

SUPPLEMENTAL TECHNICAL SPECIFICATIONS

The following revisions and/or additions to the Technical Specifications of the Standard Specifications are hereby made a part of the Contract Documents. The Los Alamos County Standard Specifications and the New Mexico Standard Specifications for Public Works construction, 2006 Edition, as amended with updates are incorporated here by reference and shall govern the construction of this project except where revised, amended, or supplemental by these Supplemental Technical Specifications. Los Alamos County Standard Specifications supersede New Mexico Standard Specifications.

Dimensions given on the plans or which shall be calculated will govern over scaled dimensions.

I, James A. Martinez Jr., hereby certify that I am licensed Professional Engineer in the State of New Mexico (NMPE #23903), and that these technical specifications were prepared by me or under my direct supervision.

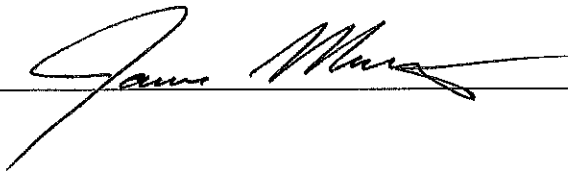


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IFB 24-79 NM STATE 4 – 16” TRANSMISSION LINE REPLACEMENT

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SECTION 050 SUMMARY OF WORK

PART 1. DESCRIPTION

Scope of Work includes but is not limited to the following: This Project consists of three segments of work along NM-4 to replace approximately 16,014 linear feet of 16" concrete cylinder pipe with 16" D.I.P. for the water transmission line and replaced 2,337 linear feet of 12" D.I.P. waterline, combination air valves, install 12" and 16' gate valves, and fire hydrant assembly. Some asphalt replacement to match existing thickness in some portions where pipe enters existing roadway. Preparation and execution of Storm Water Pollution Protection Plan and in accordance with the NPDES Stormwater Construction General Permit requirements. All final stabilization shall be by hydroseeded. Work includes all grading, excavation, fill, backfill, and trenching identified in the plans, specifications and shall be performed in accordance with the criteria established in the plans and Los Alamos County Standard Specifications. Final clean-up and site restoration per the plans and specifications. Below describes the three segments of work along State Road 4.

1. Segment #1 – From East Jemez Road Intersection Heading South to White Rock:

Clear and grub area of project site, contractor to locate existing 16" D.I.P. pipe south of East Jemez Road (Truck Route) for tie-in point of new water line, install three 1" combination air valves along this segment, seven 16" gate valves, install one fire hydrant assembly, and three 8" gate valves for drain lines at various locations on this segment with riprap at outfalls. In the White Rock town area, two 30" casings will need to be placed using open cut method to cross Rover Boulevard and NM State Road 4 to get piping to north side of road for the tie-in point.

2. Segment #2 – From East Jemez Road Intersection Heading North on NM-4 towards NM-502 Los Alamos Main Hill:

Clear and grub area of project site, contractor to locate the existing 16" D.I.P. pipe north of East Jemez Road (Truck Route) for tie-in point of new water line, install 16" D.I.P. up to the intersection where 12" D.I.P. intersects existing 16" D.I.P. Transition to 12" D.I.P and continue heading north for approximately 1,550 linear feet.

3. Segment #3 – From NM-4 Crossover Hill towards NM-502 Los Alamos Main Hill:

Continue will installation of 12" D.I.P. pipe towards the main hill. A 30" casing will need to be installed using trenchless method to cross NM-4 and head up towards the Los Alamos Main Hill for final tie-in point. This segment will have one 12" gate valve, one 1" combination air valve, one 8" drain line on this segment with riprap at outfall.

PART 2. WORK PERFORMED BY OWNER

- 2.01 Owner shall provide the staff required to operate all valves and equipment needed for any utility service interruptions necessary during the execution of the project. The Contractor shall coordinate with Owner for the performance of any temporary

modifications to utility systems necessary for this project to be executed. Contractor shall do so at the appropriate time and providing a minimum 48-hour advanced notice to the Owner.

PART 3. WORK SEQUENCE

3.01 Sequence

- A. The Contractor shall prepare and submit for the Owners approval a work sequence plan. Once approved, the contractor shall execute the plan, and resubmit for the owner's approval any revisions needed to this plan.
- B. Contractor shall maintain water supply services at all times, with the exception of very specific interruption periods approved, a minimum of 48 hours in advance, by owner. All water lines shall be flushed, disinfected, and tested for Chlorine residual, prior to their reconnection into the public water distribution system.
- C. Contractor shall test all materials, parts and equipment installed as part of this project; start up the system, before turning it to the Owner for beneficial occupancy. Coordination and costs of temporary utility services necessary for the testing, start-up and initial operation of the renovated lift station shall be the sole responsibility of the Contractor.

PART 4 INCIDENTAL WORK

4.01 Incidental Work

- A. Contractor shall provide, as part of the contract price, all labor, superintendence, machinery, equipment, supplies, temporary utility services, third party compliance testing and analysis, necessary to complete the various items of work in accordance with these contract documents, to provide a complete, functional, and ready-to-use installation.
- B. Contractor shall, as part of this contract price, furnish all environmental protection including, but not limited to all necessary work to prevent storm water and other environmental pollution on any construction site or adjacent areas, as well as anywhere in the vehicle and pedestrian routes used by the contractor's vehicles and equipment.
- C. Contractor shall be responsible for the restoration, reseeding/replanting and cleanup of any areas affected by the project, including any work and materials and labor necessary to return the project site(s) to its original state (prior to construction), by removing all evidence of construction debris, repairing all damage to vegetation, landscapes and finished ground surfaces, scarifying any hard-pack and driven-over earth areas, reseeding any areas disturbed by the contractor's construction activities, and installing erosion protection as indicated on the drawings, or as required by Contractor's SWPPP.
- D. Contractor is responsible to attend, at no additional cost to the Owner, the following meetings:
 - a. Preconstruction meeting to be scheduled by owner.
 - b. Weekly progress meetings on site.

- c. Special and final field observation meetings when requested or scheduled by the Owner.
- d. Construction coordination meetings requested or scheduled by DPU-operations.
- e. Stakeholder/utility customer meetings when deemed necessary by DPU to keep them informed or to resolve unanticipated concerns.

END OF SECTION

**SECTION 101
GENERAL REQUIREMENTS**

PART 1 GENERAL

1.1 INCLUDED

- A. Applicable codes, ordinances, rules and regulations, administrative requirements, coordination with Department of Public Utilities (DPU), easements, approved construction drawings, testing, inspection, contractor qualifications and acceptance of public utility infrastructure.

1.2 APPLICABLE CODES, ORDINANCES AND RULES AND REGULATIONS

- A. Department of Public Utilities Rules and Regulation, Revised May 17, 2006
- B. Los Alamos County Code of Ordinances, Chapter 16 Development Code
- C. Los Alamos County Code of Ordinances, Chapter 40 Utilities
- D. New Mexico Administrative Code, Title 14 Housing and Construction
- E. 49 Code of Federal Regulations, Part 191
- F. 49 Code of Federal Regulations, Part 192

1.3 CONTRACTOR QUALIFICATIONS

- A. Licenses: Contractors performing work on new or existing public utility infrastructure shall be licensed by the State New Mexico Construction Industries Department.
 - 1. GF-9 or GF-98: Required for gas, water and sewer work. Electric ductbank, vaults and pull boxes only (no installation or handling of wire, terminating, grounding etc.).
 - 2. EL-1J: Required for electric overhead and underground distribution and transmission lines.
 - 3. Pre approved Operator Qualification Plan and Drug and Alcohol program as applicable.
- B. Specific training, certifications, qualifications, manufacturer certifications listed in the individual specifications required to perform work.

