

ACEQUIA DE LA CANOVA  
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ADDRESS: P.O. BOX 367  
VELARDE, NM 87582

ENGINEER:

WILLIAM J MILLER ENGINEERS, INC.  
1511 THIRD ST.,  
SANTA FE, NM 87505

PHONE: 505-983-7694  
EMAIL: [CONSTRUCT@WJMILLERENGINEERS.COM](mailto:CONSTRUCT@WJMILLERENGINEERS.COM)

I, ANDREW STRASSER, HEREBY CERTIFY THAT I AM A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW MEXICO, QUALIFIED IN CIVIL ENGINEERING; THAT THIS CONSTRUCTION DRAWING FOR THE ACEQUIA DE LA CANOVA PIPELINE REPAIR PROJECT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

  
\_\_\_\_\_, LICENSE NO. 26807  
ANDREW STRASSER

DATE: 5/5/25

## ACEQUIA CERTIFICATE

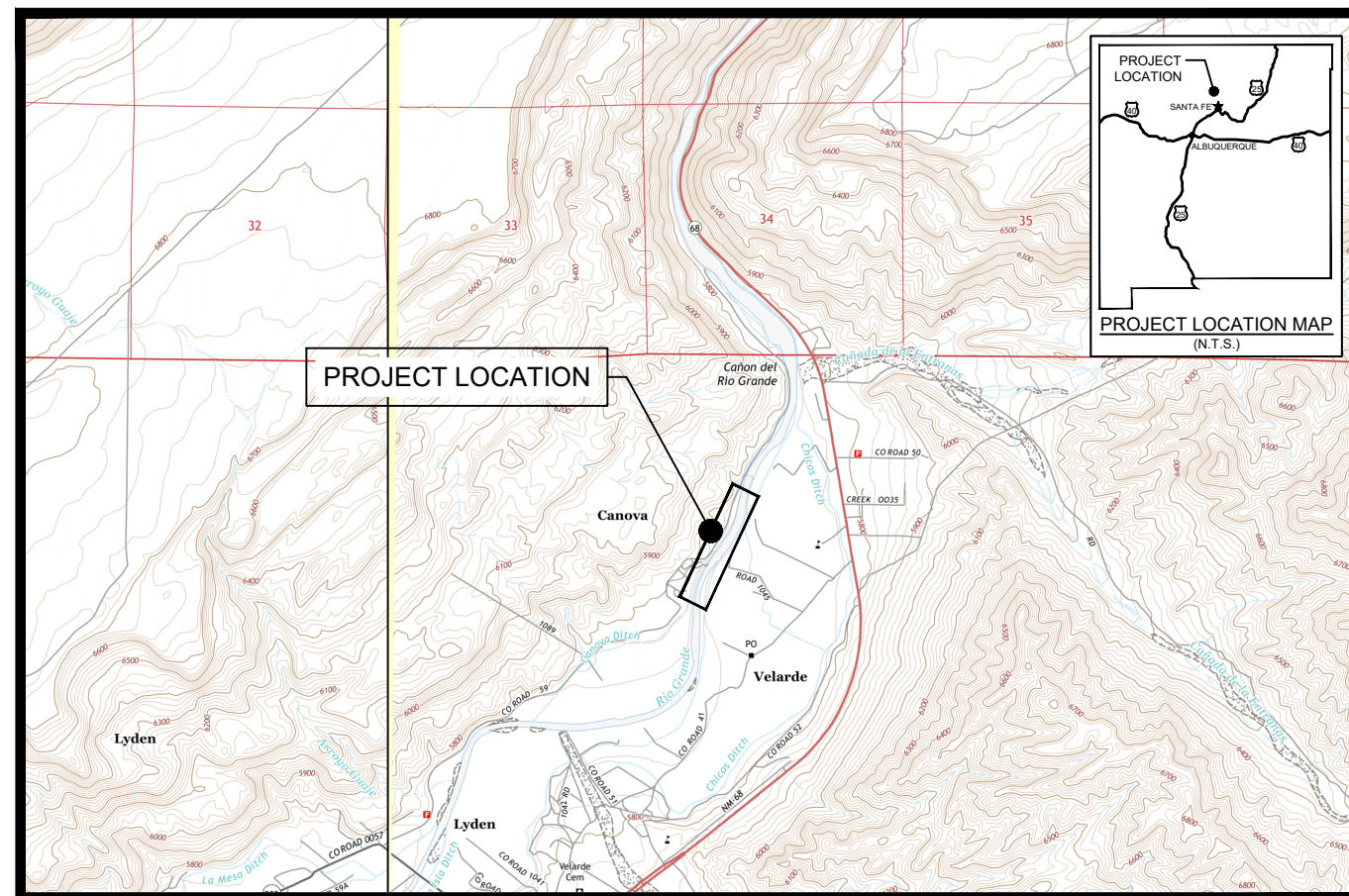
THE UNDERSIGNED COMMISSIONERS OF THE ACEQUIA DE LA CANOVA, STATE THAT THE ACCOMPANYING CONSTRUCTION DRAWINGS CONSISTING OF FIVE (5) SHEETS FOR THE ACEQUIA DE LA CANOVA PIPELINE REPAIR PROJECT WERE MADE UNDER THE AUTHORITY OF THE ACEQUIA DE LA CANOVA ASSOCIATION; WE HAVE READ AND EXAMINED THE STATEMENTS AND REPRESENTATIONS; ALL THAT IS SHOWN HEREIN IS DONE WITH OUR TRUE CONSENT AND IN ACCORDANCE WITH OUR WISHES; WE STATE THAT THE SAME ARE TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

| MEMBER | DATE |
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ACEQUIA DE LA CANOVA  
PIPELINE REPAIR PROJECT  
RIO ARriba COUNTY, NM



 PROJECT VICINITY MAP  
(N.T.S.)

## MATERIAL SCHEDULE

| ITEM NO. | SPEC  | ITEM DESCRIPTION                                                     | UNITS       | QUANTITY |
|----------|-------|----------------------------------------------------------------------|-------------|----------|
| 1        | 8     | MOBILIZATION AND DEMOBILIZATION                                      | LUMP SUM    | 1        |
| 2        | 7     | CONSTRUCTION SURVEYS                                                 | LUMP SUM    | 1        |
| 3        | 5     | POLLUTION CONTROL                                                    | LUMP SUM    | 1        |
| 5        | 2     | DEMOLITION - REMOVE AND DISPOSE OF EXISTING<br>DAMAGED 36" HDPE PIPE | LINEAR FOOT | 140      |
| 6        | 2     | REMOVE AND DISPOSE OF ROOTS AND DEBRIS FROM<br>INSIDE PIPE           | EACH JOINT  | 121      |
| 7        | 45    | FURNISH AND INSTALL 36" N-12 WT HDPE PIPE                            | LINEAR FOOT | 140      |
| 8        | 45    | FURNISH AND INSTALL STANDARD MARMAC POLYSEAL<br>COUPLER              | EACH        | 121      |
| 9        | 45    | FURNISH AND INSTALL MARMAC PIPE JOINT GROUT<br>DIAPER                | EACH        | 121      |
| 10       | 32    | FURNISH AND INSTALL NON SHRINK GROUT                                 | CUBIC YARDS | 30       |
| 11       | 21,23 | EARTHWORK - EXCAVATE AND COMPACTED BACKFILL                          | CUBIC YARDS | 500      |

