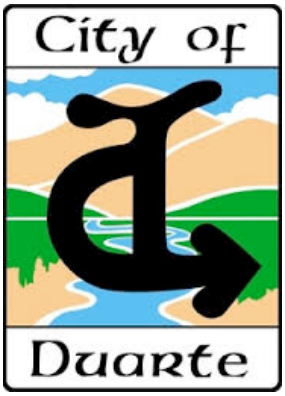


GENERAL PERMIT CONDITIONS AND TRENCH REPAIR SPECIFICATIONS POLICY

19-R-21

Effective October 9, 2019

INTRODUCTION

All contractors and public utility agencies must obtain a Permit for any work performed within the public right-of-way of the City of Duarte.

Applicants for Right-of-Way Permits must plan for adequate time for review and approval by the permit and any other involved agencies. Generally, the greater the scope of work, the longer the permit review and approval process will take.

Any pavement surface removed or damaged as a result of an excavation must be replaced by, and at the expense of, the person or organization responsible for making the excavation. In addition, a reputable paving contractor must perform the repair in accordance with the requirements and Specifications of the City, and the repair can only be performed in the presence of a City inspector.

Utility cuts cause damage that reduce the level of service of the street. In 2002, the Construction Practices Subcommittee of the APWA was assigned to research available documents related to pavement degradation caused by utility cuts. One finding estimated reduction in pavement life due to a utility cut was found to be from 20 to 56% of the original life of the pavement.

Figures A1 through A3 show the acceptable methods for making utility cut repairs at intersections.

Example 1 through 13 show the acceptable methods and limits for making utility cut repairs in street segments.

1 - GENERAL

1.1 Standards and Specifications -- The work shall be done in accordance with the current City of Duarte Standards, Standard Specifications for Public Works Construction (Greenbook), latest edition, and these Conditions and Specifications. Any deviation from said requirements must be approved in writing by the Community Development Director or Public Works Manager.

1.2 Changes or Additions to Permit -- The City reserves the right to make any changes or additions to a permit after issuance if such changes or additions are believed necessary for the protection of roads or for the health and safety of the public . Changes or additions by applicant after permit issuance need to be approved by the Community Development Director or Public Works Manager.

1.3 Relocation -- If any part of an installation interferes with the present use of roads by the general public or is in conflict with future or current City improvement projects, it shall be removed or relocated as directed by the City at the expense of the Permittee or his successor in interest.

1.4 Utility Construction -- Permits for utility trenching, including utility service trenching, within City right-of-way, shall be issued to the respective utility purveyor

or a California licensed contractor. The Permittee shall warranty the trench repair in perpetuity.

The utility company will be held responsible for a 24-month period for any defects in the patch that may result in a PCI of 85 or less in the City's Pavement Management Program Final Report.

1.5 Licensed Contractor -- All excavation, repair and restoration in City road right-of-way shall be performed by a contractor with the appropriate license issued by the State of California Contractors License Board or by utility purveyor's regular employees.

1.6 Permit Possession -- Other than emergency repairs, there shall be no work performed in City road right-of-way until a right-of-way permit is issued. A copy of this permit, a set of approved plans and permits required by any other legally constituted authority shall be on site at all times construction is in progress. Permits that require excavation shall be valid only after an Underground Service Alert (USA) inquiry identification number is issued if an excavation is to take place.

1.7 Permittee Responsibility -- In addition to all conditions herein, the Permittee is responsible for safety and construction requirements within the limits of the project. The Permittee and his employees shall abide by all the regulations of any legally constituted authority.

1.8 Hold Harmless -- The Permittee shall preserve and save harmless the City and each officer and employee thereof, from any liability or responsibility for any accident, loss or damage to persons or property happening or occurring as a proximate result of Permittee's negligence or the negligence of Permittees' agents, servants, employees or contractors in the design or performance of any work undertaken under any permit granted to Permittee pursuant to the application.