1.4 COORDINATION WITH DEPARTMENT OF PUBLIC UTILITIES (DPU)

- A. Notification: The contractor shall notify all customers and the Department of Public Utilities 4 calendar days in advance of any service disruption due to work performed by the contractor. Contractor shall notify affected customers with a door hanger approved by the DPU.
- B. Permits: A penetration permit issued by the DPU is required for all connections to an existing gas, water and sewer main. The contractor shall complete the permit and coordinate the work with the Engineering Department and the Gas/Water/Sewer

Department at least 48 hours before performing the work. The permit must be signed by the contractor, a representative of the Engineering Department and Gas/Water/Sewer Department 48 hours prior to performing work. If the work will impact or take place on a water transmission line, a representative of the Water Production department must sign the permit.

This project also requires coordination with Pueblo de San Ildefonso and Los Alamos National Labs LANL. Requirements for each entity are outlined in the Project Contract Book.

C. Functions performed by Department of Public Utilities (DPU).

1. Gas

- a. Gas valves shall only be operated by DPU.
- b. Connections to existing gas mains shall be performed by DPU or contractor personnel with applicable Operator Qualifications (OQ) and who are a member of an approved Drug and Alcohol Program in accordance with U.S. Department of Transportation Pipeline Safety Regulations. If approved prior to connection, DPU may directly supervise, with OQ qualified personnel, the contractor personnel making the connections.
- c. DPU will provide materials and install residential service lines upon completion of service request form, approval of plans and payment of applicable fees.
- d. DPU will connect service and install meter only after New Mexico Construction Industries Division inspection and approval is obtained.

2. Water

- a. Water system valves shall only be operated by DPU staff.
- b. Water utility meters will be provided and installed by DPU.

3. Sewer

- a. Service connections to existing sewer mains shall be performed by DPU.

4. Electric

- a. All primary terminations in the distribution system shall be completed by DPU unless otherwise stated in DPU approved plans.
- b. DPU will provide and install electric meters.
- c. DPU will provide materials and install residential service lines upon completion of service request form, approval of plans and payment of applicable fees unless otherwise stated in DPU approved plans.
- d. DPU will connect service only after New Mexico Construction Industries Division inspection and approval is obtained.

1.5 APPROVED CONSTRUCTION DOCUMENTS

- A. Construction drawings must be prepared by a Professional Engineer licensed in the state of New Mexico.
- B. Construction drawings must be approved for construction by the DPU Engineering Department.

1.6 EASEMENTS

- A. All public utility infrastructure shall be constructed in utility easements or right-of-way.
- B. Easements and right-of-way shall be granted and filed in the office of the Los Alamos County Clerk prior to beginning construction.
- C. Prior to construction all easements and right-of-way in which public utility infrastructure will be constructed must be staked by a Professional Surveyor licensed in the state of New Mexico.

1.7 TESTING, INSPECTION AND ACCEPTANCE OF INFRASTRUCTURE

- A. All tests required in the individual sections of these specifications shall be completed by the contractor and at the expense of the contractor. Any infrastructure that fails a test must be corrected and retested until a passing test is achieved. All cost associated with correcting infrastructure that fails testing and all cost of re-testing is the responsibility of the contractor. Documentation of test shall be submitted to DPU.
- B. DPU shall inspect all new public infrastructure. Contractor is responsible for coordinating the inspections with DPU. Improvements that are buried before DPU has inspected shall be exposed for inspection by the contractor and at the expense of the contractor.
- C. Locate wire installed on new public infrastructure shall be verified for continuity as follows:
 - 1. Contractor shall verify continuity with own equipment.
 - 2. When contractor has verified all of tracing wire is continuous, contractor shall make arrangements through Project Manager to have Gas/Water/Sewer Department (GWS) staff verify the continuity of the locate wire.
 - 3. Contractor shall demonstrate continuity, in the presence of DPU staff, by locating all newly installed facilities at all location points (test boxes, valves, hydrants, services, etc.) with own equipment while GWS staff verifies continuity with own equipment and verifies accuracy of as-built drawings.
 - 4. Locations identified where no continuity is found shall be repaired by contractor.
- D. Inspection fees as required by DPU and Regulations Fee Schedule, current version, shall be paid prior to beginning construction.
- E. Acceptance of public infrastructure shall occur as follows:
 - 1. Public utility infrastructure constructed as part of a new development shall be accepted in accordance with Los Alamos County Code of Ordinances, Chapter 16 Development Code, Section 16-238 Acceptance.

2. Public Utility infrastructure constructed by a DPU capital improvement project by means of competitive bid shall be accepted when the terms of the construction contract associated with the work have been satisfied.

END OF SECTION

SECTION 102 SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Required submittals.
- B. Submittal procedure.
- C. Definition of submittal types for construction.

1.2 REQUIRED SUBMITTALS

- A. Provide submittals as indicated in each specific specification section.

1.3 SUBMITTAL PROCEDURE

- A. Review submittals prior to transmittal to determine and verify field measurements, field construction criteria, manufacturers' catalog numbers, and conformance of submittals with Contract Documents. To certify compliance with these specifications:
 - 1. Routing Sheet provided in this section shall be attached to all submittals. Form must be completed in its entirety, signed and dated.
- B. For any proposed deviation from the Contract Documents, submit a written request to the Project Manager.
- C. Submit for review to Project Manager the following number of copies of submittals:
 - 1. 2 Copies for Department of Public Utilities use.
 - 2. Additional number of copies for Engineer and or Contractor use as determined by the Engineer/Contractor.
 - 3. A digital file (Adobe PDF) may be submitted if the Engineer and County agree. Separate or non-affiliated items shall be submitted as separate digital files.
- D. Submittal Clarity:
 - 1. Contractors Submittal No. on the routing sheet shall be a successive numbering system.
 - 2. Drawings shall be clear and legible.
 - 3. Manufacturer's Literature: Submit a minimum of one original of all manufacturers' printed material. Remaining number of submittals may be reproductions. Reproductions of original material shall be clear and legible.
- E. A partial submittal consists of only a portion of the total required for a project. This is acceptable when it is prudent to submit for review certain submittals before the remaining submittals are available. Submit all items concurrently for which,

due to coordination concerns, a simultaneous review is required. Include a separate Routing Sheet indicating the submittals transmitted with each numbered submittal package.

- F. After review of the submittal package the "Action Code" will be indicated on the Routing Sheet and returned to the Contractor. Review of submittals will be indicated on each Routing Sheet by appropriate signature, stamp, and date. The number of copies of each submittal noted above for Los Alamos County use will be retained and the balance will be returned to the Contractor. The Contractor shall allow a minimum of 10 calendar days for return of submittals.
- G. The Department of Public Utilities will utilize the following "Action Codes" to indicate the status of submittals resulting from the review, and the action required of the Contractor.
 - 1. A - Reviewed. No comments.
 - 2. B – Reviewed And Noted. Make corrections noted. Resubmission not required.
 - 3. C – Reviewed And Not Accepted. Revise and resubmit.
- H. Use a Routing Sheet with all resubmittals indicating each item's submittal number and type suffixed "R1" for the first resubmittal, "R2" for the second resubmittal, and so forth.
- I. Do not fabricate products or begin Work that requires submittals before such submittals are approved.

1.4 DEFINITIONS OF SUBMITTAL TYPES FOR CONSTRUCTION

- A. Calculations: The methods and results of calculations in documented form where specified.
- B. Catalog Data: Standard printed information on materials, products and systems, which shows performance characteristics, dimensions, material of fabrication, and other characteristics necessary to assure conformity with the design requirements. Where other items or information not related to the work of this project are included in the literature submitted, the item(s) and/or information applicable to this project shall be clearly marked.
- C. Certifications: A written statement, signed by a qualified party, attesting that items or services are in accordance with specified requirements. Typically, this written statement is accompanied by additional information to substantiate the statement.
- D. Installation Instructions: Manufacturer's instructions, step-by-step if necessary, showing the field installation of parts, components, equipment, and other similar items.
- E. Material List/Parts List/Design Mixes: A list of system or material components.
- F. Performance Data/Curves: Performance data and/or curves for the proposed equipment to show compliance with contract documents.
- G. Samples/Colors: Samples, including colors, of proposed materials.
- H. Shop Drawings: Drawings necessary to show fabrication details to ensure compliance with contract documents.
- I. Test Reports: Results of specified test requirements.