SHEET INDEX:

|         |                                      |
|---------|--------------------------------------|
| G1      | COVER SHEET                          |
| C1      | PIPELINE PLAN, PROFILE, AND SECTIONS |
| D1      | JOINT REPAIR DETAILS                 |
| SPECS 1 | CONSTRUCTION SPECIFICATIONS          |
| SPECS 2 | CONSTRUCTION SPECIFICATIONS (CONT)   |

GENERAL NOTES:

1. THE LOCATION AND ELEVATIONS OF EXISTING UTILITIES ARE NOT SHOWN ON THESE DRAWINGS. CONTRACTOR SHALL CONTACT NEW MEXICO ONE CALL SYSTEM, AS REQUIRED BY LAW, 48 HOURS PRIOR TO ANY EXCAVATION TO LOCATE EXISTING UNDERGROUND UTILITIES. UTILITY FACILITIES ARE SHOWN AS BELIEVED TO EXIST AT TIME OF SURVEYS. FACILITIES MAY HAVE BEEN OMITTED, MISPLACED, AND OR RELOCATED. THE CONTRACTOR SHALL PROTECT ALL UTILITIES WHETHER SHOWN ON THE DRAWINGS OR NOT. THE CONTRACTOR IS RESPONSIBLE FOR FINAL VERIFICATION OF ALL UTILITIES WITH THE UTILITY OWNERS BEFORE CONSTRUCTION IS INITIATED.
2. THE CONTRACTOR SHALL MAKE ALL NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, ROADWAY, DRAINAGE WAYS, CULVERTS, AND VEGETATION UNTIL SUCH ITEMS ARE TO BE DISTURBED OR REMOVED AS INDICATED ON THE CONSTRUCTION DOCUMENTS. BEST MANAGEMENT PRACTICES SHALL BE INSTALLED AND MAINTAINED DURING AND AFTER CONSTRUCTION ACTIVITY, IN ACCORDANCE WITH CONSTRUCTION SPECIFICATION NO. 5 POLLUTION CONTROL, TO PREVENT POLLUTION FROM STORMWATER RUNOFF FROM THE ENTERING RIVER.
3. ALL STATIONING REFERS TO THE BASELINE OF CONSTRUCTION AND IS THE MEASURED HORIZONTAL DISTANCE FROM DOWNSTREAM TO UPSTREAM.
4. LEFT AND RIGHT OF THE BASELINE ARE DETERMINED BY LOOKING IN THE DOWNSTREAM DIRECTION.
5. SLOPES DESIGNATED AS 1:1, 3:1, 5:1, ET CETERA, REFER TO THE RATIO OF HORIZONTAL TO VERTICAL DISTANCE.
6. DIMENSIONS FOR EARTHWORK (EXCAVATION, BACKFILL, DRAINFILL) ARE GIVEN IN FEET AND TENTHS OF FEET. VOLUME IS GIVEN IN CUBIC YARDS AND TENTHS OF CUBIC YARDS.
7. REMOVAL AND REPLACEMENT OF PROPERTY FENCES (IF NECESSARY FOR ACCESS) IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL REMOVE FROM THE WORK SITE: ALL DEBRIS, UNUSED MATERIALS, AND OTHER MATERIALS BELONGING TO OR USED UNDER THEIR DIRECTION DURING THE CONSTRUCTION. THE AREAS OF THE JOB SITE DISTURBED BY THE WORK SHALL BE GRADED TO A UNIFORM SLOPE AND RE-VEGETATED AS SPECIFIED. THE SITE SHALL HAVE A NEAT LOOKING APPEARANCE, AND IF NEEDED, BE RESTORED TO EXISTING GRADES AND CONDITIONS AFTER THE WORK HAS BEEN COMPLETED.
9. THE PROPOSED DISTURBED AREA FOR THIS PROJECT IS LESS THAN 1 ACRE. THEREFORE, A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS NOT REQUIRED. CONTRACTOR REMAINS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL WATER QUALITY REGULATIONS.



william j. miller  
ENGINEERS

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COVER  
SHEET

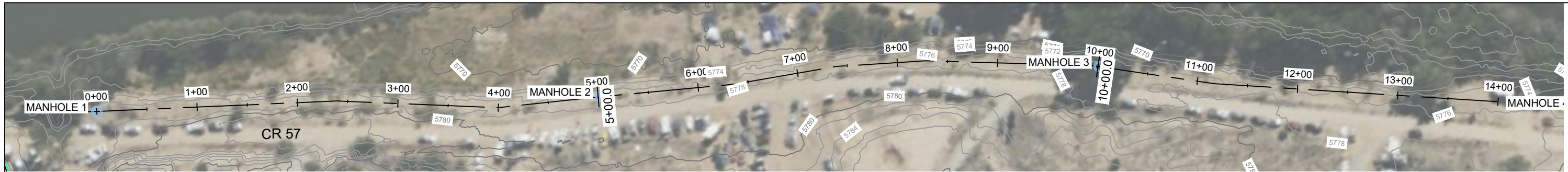
ACEQUIA DE LA CANOVA  
PIPELINE REPAIR PROJECT  
RIO ARRIBA COUNTY, NM

|                 |          |
|-----------------|----------|
| Designed:       | AMS      |
| Project Number: | 22020 20 |

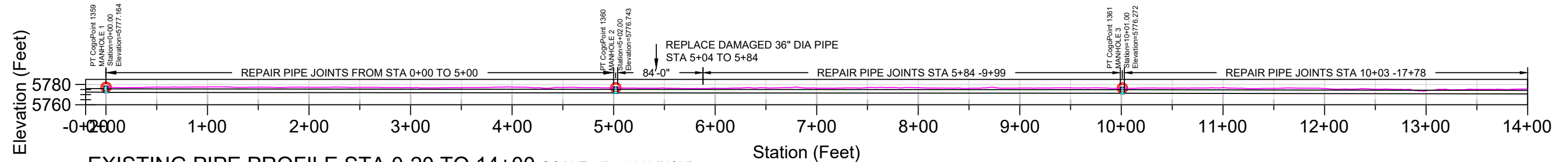
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| Drawn By: | AMR        |
| Date:     | MAY 5 2025 |

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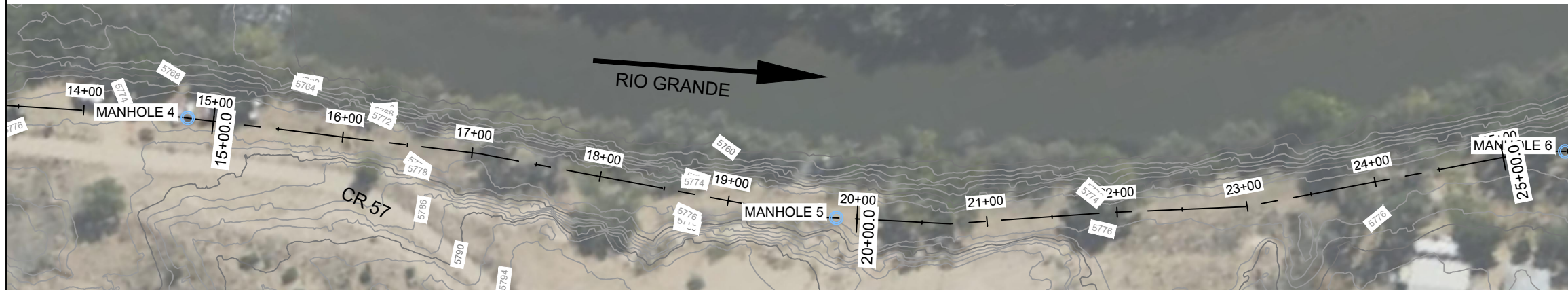
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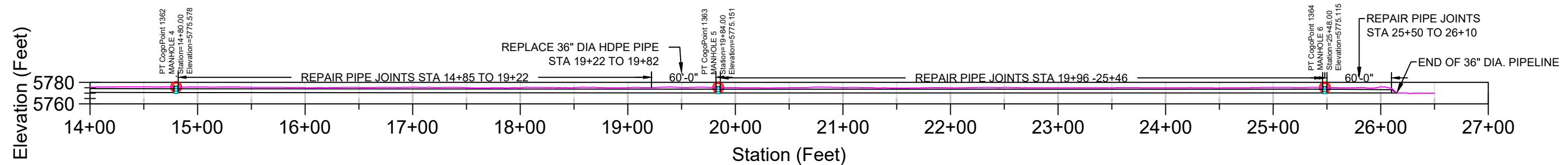
EXISTING PIPE ALIGNMENT STA 0-20 TO 14+00 SCALE: 1" = 100' (H&V)



