

SMALL ARROW ENGINEERING, LLC



EMW Public Access CNG Station Moriarty, New Mexico Addendum Number 1

Date: September 2, 2020
Issued to: All Bid Document Holders of Record

This addendum forms a part of the bid package described above. The original Bid Documents and any prior addenda remain in full force and effect as modified by the following that shall take precedence over any contrary provisions in the prior documents.

Project Manual Clarifications & Revisions:

Advertisement for Bid – Bid Opening Date & Time

Questions:

1. Multiple subcontractors have requested an additional time to submit bids. **The bid opening has been pushed back to 3:00 p.m. on the SAME DAY.**

Sealed bids will be received at EMW Gas Association, 416 5th St, Estancia, NM 87016 by no later than 3:00 p.m. MDT on Thursday, September 10, 2020 at which time the public opening and reading of bids received will begin in EMW Gas Association Conference Room.

Section 00100 – Part 20 Public Works Contracts

Questions:

2. Does the local participation and veteran participation apply only to the prime contractor? **NO**
3. We will primarily be using local subcontractors - does their participation get credited? **YES**

Section 00300B – Bid Items 1, 2, 4, 5, 6, 7, 8, 9

Questions:

1. The Unit Price Schedule lists "Transport" for many of the pieces of equipment. Are we to include transportation costs in these line items? **NO**
2. Is this transportation from the EMW yard only or potentially from elsewhere? Please clarify. **Over a 2-day period, EMW will provide a crane to load equipment at the EMW shop. EMW will transport that equipment over to the Jobsite. EMW will provide the crane to set the equipment at the Jobsite. The Contractor is responsible for the placement and anchoring of the equipment. Beyond the 2-day period, the Contractor will be responsible for any additional craning and transporting.**

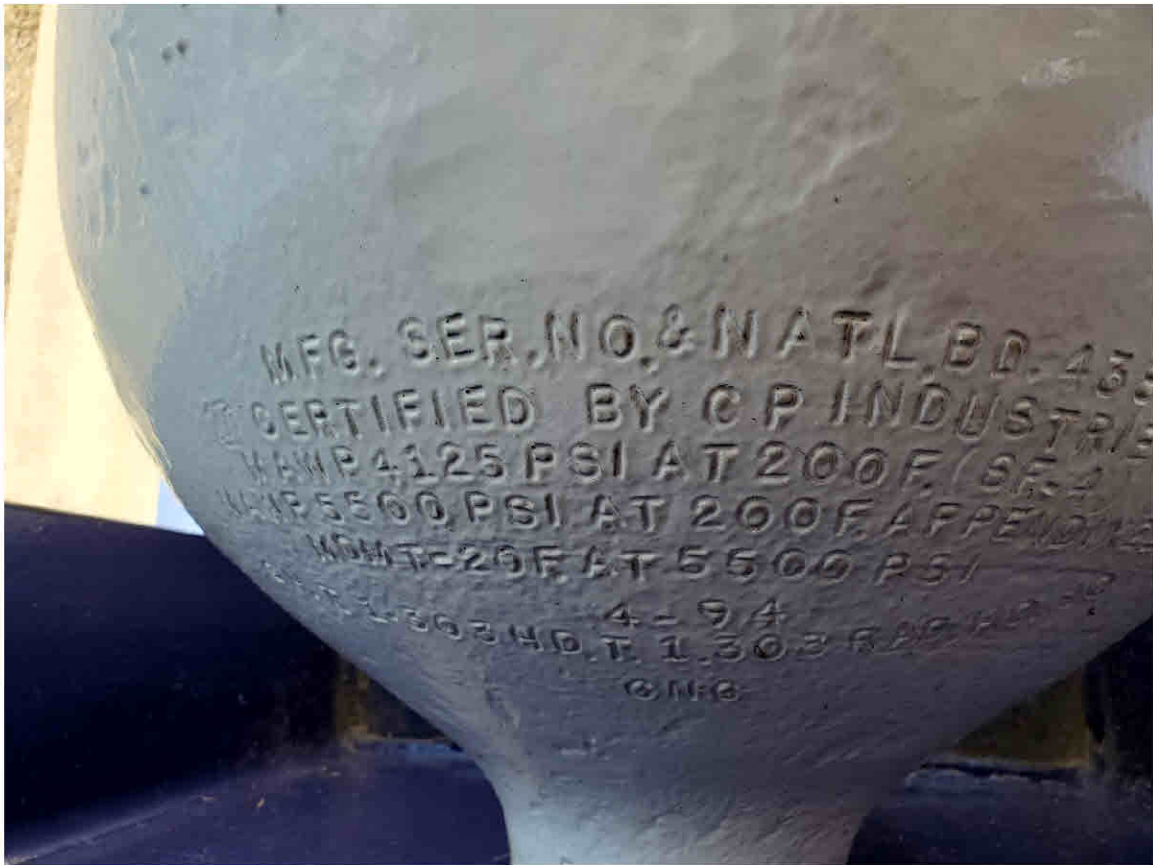


216 S. Main Street • PO Box 1538 • Joplin, MO 64802
Ph: 417.624.2333 • Fax: 417.624.2441
www.small-arrow.com

Section 00300B – Bid Item 3

Questions:

1. Reconditioning CNG storage Cylinders. These were not on site for inspection. Please provide direction on exactly what needs to be done to recondition these units. **EMW will transport the vessels to the Moriarty Shop for the Contractor to refurbish. The vessels will need to be sandblasted and painted with matching colors of JW sphere skids. The vessels will also need new relief valves installed with 3 year certification for 5500 psi setting.**
2. Are pictures available? **YES, see attached below: (And digital images are available upon request.)**





Section 00300B – Bid Item 10

Questions:

1. Please provide additional information regarding “rebuild” of Skid priority panel. **The Contractor will need to reassemble the priority panel system located on the JW sphere skid as per the original JW Power plans using existing components and adding new components to make a fully functional 3 bank cascade system. Each of the vessels from the other skids will need to be connected and tied into the priority system with valves isolating each of the vessel groups. The final bank count will be as follows: High Bank – One (1), Mid Bank – Two (2), Low Bank – Nine (9).**
2. See attached Photos of the priority system on the skid and the original STORAGE excerpt from the manufacturer.





Section 00300B – Bid Item 14

1. **12" Thick Chip and Seal paving has been replaced with 6" SP-III Asphalt over 6" NMDOT Type 2 Base. (See detail Sheet 10 of Plans).**

Section 00300B – Bid Item 27:

1. Details for seeding/landscaping, no details on plans for type of seeding, etc. **Seeding of disturbed areas should be per the 2017 (or newer) Zone 3 Seed List: Pecos/Canadian Plains and Valleys. This can be accessed under the Revegetation Zones & Seed Lists Link located at nmdot.maps.arcgis.com. There are no Landscaping Requirements.**

Section 00300B – Unit Bid Prices/Total Base Bid

Questions:

1. Please confirm whether, or not all line items found on the Unit Price Bid Schedule need to add up to the Total Base Bid. **YES, All unit prices need to add up on Total Base Bid on the Bid Form.**

Section 00300B – Alternate Bid Items

2. **An Alternate Bid Item has been added to pave entire site with 6" Asphalt over 6" Base, except the 8" Concrete Fueling pad under the canopy. This alternate also includes construction of an asphalt entrance in Business Loop 40 Right of Way.**

Section 08100 – Metal Doors and Frames

Questions:

1. Please confirm Steel door hardware requirements, panic hardware? **Please add Specification 08100 – Metal Doors and Frames to the Specifications Manual. This specification will cover the hardware requirements.**

Construction Plan Clarifications & Revisions:

Plan Sheet 2 - Wall & Sign Elevations

Questions:

1. Please confirm water meter is installed by others and is not in asphalt/paved area. **Water service and meter will be installed by the City of Moriarty and is located in a NON-paved area in the Northeast corner of the EMW property near the Paseo Poniente intersection. The Contractor will be responsible for installation of the house line from the meter box to the two (2) frost-free hydrants.**

Plan Sheets 2 & 10 – CNG Station Site Layout & Misc Construction Details

Questions:

2. Please provide details for the chip and seal (w/12" base). If asphalt is acceptable as an alternate, please provide details. **Yes, Asphalt will be acceptable. We have replaced the Chip & Seal option with Asphalt. There is now a detail on Sheet 10. There is also an alternate bid item added to the Bid Form for using all asphalt paving except the concrete fueling pad under the canopy.**
3. Please provide details for 8" HD concrete paving. **There is now a detail on Sheet 10.**
4. Is the NMDOT permit and its requirements relating to the concrete entrance available? **Not at this time.** Please provide copy of the NMDOT permit drawings referred to on sheet 2? **Use typical sections now available on Sheet 10.** Unit price sheet lists details #13,15,16 & 31 referring to NMDOT not shown on plans? **Use details on Sheet 10, Refer to NMDOT Standard Specifications for gradations. Also, please refer to NMDOT Standard Drawing 702-05-1/1 "INSIDE / MEDIAN AND OUTSIDE LANE OPERATIONS FOR DIVIDED INTERSTATES & NON-INTERSTATES" for traffic control measures required for lane closure along Business Loop 40.**
5. Can you confirm the HDPE drainage pipe is to be 18" instead of 15"? Are any details on the install of this drainage pipe? **15" Pipe installed per manufacturer's specifications.** What kind of ends are required? **No End Treatments are required.**
6. Details on 3" & 5" native stone? **Native stone is to be 3/4" Sandia Blend. Details on Sheet 10 have been updated for 3" and 5" thick courses.**

Plan Sheet 5 - Wall & Sign Elevations

Questions:

1. CMU Block - Desert Rose is no longer available and the 6x12x12 sunflower is out of stock, Utility Block no longer makes any block with pumice and that is what designates the finish color. Pumice is the white aggregate, they now use scoria which is red. **Please see revised Sheet 5. Color is now Sedona or similar color. Venting blocks are now standard blocks turned on their sides.**

Plan Sheet 7 – Canopy Layout & Elevations

Questions:

1. Is the canopy fascia standard 36"? **Yes, the fascia height is standard 36 inches.**

Plan Sheet 8 – Canopy Layout & Elevations

Questions:

1. Is there a light pole base detail? **A detail has been added to Sheet 8.**

Plan Sheet 10 – Misc Construction Details

Questions:

1. Unit price sheet item #54- Protective hat over exposed tubing/conduits, details? Is this Detail on Sheet 10? **Yes, that is the detail.**

Plan Sheet 14 – Electrical – Bill of Materials

Questions:

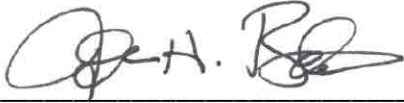
1. Please clarify Electrical Equipment listed on Sheet 14, contractor's responsibility. **Section 16010 page 9 calls out the required components as well.**
2. Please confirm that the Utility Co. will provide the new transformer, disconnect and CT cabinet and primary electric cable. **Yes, that is correct.**
3. Does EMW have a Security/Camera contractor they have used at other facilities? **No preference of Security Contractor.**
4. Please make clear what mechanical gear is provided, delivered and etc. and what we will be responsible for providing. **The list of mechanical gear being provided and list of gear that contractor is responsible for is listed on Sheet 14. EMW will provide a crane to load equipment at the EMW shop. EMW will transport that equipment over to the Jobsite. EMW will provide the crane to set the equipment at the Jobsite.**

General Project Clarifications:

Questions:

1. Are cut sheets/shop drawings of components available? **Please find attached the equipment plans from the original equipment installation project in Notrees.**
2. Are SSP and / or Tylok SS fittings and valves acceptable? **Yes, SSP or Tylok stainless steel fittings are acceptable, as they do meet the Buy America requirements.**
3. There are various questions about concrete placement and finishing: **Please note that the following concrete placement and finishing notes apply to this project:**
 1. **Wide Area Placements utilizing a Laser screed, supplemented by hand vibration is acceptable.**
 2. **4,000 psi concrete with air is required. The use of a super plastizer admix is acceptable to increase slump. W/C ratio shall not be exceeded by the addition of water on site.**
 3. **Provide sawcutting at 24' ocev. (Maximum spacing). Run rebar thru sawcuts.**
 4. **Cold Joints (end of pour) would include expansion joint material. Expansion joints not to exceed 150'. Provide #4 smooth dowel bars spaced per reinforcing spacing by 36" long at all Cold Joints.**

4. Please see attached revised Unit Bid Price Schedule Section 00300B. We have revised Bid Item Descriptions for Item #s 1, 2, 4, 5, 6, 8, 9 by removing "Transport". We have revised Bid Item #14 for Asphalt Pavement in Lieu of Chip & Seal. We have added an additional Alternate Bid Section for Asphalt Paving in lieu of Concrete Paving.



John H. Bolte, P.E.
Project Engineer

September 2, 2020

Date



Each bidder shall acknowledge receipt of this addendum by affixing his signature below by noting this addendum on his bid form, and by attaching this addendum to his bid.

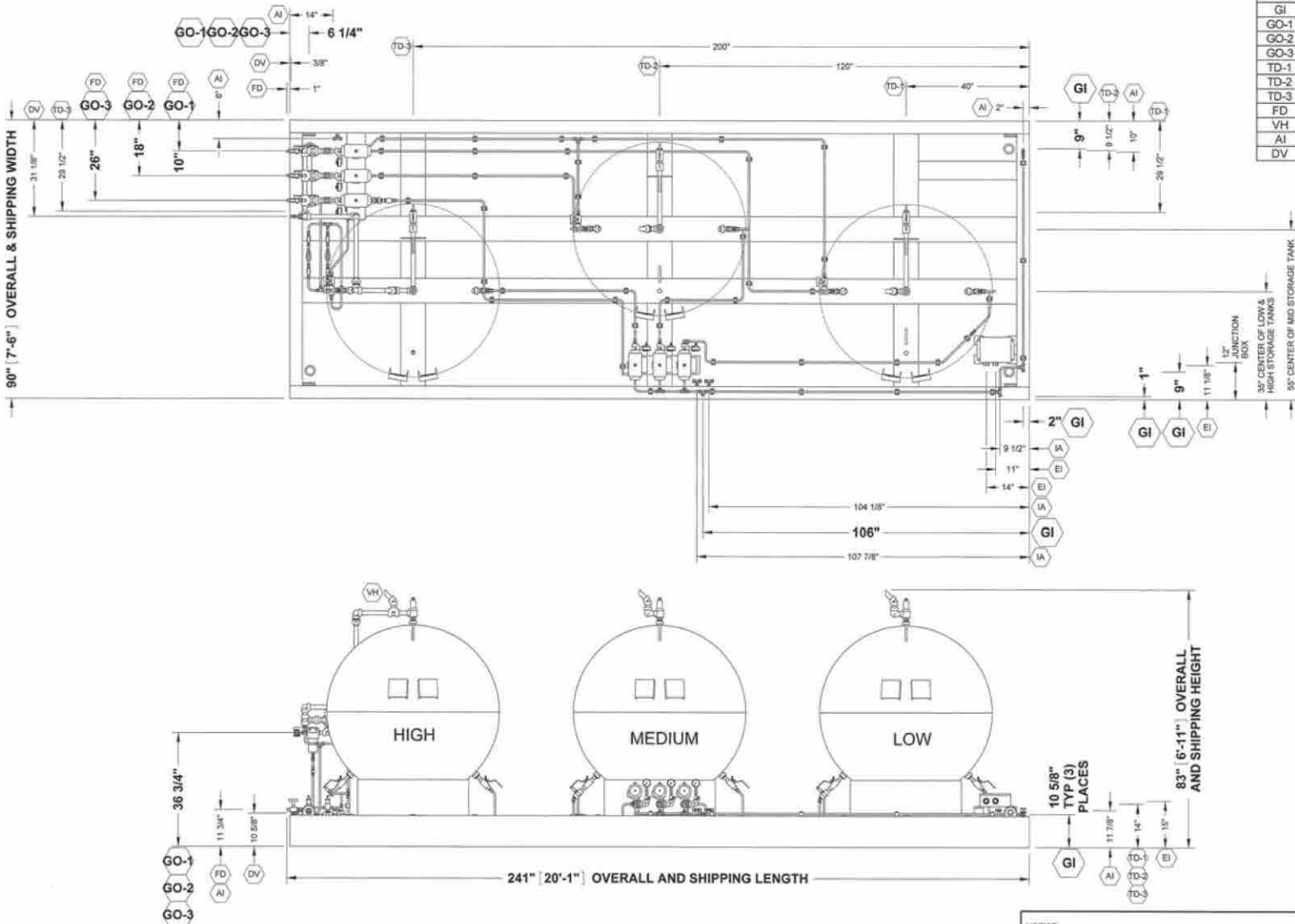
ACKNOWLEDGEMENT

The undersigned acknowledges receipt of this addendum and the Bid submitted in accordance with information, instructions and stipulations set forth herein.

Bidder: _____

Signed By: _____

Date: _____



SCHEDULE OF OPENINGS			
MARK	QTY	SIZE	DESCRIPTION
GI	3	1/2" OD	PROCESS GAS INLET
GO-1	1	1/2" NPT	PROCESS GAS OUTLET - LOW
GO-2	1	1/2" NPT	PROCESS GAS OUTLET - MID
GO-3	1	1/2" NPT	PROCESS GAS OUTLET - HIGH
TD-1	1	1" NPT	STORAGE TANK DRAIN - LOW
TD-2	1	1" NPT	STORAGE TANK DRAIN - MID
TD-3	1	1" NPT	STORAGE TANK DRAIN - HIGH
FD	3	1/2" NPT	COALESCING FILTER DRAIN
VH	1	1" S/80	VENT HEADER
AI	5	1/2" OD	INSTRUMENT AIR
DV	1	1/2" OD	DISPENSER VENT LINE

TOLERANCE NOTE
 UNLESS OTHERWISE NOTED:
 1) FRACTIONS ± 1"
 2) ANGLES ± 1°
 3) OVERALL AND SHIPPING DIMENSIONS ARE MAXIMUM

NOTE: IA TUBING NOT SHOWN

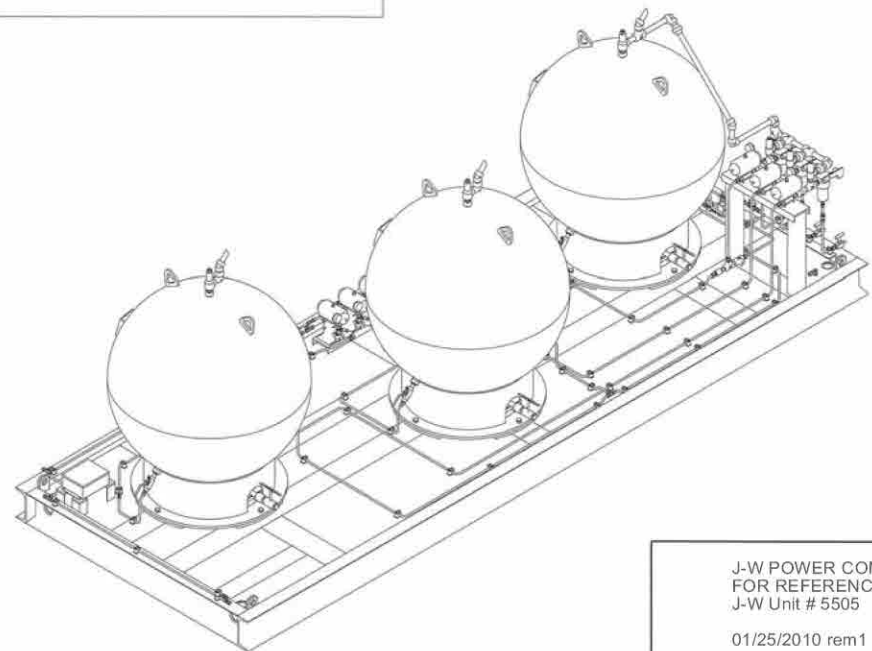
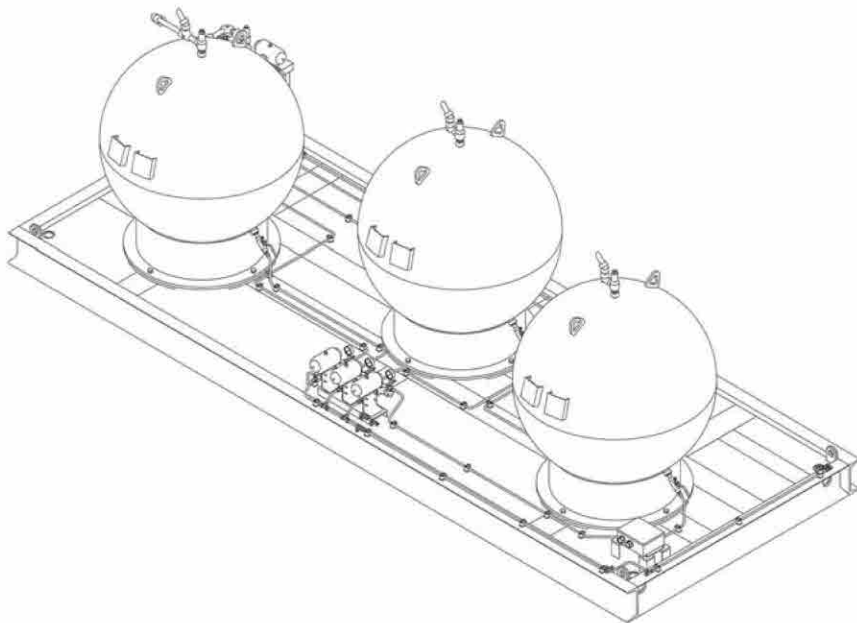
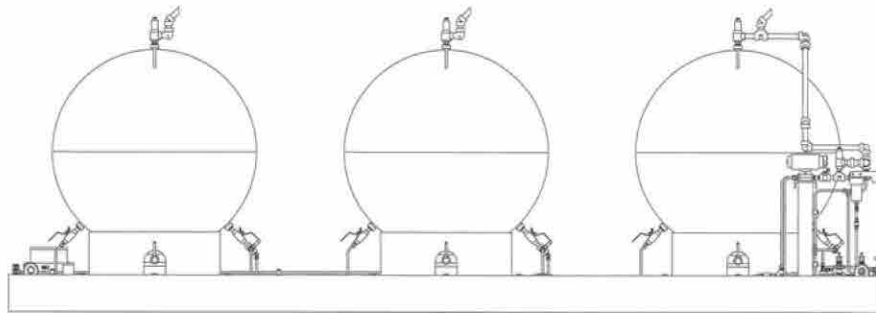
J-W POWER COMPANY
 FOR REFERENCE ONLY
 J-W Unit # 5505
 01/25/2010 rem 1



NOTICE:
 This document contains proprietary information and it shall not be used or reproduced or its contents disclosed in whole or in part without the prior written consent of "J-W Operating Company".

NO	REVISION	BY	CHKD	APPR	DATE
2	AS BUILT, PER RED LINES	JV	JH	MH	12/14/09
1	REVISED FOR CLARITY	JH	MH	MH	12/1/09
0	ISSUE FOR CONSTRUCTION	JO	JC	MH	11/18/09

PLAN & EL STORAGE CNG



J-W POWER COMPANY
 FOR REFERENCE ONLY
 J-W Unit # 5505
 01/25/2010 rem1

NOTICE:
 This document contains proprietary information and it shall not be
 used or reproduced or its contents disclosed in whole or in part
 without the prior written consent of "J-W Operating Company".



**PLAN & EL
 STORAGE CNG**

NO.	REVISION	BY	CHK'D	APPR.	DATE
2	AS BUILT, PER RED LINES	JC	JH	MH	11/18/09
1	REVISED FOR CLARITY	JH	MH	MH	12/1/09
0	ISSUE FOR CONSTRUCTION	JD	JC	MH	11/18/09

Seq Nbr	Component	Description	STORAGE CNG	330-01438	Qty Per UM
0	332-00985	SUPPORT INLET VALVES	CNG STORAGE	330-01438	1.00 EA
0	332-00986	SUPPORT OUTLET VALVES	CNG STORAGE	330-01438	1.00 EA
0	335-19145	TRIM PROCESS FLOW	STORAGE CNG	330-01438	1.00 EA
0	338-01331	SPOOL PRCS .50 5100#	STORAGE INLET	330-01438	1.00 EA
0	338-01336	SPOOL PRCS .50 5100#	STORAGE/OUTLET	991-01301	1.00 EA
0	338-01338	SPOOL CLSC FILTER DRAIN	STORAGE CNG	991-01301	1.00 EA
0	338-01400	SPOOL VENT/RELIEF HEADER	STORAGE CNG		1.00 EA
1	252-00985	FLTR CLSC 1.0 NPT	FIN 5000# A8586CN.3MA	*	3.00 EA
2	330-01416	TANK 48 ID 5500# SPHERE	1-6000#NPT x 1-6000#NPT		3.00 EA
3	581-00374	GA PRESS 0- 10000 PSI	2.5 WIKA 233.53 .25 LF	*	6.00 EA
4	626-00752	RGLTR BACK PRESS .50	6000# MODEL 635	*	2.00 EA
5	635-00269	VA NDL .50 MxF	6000# @200F		6.00 EA
6	635-00830	VA NDL .25 MxF	6000# @400F CS V.PKG MTL SEAT*		6.00 EA
7	635-00944	VA NDL 1 FNPT 10000#	@ 150F WOG .562 ORF	*	3.00 EA
8	635-02220	VA BALL .50 5500# FNPT	W/ACTR NUTTRON/BETTIS	*	6.00 EA
9	640-00661	VA CHK .50 MNPT 6000#	SWGK SS-CHM8-1		8.00 EA
10	640-00657	VA CHK .50 6000# 1#SP	SWGK SS-CHS8-1		3.00 EA
11	640-00664	VA BALL .50 6000#	SWGK SS-83KS8		4.00 EA
12	635-02353	VA RLF 1.00 5500# 350F	MERCER 91-M7C61P5641		3.00 EA
13	635-02354	VA RLF .50 5000# 350F	MERCER 91-M6C61P5641		3.00 EA
14	712-00329	XDCR PRESS 0-6000 PSIG	4.0-20mA OUT 9-30 VDC IN		4.00 EA
15	635-01466	VA BALL .50 6000#	@350F NUTTRON T3-F05S60B		6.00 EA

NOTES:

1. ALL TUBING IS 316SS SEAMLESS UNLESS OTHERWISE NOTED.
2. ALL NPT CONNECTIONS ARE TO BE PLUGGED.
3. ALL PROCESS PIPING COMPONENTS ARE RATED FOR 300°F UNLESS OTHERWISE NOTED.
4. SEE DRAWING #335-17114 FOR LEGEND OF SYMBOLS & ABBREVIATIONS.
5. NO - NORMALLY OPEN DURING UNIT OPERATION.
NC - NORMALLY CLOSED DURING UNIT OPERATION.

