



# CITY AND COUNTY OF DENVER

DEPARTMENT OF PUBLIC WORKS | ENGINEERING DIVISION

## Storm Drainage and Sanitary Sewer Construction Detail and Technical Specifications

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### Alley Patching (Resurfacing) Specifications

(Sheets 1-18 Not Applicable)

# Storm Drainage and Sanitary Sewer Construction Detail and Technical Specifications Alley Patching (Resurfacing) Specs.

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### **C. PCCP Streets**

1. Concrete streets will be patched in accordance with Concrete Pavement of the Standard Specifications. The patch shall contain the same steel reinforcement as the existing pavement, which shall be placed in the patch area and shall overlap the existing steel and/or deformed tie bars and shall be essentially flush with the edge of the patch.
2. Joint load transfer bars are required for all full depth cuts and the existing reinforcing steel should be preserved and used where possible.

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3. The Manager of Designee shall determine whether the existing reinforcing at the joint for load transfer and slab integrity shall be used.
4. If the existing bars are to be used, they shall be straightened or if deformed tiebars are to be used, 1 inch holes shall be drilled for deformed tie bars which shall be set in a quick setting non-shrink grout.
5. Steel reinforcing extending into the patch shall be maintained at the proper height by approved supports resting on the subgrade.
6. The aggregate base and edges of the concrete shall be dampened without leaving puddles of water on the base.
7. The concrete shall be placed using a concrete mixture as specified by the Standard Specifications or an approved Class D or P Colorado Department of Transportation or City Class AX mix. The following requirements shall be met:
  - a. Field compressive strength of 3000 psi minimum shall be obtained prior to opening the street to early traffic and 4000 psi at 28 days. A high early strength mix may be required. If deemed necessary, the Manager or Designee may require control cylinders be cast and broken to determine that the concrete has reached the required strength.
  - b. Curing blankets or heated tenting shall be used in cold weather to insure this strength gain and protection from freezing.
  - c. An approved laboratory mix, which is designed to obtain field strength of 4000 psi at 28 days, shall be used. ACI procedures should be followed.
    1. The minimum cement content (ASTM C-150) shall be 564 pounds per cubic yard. A maximum of 25% substitute of Class C fly ash for cement will be allowed, as long as opening strength is obtained.

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2. The allowable air content range shall be 5.0% to 7.0%.
  3. The allowable slump range shall be 3 to 5 inches.
- d. The concrete surface shall be finished to match the existing surface grade lying outside of the patch.

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8. There shall be no surface deviation at the joint or within the patch of more than 1/8 inch in any 10 feet.
9. The concrete shall be placed and vibrated in accordance with good construction practices.
10. The surface shall be broom finished or matched to the existing finish already in place.
11. Curing will be done in accordance with the Standard Specifications and good construction practices.
12. Joints.
  - a. The regular longitudinal and transverse joints shall be constructed to match the existing joints and shall be sawed 1.8 inch wide and 3 inches deep. The top 1 inch of the joint shall be sawed to a width for a backer rod and sealant (generally to 3/8 inches or as recommended by the sealant supplier.)
  - b. All expansion joints shall be provided with expansion joint material of the same width as the original and shall be sealed with a jointing detail that is approved by the Manager or Designee.
  - c. All other joints shall be sawed to a 2-inch depth and a 3/8-inch width.
  - d. The joint filler shall be a CDOT approved hot poured sealant or a silicone joint sealant such as Dow Corning 888 or equal, and shall be installed in accordance with the manufacturer's recommendations.
  - e. The sealant shall be left 1/4 inch low to prevent tracking.
13. All work shall be performed in workman-like manner to the satisfaction of the Manager or Designee and shall conform to industry standards.
14. Street Plates – The use of street plates on concrete pavements is not allowed from September through April. Use is allowed only with the written permission of the Manager or Designee. When used on concrete pavements, cold mixed asphalt shall be ramped a minimum of two (2) feet in the travel direction and the design engineer for the applicant shall certify in writing the suitability for use and specify additional methods to be used to secure the plates from movement.

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The use of street plates on flexible pavements is allowed only with the written permission of the Manager or Designee. The Design Engineer for the applicant shall certify in writing, the suitability for use and allow and require a minimum one foot six inch overhang of the trench width on both sides of trench, and require a minimum one and a half inch deep milling area transverse to the travel direction to secure the plates from movement. In no case may the Street Plates extend above the present street elevation.

The permittee shall have suitable equipment available on one-hour notice in the event that the street plates fail or move to the extent that replacement becomes necessary. A responsible party shall be named as 24-hour contact at the time the permit is granted.

#### XIV. Explanation of Fees Section 49-197

- A. As detailed in Section 49-197 (a) of the Revised Municipal Code, the administrative and inspection fee for a permit shall be \$.35 per square foot, but not less than \$50.00.
- B. An additional administrative fee for excavation and improvement permits in a radium street shall be \$2,470. For each street cut that will disturb 200 cubic feet or more of radium contaminated material; provided, however that no fee shall be required if the person performing the street cut lawfully disposes of all radium contaminated material disturbed at a properly sited and lawfully permitted radioactive waste disposal facility located outside a major metropolitan area.
- C. Payment of all fees shall be due prior to the issuance of a permit unless other arrangements have previously been approved by the Manager.
- D. The Manager of Public Works may accept work performed in the public right-of-way in exchange for fees due; or accept payment of fees due in an alternate manner in accordance with the ordinance.

#### XV. Criteria for Determining Competence

Section 49-200 (a) of the Denver Revised Municipal code requires proof to the Manger of the competence of the applicant for a license to perform excavation work in a street.

Competence can be demonstrated by meeting or exceeding any one of the following criteria:

- A. Proof of experience in other municipalities, states, etc. including evidence establishing the ability to satisfactorily perform excavation work.
- B. Letters of reference, which can be verified, establishing the applicant's ability and skill in performing excavation work.