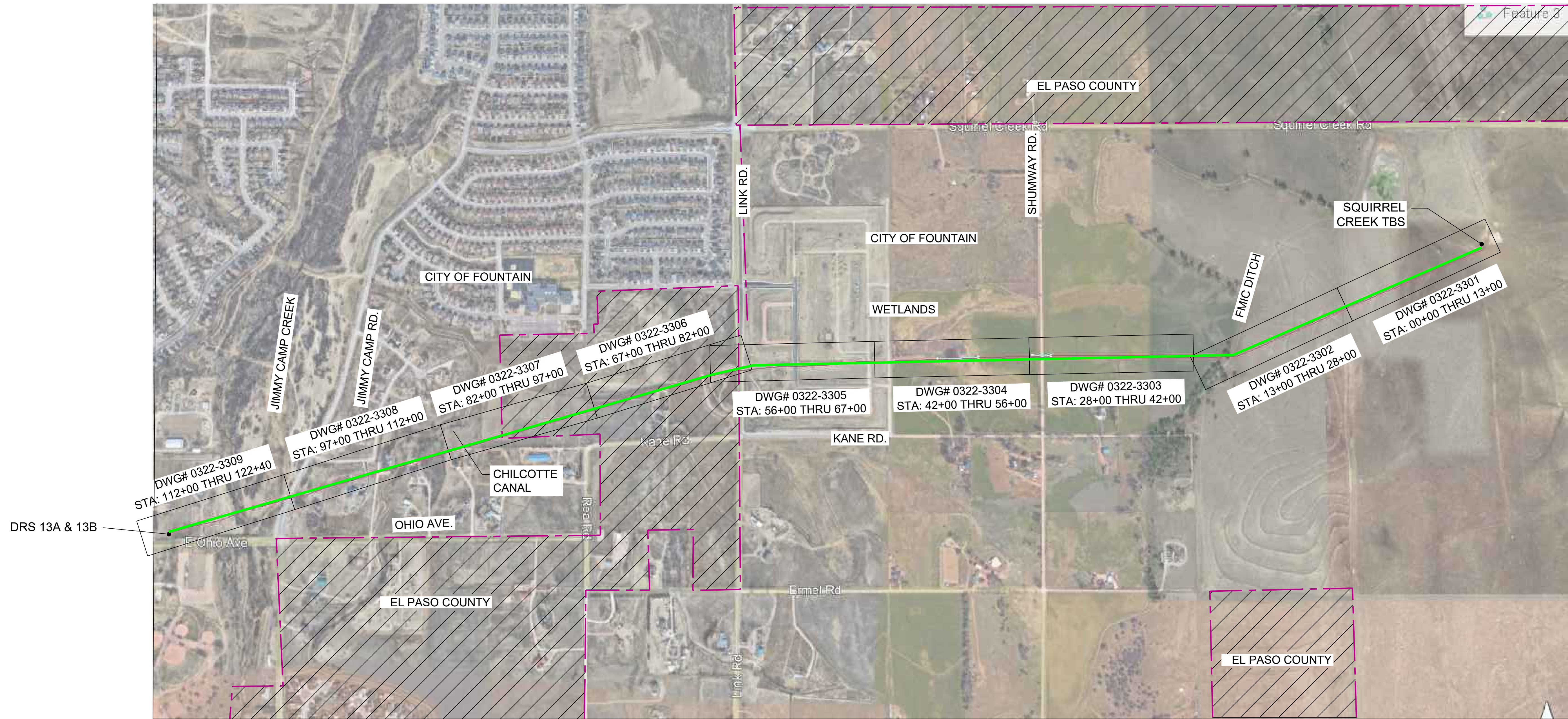
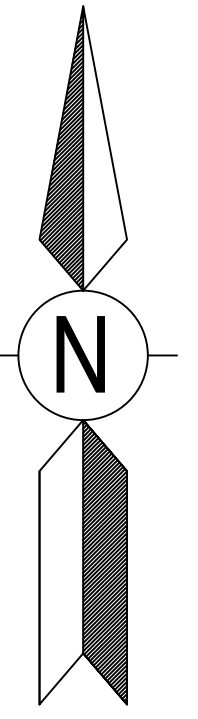






# BLACK HILLS ENERGY SQUIRREL CREEK 8" STEEL PIPELINE FOUNTAIN, CO



**KEY MAP**  
NOT TO SCALE



BILL OF MATERIALS	

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPR'D	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

 <b>Black Hills Energy</b>	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIRREL CREEK KEY MAP</b>	
	WO: 10083285	EL PASO COUNTY	COLORADO
2024 CONSTRUCTION	DWG. TYPE: PRELIM. BID FINAL ✓	DRAWN: SKS CHK. DR.: DJ	SCALE AS SHOWN SHEET NO.
DESIGNED IN ACCORDANCE WITH TITLE 49—PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.		DRAWING NUMBER: 0322-3000	DATE 9/9/2023 SHEET NO.



ADDITIONAL INFORMATION



OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

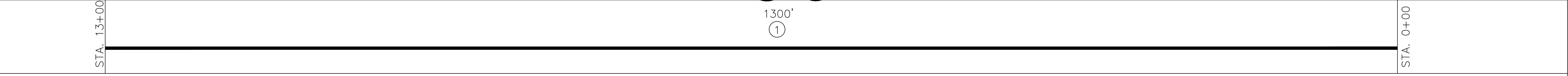
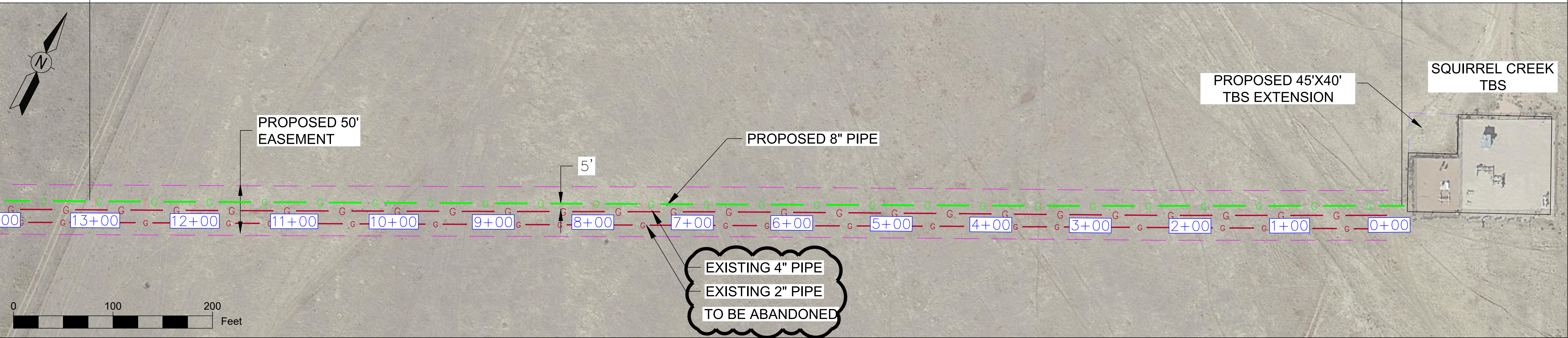
	G	GAS PIPELINE (EXISTING)		SS	SEWER PIPELINE		R.O.W. PIPELINE
	C	COMMUNICATION LINE		OH	OVERHEAD ELECTRIC LINE		WATER LINE
	E	ELECTRIC LINE		G	GAS PIPELINE (PROPOSED)		GAS PIPELINE--BORE (PROPOSED)

HORIZONTAL STATIONING

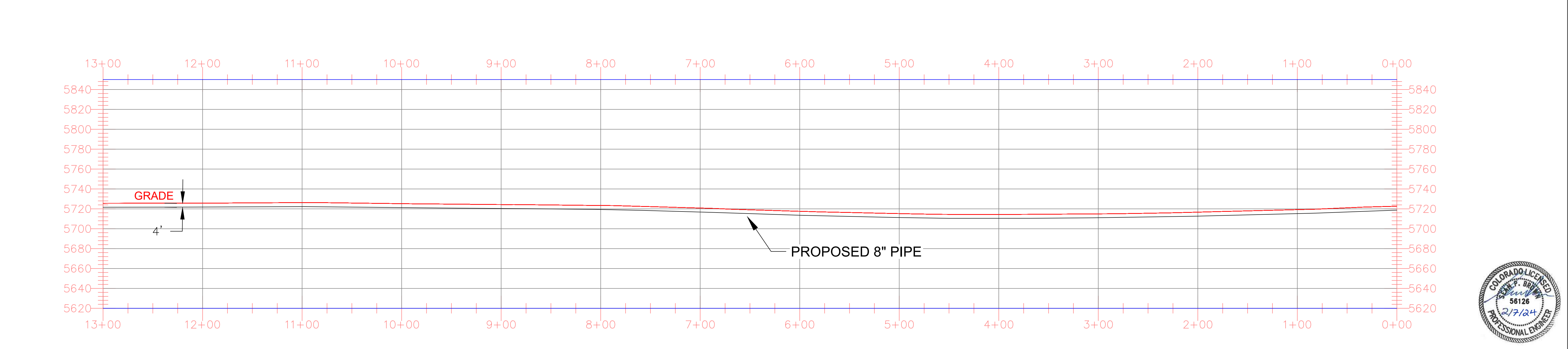
MATCH LINE  
STA: 13+00  
E:3241201.3471  
N:1312994.9304  
SEE DWG. 0322-3302

LINE START  
STA: 0+00  
E:3242389.9278  
N:1313521.4672

ALIGNMENT SCALE: 1" = 100'



PROFILE SCALE: 1" = 4'



NOTES

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
- ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
- BHE ASSUMES NO RESPONSIBILITY FOR THE SPECIFIC LOCATION OF ANY BURIED GAS, WATER, OR UTILITY LINES THAT MAY BE PRESENT ON OR NEAR THIS SITE, NOR IS ANY LIABILITY ASSUMED FOR ANY LEGAL ACTION WHICH RESULTS FROM A DISCOVERY OF A GAS, WATER, OR UTILITY LINE IN ADDITION TO OR IN A DIFFERENT LOCATION THAN SHOW ON THIS PLAN.
- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.

BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	1300'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIRREL CREEK</b> ALIGNMENT & BORE PROFILE SHEET 0+00 TO 13+00	
	WO: 10083285 -- DESIGNED IN ACCORDANCE WITH TITLE 49--PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	EL PASO COUNTY COLORADO	SCALE AS SHOWN DATE 9/8/23



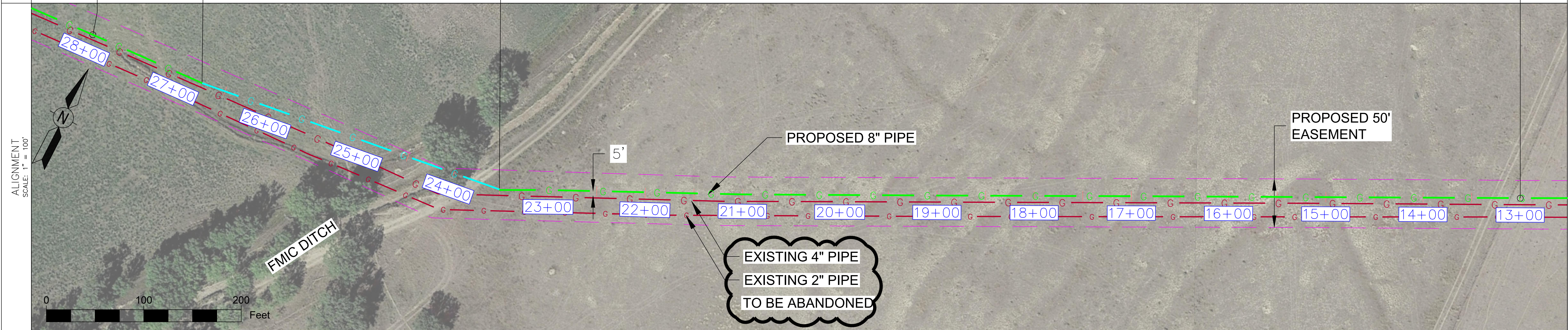
ADDITIONAL INFORMATION	OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
	ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
	JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
	DEPTH OF COVER	4 FT. MIN.	OPERATING PRESSURE	465 PSIG



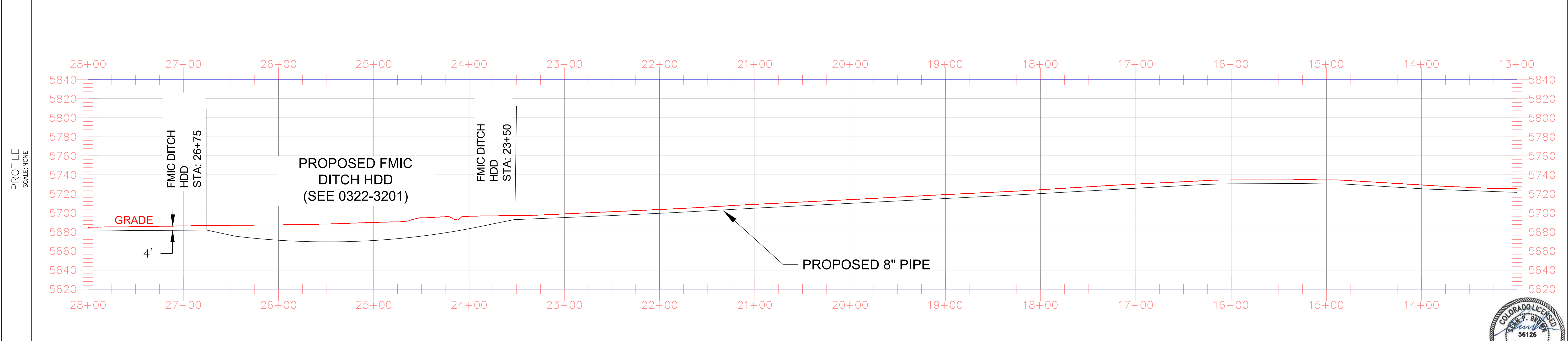
LEGEND:

	G	GAS PIPELINE (EXISTING)		SS	SEWER		R.O.W. PIPELINE
	C	COMMUNICATION LINE		W	WATER LINE		GAS PIPELINE-BORE (PROPOSED)
	OH	OVERHEAD ELECTRIC LINE		E	ELECTRIC LINE		
	G	GAS PIPELINE (PROPOSED)					

HORIZONTAL STATIONING	MATCH LINE STA: 28+00 E:3240285.1332 N:1312594.3242 SEE DWG. 0322-3303	FMIC DITCH HDD STA: 26+75	FMIC DITCH HDD STA: 23+50	MATCH LINE STA: 13+00 E:3241201.3471 N:1312994.9304 SEE DWG. 0322-3301
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MATERIAL	STA. 28+00	450'	②	STA. 23+50	1050'	①	STA. 13+00
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NOTES

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
- ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
- BHE ASSUMES NO RESPONSIBILITY FOR THE SPECIFIC LOCATION OF ANY BURIED GAS, WATER, OR UTILITY LINES THAT MAY BE PRESENT ON OR NEAR THIS SITE, NOR IS ANY LIABILITY ASSUMED FOR ANY LEGAL ACTION WHICH RESULTS FROM A DISCOVERY OF A GAS, WATER, OR UTILITY LINE IN ADDITION TO OR IN A DIFFERENT LOCATION THAN SHOW ON THIS PLAN.
- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	1050'
2	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	450'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRY'D	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIREL CREEK</b> ALIGNMENT & BORE PROFILE SHEET 13+00 TO 28+00	
	2024 CONSTRUCTION DWG. TYPE: PRELIM. <input type="checkbox"/> BID <input type="checkbox"/> FINAL <input checked="" type="checkbox"/>	WO:10083285 DESIGNED IN ACCORDANCE WITH TITLE 48-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	ELPASO COUNTY COLORADO DRAWN: SKS CHK. DR.: DJ SCALE: AS SHOWN DATE: 9/8/23



