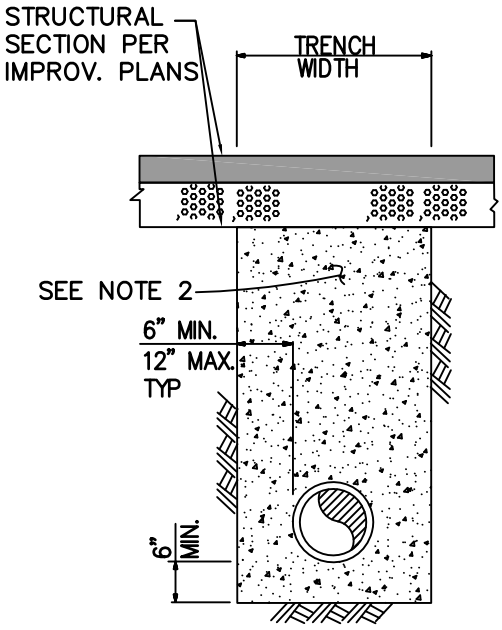
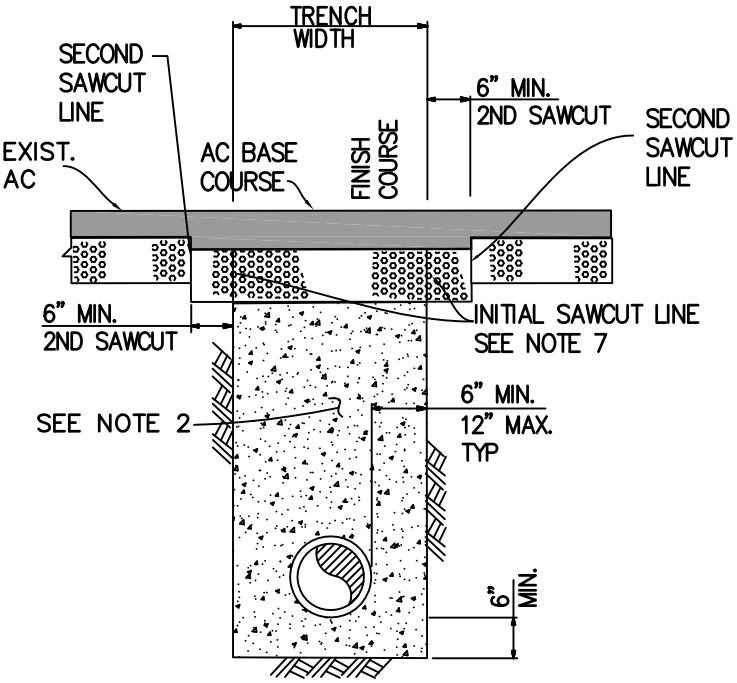
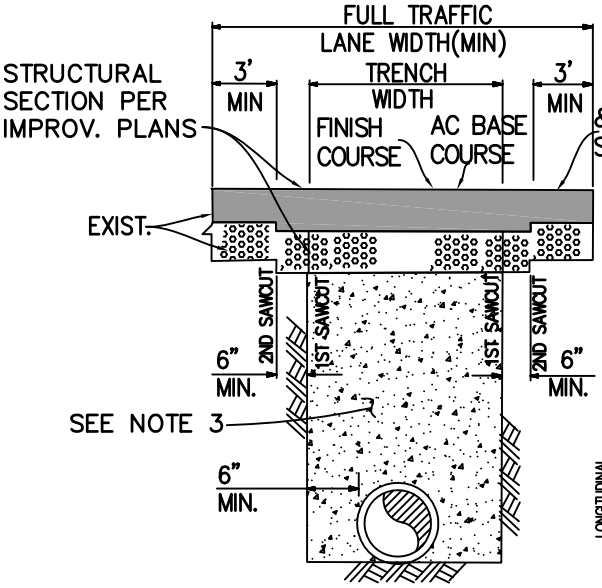


CASE I
NEW PAVEMENT



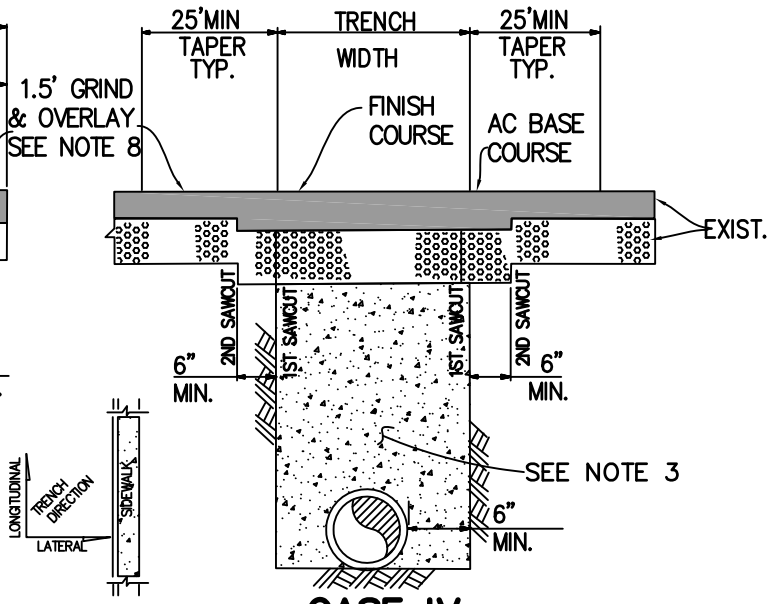
CASE II
EXISTING PAVEMENT

(ROADWAY SURFACE OVER 5 YEARS OLD)



CASE III
EXISTING PAVEMENT

OVERLAYED OR CONSTRUCTED LESS THAN 5 YEARS
LONGITUDINAL CUT



CASE IV
EXISTING PAVEMENT

OVERLAYED OR CONSTRUCTED LESS THAN 5 YEARS
LATERAL CUT

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		PIPE BACKFILL IN TRENCHES	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER R8 SHEET 1 OF 2

