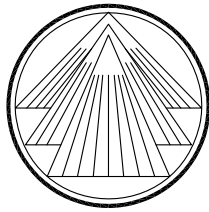


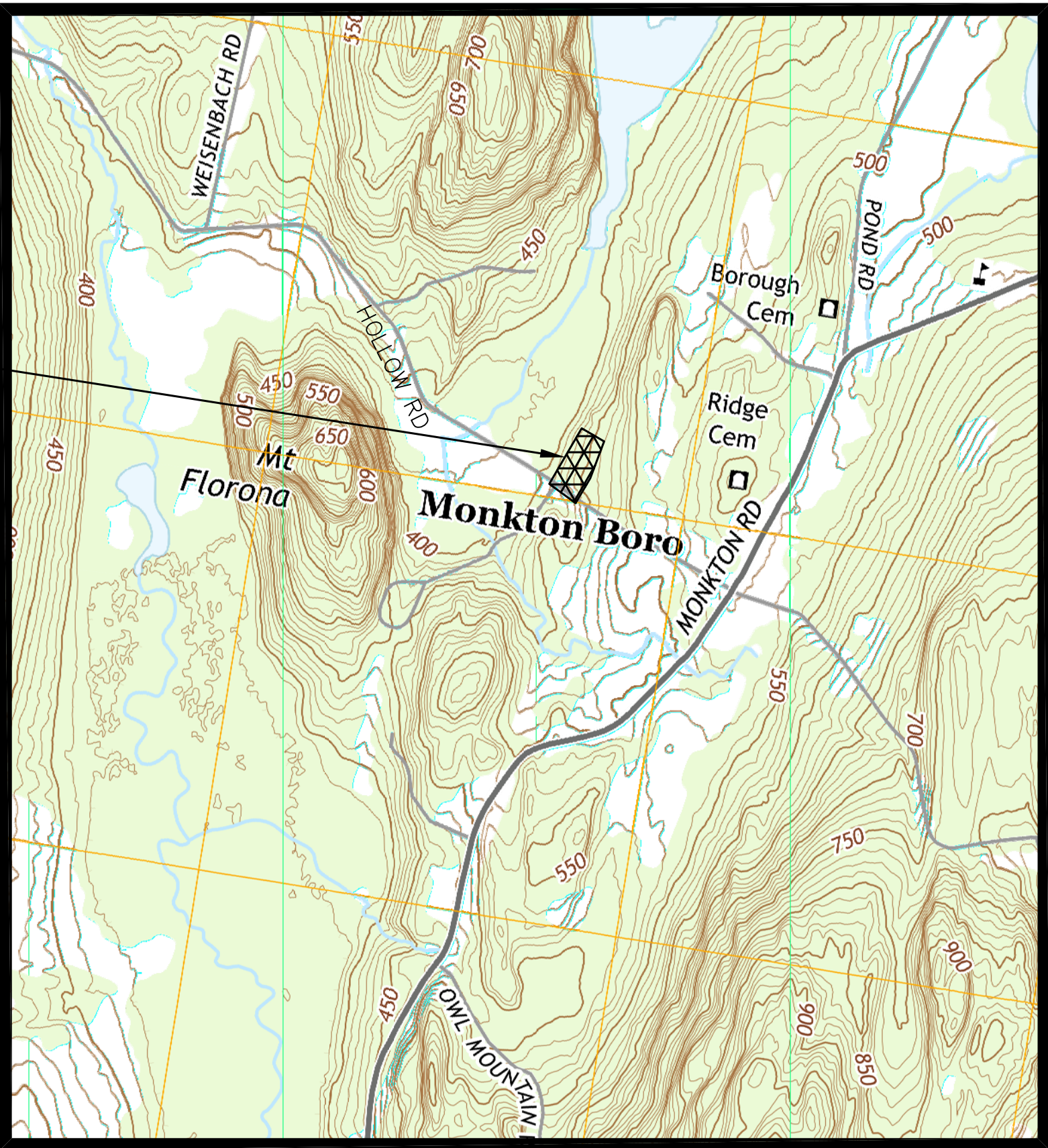
VERMONT GAS SYSTEMS
PROPOSED MONKTON GATE STATION
TOWN OF MONKTON, VERMONT

PREPARED BY



TRI-MONT ENGINEERING COMPANY
265 AVIATION AVENUE, SUITE 102
SOUTH BURLINGTON, VT 05403

APPROXIMATE
SITE LOCATION

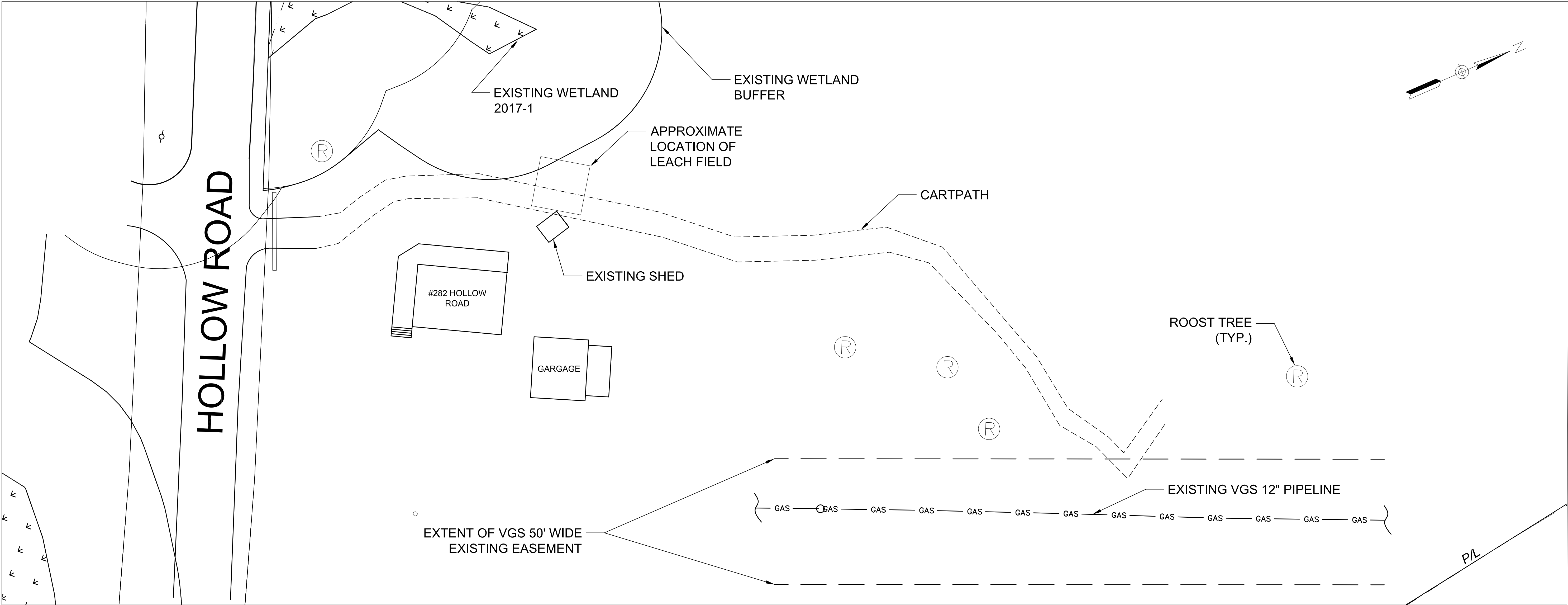


ISSUED FOR
PERMIT

SITE LOCUS
SCALE: 1"=1000'

C	ISSUED FOR PERMIT	OCA	10/25/17	MDF	
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF	
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF	
No.	Description	By	Date	Appd	
REVISIONS					
<div><div></div><div>TRI-MONT Engineering Co. Plymouth, MA</div></div>					
CLIENT VERMONT GAS SYSTEMS					
PROJECT MONKTON GATE STATION					
Title TITLE SHEET					
TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		
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				Rev. No. C	

TRI-MONT DRAWING NO.	REVISION	TITLE
D-190-17-T01	C	TITLE SHEET
D-190-17-T02	C	GENERAL OVERVIEW & NOTES
D-190-17-C01	C	SITE EXISTING CONDITIONS
D-190-17-C02	C	PROPOSED SITE PLAN-OVERALL
D-190-17-C03	C	PROPOSED SITE PLAN-STATION
D-190-17-C04	C	PROPOSED SITE PLAN-OVERALL (ORTHOPHOTO)
D-190-17-C04A	C	PROPOSED SITE PLAN-OVERALL EXTENTS (ORTHOPHOTO)
D-190-17-C05	C	TYPICAL CIVIL DETAILS
D-190-17-C06	C	TYPICAL CIVIL DETAILS
D-190-17-F01	C	REGULATOR STATION PIPING-P&ID LEGEND
D-190-17-F02	C	REGULATOR STATION PIPING-P&ID
D-190-17-M01	C	METERING & REGULATING PIPING-PLAN VIEW
D-190-17-M02	C	METERING & REGULATING PIPING-SECTION A-A & B-B VIEW
D-190-17-M03	C	BILL OF MATERIALS & MECHANICAL NOTES
D-190-17-E01	C	ELECTRICAL CLASSIFICATION
D-190-17-E02	C	CONDUIT PLAN
D-190-17-E03	C	CONDUIT DETAILS
D-190-17-E04	C	SOLAR AND POWER DETAILS
D-190-17-E05	C	ELECTRIC LIST
D-190-17-E06	C	GROUNDING PLAN
D-190-17-E07	C	CATHODIC PROTECTION PLAN
D-190-17-E08	C	CATHODIC PROTECTION DETAILS



GENERAL EXISTING SITE OVERVIEW
N.T.S.

GENERAL NOTES:

1. THESE PLANS ARE BASED ON AN EXISTING CONDITIONS SURVEY PERFORMED BY TRI-MONT ENGINEERING, INC. ON JULY 5, 2017. THE SURVEY WAS CONDUCTED IN VERMONT ZONE, NAD83 HORIZONTAL COORDINATE SYSTEM.
2. ENVIRONMENTAL CONDITIONS INFORMATION SHOWN IS THE RESULT OF A SURVEY PERFORMED BY VHB IN THE SUMMER OF 2017.
3. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE BASED FROM AVAILABLE TAX MAP INFORMATION.
4. ALL UNDERGROUND UTILITIES ARE SHOWN AS APPROXIMATE LOCATIONS. CONTRACTOR SHALL FIELD LOCATE EXISTING UTILITIES. CONTRACTOR MUST NOTIFY DIG-SAFE VERMONT AT 811 AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION
5. CONTRACTOR IS REQUIRED TO PROTECT EXISTING UTILITIES, STRUCTURES, LANDSCAPE FEATURES, SIGNAGE, CURBS, ETC.; CARE SHALL BE TAKEN NOT TO DISTURB OR DAMAGE SUCH ITEMS AND THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR OR RESTORE ANY DAMAGE OR DISTURBANCE.
6. PROPOSED WORK SHALL BE PERFORMED AND COMPLETED IN COMPLIANCE WITH ALL PERMITS AND APPROVALS.
7. PROPOSED WORK SHALL BE PERFORMED AND COMPLETED IN COMPLIANCE WITH THE TOWN OF MONKTON SPECIFICATIONS AND STANDARDS WHERE APPLICABLE UNLESS OTHERWISE SPECIFIED ON THESE PLANS AND ACCOMPANYING PROJECT SPECIFICATIONS.
8. THE CONTRACTOR SHALL CONTACT TOWN PERSONNEL PRIOR TO THE START OF WORK.

CONSTRUCTION NOTES:

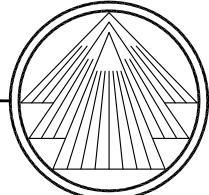
1. THE PIPELINE WILL BE CONSTRUCTED IN ACCORDANCE WITH FEDERAL MINIMUM SAFETY REGULATIONS CFR 49, PART 192, "TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE"; ASME B31.8, "GAS TRANSMISSION AND DISTRIBUTION PIPING", VERMONT GAS CONSTRUCTION STANDARDS AND APPLICABLE STATE REGULATIONS.
2. CONTRACTOR SHALL MAINTAIN 1-FOOT MINIMUM CLEARANCE BETWEEN THE NEW GAS PIPES AND FOREIGN STRUCTURES OR OTHER UTILITIES. ANY VARIANCE MUST BE REVIEWED AND APPROVED BY VERMONT GAS ENGINEERING.
3. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) INCLUDING ALL REVISIONS AND ADDENDA. CONTRACTOR IS TO SUPPLY THESE ITEMS.
4. ALL VEHICLES ARE TO BE HIGHLY VISIBLE USING ROTATING BEACONS AND BE MARKED BY USE OF TRAFFIC CONES.
5. ALL TRENCH EXCAVATION PROTECTION SYSTEMS SHALL BE IN COMPLIANCE WITH OSHA SPECIFICATIONS.

ENVIRONMENTAL NOTES:

1. THIS PROJECT INCLUDES DISTURBANCE OF LESS THAN 1-ACRE OF LAND AND DOES NOT REQUIRE PERMIT AUTHORIZATION FROM THE VT DEC FOR THE DISCHARGE OF STORMWATER RUNOFF.
2. CONTRACTOR TO FOLLOW THE LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL TO MINIMIZE RUNOFF DURING CONSTRUCTION.
3. PRIOR TO CONSTRUCTION, THE SITE BOUNDARY WILL BE DEMARCATED AND AREAS WITHIN 50-FEET OF A RESOURCE (E.G WETLAND OR STREAM) WILL BE FLAGGED
4. DEMARCATATE POTENTIAL ROOST TREES FOR AVOIDANCE PRIOR TO CONSTRUCTION
5. INSTALL A STABILIZED CONSTRUCTION ENTRANCE WHERE PROJECT TRAFFIC EXITS AND ENTERS THE SITE
6. INSTALL SILT FENCE ALONG THE DOWNHILL EDGE OF THE LIMITS OF DISTURBANCE AS NECESSARY
7. STABILIZE SOILS WITH SEED AND MULCH FOLLOWING COMPLETION OF EARTHWORK

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C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
	REVISIONS			



TRI-MONT

Engineering Co.

