



SCALE: 1:200  
LAT: 39.286510° LONG: -84.354558°

POL LAUNCHER	
59	PL-185 COVER SHEET
60	7119-500/001 LAUNCHER STRUCTURAL LAYOUT
61	7119-501/001 GRATING DETAIL
62	7119-501/002 STRUCTURAL DETAILS
63	7119-600/001 LAUNCHER MECHANICAL LAYOUT
64	7119-700/001 SPOOL DETAIL (1)
65	7119-700/002 SPOOL DETAIL (2)
66	DM-S1-2011 GUIDE BAR DETAILS
67	7119-1 MECH BOM
68	7119-2 STRUCTURAL BOM
M&V PIPE SUPPORTS AND FOUNDATIONS	
69	7119-3 PIPE SUPPORTS
70	PWG-5-000-000/007 BUILDING
71	29-4212-1 R024 DUEL CLASSIFICATION BUILDING
72	29-4212-2 R024 DUEL CLASSIFICATION BUILDING
73	29-4212-3 R024 DUEL CLASSIFICATION BUILDING
74	29-4212-4 R024 DUEL CLASSIFICATION BUILDING
75	29-4212-5 R024 DUEL CLASSIFICATION BUILDING

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C-350 PIPELINE PROJECT  
DRAWING INDEX

COVER SHEET/DRAWING INDEX

INCLUDED THIS ISSUE	REV	DWG. No.	DWG. TITLE
X	0	EP7-4000	DRAWING INDEX
X	0	EP7-4001	DRAWING LEGEND
X	0	EP7-4002	DRAWING LEGEND

P&IDs

INCLUDED THIS ISSUE	REV	DWG. No.	DWG. TITLE
X	0	EP7-4000	MLN-105
X	0	EP7-4001	MLN-105
X	0	EP7-4002	MLN-107
X	0	EP7-4003	MLN-201
X	0	EP7-4004	FE-101 FLOW METER SKID

NOTES:

REFERENCE:

NO.	DATE	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	CHK	APPD
0	04/21/20	ISSUED FOR CONSTRUCTION				



**CENERGY**  
TURNKEY ENERGY SOLUTIONS  
PO BOX 455  
NEW BRUNSWICK, NJ 08901  
PHONE: 908-429-4200  
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PAID REGISTERED ENGINEERING FIRM #0141  
WWW.PAID.COM

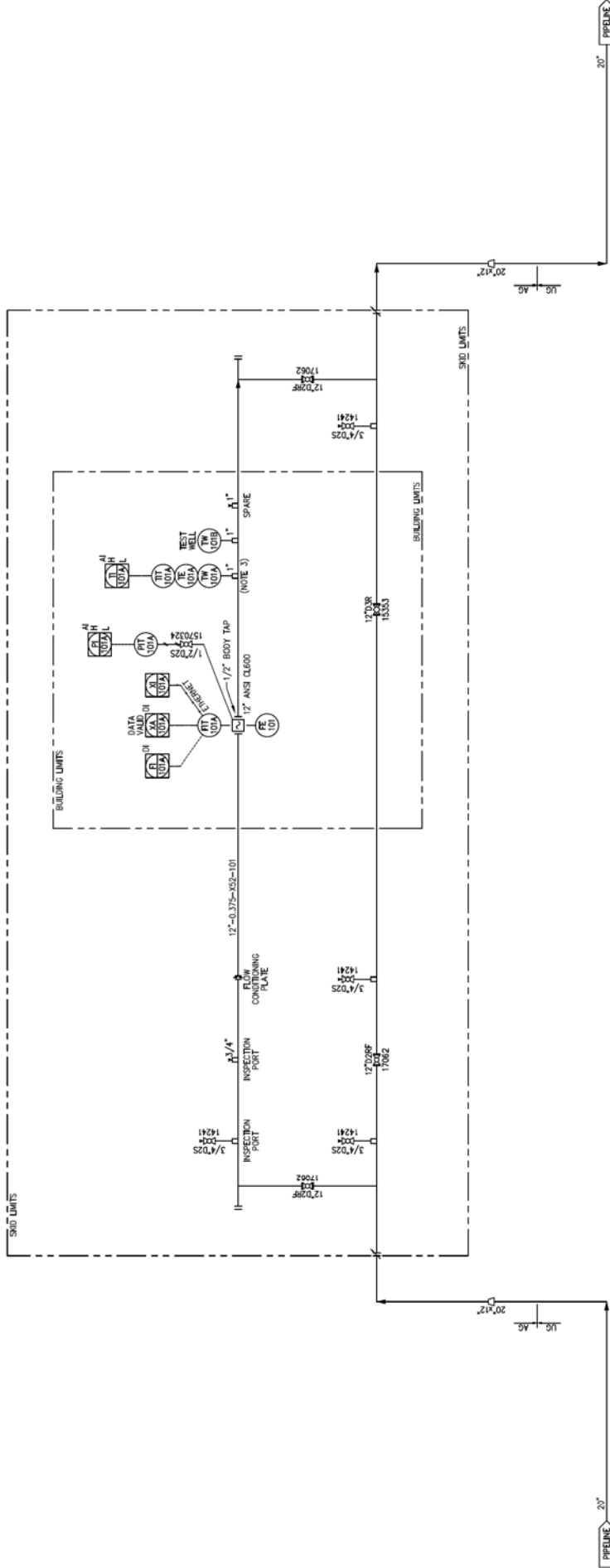
CENERGY	sheet no.	0
C-350 PIPELINE PROJECT	sheet no.	
DRAWING INDEX	sheet no.	
EP7-4000	sheet no.	







FLOW METER (FE-101)  
 DESIGN FLOW: 1500 GPM  
 DESIGN PRESS: 100 PSIG  
 OPERATING PRESSURE: 460-670 PSIG  
 DESIGN TEMPERATURE: -20 TO 120 DEG. F



NOTES:

1. REFER TO VENDOR EQUIPMENT DRAWINGS FOR ADDITIONAL DETAIL.
2. ALL WELDS SHALL BE FIELD WELDS UNLESS OTHERWISE SPECIFIED.
3. FIRST METER RUN TAP SHALL BE LOCATED AT LEAST 20 FROM METER OUTLET FLANGE WELD AND NO FARTHER THAN 50 FROM THE DOWNSTREAM METER FLANGE FACE PER API-3.

REFERENCE:

NO.	DATE	DESCRIPTION	BY	CHK	APPD
0	04/21/20	ISSUED FOR CONSTRUCTION	MG	PLA	MFC

**CENERGY**  
 TURNKEY ENERGY SOLUTIONS  
 100 BOX 455  
 NEW BRUNSWICK, NJ 08901  
 PHONE: 908-424-4200  
 WWW.CENERGY.COM

0-350 PIPELINE PROJECT  
 HIGHPOINT PARK STATION  
 CENERGY PROJECT NO: 7174

PIPING AND INSTRUMENTATION DIAGRAM  
 FE-101 FLOW METER SKID

DATE: NONE  
 REV: 20/04/2008  
 SHEET NO: EP7-4204  
 TOTAL SHEETS: 0

## 4/22/2020

ISSUED FOR CONSTRUCTION

NOTES:	REFERENCE:
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FC7-8001	FC7-8001
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GENERAL CONSTRUCTION NOTES:

1. MATERIALS, CONSTRUCTION, AND TESTING TO BE IN ACCORDANCE WITH STANDARD ENGINEERING PRACTICES AND SPECIFICATIONS.
2. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL TESTING AND PROVIDE DATA TO THE ENGINEER AT REQUEST.
3. CONTRACTOR SHALL OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY GOVERNING AUTHORITIES AT CONTRACTOR'S EXPENSE PRIOR TO BEGINNING WORK.
4. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR BUILDINGS AFFECTED BY HIS OPERATIONS AND THE COUNTY PUBLIC WORKS OFFICE 48 HOURS PRIOR TO BEGINNING WORK.
5. CONTRACTOR SHALL CONSULT WITH OWNER'S CONSTRUCTION SUPERVISOR FOR EXACT LOCATION OF EXISTING BURIED FACILITIES SUCH AS PIPING, CONDUITS, AND CABLES, IF ANY, BEFORE START OF ANY CONSTRUCTION. ONLY NON-MECHANICAL EXCAVATION WILL BE ALLOWED WITHIN 18 INCHES OF EXISTING FACILITIES.
6. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL TESTING AND PROVIDE DATA TO THE ENGINEER AT REQUEST.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORKERS AND EMPLOYING ALL APPROPRIATE SAFETY SYSTEMS.
8. CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO AREAS WITHIN THE PROJECT PROPERTY BOUNDARIES AND ADJACENT AREAS. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL TESTING AND PROVIDE DATA TO THE ENGINEER AT REQUEST.
9. EXISTING RIGHT-OF-WAY DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO AS GOOD AS, OR BETTER THAN, THE ORIGINAL CONDITION PRIOR TO STARTING WORK UPON COMPLETION OF THE PROJECT. SUCH FACILITIES INCLUDE BUT ARE NOT LIMITED TO: EXISTING DRIVEWAYS, SIDEWALKS, CURBS, AND DRIVEWAYS.
10. AFTER DISTURBED AREAS HAVE BEEN COMPLETED TO THE LINES, GRADES, AND CROSS-SECTIONS SHOWN ON THE PLANS, SEEDING SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS TO ESTABLISH ACCURATE VEGETATIVE COVER TO ELIMINATE EROSION.
11. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL TESTING AND PROVIDE DATA TO THE ENGINEER AT REQUEST.
12. CONTRACTOR SHALL RESURVEY THE PRESENT SITE TO VERIFY THAT THE SITE HAS BEEN CLEARED AND GRUBBED AS SHOWN ON THE PLANS.
13. CONTRACTOR SHALL ENSURE THAT ALL STRUCTURES ARE ADEQUATELY SUPPORTED DURING CONSTRUCTION TO PREVENT EXCESS DEFLECTIONS AND STRESSES.

DRAINAGE

1. ACCURATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION, AND ANY DRAINAGE DITCH OR STRUCTURE SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER.
2. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL TESTING AND PROVIDE DATA TO THE ENGINEER AT REQUEST.
3. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL TESTING AND PROVIDE DATA TO THE ENGINEER AT REQUEST.
4. ALL STOODPLES OF EXCAVATED SOIL SHALL BE REMOVED WITHIN 72 HOURS AFTER START OF STOCKPILE. WHEN NOT REMOVED, STOCKPLES SHALL BE COVERED WITH A DRAINAGE COVER.
5. ALL SOIL, SOLID WASTES, OR DEBRIS SHALL BE PLACED INTO WATERS OF THE UNITED STATES.

CODES AND SPECIFICATIONS

- ALL DESIGN AND CONSTRUCTION OF STRUCTURES AND FOUNDATIONS SHALL BE IN ACCORDANCE WITH THE FOLLOWING PUBLICATIONS:
- ALL CONCRETE CODES:
- A. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - B. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - C. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - D. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - E. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - F. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - G. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - H. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - I. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - J. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - K. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - L. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - M. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - N. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - O. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - P. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - Q. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - R. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - S. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - T. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - U. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - V. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - W. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - X. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - Y. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - Z. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
- ALL STEEL CODES:
- A. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - B. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - C. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
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  - R. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
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  - Y. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - Z. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
- ALL WOOD CODES:
- A. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - B. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - C. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - D. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
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  - F. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - G. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
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  - Y. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - Z. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
- ALL MASONRY CODES:
- A. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - B. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - C. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
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- A. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
  - B. AISC 360-10: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
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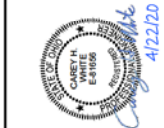
STRUCTURAL STEEL:

1. CODES & STANDARDS:
  - 1.1 FABRICATE STEELWORKS IN ACCORDANCE WITH THE "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEELWORKS FOR BUILDINGS" AS ADOPTED BY THE AISC (LATEST EDITION)
  - 1.2 STEEL SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE:
    - W-SHAPE: ASTM A992, Fy=50 KSI
    - ALL ANGLES & CHANNELS: ASTM A36, Fy=36 KSI
    - STRUCTURAL PLATES: ASTM A572, GRADE 50 (THICKNESS  $\geq 3/4"$ )
    - ASTM A36 (THICKNESS  $< 3/4"$ )
    - DECK PLATE: PREFERRED ASTM A36 (ALTERNATIVE ASTM A796)
    - ASTM A500 GRADE C
  - STEEL PIPE DIAMETER: LESS THAN OR EQUAL TO 12 INCHES ... ASTM A53, GRADE B, API 5L, OR B, Fy=35 KSI
  - CONTRACTOR SHALL DURNISH STRUCTURAL STEEL SHOP DRAWING, COMPLETE WITH INDIVIDUAL PIECE MARKS AND ERECTION DRAWINGS, FOR APPROVAL PRIOR TO FABRICATION.
2. BOLTS:
  - 2.1 HIGH STRENGTH BOLTS, SUPPLIED BY THE STEEL FABRICATOR, SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 OR A490. BOLTS SHALL BE USED IN ALL CONNECTIONS UNLESS OTHERWISE SPECIFIED. FIELD CONNECTIONS SHALL BE BEARING TYPE BOLTS WITH A MINIMUM OF 8" OR LESS ARE PERMITTED TO BE 30%.
  - 2.2 ALL BOLTS SHALL BE BUNDLED AND TAGGED FOR SHIPMENT WITH PROPER MARK, DRAWING, AND WORK ORDER NUMBERS, AND LOCATION METAL TAGS FOR FIELD IDENTIFICATION.
  - 2.3 ALL BOLTS SHALL BE FURNISHED WITH 1-HEAVY HEX NUT (ASTM A-563, OR DH) & 1-WASHER (ASTM F-436 OR 1)
  - 2.4 TOLERANCE FOR BOLTS AND CLASS 2B TOLERANCE FOR NUTS.
  - 2.5 DIMENSIONS AND TOLERANCES OF HEXAGON BOLTS AND NUTS SHALL BE IN ACCORDANCE WITH ANSI B18.2.1 & B18.2.1.
  - 2.6 BOLTS AND NUTS SHALL BE IN ACCORDANCE WITH HEAVY HEXAGON SERIES OF WASHER FACE TYPE.
3. WELDING:
  - 3.1 ALL WELDING PROCEDURES, INCLUDING STUD WELDING, AND QUALIFICATIONS SHALL BE IN ACCORDANCE WITH AWS D11.1 (EDITION PER OPR) AND AISC MANUAL OF STEEL CONSTRUCTION. WELDING ELECTRODES SHALL HAVE A MINIMUM SPECIFIED TENSILE STRENGTH EQUAL TO OR GREATER THAN 70 KSI.
  - 3.2 ALL WELDS UNDER EQUIPMENT BEARING AREA SHALL BE GROUND FLUSH.
  - 3.3 ALL WELDS SHALL BE MADE TO SHIP COMPONENTS AS LARGE AS PRACTICABLE WITHIN WIDTH, LENGTH, AND HEIGHT SHIPPING LIMITATIONS FOR THE STEEL WORKS TO KEEP FIELD ERECTION TO A MINIMUM. FABRICATOR SHALL REFER TO THE STEEL FABRICATOR'S RECOMMENDATIONS FOR WELDING.
  - 3.4 WELD SIZES SHOWN ON DETAIL DRAWINGS TAKE PRECEDENCE OVER STANDARD DETAILS OR TABLE.
  - 3.5 IT IS FABRICATOR'S RESPONSIBILITY TO ENSURE THAT ALL WELD PASSES ARE APPROPRIATELY SIZED.
4. COATING:
  - 4.1 ALL STRUCTURAL STEEL SHALL BE PAINTED PER DUKE ENERGY PAINTING SPECIFICATION.
5. MISCELLANEOUS:
  - 5.1 FIELD TOUCH-UP PAINTING SHALL BE THE RESPONSIBILITY OF THE ERECTION CONTRACTOR.
  - 5.2 EVERY EFFORT SHALL BE MADE TO SHIP COMPONENTS AS LARGE AS PRACTICABLE WITHIN WIDTH, LENGTH, AND HEIGHT SHIPPING LIMITATIONS FOR THE STEEL WORKS TO KEEP FIELD ERECTION TO A MINIMUM. FABRICATOR SHALL REFER TO THE STEEL FABRICATOR'S RECOMMENDATIONS FOR WELDING.
  - 5.3 THE STEEL FABRICATOR SHALL GROUT ALL STRUCTURAL STEEL BASES WITH PRE-MIXED THE STAR GROUT OR EQUAL. ALL TO REQUIRED SHALL BE SUPPLIED AS NECESSARY BY THE STEEL FABRICATOR.
  - 5.4 CHANGES IN DETAILS OR SUBSTITUTION OF MATERIALS SHALL BE MADE WITHOUT PRIOR APPROVAL BY THE OWNER'S ENGINEER.

DESIGN LOADING SUMMARY PER ASCE 7-16

WIND LOAD:	RISK CATEGORY: IV
	DESIGN WIND SPEED: 118 MPH
	EXPOSURE CATEGORY: C
SEISMIC LOAD:	SEISMIC DESIGN CATEGORY: D
	SOIL SITE CLASS: D
	S <sub>s</sub> : 0.166
	S <sub>1</sub> : 0.088
	T <sub>s</sub> : 1.2
	T <sub>0</sub> : 1.5
DELECTION CRITERIA:	LIVE LOAD: L/750
	LIVE LOAD + DEAD LOAD: L/740
LIVE LOAD:	LIVE LOAD ON ROOF: 20 PSF
	LIVE LOAD ON GRATING/PLATING: 100 PSF

ISSUED FOR CONSTRUCTION

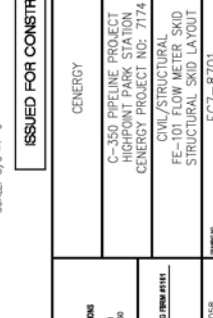
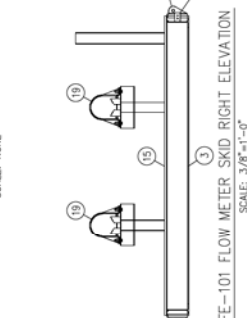
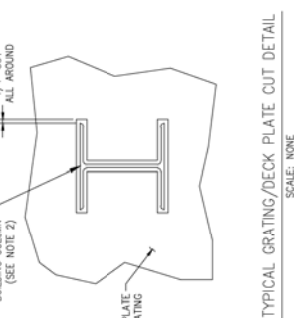
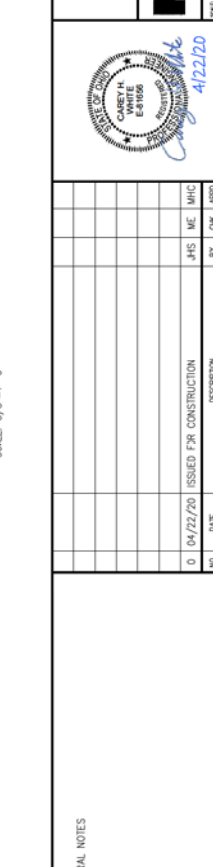
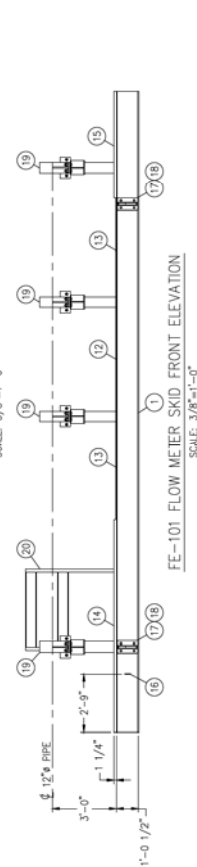
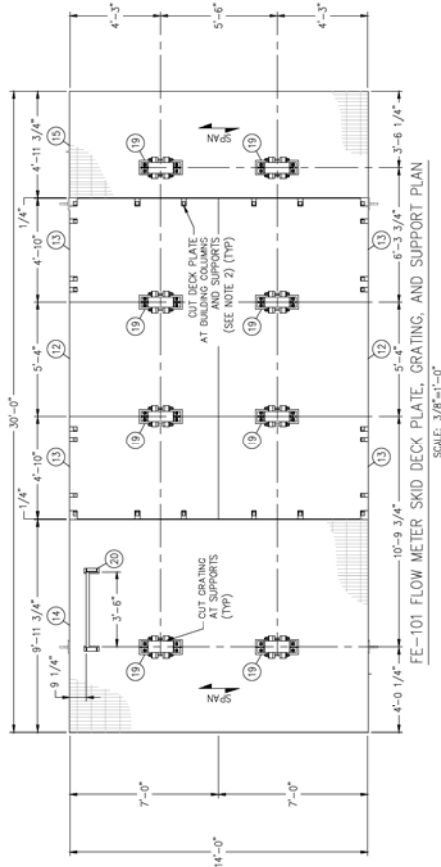


NO.	DATE	DESCRIPTION	BY	CHK	APPD
0	04/22/20	ISSUED FOR CONSTRUCTION	JHS	ME	MHC

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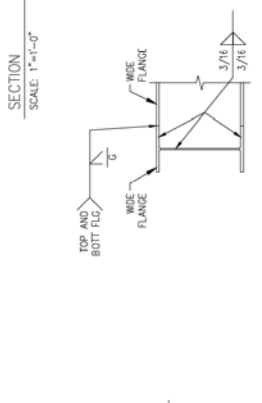
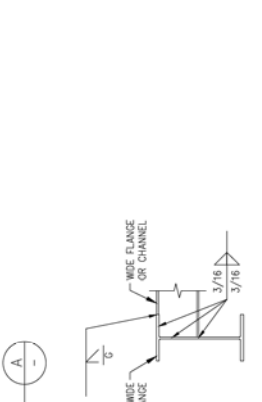
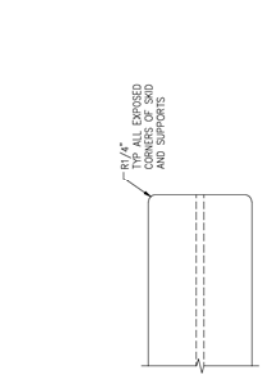
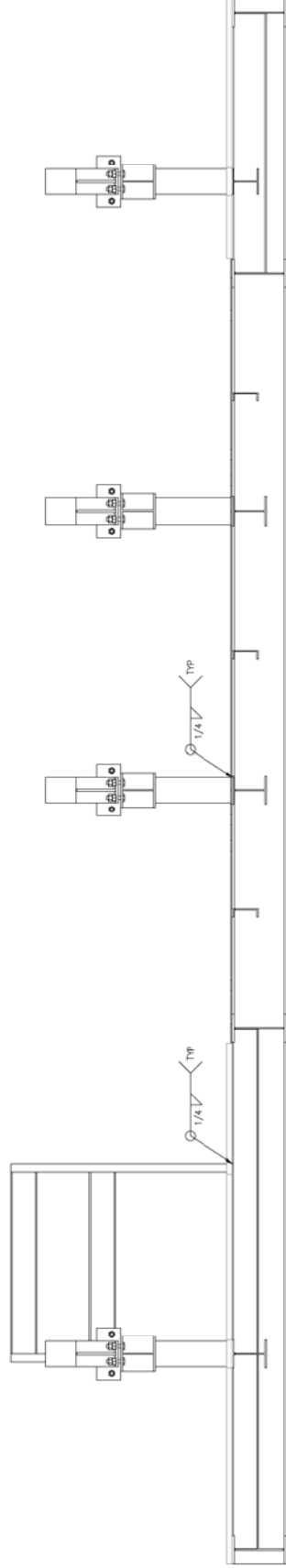
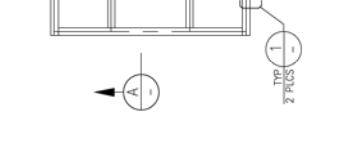
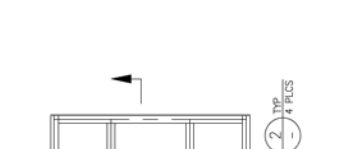
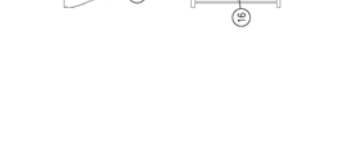
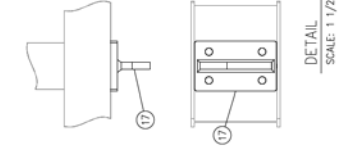
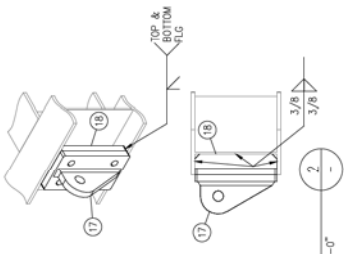
CENERGY	CENERGY
TURNKEY ENERGY SOLUTIONS	TURNKEY ENERGY SOLUTIONS
PO BOX 455	PO BOX 455
1000 HIGHWAY 101	1000 HIGHWAY 101
WILSON, NC 27157	WILSON, NC 27157
PHONE: 336-415-4250	PHONE: 336-415-4250
WWW.CENERGY.COM	WWW.CENERGY.COM
CENERGY PROJECT NO: 7174	CENERGY PROJECT NO: 7174
CIVIL/STRUCTURAL SKID	CIVIL/STRUCTURAL SKID
FEEDBACK WATER SKID	FEEDBACK WATER SKID
GENERAL NOTES	GENERAL NOTES
EC7-8101	EC7-8101

PARTS LIST		
ITEM	QTY	DESCRIPTION
1	2	W12x35 WIDE FLANGE BEAM, ASTM A992, GR 50
2	1	W12x35 WIDE FLANGE BEAM, ASTM A992, GR 50
3	4	W12x35 WIDE FLANGE BEAM, ASTM A992, GR 50
4	1	W8x24 WIDE FLANGE BEAM, ASTM A992, GR 50
5	4	W8x24 WIDE FLANGE BEAM, ASTM A992, GR 50
6	2	W8x24 WIDE FLANGE BEAM, ASTM A992, GR 50
7	2	W6x15 WIDE FLANGE BEAM, ASTM A992, GR 50
8	1	W6x15 WIDE FLANGE BEAM, ASTM A992, GR 50
9	1	W6x15 WIDE FLANGE BEAM, ASTM A992, GR 50
10	2	W6x15 WIDE FLANGE BEAM, ASTM A992, GR 50
11	2	W6x15 WIDE FLANGE BEAM, ASTM A992, GR 50
12	2	W6x15 WIDE FLANGE BEAM, ASTM A992, GR 50
13	2	W6x15 WIDE FLANGE BEAM, ASTM A992, GR 50
14	4	1 1/4" x 3/16" SEER BAR GR5. TYPE W-19-4 ASTM A1011 CS TYPE B
15	2	1 1/4" x 3/16" SEER BAR GR5. TYPE W-19-4 ASTM A1011 CS TYPE B
16	2	PLATE, 5' x 3' x 1/2" THK, W/9/16" THRU HOLES (2 PLACES) - BREAK CORNERS (1/4")
17	4	BOLT ON LIFTING LUG FOR 32" STRUCTURAL SKID, 10" x 4 1/2" x 1" THK PLATE, ASTM A572 GR50 (LUG), 7' x 11 7/16" x 1" THK PLATE, W/1 1/16" THRU HOLES (4 PLACES) - BREAK CORNERS (1/4")
18	4	PLATE, 7' x 11 7/16" x 1" THK, W/1 1/16" THRU HOLES (4 PLACES) - BREAK CORNERS (1/4")
19	4	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
20	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
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78	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
79	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
80	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
81	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
82	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
83	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
84	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
85	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
86	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
87	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
88	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
89	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
90	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
91	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
92	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
93	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
94	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
95	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
96	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
97	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
98	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
99	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK
100	1	ASTM A572 GR50, STIFF PLATE, 11 7/16" x 2 1/8" x 1/2" THK



 TURNKEY ENERGY BUILDINGS 100 BOX 455 WILSON, KY 40391 PHONE 502-341-4250		CENRCH CIVIL/STRUCTURAL PROJECT HIGHPOINT PARK STATION CENRCH PROJECT NO: 7174	
 M&H CIVIL/STRUCTURAL PROJECT HIGHPOINT PARK STATION CENRCH PROJECT NO: 7174		CIVIL/STRUCTURAL PROJECT HIGHPOINT PARK STATION CENRCH PROJECT NO: 7174	
0 04/22/20 ISSUED FOR CONSTRUCTION BY: JMS CHECKED: MHC APPROVED: MHC		0 04/22/20 ISSUED FOR CONSTRUCTION BY: JMS CHECKED: MHC APPROVED: MHC	
0 04/22/20 ISSUED FOR CONSTRUCTION BY: JMS CHECKED: MHC APPROVED: MHC		0 04/22/20 ISSUED FOR CONSTRUCTION BY: JMS CHECKED: MHC APPROVED: MHC	





ISSUED FOR CONSTRUCTION

EXPOSED CORNER RADIUS DETAIL  
SCALE: NONE

TYPICAL WELD DETAIL  
SCALE: NONE

TYPICAL DECK PLATE WELD DETAIL  
SCALE: NONE

GENERAL NOTES, SEE DRAWING EC7-8101.		REFERENCE:		GENERAL NOTES	
		EC7-8101			



DETAIL OF ITEM #2



DETAIL OF ITEM #3

---

SCALE: 1"=1'-0"



DETAIL OF ITEM #4



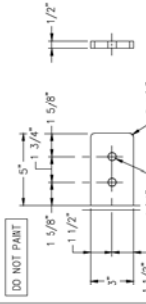
DETAIL OF ITEM #5

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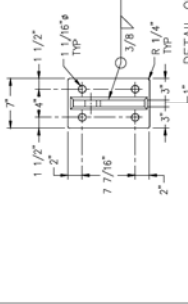
SCALE: 1"=1'-0"



DETAIL OF ITEM #7  
SCALE: 1"=1'-0"

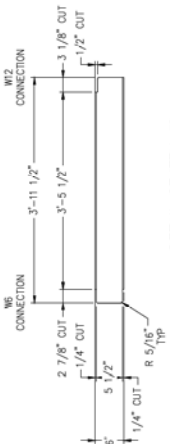


DETAIL OF ITEM #16  
SCALE: 3"=1'-0"

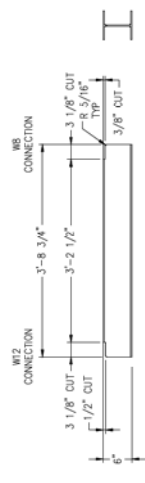


DETAIL OF ITEM #17

SCALE: 1 1/2"=1'-0"

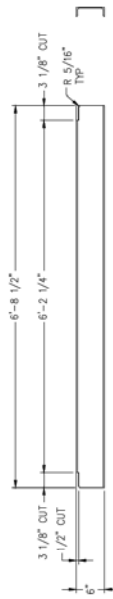


DETAIL OF ITEM #9  
SCALE: 1"=1'-0"

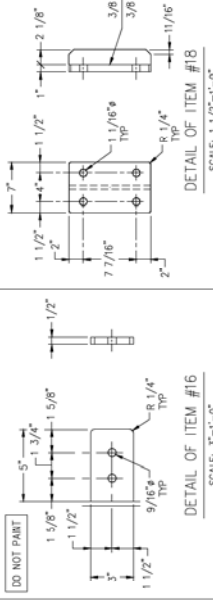


DETAIL OF ITEM #10

SCALE: 1"=1'-0"

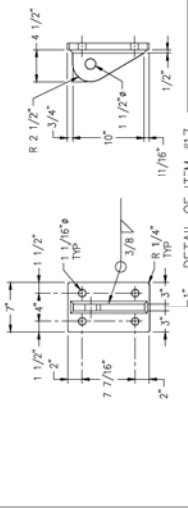


DETAIL OF ITEM #11  
SCALE: 1"=1'-0"



DETAIL OF ITEM #18

SCALE: 1 1/2"=1'-0"



FOR CONSTRUCTION

NO.	DATE	ISSUED FOR CONSTRUCTION	JHS	ME	UHC
	DATE	DESCRIPTION	BY	CHK	APPRO
	04/22/20				

[illegible]

<p><u>NOTES:</u></p> <p>1. FOR CIVIL/STRUCTURAL GENERAL NOTES, SEE DRAWING EC7-8101.</p>	<p><u>REFERENCE:</u></p> <p>EC7-8101</p>
--	--

REFERENCE:  
EC7-8101

REFERENCE:	GENERAL NOTES
EC7-8101	



**CENERGY**  
TURNKEY ENERGY SOLUTIONS  
PO BOX 455  
MILTON, WV 25541  
PHONE: 304-743-4250



OHIO REGISTERED ENGINEERING FIRM #1161  
WWW.M&E.COM

CENERGY

CIVIL/STRUCTURAL  
FFE-101 FLOW METER SKID  
RURAL SKID DETAILS SHEET 2

EC7-8703	REFERENCE NO.
----------	---------------



C-350 PIPELINE PROJECT  
DRAWING INDEX

COVER SHEET/DRAWING INDEX

INCLUDED THIS ISSUE	REV	DWG. No.	DWG. TITLE
X	0	EM7-5001	DRAWING INDEX

PIPING


INCLUDED THIS ISSUE	REV	DWG. No.	DWG. TITLE
X	0	EM7-5100	FE-101 FLOW METER SKID

ISOMETRICS

INCLUDED THIS ISSUE	REV	DWG. No.	DWG. TITLE
X	0	12-0.375-X52-101 SH1-1	LINE NO. 12"-0.375-X52-101
X	0	12-0.375-X52-101 SH1-2	LINE NO. 12"-0.375-X52-101
X	0	12-0.375-X52-101 SH1-3	LINE NO. 12"-0.375-X52-101
X	0	12-0.375-X52-101 SH1-4	LINE NO. 12"-0.375-X52-101

