

**March 19, 2025**

**CITY OF MONAHANS  
MUNICIPAL WATER WELL # 4 - 16**

**Addendum No. 1**

Attention is called to the following modifications to the referenced Plans, Specification and Contract Documents for the referenced project. The City of Monahans will receive sealed Bids for the Municipal Water Well # 4 – 16 project at Monahans City Hall, located at 112 W. 2<sup>nd</sup> Street, Monahans, Texas 79756, until 11:00 a.m., local time on **Tuesday, March 27, 2025**, at which time the sealed Bids received will be publicly opened and read. We hereby modify as follows:

**BID DOCUMENTS**

**BID FORM:**

1. **Replace Item (20)** estimated quantity with of 1 L.F. with **4,625 LF.**
2. **Replace Item (21)** estimated quantity with of 1 L.F. with **4,625 LF.**
3. **Replace Item (A1)** estimated quantity with of 2 L.F. with **4,625 LF.**

**CONTRACT:**

1. **ADD** Specification section 15067 (attached).

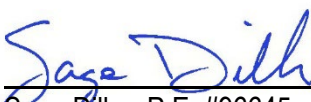
**Clarifications:**

Time and location for the Pre – Bid Walk through are **2:00 p.m.** local time on March 20, 2025 at the entrance to the Hogg Well Field.

Location for the Hogg Well entrance is 0.2 miles West of the intersection of Highway 18 and FM 1219 (Map Attached). Coordinates are as follows:

- Latitude: 31°38'51.98"N
- Longitude: 103° 0'10.91"W

This addendum consists of nine (9) pages and becomes a part of the referenced plans, specifications and contract documents and shall be acknowledged by the proposer and attached to the sealed proposal submitted.

By:   
Sage Diller, P.E. #96645  
Project Manager



3/19/2025

**SECTION 15067**

**PIPE: POLYETHYLENE (HDPE)**

**PART 1 GENERAL**

**1.1 SUMMARY:**

**A. Section Includes:**

1. Polyethylene pipe.

**1.2 REFERENCES:**

**A. Referenced Standards:**

1. ASTM International (ASTM):
  - a. A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
  - b. A197, Standard Specification for Cupola Malleable Iron.
  - c. D638, Standard Test Method for Tensile Properties of Plastics.
  - d. D1248, Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable.
  - e. D1693, Standard Test Method for Environmental Stress-Cracking of Ethylene Plastics.
  - f. D2240, Standard Test Method for Rubber Property-Durometer Hardness.
  - g. D2513, Standard Specification for Thermoplastic Gas Pressure Pipe, Tubing, and Fittings.
  - h. D2657, Standard Practice for Heat Joining Polyolefin Pipe and Fittings.
  - i. D2683, Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.
  - j. D2837, Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
  - k. D3261, Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.

- I. D3350, Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
    - m. F714, Standard Specification for Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
    - n. F1055, Standard Specification for Electrofusion-Type Polyethylene (PE) Fittings for Outside Diameter Controlled Polyethylene (PE) Pipe and Tubing.
  - 2. AWWA: C906 Polyethylene (PE) Pressure Pipe and Fittings, 4 IN through 63 IN, for Water Distribution and Transmission.
  - 3. Plastic Pipe Institute (PPI):
    - a. Handbook of Polyethylene (PE) Pipe.
    - b. PPI TR-3, Policies and Procedures for Developing Hydrostatic Design Basis (HDB), Pressure Design Basis (PDB), Strength Design Basis (SDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.
    - c. PPI TR-4, Listing of Developing Hydrostatic Design Basis (HDB), Strength Design Basis (SDB), Pressure Design Basis (PDB), and Minimum Required Strength (MRS) Ratings for Thermoplastic Piping Materials or Pipe.
    - d. PPI TR-14, Water Flow Characteristics for Thermoplastic Pipe.
    - e. PPI TR-33, Generic Butt Fusion Joining Procedure for Polyethylene (PE) Gas Piping.
    - f. PPI TR-41, Generic Saddle Fusion Joining Procedure for Polyethylene (PE) Gas Piping.
  - 4. Texas Administrative Code (TAC)
    - a. 30 TAC 290, Public Drinking Water, latest revision.

**1.3 QUALITY ASSURANCE:**

- A. Pipe shall be kept clean of all foreign matter.
  - 1. At temporary termination of pipe laying, provide suitable cover to close open end until burying operations are resumed.
- B. Fusion Qualification:
  - 1. The manufacturer of pipe, tubing and fittings supplied under this specification shall establish and qualify heat fusion procedures for the joining of the materials supplied if required. Qualified fusion

procedures, with appropriate supporting data, shall be furnished to the purchaser upon request.

