

TRENCH RESTORATION AND STREET OVERLAY REQUIREMENTS

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It is the intent of the following policies, procedures and specifications to obtain satisfactory work with a minimum of delay to all parties concerned when performing trench restorations or street overlays.

PURPOSE

The purpose of this Code Section is to establish guidelines for the restoration of City streets disturbed by installation of utilities and other construction activities. Any public or private utilities, general contractors, or others permitted to work in the public right-of-way will adhere to the procedures set forth in this policy.

DEFINITION

Engineer: The term “engineer” shall denote the City project manager, inspector and/or plan reviewer, or their designated representative.

APPLICATION

The following standards in this Section shall be followed when doing trench or excavation work within the paved portion of any City of Renton right-of-way. Modifications or exemptions to these standards may be authorized by the Community and Economic Development Administrator, or authorized representative, upon written request by the permittee, the permittee’s contractor or engineer, and demonstration of an equivalent alternative.

HOURS OF OPERATIONS

Hours for work within the roadway for asphalt overlays or trench restoration shall be as directed by the Traffic Control Plan requirements and the Traffic Operations Engineer.

INSPECTION

The Engineer may determine in the field that a full street-width (edge-of-pavement to edge-of-pavement) overlay is required due to changes in the permit conditions such as, but not limited to the following:

1. There has been damage to the existing asphalt surface due to the contractor’s equipment.
2. The trench width was increased significantly or the existing pavement is undermined or damaged.
3. Any other construction related activities that require additional pavement restoration.

CITY OF RENTON STANDARDS

All materials and workmanship shall be in accordance with the City of Renton Standard and Supplemental Specifications (current adopted version) except where otherwise noted in these standards. Materials and workmanship are required to be in conformance with standards for the Standard Specifications for Road, Bridge, and Municipal Construction prepared by the Washington State Chapter of the American Public Works Association (APWA) and the Washington State Department of Transportation (WSDOT) and shall comply with the current edition, as modified by the City of Renton Supplemental Specifications.

1. An asphalt paver shall be used in accordance with Section 5-04.3(3) of Standard Specifications. A "Layton Box" or equal may be used in place of the power-propelled paver. Rollers shall be used in accordance with Section 5-04.3(4) of the Standard Specifications. "Plate Compactors" and "Jumping Jacks" shall not be used in lieu of rollers.
2. Trench backfill and resurfacing shall be as shown in the City of Renton Standard Details, unless modified by the City permit. Surfacing depths shown in the standard details are minimums and may be increased by the Engineer to meet traffic loads or site conditions.
3. **Requirement for Patching, Overlay, and Overlay Widths:**

All trench and pavement cuts shall be made by sawcut or by grinding. Sawcuts or grinding shall be a minimum of one foot (1') outside the trench width. The top two inches (2") of asphalt shall be ground down to a minimum distance of one foot (1') beyond the actual outside edges of the trench and shall be replaced with two inches (2") of Class B asphalt, per City of Renton Standard Plans. At the discretion of the engineer, a full street width overlay may be required.

Lane-width or a full street-width overlay will be determined based upon the location and length of the proposed trench within the roadway cross-section. Changes in field conditions may warrant implementation of additional overlay requirements.

a. Trenches (Road Crossings):

- (1) The minimum width of a transverse patch (road crossing) shall be six and one-half feet (6.5'). See City of Renton Standard Plans.
- (2) Any affected lane will be ground down two inches (2") and paved for the entire width of the lane.
- (3) The patch shall be a minimum of one foot (1') beyond the excavation and patch length shall be a minimum of an entire traveled lane.
- (4) If the outside of the trenching is within three feet (3') of any adjacent lane line, the entire adjacent traveled lane affected will be repaved.
- (5) An area including the trench and one foot (1') on each side of the trench but not less than six and one-half feet (6.5') total for the entire width of the affected traveled lanes will be ground down to a depth of two inches (2"). A two-inch (2") overlay of Class B asphalt will be applied per City standards.

b. Trenches Running Parallel with the Street:

- (1) The minimum width of a longitudinal patch shall be four and one-half feet (4.5'). See City of Renton Standard Plans.
- (2) If the trenching is within a single traveled lane, an entire lane-width overlay will be required.

- (3) If the outside of the trenching is within three feet (3') of any adjacent lane line, the entire adjacent traveled land affected will be overlaid.
- (4) If the trenching is greater than or equal to 30% of lane per block (660 foot maximum block length), or if the total patches exceed 12 per block, then the lanes affected will be overlaid. Minimum overlay shall include all patches within the block section.
- (5) The entire traveled lane width for the length of the trench and an additional ten feet (10') at each end of the trench will be ground down to a depth of two inches (2"). A two-inch (2") overlay of Class B will be applied per City standards.

c. Potholing:

Potholing shall meet the same requirements as trenching and pavement restoration. Potholing shall be a minimum of one foot (1') beyond the excavation. All affected lanes will be ground down to a depth of two inches (2") and paved not less than six and one half feet (6.5') wide for the entire width of the lane. Potholes greater than five feet (5') in length, width or diameter shall be restored to trench restoration standards. In all cases potholes shall be repaired per Renton Standard Plans. Restoration requirements utilizing vactor equipment will be determined by the Engineer.