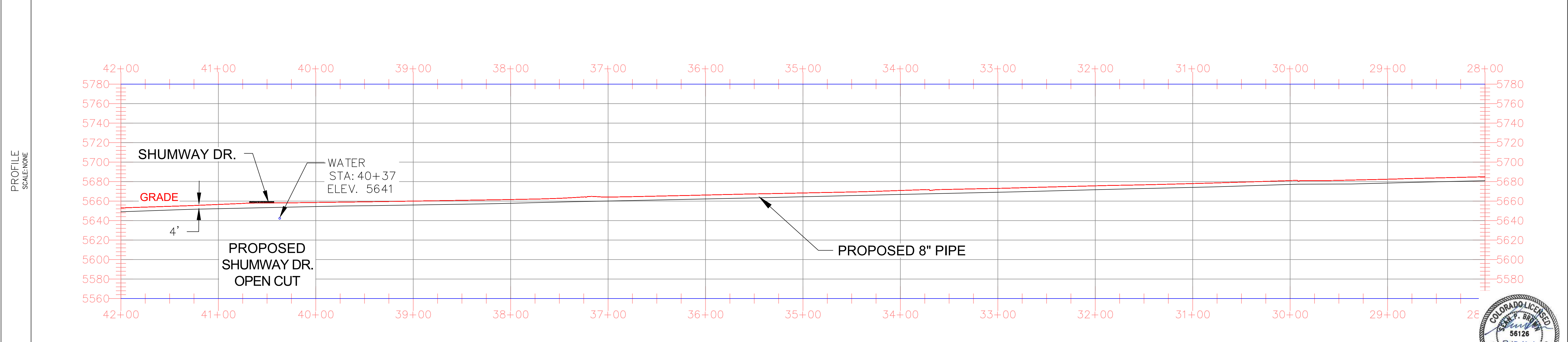
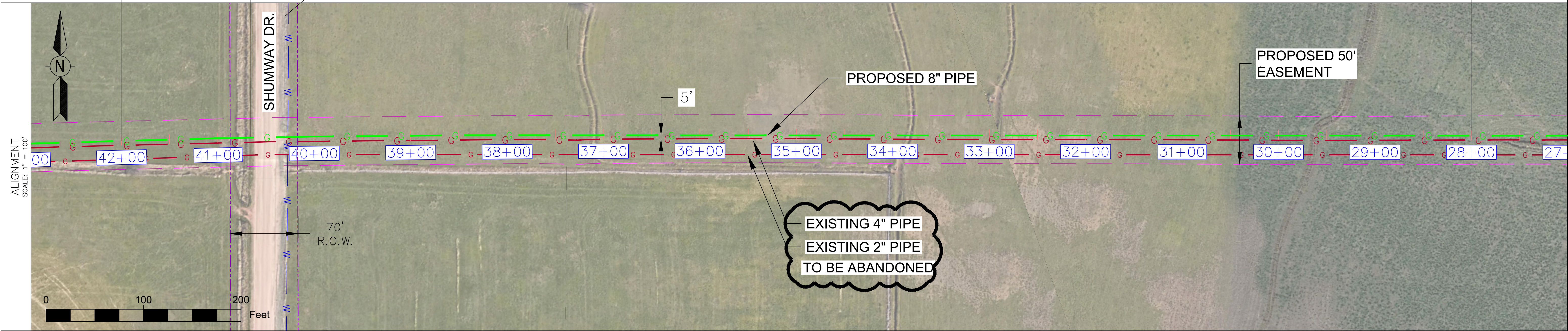


OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

	G	GAS PIPELINE (EXISTING)		SS	SEWER PIPELINE		R.O.W. PIPELINE
	C	COMMUNICATION LINE		W	WATER LINE		WATER LINE
	OH	OVERHEAD ELECTRIC LINE		G	GAS PIPELINE--BORE (PROPOSED)		GAS PIPELINE--BORE (PROPOSED)
	E	ELECTRIC LINE					

HORIZONTAL STATIONING	MATCH LINE STA: 42+00 E:3238390.3774 N:1312533.1978 SEE DWG. 0322-3304	SHUMWAY RD. EDGE OF ROAD STA: 40+65	SHUMWAY RD. EDGE OF ROAD STA: 40+35	MATCH LINE STA: 28+00 E:3240285.1332 N:1312594.3242 SEE DWG. 0322-3302
	ALIGNMENT SCALE: 1" = 100'			



NOTES

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
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- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	1400'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIRREL CREEK</b> ALIGNMENT & BORE PROFILE SHEET 28+00 TO 42+00	
	2024 CONSTRUCTION DWG. TYPE: PRELIM, BID, FINAL ✓ DRAWING NUMBER: 0322-3303	WO: 10083285 DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	EL PASO COUNTY COLORADO DRAWN: SKS CHK. DR.: DJ SCALE: AS SHOWN DATE: 9/8/23 SHEET NO.:



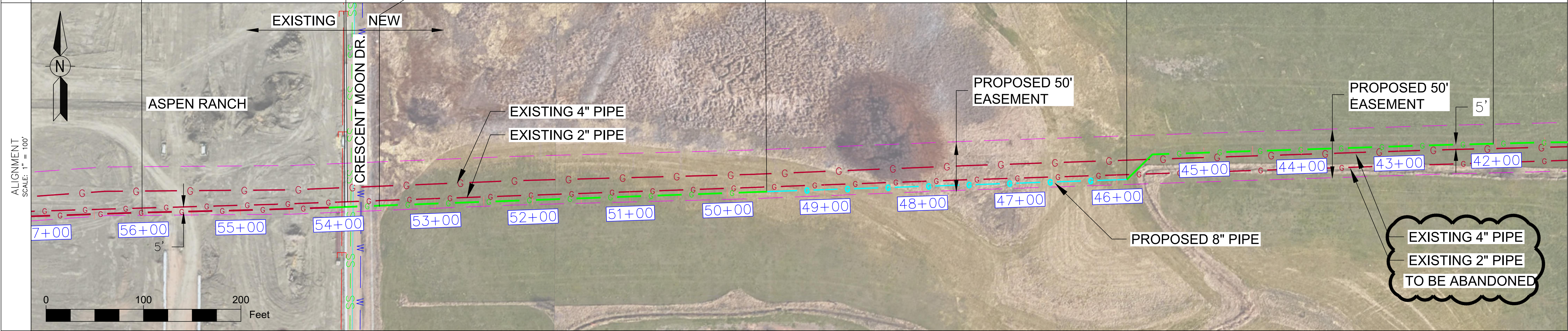


OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

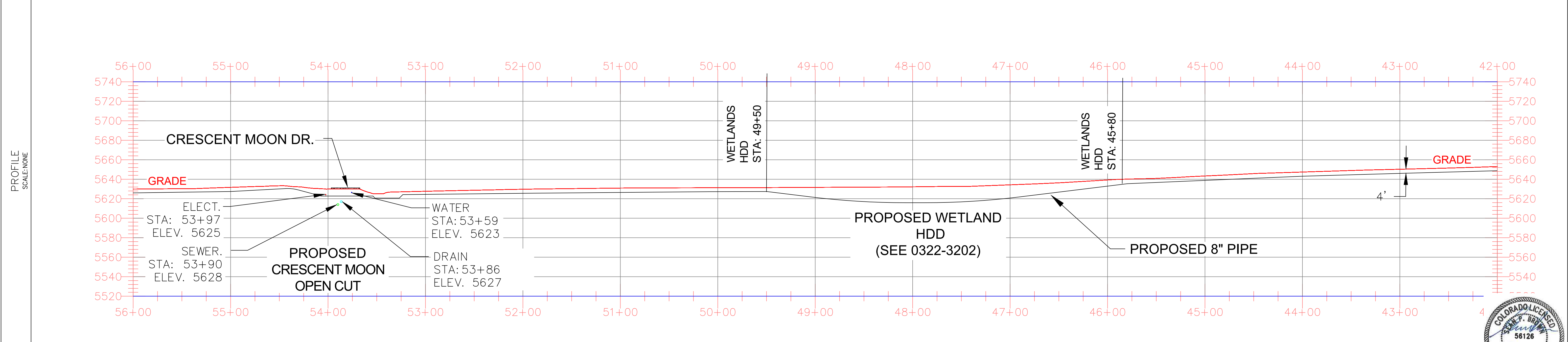
LEGEND:

	G	GAS PIPELINE (EXISTING)		SS	SEWER		W	WATER LINE		OH	OVERHEAD ELECTRIC LINE		G	GAS PIPELINE--BORE (PROPOSED)		E	ELECTRIC LINE		R.O.W. PIPELINE
	G	GAS PIPELINE (PROPOSED)		C	COMMUNICATION LINE														

HORIZONTAL STATIONING	MATCH LINE STA: 56+00 E:3237002.2567 N:1312451.8342 SEE DWG. 0322-3304A	CRESCENT MOON DRIVE EDGE OF ROAD STA: 53+90	CRESCENT MOON DRIVE EDGE OF ROAD STA: 53+63	WETLANDS HDD STA: 49+50	WETLANDS HDD STA: 45+80	MATCH LINE STA: 42+00 E:3238390.3774 N:1312533.1978 SEE DWG. 0322-3303

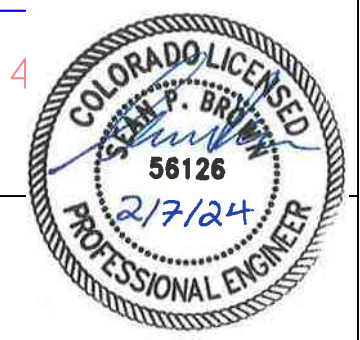


MATERIAL	STA. 54+13	463' ①	STA. 49+50	370' ②	STA. 45+80	380' ①	STA. 42+00
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NOTES

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
- ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
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- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.



1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	843'
2	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	370'

NO.	DESCRIPTION	DATE	BY	CK.	APPROVD
A	FOR REVIEW	9/21/23	SKS	DJ	CD
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD

2024 CONSTRUCTION  
DWG. TYPE: PRELIM, BID, FINAL ✓

ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

WO: 10083285

ELPASO COUNTY COLORADO

SCALE AS SHOWN DATE 9/8/23

SHEET NO. 6 of 21



ADDITIONAL INFORMATION



OWNERSHIP	EL PASO COUNTY	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

	G	GAS PIPELINE (EXISTING)		SS	SEWER PIPELINE		R.O.W. PIPELINE
	C	COMMUNICATION LINE		W	WATER LINE		OVERHEAD ELECTRIC LINE
	G	GAS PIPELINE (PROPOSED)		G	GAS PIPELINE--BORE (PROPOSED)		ELECTRIC LINE

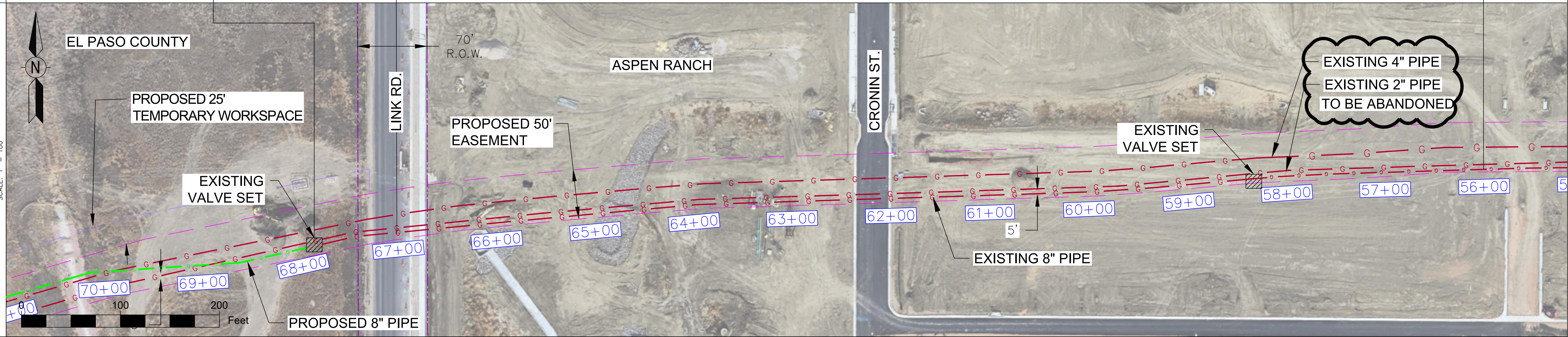
HORIZONTAL STATIONING



MATCH LINE  
STA: 67+00  
E: 3235906.0715  
N: 1312380.1100  
SEE DWG. 0322-3305

MATCH LINE  
STA: 56+00  
E: 3237002.2567  
N: 1312451.8342  
SEE DWG. 0322-3304

ALIGNMENT SCALE: 1" = 100'



MATERIAL

PROFILE SCALE: NONE

NOTES

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
- ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
- BHE ASSUMES NO RESPONSIBILITY FOR THE SPECIFIC LOCATION OF ANY BURIED GAS, WATER, OR UTILITY LINES THAT MAY BE PRESENT ON OR NEAR THIS SITE, NOR IS ANY LIABILITY ASSUMED FOR ANY LEGAL ACTION WHICH RESULTS FROM A DISCOVERY OF A GAS, WATER, OR UTILITY LINE IN ADDITION TO OR IN A DIFFERENT LOCATION THAN SHOW ON THIS PLAN.
- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.

BILL OF MATERIALS

REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK.	APPR'D
A	FOR REVIEW	9/21/23	SKS	DJ	CD
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD

NO.	DESCRIPTION	DATE	BY	CHK.	APPR'D
A	FOR REVIEW	9/21/23	SKS	DJ	CD
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD



ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

**SQUIREL CREEK**  
ALIGNMENT & BORE PROFILE SHEET  
56+00 TO 67+00

2024 CONSTRUCTION	WO: 10083285
DWG. TYPE: PRELIM. BID FINAL ✓	DESIGNED IN ACCORDANCE WITH TITLE 49--PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

EL PASO COUNTY	COLORADO
DRAWN: SKS	CHK. DR.: DJ
DRAWING NUMBER: 0322-3304A	SCALE AS SHOWN DATE 9/8/23

SHEET NO.	7 of 21
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ADDITIONAL INFORMATION



OWNERSHIP	EL PASO COUNTY	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

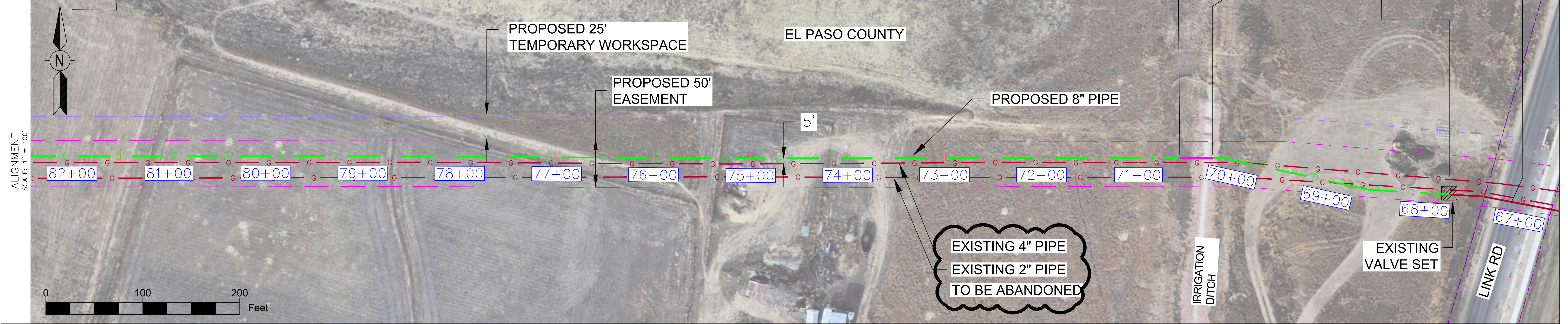
	G	GAS PIPELINE (EXISTING)		SS	SEWER		W	WATER LINE		R.O.W. PIPELINE
	G	GAS PIPELINE (PROPOSED)		C	COMMUNICATION LINE		OH	OVERHEAD ELECTRIC LINE		WATER LINE
				E	ELECTRIC LINE		G	GAS PIPELINE--BORE (PROPOSED)		

