

AS-BUILT DRAWINGS FOR

NECK HEAT EXTRACTION SYSTEM

BRIDGETON LANDFILL

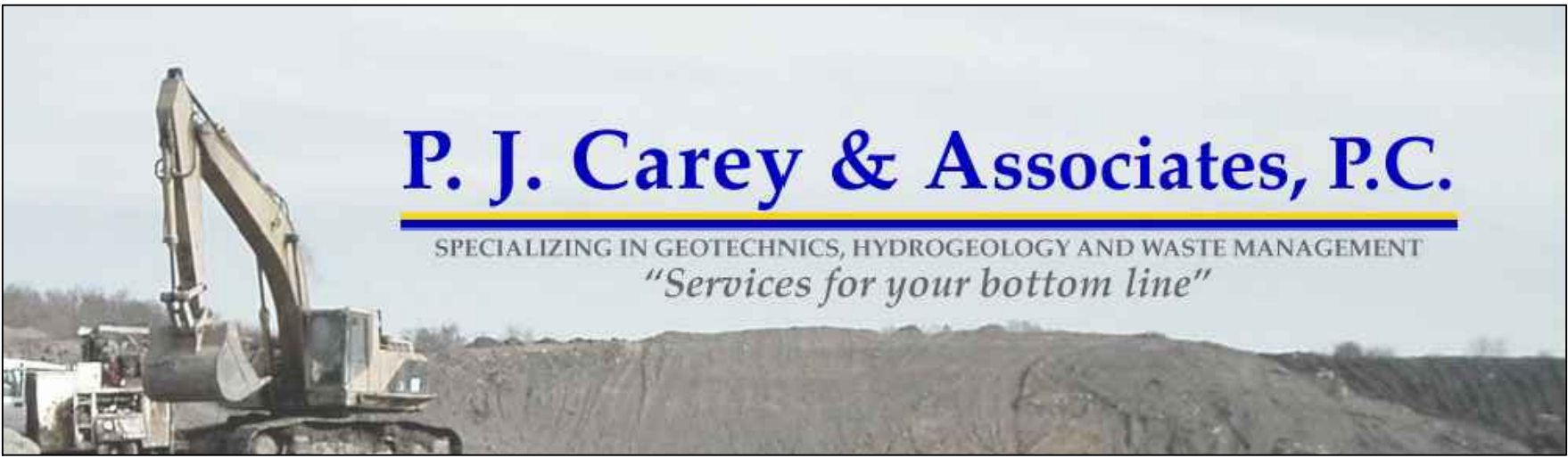
BRIDGETON, ST. LOUIS COUNTY, MISSOURI

NOVEMBER 2016

PREPARED FOR:
BRIDGETON LANDFILL, LLC.



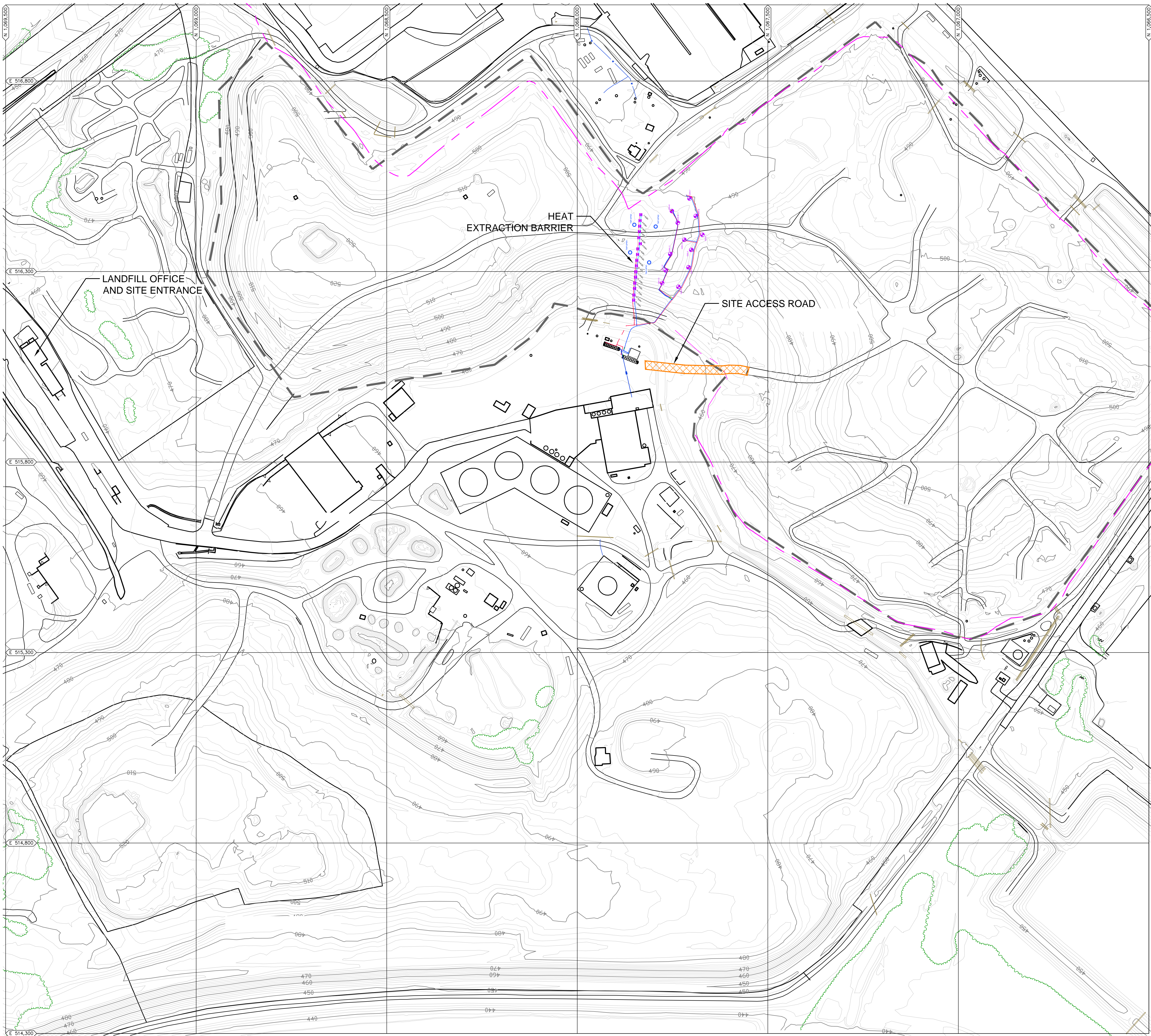
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FAX. (217) 483-2356



5878 VALINE WAY
SUGAR HILL, GA 30518
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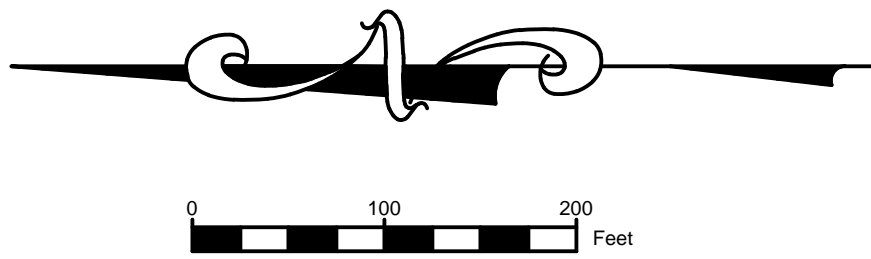
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006	COOLER AND TANK PLAN VIEW
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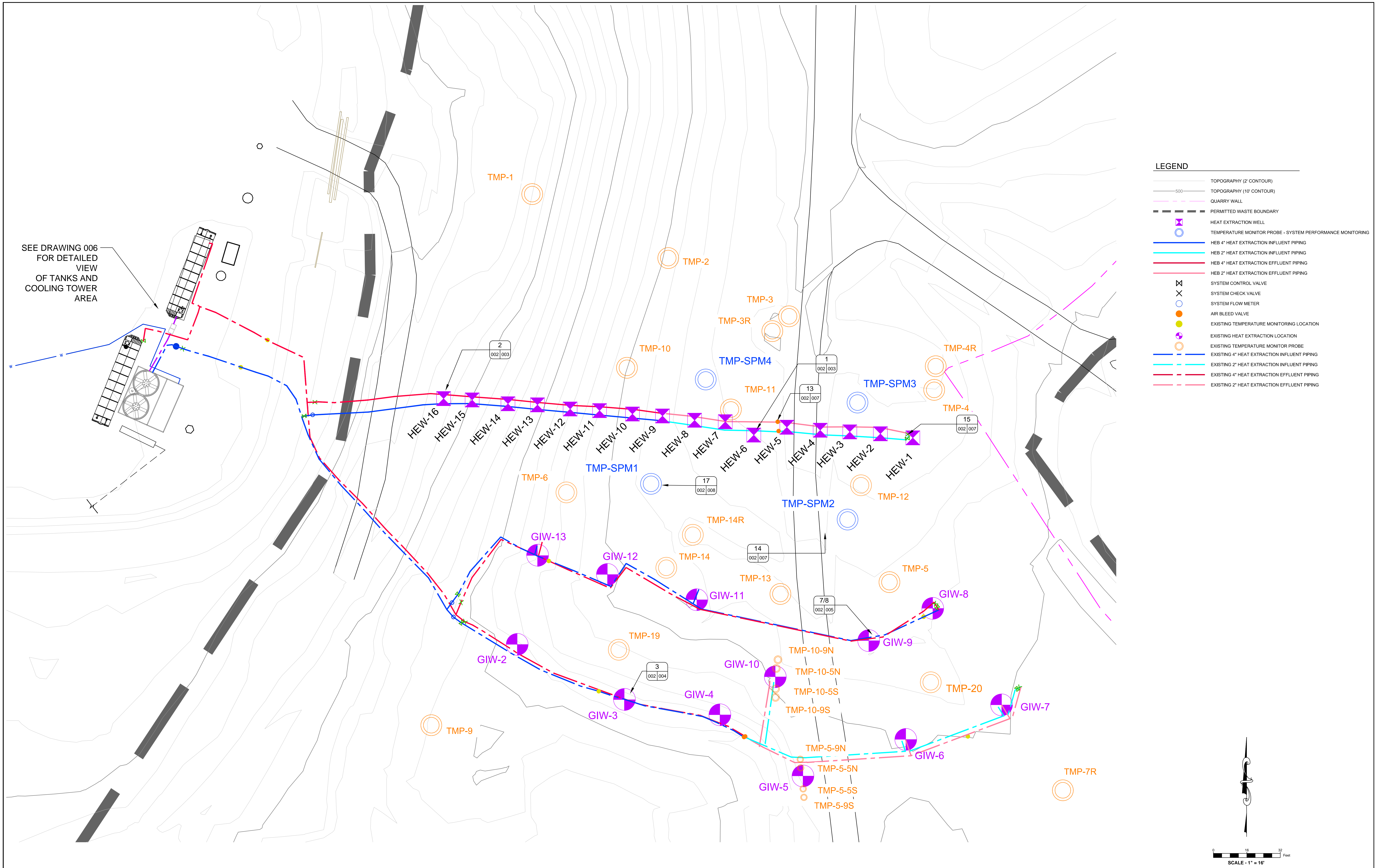
LEGEND