4. Pavement Removal in Lieu of Grinding:

The contractor in all cases can remove the pavement in the replacement area instead of grinding out the specified two inches (2") of asphalt. Full pavement replacement to meet or exceed the existing pavement depth will be required for the area of pavement removal. Patching of pervious concrete shall follow American Concrete Institute (ACI) 522.1-13. Porous asphalt shall be specified on a project-by-project basis by the engineer. Permeable materials should be replaced in-kind where feasible. Patching porous asphalt with conventional asphalt is acceptable if it is no more than ten percent (10%) of the total facility area or does not impact the overall facility function. Appropriate precautions shall be taken during pavement repair and replacement efforts to prevent clogging of adjacent surfaces.

5. Trench Backfill and Restoration Construction Requirements:

- a. Trench restoration shall be either by a patch or overlay method, as required and indicated on City of Renton Standard Plans.
- b. All trench and pavement cuts, which will not be overlaid, shall be made by sawcut or grinding. Sawcuts shall be a minimum of two feet (2') outside the excavated trench width.
- c. All trenching within the top four feet (4') shall be backfilled with crushed surfacing materials conforming to Section 4-04 of the Standard Specifications. Any trenching over four feet (4') in depth may use materials approved by the Engineer or Materials Lab for backfilling below the four-foot (4') depth.
- d. If the existing material (or other material) is determined by the Engineer to be suitable for backfill, the contractor may use the native material except that the top six inches (6") shall be crushed surfacing top course material.
- e. The trench shall be compacted to a minimum ninety-five percent (95%) density, as described in Section 2-03 of the Standard Specifications. In the top six feet (6') of any trench, backfill compaction shall be performed in eight (8) to twelve-inch (12") lifts. Any trench deeper than six feet (6') may be compacted in

twenty-four inch (24") lifts, up to the top six-foot (6') zone. All trench backfill shall be firm and unyielding but in no case shall be compacted to more than ninety-two percent (92%) of maximum density in permeable pavement areas.

- f. All compaction shall be performed by mechanical methods. The compaction tests may be performed in four-foot (4') vertical increments maximum. The test results shall be given to the Engineer for review and approval prior to paving. The number and location of tests required shall be determined by the Engineer.
- d. Temporary restoration of trenches for overnight use shall be accomplished by using MC mix (cold mix), Asphalt Treated Base (ATB), or steel plates, as approved by the Engineer. ATB used for temporary restoration may be dumped directly into the trench, bladed out and rolled. After rolling, the trench must be filled flush with asphalt to provide a smooth riding surface. If the temporary trench restoration does not hold up, the contractor shall repair the patch within eight hours of being notified of the problem by the City. This requirement applies 24 hours per day, seven days per week. In the event that the City determines to repair the temporary patch, the contractor shall reimburse the City in an amount that is double the City's costs in repairing the patch, with the second half of the reimbursement to represent City overhead and hidden costs.
- e. Asphalt Concrete Class E or Class B shall be placed to the compacted depth as required and indicated on City of Renton Standard Plans or as directed by the Engineer. The grade of asphalt shall be AR-4000W. The materials shall be made in conformance with Section 9-02.1(4) of the Standard Specifications.
- f. Tack coat shall be applied to the existing pavement at edge of saw cuts and shall be emulsified asphalt grade CSS-1, as specified in Section 9-02.1(6) of the Standard Specifications. Tack shall be applied as specified in Section 5-04 of the Standard Specifications.
- g. Asphalt Concrete Class E or Class B shall be placed in accordance with Section 5-04 of the Standard Specifications; except those longitudinal joints between successive layers of asphalt concrete shall be displaced laterally a minimum of twelve inches (12"), unless otherwise approved by the Engineer. Fine and coarse aggregate shall be in accordance with Section 9-03.8 of the Standard Specifications.

All street surfaces, walks or driveways within the street trenching areas shall be feathered and shimmed to an extent that provides a smooth-riding connection and expeditious drainage flow for the newly paved surface.

Feathering and shimming shall not decrease the minimum vertical curb depth below four inches (4") for storm water flow. The Engineer may require additional grinding to increase the curb depth available for storm water flow in areas that are inadequate. Shimming and feathering as required by the Engineer shall be accomplished by raking out the oversized aggregates from the Class B mix as appropriate.

Surface smoothness shall be per Section 5-04.3(13) of the Standard Specifications. The paving shall be corrected by removal and repaving of the trench only. Asphalt patch depths will vary based upon the streets being trenched. The actual depths of asphalt and the work to be performed shall be as required and indicated on City of Renton Standard Plans.