NOTES:

1. *MINIMUM TRENCH WIDTH SHALL BE 18".*

2. *BACKFILL SHALL 8[IMPORTED SAND WITH SE 60 (90% RELATIVE COMPACTION) OR 1-1/2 CEMENT SLURRY.*

3. *IN EXISTING PAVEMENT, THE REPLACEMENT SECTION SHALL BE THE EXISTING PLUS 1" A.C.. THE CONTRACTOR HAS THE OPTION OF REPLACING CRUSHED AGGREGATE BASE WITH A.C. AT THE RATIO OF 1" A.C. FOR 2" C.A.B. BASE COURSE AC PAVING SHALL BE PG 64-10 AND FINISH COURSE AC PAVING SHALL BE C2 PG 64-10.*

4. *IF UNSUITABLE MATERIAL IS ENCOUNTERED ADDITIONAL BEDDING MAY BE REQUIRED BY THE CITY ENGINEER.*

5. *THE FINISH COURSE, AS SHOWN ON CASE II - IV SHALL BE PLACED A MINIMUM OF 7 DAYS TO A MAXIMUM OF 10 DAYS AFTER PLACEMENT OF BASE COURSE, AND SHALL BE MACHINE LAID,*

   FOR ALL CASES WHERE THE PAVEMENT WIDTH EXCEEDS 6-FT,

   USE OF A SELF PROPELLED ASPHALT CONCRETE PAVING MACHINE, EXCEPT WHERE

   APPROVED BY CITY ENGINEER.

6. *MINIMUM DESIGN COVER SHALL BE 3.5-FT FOR WATER MAINS, 6-FT FOR SANITARY SEWER AND 3-FT FOR OTHER PIPELINES.*

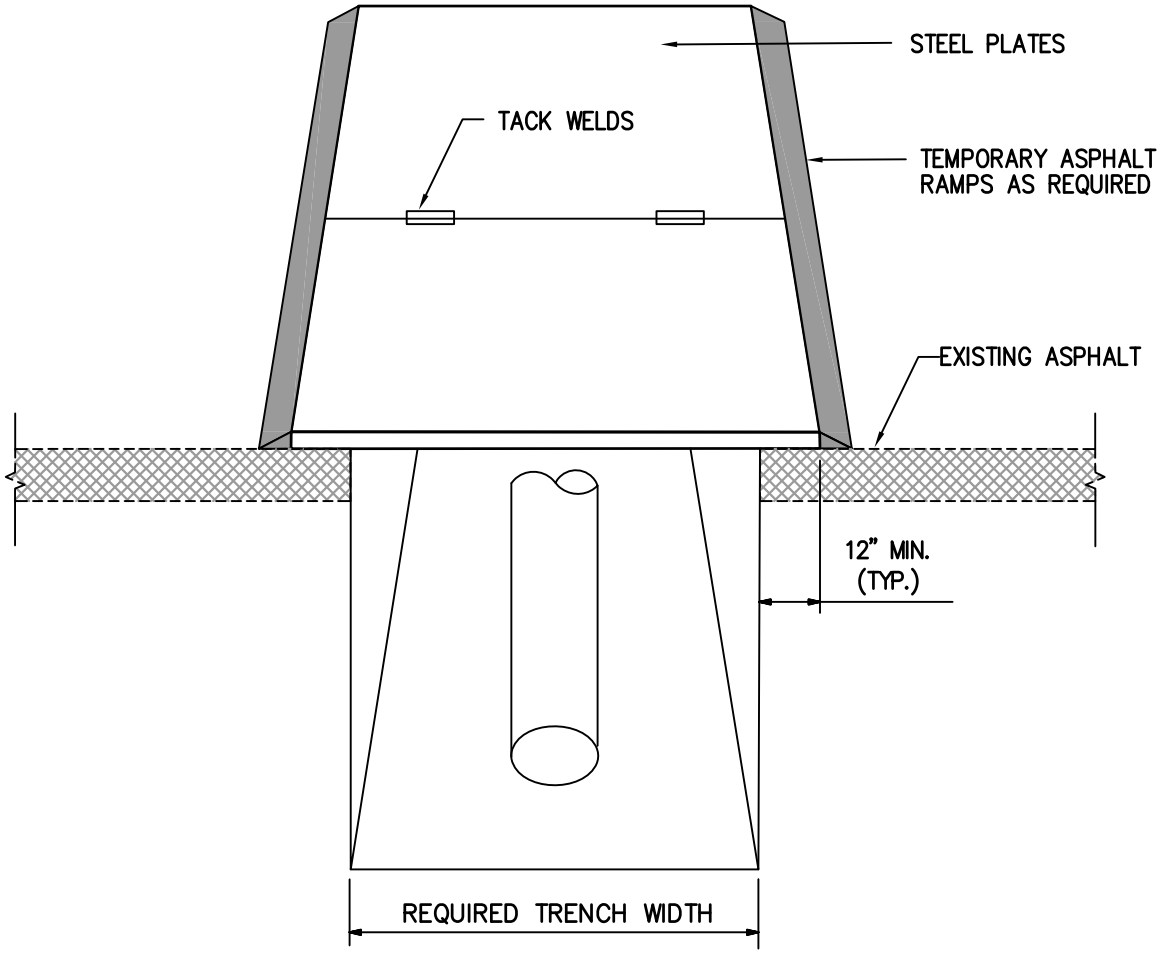
7. *EXISTING A.C. PAVEMENT SHALL BE SAWCUT TWICE.*
   INITIALLY TO EXCAVATE, LAY PIPE, AND BACKFILL.
   AFTER THE TRENCH HAS BEEN BACKFILLED AND COMPACTED PRIOR

   TO THE PLACEMENT OF THE STRUCTURAL SECTION OF C.A.B AND A.C., A SECOND

   SAWCUT, A MINIMUM OF 6" BEYOND INITIAL SAWCUT, SHALL BE DONE.