- TOPOGRAPHY (2' CONTOUR)
- TOPOGRAPHY (10' CONTOUR)
- QUARRY WALL
- PERMITTED WASTE BOUNDARY
- HEAT EXTRACTION WELL
- EXISTING HEAT EXTRACTION LOCATION
- SITE ACCESS ROAD



- NOTES:**
- AERIAL TOPOGRAPHY IS DATED FEBRUARY 27, 2016. PROVIDED BY COOPER AERIAL SURVEYS CO.
 - SITE INFRASTRUCTURE ITEMS HAVE BEEN REMOVED FROM THIS DRAWING FOR CLARITY PURPOSES. THE EXISTING SITE INFRASTRUCTURE LAYOUT CAN BE FOUND IN THE 2016 Q3 INFRASTRUCTURE SUBMITTAL.

BRIDGETON LANDFILL LLC 13570 ST. CHARLES ROCK ROAD BRIDGETON, MO 63044	BRIDGETON LANDFILL NECK HEAT EXTRACTION SYSTEM AS-BUILT DRAWINGS	 FEEZOR ENGINEERING, INC.	DATE: NOVEMBER 2016 DESIGNED BY: BLV APPROVED BY: DRF	DRAWING NO.: 001
SUMMARY OF SITE WORKS			REVISION	DATE
PROJECT NUMBER: BT-096 FILE PATH: D:\Archives\13 Document\Graphics\Feezor Engineering\BT-096 Neck Extraction System Construction\Report\AS-Built\001 Summary Of Site Works.dwg				



LEGEND

- TOPOGRAPHY (2' CONTOUR)
- TOPOGRAPHY (10' CONTOUR)
- QUARRY WALL
- PERMITTED WASTE BOUNDARY
- HEAT EXTRACTION WELL
- TEMPERATURE MONITOR PROBE - SYSTEM PERFORMANCE MONITORING
- HEB 4" HEAT EXTRACTION INFLUENT PIPING
- HEB 2" HEAT EXTRACTION INFLUENT PIPING
- HEB 4" HEAT EXTRACTION EFFLUENT PIPING
- HEB 2" HEAT EXTRACTION EFFLUENT PIPING
- SYSTEM CONTROL VALVE
- SYSTEM CHECK VALVE
- SYSTEM FLOW METER
- AIR BLEED VALVE
- EXISTING TEMPERATURE MONITORING LOCATION
- EXISTING HEAT EXTRACTION LOCATION
- EXISTING TEMPERATURE MONITOR PROBE
- EXISTING 4" HEAT EXTRACTION INFLUENT PIPING
- EXISTING 2" HEAT EXTRACTION INFLUENT PIPING
- EXISTING 4" HEAT EXTRACTION EFFLUENT PIPING
- EXISTING 2" HEAT EXTRACTION EFFLUENT PIPING

SEE DRAWING 006
FOR DETAILED
VIEW
OF TANKS AND
COOLING TOWER
AREA

NOTES:
1.) AERIAL TOPOGRAPHY IS DATED FEBRUARY 27, 2016. PROVIDED BY COOPER AERIAL SURVEYS CO.

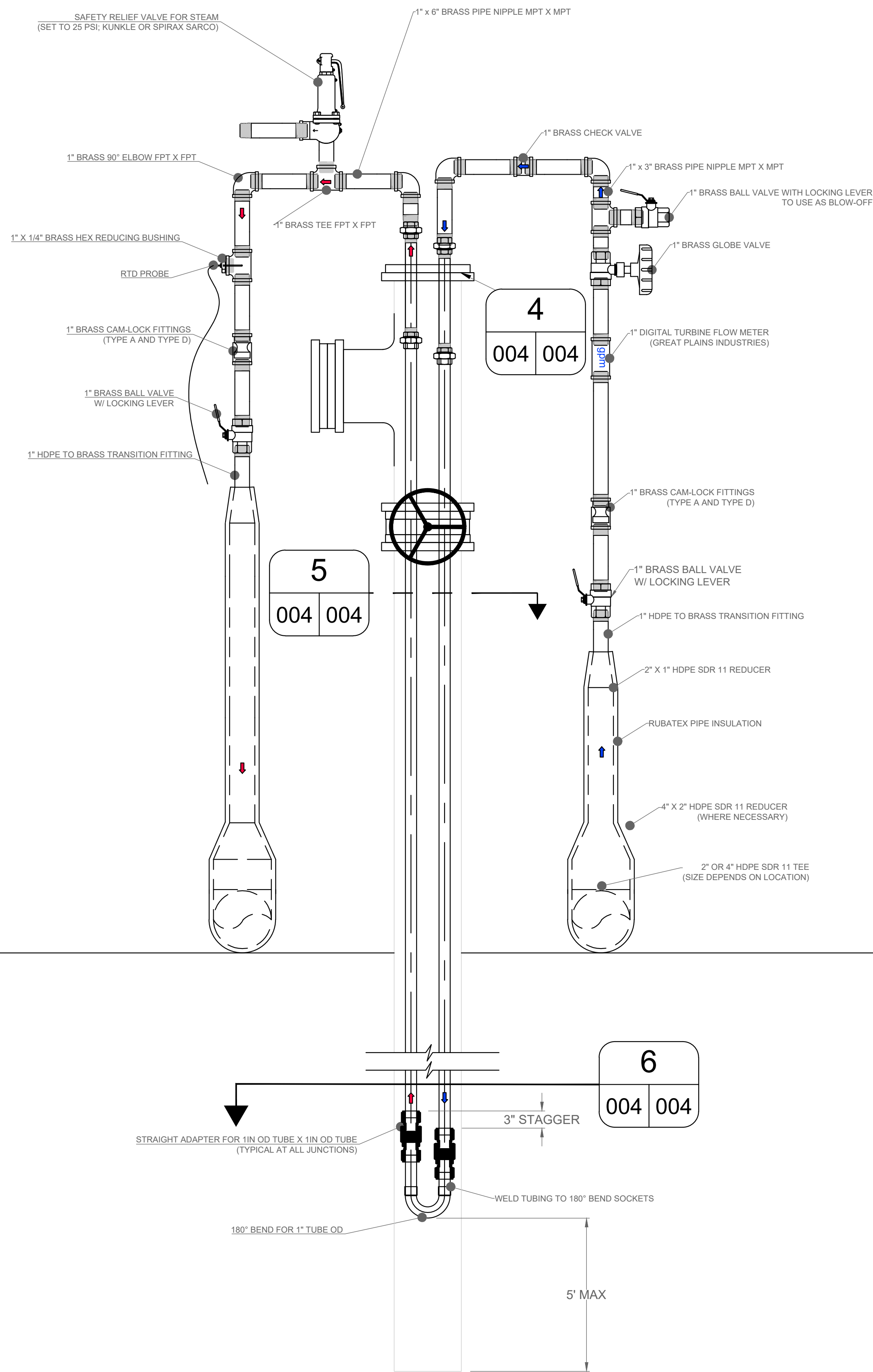
BRIDGETON LANDFILL LLC 13570 ST. CHARLES ROCK ROAD BRIDGETON, MO 63044		BRIDGETON LANDFILL NECK HEAT EXTRACTION SYSTEM AS-BUILT DRAWINGS		 Engineering for a Better World FEEZOR ENGINEERING, INC.		DATE: NOVEMBER 2016 DESIGNED BY: AMR APPROVED BY: DRF	DRAWING NO.: 002
NECK HEAT EXTRACTION SYSTEM - PLAN VIEW						PROJECT NUMBER: BT-096 FILE PATH: D:\October 15 Document\October 15 Project\Engineering\BT-096 Neck Heat Extraction System\Construction\Map\AS-Built\002 Final Revision Number - Plan View.dwg	REVISION DATE