PIPE & TUBING SCHEDULE

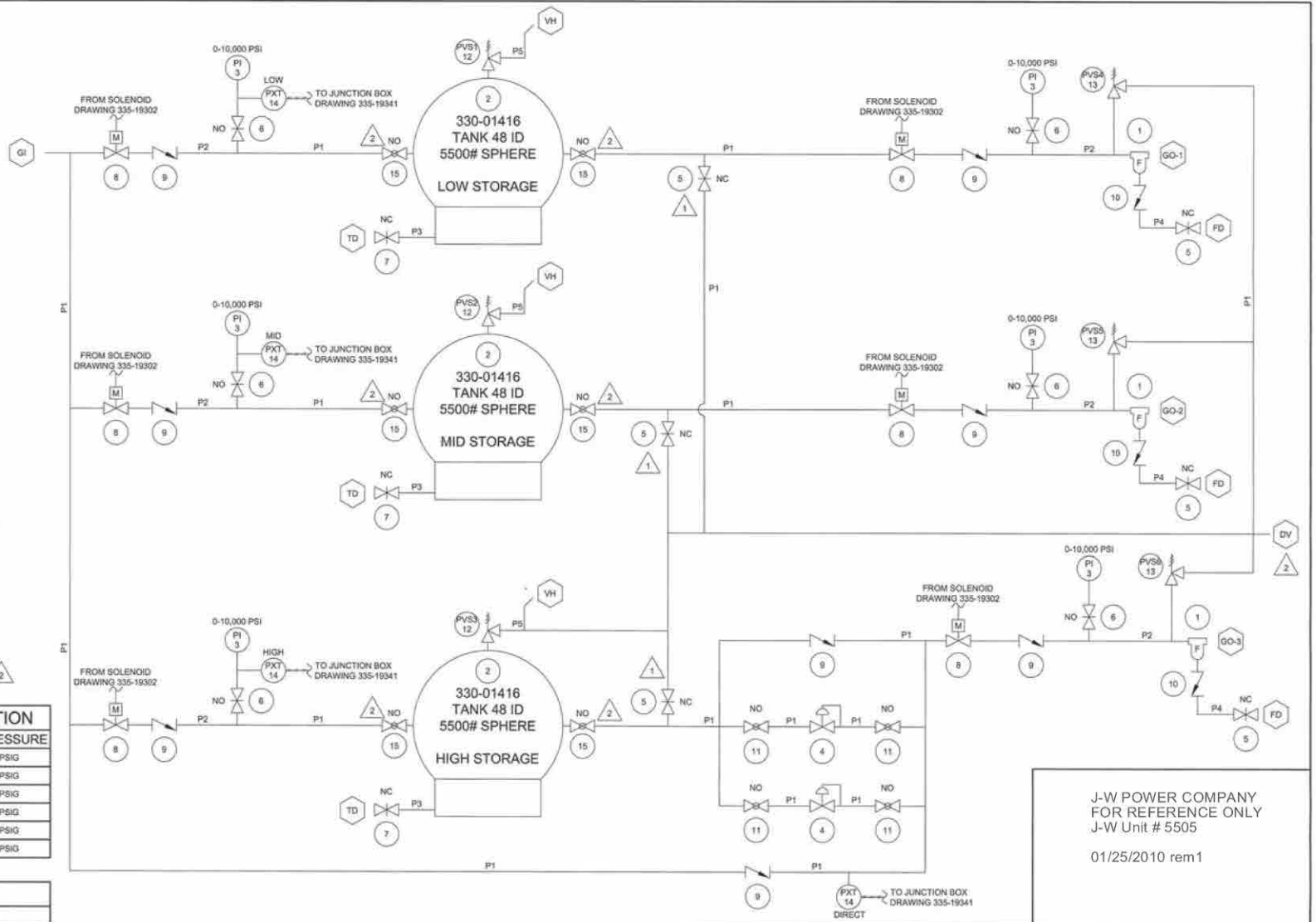
MARK	SPOOL	SIZE	MAT'L	MAWP
P1	PROCESS	.50" OD X .083	316SS SMLS TBG	5500# @ 350°F
P2	PROCESS	.50" XOH	SA-106-B	5500# @ 350°F
P3	TD	1.0" XOH	SA-106-B	5500# @ 350°F
P4	FD	.50" OD X .083	316SS SMLS TBG	5000# @ 350°F
P5	VH	1" XH	SA-106-B	-

PRESSURE RELIEF VALVE IDENTIFICATION

ITEM	J-W PART NO	DESCRIPTION	SET PRESSURE
PSV1	635-02353	MERCER 91-M7C61P5641	5500 PSIG
PSV2	635-02353	MERCER 91-M7C61P5641	5500 PSIG
PSV3	635-02353	MERCER 91-M7C61P5641	5500 PSIG
PSV4	635-02354	MERCER 91-M8C61P5641	5000 PSIG
PSV5	635-02354	MERCER 91-M8C61P5641	5000 PSIG
PSV6	635-02354	MERCER 91-M8C61P5641	5000 PSIG

SCHEDULE OF OPENINGS

MARK	QTY	SIZE	DESCRIPTION
GI	1	1/2" O.D.	GAS INLET
GO-1	1	1/2" NPT	GAS OUTLET - LOW DISPENSER
GO-2	1	1/2" NPT	GAS OUTLET - MID DISPENSER
GO-3	1	1/2" NPT	GAS OUTLET - HIGH DISPENSER/DIRECT FILL
FD	3	1/2" NPT	FILTER DRAIN
TD	3	1" NPT	TANK DRAIN
VH	3	1" S80	RELIEF VALVE VENT HEADER (HIGH)
DV	1	1/2" OD	DISPENSER VENT LINE



J-W POWER COMPANY
FOR REFERENCE ONLY
J-W Unit # 5505
01/25/2010 rem 1

NOTICE:
This document contains proprietary information and it shall not be used or reproduced or its contents disclosed in whole or in part without the prior written consent of "J-W Operating Company".

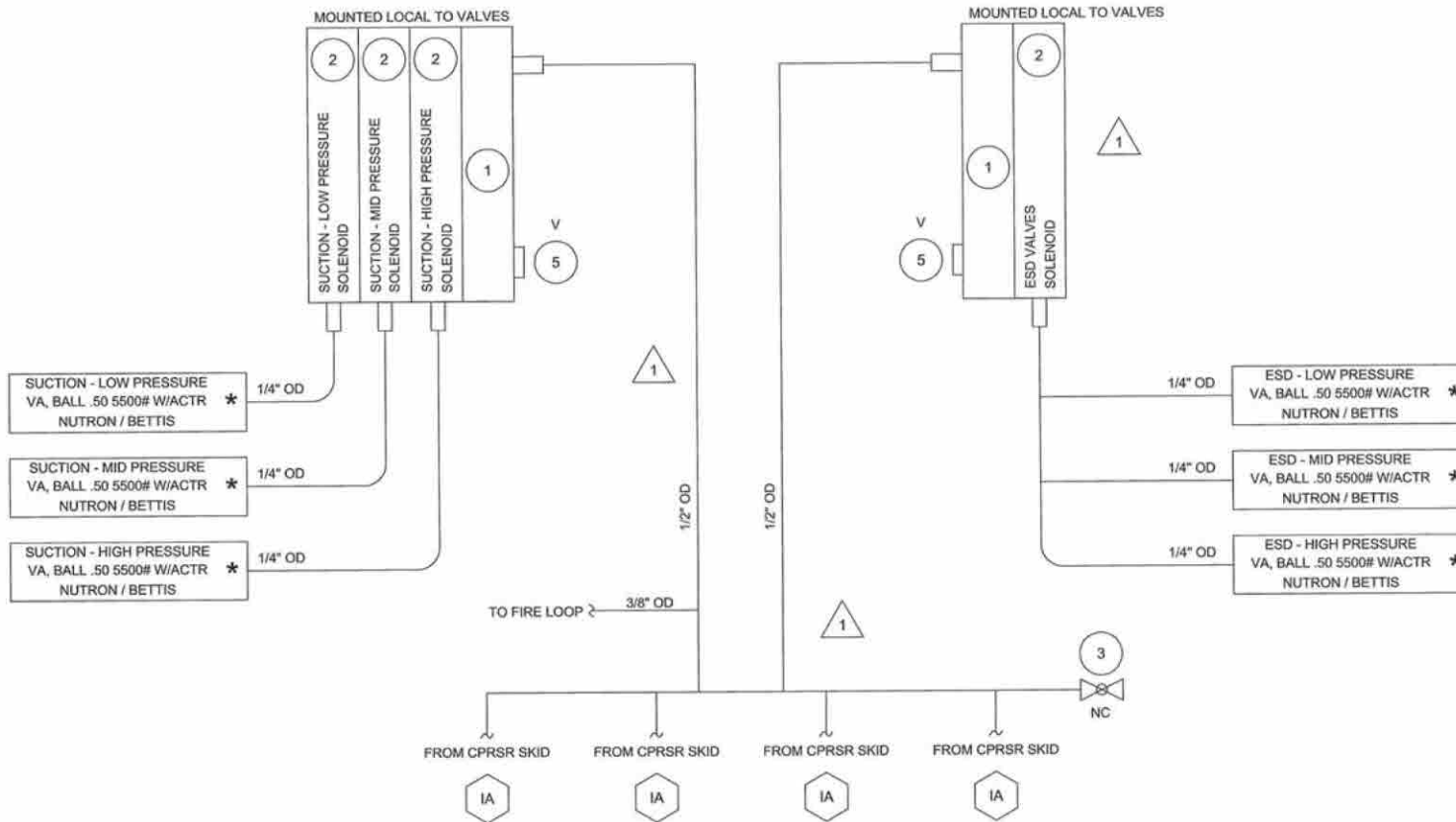


TRIM PROCESS FLOW STORAGE CNG

2	AS BUILT, PER RED LINES	JW	JS	MH	11/18/09
1	ADDED VENT HEADER	JO	JS	MH	11/18/09
0	ISSUE FOR CONSTRUCTION	RJB	JO	MH	10/14/08
NO.	REVISION	BY	CHKD	APPD	DATE
DRWN	RJB	CKD	JO	APPD	MH
DATE	10/13/09	SCALE	NONE	PIN	300-03126
DWG.	335-19145	REV.	2		

SCHEM AIR SYSTEM CNG STORAGE SKID 991-01301/2

Seq Nbr	Component	Description			Qty Per UM
0	335-19302	SCHEM AIR SYSTEM	CNG STORAGE SKID 991-01301/2		1.00 EA
1	635-01361	KIT END PLATE MAC PN	A2-5003-01 F/635-01360		2.00 EA
2	635-01879	VA SOL 3WAY .25 FNPT	289B-110EA NC ONLY	*	3.00 EA
2	635-01879	VA SOL 3WAY .25 FNPT	289B-110EA NC ONLY	*	1.00 EA
3	635-01452	VA BALL .50 2000# FNPT	CS 2PC FP LCK SS TRIM	*	1.00 EA
5	733-30150	VENT SCREEN .12"NPT BRZ	CLIPPARD 15080		2.00 EA



ALL TUBING TO MEET THESE MINIMUM REQUIREMENTS.

- 1/4" - .25" x .035 316SS SML TBG
- 3/8" - .38" x .065 316SS SML TBG
- 1/2" - .50" x .083 316SS SML TBG
- 5/8" - .63" x .065 316SS SML TBG
- 3/4" - .75" x .065 316SS SML TBG
- 7/8" - .88" x .065 316SS SML TBG
- 1" - 1.00" x .120 316SS SML TBG



SCHEDULE OF OPENINGS

MARK	QTY	SIZE	DESCRIPTION
IA	4	1/2" OD	INSTRUMENT AIR SUPPLY

NOTES:

1. SEE DRAWING #335-17114 FOR LEGEND OF SYMBOLS & ABBREVIATIONS.
2. NO - NORMALLY OPEN DURING UNIT OPERATION.
NC - NORMALLY CLOSED DURING UNIT OPERATION.

★ SEE DWG # 335-19145 FOR B.O.M.

NOTICE:

This document contains proprietary information and it shall not be used or reproduced or its contents disclosed in whole or in part without the prior written consent of "J-W Operating Company".

J-W POWER COMPANY
FOR REFERENCE ONLY
J-W Unit # 5505

01/25/2010 rem1



DISTRICT 11

LONGVIEW, TEXAS USA

SCHEM AIR SYSTEM CNG STORAGE SKID

1	AS BUILT, PER RED LINES	J	JH	MH	10/14/09															
0	ISSUE FOR CONSTRUCTION	RJB	RJB	MH	10/14/09															
NO.	REVISION	BY	CK'D	APP'D	DATE	330-01438														
DRWN	RJB	CK'D	RJB	APP'D	MH	DATE	10/5/09	SCALE	NONE	P/N	360-03154	DWG.	335-19302	REV.	1					

E.M.W. Gas Association
614 US Route 66 (W)
Moriarty, New Mexico
Public Access CNG Fueling Station

Base Bid Items								
Item #	Description	Qty	Units	Unit Cost Materials	Total Cost Materials	Unit Cost Labor	Total Cost Labor	Total Cost Materials & Labor
1	JW Power EA-100-3 CNG Compressor Skid (Set, & Anchor)	1	LS		\$ -		\$ -	\$ -
2	Install CNG Storage Sphere Skids (3 spheres/skid) (Set, & Anchor)	2	EA		\$ -		\$ -	\$ -
3	Recondition CNG 24' Storage Cylinders (3 pack) (Paint, Relief Valves, Other Items as Req'd)	1	EA		\$ -		\$ -	\$ -
4	Install CNG Storage Cylinders (Reconditioned 3 pack) (Set, & Anchor)	1	EA		\$ -		\$ -	\$ -
5	Install Greenfield CNG Dispenser (Set, & Anchor)	1	EA		\$ -		\$ -	\$ -
6	Install Xebec STR18NGX Gas Dryer (Set, & Anchor)	1	EA		\$ -		\$ -	\$ -
7	ANGI 50 CNG Compressor (Set, & Anchor)	1	EA		\$ -		\$ -	\$ -
8	TGT CNG Dispenser 7203-8 NGC50 (Set, & Anchor)	1	EA		\$ -		\$ -	\$ -
9	Fuel Master FMU 2550 Card Reader (Set, & Anchor)	1	EA		\$ -		\$ -	\$ -
10	Rebuild/Reconfigure Skid Priority Panel System (Includes Parts/Labor)	1	EA		\$ -		\$ -	\$ -
11	24' x 44' 4 Column CNG Fueling Canopy w/Roof Drains w/ LED Lights, and Facia w/ Signage/Artwork (Arning Industries Inc or Equal)	1	LS		\$ -		\$ -	\$ -
12	Site Grading/Earthwork (Includes Stripping, Cutting, Filling & Compacting, Subgrade Prep, and Fine Grading)	1350	CY		\$ -		\$ -	\$ -
13	8" Reinforced Concrete Pavement over 4" NMDOT Type 2 Base	1850.6	SY		\$ -		\$ -	\$ -
14	6" Asphalt Pavement over 6" NMDOT Type 2 Base	1662.8	SY		\$ -		\$ -	\$ -
15	4" Concrete Sidewalk over 4" NMDOT Type 2 Base	35.5	SY		\$ -		\$ -	\$ -
16	12" Thick Driveway NMDOT Type 2 Base (Shoulder)	156.1	SY		\$ -		\$ -	\$ -
17	6" Reinforced Concrete Equipment Pad (Dryer & Transformer)	10.7	SY		\$ -		\$ -	\$ -

Item #	Description	Qty	Units	Unit Cost Materials	Total Cost Materials	Unit Cost Labor	Total Cost Labor	Total Cost Materials & Labor
18	10" Double Mat Reinforced Concrete Equipment Pad (Compressor & Sphere Pads and Sphere Skid Runner Pads)	53.7	SY		\$ -		\$ -	\$ -
19	Masonry Wall Foundation	29.3	CY		\$ -		\$ -	\$ -
20	8' High Masonry Equipment Enclosure Wall (Including Vent Blocks for Air Flow)	1491.25	SF		\$ -		\$ -	\$ -
21	3'-0" x 80" Steel Door w/Frame and ALL Hardware	2	EA		\$ -		\$ -	\$ -
22	12' Wide Double Swing Composite Fence Gates w/All Hardware	2	EA		\$ -		\$ -	\$ -
23	26' Wide x 30' Long x 10' High Legs Vertical Roof Carport	1	LS		\$ -		\$ -	\$ -
24	10' Wide x 24' Long x 10' High Legs Vertical Roof Carport	1	LS		\$ -		\$ -	\$ -
25	3" Thick Native Stone w/ Landscape Fabric	173.8	SY		\$ -		\$ -	\$ -
26	5" Thick Native Stone Landscape Rock	421.2	SY		\$ -		\$ -	\$ -
27	Seeding / Landscaping	0.49	AC		\$ -		\$ -	\$ -
28	Striping/Pavement Marking	1	LS		\$ -		\$ -	\$ -
29	6" Dia Concrete Filled Pipe Bollards w/ Covers	12	EA		\$ -		\$ -	\$ -
30	15" Driveway Culvert Pipe	80	LF		\$ -		\$ -	\$ -
31	Traffic Control (NM DOT Requirements)	1	LS		\$ -		\$ -	\$ -
32	Erosion Control	1	LS		\$ -		\$ -	\$ -
33	Electric Primary Service Conduits & Coordination w/CNMEC to pull Primary Conductors and set Transformer, CT Meter & Disconnect	1	LS		\$ -		\$ -	\$ -
34	Electrical Switchgear, Equipment, Conduits, Cable, etc (per drawings)	1	LS		\$ -		\$ -	\$ -
35	Control, Communication, and ESD Equipment, Conduits, Cable, etc. (per drawings)	1	LS		\$ -		\$ -	\$ -
36	Video Surveillance System Includes: (8) 4K Resolution, Live 30fps, Motorized Zoom Lens, 120ft Color Night Vision, POE, Cat 6, Cameras; (1) 8 Channel 4K, 8mp, 6mp, & 5mp recording, 2 SATA 4 Terabyte Hard Drives, 8 POE Ports, Smart Phone, Internet, and PC-MAC Remote Viewing, HD Live Viewing, NVR; CAT 6 Cable; Conduits; Wall Mount Climate Control 24" x 24" x 24" Cabinet w/ 800 BTU AC	1	LS		\$ -		\$ -	\$ -
37	Light Pole Base, Pole, Navion LED Light Fixture	4	EA		\$ -		\$ -	\$ -
38	Wall Mount Hazardous Area Champ LED Fixture	3	EA		\$ -		\$ -	\$ -
39	4" Welded Steel Pipe & Ftgs, w/Flanges	30	LF		\$ -		\$ -	\$ -
40	2" Welded Steel Pipe & Ftgs, w/Flanges	15	LF		\$ -		\$ -	\$ -
41	1 1/2" and 1" Welded Steel Pipe & Ftgs, w/Flanges	5	LF		\$ -		\$ -	\$ -
42	1" House Regulator (to ANGI 50 Compressor) (125 psi in/10 psi out)	1	LS		\$ -		\$ -	\$ -

Item #	Description	Qty	Units	Unit Cost Materials	Total Cost Materials	Unit Cost Labor	Total Cost Labor	Total Cost Materials & Labor
43	1/2" SS Tubing 0.065" Wall (Comp to Storg, Storg to Disp)	700	LF		\$ -		\$ -	\$ -
44	1/2" SS Tubing 0.065" Wall (Storage Manifold & Connections)	60	LF		\$ -		\$ -	\$ -
45	1/2" SS Tubing 0.020" Wall (Air) (Comp to Storage & Disp's)	150	LF		\$ -		\$ -	\$ -
46	1/2" SS Tubing 0.020" Wall (Air) (Storage Manifold & Connect)	40	LF		\$ -		\$ -	\$ -
47	25' HD Air Hose, Air Chuck w/Pressure Gauge, & Aluminum Wall Hanger	1	LS		\$ -		\$ -	\$ -
48	1 1/4" MDPE Conduit (Sleeve for SS lines to Compressors)	120	LF		\$ -		\$ -	\$ -
49	2" MDPE Conduit (Sleeve for SS lines to Dispensers)	240	LF		\$ -		\$ -	\$ -
50	1/2" SS AFV CNG Valves w/ Lockable Handles	13	EA		\$ -		\$ -	\$ -
51	Misc CNG SS Valves & SS Fittings (ALLOWANCE)	1	LS	\$ 15,000.00	\$ 15,000.00			\$ 15,000.00
52	Coalescing Filter Rack Assemblies	2	EA		\$ -		\$ -	\$ -
53	Greenfield Dispenser Tub	1	EA		\$ -		\$ -	\$ -
54	Protective Hat over exposed Tubing/Conduits	1	LS		\$ -		\$ -	\$ -
55	4" Dia, 10' Tall Vent Stack Assy	2	EA		\$ -		\$ -	\$ -
56	2" Sch. 80 Black Iron Pipe, (Vent Pipe) (Painted White)	55	LF		\$ -		\$ -	\$ -
57	Ground Mounted Sign w/ 2 Sided Digital Price Display (per drawing)	1	LS		\$ -		\$ -	\$ -
58	20# BC Fire Extinguishers & Cabinets	8	EA		\$ -		\$ -	\$ -
59	CNG & Misc. Safety Signage (per drawings)	1	LS		\$ -		\$ -	\$ -
60	1 1/4" PEX Water Line and Fittings	490	LF		\$ -		\$ -	\$ -
61	Frost Free Hydrant w/Lockable Handle	2	EA		\$ -		\$ -	\$ -
62	Overall CNG Equipment/Station Integration/Start Up/Training	1	LS				\$ -	\$ -
63	JW Power - Programming / Startup Support (ALLOWANCE)	1	LS			\$ 7,500.00	\$ 7,500.00	\$ 7,500.00
Subtotal Base Bid Items								
64	Gross Receipts Tax (On Labor Only)	7.6875%	LS			\$ -	\$ -	\$ -
Total Base Bid Items								\$ -
Total Bid (in Words) _____								

Item #	Description	Qty	Units	Unit Cost Materials	Total Cost Materials	Unit Cost Labor	Total Cost Labor	Total Cost Materials & Labor
--------	-------------	-----	-------	------------------------	-------------------------	--------------------	---------------------	---------------------------------

Alternate Bid Items - CNG STORAGE SPHERES

1	Recondition CNG Storage Spheres (Paint, Relief Valves, Other Items as Req'd)	3	EA		\$ -		\$ -	\$ -
2	4' Dia CNG Storage Spheres (Set, & Anchor)	3	EA		\$ -		\$ -	\$ -
3	10" Double Matt Reinforced Concrete Equipment Pad (Compressor & Sphere Pads and Sphere Skid Runner Pads)	14.2	SY		\$ -		\$ -	\$ -
4	3" Thick Native Stone w/ Landscape Fabric (Deduct)	-14.2	SY		\$ -		\$ -	\$ -
5	1/2" SS Tubing 0.065" Wall (Storage Manifold & Connections)	35	LF		\$ -		\$ -	\$ -
6	1/2" SS AFV CNG Valves w/ Lockable Handles	3	EA		\$ -		\$ -	\$ -
7	4" Dia, 10' Tall Vent Stack Assy	1	EA		\$ -		\$ -	\$ -
8	2" Sch. 80 Black Iron Pipe, (Vent Pipe) (Painted White)	30	LF		\$ -		\$ -	\$ -

Subtotal Alternate Bid Items - CNG STORAGE SPHERES

9	Gross Receipts Tax (On Labor Only)	7.6875%	LS				\$ -	\$ -
---	------------------------------------	---------	----	--	--	--	------	------

Total Alternate Bid Items - CNG STORAGE SPHERES

Total Bid (in Words) _____

Alternate Bid Items - ASPHALT PAVING

1	8" Reinforced Concrete Pavement over 4" NMDOT Type 2 Base	215.1	SY		\$ -		\$ -	\$ -
2	6" Asphalt Pavement over 6" NMDOT Type 2 Base	3298.2	SY		\$ -		\$ -	\$ -

Subtotal Alternate Bid Items - ASPHALT PAVING

3	Gross Receipts Tax (On Labor Only)	7.6875%	LS				\$ -	\$ -
---	------------------------------------	---------	----	--	--	--	------	------

Total Alternate Bid Items - ASPHALT PAVING

Total Bid (in Words) _____

Item #	Description	Qty	Units	Unit Cost Materials	Total Cost Materials	Unit Cost Labor	Total Cost Labor	Total Cost Materials & Labor
Total Base Bid Items + Alternate Bid Items							\$	-
Total Bid (in Words) _____								

SECTION 08100
METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes access doors and frames for walls and ceilings.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of access door and frame, lockset, closer and for each finish specified.

1.03 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
 - 1. Section 07900 Sealants
 - 2. Section 09900 Painting

PART 2 - PRODUCTS

2.01 ACCESS DOORS, FRAMES and HARDWARE

- A. Flush Access Doors with Exposed Flanges
 - 1. Suppliers: CECO Door; Metropolitan Door Industries; or approved equal.
 - 2. Description: Face of door flush with frame, with exposed flange and concealed hinge, masonry anchors.
 - 3. Locations: Masonry Wall.
 - 4. Metallic-Coated Steel Sheet for Door: Nominal 16 gauge, factory primed.
 - 5. Frame Material: Same material, thickness, and finish as door.

B. Hardware

1. Latch and Lockset: Corbin CL3500 Series Heavy Duty Stainless Steel Construction Lockset with Lever Style Handle (or equivalent) meeting the requirements of ANSI/BMHA A156.2 Series, Grade 1 and A117.1 Accessibility Code. OR EQUAL QUALITY AND INCLUDES A COMPATIBLE EMERGENCY EXIT DEVICE (PANIC BAR).
2. Opener: Corbin DC3000 Series Door Closer with Heavy-Duty Reversible Backstop Parallel Arm (or equivalent) with hold open option meeting the requirements of ANSI/BMHA A156.4 Series, Grade 1 and ANSI A117.1 Accessibility Code.

2.02 MATERIALS

A. Door and Frame

1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
2. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A 879/A 879M, with cold-rolled steel sheet substrate complying with ASTM A 1008/A 1008M, Commercial Steel (CS), exposed.
3. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 or A60 metallic coating.
4. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304 or Type 316. Remove tool and die marks and stretch lines, or blend into finish.
5. Frame Anchors: Same material as door face.
6. Inserts, Bolts, and Anchor Fasteners: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.

B. Hardware

1. Door Lockset hardware shall meet ANSI/BMHA A156.2 Series, Grade 1. Latchbolt and striker shall be stainless steel.
2. Door closer hardware shall meet ANSI/ BMHA A156.4 Series, Grade 1. Latchbolt and striker shall be stainless steel.

2.03 FABRICATION

- A. Metal Surfaces: For metal surfaces exposed to view in the completed Work, provide materials with smooth, flat surfaces without blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

B. Doors and Frames: Grind exposed welds smooth and flush with adjacent surfaces. Furnish mounting holes, attachment devices and fasteners of type required to secure access doors to types of supports indicated.

C. Latch and Lock Hardware:

1. Quantity: Furnish number of locksets required to hold doors tightly closed.
2. Keys: Furnish two keys per lock and key all locks alike.
3. Lockset Preparation: Where indicated, prepare door panel to accept lockset.

2.04 FINISHES

A. Door and Door Frame

1. Painted Finishes: Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.
 - a. Factory Primed: Apply manufacturer's standard, lead- and chromate-free, universal primer immediately after surface preparation and pretreatment.
 - b. Topcoat finish per Section 09900.

B. Lockset

1. Lockset
 - a. Satin Chrome finish per manufacturer's specifications. Finish shall meet ANSI/BMHA A156.2, Grade 1 requirements.
2. Door Closer
 - a. Silver Aluminum finish per manufacturer's specifications. Finish shall meet ANSI/BMHA A156.4 Series, Grade 1 requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with manufacturer's written instructions for installing access doors and frames.
- B. Adjust doors and hardware, after installation, for proper operation.

PART 4 - MEASUREMENT AND PAYMENT

4.01 MEASUREMENT

Measurement for the Metal Door and Frame installation will be made at the Contract unit price per each, complete in place, at each location installed and accepted by the Engineer.

4.02 PAYMENT

All costs incurred by the Contractor by reason of compliance to satisfy the requirements under this section shall be considered incidental to and completely covered by the Contract unit price for the following bid items:

<u>Bid Item Number</u>	<u>Description</u>	<u>Unit(s)</u>
21	Metal Door Installation	Each

END OF SECTION

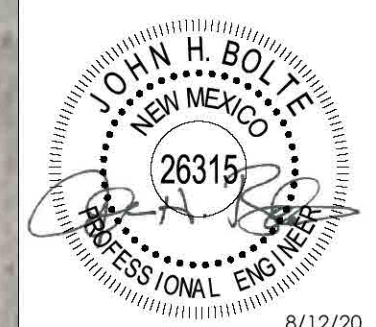


SMALL ARROW ENGINEERING, LLC

216 S. MAIN STREET
P.O. BOX 1538
JOPLIN, MISSOURI 64802
TEL: 417.624.2333
FAX: 417.624.2441
EMAIL: jbolte@small-arrow.com

SMALL ARROW ENGINEERING, LLC.