HORIZONTAL STATIONING

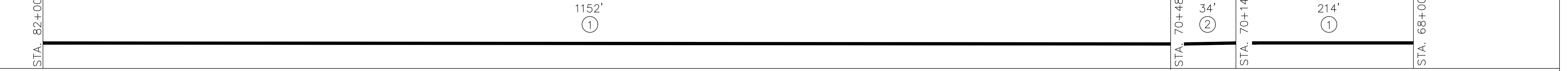
MATCH LINE  
STA: 82+00  
E:3234457.8599  
N:1311999.9685  
SEE DWG. 0322-3306

IRRIGATION DITCH WEST SHOULDER STA: 53+90  
IRRIGATION DITCH EAST SHOULDER STA: 53+90

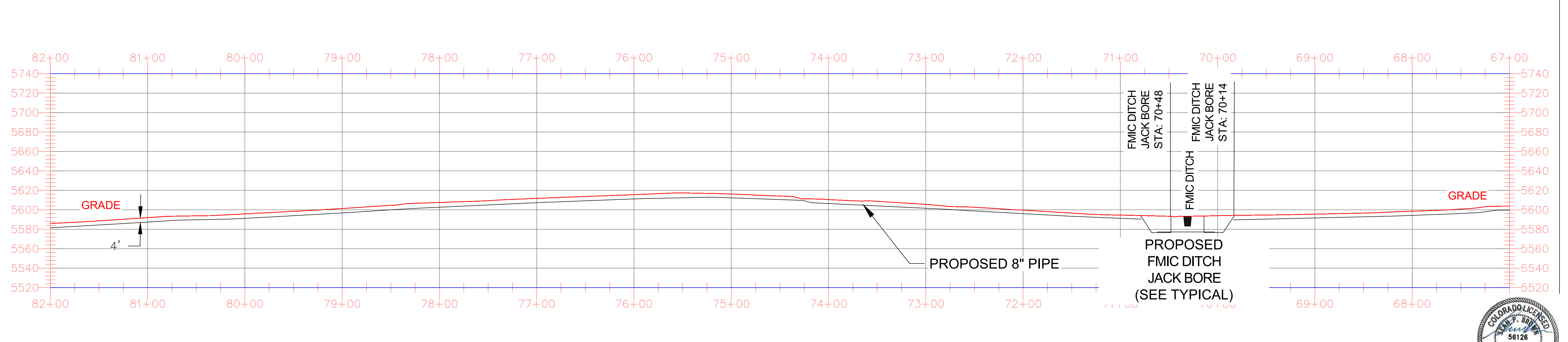
NEW EXISTING  
MATCH LINE  
STA: 67+00  
E:3235905.0715  
N:1312380.1100  
SEE DWG. 0322-3304A



MATERIAL



PROFILE SCALE: NONE



NOTES

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
- ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
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- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.



BILL OF MATERIALS		
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	1366'
2	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	34'

REVISIONS					
A	FOR REVIEW	9/21/23	SKS	DJ	CD
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIREL CREEK</b> ALIGNMENT & BORE PROFILE SHEET 67+00 TO 82+00	
	2024 CONSTRUCTION DWG. TYPE: PRELIM, BID, FINAL ✓	WO: 10083285 DESIGNED IN ACCORDANCE WITH TITLE 49--PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	EL PASO COUNTY COLORADO DRAWN: SKS, CHK. DR.: DJ, DATE: 9/8/23



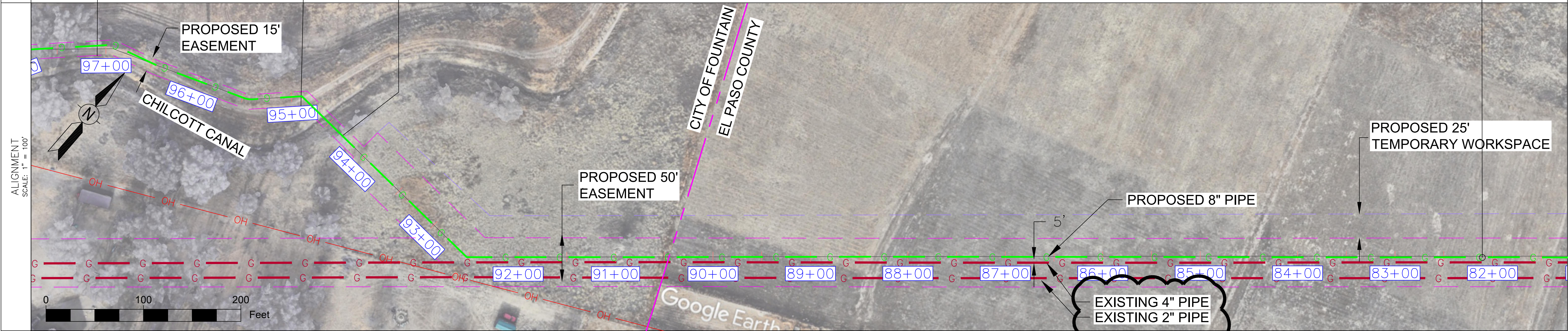


OWNERSHIP	CITY OF FOUNTAIN/EL PASO COUNTY	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

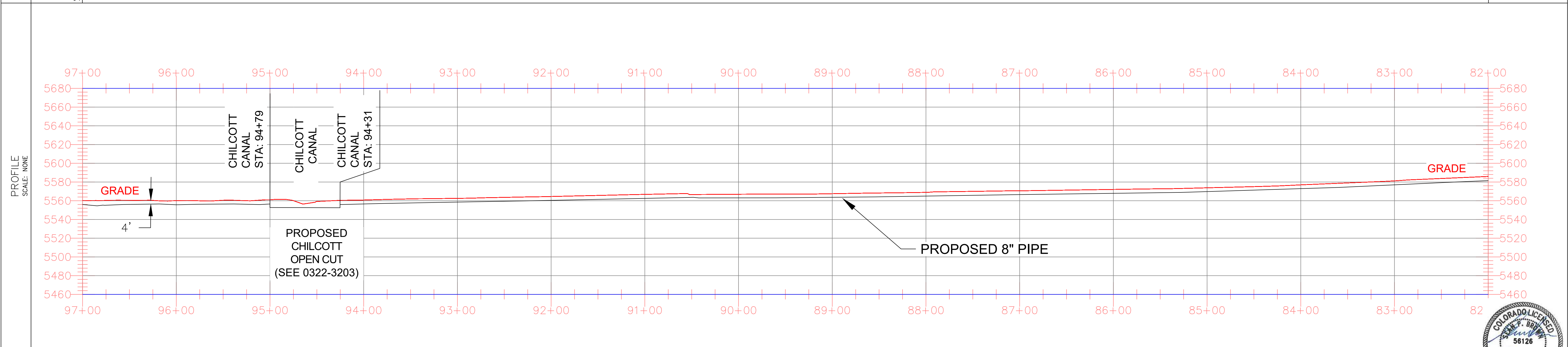
LEGEND:

	G	GAS PIPELINE (EXISTING)		SS	SEWER PIPELINE		R.O.W. PIPELINE
	C	COMMUNICATION LINE		OH	OVERHEAD ELECTRIC LINE		WATER LINE
	G	GAS PIPELINE (PROPOSED)		E	ELECTRIC LINE		GAS PIPELINE--BORE (PROPOSED)

HORIZONTAL STATIONING	MATCH LINE STA: 97+00 E:3233033.2019 N:1311797.7657 SEE DWG. 0322-3307	CHILCOTT CANAL OPEN CUT STA: 94+79	CHILCOTT CANAL OPEN CUT STA: 94+31	MATCH LINE STA: 82+00 E:3234457.8599 N:1311999.9685 SEE DWG. 0322-3305
	ALIGNMENT SCALE: 1" = 100'			

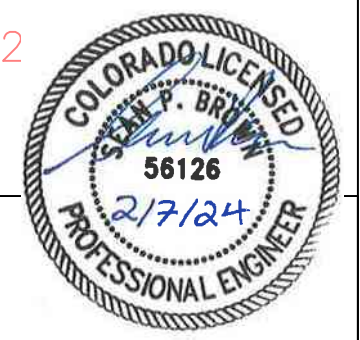


MATERIAL	STA. 97+00	1500'	STA. 82+00
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NOTES:

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
- ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
- BHE ASSUMES NO RESPONSIBILITY FOR THE SPECIFIC LOCATION OF ANY BURIED GAS, WATER, OR UTILITY LINES THAT MAY BE PRESENT ON OR NEAR THIS SITE, NOR IS ANY LIABILITY ASSUMED FOR ANY LEGAL ACTION WHICH RESULTS FROM A DISCOVERY OF A GAS, WATER, OR UTILITY LINE IN ADDITION TO OR IN A DIFFERENT LOCATION THAN SHOW ON THIS PLAN.
- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	1500'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

**SQUIREL CREEK**  
ALIGNMENT & BORE PROFILE SHEET  
82+00 TO 97+00

2024 CONSTRUCTION		WO: 10083285	EL PASO COUNTY	COLORADO
DWG. TYPE	PRELIM. BID FINAL ✓	DESIGNED IN ACCORDANCE WITH TITLE 49--PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	DRAWN SKS	CHK. DR. DJ
DRAWING NUMBER: 0322-3306		SCALE AS SHOWN	DATE 9/8/23	SHEET NO. 9 of 21



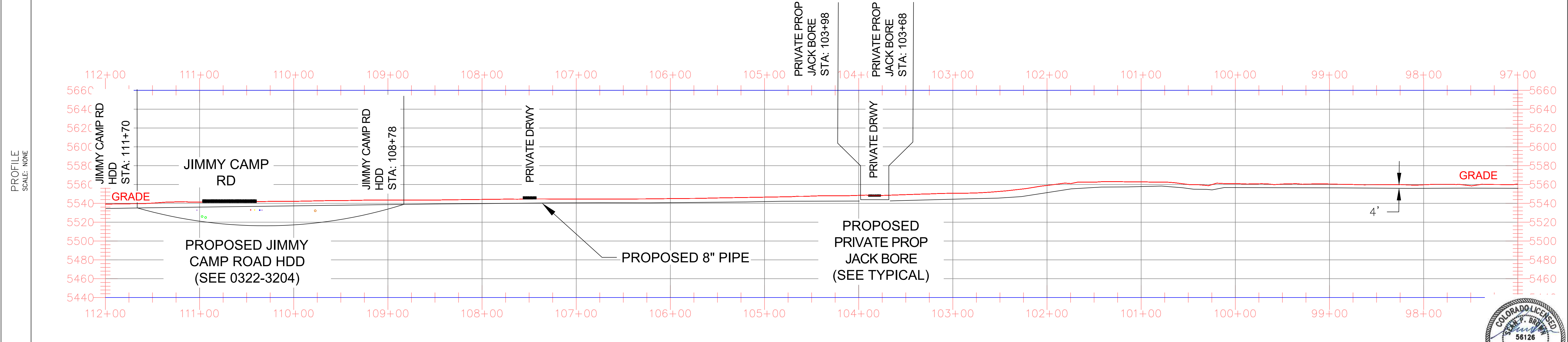
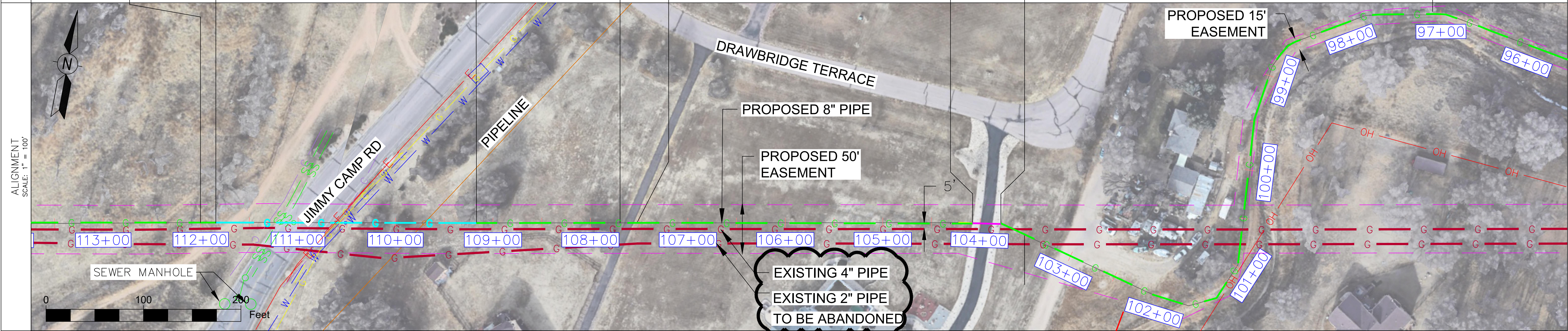


OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

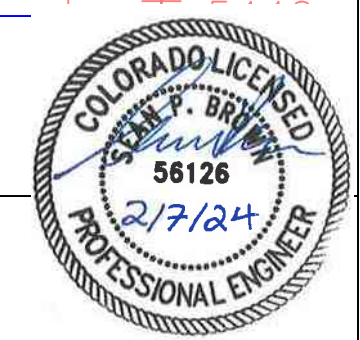
LEGEND:

	G	GAS PIPELINE (EXISTING)		SS	SEWER		R.O.W. PIPELINE	
	C	COMMUNICATION LINE		OH	OVERHEAD ELECTRIC LINE		W	WATER LINE
	G	GAS PIPELINE (PROPOSED)		E	ELECTRIC LINE		G	GAS PIPELINE--BORE (PROPOSED)

HORIZONTAL STATIONING	MATCH LINE STA: 112+00 E:3231874.3885 N:1311229.6015 SEE DWG. 0322-3308	JIMMY CAMP RD HDD STA: 111+74	JIMMY CAMP RD HDD STA: 109+07	PRIVATE DRWY STA: 107+35	PRIVATE DRWY STA: 107+18	PRIVATE PROP JACK BORE STA: 103+98	PRIVATE PROP JACK BORE STA: 103+68	MATCH LINE STA: 97+00 E:3233033.2019 N:1311797.7657 SEE DWG. 0322-3306
-----------------------	--	-------------------------------------	-------------------------------------	-----------------------------	-----------------------------	---------------------------------------	---------------------------------------	---



- NOTES
- STATIONING IS BASED ON HORIZONTAL DISTANCES.
  - ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
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  - GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
  - HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.