2. PPI Technical Report TR-33 is this generic butt fusion procedure for field fusion of polyethylene pipe. This report is also listed in ASTM D2657 Standard Practice for Heat Fusion Joining of Polyolefin Pipe and Fittings. A list of pipe manufacturers, who have tested and approve this procedure, is shown in appendix B of that document.
  3. Jointing shall be by personnel fully trained and qualified in heat fusion procedures and techniques.
- C. Pipe Manufacturer's Quality Control. The pipe manufacturer shall have an on-going Quality Control program for incoming and outgoing materials. High-density polyethylene (HDPE) resins for manufacturing of pipe shall be checked for density, melt flow rate, and contamination. The manufacturer of the HDPE resin shall certify the Cell Classification indicated. These incoming resins shall be approved by plant Quality Control and verified to be approved by NSF before being converted to pipe. Pipe shall be checked for outside diameter, wall thickness, length, roundness, and surface finish on the inside and outside and end cut.
- D. Fittings Manufacturer's Quality Control. The fitting manufacturer shall have an on-going quality control program for incoming and outgoing materials. The resin shall be checked as indicated in section 2.1. Pipe for fabricated fittings shall be checked as indicated in 2.1. Molded fittings shall be inspected for voids and knit lines. All fabricated fittings shall be inspected for joint quality and alignment. All fabricated fittings welds shall be made as indicated in 2.2 using a DataLogger. A record of the temperature, pressure and graph of the fusion cycle shall be maintained by the fitting manufacturer.
- E. Permanent Records. The Manufacturer of the pipe and fittings shall maintain permanent QC and QA records. DataLogger records shall be maintained on fabricated fittings.
- F. Compliance Testing. If requested, the pipe or fittings manufacturer can be required to retest or verify certification data. All retesting shall be at the requestor's expense and shall be performed as required in the specifications.

**1.4 SUBMITTALS:**

**A. Shop Drawings:**

1. See Division 01 for requirements for the mechanics and administration of the submittal process.
2. Certifications:
  - a. Installer certification.
3. Field quality control documents.

4. Welder's certification(s).

**PART 2 PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS:**

- A. Subject to compliance with the Contract Documents, the following manufacturers of HDPE pipe are acceptable:

1. Performance Pipe.
2. ISCO.
3. Or Approved Equal.

**2.2 PIPE:**

**A. General:**

1. Provide PE 4710 piping with fittings and appurtenances to locations shown on Drawings.
2. Furnish materials in accordance with ASTM D2513 and full compliance to the following material specifications:
  - a. Material description: AWWA C906.
  - b. Cell classification: ASTM D3350, PE 445574E.
  - c. DR-11 Class 200, minimum, or as specified on Drawings.
3. DIPS Sized
4. Pipe shall be marked in accordance with AWWA C906.
5. Ensure all pipe and fittings meet the requirements of NSF standard 61.

**B. Fittings:**

**1. Butt Fusion Fittings:**

- a. Fittings shall be made of HDPE material with a minimum material designation code of PE3608 and with a minimum Cell Classification as noted in 2.2.A.2.b. Butt Fusion Fittings shall meet the requirements of ASTM D3261. Molded and fabricated fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. All fittings shall meet the requirements of AWWA C906.

Markings for molded fittings shall comply with the requirements of ASTM D3261. Fabricated fittings shall be marked in accordance with ASTM F2206, and shall be manufactured using DataLoggers. Temperature, fusion pressure, and a graphic representation of the fusion cycle shall be part of the Quality Control records.

**2. Electrofusion Fittings:**

- a. Fittings shall be made of HDPE material with a minimum material designation code of PE3608 and with a minimum Cell Classification as noted in 2.2.A.2.b. Electrofusion fittings shall have a manufacturing standards of ASTM F1055. Fittings shall have a pressure rating equal to the pipe unless otherwise specified on the plans. All electrofusion fittings shall be suitable for use as pressure conduits and have normal burst values of four times the Working Pressure Rating (WPR) of the fitting. Markings shall be in accordance with ASTM F1055.

**3. Flanges and Mechanical Joint Adapters (MJ Adapters):**

- a. Flanges and Mechanical Joint Adapters shall have a material designation code of PE3608 or higher and a minimum Cell Classification as 2.2.A.2.b. Flanged and Mechanical Joint Adapters can be made to ASTM D3261 or if machined, must meet the requirements of ASTM F2206. Flanges and MJ Adapters shall have a pressure rating equal to the pipe unless otherwise specified on the plans. Markings for molded or machined flange adapters or MJ adapters shall be per ASTM D3261. Fabricated (including machined) flange adapters shall be per ASTM F2206.