EXISTING PIPE PROFILE STA 0-20 TO 14+00 SCALE: 1" = 100' (H&V)



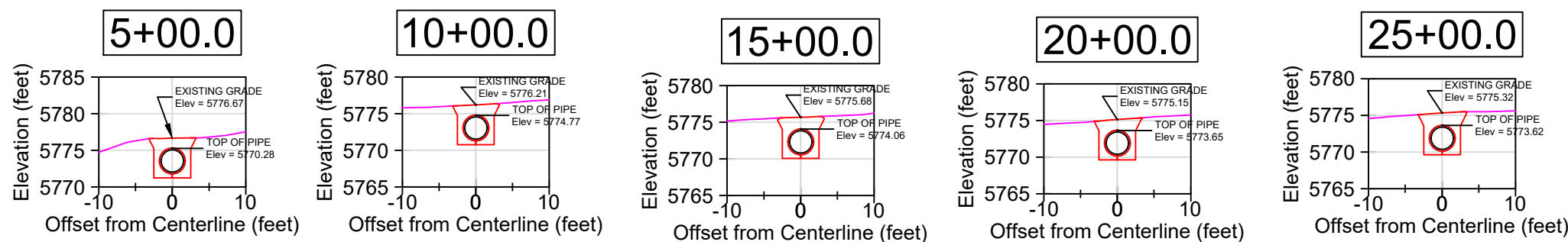
EXISTING PIPE ALIGNMENT STA 14+00 TO 26+10 SCALE: 1" = 100' (H&V)



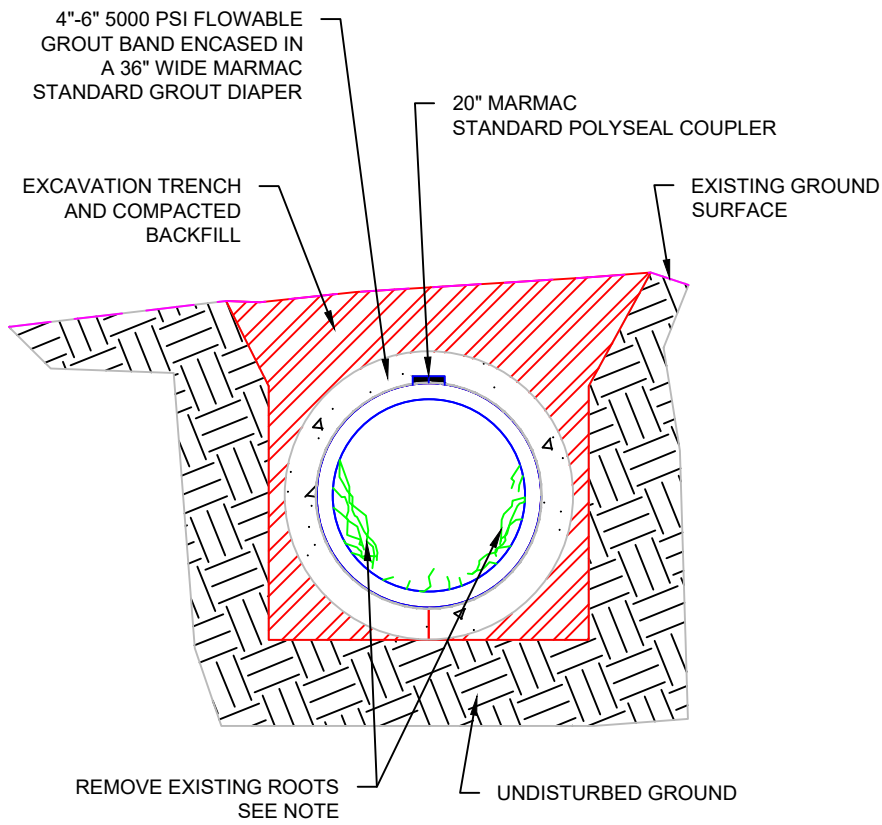
EXISTING PIPE ALIGNMENT STA 14+00 TO 26+10 SCALE: 1" = 100' (H&V)

CONSTRUCTION NOTES:

1. THE LOCATION AND ELEVATION OF THE EXISTING PIPELINE SHOWN IN THESE DRAWINGS ARE APPROXIMATE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING THE PIPE AND VERIFYING BURY DEPTH PRIOR TO EXCAVATION. SEE SHEET D1 FOR JOINT LOCATIONS AND EXCAVATION NOTES.
2. EXISTING PIPELINE IS 36" DUAL WALL HDPE
3. SEE SHEET D1 FOR JOINT REPAIR DETAILS.