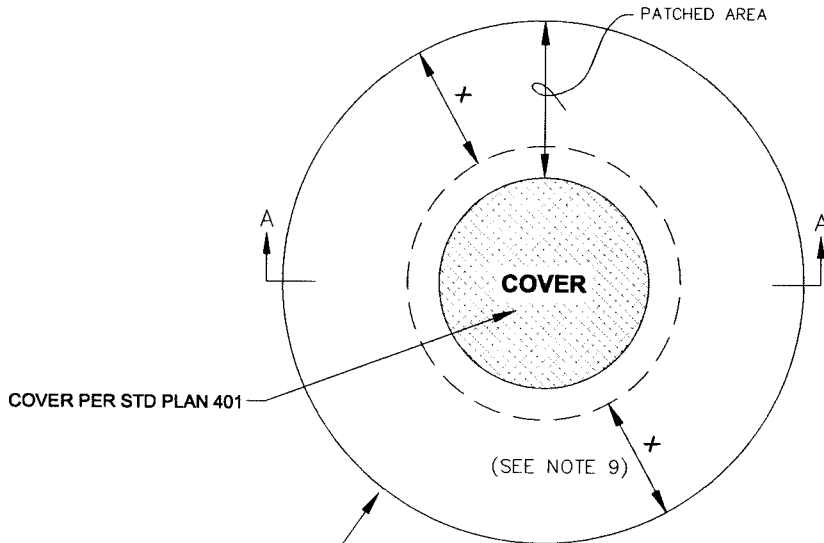
Compaction of all lifts of asphalt shall be a minimum ninety-two percent (92%) of density as determined by WSDOT Test Method 705. The number of tests required shall be determined by the Engineer.

Testing shall be performed by an independent testing lab with the results being supplied to the Engineer. Testing is not intended to relieve the contractor from any liability for the trench restoration. It is intended to show the inspector, and the City, that the restoration meets these specifications.

- h. All joints, except those associated with permeable pavement, shall be sealed using paving asphalt AR-4000W.
- i. When trenching within the unpaved roadway shoulder(s), the shoulder shall be restored to its original condition, or better.
- j. The final patch shall be completed as soon as possible and shall not exceed fifteen (15) working days after first opening the trench. This time frame may be adjusted if delays are due to inclement paving weather or other adverse conditions that may exist. However, delaying of final patch or overlay work is subject to the Engineer's approval. The Engineer may deem it necessary to complete the work within the fifteen (15) working day time frame and not allow any time extension. Should this occur, the contractor shall perform the necessary work, as directed by the Engineer.
- k. A City of Renton Temporary Traffic Control Plan (from Renton Transportation Engineering) shall be submitted and approved by the Engineer a minimum of three (3) working days prior to commencement of work.

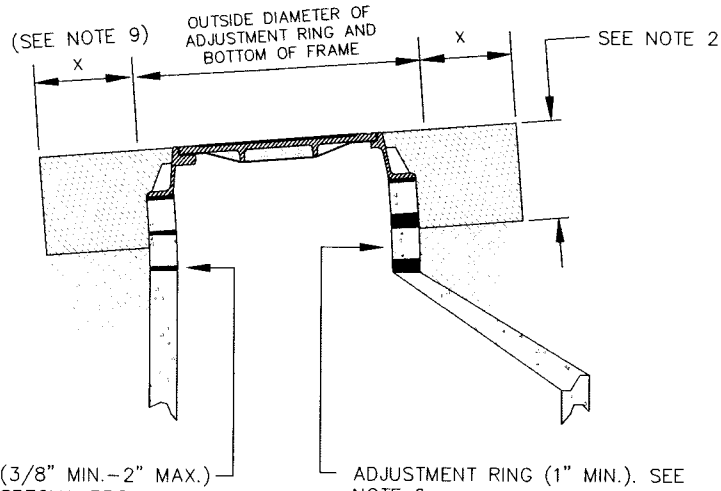
6. Removal of Utility Locate Markings from Sidewalks Required:

The permittee will be required to remove utility locate marks on sidewalks only within the Center Downtown Zone. The permittee shall remove the utility locate marks within 14 days of job completion.



