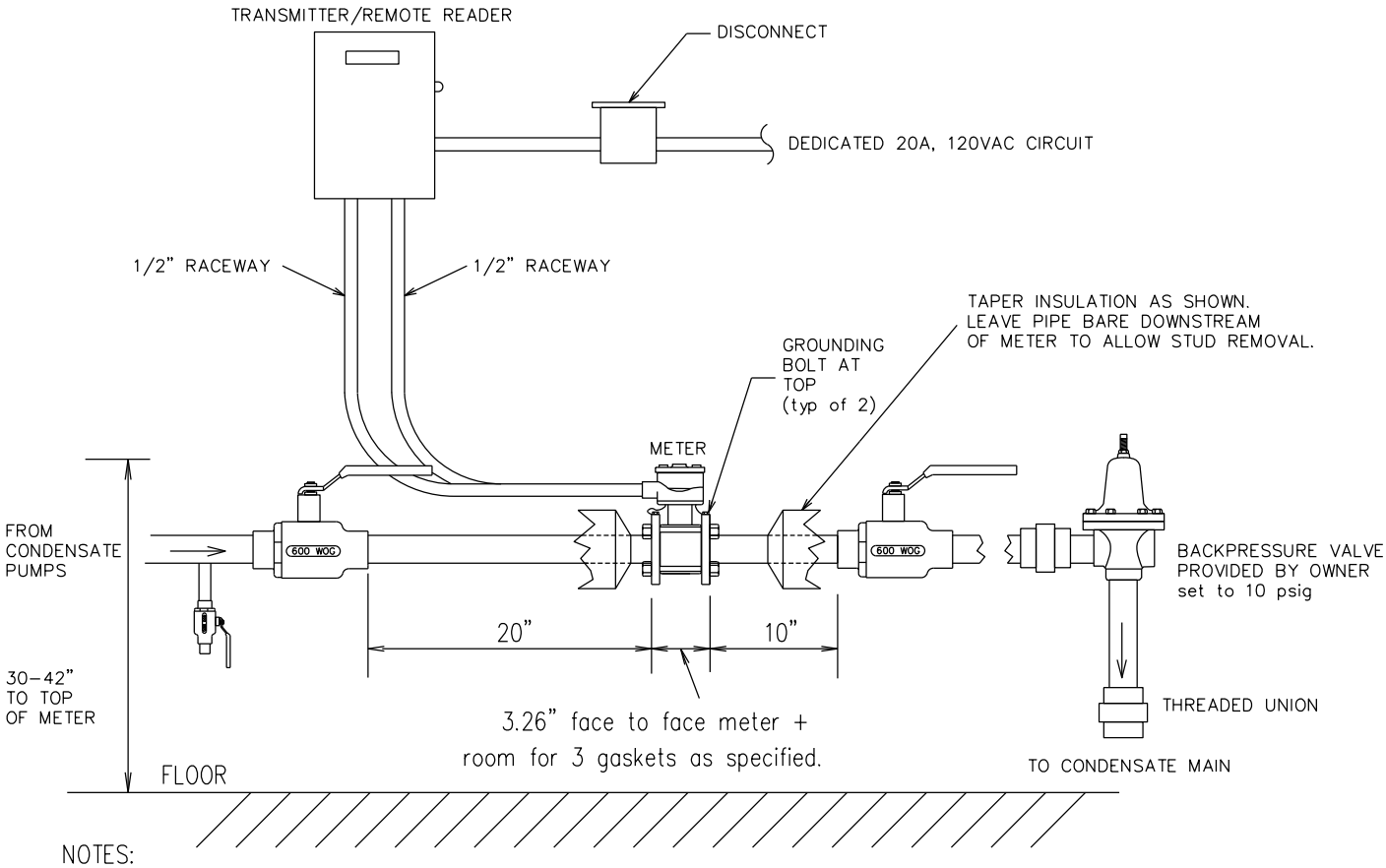
CONDENSATE METER

CONDENSATE PUMP BELOW CONDENSATE MAIN

Mechanical Detail

U-DS-11a

Rev 5/3/19



NOTES:

1. METER TO BE PIPED UP AT A LOCATION APPROVED BY OWNER. METER BODY AND HEAD TO BE NO CLOSER THAN 12" TO ANY WALL OR OBSTRUCTION.
2. CONTRACTOR MAY INSTALL A CONTRACTOR PROVIDED SPOOL PIECE TO FIT UP PIPE PRIOR TO RECEIVING METER. IF SPOOL PIECE IS BEING INSTALLED, OWNER WILL PROVIDE THE FLANGES AND GASKETS WHEN REQUIRED.
3. USE DOUBLED UP GASKET ON THE DOWNSTREAM FLANGE.
4. WAFER STYLE METER, ALIGNMENT RINGS, STUDS, AND NUTS, (AND GASKETS AND FLANGES IF NOT PROVIDED EARLIER) TO BE FURNISHED BY OWNER AFTER JUNCTION BOX IS INSTALLED AND POWER IS ACTIVE. METER INSTALLED BY CONTRACTOR.
5. USE NEVERSEIZE ON GROUNDING BOLTS.
6. TRANSMITTER AND DISCONNECT TO BE PROVIDED BY OWNER AT A LOCATION COORDINATED WITH CONTRACTOR AFTER METER IS INSTALLED.
7. OWNER WILL SET UP METER ELECTRONICS.
8. SEE U-DS-11C FOR ELECTRICAL CONNECTIONS.
9. PIPE MUST BE SLOPED UPWARDS THROUGH METER TO BACKPRESSURE VALVE.

PARTS LIST:

ISU FP&M STORES

6647.4705	2" WAFER MAG
6647.7470	REMOTE TRANSMITTER AND READOUT FOR METER.
6646.2702	2" COMPRESSED FIBER EPDM BINDER GASKETS RATED FOR 212F.
7900.2710	2" 150# RAISED FACE THREADED STEEL FLANGES OWNER TO TAP TOP OF FLANGES FOR 1/4" X 20 X 1/2" GROUNDING BOLT
6647.7900	2" THREADED BACKPRESSURE VALVE SET AT 10

ISU CENTRAL STORES (CS PART # Listed for internal projects only. Not provided by Owner)