(HEW-4 THRU HEW-12)
NOT TO SCALE

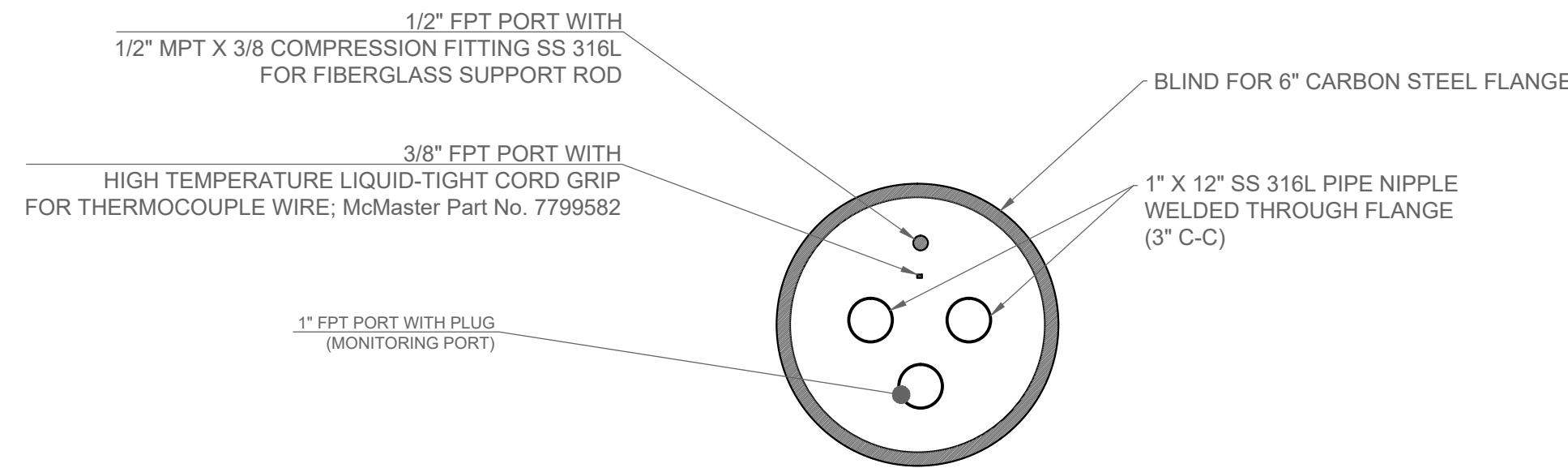
Well ID	Northing	Easting	Ground Surface Elevation	Bottom of Boring Elevation	Boring Depth (Db)	12" Carbon Steel (Below Ground Surface)	4" SS Below Ground Surface	1" SS Below Ground Surface	4" SS Above Ground Surface	1" SS Above Ground Surface
			(Feet MSL)	(Feet MSL)	(Feet)	(Feet)	(Feet)	(Feet)	(Feet)	(Feet)
HEW-1	1,067,833.3	516,449.2	499.7	447.7	52.0	51.0	50.0	49.0	1.9	3.1
HEW-2	1,067,835.3	516,433.6	499.5	437.5	62.0	61.0	60.0	59.0	1.8	2.4
HEW-3	1,067,836.2	516,419.0	499.1	415.1	84.0	83.0	82.0	81.0	2.3	3.0
HEW-4	1,067,837.0	516,404.9	499.2	314.2	185.0	N/A	184.0	183.0	3.0	3.5
HEW-5	1,067,838.4	516,388.9	499.1	313.1	186.0	N/A	185.0	184.0	2.4	5.7
HEW-6	1,067,834.7	516,373.1	496.4	310.4	186.0	N/A	185.0	184.0	2.4	6.2
HEW-7	1,067,841.0	516,359.4	496.1	312.1	184.0	N/A	183.0	182.0	3.4	6.2
HEW-8	1,067,841.7	516,344.8	495.4	310.4	185.0	N/A	184.0	183.0	3.4	6.3
HEW-9	1,067,843.8	516,329.4	494.4	310.4	184.0	N/A	183.0	182.0	3.8	5.8
HEW-10	1,067,844.7	516,315.0	492.5	309.5	183.0	N/A	182.0	181.0	2.5	6.0
HEW-11	1,067,846.4	516,299.3	489.2	311.7	177.5	N/A	176.5	175.5	3.2	6.1
HEW-12	1,067,847.1	516,285.2	484.8	310.8	174.0	N/A	173.0	172.0	3.2	6.0
HEW-13	1,067,849.1	516,269.6	479.9	371.4	108.5	107.5	106.5	105.5	1.8	6.2
HEW-14	1,067,849.6	516,255.5	474.6	375.6	99.0	98.0	97.0	96.0	1.7	5.8
HEW-15	1,067,851.5	516,238.3	470.7	425.7	45.0	44.0	43.0	42.0	1.8	4.1
HEW-16	1,067,852.1	516,224.7	467.4	428.4	39.0	38.0	37.0	36.0	1.8	4.1

(HEW-1 THRU HEW-3 AND HEW-13 THRU HEW-16)
NOT TO SCALE



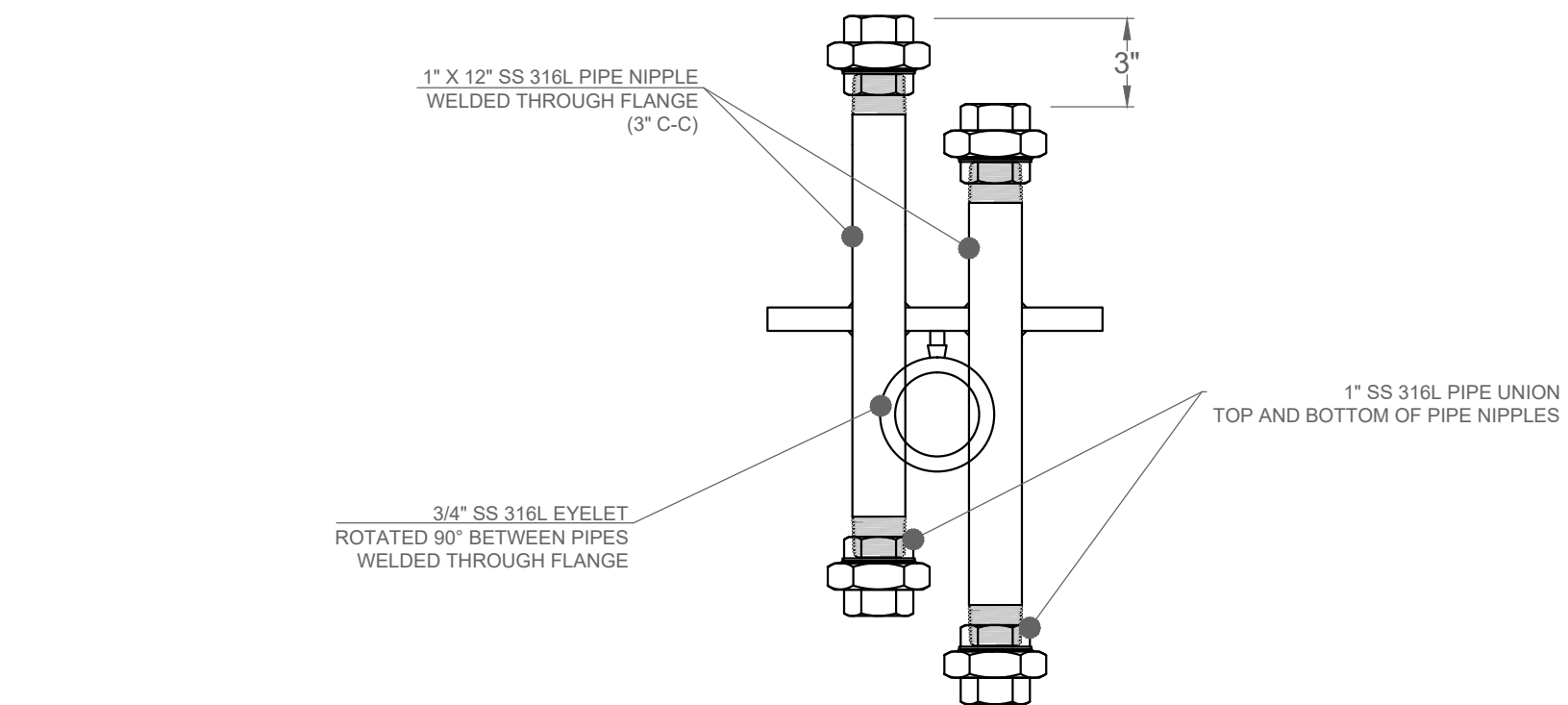
3
002 004

GIW WELL (RETROFIT FOR HEAT EXTRACTION)
(APPLICABLE TO GIW-2, GIW-3, GIW-4, GIW-6 AND GW-7)
NOT TO SCALE



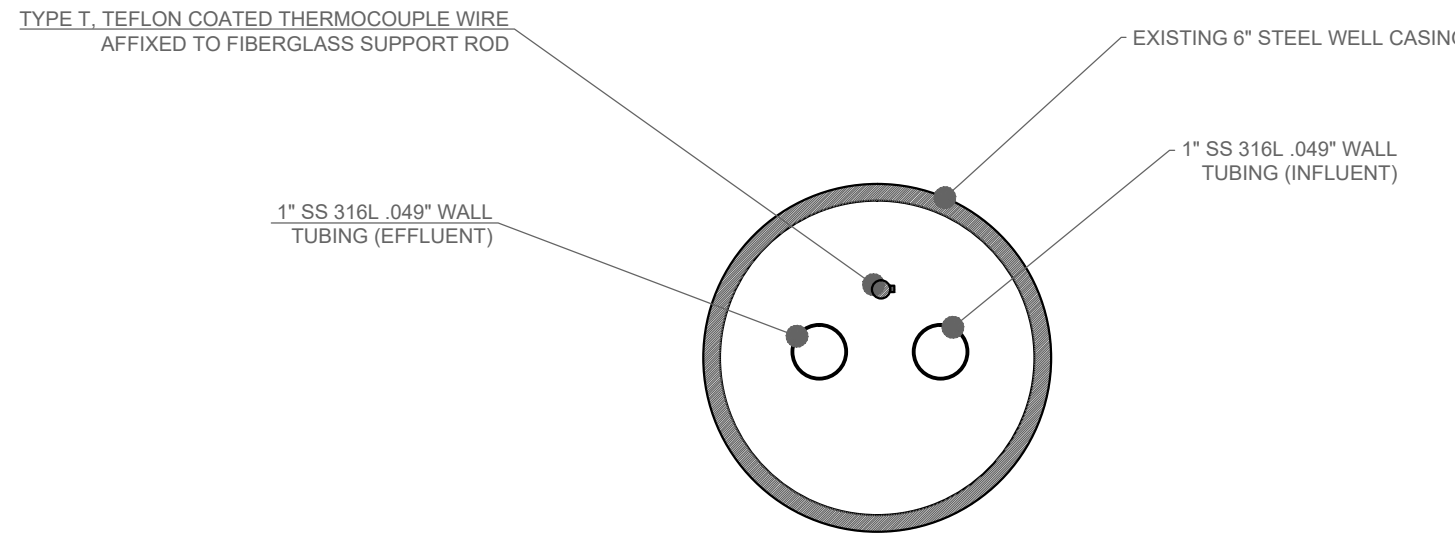
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004 004