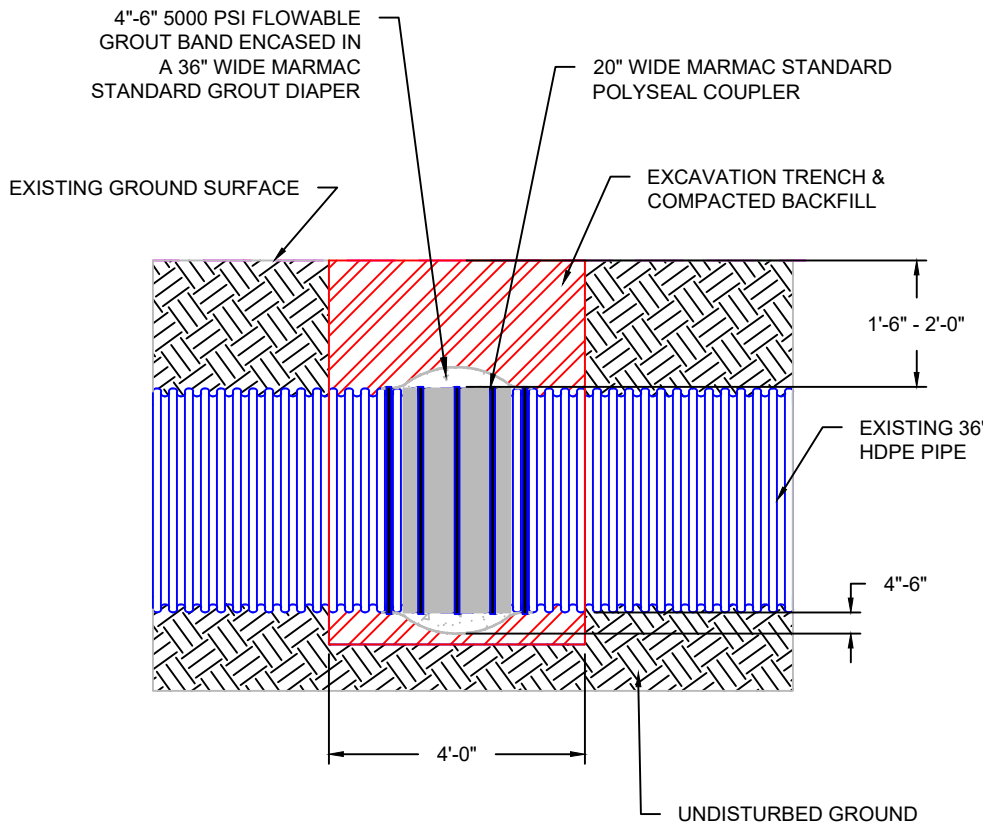


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|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------|---------------------|
| <br>william j. miller<br>ENGINEERS |                                                 | William J. Miller Engineers, Inc.<br>1511 Third St.,<br>Santa Fe, NM 87505 |                     |
| EXISTING PIPELINE PLANS, PROFILES,<br>AND SECTIONS                                                                      |                                                 |                                                                            |                     |
| ACEQUIA DE LA CANOVA<br>PIPELINE REPAIR PROJECT<br>RIO ARRIBA COUNTY, NM                                                |                                                 |                                                                            |                     |
| Designed:<br><b>AMS</b><br>Project Number:<br>22020.20                                                                  | Drawn By:<br><b>AMR</b><br>Date:<br>MAY 5, 2025 | Checked By:<br><b>WJM</b>                                                  | Sheet:<br><b>C1</b> |



SECTION: EXTERIOR JOINT REPAIR

SCALE: 1" = 3'



ELEVATION: EXTERIOR JOINT REPAIR

SCALE: 1" = 3'

PIPE JOINT REPAIR REPLACEMENT TABLES

| STATION DESCRIPTION          | STATION DESCRIPTION               | STATION DESCRIPTION             | STATION DESCRIPTION                | STATION DESCRIPTION             |
|------------------------------|-----------------------------------|---------------------------------|------------------------------------|---------------------------------|
| +0 MANHOLE 1                 | 5+04 MANHOLE 2 START SECTION 2    | 10+03 MANHOLE 3 START SECTION 3 | 14+82 MANHOLE 4 START SECTION 4    | 19+86 MANHOLE 5 START SECTION 5 |
| +20 EXTERIOR JOINT COUPLER   | 5+24 REPLACE DAMAGED 36" HDPE PPE | 10+18 EXTERIOR JOINT COUPLER    | 15+02 EXTERIOR JOINT COUPLER       | 19+96 EXTERIOR JOINT COUPLER    |
| +40 EXTERIOR JOINT COUPLER   | 5+44 REPLACE DAMAGED 36" HDPE PPE | 10+38 EXTERIOR JOINT COUPLER    | 15+22 EXTERIOR JOINT COUPLER       | 20+16 EXTERIOR JOINT COUPLER    |
| +60 EXTERIOR JOINT COUPLER   | 5+64 REPLACE DAMAGED 36" HDPE PPE | 10+58 EXTERIOR JOINT COUPLER    | 15+42 EXTERIOR JOINT COUPLER       | 20+21 EXTERIOR JOINT COUPLER    |
| +80 EXTERIOR JOINT COUPLER   | 5+84 REPLACE DAMAGED 36" HDPE PPE | 10+78 EXTERIOR JOINT COUPLER    | 15+62 EXTERIOR JOINT COUPLER       | 20+36 EXTERIOR JOINT COUPLER    |
| 1+00 EXTERIOR JOINT COUPLER  | 6+04 EXTERIOR JOINT COUPLER       | 10+98 EXTERIOR JOINT COUPLER    | 15+82 EXTERIOR JOINT COUPLER       | 20+46 EXTERIOR JOINT COUPLER    |
| 1+20 EXTERIOR JOINT COUPLER  | 6+24 EXTERIOR JOINT COUPLER       | 11+18 EXTERIOR JOINT COUPLER    | 16+02 EXTERIOR JOINT COUPLER       | 20+56 EXTERIOR JOINT COUPLER    |
| 1+40 EXTERIOR JOINT COUPLER  | 6+44 EXTERIOR JOINT COUPLER       | 11+38 EXTERIOR JOINT COUPLER    | 16+22 EXTERIOR JOINT COUPLER       | 20+76 EXTERIOR JOINT COUPLER    |
| 1+60 EXTERIOR JOINT COUPLER  | 6+64 EXTERIOR JOINT COUPLER       | 11+58 EXTERIOR JOINT COUPLER    | 16+42 EXTERIOR JOINT COUPLER       | 20+96 EXTERIOR JOINT COUPLER    |
| 1+80 EXTERIOR JOINT COUPLER  | 6+84 EXTERIOR JOINT COUPLER       | 11+78 EXTERIOR JOINT COUPLER    | 16+62 EXTERIOR JOINT COUPLER       | 21+16 EXTERIOR JOINT COUPLER    |
| 2+00 EXTERIOR JOINT COUPLER  | 7+04 EXTERIOR JOINT COUPLER       | 11+98 EXTERIOR JOINT COUPLER    | 16+82 EXTERIOR JOINT COUPLER       | 21+36 EXTERIOR JOINT COUPLER    |
| 2+20 EXTERIOR JOINT COUPLER  | 7+24 EXTERIOR JOINT COUPLER       | 12+18 EXTERIOR JOINT COUPLER    | 17+02 EXTERIOR JOINT COUPLER       | 21+56 EXTERIOR JOINT COUPLER    |
| 2+40 EXTERIOR JOINT COUPLER  | 7+44 EXTERIOR JOINT COUPLER       | 12+38 EXTERIOR JOINT COUPLER    | 17+22 EXTERIOR JOINT COUPLER       | 21+76 EXTERIOR JOINT COUPLER    |
| 2+60 EXTERIOR JOINT COUPLER  | 7+64 EXTERIOR JOINT COUPLER       | 12+58 EXTERIOR JOINT COUPLER    | 17+42 EXTERIOR JOINT COUPLER       | 21+96 EXTERIOR JOINT COUPLER    |
| 2+80 EXTERIOR JOINT COUPLER  | 7+84 EXTERIOR JOINT COUPLER       | 12+78 EXTERIOR JOINT COUPLER    | 17+62 EXTERIOR JOINT COUPLER       | 22+16 EXTERIOR JOINT COUPLER    |
| 3+00 EXTERIOR JOINT COUPLER  | 8+04 EXTERIOR JOINT COUPLER       | 12+98 EXTERIOR JOINT COUPLER    | 17+82 EXTERIOR JOINT COUPLER       | 22+36 EXTERIOR JOINT COUPLER    |
| 3+20 EXTERIOR JOINT COUPLER  | 8+24 EXTERIOR JOINT COUPLER       | 13+18 EXTERIOR JOINT COUPLER    | 18+02 EXTERIOR JOINT COUPLER       | 22+56 EXTERIOR JOINT COUPLER    |
| 3+40 EXTERIOR JOINT COUPLER  | 8+44 EXTERIOR JOINT COUPLER       | 13+38 EXTERIOR JOINT COUPLER    | 18+22 EXTERIOR JOINT COUPLER       | 22+76 EXTERIOR JOINT COUPLER    |
| 3+60 EXTERIOR JOINT COUPLER  | 8+64 EXTERIOR JOINT COUPLER       | 13+58 EXTERIOR JOINT COUPLER    | 18+42 EXTERIOR JOINT COUPLER       | 22+96 EXTERIOR JOINT COUPLER    |
| 3+80 EXTERIOR JOINT COUPLER  | 8+84 EXTERIOR JOINT COUPLER       | 13+78 EXTERIOR JOINT COUPLER    | 18+62 EXTERIOR JOINT COUPLER       | 23+16 EXTERIOR JOINT COUPLER    |
| 4+00 EXTERIOR JOINT COUPLER  | 9+04 EXTERIOR JOINT COUPLER       | 13+98 EXTERIOR JOINT COUPLER    | 18+82 EXTERIOR JOINT COUPLER       | 23+36 EXTERIOR JOINT COUPLER    |
| 4+20 EXTERIOR JOINT COUPLER  | 9+24 EXTERIOR JOINT COUPLER       | 14+18 EXTERIOR JOINT COUPLER    | 19+02 EXTERIOR JOINT COUPLER       | 23+56 EXTERIOR JOINT COUPLER    |
| 4+40 EXTERIOR JOINT COUPLER  | 9+44 EXTERIOR JOINT COUPLER       | 14+33 EXTERIOR JOINT COUPLER    | 19+22 EXTERIOR JOINT COUPLER       | 23+76 EXTERIOR JOINT COUPLER    |
| 4+60 EXTERIOR JOINT COUPLER  | 9+64 EXTERIOR JOINT COUPLER       | 14+38 EXTERIOR JOINT COUPLER    | 19+32 REPLACE DAMAGED 36" HDPE PPE | 23+96 EXTERIOR JOINT COUPLER    |
| 4+80 EXTERIOR JOINT COUPLER  | 9+84 EXTERIOR JOINT COUPLER       | 14+58 EXTERIOR JOINT COUPLER    | 19+42 REPLACE DAMAGED 36" HDPE PPE | 24+06 EXTERIOR JOINT COUPLER    |
| 5+00 MANHOLE 2 END SECTION 1 | 9+99 MANHOLE 3 END SECTION 2      | 14+78 MANHOLE 4 END SECTION 3   | 19+62 REPLACE DAMAGED 36" HDPE PPE | 24+26 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 | 19+82 MANHOLE 4 END SECTION 4      | 24+46 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 |                                    | 24+66 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 |                                    | 24+86 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 |                                    | 25+06 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 |                                    | 25+26 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 |                                    | 25+46 MANHOLE 6 END SECTION 5   |
|                              |                                   |                                 |                                    | 25+50 MANHOLE 6 START SECTION 6 |
|                              |                                   |                                 |                                    | 25+70 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 |                                    | 25+90 EXTERIOR JOINT COUPLER    |
|                              |                                   |                                 |                                    | 26+10 END OF 36" PIPELINE       |