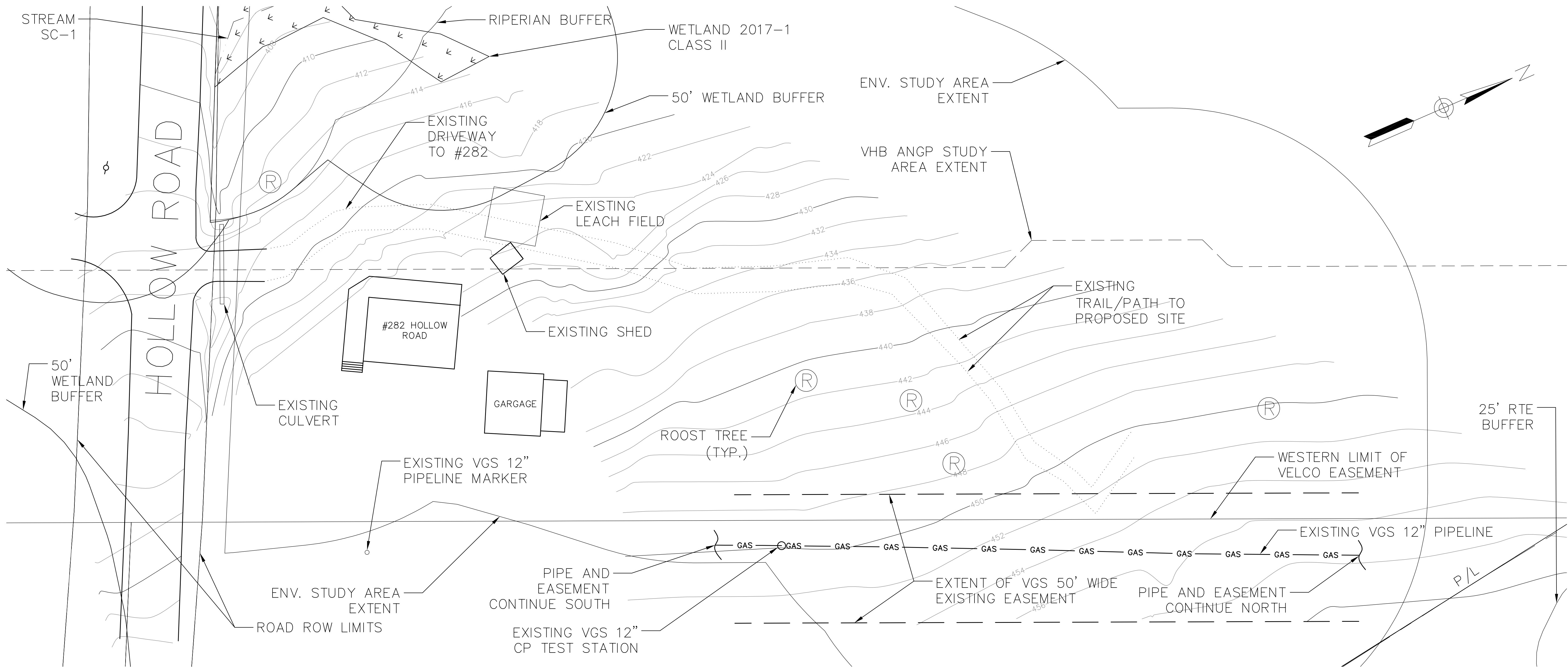
Plymouth, MA

CLIENT	VERMONT GAS SYSTEMS
PROJECT	MONKTON GATE STATION

Title	GENERAL OVERVIEW & NOTES
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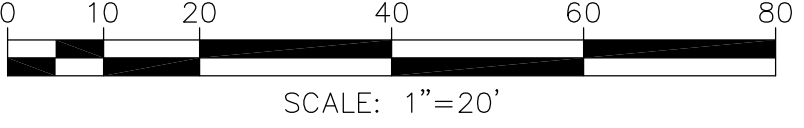
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Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		

Scale:	Job No.	Drawing No.	Rev. No.
NONE	D-198-02-T02	C	

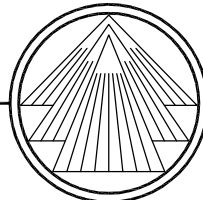


SITE EXISTING CONDITIONS
SCALE: 1" = 20'

ISSUED FOR
PERMIT



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B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
	REVISIONS			

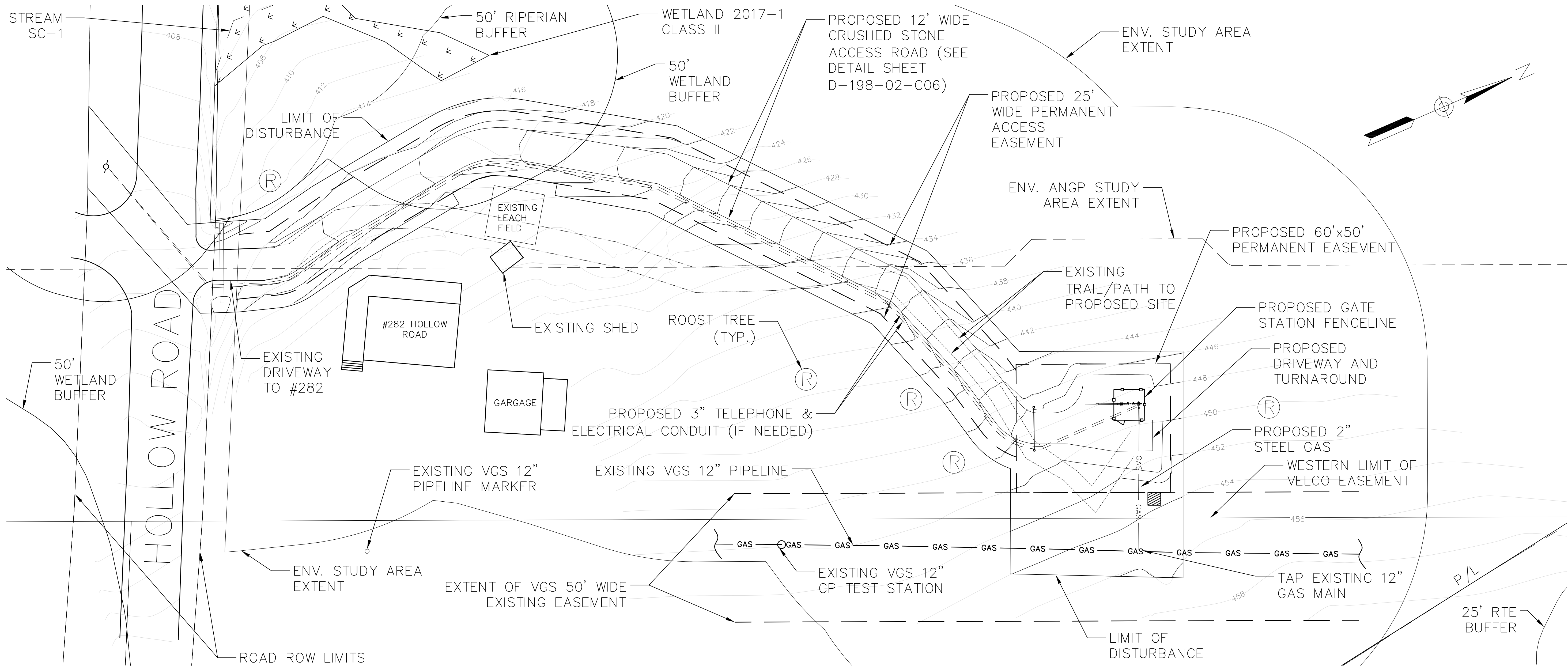
	TRI-MONT Engineering Co. Plymouth, MA
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CLIENT	VERMONT GAS SYSTEMS
PROJECT	MONKTON GATE STATION

Title					
SITE EXISTING CONDITIONS					

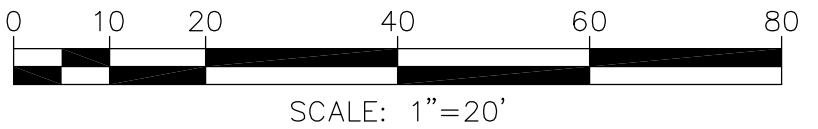
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Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		

Scale:	Job No.	Drawing No.	Rev. No.
1'=20'	D-198-02-C01	C	



PROPOSED SITE PLAN
SCALE: 1" = 20'

ISSUED FOR
PERMIT



C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd

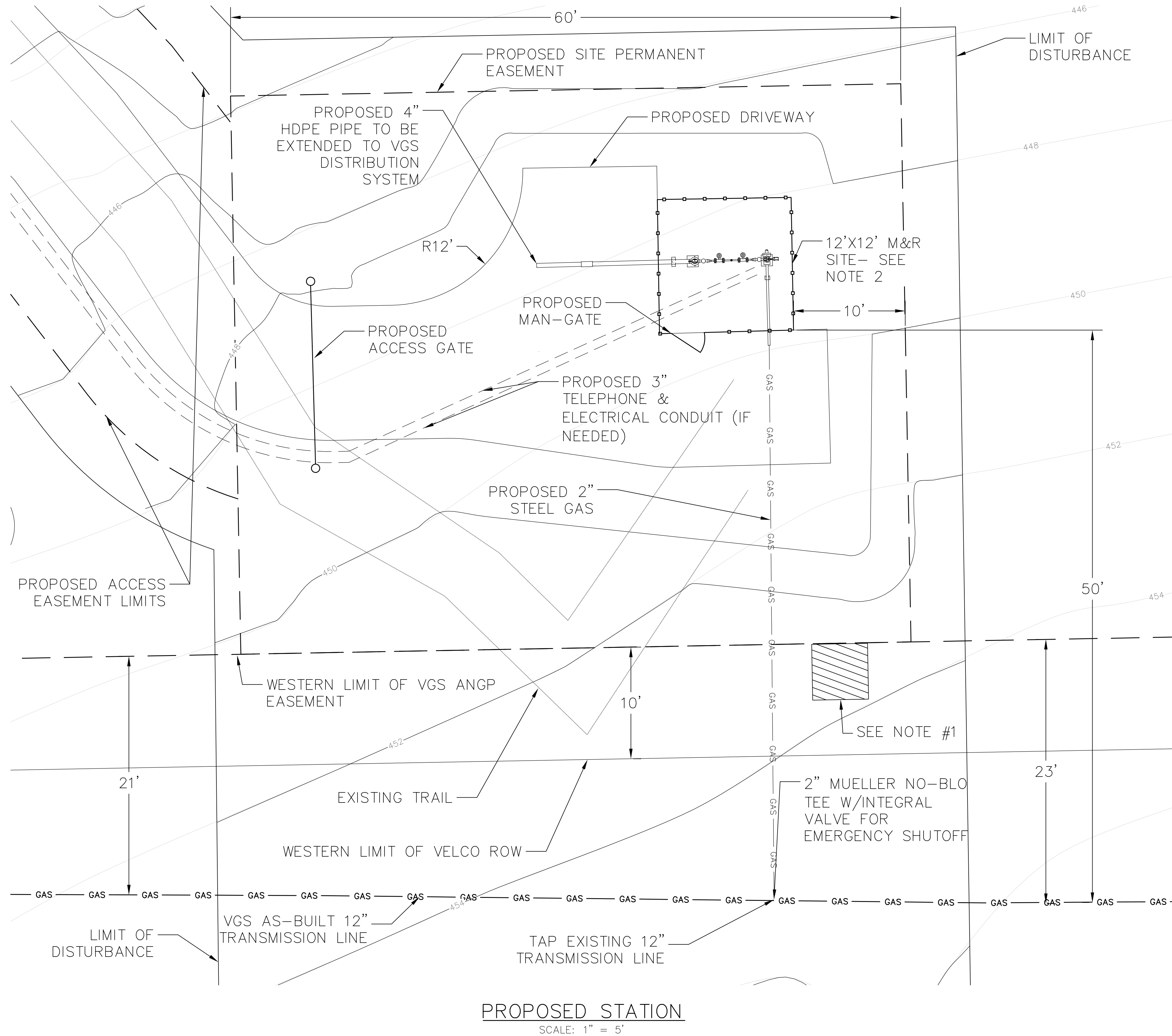
REVISIONS				
TRI-MONT Engineering Co. Plymouth, MA				

CLIENT	VERMONT GAS SYSTEMS
PROJECT	MONKTON GATE STATION

Title	PROPOSED SITE PLAN-OVERALL
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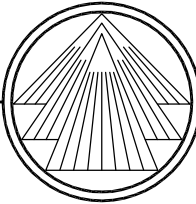
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Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		

Scale:	Job No.	Drawing No.	Rev. No.
1' = 20'	D-198-02-C02	C	



- NOTES
- 1) APPROXIMATE LOCATION OF 2-POLE MOUNTED SOLAR PANELS FACING 180-DEGREES SOUTH WITH SOLAR CONTROLLER, BATTERIES, AND CELLULAR COMMUNICATIONS. SEE SHEETS D-198-02-E02 TO D-198-02-E06 FOR DETAILS AND CONDUIT INFORMATION.
 - 2) SEE SHEET D-198-02-C05 AS WELL AS SHEET D-198-02-E06 FOR FENCE CONSTRUCTION AND GROUNDING DETAILS. SEE SHEET D-198-02-C06 FOR SITE PAD DETAILS

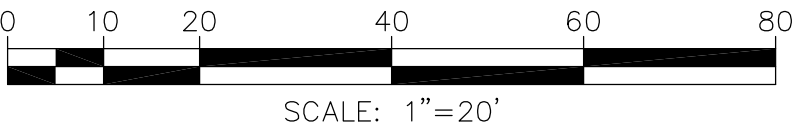
ISSUED FOR PERMIT

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No.	Description	By	Date	Appd.	
REVISIONS					
<div> TRI-MONT Engineering Co. Plymouth, MA</div>					
CLIENT					
VERMONT GAS SYSTEMS					
PROJECT					
MONKTON GATE STATION					
Title					
PROPOSED SITE PLAN-STATION					
TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		
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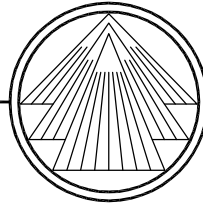


PROPOSED SITE PLAN
SCALE: 1" = 20'

ISSUED FOR
PERMIT



C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
	REVISIONS			

		TRI-MONT Engineering Co.	
		Plymouth, MA	

CLIENT	VERMONT GAS SYSTEMS		
PROJECT	MONKTON GATE STATION		

Title			
PROPOSED SITE PLAN-OVERALL (ORTHOPHOTO)			

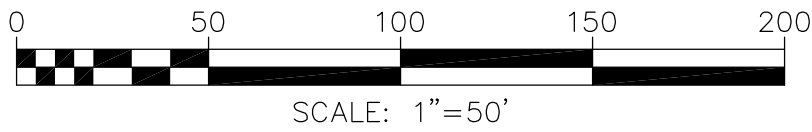
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Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		

Scale:	Job No.	Drawing No.	Rev. No.
1' = 20'	D-198-02-C04	C	

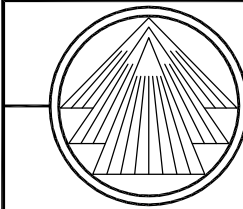


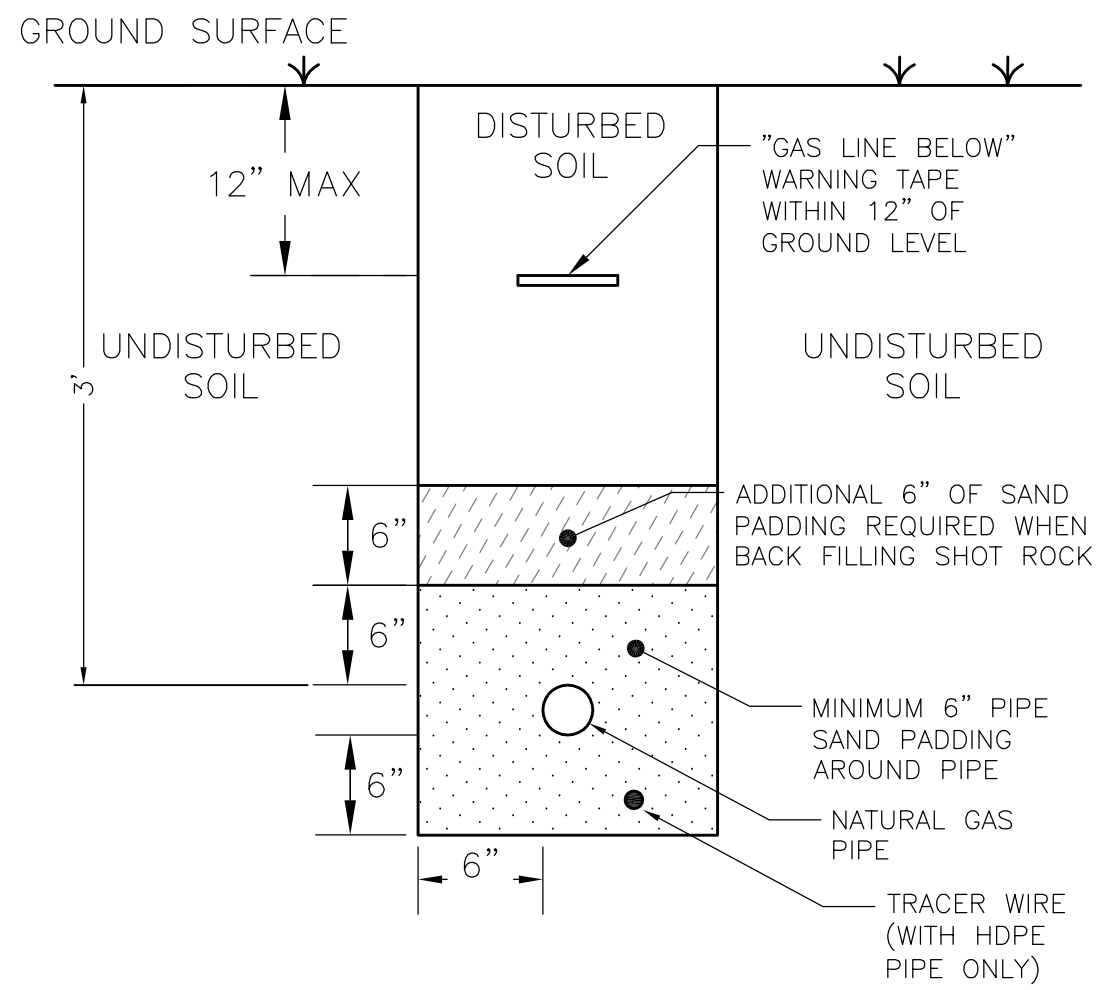
PROPOSED SITE PLAN
SCALE: 1" = 50'