CERTIFICATES OF AUTHORIZATION:
MISSOURI: E-2010013647
KANSAS: E-1930
ARKANSAS: 2097
OKLAHOMA: 5937



JOHN H. BOLTE - PROFESSIONAL ENGINEER
MO LIC E22511 OK LIC 18035
KS LIC 14094 AR LIC 14310

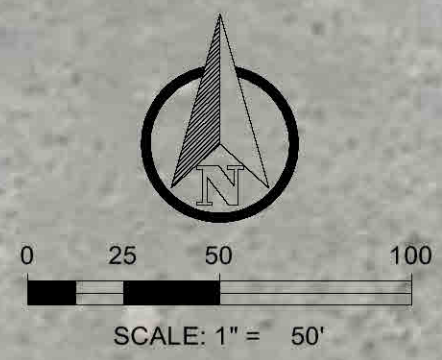
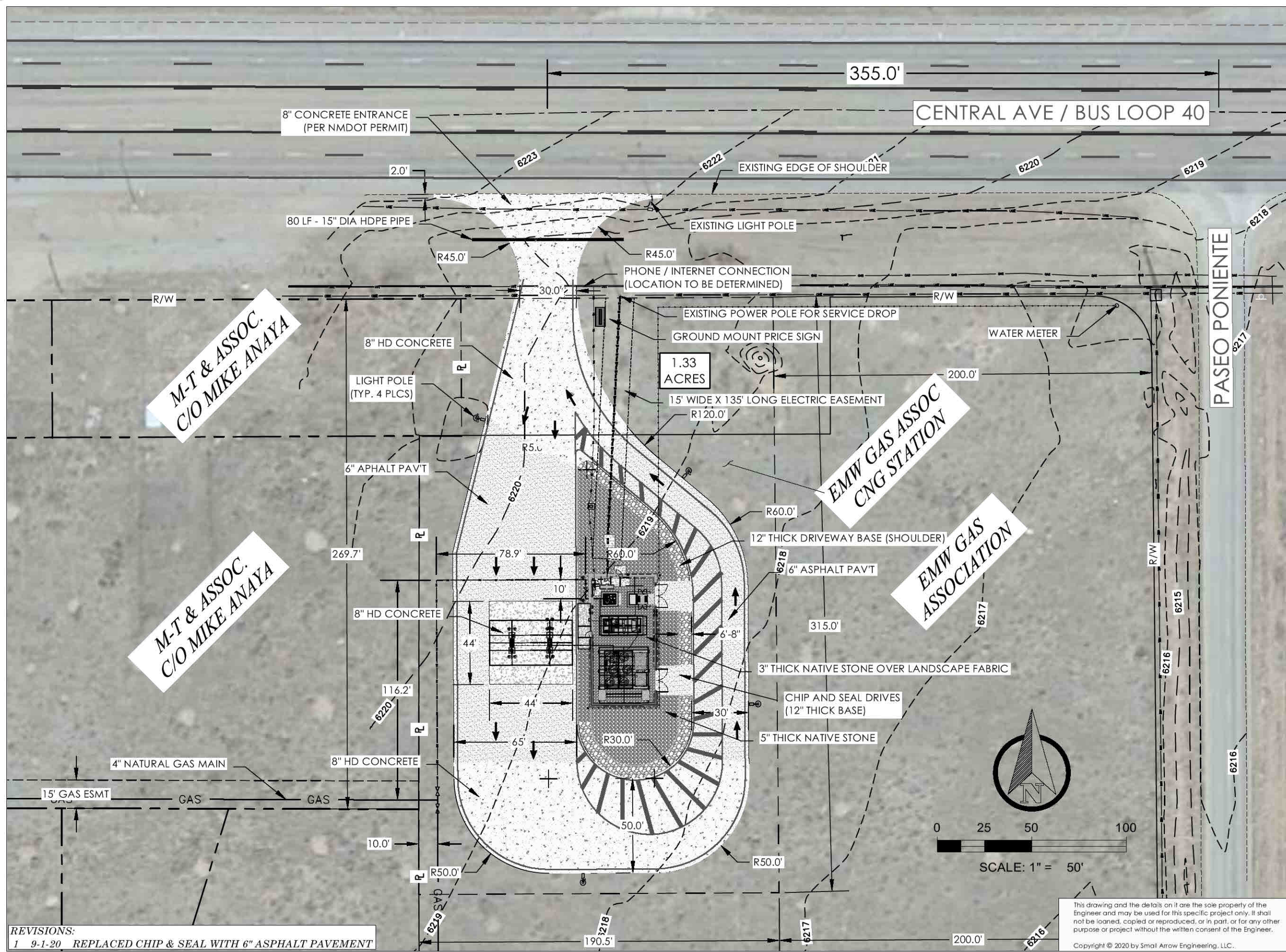
PUBLIC ACCESS CNG STATION
E.M.W. GAS ASSOCIATION
614 U.S. Route 66 (W)
MORIARTY, NM 87035
CNG STATION - SITE LAYOUT

SURVEY BY: N/A PROJECT #: 20104
DRAWN BY: TED DATE: 08/12/2020
CHECKED BY: JHB SCALE: 1"=50'

PROJECT: PUBLIC CNG STATION

SHEET DESC: CNG STATION - SITE LAYOUT

SHEET: 2 OF 27



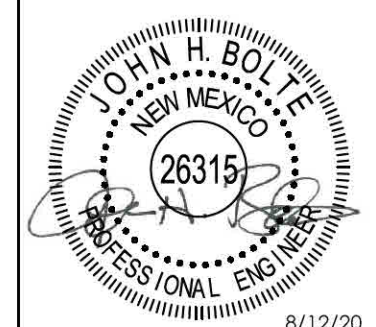
REVISIONS:
1 9-1-20 REPLACED CHIP & SEAL WITH 6\"/>

This drawing and the details on it are the sole property of the Engineer and may be used for this specific project only. It shall not be loaned, copied or reproduced, or in part, or for any other purpose or project without the written consent of the Engineer.
Copyright © 2020 by Small Arrow Engineering, LLC.



216 S. MAIN STREET
 P.O. BOX 1538
 JOPLIN, MISSOURI 64802
 TEL: 417.624.2333
 FAX: 417.624.2441
 EMAIL: jbolte@small-arrow.com

SMALL ARROW ENGINEERING, LLC.
 CERTIFICATES OF AUTHORIZATION:
 MISSOURI: E-2010013647
 KANSAS: E-1930
 ARKANSAS: 2097
 OKLAHOMA: 5937

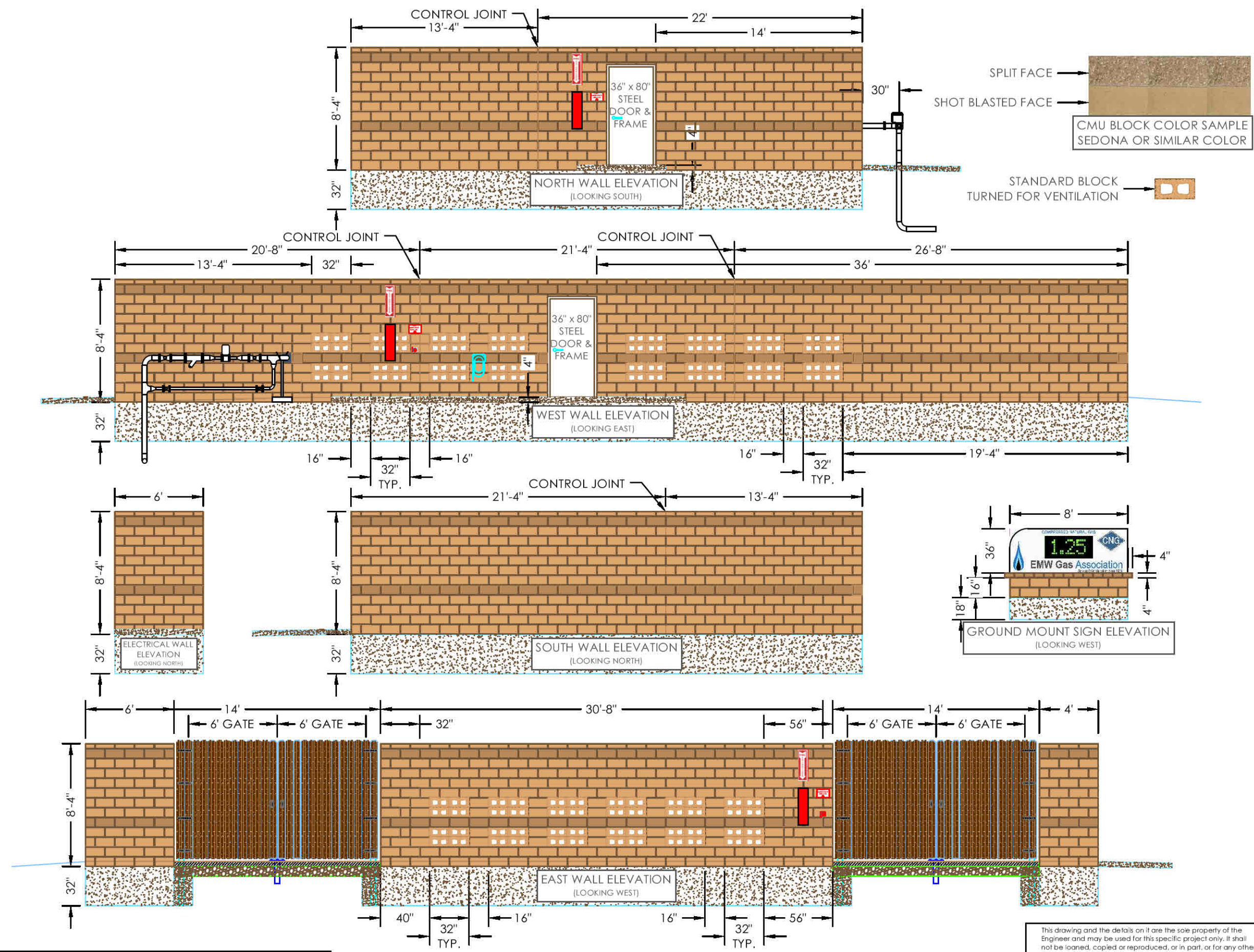


JOHN H. BOLTE - PROFESSIONAL ENGINEER
 MO LIC E22511 OK LIC 18035
 KS LIC 14094 AR LIC 14310

PUBLIC ACCESS CNG STATION
E.M.W. GAS ASSOCIATION
 614 U.S. Route 66 (W)
 MORIARTY, NM 87035
WALL & SIGN ELEVATIONS

SURVEY BY: N/A PROJECT #: 20104
 DRAWN BY: TED DATE: 08/12/2020
 CHECKED BY: JHB SCALE: 1"=10'

PROJECT: PUBLIC CNG STATION
 SHEET DESC: WALL & SIGN ELEVATIONS
 SHEET: 5 OF: 27

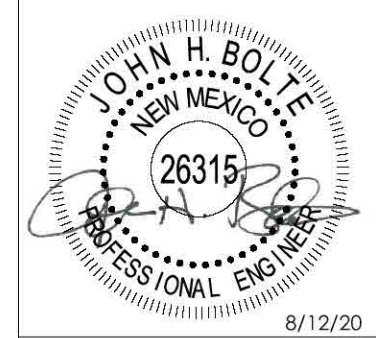


REVISIONS:
 1 9-1-20 REVISED BLOCK COLOR, VENTILATION BLOCK, PATTERN

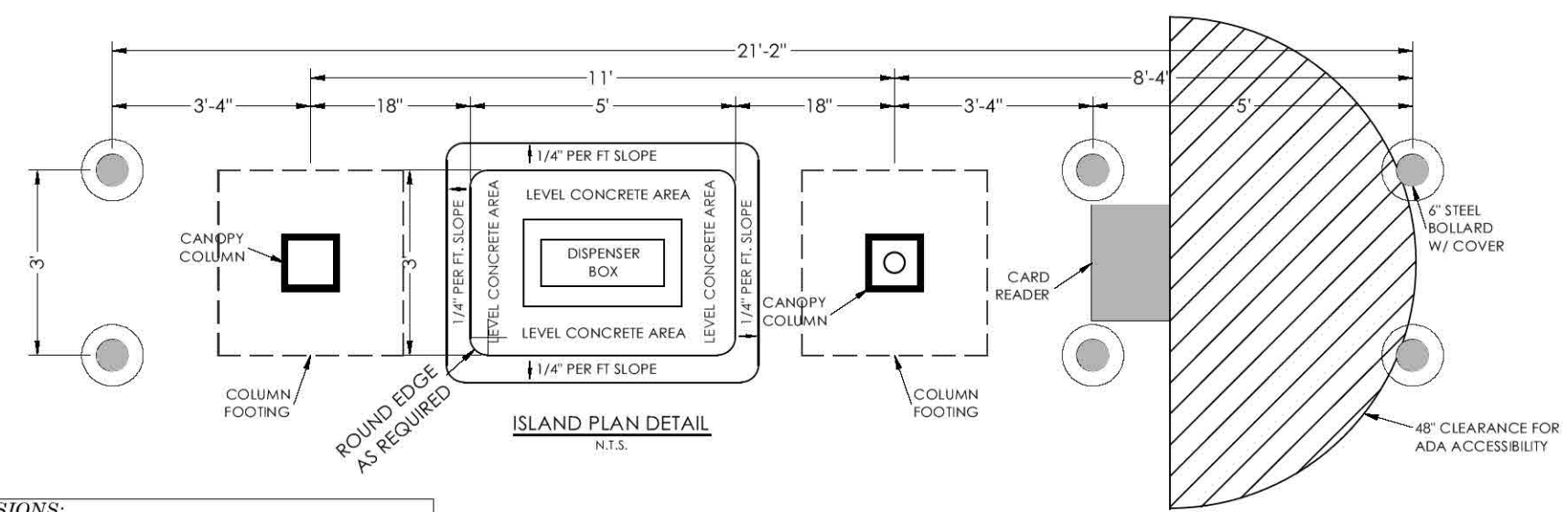
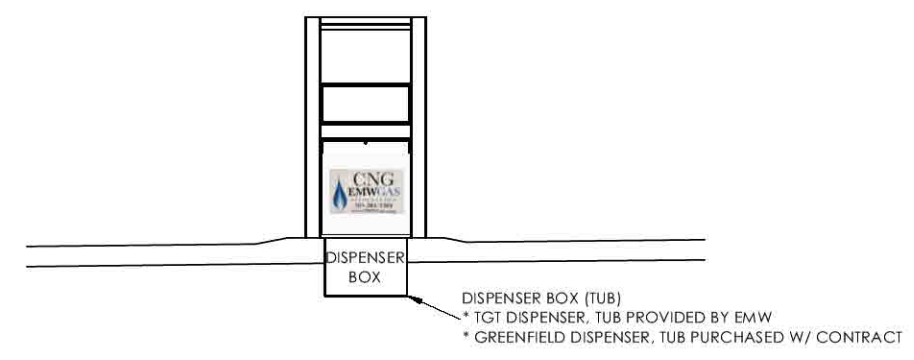
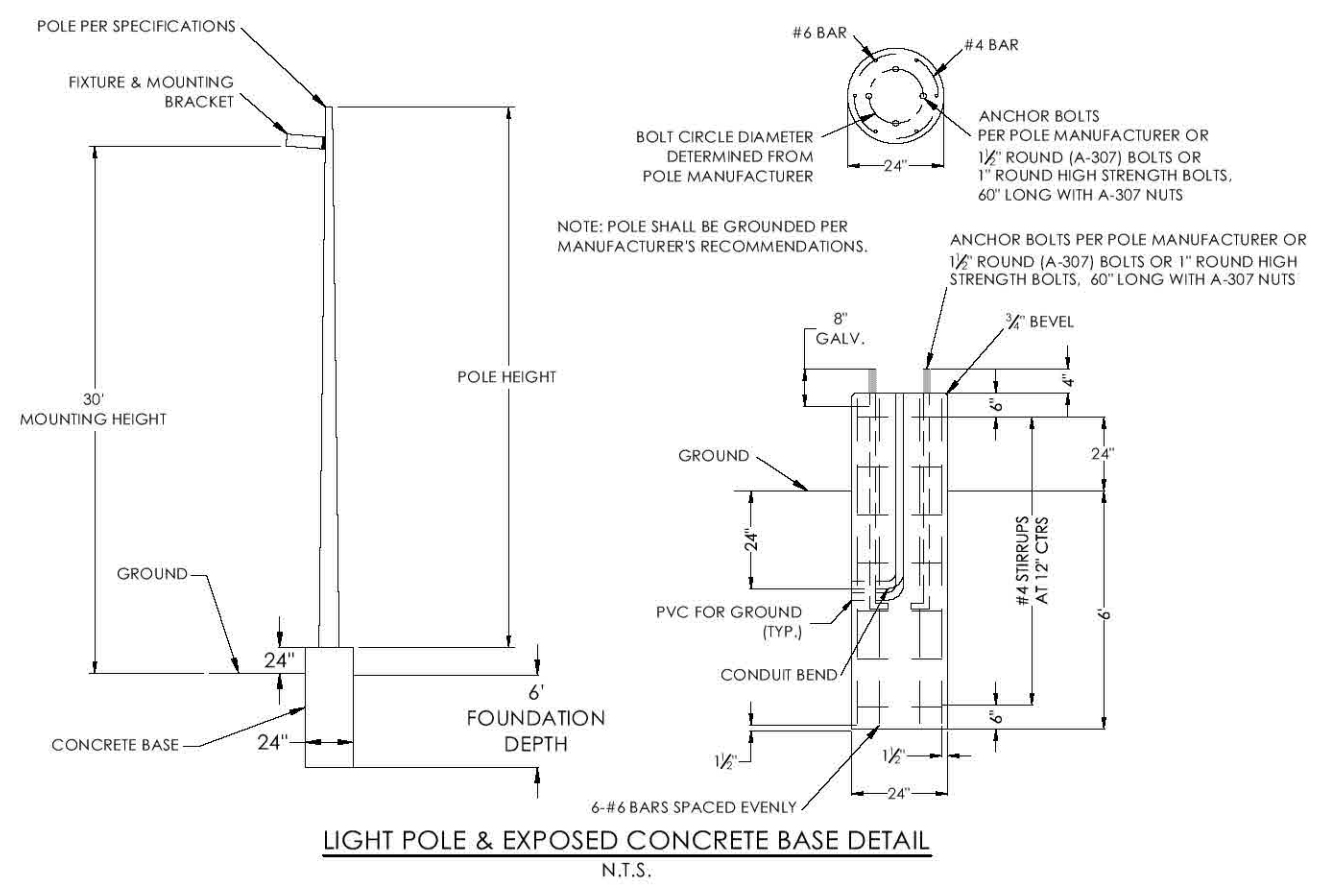
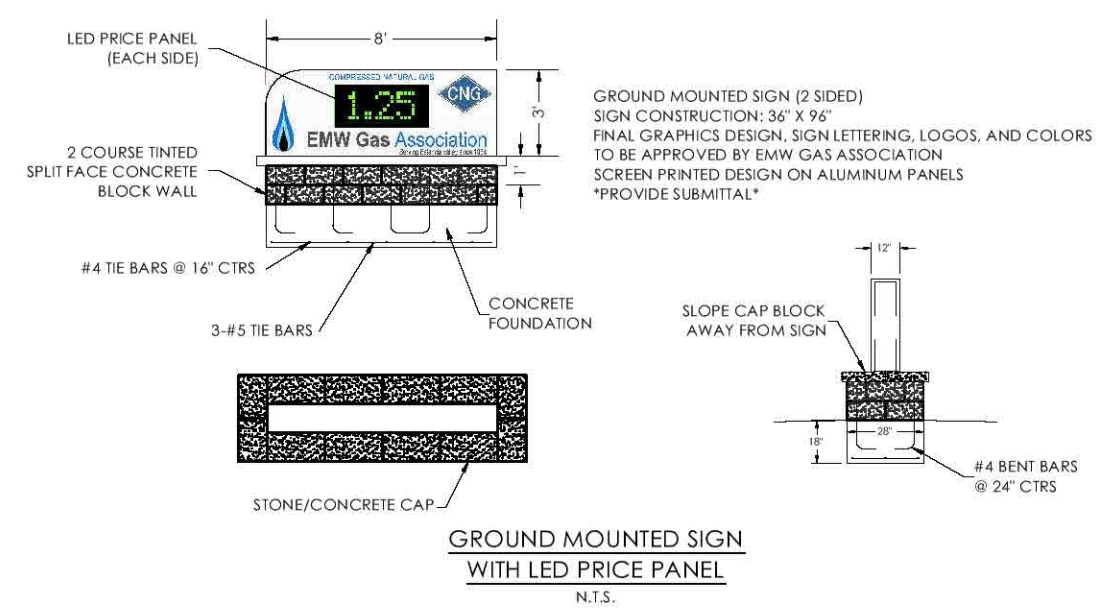
This drawing and the details on it are the sole property of the Engineer and may be used for this specific project only. It shall not be loaned, copied or reproduced, in part, or for any other purpose or project without the written consent of the Engineer.
 Copyright © 2020 by Small Arrow Engineering, LLC.

216 S. MAIN STREET
 P.O. BOX 1538
 JOPLIN, MISSOURI 64802
 TEL: 417.624.2333
 FAX: 417.624.2441
 EMAIL: jbolte@small-arrow.com

SMALL ARROW ENGINEERING, LLC.
 CERTIFICATES OF AUTHORIZATION:
 MISSOURI: E-2010013647
 KANSAS: E-1930
 ARKANSAS: 2097
 OKLAHOMA: 5937



JOHN H. BOLTE - PROFESSIONAL ENGINEER
 MO LIC E22511 OK LIC 18035
 KS LIC 14094 AR LIC 14310

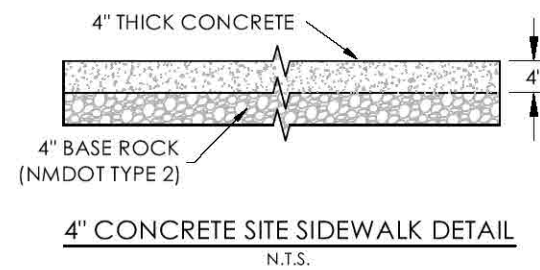
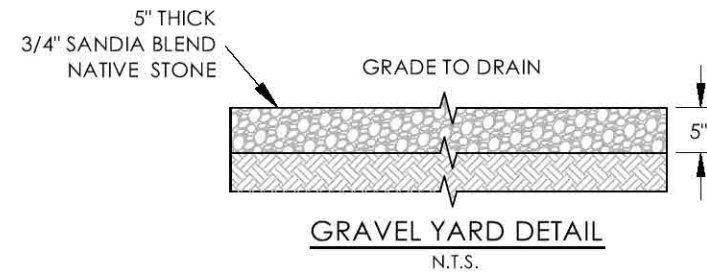
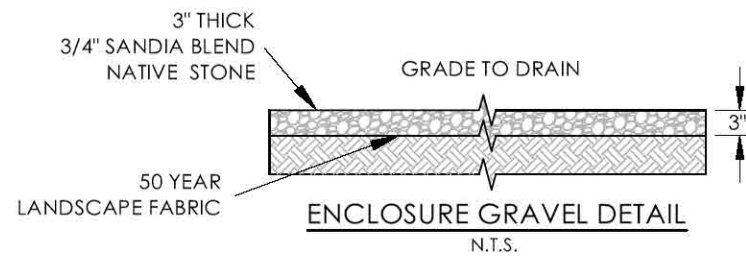


REVISIONS:
 1 9-1-20 ADDED LIGHT POLE & BASE DETAIL

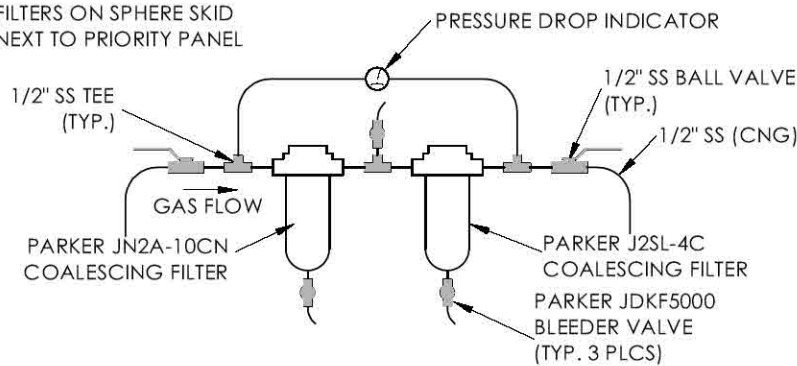
This drawing and the details on it are the sole property of the Engineer and may be used for this specific project only. It shall not be loaned, copied or reproduced, in part, or for any other purpose or project without the written consent of the Engineer.
 Copyright © 2020 by Small Arrow Engineering, LLC.

SURVEY BY: N/A PROJECT #: 20104
 DRAWN BY: TED DATE: 08/12/2020
 CHECKED BY: JHB SCALE: 1"=10'
 PROJECT: PUBLIC CNG STATION
 SHEET DESC: CANOPY LAYOUT & ELEVS
 SHEET: 8 OF: 27

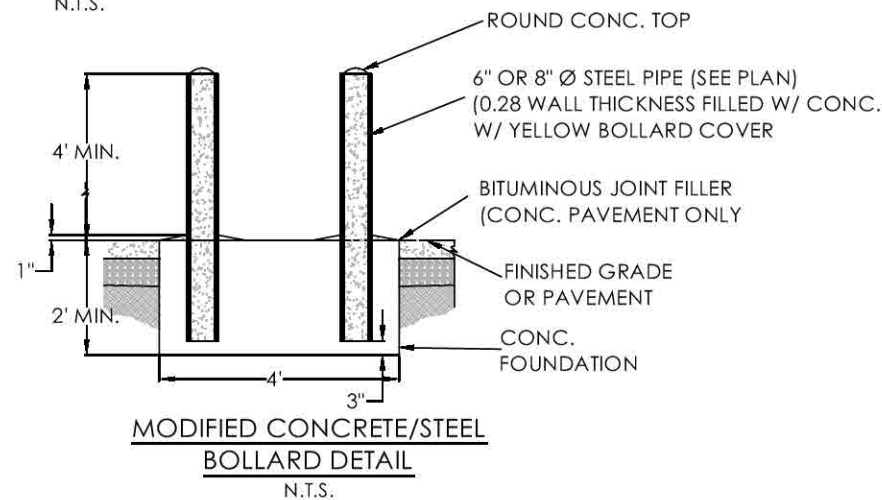
PUBLIC ACCESS CNG STATION
 E.M.W. GAS ASSOCIATION
 614 U.S. Route 66 (W)
 MORIARTY, NM 87035
 CANOPY LAYOUT & ELEVATIONS



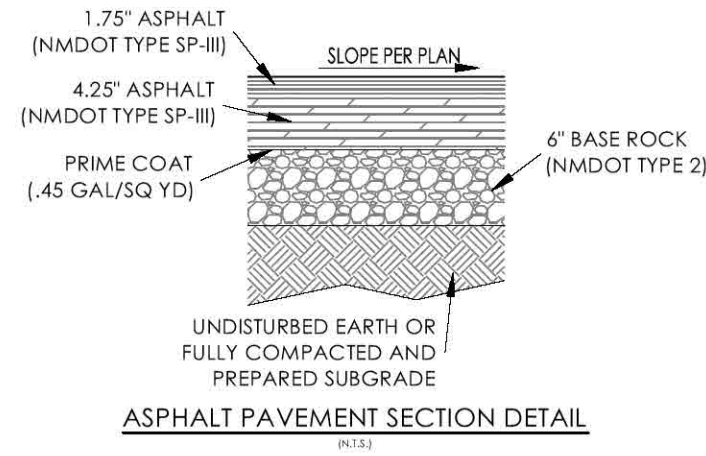
NOTE:
MOUNT COALESCING
FILTERS ON SPHERE SKID
NEXT TO PRIORITY PANEL



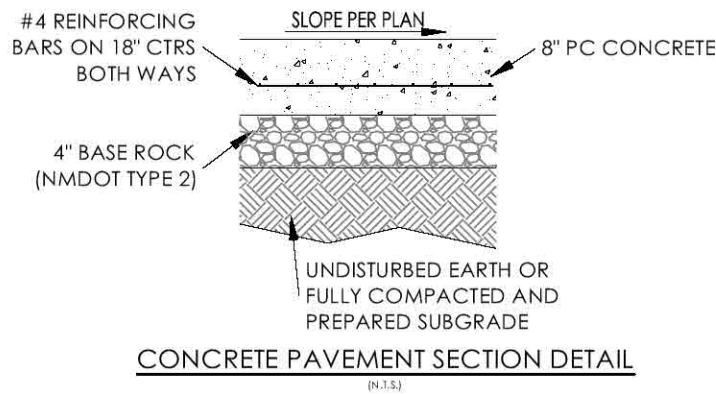
TYPICAL 1/2" COALESCING FILTER DETAIL
N.T.S.



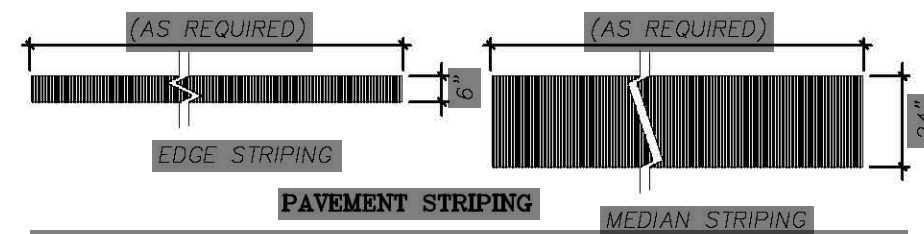
MODIFIED CONCRETE/STEEL
BOLLARD DETAIL
N.T.S.



ASPHALT PAVEMENT SECTION DETAIL
N.T.S.



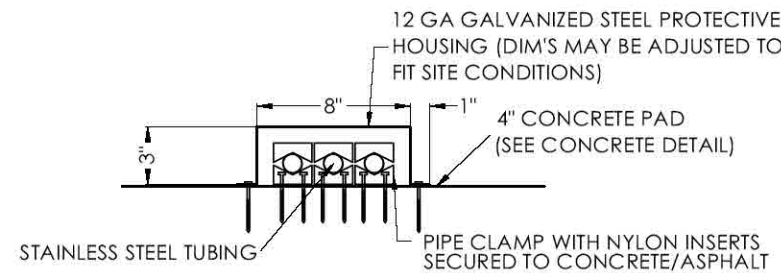
CONCRETE PAVEMENT SECTION DETAIL
N.T.S.



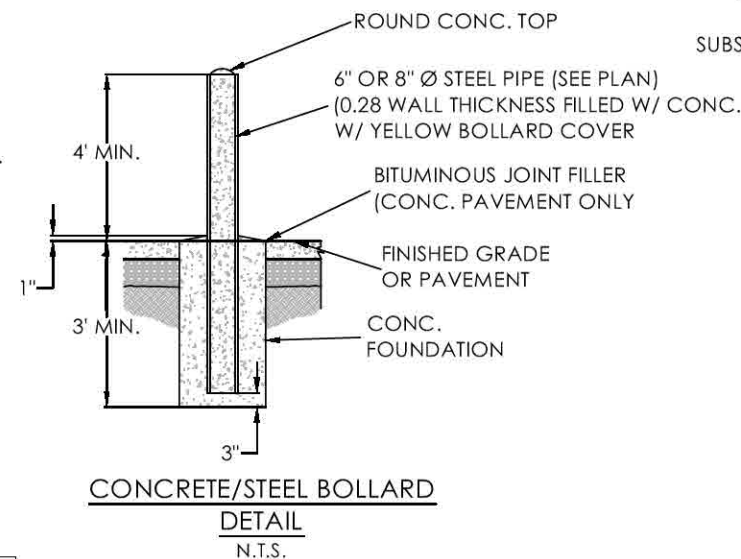
GENERAL NOTES:

- ALL PAVEMENT MARKINGS FOR THE PARKING LOT SPACES AND DRIVES SHALL BE STRIPED AS SHOWN ON THE SITE CONSTRUCTION PLAN. PAVEMENT MARKINGS FOR PARKING SPACES SHALL BE YELLOW STRIPING (HIGH GRADE TRAFFIC PAINT), EXCEPT FOR THE ADA STALL SYMBOL, WHICH SHALL BE BLUE. PAVEMENT MARKINGS FOR CROSSWALK, ARROWS AND STOP LINES SHALL BE WHITE PAINT STRIPING. PAVEMENT MARKINGS FOR CROSSING ZONES SHALL BE YELLOW PAINT STRIPING.
- STENCILS AND TEMPLATES USED SHALL BE PROFESSIONALLY MADE TO INDUSTRY STANDARDS. "FREE HAND" PAINTING OF ARROWS, SYMBOLS OR WORDING SHALL NOT BE ALLOWED.
- PAVEMENT SURFACE SHALL BE FREE OF DIRT, SAND, GRAVEL, OIL AND OTHER FOREIGN MATTER.
- CONTRACTOR SHALL PROTECT ADJACENT CURBS, WALKS, FENCES AND OTHER ITEMS FROM RECEIVING PAINT.
- PAVEMENT MARKINGS SHALL BE STRAIGHT AND EVEN IN ACCORDANCE WITH PLAN.
- PAVEMENT MARKINGS SHALL BE APPLIED TO THE WIDTHS AND COLORS AS DETAILED IN PLANS.

