

CITY OF ODESSA
STANDARD SPECIFICATIONS

ITEM 100
EXCAVATION, TRENCHING, BACKFILLING AND SURFACING FOR
UTILITY SYSTEMS AND STRUCTURES

100.1 DESCRIPTION

This item shall include the furnishing of all materials, equipment, and labor for excavation, trenching, backfilling, and surfacing for utility systems in whatever material is encountered. "Utility Systems" shall include underground piping, appurtenances, and structures of water distribution systems, sewage collection systems, storm water drains, and for gas, gasoline, and oil collection or distribution systems.

100.2 CLASSIFICATION

All excavation and trenching shall be "unclassified excavation" regardless of the material encountered or method of removal.

100.3 CONSTRUCTION METHODS

Excavation and trenching shall be done in whatever material is encountered in accordance with the lines and grades, depths and/or surfaces indicated on the plans, or established by the Engineer. Excavation for structures, manholes and other appurtenances shall have a 12" minimum clearance on all sides. Excavation shall not be carried below the established grade unless so directed. The Contractor, at his own expense, shall backfill with earth, sand, gravel, or concrete any unauthorized excavation carried below grade and shall thoroughly compact such backfill as directed.

Unstable soil shall be removed below grade and replaced with gravel, crushed stone, or crushed caliche, and thoroughly compacted. Removal of unstable material will not be paid for.

Water accumulated in excavation or trench shall be removed by pumping, bailing, or other approved methods. No pumping or bailing will be permitted during the placing of concrete, or for a period of at least 24 hours thereafter, unless it is done from a suitable sump separated from the concrete work by a watertight wall.

Trenches shall be of sufficient width and depth to provide adequate room for the construction or installation of the work to the lines, grades, and dimensions called for by the plans. Trenches for pipe sewers shall have widths at the springline of the pipe that will provide a minimum clearance of 6" between the outside of the pipe and the side of the trench. The trench must be of sufficient width to allow adequate room for installation and inspection of the joints around the entire

circumference of the pipe. The bottom of the trench shall provide a firm and uniform bearing on undisturbed soil.

Unauthorized excavation below grade shall be backfilled with thoroughly compacted soil, gravel or Class D concrete, as directed by the Engineer at no additional cost to the City. Bell holes shall be excavated accurately to size by hand so as to provide all bearing on pipe barrels and clearance around bells. Trenches in rock shall be carried 6" below the bottom of the pipe and then shall be backfilled to the proper grade with thoroughly compacted sand, earth, or other approved material. Bell holes and bedding shall then be dug as in dirt excavation. This 6" undercut will not be paid for as "additional rock excavation".

The Contractor shall provide all bracing, sheeting, and shoring necessary to perform and protect all excavation and trenches as indicated on the plans, as required for safety, as directed by the Engineer, or to conform to governing laws. Sheeting, bracing, shoring, etc., shall be done at the Contractor's own expense and shall not be the basis for extra compensation.

Temporary bridges or crossings shall be provided at every other intersection by the Contractor to maintain essential traffic, or as directed by the Engineer.

In paved areas prior to any excavation or any subsidiary operation, the pavement shall be pre-cut a minimum of one foot on either side of the maximum width of the excavation bucket or wheel. This initial cut shall be straight and parallel. Initial cutting of the paved surface does not relieve the Contractor of the responsibility of repaving all damaged pavement. The repairs of areas outside the cut areas shall be incorporated with the trench repair. All repair areas shall be made to a neat pavement edge.

100.4 BACKFILL

Backfilling shall be done with approved materials as described in ASTM C12 for rigid conduit (e.g., concrete, ductile iron, vitrified clay pipe) and ASTM D2321 for flexible conduit (e.g., PVC). The material used for bedding and haunching areas, as shown on the standard sheet for Backfill Requirements, shall have a maximum size particle of 1½" unless otherwise approved by the engineer. Material to be used above the initial backfill shall be free of all rocks and clods larger than 3" in diameter when mechanical compaction is required, otherwise a maximum size of 8" is allowed. If backfill material available on the site of the work is not free from large clods, stones, or organic material the Contractor will be required to haul in material that is approved. All forms, trash and debris shall be removed and disposed of before any backfill is placed.

All backfill placed in trenches cut in major thoroughfares shall be mechanically compacted in 6" lifts at optimum moisture in the 3 feet below the bottom of the paved surface. The top one foot below the bottom of pavement shall be caliche base material mechanically compacted in 6" lifts at optimum moisture. In special cases the Engineer may allow that the top one foot be stabilized with either cement or emulsified asphalt. Backfill placed in trenches cut in residential streets shall be mechanically compacted in 6" lifts at optimum moisture in the top two feet below the bottom of the pavement with the top 12" being caliche base material compacted at optimum moisture.

All trench depths below the depth requiring mechanical compaction shall be backfilled in layers as directed and water flooded unless otherwise directed by the Engineer or shown on the plans.

Compaction by mechanical means shall be considered adequately compacted when no further compaction is evident under the action of the mechanical compaction equipment employed. All caliche base material used shall conform with the standard City of Odessa specifications, and shall be blade-mixed and watered to optimum moisture prior to placing it ditch.

All backfill and base shall be brought to within 2" of the surface. This surface shall be primed with a solution of 5% emulsified asphalt in water. Additional applications of the emulsion solution will be applied as directed.

The City Engineer may in certain conditions require special type of backfill operations.

100.5 SURFACING

Surfacing shall be either cold mix rock asphalt, Hot Mix - Cold Laid or Hot Mix - Hot Lay Asphaltic Concrete as approved by the Engineer placed in thickness not to be less than 2" in thickness and adequately compacted. Items No. 35 or 36 shall govern the control of materials, and construction.

The pavement patch will be measured by the square yard of completed and accepted work in accordance with the plans and specifications for this project.

Payment for pavement patches, measured as prescribed above, will be made at the unit price bid for paving patch, except that the following shall be set as the maximum pay quantity for given pipe size unless otherwise stated.

<u>PIPE SIZE (I.D.)</u>	<u>MAXIMUM PATCH WIDTH</u>
Up to 10"	4 feet
12" to 22"	5 feet
Over 22"	Pipe Size (I.D.) + 3.5 feet

Payment shall be full compensation for furnishing and laying mix, furnishing and laying base, for furnishing and applying prime or tack coat, and for all other items of materials, labor, equipment, tools and incidentals necessary to complete the paving patch in accordance with the plans and specifications for this project.