ISSUED FOR
PERMIT

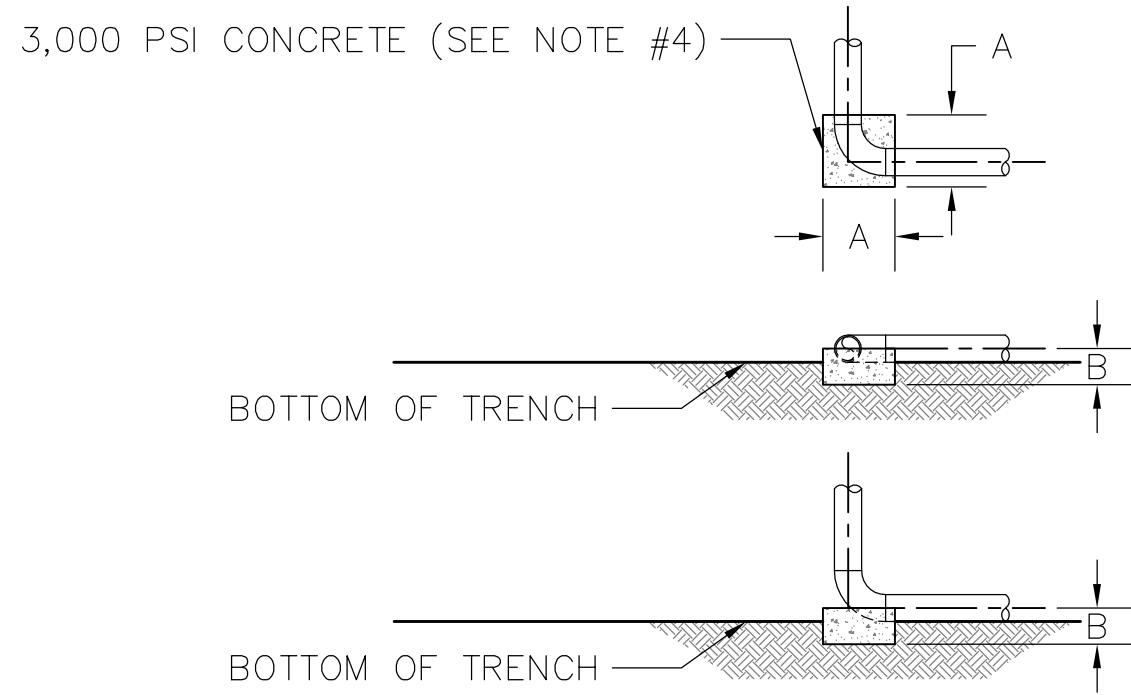


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B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
REVISIONS				

<div>TRI-MONT Engineering Co. Plymouth, MA</div>					
CLIENT VERMONT GAS SYSTEMS					
PROJECT MONKTON GATE STATION					
Title PROPOSED SITE PLAN-OVERALL EXTENTS (ORTHOPHOTO)					
TRI-MONT	By	Date	Client	By	Date
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Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		
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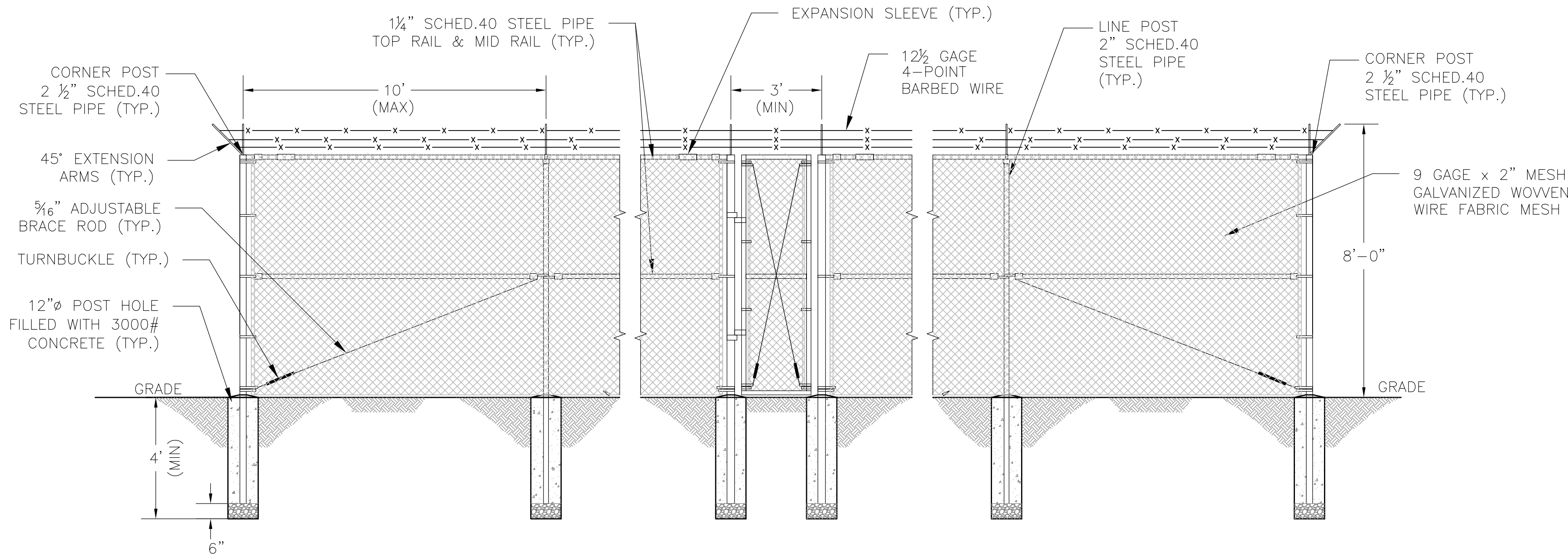
STANDARD TRENCH DETAIL
SCALE: N.T.S.



SLEEPER SIZE TABLE		
NPS	A	B
2"	12"	6"
4"	12"	6"

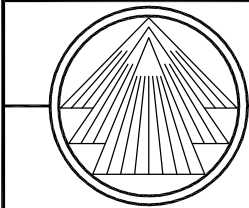
BURIED ELBOW SLEEPER DETAIL
SCALE: 3/8" = 1'

- NOTES:
- 3000 PSF SOIL BEARING CAPACITY ASSUMED.
 - ALL DIMENSIONS NOMINAL.
 - POURED IN PLACE CONCRETE SLEEPERS WILL BE FORMED WITH SANDBAGS ON UNDISTURBED SOIL. PIPE TO BE WRAPPED WITH NEOPRENE OR VGS APPROVED ROCK SHIELD. PIPE CP COATING WILL BE JEEPED FOR HOLIDAYS PRIOR TO FORMING SLEEPERS AND RE-CHECKED PRIOR TO POURING. REBAR OR METAL SLEEPER REINFORCEMENT WILL NOT CONTACT PIPE PRIOR TO OR AFTER POURING CONCRETE.
 - CONCRETE SHALL HAVE A 3000 PSI COMPRESSIVE STRENGTH.
 - APPROVED MATERIAL TO BE COMPACTED IN NO MORE THAN 6" LIFTS TO 95% OF ITS RELATIVE DENSITY.



PROPOSED FENCE DETAIL
SCALE: 3/8" = 1'

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PERMIT



TRI-MONT Engineering Co.
Plymouth, MA

CLIENT VERMONT GAS SYSTEMS

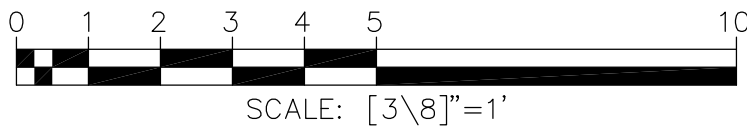
PROJECT MONKTON GATE STATION

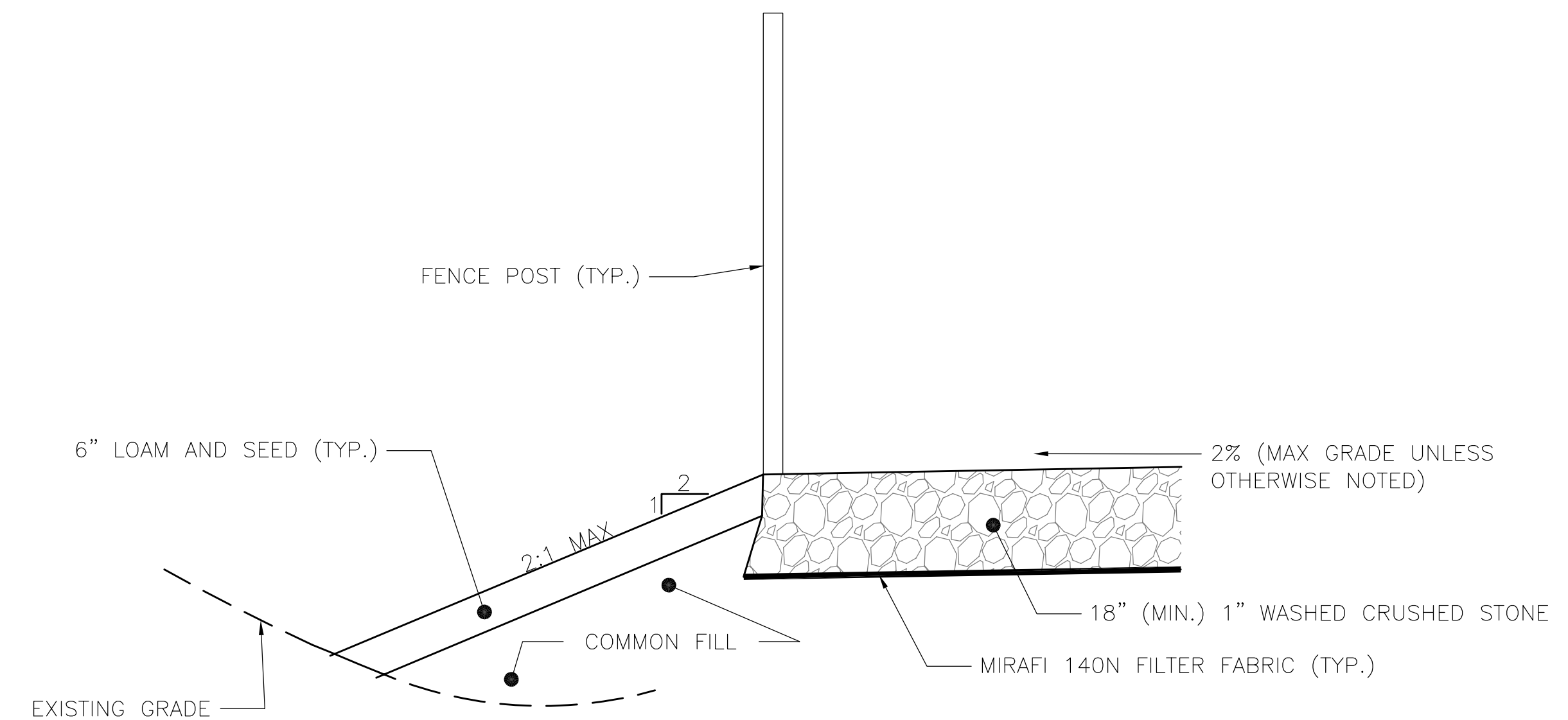
Title

TYPICAL DETAILS

TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
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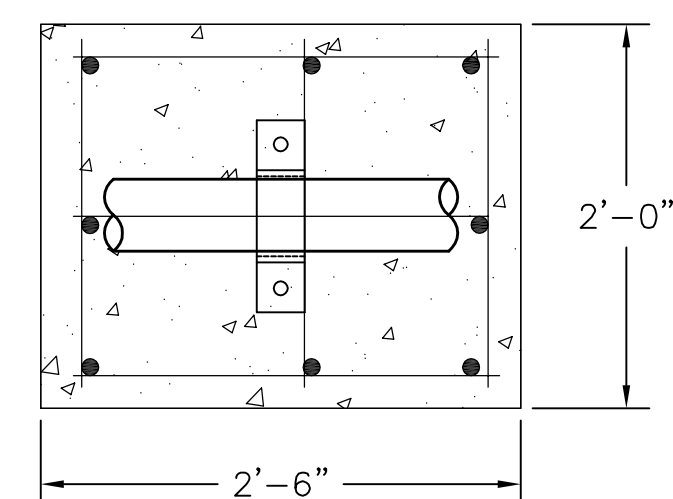
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AS NOTED	D-198-02-C05	C	





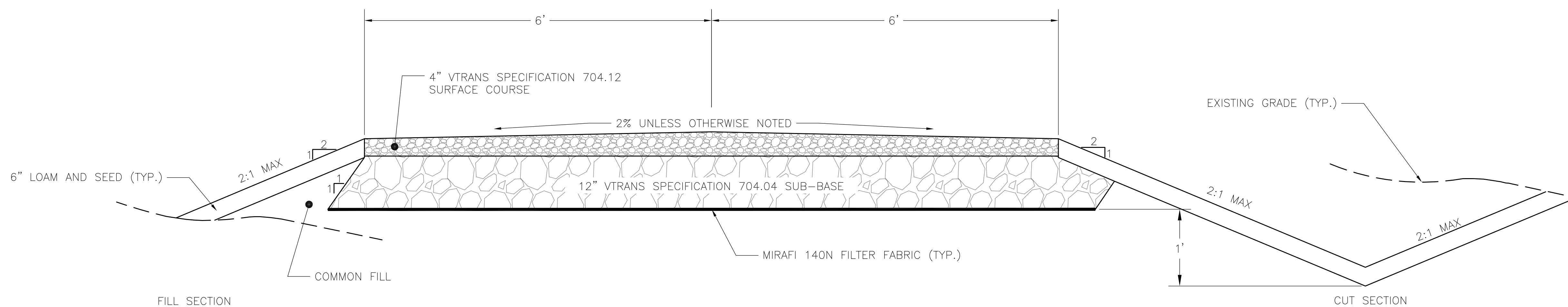
PROPOSED M&R SITE PAD SECTION

- CONCRETE NOTES:
- 1) 28 DAY DESIGN COMPRESSIVE STRENGTH OF 3,000 PSI
 - 2) MINIMUM OF 564 POUNDS OF PORTLAND CEMENT PER CUBIC YARD
 - 3) 4%-8% AIR CONTENT USING AIR ENTRAINING AGENT AS REQUIRED
 - 4) 4-6 INCH SLUMP
 - 5) 20% OF CLASS F FLY ASH MAY BE USED WITH THE APPROVAL OF THE ENGINEER AND THE CONCRETE FINISHER/CONTRACTOR
 - 6) MAXIMUM WATER TO CEMENT RATIO OF 0.45.
 - 7) REBAR TO BE ASTM A615 GR. 60

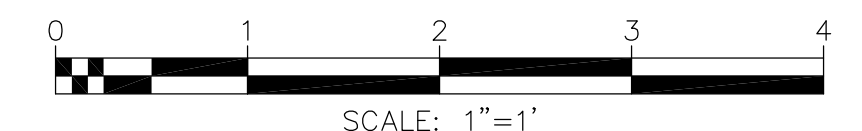


PLAN VIEW

PROPOSED PIPE SUPPORT
SCALE: 1"=1'

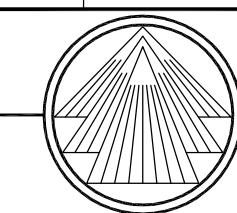


PROPOSED ACCESS ROAD SECTION
SCALE: N.T.S.