8. *IF THE LANE OR LIP OF GUTTER OR EDGE OF PAVEMENT IS WITHIN 4-FT OF THE LIMITS OF ASPHALT CONCRETE OVERLAY, THE LIMITS MAY BE EXTENDED AS DETERMINED IN THE FIELD BY THE CITY ENGINEER.*

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		PIPE BACKFILL IN TRENCHES	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER R8 SHEET 1 OF 2



	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		PLATE BRIDGING DETAIL	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER BR1 SHEET 1 OF 2

NOTES

1. STEEL PLATES USED FOR BRIDGING SHALL EXTEND A MINIMUM OF 12 INCHES BEYOND THE EDGES OF THE TRENCH.
2. INSTALL STEEL PLATE BRIDGING TO OPERATE WITH MINIMUM NOISE.
3. SHORE THE TRENCH TO SUPPORT THE BRIDGING AND TRAFFIC LOADS.
4. USE TEMPORARY PAVING WITH COLD ASPHALT CONCRETE TO FEATHER THE EDGES OF THE PLATES IF PLATE INSTALLATION BY METHOD 2 IS USED.
5. SECURE BRIDGING AGAINST DISPLACEMENT BY USING ADJUSTABLE CLEATS, SHIMS, OR OTHER DEVICES .
6. INSTALL STEEL PLATE BRIDGING AND SHORING USING EITHER METHOD 1 OR 2:

   METHOD 1 (FOR SPEEDS MORE THAN 45 MPH): THE PAVEMENT SHALL BE COLD PLANNED TO A DEPTH EQUAL TO THE THICKNESS OF THE PLATE AND TO A WIDTH AND LENGTH EQUAL TO THE DIMENSIONS OF THE PLATE. MAXIMUM OF 1 INCH GAP BETWEEN EXISTING PAVEMENT AND PLATE UNLESS WHEN PARALLEL TO TRAFFIC, MAXIMUM 1/2 INCH.

   METHOD 2 (FOR SPEEDS 45 MPH OR LESS): ATTACH APPROACH PLATE(S) AND ENDING PLATE (IF LONGITUDINAL PLACEMENT) TO THE ROADWAY BY A MINIMUM OF TWO DOWELS PREDRILLED INTO THE CORNERS OF THE PLATE AND DRILLED 2 INCHES INTO THE PAVEMENT. BUTT SUBSEQUENT PLATES TO EACH OTHER. COMPACT FINE GRADED ASPHALT CONCRETE TO FORM RAMPS, MAXIMUM SLOPE B.53 WITH A MINIMUM 12-INCH TAPER TO COVER ALL EDGES OF THE STEEL PLATES, BACKFILL THE DOWEL HOLES IN THE PAVEMENT WITH EITHER GRADED FINES OF ASPHALT CONCRETE MIX OR CONCRETE SLURRY.
7. MAINTAIN THE STEEL PLATES, SHORING, AND ASPHALT CONCRETE RAMPS.
8. THE REQUIRED MINIMAL THICKNESS OF STEEL PLATE BRIDGING FOR A GIVEN TRENCH WIDTH:

WIDTH OF TRENCH	MINIMUM PLATE THICKNESS
1 FOOT - 3 FOOT	1 INCH
4 FOOT	1-1/4 INCH

   NOTE:FOR SPANS GREATER THAN 4 FEET, PREPARE A STRUCTURAL DESIGN BY A REGISTERED CIVIL ENGINEER AND SUBMIT TO THE CITY FOR REVIEW.
9. STEEL PLATE BRIDGING SHALL BE STEEL PLATE DESIGNED FOR HS20-44 TRUCK LOADING PER CALTRANS BRIDGE DESIGN SPECIFICATIONS MANUAL. MAINTAIN ON THE STEEL PLATE A NONSKID SURFACE HAVING A MINIMUM COEFFICIENT OF FRICTION EQUIVALENT TO 0.35 AS DETERMINED BY CALIFORNIA TEST METHOD 342.