- J. Wiring Diagrams: Drawings showing the point-to-point wiring of a piece of equipment or between pieces of equipment in a system.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

END OF SECTION



**CONTRACTOR SUBMITTAL ROUTING SHEET
DEPARTMENT OF PUBLIC UTILITIES**

PROJECT:	Contractor's Submittal No.:
	Date:
	Product Description:
CONTRACTOR:	Dates of any previous submissions:
Supplier:	Manufacturer:
Specification No.:	Drawing Nos.:
Are there any deviations to the contract documents? <input type="checkbox"/> No <input type="checkbox"/> Yes (explain and identify)	
<p>CONTRACTOR'S CERTIFICATION: This submittal has been reviewed by the Contractor in compliance with the CONTRACT DOCUMENTS. Any deviations to the CONTRACT DOCUMENTS are identified above. If this is a resubmittal, any changes other than those specifically called for by the PROJECT MANAGER on previous submittals are specifically identified on the sheet(s) directly following this form.</p> <p align="center">Signed: _____ Date: _____</p>	
LOS ALAMOS COUNTY ACTION	
Date Received:	No. Copies Received:
Date Returned:	No. Copies Returned:
A	<p>REVIEWED for general conformity with DRAWINGS and SPECIFICATIONS. No comments, approved for construction.</p> <p>By: _____ Date: _____</p>
B	<p>REVIEWED AND NOTED for general conformity with DRAWINGS and SPECIFICATIONS. Make corrections as noted, resubmittal not required.</p> <p>By: _____ Date: _____</p>
C	<p>REVIEWED AND NOT ACCEPTED. Not in conformity with DRAWINGS and SPECIFICATIONS. Revise and resubmit.</p> <p>By: _____ Date: _____</p>
PROJECT MANAGER'S COMMENTS, IF ANY:	

**SECTION 103
COMPLIANCE REQUIREMENTS**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Erosion and Sediment Control
- B. Site Stabilization
- C. Spill Control and Response
- D. Debris Control
- E. Dust Suppression
- F. Traffic Control

1.2 QUALITY ASSURANCE

- A. Submit per Section 102 Submittal Procedures, manufacturer's data, materials certifications, certified seed mix, Storm Water Pollution Prevention Plan (SWPPP), erosion and sediment control best management practices, traffic control plans and applicable appurtenances to complete work in this section.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 EROSION AND SEDIMENT CONTROL

- A. General Requirements
 - 1. Contractor shall supply, install and maintain all erosion and sediment control measures, stabilization and structural controls, and other protective measures through the use of Best Management Practices (BMPs) including silt fences, straw bales, compost socks, or other approved methods, prior to any earth disturbing activity. Standard Details, Section 7000 contains drawings for installation of BMPs.
 - 2. Maintain BMPs in accordance with manufacturer's recommendations.
 - 3. Disturb only the minimum amount of soil necessary. Contractor shall take suitable precautions to protect existing trees, shrubs and other natural vegetation during construction. Project Manager must approve any trees to be removed.
- B. Projects Where Soil Disturbance Is Greater Than One Acre (SWPPP Required)
 - 1. All provisions in subsection 3.1, A. General Requirements stated above apply.
 - 2. Contractor shall prepare for review and acceptance by Project Manager a Storm Water Pollution Prevention Plan (SWPPP) in compliance with all requirements set by Environmental Protection Agency (EPA) National Pollution Discharge Elimination System for projects where soil disturbance is greater than one acre.

3. Contractor and County, as co-operators, shall each submit a Notice of Intent to the EPA Storm Water Notice Processing Center (<http://cfpub.epa.gov/npdes/stormwater/enoi.cfm>).
4. Contractor shall manage the SWPPP by supplying and installing all erosion and sediment control measures, stabilization and structural controls, and other protective measures through the use of Best Management Practices (BMPs) including silt fences, straw bales, compost socks, or other approved methods, prior to any earth disturbing activity.
5. Contractor shall conduct and document storm water inspections, maintain a soil disturbance log during construction and maintain records as required by EPA. Inspections shall be documented on the attached form provided on pages 5 and 6 of this section.
6. Contractor shall amend the SWPPP as required by EPA.
7. Contractor shall submit a Notice of Termination (NOT) following project completion and final stabilization, as defined by the EPA, is achieved.

3.2 SITE STABILIZATION

- A. Contractor shall stabilize all disturbed areas with native perennial vegetation. Do not leave any disturbed areas as barren soil. After reseeding contractor shall provide and install degradable rolled erosion control product perpendicular to slope to provide long term erosion control without active maintenance.
- B. Final stabilization shall be accepted by Project Manager.
- C. Seeding application shall be per New Mexico State Highway and Transportation Standard Specifications for Highway and Bridge Construction 2000 Edition, Section 632 or latest. Seeding class shall be Class B.
- D. Seed mix shall be from commercial supplier and be certified to be free of invasive species. Seed mix shall be delivered to site in a sealed packaging labeled with mix design from supplier. Seed mix as follows:

SEED MIX FOR ELEVATIONS 6,900 TO 7,500 FEET

SPECIES SCIENTIFIC NAME	SPECIES COMMON NAME	LBS SEED/ ACRE
Bouteloua Gracilis	Blue Gramma	3.0
Bromus Carinatus Var. Polyanthus	Foothills Brome	3.0
Elymus Trachycaulus	Slender Wheatgrass	4.5
Anropogon Gerardii	Big Bluestem	4.5
	Total	15.0

SEED MIX FOR ELEVATIONS 6,000 TO 6,900 FEET

SPECIES SCIENTIFIC NAME	SPECIES COMMON NAME	LBS SEED/ ACRE
Bouteloua Gracilis	Blue Gramma	4.5
Bouteloua Curtipendula	Sideoats Gramma	3.0
Pleuraphis Jamesii	Galleta	3.0
Schizachyrium Scoparium	Little Bluestem	4.5

		Total	15.0
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3.3 SPILL CONTROL AND RESPONSE

- A. In the event of a spill, contractor shall immediately notify all regulatory agencies having authority and the Los Alamos Project Manager. The Contractor shall be responsible for remediation of any spill and notifying all required agencies in compliance with all local, state and federal laws.
- B. Store all fuels, lubricants, chemical storage, material stockpiles, and other potential pollutants in a designated area on-site. Provide secondary containment and controls including berming lined with an impervious material, covering, or other appropriate BMPs.

3.4 DEBRIS CONTROL & DISPOSAL

- A. Use good housekeeping practices to keep sites free of construction debris and trash. Provide containers for deposit of debris and trash. Contractor is responsible for disposing of all waste materials generated from the construction including materials demolished, unsuitable excavated debris and construction debris. All materials shall be disposed in a lawful manner.
- B. Do not drive or move any vehicle on any public road unless the vehicle is constructed, loaded, secured or covered in a manner that will prevent any of its load from dropping, shifting, leaking, or otherwise escaping.
- C. Securely fasten all load covers to vehicles prior to driving on public roads so that the covering does not come loose or become a hazard to others.
- D. Do not bury construction waste, sanitary waste, or trash on-site.
- E. Concrete truck washout area shall be approved by Project Manager. If necessary, special provisions shall made by contractor if needed to protect property and the environment.

3.5 DUST SUPPRESSION

- A. Contractor is responsible for supplying and applying potable water as needed for dust control throughout the project. Apply all liquids in a manner that does not result in runoff.
- B. Commercial dust control products may be approved in a case by case basis.
- C. Use means necessary to control dust on and near the work, and on and near off-site areas, if such dust is caused by the contractor's operations during performance of the work, or if resulting from the condition in which the contractor leaves the site.
- D. Thoroughly moisten surfaces as required to prevent dust being a nuisance to the public, neighbors, and personnel performing other work on the site.

3.6 TRAFFIC CONTROL

- A. A temporary traffic control plan shall be prepared by the contractor for any work that will impact vehicular or pedestrian traffic. Contractor shall submit all traffic plans to the County Traffic Engineering Department for approval. Allow 10 working days for traffic plan approval. The County Traffic Engineering Department shall approve any proposed changes in the temporary traffic control plan.
- B. Consider and address the safety of pedestrians in the Traffic Control Plan, and if altering pedestrian traffic, provide an alternate pedestrian route.