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PERMIT

C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
	REVISIONS			



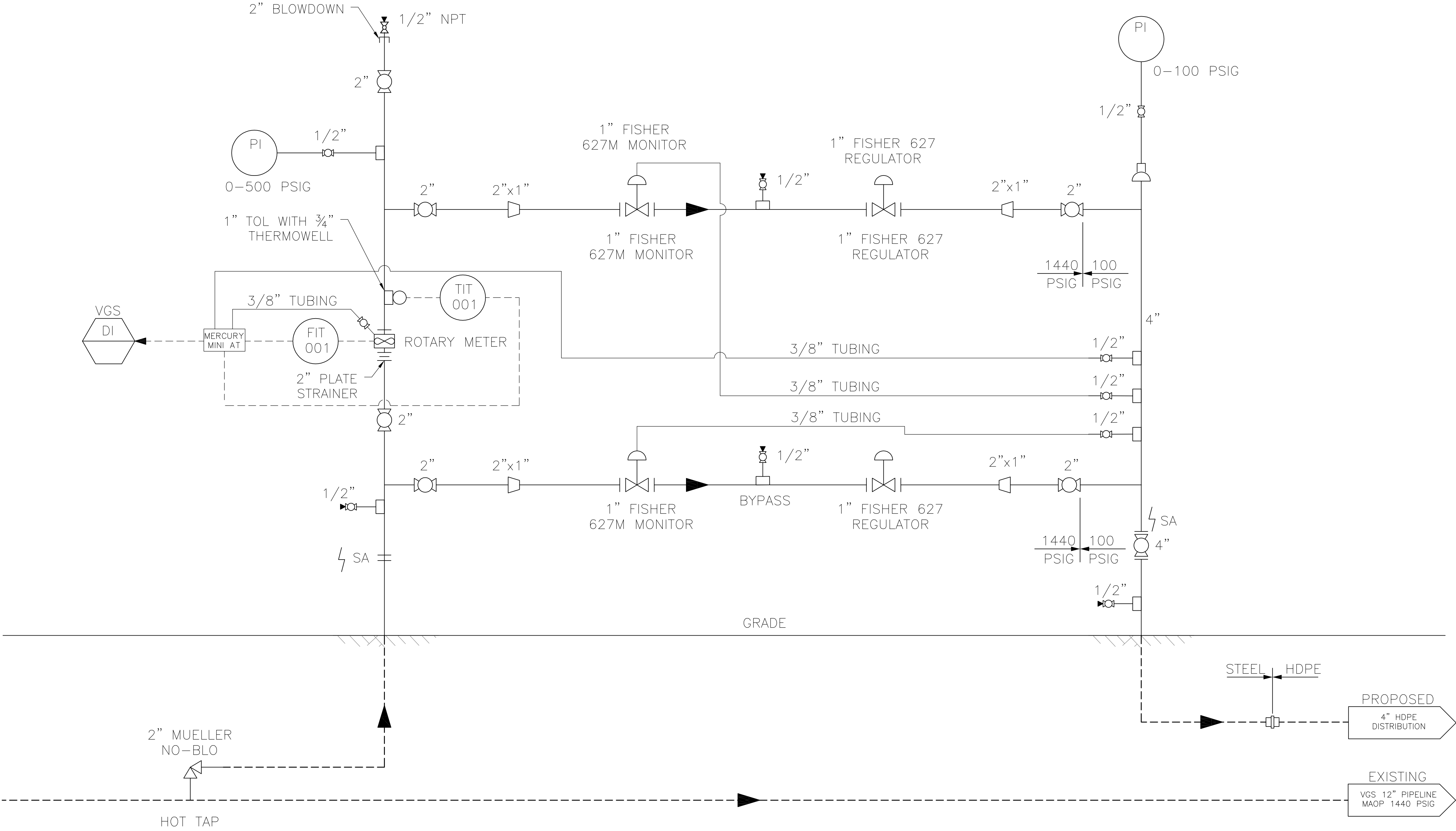
TRI-MONT Engineering Co.
Plymouth, MA

CLIENT	VERMONT GAS SYSTEMS
PROJECT	MONKTON GATE STATION

TYPICAL DETAILS


TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
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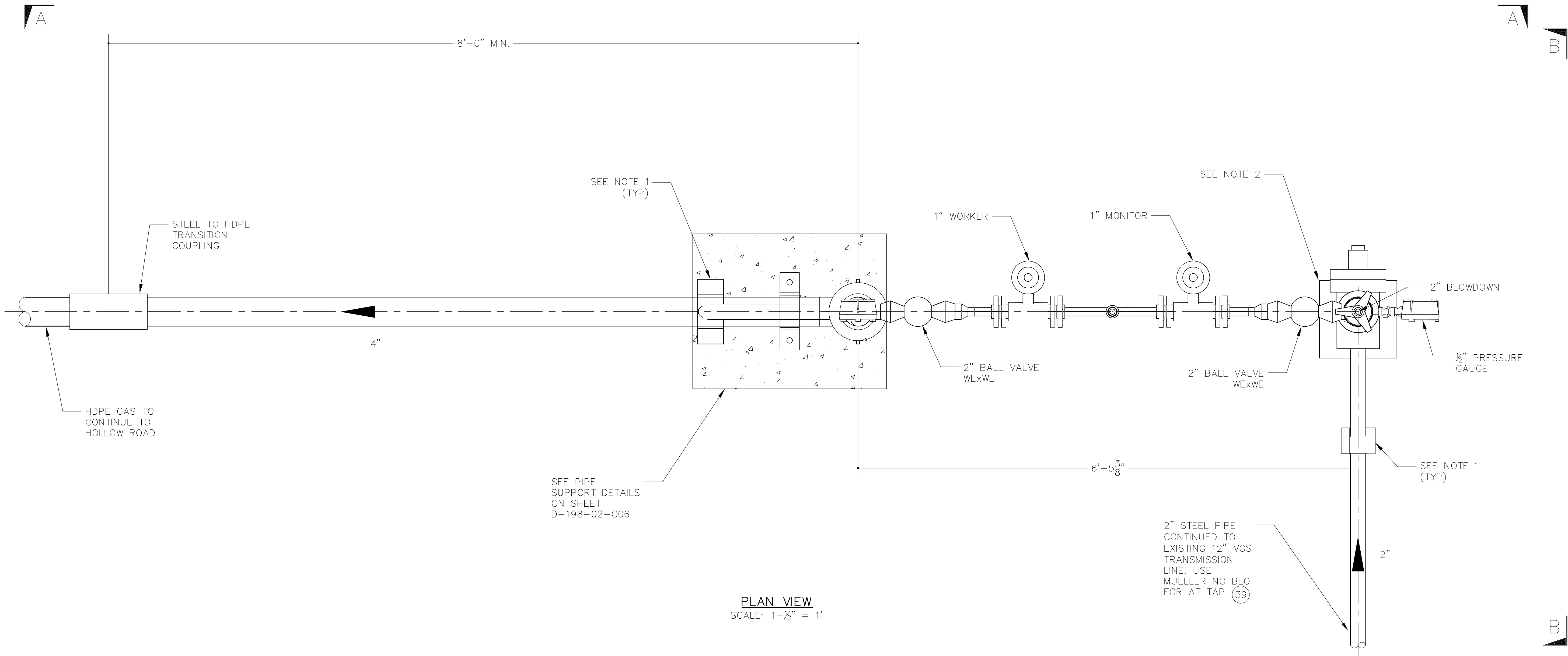
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AS NOTED	D-198-02-C06		C



ISSUED FOR PERMIT

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B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
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No.	Description	By	Date	Appd
REVISIONS				

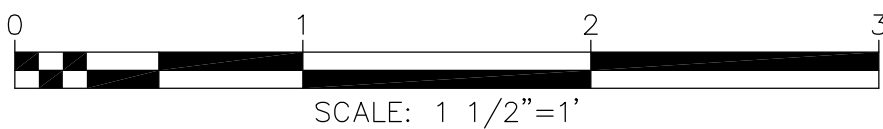
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CLIENT VERMONT GAS SYSTEMS					
PROJECT MONKTON GATE STATION					
Title METERING & REGULATING PIPING P&ID					
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Drawn	BCK	6/12/17	Approved		
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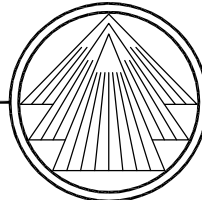
PLAN VIEW
SCALE: 1-1/2" = 1'

- NOTES:
1. FIELD FABRICATE WITH 2" SCH. 80 PIPE, BARE. CLAMP TO BE LINED WITH NEOPRENE. COAT CLAMP AND BRACE WITH DENSO BITUMEN-MASTIC OR APPROVED EQUAL.
 2. SEE SHEET D-198-02-C05 FOR PIPE SLEEPER DETAIL.

ISSUED FOR
PERMIT



C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	6/19/17	MDF
No.	Description	By	Date	Appd
	REVISIONS			

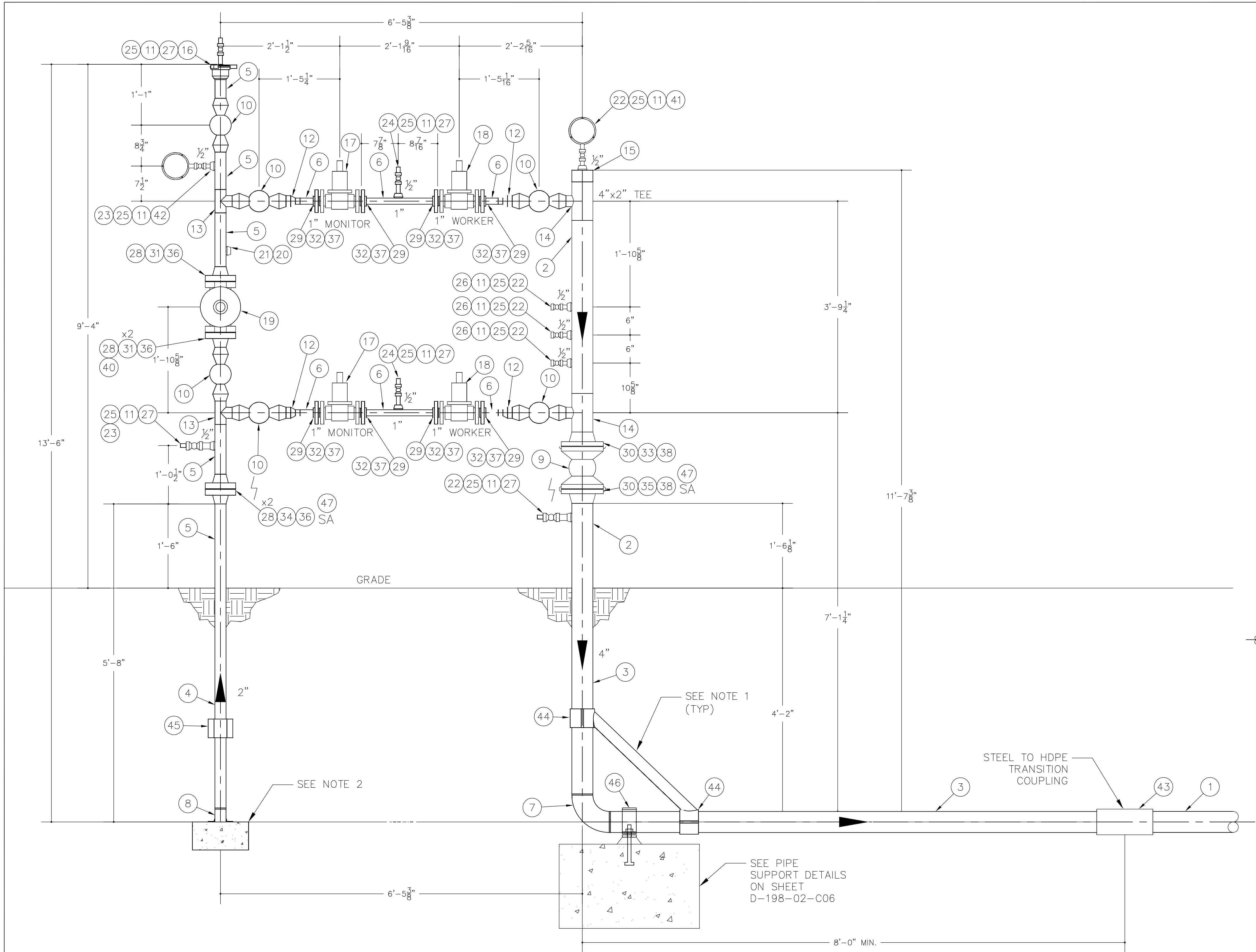
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CLIENT	VERMONT GAS SYSTEMS
PROJECT	MONKTON GATE STATION

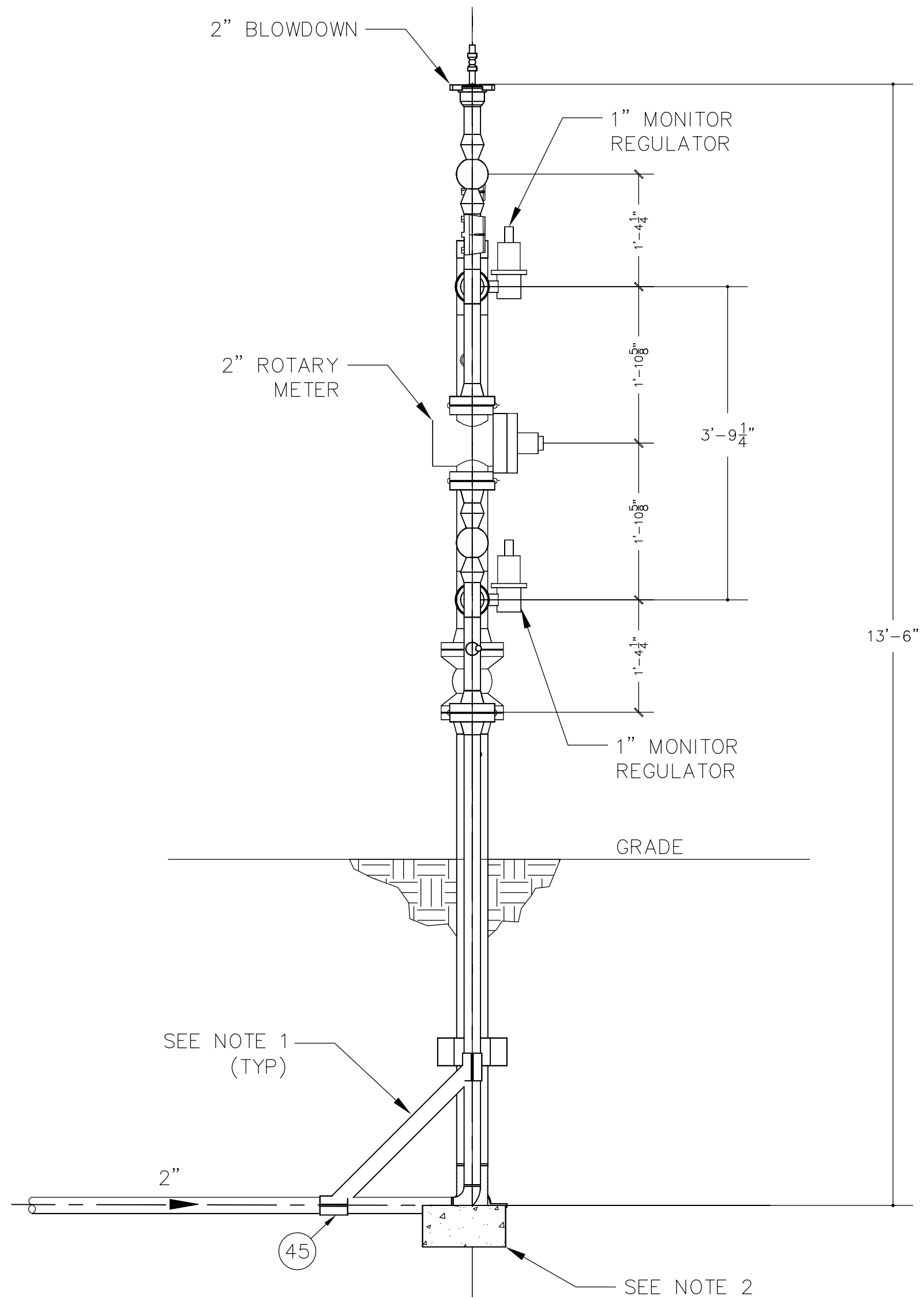
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Checked	MDF	6/19/17	Approved		
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1-1/2" = 1'	D-198-02-M01	C	