City of Duarte
1600 HUNTINGTON DR
DUARTE, CA 91010
PH:(626) 357-7931

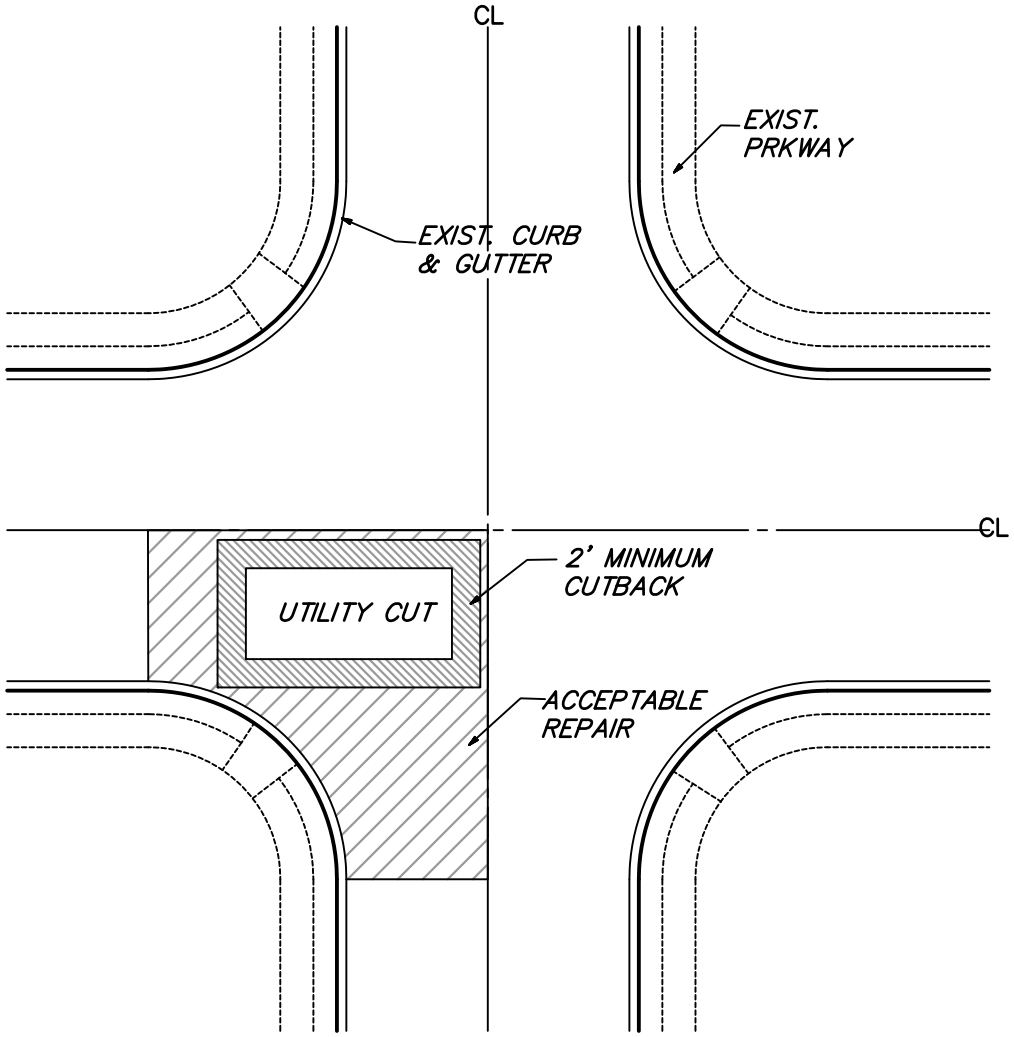
DEPARTMENT COMMUNITY DEVELOPMENT
ENGINEERING DIVISION

PLATE BRIDGING DETAIL

DRAWN BY
CHECKED BY
APPROVED BY
DATE 09/2019

DRAWING NUMBER BR2

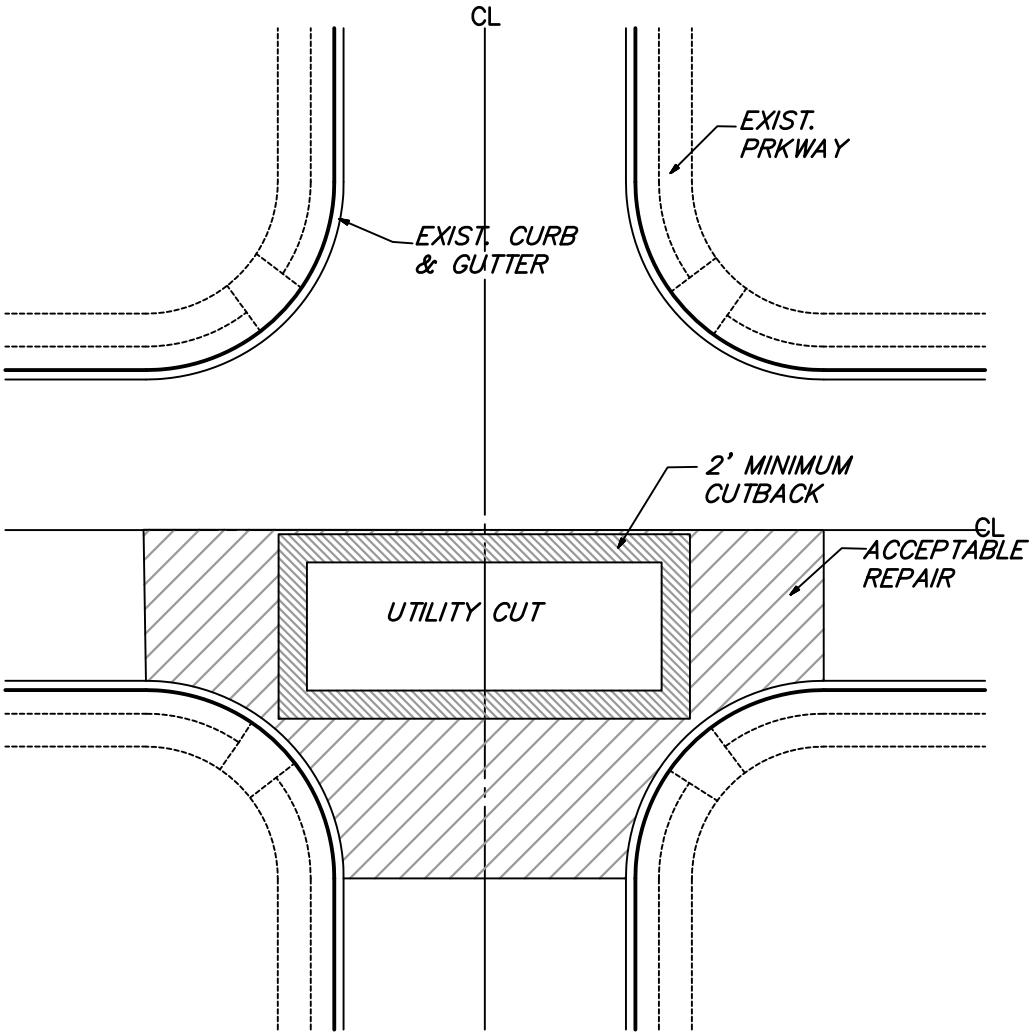
SHEET 2 OF 2



UTILITY CUT CONTAINED IN ONE QUARTER OF INTERSECTION

FIGURE A1

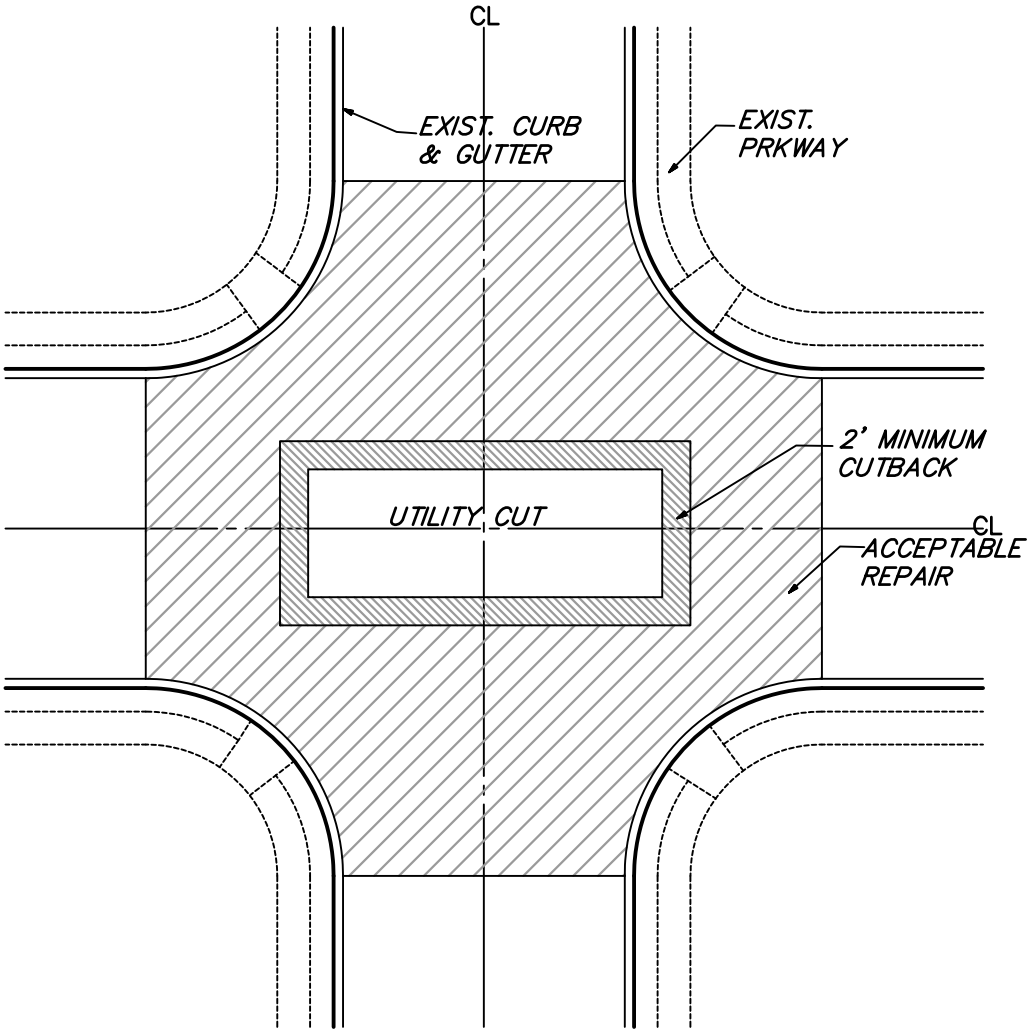
	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		UTILITY CUT REPAIR FOR AREA CONTAINED WITHIN ONE QUARTER OF INTERSECTION	
		DRAWN BY	DRAWING NUMBER A1
		CHECKED BY	
	APPROVED BY	DATE 09/2019	SHEET 1 OF 1



UTILITY CUT CONTAINED IN ONE HALF OF INTERSECTION

FIGURE A2

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		UTILITY CUT REPAIR FOR AREA CONTAINED WITHIN ONE HALF OF INTERSECTION	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER A2 SHEET 1 OF 1