- C. Traffic control devices shall be properly maintained and inspected daily during the project.
- D. A Traffic Control Supervisor shall be designated and be available for call out 24 hours per day.
- E. The Traffic Control Supervisor shall be certified in Work-zone Traffic Control.
- F. Traffic Control Supervisor shall perform on site inspections of work zone twice daily and once nightly if traffic control devices will be in place during night hours.
- G. Contractor is responsible for providing construction coordination to include a weekly log of daily inspections of barricade and maintenance schedules on projects that are over one week duration.
- H. Traffic plans shall conform to the latest edition of the Manual of Uniform Traffic Control Devices (latest edition) and may be required to follow AASHTO safety recommendations.
- I. Temporary Concrete Barriers must be used where open trenches are within 6 feet of driving lanes. End sections of the temporary concrete barrier must be angled away from the traveled way.
- J. Traffic Control Devices shall be kept in a clean condition. Washing of equipment is incidental to its placement and maintenance.
- K. Contractor is responsible for the obliteration of any conflicting striping and for any temporary striping.

3.7 DEMOLITION

- A. Any person or contractor performing demolition on structures or appurtenance which have utility in the vicinity must contact and make arrangement with DPU to assess the impact on DPU infrastructure.
- B. Upon review by the DPU, the person or contractor must pay by means of a back charge any cost associated with demolition that impacts any DPU infrastructure – either temporary or permanent - including but not limited to electric, gas, water or wastewater.
- C. Person or contractor excavating as part of the demolition process shall contract NM811 in accordance with NM State Statues.

END OF SECTION



**National Pollutant Discharge Elimination System (NPDES)
 Storm Water Pollution Prevention Plan (SWPPP) Inspection Checklist
 Los Alamos County Department of Public Utilities**

Project Title: _____
Project Location: _____
Inspector/Inspection Date: _____
Weather
 Current: _____
 Last 24 Hours: _____
 Date of Last Rainfall _____
 Amount of Last Rainfall _____
Chemicals Stored On Site: _____
Method of Chemical Containment: _____
Soil Disturbance Log Status: _____

Assessment of Best Management Practices (BMPs)

Part A. Erosion Prevention - Note condition and corrective actions for deficiently applied BMPs

1. Construction Access – Trackout, Street Clean	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
2. Soil Stabilization - Signs of Erosion, Gullies, Slope Failures, Rills	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
3. Slope Protection – Plastic Condition, Grass Growing, Hydroseed Condition, Matting	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
4. Perimeter Control - Clearing Limits Marked, Silt Fences, Swales	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
5. Conveyances Stable – Ditches, Check Dams Intact, Sand Bags, Slope Drains	<input type="checkbox"/> OK <input type="checkbox"/> Deficient

6. Temporary Erosion and Sediment Control Management - Revisions Required	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
7. Water Management - Infiltration, Clean/Dirty Water Separated, Offsite Water Bypassed	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
8. Outlet Protection – Stabilized	<input type="checkbox"/> OK <input type="checkbox"/> Deficient

Part B. Sediment Control - Note condition and corrective actions for deficiently applied BMPs

1. Storm water Detention and Monitoring	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
2. BMP Maintenance	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
3. Inlet Protection	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
4. Dust Control	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
5. Spill Prevention	<input type="checkbox"/> OK <input type="checkbox"/> Deficient
6. Condition of Discharge Water	<input type="checkbox"/> OK <input type="checkbox"/> Deficient

Other/Continued Comments, Conditions, Corrective Actions, and Observations:

SECTION 104 UNDERGROUND FACILITIES STAKING REQUIREMENTS

PART 1 GENERAL

1.1 WORK INCLUDED

This standard provides the requirements for the construction staking of public utility infrastructure.

1.2 QUALITY ASSURANCE

Utility staking is contingent upon the completion of the following by the owner/developer:

- A. Right-of-way and easements establishing legal access for new utility infrastructure shall be granted and filed in the office of the Los Alamos County Clerk prior to beginning construction.
- B. Right-of way, easements, lot corners and lot boundaries shall be staked by a New Mexico Licensed Professional Surveyor when utility infrastructure will be constructed within or adjacent to an established legal boundary to prevent encroachments and ensure legal access to facilities is maintained.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

- A. The contractor is responsible for completion and maintenance of all construction staking necessary to complete the work, consistent with standard survey practices.
- B. Clearing and grubbing shall be completed prior to staking.
- C. Staking utility infrastructure when grading has not been completed to final grades or final subgrade, stakes indicating grade cut or fills shall be place as necessary to ensure utility infrastructure will be constructed at the proper depth when final grading is complete. All infrastructure not installed to the proper burial depth due to lack of staking or incorrect staking shall be removed and replaced at the proper depth at the expense of the contractor.
- D. Subgrade stakes: subgrade stakes are generally correct to within 0.2' which is sufficient precision to stake subgrade. However, care must be exercised when staking a utility location in that a greater degree of precision may be necessary.
- E. The burial depths and tolerances specified or drawn elsewhere in these construction standards for each specific utility shall be met.
- F. It is the contractor's responsibility to stake location and finished grade in all pertinent features, including but not limited to, roadways, curb and gutter, sidewalks, drainage structures, signage, retaining walls that are necessary for placement of utility components as specified.
- G. Offset distance: a distance shall be selected which will ensure the protection of stakes during trenching. This distance is generally 10' to 15' to centerline of trench but may depend on site conditions. The stakes may be placed adjacent to the contractor's sub grade stakes if the offset distance is adequate, or may, in fact, be the same if so marked.
- H. Stake interval: stakes will be placed as required in order to ensure that the trench will be properly aligned and at all utility components such as vaults, pedestals, transformers,

manholes, clean-outs, meter sets, fire hydrants, changes in direction, fitting location, valve location and other utility components that require to be placed at a specified location and depth. In no case shall staking intervals be less than 50'. The interval may have to be decreased to 25' or less on curves or where site conditions otherwise dictate.

- I. Although the center location on small electric boxes and property line structures are normally adequate, in most cases, it will be necessary to stake two corners on the larger boxes. When a box is to be placed against the back face of a sidewalk or any other critical location, care must be exercised to ensure adequate precision in staking.

END OF SECTION

SECTION 106

CONSTRUCTION MOBILIZATION

PART 1 DESCRIPTION

Mobilization shall consist of, but not be limited to, all preparatory work, preliminary operations, and incurred costs necessary for the movement of personnel, equipment, supplies, and incidentals to the project site; and for the establishment of all offices, buildings, and other facilities needed for the project – prior to beginning work on project.

PART 2 MOBILIZATION ADMINISTRATION REQUIREMENTS

2.1 Definitions

- A. Total original contract amount shall mean the total amount bid as compensation for the contract.
- B. Total original contract amount less mobilization shall mean the total amount bid as compensation for the contract, less the amount bid for mobilization.

2.2 General

- A. It is the intent of this specification to provide for the Contractor to receive 50% of the amount bid for mobilization by the time the Contractor has performed 25% of the total original contract amount bid, less the amount bid for mobilization.

If the Contractor's bid for mobilization is over 10% of the total original contract amount bid, less mobilization, payment for the amount over the 10% of the total original contract amount bid, less mobilization, will be made upon completion of all work under the contract.

2.3 Payment Procedures

- A. When Contractors are eligible for payment of less than 5% of the total original contract amount bid, less mobilization, they will be paid 25% of the amount bid for mobilization.
- B. When Contractors are eligible for payment of from 5% to more than 25% of the total original contract amount bid, less mobilization, they will be paid 50% of the amount bid for mobilization.
- C. When Contractors are eligible for payment of 50% or more of the total original contract amount, less mobilization, they will be paid 100% of the amount bid for mobilization, minus any mobilization amount already paid, except for the noted 10% limitation.

2.4 Payment Calculations

P_m = Mobilization payment.