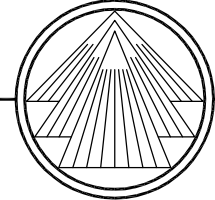
SECTION A-A VIEW
SCALE: 1" = 1'



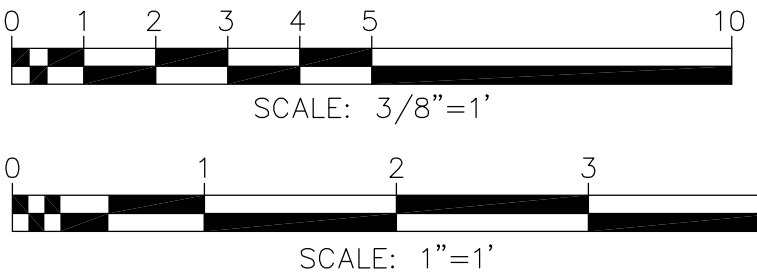
SECTION B-B VIEW
SCALE: 3/4" = 1'

ISSUED FOR PERMIT

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B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	6/19/17	MDF
No.	Description	By	Date	Appd
REVISIONS				

 TRI-MONT Engineering Co. Plymouth, MA					
CLIENT VERMONT GAS SYSTEMS					
PROJECT MONKTON GATE STATION					
Title METERING & REGULATING PIPING SECTION A-A & B-B VIEW					
TRI-MONT	By	Date	Client	By	Date
Drawn	OCA	6/19/17	Approved		
Checked	MDF	6/19/17	Approved		
Approved	MDF	6/19/17	Approved		
Scale: AS NOTED		Job No. D-198-02-M02		Drawing No. C	

- NOTES:
1. FIELD FABRICATE WITH 2" SCH. 80 PIPE, BARE. CLAMP TO BE LINED WITH NEOPRENE. COAT CLAMP AND BRACE WITH DENSO BITUMEN-MASTIC OR APPROVED EQUAL.
 2. SEE SHEET D-198-02-C05 FOR PIPE SLEEPER DETAIL.



ITEM	QTY	DESCRIPTION	LENGTH
1		PIPE, 4" NOMINAL, 4.50" O.D., HDPE, PE 4710, SDR11	405'
2		PIPE, 4" NOMINAL, 4.50" O.D. X 0.337" WT SCH 80/XH WT, ASTM A333, GR. 6, SMLS	10'
3		PIPE, 4" NOMINAL, 4.50" O.D. X 0.337" WT SCH 80/XH WT, ASTM A333, GR. 6, SMLS, COATED FBE	15'
4		PIPE, 2" NOMINAL, 2.375" O.D. X 0.218" WT SCH 80/XH WT, ASTM A333, GR. 6, SMLS, COATED FBE	70'
5		PIPE, 2" NOMINAL, 2.375" O.D. X 0.218" WT SCH 80/XH WT, ASTM A333, GR. 6, SMLS	20'
6		PIPE, 1" NOMINAL, 1.315" O.D. X 0.179" WT SCH 80/XH, ASTM A53, GR. B, SMLS	10'
7	1	ELBOW, 4" X 0.337" WT, ASME B16.9, ASTM A420 GR. WPL6, 90 DEG.	
8	1	ELBOW, 2" X 0.218" WT, ASME B16.9, ASTM A420 GR. WPL6, 90 DEG.	
9	1	VALVE, BALL, 4", CARBON STEEL, FULL PORT, 150#, WEXWE, ASME B31.8, API 6D W/MONOGRAM, FULL OPENING, WRENCH OPERATED, W/ CARBON STEEL FITTINGS IN BODY DRAIN AND SEALANT PORTS	
10	6	VALVE, BALL, 2", CARBON STEEL, FULL PORT, 600#, WEXWE, ASME B31.8, API 6D W/MONOGRAM, FULL OPENING, WRENCH OPERATED, W/ CARBON STEEL FITTINGS IN BODY DRAIN AND SEALANT PORTS	
11	10	VALVE, BALL, 1/2", NPT X NPT, CARBON STEEL, 3-PIECE, 600#, LOCK PLATE, ASME 16.34, APOLLO SERIES 83B-140 OR APPROVED EQUAL	
12	4	REDUCER, CONCENTRIC, 2" (0.218" WT) X 1" (0.179" WT), ASME B16.9, ASTM A420 GR. WPL6	
13	2	TEE, STRAIGHT, 2", 0.218" WT, STEEL, ASME B16.9, ASTM A420 GR. WPL6	
14	2	TEE, REDUCED, 4" X 2" (0.337" WT X 0.218" WT), STEEL, ASME B16.9, ASTM A420 GR. WPL6	
15	1	END CAP, 4", STEEL, 0.337" WT, ASME B16.9, ASTM A420 GR. WPL6	
16	1	END CAP, 2", STEEL, 0.218" WT, 600#, YALE FIGURE 500 C/W 1/2" NPT TAP, ASME B 16.5, ASTM A420 WPL6	
17	2	PRESSURE REGULATOR, MONITOR, 1", FISHER SERIES 627M, 600# RF, 3/8" ORIFICE, SPRING RANGE 35-80 PSI	
18	2	PRESSURE REGULATOR, WORKING, 1", FISHER SERIES 627, 600# RF, 3/8" ORIFICE, SPRING RANGE 35-80 PSI	
19	1	METER, ROTARY, 2", GE ROOTS 1M, 600# RF, 1480 PSIG, MODEL B-3HP WITH NON-TC ID ARM AND INTERNAL BYPASS	
20	1	THERMOWELL, 3/4", NPT, 1.5" U LENGTH, 316 SS, 3000#	
21	1	THREADOLET, 1", 3000#, ASTM A420, GR. WPL6 (FOR 2" PIPE)	
22	5	THREADOLET, 1/2", 3000#, ASTM A420, GR. WPL6 (FOR 4" PIPE)	
23	2	THREADOLET, 1/2", 3000#, ASTM A420, GR. WPL6 (FOR 2" PIPE)	
24	2	THREADOLET, 1/2", 3000#, ASTM A420 GR. WPL6 (FOR 1" PIPE)	
25	10	NIPPLE, 1/2", STEEL, X-HVY, ASTM A420, GR. WPL6, NPT X NPT, 3" LONG	
26	3	BUSHING, 1/2", (1/2" MNPT X 3/8" FNPT), 3000#, FORGED STEEL, ASTM A420, GR. WPL6, HEXAGON HEAD	
27	5	PLUG, 1/2", NPT, 3000#, FORGED STEEL, ASTM A420, GR. WPL6, HEXAGON HEAD	
28	4	FLANGE, 2", ANSI 600#, RF WELD NECK, ASTM A350, GR. LF2 ASME B16.5	
29	8	FLANGE, 1", ANSI 600#, RF WELD NECK, ASTM A350, GR. LF2, ASME B16.5	
30	2	FLANGE, 4", ANSI 150#, RF WELD NECK, ASTM A350, GR. LF2, ASME B16.5	
31	3	GASKET, 4 3/8" OD X 0.175" (0.125" COMPRESSED), SPIRAL WOUND W/CARBON FILLER AND METAL INNER RING, FLEXITALLIC TYPE CGI OR EQUIVALENT (FOR 2" NPS 600# FLANGE)	
32	8	GASKET, 2 7/8" OD X 0.175" (0.125" COMPRESSED), SPIRAL WOUND W/CARBON FILLER AND METAL INNER RING, FLEXITALLIC TYPE CGI OR EQUIVALENT (FOR 1" NPS 600# FLANGE)	
33	1	GASKET, 6 7/8" OD X 0.175" (0.125" COMPRESSED), SPIRAL WOUND W/CARBON FILLER AND METAL INNER RING, FLEXITALLIC TYPE CGI OR EQUIVALENT (FOR 4" NPS 150# FLANGE)	
34	1	INSULATING SET, 2", 600# RUBBER FACED PHENOLIC GASKET WITH A VITON SEAL, INTEGRAL MYLAR SLEEVES WITH 1 PHENOLIC AND 2 STEEL WASHERS PER STUD	
35	1	INSULATING SET, 4", 150# RUBBER FACED PHENOLIC GASKET WITH A VITON SEAL, INTEGRAL MYLAR SLEEVES WITH 1 PHENOLIC AND 2 STEEL WASHERS PER STUD	
36	3	(8)-BOLT, STUD, 5/8" X 5.25" ALLOY STEEL, ASTM A193, CL 2A, GRADE B-7, TEFLON COATED, 2 HEX NUTS EACH-ASTM A-194, CL 2B, GRADE 2H HVY HEX, TEFLON COATED (FOR 2" NPS 600# FLANGE)	
37	8	(4)-BOLT, STUD, 5/8" X 4.00" ALLOY STEEL, ASTM A193, CL 2A, GRADE B-7, TEFLON COATED, 2 HEX NUTS EACH-ASTM A-194, CL 2B, GRADE 2H HVY HEX, TEFLON COATED (FOR 1" NPS 600# FLANGE)	
38	2	(8)-BOLT, STUD, 5/8" X 4.00" ALLOY STEEL, ASTM A193, CL 2A, GRADE B-7, TEFLON COATED, 2 HEX NUTS EACH-ASTM A-194, CL 2B, GRADE 2H HVY HEX, TEFLON COATED (FOR 4" NPS 150# FLANGE)	
39	1	2" CURB VALVE TEE, MUELLER NO-BLO OR EQUIVALENT, FORGED STEEL BODY, WEXWE, ASTM A105, 1440 PSIG	
40	1	STRAINER, PLATE, 2", 600#, FOR USE WITH RF FLANGES, HELLAN SSI TP SERIES 60 MESH OR EQUIVALENT	
41	1	GAUGE, PRESSURE, 5" BEZEL, 1/2" MNPT CONNECTION, 0-100 PSIG	
42	1	GAUGE, PRESSURE, 5" BEZEL, 1/2" MNPT CONNECTION, 0-500 PSIG	
43	1	TRANSITION FITTING, 4", STEEL TO HDPE, WELD END X FUSION END, ASTM A53, GR. B, 0.337" WT X HDPE 4710, SDR 11	
44	2	PIPE CLAMP, 4", CARBON STEEL, BLACK FINISH, HEAVY. COMPLETE W/ 2 BOLTS & 2 WASHERS, PIPING TECHNOLOGY AND PRODUCTS FIGURE 60 OR APPROVED EQUAL	
45	2	PIPE CLAMP, 2", CARBON STEEL, BLACK FINISH, HEAVY. COMPLETE W/ 2 BOLTS, 2 WASHERS & 2 NUTS, PIPING TECHNOLOGY AND PRODUCTS FIGURE 60 OR APPROVED EQUAL	
46	1	PIPE CLAMP, 4", HOLD DOWN, COMPLETE W/ 2 BOLTS, 2 WASHERS, & 2 NUTS, PIPING TECHNOLOGY PRODUCTS HD-3 OR APPROVED EQUAL	
47	2	SPARK GAP ARRESTOR	

MECHANICAL BILL OF MATERIALS

GAS PIPE CONSTRUCTION SPECIFICATIONS

1. PIPELINE WILL BE CONSTRUCTED TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, STANDARDS AND REGULATIONS INCLUDING BUT NOT LIMITED TO:
- a. CFR49, PART 192; TRANSPORTATION OF NATURAL GAS AND OTHER GAS BY PIPELINE: MINIMUM FEDERAL SAFETY STANDARDS.

b. CFR49, PART 199; DRUG AND ALCOHOL TESTING


c. VERMONT PUBLIC SERVICE BOARD RULE 6.100: ENFORCEMENT OF SAFETY REGULATIONS PERTAINING TO INTRASTATE GAS PIPELINES AND TRANSPORTATION FACILITIES

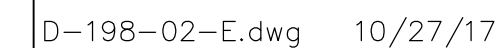
d. VERMONT PUBLIC SERVICE BOARD GENERAL ORDER NO. 41: RULES AND REGULATIONS APPLICABLE TO CONSTRUCTION AND OPERATION OF GAS TRANSMISSION PIPELINES
2. TRANSMISSION PIPELINE WELD JOINTS WILL BE NON-DESTRUCTIVELY TESTED IN ACCORDANCE WITH CFR 49 PART 192.
3. TRANSMISSION PIPING PRESSURE TEST WILL BE MADE AT A MINIMUM PRESSURE OF 2,160 PSIG FOR 8 HOURS PER VERMONT GAS SPECIFICATIONS.
4. DISTRIBUTION PIPING PRESSURE TEST WILL BE MADE A MINIMUM PRESSURE OF 150 PSIG FOR 8 HOURS PER VERMONT GAS SPECIFICATIONS.