NO.	DESCRIPTION	LENGTH
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	1223'
2	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	277'

NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD
A	FOR REVIEW	9/21/23	SKS	DJ	CD
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIREL CREEK</b> ALIGNMENT SHEET 97+00 TO 112+00	
	2024 CONSTRUCTION Dwg. Type: PRELIM, BID, FINAL ✓	WO: 10083285 DESIGNED IN ACCORDANCE WITH TITLE 49--PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	EL PASO COUNTY COLORADO DRAWN: SKS CHK. DR.: DJ SCALE: AS SHOWN DATE: 9/8/23





OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

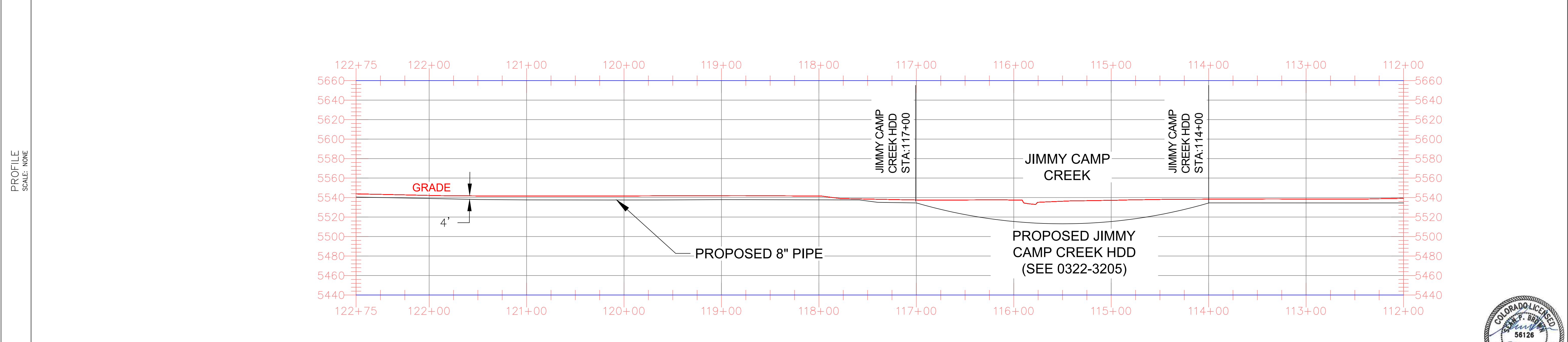
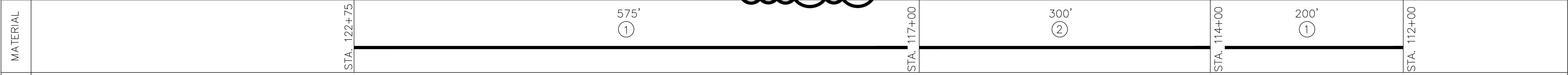
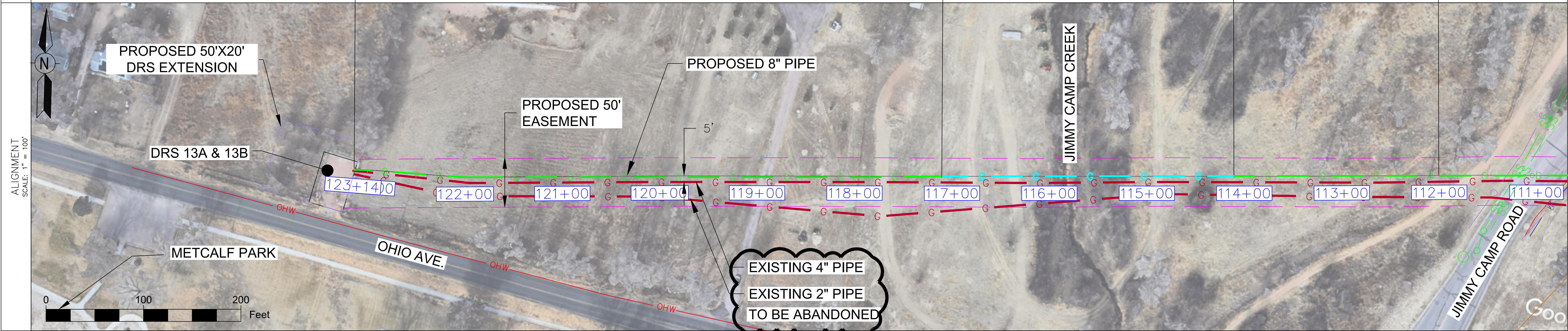
	G	GAS PIPELINE (EXISTING)		SS	SEWER		W	WATER LINE		R.O.W. PIPELINE	
	G	GAS PIPELINE (PROPOSED)		C	COMMUNICATION LINE		OH	OVERHEAD ELECTRIC LINE		G	GAS PIPELINE--BORE (PROPOSED)
	E	ELECTRIC LINE									

LINE END STA: 122+75  
E:3230805.3346  
N:1310918.1468

JIMMY CAMP CREEK HDD STA: 117+00

JIMMY CAMP CREEK HDD STA: 114+00

MATCH LINE STA: 112+00  
E:3231874.3885  
N:1311229.6015  
SEE DWG. 0322-3307



- NOTES
- STATIONING IS BASED ON HORIZONTAL DISTANCES.
  - ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
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  - GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
  - HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	775'
2	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	300'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIREL CREEK</b> ALIGNMENT & BORE PROFILE SHEET 112+00 TO 122+40	
	2024 CONSTRUCTION Dwg. Type: PRELIM, BID, FINAL ✓	WO: 10083285 DESIGNED IN ACCORDANCE WITH TITLE 49--PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	EL PASO COUNTY COLORADO DRAWN: SKS CHK. DR.: DJ SCALE: AS SHOWN DATE: 9/8/23





OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

	GAS PIPELINE (EXISTING)		SEWER		R.O.W. PIPELINE
	COMMUNICATION LINE		OVERHEAD ELECTRIC LINE		WATER LINE
	GAS PIPELINE (PROPOSED)		ELECTRIC LINE		GAS PIPELINE-BORE (PROPOSED)

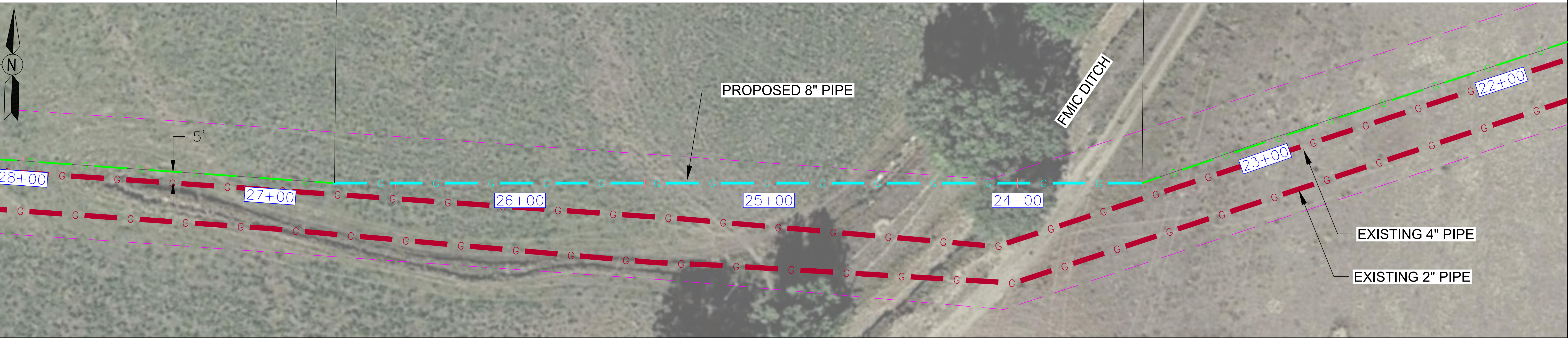
TEST STATION

HORIZONTAL STATIONING

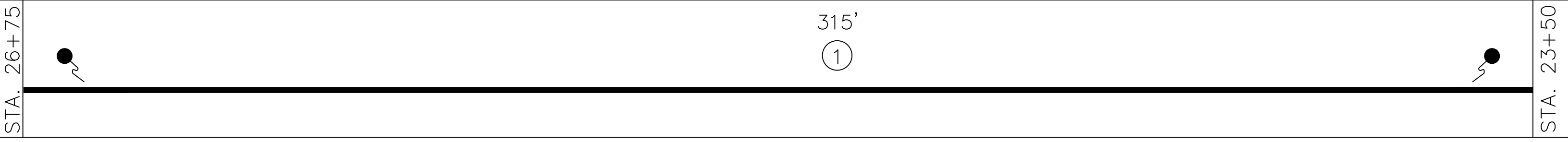
FMIC DITCH  
HDD  
STA: 26+75

FMIC DITCH  
HDD  
STA: 23+50

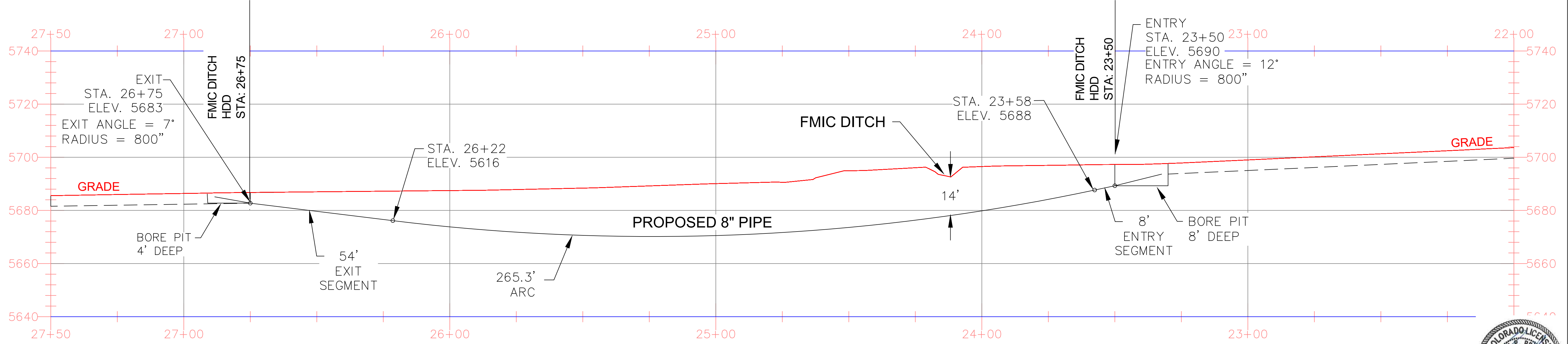
ALIGNMENT  
SCALE: 1" = 40'



MATERIAL



PROFILE  
SCALE: NONE



NOTES

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- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.
- FOR BORE DEPTH OF COVER PLEASE SEE DWG#0322-3601



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	315'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

**SQUIREL CREEK  
BORE PROFILE SHEET  
FMIC DITCH**

2024 CONSTRUCTION		WO: 10083285	EL PASO COUNTY	COLORADO
DWG. TYPE	PRELIM. BID FINAL ✓	DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	DRAWN SKS	CHK. DR. DJ
DRAWING NUMBER: 0322-3201		SCALE AS SHOWN	DATE 9/8/23	
		SHEET NO.		12 of 21





OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

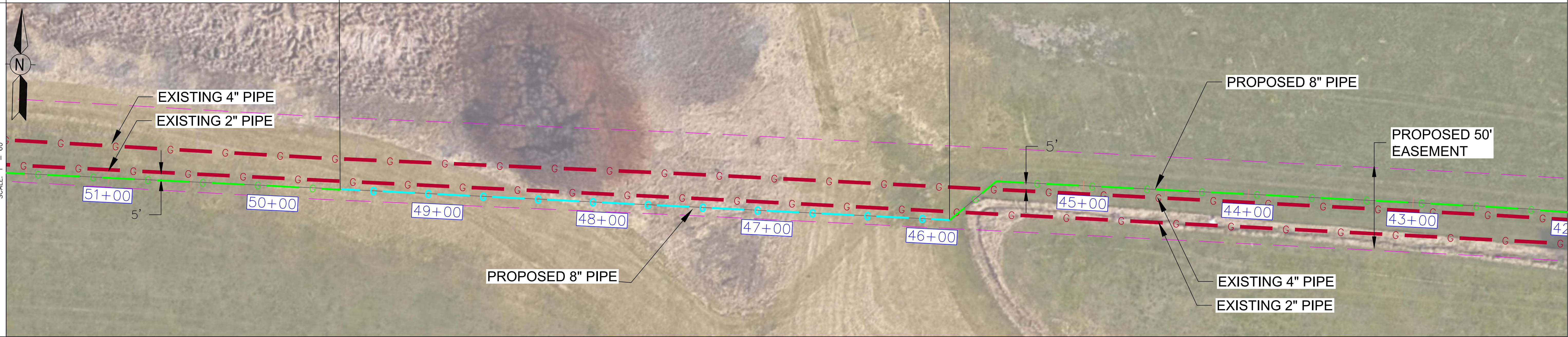
	G	GAS PIPELINE (EXISTING)		SS	SEWER		W	WATER LINE		TEST STATION
	G	GAS PIPELINE (PROPOSED)		C	COMMUNICATION LINE		W	WATER LINE		TEST STATION
	OH	OVERHEAD ELECTRIC LINE		G	GAS PIPELINE -BORE (PROPOSED)		E	ELECTRIC LINE		TEST STATION
	R.O.W.	PIPELINE		R.O.W.	PIPELINE		R.O.W.	PIPELINE		TEST STATION

HORIZONTAL STATIONING

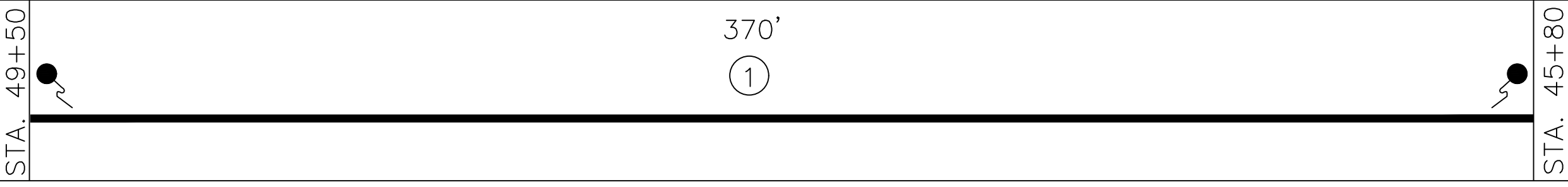
WETLANDS  
HDD  
STA: 49+50

WETLANDS  
HDD  
STA: 45+80

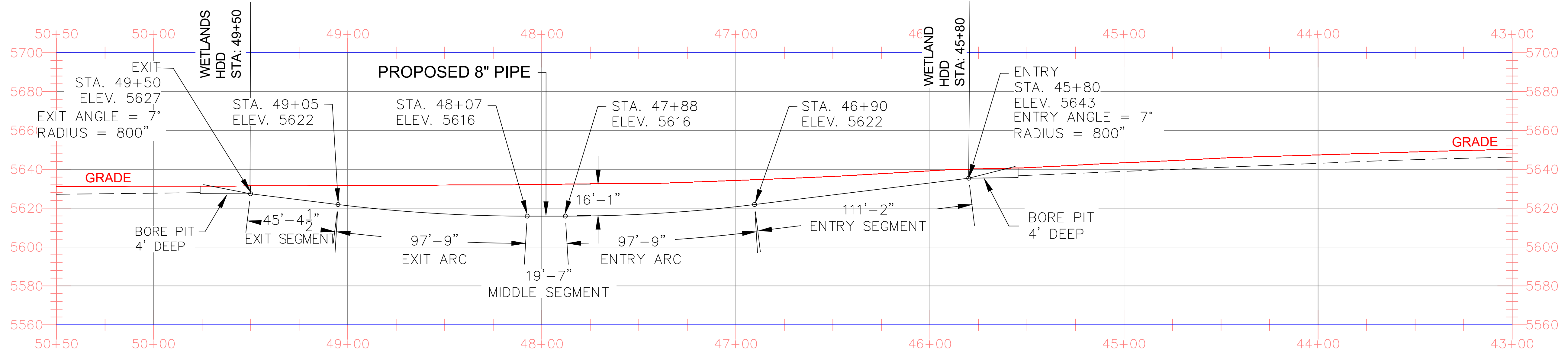
ALIGNMENT  
SCALE: 1" = 60'



MATERIAL



PROFILE  
SCALE: HORIZONTAL 1"=100' VERTICAL 1"=60'



NOTES

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- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.
- FOR BORE DEPTH OF COVER PLEASE SEE DWG#0322-3601



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	600'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	



ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

SQUIRREL CREEK  
BORE PROFILE SHEET  
WETLANDS HDD

2024 CONSTRUCTION		
DWG. TYPE	PRELIM	BID
FINAL	<input checked="" type="checkbox"/>	

WO: 10083285  
DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

EL PASO COUNTY	COLORADO
DRAWN	SKS
CHK. DR.	DJ
SCALE	AS SHOWN
DATE	9/8/23
SHEET NO.	13 of 21



ADDITIONAL INFORMATION



OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	6 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