M = Total amount bid for mobilization.

f = Mobilization payment percentage factor –
0.25, or 0.50, or 1.0, as applicable

P_m = $M \times f$

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 107
CONTRACT CLOSEOUT

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Adjusting.
- D. Project record documents.
- E. Operation and maintenance data.
- F. Spare parts and maintenance Products.
- G. Warranties and bonds.
- H. Maintenance service.

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Los Alamos County Project Manager and Engineer review.
- B. Provide submittals also that are required by governing or other authorities to County Project Manager and Engineer.
- C. Submit final Application for Payment identifying total adjusted Contract Sum/Price, previous payments, and amount remaining due.

1.3 FINAL CLEANING

- A. Contractor to provide final cleaning after final acceptance.
- B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, and polish transparent and glossy surfaces.
- C. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- D. Clean or replace filters of operating equipment.

- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from the site.

1.4 PROJECT RECORD DOCUMENTS

- A. Maintain on site, a set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store Record Documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- F. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 4. Field changes of dimension and detail.
 - 5. Details not on original Contract Drawings.
- G. Submit documents to Engineer and County Project Manager with claim for final Application for Payment.
 - 1. Submittal shall include the following:
 - a. One complete set of record drawings
 - b. Record Specifications
 - c. Close-out documentation, including:
 - 1. All previously approved change orders, in sequential order
 - 2. Listing of approved shop drawings
 - 3. Consent of Surety form, provided by surety
 - 4. Certificate and Release of Lien Forms
 - 5. Affidavit of Wages Paid.

END OF SECTION

SECTION 201 CLEAR AND GRUB

PART 1 GENERAL

1.1 WORK INCLUDED

- A. This work shall consist of clearing, grubbing, removing and disposing of vegetation and debris in accordance with the contract requirements and in compliance with these specifications. This work shall also include the preservation from damage or defacement of all vegetation and items designated to remain.

PART 2 PRODUCTS

- 2.1 Paint. Paint required for cut or scarred surfaces of trees or shrubs selected for retention shall be an approved asphalt base paint prepared especially for tree surgery and applied per the manufacturer's recommendations.

PART 3 EXECUTION

3.1 GENERAL

- A. The Department of Public Utilities will establish construction limits and designate all trees, shrubs, plants, and other items that are to remain.
- B. Project Manager must approve all trees to be cut.
- C. All surface debris, trees, stumps, roots, organic matter and other objectionable protruding obstructions shall be cleared and grubbed as required.
- D. Hazardous objects and unsightly debris within the construction limits shall be removed. Stump holes and other holes in this area shall be backfilled and compacted in accordance with Section 202 Excavation, Trenching and Backfill.
- E. Timber felling and other operations shall minimize danger to traffic and damage to trees, vegetation and other items designated to remain, as well as those outside the clearing area.
- F. All work operations including dragging and piling of debris which may be damaging to vegetation shall be confined to approved areas devoid of vegetation, and shall be performed in accordance with all applicable laws, rules and ordinances.
- G. Low hanging or unsightly branches shall be removed on trees or shrubs designated to remain only when approved by the project manager. Branches of trees extending over the right-of-way or easement shall be trimmed. All trimming shall be done by skilled workmen in accordance with good tree surgery practices.
- H. Cut or scarred surfaces of trees or shrubs designated to remain shall be treated in accordance with subsection 2.1.

3.2 SALVAGEABLE TIMBER

- A. When required by the contract, timber having commercial value shall be felled and cut into logs of the specified length in accordance with established logging practices. The logs shall be stacked along the right-of-way at points convenient for loading and shall be disposed of

as approved by the Project Manager.

3.3 REMOVAL AND DISPOSAL OF MATERIAL

- A. Contractor is responsible for all labor, materials, equipment and permitting to remove and dispose of material off site.
- B. Disposal shall be performed in accordance with all applicable laws and regulations and Section 103 Compliance Requirements.
- C. Items designated to remain on the right-of-way, surrounding property, and vegetative cover shall not be damaged by this operation.
- D. The right-of-way, easement and adjacent areas shall be left in neat and finished appearance.

3.4 BASIS OF PAYMENT

- A. When clearing and grubbing is not established as a pay item the work will be considered incidental to the completion of the project and no separate payment will be made. The cost involved in obtaining disposal locations and in making the disposal will be considered incidental to the completion of the work and no measurement or direct payment will be made therefore.

END OF SECTION

**SECTION 202
EXCAVATION, TRENCHING AND BACKFILL**

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. This section covers trenching and backfill requirements for buried gas, water and sewer piping systems, as well as electric and communication conduits.
- B. This section also covers requirements for excavation and for compaction of succeeding layers after backfill has been placed around pipe, electric conduits, communication conduits, under manholes, surrounding manholes, under vaults, surrounding vaults, beneath equipment bases where detailed in drawings, as well as backfill associated with structures to be abandoned in place.

1.2 RELATED WORK

- A. Section 301 Gas Systems
- B. Section 401 Underground Ductbank Systems
- C. Section 501 Sewer Systems
- D. Section 502 Sewer Manholes
- E. Section 601 Water Systems

1.3 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the general designation only.
- B. American Society for Testing and Materials (ASTM) Publications:
 - D - 1557 Moisture-Density Relations of Soils and Soil Aggregate Mixtures
 - D - 2419 Sand Equivalent Value of Soils and Fine Aggregate
 - D - 2487 Classification of Soils for Engineering Purposes
- C. State of New Mexico Excavation Law: Chapter 62, Article 14 NMSA 1978, 2001 Amendment, and all amendments in place at the time of construction.

1.4 QUALITY ASSURANCE

- A. Percentage of compaction specified shall be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted backfill material to the maximum dry density of the material as determined by the procedure set forth in ASTM Designation D1557 (Modified Proctor).

1.5 GENERAL REQUIREMENTS

A. EXISTING UTILITIES

- 1. The protection of active utility lines shown on the Plans or otherwise made known to the Contractor shall be the responsibility of the Contractor, prior to and during excavation. Active utility lines shown to be removed, retired, or abandoned in place shall be protected until the replacement utility lines are in place and ready to begin service or be otherwise activated. Any damaged utility shall be repaired or replaced

at the Contractor's expense. Potholing, as may be required to verify utility locations, shall also be the responsibility of the Contractor. Hand digging shall be performed at any time the excavation is within 18 inches of a live utility line per New Mexico Excavation Law. Contractor shall be responsible for contacting all utility companies and coordinating any work that requires relocation or abandonment of existing utilities.

2. Abandoned utility lines shall be cut and capped on both ends of the abandoned section.
3. If active utility lines are encountered and are not shown on the Plans or otherwise made known to the Contractor, promptly take necessary steps to assure no utility services are interrupted.
4. If any utility service is interrupted as a result of work under this section, immediately contact The Department of Public Utilities at 662-8333, or Police Dispatch at 662-8222, to restore service by repairing the damaged utility at Contractor's expense.
5. Existing utilities, whether or not shown on the drawings, and believed to interfere with the installation of permanent facilities being constructed under this contract, Contractor shall immediately send written notification to the Project Manager for direction.
6. Contractor shall not proceed with permanent repair or relocation of any existing utilities until written instructions are received from the Department of Public Utilities.

B. PROTECTION OF PERSONS & PROPERTY

1. Contractor shall install all necessary underpinning, shoring, lagging, cribbing, and bracing of ample strength to support adjoining soils, paving and structures. All such items shall be so constructed that they will not interfere with the building of any structural elements, and shall be removed upon completion of the work.
2. Contractor shall barricade open depressions and holes occurring as part of this work, and post warning lights on property adjacent to or with public access, all in compliance with County-approved traffic control plan.
3. Contractor shall protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by operations of Contractor.
4. Contractor shall install fences and barricades to secure the area from the public.
5. Contractor shall maintain access to areas adjacent to the project site(s) at all times.
6. Contractor shall maintain and/or replace all bench marks, monuments, construction stakes and other reference points. Any property boundary pins, survey monuments or survey benchmarks disturbed or damaged by the contractor shall be replaced at the expense of the contractor, by a surveyor licensed in the state of New Mexico.
7. Contractor shall repair or restore damage to any portion of the work resulting from movement of the sides or bottom of trenches or other excavation which is

attributable to the Contractor's acts or omissions, whether sides are braced or not.