SEAL WITH AR 4000 OR APPROVED
EQUAL AND DRY SAND AFTER
PATCHING

PLAN
NTS



SECTION A-A

NOTES

1. REMOVE PAVEMENT AND BASE MATERIALS FOR A DISTANCE WHICH IS EQUAL TO THE DIAMETER OF THE FRAME PLUS ONE FOOT (MIN.). ADJUST CASTING FRAME TO PAVEMENT SURFACE USING RISER RINGS AND MORTAR.
2. REPLACE EXCAVATED MATERIAL WITH A MINIMUM OF 8" OF HMA CLASS ½" PG 64-22 (OR TO A DEPTH THAT IS 2" BELOW THE BOTTOM OF THE UPPER ADJUSTMENT RING WHICHEVER IS GREATER) OR AS APPROVED BY THE ENGINEER.
3. ADJUSTMENT RINGS AND FRAME SHALL BE FULLY BEDDED IN MORTAR. MORTAR SHALL BE ASTM C270 FOR TYPE S.
4. MORTAR SHALL BE MIXED AND APPLIED PER MANUFACTURERS DIRECTIONS.
5. CONSTRUCTION AND ADJUSTMENT SHALL BE PERFORMED ONLY BY A JOURNEYMAN MASON.
6. ADJUSTMENT OF THE FRAME TO GRADE SHALL BE ACCOMPLISHED WITH ADJUSTMENT RINGS AND MORTAR ONLY. **THE USE OF SHIMS IS PROHIBITED.**
7. FRAME SHALL BE ADJUSTED TO PAVEMENT GRADE BY TAPPING UNTIL FRAME IS FLUSH WITH PAVEMENT AS DETERMINED WITH A STRAIGHT EDGE OF SUFFICIENT LENGTH.
8. ALL MORTAR JOINTS SHALL BE TRIMMED FLUSH AND REMAIN VISIBLE UPON COMPLETION.
9. X= 1'-0" MIN. TO 2'-6" MAX. - PER ENGINEER'S INSTRUCTION



PUBLIC WORKS
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**TYPICAL CONSTRUCTION
AND ADJUSTMENT OF
MANHOLE RISERS**

STD. PLAN - 106

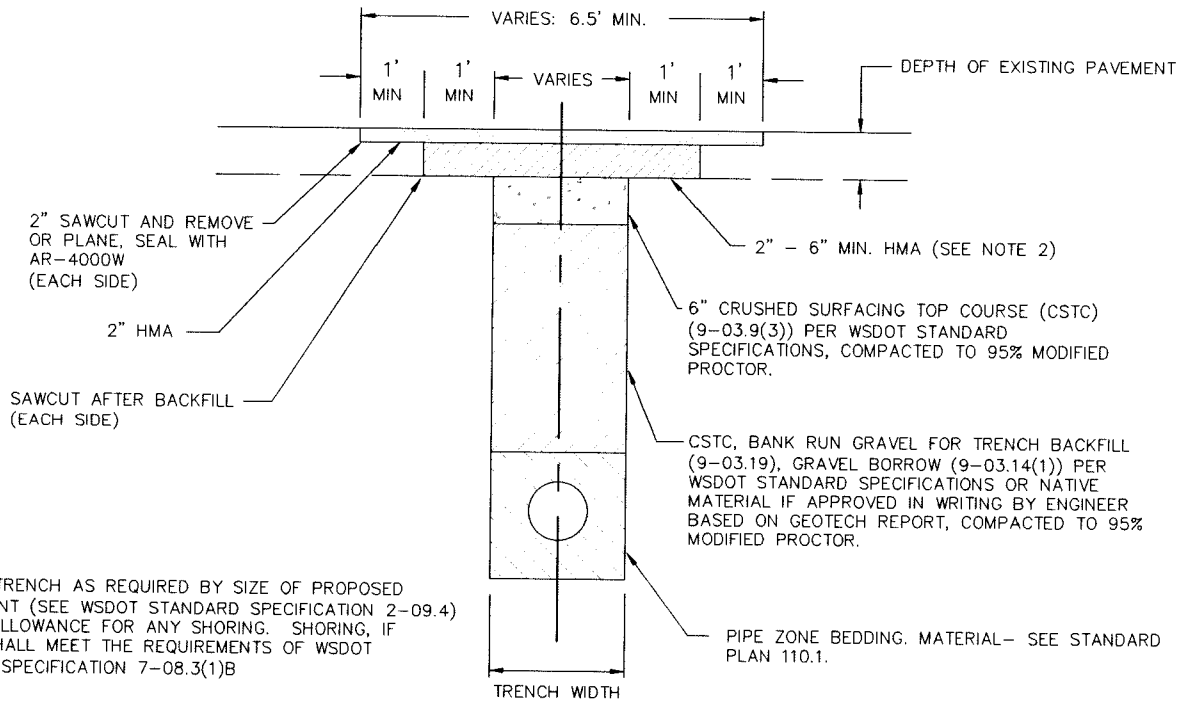
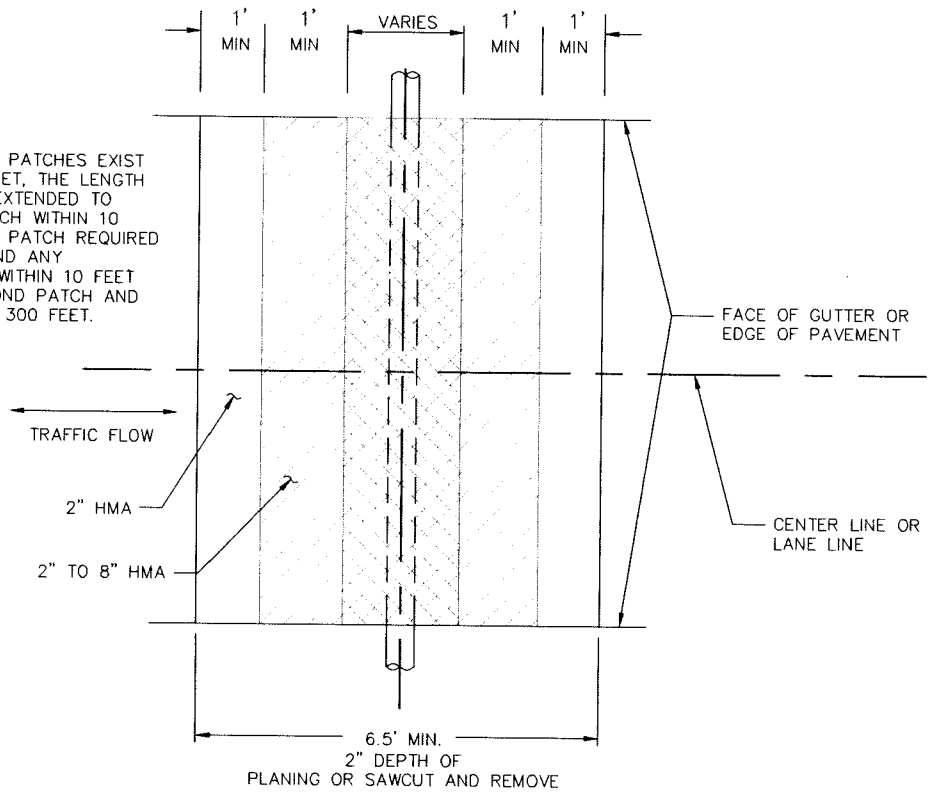
APPROVED:

Gregg Zimmerman
Gregg Zimmerman
Public Works Administrator

10/10/17
DATE

SPECIAL NOTE:

IN THE EVENT TRANSVERSE PATCHES EXIST WITHIN THE AFFECTED STREET, THE LENGTH OF THE PATCH SHALL BE EXTENDED TO INCLUDE ANY EXISTING PATCH WITHIN 10 FEET OF THE EDGE OF THE PATCH REQUIRED FOR THE NEW CROSSING AND ANY SUBSEQUENT PATCH EDGE WITHIN 10 FEET OF THE EDGE OF THE SECOND PATCH AND SO ON UP TO A TOTAL OF 300 FEET.



WIDTH OF TRENCH AS REQUIRED BY SIZE OF PROPOSED IMPROVEMENT (SEE WSDOT STANDARD SPECIFICATION 2-09.4) PLUS AN ALLOWANCE FOR ANY SHORING. SHORING, IF NEEDED, SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATION 7-08.3(1)B

FOR NOTES, SEE STANDARD PLAN 110.1



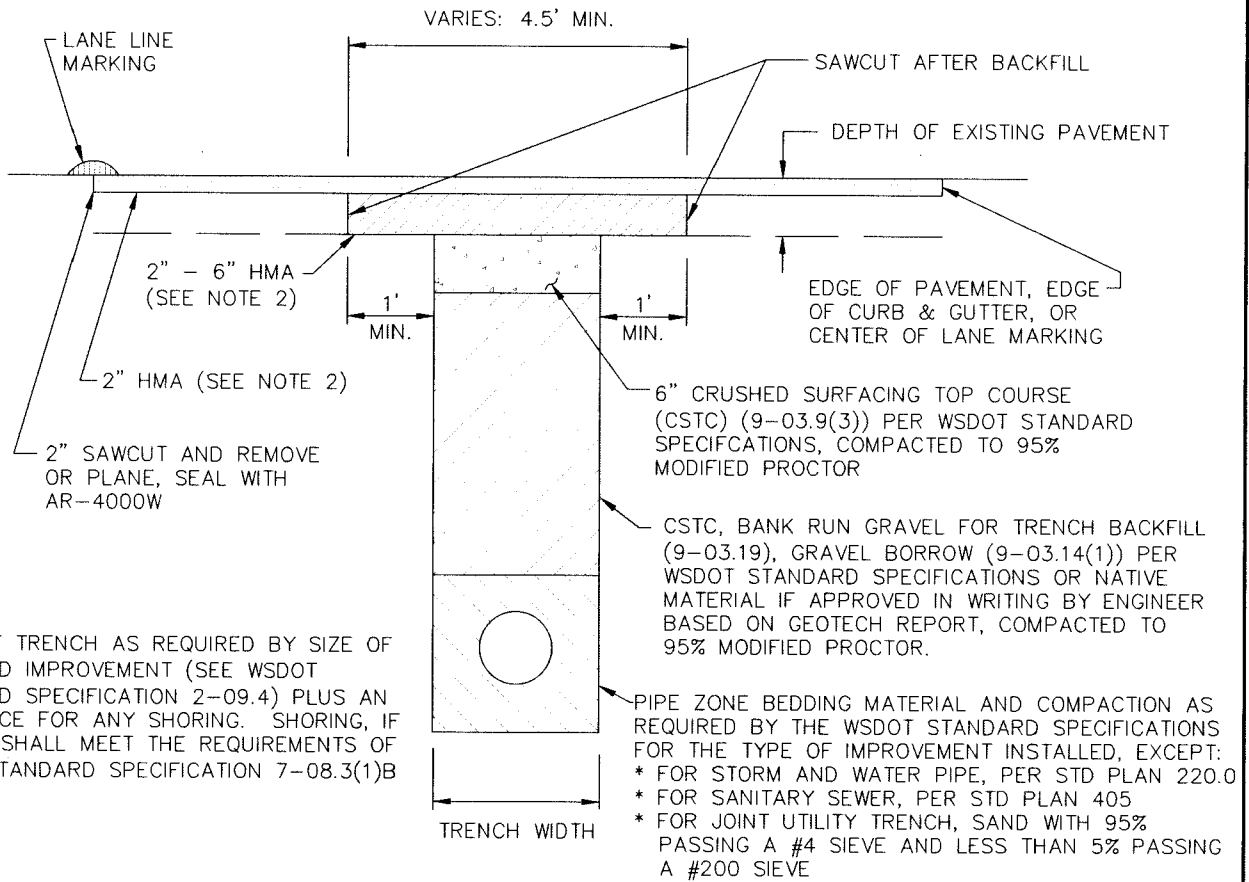
PUBLIC WORKS
DEPARTMENT

**TYPICAL TRANSVERSE PATCH FOR
FLEXIBLE PAVEMENT OR RIGID
PAVEMENT WITH OVERLAY**

STD. PLAN - 110

APPROVED:

Drew Zimmerman 10/15/17
DATE



WIDTH OF TRENCH AS REQUIRED BY SIZE OF PROPOSED IMPROVEMENT (SEE WSDOT STANDARD SPECIFICATION 2-09.4) PLUS AN ALLOWANCE FOR ANY SHORING. SHORING, IF NEEDED, SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATION 7-08.3(1)B

6" CRUSHED SURFACING TOP COURSE (CSTC) (9-03.9(3)) PER WSDOT STANDARD SPECIFICATIONS, COMPACTED TO 95% MODIFIED PROCTOR

CSTC, BANK RUN GRAVEL FOR TRENCH BACKFILL (9-03.19), GRAVEL BORROW (9-03.14(1)) PER WSDOT STANDARD SPECIFICATIONS OR NATIVE MATERIAL IF APPROVED IN WRITING BY ENGINEER BASED ON GEOTECH REPORT, COMPACTED TO 95% MODIFIED PROCTOR.

PIPE ZONE BEDDING MATERIAL AND COMPACTION AS REQUIRED BY THE WSDOT STANDARD SPECIFICATIONS FOR THE TYPE OF IMPROVEMENT INSTALLED, EXCEPT:
 * FOR STORM AND WATER PIPE, PER STD PLAN 220.0
 * FOR SANITARY SEWER, PER STD PLAN 405
 * FOR JOINT UTILITY TRENCH, SAND WITH 95% PASSING A #4 SIEVE AND LESS THAN 5% PASSING A #200 SIEVE

NOTES:

1. WHEN EXISTING PAVEMENT IN A LANE REQUIRING A FULL WIDTH REPLACEMENT IS BROKEN OR DETERIORATED TO A PAVEMENT CONDITION INDEX RATING OF 70 OR LESS, THE EXISTING PAVEMENT IN THAT LANE, AND FOR THAT DISTANCE SO CLASSIFIED, SHALL BE REMOVED AND REPLACED WITH HMA MATCHING THE DEPTH USED IN THE EXISTING STREET OR THE DEPTH PER CITY STANDARD, WHICHEVER IS GREATER.
2. PRINCIPAL/ MINOR/COLLECTOR, ARTERIAL, & INDUSTRIAL ACCESS STREETS – MATERIAL AND THICKNESS SHALL BE HMA CL $\frac{1}{2}$ " PG 64-22 AND MATCH EXISTING THICKNESS AND IN NO CASE LESS THAN 6".