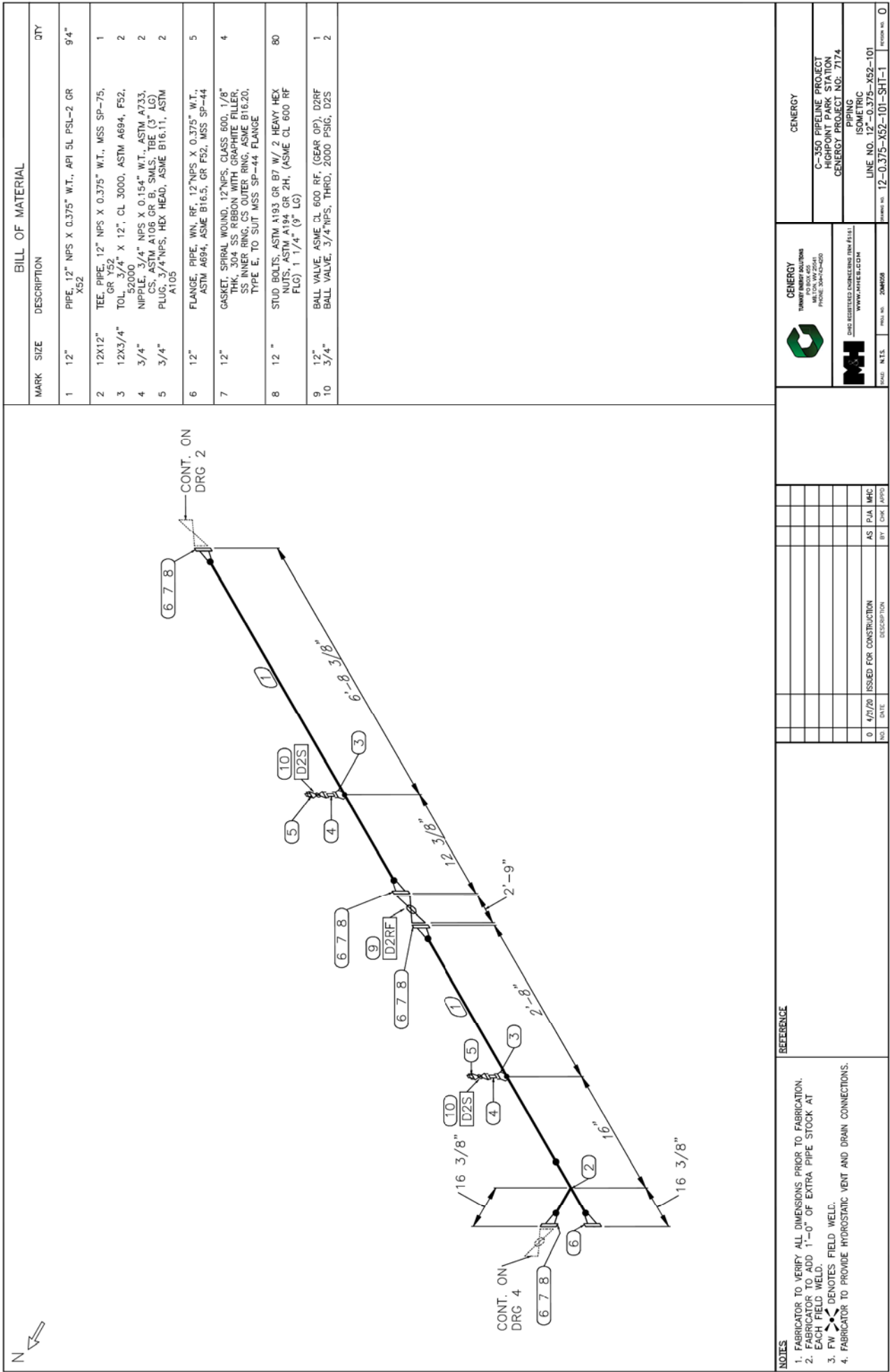
SEE NOTE

SEE NOTE

<div><div>CENERGY TURNKEY SOLUTIONS MILTON, WV 25841 PHONE 304-437-6280</div></div> <div><div>M&amp;E OHIO REGISTERED ENGINEERING FIRM #1111 WWW.M&amp;E.COM</div></div>		CENERGY			
		C-350 PIPELINE PROJECT HIGHPOINT PARK STATION CENERGY PROJECT NO: 7174			
		DRAWING INDEX FE-101 SKID			
		20M105B		EM7-5001	
		NONE			
		</			








**NOTES**


1. FABRICATOR TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
2. FABRICATOR TO ADD 1'-0" OF EXTRA PIPE STOCK AT EACH FIELD WELD.
3. FW DENOTES FIELD WELD.
4. FABRICATOR TO PROVIDE HYDROSTATIC VENT AND DRAIN CONNECTIONS.

**REFERENCE**

NO.	DATE	DESCRIPTION	BY	CHK	APPD
0	4/7/20	ISSUED FOR CONSTRUCTION	AS	PJA	MHC



**CENERGY**  
TURNKEY ENERGY SOLUTIONS  
PO BOX 405  
MIDLAND, TX 79701  
PHONE: 361-412-4200



**CENERGY**  
TURNKEY ENERGY SOLUTIONS  
PO BOX 405  
MIDLAND, TX 79701  
PHONE: 361-412-4200

**CENERGY**  
C-350 PIPELINE PROJECT  
HIGHPOINT PARK STATION  
CENERGY PROJECT NO: 7174  
PIPING  
ISOTHERMIC  
LINE NO. 12-0-375-X52-101  
SHEET NO. 12-0-375-X52-101-SHT-1 | REVISION NO. 0









CENERGY  
C-350 PIPELINE PROJECT  
HIGHPOINT PARK STATION  
CENERGY PROJECT NO: 7174  
FE-101 FLOW METER SKID ELECTRICAL & INSTRUMENT PACKAGE

INCLUDED IN THIS ISSUE	REV.	DWG. NO.	DWG. TITLE
X	0	EE7-6000	ELECTRICAL & INSTRUMENT DRAWING INDEX
X	0	EE7-6100	ELECTRICAL - HAZARDOUS LOCATION PLAN
X	0	EE7-6300	ELECTRICAL - AC J-BOX LAYOUT DRAWING
X	0	EE7-6400	ELECTRICAL - AC CONDUIT PLAN
X	0	EE7-6401	ELECTRICAL - GROUNDING PLAN
X	0	EE7-6500	ELECTRICAL - AC J-BOX WIRING DIAGRAM
X	0	EE4001	ELECTRICAL & INSTRUMENT CABLE & CONDUIT SCHEDULE
X	0	EE7-7300	INSTRUMENT - DC J-BOX LAYOUT DRAWING
X	0	EE7-7400	INSTRUMENT - DC CONDUIT PLAN
X	0	EE7-7500	INSTRUMENT - DC J-BOX WIRING DIAGRAM
X	0	EE7-7501	INSTRUMENT - LOOP DIAGRAM

NOTES:

REFERENCE:

CENERGY TURNKEY ENERGY SOLUTIONS 1700 WILSON AVENUE MILTON, MA 02141 PHONE: 508-762-4250 WWW.MES.COM		CENERGY C-350 PIPELINE PROJECT HIGHPOINT PARK STATION CENERGY PROJECT NO: 7174 ELECTRICAL & INSTRUMENT FE-101 FLOW METER SKID DRAWING INDEX	
20M4058		20M4058	
AS SHOWN		EE7-6000	
0		0	

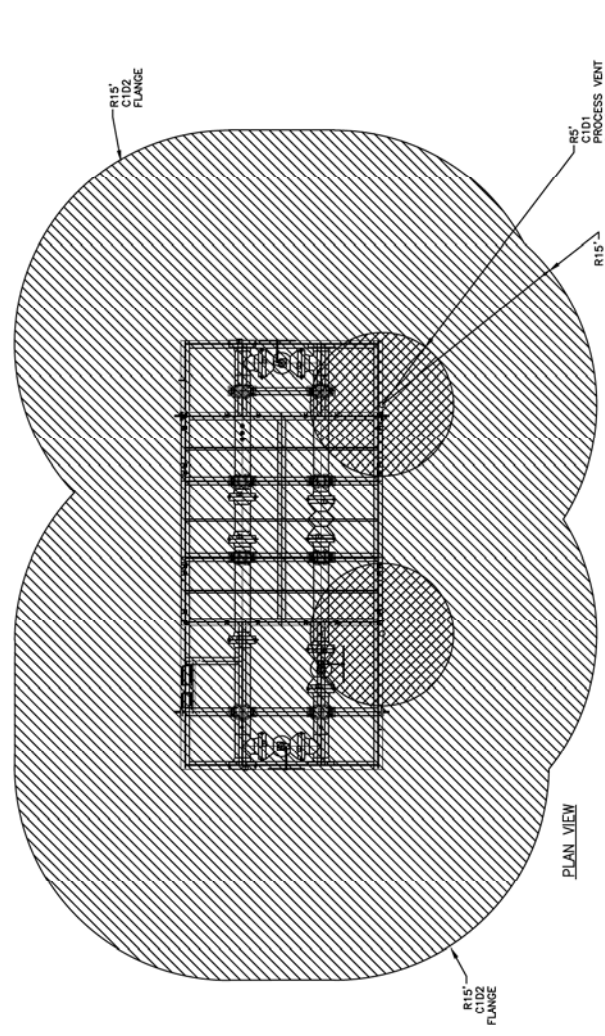
# AREA CLASSIFICATIONS

CLASSIFICATIONS ARE BASED ON THE REQUIREMENTS FOR THE AMERICAN INSTITUTE FOR STANDARDS (AIA) 101.01

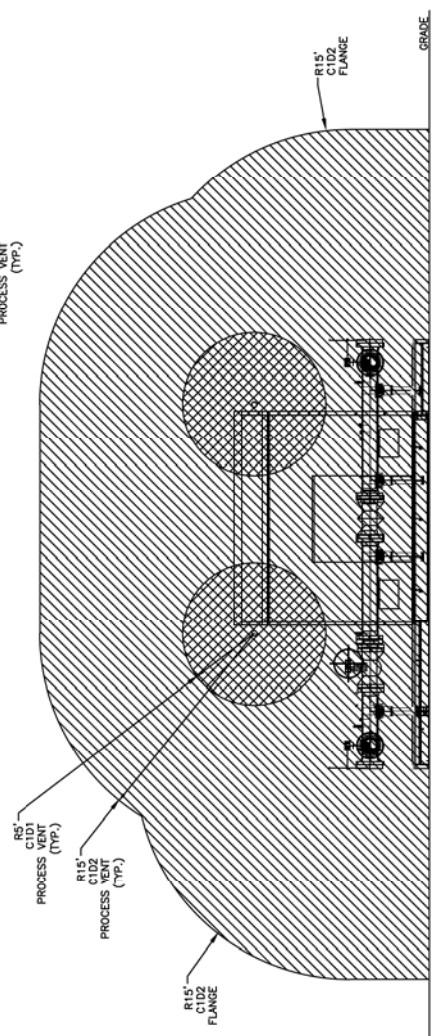
- CLASS 1, DIV. 1, GROUPS C & D
- CLASS 1, DIV. 2 GROUP C & D
- NON-HAZARDOUS AREA

## GENERAL CLASSIFICATIONS NOTES:

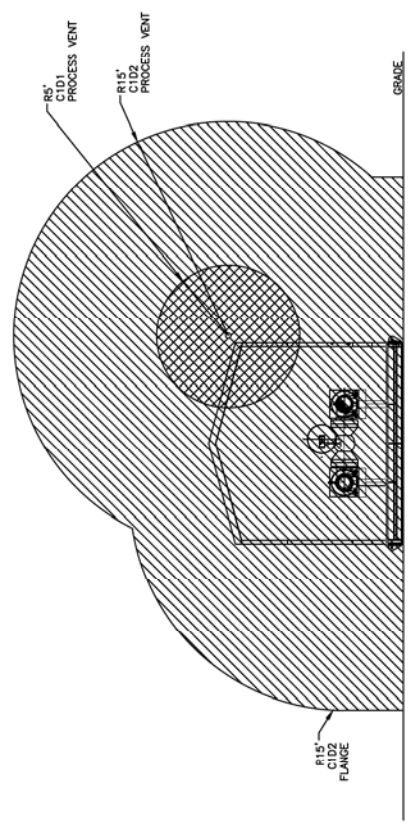
**CLASS 1, DIVISION 1 AREA**  
 5' RADIUS AROUND ALL BLOWDOWN VENTS RELIEF VALVES AS CONSIDERED NORMAL OPERATIONS.  
 5' RADIUS AROUND ALL INSTRUMENT VENTS FOR 15" GAS COOLING AND INSTRUMENT VENTS FOR OPERATOR MAINTENANCE CONDITIONS.  
 CONSIDERED "NON-NORMAL" THE AREA AROUND INSTRUMENT VENTS IS TO BE KEPT WITH SPECIAL PRESENTATIONS TO BE TAKEN DURING THAT OPERATION/MAINTENANCE.  
 ALL VENTS MUST BE KEPT AT A MINIMUM THE INSTRUMENT VENTS MUST BE KEPT OPEN AND NOT ALLOW THE VENTING/REMOVAL TO CREATE BUILDING/STRUCTURE.  
**CLASS 1, DIVISION 2 AREA**  
 15' RADIUS AROUND ALL BLOWDOWN VENTS, RELIEF VALVES, INSTRUMENT VENTS, VALVES, TRUCK PUMP AND LOADERS.  
 5' RADIUS AROUND INSTRUMENT VENTS.  
 BUILDING VENTILATION TO MEET AIA REQUIREMENTS FOR CLASS 1 DIVISION 2 IN BUILDING.



PLAN VIEW



SIDE ELEVATION VIEW



FRONT VIEW

### REFERENCE:

1. INSTRUMENT INSTALLATION CONTRACTOR TO ROUTE (A) PROCESS VENTS, ONE FROM EACH MANUAL BLOWDOWN VALVE, FOLLOWING SHD REQUIREMENTS AND (B) INSTRUMENT VENTS, ONE FROM EACH INSTRUMENTED CONTRACTOR TO ENSURE CLASS 1 DIVISION 1 CLOUDS DO NOT ENOUGH ON ANY LOWERS OPENINGS, DOOR OPENINGS.
2. IN ADDITION TO NATURAL VENTILATION VIA LOWERS, A GAS DETECTOR WILL BE INSTALLED WITHIN THE METER BUILDING ENCLOSURE.

NO.	DATE	DESCRIPTION	BY	CHK	APPD
0	04/21/20	ISSUED FOR CONSTRUCTION	TA	BWR	MFC



CENERGY  
 TURNKEY SOLUTIONS  
 100 BOUL. 465  
 MARIETTA, GA 30067  
 PHONE 770-424-4250



CHS REGISTERED ENGINEERING FIRM #1811  
 WWW.MHES.COM

CENERGY

C-350 PIPELINE PROJECT  
 HIGHPOINT PARK STATION  
 CENERGY PROJECT NO: 7174

ELECTRICAL  
 FE-101 FLOW METER SKID  
 HAZARDOUS LOCATION PLAN

20MHD58

20MHD58

AS SHOWN

0

0

0

0

0

0

0

0

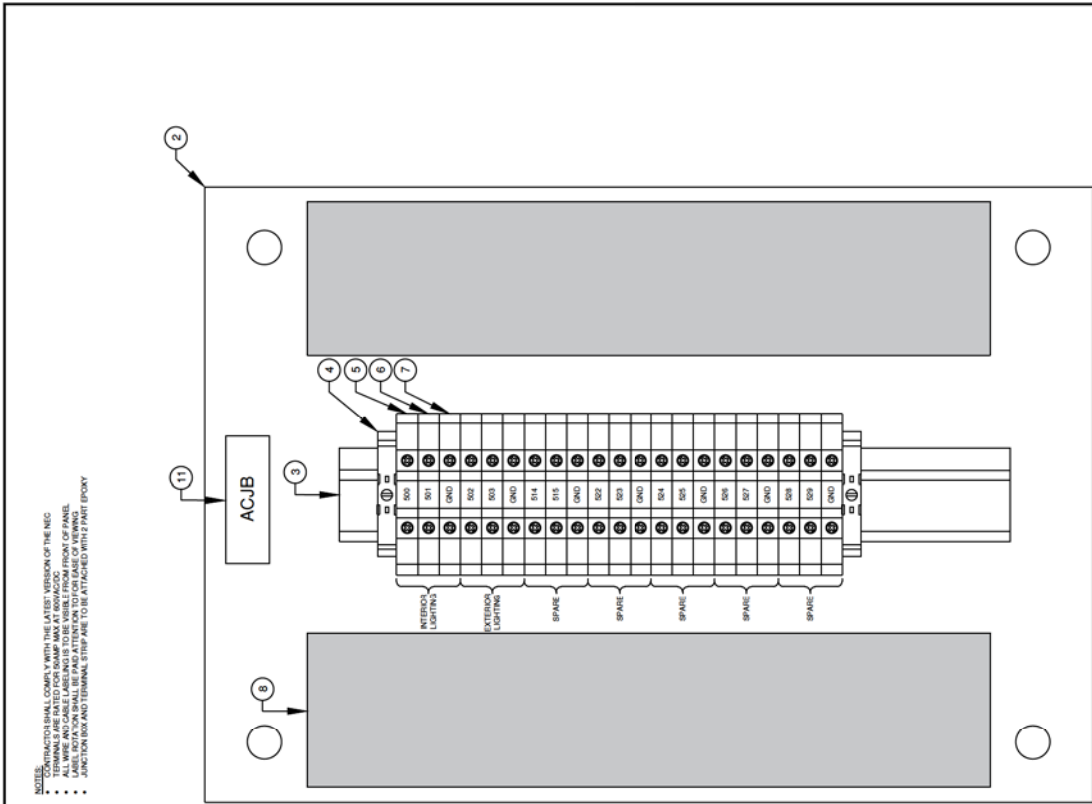
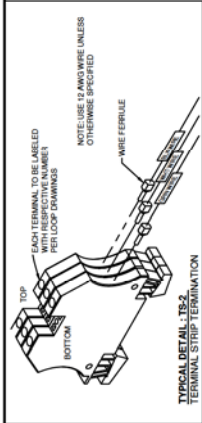
0

0

0



0

ITEM	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
1	1	HOFMAN	19772P	ENCLOSURE, CONTINUOUS RINCE WITH CLAMP, TYPE 4X
2	1	HOFMAN	1402-000	ALUMINUM RAISED ON BALK, 100mm x 25mm (4" x 1") 3mm x 7.5mm
3	1	HOFMAN	1402-000	HEAVY DUTY ANCHOR
4	2	AD	1402-000	SCAMP FEEDTHROUGH SCREW TYPE TERMINAL, BLACK
5	7	AD	1402-000	SCAMP FEEDTHROUGH SCREW TYPE TERMINAL, WHITE
6	7	AD	1402-000	SCAMP FEEDTHROUGH SCREW TYPE TERMINAL, GREEN
7	7	AD	1402-000	WIRE DUCT, 2" x 4" x 6" GREY
8	1	THOMAS AND BETTS	TYX2AMV06	JUNCTION BOX PHENOLIC TAG - 1" x 6" WITH "H" LETTERING "ACJB"
9	1	THOMAS AND BETTS	TYX2AMV06	JUNCTION BOX PHENOLIC TAG - 1" x 6" WITH "H" LETTERING "120VAC"
10	1	THOMAS AND BETTS	TYX2AMV06	JUNCTION BOX PHENOLIC TAG - 1" x 6" WITH "H" LETTERING "ACJB"
11	1	THOMAS AND BETTS	TYX2AMV06	JUNCTION BOX PHENOLIC TAG - 1" x 6" WITH "H" LETTERING "120VAC"



NOTES:		REFERENCE:	
1.	CONTRACTOR TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE TO THE LATEST VERSION OF THE NEC.	1.	CONTRACTOR TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE TO THE LATEST VERSION OF THE NEC.
2.	CONTRACTOR TO PROVIDE ALL NECESSARY LABOR, EQUIPMENT AND MATERIAL TO PROVIDE A COMPLETE INSTALLATION.	2.	CONTRACTOR TO PROVIDE ALL NECESSARY LABOR, EQUIPMENT AND MATERIAL TO PROVIDE A COMPLETE INSTALLATION.
CENERGY		CENERGY	
TURNKEY ENERGY SOLUTIONS		TURNKEY ENERGY SOLUTIONS	
1000 WILSON AVENUE		1000 WILSON AVENUE	
MILTON, MA 02164		MILTON, MA 02164	
PHONE: 301-767-4250		PHONE: 301-767-4250	
WWW.MES.COM		WWW.MES.COM	
CENERGY PROJECT NO. 7174		CENERGY PROJECT NO. 7174	
ELECTRICAL		ELECTRICAL	
FE-101 FLOW METER SKID		FE-101 FLOW METER SKID	
AC J-BOX LAYOUT DRAWING		AC J-BOX LAYOUT DRAWING	
EE7-6300		EE7-6300	
0		0	

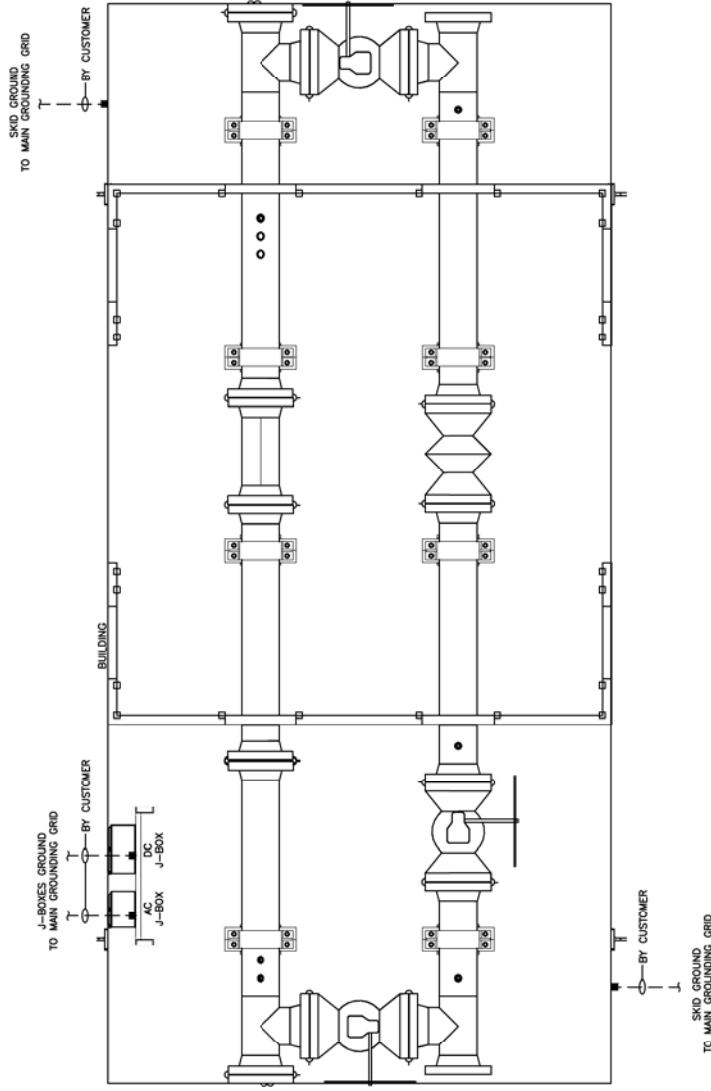


NOTES										REFERENCE																																																																					
1. THE DRAWING TO INCLUDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE TO THE LATEST EDITION OF THE NEC.																																																																															
2. THE DRAWING TO INCLUDE ALL NECESSARY LABOR, EQUIPMENT, AND MATERIAL TO PROVIDE A COMPLETE INSTALLATION.																																																																															
<div><div><div><b>CENEX</b> TURNKEY ENERGY SOLUTIONS PO BOX 455 MARYSVILLE, OH 43041 PHONE 334-443-6258</div></div><div><div><b>NEMA</b> NEMA REGISTERED ENGINEERING FIRM #1818 WWW.NEMA.COM</div></div></div>										<div><div><b>CENEX</b> C-350 PIPELINE PROJECT HIGHTPOINT PARK STATION CENEX PROJECT NO: 71714</div><div>ELECTRICAL FE-101 FLOW METER SKID AC CONDUIT PLAN</div></div>										TOTAL AS SHOWN										20M4058										0																																							
																				NO										DATE										DESCRIPTION										BY										CHK										APPD									
																				0										04/21/20										ISSUED FOR CONSTRUCTION										TA										BKR										MHC									

GROUNDING LEGEND:  
■ ROUTES/MECHANICAL CONNECTION

GROUNDING NOTES:


1. METERS SHALL BE PROVIDED WITH TWO CONNECTION POINTS TO THE MAIN GROUNDING GRID. ONE CONNECTION POINT SHALL BE PROVIDED TO THE OPPOSITE CORNERS ON THE OUTSIDE OF THE EQUIPMENT AND ARE NOTED ON THE DRAWING.
2. VENDOR SHALL PROPERLY GROUND ALL EQUIPMENT ENCLOSURES, ENCLOSURE METAL PANELS, AND ALL ELECTRICAL EQUIPMENT TO THE MAIN GROUNDING GRID IN ACCORDANCE WITH THE REQUIREMENTS OF NEC 501.50(A) AND 501.30(B).




NOTES:  
1. CONTRACTOR TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL APPLICABLE CODES.  
2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY LABOR, EQUIPMENT, AND MATERIAL TO PROVIDE A COMPLETE INSTALLATION.

REFERENCE:

NO.	DATE	DESCRIPTION	BY	CHK	APPD
0	04/21/20	ISSUED FOR CONSTRUCTION	TA	BKR	MRC



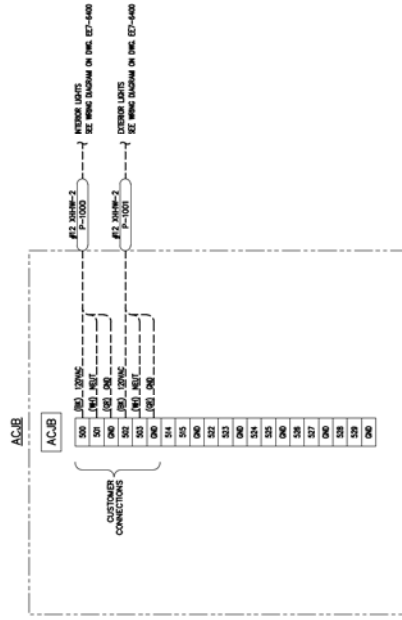
**CENERGY**  
TURNKEY ENERGY SOLUTIONS  
1000 W. 10TH AVENUE  
MILWAUKEE, WI 53211  
PHONE: 304-767-4250  
WWW.MEES.COM





MEES  
MEES ENGINEERING  
204M4058

CENERGY	204M4058	PROJECT NO.	0
C-350 PIPELINE PROJECT HIGHPOINT PARK STATION CENERGY PROJECT NO: 7174			
ELECTRICAL FE-101 FLOW METER SKID GROUNDING PLAN			

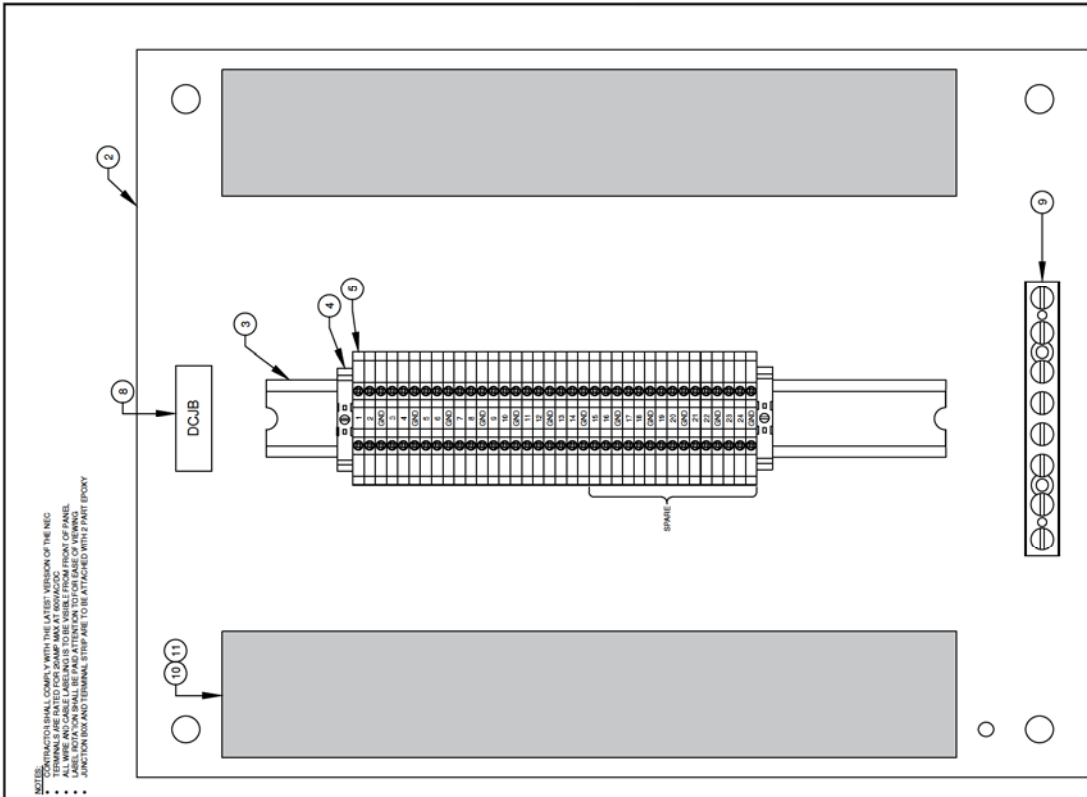
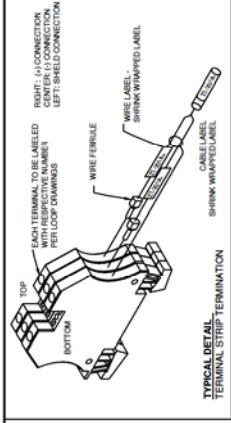
**REFERENCE:**

[illegible]

 <p><b>CENERGY</b> TURNKEY ENERGY SOLUTIONS MILWAUKEE, WI 53241 PHONE: 262-743-4230</p>	ENERGY		C-350 PIPELINE PROJECT HIGHTPOINT PARK STATION CENERGY PROJECT NO. 7174	ELECTRICAL FE-101 FLOW METER SKID AC J-BOX WIRING DIAGRAM	0
	 <p>ONSD REGISTERED ENGINEERING FIRM #1151 <a href="http://WWW.NCE.COM">WWW.NCE.COM</a></p>	20M0058	EE7-8500		



ITEM	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
1	1	HOFFMAN	2074747	ENCLOSURE, CONTINUOUS RINCE WITH CLAMP, TYPE 4X
2	1	HOFFMAN	1400-000	ALUMINUM RANDED IN RAIL, 20mm x 2.5mm (100 x 1.00) (20mm x 1.00)
3	1	HOFFMAN	1400-000	HEAVY DUTY ANCHOR
4	2	HOFFMAN	1400-000	FEEDTHROUGH TERMINAL, GREY
5	30	HOFFMAN	1400-000	JUNCTION BOX PHENOLIC TAG - 1" x 1/2" WITH 1/4" LETTERING "DCUB"
6	1	HOFFMAN	1400-000	JUNCTION BOX PHENOLIC TAG - 1" x 1/2" WITH 1/4" LETTERING "24VDC"
7	1	HOFFMAN	1400-000	JUNCTION BOX PHENOLIC TAG - 1" x 1/2" WITH 1/4" LETTERING "DCUB"
8	1	HOFFMAN	1400-000	UNIVERSAL GROUND BAR, #14-40 WIRE, 4 PORTS
9	1	HOFFMAN	1400-000	2" x 4" WIRE DUCT - GREY
10	1	HOFFMAN	1400-000	2" WIRE DUCT COVER
11	1	HOFFMAN	1400-000	DCUB



**NOTES:**

- CONTRACTOR TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE TO THE LATEST VERSION OF THE NEC.
- CONTRACTOR TO PROVIDE ALL NECESSARY LABOR, EQUIPMENT, AND MATERIAL TO PROVIDE A COMPLETE INSTALLATION.