GIW WELL (RETROFIT FOR HEAT EXTRACTION) - FLANGE COMPONENTS
NOT TO SCALE



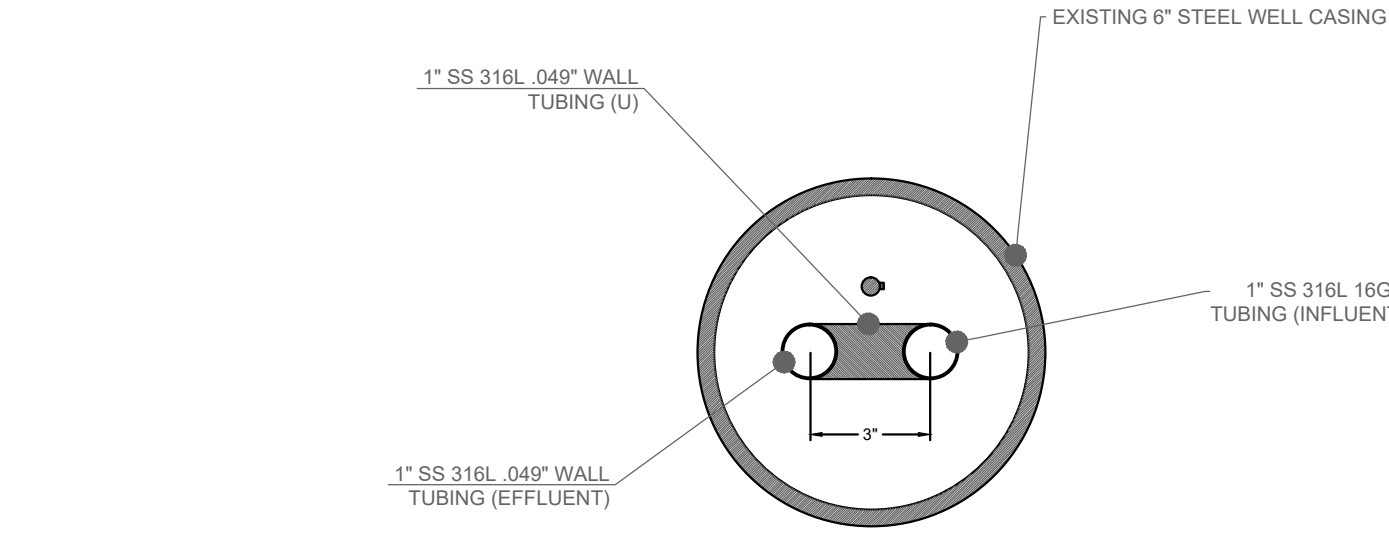
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004 004

GIW WELL (RETROFIT FOR HEAT EXTRACTION) - CROSS SECTION
NOT TO SCALE

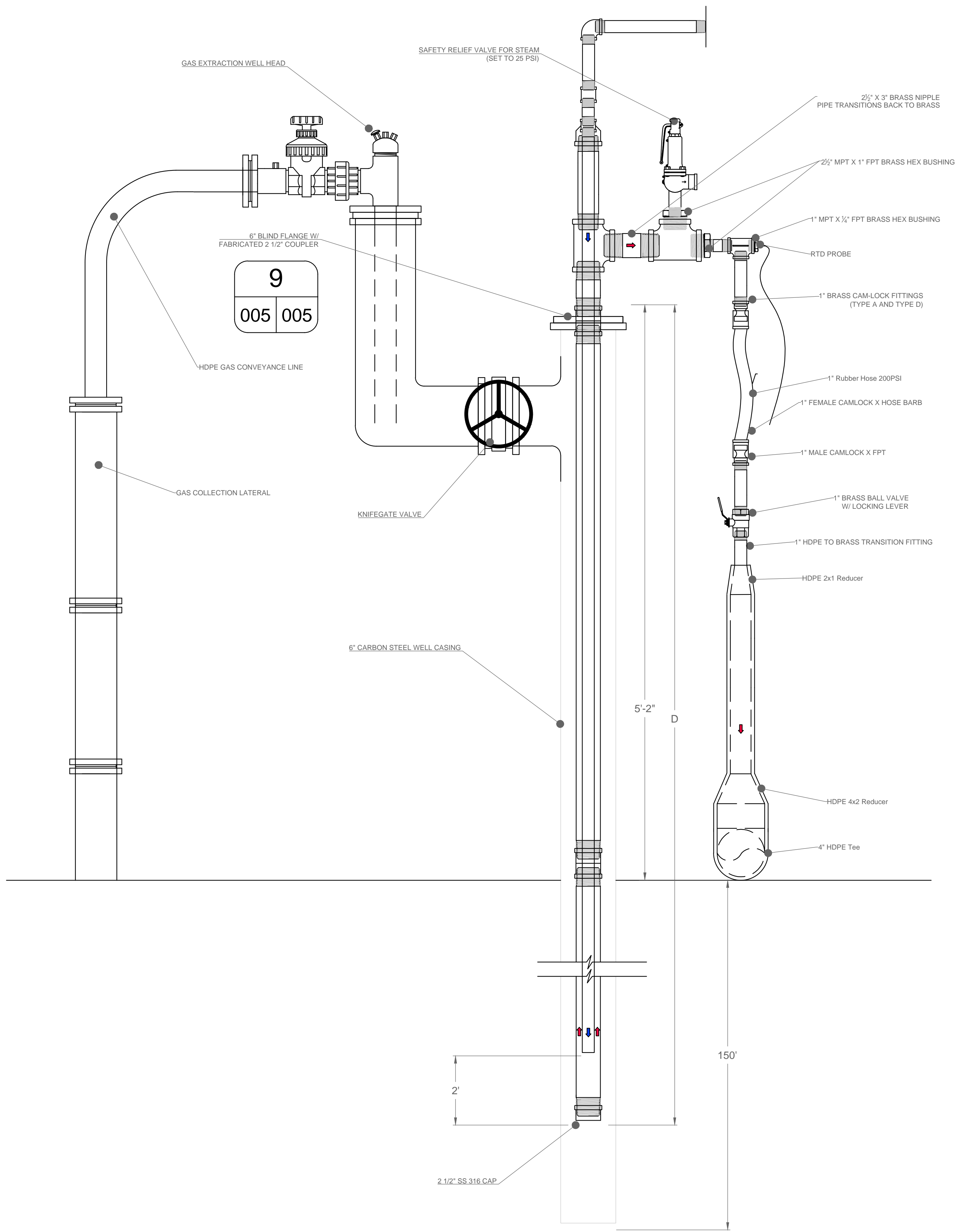


6
004 004

GIW WELL (RETROFIT FOR HEAT EXTRACTION) - CROSS SECTION
NOT TO SCALE

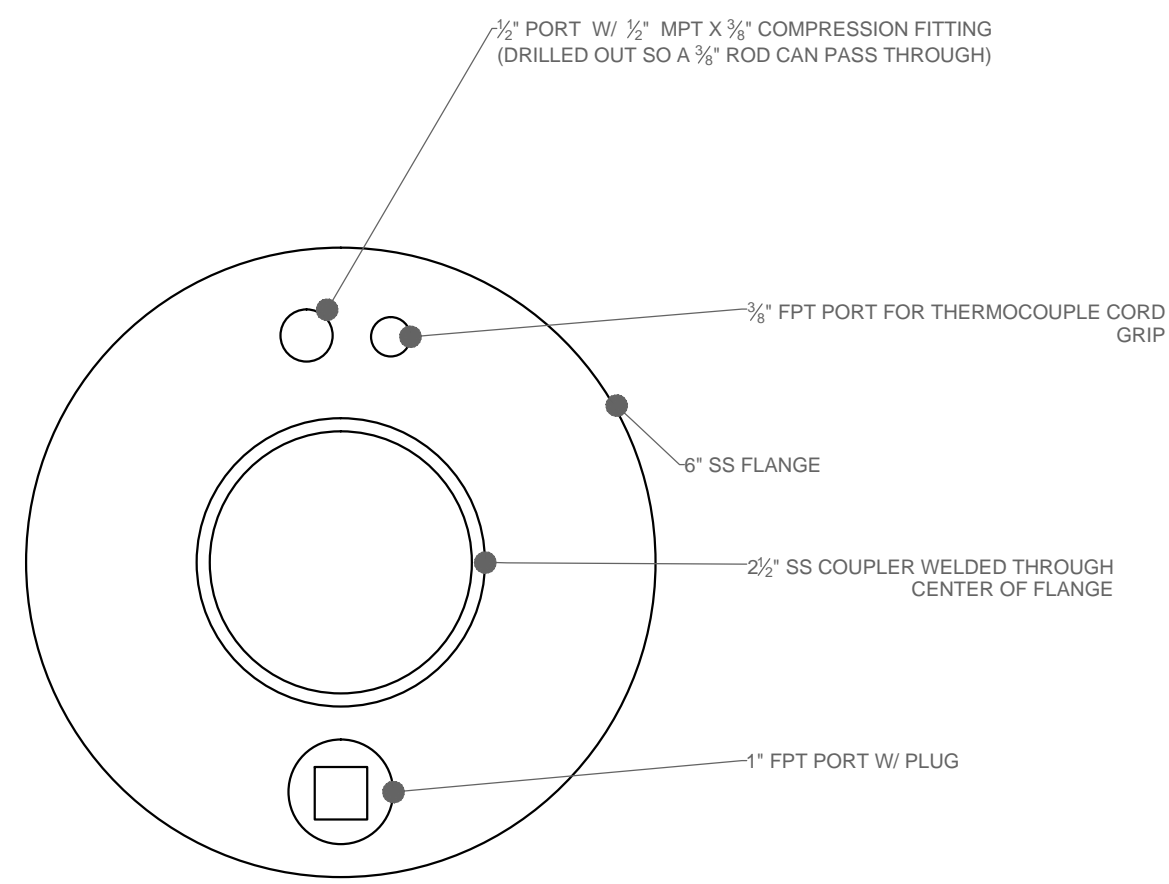


Well ID	Northing	Easting	Depth of HE Point Installation
			(Feet)
GIW-2	1067734.50	516259.92	106.0
GIW-3	1067708.06	516311.14	30.0
GIW-4	1067700.81	516356.87	130.0
GIW-6	1067689.04	516445.79	52.0
GIW-7	1067705.56	516491.62	120.0