1.9 Notification -- Except in emergencies, the Permittee shall notify the City in two (2) working days, excluding weekends and holidays, prior to starting a project and for each phase of construction. In addition, the Permittee shall notify USA 48 hours prior to any excavation. It shall be the responsibility of the person performing the work authorized by the Permit to notify the Duarte Public Works Division or an authorized representative that such work is ready for inspection.

1.10 Inspection -- All construction performed in relation to a road permit shall be inspected prior to and during installation by City personnel. Construction performed without an inspection may be subject to removal and replacement. The entire cost of removal and replacement shall be borne by the Permittee, regardless of whether the installation removed was found to be defective. It shall

be the responsibility of the contractor to provide safe access for the inspector to perform the required inspections. Removal and replacement of unsatisfactory work shall be completed within fifteen (15) days of written notification of the deficiency unless deemed an emergency requiring immediate action. In the event the replacement work has not been completed, the City may take action upon the contractor's bond to cover all related cost.

1.11 Failure To Comply -- Should a Permittee fail to comply with the provisions of the right-of-way permit or the requirements of any legally constituted authority, the City Engineer may order the Permittee to stop work, wholly or in part, until the discrepancies have been resolved to the City's satisfaction . Upon satisfactory completion of corrections, written approval from the City shall be required before work may resume. Failure to comply with this requirement shall result in revocation of permits. The City may perform work required or arrange for the work to be done and the entire cost of the required work shall be borne by the Permittee.

2 - PUBLIC CONVENIENCE AND SAFETY

2.1 Traffic and Access -- The Permittee's operation shall cause no unnecessary inconvenience to the public. The access rights of the public shall be considered at all times and unless otherwise authorized, traffic shall be permitted to pass through the work area at all times. Safe and adequate pedestrian and vehicular access shall be provided and maintained to fire hydrants, residences, commercial and industrial establishments, churches, schools, parking lots, service stations, motels, fire and police stations, hospitals, and establishments of similar nature. Access to these facilities shall be continuous and unobstructed unless otherwise approved by the Community Development Director or Public Works Manager. The contractor shall make adequate provisions to assure that traffic and adjacent property owners experience a minimum of inconvenience.

All work shall be done in an expedient manner. Repairs shall be made as rapidly as is consistent with high-quality workmanship and materials. Use of fast-setting concrete and similar techniques is encouraged whenever possible without sacrificing the quality of repair. For repairs 12 feet or less in length, completion of the work including replacement of pavement and cleanup shall normally be accomplished within one (1) week after the repair work or activity involving the cut is done.

2.2 Traffic Control -- Traffic Control shall conform to the current Work Area Traffic Control Handbook (WATCH) and the Manual of Uniform Traffic Control Devices (MUTCD), or other traffic control manuals may be used with approval of the City Engineer.

2.3 Working Hours -- Except as noted below and for emergency repairs, no work shall be performed within City road right-of-way on weekends, City holidays, before 7:00 am or after 5:00 pm unless authorized by the Community Development Director or Public Works Manager.

On major arterial north-south or east-west streets, no work unless otherwise approved by the Community Development Director or Public Works Manager in advanced, shall begin before 9:00 am or continue after 3:00 pm.

2.4 Dewater Operations -- Release of, or the directing of water onto City roads shall be authorized only by the City and shall include traffic control per *Section 2.2*, clean-up per Section *4.1* and erosion control. If erosion occurs, grading shall be as required in *Section 5.4.* Discharges shall comply with the National Pollutant Discharge Elimination System (NPDES) and with federal law, state law and local ordinance.

2.5 Closing Roads -- No road shall be closed without authorization from the City Engineer except in the case of an emergency. An authorized road closure will allow the detour of through traffic only. The Permittee shall provide a smooth dust controlled route that allows unimpeded access for emergency vehicles and residents at all times. A minimum of ten (10) working days are required to process the application. To apply for a road closure authorization, submit the following to the City of Duarte Public Works Division:

- Written request for the closure with the time schedule included.
- Detour route and sign locations, a detour plan designed by a Registered Civil or Traffic Engineer, if required by the City.
- Contact info/Emergency 24/7, Name and number

3 - PRESERVATION OF PROPERTY

3.1 Protection of Property -- The Permittee shall be responsible for the protection of public and private property adjacent to the work and shall exercise due caution to avoid damage to such property. The contractor shall at all times take proper precautions and be responsible for the protection of existing streets and alley surfaces, driveway culverts, street intersection culverts or aprons, irrigation systems, mail boxes, driveway approaches, curb, gutter and sidewalks and all other identifiable installations that may be encountered during construction.