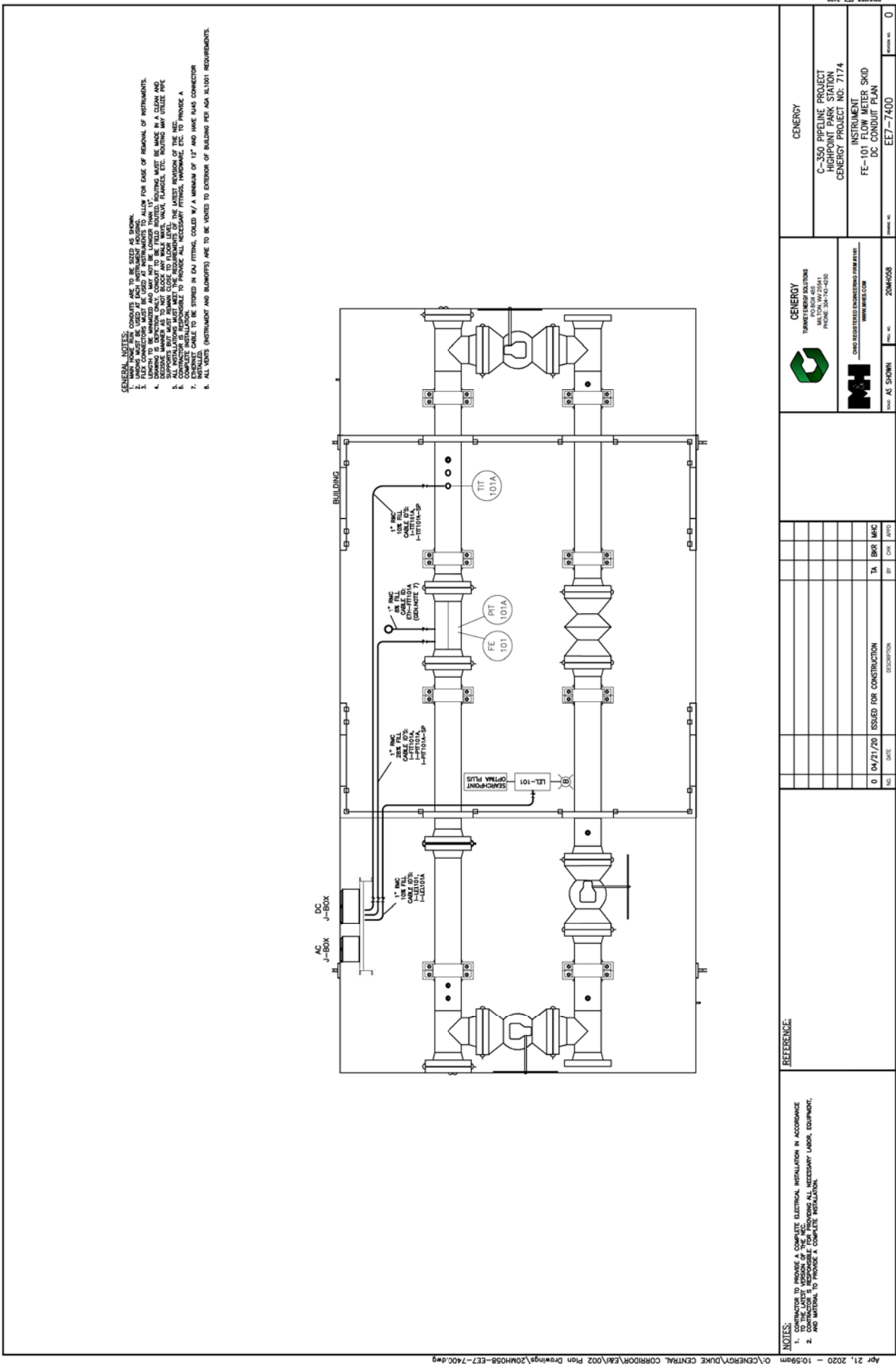
**REFERENCE:**

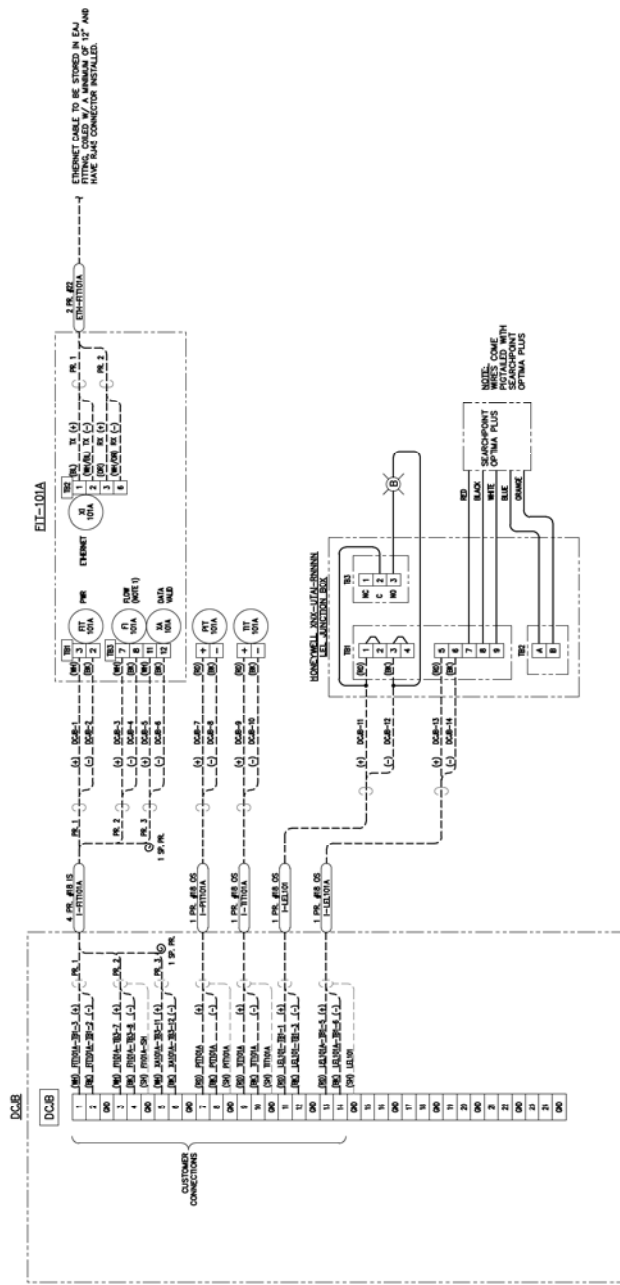
**CENERGY**  
TURNKEY ENERGY SOLUTIONS  
MILTON, MA 02154  
PHONE: 301-747-4250  
WWW.MILES.COM

**CENERGY**  
C-360 PIPELINE PROJECT  
HIGHPOINT PARK STATION  
CENERGY PROJECT NO. 7174

**ELECTRICIAN**  
FE-101 FLOW METER SKID  
DC J-BOX LAYOUT DRAWING

DATE: 2/24/2020  
DRAWN BY: AL SOWEN  
CHECKED BY: AL SOWEN  
REVISIONS: 0



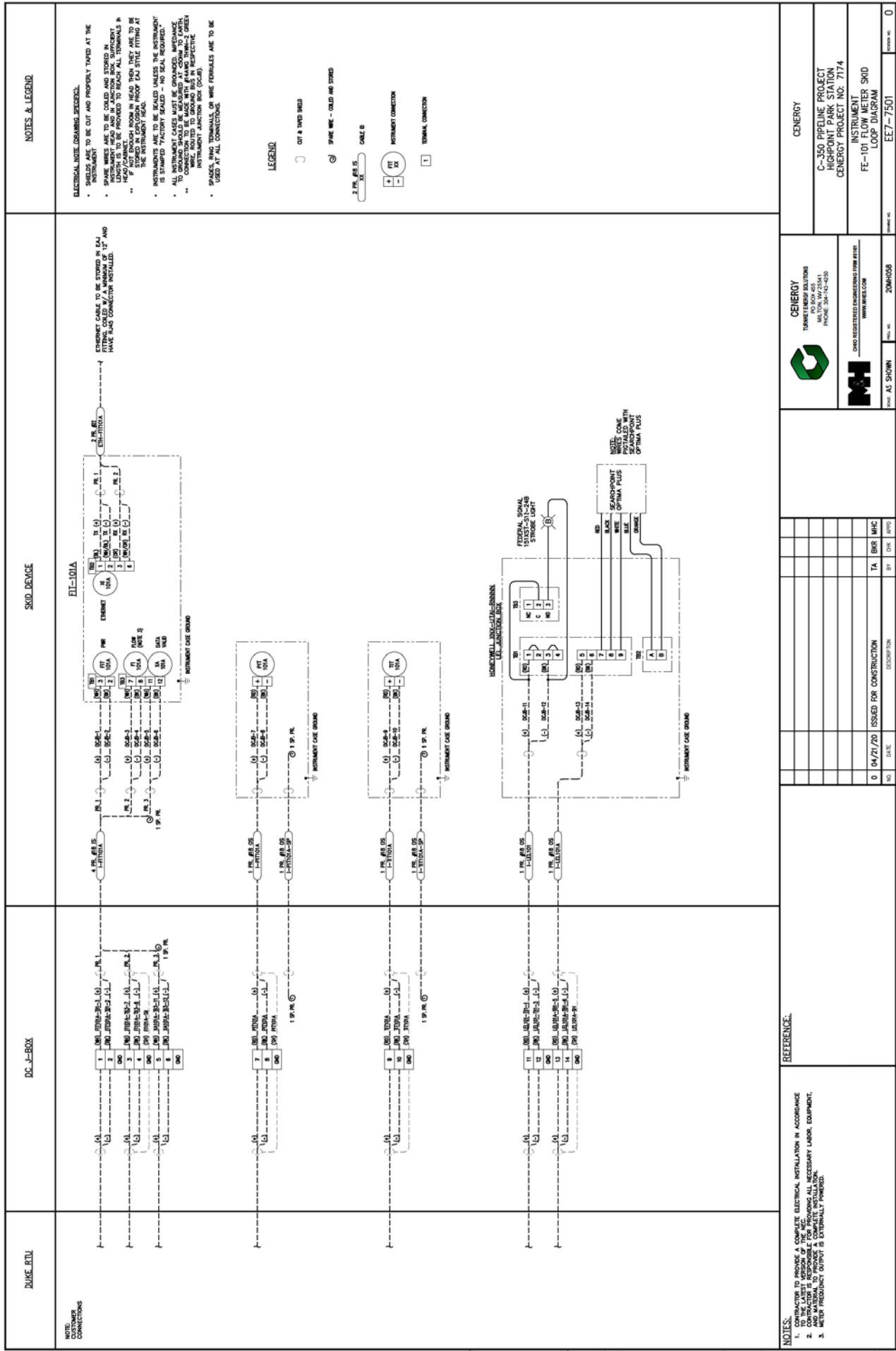




**NOTES:**  
1. METER FREQUENCY OUTPUT IS EXTERNALLY POWERED.

## REFERENCE:

[illegible]





RPO: 												HEAT NUMBERS						RPO: 												WELDS						HEAT NUMBERS					
WELDS						HEAT NUMBERS						WELDS						HEAT NUMBERS						WELDS						HEAT NUMBERS											
WELD No.	SIZE	TYPE	WELD ID	X-RAY ID	ITEM No.	HEAT NO.	WELD No.	SIZE	TYPE	WELD ID	X-RAY ID	ITEM No.	HEAT NO.	WELD No.	SIZE	TYPE	WELD ID	X-RAY ID	ITEM No.	HEAT NO.	WELD No.	SIZE	TYPE	WELD ID	X-RAY ID	ITEM No.	HEAT NO.														
P1	6"	BW			8.1		P20	6"	BW			2B.4		P21	6"	BW				2B.4		P22	6"	BW			2A.5														
P2	6"	BW			—		P21	6"	BW			2A.5		P22	6"	BW				2B.5		P23	6"	BW			2A.6														
P3	6"	BW			8.2		P22	6"	BW			2B.5		P23	6"	BW				2A.6		P24	6"	BW			2B.6														
P4	6"	BW			—		P23	6"	BW			2A.6		P24	6"	BW				2B.6		P25	3/4"	OLET			4.1														
P5	6"	BW			8.3		P24	6"	BW			2B.6		P25	3/4"	OLET				4.1		P26	1/2"	OLET			5.1														
P6	6"	BW			—		P25	3/4"	OLET			4.1		P26	1/2"	OLET				5.1		P27	6"	BW			3.1														
P7	6"	BW			8.4		P26	1/2"	OLET			5.1		P27	6"	BW				3.1		P28	6"	BW			7.1														
P8	6"	BW			—		P27	6"	BW			3.1		P28	6"	BW				7.1		P29	3/4"	OLET			4.2														
P9	6"	BW			8.5		P28	6"	BW			7.1		P29	3/4"	OLET				4.2		P30	1/2"	OLET			5.2														
P10	6"	BW			—		P29	3/4"	OLET			4.2		P30	1/2"	OLET				5.2		P31	6"	BW			3.2														
P11	6"	BW			8.6		P30	1/2"	OLET			5.2		P31	6"	BW				3.2		P32	6"	BW			7.2														
P12	6"	BW			—		P31	6"	BW			3.2		P32	6"	BW				7.2		P33	1"	OLET			11.1														
P13	6"	BW			2A.1		P32	6"	BW			7.2		P33	1"	OLET				11.1		P34	2"	NOZZ			12														
P14	6"	BW			2B.1		P33	1"	OLET			11.1		P34	2"	NOZZ				12		P35	1"	OLET			11.2														
P15	6"	BW			2A.2		P34	2"	NOZZ			12		P35	1"	OLET				11.2						1A															
P16	6"	BW			2B.2		P35	1"	OLET			11.2								1A						1B															
P17	6"	BW			2A.3							1A								1B																					
P18	6"	BW			2B.3																																				
P19	6"	BW			2A.4																																				



ISOMETRIC VIEW  
SCALE 3/4" = 1'-0"

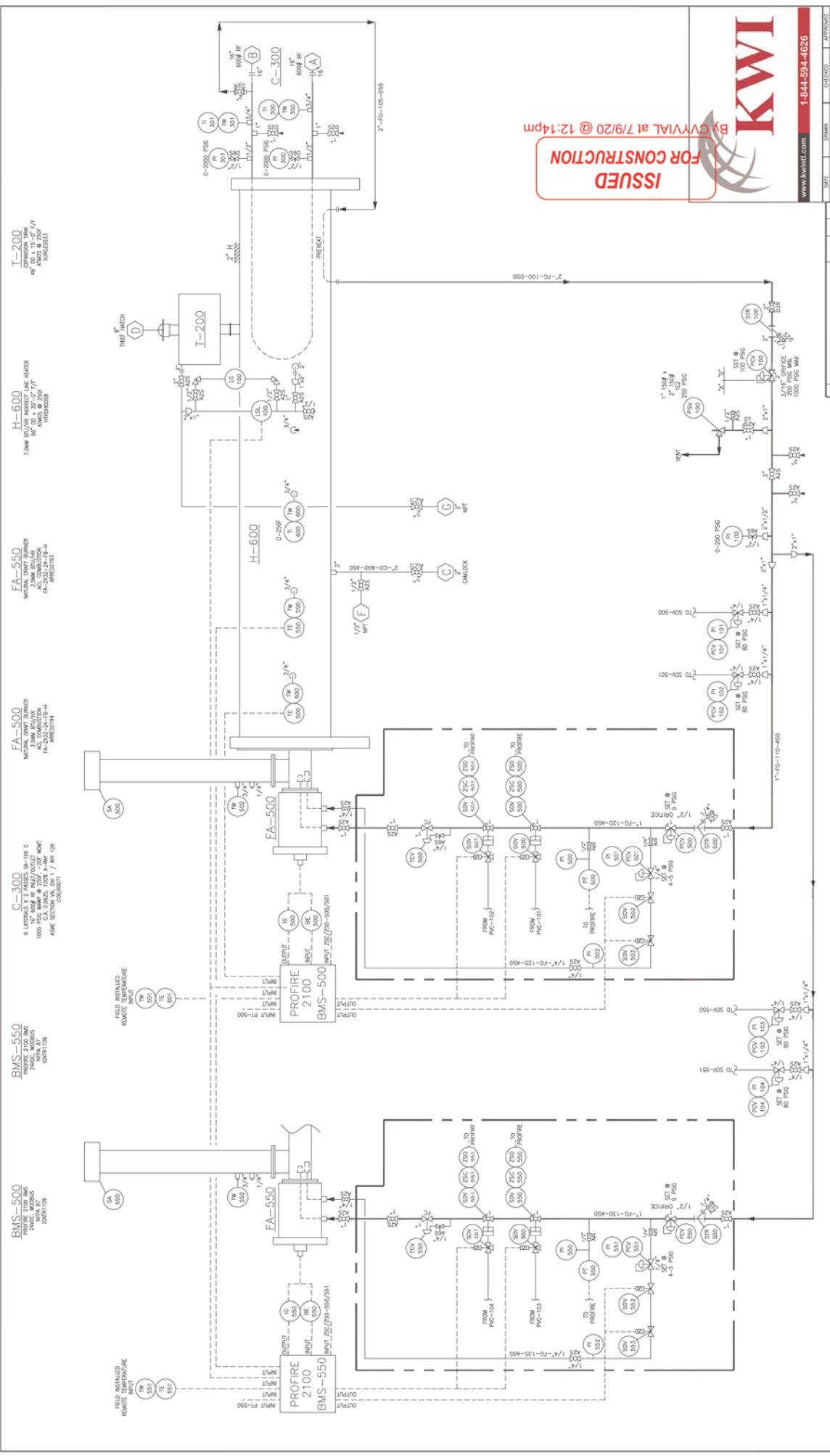
**ISSUED  
FOR CONSTRUCTION**  
By CYYVIAL at 7/19/20 @ 12:03pm



**KWI**

www.kwiworld.com 1-844-594-4626

DATE	BY	CHKD	APPD
7/19/20	CYYVIAL		
DUKE ENERGY			
TITLE 6 LATERAL 2 PASS COIL FOR 7.0MM BTU/HR LINE HEATER			
SCALE	AS SHOWN	SHEET	10816 - 102/07
DATE FOR CONSTRUCTION	7/19/20	BY	CYYVIAL
DESCRIPTION	6 LATERAL 2 PASS COIL FOR 7.0MM BTU/HR LINE HEATER	DATE	7/19/20
BY	CYYVIAL	CHKD	
APPD		DATE	7/19/20
SHEET 4 OF 4			

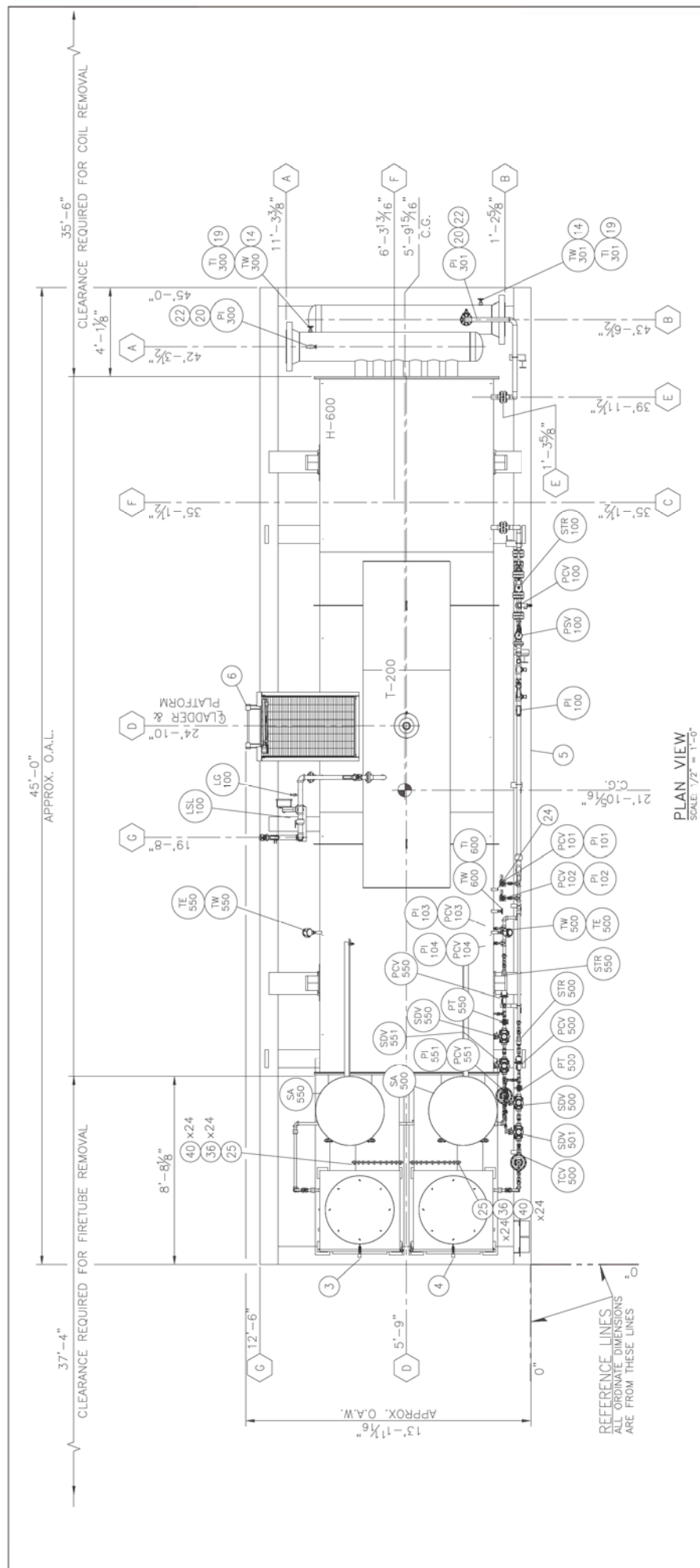


**ISSUED FOR CONSTRUCTION**  
 BY CVVIAL at 7/9/20 @ 12:14pm



www.kwiit.com  
 1-844-594-4626

MARK	QUAN.	SIZE	RATING	TYPE	SERVICE
G	1	2"	3000#	MPT	OVER FLOW
B	1	1/2"	3000#	MPT	STEAM INLET
C	1	2"	600#	RF	HEATER DRAIN
B	1	15"	600#	RF	PROCESS OUTLET
A	1	15"	600#	RF	PROCESS INLET
CUSTOMER CONNECTION SCHEDULE					
DUKE ENERGY					
HTR-102					
7.0MM BTU/HR INDIRECT HEATER P&ID					
SCALE: NTS					
SHEET 10816 102813					
UNPROCESSED - P&ID					
SHEET 1 OF 1					



CUSTOMER CONNECTION SCHEDULE	
MARK	DESCRIPTION
A	16" 600# BS
B	16" 600# BS
C	2" GULLOCK
D	2" FT
E	2" 600# BS
F	FUEL GAS INLET, 200 PSIG MW/1000 PSIG
G	1/2" 3000# WP
	SAMPLE PORT
	PROCESS INLET
	PROCESS OUTLET
	HEATER INLET
	HEATER BURN
	THREE HATCH (NIT/ARGON/FILL)

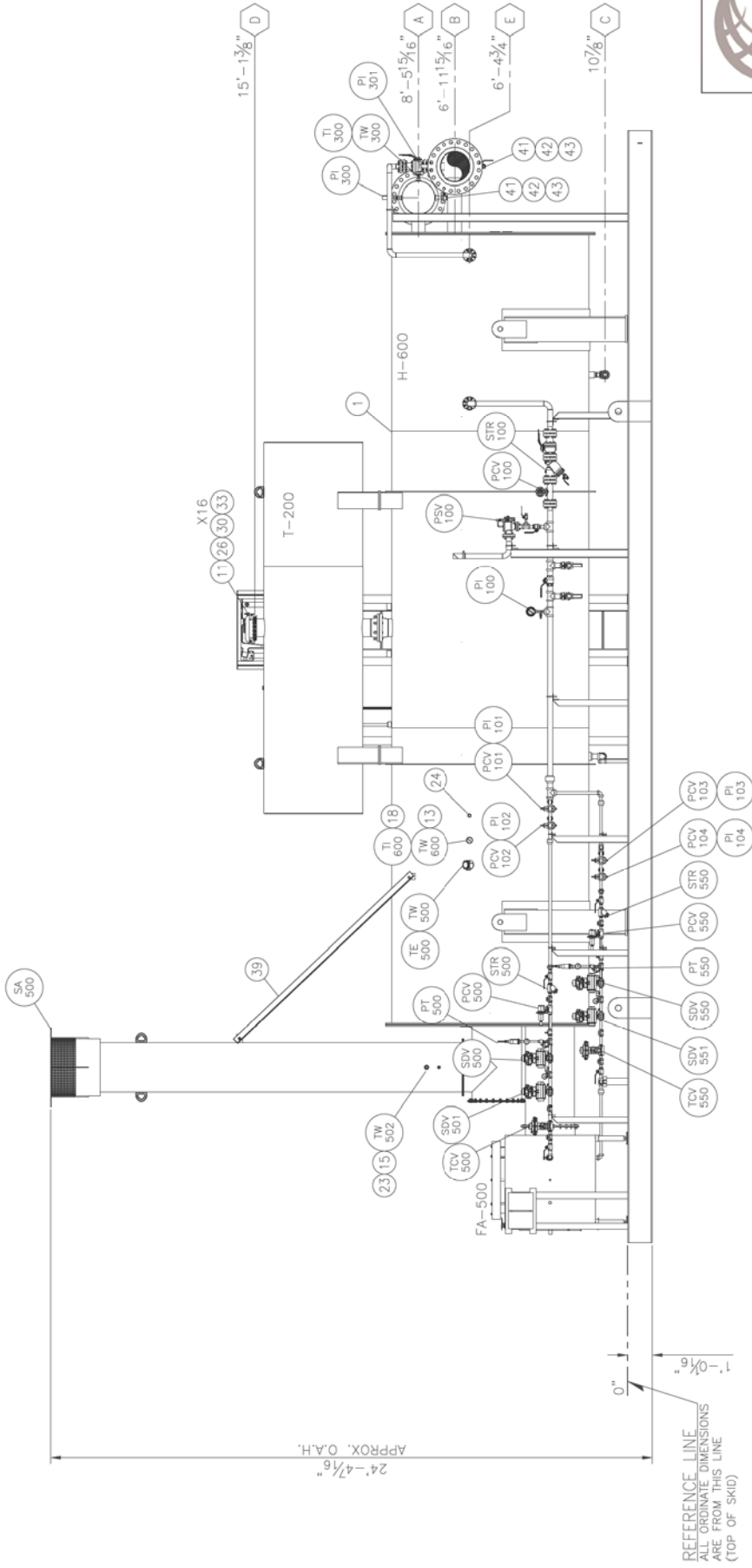
NOTES:  
1. TUBE SDV-500,501,550,551 VENTS TO COIL END OF SKID.

ISSUED FOR CONSTRUCTION

**TOLERANCES:**

PROCESS CONNECTIONS	± 1/2"
UTILITY CONNECTIONS	± 1"
STRUCTURAL	± 1/4"
ANCHOR BOLTS	± 1/4"

[illegible]



ELEVATION VIEW  
SCALE: 1/2" = 1'-0"

ISSUED  
FOR CONSTRUCTION  
DATE: 7/9/20 @ 12:14pm



www.kwi.com 1-844-594-4626

DATE	BY	CHECKED	APPROVED
07/09/20	07/09/20	07/09/20	07/09/20
DESIGN	DESIGN	DESIGN	DESIGN
CLIENT	CLIENT	CLIENT	CLIENT

DUKE ENERGY

7,000 BTU/HR  
INDIRECT LINE HEATER  
GENERAL ARRANGEMENT

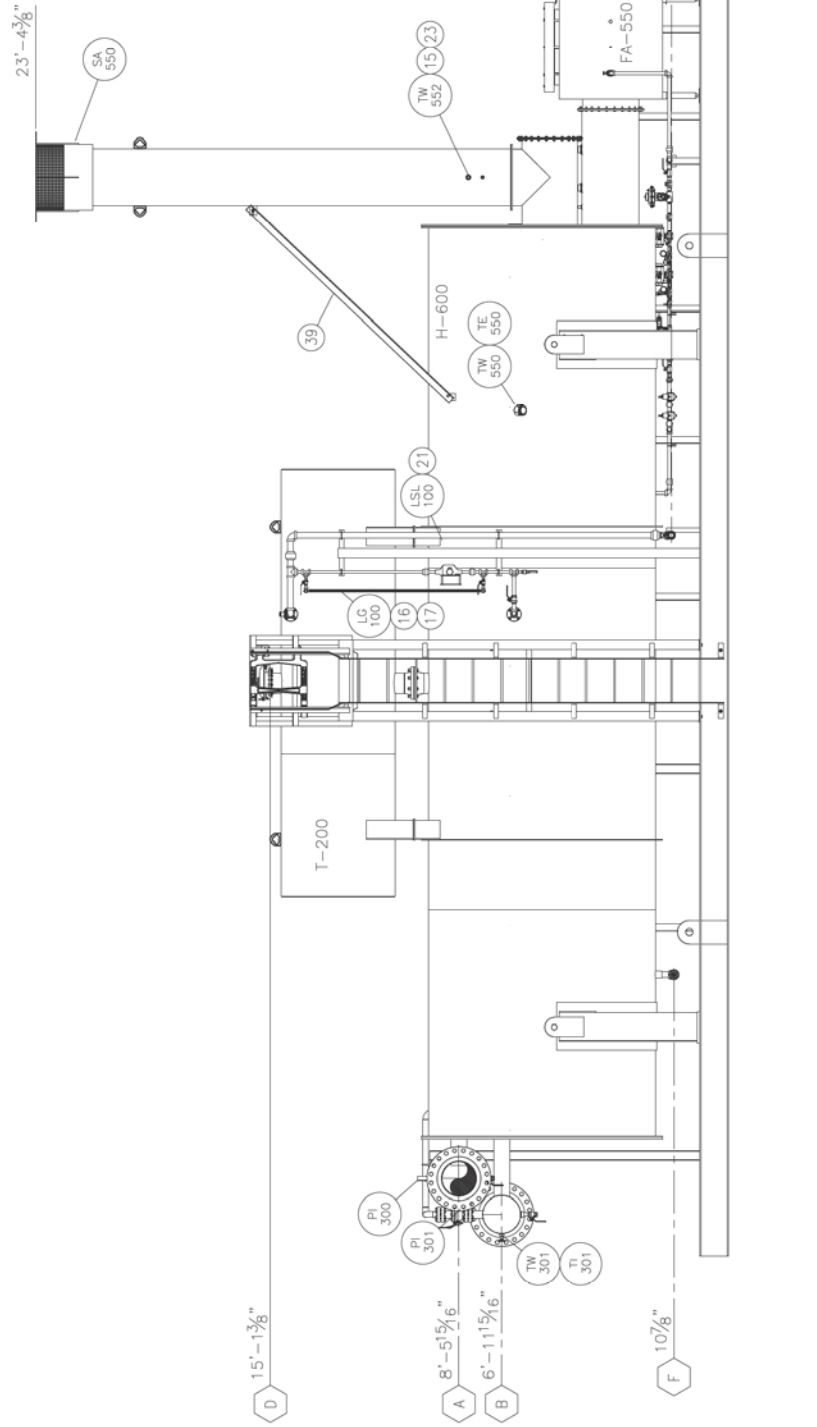
SCALE: AS SHOWN  
SHEET: 102663  
REV: 0

DATE: 07/09/20  
BY: 07/09/20  
CHECKED: 07/09/20  
APPROVED: 07/09/20

UNIFORMITY


SHEET 2 OF 7

0



REAR VIEW  
SCALE 1/2" = 1'-0"

ISSUED  
FOR CONSTRUCTION  
CVYIAL at 7/9/20 @ 12:14pm



www.kwi-ill.com

1-844-594-4626

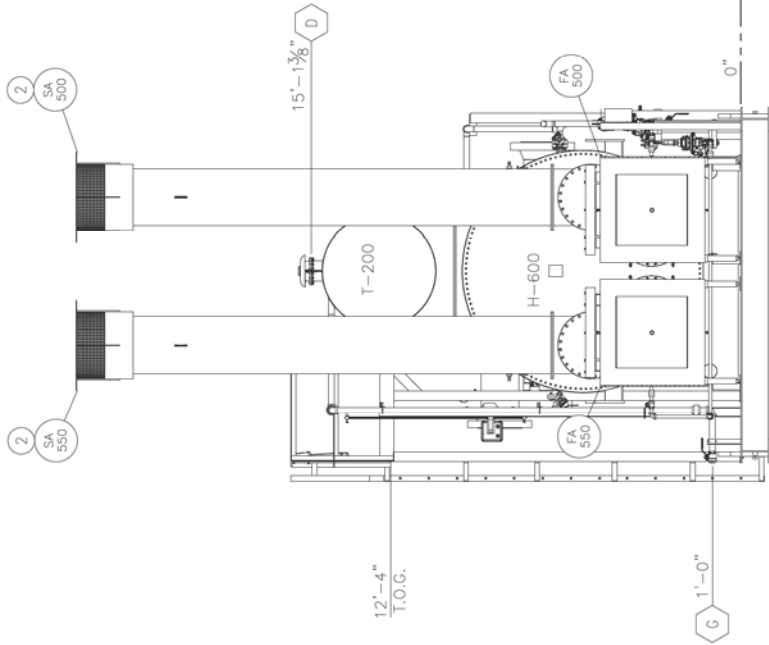
DATE	BY	CHKD	APPD
5/2/20	5/2/20		
CLIENT	DUKE ENERGY		