C. SHORING

1. The Contractor shall be solely responsible for all bracing and shoring in compliance with all local, state and federal laws.

D. DEWATERING

1. Contractor shall remove all water, including rain water, encountered during trenching and substructure work to an approved location by pumps, drains, and other approved methods.
2. Contractor shall keep excavations and site construction area free from extraneous water.

E. DUST CONTROL:

1. Contractor shall use any and all means necessary to control dust on and near the work, and on and near off-site areas, if such dust is caused by the Contractor's operations during performance of the Work, or if resulting from the condition in which the Contractor leaves the site.
2. Thoroughly moistening surfaces as required to prevent dust from becoming a nuisance to the public, neighbors, and personnel performing other work on the site shall be the responsibility of the Contractor, throughout the construction period.

F. TRENCHING IN ROCK

Unless Trenching in Rock is specifically listed as a bid item, all trenching to be performed under this contract will be considered incidental to pipe, conduit, or ductbank installation. Excavation in Rock, as may be defined elsewhere in this contract, shall apply only to excavation other than trenching.

The Owner shall provide pertinent information to the contractor, following all appropriate subsoil investigations conducted on the project site, prior to project bidding. Contractor may, at contractor's expense, expand on the scope of such subsoil investigations.

Payment for trenching in rock shall be made in accordance with the specific bid item, and shall be adjusted only if quantities vary from those originally bid.

PART 2 PRODUCTS

2.1 BACKFILL MATERIALS

- A. Backfill Materials are those materials placed in the trench between the bedding material to the top of the trench or to below specified base course under roadways or those material used to fill excavations for subsurface structures. On-site native material used as backfill shall be select material free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, frozen, deleterious, or objectionable materials, free of stones or lumps exceeding 3 inches in greatest dimension satisfactory to the Project Manager.

- B. Soft, wet, plastic soils which may be expansive, clay soils having a natural in place water content in excess of 30%, soils containing more than 5% (by weight) fibrous organic materials, and soils having a plasticity index greater than 30 shall be considered unsuitable for use as backfill.
- C. In the event that native materials not meet the requirements specified for bedding material or backfill, or if the specified field compaction cannot be obtained, contractor shall import suitable material at no additional cost to the owner.
- D. The removal, hauling, and disposal of unsuitable material, such as rocks, pavement, concrete, demolished structures, debris, or other extraneous items shall be the responsibility of the Contractor, and shall be performed at no additional cost to the owner. Securing the site and coordinating with the respective agencies or disposal site owners shall also be the responsibility of the Contractor to do at no additional cost to the owner and in accordance with applicable environmental regulations.

2.2 PIPE BEDDING MATERIAL

- A. Pipe bedding, a minimum 4 inches below bottom of pipe and six inches above the top of the pipe shall be permeable material with a maximum particle size of 0.5 inches in any dimension, with no sharp rocks. Portion passing No. 200 sieve shall be 50% maximum. Contractor shall provide a submittal for bedding material for approval by the Project Manager, prior to installing such bedding material.

2.3 TRENCHES ON PAVED SURFACES

- A. Existing pavement surfaces shall be neatly saw-cut, removed and disposed of by Contractor in a lawful manner and at the Contractor's expense, as necessary for trenching operations to take place. Removed pavement or asphalt shall never be used as backfill. Paved surfaces shall be replaced upon backfilling the trench, in compliance with Los Alamos County Public Works Department Construction Standards. Asphalt and base course thickness shall be as detailed in plans, or at a minimum match existing concrete pavement or asphalt and base course section.

PART 3 EXECUTION

3.1 GENERAL TRENCHING AND EXCAVATING

- A. Trenches may be excavated either by hand, or by machine. Trenches shall be cut with vertical sides, and shall be of sufficient width to provide adequate space for working therein. When applicable such space shall have adequate clear distance when shoring is used, so that pipe can be properly placed and aligned in conformity with the plans. Trench sides shall be parallel to and at equal distance from the center-line of the pipe, when aligned as shown on drawings.
- B. Pipe trenches shall be excavated to a depth below the bottom of the pipe sufficient to provide for pipe bedding materials as required by Section 2.2.
- C. Where a trench has been excavated below the designed grade, the bottom of the trench shall be refilled to proper subgrade with approved material well compacted in place, in an approved manner.
- D. No more than 150 feet of trench shall be opened at any one time unless approved by the Project Manager.

- E. If practical, no trench or holes shall be left open overnight. Use steel plating to protect open trenches overnight.
- F. Excavation for thrust blocks shall be neat to the line and dimensions shown or called for on the plans.
- G. Provide for dewatering trenches and excavations and subsequent control of ground water, utilizing such pumps or other equipment as may be necessary to control ground water and seepage until backfilling is completed.
- H. The contractor shall remove and legally dispose of all excess excavated material and demolition debris.

3.2 GENERAL BEDDING

- A. Utilities shall be laid on a layer of firm bedding material, per section 2.2 A, not less than four (4) inches in depth as shown or as noted on the plans and detail drawings. Compact as specified herein.
- B. Upon completion of bedding operations and, prior to the installation of pipe or appurtenances, notify the Project Manager who will then inspect the bedding layer. Pipe laying shall not commence until the bedding has been approved. Upon completion of placement of 6" of bedding above pipe or conduit notify the Project Manager who will then inspect.

3.3 GENERAL BACKFILLING

- A. Backfill shall be as shown on the plans. Place in 8-inch maximum lifts. Bring up evenly on each side, and for the full length of the structure. Ensure that no damage is done to structures or protective coatings thereon. Compact each loose lift as specified in Paragraph "General Compaction" before placing the next lift. Where unacceptable settlements occur in trenches and pits due to improper compaction, excavate to the depth necessary to rectify the problem, then backfill and compact the excavation as specified herein and restore the surface to the required elevation.
- B. No backfill shall be placed until the line has been inspected and bedding approved.

3.4 GENERAL COMPACTION

- A. Use hand-operated plate type vibratory or other suitable hand tampers in areas not accessible to larger rollers or compactors. Contractor shall avoid damaging structures, pipes and protective pipe coatings. Compaction shall be in accordance with the following unless otherwise specified. If necessary, the Contractor's selected equipment and construction procedure shall be altered, changed or modified in order to meet the specified compaction requirements.
- B. Initial bedding shall be carefully packed under the haunches of the pipe and brought up simultaneously on both sides so as to prevent any displacement of the pipe from its true alignment. Backfill shall be compacted in layers not more than eight (8) inches in thickness in a manner that will preclude moving the pipe, to not less than 90%, and 95% within road right of ways, and as specified. Base course shall be compacted as required by roadway authority.
- C. Backfill above the bedding shall be placed in loose lifts not exceeding eight (8) inches in thickness before compaction, and compacted by the use of pneumatic tampers or other mechanical means approved. Water or dry, as required, to bring the soils as close as

practicable to the optimum moisture content for proper compaction. Compaction equipment or methods that produce horizontal or vertical earth pressures that may cause excessive displacement or may damage the pipeline will not be permitted.

- D. Backfill will be inspected during placement. Backfill not compacted in accordance with these specifications shall be recompact, or removed as necessary and replaced to meet specified requirements prior to proceeding with the work.
- E. Contractor is responsible for protection and maintenance of work during construction and until the project is accepted. The contractor will not be paid an additional amount for such work.
- F. Open excavations and backfilled trenches that have not been paved shall be protected from moisture that may sacrifice compaction or backfill quality. Base course or asphalt shall not be placed on subgrade or backfill that is visibly saturated. Saturated subgrade and backfill shall be removed, replaced, recompact per these specifications and demonstrated to be in conformance with these specifications by testing performed by an approved testing laboratory at the expense of the contractor. Frequency and location of this testing will be determined by the Project Manager.