The Permittee shall repair or replace all existing improvements damaged within the right-of-way which are not designated for removal on the approved plans to match the original in finish and dimension. Trees,

lawns and shrubbery that are not designated for removal on the plans shall be protected from damage or injury. If damaged or removed because of the Permittee operations, they shall be restored or replaced in as nearly the original condition and location as is reasonably possible as approved by City personnel. The Permittee shall give seven (7) days notice to occupants or owners of adjacent property to allow them to salvage or relocate plants, trees, fences, sprinklers and other improvements within the right-of-way which are designated for removal on the plans and would be destroyed because of the work.

3.2 City Facilities -- Prior to construction, the Permittee shall assess the condition of City facilities within project limits and report to the inspector all damaged, defaced or missing pavement, sidewalk, curb, gutter, traffic signs, pavement markings or hazardous conditions that may exist before work is started. Prior to final acceptance of the project, all City facilities shall be in the same or better condition as determined by City personnel.

Any damage, even superficial, to the existing asphalt surface in the vicinity of the work shall be repaired at the expense of the Contractor, including but not limited to gouges, scrapes, outrigger marks, backhoe bucket marks, etc. A slurry seal type covering will be considered the minimum repair. Patching may be required, at the discretion of the City Public Works Division.

3.3 Traffic Signals -- Traffic signal detector loops, wiring or appurtenant facilities damaged by the Permittee's operation shall be reported immediately to the City. Any damage shall be repaired immediately at no expense to the City.

3.4 Survey Monuments -- The Permittee shall locate, protect or tie-out all survey monuments which may be disturbed or destroyed. Survey monuments shall be located, referenced and a Corner Record filed with the County Surveyor prior to the start of construction. Following completion of the work, the monuments shall be reset in the surface of the new construction, a suitable monument box placed thereon, or permanent witness monuments set and a Corner Record filed with the County Surveyor prior to final project notice of completion issued by the City. All work shall be performed under the direction of a licensed Land Surveyor or registered Civil Engineer at no expense to the City.

3.5 Underground Service Alert Markings -- All Underground Service Alert (USA) markings shall be accomplished by the use of appropriate marking paint. Any USA markings resulting from Permittee activity shall be removed

by sandblasting, sodablasting or water blasting ensuring all NPDES regulations are complied with. Markings must be removed by the Permittee within thirty (30) days from the completion of construction at no expense to the City. If the Permittee fails to remove the markings within the 30 days, the City will remove the markings at Permittee's expense. If damage to existing improvements occurs during the removal of USA markings, it shall be repaired to the original condition by the Permittee and approved by the City. Utilizing paint to cover over markings will NOT be acceptable. The contractor shall, at all times, take proper precautions for the protection of existing utilities, the presence of which are known or can be determined by field locations of the utility companies.

4 - PROJECT SITE MAINTENANCE

Surplus dirt, debris, rocks or building materials shall be contained during permit work and the site broomed daily to reduce possibility of being carried by runoff into a storm drain, stream or natural drainage course or lake. At the completion of the permit work, the previous drainage patterns must be restored. Material shall not be placed in such a manner which might result in the blockage of any drainage structure at either the inlet or outlet.

4.1 Clean-up and Dust Control -- Throughout all phases of construction, including suspension of work, the Permittee shall keep the work site clean and free from rubbish and debris. The Permittee shall also abate dust nuisance by cleaning, sweeping and sprinkling with water or other means as necessary. The use of water resulting in mud on roads or drainage facilities will not be allowed as a substitute for sweeping or other cleaning methods. All soil and construction material shall be removed prior to that portion of the road being made available to traffic.