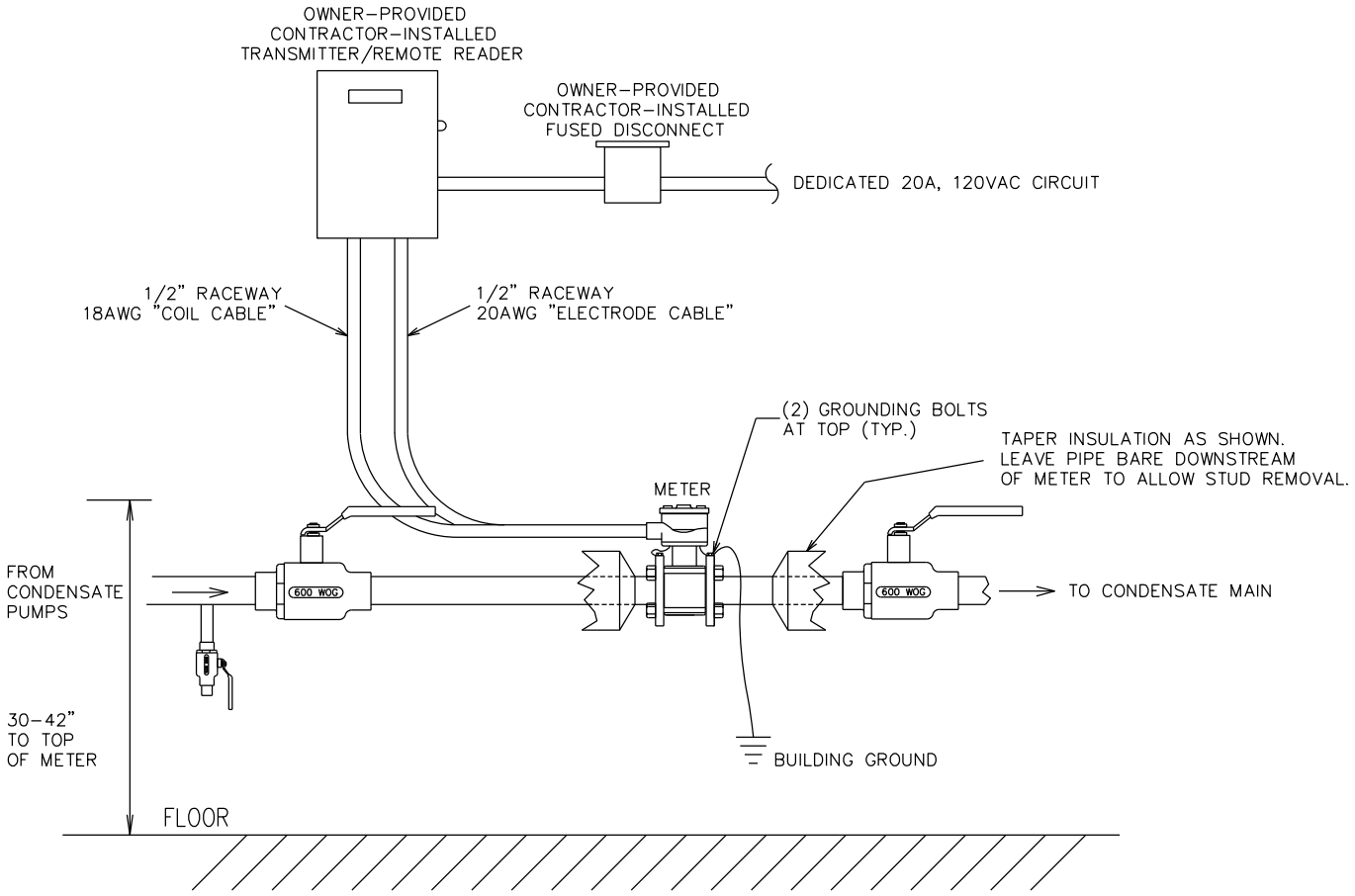
CS 7807.1061	2" FULL PORT BALL VALVE APOLLO 77-108-01, THREADED.

CONDENSATE METER
CONDENSATE PUMP ABOVE CONDENSATE MAIN

Mechanical Detail

U-DS-11b

Rev 7/5/20



NOTES:

1. ALL RACEWAYS SHALL BE EITHER (OR A COMBINATION OF): EMT, RMC, IMC,OR LFMC AND WILL BE SUBJECT TO ANY ADDITIONAL REQUIREMENTS FOR SPECIAL LOCATIONS (POWER/CHILLER PLANTS, VAULTS HAZARDOUS LOCATIONS, ETC.). ALL RACEWAYS TO BE INSTALLED BY CONTRACTOR.
2. FLOW METER, TRANSMITTER, AND FUSED DISCONNECT ARE TO BE INSTALLED BY THE CONTRACTOR.
3. POWER TO THE TRANSMITTER WILL BE A CONTRACTOR–INSTALLED 20A, 120V DEDICATED CIRCUIT. TRANSMITTER WILL BE PROTECTED BY AN OWNER–PROVIDED FUSED DISCONNECT. DISCONNECT MUST BE INSTALLED WITHIN 5' OF THE TRANSMITTER.
4. ALL SIGNAL CABLE WILL BE SUPPLIED AND INSTALLED BY OWNER. ALL METER/TRANSMITTER TERMINATIONS WILL BE COMPLETED BY OWNER.
5. FLOW METER GROUNDING MUST MEET MANUFACTURER'S INSTALLATION REQUIREMENTS.

PARTS LIST (ISU USE. ONLY INFORMATIONAL FOR CONTRACTOR):

6647. 2500	METER SITE FUSED DISCONNECT
6647.7470	WALL–MOUNTED REMOTE TRANSMITTER
6647.4705	2" MAGNETIC FLOW METER
1915.0289	SINGLE PAIR, 14AWG TWISTED/SHIELDED "COIL CABLE"
1915.0288	SINGLE PAIR, 20AWG TWISTED/SHIELDED "ELECTRODE CABLE"

STANDARD CONDENSATE METER

Electrical Detail

U–DS–11c

Rev 5/3/19