**C. Pipe and Fitting Identification:**

1. Pipe and fittings shall be marked in accordance with the standards to which it is manufactured.
2. Pipe shall be black with blue stripes for raw water transmission, and black with no stripes for process wastewater.

**PART 3 EXECUTION**

**3.1 JOINING METHODS:**

**A. Butt Fusion:**

1. The pipe shall be joined by the butt fusion procedure outlined in ASTM F2620 or PPI TR-33. All fusion joints shall be made in compliance with the pipe or fitting manufacturer's recommendations. Fusion joints shall be made by qualified fusion technicians per PPI TN-42.

**B. Electrofusion:**

1. Electrofusion jointing shall be done in accordance with the manufacturer's recommended procedures. Other sources of electrofusion joining information are ASTM F1290 and PPI TN-34. The electrofusion machine used must be capable of reading and

storing the input parameters and the fusion results for download to a record file (datalogger). Qualification of the fusion technician shall be demonstrated by evidence of electrofusion training within the past year on the equipment to be utilized for this project.

**C. Mechanical**

1. Mechanical connection of HDPE to auxiliary equipment such as valves and fittings shall use flanged or mechanical joint adapters and other devices in conformance with PPI Handbook of Polyethylene Pipe and AWWA Manual of Practice M55.

**D. Joint Recording:** The critical parameters of each fusion joint, as required by the manufacturer and these specifications, shall be recorded by an electronic data logging device. All fusion joint data shall be included in the Fusion Technician's joint report.

**3.2 INSTALLATION:**

**A. Installation shall be in accordance with ASTM D2774.**

**B. General:**

1. Install buried pipe as indicated on Drawings.
2. HDPE pipe and fittings shall be by the same manufacturer.
  - a. The minimum strength of the fittings shall not be less than that of the pipe.
3. Service taps shall be installed as shown on the Drawings.
4. Changes in direction of PE Pipe:
  - a. Pipe may be cold-bent to minimum radius of 20 times the pipe diameter as it is installed.
  - b. If fittings or fusions are present in the bend, the minimum recommended cold bending radius is 125 times the outside diameter of the pipe.
5. Remove cutting and threading burrs.
6. Unidirectional multi-port diffuser shall be assembled and installed in accordance with these specifications and manufacturer's recommendations and as shown on the Construction plan Drawings. The diffuser shall be approximately located at LAT: 32.88610, LONG: -98.5880.