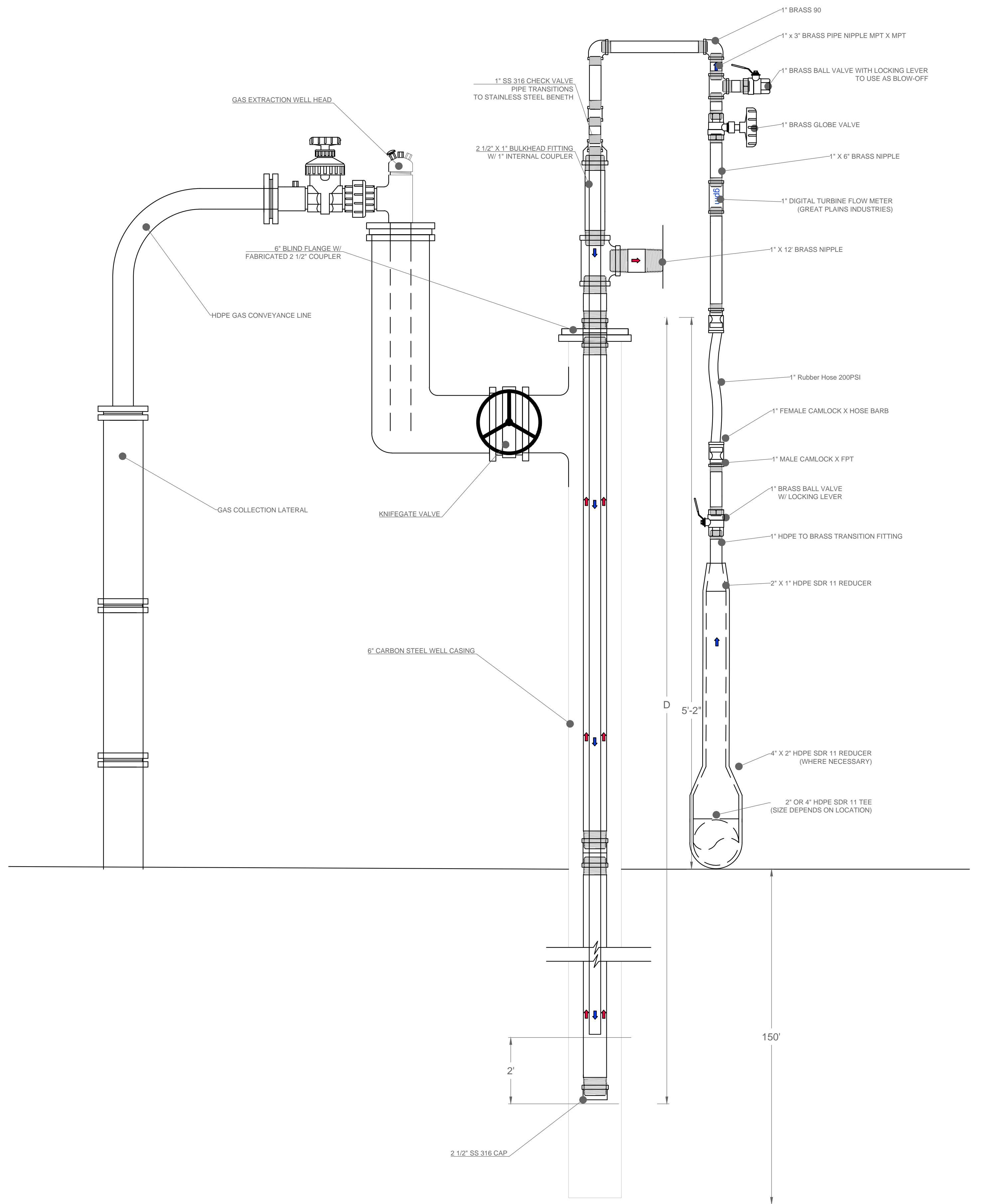


EFFLUENT LINE

7
002 005
GIW WELL (RETROFIT FOR HEAT EXTRACTION)
(APPLICABLE TO GIW-5,GIW-8,GIW-9,GIW-10,GIW-11,GIW-12 AND GW-13)
NOT TO SCALE



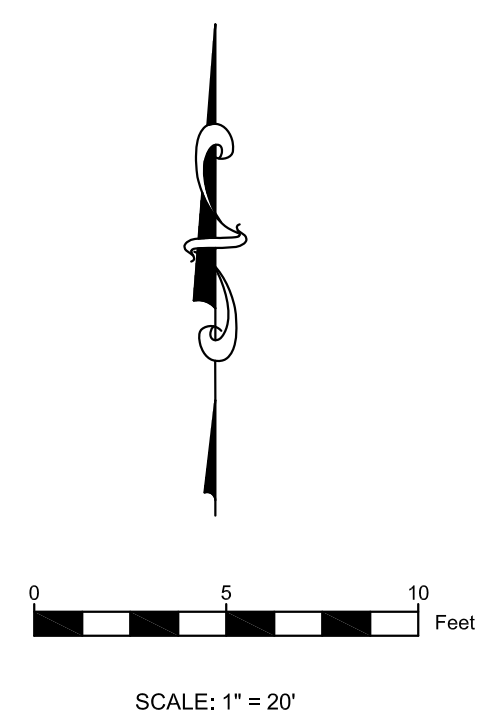
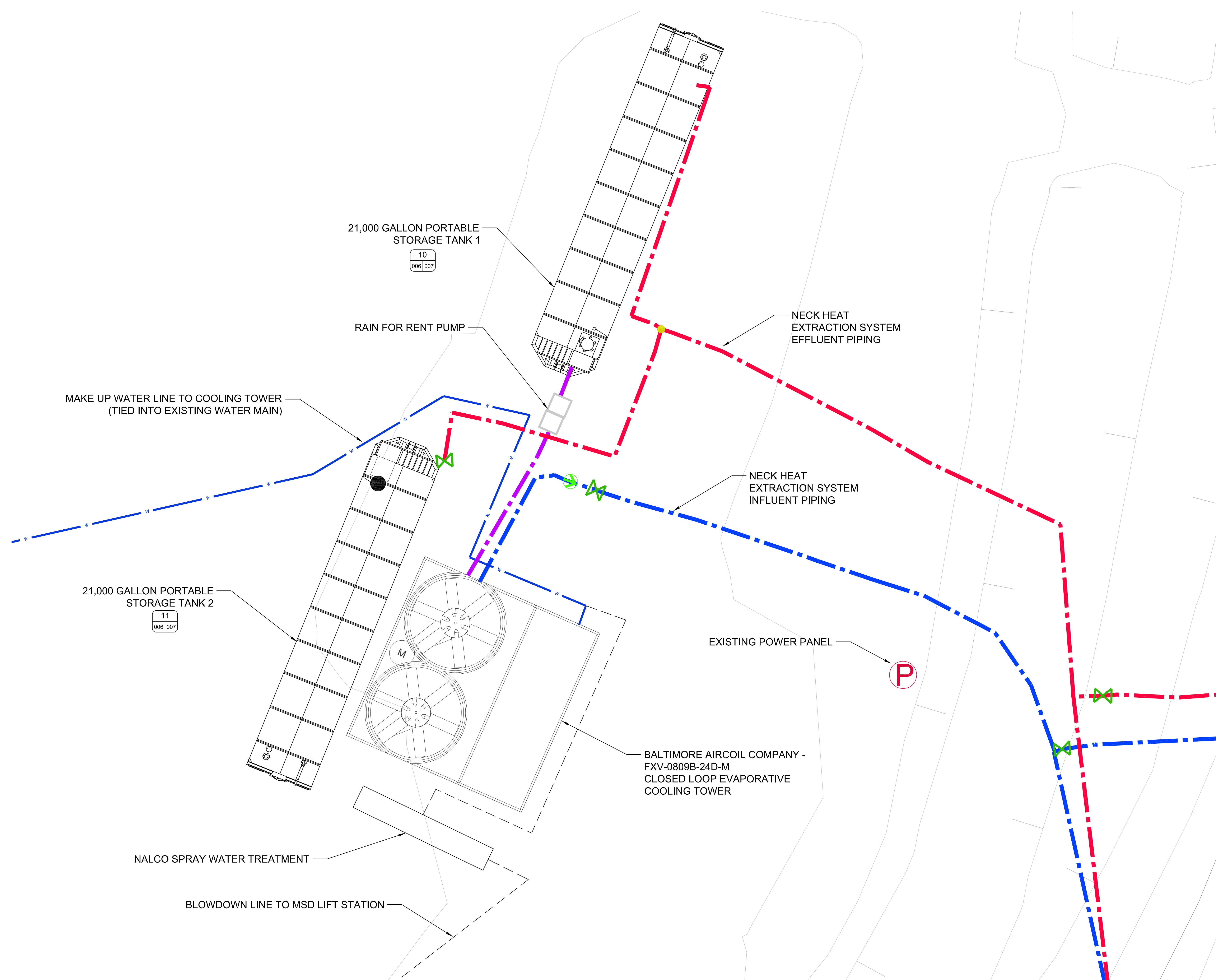
9
005 005
FLANGE COMPONENT
NOT TO SCALE




INFLUENT LINE

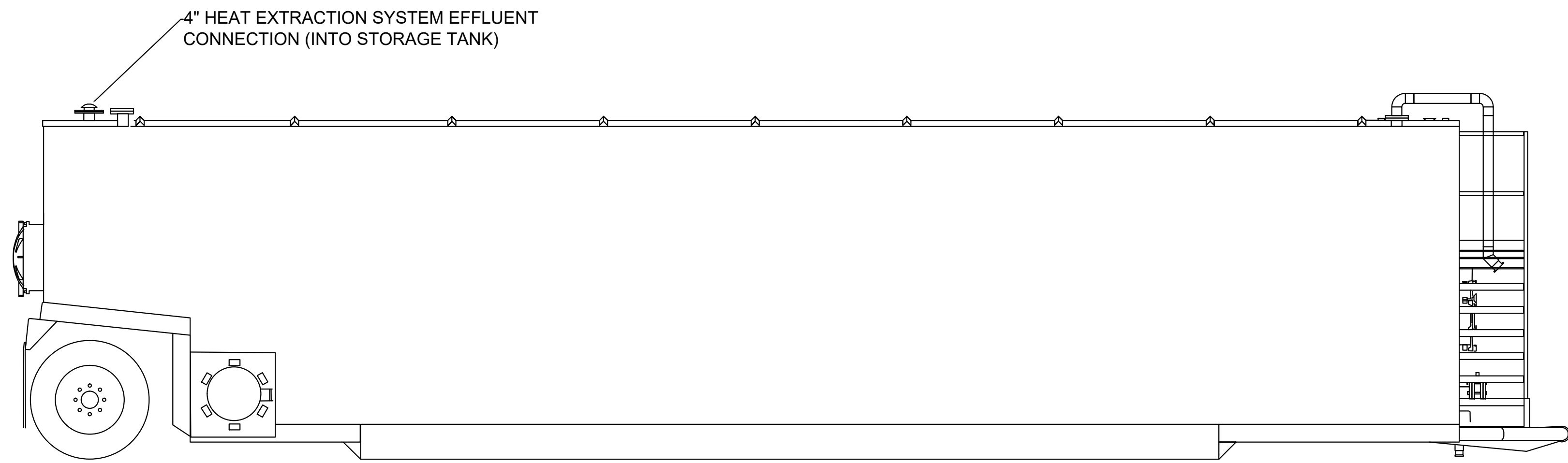
8
002 005
GIW WELL (RETROFIT FOR HEAT EXTRACTION)
(APPLICABLE TO GIW-5,GIW-8,GIW-9,GIW-10,GIW-11,GIW-12 AND GW-13)
NOT TO SCALE