RESIDENTIAL ACCESS STREETS – HMA CL $\frac{1}{2}$ " PG 64-22. THE THICKNESS SHALL BE THAT OF THE EXISTING PAVEMENT SECTION AND IN NO CASE LESS THAN 4".
3. WHEN THE "SAWCUT AFTER BACKFILL" ENCLOSES INTO AN ADJACENT LANE, CURB & GUTTER OR SHOULDER, THE AFFECTED LANE SHALL BE PLANED AND OVERLAID WITH HMA FULL WIDTH, THE CURB & GUTTER SHALL BE REMOVED AND REPLACED, OR THE SHOULDER SHALL BE PLANED OR REMOVED AND OVERLAID WITH HMA.
4. IF TRENCH UNDERMINES EXISTING SIDEWALK AND/OR CURBS, THEN THE SIDEWALK AND/OR CURB SHALL BE REPLACED FROM EXPANSION JOINT TO EXPANSION JOINT.
5. IF TRENCHING THROUGH EXISTING DRIVEWAY OR SIDEWALK RAMP, THE DRIVEWAY OR SIDEWALK RAMP SHALL BE REPLACED TO MEET ADA STANDARDS.



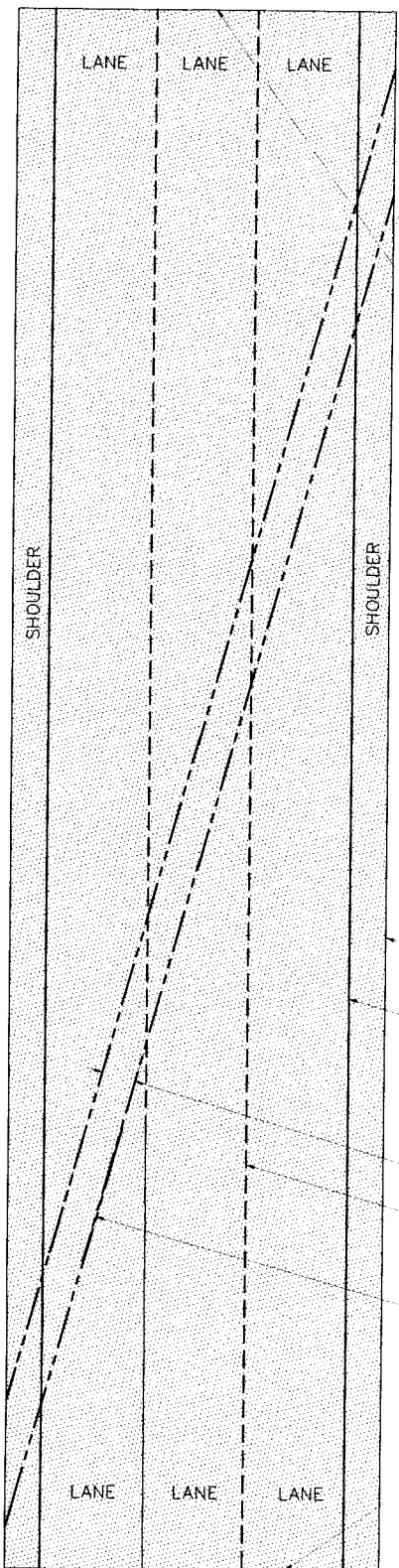
PUBLIC WORKS
DEPARTMENT

**TYPICAL LONGITUDINAL PATCH
FOR FLEXIBLE PAVEMENT OR
RIGID PAVEMENT WITH OVERLAY**

STD. PLAN - 110.1

APPROVED:
[Signature]

10/18/17
DATE



INITIAL 2" DEEP SAWCUT OR GRIND, AND LIMIT OF FINAL OVERLAY. GRIND AND PAVE FULL STREET WIDTH OVERLAY REQUIRED.

EDGE OF EXISTING PAVEMENT

EDGE OF TRAVELED LANE (EDGE STRIPE)

VARIES: 4.5' MIN. (SEE STD PLAN 110.1)

CENTER OF ANY MARKED LANE LINE, PROVIDE NEW CHANNELIZATION AFTER OVERLAY

SECONDARY FULL DEPTH SAWCUT FOR PROPOSED TRENCH

INITIAL 2" DEEP SAWCUT OR GRIND, AND LIMIT OF FINAL OVERLAY. GRIND AND PAVE FULL STREET WIDTH OVERLAY REQUIRED

10'

10'