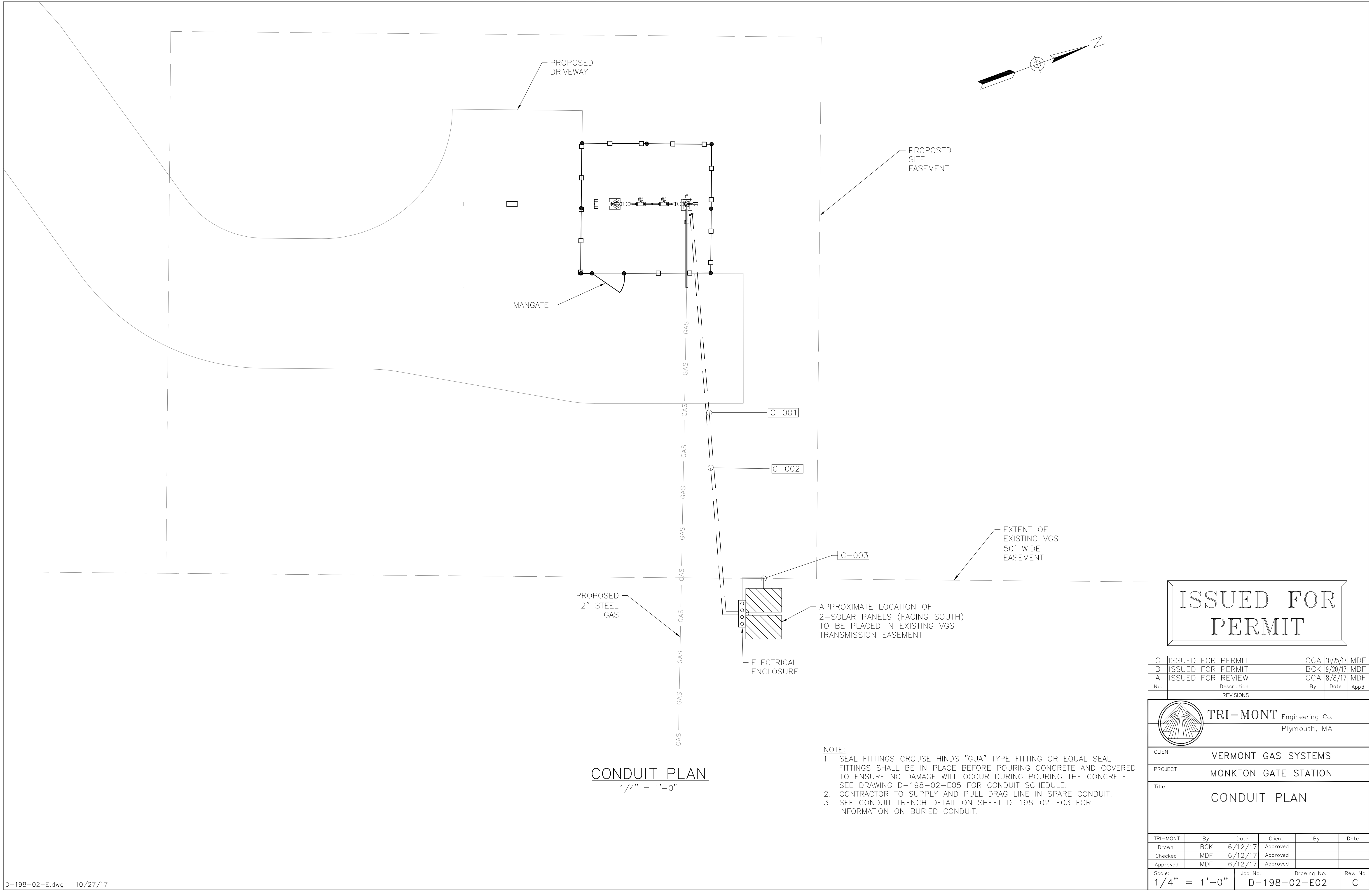
PIPE FIELD COATINGS

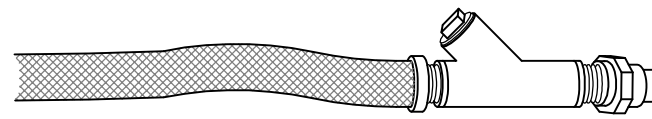
1. FIELD JOINTS ON BURIED PIPE WELDS, FBE COATED PIPE: SPC SP-2888 RG PER MANUFACTURERS APPLICATION SPECIFICATIONS.
2. BARE PIPE, FITTINGS AND FLANGES FOR BELOW GRADE SERVICE: CARBOLINE BITUMASTIC 300M. FLANGE RING AT BOLTS COATED WITH TRENTON WAX TAPE #1 AND PRIMER.
3. BARE PIPE AND FITTINGS AT AIR/SOIL INTERFACE: CARBOLINE BITUMASTIC 300M. COATING TO EXTEND 12" ABOVE FINISH GRADE. AIR/SOIL TRANSITION TO BE WRAPPED IN ROCK SHIELD, 3/8" TUFF N NUFF OR APPROVED EQUAL. ROCK SHIELD TO BE SECURED TO PIPE WITH PIPE CLAMPS, WIRE TIES OR OTHER APPROVED METHOD.
4. BARE PIPE AND FITTINGS FOR ABOVE GRADE SERVICE: COATED PER VERMONT GAS SPECIFICATIONS

ISSUED FOR PERMIT

C	ISSUED FOR PERMIT	OCA	10/25/17	MDF	
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF	
A	ISSUED FOR REVIEW	OCA	6/19/17	MDF	
No.	Description	By	Date	Appd	
REVISIONS					
<div><div></div><div><div>TRI-MONT</div><div>Engineering Co.</div><div>Plymouth, MA</div></div></div>					
CLIENT VERMONT GAS SYSTEMS					
PROJECT MONKTON M&R STATION					
Title BILL OF MATERIALS & NOTES					
TRI-MONT	By	Date	Client	By	Date
Drawn	OCA	6/19/17	Approved		
Checked	MDF	6/19/17	Approved		
Approved	MDF	6/19/17	Approved		
Scale: 1" = 1'		Job No. D-198-02-M03		Drawing No. C	







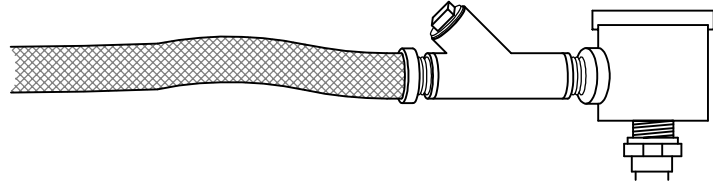
CLASS 1, DIVISION 1
CONDUIT TO DEVICE CONNECTION DETAIL
WO/INTEGRAL ELECT LEADS

SCALE: NONE
eg: TRANSMITTERS

NOTE:
THE INSTALLATION OF FLEXIBLE EX-PROOF COUPLINGS FOR INSTRUMENTATION IN CLASS 1-DIV 1 AREAS SHALL ADHERE TO SECTION 501.4 (a) OF THE NEC. FLEXIBLE COUPLINGS SHALL BE CROUSE-HINDS "ECLX" TYPE. THE MAXIMUM BENDING RADIUS FOR THE COUPLING SHALL NOT BE EXCEEDED.

CONDUIT TO DEVICE DETAIL

NOT TO SCALE



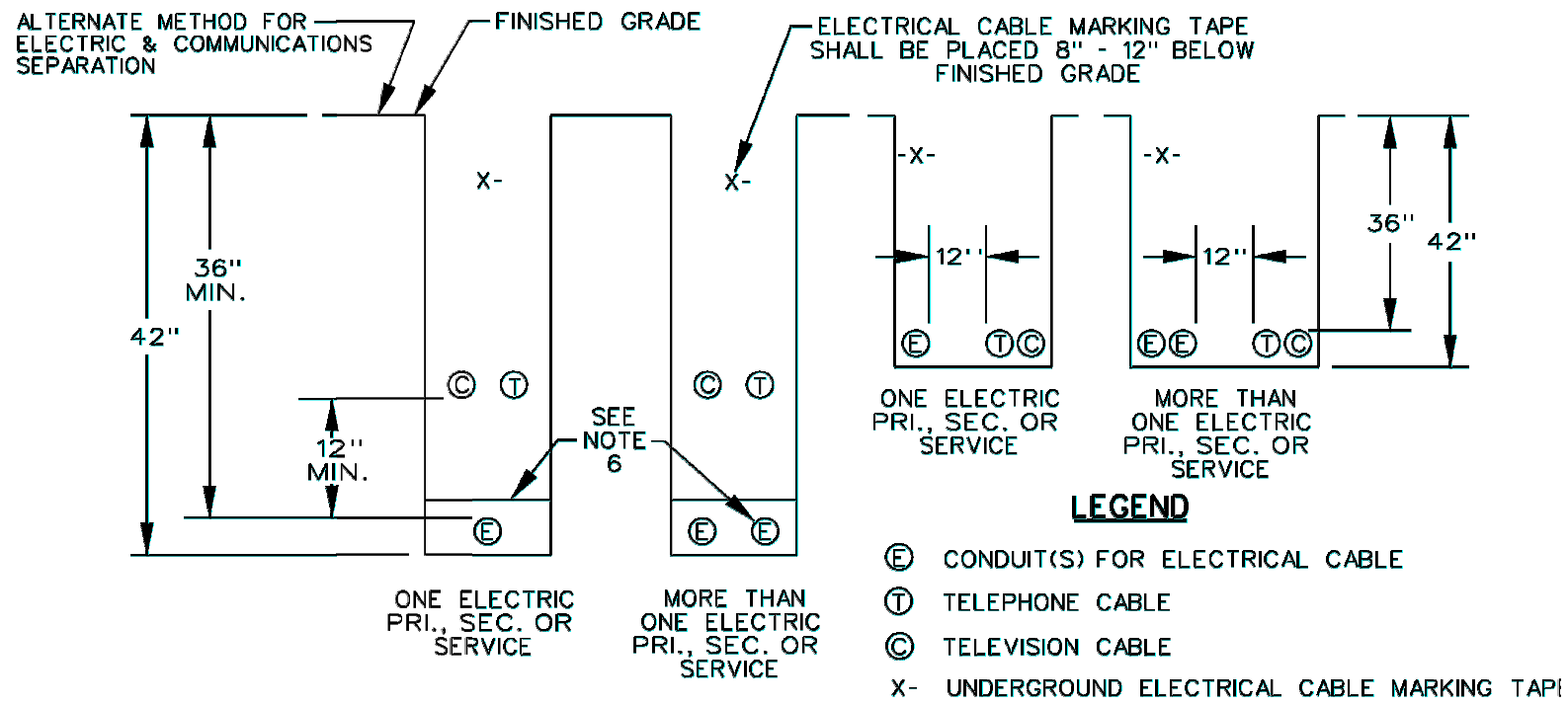
CLASS 1, DIVISION 1
CONDUIT TO DEVICE CONNECTION DETAIL
W/INTEGRAL ELECT LEADS

NOTE:
THE INSTALLATION OF FLEXIBLE EX-PROOF COUPLINGS FOR INSTRUMENTATION IN CLASS 1-DIV 1 AREAS SHALL ADHERE TO SECTION 501.4 (a) OF THE NEC. FLEXIBLE COUPLINGS SHALL BE CROUSE-HINDS "ECLX" TYPE. THE MAXIMUM BENDING RADIUS FOR THE COUPLING SHALL NOT BE EXCEEDED.

CONDUIT TO DEVICE DETAIL W/ INTEGRAL ELECT LEADS

NOT TO SCALE

TYPICAL TRENCH CROSS-SECTION
U.G. CABLE IN CONDUIT



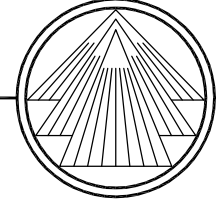
- NOTES:**
1. ALL TRENCHES AND ELECTRICAL CONDUIT(S) REQUIRE APPROVAL BY UTILITY INSPECTOR BEFORE BACKFILLING.
 2. ALL TRENCHES SHALL BE 18 INCH MINIMUM WIDTH. THE CONDUIT SHALL BE EMBEDDED IN UNFROZEN SAND OR FINE GRAVEL THAT WILL PASS A 1 INCH MESH. THIS MATERIAL SHALL BE A MINIMUM OF 4 INCHES THICK ON ALL SIDES OF THE CONDUIT. THE REMAINDER OF THE BACKFILL SHALL BE CLEAN, AND, SHALL NOT CONTAIN ROCKS LARGER THAN 8 INCHES IN ANY DIMENSION. CAREFULLY COMPACT THE FULL DEPTH OF BACKFILL. UNDER TRAVELLED WAYS AND PARKING LOTS, THE MINIMUM DEPTH, UNDER A HIGHWAY, SHALL BE 48 INCHES RATHER THAN 36 INCHES. MOUNDING THE TRENCH, TO PROVIDE THE REQUIRED DEPTH, IS NOT ALLOWED.
 3. CONDUIT SHALL BE ENCASED IN A 4 INCH ENVELOPE OF CONCRETE UNDER THE FOLLOWING CONDITIONS:
A) BROOK CROSSINGS.
B) CROSSINGS OF WATER, SEWER, AND GAS PIPELINES. CROSSINGS SHALL BE DONE AT NINETY DEGREES IF POSSIBLE. NORMALLY, THE ELECTRICAL CONDUIT SHALL BE A MINIMUM OF 18 INCHES ABOVE THE PIPE. CAREFULLY COMPACT THE FILL BELOW THE ELECTRICAL CONDUIT. CONCRETE ENCASEMENT IS REQUIRED FOR 10 FEET ON EACH SIDE OF THE PIPE.
C) UNDER THE TRAVELLED WAY OF CITY STREETS, AND, UNDER TOWN HIGHWAYS, IF REQUIRED BY THE TOWN, A PIPE SLEEVE SURROUNDING THE CONDUIT, MAY BE SUBSTITUTED.
D) CONDUITS WITHIN 20 FEET OF TANKS CONTAINING FUELS, OR SOLVENTS. THESE TANKS MAY BE ABOVE OR BELOW GRADE. THIS REQUIREMENT DOES NOT APPLY TO URD SERVICES.
 4. TRENCHES SHOULD BE LOCATED 10 FEET FROM ANY STRUCTURE, UNLESS THE CONDUIT IS GOING TO THE STRUCTURE. CONTACT THE UTILITY IF CLOSER APPROACHES ARE NECESSARY.
 5. TRENCHES SHOULD BE LOCATED 10 FEET FROM ANY WATER, SEWER, OR GAS PIPELINE THAT PARALLELS THE CONDUIT. CONTACT THE UTILITY IF CLOSER APPROACHES ARE NECESSARY.
 6. COMMUNICATIONS CABLES AND CONDUITS MAY BE LOCATED IN THE SAME TRENCH WITH ELECTRIC CABLES OR CONDUITS. A MINIMUM HORIZONTAL OR VERTICAL SEPARATION OF 12 INCHES IS REQUIRED. ELECTRICAL CONDUITS SHALL BE SEPARATED BY 4 INCHES. THESE DISTANCES ARE MEASURED SURFACE-TO-SURFACE, NOT CENTER-TO-CENTER.
 7. DEPTHS SHALLOWER THAN 36 INCHES MAY BE ALLOWED WHERE OBSTRUCTIONS SUCH AS LEDGE ARE ENCOUNTERED. ANY PORTION OF THE CONDUIT SHALLOWER THAN 24 INCHES SHALL BE COVERED WITH A MINIMUM 2 INCH CONCRETE CAP. SEE THE UTILITY FOR DEPTHS SHALLOWER THAN 12 INCHES.
 8. CHECK WITH THE LOCAL UTILITY FOR SPECIFIC REQUIREMENTS.