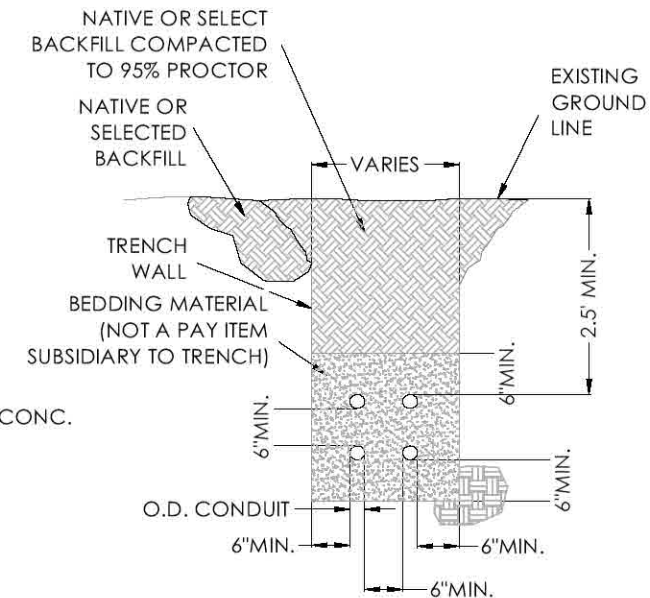
PAVEMENT MARKING DETAILS



PROTECTIVE TUBING HOUSING DETAIL
N.T.S.



CONCRETE/STEEL BOLLARD
DETAIL
N.T.S.



STACKED CONDUIT TRENCH DETAIL
N.T.S.



216 S. MAIN STREET
P.O. BOX 1538
JOPLIN, MISSOURI 64802
TEL: 417.624.2333
FAX: 417.624.2441
EMAIL: jbolte@small-arrow.com

SMALL ARROW ENGINEERING, LLC.

CERTIFICATES OF AUTHORIZATION:
MISSOURI: E-2010013647
KANSAS: E-1930
ARKANSAS: 2097
OKLAHOMA: 5937



JOHN H. BOLTE - PROFESSIONAL ENGINEER
MO LIC E22511 OK LIC 18035
KS LIC 14094 AR LIC 14310

PUBLIC ACCESS CNG STATION
E.M.W. GAS ASSOCIATION
614 U.S. Route 66 (W)
MORIARTY, NM 87035
MISC CONSTRUCTION DETAILS

REVISIONS:
1 9-1-20 REVISED GRAVEL DETAILS, ADDED PAVEMENT TYPICAL SECTIONS FOR CONCRETE AND ASPHALT

This drawing and the details on it are the sole property of the Engineer and may be used for this specific project only. It shall not be loaned, copied or reproduced, in part, or for any other purpose or project without the written consent of the Engineer.
Copyright © 2020 by Small Arrow Engineering, LLC.

SURVEY BY: N/A PROJECT #: 20104
DRAWN BY: TED DATE: 08/12/2020
CHECKED BY: JHB SCALE: N.T.S.
PROJECT: PUBLIC CNG STATION
SHEET DESC: MISC. CONSTRUCTION DTLS
SHEET: 10 OF: 27

Apache Notrees Compressed Natural Gas (CNG) Fueling Station CNG #2



12001 W. Highway 302
Notrees, Texas 79759

November 30, 2009

"Building to Last"

INDEX	
1	.....Title Sheet
2a	.....Site Plan
2b	.....Equipment Layout
3a	.....Fueling Island Pitt Frame
3b	.....Fueling Island Dispenser Detail
3c	.....Fueling Island Dispenser Detail
3d	.....Fueling Island Dispenser Detail
3e	.....Fueling Island Dispenser Detail
3f	.....Fueling Island Dispenser Wiring
3g	.....Fueling Island Dispenser Wiring
3h	.....Fueling Island Dispenser Wiring
4a	.....Compressor Elevation
4b	.....Compressor Mechanical Plan
4c	.....Compressor Schem Site Layout
4d	.....Compressor Trim Gas Process
4e	.....Compressor Trim Oil
4f	.....Compressor Electrical 1
4g	.....Compressor Electrical 2
4h	.....Compressor Electrical 3
4i	.....Compressor Electrical 4
4j	.....Compressor Electrical 5
4k	.....Compressor Electrical 6
4l	.....Compressor Electrical 7
4m	.....Compressor Electrical 8
4n	.....Compressor Electrical 9
4o	.....Compressor Electrical 10
4p	.....Compressor Electrical 11
4q	.....Compressor Electrical 12
4r	.....Compressor Electrical 13
4s	.....Compressor Electrical 14
4t	.....Compressor Electrical 15
4u	.....Compressor Electrical 16
4v	.....Compressor Dryer
5	.....Structure/Miscellaneous Details

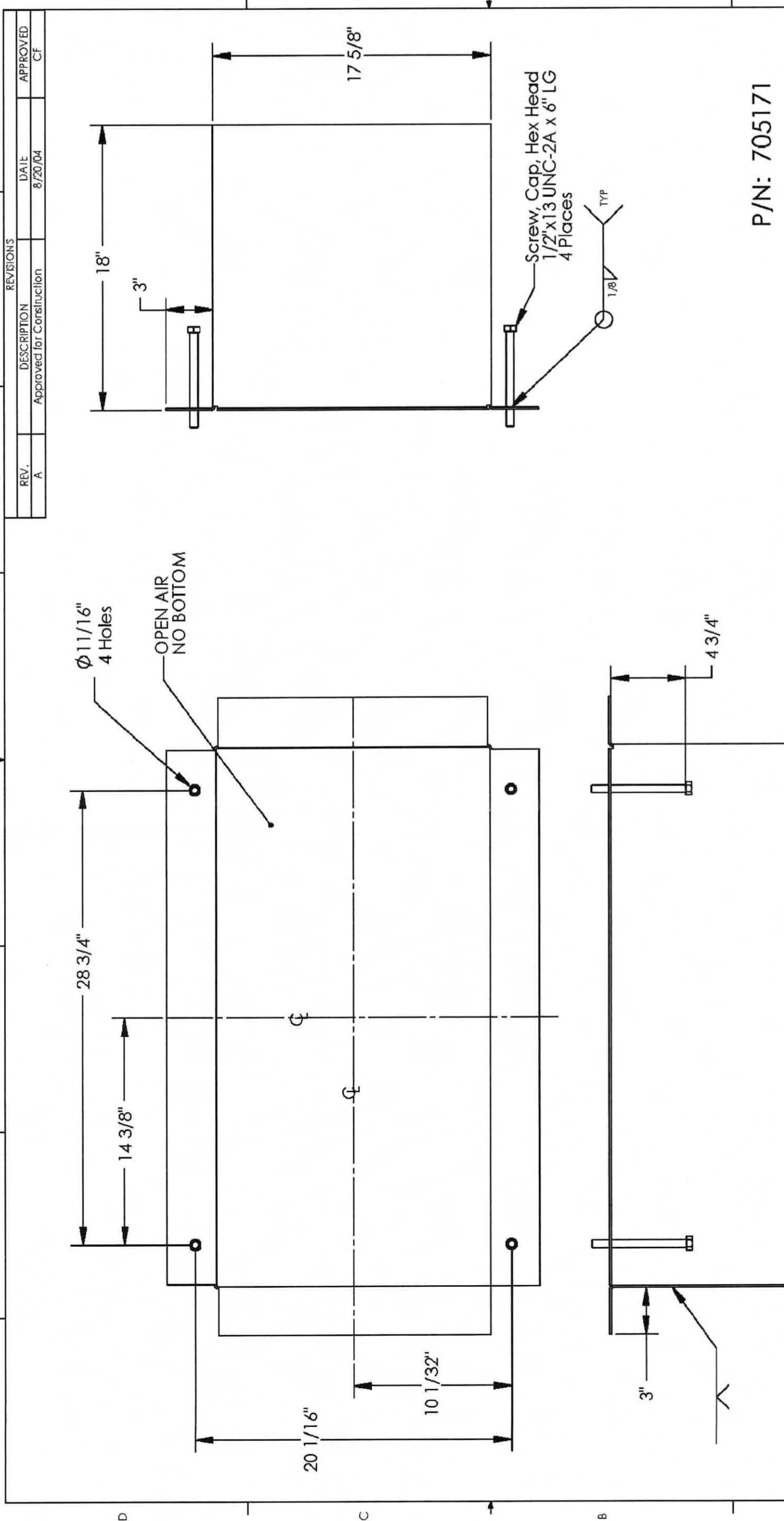
PROJECT SUPPORT

Apache Notrees Field Office
Raleigh Morton, Production Foreman
432.827.3850
Brad Fontenot, Construction Manager
903.387.0877 (mobile)

Apache Central Region - Tulsa
Tim Tomlinson, Project Manager
918.491.4820
Larry Brunnsman, Project Coordinator
918.491.4956

DRAWING SET: Apache Notrees - Compressed
Natural Gas (CNG) Fueling Station - CNG #2
SHEET: 1, Title Sheet
PAGE: 1 OF 31

1 2 3 4 5 6 7 8



P/N: 705171

		GreenField 909 N. FOWLER RICHARDSON, TEXAS 75081-2823	
MATERIAL: GALVANIZED STEEL SHEET 10 GAUGE		TITLE: Pitt Frame Encore	
DRAWN: JBR CHECKED: CF ENG APPR: CF	DATE: 8/20/04 8/20/04 8/20/04	SIZE DWG. NO. B B000-4277	REV A
DIMENSIONS ARE IN INCHES FRACTIONAL ± 1/16 ANGLES ± 1/2° BEND ± 0.15 TWO PLACE DECIMAL ± 0.010 THREE PLACE DECIMAL ± 0.005		SCALE: NONE SHEET 1 OF 1	

DRAWING SET: Apache Nitrogen - Compressed
 Nitrogen Gas (CNG) Filling Station - CNG #2
 SHEET: 34 - Filling Island Pitt Frame
 PAGE 4 OF 34

1 2 3 4 5 6 7 8

8

7

6

5

4

3

2

1

A

B

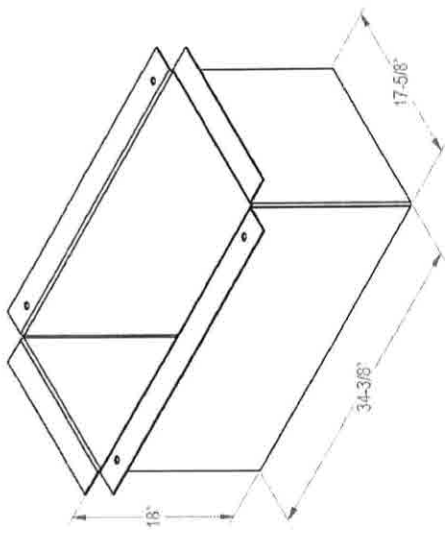
C

D

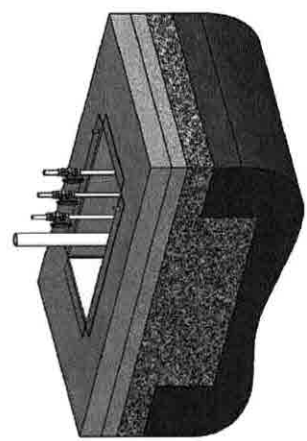
E

F

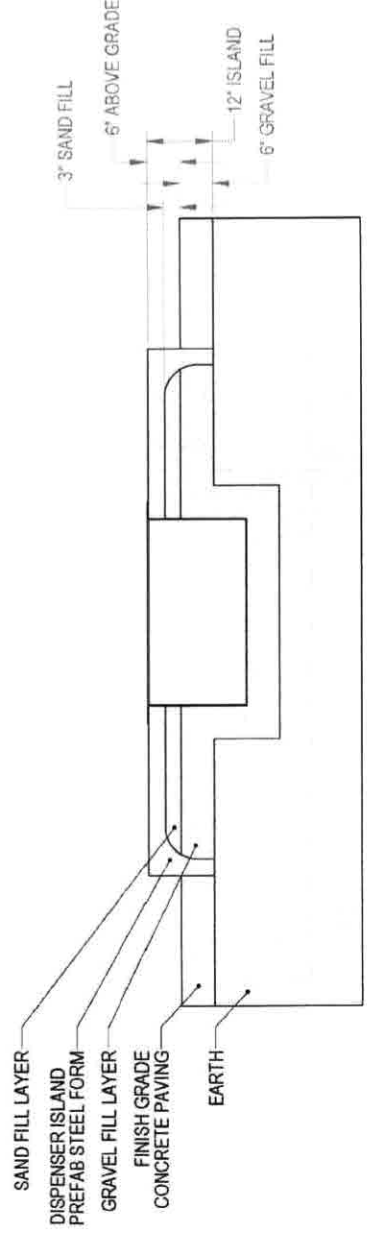
G



TYPICAL PIT FRAME DETAIL
PIT FRAME IS AN OPTIONAL ITEM GREENFIELD PN706171



TYPICAL PIT FRAME DETAIL
WITH OPTIONAL INSTALL KIT



PROPERTY OF GREENFIELD COMPRESSION. ANY UNAUTHORIZED USE OR
COPYING OF THIS DOCUMENT OR ANY PART THEREOF IS PROHIBITED.

JOB NO.:	9008 2001 45	REV. PART NUMBER:	D	9008 2001 45	REV. PART NUMBER:	A	
PROPRIETARY AND CONFIDENTIAL. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. FRACTIONAL DIMENSIONS ARE IN INCHES. ANGLES ARE IN DEGREES. UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE TO FACE UNLESS INDICATED OTHERWISE. REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF GREENFIELD IS PROHIBITED.	SERIAL NUMBER -	DRAWN	CJ	CHECKED	DM	APPROVED	DM
	DATE	2009-09-10	DATE	2009-09-10	DATE	2009-09-10	DATE
	LOC	SOLIDWORKS	LOC	SOLIDWORKS	LOC	SOLIDWORKS	LOC
MATERIAL:	FINISH:	MANUFACTURER:	MFG PART / MODEL #:				

GREENFIELD
SITE ARRANGEMENT, DISPENSER, TYPICAL
ENCORE

9008 2001 45 D 9008 2001 45 A

2 OF 2

8

7

6

5

4

3

2

1

A

B

C

D

E

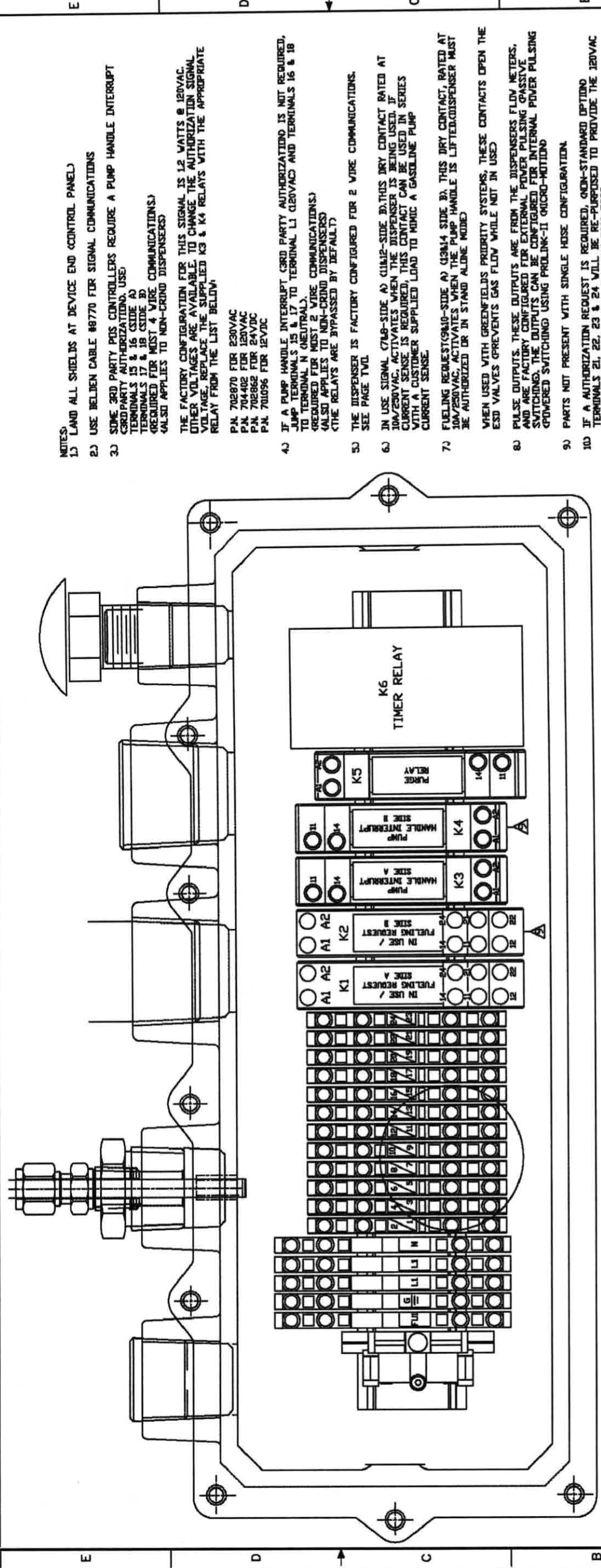
F

G

H

SECTION BB

TERMINAL BLOCK TABLE	
1	COMMON - PULSE OUTPUT (SIDE A)
2	SIGNAL - FUELING REQUEST (SIDE A)
3	COMMON - FUELING REQUEST (SIDE A)
4	SIGNAL - IN USE (SIDE B)
5	COMMON - IN USE (SIDE B)
6	SIGNAL - FUELING REQUEST (SIDE B)
7	COMMON - FUELING REQUEST (SIDE B)
8	SIGNAL - PUMP HANDLE INTERRUPT (SIDE A)
9	COMMON - PUMP HANDLE INTERRUPT (SIDE A)
10	SIGNAL - PUMP HANDLE INTERRUPT (SIDE B)
11	COMMON - PUMP HANDLE INTERRUPT (SIDE B)
12	SIGNAL - PURGE RELAY
13	COMMON - PURGE RELAY
14	PUMP DATA + / AUTH. REQ. +120VAC (SIDE A) (10)
15	PUMP DATA - / AUTH. REQ. -120VAC (SIDE A) (10)
16	CRIND DATA + / AUTH. REQ. +120VAC (SIDE B) (10)
17	CRIND DATA - / AUTH. REQ. -120VAC (SIDE B) (10)



REV	DESCRIPTION	DATE	INITIALS
1	APPROVED FOR PRODUCTION	1/28/88	CJ
2	REVISED SPECIAL, COMPLETE & EXPANDED BAY WIRE NOTES	8/14/88	CJ
3	CHANGED BATTERY, ADDED AUTH. REQ.	4/28/89	CJ

DATE	4/15/85
BY	CJ
CHK	SA
APPROV	SA
SCALE	N/A
PART NO	D000-4662
SHEET	1 OF 2

TITLE	MAIN XP BOX TERMINATIONS
CUSTOMER	3RD PARTY AND 2 WIRE
ENCORE	Q1E&G2E ENCORE DISPENSER
FIELD WIRING	

THE TERMINALS USED ARE DOUBLE CHECKED FOR CORRECTNESS. THE NUMBER LISTED IN THE 7/8 IS FOR THE LOWER TERMINALS AS SHOWN.

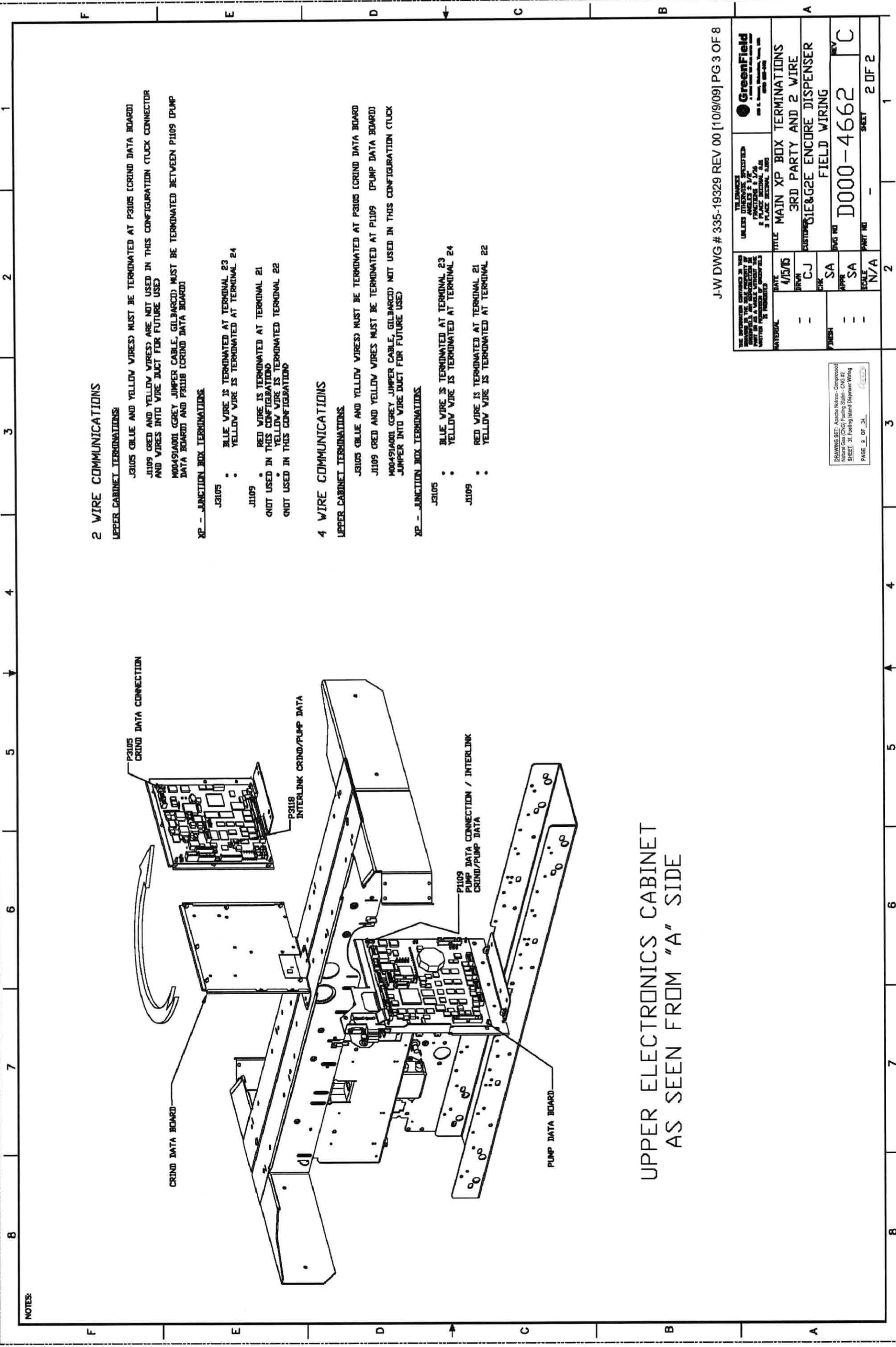
TERMINAL 16 UPPER LEVEL

TERMINAL 15 LOWER LEVEL

- NOTES:
- 1) LAND ALL SHIELDS AT DEVICE END (CONTROL PANEL)
 - 2) USE BELDEN CABLE #8770 FOR SIGNAL COMMUNICATIONS
 - 3) SOME 3RD PARTY POS CONTROLLERS REQUIRE A PUMP HANDLE INTERRUPT (3RD PARTY AUTHORIZATION). USE TERMINALS 15 & 16 (SIDE A) TERMINALS 17 & 18 (SIDE B) (REQUIRED FOR MOST 4 WIRE COMMUNICATIONS) (ALSO APPLIES TO NON-CRIND DISPENSERS)
 - 4) THE FACTORY CONFIGURATION FOR THIS SIGNAL IS 1.2 WATTS @ 120VAC. OTHER VOLTAGES ARE AVAILABLE. TO CHANGE THE AUTHORIZATION SIGNAL VOLTAGE, REPLACE THE SUPPLIED K3 & K4 RELAYS WITH THE APPROPRIATE RELAY FROM THE LIST BELOW:
P/N 702870 FOR 230VAC
P/N 704402 FOR 120VAC
P/N 702869 FOR 24VDC
P/N 700096 FOR 12VDC
 - 5) IF A PUMP HANDLE INTERRUPT (3RD PARTY AUTHORIZATION) IS NOT REQUIRED, JUMP TERMINALS 15 & 17 TO TERMINAL L1 (120VAC) AND TERMINALS 16 & 18 TO TERMINAL N (NEUTRAL). (REQUIRED FOR MOST 2 WIRE COMMUNICATIONS) (ALSO APPLIES TO NON-CRIND DISPENSERS) (THE RELAYS ARE BYPASSED BY DEFAULT)
 - 6) THE DISPENSER IS FACTORY CONFIGURED FOR 2 WIRE COMMUNICATIONS. SEE PAGE TV01.
 - 7) IN USE SIGNAL (7/8) - SIDE A) (11/12 - SIDE B). THIS DRY CONTACT RATED AT 10A/250VAC. ACTIVATES WHEN THE DISPENSER IS BEING USED. IF CURRENT SENSE IS REQUIRED, THIS CONTACT CAN BE USED IN SERIES WITH A CUSTOMER SUPPLIED LOAD TO MIMIC A GASOLINE PUMP CURRENT SENSE.
 - 8) FUELING REQUEST (9/10 - SIDE A) (13/14 - SIDE B). THIS DRY CONTACT, RATED AT 10A/250VAC, ACTIVATES WHEN THE PUMP HANDLE IS LIFTED/DISPENSER MUST BE AUTHORIZED OR IN STAND ALONE MODE.
 - 9) WHEN USED WITH GREENFIELD'S PRIORITY SYSTEMS, THESE CONTACTS OPEN THE ESD VALVES (PREVENTS GAS FLOW WHILE NOT IN USE).
 - 10) PULSE OUTPUTS. THESE OUTPUTS ARE FROM THE DISPENSER'S FLOW METERS, AND ARE FACTORY CONFIGURED FOR EXTERNAL POWER PULSING (PASSIVE SWITCHING). THE OUTPUTS CAN BE CONFIGURED FOR INTERNAL POWER PULSING (POWERED SWITCHING) USING PROLINK-II ON/OFF-HOLDING.
 - 11) PARTS NOT PRESENT WITH SINGLE HOSE CONFIGURATION.
 - 12) IF A AUTHORIZATION REQUEST IS REQUIRED, NON-STANDARD OPTION TERMINALS 21, 22, 23 & 24 WILL BE RE-PURPOSED TO PROVIDE THE 120VAC PUMP HANDLE SIGNAL. REF. DRAWING 3000-3888

GreenField
UNLESS OTHERWISE SPECIFIED
PANELS 1/2" & 1/4" THICK
WIRING 18 AWG
TERMINALS 16-24

GreenField
100 S. Street, Wallingford, VT 05488
TEL: 802-249-8888



UPPER ELECTRONICS CABINET
AS SEEN FROM "A" SIDE

2 WIRE COMMUNICATIONS

UPPER CABINET TERMINATIONS

- J3105 (BLUE AND YELLOW WIRES) MUST BE TERMINATED AT P3105 (CRIND DATA BOARD)
- J1109 (RED AND YELLOW WIRES) ARE NOT USED IN THIS CONFIGURATION (STUCK CONNECTOR AND WIRES INTO WIRE DUCT FOR FUTURE USE)
- M00491A001 (GREY JUMPER CABLE, GILBARCO) MUST BE TERMINATED BETWEEN P1109 (PUMP DATA BOARD) AND P3118 (CRIND DATA BOARD)

XP -- JUNCTION BOX TERMINATIONS

- J3105 : BLUE WIRE IS TERMINATED AT TERMINAL 23
- : YELLOW WIRE IS TERMINATED AT TERMINAL 24
- J1109 : RED WIRE IS TERMINATED AT TERMINAL 21
- : NOT USED IN THIS CONFIGURATION
- : YELLOW WIRE IS TERMINATED TERMINAL 22
- : NOT USED IN THIS CONFIGURATION