UTILITY CUT CONTAINED IN MORE THAN ONE-HALF OF INTERSECTION

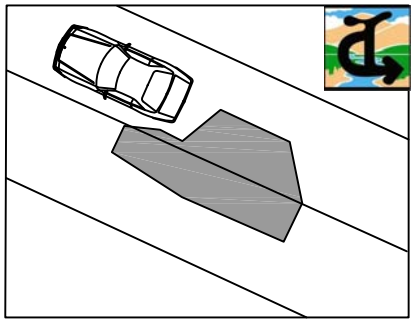
FIGURE A3

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		UTILITY CUT REPAIR FOR AREA CONTAINED IN MORE ONE HALF OF INTERSECTION	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER A3 SHEET 1 OF 1

EXAMPLE 1

Existing pavements should be removed to clean, straight lines parallel and perpendicular to the flow of traffic. Do not construct patches with angled sides and irregular shapes. All repairs should be full lane width

NOT ACCEPTABLE



ACCEPTABLE

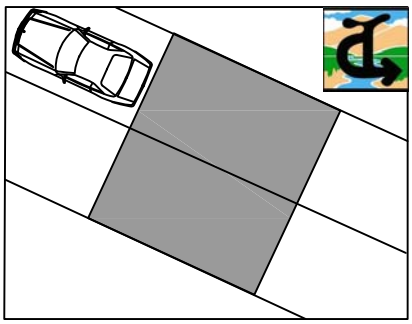
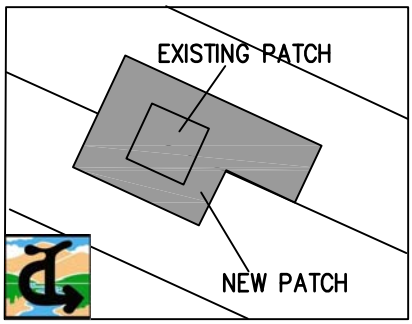


Figure 1. Example 1 : Do not construct patches with angled sides and irregular shapes.

EXAMPLE 2

Avoid patches within existing patches. If this cannot be avoided, make the boundaries of the patches coincide. All repairs should be full lane width.