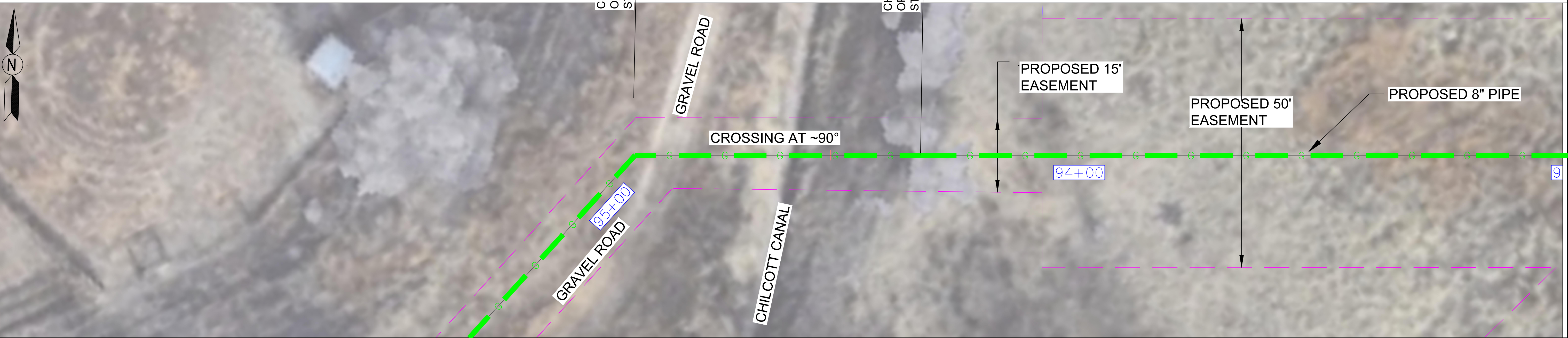
	G	GAS PIPELINE (EXISTING)		SS	SEWER		R.O.W. PIPELINE	
	C	COMMUNICATION LINE		OH	OVERHEAD ELECTRIC LINE		W	WATER LINE
	G	GAS PIPELINE (PROPOSED)		E	ELECTRIC LINE		G	GAS PIPELINE -BORE (PROPOSED)

TEST STATION

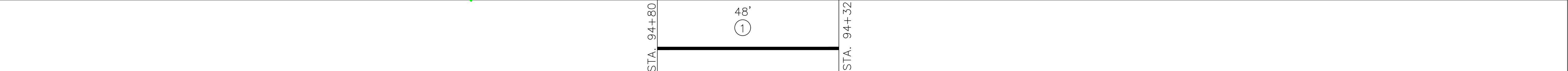
HORIZONTAL STATIONING



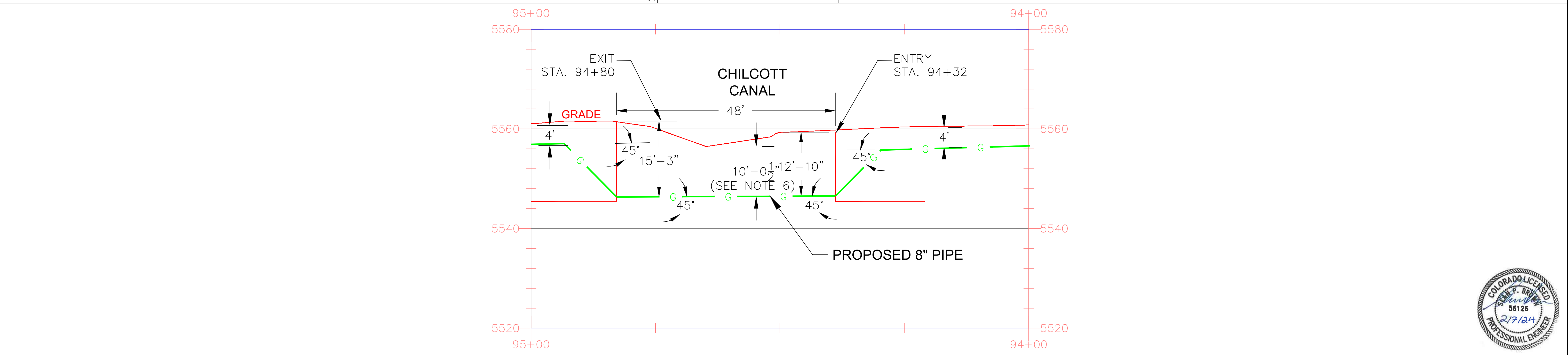
ALIGNMENT SCALE: 1" = 100'



MATERIAL



PROFILE SCALE: NONE



NOTES

- STATIONING IS BASED ON HORIZONTAL DISTANCES.
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- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.
- FLOW-FILL SHALL BE USED TO BACKFILL THE TRENCH AT THE DITCH CROSSING.

BILL OF MATERIALS		
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING	48'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	SQUIRREL CREEK DETAIL PROFILE SHEET CHILCOTT CANAL OPEN CUT	
	WO: 10083285	EL PASO COUNTY COLORADO	SCALE AS SHOWN DATE 9/8/23
2024 CONSTRUCTION DWG. TYPE PRELIM. BID FINAL ✓	DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	DRAWN SKS CHK. DR. DJ	SHEET NO. 14 of 21



ADDITIONAL INFORMATION



OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

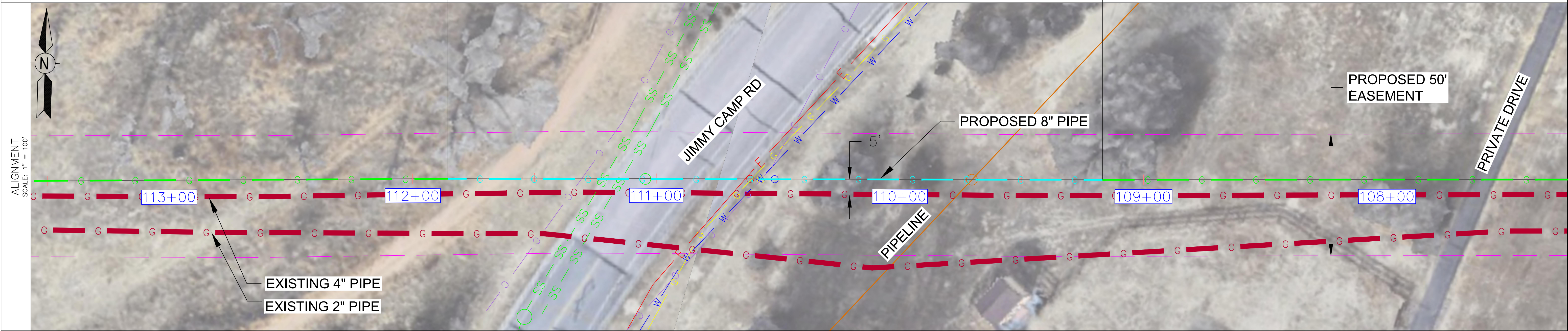
LEGEND:

- G (Red dashed line) GAS PIPELINE (EXISTING)
- G (Green dashed line) GAS PIPELINE (PROPOSED)
- SS (Green solid line) SEWER
- C (Orange solid line) COMMUNICATION LINE
- OH (Red solid line) OVERHEAD ELECTRIC LINE
- E (Blue solid line) ELECTRIC LINE
- W (Blue solid line) WATER LINE
- G (Cyan solid line) GAS PIPELINE-BORE (PROPOSED)
- (Purple dashed line) R.O.W. PIPELINE
- (Orange dashed line) OVERHEAD ELECTRIC LINE
- W (Blue dashed line) WATER LINE
- G (Cyan dashed line) GAS PIPELINE-BORE (PROPOSED)
- (Black circle) TEST STATION

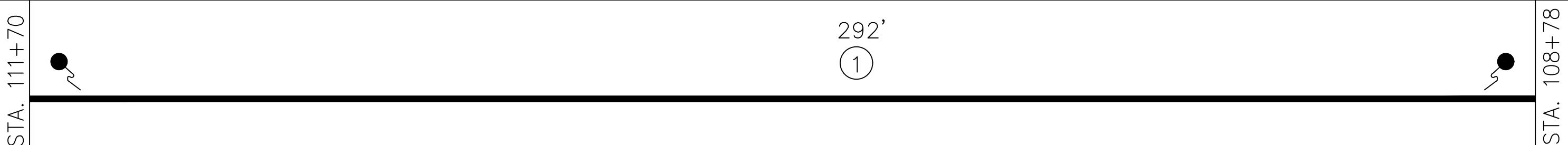
HORIZONTAL STATIONING

JIMMY CAMP RD  
HDD  
STA: 111+70

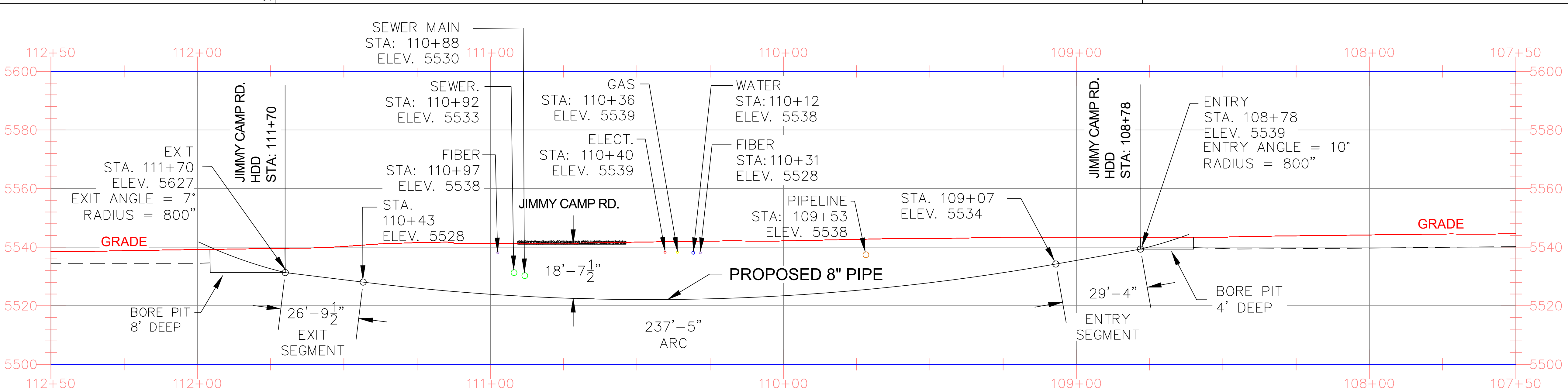
JIMMY CAMP RD  
HDD  
STA: 108+78



MATERIAL



PROFILE SCALE: NONE



NOTES

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- GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
- HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.
- FOR BORE DEPTH OF COVER PLEASE SEE DWG#0322-3601



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	292'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

**SQUIREL CREEK  
BORE PROFILE  
JIMMY CAMP ROAD**

2024 CONSTRUCTION		WO: 10083285	EL PASO COUNTY	COLORADO
DWG. TYPE	PRELIM. BID FINAL ✓	DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	DRAWN	SKS
CHK. DR.	DJ	SCALE AS SHOWN	DATE	9/8/23
DRAWING NUMBER:	0322-3204	SHEET NO.	15 of 21	

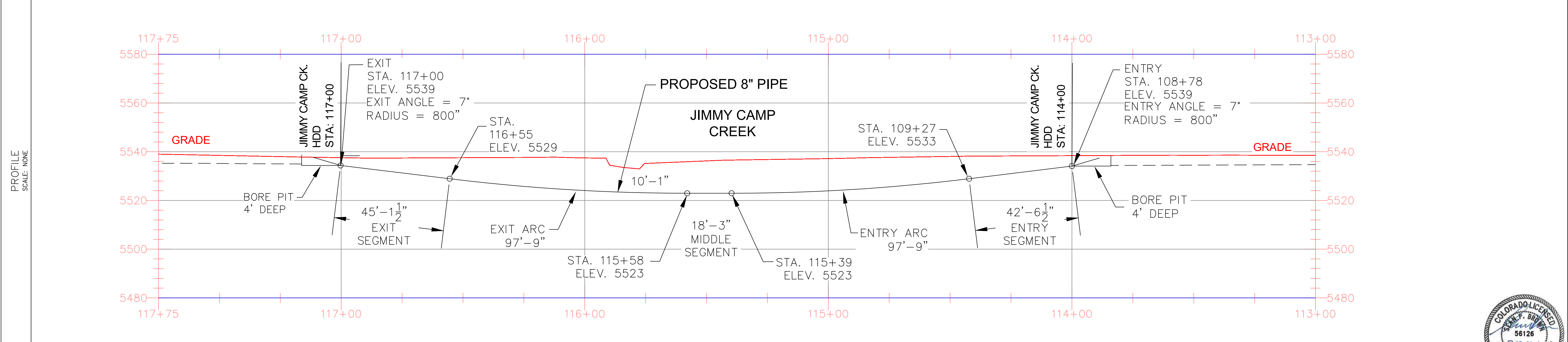
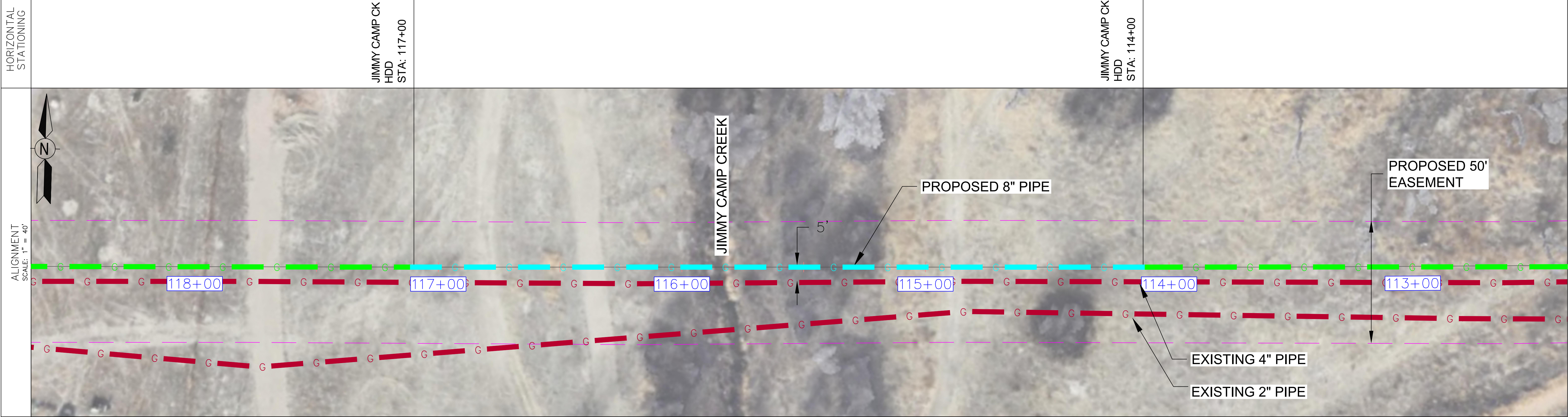




OWNERSHIP	CITY OF FOUNTAIN	MAOP	900 PSIG
ENVIRONMENTAL	--	CLASS LOCATION	CLASS 3 / DF = 0.5
JURISDICTION	--	TEST PRESSURE	1350 PSIG (MIN.) / 1658 PSIG (MAX)
DEPTH OF COVER	4 FT MIN.	OPERATING PRESSURE	465 PSIG

LEGEND:

	G	GAS PIPELINE (EXISTING)		SS	SEWER		R.O.W. PIPELINE		TEST STATION
	C	COMMUNICATION LINE		OH	OVERHEAD ELECTRIC LINE		W	WATER LINE	
	G	GAS PIPELINE (PROPOSED)		E	ELECTRIC LINE		G	GAS PIPELINE-BORE (PROPOSED)	



- NOTES
- STATIONING IS BASED ON HORIZONTAL DISTANCES.
  - ALL GAS, WATER AND UTILITY LINES SHALL BE LOCATED PRIOR TO ANY EXCAVATING, DIGGING, OR TRENCHING ANYWHERE ON OR NEAR THIS SITE.
  - BHE ASSUMES NO RESPONSIBILITY FOR THE SPECIFIC LOCATION OF ANY BURIED GAS, WATER, OR UTILITY LINES THAT MAY BE PRESENT ON OR NEAR THIS SITE, NOR IS ANY LIABILITY ASSUMED FOR ANY LEGAL ACTION WHICH RESULTS FROM A DISCOVERY OF A GAS, WATER, OR UTILITY LINE IN ADDITION TO OR IN A DIFFERENT LOCATION THAN SHOWN ON THIS PLAN.
  - GROUND SURVEY PROVIDED BY ENCOMPASS SERVICES, OCTOBER, 2023.
  - HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE CENTRAL ZONE.
  - FOR BORE DEPTH OF COVER PLEASE SEE DWG#0322-3601