4 WIRE COMMUNICATIONS

UPPER CABINET TERMINATIONS

- J3105 (BLUE AND YELLOW WIRES) MUST BE TERMINATED AT P3105 (CRIND DATA BOARD)
- J1109 (RED AND YELLOW WIRES) MUST BE TERMINATED AT P1109 (PUMP DATA BOARD)
- M00491A001 (GREY JUMPER CABLE, GILBARCO) NOT USED IN THIS CONFIGURATION (STUCK JUMPER INTO WIRE DUCT FOR FUTURE USE)

XP -- JUNCTION BOX TERMINATIONS

- J3105 : BLUE WIRE IS TERMINATED AT TERMINAL 23
- : YELLOW WIRE IS TERMINATED AT TERMINAL 24
- J1109 : RED WIRE IS TERMINATED AT TERMINAL 21
- : YELLOW WIRE IS TERMINATED AT TERMINAL 22

NOTES:

J-W DWG # 335-19329 REV 00 [10/09/09] PG 3 OF 8

<small>THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF GREENFIELD. IT IS TO BE USED FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREIN. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF GREENFIELD.</small>		<small>SEE CHANGE SHEET FOR REVISIONS</small> <small>UNLESS OTHERWISE SPECIFIED</small> <small>ANGLES & 1/8"</small> <small>FUNCTIONS & 1/8"</small> <small>PLACEMENT & 1/8"</small> <small>3 PLACE DECIMALS</small>	
DATE	4/15/05	TITLE	MAIN XP BOX TERMINATIONS
BY	CJ	CUSTOMER	3RD PARTY AND 2 WIRE
CHK	SA	ENCLOSURE	GIE&G2E ENCORE DISPENSER
APPR	SA	FIELD WIRING	FIELD WIRING
SCALE	N/A	DWG NO	D000-4662
		PART NO	-
		SHEET	2 OF 2

DRAWING SET: Apache Nitrogen - Compressed
Natural Gas (CNG) Fueling Station - CNG #2
SHEET: 21 Fueling Island Dispenser Wiring
PAGE 3 OF 31

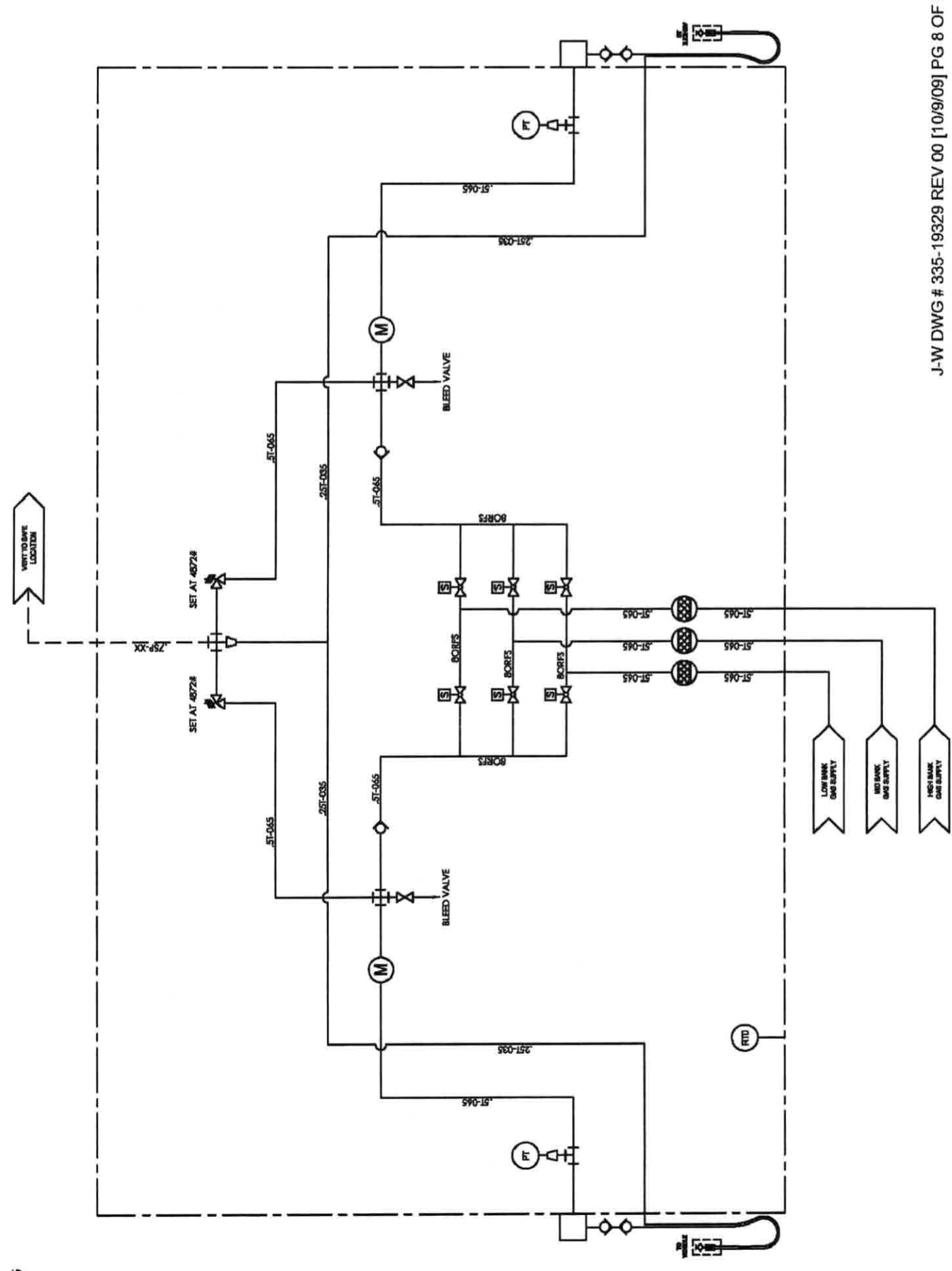
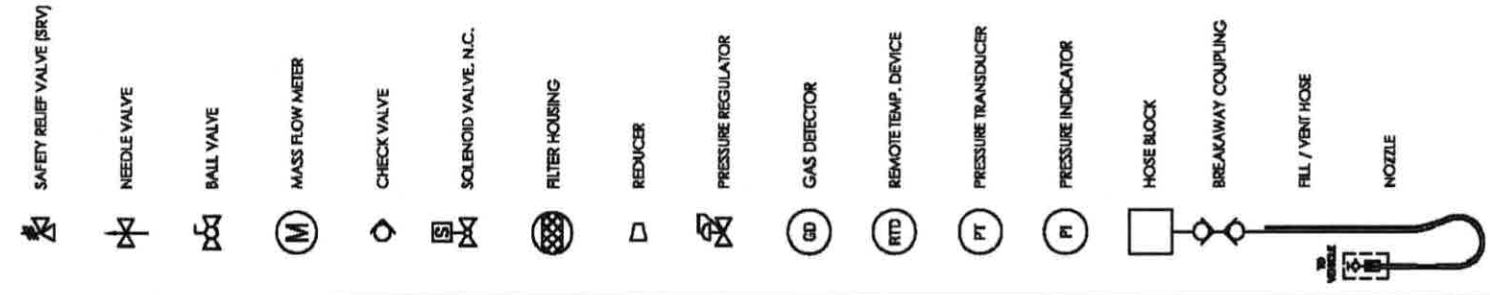
DESIGN CONDITIONS:
 CODE: NFPAS2
 ANSI B31.3
 CSA B51-1991

FILTER, VALVE ASSY & FLOW METER: 5000 PSIG
 HOSE ASSY: A SIDE = 4872 PSIG
 B SIDE = 4872 PSIG

TUBING:
 TUBE MATERIAL: 316SS
 TUBE SIZES: 1/4" x 0.035
 3/8" x 0.049
 1/2" x 0.065
 3/4" x 0.095

DESIGN TEMPERATURE: -40° TO 140° F

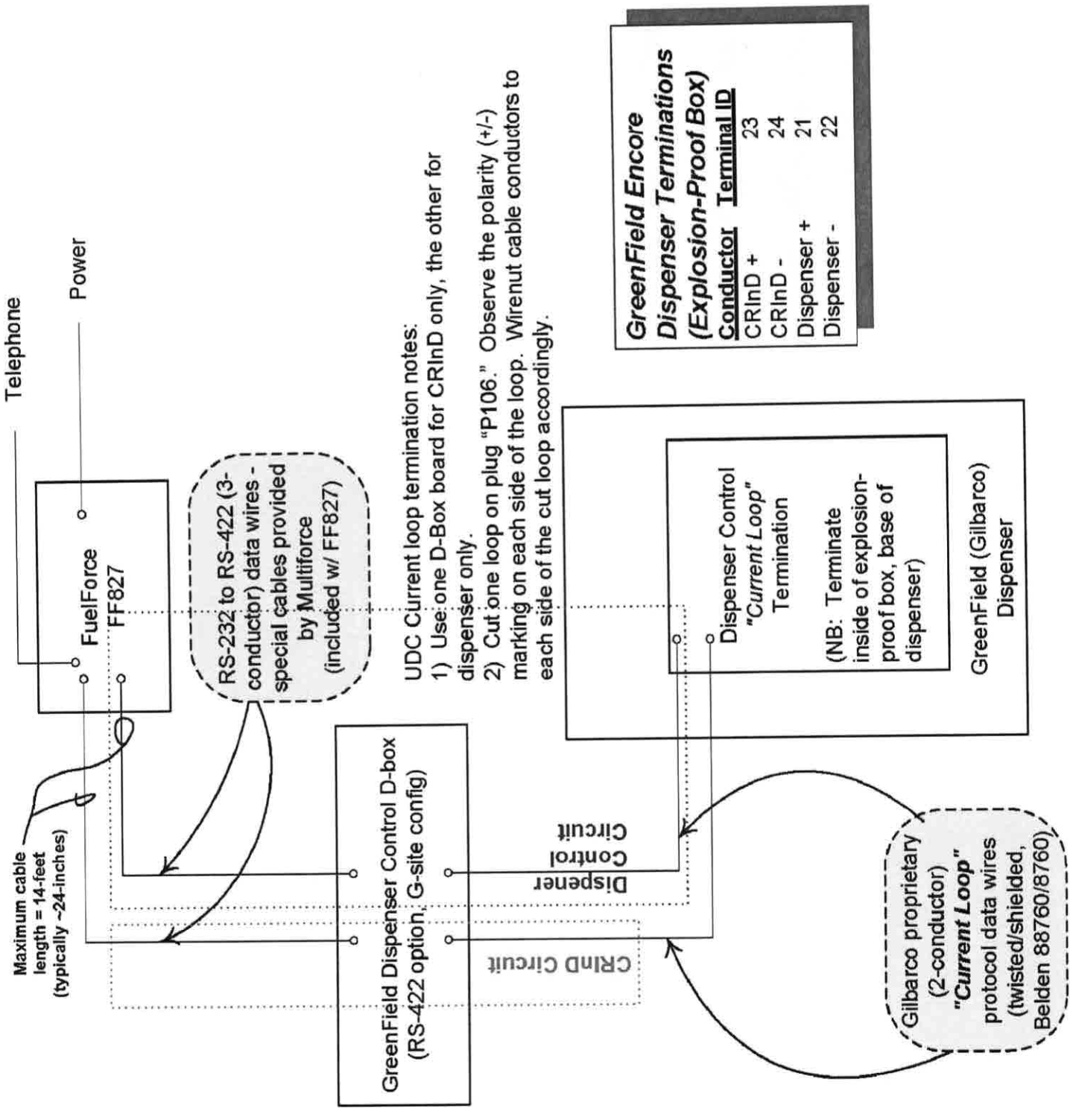
1.5T-120
 PIPE SCHEDULE OR
 TUBE WALL THICKNESS (0.001") OR
 HOSE PRESSURE RATING
 P-PIPE
 T-TUBE
 H-HOSE (FLEX)
 NOMINAL PIPE SIZE OR
 TUBE O.D. OR
 NOMINAL HOSE SIZE



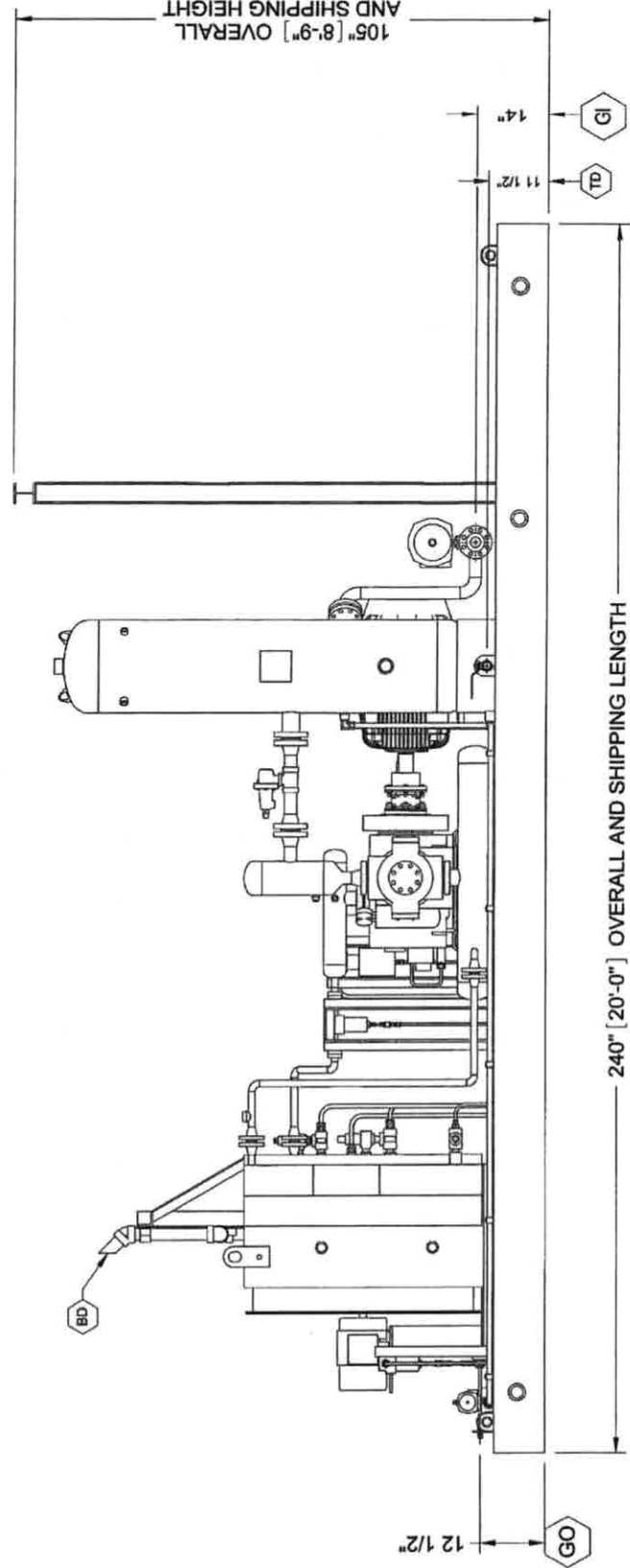
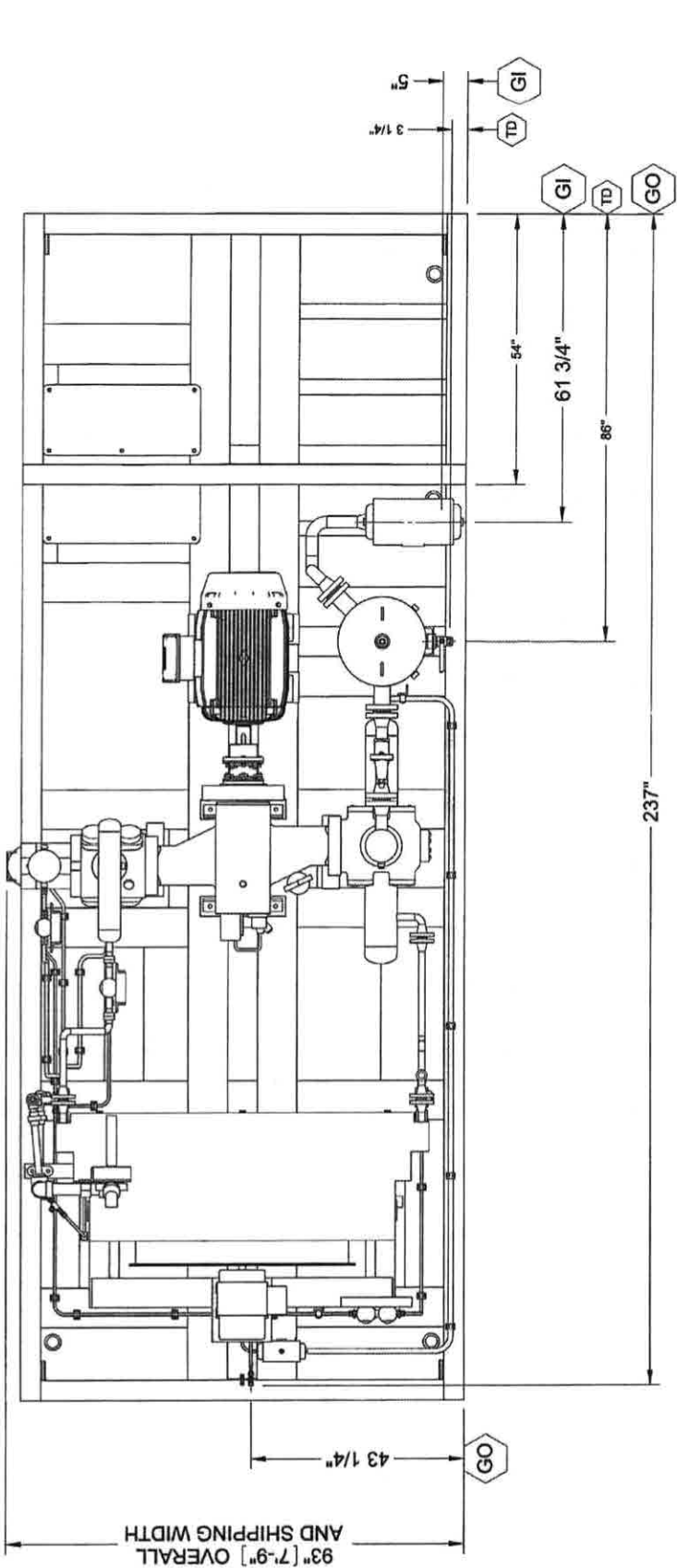
J-W DWG # 335-19329 REV 00 [10/9/09] PG 8 OF 8

JOB NO.:		SERIAL NUMBER:	
DESIGNED	CJ	DRAWN	CJ
CHECKED	DM	APPROVED	DM
DATE	2008-08-08	DATE	2008-08-08
PROJECT:		PROJECT:	
P&ID, DISP, DH, 36/36, STANDARD, J-W		P&ID, DISP, DH, 36/36, STANDARD, J-W	
POWER, APACHE, GET168-171		POWER, APACHE, GET168-171	
9008 1032 38 D	9008 1032 38 A	9008 1032 38 D	9008 1032 38 A
REV	DESCRIPTION	REV	DESCRIPTION
1		1	
2		2	
3		3	
4		4	
5		5	
6		6	
7		7	
8		8	
9		9	
10		10	
11		11	
12		12	
13		13	
14		14	
15		15	
16		16	
17		17	
18		18	
19		19	
20		20	
21		21	
22		22	
23		23	
24		24	
25		25	
26		26	
27		27	
28		28	
29		29	
30		30	
31		31	
32		32	
33		33	
34		34	
35		35	
36		36	
37		37	
38		38	
39		39	
40		40	
41		41	
42		42	
43		43	
44		44	
45		45	
46		46	
47		47	
48		48	
49		49	
50		50	
51		51	
52		52	
53		53	
54		54	
55		55	
56		56	
57		57	
58		58	
59		59	
60		60	
61		61	
62		62	
63		63	
64		64	
65		65	
66		66	
67		67	
68		68	
69		69	
70		70	
71		71	
72		72	
73		73	
74		74	
75		75	
76		76	
77		77	
78		78	
79		79	
80		80	
81		81	
82		82	
83		83	
84		84	
85		85	
86		86	
87		87	
88		88	
89		89	
90		90	
91		91	
92		92	
93		93	
94		94	
95		95	
96		96	
97		97	
98		98	
99		99	
100		100	

PROPERTY OF GREENFIELD CONSTRUCTION OR ANY PART THEREOF IS PROHIBITED.
 DRAWING SET: Apache Nitrogen - Compressor
 Natural Gas (CNG) Fueling Station - CNG #2
 SHEET: 36 - Fueling Island Dispenser Wiring
 PAGE 10 OF 31



FuelForce FF827 - GreenField Dispenser Interface
Overall Wiring Scheme

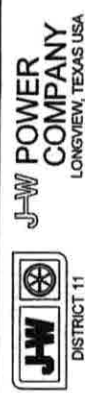


MARK		QTY.	SIZE	DESCRIPTION
GI	1	2" - 600#	PROCESS GAS INLET	
GO	1	1/2" OD	PROCESS GAS OUTLET	
BD	1	2" S/80	BLOWDOWN	
TD	1	1" NPT	TANK DRAIN	

TOLERANCE NOTE
 UNLESS OTHERWISE NOTED:
 1) FRACTIONS ± 1"
 2) ANGLES ± 1°
 3) OVERALL AND SHIPPING DIMENSIONS ARE MAXIMUM

NOTICE:
 This document contains proprietary information and it shall not be used or reproduced or its contents disclosed in whole or in part without the prior written consent of "J-W Operating Company".

NO.	REVISION	BY	CKD	APPD	DATE	SCALE
0	PRELIMINARY	p			10/2/09	3/4"=1'-0"

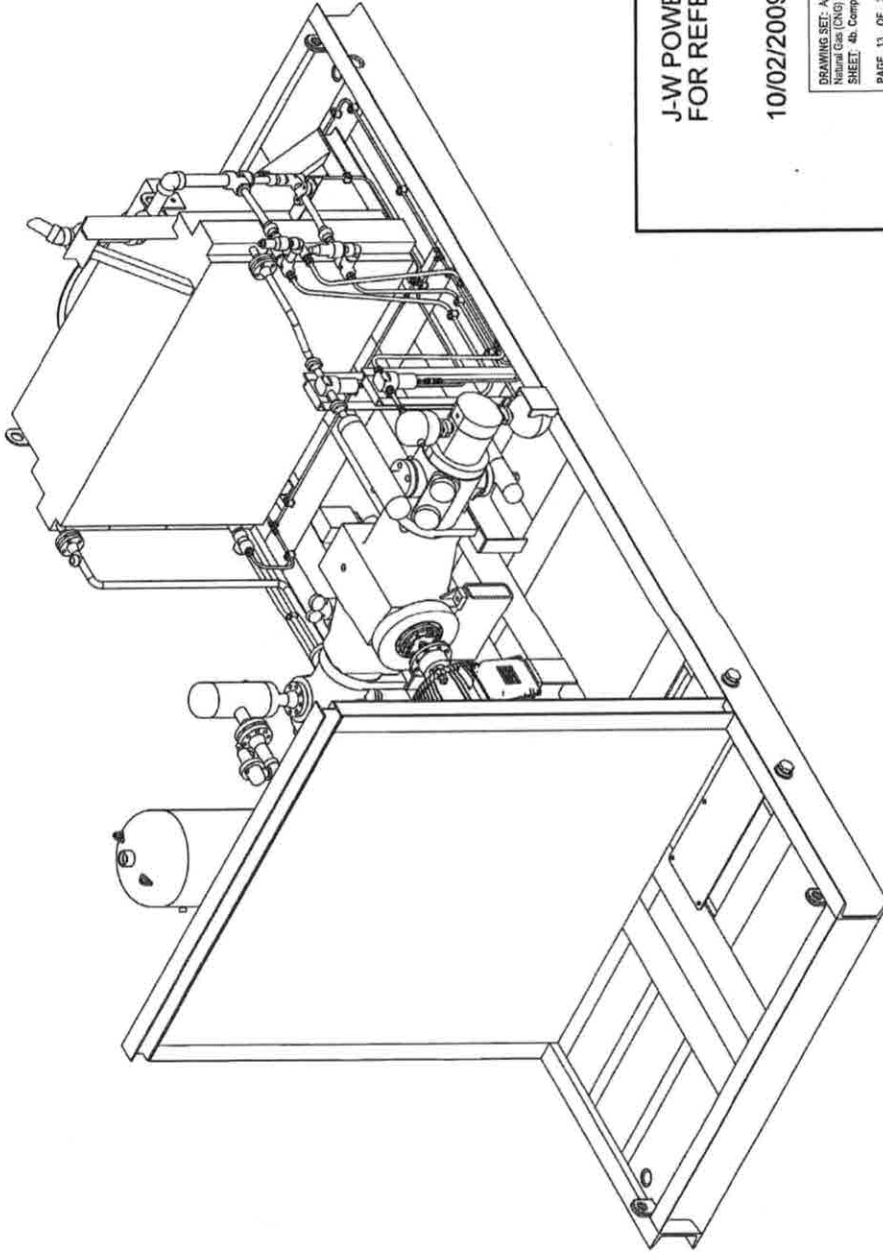
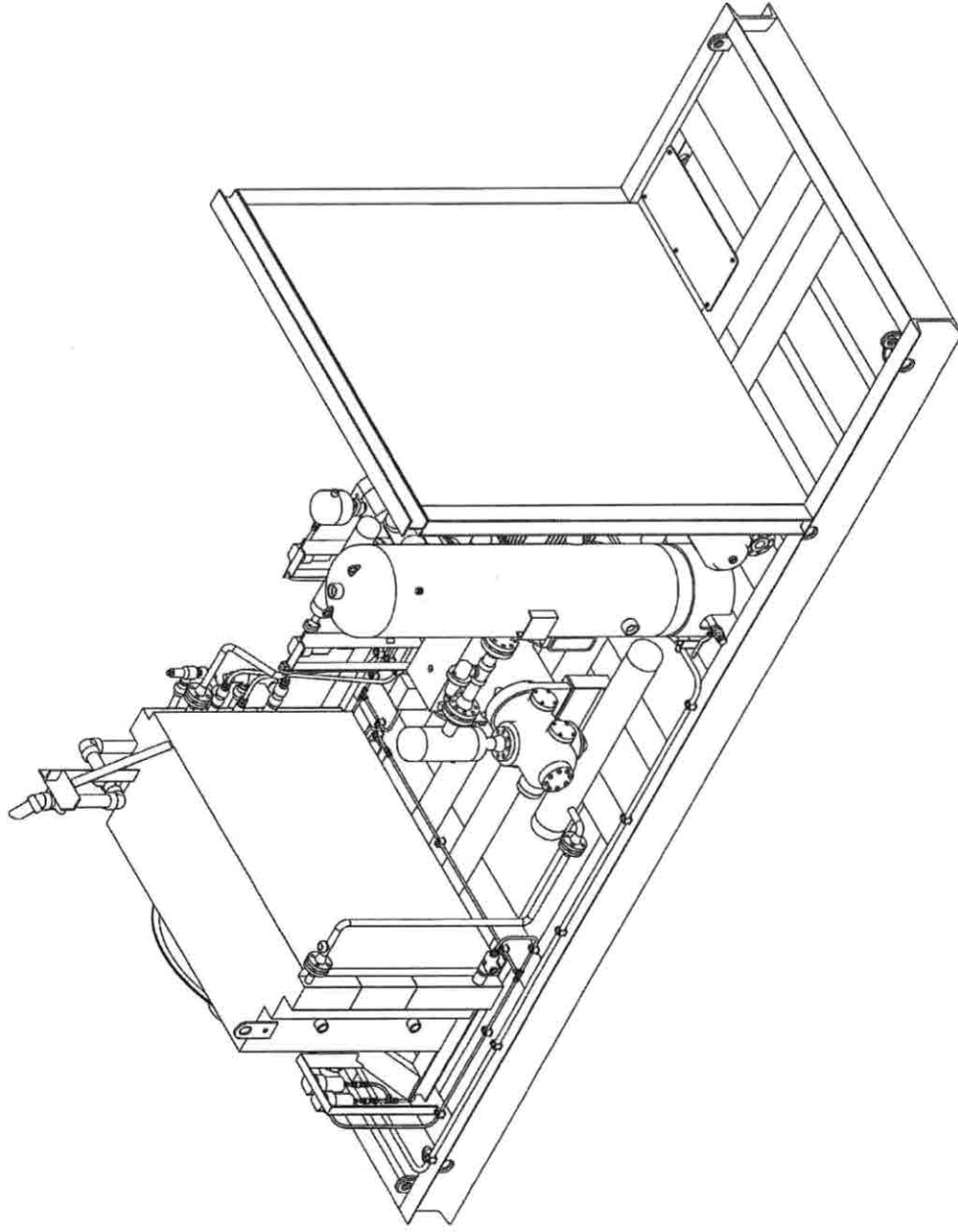
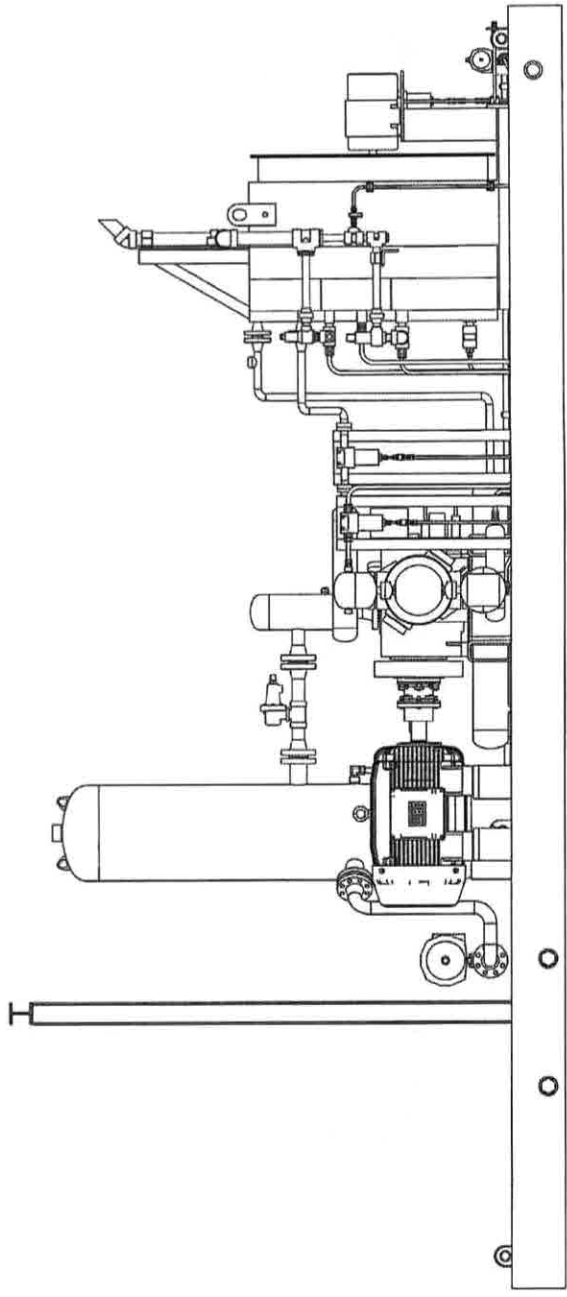