TITLE		SCALE	DATE	BY	CHK	APP
7,000 BTU/HR INDIRECT LINE HEATER GENERAL ARRANGEMENT		AS SHOWN	5/2/20	5/2/20		

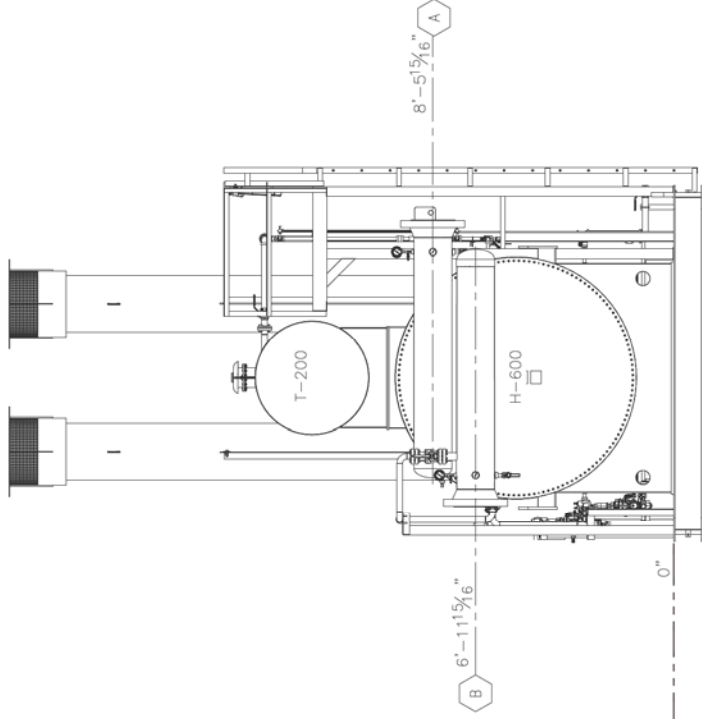
REV	DESCRIPTION	DATE	BY	CHK	APP
1	ISSUED FOR CONSTRUCTION	5/2/20	5/2/20		

SEE 3RD FLOOR FOR DETAILS OF THE HEATER AND PIPING.  
UNIFORMS

9/17 3 of 7 0



**FIRETUBE END**  
SCALE: 1/2" = 1'-0"



**COIL END**  
SCALE: 1/2" = 1'-0"

REFERENCE LINE  
ALL ORIGINATE DIMENSIONS  
ARE FROM THIS LINE  
(TOP OF SKID)

**ISSUED**  
FOR CONSTRUCTION  
CYVIAL at 7/9/20 @ 12:14pm



www.kwiold.com 1-844-594-4626

DATE	BY	CHECKED	APPROVED
5/4/2020	SA	SA	SA

CLIENT

DUKE ENERGY

TITLE

7,000 BTU/HR

INDIRECT LINE HEATER

GENERAL ARRANGEMENT

SCALE: AS SHOWN

SHEET 102563

REV

DATE

BY

CHK

UNIT/PROJECT

SHEET 4 OF 7

0





ISOMETRIC VIEWS  
SCALE:  $3/8" = 1'-0"$

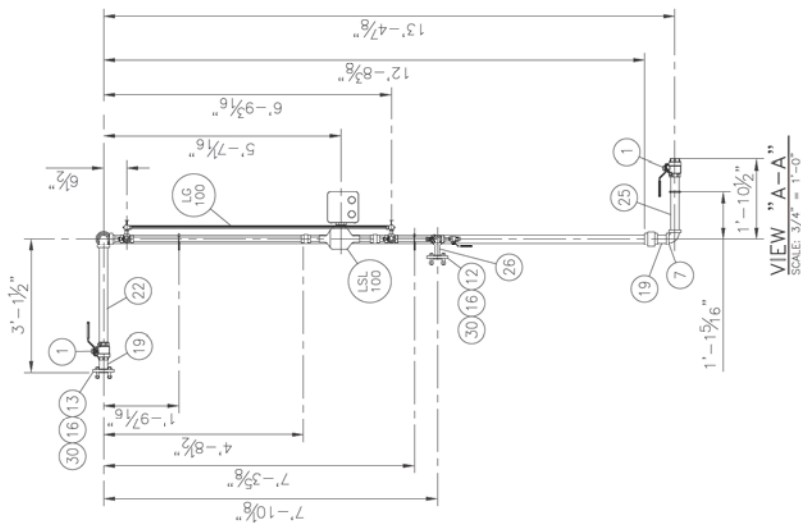
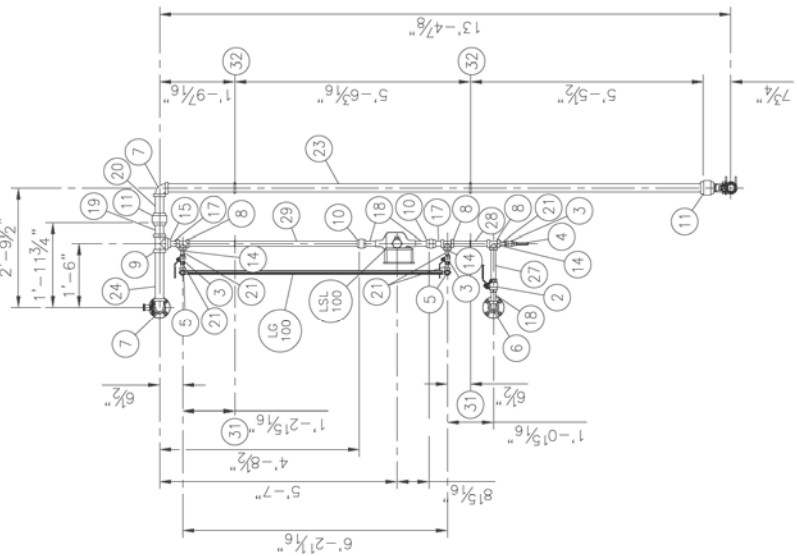
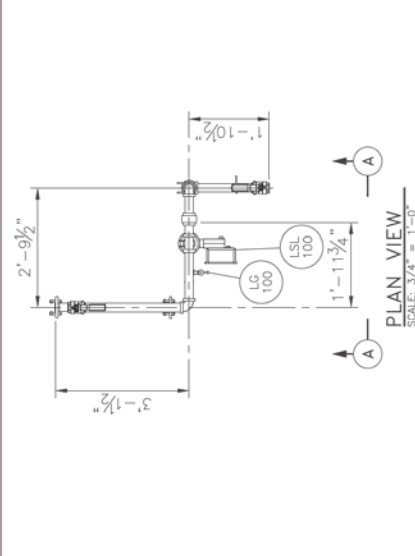


www.kwintl.com 1-844-594-4626

[illegible]

REV	DESCRIPTION	DATE	BY	CK	UNIT#	QTY	UNIT PRICE	TOTAL
					UNIT#0062	5	05	7
						5	05	7
						5	05	7

BILL OF MATERIAL				BILL OF MATERIAL			
ITEM	QTY	TAG	PART NO	DESCRIPTION	LENGTH	ITEM	QTY
1	2	A25	BLV123839	VALVE BALL, RP, 2.0, NPT, 2PC, FLOATING, A105, BODY, 1.5000, CWP, RP, FTE, SEAT, RP, FTE, SEAL LATCH, LOCK, APOLLO, 7.3410301A-27		17	2
2	1	A25	BLV123840	VALVE BALL, RP, 1.0, NPT, 2PC, FLOATING, A105, BODY, 1.0000, CWP, RP, FTE, SEAT, RP, FTE, SEAL LATCH, LOCK, APOLLO, 7.3410301A-27		18	3
3	3	A25	BLV123841	VALVE BALL, RP, 0.500, NPT, 2PC, FLOATING, A105, BODY, 2000, CWP, RP, FTE, SEAT, RP, FTE, SEAL LATCH, LOCK, APOLLO, 7.3410301A-27		19	3
4	1		FTNP0948	FITTING, PLUG, NPT, 1.05, FS, HEX, HEAD, 0.500, SA, 105, DOMESTIC, MATERIAL		20	1
5	2		FTNP0951	FITTING, NPT, ELBOW, 90, 105, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		21	5
6	1		FTNP0952	FITTING, NPT, ELBOW, 90, 105, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		22	1
7	3		FTNP0953	FITTING, NPT, ELBOW, 90, 105, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		23	1
8	3		FTNP0955	FITTING, NPT, TEE, 105, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		24	1
9	1		FTNP0956	FITTING, NPT, TEE, 105, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		25	1
10	2		FTNP0957	FITTING, NPT, UNION, HEX, 105, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		26	1
11	2		FTNP0958	FITTING, NPT, UNION, HEX, 105, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		27	1
12	1		FLGRF6417	FLANGE, RF, THREADED, ANSI, 0150, 02, 000, X, 1.000, NPT, SA, 105, DOMESTIC, MATERIAL		28	1
13	1		FLGRF6418	FLANGE, RF, THREADED, ANSI, 0150, 02, 000, X, 2.000, NPT, SA, 105, DOMESTIC, MATERIAL		29	1
14	3		FTGTH0191	FITTING, NPT, BUSHING, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		30	8
15	1		FTGTH0192	FITTING, NPT, BUSHING, FS, 0.500, SA, 105, DOMESTIC, MATERIAL		31	2
16	2		GASKT0045	GASKET, SPIRAL, WOUND, 0150, 02, 000, 304, SS		32	3



**ISSUED FOR CONSTRUCTION**  
By CVMVIAL at 7/19/20 @ 12:14pm

**KWI**

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1-844-594-4626

DATE	BY	CHECKED	APPROVED
7/19/20	CV		

DUKE ENERGY

7,000 BTU/HR  
INDIRECT LINE HEATER  
GENERAL ARRANGEMENT

SCALE: AS SHOWN

5.5' 10516 102563

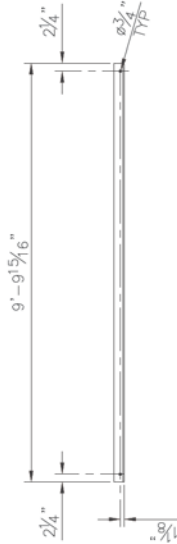
5. ISSUED FOR CONSTRUCTION

DATE: 7/19/20

BY: CV

UNITS: US

SWF 6 OF 7



STACK SUPPORT DETAIL 39

ISSUED  
FOR CONSTRUCTION  
at 7/9/20 @ 12:14pm

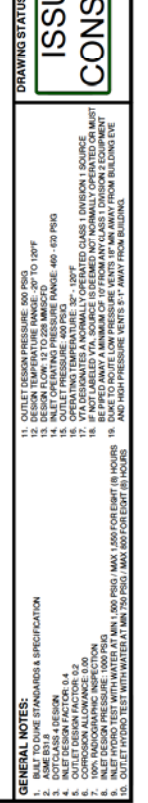
BILL OF MATERIAL				BILL OF MATERIAL			
ITEM QTY	TAG	PART NO.	DESCRIPTION	ITEM QTY	TAG	PART NO.	DESCRIPTION
1	H-600	HTRH0058	SHELL HEATER 7.0MM Ø86 X 184.7 FT Ø 500 SA 5.16 70.ATMOS. W/SUPPORTS BASE PLATE FLANGED ENDS.CUSTOM	19	21--307/300	GAUGE0353	GAUGE TEMPERATURE 0.500 MNPT 0.03.00 DIAL EVERY ANGLE 00-250F 09.00. STEM SAFETY GLASS.AS.CROFT MODEL 3060E090XSG 0/250F
2	SA-201	ARRS0103	W/SUPPORTS BASE PLATE FLANGED ENDS.CUSTOM	20	PI-301 300	GAUGE0452	GAUGE PRESS.UQ.FILLED.NPT 0.500 DIAL 4.00.LOWER MOUNT 316.SS.X.316. SS.0-2000#.NACE.BLUE.RIBBON.MOD.BR.011--4020
3	FA-550	ARRS0193	ARRESTOR FLAME.ACL.BOX.STYLE LEFT. ORIENTATION.(2).32.000.FLAME. CELLS.FOR UP TO 4.0 AMBTU/HR.24.000.00.FIRE.TUBE.2-2.000.NPT. CONN.FOR 24.000.FIRE.TUBE.M20X1.2.000.MIXER.2.000.NPT. VENTURI.1500. PILOT ASSM.Y.ACL.COMBUSTION.(1)FA-2X32-24-FB-H.(1)ACL-ON2X	21	LSL-100	LEVND0787	SWITCH LEVEL.1100A.TSCT.14--DRIF--BK.1.0.NPT.1480.MAMP.WCC.BODY. ELECTRIC.DPOT.LH.MOUNT.DIRECT.ACTING.VTON.SEAL.STANDARD.BRONZE. Ø-60.GAUGE.SEALED.CASE.304.NORRSAL. 316SS.BODY.PTFE.PACKING ANDERSON.GREENWOOD.M25VS-44
4	FA-550	ARRS0194	ARRESTOR FLAME.ACL.BOX.STYLE RIGHT. ORIENTATION.(2).32.000.FLAME. CELLS.FOR UP TO 4.0 AMBTU/HR.24.000.00.FIRE.TUBE.2-2.000.NPT. CONN.FOR 24.000.FIRE.TUBE.M20X1.2.000.MIXER.2.000.NPT. VENTURI.1500. PILOT ASSM.Y.ACL.COMBUSTION.(1)FA-2X32-24-FB-H.(1)ACL-ON2X	22	AMS	GAUGE0490	FITTING.NPT.PLUG.HEX.105.FS.0.500.SA.105
5		SKID03025	SKID LINE HEATER 7.0MM.132.W.X.480.L.NO.GRATING.2.GROUNDING LUGS. 4.LIFTING LUGS.GALVANIZED.CUSTOM	23		FITNP0553	FITTING.NPT.PLUG.HEX.105.FS.0.500.SA.105
6		PLTFM0074	PLATFORM LINE HEATER 7.0MM.034.W.X.060.LX.1157.H.W/LADDER. GALVANIZED.CUSTOM	24		FITNP0553	FITTING.NPT.PLUG.HEX.105.FS.0.500.SA.105
7		CSCRW019	CAPSCREW GR.& HEX.0.750.X.0.03.000.NC.10.Y.W. ZINC	25		GASKT0141	GASKET 28.00.X.24.000.X.0.1250.(24)0.6250.BH.26.00.BC.THERMOSEAL. C-300
8		CSCRW0585	CAPSCREW GR.& HEX.0.625.X.0.02.000.NC.11.Y.W. ZINC	26		GASKT0161	GASKET 11.750.X.08.625.X.0.1250.(16)0.5625.BH.10.375.BC. THERMOSEAL.C-300
9		CSCRW0775	CAPSCREW GR.& HEX.1.375.X.0.05.000.NC.06.ZINC	27		NUTHX173	NUT HEX.2H.0.625.NC.11.A194.ZINC
10		SPDLO0254	PIPE SPOOLS.UNTID0062.DOMESTIC.MATERIAL	28		NUTHX180	NUT HEX.1.375.NC.06.GR.& ZINC
11		HATCH0001	HATCH THET 7 LANGED.08.00.ALMUMINUM PRESSURE 40Z.ACL.MH.40Z. HATCH (1)08.00.ALMUMINUM PRESSURE 40Z.ACL.MH.40Z	29		NUTHX279	NUT HEX.1.375.NC.06.GR.& ZINC
12	BMS-800	IGNTR1109	IGNITER 1109	30		CSCRW0443	CAPSCREW GR.& HEX.0.500.X.01.500.NC.1.3.Y.W. ZINC
13		THRWLO050	THROWELL NPT 0.750 MNPT X.0.500.FNPT.31.65ST.0.260BORE.07.50. U.09.00.STEM STEPPED.NACE.MK0175.CHEM.OIL.M01.W32-9S	31		WASHR0008	WASHER FLAT.USS.0.750.ZINC
14		THRWLO028	THROWELL NPT 0.750 MNPT X.0.500.FNPT.30.45ST.0.260BORE.09.00.LS	32		WASHR0101	WASHER FLAT.USS.1.375.ZINC
15		THRWLO066	THROWELL NPT 0.750 MNPT X.0.500.FNPT.30.45ST.0.260BORE.10.50.U. 12.00.STEM NACE.WMA.MOD.TH21	33		NUTHX159	NUT HEX.2H.0.500.NC.1.3.A194.ZINC
16		STGL50043	STGL 50043	34		CSCRW0455	CAPSCREW GR.& HEX.0.500.X.02.500.NC.1.3.Y.W. ZINC
17		STGL50239	STGL 50239	35		CSCRW0486	CAPSCREW GR.& HEX.0.625.X.02.500.NC.11.Y.W. ZINC
18		GAUGE0353	GAUGE TEMPERATURE 0.500 MNPT 0.03.00 DIAL EVERY ANGLE 00-250F 09.00. STEM SAFETY GLASS.AS.CROFT MODEL 3060E090XSG 0/250F	36		CSCRW0788	CAPSCREW GR.& HEX.0.5625.X.01.500.NC.12.Y.W. ZINC
				37		WASHR0004	WASHER FLAT.USS.0.500.ZINC
				38		WASHR0007	WASHER FLAT.USS.0.625.ZINC
				39		STLAN0070	STEEL ANGLE 0.375.X.3.00.X.3.00.SA.36.DOMESTIC.MATERIAL
				40		NUTHX166	NUT HEX.2H.0.5625.NC.12.A194.ZINC
				41		NIPPD0098	NIPPLE PIPE.TBE.1.000.X.0.03.00.WT.0.179.S.080.XH.SA.1068
				42		BLVAL3840	VALVE BALL.RP.1.0.NPT.2PC.FLOATING.AT.05.BODY.2000.CWP.RPTFE SEAT.R PTFE SEAL. LATCH LOCK.APOLLO.73A10501A-27
				43		FITNP0554	FITTING.NPT.PLUG.NPT.105.FS.HEX.HEAD.1.000.SA.105

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DATE	DESIGNED	CHECKED	APPROVED
5/27/2020			
CUSTOMER	DUKE ENERGY		
TITLE			
7.0MM BTU/HR INDIRECT LINE HEATER GENERAL ARRANGEMENT			
SCALE	AS SHOWN	SHEET	10263
REV	DESCRIPTION	DATE	BY
0	ISSUED FOR CONSTRUCTION	5/14/20	DK
UNIT/PROJECT		SHEET 7 OF 7	







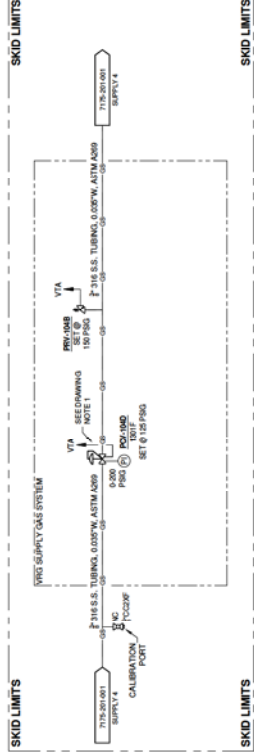
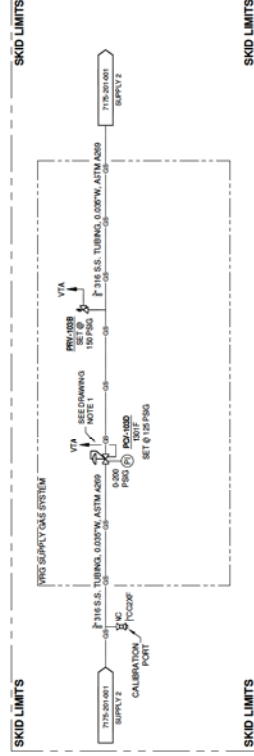
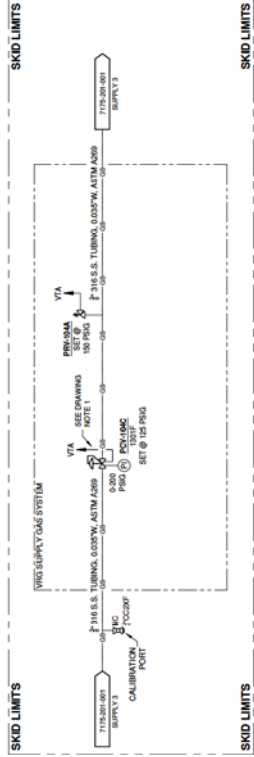
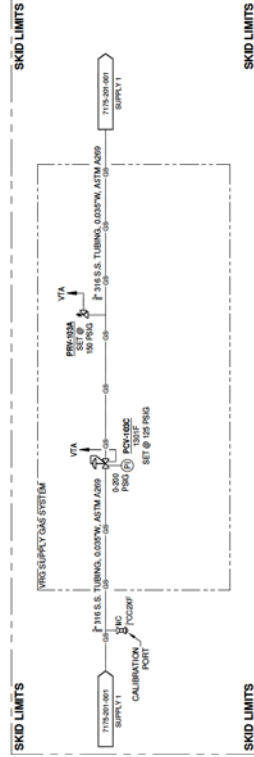
<b>FOR SUBMISSION</b>	REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
	1	ISSUED FOR CONSTRUCTION	WAT	TPL	NPF	05/1/2023


**CENERGY**  
 ENGINEERING / ARCHITECTURE  
 PO BOX 465  
 MISSOURI CITY, MO 63051  
 PHONE: 281-454-4250  
 WWW.CENERGY.CO.COM

SECTION	DUKE - CV103/104		
	C350 PROJECT - HIGHPOINT PARK STA		
	PIPING & INSTRUMENTATION DIAGRAM STANDARD NOMENCLATURE		
COUNTY/PARTIAL	HAMILTON COUNTY	STATE	OHIO
DRAWING NUMBER	7175-200-001		
DRAWING SCALE	NONE	SHEET	1 OF 1



**VRG SUPPLY GAS SYSTEM**  
**FISHER 1301F REGULATOR**



## 1. BUILT TO DUKE STANDARDS & SPECIFICATION

- |     |   |
|-----|---|
| 1.  | BUILT TO DUKE STANDARDS & SPECIFICATIONS  |
| 2.  | ASME B31.8                                |
| 3.  | DOT CLASS 4 DESIGN                        |
| 4.  | INLET DESIGN FACTOR: 0.4                  |
| 5.  | OUTLET DESIGN FACTOR: 0.2                 |
| 6.  | CORROSION ALLOWANCE: 0.00                 |
| 7.  | 100% RADIOGRAPHIC INSPECTION              |
| 8.  | INLET DESIGN PRESSURE: 1000 PSIG          |
| 9.  | INLET HYDRO TEST WITH WATER AT 1000 PSIG  |
| 10. | OUTLET HYDRO TEST WITH WATER AT 1000 PSIG |

ISSUED FOR  
CONSTRUCTION

[illegible]

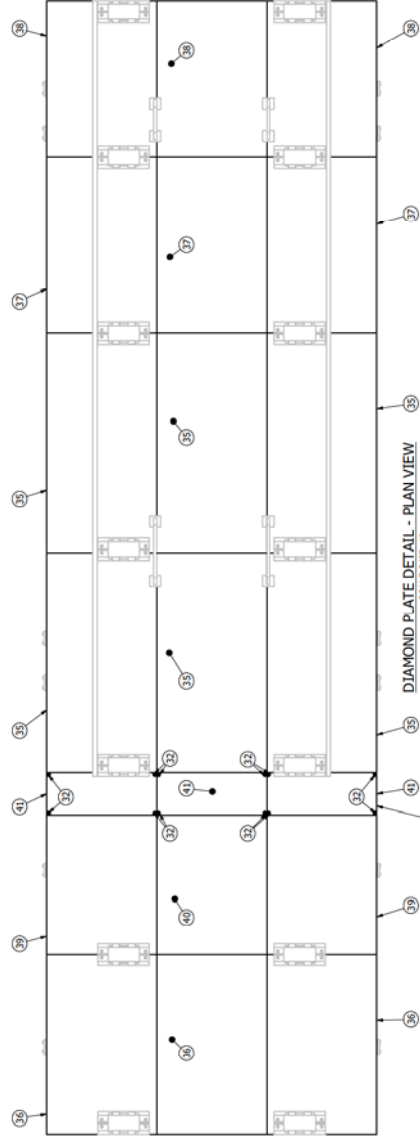
**CENERGY**  
ENGINEERING | MAINTENANCE

**C350 PROJECT - HIGHPOINT PARK STATION  
PIPING & INSTRUMENTATION DIAGRAM  
INSTRUMENT SUPPLY SYSTEM**

COUNTY/PARISH	HAMILTON COUNTY	STATE	OHIO	REVISIONS
DRAWING NUMBER: 7175-202-001				0
DRAWING SCALE: NONE		SHEET: 1 OF 1		



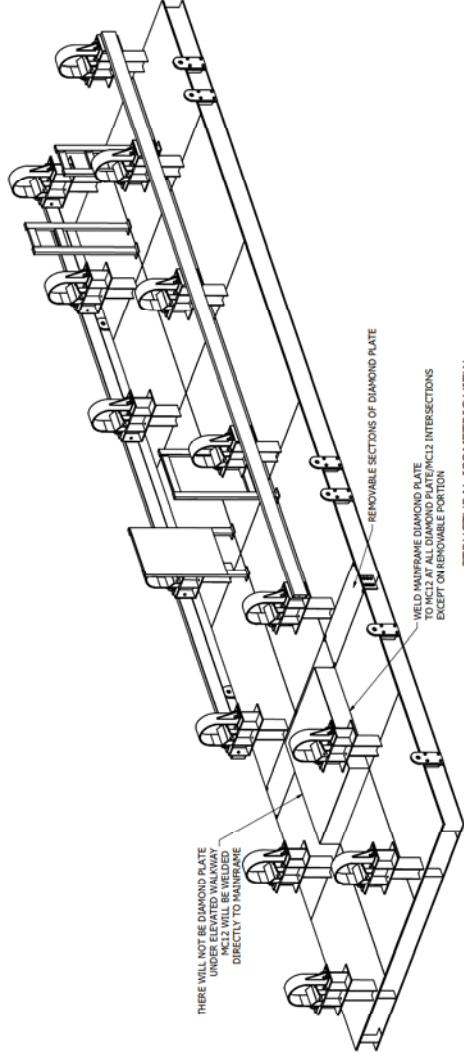




DIAMOND PLATE DETAIL - PLAN VIEW

SCALE 3/8"=1"

ITEM # 41 WILL BE FASTENED INTO PLACE USING ITEM # 32 AFTER BOTH SKIDS HAVE BEEN SET



STRUCTURAL ISOMETRIC VIEW

SCALE 3/8"=1"

- NOTES:
1. ALL STRUCTURAL STEEL SHALL BE FURNISHED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL, 13TH EDITION.
  2. ALL STRUCTURAL STEEL SHALL BE PAINTED PER DUKE SPEC.
  3. WELD FLANGE SHAPES - ASTM A502, GR50.
  4. WELDS - E70XX LOW HYDROGEN ROD MEETING THE REQUIREMENTS OF AWS D1.1.

ISSUED FOR  
CONSTRUCTION

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	CNS	ECW	ZAN	05/11/2025

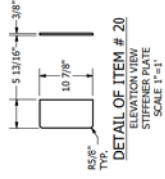
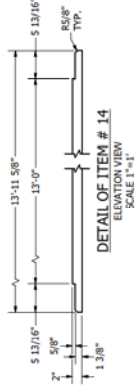
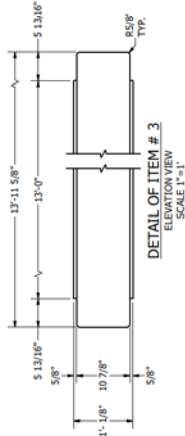
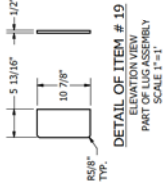
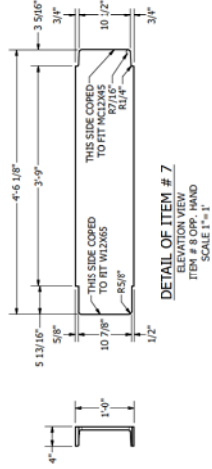
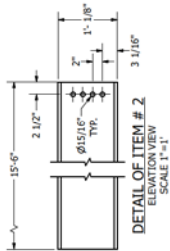
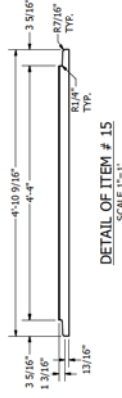
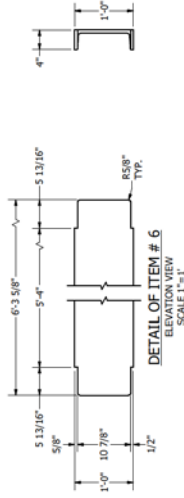
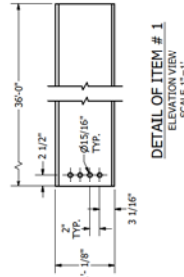
**CENERGY**  
ENGINEERING | MANUFACTURING | CONSTRUCTION

PO BOX 485  
MARIETTA, OHIO 45751  
PHONE: 741-744-9200  
WWW.CENERGYCO.COM

DUKE - CV103/104  
C350 PROJECT - HIGHPOINT PARK STATION  
16"x10" FC SKID - STRUCTURAL  
DIAMOND PLATE LAYOUT

COUNTY/PARISH: HAMILTON COUNTY STATE: OHIO  
DRAWING NUMBER: 7175-500-002  
DRAWING SCALE: 3/8"=1"

REVISION  
SHEET: 1 OF 1  
0



**NOTES:**

1. ALL STRUCTURAL STEEL SHALL BE FURNISHED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISI STEEL CONSTRUCTION MANUAL, 13TH EDITION.
2. ALL STEEL SHALL BE A36 UNLESS OTHERWISE SPECIFIED.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO:
  - a. STRUCTURAL STEEL SHAPES: ASTM A6
  - b. PLATES AND ANGLES: ASTM A572
  - c. HIGH STRENGTH BOLTS: ASTM A505, TYPE 1 GALVANIZED
4. ALL STEEL SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AWS D1.1.
5. ALL DETAILS THIS PAGE REF. BOB ON DWG # 7127-500-001.