Well ID	Northing	Easting	Depth of HE Point Installation ("D")
			(Feet)
GIW-5	1067671.54	516396.59	63
GIW-8	1067751.75	516458.69	120
GIW-9	1067736.32	516428.06	115
GIW-10	1067719.01	516383.37	120
GIW-11	1067755.87	516345.79	120
GIW-12	1067767.95	516303.06	120
GIW-13	1067777.03	516269.58	120

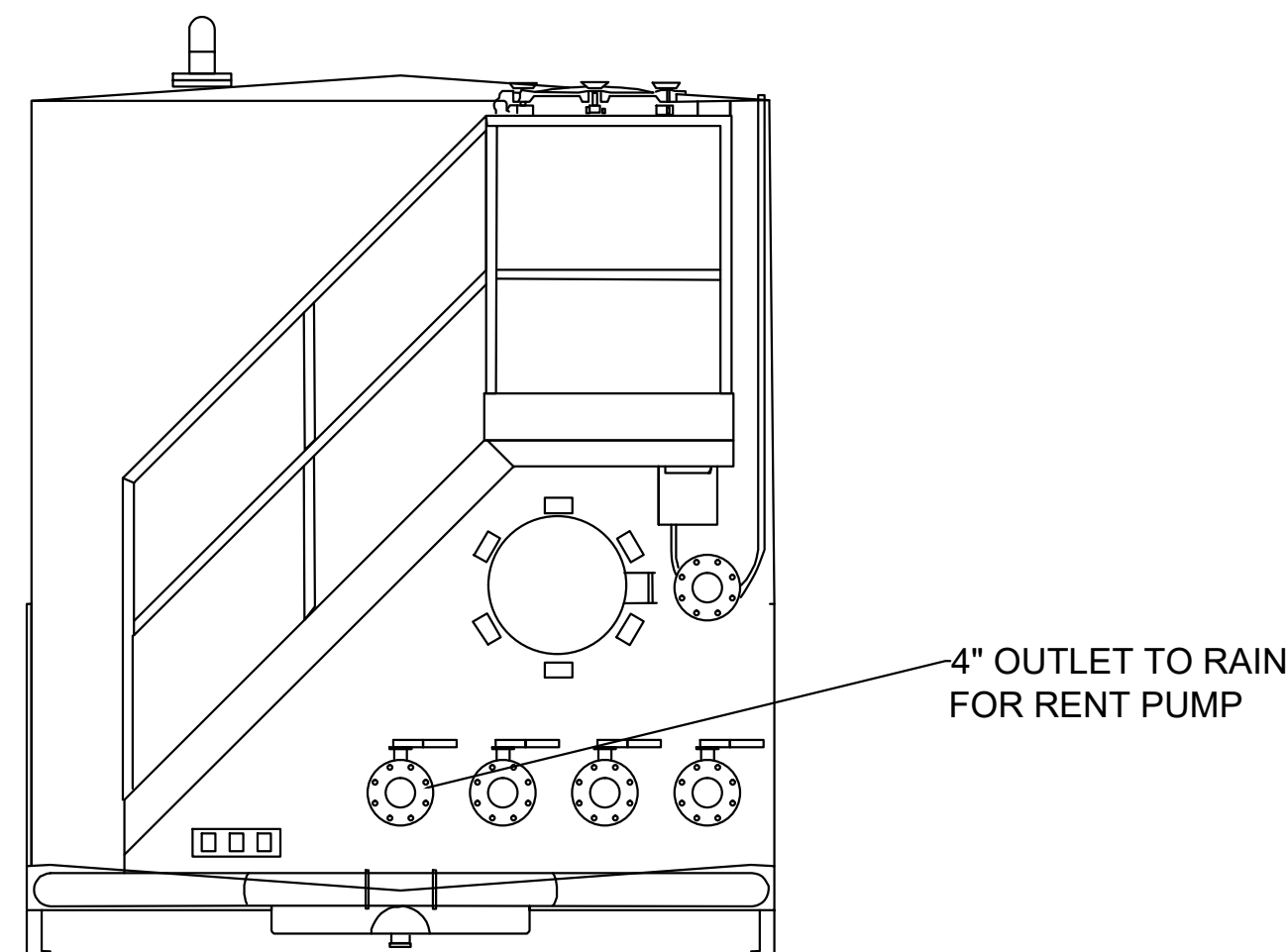


LEGEND	
	EXISTING GRADE (2' CONTOUR)
	EXISTING GRADE (10' CONTOUR)
	4\"/>
	4\"/>
	WIRELESS RESISTANCE TEMPERATURE DETECTOR (RTD)
	FLOW METER
	BUTTERFLY VALVE
	EXISTING ELECTRIC PANEL
	PROPOSED 1\"/>

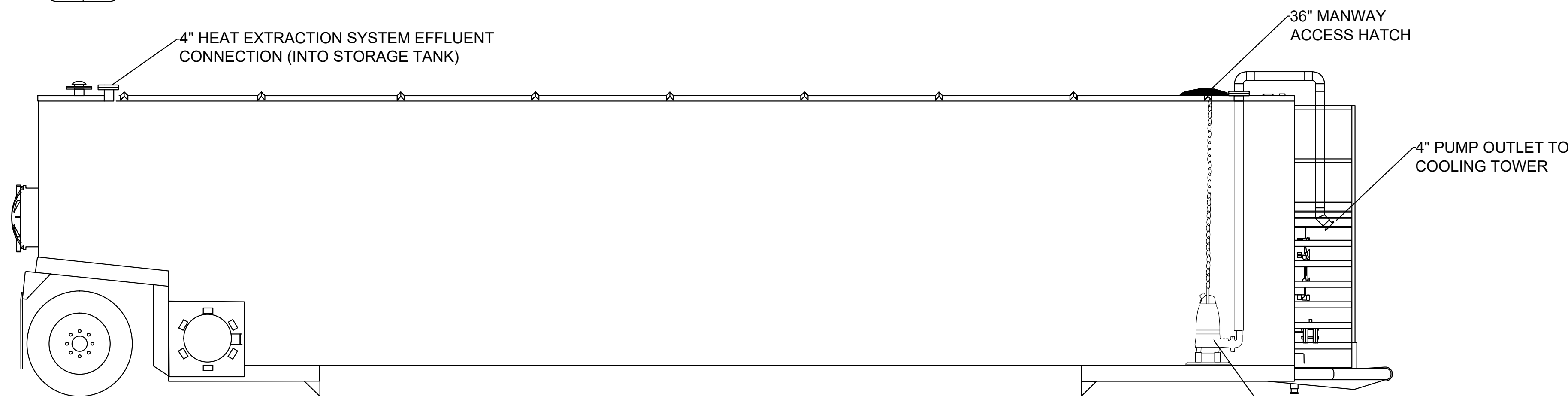
BRIDGETON LANDFILL LLC 13570 ST. CHARLES ROCK ROAD BRIDGETON, MD 63044		BRIDGETON LANDFILL NECK HEAT EXTRACTION SYSTEM AS-BUILT DRAWINGS		 <div>Engineering for a Better World</div> <div>FEEZOR ENGINEERING, INC.</div>		DATE: NOVEMBER 2016 DESIGNED BY: AMR APPROVED BY: DRF	DRAWING NO.: 006
COOLER AND TANK PLAN VIEW							
PROJECT NUMBER: BT-006 FILE PATH: \\F:\projects\Bridgeton Landfill\AS-Built Drawings\BT-006 Neck Heat Extraction System\AS-Built Drawings\COOLER AND TANK PLAN VIEW.dwg						REVISION	DATE



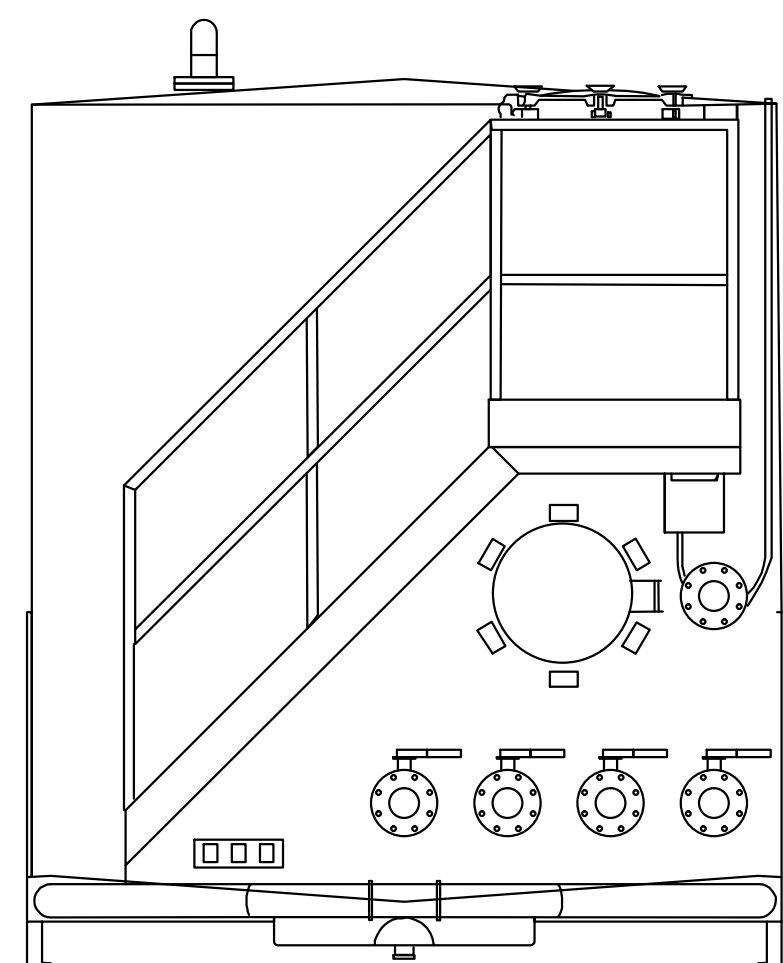
10 WATER STORAGE TANK 1
006 007 NOT TO SCALE