PLAN & ELEVATION
 EA-100-3

J-W POWER COMPANY
 FOR REFERENCE ONLY

10/02/2009 bwf

DRAWING SET: Apache Network - Compressor
 Natural Gas (CNG) Fueling Station - CNG #2
 SHEET: 4a. Compressor Elevation
 PAGE 12 OF 31



J-W POWER COMPANY
FOR REFERENCE ONLY

10/02/2009 bwf

DRAWING SET: Apache Natural Gas Compressor
Natural Gas (CNG) Filling Station - CNG #2
SHEET: 4b. Compressor Mechanical Plan
PAGE 13 OF 31



J-W POWER COMPANY
LONGVIEW, TEXAS USA

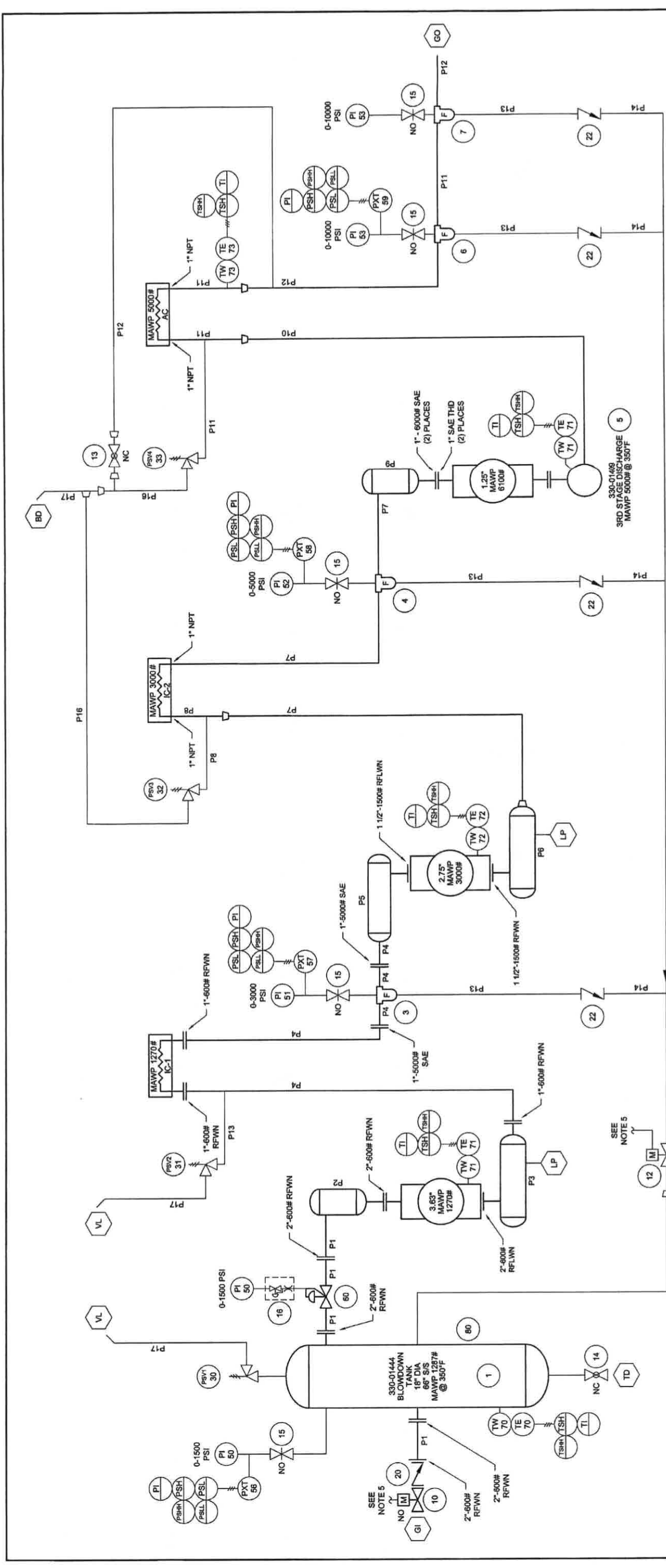
DISTRICT 11

PLAN & ELEVATION
EA-100-3

NOTICE:
This document contains proprietary information and it shall not be used or reproduced or its contents disclosed in whole or in part without the prior written consent of "J-W Operating Company".

NO.	REVISION	DATE	BY	CHKD	APPD	SCALE	DATE
0	PRELIMINARY					3/4"=1'-0"	

DRWN	JO	CKD	BWF	APPD	BWF	DATE	10/2/09	SCALE	3/4"=1'-0"	PIN	991-01306	DWG.	335-19268	PAGE 2 OF 2	REV. 0
------	----	-----	-----	------	-----	------	---------	-------	------------	-----	-----------	------	-----------	-------------	--------



NOTES:

1. ALL TUBING IS 316SS SEAMLESS UNLESS OTHERWISE NOTED.
2. ALL ANSI FLANGES OF 60# RATING OR GREATER WILL USE FLEXITALLIC TYPE "CG" GASKETS.
3. ALL NPT CONNECTIONS ARE TO BE PLUGGED.
4. ALL PROCESS PIPING COMPONENTS ARE RATED FOR 350°F UNLESS OTHERWISE NOTED.
5. SEE DRAWING #335-XXXXX FOR SUPPLY/CONTROL TO VALVES.
6. SEE DRAWING #335-1714 FOR LEGEND OF SYMBOLS & ABBREVIATIONS.
7. NO - NORMALLY OPEN DURING UNIT OPERATION.
NC - NORMALLY CLOSED DURING UNIT OPERATION.

J-W POWER COMPANY
FOR REFERENCE ONLY

10/02/2009 bwf

WARNING: For Safety Reasons, Compressible
Inert Gases (CIG) and Inert Steam (IS) are
SHEET 44, Compressor Train Gas Process
PAGE 15 OF 31

J-W POWER COMPANY
DISTRICT 11
LONGVIEW, TEXAS USA

TRIM PRCS GAS EA-100-3
3.63-3.0-1.25 X 3 CNG

PIPE & TUBING SCHEDULE			
MARK	SPOOL	SIZE	MATL
P10	D3	.63" OD X .083	316SS SMLS TBG
P11	D3/FINAL	1" X 0.083	SA-106-B
P12	FINAL/BLVDN	.50" OD X .083	316SS SMLS TBG
P13	BYPASS	.38" OD X .085	316SS SMLS TBG
P14	BYPASS	.50" OD X .083	316SS SMLS TBG
P15	BYPASS	1" OD X .120	316SS SMLS TBG
P16	RELIEF	1" XH/80	SA-106-B
P17	RELIEF	2" XH/80	SA-106-B

PRESSURE RELIEF VALVE IDENTIFICATION		
ITEM	J-W PART NO	DESCRIPTION
PSV1		1270 PSIG
PSV2		1270 PSIG
PSV3	635-01285	MERCER 91-M7051P1441
PSV4	635-01781	MERCER 91-M7051P5641

SCHEDULE OF OPENINGS		
MARK	QTY	DESCRIPTION
GI	1	2" - 600# RF
GO	1	1/2" OD PROCESS GAS INLET
BD	1	1/2" OD PROCESS GAS OUTLET
VL	2	2" XH/80 BLOWDOWN RELIEF VALVE VENT HEADER (LOW)
TD	1	1" NPT TANK DRAIN
LP	2	1/2" NPT LOW POINT DRAIN

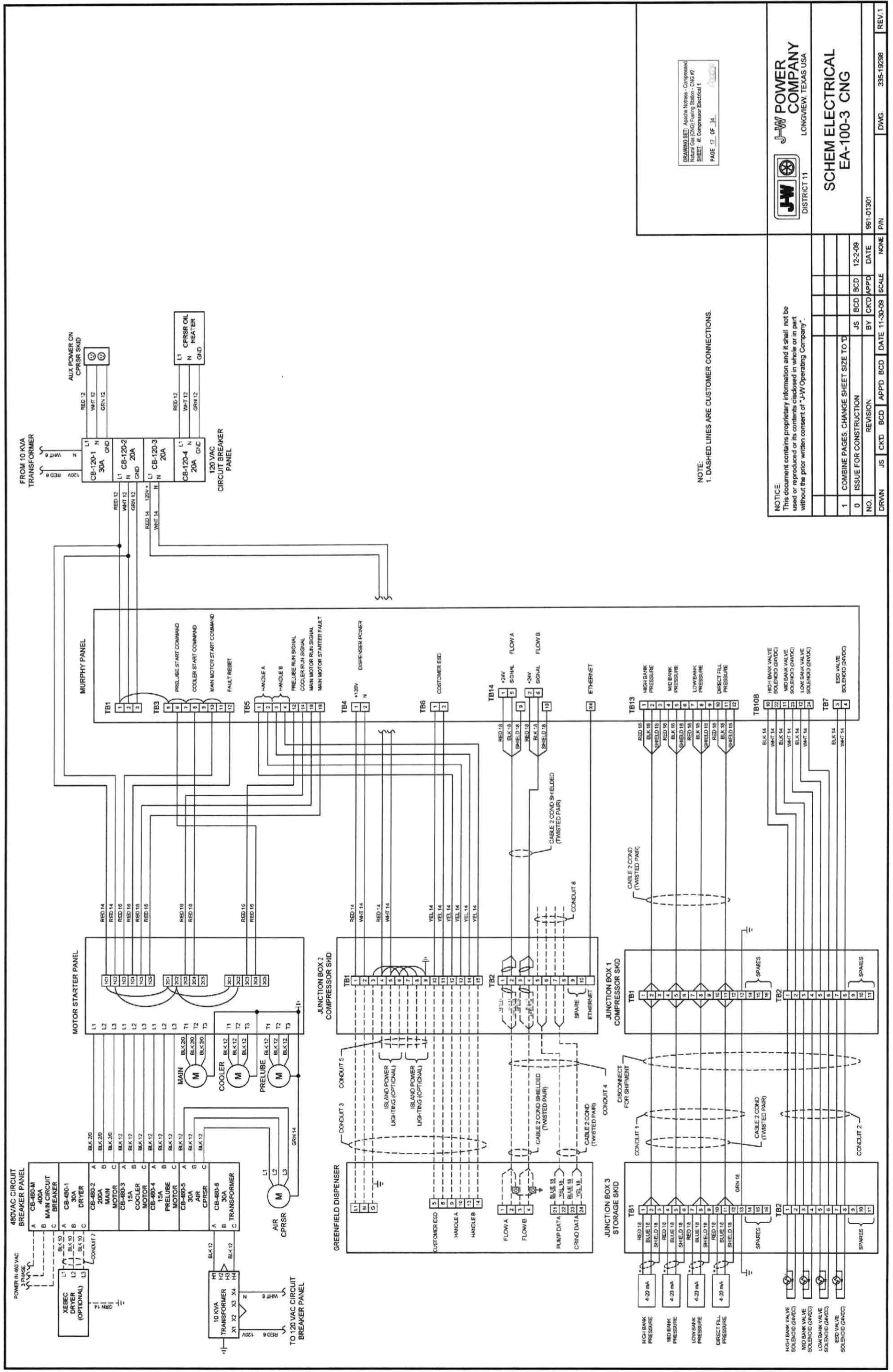
NO.	REVISION	DATE	SCALE	DATE	NO.
1	PRELIMINARY	10/2/09	SCALE	10/2/09	1

MARK	QTY	DESCRIPTION
GI	1	2" - 600# RF
GO	1	1/2" OD PROCESS GAS INLET
BD	1	1/2" OD PROCESS GAS OUTLET
VL	2	2" XH/80 BLOWDOWN RELIEF VALVE VENT HEADER (LOW)
TD	1	1" NPT TANK DRAIN
LP	2	1/2" NPT LOW POINT DRAIN

MARK	QTY	DESCRIPTION
GI	1	2" - 600# RF
GO	1	1/2" OD PROCESS GAS INLET
BD	1	1/2" OD PROCESS GAS OUTLET
VL	2	2" XH/80 BLOWDOWN RELIEF VALVE VENT HEADER (LOW)
TD	1	1" NPT TANK DRAIN
LP	2	1/2" NPT LOW POINT DRAIN

DRWN	JO	CKD	APPD	DATE	SCALE	NO.	DATE	NO.
				10/2/09	SCALE	10/2/09	1	1

DWG.	PIN	360-03145	335-19267	REV.	0
------	-----	-----------	-----------	------	---



DRAWING SET: Apache Netrose - Compressed Natural Gas (CNG) Filling Station - CNG #2
 SHEET: 44 - Compressor Electrical 1
 PAGE: 17 - OF 34

NOTE:
 1. DASHED LINES ARE CUSTOMER CONNECTIONS.

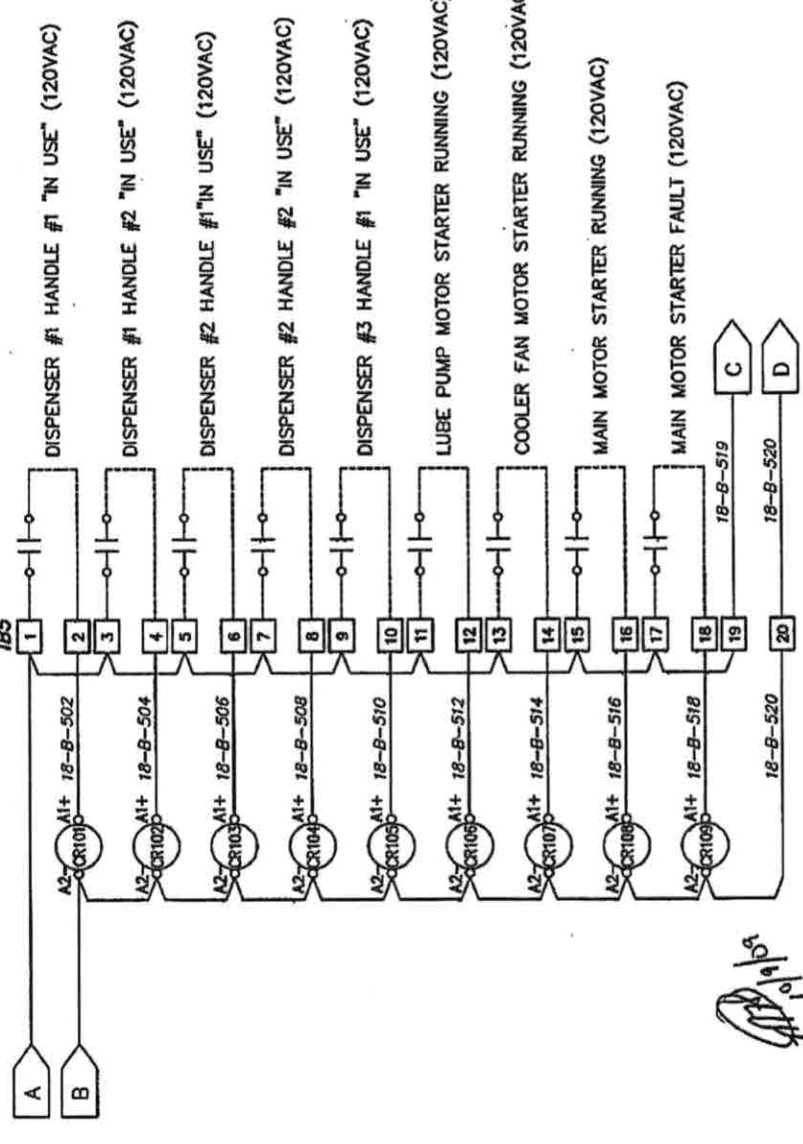
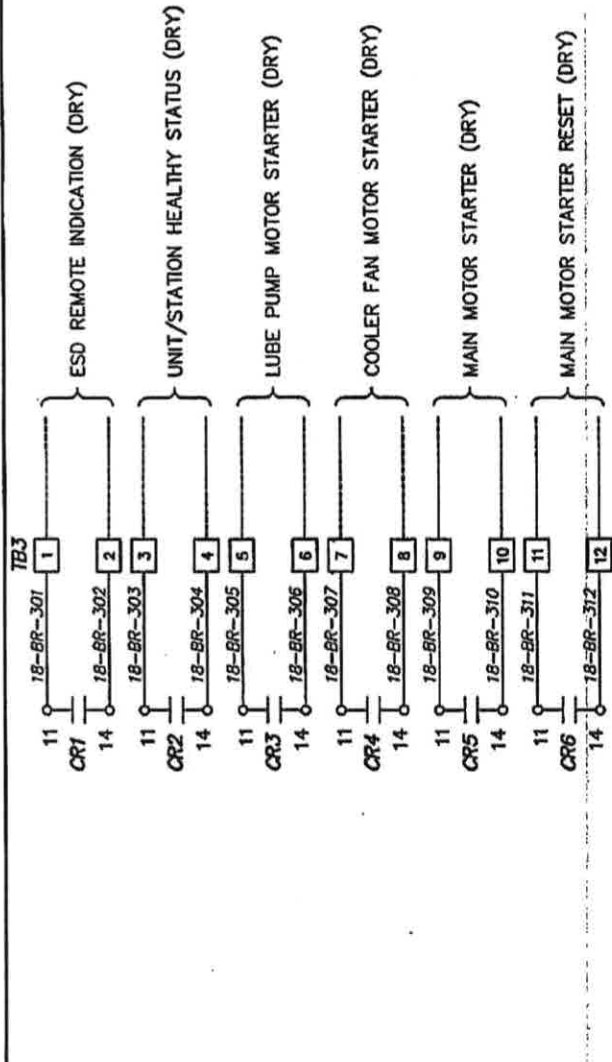
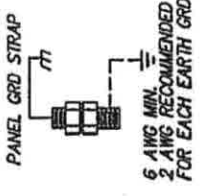
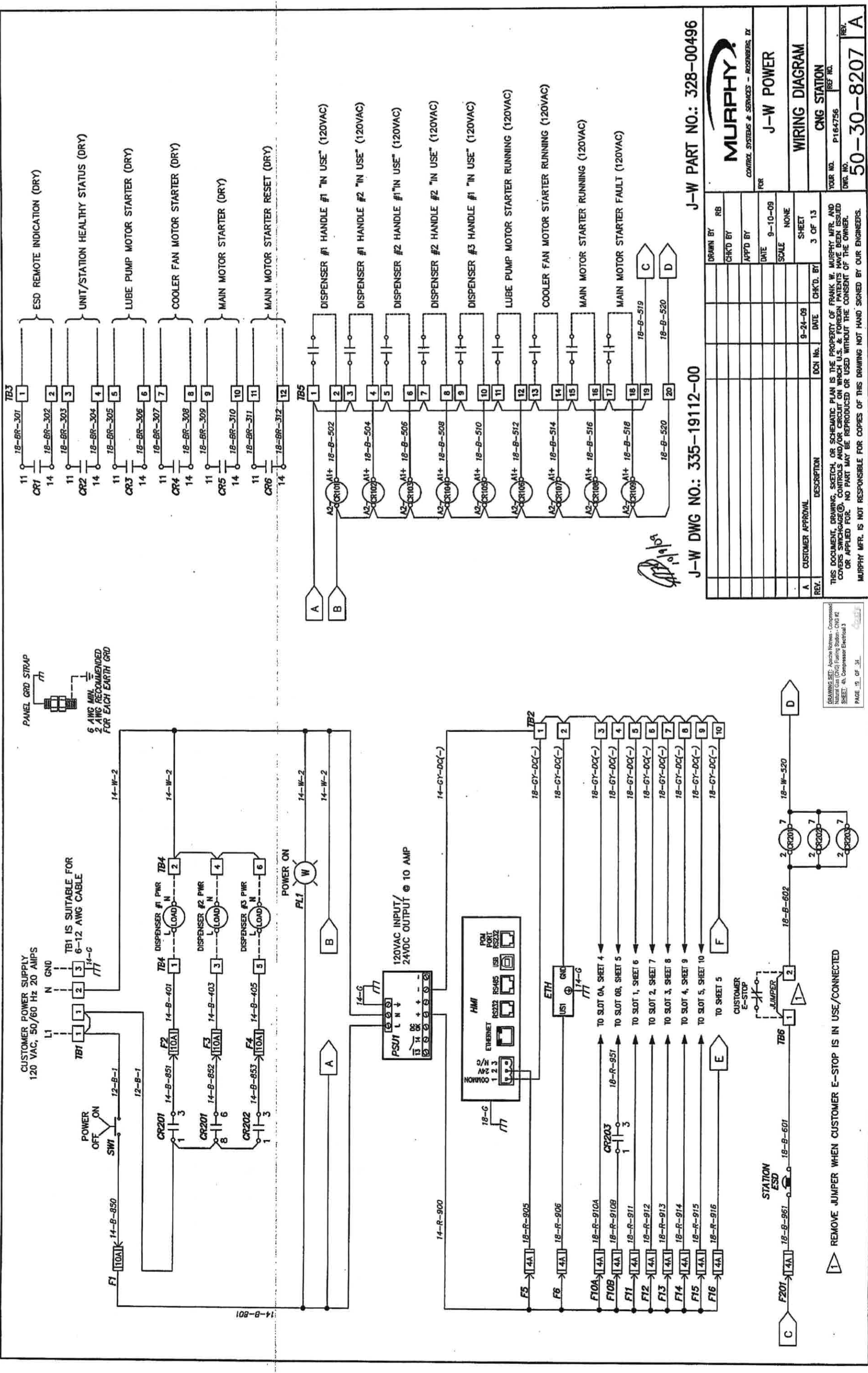
JW POWER COMPANY
 DISTRICT 11
 LONGVIEW, TEXAS USA

SCHEM ELECTRICAL
 EA-100-3 CNG

NO. 1
 REVISION
 DATE 12-2-09
 SCALE NONE
 BY BCD
 APPD BCD
 DATE 11-30-09
 SCALE NONE
 DRWN JS
 CKD BCD
 APPD BCD
 DATE 981-01301
 P/N 335-19286
 REV.1

NOTICE:
 This document contains proprietary information and it shall not be used or reproduced or its contents disclosed in whole or in part without the prior written consent of "J-W Operating Company".

COMBINE PAGES, CHANGE SHEET SIZE TO 11
 ISSUE FOR CONSTRUCTION



J-W DWG NO.: 335-19112-00
J-W PART NO.: 328-00496

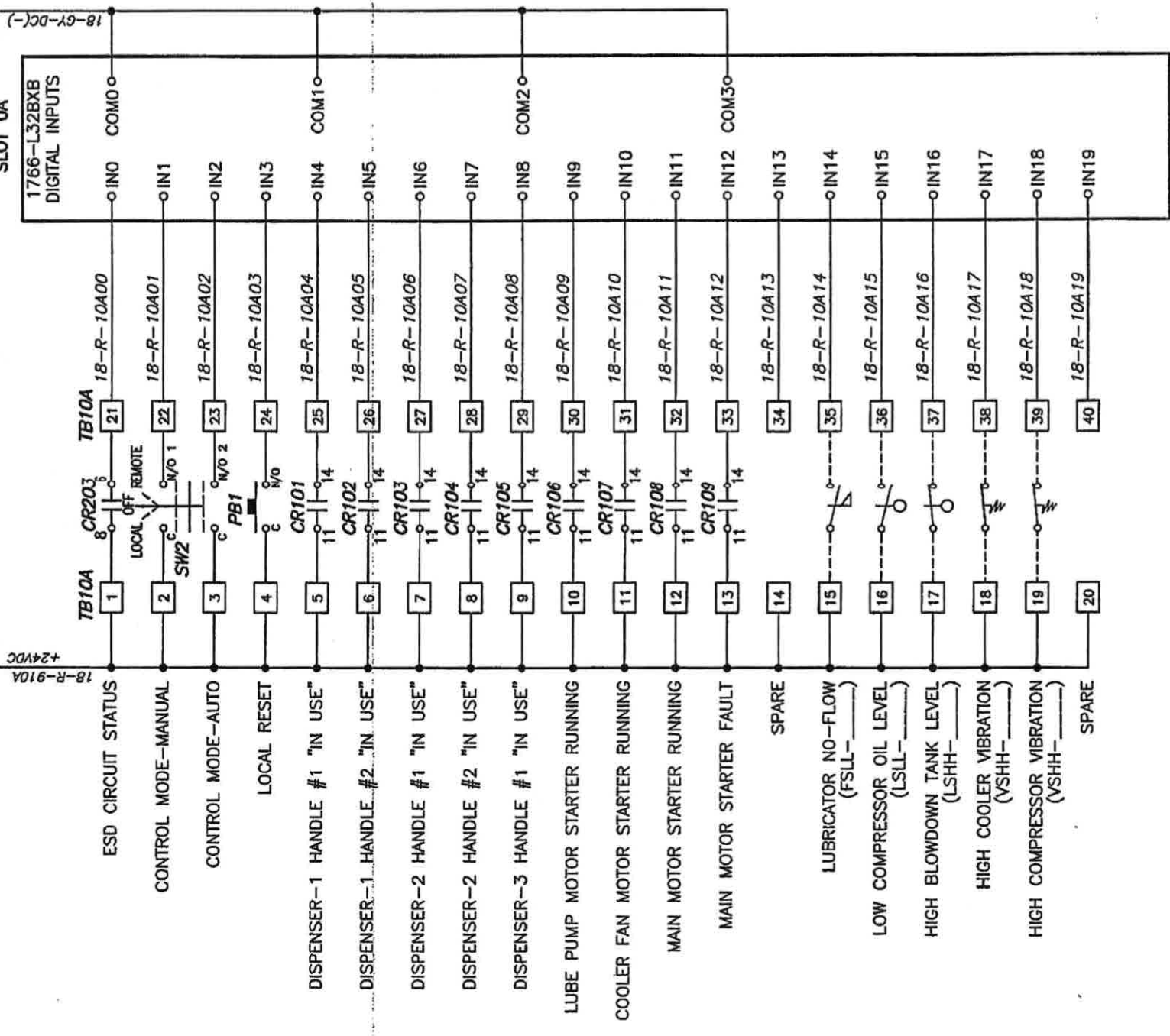
DRAWN BY RB		MURPHY	
CHK'D BY		CONTROL SYSTEMS & SERVICES - ROSENBERG, IA	
APP'D BY		FOR J-W POWER	
DATE 9-10-08		WIRING DIAGRAM	
SCALE NONE		CNG STATION	
SHEET 3 OF 13		YOUR NO. P164756 REF. NO.	
DESCRIPTION		DWG. NO. 50-30-8207 REV. A	
REV. A		MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.	

THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND COVERS SWITCHGEAR, CONTROLS AND/OR CIRCUIT ON WHICH U.S. & FOREIGN PATENTS HAVE BEEN ISSUED OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER.

REMOVE JUMPER WHEN CUSTOMER E-STOP IS IN USE/CONNECTED

FROM F10A
SHEET 3

FROM TB2
SHEET 3



Handwritten signature/initials
9/19/09

J-W DWG NO.: 335-19112-00 J-W PART NO.: 328-00496

DRAWN BY		RB
CHK'D BY		
APP'D BY		
DATE		9-10-09
SCALE		NONE
SHEET		4 OF 13
DESCRIPTION		CNG STATION
DGN No.		9-24-09
CHK'D. BY		
REV.		