**DRAWING STATUS:**

**ISSUED FOR  
CONSTRUCTION**

[illegible]

**CENERGY**  
ENGINEERING | MANUFACTURING | CONSTRUCTION

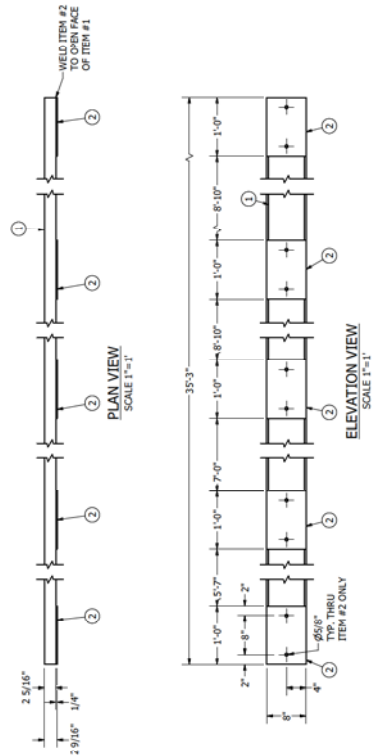
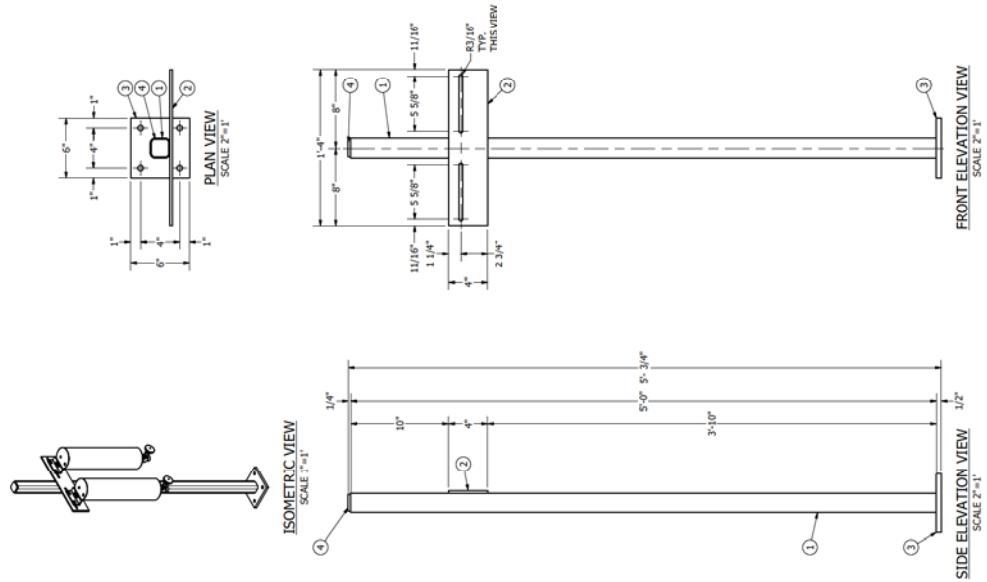
PO BOX 435  
MILTON, WV 25541  
PHONE: 304-743-4260  
[WWW.CENERGYCO.COM](http://WWW.CENERGYCO.COM)

DUKE - CV103/104		REVISED	0
C350 PROJECT - HIGHPOINT PARK STATION			
16"X10' FC SKID - STRUCTURAL			
STRUCTURAL COMPONENT DETAILS			
COUNTY/PARISH	HAMILTON COUNTY	STATE	OHIO
DRAWING NUMBER	7175-501-001		
DRAWING SCALE	1"=1'	SHEET	1 OF 1

BOLT-ON TUBING SUPPORT	
ITEM	QTY DESCRIPTION
1	1 C8 @ 13.75 LB/FT STRUCTURAL CHANNEL, ASTM A992, 35'-3" LONG
2	5 PLATE, 8" x 12" x 1/4" THK, ASTM A36

FILTER MOUNTING ROLE	
ITEM	QTY
1	AISC - 2 x 2 x 1/4 SQUARE TUBE - 60" LONG, ASTM A36
2	4" x 1/4" FLAT BAR STEEL, 16" LONG, SLOTTED PER DETAIL, ASTM A36
3	6" x 6" x 1/2", PLATE, ASTM A36
4	1-3/4" x 1-3/4" x 1/4", ASTM A36 STEEL PLATE


TRANSMITTER MOUNTING POLE	
ITEM	QTY
1	2" PIPE, 0.218" W, ASTM A106 GRB, GALVANIZED, TOE x POE, 6 FT LONG
2	1 2" FLANGE, FF, NPT, GALVANIZED
3	1 2" CAP, SLIP ON
4	1 1/4" HEX HEAD SELF TAPPING SCREW, 3/4" LONG



**NOTES:**

1. ALL STRUCTURAL STEEL SHALL BE FINISHED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISC STEEL CONSTRUCTION MANUAL, 13TH EDITION.
2. ALL MATERIALS SHALL BE SUPPLIED AND DELIVERED PER AISC SPEC.
3. ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AISC D1.1.
4. WELD FLANGE SHAPES - ASTM A992, 350.
5. WELD STRENGTH BOLTS - ASTM A505 TYPE 1 GALVANIZED.
6. WELDS - E70XX LOW HYDROGEN ROD MEETING THE REQUIREMENTS OF AWS D1.1.

**ISSUED FOR CONSTRUCTION**

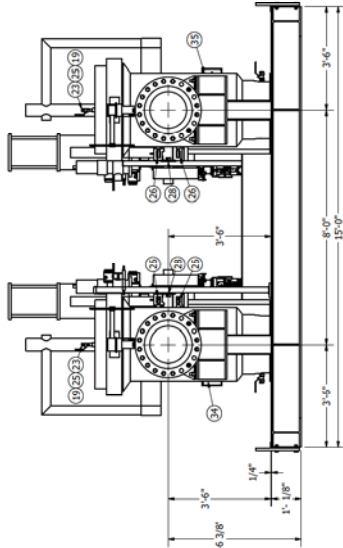
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MILTON, WV 25541  
PHONE: 304-743-4260  
WWW.CENERGYCO.COM

DUKE - CV103/104		REVISIONS	0
C350 PROJECT - HIGH-POINT PARK STATION			
16"x10" FC SKID - STRUCTURAL			
TUBING SUPPORT & FILTER POLE DETAILS			
COUNTY/PARISH: HAMILTON COUNTY	STATE: OHIO	DRAWING NUMBER: 7175-501-002	
DRAWING SCALE: 2"x1"		SHEET: 1 OF 1	

SKID 16' X 8' X 8" SHOULD BE LIFTED INDEPENDENTLY. NO LIFTED CONNECTIONS NOT DESIGNED TO SUPPORT FULLY ASSEMBLED LIFTING. ESTIMATED SKID WEIGHT OF 8000 LB. 4000 LBS.

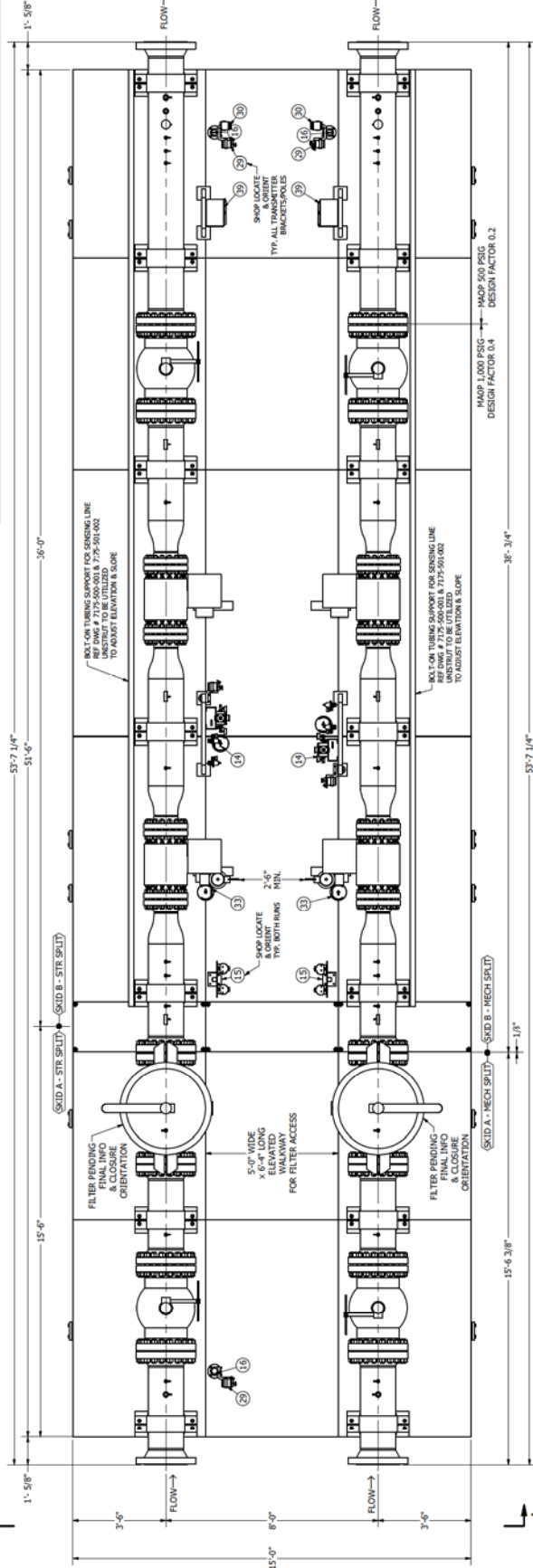


VIEW A-A  
SCALE 1/2\"/>

ISOMETRIC VIEW  
STRUCTURAL GRADED OUT FOR CAVITY  
SCALE 1/4\"/>

ITEM	QTY	DESCRIPTION
1	1	SKID # 7175-2-1, REF DWG # 7175-700-001
2	1	SKID # 7175-2-2, REF DWG # 7175-700-001
3	1	SKID # 7175-2-3, REF DWG # 7175-700-001
4	1	SKID # 7175-2-4, REF DWG # 7175-700-001
5	1	SKID # 7175-2-5, REF DWG # 7175-700-001
6	1	SKID # 7175-2-6, REF DWG # 7175-700-001
7	1	SKID # 7175-2-7, REF DWG # 7175-700-001
8	1	SKID # 7175-2-8, REF DWG # 7175-700-001
9	1	SKID # 7175-2-9, REF DWG # 7175-700-001
10	1	SKID # 7175-2-10, REF DWG # 7175-700-001
11	1	SKID # 7175-2-11, REF DWG # 7175-700-001
12	1	SKID # 7175-2-12, REF DWG # 7175-700-001
13	1	SKID # 7175-2-13, REF DWG # 7175-700-001
14	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
15	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
16	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
17	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
18	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
19	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
20	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
21	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
22	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
23	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
24	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
25	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
26	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
27	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
28	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
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31	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
32	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
33	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
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35	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
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41	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
42	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001
43	2	INSTRUMENT PANEL ASSEMBLY, REF DWG # 7175-500-001

A  
REF  
THIS PAGE



C  
REF DWG#  
7175-600-002

1. BUILD TO DASH STANDARDS & SPECIFICATION  
2. ASME B31.8  
3. DESIGN FLOW: 12 TO 20 MMSGD  
4. INLET DESIGN FACTOR: 0.4  
5. CORROSION ALLOWANCE: 0.00  
6. CORROSION ALLOWANCE: 0.00  
7. 100% RADIOGRAPHIC INSPECTION  
8. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
9. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
10. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
11. OUTLET DESIGN PRESSURE: 500 PSIG

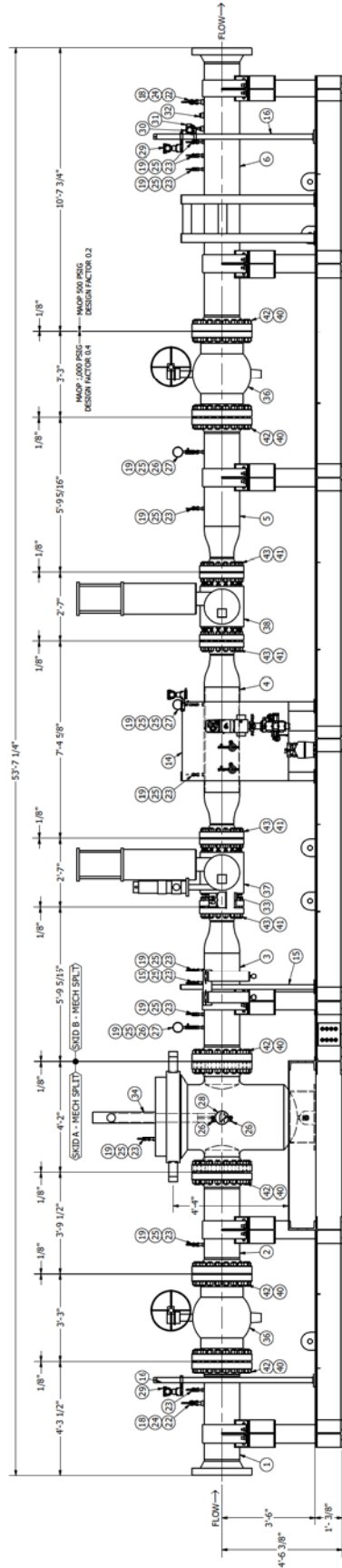
ISSUED FOR  
CONSTRUCTION

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
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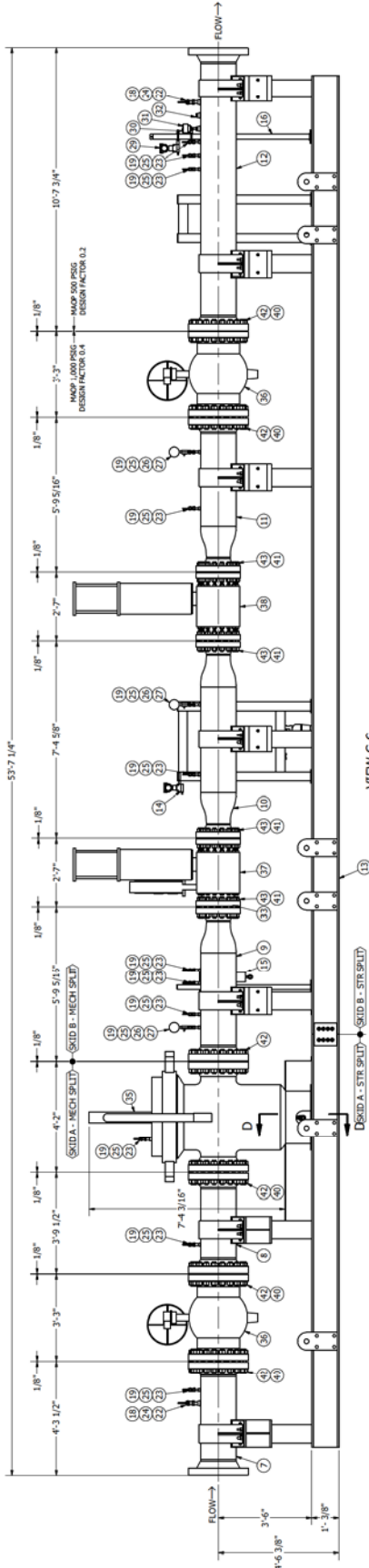
CENERGY  
ENGINEERING (MAY 2020)  
PO BOX 885  
MARIETTA, OHIO 45750  
PHONE: 740-842-8200  
WWW.CENERGYCO.COM

DUKE - CV103/104  
C350 PROJECT - HIGHPOINT PARK STATION  
16'X10' FC SKID - MECHANICAL  
SKID LAYOUT  
COUNTY: FRANKLIN COUNTY  
STATE: OHIO  
DRAWING NUMBER: 7175-600-001  
SHEET: 1 OF 1

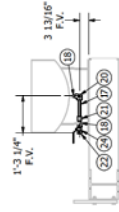




SECTION B-B  
REF DWG # 7175-610-001  
BOLT-ON TUBING SUPPORT REMOVED FOR CLARITY  
SCALE 1/2"=1'



13 **VIEW C-C**  
REF DWG # 7175-600-001  
BOLT-ON TUBING SUPPORT REMOVED FOR CLARITY  
SCALE 1/2"=1'

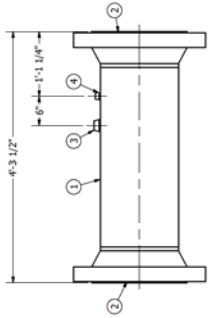


**SECTION D-D (THIS PAGE)**  
 FILTER DRAIN DETAIL  
 TYP. 2 PLACES  
 SCALE 1/2"=1'

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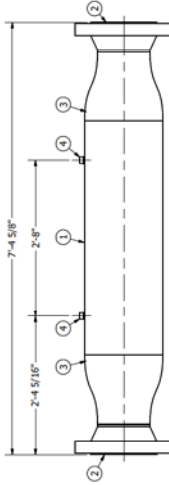


SPOOL # 7175-2-1	
ITEM	QTY
DESCRIPTION	
1	16" PIPE, 0.500"W, API5L PSL2 X52, ERW/LSAW, 4 FT LONG
2	16" FLANGE, R FWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97
4	1/2" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97



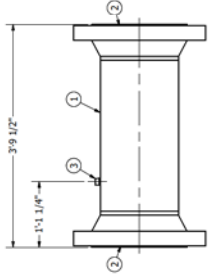
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-4	
ITEM	QTY
DESCRIPTION	
1	16" PIPE, 0.500"W, API5L PSL2 X52, ERW/LSAW, 4 FT LONG
2	16" FLANGE, R FWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97
4	1/2" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97



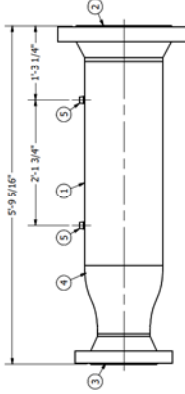
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-3	
ITEM	QTY
DESCRIPTION	
1	16" PIPE, 0.500"W, API5L PSL2 X52, ERW/LSAW, 3 FT LONG
2	16" FLANGE, R FWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97



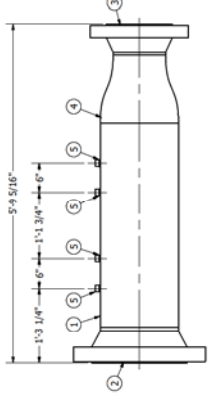
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-5	
ITEM	QTY
DESCRIPTION	
1	16" PIPE, 0.500"W, API5L PSL2 X52, ERW/LSAW, 4 FT LONG
2	16" FLANGE, R FWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97
4	16" x 10" CONCENTRIC REDUCER, 0.500"W X 0.500"W, WPHY52, MSS SP-75
5	1/2" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97



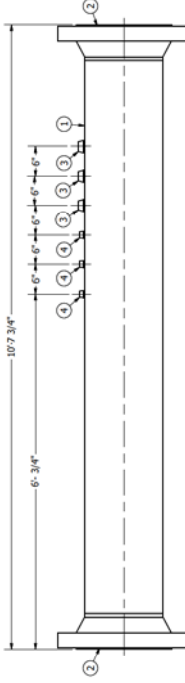
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-3	
ITEM	QTY
DESCRIPTION	
1	16" PIPE, 0.500"W, API5L PSL2 X52, ERW/LSAW, 4 FT LONG
2	16" FLANGE, R FWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97
4	16" x 10" CONCENTRIC REDUCER, 0.500"W X 0.500"W, WPHY52, MSS SP-75
5	1/2" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97



ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-6	
ITEM	QTY
DESCRIPTION	
1	16" PIPE, 0.500"W, API5L PSL2 X52, ERW/LSAW, 10 FT LONG
2	16" FLANGE, R FWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97
4	1/2" THRODLET, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-97




ELEVATION VIEW  
SCALE 1"=1'

1. BUILD TO DASH STANDARDS & SPECIFICATION  
2. ASME 31.8  
3. DESIGN FLOW: 12 TO 20 MGD  
4. INLET DESIGN PRESSURE: 0.4 PSIG  
5. INLET DESIGN TEMPERATURE: 100°F  
6. CORROSION ALLOWANCE: 0.00  
7. 100% RADIOGRAPHIC INSPECTION  
8. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
9. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
10. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
11. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS

12. DESIGN TEMPERATURE RANGE: -20° TO 100°F  
13. DESIGN FLOW: 12 TO 20 MGD  
14. INLET DESIGN PRESSURE: 0.4 PSIG  
15. INLET DESIGN TEMPERATURE: 100°F  
16. CORROSION ALLOWANCE: 0.00  
17. 100% RADIOGRAPHIC INSPECTION  
18. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
19. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
20. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS

ISSUED FOR  
CONSTRUCTION

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	CNS	ECW	NPF	05/11/2025



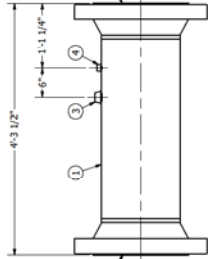
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PO BOX 485  
MARIETTA, OHIO 45750  
PHONE: 740.742.4240  
WWW.CENERGYCO.COM

DUKE - CV103/104  
C350 PROJECT - HIGHPOINT PARK STATION  
16"x10" FC SKID - MECHANICAL  
SPOOL DETAIL (1)

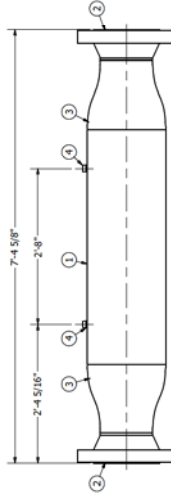
COUNTY/FRANCHISE	HAMILTON COUNTY	STATE	OHIO
DRAWING NUMBER	7175-700-001		
DRAWING SCALE	1"=1'		
SHEET	1 OF 1		

SPOOL # 7175-2-7		
ITEM	QTY	DESCRIPTION
1	1	16" PIPE, 0.500"W, API5L PSL-2 X52, ERW/LSAW, 4 FT LONG
2	2	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1	1" THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47
4	1	1/2" THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47



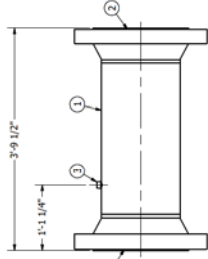
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-10		
ITEM	QTY	DESCRIPTION
1	1	16" PIPE, 0.500"W, API5L PSL-2 X52, ERW/LSAW, 4 FT LONG
2	2	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	2	16" X 10" CONCENTRIC REDUCER, 0.500"W X 0.500"W, WHT52, MSS SP-75
4	2	1/2" THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47



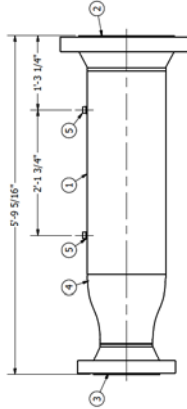
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-8		
ITEM	QTY	DESCRIPTION
1	1	16" PIPE, 0.500"W, API5L PSL-2 X52, ERW/LSAW, 3 FT LONG
2	2	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1	1/2" THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47



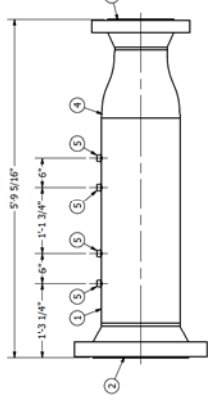
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-11		
ITEM	QTY	DESCRIPTION
1	1	16" PIPE, 0.500"W, API5L PSL-2 X52, ERW/LSAW, 4 FT LONG
2	1	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
4	1	16" X 10" CONCENTRIC REDUCER, 0.500"W X 0.500"W, WHT52, MSS SP-75
5	2	1/2" THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47



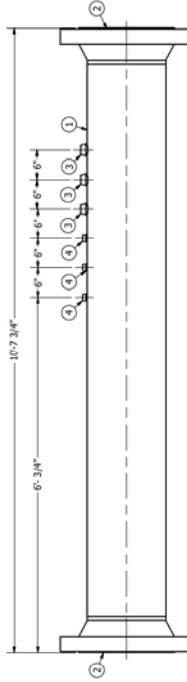
ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-9		
ITEM	QTY	DESCRIPTION
1	1	16" PIPE, 0.500"W, API5L PSL-2 X52, ERW/LSAW, 4 FT LONG
2	1	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
4	1	16" X 10" CONCENTRIC REDUCER, 0.500"W X 0.500"W, WHT52, MSS SP-75
5	4	1/2" THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47



ELEVATION VIEW  
SCALE 1"=1'

SPOOL # 7175-2-12		
ITEM	QTY	DESCRIPTION
1	1	16" PIPE, 0.500"W, API5L PSL-2 X52, ERW/LSAW, 10 FT LONG
2	2	16" FLANGE, RFVN, ANSI 600, 0.500"W, A694 F52, MSS SP-44
3	1	THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47
4	3	1/2" THREADED, 3000#, FOR 16" RUN PIPE, A694 F52, MSS SP-47



ELEVATION VIEW  
SCALE 1"=1'

1. BUILD TO ASME STANDARDS & SPECIFICATION  
2. ASME B31.8  
3. DESIGN  
4. INLET DESIGN FACTOR 0.4  
5. CORROSION ALLOWANCE 0.00  
6. CORROSION ALLOWANCE 0.00  
7. 100% RADIOGRAPHIC INSPECTION  
8. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
9. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
10. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS  
11. OUTLET DESIGN PRESSURE 500 PSIG

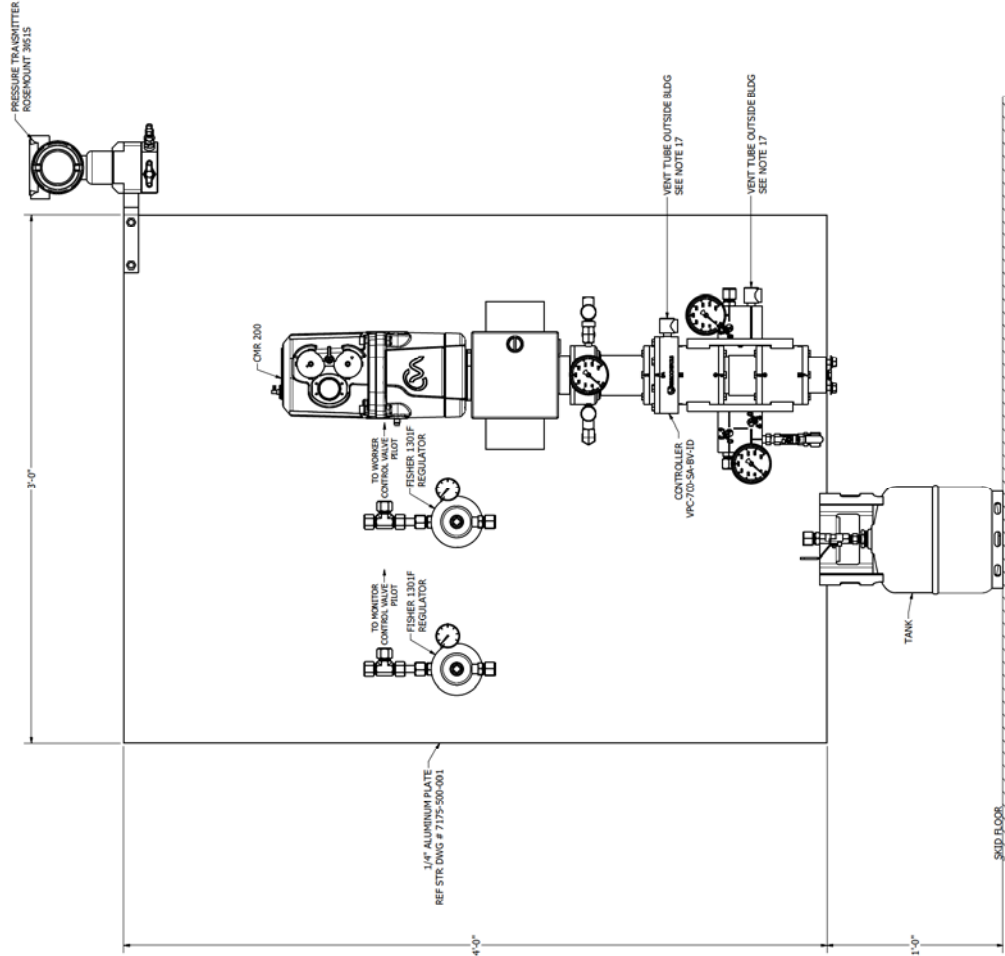
12. DESIGN TEMPERATURE RANGE: -20° TO 100°F  
13. DESIGN FLOW: 12 TO 20 MGD  
14. DESIGN PRESSURE RANGE: 400 - 675 PSIG  
15. OUTLET PRESSURE 400 PSIG  
16. INLET PRESSURE 400 PSIG  
17. OPERATING TEMPERATURE RANGE: -20° TO 100°F  
18. NORMAL OPERATING TEMPERATURE RANGE: -20° TO 100°F  
19. NORMALLY OPERATED CLASS 1 DIV 1 VENTS MUST BE PIPED A MINIMUM OF 10' AWAY FROM BUILDING EYE & HIGH PRESSURE VENTS 5'-1' AWAY FROM BUILDING

ISSUED FOR  
CONSTRUCTION

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	CNS	ECW	NPF	05/11/2025

**CENERGY**  
ENGINEERING | MANUFACTURING | CONSTRUCTION  
PO BOX 485  
HAMILTON, OHIO 45002  
PHONE: 513-767-8240  
WWW.CENERGYCO.COM

DUKE - CV103/104  
C350 PROJECT - HIGHPOINT PARK STATION  
16"X10" FC SKID - MECHANICAL  
SPOOL DETAIL (2)  
COUNTY: FRANKLIN COUNTY  
DRAWING NUMBER: 7175-700-002  
STATE: OHIO  
SHEET: 1 OF 1



ELEVATION VIEW  
FOR LAYOUT REFERENCE ONLY  
FINAL PANEL ASSEMBLY MAY VARY  
REF ENGINEERED EQUIPMENT BOM  
FOR ALL CONSTRUCTION  
SCALE 3"=1'

DRAWING STATUS:

ISSUED FOR  
CONSTRUCTION

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	CNS	ECW	NSF	05/11/2025



**CENERGY**  
ENGINEERS | MANUFACTURING | CONSTRUCTION

PO BOX 485  
MAYFIELD, OH 44130  
PHONE 360.784.2400  
WWW.CENERGYCO.COM

DUKE - CV103/104  
C350 PROJECT - HIGHPOINT PARK STATION  
16"x10" FC SKID - MECHANICAL  
INSTRUMENT PANEL DETAIL

COUNTY/PARISH: HAMILTON COUNTY	STATE: OHIO
DRAWING NUMBER: 7175-700-003	SHEET: 1 OF 1
DRAWING SCALE: 3"=1'	REVISION: 0

- NOTES:**
1. BUILD TO DASH STANDARDS & SPECIFICATION
  2. ASME B31.8
  3. DESIGN FLOW: 12 TO 25 MMSGD
  4. INLET DESIGN FACTOR: 0.4
  5. INLET PRESSURE: 400 PSIG
  6. CORROSION ALLOWANCE: 0.00
  7. 100% RADIOGRAPHIC INSPECTION
  8. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS
  9. INLET HYDRO TEST WITH WATER AT MIN 750 PSIG / MAX 800 FOR EIGHT (8) HOURS
  10. INLET HYDRO TEST WITH WATER AT MIN 1,000 PSIG / MAX 1,500 FOR EIGHT (8) HOURS
  11. OUTLET DESIGN PRESSURE: 500 PSIG
  12. DESIGN TEMPERATURE RANGE: -20° TO 100°F
  13. DESIGN FLOW: 12 TO 25 MMSGD
  14. INLET PRESSURE: 400 PSIG
  15. OUTLET PRESSURE: 400 PSIG
  16. OPERATING TEMPERATURE: 30 TO 100°F
  17. OPERATING TEMPERATURE: 30 TO 100°F
  18. NORMALLY OPERATED CLASS 1 DIV 1 VENTS MUST BE SPED A
  19. DUE TO ROUTE LOW PRESSURE VENTS 15' AWAY FROM BUILDING EYE & HIGH PRESSURE VENTS 5'-1' AWAY FROM BUILDING

AREA CLASSIFICATIONS

CLASSIFICATION OF ELECTRICAL INSTALLATIONS SHALL BE DETERMINED BY THE AMERICAN GAS ASSOCIATION #X1.001



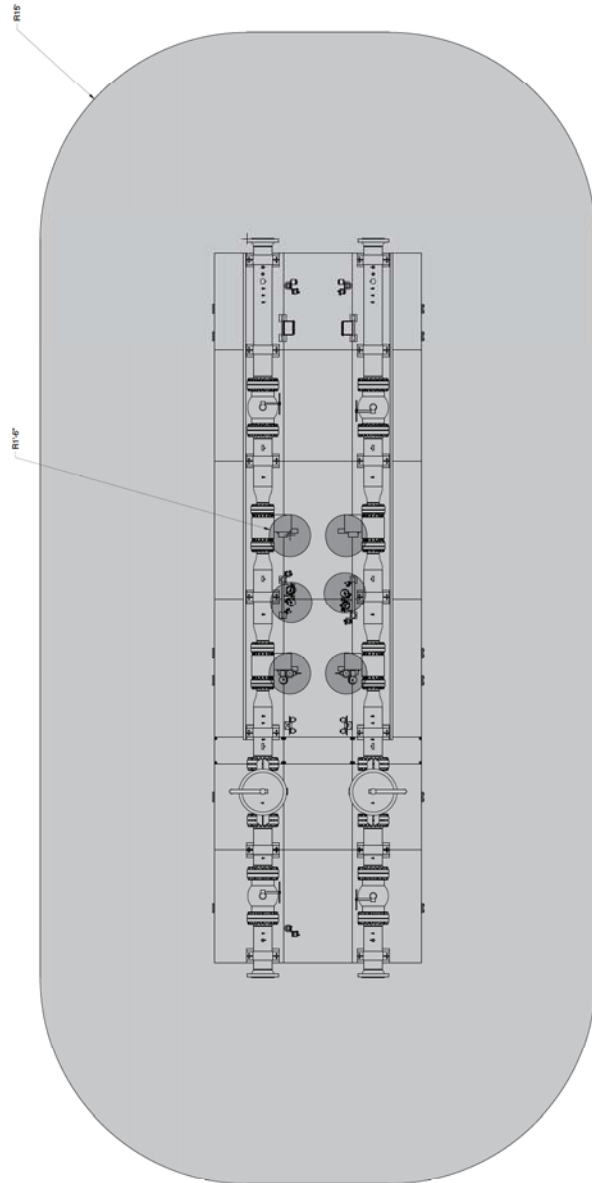
GENERAL CLASSIFICATION NOTE:

CLASS 1 DIVISION 1 AREAS

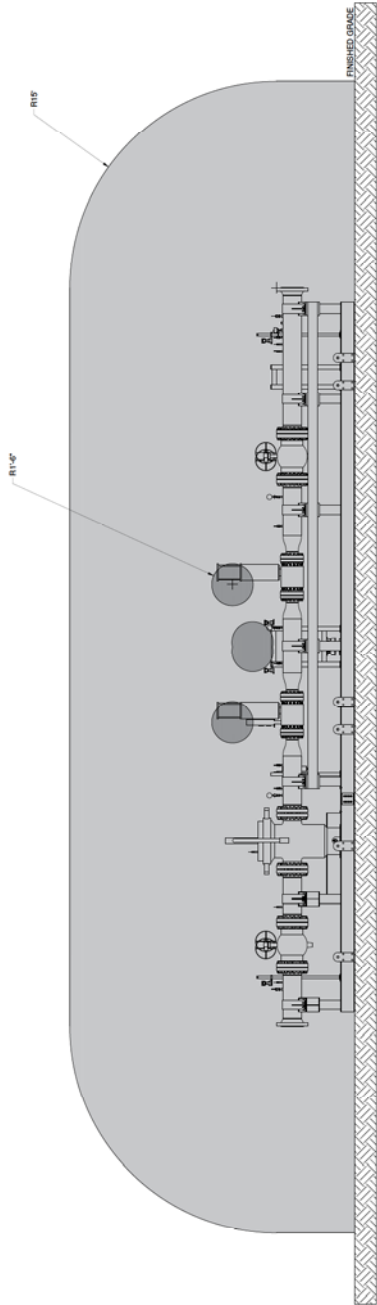
5' RADIUS AROUND ALL BLOWDOWN VENTS RELIEF VALVES AS CONSIDERED NORMAL OPERATIONS  
1.5' RADIUS AROUND ALL INSTRUMENT VENTS FOR THOSE CONSIDERED NORMAL OPERATIONS  
FOR OPERATION/MAINTENANCE CONDITIONS  
CONSIDERED NORMAL OPERATIONS  
SURROUNDING IS CLASSIFIED AS C1D2 WITH SPECIAL PRECAUTIONS TO BE TAKEN DURING THE TIME OF THAT OPERATION/MAINTENANCE

CLASS 1 DIVISION 2 AREAS

15' RADIUS AROUND ALL BLOWDOWN VENTS, RELIEF VALVES, CLOSURES, FLANGES, VALVES, HEADERS PIPING AND LOUVERS  
3' RADIUS AROUND INSTRUMENT VENTS



PLAN VIEW



ELEVATION VIEW

GENERAL NOTES:  
1. FOR CLASSIFICATION LOCATIONS FOR ELECTRICAL INSTALLATIONS IN GAS UTILITY AREAS

ISSUED FOR CONSTRUCTION

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	JWH	DSB	JSA	05/11/2012

CENERGY  
ENGINEERING/MANUFACTURING/CONSTRUCTION  
PO BOX 485  
MILFORD, NJ 08048  
PHONE: 973-254-5400  
WWW.CENERGYCO.COM

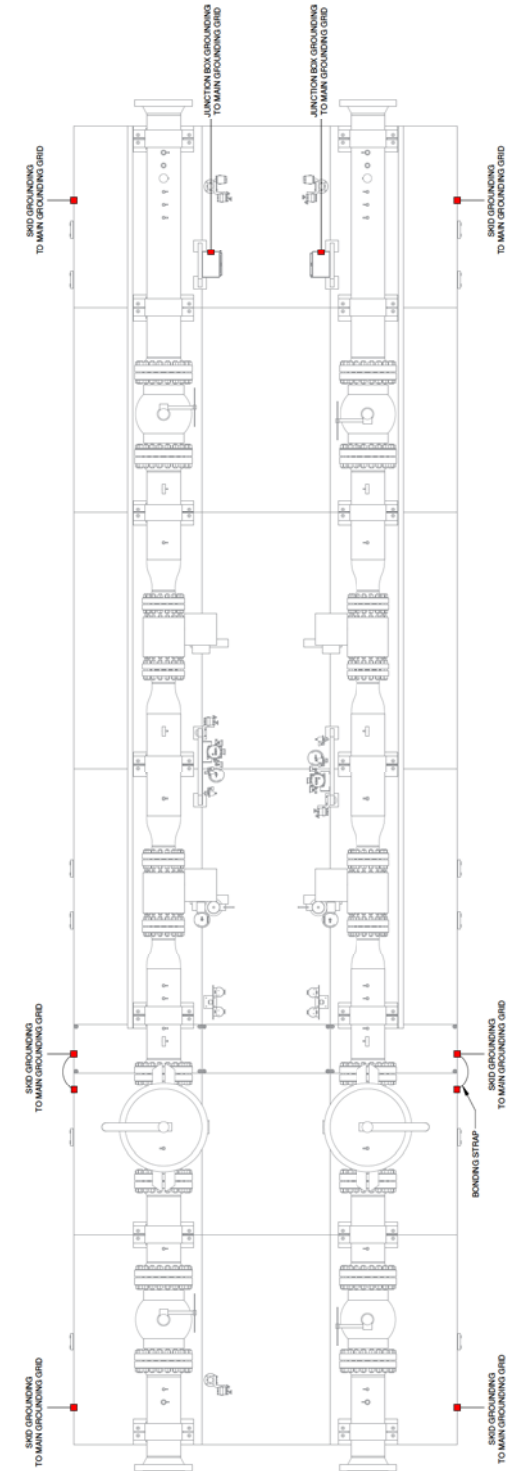
DUKE - CV103/104  
C350 PROJECT - HIGHPOINT PARK STATION  
HAZARDOUS LOCATION  
FLOW CONTROL SKID  
COUNTY/PARISH: HAMILTON COUNTY/STATE: OHIO  
DRAWING NUMBER: 7175-1200-100  
DRAWING SCALE: NONE  
SHEET: 1 OF 1  
REVISION: 0

GROUNDING LEGEND

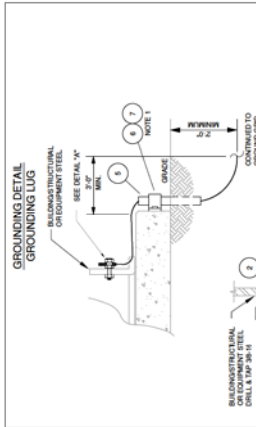
- EX, TECH MECHANICAL CONNECTION

GROUNDING NOTES:

- THE REPRESENTATIVE REGULATOR SKIDS SHALL BE PROVIDED WITH (4) ATTACHMENTS FOR ELECTRICAL GROUNDING PROVISIONS. THE ATTACHMENTS SHALL BE PROVIDED TO THE CONTRACTOR FOR INSTALLATION CORNERS ON THE OUTSIDE OF THE EQUIPMENT AND SHALL BE NOTED ON THE DRAWINGS.
- ALL ELECTRICAL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF NEC 250 AND 250.100.
- SKIDS ARE TO BE BONDED TOGETHER UTILIZING BONDING STRAP.



PLAN VIEW



GROUNDING DETAIL

SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 1: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 2: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 3: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 4: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 5: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

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NOTE 9: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 10: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 11: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

NOTE 12: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

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NOTE 20: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

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NOTE 52: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

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NOTE 80: SEE DETAIL 'N' FOR GROUNDING LUG CONNECTION TO MAIN GROUNDING GRID.

DUKE - CV103/104

C350 PROJECT - HIGHPOINT PARK STATION

GROUNDING PLAN

FLOW CONTROL SKID

COUNTY/PAISH: HAMILTON COUNTY

DRAWING NUMBER: 7175-1200-200

DRAWING SCALE: NONE

REVISION

1

0

CENERGY

ENGINEERING/MANUFACTURING/CONSTRUCTION

PO BOX 485

WILKINSON, WV 26180

PHONE: 304.264.4400

WWW.CENERGYCO.COM

REVISION HISTORY

DESCRIPTION

DRAWN

CHECKED

APPROVED

DATE

07/11/2020

DRAWING STATUS:

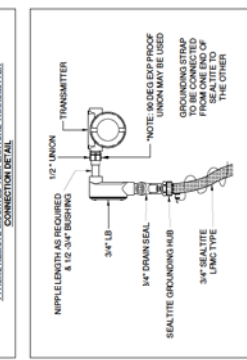
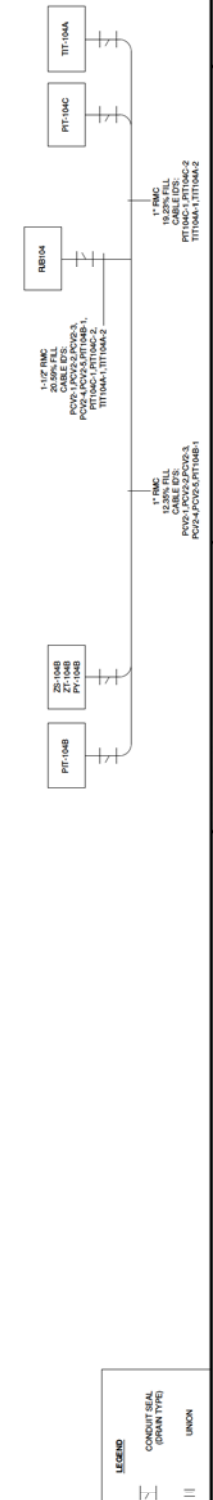
ISSUED FOR

CONSTRUCTION

GENERAL NOTES:

1. CONTRACTOR TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE TO THE LATEST VERSION OF THE NEC.

2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY LABOR, EQUIPMENT AND MATERIAL TO PROVIDE COMPLETE INSTALLATION.



<b>ENERGY</b> RESIDENTIAL MANUFACTURING CONSTRUCTION	DUKE - CV103104 C350 PROJECT - HIGHPOINT PARK STATION DC CONDUIT LAYOUT FLOW CONTROL SKD	COUNTY/PARISH - HAMILTON COUNTY STATE - OHIO DRAWING NUMBER - 7175-1300-100 REVISION 0
	PO BOX 465 MILTON, WY 26841 307-685-1111 WWW.CENERGYCO.COM	PROJECT SCALE - 1"=40' PAPER - 3" x 18"
	DATE: 11/11/2010 TIME: 10:00:00 AM	

[illegible]

DRAWING STATUS:

ISSUED FOR  
CONSTRUCTION

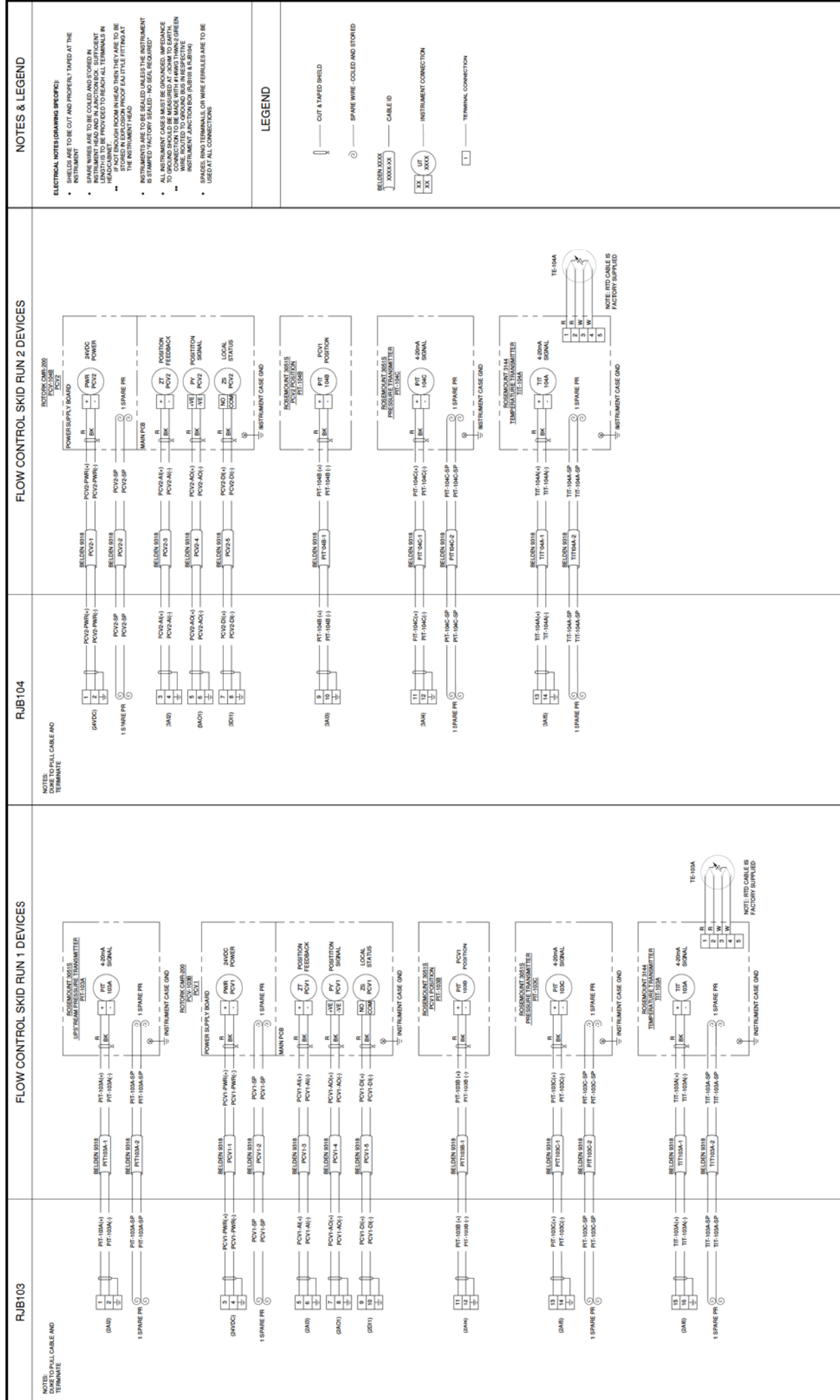
**GENERAL NOTES:**

1. CONTRACTOR TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE TO THE LATEST VERSION OF THE NEC
2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY LABOR, EQUIPMENT AND MATERIALS. TO PROVIDE COMPLETE INSTALLATION
3. SMO WILL NOT BE CONNECTED DURING THE MANUFACTURING STATE. VERIFY THE CONDUIT IS ABLE TO BE CONNECTED AT THE UNION









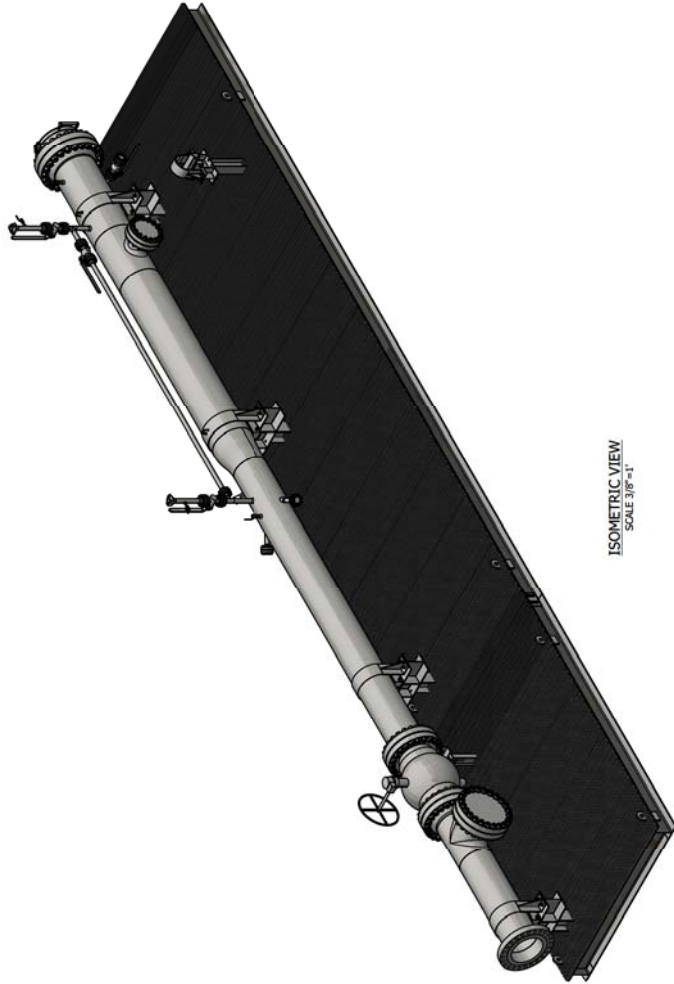
<div><div>DRAWING STATUS:</div><div>ISSUED FOR CONSTRUCTION</div></div>	<div>GENERAL NOTES:</div> <div>1. CONTRACTOR TO PROVIDE A COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE TO THE LATEST VERSION OF THE NEC</div> <div>2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY LABOR, EQUIPMENT AND MATERIAL TO PROVIDE COMPLETE INSTALLATION</div>		<div><div><div><div><div></div></div></div><div>CENERGY</div><div>(ENGINEERING) MANUFACTURING / CONSTRUCTION</div></div></div>										<div>DUKE - CV103104</div> <div>C350 PROJECT - HIGHTPOINT PARK STATION</div> <div>LOOP DIAGRAM I</div> <div>FLOW CONTROL SKID</div>											
			REV		DESCRIPTION				DRAWN		CHECKED		APPROVED		DATE									
			0		ISSUED FOR CONSTRUCTION				JHW		BAB		JSA		05/11/2022									
															<div>COUNTY: GREENE    TOWN: MILTON    STATE: OHIO</div> <div>UNIVERSAL NUMBER: Z-175-1400-1003</div> <div>PO BOX: 455</div> <div>MILTON, WV 25541</div> <div>REVISIONS:</div>									

Needs to be Quoted Item Out for Quote				PO Generated and Sent to Vendor Item with Item				PREVAILING AML: Duke				SECONDARY AML:					
Design Status:				Project #:				Project Name:				Duke CV-103/104 Flow Control					
Item #	Vendor	Quoted	IFC	PO#	Date Quoted	PO Issued Date	ETA	Manufacturer	DESCRIPTION				DESIGN QTY.		QTY.		Notes
Flanges																	
FL01									18" FLANGE, RPWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44				16	16		16	
FL02									18" FLANGE, RPWN, ANSI 600, 0.500"W, A694 F52, MSS SP-44				8	8		8	
Fittings																	
FT01									18" x 18" CONCENTRIC REDUCER, 0.500"W X 0.500"W, WPHY52, MSS SP-75				8	8		8	
FT02									1" THREDOULET, 3000#, FOR 18" RUN PIPE, A694 F52, MSS SP-97				4	8		8	
FT03									1/4" THREDOULET, 3000#, FOR 18" RUN PIPE, A694 F52, MSS SP-97				2	0		0	
FT04									1/4" THREDOULET, 3000#, FOR 18" RUN PIPE, A694 F52, MSS SP-97				26	27		27	
Threaded																	
TR01									1" PIPE NIPPLE, SCH 160, 3" LONG, SA/A-106, GRB, ASTM A733, TBE				8	8		8	
TR02									1/2" PIPE NIPPLE, SCH 160, 3" LONG, SA/A-106, GRB, ASTM A733, TBE				29	28		28	
TR03									1" THREADED 90 ELBOW, FNPT, 3000#, SA/A-106, GRB, ASTM B16.11, SOLID				2	2		2	
TR04									1" HEX PLUG, 3000#, ASTM A107, FORGED STEEL, ASME B16.11, SOLID				6	6		6	
TR05									1" HEX PLUG, 3000#, ASTM A107, FORGED STEEL, ASME B16.11, SOLID				1	0		0	
TR06									1/2" HEX PLUG, 3000#, ASTM A107, ASME B16.11, FORGED STEEL, SOLID				21	22		22	
TR07									1" PIPE NIPPLE, SCH 160, 8" LONG, SA/A-106, GRB, ASTM A733, TBE				0	0		2	
TR08									1" COUPLING, FNPT, 3000#, SA/A-106, GRB, ASTM B16.11				0	0		2	
Gaskets, Bolts, and Misc.																	
GBM1									18" GASKET, SPIRAL WOUND, CLASS 600, 1/8" THK, FLEXITALLIC GCL, FLEXICARB FILLER, 304SS WADINGS, 304SS INNER RING, C1 OUTER RING, ASME B16.20				12	12		12	
GBM2									18" GASKET, SPIRAL WOUND, CLASS 600, 1/8" THK, FLEXITALLIC GCL, FLEXICARB FILLER, 304SS WADINGS, 304SS INNER RING, C1 OUTER RING, ASME B16.20				8	8		8	
GBM3									1/2" STUD BOLT, 11" L, ASTM A193, GRADE B7, W/ QTY (2) HEAVY HEX NUTS E.A., ASTM A193, GRB W/ QTY (2) WASHER, CARBIDE PLATED				260	260		260	
GBM4									1/4" STUD BOLT, 5 1/2" L, ASTM A193, GRADE B7, W/ QTY (2) HEAVY HEX NUTS E.A., ASTM A193, GRB W/ QTY (2) WASHER, CARBIDE PLATED				218	128		128	
Pipe																	
P1									18" PIPE, 0.500"W, A694 F52, MSS SP-44				50	50		50	
									18" PIPE, 0.500"W, A694 F52, MSS SP-44				2	2		2	
									18" PIPE, 0.500"W, A694 F52, MSS SP-44				8	8		8	
									18" PIPE, 0.500"W, A694 F52, MSS SP-44				2	2		2	

Needs to be Quoted Item Out for Quote				PO Generated and Sent to Vendor Item with Item				PREVAILING AML: Duke				SECONDARY AML:			
Design Status:				Project #:				Project Name:				Duke CV-103/104 Flow Control			
Item #	Vendor	Quoted	PO#	Date Quoted	PO Issued Date	ETA	Manufacturer	Description				DESIGN QTY.			
								IFC	7175			IFC QTY	IFA QTY	IFA Rev. #	Notes
Components															
CMP71												12	12	12	
CMP72												2	2	2	
CMP73												10	10	10	
CMP74												12	12	12	
CMP75												12	12	12	
CMP76												28	28	28	
CMP77												4	4	4	
CMP78												2	2	2	
CMP79												8	8	8	
CMP80												2	2	2	
CMP81												2	2	2	
CMP82												48	48	48	
CMP83												20	20	20	
CMP84												30	30	30	
CMP85												40	40	40	
CMP86												7	7	7	
CMP87												2	2	2	
CMP88												2	2	2	
CMP89												0	0	0	
CMP90												0	0	0	
CMP91												0	0	0	
CMP92												0	0	0	
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CMP95												0	0	0	
CMP96												0	0	0	
CMP97												0	0	0	
CMP98												0	0	0	
CMP99												0	0	0	
CMP100												0	0	0	
Structural Steel															
51												10	10	10	
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52												213	215	215	
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53												42	42	42	
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54												166	168	168	
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												10	10	10	
												1	1	1	
58												0	0	0	
												0	0	0	
												3	3	3	

ISSUED FOR  
CONSTRUCTION

# DUKE ENERGY, PL-105 LAUNCHER SKID ISSUED FOR CONSTRUCTION 03/30/2020

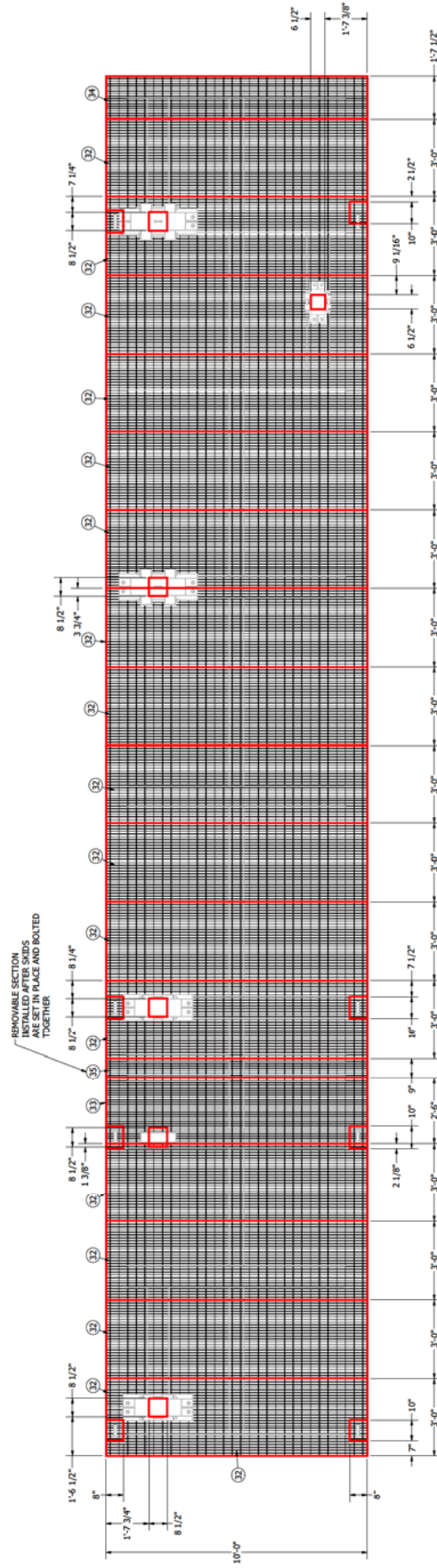


ISOMETRIC VIEW  
SCALE 3/8"=1'

TABLE OF CONTENTS				
DWG #	SIZE	NAME	REV	DATE
7176-500-001	ARCH D	LAUNCHER STRUCTURAL LAYOUT	0	03/30/2020
7176-500-002	ARCH D	LAUNCHER SKID LAYOUT	0	03/30/2020
7176-500-003	ARCH D	STRUCTURAL DETAILS	0	03/30/2020
7176-500-001	ARCH D	LAUNCHER SKID LAYOUT	0	03/30/2020
7176-700-001	ARCH D	SPOOL DETAIL (1)	0	03/30/2020
7176-700-002	ARCH D	SPOOL DETAIL (2)	0	03/30/2020
DM-ST-2011	ARCH D	GUIDE BAR DETAILS	0	01/01/2017







GRATING LAYOUT  
CUT GRATING AS NEEDED  
REF BOM ON DWG # 7176-500-001  
SCALE 1/2"=1'

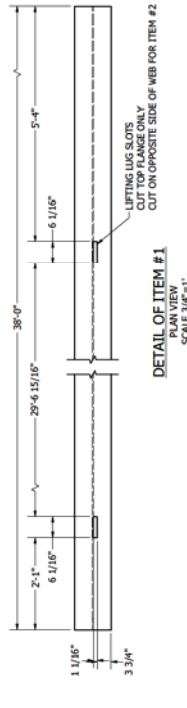
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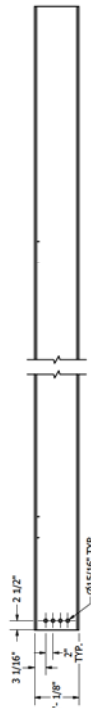
ISSUED FOR  
CONSTRUCTION



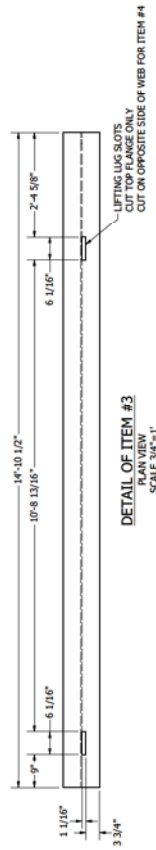
PO BOX 455  
MILTON, WV 25541  
PHONE: 304-743-4250  
WWW.CENTROVCO.COM



DETAIL OF ITEM #1  
ELEVATION VIEW  
SCALE 3/4"=1'



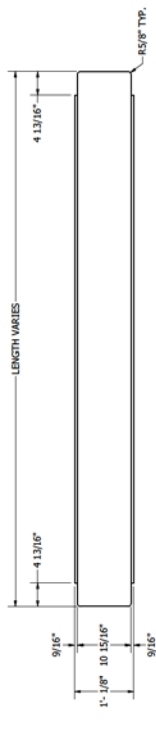
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ELEVATION VIEW  
SCALE 3/4"=1'



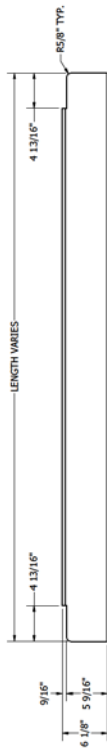
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ELEVATION VIEW  
SCALE 3/4"=1'



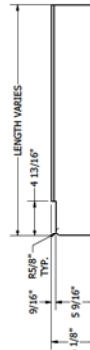
DETAIL OF ITEM #5  
ELEVATION VIEW  
SCALE 3/4"=1'



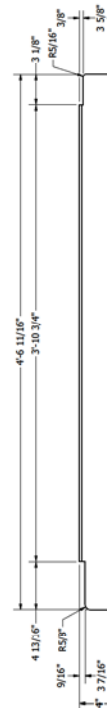
DETAIL OF ITEM #6  
ELEVATION VIEW  
SCALE 3/4"=1'



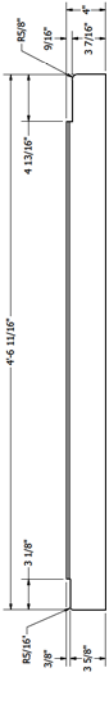
DETAIL OF ITEM #7  
ELEVATION VIEW  
SCALE 3/4"=1'



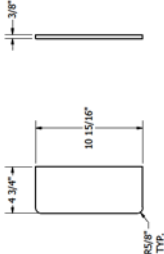
DETAIL OF ITEM #8  
ELEVATION VIEW  
SCALE 3/4"=1'



DETAIL OF ITEM #9  
ELEVATION VIEW  
SCALE 3/4"=1'



DETAIL OF ITEM #10  
ELEVATION VIEW  
SCALE 3/4"=1'



DETAIL OF ITEM #11  
ELEVATION VIEW  
SCALE 3/4"=1'

NOTE:  
1. ALL LUGS ARE BUILT ON DIMS # 7176-500-001

DRAWING STATUS:

ISSUED FOR  
CONSTRUCTION

REVISION HISTORY

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	BNW	ECW	ZXH	03/30/2020

CENERGY  
ENGINEERING/MANUFACTURING/CONSTRUCTION

PO BOX 485  
MAYFIELD HEIGHTS, OH 44134  
PHONE 440.844.4850  
WWW.CENERGYCO.COM

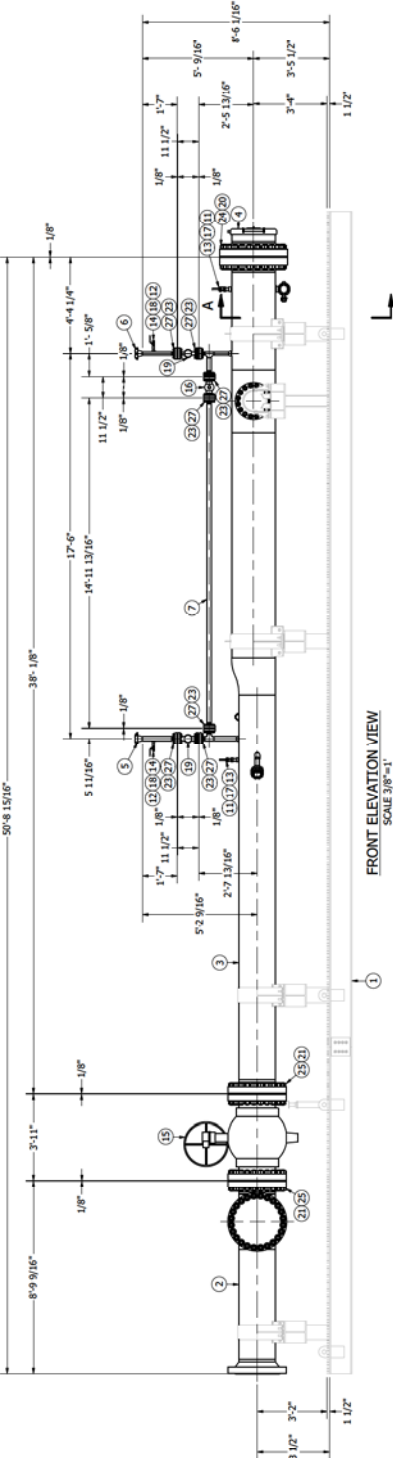
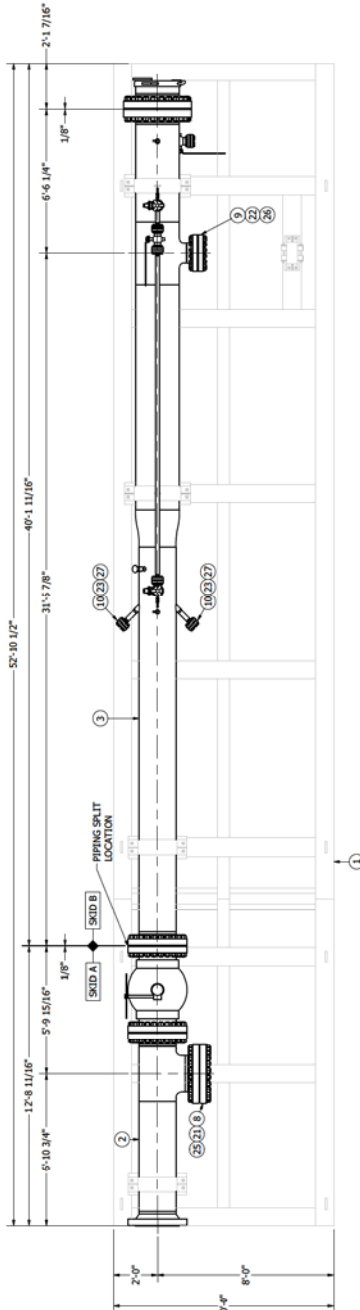
DUKE - PL 105  
C350 PROJECT - HIGHPOINT PARK STATION  
20" LAUNCHER SKID - STRUCTURAL  
DETAILS

COUNTY/PARISH NAME: LOK COUNTY	STATE: OHIO
DRAWING NUMBER: 7176-501-002	SHEET: 1 OF 1
DRAWING SCALE: AS NOTED	REVISION: 0

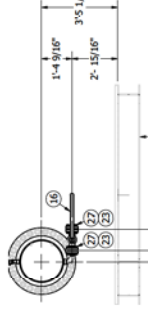
PARTS LIST	
ITEM	QTY DESCRIPTION
1	LAUNCHER STRUCTURAL ASSEMBLY, REF DWG # 7176-500-001
2	1 SKOL # 7176-1-1, REF DWG # 7176-700-001
3	1 SKOL # 7176-1-2, REF DWG # 7176-700-001
4	1 SKOL # 7176-1-3, REF DWG # 7176-700-001
5	1 SKOL # 7176-1-4, REF DWG # 7176-700-001
6	1 SKOL # 7176-1-5, REF DWG # 7176-700-001
7	1 SKOL # 7176-1-6, REF DWG # 7176-700-001
8	1 20" BLIND FLANGE, RF, ANSI 600, ASME B16.5, ASTM A105 GR.3
9	1 10" BLIND FLANGE, RF, ANSI 600, ASME B16.5, ASTM A105 GR.3
10	2 1" PIPE NUTS, SCH 80, 3" LONG, SVA-105, GR3, ASTM A232, THE
11	2 1" PLUG, SQUARE HEAD, 3000#, ASTM A105, FORGED STEEL, ASME B16.11, SOLID
12	2 1" PLUG, SQUARE HEAD, 3000#, ASTM A105, FORGED STEEL, ASME B16.11, SOLID
13	2 1" PLUG, SQUARE HEAD, 3000#, ASTM A105, FORGED STEEL, ASME B16.11, SOLID
14	2 1" PLUG, SQUARE HEAD, 3000#, ASTM A105, FORGED STEEL, ASME B16.11, SOLID
15	2 2" BALL VALVE, RFE, ANSI 600, FULL PORT W/ GEAR OPERATOR AND HANDWHEEL, REF ENGINEERED EQUIPMENT BOM
16	2 2" BALL VALVE, RFE, ANSI 600, FULL PORT W/ GEAR OPERATOR, REF ENGINEERED EQUIPMENT BOM
17	2 1" BALL VALVE, 2000#, RMT, REMOVED PORT W/ LOCKING LEVER, REF ENGINEERED EQUIPMENT BOM
18	2 1" BALL VALVE, RFE, ANSI 600, FULL PORT W/ GEAR OPERATOR, REF ENGINEERED EQUIPMENT BOM
19	2 2" BALL VALVE, RFE, ANSI 600, FULL PORT W/ GEAR OPERATOR, REF ENGINEERED EQUIPMENT BOM
20	1 24" GASKET, ANSI 600, FLEXITALLIC CGI, SPIRAL WOUND, 304SS INNER & CS OUTER RING, TYPE F, 1/8"
21	3 20" GASKET, ANSI 600, FLEXITALLIC CGI, SPIRAL WOUND, 304SS INNER & CS OUTER RING, TYPE F, 1/8"
22	1 24" GASKET, ANSI 600, FLEXITALLIC CGI, SPIRAL WOUND, 304SS INNER & CS OUTER RING, TYPE F, 1/8"
23	11 2" GASKET, ANSI 600, FLEXITALLIC CGI, SPIRAL WOUND, 304SS INNER & CS OUTER RING, TYPE F, 1/8"
24	24 1-7/8" STUD BOLT, 1/4" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS BA, ASTM A194, GR2H W/ QTY (2) WASHER, CARBIDE PLATED
25	72 1-5/8" STUD BOLT, 1/2-1/4" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS BA, ASTM A194, GR2H W/ QTY (2) WASHER, CARBIDE PLATED
26	18 1-3/4" STUD BOLT, 9/16" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS BA, ASTM A194, GR2H W/ QTY (2) WASHER, CARBIDE PLATED
27	80 3/8" STUD BOLT, 4-5/16" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS BA, ASTM A194, GR2H W/ QTY (2) WASHER, CARBIDE PLATED

ESTIMATED WEIGHT OF SKID "A": 11,000 LBS  
ESTIMATED WEIGHT OF SKID "B": 17,000 LBS

PLAN VIEW  
GRATING REMOVED FOR CLARITY  
SCALE 3/8"=1"



FRONT ELEVATION VIEW  
SCALE 3/8"=1"



SECTION A-A  
SCALE 3/8"=1"

**GENERAL NOTES:**

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC. (AISC) SPECIFICATIONS FOR STRUCTURAL STEEL AND WELDED CONNECTIONS.