EXTERIOR PIPE JOINT REPAIR NOTES:

EXCAVATION

1. THE CONTRACTOR SHALL LOCATE AND MARK THE CENTERLINE OF THE PIPELINE PRIOR TO ANY EXCAVATION.  
THE CONTRACTOR SHALL VISUALLY LOCATE (POTHOLE) THE PIPE USING HYDRO-EXCAVATING OR HAND DIGGING PRIOR TO ANY MECHANIZED DIGGING.
2. ONCE THE PIPE HAS BEEN VISUALLY LOCATED, THE CONTRACTOR MAY EMPLOY MECHANICAL EXCAVATION EQUIPMENT TO EXCAVATE A TRENCH ON EITHER SIDE OF THE PIPE. HOWEVER, THE CONTRACTOR SHALL UTILIZE HAND TOOLS OR HYDRO-EXCAVATION EQUIPMENT WHEN DIGGING WITHIN ONE (1) FOOT OF THE EXISTING PIPELINE.
3. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND OWNER IN THE EVENT THAT THE PIPE IS CONTACTED BY ANY MECHANIZED EQUIPMENT REGARDLESS OF DAMAGE.
4. **THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING OR REPLACING ANY DAMAGED PIPE SECTIONS INCURRED DURING EXCAVATION OR REPAIRING THE PIPELINE.**

EXTERIOR PIPE REPAIRS

1. THE CONTRACTOR SHALL REMOVE ANY ROOTS, ROCKS, OR OTHER DEBRIS FROM THE EXTERIOR SURFACES OF THE EXISTING PIPELINE AND THROUGHOUT CLEAN THE JOINT USING PRESSURIZED HOT WATER AND SOAP PRIOR TO INSTALLATION OF THE PIPE COUPLERS.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER IF THERE ARE ANY ABNORMALITIES IN THE PIPE THAT WOULD PREVENT PROPER APPLICATION OF THE MARMAC POLYSEAL COUPLER.
3. THE CONTRACTOR SHALL APPLY THE MARMAC POLYSEAL COPULAR ACCORDING TO THE MANUFACTURERS INSTALLATION INSTRUCTIONS.
4. THE ENGINEER SHALL INSPECT THE PLACEMENT OF THE MARMAC POLYSEAL COUPLER PRIOR TO INSTALLATION OF THE GROUT DIAPER.
5. THE CONTRACTOR SHALL INSTALL THE GROUT DIAPER AT THE JOINT OVER THE POLYSEAL COUPLER ACCORDING TO THE MANUFACTURERS INSTALLATION INSTRUCTIONS.
6. THE MARMAC POLYSEAL COUPLER MUST BE COMPLETELY CONTAINED WITHIN THE GROUT DIAPER.
7. THE CONTRACTOR SHALL CAREFULLY POUR GROUT INTO THE GROUT DIAPER, ENSURING THE ENTIRE JOINT HAS A 4"-6" BAND OF GROUT SURROUNDING THE PIPE JOINT.
8. THE CONTRACTOR SHALL ALLOW THE GOUT TO CURE FOR 72 HOURS PRIOR TO BACKFILLING AROUND THE PIPE.

BACKFILLING THE PIPE TRENCH:

1. THE CONTRACTOR SHALL ADHERE TO SPECIFICATIONS 21 AND 23 WHEN BACKFILLING AROUND THE OPEN PIPE TRENCH.
2. THE CONTRACTOR SHALL HAVE A WATER SOURCE AVAILABLE AT THE SITE (TRUCK, PORTABLE TANK, PUMP, ETC.) TO MOISTEN SOILS FOR COMPACTION.
3. ANY EXCESS SOILS MAY BE SPREAD OVER THE EXISTING PIPE TRENCH OR HAULED OFF SITE.

PIPE CLEANING

1. THE CONTRACTOR SHALL REMOVE ALL ROOTS, VEGETATION, ROCK AND OTHER DEBRIS FROM THE INSIDE OF THE PIPELINE.
2. THE CONTRACTOR SHALL ADHERE TO ALL OSHA REGULATIONS REGARDING CONFINED SPACE ENTRY.
3. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AND OWNER A WRITTEN WORK PLAN FOR CLEANING THE INSIDE OF THE PIPELINE NO LESS THAN 2 WEEK PRIOR TO WORK. THE WORK PLAN, SHALL AT A MINIMUM CONTAIN THE FOLLOWING INFORMATION:
  - A. METHOD FOR REMOVING ROOTS AND OTHER DEBRIS (PERSONS, TOOLS, ETC.)
  - B. AIR TESTING PLAN.
  - C. VENTILATION PLAN.
  - D. COMMUNICATIONS PLAN
  - E. EMERGENCY RESPONSE PLAN.
4. ANY ROOTS, ROCK OR OTHER DEBRIS MUST BE COMPLETELY REMOVED FROM THE PIPELINE AND DISPOSED OF OFFSITE.