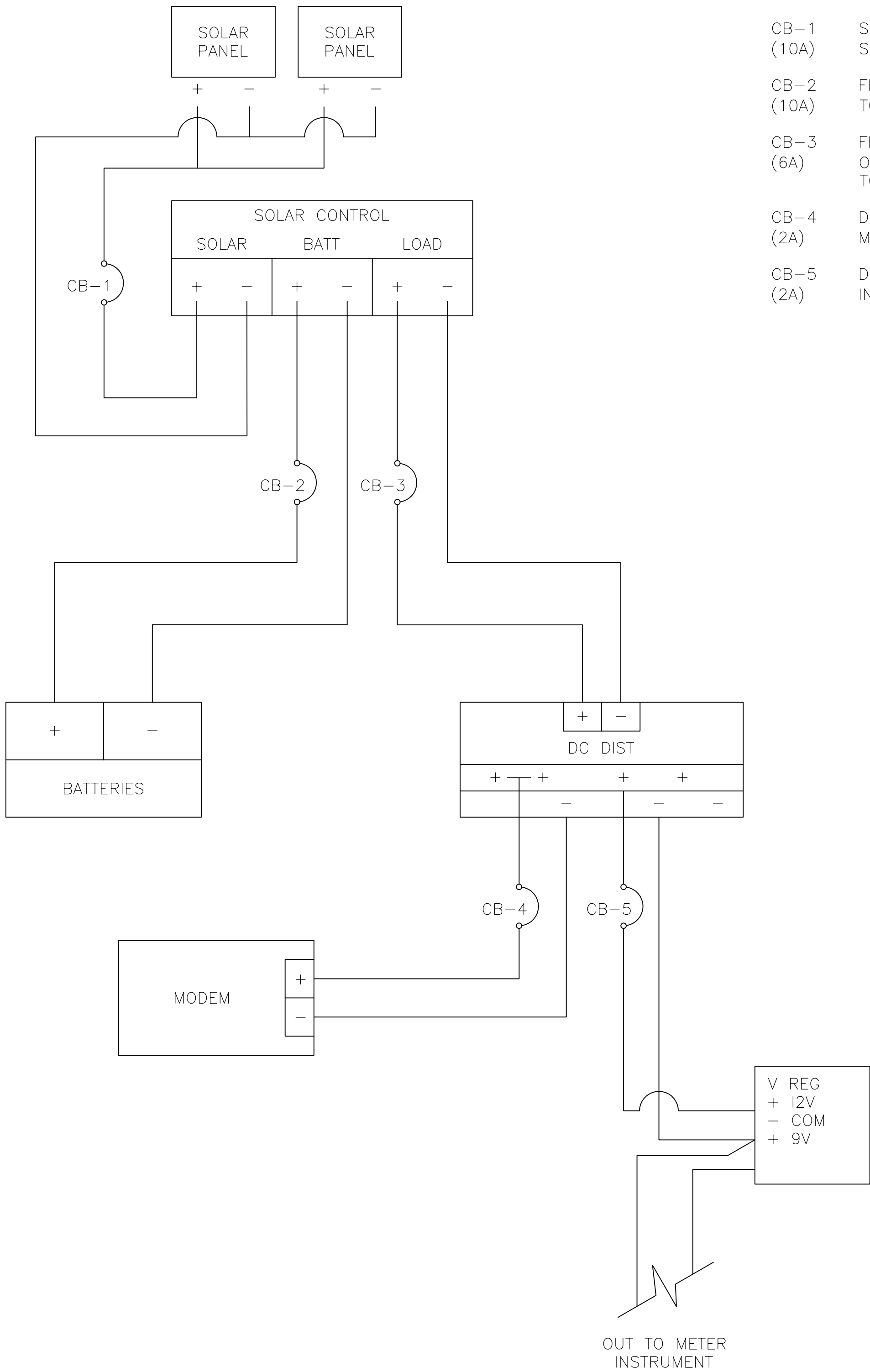
CONDUIT TRENCH DETAIL

NOT TO SCALE
SOURCE: VERMONT UTILITIES ELECTRIC SERVICE
REQUIREMENTS MANUAL

ISSUED FOR
PERMIT

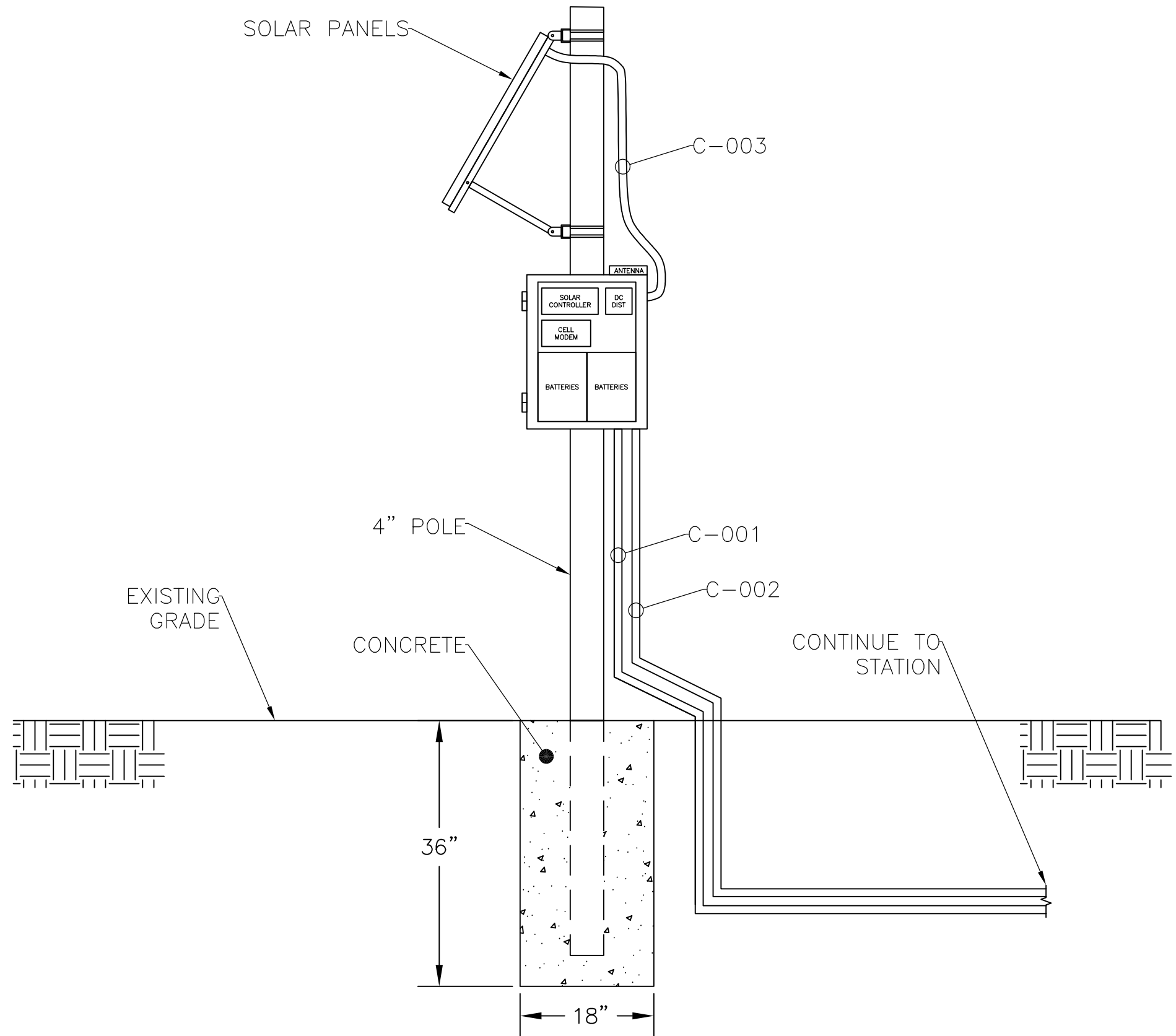
C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
REVISIONS				

	TRI-MONT Engineering Co. Plymouth, MA				
CLIENT	VERMONT GAS SYSTEMS				
PROJECT	MONKTON GATE STATION				
Title	CONDUIT DETAILS				
TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		
Scale:	N/A		Job No.	Drawing No.	Rev. No.
				D-198-02-E03	C



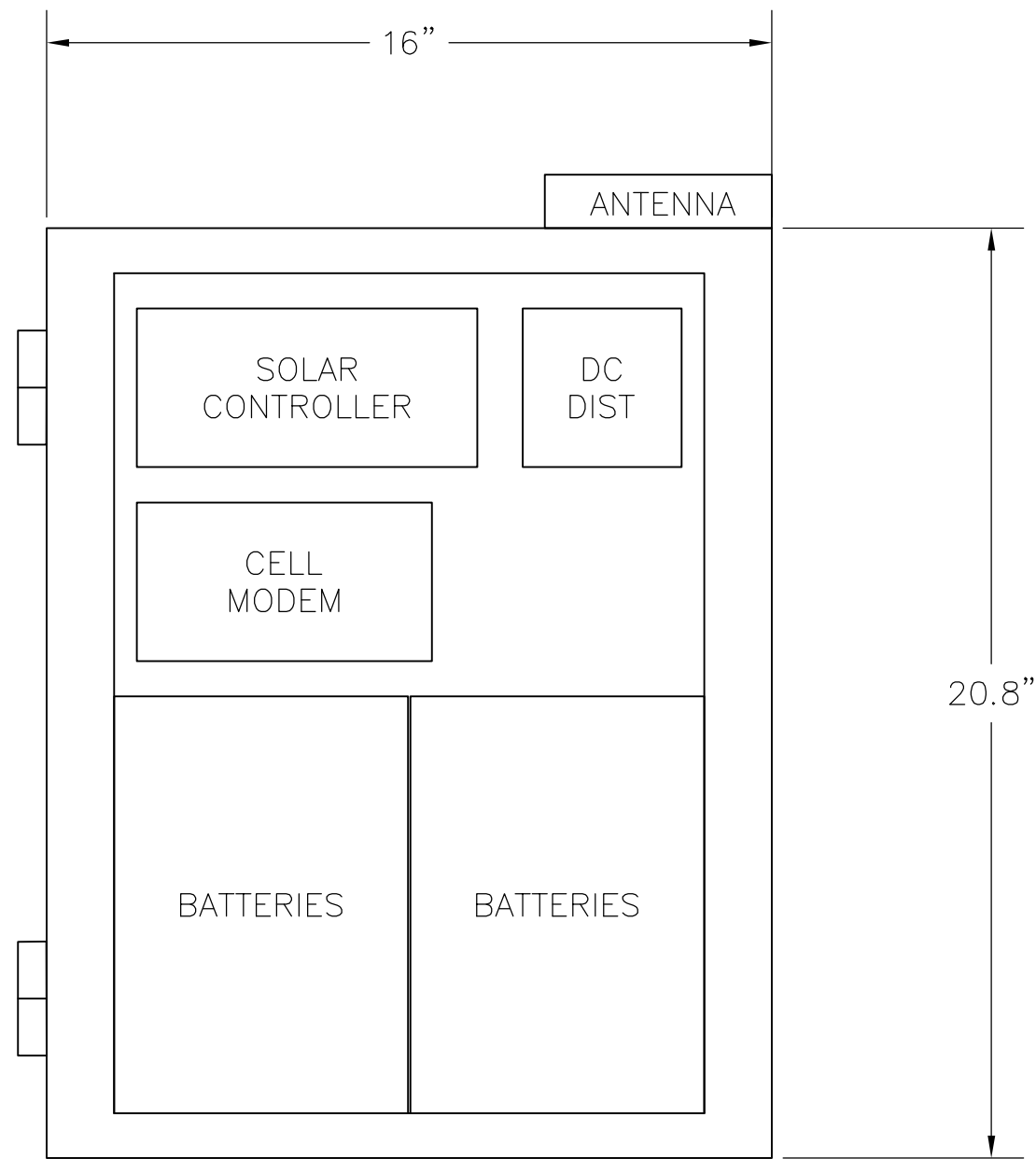
12 VDC POWER (SOLAR SYSTEM)
NOT TO SCALE

- CB-1 SOLAR POWER IN TO SOLAR CONTROLLER (10A)
- CB-2 FROM SOLAR CONTROLLER TO BATTERIES (10A)
- CB-3 FROM LOAD TERMINALS ON SOLAR CONTROLLER TO DC DISTRIBUTION (6A)
- CB-4 DC DIST TO CELL MODEM (2A)
- CB-5 DC DIST TO MERCURY INSTRUMENT (2A)



SOLAR PANEL, MOUNT, AND ENCLOSURE LAYOUT
NOT TO SCALE

- NOTE:
- 1) SOLAR PANELS AND ENCLOSURE TO BE MOUNTED ON SUNWIZE SOLAR MULTI-MODULE ADJUSTABLE SIDE POLE MOUNTS OR EQUIVALENT.



ENCLOSURE DETAILS
NOT TO SCALE

- NOTE:
- 1) ENCLOSURE TO BE SUNWIZE F2 ALUMINUM ENCLOSURE OR EQUIVALENT

ISSUED FOR PERMIT

C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
REVISIONS				

<div><div></div><div>TRI-MONT Engineering Co. Plymouth, MA</div></div>					
CLIENT VERMONT GAS SYSTEMS					
PROJECT MONKTON GATE STATION					
Title SOLAR AND POWER DETAILS					
TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		
Scale: AS NOTED		Job No. D-198-02-E04		Drawing No. Rev. No. C	

I/O LIST						
DESCRIPTION	TAG	IO TYPE-SLOT-CHANNEL	SPAN	UNITS	MANUFACTURER	MODEL #
METER PRESS	PIT-001		0-1500	PSIG	MERCURY	MINI-AT
METER TEMP	TIT-001		-20-150	DEG. F	MERCURY	MINI-AT
D/S PRESS	PIT-002		0-150	PSIG	MERCURY	MINI-AT
FLOW RATE	FIT-001					

I/O LIST

DC CONDUIT & CABLE SCHEDULE								
CONDUIT NO.	CONDUIT SIZE (IN.)	CONDUIT TYPE	FROM	TO	CABLE NO.	CABLE/CONDUCTOR TYPE	NO. CONDUCTORS/ GAUGE (AWG)	DESCRIPTION
C-001	0.75	RMC	COMM	METER	E-001	BELDEN CAT5e	4 PAIR #24	METER DATA
					DC-001	BELDEN 1064A TWISTED SHIELDED PAIR OR EQUIVALENT	2 PAIR/# 18 W/ GND	
C-002	0.75	RMC	COMM	METER	N/A	N/A	N/A	SPARE
C-003	0.75	RMC	SOLAR	COMM	DC-002	BELDEN 1064A TWISTED SHIELDED PAIR OR EQUIVALENT	2 PAIR #18	SOLAR SYSTEM

DC CONDUIT & CABLE SCHEDULE

INSTRUMENTATION & ELECTRICAL EQUIPMENT LIST					
ITEM #	QTY	EQUIPMENT	MANUFACTURER	MODEL #	
1	2	10A DC CIRCUIT BREAKER	PHOENIX CONTACT	EC-E1 12A	
2	1	6A DC CIRCUIT BREAKER	PHOENIX CONTACT	EC-E1 5A	
3	2	2A DC CIRCUIT BREAKER	PHOENIX CONTACT	EC-E1 2A	
4	1	MERCURY MINI-AT	HONEYWELL		
5	1	CELL MODEM	SIERRA WIRELESS	RV50	
6	1	SOLAR CONTROLLER	SUNWIZE	230075	
7	2	12V, 99AH BATTERIES	MK	8627-DEKA	
8	2	100W SOLAR PANELS	SUNWIZE	7116	
9	1	ENCLOSURE	SUNWIZE	4219	

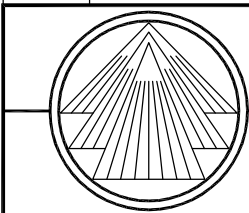
INSTRUMENTATION & ELECTRICAL EQUIPMENT LIST

