

Subsection 4.01
Utility Construction in City of Amarillo
Right-of-Way and Easements

I. Scope: This subsection contains the required methods and materials for utility construction in streets, alleys, easements, and other public right-of-ways. This item applies to excavations, trenches, and surface restorations for utility extensions, connections, conduit placement, utility repair, and other utility construction within City Right of Way.

In the remaining portions of this subsection, Contractor is used to describe the independent Contractor, the City Department, or utility company franchised by the City of Amarillo that is performing the particular utility construction.

II. Material

A. Backfill

1. Excavated material from the utility installation without any debris, such as used concrete, hot mix, lumber or other foreign material.
2. Sand that meets the gradation for fine aggregate in Subsection 4.07 "Concrete".
3. Other granular material approved by the Engineer.
4. Controlled Low Strength Material (Flowable Fill).
 - a) Aggregate shall meet the requirements of Table 1. Gradation shall be determined in accordance with Tex-401-A. Plasticity Index (PI) shall not exceed 6 when tested in accordance with Tex-106-E.

Table 1
Aggregate Gradation

Sieve Size	Percent Passing
¾ inch	100
#200	0-30

Furnish flowable fill meeting the requirements of Table 2.

Table 2
Flowable Fill Mix Design Requirements.

Property	Requirement	Test Method
28 day compressive strength ¹ , psi	50-150	ASTM D 4832
Consistency ² , min diameter, inches	8	ASTM D 6103
Unit weight, pcf	90-125	ASTM D 6023
Air Content, %	10-30	ASTM D 6023

¹ Average of 2 Specimens.

² Mixture must not segregate.

Mix the flowable fill using a central mixed plant and deliver using a ready mix concrete truck, unless otherwise approved.

5. Water: Water usage shall conform to Subsection 3.04 "Requirements for Water Usage."

B. Trench Cap

1. Portland Cement Concrete: Concrete shall conform to Subsection 4.07, "Concrete." Concrete shall be 3000 psi concrete.

2. Flexible Base: Flexible base shall conform to Subsection 4.05 "Flexible Base".

C. Surface

1. Asphaltic Concrete (hot-mix): Asphaltic Concrete shall conform to Subsection 4.16 "Dense-Graded Hot-Mix Asphalt." Hot mix shall be Ty D unless otherwise approved.

2. Asphaltic Concrete (cold-mix): Cold mix shall conform to Subsection 4.18 "Hot-Mix Cold Laid Asphaltic Concrete." Asphaltic concrete (cold-mix) shall be used only for temporary repair and not for a final surface.

D. Joint Material: The joint material shall conform to Subsection 4.29 "Cleaning and Sealing Joints and Cracks"

III. Equipment: The Contractor shall provide the appropriate equipment that conforms to the appropriate Subsection.

IV. Construction Requirements

A. Right of Way, Utility Cut Permit: Prior to a Contractor, City Department, or utility franchised by the City cutting, boring, breaking, excavating, or making any hole, opening, ditch, displacement, depression or impairment in any dedicated public right-of-way or easement, an application for a permit must be made to the Street Superintendent for service lines. Extension of main lines must be submitted to the City Engineer. The permit requires repair and surface restoration of the right-of-way in accordance with these specifications. No work shall begin until the permit is approved. In case of emergencies, excavations shall be reported to the Street Superintendent or the Engineer and the permit process started within 24 hours or the next working day after the excavation has been made.

If the required construction is being done according to current development agreement and in accordance with development plans, agreements, no permit is required. The Contractor, a party to a private paving agreement, shall notify the Street Superintendent of the project location(s).

Applicable sections of Chapter 4-6, Platting and Subdivision Improvement and Maintenance of the Amarillo Municipal Code shall apply also.

B. Time Limits and Other Requirements by Location

1. Alleys and Residential Streets

a) Paved and Improved surfaces: The trench shall be backfilled within 2 calendar days of completion of the utility work. Excess material excavated cannot be spread out along the alley, this material must be removed from the site.

The concrete for the trench cap shall be placed within 3 calendar days of trench backfill being complete. Flow fill from the service line to the top 2 inches of cut may be placed in lieu of the concrete cap.

The final surface shall be placed within 3 calendar days of the trench cap being placed. Asphaltic surface cannot be placed sooner than 24 hours after placement of concrete cap.

b) Natural surface: The trench shall be backfilled within 2 calendar days of completion of utility work. The top 8 inches of the backfill shall be at least equal in composition and density to the adjacent native material.

2. Collector Streets

a) Paved and improved surfaces: The trench shall be backfilled within 2 calendar days of completion of utility work.

The concrete for the trench cap shall be placed within 2 calendar days of trench backfill being complete. Flow fill from the service line to the top 2 inches of cut may be placed in lieu of the concrete cap.

The final surface shall be placed within 3 calendar days of trench cap being placed.

b) Natural surface: The trench shall be backfilled within 2 calendar days of completion of utility work. The top 8 inches of the backfill shall be at least equal in composition and density to the adjacent native material.

3. Arterial Streets

a) Paved and improved surfaces: The trench shall be backfilled within 24 hours of completion of utility work.