NOT ACCEPTABLE



ACCEPTABLE

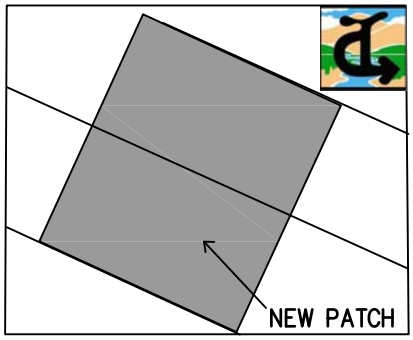


Figure 2. Example 2: Avoid patches within existing patches.

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
		DRAWN BY	DRAWING NUMBER EX1 & EX2
	APPROVED BY	CHECKED BY	
		DATE 09/2019	SHEET 1 OF 7

EXAMPLE 3

Do not leave strips of pavement less than one-half lane in width from the edge of the new patch to the edge of an existing patch or the lip of the gutter.

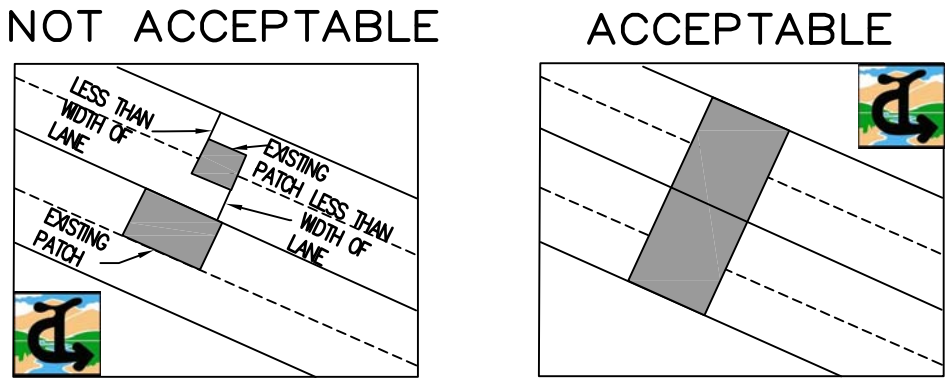


Figure 3. Example 3: Do not leave strips of pavement less than one-half lane in width.

EXAMPLE 4

In concrete pavements, remove sections to existing joints, or new saw cut joints at mid- slab, that are in good repair. In damaged concrete, the limits of removal should be determined in the field by a Public Works representative.

CONCRETE PAVEMENT

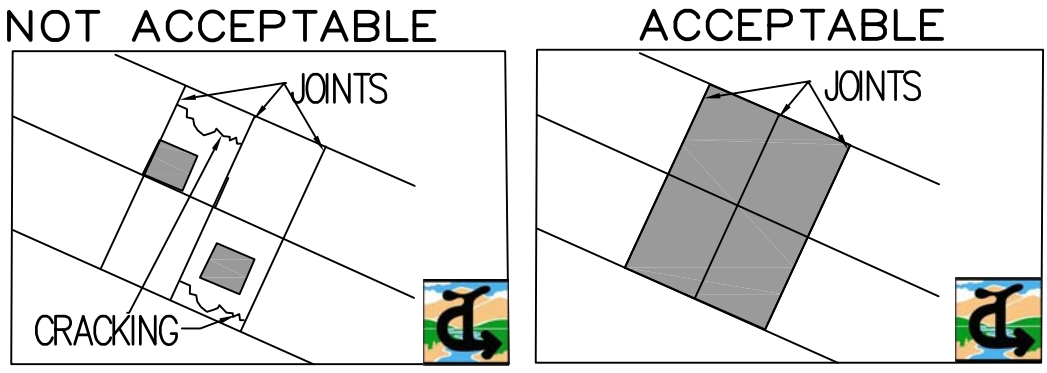
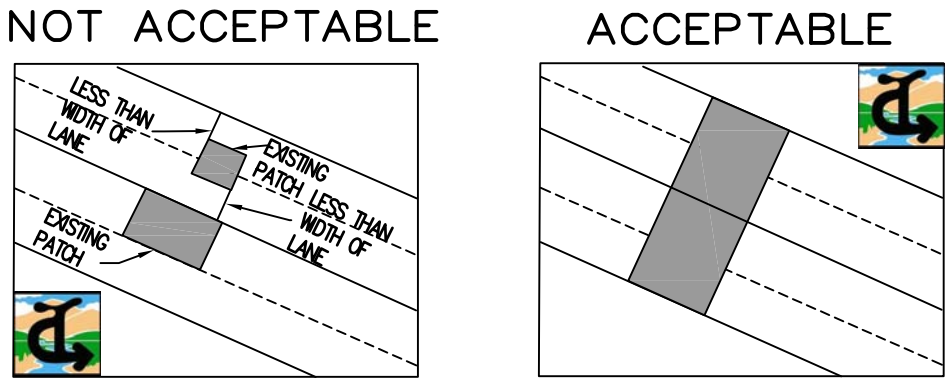


Figure 4. Example 4: In concrete pavements, remove sections to existing joints.

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER EX3 & EX4 SHEET 2 OF 7

EXAMPLE 3

Do not leave strips of pavement less than one-half lane in width from the edge of the new patch to the edge of an existing patch or the lip of the gutter.



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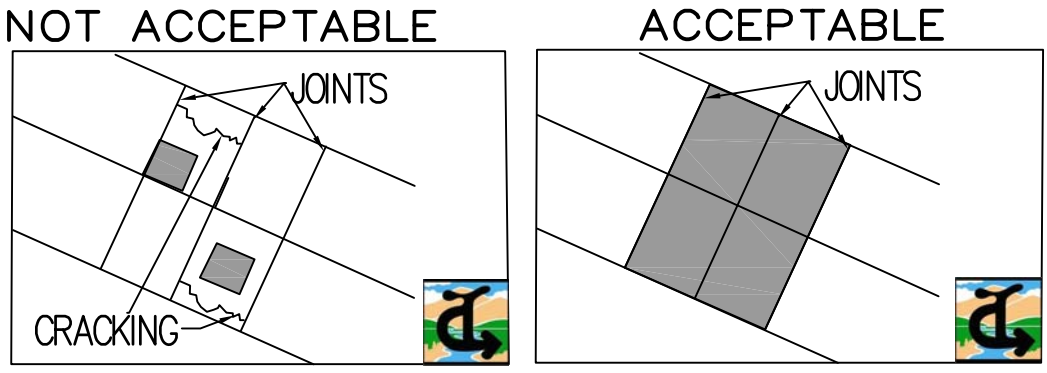

Figure 4. Example 4: In concrete pavements, remove sections to existing joints.