MURPHY
CONTROL SYSTEMS & SERVICES - ROSENBERG, TX

FOR
J-W POWER

LEGEND & NOTES

CNG STATION

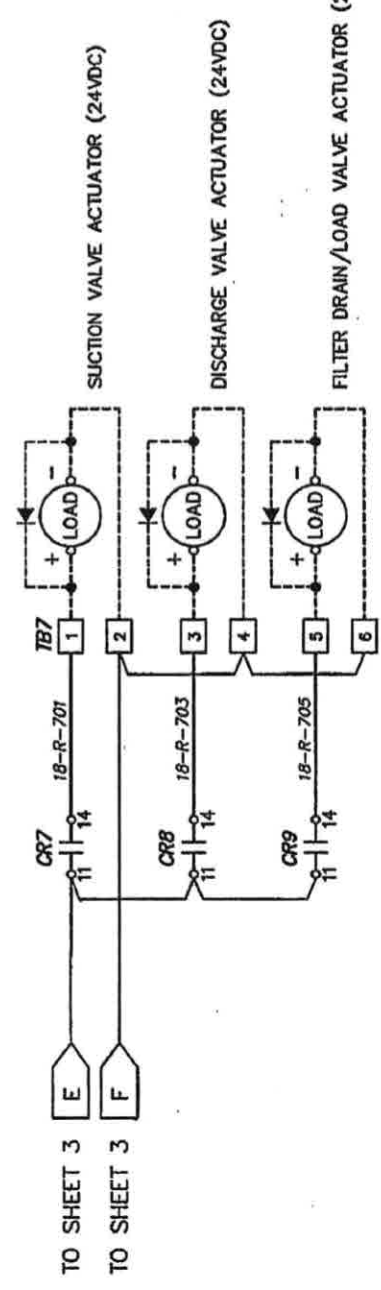
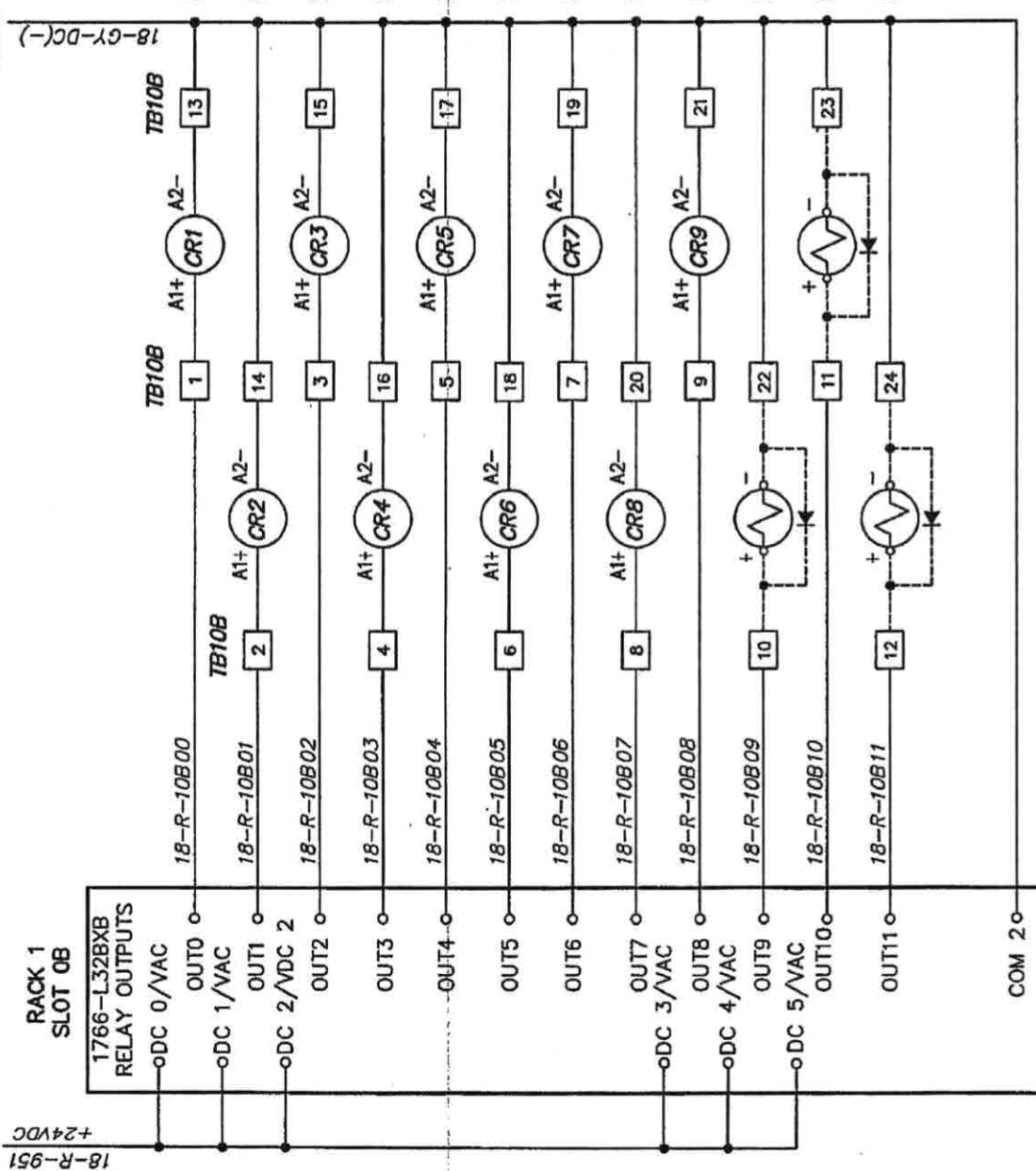
YOUR NO. P16-4756 REF. NO.
DWG. NO. **50-30-8207** REV. **A**

DRAWING SET, Approx. Values - Computer
Plotting, and other data are for
SHEET 4, Compressor Electrical 4
PAGE 20 OF 31

THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND
COVERS PATENTS, TRADE SECRETS, AND PROPRIETARY INFORMATION. IT IS TO BE USED ONLY FOR THE PROJECT
OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER.
MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

FROM F10B
SHEET 3

FROM TB2
SHEET 3



Handwritten initials and date: JWP 10/10/09

J-W DWG NO.: 335-19112-00
J-W PART NO.: 328-00496

DRAWN BY		REB
CHK'D BY		
APP'D BY		
DATE		9-10-09
SCALE		NONE
SHEET		5 OF 13
DCN No.		9-24-09
DATE		
DESCRIPTION		A CUSTOMER APPROVAL
REV.		

MURPHY
CONTROL SYSTEMS & SERVICES - ROSSBERG, TX
FOR
J-W POWER
LEGEND & NOTES
CNG STATION
YOUR NO. P164796 REF. NO.
DWG. NO. 50-30-8207 REV. A

DRAWING SET: 1. Jacks, Nuts, Compressor
2. Control Panel, 3. Control Panel
SHEET 4, Compressor Electrical 5
PAGE 21 OF 31

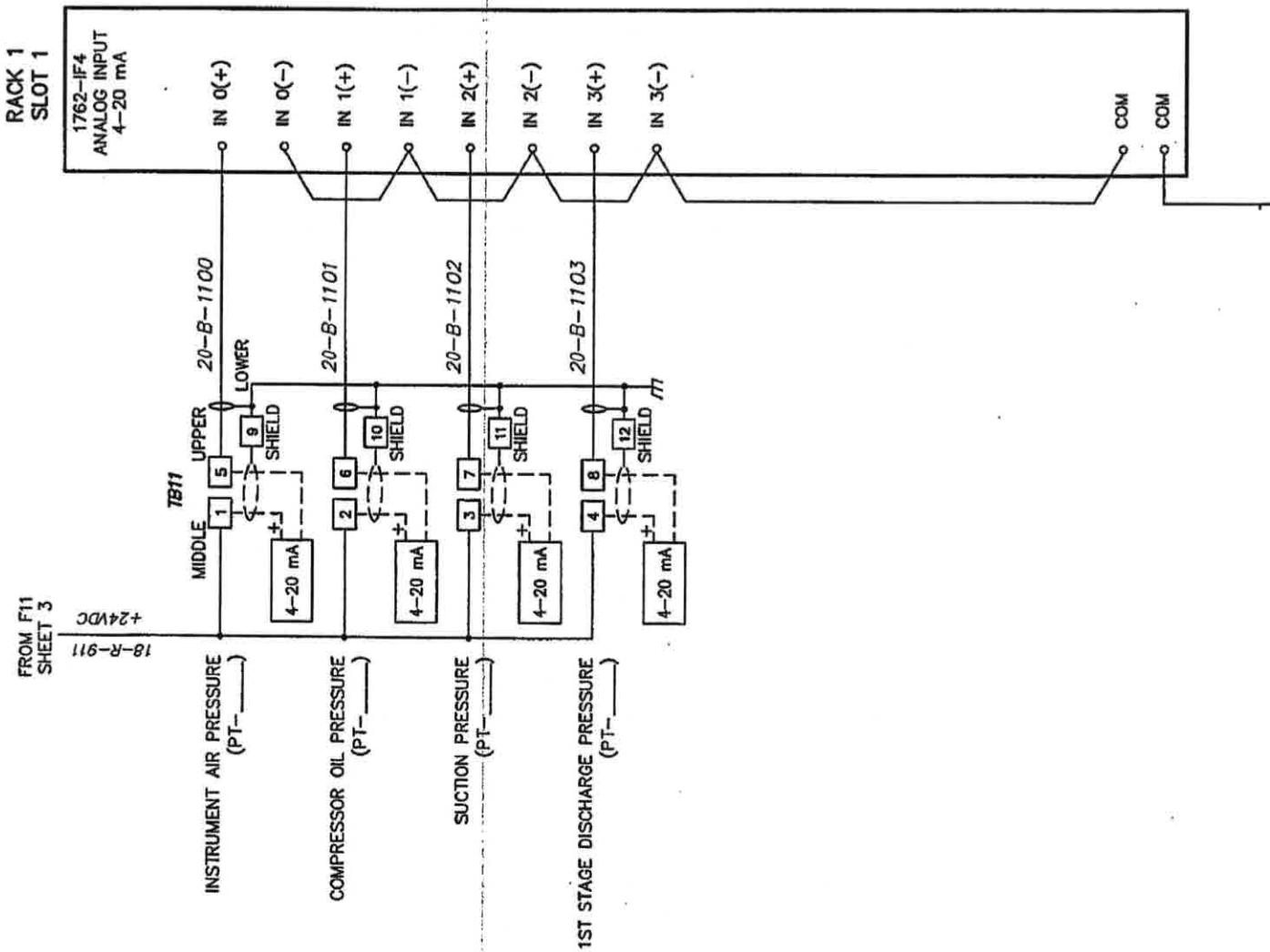
THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND CO. ANY REPRODUCTION, IN WHOLE OR IN PART, WITHOUT THE WRITTEN CONSENT OF FRANK W. MURPHY MFR. AND CO. IS PROHIBITED. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER. MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

FROM F11
SHEET 3

18-R-911
+24VDC

FROM TB2
SHEET 3

18-CY-DC(-)



Handwritten signature and date: 10/10/09

J-W DWG NO.: 335-19112-00 J-W PART NO.: 328-00496

MURPHY CONTROL SYSTEMS & SERVICES - ROSENBERG, TX		FOR	J-W POWER
I/O MODULE		YOUR NO.	P164756
CNG STATION		DWG. NO.	50-30-8207
REV. A	CUSTOMER APPROVAL	DATE	9-24-09
	DESCRIPTION	DCN No.	
		CHK'D. BY	
		SHEET	6 OF 13
		SCALE	NONE
		DATE	9-10-09
		APPD BY	
		CHK'D BY	
		RB	

DRAWING SET: Apache Nitrogen - Compressor
Natural Gas (CNG) Filling Station - CNG #2
SHEET: 44, Compressor Electrical 6
PAGE 22 OF 31

THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND
CONTERS MURPHY & CO. CONTROL SYSTEMS AND/OR CIRCUIT ON WHICH U.S. & FOREIGN PATENTS HAVE BEEN ISSUED
OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER.
MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

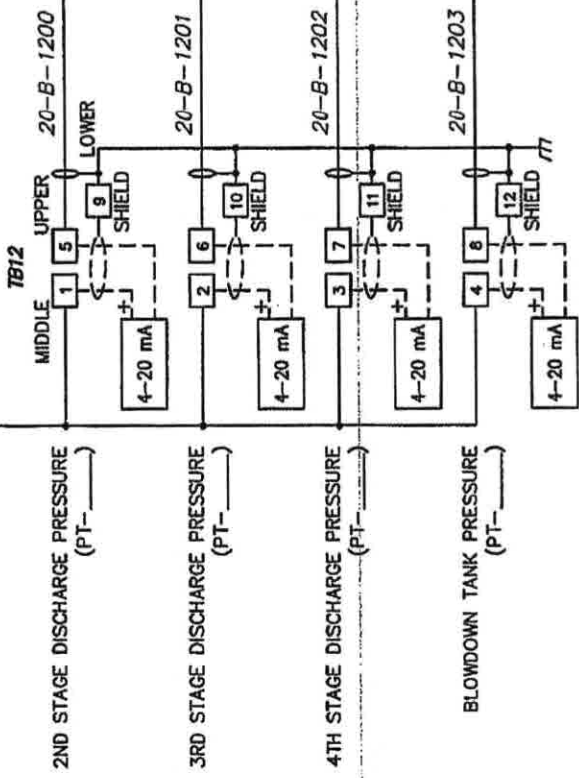
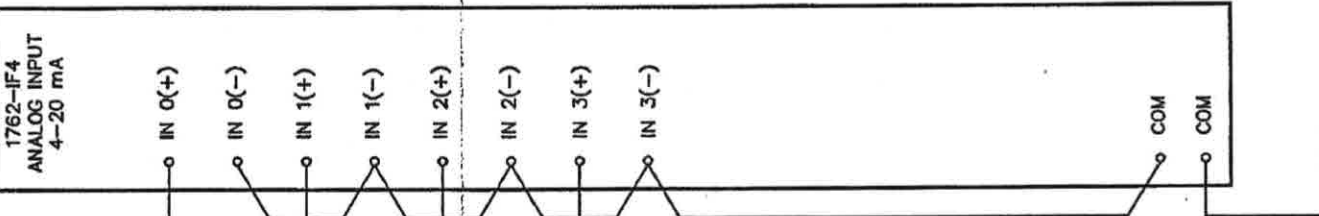
FROM F12
SHEET 3

+24VDC
18-R-912

FROM TB2
SHEET 3

18-GY-DC(-)

RACK 1
SLOT 2



Handwritten signature and date: 11/19/09

J-W DWG NO.: 335-19112-00

J-W PART NO.: 328-00496

DRAWN BY		RB
CHK'D BY		
APP'D BY		
DATE		9-10-09
SCALE		NONE
SHEET		7 OF 13
DCN No.		9-24-09
DESCRIPTION		
A CUSTOMER APPROVAL		
REV.		

MURPHY
CONTROL SYSTEMS & SERVICES - ROSSBERG, TX

FOR J-W POWER

I/O MODULE

CNG STATION

YOUR NO. P164756 REF. NO.

DWG. NO. 50-30-8207 A

DRAWING SET, Apache Nickel - Compressor
Natural Gas (CNG) Filling Station - CNG #2
SHEET 4, Compressor Electrical 7
PAGE 23 OF 34

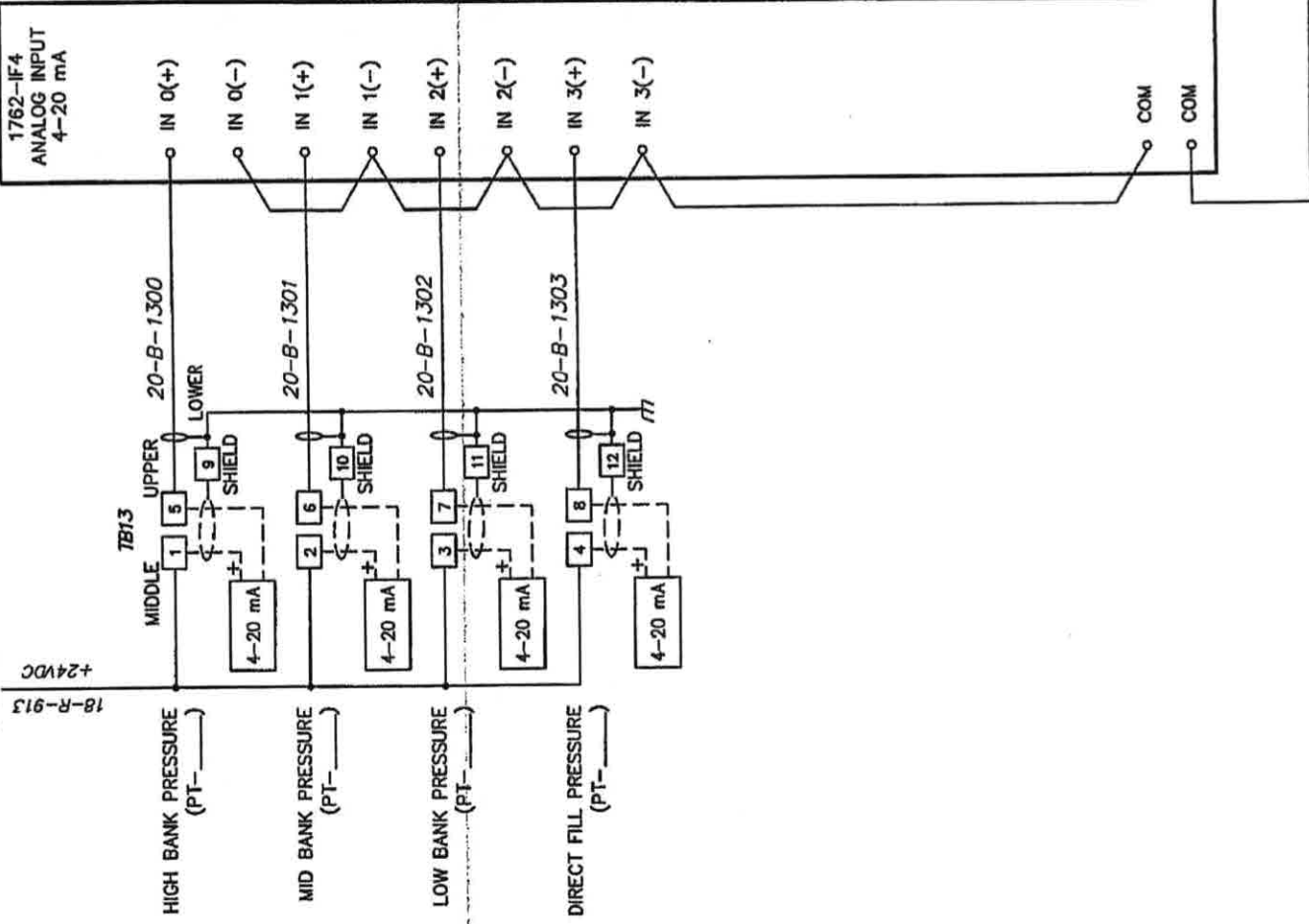
THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND COVERS INVENTIONS, PATENTS, AND/OR RIGHTS IN PATENTABLE SUBJECT MATTER. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER. MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

FROM F13
SHEET 3

FROM TB2
SHEET 3

18-R-913
+24VDC

RACK 1
SLOT 3



J-W DWG NO.: 335-19112-00

J-W PART NO.: 328-00496

DRAWN BY		RB
CHK'D BY		
APP'D BY		
DATE		9-10-09
SCALE		NONE
SHEET		8 OF 13
DCH No.		9-24-09
DATE		
CHK'D. BY		
DESCRIPTION		
A. CUSTOMER APPROVAL		
REV.		

MURPHY
CONTROL SYSTEMS & SERVICES - ROSELAND, TX

FOR
J-W POWER

I/O MODULE

CNG STATION

YOUR NO. P164756 REF. NO.
CNG. NO. **50-30-8207** REV. **A**

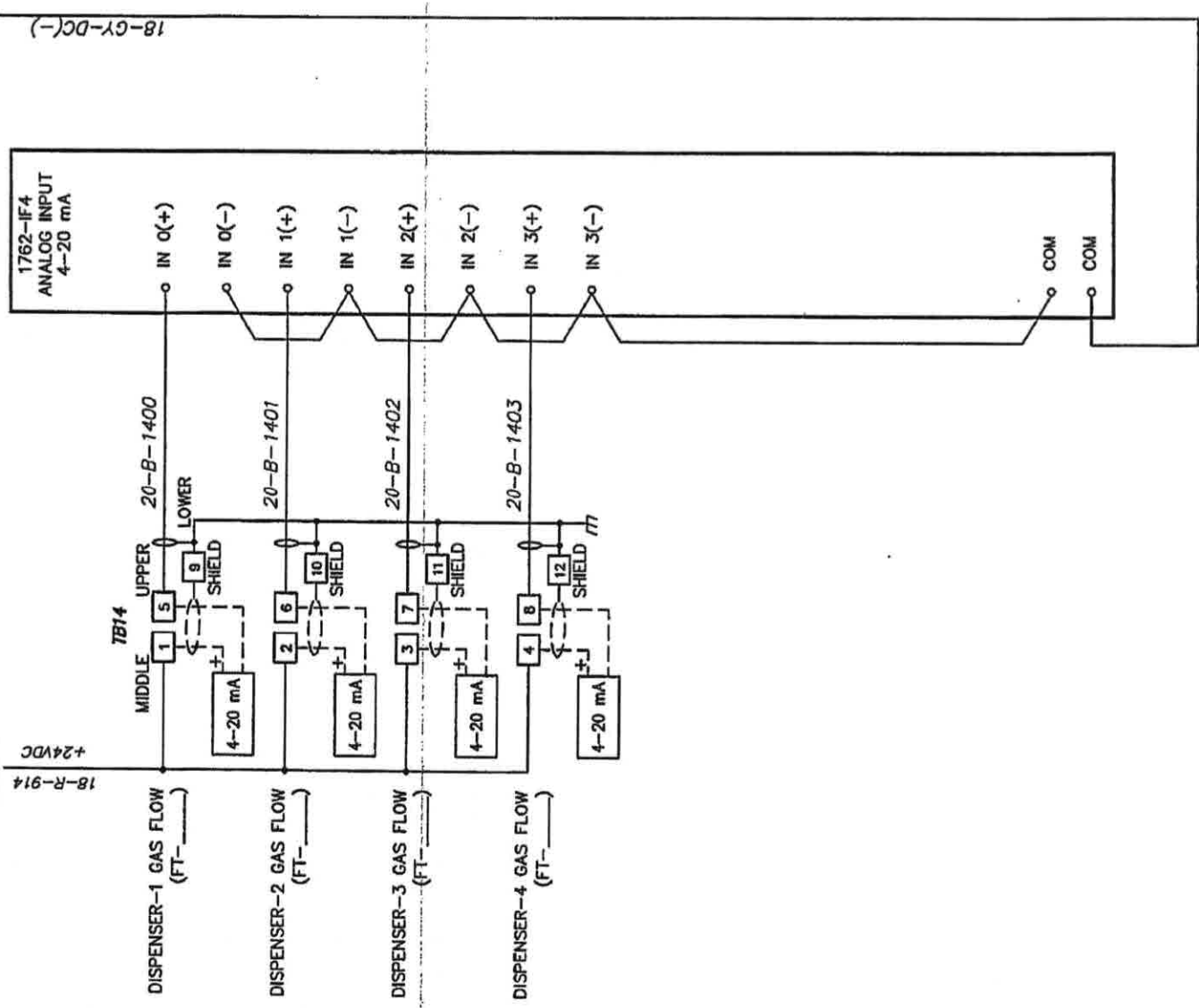
DRAWING SET: Agame, Normis - Compressor
Sheet 3 of 3 (CNG) Filling Station - I/O IZ
SHEET 4th Compressor Electrical I
PAGE 25 OF 31

Handwritten signature

THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND COVERS SWITCHGEAR®, CONTROLS AND/OR LOGIC ON WHICH U.S. & FOREIGN PATENTS HAVE BEEN ISSUED OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER.
MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

FROM F14
SHEET 3

FROM TB2
SHEET 3



Handwritten signature and date: 10/10/09

J-W DWG NO.: 335-19112-00

J-W PART NO.: 328-00496

DRAWN BY		RB
CHK'D BY		
APP'D BY		
DATE		9-10-09
SCALE		NONE
SHEET		9 OF 13
DCK No.		9-24-09
DATE		
CHK'D BY		
DESCRIPTION		
CUSTOMER APPROVAL		
REV.		

MURPHY
CONTROL SYSTEMS & SERVICES - ROSSBERG, TX

FOR
J-W POWER

I/O MODULE

CNG STATION

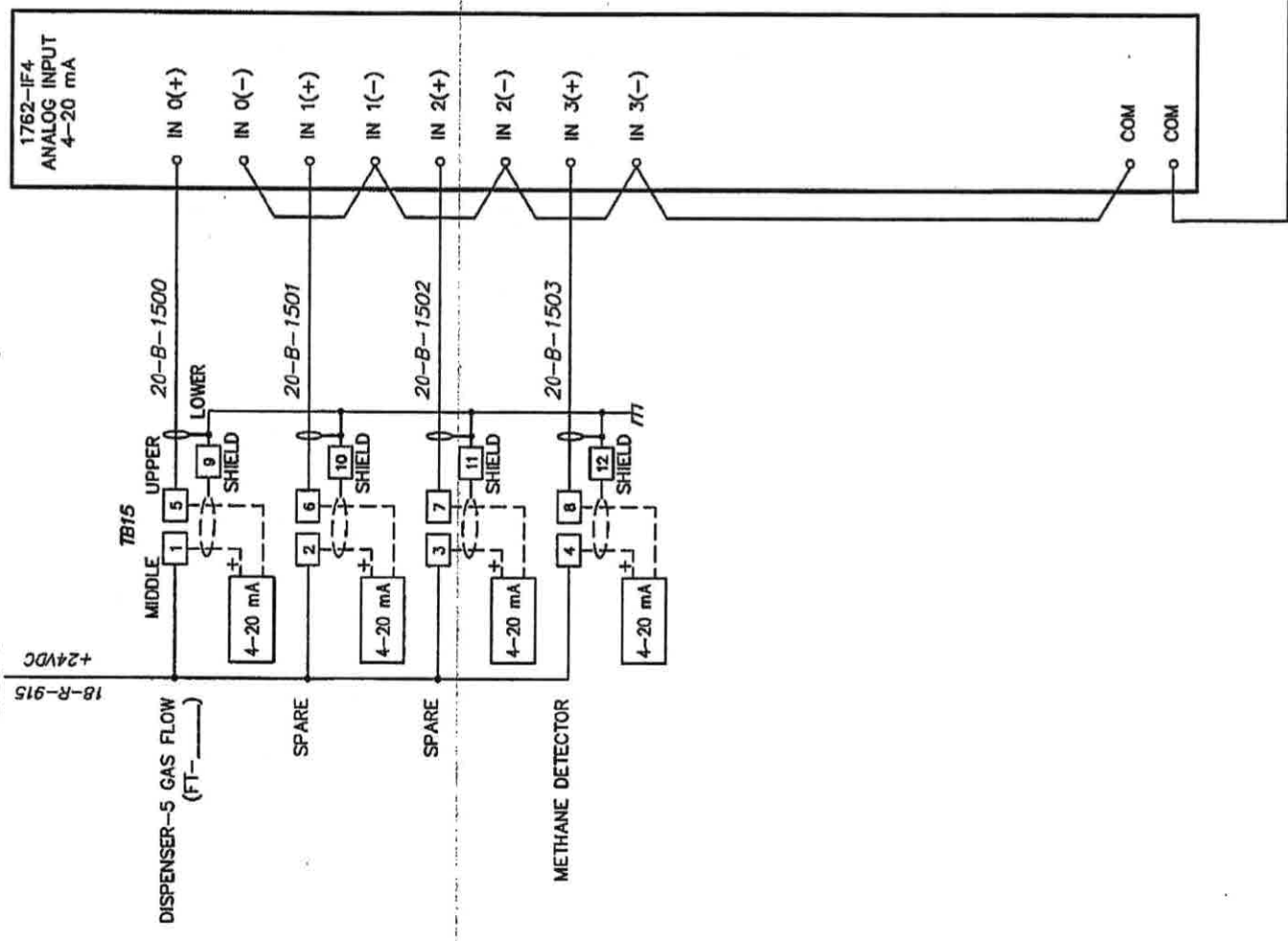
YOUR NO. P16-4756 REF NO.
DWG. NO. **50-30-8207** REV. **A**

DRAWING SET: Apache Notepad - Compressed
Natural Gas (CHG) Fueling Station - CHG #2
SHEET: 4th Compressor Electrical 3
PAGE 25 OF 34

