

# TECHNICAL SPECIFICATIONS No. 8

## TRENCH AND PAVEMENT RESTORATION

### DESCRIPTION

- 801.1 **General:** The Contractor in accordance with this specification and/or the Special Provisions shall perform all trench and pavement restoration after the pipe work is completed. Trench and pavement restoration shall include all backfill, compaction and resurfacing.

### TRENCH BACKFILL AND COMPACTION

- 802.1 **Backfill Material:** Trench backfill material may be native material excavated at the work site. Such material must be free of organic or other unsuitable materials, as determined by the Engineer that may cause voids or depressions to develop during or after placement of the backfill. Rocks, stones and solid earth chunks exceeding three inches (3") in greatest dimension shall be removed from the trench backfill material.
- 802.2 **Trench Backfilling:** The pipe shall be shaded by hand shovel method with suitable material to one foot (1') above the top of the pipe. The backfill material shall be placed and compacted by hand around the pipe in six inch (6") lifts and compacted as specified in the Standard Detail "**Backfill Requirements for Streets.**" Backfill shall be placed in the trench in such a manner that will not damage the pipe joint or cause movement of the pipe. Backfill material shall be gently rolled into the trench onto previously deposited material. In no case shall backfill material be dropped vertically from the top of the trench onto the top of the pipe.
- 802.3 Trench backfill shall be compacted in the following manner:
- A) Backfill material shall be placed by hand to a depth of one foot (1') above the top of pipe and couplings. Initial backfill material shall be deposited in the full width of the trench up to the midpoint of the pipe in hand tamped layers, six (6") inches thick after compaction. Hand tamping tools shall be of a design as approved by the Engineer. Care shall be taken to avoid any movement of the pipe. Initial backfill material shall be sufficiently damp to permit thorough compaction under and on each side of the pipe to provide support that is free from voids.
  - B) Trench backfill shall have a relative compaction of not less than ninety-five percent (95%) in the top twenty-four inches (24") below street subgrade. The remaining trench backfill, including hand tamped backfill, backfill behind existing or proposed curbs and outside any existing or proposed pavement to be maintained by the city, shall have a relative compaction of not less than ninety percent (90%).
  - C) Ponding or jetting of trenches may be used only after backfill material has been deposited by hand to a depth of one foot (1') above the top of pipe.

- D) Rolling equipment shall not be used until a minimum of eighteen inches (18") backfill material has been placed over the top of pipe. Hydro Hammer shall not be used until a minimum of thirty-six inches (36") of backfill material has been placed over the top of pipe.
- 802.3 After trench compaction, the Contractor shall dispose of all excess material. The Contractor shall be responsible for maintaining all trenches subject to traffic prior to the final resurfacing.
- 802.4 All trenches shall be completely backfilled prior to end of the workday. Trenches at all crossings in traffic areas shall have temporary pavement placed prior to the end of the workday. Steel plates may be substituted for temporary pavement, if requested by the Contractor and approved by the Engineer. For purpose of defining trenches, all excavations for installing pipes are trenches unless they meet all of the following:
- A. Are five feet (5') or less in depth as measured from the original ground surface.
  - B. Have one to one (1 to 1) or flatter side slopes.
  - C. Are ten feet (10') or wider at their base.
  - D. Are located outside of developed street right of way.
- 802.5 All spoil piles shall have side slopes as required for safety by the Public Works Inspector.

**RESURFACING**

- 803.1 **Preparation:** Upon meeting backfill compaction requirements and removal of excess material, the trench to be resurfaced shall be prepared to receive the resurfacing materials. Immediately prior to performing pavement restoration, the existing pavement adjacent to the trench shall be cut to parallel vertical lines. Broken or damaged pavement adjacent to the trench shall be removed and replaced. Vertical pavement surfaces shall be painted with asphalt emulsion prior to resurfacing.
- 803.2 **Pavement and Base Thickness:** Pavement and base thickness shall be replaced in kind but in no case shall the pavement be less than the minimum asphalt concrete over aggregate base as specified in Table 8-1, "**Minimum Structural Sections,**" Standard Detail for "**Backfill Requirements in Streets,**" or as specified in the Special Provisions.

**TABLE 8-1 Minimum Structural Sections**

Street Classification	Asphalt Concrete (Inches)	Aggregate Base (Inches)
Alley	2	4
Residential	3	6
Collector	4	8

- 803.3 **Asphalt Concrete:** The aggregate for asphalt concrete shall conform to the grading specified for three-quarter inch (3/4") maximum aggregate as specified in Section 39, "**Asphalt Concrete,**" of the Standard Specifications and in the Special Provisions. The grade of Asphalt to be mixed with aggregate shall be PG 64-10.
- 803.4 **Aggregate Base:** Aggregate base shall be placed in accordance with Section 26, "**Aggregate Bases,**" of the Standard Specifications, except as specified in Subsection 803.5, and in accordance with the requirements for Class 2, Aggregate Base. Aggregate shall conform to the gradation requirements specified for three-quarter inch (3/4") maximum aggregate.
- 803.5 Aggregate base and asphalt concrete shall be placed in accordance with the provisions of Technical Specifications No. 12, "**Aggregate Bases,**" and Technical Specifications No. 13, "**Asphalt Concrete Surfacing,**" respectively.

#### **MISCELLANEOUS**

- 804.1 **Construction Water:** Water shall be taken from City water meter only. Contractor shall pay for all water used. Contractor shall rent the number of meters required and pay appropriate fees to the City Finance Department. Contractor will be billed for all water used and any damage to meters. The City will move the meters when requested.
- 804.2 **Compaction Tests:** Required compaction tests will be made at City's expense for City Contract projects and at the developer's expense for development projects. Tests will be made when the Contractor notifies the Public Works Inspector that the area is ready for testing. If the initial test for an area does not meet minimum compaction requirements, all subsequent tests at failed locations shall be at the Contractor's expense. All tests will be taken at locations selected by the Public Works Inspector.