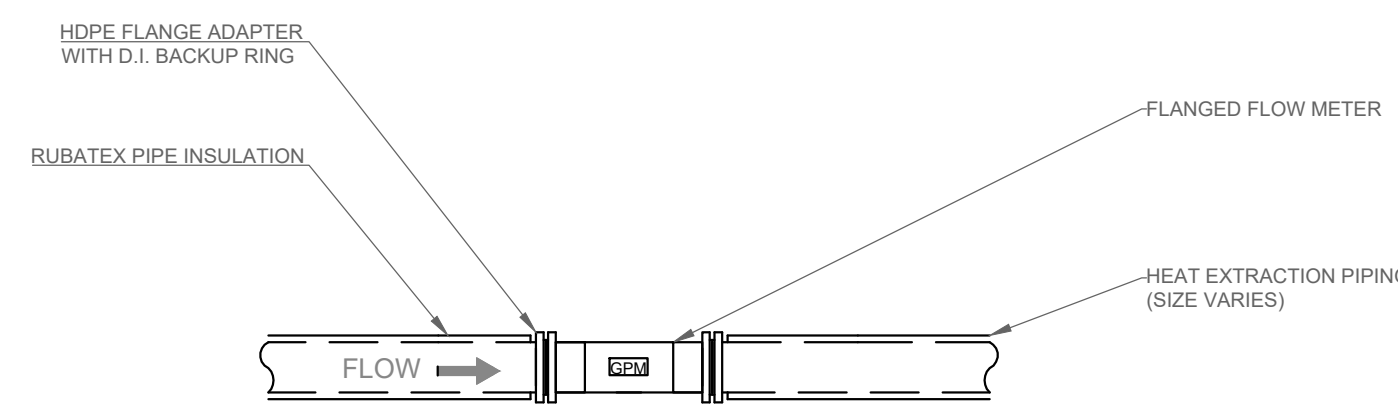
10 WATER STORAGE TANK 1 - CROSS SECTION
006 007 NOT TO SCALE



11 WATER STORAGE TANK 2
006 007 NOT TO SCALE

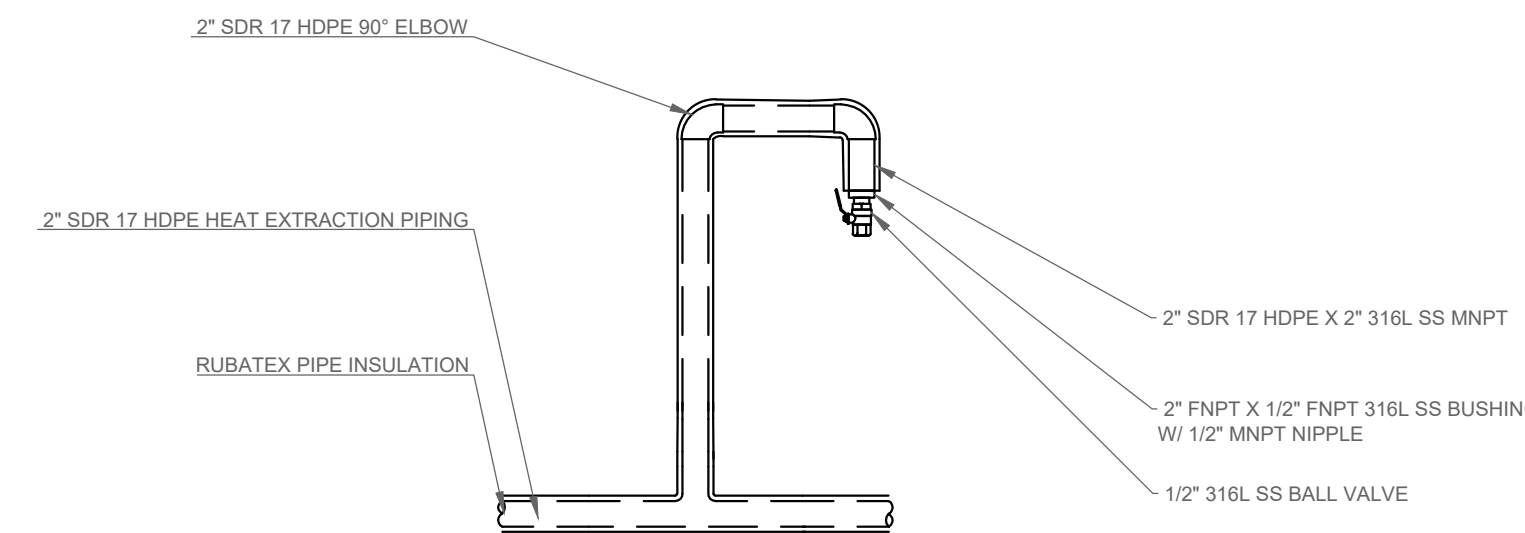


11 WATER STORAGE TANK 2 - CROSS SECTION
006 007 NOT TO SCALE

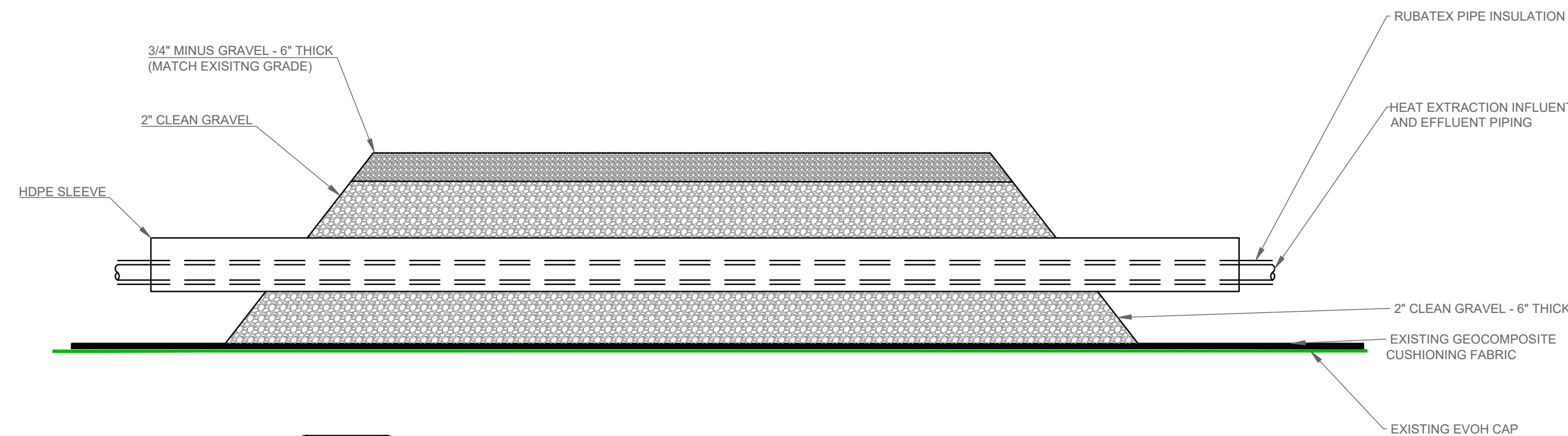


12 FLOW METER
002 007 NOT TO SCALE

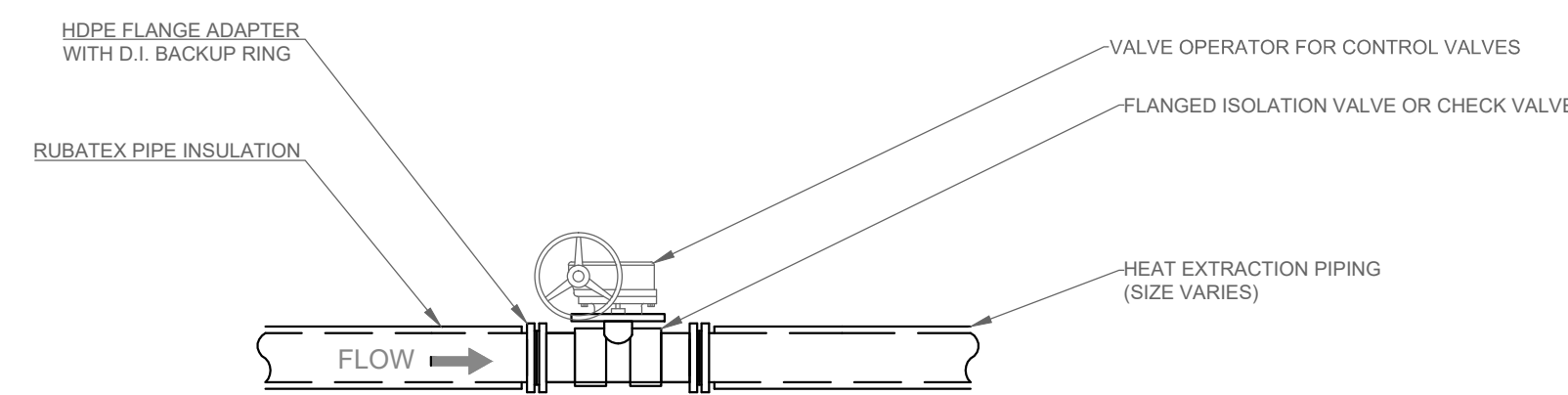
NOTES:
1) FLOW METER IS 4" GPI TURBINE, PVC, MFR MODEL #TM400-F
2) 10 x PIPE Ø UNOBSTRUCTED UPSTREAM
3) 5 x PIPE Ø UNOBSTRUCTED DOWNSTREAM