4.2 Truck Routes -- When required by the City, obtain a truck route permit before beginning work. Permits are issued approximately five (5) working days after filing of proper plans, fees and application to the City. Care shall be exercised to prevent spillage on, or damage to City roads. Any such spillage or damage shall be removed or repaired immediately. Dust control and traffic control shall be provided for all hauling operations.

4.3 Storage in City Roads -- There shall be no equipment or materials stored or stockpiled in road right-of-way. Equipment and materials shall be removed from road right-of-way when not in use and at the end of each working day, except as approved by the Community Development Director or Public Works Manager. Offsite storage locations must be approved by City and property owner prior to occupation of the site.

4.4 Emergency Response -- Before work is started, the Permittee shall furnish names and telephone numbers of persons on-call if emergency work is required by the City. The City, at its sole discretion, may elect to perform emergency work if it is judged as necessary for the protection of the roads or for the health and safety of the public. All emergency work shall be accomplished at no expense to the City.

4.5 Maintenance of Trenches -- Permittee shall perform continuing maintenance of all trenches, including periods of suspension of work, during the course of construction and shall maintain the trench for five years after the date of the installation.

5 - MATERIALS AND EQUIPMENT

5.1 Pavement Traffic Markings and Striping – All damaged or removed pavement traffic markings and striping shall be replaced in kind within fourteen (14) calendar days from the completion of resurfacing operations. If the Permittee fails to replace damaged striping or markings within fourteen 14 calendar days, the City will complete the work and the Permittee will be responsible for all costs incurred by the City.

Visual uniformity, as determined by City personnel, may require that adjacent markings, additional length of marking on each side or all markings within an intersection be replaced by the Permittee at no cost to the City. Partial replacement of transverse markings (i.e. stop bars, crosswalks) will not be allowed and must be replace in its entirety.

5.2 Asphalt Concrete -- Paving asphalt shall be C2 or D1 – PG 64-10 (1/2" or 3/8") for finished paving, depending on overlay thickness, and B – PG 64-10 (3/4") for base paving. Asphalt concrete for Type D1 or Type D2 curb shall be D2 - PG 70-10.

5.3 Rubberized Asphalt Concrete – Rubberized asphalt concrete shall be Asphalt Rubber Hot Mix (ARHM) Wet Process per Standard Specifications for Public Works Construction (Greenbook), latest edition.

5.4 Base Material -- Base material shall be Crushed Aggregate Base (CAB), Crushed Miscellaneous Base, Fine Mix (CMB) per Greenbook, latest edition or Class 2 Base (3/4" Max,) per 2018 Caltrans Specifications or as approved by City personnel.

5.5 Grading Equipment -- Grading of soil roads or soil shoulders may be accomplished by any means that will provide a smooth, compacted and uniform surface that varies less than 0.1 foot in 10 feet for line or grade up to 300 feet.

Projects greater than 300 feet in length will require grading be performed by an approved motor grader.

5.6 Track Equipment -- Track equipment and outriggers used on paved surfaces shall be equipped with street pads and be operated so as not to mar the surface or cause damage to any City facility. If pavement is marred, it shall be resurfaced over the entire width as required in *Section 8, Trench Resurfacing*. If City facilities are damaged, they shall be replaced or repaired as specified in *Section 3, Preservation of Property.*

5.7 Equipment -- Paving 6 feet wide or wider in a driving lane shall be accomplished by use of a paving machine approved by City personnel. Shoulder paving and miscellaneous paving shall be as approved by the City.

6 - TRENCHING

6. 1 Definition of Trenching -- Trenching shall be defined as any operation in which asphalt pavement, concrete pavement, earth, or other material on the surface is moved, removed, or otherwise displaced by means of hands, tools, or equipment in any of the following ways: trenching, digging, ditching, drilling, augering, tunneling, cutting or any other method not specified.