3.5 GENERAL BRACING AND SHORING

- A. The Contractor shall furnish, place and maintain such bracing and shoring as may be required to support the sides of the excavations for the proper protection of workmen; to facilitate the work; and to prevent damage to or adversely affect adjacent structures, facilities, landscaping, or pavement.
- B. Upon completion of the work, all bracing and shoring shall be removed.

3.6 FIELD QUALITY CONTROL

- A. Compaction test are required to be performed by a qualified material testing Laboratory provided by the Contractor and at the expense of the Contractor, and test results shall be provided to the engineer directly from the laboratory.
- B. Definition of road prism in these specifications is all subsurface material directly below paving, sidewalk, curb, valley gutter, roadway islands, landscaping and bar ditches within a road right of way.
- C. Compaction requirements and test schedule:
 - 1. Trenches under road prism 95% compaction required for bedding and backfill. Minimum of one field density test for each compacted 12" layer of trench backfill for each 400 linear feet of trench.
 - 2. Trenches crossings under road prism 95% compaction required. Minimum of one field density test for each 12" compacted layer of trench backfill at each trench road crossing.
 - 3. Trenches not under road prism 90% compaction required. Minimum of one field density test for each 12" compacted layer of trench backfill for each trench less than 400 linear feet.

4. New manholes, pull boxes or vaults, 95% compaction required. Minimum of one field density test for each 12" compacted layer of backfill for each structure.
 5. Manhole bases, pull box bases, transformer pads, vault bases and switch pads 95% compaction required. Minimum of one field density test of prepared subgrade.
- D. If backfill has been placed, that is below the specified density, provide additional compaction with subsequent retesting until successful compaction is achieved at no cost to the owner.

3.7 DUST ALLEVIATION AND CONTROL

- A. Contractor shall be responsible for and shall provide pollution and dust abatement and control measures satisfactorily during the course of the work. Water trucks shall be equipped with a directional spray nozzle.

3.8 FINISH OPERATIONS

- A. Pipes shall be laid to finished grades indicated on the plans.
- B. Contractor shall dispose of all surplus material or material unsuitable for filling or grading off the site in a legal manner at no additional cost to the owner.
- C. Satisfactorily restore any existing improvements, paving, landscaping, and other utilities disturbed during the course of constructing the improvements.
- D. Existing traffic markings and control devices damaged or disturbed during construction shall be replaced or repaired to the satisfaction of the Project Manager.

END OF SECTION

**SECTION 205
ROCK AND BOULDER EXCAVATION**

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Furnish all labor, materials, equipment and incidentals required and excavate and dispose of rock and boulders.

1.2 RELATED WORK

- A. Section 202 Excavation, Trenching and Backfill

1.3 DEFINITIONS

- A. Rock: Any Large mass of stone, bedrock or ledge rock as determined by the Project Manager.
- B. Boulder: Stone or boulders greater than eight (8) cubic-feet in volume.
- C. Rock Excavation: The removal of solid rock or rock fragments greater than 1 cubic yard in volume which cannot be excavated with a standard backhoe, JD 410G or equivalent, with rock teeth, or which requires continuous, chemical expanders, jack hammering or other special procedures as determined by the Project Manager.
- D. Boulders: The removal of stone or boulders greater than eight (8) cubic-feet in volume shall be classified as rock excavation.

PART 2 EXECUTION

2.1 ROCK EXCAVATION

- A. Rock excavation may be performed by jack hammering, expansive chemical splitting, or other similar process.
- B. Blasting shall only be used as final viable option after all other options are tried and only with written authorization by the Owner.

2.2 BOULDER EXCAVATION

- A. Boulders and rock fragments may be reduced in size by rock excavation methods to simplify removal.

2.3 DISPOSAL OF ROCK AND BOULDERS

- A. Rock and boulders may be crushed and screened for reuse in the work, provided that the resultant materials meet the requirements for backfill as specified in Section 202 Excavation, Trenching and Backfill.
- B. Unused rock and boulders shall be removed and disposed of off-site in a legal manner.

END OF SECTION

SECTION 33 0601

WATER UTILITIES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Supplying all labor, materials, equipment, and incidentals required, install, flush and disinfect and test new water mains, fittings and apparatus as shown on the drawings and specified herein.

1.2 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification. The publications are referenced in the text by their general designation only.
- B. American Water Works Association (AWWA) Standards, latest publications.
- C.

1.3 QUALITY ASSURANCE

- A. Water mains and appurtenances shall be subject to hydrostatic tests.
- B. Water mains and appurtenances shall be properly disinfected prior to connection to existing system.
- C. Submit manufacturer's data on the pipe material, fittings, valves and service material in accordance with Section 01 0103 Submittals.
- D. As-built drawings with details including burial depth, pipe and fitting configuration, materials and lengths. The original design drawings are not to be submitted in the place of As-built drawings.
- E. The Project Manager may require manufacturer's certificates showing conformance with this specification for any of the pipe materials, fittings, valves and appurtenances delivered to the job site.

PART 2 - PRODUCTS

2.1 PIPE AND FITTING MATERIALS

- A. Water main pipe shall be as specified in plans:
 - 1. PVC, AWWA C900, DR-18, standard working pressure of 235-psi, push on bell end pipe. All gaskets of neoprene or other synthetic rubber per ASTM D412 and D395.



Department of Public Utilities

Electric, Gas, Water, and Wastewater Services

DEPARTMENT OF PUBLIC UTILITIES
PVC AND DUCTILE IRON PIPE HYDROSTATIC TEST REPORT

PROJECT NAME: _____

CONTRACTOR: _____

LOCATION: _____

DATE: _____

OBSERVER: _____

PIPE DESCRIPTION

Table with 3 columns: MATERIAL, DIAMETER (INCHES), LENGTH (FEET). Rows for SEGMENT NO. 1, 2*, and 3*.

* Only applies when there are segments of different size pipes being tested.

TEST PRESSURE

PRESSURE: _____

LEAKAGE

ALLOWABLE LEAKAGE FORMULA**: _____

ALLOWABLE LEAKAGE**: _____

ACTUAL LEAKAGE: _____

** PVC pipe from AWWA C605-05 / Ductile iron pipe from AWWA C600-05.

TIME (2 HOUR TEST)

BEGIN TEST: _____

PASSED: _____

END TEST: _____

FAILED: _____

NOTES:

SECTION 33 05 23.16

TRENCHLESS UTILITY INSTALLATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavation for approach trenches and pits.
 - 2. Casing pipe.
 - 3. Carrier pipe.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Jacked Pipe:
 - 1. Basis of Measurement: By linear foot measured on invert of jacked pipe from face to face of jacked pipe.
 - 2. Basis of Payment: Includes excavation, jacked pipe, grout, spacers, accessories, tests, and backfill.

1.3 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M133 - Standard Specification for Preservatives and Pressure Treatment Processes for Timber.
 - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. American Railway Engineering and Maintenance-of-Way Association:
 - 1. AREMA - Manual for Railway Engineering.
- C. ASTM International:
 - 1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 3. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 - 4. ASTM A449 - Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated 120/105/90 ksi minimum tensile strength General Use.
 - 5. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - 6. ASTM C33 - Standard Specification for Concrete Aggregates.
 - 7. ASTM C150 - Standard Specification for Portland Cement.
 - 8. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
 - 9. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³).

10. ASTM D1557 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (6,000 ft-lbf/ft³).
 11. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 12. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
- D. American Wood-Preservers’ Association:
1. AWWA C1 - All Timber Products - Preservative Treatment by Pressure Process.
 2. AWWA C3 - Piles - Preservative Treatment by Pressure Process.
- E. American Welding Society:
1. AWS D1.1 - Structural Welding Code - Steel.
- F. National Utility Contractors Association:
1. NUCA - Pipe Jacking & Microtunneling Design Guide.
 2. NUCA - Trenchless Excavation Construction Equipment & Methods Manual.