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER EX3 & EX4 SHEET 2 OF 7

EXAMPLE 7

Completed street repairs should have rideability at least as good as, if not better than, the pavement prior to the repairs. A driver may be able to see a street repair, but in the case of a quality repair, should not be able to "feel" it in normal driving. A patch should provide a smooth ride with smooth transitions on and off the repair and all joints should be located outside the wheel path. Overlays should be placed by first removing the existing pavement to the desired depth by grinding or cold Milling, and then placing the pavement flush with the adjacent surfaces. Overlays with feathered edges are not acceptable.

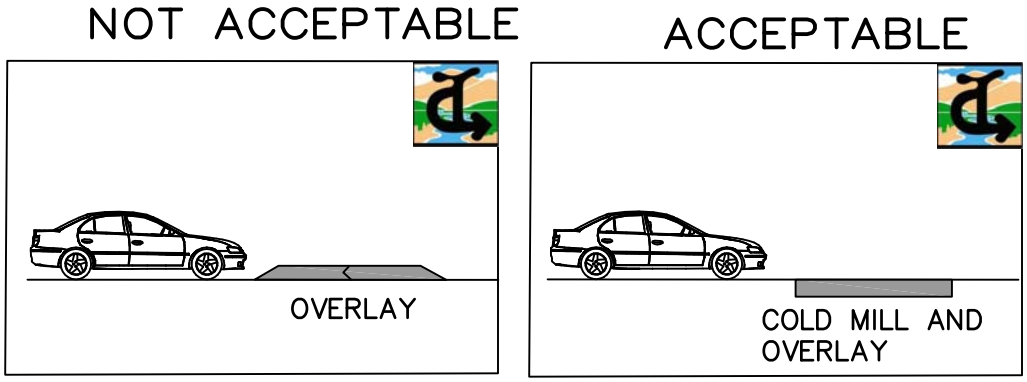

Figure 7. Example 7: Patches may not decrease rideability.

EXAMPLE 8

Surface tolerances for street repairs should meet the standard for new construction. That is, the finished surface of the street repair should be tested with a ten- (10-) foot straightedge parallel to the centerline or perpendicular across joints. Variations measured from the testing face of the straightedge to the surface of the street repair should not exceed one-quarter- (14-) inch.

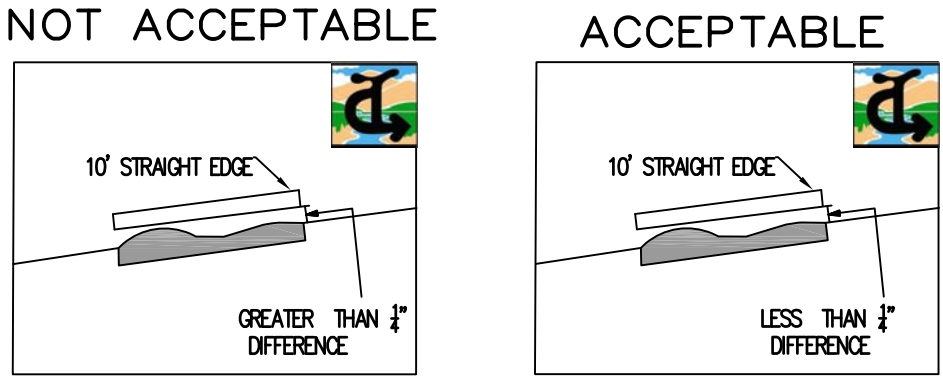

Figure 8. Example 8: Surface tolerances for street repairs should meet the standard for new construction.

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER EX7 & EX8 SHEET 4 OF 7

EXAMPLE 9

Transverse patches on arterial and collector streets shall be overlaid across the entire street width for a distance of two- (2-) feet minimum on all sides of the trench using a T-Patch.

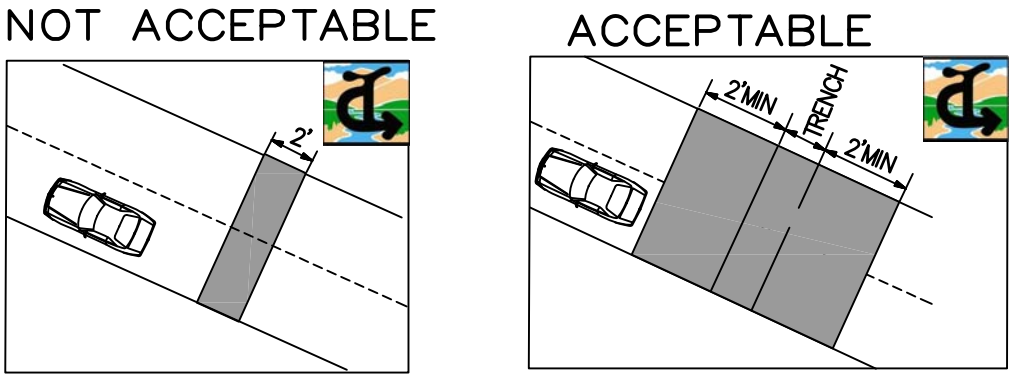

Figure 9. Example 9: Trenches must be patched using a T-Patch.