The trench cap shall be placed within 2 calendar days of trench backfill being complete. Concrete compressive strength shall be more than 3000 pounds per square inch in 2 calendar days. Flow fill from the service line to the top 2 inches of cut may be placed in lieu of the concrete cap.

The final surface shall be placed within 3 calendar days of trench cap being placed. Asphaltic concrete (hot-mix) may be placed when the air temperature is above 32°F. and expected to rise above 40°F. for at least 4 hours and the temperature of the underlying surface is above 32°F.

b) Natural surface: The trench shall be backfilled within 2 calendar days of completion of utility work. The top 8 inches of the backfill shall be constructed at least equal in composition and density to the adjacent native material.

4. Other Requirements: The construction time limits for excavation, backfill, and paving restoration are applicable to individual segments such as a city block of a new subdivision, a capital improvement project, or an isolated utility installation.

5. Temporary Surface Condition Repairs: Any asphaltic or Portland cement concrete placed during weather conditions that does not meet these specifications whether inadvertently or as directed on an emergency basis by the Street Superintendent or the Engineer shall be removed and properly replaced during acceptable weather conditions. Temporary pavement will have to be approved. The required trench cap may be constructed of compacted flexible base of a greater depth during temporary pavement restoration for alleys and residential streets. Collector and arterial streets will be plated. Permanent repairs need to be done as soon as possible.

All final surfaces shall remain to grade for one year from project acceptance. The Contractor shall correct any settlement which occurs during the maintenance warranty period.

6. Exceptions: When the utility installation includes participation by any City of Amarillo Department, the time limits shall be set on a project by project basis. The Street Superintendent and the respective City of Amarillo Department representative shall determine the time limits.

C. Existing Pavement Removal

1. Asphaltic Concrete Removal: Prior to removal, a smooth vertical joint shall be cut full depth and completely around the area to be removed. The joint shall be made with an acceptable tool. The pavement shall be cut back in a straight line at least 6 inches from the furthestmost point of excavation, shearing, caving, or removal of any other cause on each side of the ditch.

2. Portland Cement Concrete Removal: Prior to removal, a vertical joint shall be neatly sawed completely around the area to be removed. The pavement shall be cut back in a straight line at least 6 inches from the furthestmost point of excavation, shearing, caving, or removal of any other cause on each side of the ditch. The cut shall be deep enough to insure a smooth joint when the concrete is removed.

3. **Brick and Paver Removal:** Brick and pavers shall be removed and replaced as detailed in Subsection 4.21 "Brick Paving and Repair."
4. **Utility Trench Excavation:** The Contractor shall provide equipment and shoring materials that conform to Subsection 5.05 "Trench Protection." Proceed without interruption and prevent damage to existing facilities. Pipe, cable, conduit and other carriers shall be installed to prevent traffic interruption.

Excavated material shall be properly handled and temporarily stored without undue effect on adjacent property or the right-of-way.

Where utility excavation is near adjacent facilities and structures, the Contractor shall support and protect such facilities. When services, poles, guy wires, pipe lines or other obstructions are to be moved, the Contractor shall cooperate with the utility owner. When existing structures or utilities are damaged during construction, the Contractor shall restore the facilities to their original condition.

The maximum allowable trench width shall be the pipe outside diameter plus 24 inches. The trench walls shall be vertical, unless other excavation methods are approved prior to start of work.

- D. **Utility Installation:** The Contractor shall provide equipment, labor and material as required by the appropriate utility company or City of Amarillo Department and its specifications for the proper installation.
- E. **Utility Trench Backfilling:** Backfilling shall be accomplished by one of the following methods. The Street Superintendent or City Engineer shall approve what backfilling method shall be used prior to any project construction. The Contractor or appropriate City of Amarillo Department project representative shall contact the Street Superintendent or City Engineer prior to construction or design.

1. Excavated or imported material shall be placed in the trench in uniform layers of 8 inches or less. Each layer shall be compacted to the adjacent undisturbed soil density.
2. Sand shall be placed in the trench in uniform layers of 8 inches or less and properly compacted. Sand backfill will be limited to a maximum of 5 foot.
3. Sand or excavated material shall be placed in the trench and water jetted until trench settlement is complete. Sand backfill will be limited to a maximum of 5 foot.
4. Flowable fill in accordance with section 4.01.II.A.4. (Preferred method)

F. Pavement Restoration: Where existing pavement is cut for any utility installation, it shall be cut in a straight line at least 6 inches from the furthestmost point of excavation, shearing, caving, or removal of any other cause on all sides of the construction. The excavation shall be thoroughly compacted to original subgrade. A 6 inch thick concrete cap shall be installed on the compacted backfill spanning the excavation by at least 6 inches on each side, unless flowable fill is used. Concrete compressive strengths for the shorter time to completion requirements may be obtained by adding calcium chloride to the original mix design, substituting Type II cement with Type III cement or substituting the concrete with an acceptable rapid concrete repair material. One course of 6 inch x 6 inch No. 6 welded wire fabric meeting the requirements of Subsection 4.12 "Reinforcing Steel," shall be placed 1 inch above the bottom of the cap for the entire area. The cap shall be overlaid with the 2 inches of hot mix on paved surfaces.