FOR TYPICAL SECTION AND NOTES SEE STANDARD PLAN 110.1

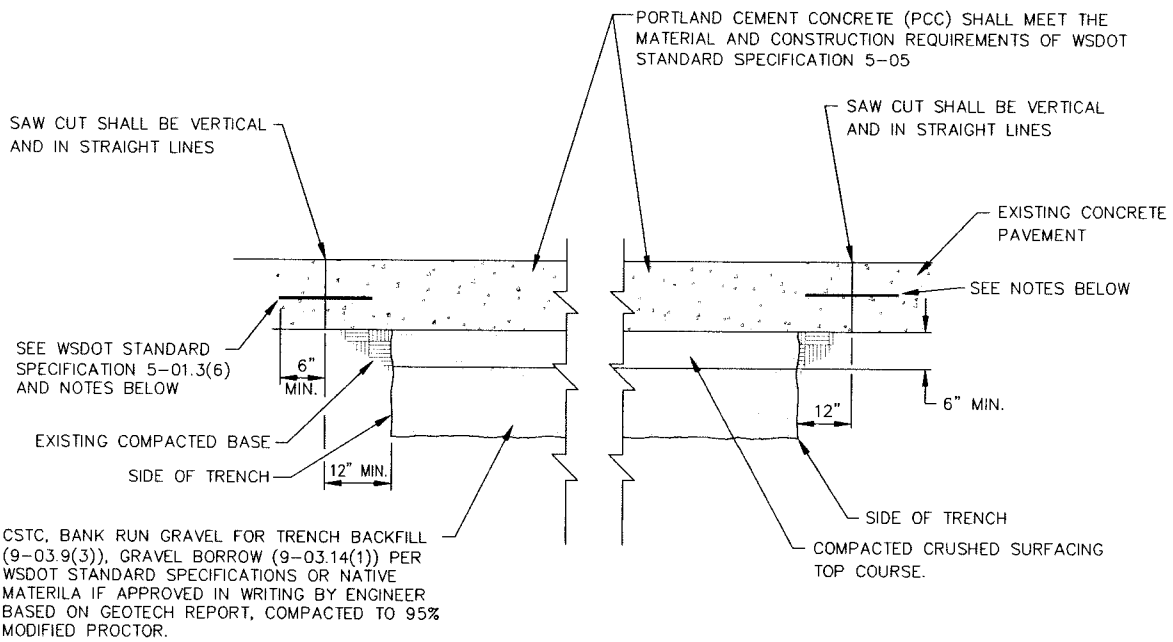


PUBLIC WORKS DEPARTMENT

REQUIRED SAWCUT, GRIND AND OVERLAY FOR LONGITUDINAL TRENCHES

STD. PLAN - 110.2

APPROVED: *Diana Jimenez* 10-13-17
DATE



CSTC, BANK RUN GRAVEL FOR TRENCH BACKFILL (9-03.9(3)), GRAVEL BORROW (9-03.14(1)) PER WSDOT STANDARD SPECIFICATIONS OR NATIVE MATERIALS IF APPROVED IN WRITING BY ENGINEER BASED ON GEOTECH REPORT, COMPACTED TO 95% MODIFIED PROCTOR.

PANEL REPLACEMENT DETERMINATION

FULL CEMENT CONCRETE PANEL REPLACEMENT: FOR CEMENT CONCRETE SURFACE STREETS, THE MINIMUM RESTORATION SHALL BE FULL PANEL REPLACEMENT, IF ONE OR MORE OF THE FOLLOWING CONDITIONS EXIST:

CONDITIONS	ADDITIONAL REQUIREMENTS
ALL BUS ROUTES	
ALL INTERSECTIONS	PLUS ONE PANEL BEYOND THE CURB RETURN
40% OR GREATER OF EXISTING PANEL REMOVAL	
EXCELLENT CONDITION (BASED ON VISUAL AND/OR NON-DESTRUCTION TESTING)	
PRINCIPAL, MINOR, COLLECTOR ARTERIALS AND ALL STREETS IN CBD WITHOUT BUS ROUTES	

NOTES:

- TRANSVERSE JOINTS**
1-1/2" DIAM. X 18" @ 12" DOWEL BARS ON CENTER MEETING WSDOT STANDARD SPECIFICATION 9-07.5.
- LONGITUDINAL JOINTS**
#5 TIE BARS X 30" @ 36" ON CENTER MEETING WSDOT STANDARD SPECIFICATION 9-07.6.
- WHEN THE PCC PANEL IS LESS THAN 8" IN THICKNESS #5 TIE BARS X 30" SHALL BE USED. FOR TRANSVERSE JOINTS TIE BARS SHALL BE ON 36" CENTERS WITH NO LESS THAN 2 BARS PER SIDE ON SMALL REPAIRS OR REPLACEMENT PANELS.
- TIE BARS AND CORROSION-RESISTANT DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 5-05.3(10).
- DOWELS SHALL NOT BE USED WHEN PCC PANEL IS LESS THAN 8" IN THICKNESS.
- NEW PCC PANEL SHALL MATCH THICKNESS OF EXISTING CONCRETE PAVEMENT.
- FULL PCC PANEL REPLACEMENT IS NOT REQUIRED WHEN OVERLAID WITH ASPHALT PAVEMENT.



PUBLIC WORKS DEPARTMENT

TYPICAL PATCH FOR RIGID PAVEMENT WITHOUT ASPHALT CONCRETE OVERLAY

STD. PLAN - 111

APPROVED: *[Signature]* 10-18-17
DATE