6.2 CalOSHA -- All excavations shall conform to the requirements of the State of California Division of Occupational Safety and Health. The applicant for a road permit shall possess a permit to excavate from the Division of Industrial Safety, Department of Industrial Relations, State of California.

6.3 New Roads -- There shall be no trenching activity on streets paved or resurfaced within the previous 5 years unless otherwise authorized by the Community Development Director or Public Works Manager. If authorized, the Permittee shall be required to overlay the roadway to restore it to its original condition per Standard Drawing Number R8, Trench Overlay Detail or complete repair improvements as determined by Community Development Director or Public Works Manager.

6.4 Pavement Removal -- Paving shall be cut for removal and excavated in a manner that does not disturb the adjacent pavement. Paving shall be saw cut to clean, straight lines that are perpendicular or parallel to the flow of traffic, or cold planed for permanent repair as specified in *Section 8*. Remnant strips of paving less than 4 feet wide shall be removed and included in the replacement paving. Replacement paving along the edge of paving that does not have curb and gutter, AC dike or AC berm shall be a minimum of 5 feet wide. When sidewall slippage

occurs within the trench under the pavement, the pavement in the affected area shall be removed and the area of slippage shall be re-compacted, paving of this area shall be included in the replacement paving. Any voids under the pavement shall be filled by an appropriate method approved by the inspector.

Concrete pavement, driveways, streets, and alleys shall be removed to neatly sawed edges cut to full depth.

6.5 Open Trench -- The maximum length of open trench (excavation or backfill not resurfaced) allowed during construction shall be the distance of construction which can be reasonably installed in a single day. An open trench shall be attended by contractor's personnel at all times. Where pavement has been removed, a minimum of 2 inches of temporary paving shall be placed before that area is made available to traffic. Before leaving the project and at the end of each day, all areas of pavement removal, including sidewalk, drainage courses and driveway approaches shall be backfilled, compacted and surfaced with temporary asphalt. Upon approval of the City, appropriate areas of the trench may be protected by plate bridging or protective fencing.

6.6 Trench Bridging -- Plate bridging in the traveled way shall be per the Plate Bridging Detail (BR1 and BR2) herein with traffic control per *Section 2.2, Traffic Control*.

6.7 Protective Fencing -- When protective fencing is used to secure an area, it shall be constructed of 6-foot-high, pipe framed chain link panels or equal material, secured into position and placed in a manner that there are no gaps larger than 3 inches. Fencing shall be placed a minimum of 4 feet from the nearest driving lane and shall be protected by appropriate signing and barriers per *Section 2.2, Traffic Control.*

6.8 Trench Backfill -- Unless otherwise specified by the City, the trench shall be backfilled with Base Material, as defined within *Section 5.4. Base Material.* Native soil backfill will not be allowed as backfill material and shall be disposed of at the cost of the Permittee. The backfill shall be installed per Standard Drawing Number R8, T-Cut Trench Repair.

Any trenching that involves bundled conduits of more than five (5) 2 inch conduits shall be slurry backfilled with 1-1/2 sack slurry.

Sand Slurry may be used as utility trench backfill for all trenches unless otherwise specified by the City. This requirement applies to all pavement and gravel locations. Compaction will be as specified by the City Public Works Division.

Repair of failed trenches will be the responsibility of the party requiring the trench.

Conventional Backfill (other than sand slurry)

Backfill in existing or proposed streets, curbs, gutters, sidewalks and alleys is divided into three (3) categories: initial, intermediate and final lifts as defined below:

- The INITIAL LIFT, comprised of washed, clean gravel material, consists of the section from the bottom of the excavation to a point six to twelve (6 - 12) inches above the top of the installation. Placement and compaction of the initial layer shall be as specified by the utility company to protect their installation.

- The INTERMEDIATE LIFT, generally comprised crushed stone, consists of the section above the initial layer to a point within six (6) inches of the ground level or the bottom of the pavement section, whichever is greater.
- The FINAL LIFT includes both road base and asphalt surfacing. Road base material shall meet crushed aggregate base course.