BILL OF MATERIALS		
NO.	DESCRIPTION	QUANTITY
1	8.625" OD 0.250" WT API 5LS X52 W14-16 MILLS FBE COATING AND 40 MILS ARO	300'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIREL CREEK</b> <b>BORE PROFILE SHEET</b> <b>JIMMY CAMP CREEK</b>	
	2024 CONSTRUCTION Dwg. Type: PRELIM, BID, FINAL ✓	WO: 10083285 DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	EL PASO COUNTY COLORADO

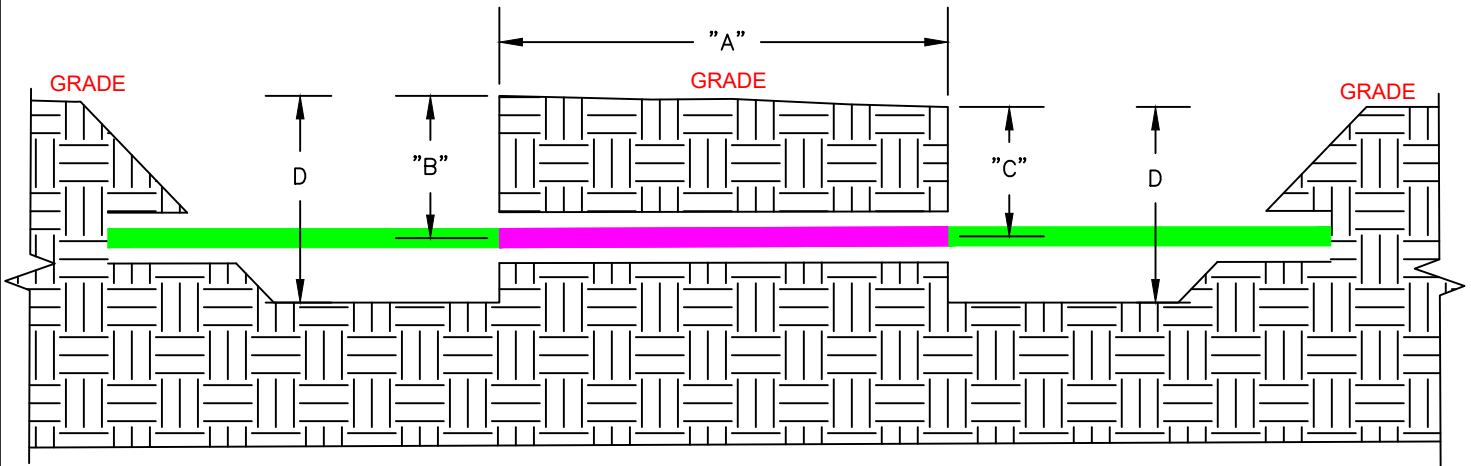


DATA TABLE

DESCRIPTION	SHEET	LENGTH "A"	DEPTH "B"	DEPTH "C"	DEPTH BELOW OBSTACLE
FMIC DITCH	7	34'-0"	16'-3"	16'-3"	6'-0"
PRIVATE PROP	9	30'-0"	4'-4"	4'-5"	4'-0"

\* DIMENSION "D" IS TO BE DETERMINED BY CONTRACTOR.

- BORE PIPE
- INTERCONNECTION PIPE



JACK AND BORE TYPICAL DETAIL  
SCALE=NONE



Know what's below.  
Call before you dig.

DRAWING REVISIONS					
NO.	DESCRIPTION	DATE	BY	CK.	APPRVD
0	ISSUED FOR CONSTRUCTION	12/14	SKS	SB	CD
B	REVISED	12/10	SKS	DJ	CD
A	FOR REVIEW	11/10	SKS	DJ	CD

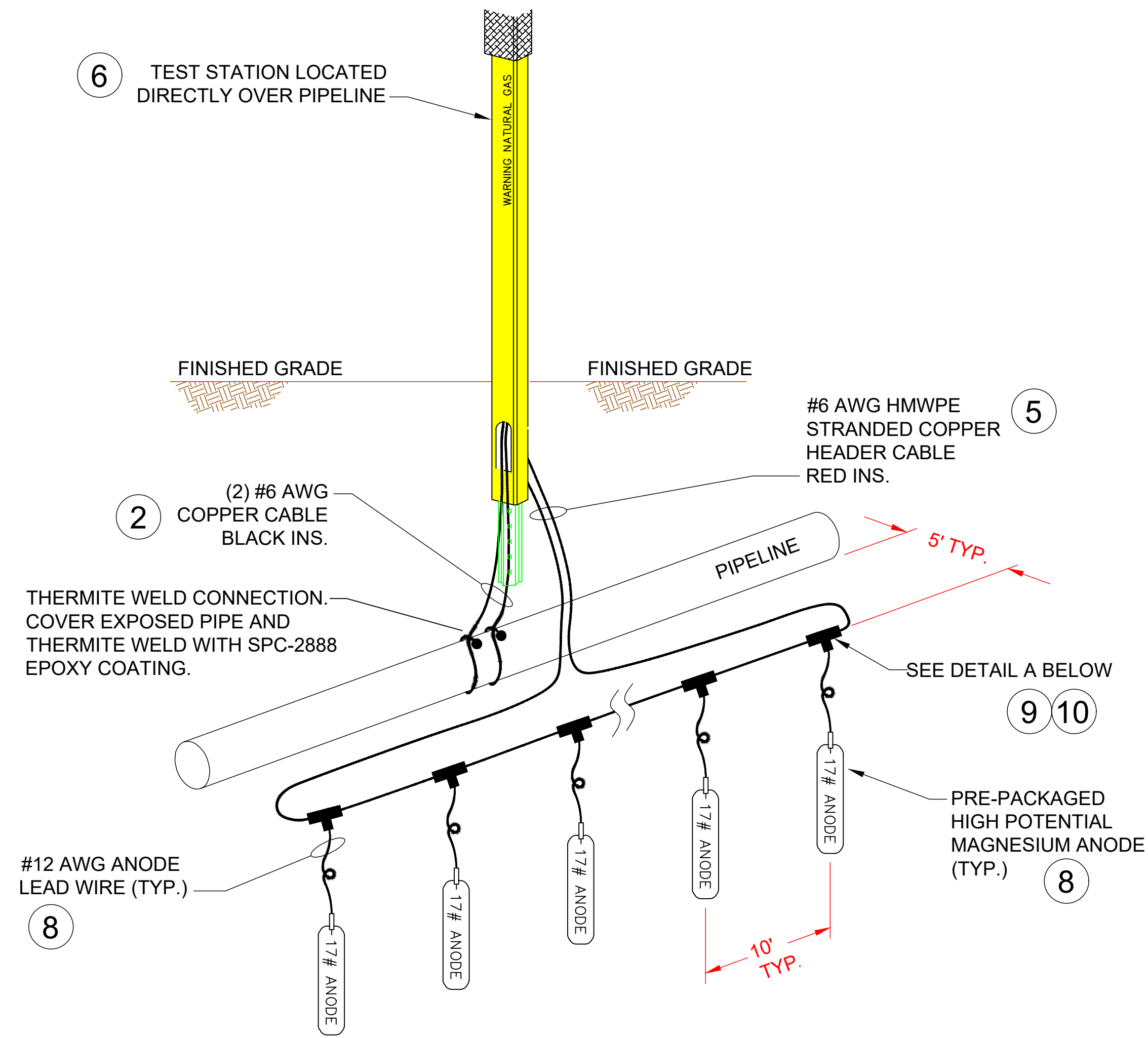


Natural Gas  
Engineering Services  
1102 E 1st Street  
Papillion, NE 68046

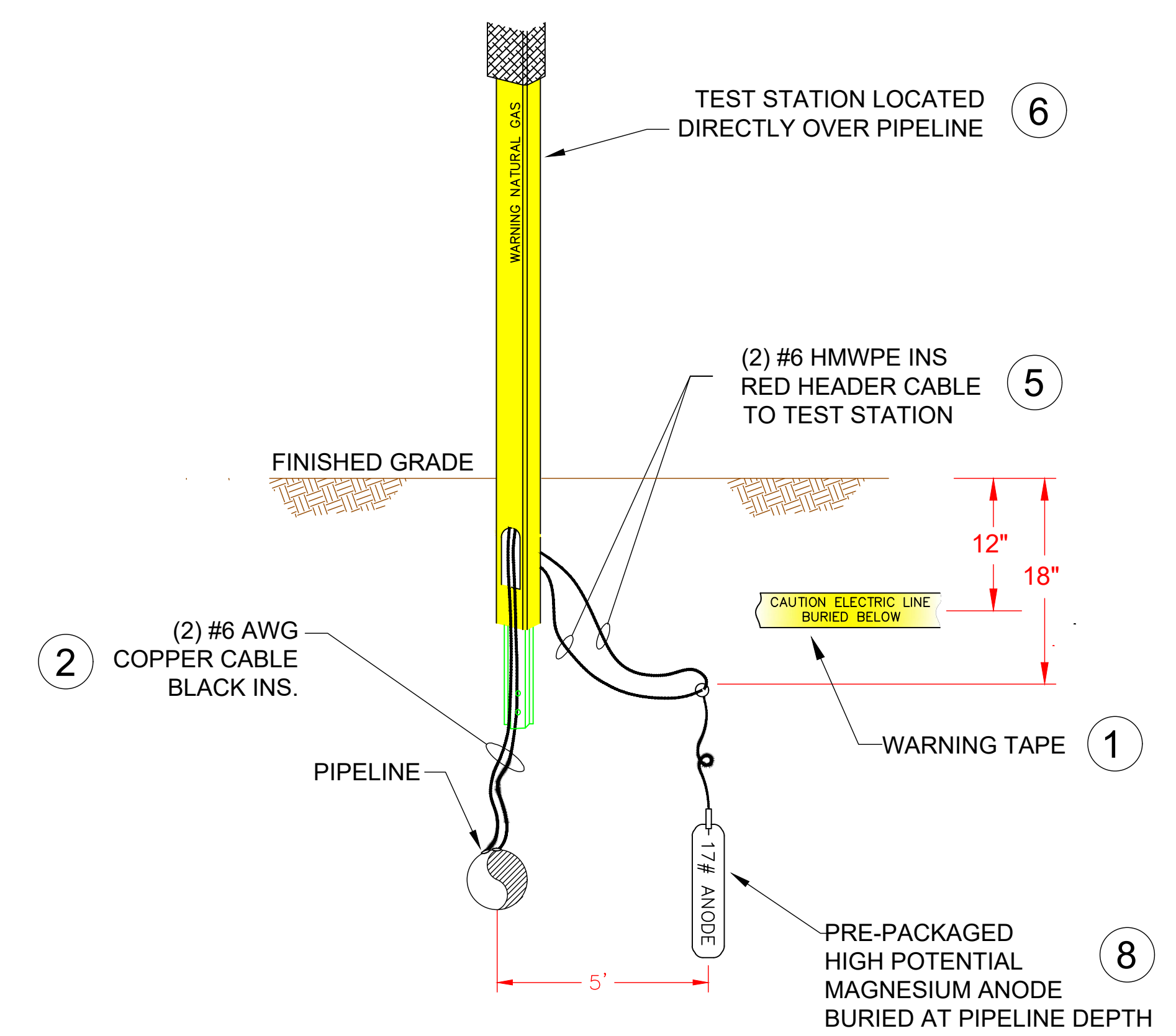
DRAWING APPROVALS		
TYPE	DATE	BY
MECHANICAL		
ELECTRICAL		
PROJECT	11/10/2023	DEZMOND JEANS
PIPELINE		
DRAFTING	11/10/2023	SCOTT SHEPERD
MEASUREMENT		
FIELD		

JACK AND BORE TYPICAL		
-----		
PIPING		
STANDARDS		
DRAWN BY SKS	DATE 11/10/2023	STANDRAD DRAWING
SCALE AS-NOTED	CHECKED DJ	DWG. TYPE PRELIM. BID FINAL X
CADD FILE TBD		W.O. NO. 10083285
P.N. TBD		SHEET NO. 17 of 21