1.4 DESIGN REQUIREMENTS

- A. Design casing pipe and tunnel liner joints of leak proof construction. Design for earth and/or other pressures present plus highway H20 loading or railway E80 loading with associated recommended impact loading.
1. Highway Crossings: Design tunnel for earth and/or other pressure loads present, plus AASHTO H20 live loading.
 2. Railroad Crossings: Design tunnel for earth and/or other pressure loads present, plus railroad E80 live loading with 50 percent added for impact.
- B. Design bracing, backstops, and use jacks of sufficient rating for continuous jacking without stoppage, except for adding pipe sections and as conditions permit, to minimize tendency of ground material to "freeze" around casing pipe.
- C. Design steel tunnel lining in accordance with AREMA Manual for Railway Engineering, Section 4.15.5.

1.5 SUBMITTALS

- A. Installation Plan: Submit description of proposed construction plan, dewatering plan, and plan to establish and maintain vertical and horizontal alignment.
- B. Submit New Mexico Department of Transportation (NMDOT) occupancy permit for installations along or under public thoroughways and lands, if not already obtained by the Engineer.
- C. Submit emergency response procedures to handle situations when conduit is compromised and jeopardizes integrity of installation or safety.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of casing or tunnel liner, carrier pipe, and invert elevations.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with applicable New Mexico state standards, NUCA Trenchless Excavation Construction Equipment & Methods Manual, NUCA Pipe Jacking & Microtunneling Design Guide, AREMA guidelines.
- B. When boring, jacking or tunneling under State or Municipality highways and railroads, make application for and obtain occupancy permit.

1.8 QUALIFICATIONS

- A. Installer: Company specializing in performing work of this section with minimum 3 years documented experience.
 - 1. Work Experience: Include projects of similar magnitude and conditions.
 - 2. Furnish list of references upon request.

1.9 PRE-INSTALLATION MEETINGS

- A. Administrative Requirements: Pre-Construction Conference.
- B. Convene minimum one week prior to commencing work of this section.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Product Requirements: Requirements for delivering, handling, storing, and protecting products.
- B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- C. Protect piping system pieces from entry of foreign materials and water by temporary covers, completing sections of work, and isolating parts of completed system.
- D. Accept system components on site in manufacturer’s original containers or configuration. Inspect for damage.
- E. Use wooden shipping braces between layers of stacked pipe. Stack piping lengths no more than 3 layers high.
- F. Store field joint materials indoors in dry area in original shipping containers. Maintain storage temperature of 60 to 85 degrees F.

- G. Support casing and carrier pipes with nylon slings during handling.

1.11 ENVIRONMENTAL REQUIREMENTS

- A. Product Requirements: Environmental conditions affecting products on site.
- B. Conduct operations so as not to interfere with, interrupt, damage, destroy, or endanger integrity of surface or subsurface structures or utilities, and landscape in immediate or adjacent areas.

1.12 FIELD MEASUREMENTS

- A. Verify invert elevations prior to excavation and installation of casing.

1.13 COORDINATION

- A. Administrative Requirements: Requirements for coordination.
- B. Coordinate work with NMDOT, local Municipal Public Works Department (if applicable), and utilities within construction area.

PART 2 PRODUCTS

2.1 CASING AND JACKING PIPE MATERIALS

- A. Furnish materials in accordance with New Mexico state standards.
- B. Steel Casing Pipe: ASTM A53/A53M, 35,000-psi minimum yield strength, casing diameter and minimum wall thickness as indicated on Drawings. Full circumference welded joints in accordance with AWS D1.1 to withstand excavation forces.

2.2 CARRIER PIPE MATERIALS

- A. Water Utility Distribution System Piping.

2.3 COVER MATERIALS

- A. Soil Backfill for Trench Approaches and Pits to Finish Grade: Subsoil with no rocks over 6 inches in diameter, frozen earth or foreign matter.

2.4 ACCESSORIES

- A. Pipe Casing End Seals: Seamless, vulcanized edge, pull-on casing end seals composed of a minimum 1/8” thick 60 durometer synthetic neoprene rubber. Includes 1/2” wide T304 stainless steel bandings with 100% non-magnetic worm gear mechanism.
- B. Pipe Casing Spacers: Constructed of heavy duty, two piece, 8” wide 14-gauge stainless steel bands, or hot rolled 14-gauge circular carbon steel with thermoplastic powder coating

for extra corrosion protection, as identified on the Drawings or on the Bid Form. Bands bolt together to form a shell around the carrier pipe, with 10-gauge stainless steel or carbon steel risers (material to match bands) and glass filled polymer runners to support the carrier pipe within the casing pipe maintaining a minimum clearance of 1” between the casing ID and the spacer OD.

- C. Pressure Grout Mix: One part portland cement, and 6 parts mortar sand mixed with water to consistency applicable for pressure grouting.
- D. Mortar Sand: ASTM C404.
- E. Portland Cement: ASTM C150, Type I.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Administrative Requirements: Verification of existing conditions before starting work.
- B. Verify connection to existing piping system size, location, and invert elevations are in accordance with Drawings.

3.2 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.

3.3 DEWATERING

- A. Intercept and divert surface drainage precipitation and groundwater away from excavation through use of dikes, curb walls, ditches, pipes, sumps or other means.
- B. Develop substantially dry subgrade for prosecution of subsequent operations.
- C. Comply with New Mexico state standards and requirements for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.

3.4 EXISTING WORK

- A. Maintain access to existing community facilities and homes as well as other remaining active installations requiring access. Modify installation as necessary to maintain access.

3.5 PITS OR APPROACH TRENCHES

- A. Excavate approach trenches or pits in accordance with installation plan and as site conditions require.
- B. Ensure casing entrance face as near perpendicular to alignment as conditions permit.

- C. Establish vertical entrance face at least 1 foot above top of casing.
- D. Install dewatering measures and excavation supports.

3.6 CASING PIPE INSTALLATION

- A. Boring:
 - 1. Push pipe into ground with boring auger rotating within pipe to remove spoil. Do not advance cutting head ahead of casing pipe except for distance necessary to permit cutting teeth to cut clearance for pipe. Arrange machine bore and cutting head to be removable from within pipe. Arrange face of cutting head to provide barrier to free flow of soft material.
 - 2. When unstable soil is encountered during boring retract cutting head into casing to permit balance between pushing pressure and ratio of pipe advancement to quantity of soil.
 - 3. When voids develop greater than outside diameter of pipe by approximately one inch, grout to fill voids.
 - 4. When boring is obstructed, relocate, jack, or tunnel as directed by Engineer.
- B. Jacking
 - 1. Construct adequate thrust wall normal to proposed line of thrust.
 - 2. Impart thrust load to pipe through suitable thrust ring sufficiently rigid to ensure uniform distribution of thrust load on full pipe circumference.

3.7 PRESSURE GROUTING

- A. Pressure grout annular space between casing pipe and surrounding earth.

3.8 CARRIER PIPE INSTALLATION

- A. Clean, inspect, and handle pipe in accordance with AWWA standards.
- B. Place carrier pipe in a manner that exercise care to prevent damage to pipe joints when carrier pipe is placed in casing.
- C. Support pipeline within casing on spacers at intervals identified on Drawings or according to manufacturer’s instructions if interval is not identified on Drawings, so no external loads are transmitted to carrier pipe. Attach supports to barrel of carrier pipe; do not rest carrier pipe on bells.
- D. Install pipe casing end seals at ends of casing.

3.9 TOLERANCES

- A. Do not over cut excavation by more than 1 inch greater than outside diameter of casing pipe.
- B. Install casing pipe to vertical and horizontal alignment on Drawings within plus or minus 3 inches prior to installation of carrier pipe.

- C. Install pipe bells with minimum ½-inch clearance to casing.

3.10 FIELD QUALITY CONTROL

- A. Execution Requirements: Testing, adjusting, and balancing.
- B. Compaction Testing.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

3.11 MANUFACTURER'S FIELD SERVICES

- A. Quality Requirements: Requirements for manufacturer’s field services.
- B. Furnish field technical assistance during following periods of casing installation:
 - 1. Unloading of casing materials and components.
 - 2. Prior to commencing excavation and during excavation as requested.

3.12 REMOVAL OF FACILITIES AND CONTROLS

- A. Remove temporary facilities for casing installation and jacking operations.

END OF SECTION