6.9 Bedding Zone -- Unless otherwise specified by the City, imported sand shall be used backfill within the bedding zone area as defined on the attached surface restoration and trench backfill detail. Select native soil from excavation may be used as a suitable backfill if the material is determined to provide a sand equivalent greater than 30 by use of California Test 217 (ASTM D2419-09).

6.10 Narrow Trench – Unless otherwise authorized the minimum trench width shall be 18”.

6.11 Inclement Weather -- Other than emergency repairs or as directed by the City, there shall be no excavation within the traveled way of City roads during periods of inclement weather.

7- COMPACTION

If requested by the Public Works Inspector, the contractor is required to provide material testing for each phase of the work and at no cost to the City of Duarte. The testing firm chosen to perform this work for the Contractor must be qualified and identified on the Permit application.

Density and thickness tests may be required to ensure compaction requirements are met and the appropriate compacted thickness of repair material has been placed. The number of tests required will be as directed by the Public Works Inspector. The costs of any testing, as required, shall be borne by the contractor. If sections with deficient thickness or density are found, the full section for a reasonable distance on each side of the deficiency shall be refused. All such sections shall be removed and reinstalled to these guidelines.

The subgrade for the pavement structure shall be graded to conform to the

cross sections and profile required by the construction plans. Prior to the placement of aggregate base course or sub-course, the subgrade should be properly prepared. The subgrade should be scarified to a minimum depth of six (6) inches, moisture adjusted as necessary, and compacted.
Prior to approval to place the base or sub-base course, all utility main and service trenches shall be compacted. The density requirement also applies to all utility trenches within the public rights-of-way from a point four (4) feet beyond the edge of asphalt and descending at 1:1 outward.

7.1 Relative Compaction (RC) -- RC of 95% minimum shall be required for asphalt pavement, paving base material and backfill material. RC of 90% minimum shall be required for all backfill within the bedding zone as defined in *Section 6.9*. All compaction shall be in accordance with California Test No. 216 or No. 231 (ASTM D-1556 or D-1557-70). Use of an alternate compaction test method (e.g. Dynamic Cone Penetrometer) must be approved in advance and will be approved on a case-by-case basis.

7.2 Compaction Testing Frequency and Location -- Trench backfill testing shall be at 250 foot maximum intervals. One test shall be performed for each 4 feet of depth or fraction thereof. Pavement subgrade and pavement base material shall be tested at 500 foot intervals or at the recommendation of the City Engineer. Tests for backfill shall be taken at mid-depth of each 4 feet of backfill starting at the top of the installation. 20% of laterals and 100% of manholes shall be tested independently of the main line. Failure of a compaction test will result in the entire area represented by that test being uniformly reworked and retested at a random location.

7.3 Test Reports -- Tests shall be certified by a registered California Civil or Geotechnical Engineer or testing laboratory in accordance with the State of California test requirements. Test locations shall be determined by City personnel. Test reports shall be listed individually for each trench or for each type and phase of construction that includes an accurate description of the test location. Compaction reports shall be submitted to Inspector prior to permanent paving. If an alternate compaction method is approved per *Section 7.1*, alternate test reports specified at time of permit issuance shall be submitted.

7.4 Mechanical Compaction -- Backfill shall be placed in horizontal layers of thickness compatible to the material being placed and the type of equipment being used. Each layer shall be evenly spread then tamped or rolled until the specified relative compaction is attained.

7.5 Water Densification -- Densifying by ponding and jetting will not be allowed within 4-feet of finish grade unless confined to the pipe zone and approved by the Inspector. Water densification may be allowed when, as determined by City

personnel, the base and backfill materials have a sand equivalent of 20 or greater (California Test No. 217) and are of such character that they will be self-draining when compacted and the foundation material will not soften, or otherwise be damaged by the applied water. For authorization to use water densification, submit request and test reports representing the foundation soils and backfill material, at a maximum of 1000 foot intervals to the Inspector five (5) working days prior to starting work.