13 AIR BLEED VALVE
002 007 NOT TO SCALE

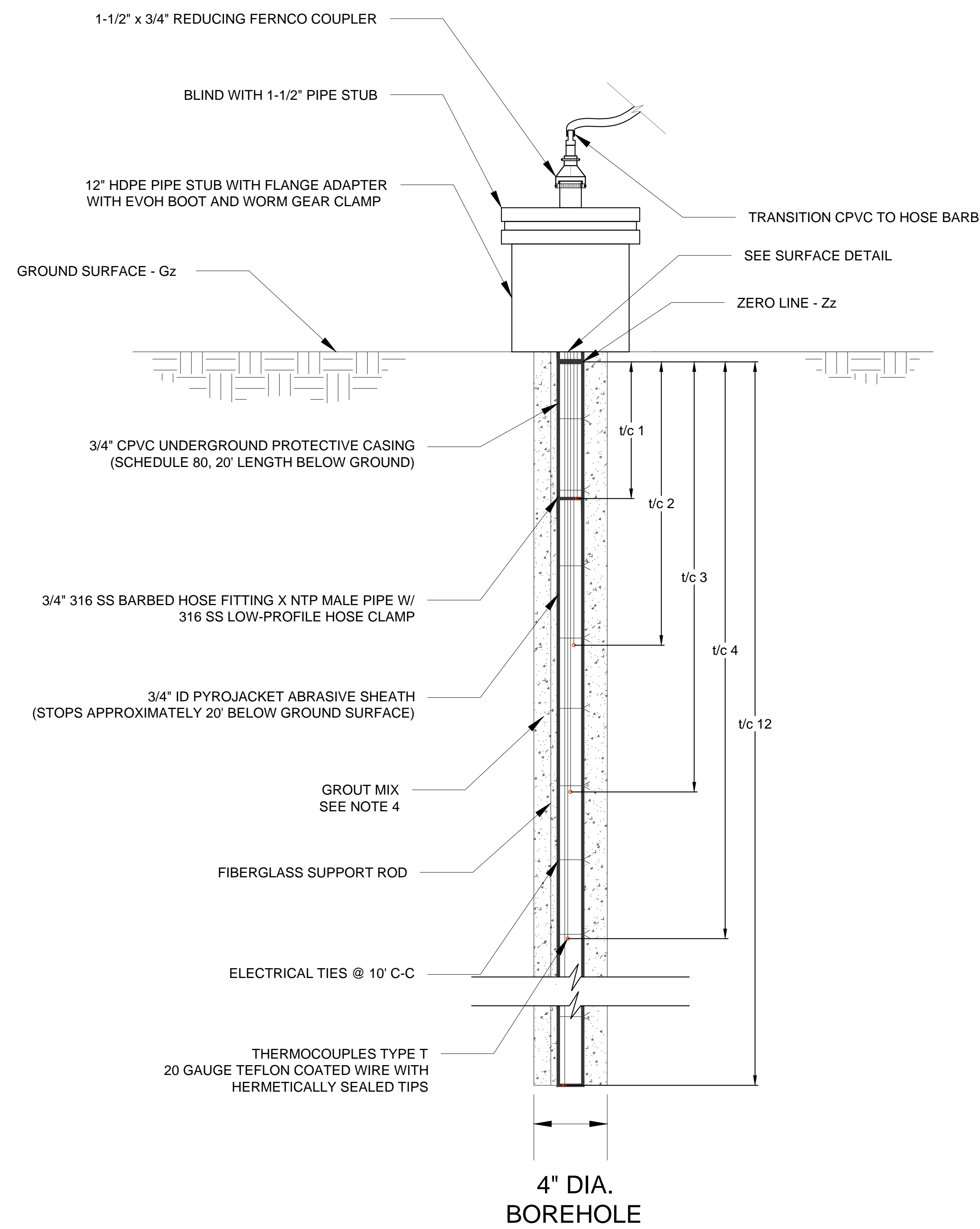


14 ROAD CROSSING
002 007 NOT TO SCALE

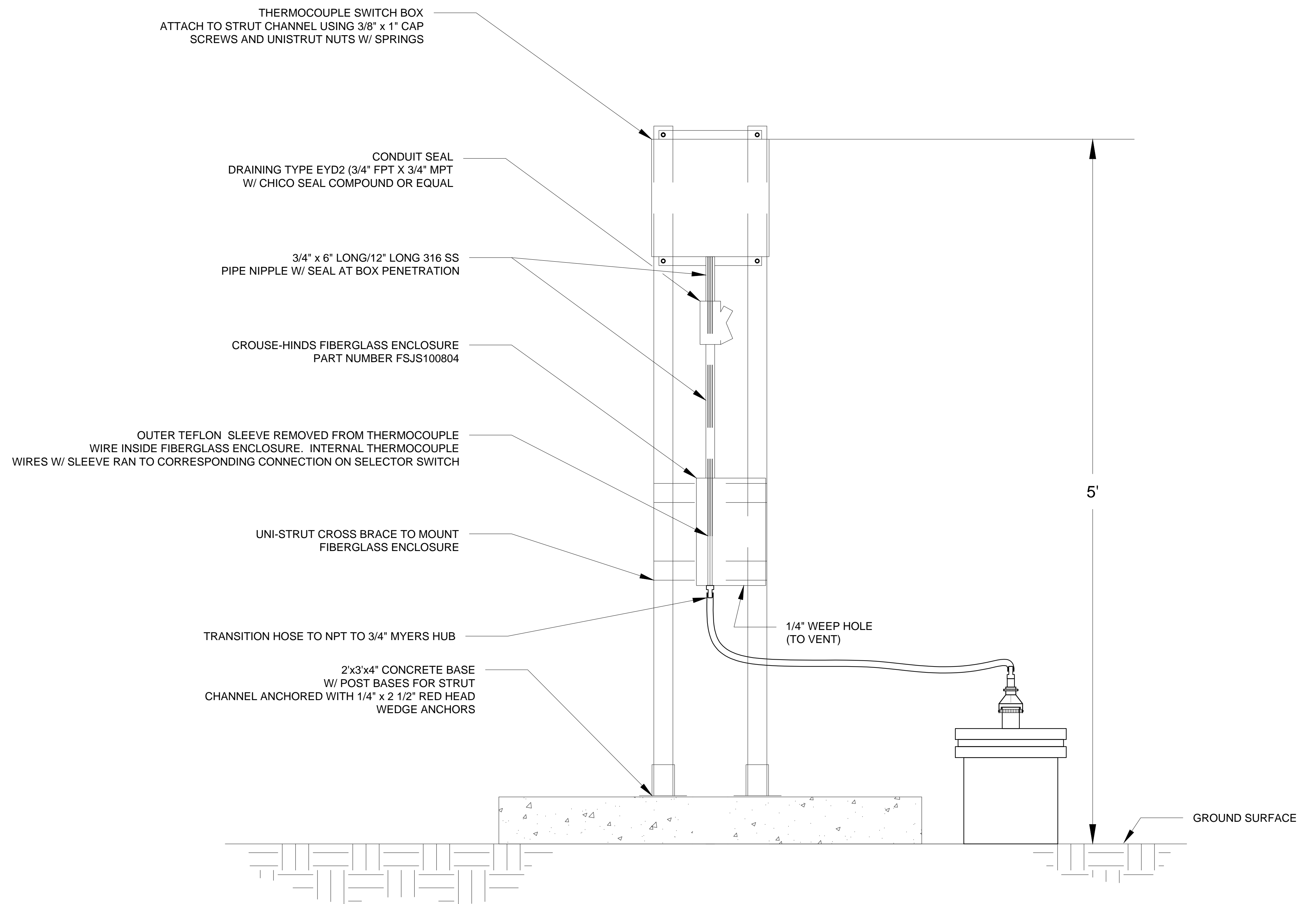


15 CHECK VALVE/CONTROL VALVE
002 007 NOT TO SCALE

NOTES:
1) 4" CONTROL VALVES ARE ASAHI BUTTERFLY VALVE WITH GEAR OPERATOR.
2) 2" CONTROL VALVES ARE ASAHI BALL VALVE TYPE 21.
3) 4" CHECK VALVES ARE ASAHI BALL CHECK.
4) 2" CHECK VALVES ARE ASAHI BALL CHECK.



SUBSURFACE DETAIL



SURFACE DETAIL

TEMPERATURE MONITORING PROBE - SYSTEM PERFORMANCE MONITORING (TMP-SPM)

NOT TO SCALE

17

002 008

NOTES:

- 1.) SWITCH BOX IS SAGINAW CONTROL & ENGINEERING ENCLOSURE 1210ELJ - PANEL IS SCE-12P10J WITH JIC SWING OUT PANEL KIT - MOUNTED WITH HINGE ON RIGHT.
- 2.) HOLE FOR ROTARY SWITCH ACCOMODATES SW142G-12-B
- 3.) ALL PERFORATIONS AND CLAMPS NEMA 4 RATED
- 4.) GROUT MIX CONSISTED OF A CEMENTITIOUS BENTONITE GROUT WITH FLY ASH ADDITION

TMP ID	Ground EL. Gz	THERMOCOUPLE WIRE IDENTIFIER AND DEPTHS/ELEVATIONS											
		t/c 1	t/c 2	t/c 3	t/c 4	t/c 5	t/c 6	t/c 7	t/c 8	t/c 9	t/c 10	t/c 11	t/c 12
TMP-SPM1	492.5'	20' / 472.5'	40' / 452.5'	60' / 432.5'	80' / 412.5'	100' / 392.5'	120' / 372.5'	140' / 352.5'	160' / 332.5'	180' / 312.5'	200' / 292.5'	220' / 272.5'	240' / 252.5'
TMP-SPM2	495.2'	20' / 475.2'	40' / 455.2'	60' / 435.2'	80' / 415.2'	100' / 395.2'	120' / 375.2'	140' / 355.2'	160' / 335.2'	172' / 323.3'	-	-	-
TMP-SPM3	497.7'	20' / 477.7'	40' / 457.7'	60' / 437.7'	80' / 417.7'	85' / 412.7'	-	-	-	-	-	-	-
TMP-SPM4	495.3'	20' / 475.3'	40' / 455.3'	60' / 435.3'	80' / 415.3'	100' / 395.3'	120' / 375.3'	140' / 355.3'	160' / 335.3'	180' / 315.3'	200' / 295.3'	220' / 275.3'	240' / 255.3'