William J. Miller Engineers, Inc.  
1511 Third St.,  
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JOINT REPAIR  
DETAILS

ACEQUIA DE LA CANOVA  
PIPELINE REPAIR PROJECT  
RIO ARRIBA COUNTY, NM

Designed By:  
AMS  
Project Number:  
22020.20

Drawn By:  
AMR  
Date:  
MAY 5, 2025

Checked By:  
WJM

Sheet:  
D1

Construction Specification 2--Clearing and Grubbing

1. Scope

The work consists of the following items:

- A.Clearing and grubbing and disposal of trees, snags, logs, brush, stumps, shrubs, and rubbish from the pipeline corridor at the pipe joints.
- B.Removing roots, vegetation, rocks and other debris from inside the existing 36” diameter pipeline.

2. Clearing and grubbing

Trees, snags, logs, brush and stumps in the existing pipeline corridor and other areas designated on the construction drawings that obstruct the installation of the proposed pipeline, exterior joint repairs, or movement of equipment and materials may be cut and disposed of in a manner and at locations approved by the Engineer or Owner. Only trees,logs, snags, logs, brush and stumps within the areas identified in the construction drawings may be removed. The contractor is responsible for complying with all local rules and regulations and the payment of any and all fees that may result from disposal at locations away from the project site.

3. Removal of roots and debris from inside the pipeline.

Roots, detritus, sticks, rocks, and any other foreign material inside of the existing 36” diameter pipeline shall be cut free and removed from the pipeline, after the pipe has been replaced or the joint has been sealed from the outside. All roots and debris protruding from the joint shall be cut as close to the pipe joint as possible.

The contractor shall adhere to OSHA 29 CFR 1910.146 pertaining to confined space entry and submit a written work plan to the Engineer and Owner no less than two weeks before conducting the work: The work plan shall, at a minimum, contain the following information:

- a. method for removing roots and other debris (persons, tools, etc.)
- b. air testing plan.
- c. ventilation plan.
- d. communications plan
- e. emergency response plan

4. Measurement and payment

Payment for clearing and grubbing is based on the square yard of area cleared. The sum of such payments shall constitute full compensation for clearing and grubbing (including the clearing and grubbing of smaller trees, stumps, snags, logs, brush, shrubs, and roots), applicable permits and associated fees, and rubbish removal. Such payment shall constitute full compensation for all labor, equipment, tools, and all other items necessary and incidental to the completion of the work.

Construction Specification 5--Pollution Control

1. Scope

The work consists of installing measures or performing work to control erosion and minimize the production of sediment and other pollutants to water and air from construction activities.

2. Erosion and sediment control measures and works

The measures and works shall include, but are not limited to, the following:

Staging of earthwork activities--The excavation and moving of soil materials shall be scheduled to minimize the size of areas disturbed and unprotected from erosion for the shortest reasonable time.

3. Chemical pollution

The Contractor shall provide watertight tanks or barrels or construct a sump sealed with plastic sheets to dispose of chemical pollutants, such as drained lubricating or transmission fluids, grease, soaps, produced as a by-product of the construction activities. At the completion of the construction work, sumps shall be removed and the area restored to its original condition. Sump removal shall be conducted without causing pollution.

Sanitary facilities, such as chemical toilets, or septic tanks shall not be located next to live streams, wells, or springs. They shall be located at a distance sufficient to prevent contamination of any water source. At the completion of construction activities, facilities shall be disposed of without causing pollution.

4. Air pollution

Burning of brush, slash and other materials is not permitted at the construction site.

5. Maintenance, removal, and restoration

All pollution control measures and temporary works shall be adequately maintained in a functional condition for the duration of the construction period. All temporary measures shall be removed and the site restored to near original condition.

6. Measurement and payment

For pollution control cost item, payment for installation and removal of pollution control measures is made at the contract lump sum price. Such payment will constituent full compensation for all labor, equipment, tools, applicable

permits, and associated fees for disposal of refuse and all other items necessary and incidental to the completion of the work.

7. Special conditions

The Contractor is solely responsible for clean-up of all spills or leaks that occur during the performance of this contract. Clean up spills or leaks in a manner that complies with Federal, state, and local laws and regulations.

- i. Temporary refueling and servicing shall occur away from the water body.
- ii.Maintain equipment utilized in and around streams in a clean and orderly fashion. Immediately repair any fluid or fuel leaks.
- iii. An oil spill containment kit is required on the job site. At a minimum, include tarps and oil-absorbent pads. The Contractor shall also supply and install petroleum absorbent boom pads, pillows, socks or similar material suitable to contain accidental leaks or spills of oil, fuel and hydraulic fluid.

Construction Specification 7--Construction Surveys

1. Scope

The work consists of performing all surveys, measurements, and computations required by this specification.

2. Primary control

The baselines and benchmarks for primary control, necessary to establish lines and grades needed for construction, are shown on the drawings and have been located on the job site. These baselines and benchmarks shall be used as the origin of all surveys, layouts, and measurements to establish construction lines and grades. The Contractor shall take all necessary precautions to prevent the loss or damage of primary control points. Any stakes or control points lost or damaged by construction activity will be reestablished by the Contractor or at Contractor expense.

3. Quality of work

All work shall follow recognized professional practice and the standards of the industry. The horizontal locations for all work shall be determined and recorded to the nearest 1 ft. The vertical elevations for all work shall be determined and recorded to the nearest 0.1 ft.

4. Construction surveys

Contractor performed surveys shall consist of all work necessary for:

- Establishing line and grade for all work
- Checking and any supplemental or interim staking
- Establishing final grade stakes
- Performing quantity surveys, measurements, and computations for progress payment.

5. Staking

Centerline and offset reference line stakes for location, alignment, and elevation shall be placed for all structures.

6. Payment

Payment for construction surveys will be made at the lump sum contract price and will constitute full compensation for completion of all work under this cost item. Payment will not be provided under this item for the purchase price of materials or equipment having a residual value.

7. Items of work and construction details

Before beginning work, the Contractor shall check and verify all established control points and shall advise the Engineer in writing that the points are acceptable or, if they are not acceptable, the reasons therefore.

Construction Specification 8--Mobilization and Demobilization

1. Scope

The work consists of the mobilization and demobilization of the Contractor's forces and equipment necessary for performing the work required under the contract, obtaining applicable permits if any are necessary for carrying out the work shown in the drawings or as described in the specifications, and restoration of the site to a quality that is equal to or greater that of preconstruction conditions.

2. Equipment and material

Mobilization shall include all activities and associated costs for transportation of Contractor's personnel, equipment, and operating supplies to the site; premiums paid for permits and performance and payment bonds including coinsurance and reinsurance agreements as applicable.

Demobilization shall include site restoration to a quality that meets or exceeds preconstruction conditions and appearances as approved by Engineer and all activities and costs for transportation of personnel, equipment, and supplies not required or included in the contract from the site; including the disassembly, removal, and site cleanup of facilities assembled on the site specifically for this contract.