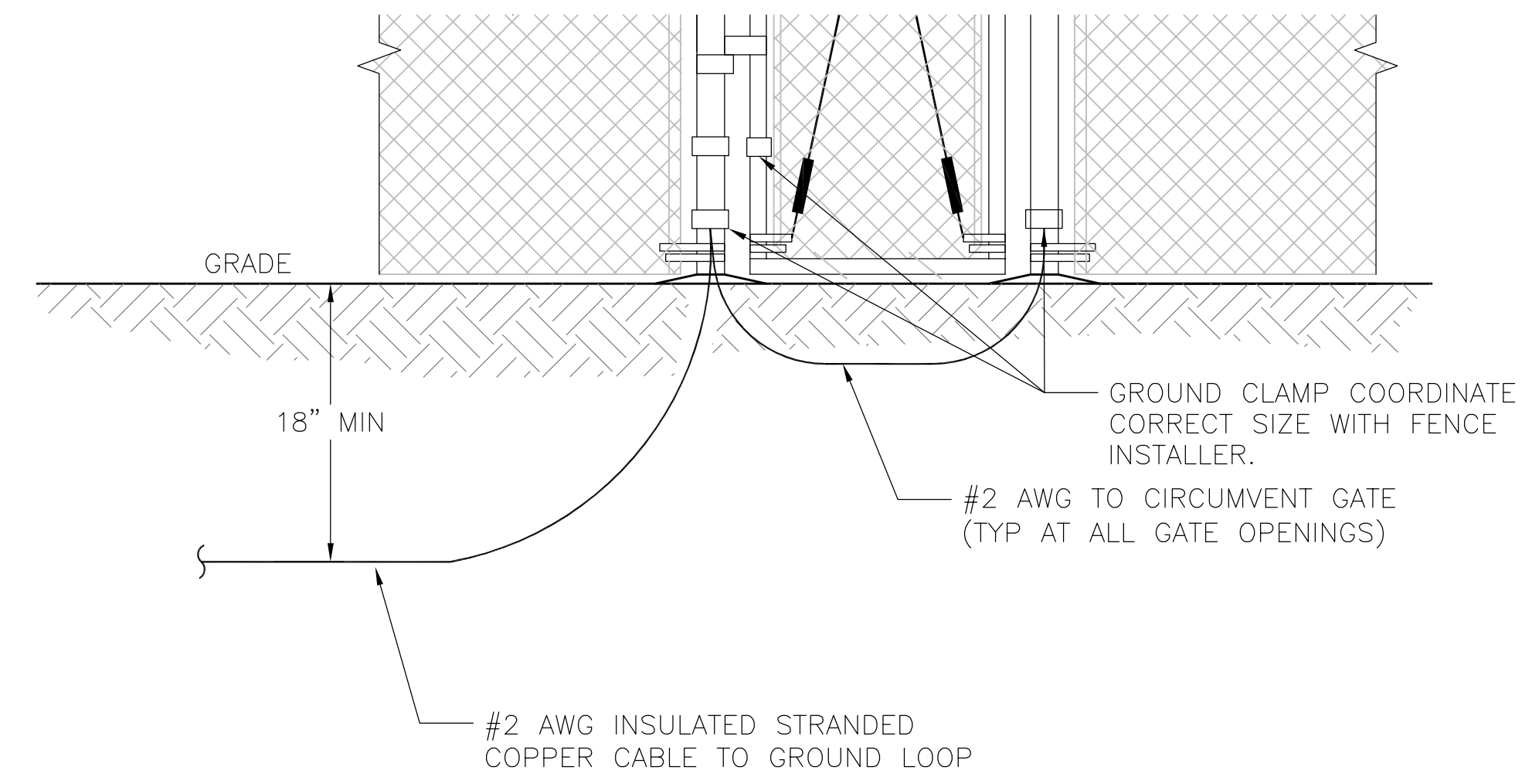
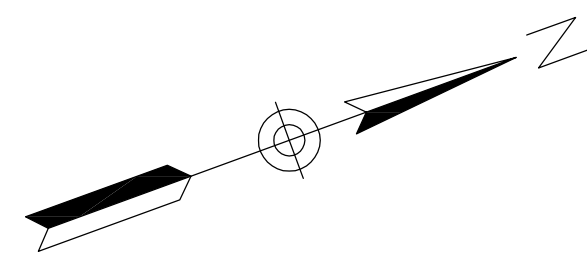
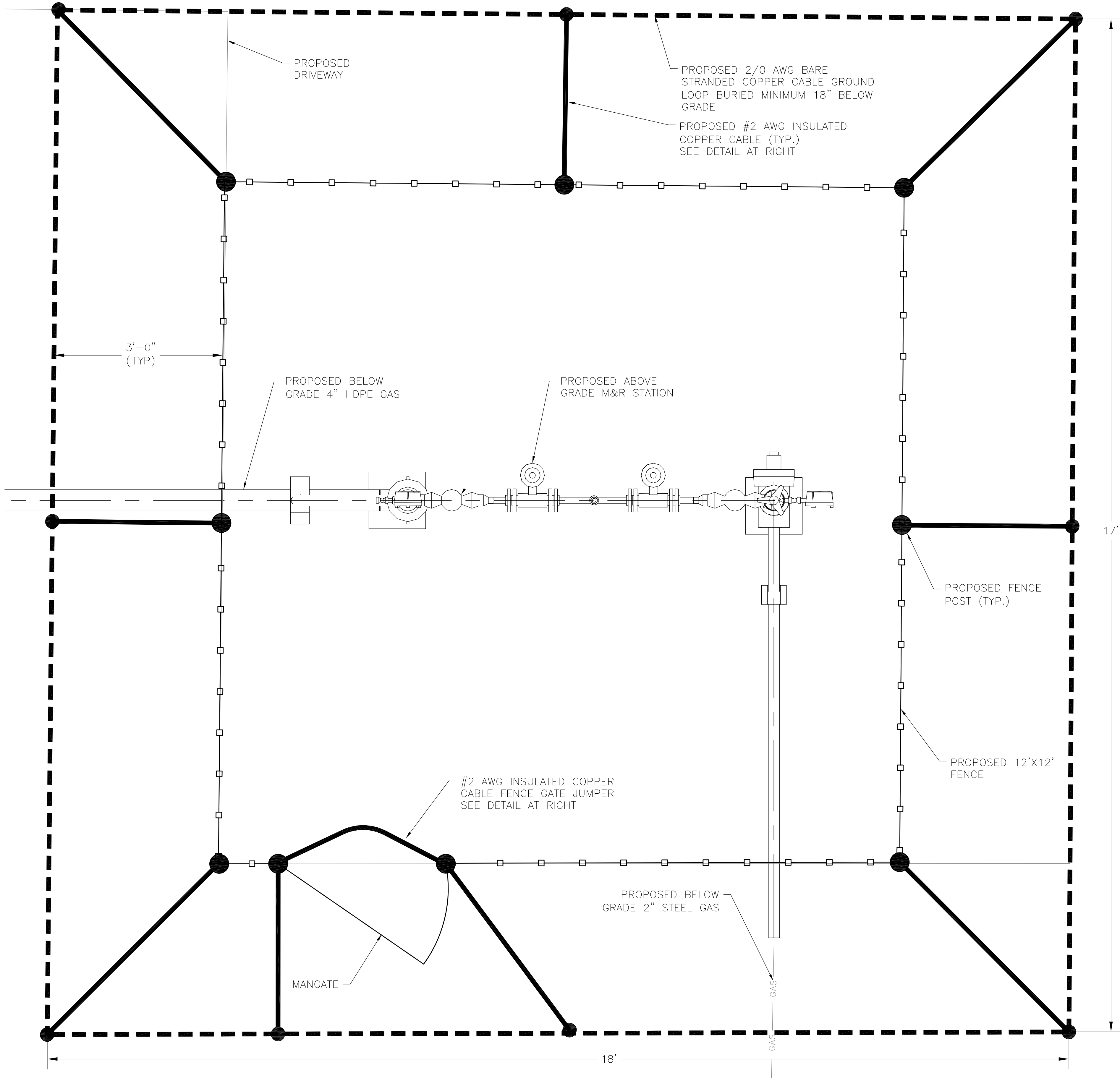
DC DISTRIBUTION			
#	CIRCUIT BREAKER	SIZE (A)	DEVICE
1	CBDC-SOLAR	10	SOLAR PANELS
2	CBDC-BATT	10	BATTERIES
3	CBDC-DIST	6	DC DISTRIBUTION PANEL
4	CBDC-MODEM	2	CELL MODEM
5	CBDC-METER	2	GAS METER

DC DISTRIBUTION

ISSUED FOR PERMIT

C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
REVISIONS				

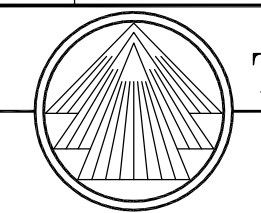
	TRI-MONT Engineering Co. Plymouth, MA				
CLIENT	VERMONT GAS SYSTEMS				
PROJECT	MONKTON GATE STATION				
Title	ELECTRICAL LISTS				
TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		
Scale:	Job No.		Drawing No.		Rev. No.
AS NOTED	D-198-02-E05				C



FENCE GROUNDING DETAIL
NOT TO SCALE

ISSUED FOR
PERMIT

C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd



TRI-MONT Engineering Co.
Plymouth, MA

CLIENT VERMONT GAS SYSTEMS

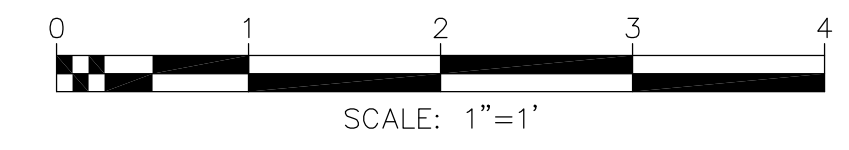
PROJECT MONKTON GATE STATION

Title

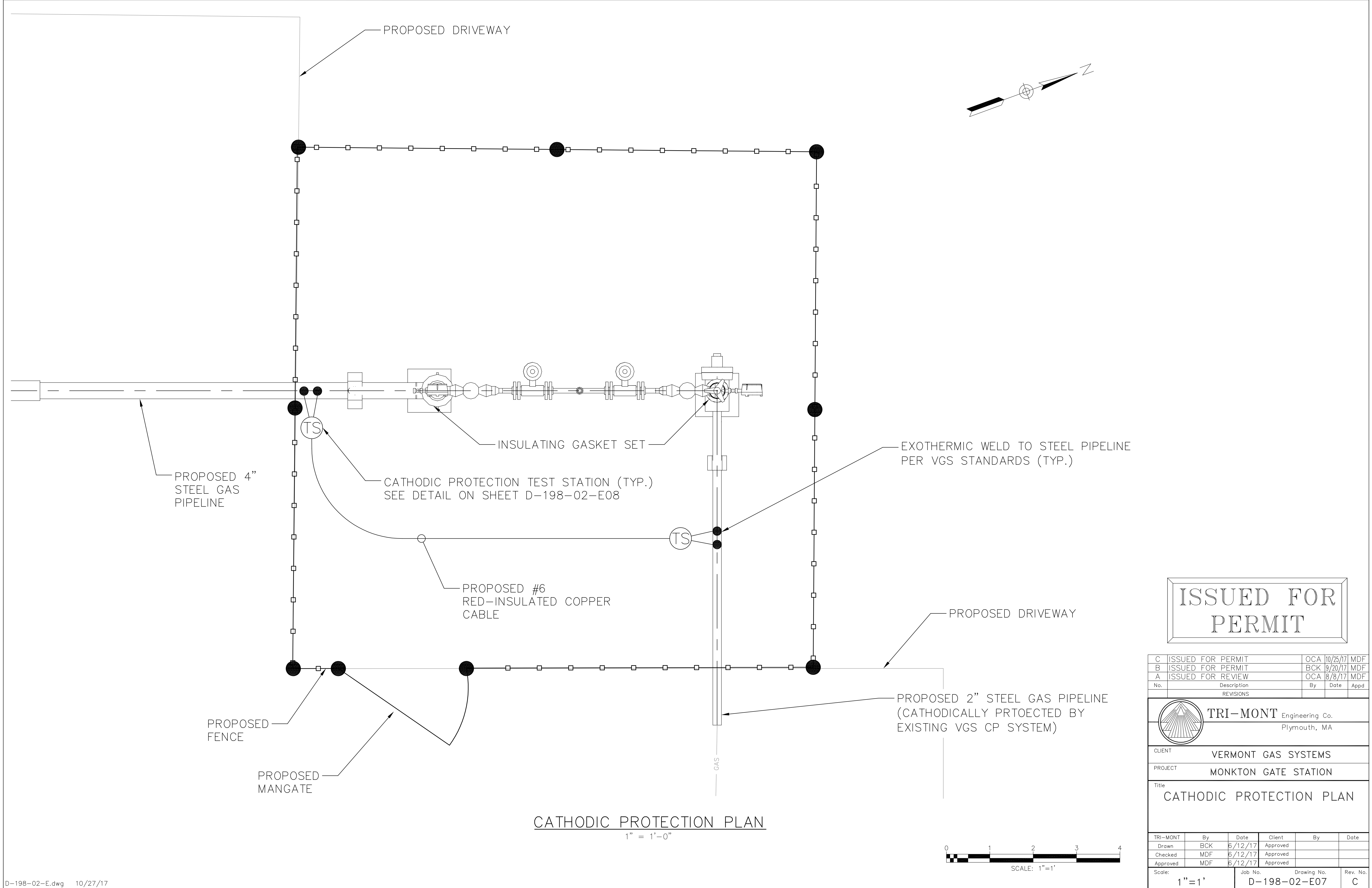
GROUNDING PLAN

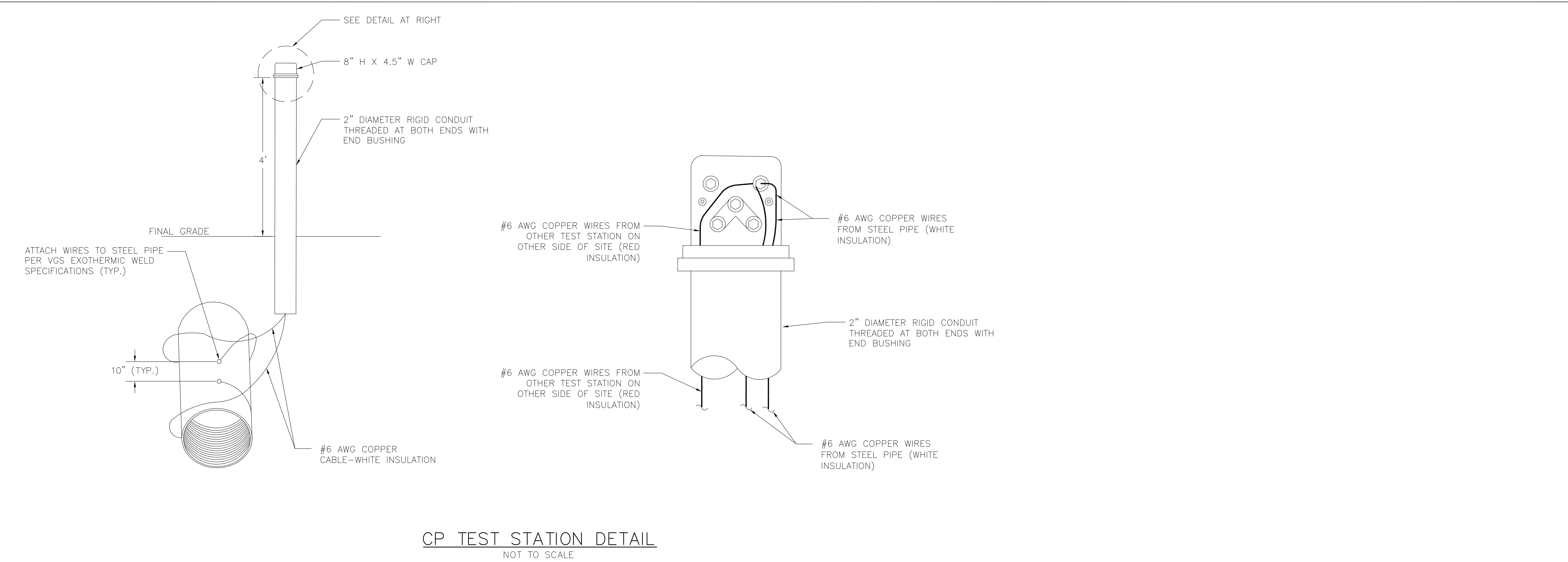
TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		

Scale:	Job No.	Drawing No.	Rev. No.
AS NOTED	D-198-02-E06		C



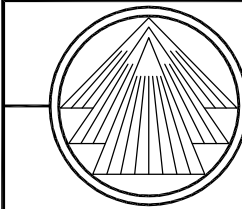
GROUNDING PLAN
1" = 1'-0"





ISSUED FOR
PERMIT

C	ISSUED FOR PERMIT	OCA	10/25/17	MDF
B	ISSUED FOR PERMIT	BCK	9/20/17	MDF
A	ISSUED FOR REVIEW	OCA	8/8/17	MDF
No.	Description	By	Date	Appd
REVISIONS				

 TRI-MONT Engineering Co. Plymouth, MA					
CLIENT VERMONT GAS SYSTEMS					
PROJECT MONKTON GATE STATION					
Title CATHODIC PROTECTION DETAILS					
TRI-MONT	By	Date	Client	By	Date
Drawn	BCK	6/12/17	Approved		
Checked	MDF	6/12/17	Approved		
Approved	MDF	6/12/17	Approved		
Scale:		Job No.		Drawing No.	
AS NOTED		D-198-02-E08		Rev. No.	
				C	