2. ALL DIMENSIONS SHALL BE IN INCHES AND DECIMALS THEREOF, UNLESS OTHERWISE SPECIFIED.

3. CORROSION ALLOWANCE: 0.00

4. DESIGN FACTOR: 0.9

5. DESIGN PRESSURE: 0.00 PSIG

6. DESIGN TEMPERATURE: 100°F

7. HYDROSTATIC TEST: WITH WATER AT 1.25 TIMES DESIGN PRESSURE FOR 8 HOURS

8. DESIGN FLOW: 12,200 MGD

9. DESIGN PRESSURE: 0.00 PSIG

10. DESIGN TEMPERATURE: 100°F

11. DESIGN WIND SPEED: 40.0 MPH

12. OPERATING TEMPERATURE: 100°F

13. SKIDS "A" & "B" SHOULD BE LIFTED INDEPENDENTLY, BOLTED CONNECTION IS NOT DESIGNED TO SUPPORT FULLY ASSEMBLED LIFTING.

**REVISION HISTORY:**

REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	BTW	ECW	NPF	03/05/2020

**ISSUED FOR CONSTRUCTION**

**DRAWING STATUS:**

**DUKE - PL 105**  
**C350 PROJECT - HIGHPOINT PARK STATION**  
**20" LAUNCHER SKID - MECHANICAL**  
**SKID LAYOUT**

**COUNTY:** PARSIPPANY, NJ  
**DRAWING NUMBER:** 7176-500-001  
**DRAWING SCALE:** AS NOTED

**STATE:** NJ  
**SHEET:** 1 OF 1

**REVISION:** 0

**CENERGY**  
ENGINEERING/CONSTRUCTION  
PO BOX 485  
MAYFIELD, NJ 07046  
PHONE: 908.644.4480  
WWW.CENERGYCO.COM

**DUKE - PL 105**  
**C350 PROJECT - HIGHPOINT PARK STATION**  
**20" LAUNCHER SKID - MECHANICAL**  
**SKID LAYOUT**

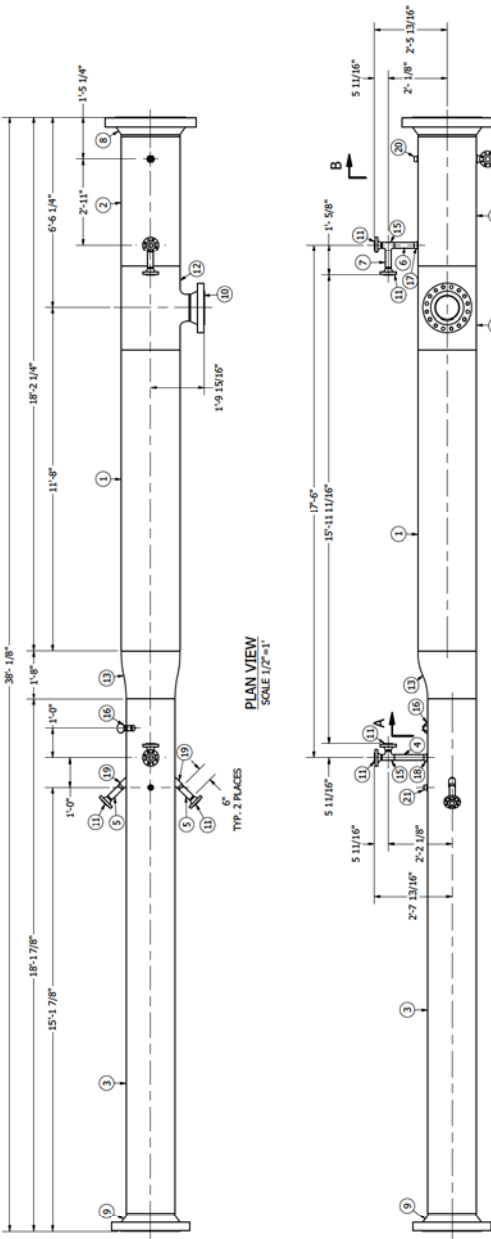
**COUNTY:** PARSIPPANY, NJ  
**DRAWING NUMBER:** 7176-500-001  
**DRAWING SCALE:** AS NOTED

**STATE:** NJ  
**SHEET:** 1 OF 1

**REVISION:** 0

ITEM QTY DESCRIPTION		
1	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 11 FT LONG	
2	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
3	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
4	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
5	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
6	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
7	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
8	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
9	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
10	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
11	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
12	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
13	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
14	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
15	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
16	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
17	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
18	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
19	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
20	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	
21	24" PIPE, 0.500"W, AP5L PSL-2 X65, LSAW, 5 FT LONG	

PLAN VIEW  
SCALE 1/2"=1'



ELEVATION VIEW  
SCALE 1/2"=1'



SECTION A-A  
SCALE 1/2"=1'

SECTION B-B  
SCALE 1/2"=1'

**GENERAL NOTES:**

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING STANDARDS AND SPECIFICATIONS:

2. ASME B31.1, PIPELINE TRANSMISSION AND PROCESS PIPING

3. ASME B31.3, PROCESS PIPING

4. ASME B31.9, PROCESS PIPING

5. ASME B31.10, PROCESS PIPING

6. ASME B31.12, PROCESS PIPING

7. ASME B31.13, PROCESS PIPING

8. ASME B31.14, PROCESS PIPING

9. ASME B31.15, PROCESS PIPING

10. ASME B31.16, PROCESS PIPING

11. ASME B31.17, PROCESS PIPING

12. ASME B31.18, PROCESS PIPING

13. ASME B31.19, PROCESS PIPING

14. ASME B31.20, PROCESS PIPING

15. ASME B31.21, PROCESS PIPING

16. ASME B31.22, PROCESS PIPING

17. ASME B31.23, PROCESS PIPING

18. ASME B31.24, PROCESS PIPING

19. ASME B31.25, PROCESS PIPING

20. ASME B31.26, PROCESS PIPING

21. ASME B31.27, PROCESS PIPING

REVISION HISTORY		
REV	DESCRIPTION	DATE
0	ISSUED FOR CONSTRUCTION	03/03/2020
1	ISSUED FOR CONSTRUCTION	03/03/2020
2	ISSUED FOR CONSTRUCTION	03/03/2020
3	ISSUED FOR CONSTRUCTION	03/03/2020
4	ISSUED FOR CONSTRUCTION	03/03/2020
5	ISSUED FOR CONSTRUCTION	03/03/2020
6	ISSUED FOR CONSTRUCTION	03/03/2020
7	ISSUED FOR CONSTRUCTION	03/03/2020
8	ISSUED FOR CONSTRUCTION	03/03/2020
9	ISSUED FOR CONSTRUCTION	03/03/2020
10	ISSUED FOR CONSTRUCTION	03/03/2020
11	ISSUED FOR CONSTRUCTION	03/03/2020
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14	ISSUED FOR CONSTRUCTION	03/03/2020
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16	ISSUED FOR CONSTRUCTION	03/03/2020
17	ISSUED FOR CONSTRUCTION	03/03/2020
18	ISSUED FOR CONSTRUCTION	03/03/2020
19	ISSUED FOR CONSTRUCTION	03/03/2020
20	ISSUED FOR CONSTRUCTION	03/03/2020
21	ISSUED FOR CONSTRUCTION	03/03/2020

**DRAWING STATUS:**

ISSUED FOR CONSTRUCTION

**DUKE - PL 105**

**C350 PROJECT - HIGHPOINT PARK STATION**

**20" LAUNCHER SKID - MECHANICAL**

**SPOOL DETAIL (1)**

COUNTY: PARENT NAME: YORK COUNTY STATE: OHIO

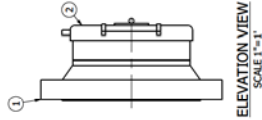
DRAWING NUMBER: 7176-700-001

DRAWING SCALE: AS NOTED

SHEET: 1 OF 1

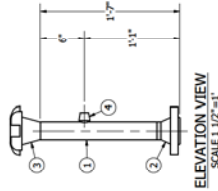
REVISION: 0

ITEM QTY		DESCRIPTION
1	1	24" FLANGE, RPWN, ANSI 600, 0.500" W, A694 F65, MSS SP-44, 250-500 MICROINCHES, AMH
2	1	24" CLOSURE, TOW PRO SERIES D3000, HORIZ, LH MOUNT, 0.500" W, WELD ON, CLAMP RING CLOSURE W/ O-RING SEAL, ASME B31.8, RATED FOR 500 PSIG MWP @ 0.2 Df, PART # 1240051



ELEVATION VIEW  
SCALE 1 1/2"=1'

ITEM QTY		DESCRIPTION
1	1	2" PIPE, 0.218" W, API 5L PSL-2 X52, ERW, 2 FT LONG
2	1	2" FLANGE, RPWN, ANSI 600, 0.218" W, A694 F52, MSS SP-44, 125-250 MICROINCHES, AMH
3	1	2" VERTICAL CLOSURE W/ BULB VALVE INSTALLED, YALE, FIGURE 500, 0.218" W, ASME B31.8, RATED FOR 500 MWP @ 0.2 Df, WITH MANUFACTURER TAG
4	1	1/2" PIPE, THD, 6000# FOR 2" RUN PIPE, A694 F52, MSS SP-47



ELEVATION VIEW  
SCALE 1 1/2"=1'

- GENERAL NOTES:**
1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE FOLLOWING STANDARDS AND SPECIFICATIONS:
    - 2. ASME B31.8, PIPELINE SYSTEMS AND FACILITIES
    - 3. ASME B31.1, STEEL PIPE AND PIPE FITTINGS
    - 4. ASME B31.3, PROCESS PIPES
    - 5. ASME B31.9, PROCESS PIPES
    - 6. ASME B31.10, PROCESS PIPES
    - 7. ASME B31.12, PROCESS PIPES
    - 8. ASME B31.13, PROCESS PIPES
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    - 26. ASME B31.31, PROCESS PIPES
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    - 79. ASME B31.84, PROCESS PIPES
    - 80. ASME B31.85, PROCESS PIPES
    - 81. ASME B31.86, PROCESS PIPES
    - 82. ASME B31.87, PROCESS PIPES
    - 83. ASME B31.88, PROCESS PIPES
    - 84. ASME B31.89, PROCESS PIPES
    - 85. ASME B31.90, PROCESS PIPES
    - 86. ASME B31.91, PROCESS PIPES
    - 87. ASME B31.92, PROCESS PIPES
    - 88. ASME B31.93, PROCESS PIPES
    - 89. ASME B31.94, PROCESS PIPES
    - 90. ASME B31.95, PROCESS PIPES
    - 91. ASME B31.96, PROCESS PIPES
    - 92. ASME B31.97, PROCESS PIPES
    - 93. ASME B31.98, PROCESS PIPES
    - 94. ASME B31.99, PROCESS PIPES
    - 95. ASME B31.100, PROCESS PIPES
    - 96. ASME B31.101, PROCESS PIPES
    - 97. ASME B31.102, PROCESS PIPES
    - 98. ASME B31.103, PROCESS PIPES
    - 99. ASME B31.104, PROCESS PIPES
    - 100. ASME B31.105, PROCESS PIPES
  12. OPERATING TEMPERATURE OF 374° - 1304°
  13. SIZES "6" & "8" SHOULD BE LIFTED INDEPENDENTLY, BOLTED CONNECTION IS NOT DESIGNED TO SUPPORT FULLY ASSEMBLED LIFTING.
  14. DESIGN PRESSURE OF 500 PSIG
  15. DESIGN TEMPERATURE OF 374° - 1304°
  16. DESIGN FLOW: 12,208 MMSFDD
  17. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  18. DESIGN PRESSURE OF 500 PSIG
  19. DESIGN FLOW: 12,208 MMSFDD
  20. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  21. DESIGN PRESSURE OF 500 PSIG
  22. DESIGN FLOW: 12,208 MMSFDD
  23. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  24. DESIGN PRESSURE OF 500 PSIG
  25. DESIGN FLOW: 12,208 MMSFDD
  26. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  27. DESIGN PRESSURE OF 500 PSIG
  28. DESIGN FLOW: 12,208 MMSFDD
  29. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  30. DESIGN PRESSURE OF 500 PSIG
  31. DESIGN FLOW: 12,208 MMSFDD
  32. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  33. DESIGN PRESSURE OF 500 PSIG
  34. DESIGN FLOW: 12,208 MMSFDD
  35. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  36. DESIGN PRESSURE OF 500 PSIG
  37. DESIGN FLOW: 12,208 MMSFDD
  38. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  39. DESIGN PRESSURE OF 500 PSIG
  40. DESIGN FLOW: 12,208 MMSFDD
  41. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  42. DESIGN PRESSURE OF 500 PSIG
  43. DESIGN FLOW: 12,208 MMSFDD
  44. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  45. DESIGN PRESSURE OF 500 PSIG
  46. DESIGN FLOW: 12,208 MMSFDD
  47. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  48. DESIGN PRESSURE OF 500 PSIG
  49. DESIGN FLOW: 12,208 MMSFDD
  50. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  51. DESIGN PRESSURE OF 500 PSIG
  52. DESIGN FLOW: 12,208 MMSFDD
  53. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  54. DESIGN PRESSURE OF 500 PSIG
  55. DESIGN FLOW: 12,208 MMSFDD
  56. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  57. DESIGN PRESSURE OF 500 PSIG
  58. DESIGN FLOW: 12,208 MMSFDD
  59. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  60. DESIGN PRESSURE OF 500 PSIG
  61. DESIGN FLOW: 12,208 MMSFDD
  62. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  63. DESIGN PRESSURE OF 500 PSIG
  64. DESIGN FLOW: 12,208 MMSFDD
  65. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  66. DESIGN PRESSURE OF 500 PSIG
  67. DESIGN FLOW: 12,208 MMSFDD
  68. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  69. DESIGN PRESSURE OF 500 PSIG
  70. DESIGN FLOW: 12,208 MMSFDD
  71. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  72. DESIGN PRESSURE OF 500 PSIG
  73. DESIGN FLOW: 12,208 MMSFDD
  74. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  75. DESIGN PRESSURE OF 500 PSIG
  76. DESIGN FLOW: 12,208 MMSFDD
  77. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  78. DESIGN PRESSURE OF 500 PSIG
  79. DESIGN FLOW: 12,208 MMSFDD
  80. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  81. DESIGN PRESSURE OF 500 PSIG
  82. DESIGN FLOW: 12,208 MMSFDD
  83. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  84. DESIGN PRESSURE OF 500 PSIG
  85. DESIGN FLOW: 12,208 MMSFDD
  86. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  87. DESIGN PRESSURE OF 500 PSIG
  88. DESIGN FLOW: 12,208 MMSFDD
  89. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  90. DESIGN PRESSURE OF 500 PSIG
  91. DESIGN FLOW: 12,208 MMSFDD
  92. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  93. DESIGN PRESSURE OF 500 PSIG
  94. DESIGN FLOW: 12,208 MMSFDD
  95. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  96. DESIGN PRESSURE OF 500 PSIG
  97. DESIGN FLOW: 12,208 MMSFDD
  98. HYDROSTATIC TEST WITH WATER AT 1.5X DESIGN PRESSURE FOR 8 HOURS
  99. DESIGN PRESSURE OF 500 PSIG
  100. DESIGN FLOW: 12,208 MMSFDD

ISSUED FOR  
CONSTRUCTION

REVISION HISTORY

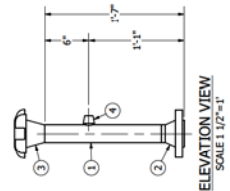
REV	DESCRIPTION	DRAWN	CHECKED	APPROVED	DATE
0	ISSUED FOR CONSTRUCTION	BTW	ECW	NFF	03/03/2020

**GENERGY**  
ENGINEERING/CONSTRUCTION  
PO BOX 485  
MAYFIELD, OH 44130  
PHONE: 330.844.5800  
WWW.GENERGYCO.COM

DUKE - PL 105  
C350 PROJECT - HIGHPOINT PARK STATION  
20" LAUNCHER SKID - MECHANICAL  
SPOOL DETAIL (2)

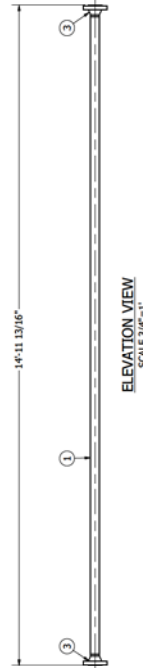
COUNTY/PARENT NAME: TOX COUNTY STATE: OHIO  
DRAWING NUMBER: 7176-700-002  
DRAWING SCALE: AS NOTED SHEET: 1 OF 1

ITEM QTY		DESCRIPTION
1	1	2" PIPE, 0.218" W, API 5L PSL-2 X52, ERW, 2 FT LONG
2	1	2" FLANGE, RPWN, ANSI 600, 0.218" W, A694 F52, MSS SP-44, 125-250 MICROINCHES, AMH
3	1	2" VERTICAL CLOSURE W/ BULB VALVE INSTALLED, YALE, FIGURE 500, 0.218" W, ASME B31.8, RATED FOR 500 MWP @ 0.2 Df, WITH MANUFACTURER TAG
4	1	1/2" PIPE, THD, 6000# FOR 2" RUN PIPE, A694 F52, MSS SP-47



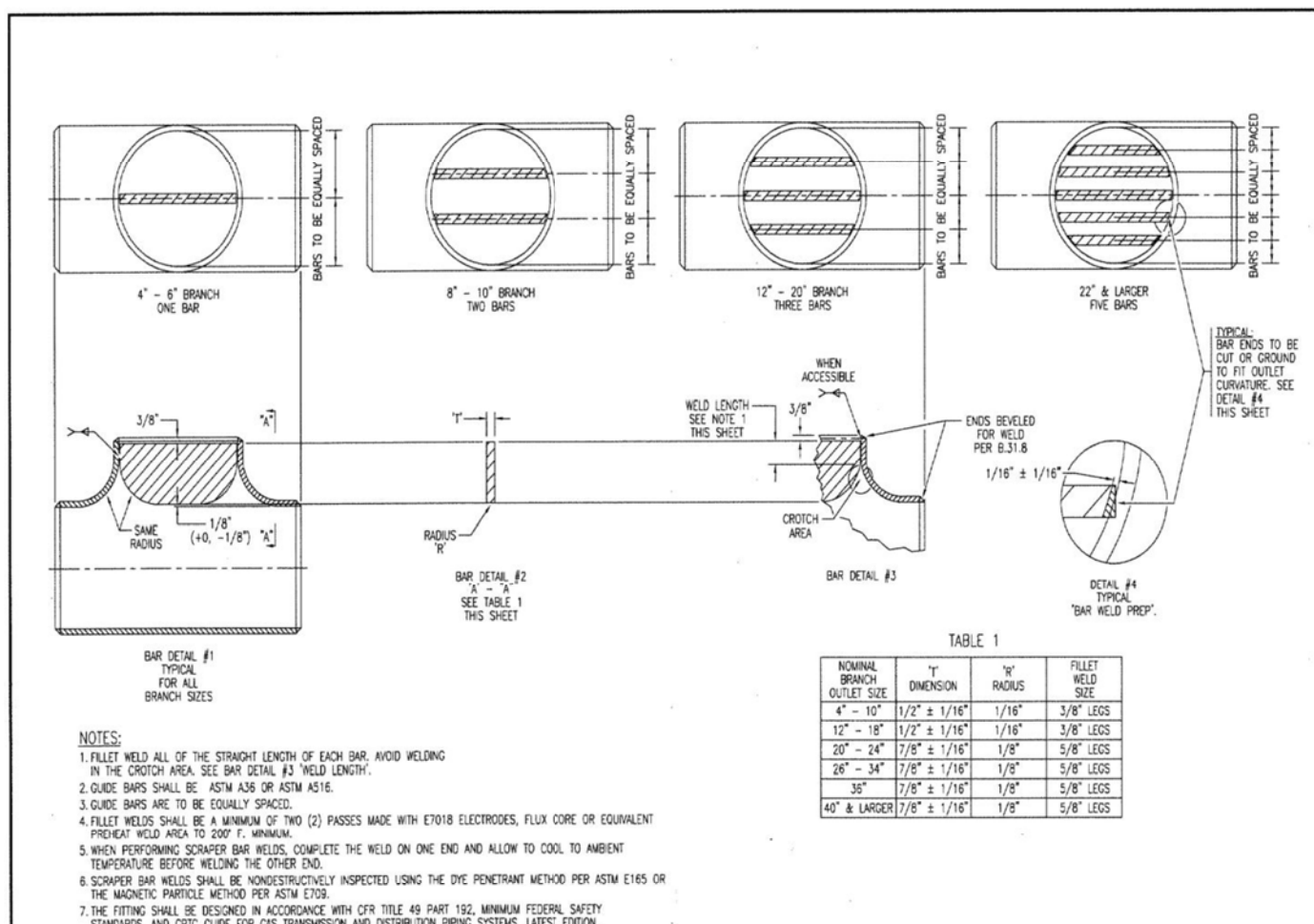
ELEVATION VIEW  
SCALE 1 1/2"=1'

ITEM QTY		DESCRIPTION
1	1	2" PIPE, 0.218" W, API 5L PSL-2 X52, ERW, 13 FT LONG
2	1	2" FLANGE, RPWN, ANSI 600, 0.218" W, A694 F52, MSS SP-44, 125-250 MICROINCHES, AMH
3	1	2" VERTICAL CLOSURE W/ BULB VALVE INSTALLED, YALE, FIGURE 500, 0.218" W, ASME B31.8, RATED FOR 500 MWP @ 0.2 Df, WITH MANUFACTURER TAG
4	1	1/2" PIPE, THD, 6000# FOR 2" RUN PIPE, A694 F52, MSS SP-47



ELEVATION VIEW  
SCALE 3/4"=1'

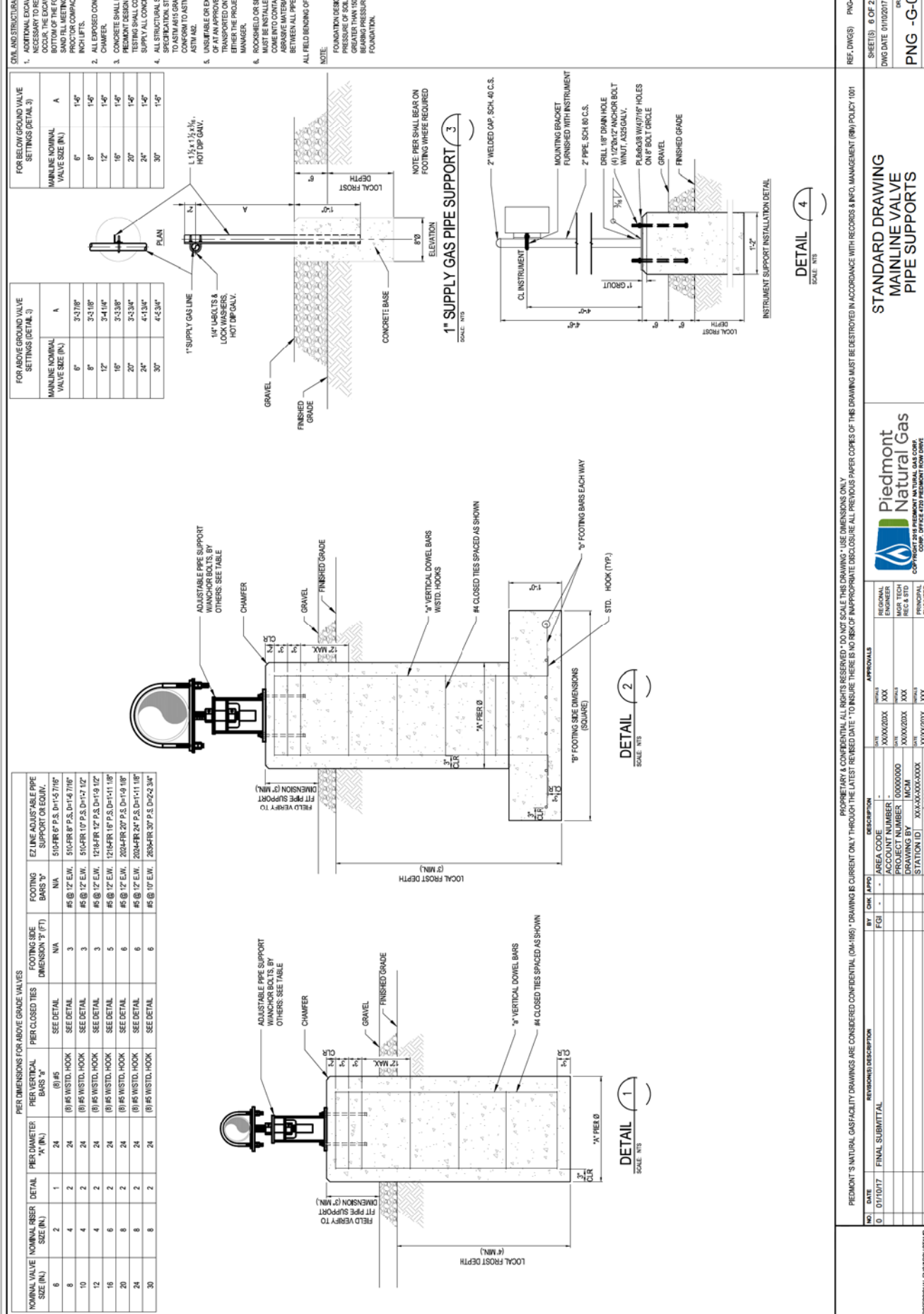


**Design Standard**
**FIGURE III:** Guide Bar Details for Piggable Drawn Nozzle and Weld Tee Fittings.




Needs to be Quoted Item Out for Quote				PO Generated and Sent to Vendor Back with Item				PREVAILING AML: Duke				SECONDARY AML:				
Design Status:				Project #:				Project Name:				DESIGN QTY:				
Item #	Vendor	Quoted	PO#	Date Quoted	PO Issued Date	ETA	Manufacturer	DESCRIPTION				IFR QTY	IFA QTY	IFB QTY	IFC Qty	Notes
Flanges																
FLG1								24" FLANGE, BFWN, ANSI 600, 0.500" W, A694 F65, MSS SP-44, 125-250 MICROINCHES, A69H				2			2	
FLG2								24" FLANGE, BFWN, ANSI 600, 0.500" W, A694 F65, MSS SP-44, 125-250 MICROINCHES, A69H				4			4	
FLG3								24" FLANGE, BFWN, ANSI 600, 0.315" W, A694 F65, MSS SP-44, 125-250 MICROINCHES, A69H				1			1	
FLG4								24" FLANGE, BFWN, ANSI 600, 0.218" W, A694 F65, MSS SP-44, 125-250 MICROINCHES, A69H				11			11	
FLG5								24" BLIND FLANGE, BFWN, ANSI 600, ASME B16.5, ASTM A105 GR B				1			1	
FLG6								18" BLIND FLANGE, BFWN, ANSI 600, ASME B16.5, ASTM A105 GR B				1			1	
FLG7								2" BLIND FLANGE, BFWN, ANSI 600, ASME B16.5, ASTM A105 GR B				3			3	
Fittings																
FTG1	MMC	4702637						24" CLOSURE, TDM PRO SERIES 03000, HORIZ., LH MOUNT, 0.500" W, WELD ON, CLAMP RING CLOSURE W/ O-RING SEAL, ASMEB31.8, RATED FOR 500 PSIG MAWP @ 0.2 IF, PART # 12143051				1			1	
FTG2								2" ELECTRICAL CLOSURE, W/ BLED VALVE INSTALLED, TALL, FIGURE 500, 0.218" W, ASME B31.8, RATED FOR 500 MAWP @ 0.2 IF, ASTM A350 GR F2, WITH MANUFACTURER TAG				2			2	
FTG3								2" ELBOW, 90°, L.R., 0.218" W, WPM52, MSS SP-75				1			1	
FTG4								2" STRAIGHT TEE, 0.218" W, WPM52, MSS SP-75				2			2	
FTG5								24" x 10" BARRED REDUCING TEE, 0.500" W, WPM55, MSS SP-75, REF STD DWG # DM-S7-2011				1			1	
FTG6								24" BARRED STRAIGHT TEE, 0.500" W, WPM55, MSS SP-75, REF STD DWG # DM-S7-2011				1			1	
FTG7								2" REDUCING ELBOW, 90°, L.R., 0.218" W, WPM52, MSS SP-75				1			1	
FTG8								2" PIPE, BW, 0.218" WT, FOR 24" RUN PIPE, 0.500" WT, A694 F65, MSS SP-97				2			2	
FTG9								2" PIPE, BW, 0.218" WT, FOR 24" RUN PIPE, 0.500" WT, A694 F65, MSS SP-97				1			1	
FTG10								2" PIPE, LATERAL, BW, 0.218" WT, FOR 20" RUN PIPE, 0.500" WT, A694 F65, MSS SP-97				2			2	
FTG11								1" PIPE, THD, 6000K, FOR 24" RUN PIPE, A694 F65, MSS SP-97				1			1	
FTG12								1" PIPE, THD, 6000K, FOR 24" RUN PIPE, A694 F65, MSS SP-97				1			1	
FTG13								1 1/2" PIPE, THD, 6000K, FOR 2" RUN PIPE, A694 F65, MSS SP-97				2			2	
Threaded																
TRD1								1" PIPE NIPPLE, SCH 80, 3" LONG, S&W 106, GRB, ASTM A233, THE				2			2	
TRD2								1" PIPE NIPPLE, SCH 80, 3" LONG, S&W 106, GRB, ASTM A233, THE				2			2	
TRD3								1" PLUG, SQUARE HEAD, 3000K, ASTM A105, FORGED STEEL, ASME B14.1.1, SOLID				2			2	
TRD4								1 1/2" PLUG, SQUARE HEAD, 3000K, ASTM A105, ASME B16.11, FORGED STEEL, SOLID				2			2	
Gaskets, Bolts, and Misc.																
GBM1								24" GASKET, ANSI 600, FLEXITALLIC COIL, SPIRAL WOUND, 304SS RIBBON WITH GRAPHITE FILLER, 304SS INNER & CS OUTER RING, TYPE F, 1/8" THK, ASME B16.20				1			1	
GBM2								24" GASKET, ANSI 600, FLEXITALLIC COIL, SPIRAL WOUND, 304SS RIBBON WITH GRAPHITE FILLER, 304SS INNER & CS OUTER RING, TYPE F, 1/8" THK, ASME B16.20				3			3	
GBM3								18" GASKET, ANSI 600, FLEXITALLIC COIL, SPIRAL WOUND, 304SS RIBBON WITH GRAPHITE FILLER, 304SS INNER & CS OUTER RING, TYPE F, 1/8" THK, ASME B16.20				1			1	
GBM4								2" GASKET, ANSI 600, FLEXITALLIC COIL, SPIRAL WOUND, 304SS RIBBON WITH GRAPHITE FILLER, 304SS INNER & CS OUTER RING, TYPE F, 1/8" THK, ASME B16.20				11			11	
GBM5								1 1/8" STUD BOLT, 14" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS EA, ASTM A194 GR 2H W/ QTY (2) WASHER, CADMIUM PLATED				24			24	
GBM6								1 1/8" STUD BOLT, 12-3/4" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS EA, ASTM A194 GR 2H W/ QTY (2) WASHER, CADMIUM PLATED				72			72	
GBM7								1 1/8" STUD BOLT, 9-3/2" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS EA, ASTM A194 GR 2H W/ QTY (2) WASHER, CADMIUM PLATED				16			16	
GBM8								1/8" STUD BOLT, 4-3/4" L, ASTM A193 GRADE B7 W/ QTY (2) HEAVY HEX NUTS EA, ASTM A194 GR 2H W/ QTY (2) WASHER, CADMIUM PLATED				88			88	
Pipe																
P1								24" PIPE, 0.500" W, API5L PS-2 X55, LEAW, 11 FT LONG				16			16	
								24" PIPE, 0.500" W, API5L PS-2 X55, LEAW, 11 FT LONG				1			1	
								24" PIPE, 0.500" W, API5L PS-2 X55, LEAW, 11 FT LONG				1			1	
P2								24" PIPE, 0.500" W, API5L PS-2 X52, ERW, 11 FT LONG				23			23	
								24" PIPE, 0.500" W, API5L PS-2 X55, ERW, 11 FT LONG				1			1	
								24" PIPE, 0.500" W, API5L PS-2 X55, ERW, 11 FT LONG				1			1	
P3								2" PIPE, 0.218" W, API5L PS-2 X52, ERW, 15 FT LONG				25			25	
								2" PIPE, 0.218" W, API5L PS-2 X52, ERW, 15 FT LONG				1			1	
								2" PIPE, 0.218" W, API5L PS-2 X52, ERW, 15 FT LONG				4			4	