Contractor shall grade all site areas outside channel to flat topography (no holes, depressions, etc.). Earthen slopes in restored areas are to be a maximum steepness of 3:1, unless otherwise provided.

This work includes mobilization and demobilization required by the contract at the time of award. If additional mobilization and demobilization activities and costs are required during the performance of the contract as a result

of changed, deleted, or added items of work for which the Contractor is entitled to an adjustment in contract price, compensation for such costs will be included in the price adjustment for the item or items of work changed or added.

3. Payment

Payment for mobilization and demobilization, site restoration and permits will be made as the work proceeds, after presentation of paid invoices or documentation of direct costs by the Contractor showing specific mobilization and demobilization costs and supporting evidence of the charges of suppliers, subcontractors, and others. When the total of such payments is less than the lump sum contract price, the balance remaining will be included in the final contract payment. Payment of the lump sum contract price for mobilization and demobilization will constitute full compensation for completion of the work.

Construction Specification 9--Traffic Control

1. Scope

This specification is applicable to providing facilities for control of traffic and providing public safety during construction

2. Traffic and Access

The contractor's operations shall cause no unnecessary inconvenience to the public. The public rights-of-way shall be maintained at all times unless interruption is authorized by proper local authority. Contractor's authorized closing or detour plans shall be provided to the engineer for approval.

Safe and adequate access shall be provided and maintained to all public protection devices and to all critical utility control locations. Facility access shall be continuous and unobstructed unless otherwise approved.

3. Storage of equipment and material in public streets

Construction materials and equipment shall not be stored or parked on public streets, roads, or highways. During any material or equipment loading or unloading activities that may temporarily interfere with traffic, an acceptable detour shall be provided for the duration of the activity. Any associated expense for this activity is the responsibility of the contractor.

Excavated material, including suitable material that is intended for adjacent trench backfill or other earth backfill, shall not be stored on public streets, roads, or highways that remain in service for the public. Any waiver of this requirement must be obtained from the proper local authority and approved by the engineer. All excess and unsuitable material shall be removed from the site as soon as possible. Any spillage shall be removed from roadways before they are used by the public.

4. Street closures, detours, and barricades

The contractor shall comply with the requirements of all applicable responsible units of government for closure of any street, road, or highway. The contractor shall provide the required barriers, guards, lights, signs, temporary bridges, and flaggers together with informing the public of any detours and construction hazards by the most suitable means available, such as local newspapers or radio stations. The contractor is also responsible for compliance with additional public safety requirements that may arise during construction. The contractor shall furnish, install, and, upon completion of the work, promptly remove all signs, warning devices, and other materials used in the performance of this work.

Unless otherwise specified, the contractor shall notify, in writing, all government officials as may be appropriate no less than 7 days before closing, partly closing, or reopening any street, road, or highway.

Unless otherwise specified, the contractor shall furnish to the engineer a written plan showing the proposed method of signing, barricading for traffic control, and safety for street detours and closures.

All temporary detours will be maintained to ensure use of public rights-of-way is provided in a safe manner. This may include dust control, grading, and graveling as required.

5. General and specific references All signs, signals, barricades, use of flaggers, and other traffic control and public safety devices shall conform to the general requirements set forth in the Manual of Uniform Traffic Control Devices (MUTCD) and the latest edition of Standard Highway Signs and Standard Alphabets for Highway Signs and/or OSHA Construction Industry Standards (29 CFR Part 1926), Subpart G, Signs, Signals, and Barricades unless otherwise specified by the Engineer.



|                                                                                                                         |                                                                            |                    |                     |
|-------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------|---------------------|
| <br>william j. miller<br>ENGINEERS | William J. Miller Engineers, Inc.<br>1511 Third St.,<br>Santa Fe, NM 87505 |                    |                     |
| CONSTRUCTION<br>SPECIFICATIONS                                                                                          |                                                                            |                    |                     |
| ACEQUIA DE LA CANOVA<br>PIPELINE REPAIR PROJECT<br>RIO ARriba COUNTY, NM                                                |                                                                            |                    |                     |
| Designed:<br>AMS                                                                                                        | Drawn By:<br>AMR                                                           | Checked By:<br>WJM | Sheet:<br><br>SPEC1 |
| Project Number:<br>22020.20                                                                                             | Date:<br>MAY 5, 2025                                                       |                    |                     |

6. Measurement and payment

For items of work for which specific lump sum prices are established in the contract, payment for the work is made at the contract lump sum price. Progress payments will be made based upon the percentage of estimated total time that traffic control will be required unless otherwise specified by the Engineer. Payment will constitute full compensation for all flaggers, labor, materials, equipment, and all other items necessary and incidental to the completion of the work.

Construction Specification 21--Excavation

1. Scope

The work shall consist of the excavation of soil required by the drawings and specifications and disposal of the unsuitable or excess excavated materials.

2. Use of excavated material

To the extent they are needed, all suitable material from the specified excavations may be used in the construction of required permanent earthfill. The suitability of material for specific purposes is determined by the Engineer.

3. Disposal of waste materials

All surplus or unsuitable excavated materials are designated as waste and shall be disposed at an approved location.

4. Excavation limits

Excavations shall comply with OSHA Construction Industry Standards (29CFR Part 1926) Subpart P, Excavations, Trenching, and Shoring. All excavations shall be completed and maintained in a safe and stable condition throughout the total construction phase. Structure and trench excavations shall be completed to the specified elevations and to the length and width required to safely install, adjust, and remove any forms, bracing, or supports necessary for the installation of the work. All existing structures shall be maintained in a safe and stable condition throughout construction activities.

5. Borrow excavation

When the quantities of suitable material obtained from specified excavations are insufficient to construct the specified earthfills and earth backfills, additional material shall be obtained from on-site borrow areas. The extent of excavation within the limits of the borrow areas shall be as approved by the Engineer. Borrow pits shall be excavated and finally dressed to blend with the existing topography and sloped to prevent ponding and to provide drainage.

6. Measurement and payment

For items of work for which specific unit prices are established in the contract, the volume of each type and class of excavation within the specified pay limits is measured and computed to the nearest cubic yard by the method of average cross-sectional end areas. Regardless of quantities excavated, the measurement for payment is made to the specified pay limits, except that excavation located outside the specified lines and grades directed by the Engineer to remove unsuitable material. Excavation required because unsuitable conditions result from the Contractor's improper construction operations, as determined by the Engineer, is not included for measurement and payment. Payment for excavation is made at the contract unit price. Such payment will constitute full compensation for all labor, materials, equipment, and all other items necessary and incidental to the performance of the work except that extra payment for backfilling over excavation will be made in accordance with the following provisions.

Payment for backfilling over-excavation is made only if the excavation outside specified lines and grades is directed by the Engineer to remove unsuitable material and if the unsuitable condition is not a result of the Contractor's improper construction operations, as determined by the Engineer.

7. Items of work and construction details

The Contractor shall verify the location of underground utilities prior to beginning work. Omission or inclusion of utility items does not constitute non-existence or definite location. The Contractor shall secure and examine local utility records for location data, take necessary precautions to protect existing utilities from damage due to any construction activity and repair damages to utility items at Contractor's expense.

Contractor shall exercise caution in excavation operations so as to not disturb the trunk or roots of any trees identified for preservation.

Construction Specification 23--Earthfill

1. Scope

The work consists of earth backfills required by the drawings and specifications.