FROM F15
SHEET 3

FROM TB2
SHEET 3

18-R-915
+24VDC



J-W DWG NO.: 335-19112-00

J-W PART NO.: 328-00496

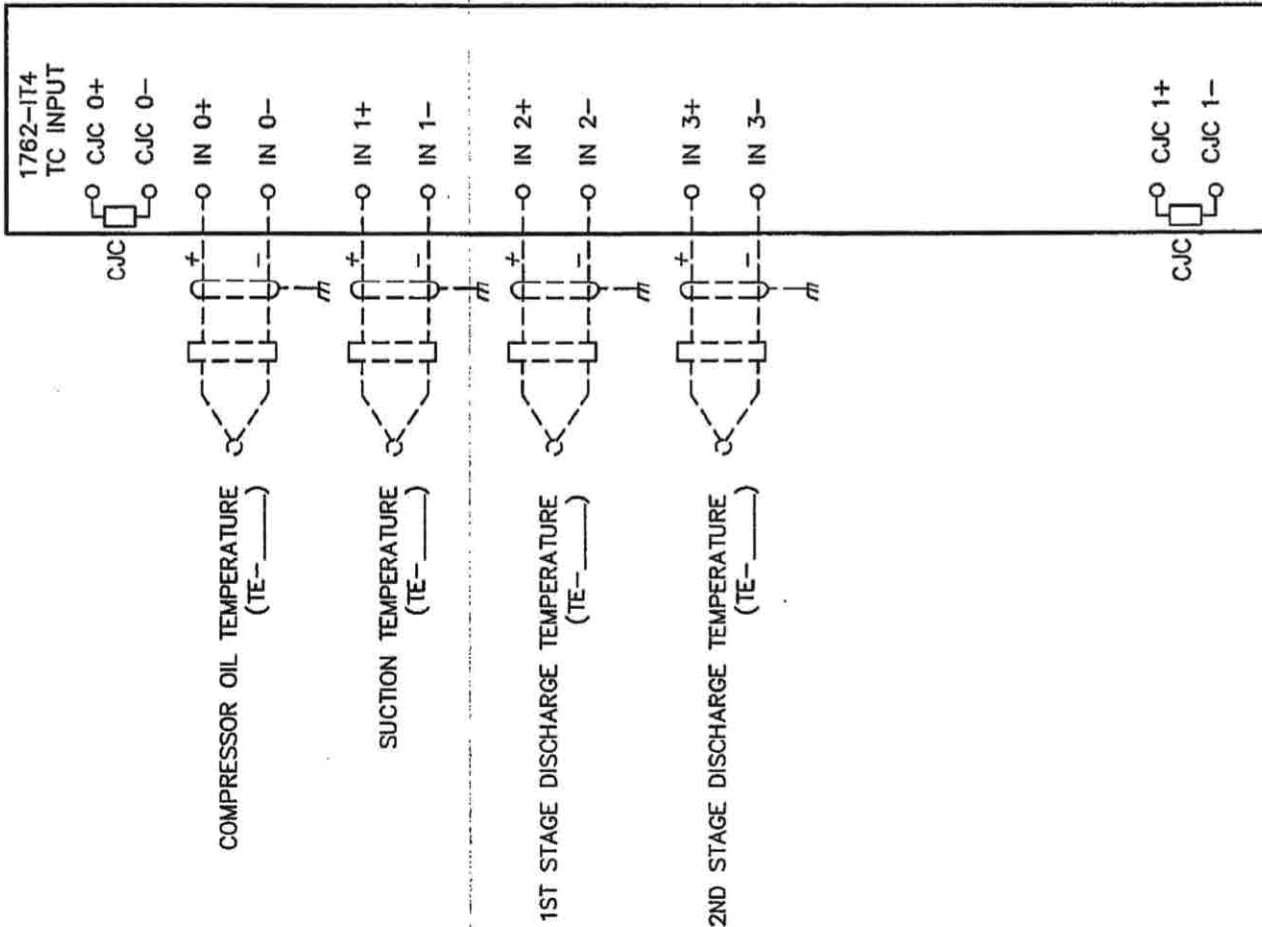
Handwritten signature and date: 10/1/09

DRAWN BY		RB
CHK'D BY		
APPD BY		
DATE	9-10-09	
SCALE	NONE	
SHEET		10 OF 13
DESCRIPTION		
A	CUSTOMER APPROVAL	
REV.	DCN No.	DATE
		9-24-09
FOR		J-W POWER
MURPHY'S		I/O MODULE
CONTROL SYSTEMS & SERVICES - ROSENBERG, TX		CNG STATION
YOUR NO.	P164756	REF NO.
DWG. NO.	50-30-8207	REV.
		A

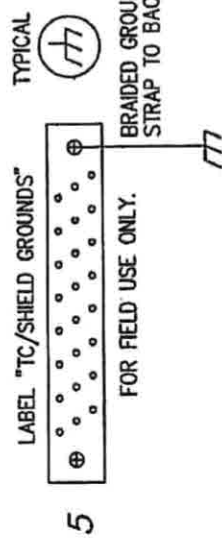
DRAWING SET: Apache Natural Gas (CNG) Fueling Station - CNG #2
SHEET: 46, Compressor Electrical 10
PAGE 26 OF 34

THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND COVERS SWITCHAGE®, CONTROLS AND/OR CIRCUIT ON WHICH U.S. & FOREIGN PATENTS HAVE BEEN ISSUED OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER. MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

RACK 1
SLOT 6



INSTALLATION NOTE:
 ONLY TWISTED SHIELDED, EXTENSION GRADE THERMOCOUPLE WIRE SHOULD BE USED. THE SHIELD GROUND (DRAIN WIRE) SHOULD BE GROUND AT THE T/C SHIELD GROUND. NO DISSIMILAR METALS SHOULD BE USED TO MAKE SPLICES IN THIS WIRE. FOR TYPE J AND K THERMOCOUPLES (-) IS COLOR CODED RED, TYPE J (+) IS WHITE, AND TYPE K (+) IS YELLOW. FOR OTHER TYPES, CONSULT A REFERENCE BOOK.
 THERMOCOUPLE WIRE SHALL BE RUN IN A SEPARATE CONDUIT FROM ANY POWER WIRES.



FOR FIELD USE ONLY.
 BRAIDED GROUND STRAP TO BACKPANEL

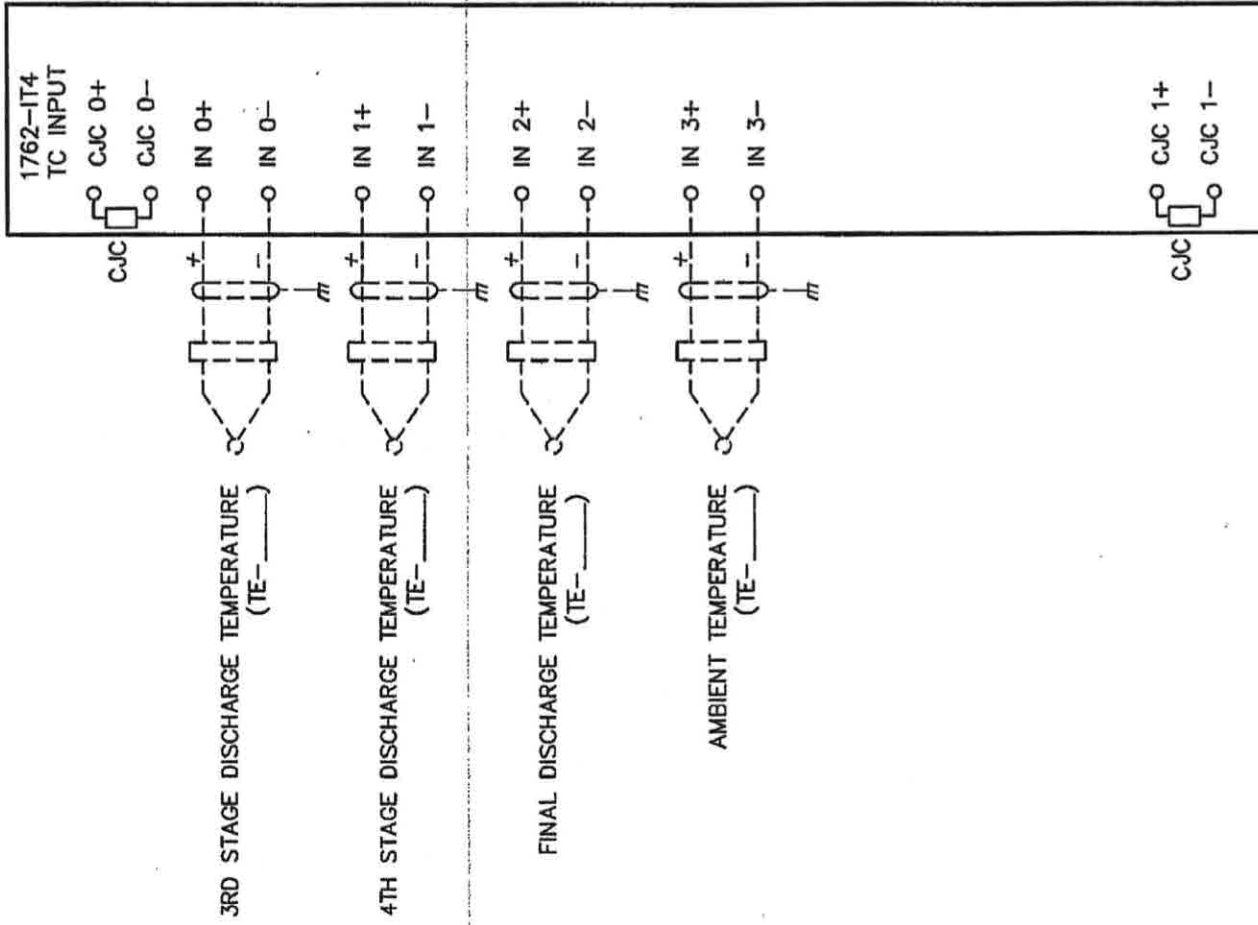
Handwritten signature and date: 9/24/09

J-W DWG NO.: 335-19112-00 J-W PART NO.: 328-00496

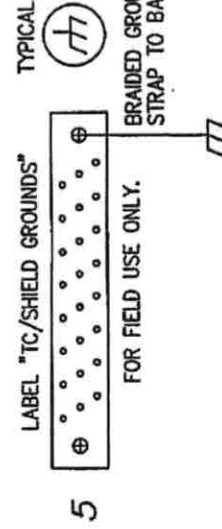
DRAWN BY RB		MURPHY	
		CONTROL SYSTEMS & SERVICES - ROSSBERG, TX	
CHK'D BY		FOR J-W POWER	
APP'D BY		I/O MODULE	
DATE 9-10-09		CNG STATION	
SCALE NONE		YOUR NO. P164756	
SHEET 11 OF 13		DWG. NO. 50-30-8207	
REV. A		REV. A	
CUSTOMER APPROVAL	DESCRIPTION	THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND CONCEPTS, SKETCHES, AND/OR CIRCUIT ON WHICH U.S. & FOREIGN PATENTS HAVE BEEN ISSUED OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER.	
DATE 9-24-09	DEN. No.	MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.	
CHK'D. BY		PAGE 27 OF 34	

SPARE T/C CHANNELS TO BE JUMPERED.
 ALL SHIELDS TERMINATED SHOULD BE TIED TO GROUND BUS BAR PROVIDED.

RACK 1
SLOT 7



INSTALLATION NOTE:
ONLY TWISTED SHIELDED, EXTENSION GRADE THERMOCOUPLE WIRE SHOULD BE USED. THE SHIELD GROUND (ORAIN WIRE) SHOULD BE GROUNDED AT THE T/C SHIELD GROUND. NO DISSIMILAR METALS SHOULD BE USED TO MAKE SPICES IN THIS WIRE. FOR TYPE J AND K THERMOCOUPLES (-) IS COLOR COOED RED, TYPE J (+) IS WHITE, AND TYPE K (+) IS YELLOW. FOR OTHER TYPES, CONSULT A REFERENCE BOOK. THERMOCOUPLE WIRE SHALL BE RUN IN A SEPARATE CONDUIT FROM ANY POWER WIRES.



Handwritten signature/initials

J-W DWG NO.: 335-19112-00 J-W PART NO.: 328-00496

DRAWN BY		RB
CHK'D BY		
APP'D BY		
DATE		9-10-09
SCALE		NONE
SHEET		12 OF 13
A. CUSTOMER APPROVAL		DATE 9-24-09
DESCRIPTION		
DCH No.		
DATE		
CHK'D BY		

MURPHY
CONTROL SYSTEMS & SERVICES - ROSSMERE, TX

FOR J-W POWER

I/O MODULE

CNG STATION

YOUR NO. P164756 REF NO.
DWG. NO. 50-30-8207 REV. A

SPARE T/C CHANNELS TO BE JUMPERED.
ALL SHIELDS TERMINATED SHOULD BE TIED TO GROUND BUS BAR PROVIDED.

PANEL LEGEND

ITEM	PART NO.	QTY	MANUFACTURER	MFR. PART NO.	DESCRIPTION
1	00000908	1	SAGINAW	SCE-36L3612LP	ENCLOSURE, 36 X36 X 12
2	00000909	1	SAGINAW	SCE-36P36	SUBPANEL
3	00008501	1	SAGINAW	SCE-FK2412	FLOOR STAND KIT
4	00005137	2	WILLIAMS	FWM-IG8	EYE BOLT, 5/8-11, CAD PLATE
5	50226383	1	STORM		GROUND BAR, ISOLATED
PLC	00030910	1	ALLEN-BRADLEY	1766-32BXB	CHASSIS ML140 20/12 DC POWER
PLC	00030997	5	ALLEN-BRADLEY	1769-IF4	4 POINT 4-20mA ANALOG INPUT MODULE
PLC	00030998	2	ALLEN-BRADLEY	1769-IT4	4 POINT T/C INPUT MODULE
ETH	00030011	1	PHOENIX	2832771	ETHERNET SWITCH (8 PORT)
CA1-2	00006895	2	A-TEL	AT1510EVB	10 FT. ETHERNET PATCH CABLE, RJ45, CAT 5e
HMI	00030541	1	RED LION	6306A	HMI/MMI INTERFACE W/ETHERNET COMMUNICATIONS
CF	00030703	1	SANDISK	585-1234-ND	1GB CF FLASHCARD (INSTALL ON HMI)
PSU1	00009604	1	PHOENIX	2938604	POWER SUPPLY, 85-264 VAC IN /24 VDC, 10 AMP OUT
F1-4	00009255	4	PHOENIX	3048386	FUSE HOLDER, 10.3-HESI
F5,6,10A,10B	00005610	4	BUSSMAN	KTRK-10	10 AMP FUSE (CLASS CC)
F11-16,201	00006164	11	GOULD	GAB-4	4 AMP FUSE (CERAMIC, SAND FILLED)
CR201-203	00007690	11	PHOENIX	3005507	FUSE HOLDER, UK10-DREHSI
CR1-9	00030428	3	C3CONTROLS	HGPRS-P2C12D	RELAY, 120VAC, 12 AMP
CR101-109	00002396	3	IDEC	SR2P06	RELAY SOCKET
SW1	00009390	9	PHOENIX	5603154	SPOT RELAY, 24VDC, 6 AMP
SW2	00009307	9	PHOENIX	5603157	SPOT RELAY, 120VAC, 6 AMP
ESP	50235050	1	C3CONTROLS	HSS02/CBFSR	2 POSITION SWITCH W/10 AMP CONTACTS
PL1	50235051	1	C3CONTROLS	HSS03/CBFSR (2)	3 POSITION SWITCH W/10 AMP CONTACTS
PL1	00009220	1	C3CONTROLS	HPTR-TMCRD-CBFS	EMERGENCY STOP PUSHBUTTON, TWIST MUSHROOM HD
PL1	00006841	1	C3CONTROLS	PLWE	WHITE LENS
PL1	00030769	1	C3CONTROLS	HPVLU120	LAMP BASE W/120 VAC BULB
PB1	50235052	1	C3CONTROLS	HPB0/CBFS	PUSHBUTTON W/10 AMP CONTACTS
TB1	00006626	AR	PHOENIX	3005073 (UK10N)	SINGLE TERMINAL BLOCK (PRIMARY POWER)
TB2-7	00008705	AR	PHOENIX	3004362 (UK9N)	SINGLE TERMINAL BLOCK W/END PLATE
TB10AB	00004348	AR	PHOENIX	2771146 (UKK85)	DOUBLE TERMINAL BLOCK W/END PLATE
TB11-15	00000481	AR	PHOENIX	2715979 (UKD1.5)	TRIPLE TERMINAL BLOCK
TB-ALL	00000352	AR	PHOENIX	0800307 (UBE/D)	TERMINAL BLOCK GROUP MARKER

AR = AS REQUIRED

50235050

ITEM	PART NO.	QTY	MANUFACTURER	MFR. PART NO.	DESCRIPTION
SW1	00005983	1	C3CONTROLS	HSS02	2 POSITION SELECTOR SWITCH
	00006851	1	C3CONTROLS	CBFSR	1 N.O., 1 N.C. CONTACT BLOCK
	00005985	1	C3CONTROLS	SHWE	OPERATING HANDLE
	00005992	1	C3CONTROLS	TTW	LOCKING RING

50235051

ITEM	PART NO.	QTY	MANUFACTURER	MFR. PART NO.	DESCRIPTION
SW2	00005989	1	C3CONTROLS	HSS03	3 POSITION SELECTOR SWITCH
	00006851	2	C3CONTROLS	CBFSR	1 N.O., 1 N.C. CONTACT BLOCK
	00005985	1	C3CONTROLS	SHWE	OPERATING HANDLE
	00005992	1	C3CONTROLS	TTW	LOCKING RING

50235052

ITEM	MURPHY NO.	QTY	MANUFACTURER	MFR. PART NO.	DESCRIPTION
PB1	00006847	1	C3CONTROLS	HPB0	PUSHBUTTON OPERATOR
	00006852	1	C3CONTROLS	CBFS	1 N.O., 1 N.C. CONTACT BLOCK
	00006850	1	C3CONTROLS	FCBK	BLACK FLUSH CAP
	00005992	1	C3CONTROLS	TTW	LOCKING RING


NOTES:

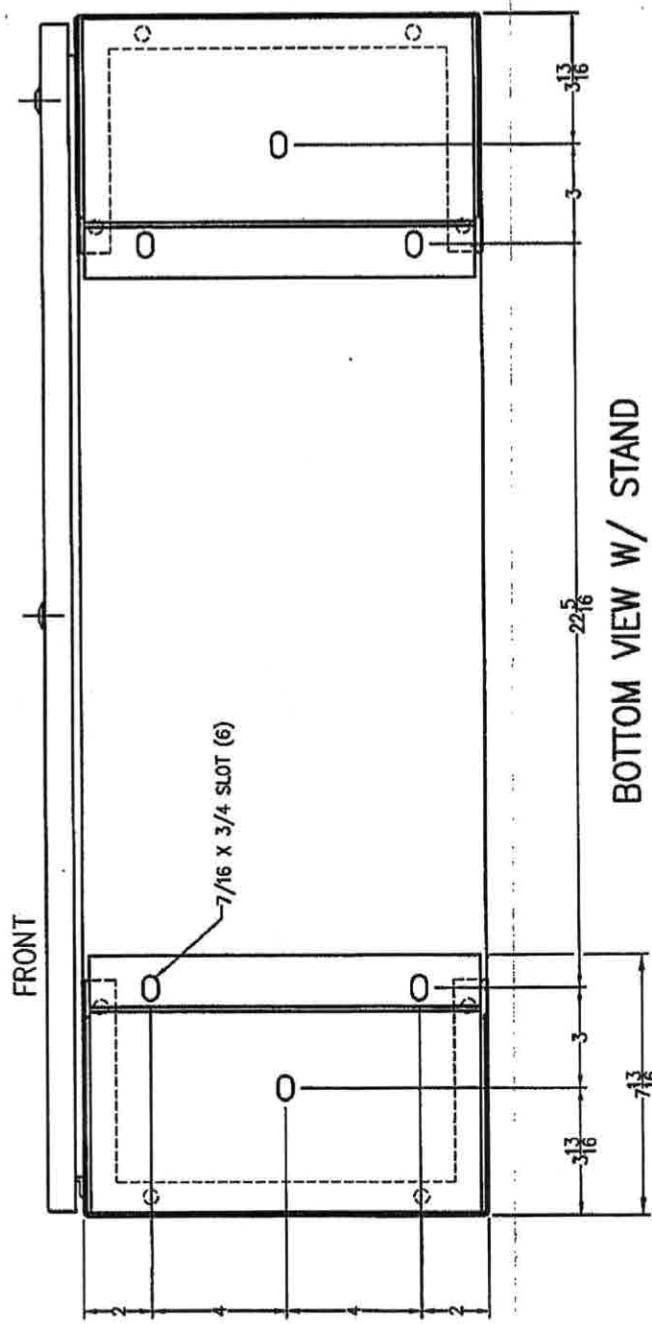
- FACTORY WIRING: _____
- CUSTOMER WIRING: _____
- END USER WIRING: _____
- PNEUMATIC: _____
- TUBING: 316 STAINLESS STEEL
- FITTING: STAINLESS STEEL SWAGelok
- ROUTE SENSOR LEADS SEPARATE FROM ALL OTHER WIRING.
- "18-BL-25" REPRESENTS "AWG-WIRE COLOR-WIRE NUMBER".
- CAUTION: DISCONNECT ALL SENSOR LEADS & REMOVE MODULES FROM RACK BEFORE WELDING.
- THIS PANEL IS DESIGNED FOR USE IN CLASS 1, DIV. 2, GROUP D HAZARDOUS LOCATIONS.
- GROUND SYMBOLS WILL BE SHOWN PER THE FOLLOWING: EARTH/NON-INCENDIVE CHASSIS/NON-INCENDIVE DC COM/CLOSE LOOP

Handwritten signature and date: 10/19/09

J-W DWG NO.: 335-19112-00

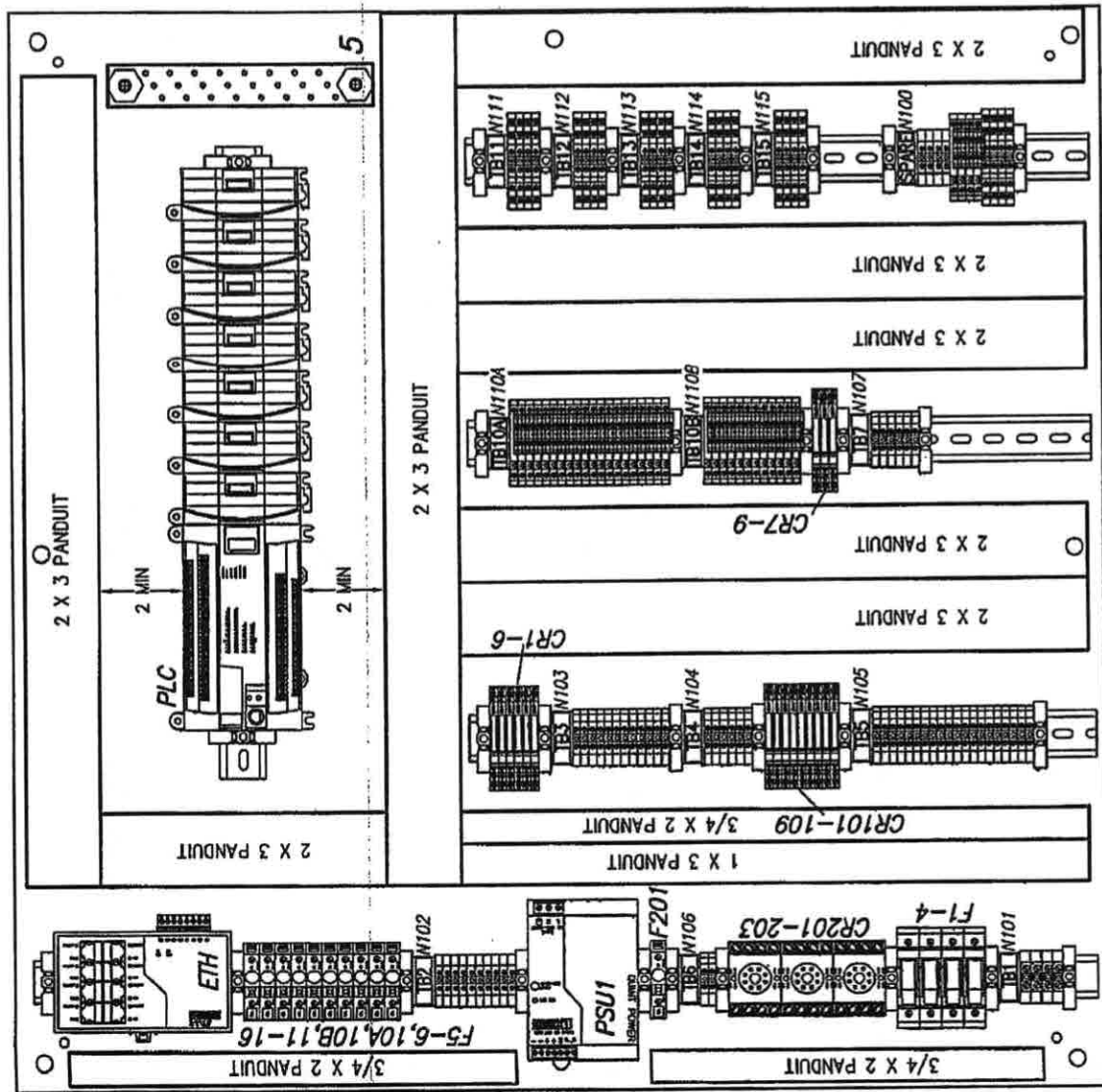
J-W PART NO.: 328-00496

 <p>MURPHY CONTROL SYSTEMS & SERVICES - ROSENBERG, TX</p>		DRAWN BY	RB
		CHK'D BY	
APPROVED BY		DATE	9-10-09
SCALE		NONE	
SHEET		9-24-09	13 OF 13
DESCRIPTION		DCK No.	
CUSTOMER APPROVAL		DATE	
LEGEND & NOTES		CNG STATION	
YOUR NO.		P164756	
DNG. NO.		50-30-8207	



BOTTOM VIEW W/ STAND

TERMINAL BLOCK	QUANTITIES
TB1	4
TB2	10
TB3	12
TB4	6
TB5	20
TB6	2
TB7	6
TB10A	20
TB10B	12
TB11	4
TB12	4
TB13	4
TB14	4
TB15	4



BACKPLATE LAYOUT

J-W PART NO.: 328-00496

J-W DWG NO.: 335-19112-00

MURPHY
CONTROL SYSTEMS & SERVICES - ROSENBERG, TX

FOR **J-W POWER**

PANEL LAYOUT

CNG STATION

REV.	DESCRIPTION	DCN No.	DATE	CHK'D. BY
A	CUSTOMER APPROVAL		9-24-09	

DRAWN BY	RB
CHK'D BY	
APP'D BY	
DATE	9-10-09
SCALE	NONE
SHEET	2 OF 3

YOUR NO. P164756 REF. NO.

DWG. NO. **50-29-8207** REV. **A**

THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND COVERS SWITCHGEAR, CONTROLS, AND/OR CIRCUIT ON WHICH U.S. & FOREIGN PATENTS HAVE BEEN ISSUED OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER. MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

INDIVIDUAL NAMEPLATE SCHEDULE

QTY.	TAG #	LETTERS/TAG	DESCRIPTION	PART #
1	N1	W/B	Large serial no. tag	50225435
1	N2	R/W	EMERGENCY STOP	50225346
1	N3	W/B	POWER > OFF-ON	50225344
1	N4	W/B	POWER ON	50225438
1	N5	W/B	(A)CONTROL MODE (B)MANUAL (C)OFF (D)AUTO	50225438
1	N6	W/B	LOCAL > RESET	50225438
1	N100	B/W	SPARE	50225307
1	N101	B/W	TB1	50225307
1	N102	B/W	TB2	50225307
1	N103	B/W	TB3	50225307
1	N104	B/W	TB4	50225307
1	N105	B/W	TB5	50225307
1	N106	B/W	TB6	50225307
1	N107	B/W	TB7	50225307
1	N110A	B/W	TB10A	50225307
1	N110B	B/W	TB10B	50225307
1	N111	B/W	TB11	50225307
1	N112	B/W	TB12	50225307
1	N113	B/W	TB13	50225307
1	N114	B/W	TB14	50225307
1	N115	B/W	TB15	50225307

N2 MUST BE A RED TAG WITH WHITE LETTERS
N100-115 MUST BE WHITE TAG WITH BLACK LETTERS

MW 9/19/09

J-W DWG NO.: 335-19112-00

J-W PART NO.: 328-00496

MURPHY <small>CONTROL SYSTEMS & SERVICES - ROSENBERG, TX</small>	
FOR J-W POWER	
NAMEPLATE SCHEDULE	
CNG STATION	
YOUR NO. P164756	REF. NO.
DWG. NO.	REV.
50-29-8207	A

DRAWN BY	RB
CHK'D BY	
APP'D BY	
DATE	9-10-09
SCALE	NONE
SHEET	3 OF 3

REV.	DESCRIPTION	DCN No.	DATE	CHK'D BY
A	CUSTOMER APPROVAL		9-24-09	

DRAWING SET: Apache Nucleus - Compressor
Natural Gas (CNG) Filling Station - CNG #2
SHEET 4a, Compressor Electrical 15
PAGE 32 OF 31

THIS DOCUMENT, DRAWING, SKETCH, OR SCHEMATIC PLAN IS THE PROPERTY OF FRANK W. MURPHY MFR. AND COVERS SWITCH-GAGE®, CONTROLS AND/OR CIRCUIT ON WHICH U.S. & FOREIGN PATENTS HAVE BEEN ISSUED OR APPLIED FOR. NO PART MAY BE REPRODUCED OR USED WITHOUT THE CONSENT OF THE OWNER.
MURPHY MFR. IS NOT RESPONSIBLE FOR COPIES OF THIS DRAWING NOT HAND SIGNED BY OUR ENGINEERS.