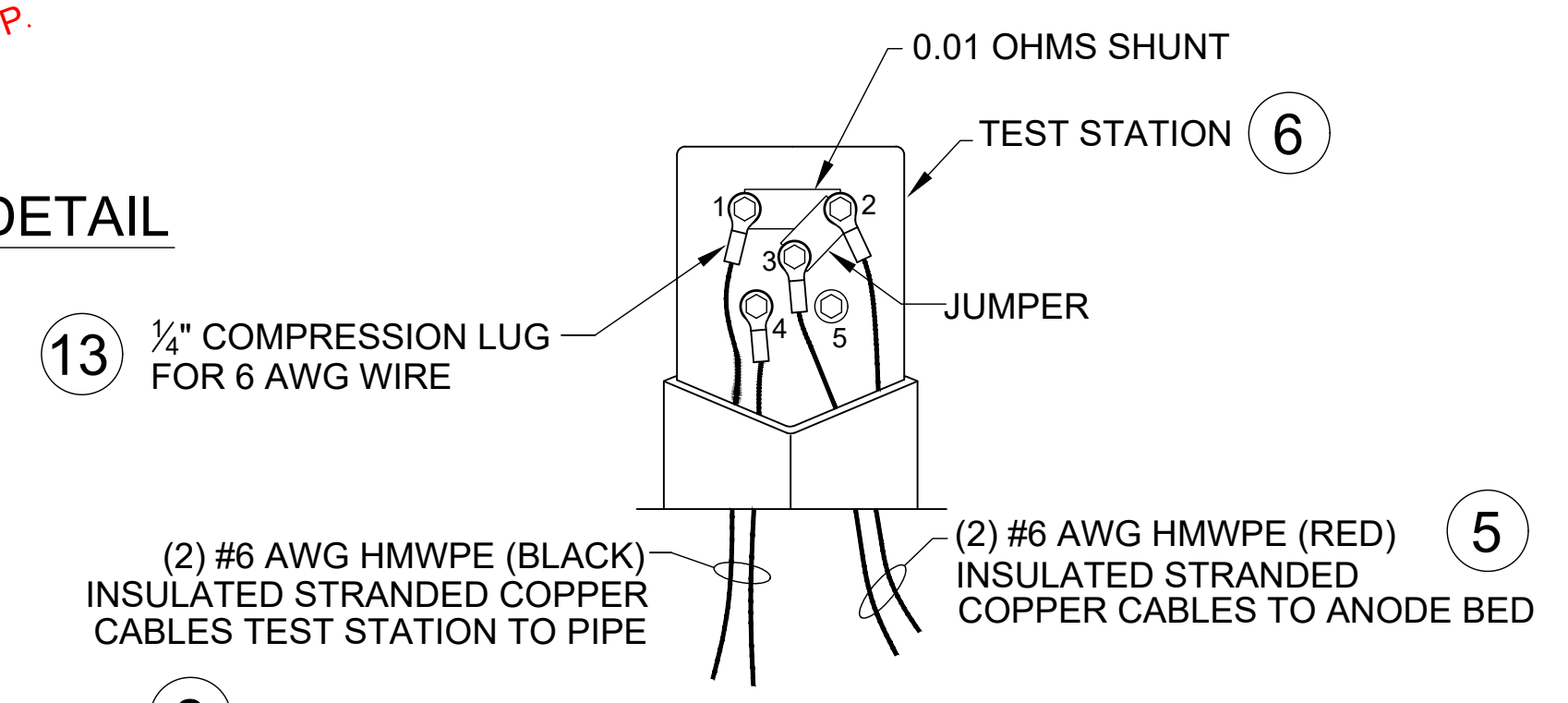




**MAGNESIUM ANODE INSTALLATION DETAIL**



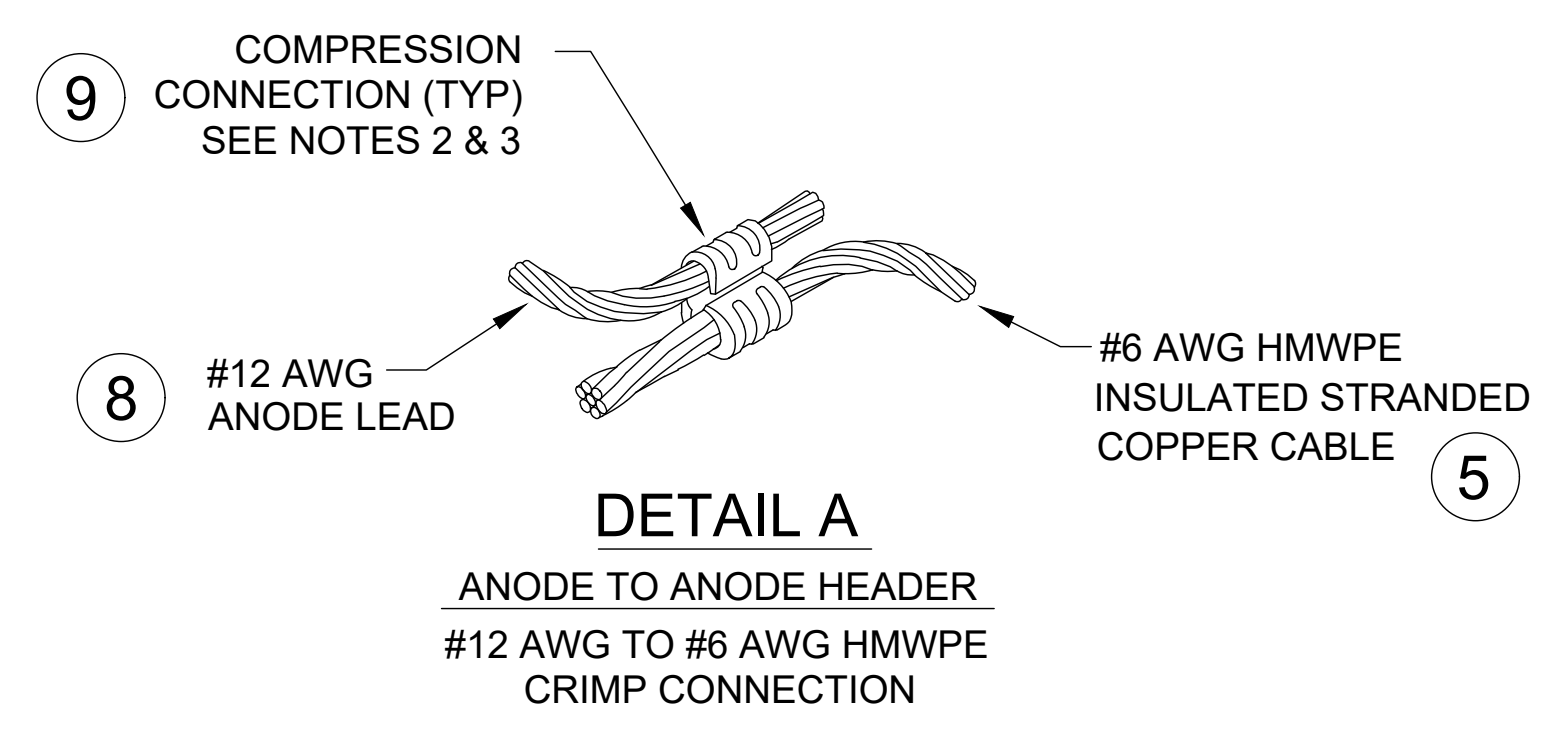
**SIDE VIEW  
MAGNESIUM ANODE  
INSTALLATION**



**ANODE TEST STATION  
WIRING DETAIL  
(SHOWN WITHOUT COVER)**

**ANODE TEST STATION WIRING DETAIL**

ANODE TEST STATION WIRING			
CONNECTIONS TO:		QUANTITY	TAPE OR WIRE COLOR
TERMINAL	PIPE/DEVICE		
1	PIPELINE	1	#6 AWG (BLACK)
2	ANODE BED	1	#6 AWG (RED)
3	ANODE BED	1	#6 AWG (RED)
4	PIPELINE	1	#6 AWG (BLACK)
5	UNUSED	-	-



**DETAIL A  
ANODE TO ANODE HEADER  
#12 AWG TO #6 AWG HMWPE  
CRIMP CONNECTION**

**NOTES:**

1. INSTALL MAGNESIUM ANODE BEDS AT LOCATIONS ALONG PIPELINE ACCORDING TO CP TECHNICIAN INSTRUCTIONS.
2. INSTALL MAGNESIUM ANODE A MINIMUM OF 5' AWAY FROM PIPELINE.
3. ANODE CAN BE INSTALLED IN HORIZONTAL OR VERTICAL CONFIGURATIONS.
4. ANODE BED TO BE CENTERED AT LOCATION INDICATED BY CP TECHNICIAN .
5. INSTALL WARNING TAPE (ITEM 1) APPROXIMATELY 1 FT BELOW GRADE OVERALL ANODE BED.
6. THE MAGNESIUM ANODES WILL BE INSTALLED AT LEAST AS DEEP AS THE BOTTOM OF THE PIPE.
7. USE RESIN SPLICE KIT TO SEAL CRIMP CONNECTIONS.
8. COMPRESS CRIMP CONNECTOR USING CORRECT HAND OPERATED OR HYDRAULIC CRIMPING TOOL WITH CORRECT DIE FOR THE GIVEN CRIMP CONNECTOR.

**NOTES**

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4. GROUND SURVEY PROVIDED BY (SURVEYOR), (MONTH), 20XX.
5. HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE SOUTH ZONE (0503). VERTICAL DATUM IS NAVD88 AND BASED ON AN OPUS SOLUTION UTILIZING GEOID 12B.

**BILL OF MATERIALS**

SEE MATERIAL LIST ON DRAWING 0322-5993
--

**REVISIONS**

NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD
A	FOR REVIEW	9/21/23	SKS	DJ	CD
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD



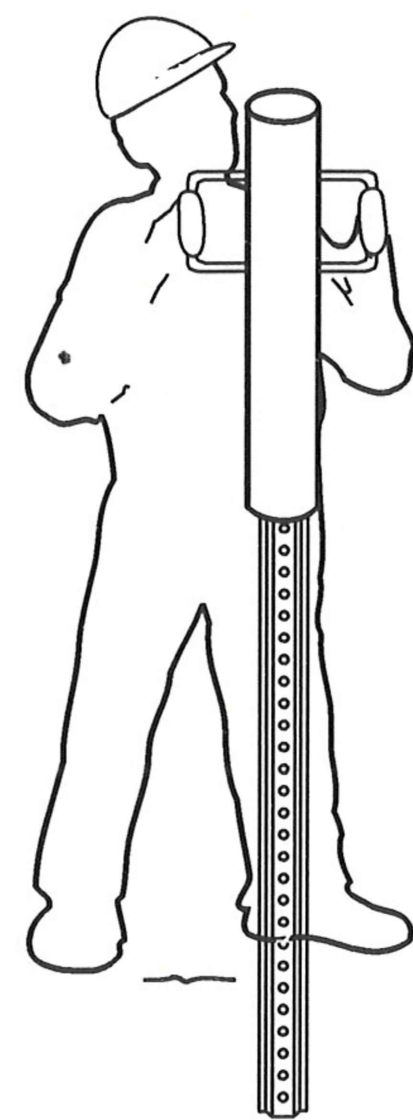
ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

**SQUIRREL CREEK  
CATHODIC PROTECTION TEST STATION  
DETAILS 1**

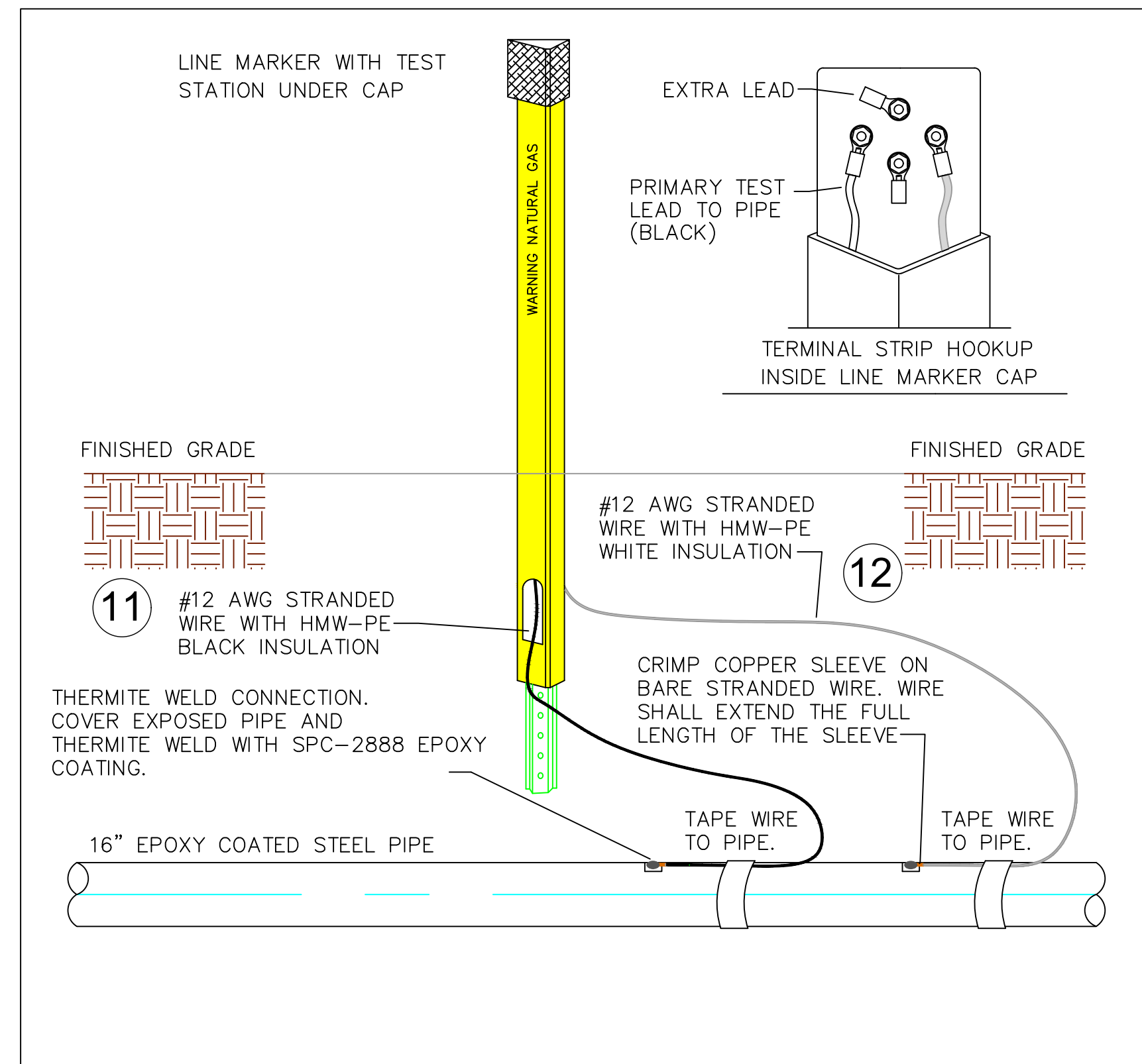
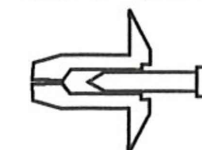
2024 CONSTRUCTION	WO: 10083285	EL PASO COUNTY	COLORADO
DWG. TYPE PRELIM. BID FINAL ✓	DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	DRAWN SKS	SCALE AS SHOWN
		CHK. DR. DJ	DATE 9/8/23
		DRAWING NUMBER: 0322-5990	SHEET NO. 18 of 21



## New Installation With U-Channel Posts



1. Drive u-channel 18"-24" into ground.
  2. Slide TriView over the u-channel post.
  3. Fasten TriView to u-channel post with the TriView Fastener or bolts.
- TriView fasteners.*  
One hit with a hammer locks the TriView onto a 1.12 lb. u-channel post.



PART	QUANTITY	UNIT	SIZE	ITEM DESCRIPTION	M.S. No.	CLASS	ITEM
11	TBD FT		#12 AWG	HMWPE (BLACK) INSULATED STRANDED COPPER CABLE, SOFT-DRAWN, COMMERCIALY PURE COPPER, ASTM B8, CLASS B STD.		N/A	
12	TBD FT		#12 AWG	HMWPE (WHITE) INSULATED STRANDED COPPER CABLE, SOFT-DRAWN, COMMERCIALY PURE COPPER, ASTM B8, CLASS B STD.		N/A	

## LINE MARKER/CATHODIC TEST STATION DETAIL

NO SCALE

NOTES

1. STATIONING IS BASED ON HORIZONTAL DISTANCES.
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4. GROUND SURVEY PROVIDED BY (SURVEYOR), (MONTH), 20XX.
5. HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE SOUTH ZONE (0503). VERTICAL DATUM IS NAVD88 AND BASED ON AN OPUS SOLUTION UTILIZING GEOID 12B.

### BILL OF MATERIALS

NO.	DESCRIPTION	QUANTITY
1	8" API 5LS X52 W/14-16 MILLS FBE COATING AND 40 MILS ARO	750'
2	8" API 5LS X52 W/14-16 MILLS FBE COATING AND 40 MILS ARO, WT-0.250"	225'

### REVISIONS

NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD
A	FOR REVIEW	9/21/23	SKS	DJ	CD
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD



ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

SQUIRREL CREEK  
CATHODIC PROTECTION TEST STATION  
DETAILS 2

2024 CONSTRUCTION

WO: 10083285

ELPASO COUNTY COLORADO

DWG. TYPE

---

DRAWN SKS CHK. DR. DJ SCALE AS SHOWN DATE 9/8/23

PRELIM. BID FINAL ✓

DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPIC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.

DRAWING NUMBER: 0322-5991

SHEET NO.

