

07-01

**ROGERS WATER UTILITIES
ROGERS, ARKANSAS**

**SPECIFICATIONS FOR
EXCAVATION/TRENCHING
REVISED NOVEMBER 2006**

1. **SCOPE**

This specification governs the excavation/trenching for water mains, water services, sanitary sewer mains, sanitary sewer services, force mains, sanitary sewer manholes, wet wells and other structures, unless otherwise noted on the project construction plans. The work shall include all necessary drainage, dewatering, pumping, bailing, timber bracing, sheeting, trench shoring boxes, manhole shoring boxes and incidental construction. All existing utilities and structures shall be protected from damage during the excavation/trenching operation and if damaged, the Contractor at his expense will be responsible for repair to the damaged existing utility and/or structures. Unless otherwise shown on the project construction plans and/or contract documents, all excavation/trenching shall be unclassified and shall include all materials encountered regardless of their nature and manner in which they are removed, to include rock, stone, organic material or what ever material is encountered.

2. **EXCAVATION OR TRENCH SAFETY SYSTEMS**

All excavation/trenching, including the manner of supporting excavation/trenching and provision for access into the excavations, shall comply with the most recent provisions of 29 CFR 1926, Subpart P – Excavations, Trenching and Shoring of the Occupational Safety and Health Administration (OSHA) and is hereby incorporated into these Specifications. The Contractor shall comply with the OSHA provisions of said documents for all excavations/trenching.

3. **GENERAL**

- a. The excavation/trench depth for all water mains, water services, sanitary sewer mains, sanitary sewer services and force mains shall be excavated to at least 4 inches below the pipe grade line as shown on the project construction plans.
- b. The excavation/trench depth for 4 foot diameter sanitary sewer manholes shall be excavated to at least 8 inches below pipe grade line and 6 foot diameter sanitary sewer manholes shall be excavated to at least 12 inches below pipe grade line as shown on the project construction plans. Wet wells and other structures shall be excavated to the foundation grade as shown on the project construction plans.

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- c. All excavation/trenching below the established grade line shown on the project construction plans such as over-excavation and bore/receiving pits (working pits) shall be backfilled with granular material as specified in Section 04-03 Pipe Bedding Material per the RWU specification.
- d. RWU shall have the right to limit the amount of trench excavated in advance of the pipe laying. In general, such trenching shall not exceed 400 feet.
- e. The Contractor is prohibited from using continuous trenching machines in the construction of sanitary sewer mains, force mains and water mains with the exception of trench rock excavation.
- f. The Contractor shall furnish and maintain street plates, barricades and other safety devices as required by local, state and federal permits/ordinances around open excavations to safeguard traffic and pedestrians. The temporary suspension of work does not relieve the Contractor from the responsibility for the above requirements.
- g. Safety on the construction project is the sole responsibility of the Contractor.

4. **EXCAVATION/TRENCHING**

- a. GENERAL: Prior to the start of excavation, the Contractor shall physically locate vertically and horizontally by excavation all existing, potentially conflicting utilities and structures that are shown crossing and/or paralleling proposed water main, water services, sanitary sewer mains, sanitary sewer services and force mains. If a potential conflict exists, the Contractor shall notify the Engineer with measurements, dimensions, elevations, type and size of existing utility and/or structures in order to determine the proper resolution of the conflict. RWU personnel must approve all resolutions of conflicts by the Engineer.

Whenever existing utilities and/or structures that are not shown on the project construction plans are encountered during the progress of the work and interfere to such an extent that an alteration to the project construction plans is required, the Engineer shall have the authority to change the project construction plans and order a deviation from the pipe alignment and grade line only after the approval of the change by RWU personnel. The Engineer may also arrange with the owners of the existing utilities and/or structures in conflict for the removal, relocation or reconstruction of the obstruction.

The Contractor without additional compensation shall furnish temporary support, adequate protection and maintenance of all underground and surface utilities and/or structures encountered in the progress of work. The Contractor shall be

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held responsible for the repair existing utilities and/or structures that are broken or otherwise damaged during the progress of work.

- b. EXCAVATION/TRENCH WIDTH: Excavation for pipe, manholes and other structures shall have a minimum of 12 inches and a maximum 24 inches clearance on all sides. Trenches shall have vertical sides from a point 6 inches above the outside top of the pipe to the bottom of the trench, with a width within the limits shown on the RWU standard details. Additional excavation, bedding and backfill materials required for compliance with OSHA regulations is considered incidental to the cost of the construction project.
- c. EXCAVATION/TRENCH SIDEWALLS: All excavation/trench sidewalls shall be sloped, benched, braced, shored or sheeted to assure safe working conditions and to prevent cave-ins. All excavation/trench operations including sloping or benching of the excavation/trench sidewalls and stockpiling of excavated materials shall be confined to the width of the utility easement and/or right-of-way plus any temporary construction easement.
- d. DE-WATERING: All excavation/trenching shall be dewatered before any construction is undertaken therein. All pipes shall be laid in dry trenches and all concrete shall be placed only upon dry and firm foundation material. The Contractor shall furnish and maintain adequate equipment to properly remove and dispose of all water entering the excavation/trench or other part of work.

The discharge from any excavation/trenching operations shall be conducted to natural drainage channels or other structures as approved by the Engineer and in accordance with applicable permits. The Contractor shall be responsible for damage of any nature resulting from the de-watering operation.

Should de-watering of the excavation/trench prove unsuccessful, the trench or structure foundation shall be excavated to a depth of approximately 6 inch below grade. It shall then be backfilled to grade with granular material as specified in Section 04-03 Pipe Bedding Material per the RWU specification. A sump, approximately 6 inches below the granular material, shall be formed to provide a place for a pump to take suction and thus lower the water level to a point below the bottoms of the pipe joints or structure foundation. The pumping shall be continued until the pipe or concrete has been placed and the presence of water will not injure them. Backfill shall not commence until the excavation/trench has been de-watered.

- e. OVER-EXCAVATION: If the soil at the bottom of the excavation/trench and/or structure foundation is unsuitable material and in such condition that it cannot

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be properly shaped and graded, the excavation/trench depth shall be excavated to firm soil or to a depth determined by the Engineer. RWU personnel must also approve the excavation/trench depth that is determined by the Engineer.

- f. **BLASTING:** In the event the use of explosives (blasting) is necessary for the efficient prosecution of the work, the Contractor shall notify the Engineer and RWU personnel in advance of their use, in writing. The Contractor shall exercise every precaution to protect work, neighboring property and existing utilities and/or structures. The Contractor shall hold a current blasting certification and adhere to all requirements of Code No. 13-Blasting Regulations of the State of Arkansas Department of Labor.

Any damage to property resulting from blasting shall be the liability of the Contractor. Any observation of this project by RWU personnel does not in any way reduce the responsibility of the Contractor for damage resulting in the use of explosives.

The Contractor shall provide, 48 hours prior to the time of blasting, written notification (certified letter) to each property resident/owner and each utility that is located within 1,000 feet to the site of the blasting operation. The Contractor shall provide the certified letter receipts to the Engineer.

5. **STOCKPILE OF EXCAVATED MATERIAL**

Excavated material that is suitable for backfill shall be stockpiled in an orderly manner at a sufficient distance from the banks of the excavation/trench to avoid overloading and to prevent slides or cave-ins.

6. **DISPOSAL OF EXCAVATED MATERIAL**

Any excess excavated material, not utilized after all fill requirements have been met, shall become the responsibility of the Contractor. The Contractor shall dispose of it by hauling and wasting outside the limits watercourses, in conformity with pertinent City, County, State and Federal permits.