EXAMPLE 10

Do not allow the edges of patches to fall in existing wheel paths. The edges of patches parallel to the direction of traffic shall be limited to the boundaries of lanes or to the centerline of travel lanes.

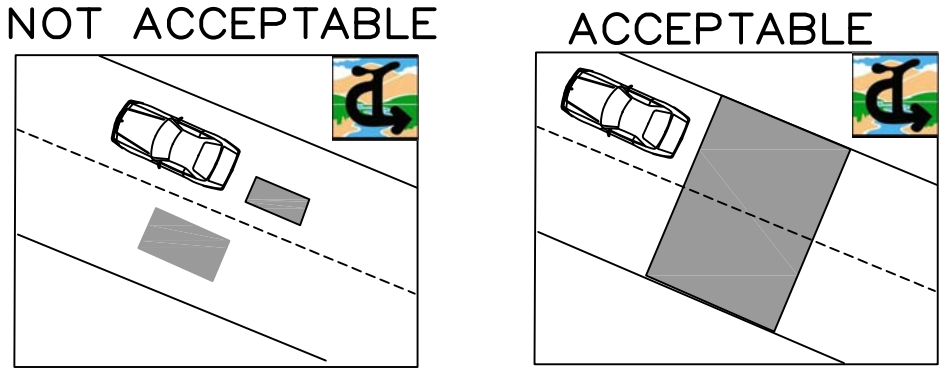

Figure 10. Example 10: Do not allow the edges of patches to fall in wheel paths.

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER EX9 & EX10 SHEET 5 OF 7

EXAMPLE 11

Patches should have a smooth longitudinal grade consistent with the existing roadway. Patches should also have a cross slope or cross section consistent with the design of the existing roadway.

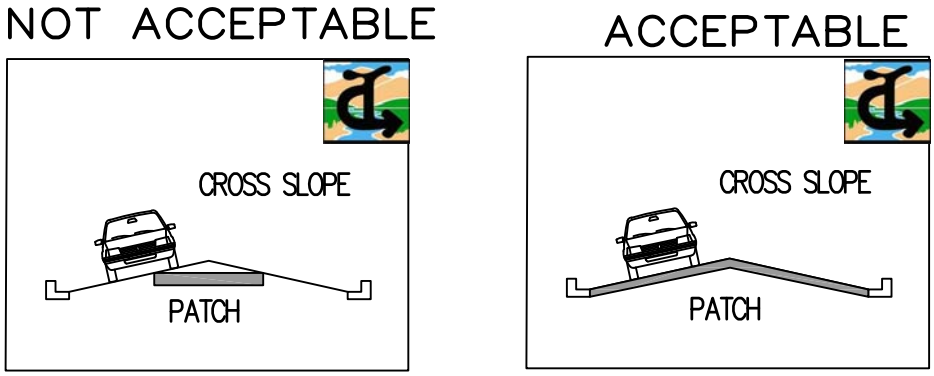

Figure 11 . Example 11. Patch slope and grade must match existing pavement.

EXAMPLE 12

When the proposed excavation falls within 10 feet of a section of pavement damaged during the utility repair, the failed area shall be removed to sound pavement and patched.

Scarring, gouging, or other damaged pavement adjacent to a patch shall be removed and the pavement repaired to the satisfaction of the City of Duarte Public Works Representative.

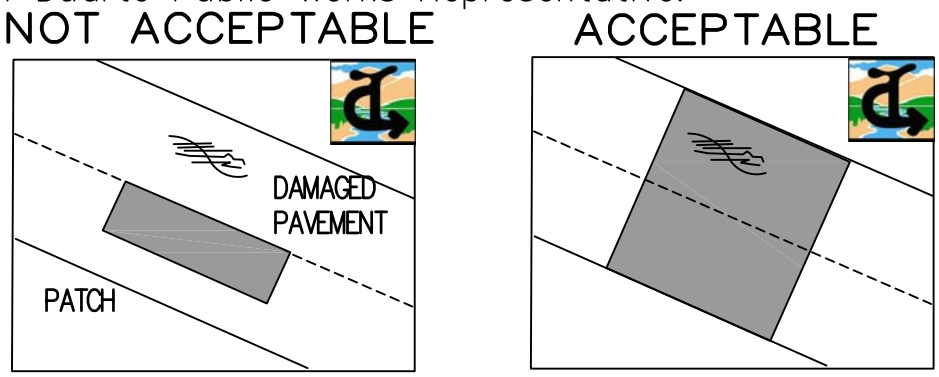

Figure 12. Example 12: Damaged pavement within 10 feet of a patch must also be patched.

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER EX11 & EX12 SHEET 6 OF 7

EXAMPLE 13

Patches must avoid frequent width changes

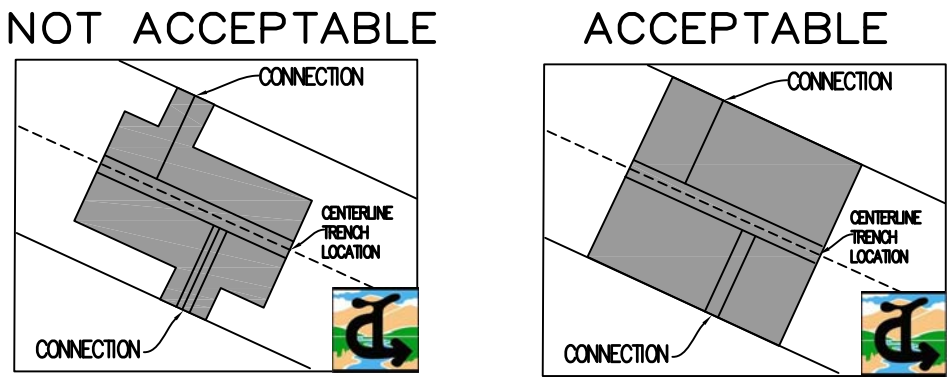

Figure 13. Example 13: Patches must avoid frequent width changes

	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER EX13 SHEET 7 OF 7