19 of 21

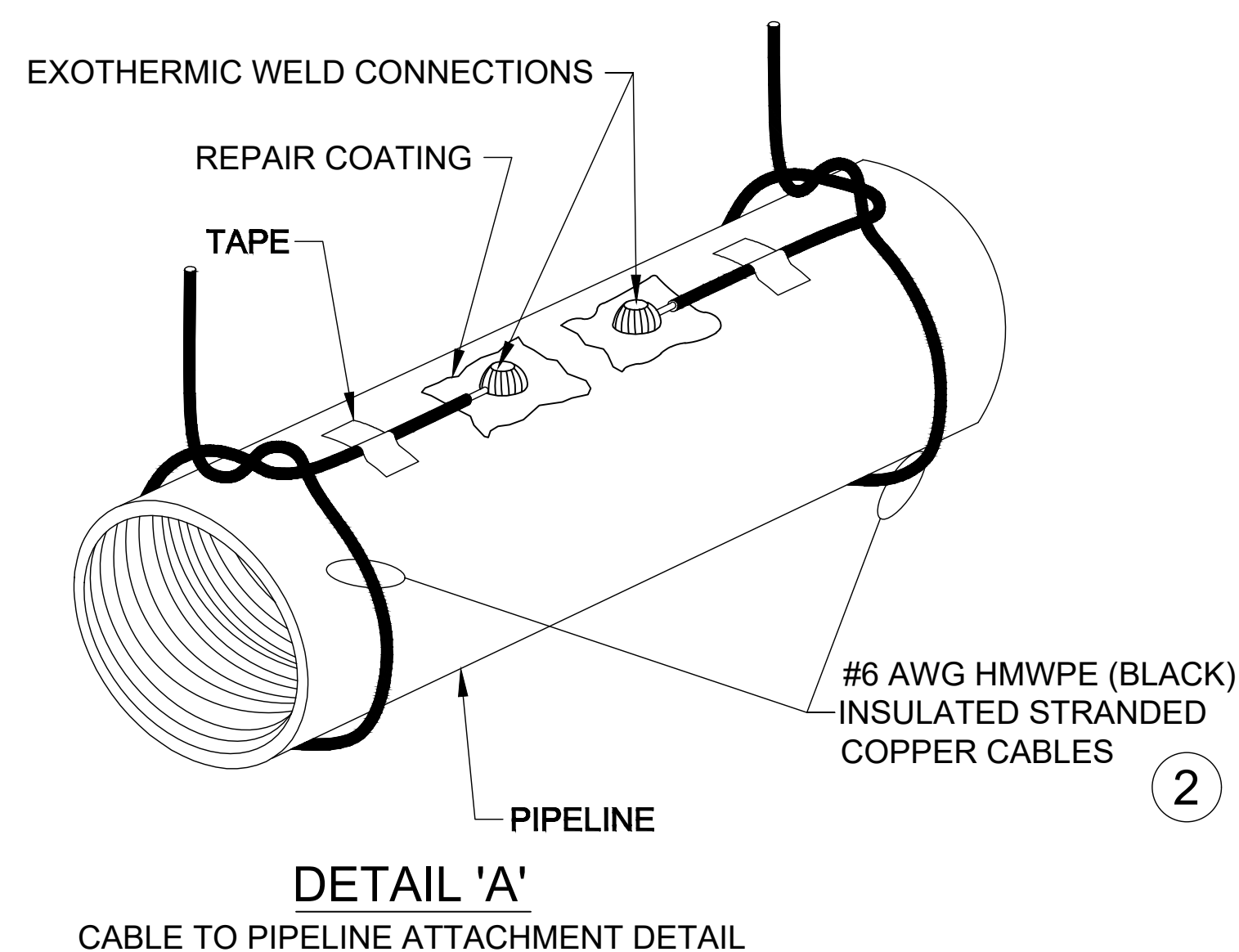


**EXOTHERMIC WELD INSTRUCTIONS:**

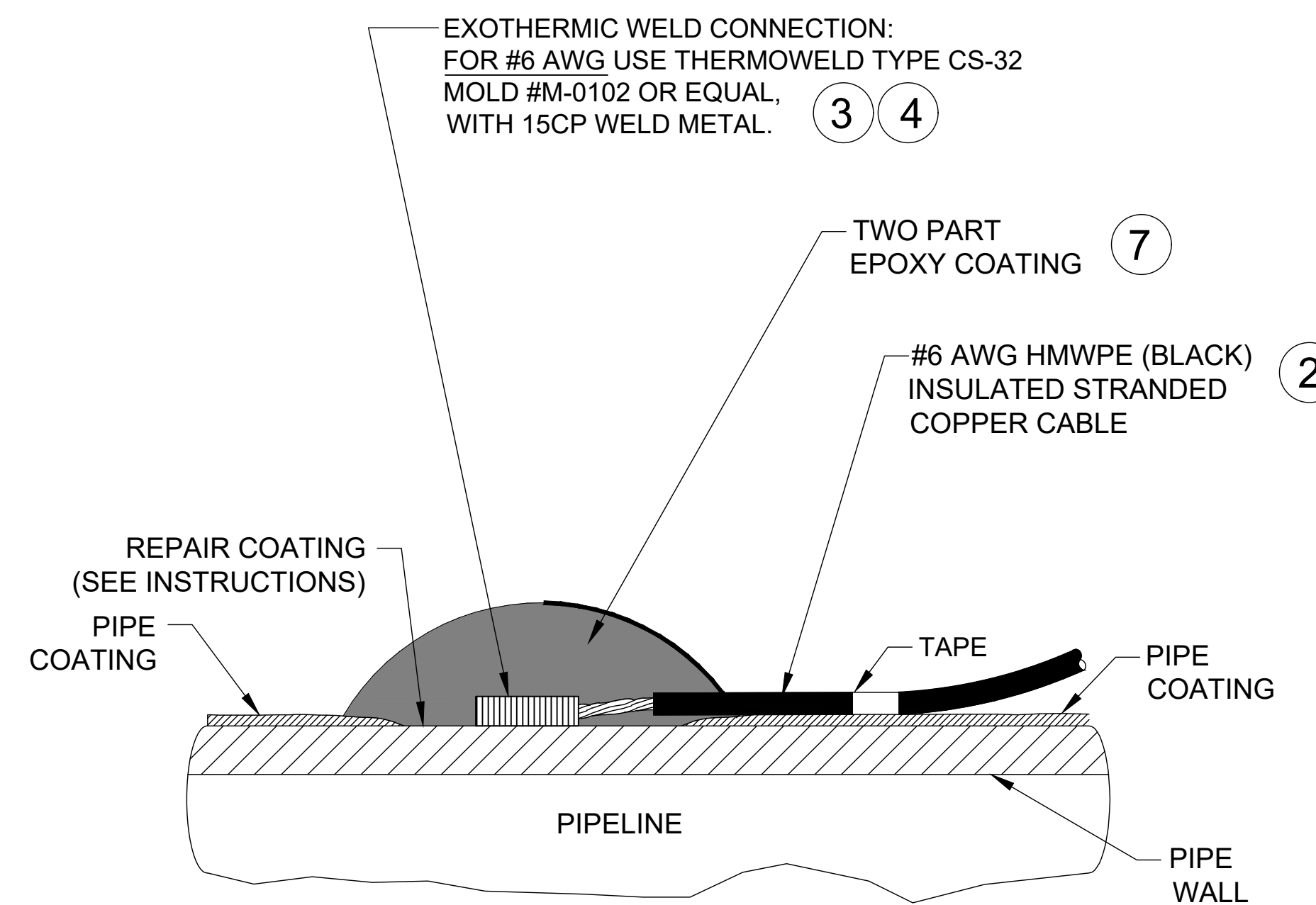
1. FIRST DETERMINE IF THE PIPELINE IS SUITABLE FOR EXOTHERMIC WELDING BY CONDUCTING THE FOLLOWING TESTS:
  - A) DETERMINE THAT THE PIPELINE SMYS (SPECIFIED MINIMUM YIELD STRENGTH) IS <80,000 PSI.
  - B) DETERMINE THAT PIPELINE WALL THICKNESS IS 1/8" (0.125") OR GREATER.
  - C) PERFORM ULTRASONIC TESTING TO PIPELINE TO DETERMINE THAT NO SURFACE OR INTERNAL DEFECTS EXIST.
2. FOR EACH CABLE TO PIPELINE CONNECTION (EXOTHERMIC WELD), REMOVE A 3"x3" MAX AREA OF PIPELINE COATING AT THE 12:00 O'CLOCK POSITION ON THE PIPELINE AND BRUSH UNTIL BRIGHT-CLEAN. ANY ADJACENT CABLE CONNECTIONS SHALL BE A MINIMUM OF 12" APART.
3. PREPARE PIPELINE SURFACE AS SPECIFIED BY COATING MANUFACTURER.
4. DETAIL 'A' SHOWS POSSIBLE METHOD OF CABLE STRAIN RELIEF FOR NEW PIPELINE INSTALLATIONS. THIS METHOD IS NOT A REQUIREMENT. OTHER MEANS OF STRAIN RELIEF MAY BE USED.
5. STRIP BACK ANY CABLE INSULATION 1"-2" AND TAPE CABLE TO PIPE. CRUCIBLE TIGHT TO PIPELINE.

6. ENSURE THAT THE PIPELINE WELD AREA AND CABLE ARE CLEAN AND DRY PRIOR TO WELDING.
7. USE SPECIFIC WELD MOLD AND WELD METAL AS INDICATED IN DRAWING MATERIAL LIST.
8. IF INDICATED, USE COPPER HEAT SLEEVE ON CABLE END TO BE WELDED.
9. USE ONLY A 15 GRAM WELDING CHARGE. DO NOT EXCEED.
10. PLACE THE METAL RETAINER DISK IN THE SPECIFIED WELD MOLD AND DUMP (DO NOT POUR) WELD METAL POWDER ONTO THE DISK. MAKE SURE THAT ALL OF THE FINE STARTING POWDER IS IN THE MOLD. IF ANY POWDER REMAINS IN THE CARTRIDGE BOTTOM, SQUEEZE OUT INTO MOLD AND BREAK UP.
11. CLOSE MOLD LID.
12. REPLACE CAP ON EMPTY WELD METAL CARTRIDGE AND PLACE BACK INTO CARTRIDGE PACK BOX UPSIDE DOWN TO KEEP THE REMAINING CARTRIDGES UPRIGHT.
13. LAY THE CABLE END ON THE PREPARED PIPE HOLDING

14. USING EYE AND HAND PROTECTION, STAND ON THE OPPOSITE SIDE OF THE CRUCIBLE FROM THE TOUCH HOLE AND IGNITE POWDER WITH SPARK FROM FLINT GUN. \*CAUTION: POWDER WILL FLASH WHEN IGNITED\*
15. WHEN WELD HAS SET, REMOVE WELD MOLD AND TEST CONNECTION BY RAPPING SHARPLY WITH A SLAG HAMMER. IF THERE IS ANY INDICATION THAT A COMPLETE WELD HAS NOT BEEN ACHIEVED, REMOVE THE WELD AND RE-APPLY.
16. IF WELD IS GOOD, REMOVE ANY SLAG WITH HAMMER AND CLEAN USING A WIRE BRUSH.
17. ONCE THE WELD CONNECTION AND AREA HAVE BEEN CLEANED, REPAIR COATING USING TWO-PART EPOXY COATING REPAIR KIT AS SPECIFIED IN THE DRAWING MATERIALS LIST (OR APPROVED COATING AS SPECIFIED BY BLACK HILLS ENERGY).
18. REFER TO BLACK HILLS ENERGY REPAIR SPECIFICATIONS AND PRODUCT DATA SHEET TO DETERMINE IF REPAIR IS ACCEPTABLE.
19. AFTER REPAIR COATING HAS CURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS, HOLIDAY DETECTION MUST BE PERFORMED.



**DETAIL 'A'**  
CABLE TO PIPELINE ATTACHMENT DETAIL



**DETAIL 'B'**  
EXOTHERMIC WELD CONNECTION & CORROSION PROTECTION SEAL

PART	QUANTITY	UNIT	SIZE	ITEM DESCRIPTION	M.S. No.	CLASS	ITEM
2	TBD FT		#6 AWG	HMWPE (BLACK) INSULATED STRANDED COPPER CABLE, SOFT-DRAWN, COMMERCIALY PURE COPPER, ASTM B8, CLASS B STD. (ANODE TEST STATIONS)		N/A	
3	1 EA			EXOTHERMIC WELD MOLD, THERMOWELD P/N M-0102 OR EQUAL W/ HANDLE & FLINT IGNITOR		N/A	
4	1 BOX			EXOTHERMIC WELD METAL, THERMOWELD P/N 15CP OR EQUAL		N/A	
7	TBD TUBE(S)			SPC-2888 TWO PART EPOXY (APPLY 20 MILS THICKNESS MIN. 50 ML TUBE WILL REPAIR TWO CONNECTIONS TO PIPE)		N/A	

**EXOTHERMIC WELD-CATHODIC TEST STATION DETAIL**

NO SCALE

NOTES

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4. GROUND SURVEY PROVIDED BY (SURVEYOR), (MONTH), 20XX.
5. HORIZONTAL CONTROL IS BASED ON NAD83 COLORADO STATE PLANE SOUTH ZONE (0503). VERTICAL DATUM IS NAVD88 AND BASED ON AN OPUS SOLUTION UTILIZING GEOID 12B.

BILL OF MATERIALS		
SEE ABOVE		750'
		225'

REVISIONS						
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD	
A	FOR REVIEW	9/21/23	SKS	DJ	CD	
B	FOR REVIEW (REVISED)	10/24/23	SKS	DJ	CD	
C	ISSUED FOR BID	12/1/23	SKS	DJ	CD	
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD	

	ENGINEERING DESIGN 760 ALEGRE DR. FOUNTAIN, CO 80817	<b>SQUIRREL CREEK</b> CATHODIC PROTECTION TEST STATION EXOTHERMIC WELD DETAILS	
	WO: 10083285	EL PASO COUNTY COLORADO	SCALE AS SHOWN DATE 9/8/23
2024 CONSTRUCTION DWG. TYPE: PRELIM. BID FINAL ✓	DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND OPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	DRAWN: SKS CHK. DR.: DJ	SHEET NO. 20 of 21



PART	QUANTITY	UNIT	SIZE	ITEM DESCRIPTION	M.S. No.	CLASS	ITEM
1	1	ROLL	3" WIDE	PANDUIT CORP., UNDERGROUND WARNING TAPE, PART #HTU3Y-E, YELLOW TAPE WITH BLACK LETTERS, READS "CAUTION ELECTRICAL LINE BURIED BELOW", 1 ROLL = 1000 FEET, GRAYBAR ELECTRICAL COMPANY, OMAHA, NE, PHONE 402-592-7676		N/A	
2	TBD	FT	#6 AWG	HMWPE (BLACK) INSULATED STRANDED COPPER CABLE, SOFT-DRAWN, COMMERCIALY PURE COPPER, ASTM B8, CLASS B STD. (ANODE TEST STATIONS		N/A	
3	1	EA		EXOTHERMIC WELD MOLD, THERMOWELD P/N M-0102 OR EQUAL W/ HANDLE & FLINT IGNITOR		N/A	
4	1	BOX		EXOTHERMIC WELD METAL, THERMOWELD P/N 15CP OR EQUAL		N/A	
5	TBD	FT	#6 AWG	HMWPE (RED) INSULATED STRANDED COPPER CABLE, SOFT-DRAWN, COMMERCIALY PURE COPPER, ASTM B8, CLASS B STD. (ANODE TEST STATIONS CONNECTIONS TO		N/A	
6	TBD	EA	6'	RHINO TRVIEW TEST STATION, YELLOW POST WITH WHITE CAP & LOCK, 72" LENGTH, 5 - 1/4" BRASS TERMINALS, TO INCLUDE (1 EA.) 0.01 OHM SHUNT & (1 EA.) JUMPER		N/A	
7	TBD	TUBE(S)		SPC-2888 TWO PART EPOXY (APPLY 20 MILS THICKNESS MIN. 50 ML TUBE WILL REPAIR TWO CONNECTIONS TO PIPE)		N/A	
8	TBD	EA	17#	MAGNESIUM ANODE, 17 LB SIZE, PREPACKAGED WITH LEAD WIRE	44.01	044	0143
9	TBD	EA		CRIMP CONNECTOR, COPPER, #6 AWG STRANDED RUN, #12 AWG TAP, BURNDY P/N YC6L12		N/A	
10	TBD	EA		RESIN SPLICE KIT, 3M SCOTCHCAST 90-B1 (FOR PROTECTION OF CRIMPED CABLE		N/A	
11	TBD	FT	#12 AWG	HMWPE (BLACK) INSULATED STRANDED COPPER CABLE, SOFT-DRAWN, COMMERCIALY PURE COPPER, ASTM B8, CLASS B STD.		N/A	
12	TBD	FT	#12 AWG	HMWPE (WHITE) INSULATED STRANDED COPPER CABLE, SOFT-DRAWN, COMMERCIALY PURE COPPER, ASTM B8, CLASS B STD.		N/A	
13	4 PER POST		#6	COMPRESSION LUG - 1/4" STUD HOLE, BURNDY PT. #YA6C OR EQUAL		N/A	


MATERIAL LIST-CATHODIC TEST STATION

NO SCALE

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REVISONS		ELPASO COUNTY		COLORADO	
NO.	DESCRIPTION	DATE	BY	CHK.	APPRVD
A	FOR REVIEW	9/21/23	SKS	DJ	CD
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C	ISSUED FOR BID	12/1/23	SKS	DJ	CD
D	ISSUED FOR CONSTRUCTION	12/14/23	SKS	SB	CD



**Black Hills Energy**

ENGINEERING DESIGN  
760 ALEGRE DR.  
FOUNTAIN, CO 80817

**SQUIRREL CREEK  
CATHODIC PROTECTION TEST STATION  
DETAILS 4**

2024 CONSTRUCTION	WO: 10083285	ELPASO COUNTY	COLORADO
DWG. TYPE PRELIM. <input type="checkbox"/> BID <input type="checkbox"/> FINAL <input checked="" type="checkbox"/>	DESIGNED IN ACCORDANCE WITH TITLE 49-PART 192 OF MINIMUM FEDERAL SAFETY STANDARDS AND GPTC GUIDE FOR GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS, LATEST EDITION.	DRAWN SKS	CHK. DR. DJ
DRAWING NUMBER: 0322-5993		SCALE AS SHOWN DATE 9/8/23	
		SHEET NO. 21 of 21	