Earth backfill is composed of natural earth material placed and compacted in confined spaces or adjacent to structures (including pipes) by hand tamping, manually directed power tampers or vibrating plates, or their equivalent.

2. Material

The selection, blending, routing, and disposition of material in the various fills shall be subject to approval by the Engineer. Fill materials shall contain no frozen soil, sod, brush, roots, or other perishable material.

3. Placement

Earthfill shall not be placed upon a frozen surface nor shall snow, ice, or frozen material be incorporated in the earthfill matrix.

Earthfill shall be placed in approximately horizontal layers. The thickness of each layer before compaction shall not exceed 9 inches.

Earth backfill shall be placed in a manner that prevents damage to the structures and allows the structures to assume the loads from the earth backfill gradually and uniformly.

6. Control of moisture content

During placement and compaction of earth backfill, the moisture content of the material being placed shall be maintained equal to the surrounding undisturbed soil material.

7. Compaction

Earth backfill adjacent to structures shall be compacted to a density equivalent to that of the surrounding in-place earth material. Compaction shall be accomplished by hand tamping or manually directed power tampers, plate vibrators, walk-behind, miniature, or self-propelled rollers.

8. Measurement and payment

For items of work for which specific unit prices are established in the contract, the volume of earth backfill within the specified zone boundaries and pay limits is measured and computed to the nearest cubic yard.

Construction Specification 32--Non-Shrink flowable Grout

1. Scope

The work shall consist of furnishing, placing, finishing, and curing non-shrink grout as required to reinforced pipe joints.

2. Governing specifications:

Non-shrink flowable grout shall conform to Section 521 of NMDOT 2019 Standard Specifications for Highway and Bridge Construction, specifically

2. Material

The Contractor shall provide prepackaged non shrink hydraulic-cement grout ("grout") in accordance with Table 521.2:1, "Enriched Mortar Physical Property Requirements." The Contractor shall select the grout from the Department's Approved Products List. The grout shall be nonmetallic, water-based and cannot contain chlorides, fluorides, sulfites, nitrates, or gas-forming agents.

5. Construction Requirements

The Contractor shall use non-shrink grout in accordance with the manufacturer's recommendations and instructions regarding proportioning, mixing, maximum water content, application, curing temperatures, and curing conditions. If manufacturer's recommendations conflict with this Section, the manufacturer's recommendations shall govern.

A.Placing, Finishing, and Curing

The Contractor shall clean concrete areas of loose or Deleterious Material that would prevent a bond between the grout and the base concrete surfaces. The Contractor shall flush Section 521: Non-Shrink Grout Page 433 areas with water and let dry to a surface dry condition immediately before placing the grout. The Contractor shall ensure that the grout completely fills recesses and holes, voids under structural members, and at other specified locations. The Contractor shall screed the Material to the specified level, and finish the surface to the specified texture.

B. Curing

After placing, the Contractor shall cure surfaces of grout in accordance with the manufacturer's recommendations. If the manufacturer recommendations are not specific, cure surfaces in accordance with Section 511.3.9.1, "Method 1, Water Curing."

C. Temperature Requirements The Contractor shall place grout when the air temperature is at least 45 °F, but less than 95 °F. The Contractor shall not allow the grout temperature to rise above 85 °F during mixing and placing. The Contractor shall maintain the temperature of the grout at or above 45 °F during the curing period.

D. Elapsed Time Before Loading The Contractor shall not allow loads on grout that has been in place less than 72 hours, or as recommended by the manufacturer, unless otherwise directed by the Project Manager.

E. Grout Defects The Contractor shall remove and replace improperly cured or otherwise defective grout.

5. Measurement and payment

Compensation for any items of work described in the contract, but not listed in the cost schedule, is included in the payment for the item of work to which it is made subsidiary. Payment for furnishing and installing concrete reinforcement shall be included in the Contract Price for cost items that include reinforced concrete. Such payment constitutes full compensation for all labor, equipment, material, and all other items necessary and incidental to the completion of the work.

Construction Specification 45--Plastic Pipe and Pipe Couplers

1. Scope

The work consists of replacing plastic pipe and furnishing and installing exterior pipe couplers as shown on the drawings or as specified herein. Pipe and couplers shall be installed and joined in accordance with the manufacturer's recommendations.

2. Material

A. Irrigation Pipe:

Pipe and fittings shall be ADS N-12 HDPE pipe, WATER TIGHT (WTIB) or approved equal, and meets and exceeds the requirements of ASTM F2648, and as shown on the drawings. Pipe and fittings shall be bell and spigot type with joints that meets performance standards per ASTM D3212 requirements.

B. Exterior Pipe Couplers

Exterior Pipe Couplers shall be MARMAC PolySeal standard width coupler, or Engineer Approved Alternative.

C. Grout Diaper

Grout Diapers shall be 36" wide MARMAC Standard Grout Diaper or Engineer approved alternative.

3. Laying the pipe and fittings

Plastic pipe conduits complete with fittings and other related appurtenances shall be installed to the horizontal and vertical alignment shown on the drawings. The ground surface near the pipe trench shall be free of loose rocks and stones greater than 1 inch in diameter.

4. Pipe embedment

Earth bedding--The pipe shall be firmly and uniformly placed on compacted initial backfill bedding or an in place earth material bedding of ample bearing strength to support the pipe without noticeable settlement. Earth bedding shall be compacted to a density not less than adjacent undisturbed in place earth material. Initial backfill material used for compacted earth bedding shall be free of rocks or stones greater than 1 inch in diameter.

5. Backfill

Initial backfill to 6 inches above the top of the conduit is required. Earth haunching and initial backfill material shall consist of soil material that is free of rocks, stones, or hard clods more than 1 inch in diameter.

Initial backfill shall be placed in two stages. In the first stage (haunching), backfill is placed to the pipe spring line (center of pipe). In the second stage, it is placed to 6 inches above the top of the pipe.

The first stage material shall be worked carefully under the haunches of the pipe to provide continuous support throughout the entire pipe length. The haunching backfill material shall be placed in layers that have a maximum thickness of about 6 inches.

Final backfill shall consist of placing the remaining earthfill material required to complete the backfill from the top of the initial backfill to the ground surface or so that a minimum cover of 1 foot is accomplished, including mounding at the top of the trench. Final backfill material shall be free of debris or rocks larger than 3 inches nominal diameter. Final backfill shall be placed in approximately uniform, compacted layers.

6. Measurement and payment

For HDPE pipe, the quantity is determined to the nearest foot by measurement of the laid length along the crown centerline of the conduit. Payment for HDPE pipe is made at the contract unit prices for item numbers 6-8. Such payment constitutes full compensation for furnishing, transporting, and installing the pipe including, all fittings, appurtenances, and other items necessary and incidental to the completion of the work. Payment for appurtenances listed separately in the cost schedule is made at the contract prices for those items.

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|  |  | William J. Miller Engineers, Inc.<br>1511 Third St.,<br>Santa Fe, NM 87505 |                    |                      |
|                                                                                       | CONSTRUCTION SPECIFICATIONS                                                           |                                                                            |                    |                      |
|                                                                                       | ACEQUIA DE LA CANOVA<br>PIPELINE REPAIR PROJECT<br>RIO ARRIBA COUNTY, NM              |                                                                            |                    |                      |
|                                                                                       | Designed:<br>AMS<br>Project Number:<br>22020.20                                       | Drawn By:<br>AMR                                                           | Checked By:<br>WJM | Date:<br>MAY 5, 2025 |