**C. Joining Procedures:**

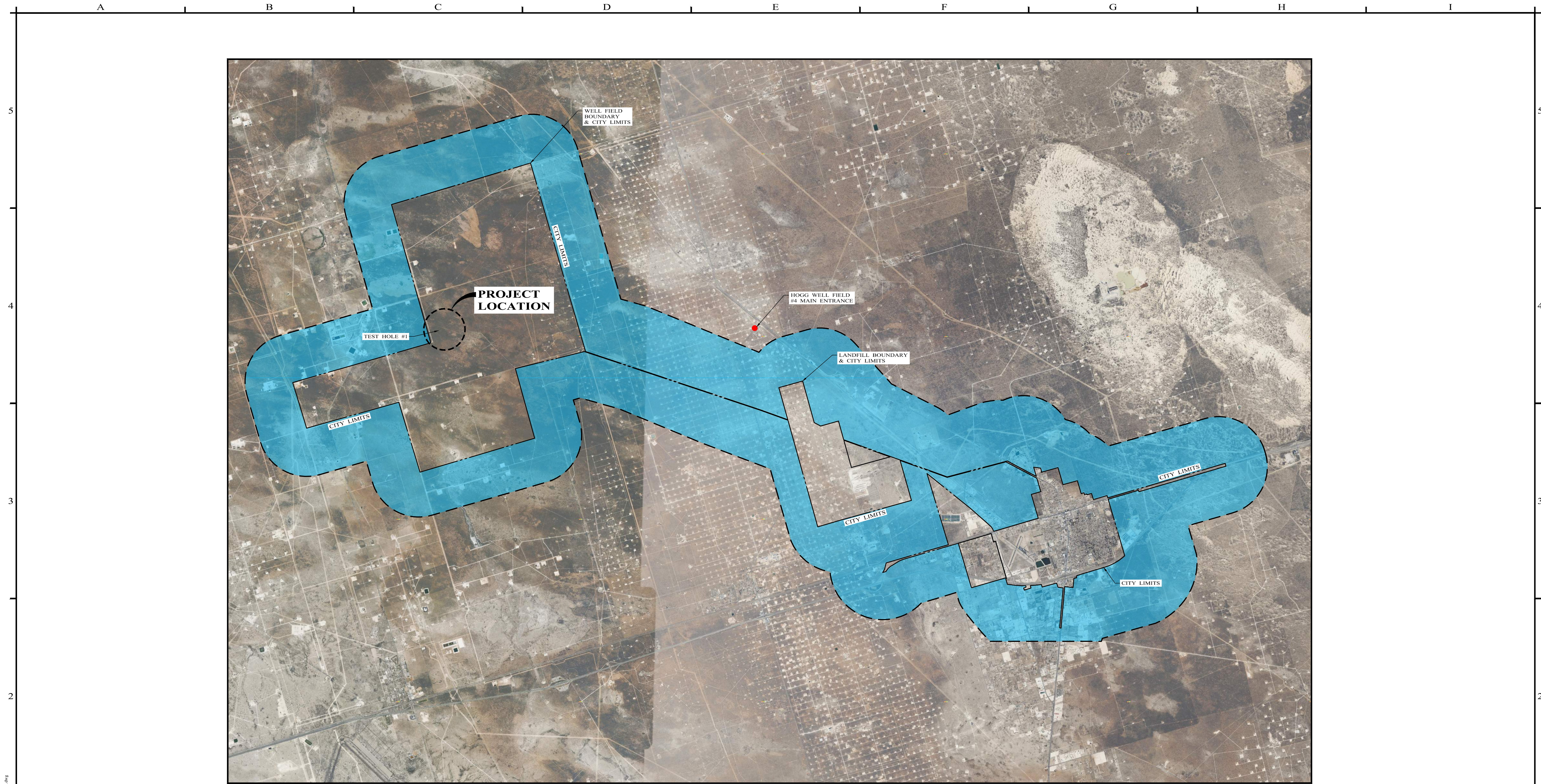
1. HDPE pipe joints shall be fused on the surface prior to installation into the trench.
  - a. Alternative methods of fusing shall be approved by the Engineer.
2. For installation by Horizontal Directional Drilling refer to Section 02448 – Horizontal Directional Drilling.
3. Fusion joiner must be qualified by type of fusion (i.e., butt fusion, socket fusion or sidewall fusion) and fuse pipe only as qualified.
4. Each joint must be visually inspected inside and outside for damage, dirt, moisture, or any other abnormalities prior to fusing.
5. All joint fusion shall be performed in strict accordance with the manufacturer's specifications.
6. All fusion equipment must be approved by the manufacturer and operated by qualified and certified operators.
  - a. Cost for testing and certifying personnel shall be born by the Contractor.

**D. Bend Back Test**

1. The Contractor shall perform a bend back test on a new HDPE fusion joint to detect the presence of a 'cold fusion' on a daily basis prior to beginning welding for that day.
2. The Contractor shall cut out a section of pipe with the butt-fusion joint at the center. The cut out section shall be at least two feet long, one foot on each side of the fusion joint. The Contractor shall cut out four one-inch wide straps lengthwise across the fusion joint. These cut out straps shall be located 90 degrees apart around the circumference of the pipe. Each strap shall be held at or near the ends and bent so that the inside wall faces outwards to obtain a smooth bending radius.
3. A fusion joint shall be considered good if none of the straps break. Further, if one out of the four straps breaks, a fifth strap shall be cut from an area of the pipe near to which the broken strap was cut. If this strap does not exhibit break then the strap is considered good. Records shall be kept regarding where strap was cut as failures occurring in a consistent location can be an indication of fusion equipment problem. A very smooth break will indicate that cold material was brought together during the fusion process.
4. The result of each bend back test shall be recorded and submitted to the Engineer for review.

**END OF SECTION**

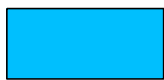




**ETJ VICINITY MAP**

SCALE: 1" = 1 MILES

**LEGEND**



MONAHANS EXTRATERRITORIAL JURISDICTION (ETJ)

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NO.	REVISION	DATE

DOCUMENT FOR INTERIM REVIEW, NOT INTENDED FOR CONSTRUCTION, BIDDING, OR PERMIT PURPOSES.

SAGE DILLER, P.E. 96645

DATE: 04/19/2024



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DESIGNED BY  
E.L.  
DRAWN BY  
JR. SALINAS  
CHECKED BY  
S.D.

SCALE  
AS NOTED  
DATE  
04/19/2024

**CITY OF MONAHANS  
TEST HOLE  
MONAHANS, WARD COUNTY, TEXAS**

**ETJ VICINITY MAP**

PROJECT NO.:  
**8736**  
SEQUENCE No.  
**OF**  
SHEET No.  
**2 OF 5**