When a utility trench width is excessive or under special project circumstances, the compacted backfill may be overlaid with 8 inches of compacted flexible base. This substitution of the flexible base for the trench cap shall be approved by the Street Superintendent and the project representative. The flexible base shall be overlaid with the designated material for the final surface. Narrow trenches must be flow filled or water jetted.

Where natural or improved surface right-of-ways are scheduled for pavement by current developmental agreements or capital improvement projects, the appropriate paved surface specifications apply. The approved type of backfill material and its installation method for the utility excavation shall determine if a concrete trench cap is required. No final surface may be placed until the Street Superintendent or the Engineer has approved the utility excavation backfill and intermediate surface.

The joint between the new asphaltic concrete and the existing pavement shall be filled with a compatible joint sealing material.

The ambient air temperature requirements during concrete (asphaltic and Portland) placement shall not prevent any temporary repairs as needed in unusual situations and weather conditions. When the wind chill factor effectively reduces the ambient air temperature more than 15°F, permanent surface restoration construction shall cease and the utility cut properly barricaded until weather conditions improve. If weather conditions continue to be unacceptable for an extended period, temporary surface restoration shall be done. Conditions requiring temporary repairs shall be as determined by the Street Superintendent or the Engineer.

The trench cap shall be maintained until the final surface is placed. The utility Contractor, utility company, and utility cut Contractor shall determine who is responsible for the trench cap prior to trench excavation. Any adjacent pavement failure attributable to the trench cap allowing to be exposed too long shall be repaired by the Contractor at his expense.

G. Surface Restoration Other Than Pavement

- 1. Natural surface restoration:** Where the natural surface was soil, sod, ground cover, decorative vegetation, or other landscape improvements, the Contractor shall replace the material to its original condition before project acceptance. Natural surface restoration in vehicle traveled locations is using the existing soil to restore the right-of-way to its original condition.
- 2. Improved surface restoration:** Where the improved surface was sidewalk, paving stones, driveway, or other improved surface, the Contractor shall replace the surface to its original condition before project acceptance. Improved surface restoration in vehicle traveled locations uses the existing stabilized material, flexible base or gravel to restore the right-of-way to its previous condition.

H. Construction Inspection: The City Engineer or his authorized representative shall inspect all pavement related work for utility construction in City of Amarillo right-of-way and/or easements.

I. Other Utility Placement Methods: The City Engineer or his authorized representative shall approve any tunneling, boring, or jacking method in any City of Amarillo right-of-ways or easements prior to the Contractor beginning work. This work shall comply with Subsection 10.05 "Jacking, Boring or Tunneling Pipe."

Mud formed in boring operations shall be used to fill voids around any pipe or casing in a bored excavation.

All pits or trenches needed to facilitate this work shall be excavated outside the traveled portions of the right-of-way. All pits or trenches shall be backfilled immediately after the pipe is in place.

J. Contractor Construction Responsibility: All pavement, curb and gutter, sidewalk, driveways, foliage, fences or other property improvement broken or damaged during construction whether within the work area, adjacent right-of-way, or private property shall be removed and replaced by the Contractor at his expense. In replacing damaged concrete, the Contractor shall tie to the next full and complete joint. The replaced pavement, concrete trench cap, and flexible base shall conform to these specifications. The Contractor shall maintain all surfaces until final acceptance.

The Contractor shall maintain the pavement restoration from initial backfill through final paving. When temporary repairs are required by the Street Superintendent or Engineer, the Contractor shall furnish and place the appropriate material to backfill the utility cut. When temporary repairs are furnished by the Street Department, the Contractor shall be charged for the services and material provided.

K. Contractor Traffic Control Responsibility: The Contractor shall have an approved traffic control plan for each project by the City of Amarillo Traffic Engineer. The Contractor shall furnish, place, erect, and maintain barricades, construction signs, and other required traffic safety devices for protection of public and private property at the project site. The cost of all traffic control plan maintenance by the City of Amarillo shall be reimbursed by the Contractor.

The Contractor must request that the Traffic Engineer to close any street for construction. After approval the Contractor shall notify all the City Departments involved. The Contractor shall also notify all emergency services when the street will be closed and when it will be opened. The Contractor shall request permission from the Street Superintendent to deviate from the announced street closing times.

All proposed detours shall be approved by the Traffic Engineer prior to any construction. The Contractor may request the Traffic Engineering Department to design the detour. If the detour includes any dirt or improved surface streets, the Contractor shall provide proper dust control and passable surfaces during inclement weather. The Contractor shall maintain the detours to the satisfaction of the Street Superintendent or Engineer.

V. Measurement

If the utility construction is a part of a capital improvement project for the City of Amarillo, the particular bid documents and their specifications shall determine the work to be measured for payment.

If the utility construction is part of franchised utility improvements, the work will not be measured for payment.

If the utility construction is a City of Amarillo improvement project, the work will not be measured for payment.

VI. Payment: If measured for payment, the construction shall be paid for at the specified unit price provided by the Contractor in his proposal.

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