Needs to be Quoted Item Out for Quote				PO Generated and Sent to Vendor Back with Item				PREVAILING AML: Duke				SECONDARY AML:							
Design Status:				Project #:				Project Name:				Duke PL-105 Launcher							
Item #	Vendor	Quoted#	IFC	PO#	Date Quoted	PO Issued Date	ETA	Manufacturer	DESCRIPTION				DESIGN QTY:				QTY ORDERED		Notes
									IFB QTY	IFA QTY	IAA Rev. #	IFB QTY	IFC QTY	IFC Rev. #	QTY				
Components																			
CMP1										8			8						
CMP2										7			7						
CMP3										4			4						
CMP4										16			16						
CMP5										32			32						
CMP6										16			16						
CMP7										1			1						
CMP8										2			2						
CMP9										2			2						
CMP10										16			16						
CMP11										1			1						
CMP12										1			1						
CMP13										1			1						
CMP14										0			0						
CMP15										0			0						
Structural Steel																			
S1										210			210						
										2			2						
										2			2						
										9			9						
										1			1						
										1			1						
										1			1						
										1			1						
S2										5			5						
										2			2						
										2			2						
S3										54			54						
										2			2						
										1			1						
										1			1						
										1			1						
										1			1						
										1			1						
										1			1						
										1			1						
S4										20			20						
										4			4						
S5										8			8						
										0			0						
										1			1						



**CIVIL AND STRUCTURAL NOTES:**

- ADDITIONAL EXCAVATION BELOW FOOTINGS MAY BE NECESSARY TO REACH UNDISTURBED SOIL. SHOULD THIS BE THE CASE, THE SOIL SHALL BE PROPERLY COMPACTED TO THE BOTTOM OF THE EXCAVATION WITH COMPACTED SAND FILL MEETING THE REQUIREMENTS OF MODIFIED PROCTOR COMPACTION TEST (ASTM D 1557) TO 95% IN SIX INCH LIFTS.
- ALL EXPOSED CONCRETE EDGES SHALL HAVE A 1" X 1" 45° CHAMFER.
- CONCRETE SHALL BE MIXED AND POURED PER PERTINENT PRECAST AND CONSTRUCTION STANDARDS.
- ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36. ALL STRUCTURAL STEEL REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60 AND WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. THE WIRE SHALL CONFORM TO ASTM A62.
- UNSATURABLE OR EXCESS EARTH SOIL SHALL BE DEPOSED OF AT AN APPROVED WASTE LOCATION. SOIL BEING DEPOSITED SHALL BE PROPERLY COMPACTED AND MONITORED BY EITHER THE PROJECT MANAGER OR CONSTRUCTION MANAGER.
- ROCKSHIELD OR SIMILAR COMPANY APPROVED PRODUCT MUST BE INSTALLED BETWEEN ALL PIPE AND FITTINGS THAT COME INTO CONTACT WITH CONCRETE. A LAYER OF NON-ABRASIVE MATERIAL SUCH AS RPP SHALL BE INSTALLED BETWEEN ALL PIPE SUPPORTS AND PIPING.

ALL FIELD BENDING OF REBAR SHALL BE DONE COLD.

**NOTE:**

FOUNDATION DESIGN IS BASED ON ALLOWABLE BEARING PRESSURE OF SOIL OR STRUCTURAL FILL EQUAL TO OR GREATER THAN 1500 PSF. CONTRACTOR SHALL VERIFY BEARING PRESSURE CAPACITY PRIOR TO INSTALLING FOUNDATION.

FOR ABOVE GROUND VALVE SETTINGS (DETAIL 3)		FOR BELOW GROUND VALVE SETTINGS (DETAIL 3)	
MAINLINE NOMINAL VALVE SIZE (IN.)	A	MAINLINE NOMINAL VALVE SIZE (IN.)	A
6"	3'-2 7/8"	6"	1'-4"
8"	3'-1 1/8"	8"	1'-4"
12"	3'-4 1/8"	12"	1'-4"
16"	3'-3 3/8"	16"	1'-4"
20"	3'-3 3/8"	20"	1'-4"
24"	4'-1 3/4"	24"	1'-4"
30"	4'-2 3/4"	30"	1'-4"

**STANDARD DRAWING  
MAINLINE VALVE  
PIPE SUPPORTS**

REF. DWGS: PNG-G000-0001035  
SHEET(S): 6 OF 21 DWG SCALE: AS NOTED  
DWG DATE: 01/10/17 SUPERSEDED: \_\_\_\_\_  
DRAWING NUMBER: PNG -G-000-0001037  
REVISION: 0  
DISCIPLINE: RESOURCE CENTER LINE NUMBER

PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (CM-185). DRAWING IS CURRENT ONLY UNLESS OTHERWISE NOTED. THE LATEST REVISION DATE: 01/10/17. THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001

PROPRIETARY & CONFIDENTIAL. ALL RIGHTS RESERVED. "DO NOT SCALE THIS DRAWING." USE DIMENSIONS ONLY. UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY.

DATE: 01/10/17  
BY: CMG (LPP)  
REVISIONS DESCRIPTION: FGI -  
FINAL SUBMITTAL  
NO. DATE BY DESCRIPTION  
0 01/10/17 FGI -  
FINAL SUBMITTAL

PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (CM-185). DRAWING IS CURRENT ONLY UNLESS OTHERWISE NOTED. THE LATEST REVISION DATE: 01/10/17. THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001

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DATE: 01/10/17  
BY: CMG (LPP)  
REVISIONS DESCRIPTION: FGI -  
FINAL SUBMITTAL  
NO. DATE BY DESCRIPTION  
0 01/10/17 FGI -  
FINAL SUBMITTAL

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DATE: 01/10/17  
BY: CMG (LPP)  
REVISIONS DESCRIPTION: FGI -  
FINAL SUBMITTAL  
NO. DATE BY DESCRIPTION  
0 01/10/17 FGI -  
FINAL SUBMITTAL

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DATE: 01/10/17  
BY: CMG (LPP)  
REVISIONS DESCRIPTION: FGI -  
FINAL SUBMITTAL  
NO. DATE BY DESCRIPTION  
0 01/10/17 FGI -  
FINAL SUBMITTAL

PIEDMONT'S NATURAL GAS FACILITY DRAWINGS ARE CONSIDERED CONFIDENTIAL (CM-185). DRAWING IS CURRENT ONLY UNLESS OTHERWISE NOTED. THE LATEST REVISION DATE: 01/10/17. THERE IS NO RISK OF INAPPROPRIATE DISCLOSURE OF THIS DRAWING MUST BE DESTROYED IN ACCORDANCE WITH RECORDS & INFO. MANAGEMENT (RIM) POLICY 1001

PROPRIETARY & CONFIDENTIAL. ALL RIGHTS RESERVED. "DO NOT SCALE THIS DRAWING." USE DIMENSIONS ONLY. UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY.

DATE: 01/10/17  
BY: CMG (LPP)  
REVISIONS DESCRIPTION: FGI -  
FINAL SUBMITTAL  
NO. DATE BY DESCRIPTION  
0 01/10/17 FGI -  
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FINAL SUBMITTAL  
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0 01/10/17 FGI -  
FINAL SUBMITTAL

# DUKE: HIGHPOINT STATION

8 x 24 DUAL CLASSIFICATION BUILDING

CAS REF.# 20-4212

JUNE 2020 REV.A

DRAWING / SUBMITTAL REVIEW

☐ APPROVED ☐ APPROVED WITH CHANGES NOTED

☐ REVISE AND RESUBMIT ☐ REJECTED

SUBMITTAL WAS REVIEWED FOR DESIGN CONFORMITY INCLUDING LAYOUT AND COMPONENT SELECTION

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

CONSOLIDATED ANALYTICAL SYSTEMS

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	9000-EL-100A	120/240V 100A 1PH LOAD CENTER 30 SPACE	1
2	SW-03-010	240V 100A TRANSFER SWITCH	1
3	HVAC 12K BTU W/3K HEATER	240V 20A HVAC 1 TON	1
4	EL-30-43BE	120V 20A DUPLEX RECEPTACLE	3
5	SURGE	240V 100A FILTER IN ENCLOSURE	1
6	B&S 040375	10 KW NATURAL GAS GENERATOR	1
7	SW-02-008 PC	POWER CONDITIONER 1500VA	1
8	CID2 HEATER	CID2 240V 3600W CONVECTION HEATER W/THERMOSTAT	1
9	DR-SEN	CID2 DOOR SENSOR	4
10	6900-03:LEL	CID2 LEL-1 SENSOR	1
11	SW-04-004 (Strobe)	CID2 BLUE STROBE ST-1	1
12	6900-01	CID2 HEATER DISCONNECT	1
13	KILLARK LAL60300-1-4-2AP	CID2 48" LIGHT FIXTURE	3
14	EXTERIOR LIGHT	EXTERIOR LED LIGHT (18W) W/PHOTOCELL	2
15	EL-LIGHT	48" LED LIGHT	1
16	CID2 LIGHT SWITCH	CID2 LIGHT SWITCH	2
17	SW-01-007	SECURITY CAMERA, POE	3
18	CAB-3DR	3 DRAWER CABINET	1
19	9000-NI	FIXED LOUVERED VENT 14"X14"	2
20	SW-01-003 (Enclosure)	PASSTHROUGH ENCLOSURE #1	1
21	TIE DOWN BLOCK	SHELTER TIE DOWN	4
22	SW-04-007	500 GALLON ODORANT TANK	1
23	SW-04-007 (NlexDual)	DUAL CABINET NIJEX SYSTEM	1
24	00-608.1	15 GALLON GAS SCRUBBER	1
25	SW-05-005	PASSTROUGH W/RAIN GUARD	1
26	SW-01-003 (Enclosure)	PASSTROUGH ENCLOSURE #2	1

REF#	TAG LABEL	DESCRIPTION	QTY.
1	SPD	SURGE SUPPRESSION DEVICE	1
2	SB	NEMA 4X SIGNAL ENCLOSURE	1
3	TRW	120V 240V TRANSFER SWITCH	1
4	PB	NEMA 4X POWER ENCLOSURE	1
5	GN	NATURAL GAS GENERATOR	1
6	em	emEDOR	1
7	DS	100A 120V DISCONNECT	1
8	AP	ACCESS PANEL	1
9	AC	HVAC 1 TON	1

REVISIONS		
ZONE	REV.	DESCRIPTION
A8	A	REVISED PER CUSTOMER MARK UPS
		DATE
		6/9/2020

ESTIMATED WEIGHT W/EMPTY TANK: 12,500LBS

CONSOLIDATED ANALYTICAL SYSTEMS

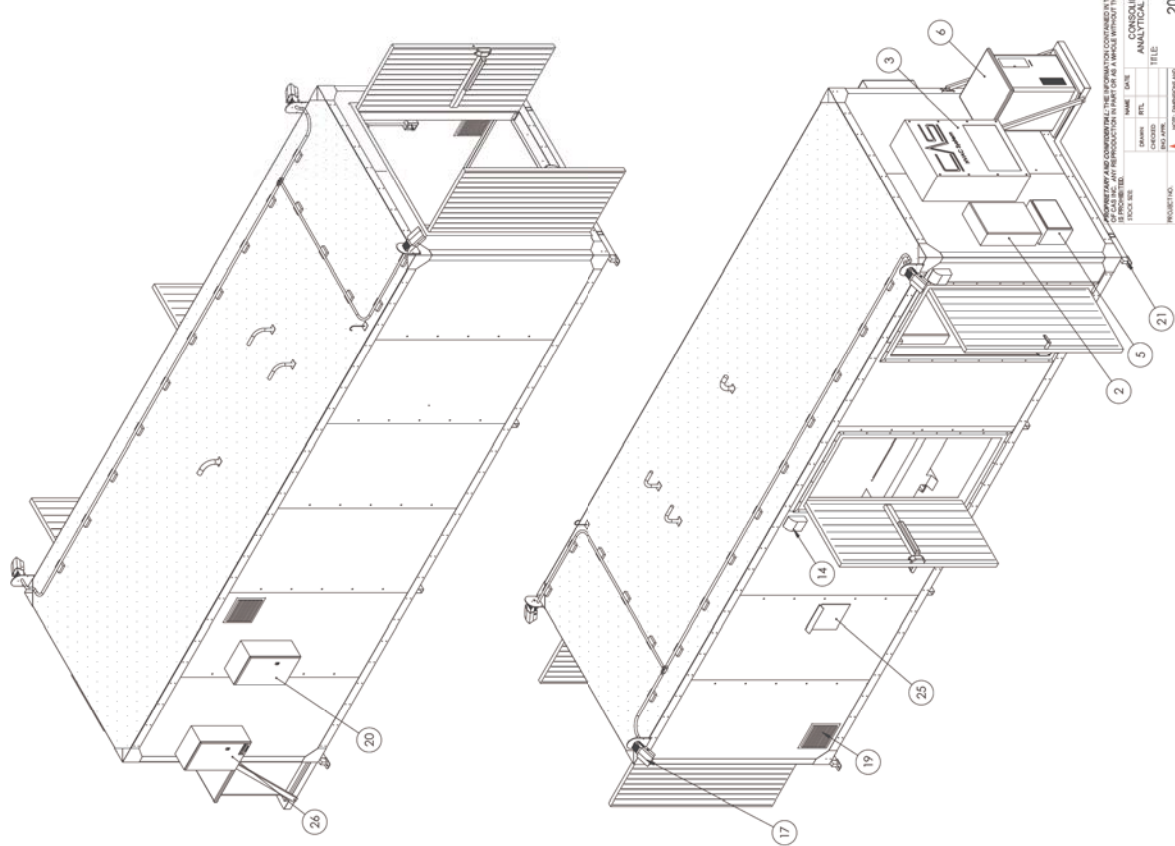
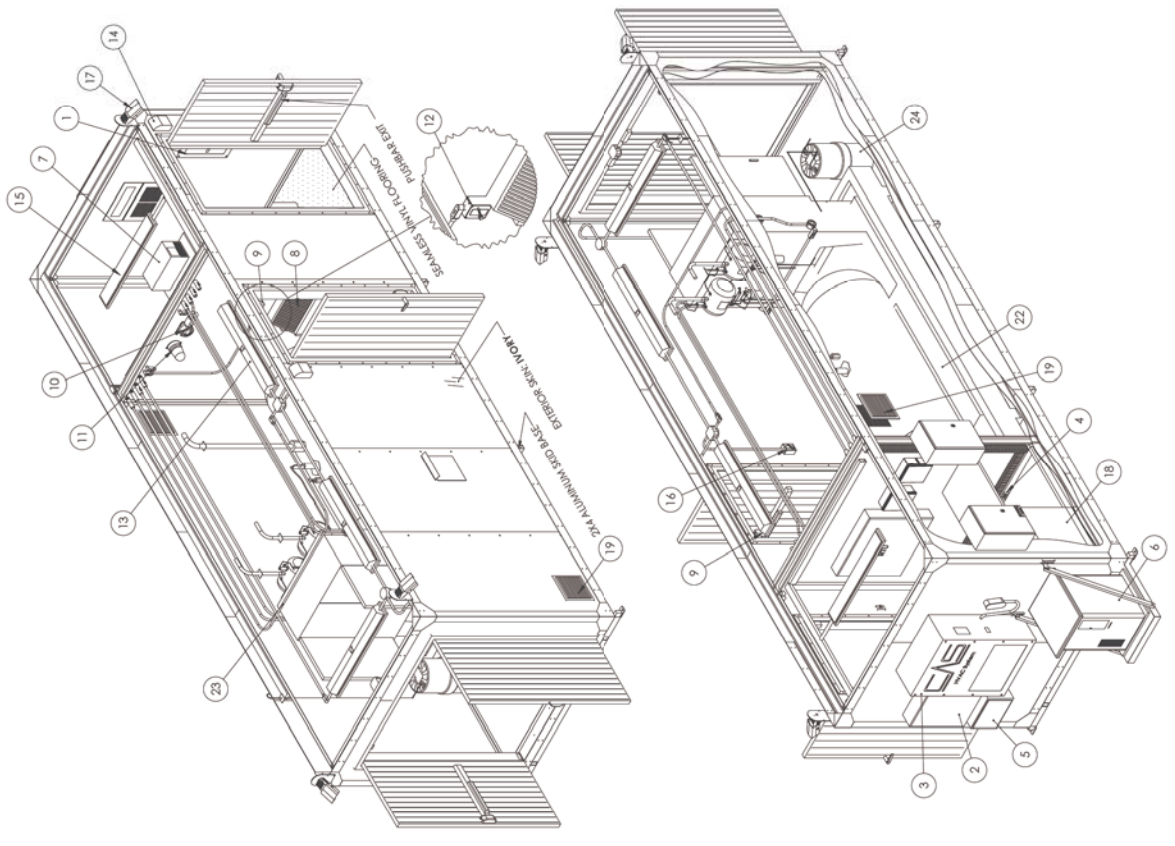
PROJECT NO. 20-4212 DUKE HIGHPOINT (8x24)

DATE 20-4212

SCALE 1:20

WEIGHT

SHEET 1 OF 6



20.4212 DUKE  
 HIGHPOINT (8x24)  
 SEE DWG. NO. 20.4212  
 SCALE: 1/2" = 1'-0"  
 SHEET 2 OF 4

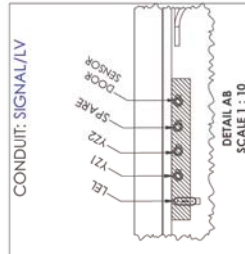
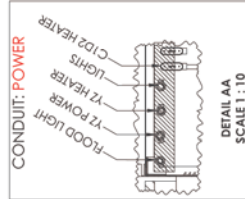
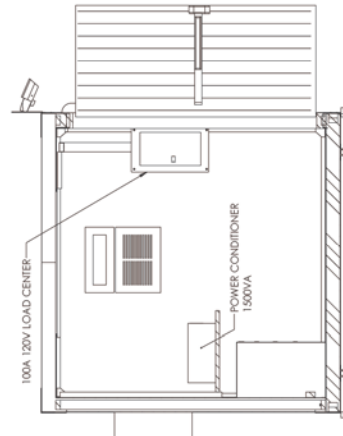
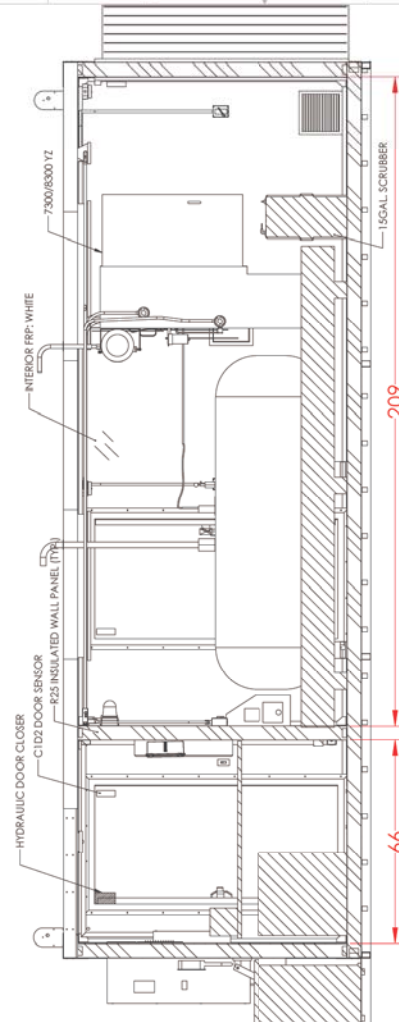
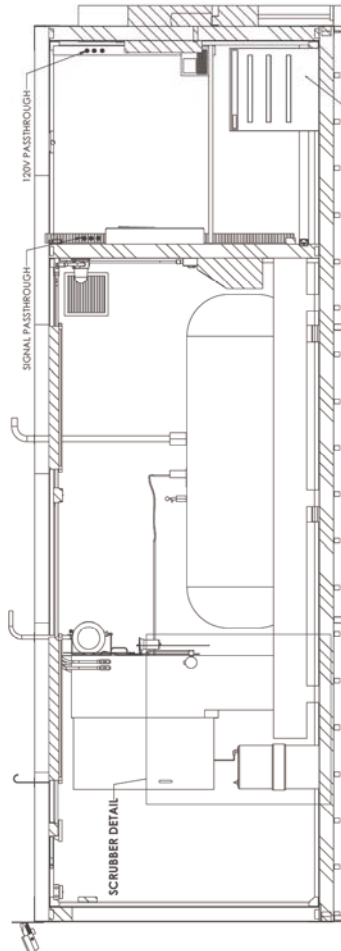
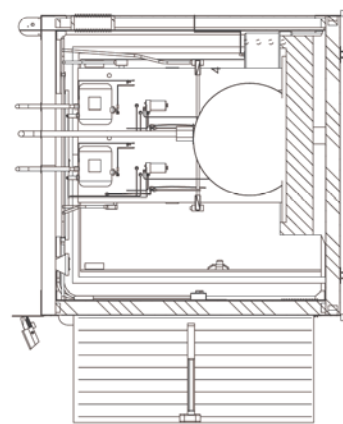
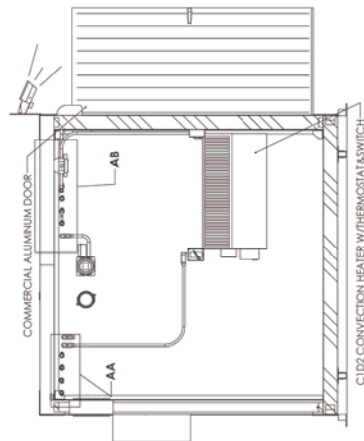
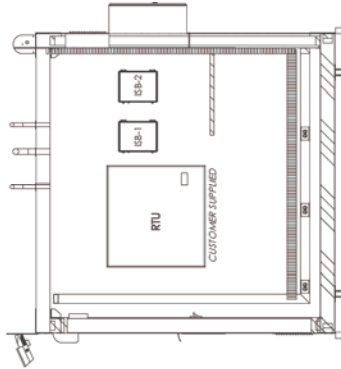
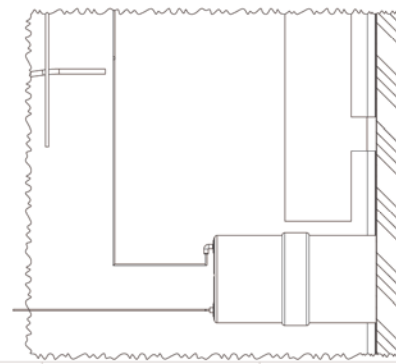
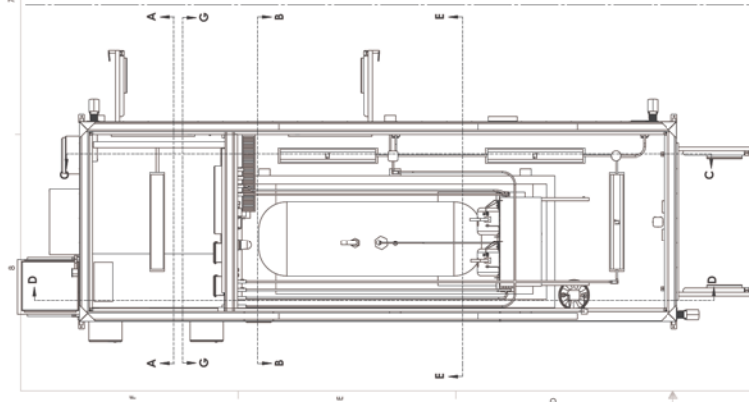
PROJECT NO. 20.4212  
 DATE 10/1/12  
 DRAWN BY J. L. LEE  
 CHECKED BY J. L. LEE  
 PROJECT NO. 20.4212  
 DATE 10/1/12  
 DRAWN BY J. L. LEE  
 CHECKED BY J. L. LEE

CONSO LIMITED ANALYTICAL SYSTEMS  
 20.4212 DUKE  
 HIGHPOINT (8x24)  
 SEE DWG. NO. 20.4212  
 SCALE: 1/2" = 1'-0"  
 SHEET 2 OF 4







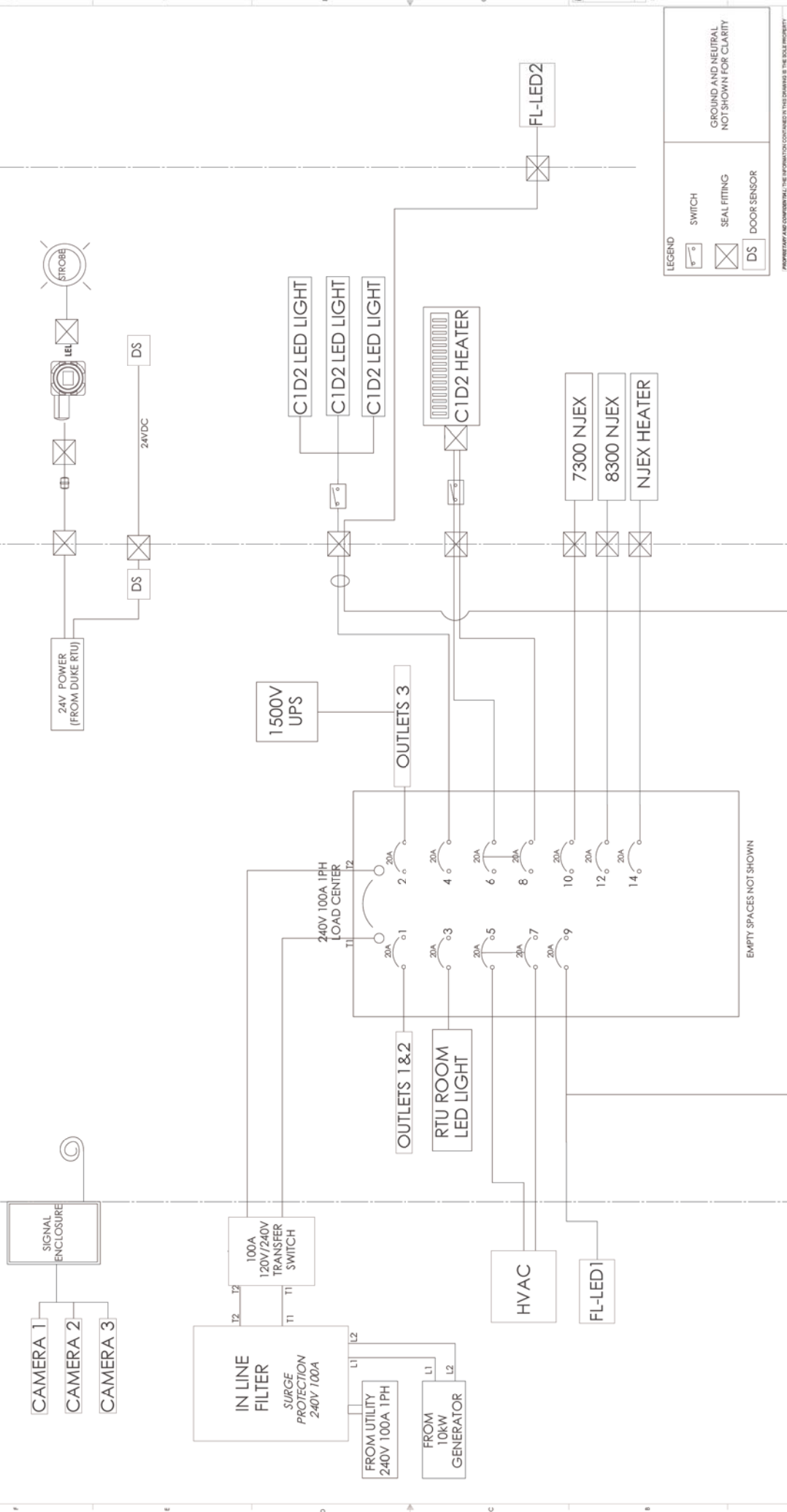


EXTERIOR

RTU ROOM

EQUIPMENT ROOM - C1D2

EXT.2



LEGEND

- SWITCH
- SEAL FITTING
- DS DOOR SENSOR
- GROUND AND NEUTRAL NOT SHOWN FOR CLARITY

20 4212 DUKE HIGHPOINT (8x24)

PROJECT NO. 20 4212

SCALE: 1/32

WEGE: 1

SHEETS OF 4



**This foregoing document was electronically filed with the Public Utilities**

**Commission of Ohio Docketing Information System on**

**1/15/2021 4:10:42 PM**

**in**

**Case No(s). 16-0253-GA-BTX**

Summary: Correspondence Condition 3 – Regulation Stations - Attachment 4 electronically filed by Carys Cochern on behalf of Duke Energy Ohio, Inc.