8- TRENCH RESURFACING

8.1 Temporary AC Pavement -- Temporary asphalt compacted to 2 inches thick shall be placed and maintained in a smooth and compacted condition at all locations where paving has been removed and before traffic is allowed to pass over areas of pavement removal. Temporary asphalt shall be removed for permanent repair.

When the final surface is not immediately installed, it shall be necessary to place a temporary asphalt surface on any street cut opening. The temporary surface installation and maintenance shall be the responsibility of the Permittee until the permanent surface is completed and accepted. It shall be either a hot mix or cold mix asphalt paving material. Temporary surfaces shall be compacted, rolled smooth, and sealed to prevent degradation of the repair and existing structures during the temporary period. Permanent patching shall occur as outlined in the Permit.

8.2 Pavement Repair -– Any damaged paving shall be replaced in kind. Permittee shall ensure any areas with existing rubberized asphalt concrete are repaired with rubberized asphalt concrete, independent of the amount of repairs necessary. Damaged paving adjacent to the trench edges shall be saw cut and removed in regular sections. Remnant strips of paving 5 feel wide or less will be removed and that area included in the paving repair. Asphalt paving shall be placed in a minimum of two lifts and be a minimum of 95% RC. The repaired section shall be 1 inch thicker than the existing paving but not less than 3 inches thick. Paving shall be placed within thirty (30) days of completion of the subsurface installation in accordance with *Section 1.5*. Areas to be joined with asphalt paving shall be cleaned of all soil and foreign material and tacked 100% coverage of asphaltic emulsion or paint binder.

The asphalt patch area for street excavations that fall within the wheel path of the vehicular travel lane shall be increased in size to the center of the lane or adjacent lane. Under no circumstances shall the edge of a patch area be allowed to fall within the wheel path.

8.3 Permanent Pavement Repair -- Base paving will be in compacted lifts a

minimum of 2 inches and a maximum of 3 inches thick and shall be B–PG 64-10 (3/4"). Finish course shall be a minimum of 1-1/2 inches a maximum of 2 inches thick of C2 or D1- PG 64-10 (1/2" or 3/8"), depending on overlay thickness, flush with the existing paving. In areas requiring rubberized asphalt concrete pavement repair the entire pavement section shall be replaced with ARHM Wet Process, per *Section 5.3*. Trench sections over 6 feet in width shall utilize a self-propelled vibrating screed paving machine (Barber-Greene or equivalent) and may be subject to additional requirements.

8.4 Overlay Paving -- An overlay will be required for any roads paved or resurfaced within the previous 5 years per *Section 6.3, New Roads*. Any roads with trenches that are classified as excessive pavement removal, as defined in *Section 8.5*, will also be required to provide an overlay per figures EX1 through EX13 for street segments and figures A1 through A3 for intersections. The determination of the overlay shall be made by the City at the preconstruction meeting or prior to issuance of the permit. Substantial damage to the roadway beyond the trench excavation as a result of negligence by the Permittee or their contractor shall meet or exceed prior street pavement conditions and will be determined by the City. The overlay, when required, shall be a minimum of 1-1/2 inches of C2 or D1–PG 64-10 (1/2" or 3/8"), depending on overlay thickness, placed with a paving machine per *Section 5.6,* and shall extend beyond pavement removal a minimum of 18 inches laterally and 18 inches longitudinally from the saw cut edge and shall cover the driving lane or shoulder full width. Roads that have a superelevation or tilt cross section may require full road width overlay in the area of the superelevation or tilt section. When paving occurs where striping exists the paving joint shall be centered on the striping and all damaged striping replaced per Section 5.1, unless otherwise noted.

8.5 ***Excessive Pavement Removal*** -- Any road subjected to removal of six or more separate areas of pavement, or the removal of **15%** of the total area of a lane or shoulder, by a Permittee within a 300-foot length of street, shall be **classified as excessive pavement** removal and require an overlay per *Section 8.4* and figures EX1 through EX13 for street segments and figures A1 through A3 for intersections. Any trenching activities performed within 1 year, within a 300-foot length, by the same Permittee, shall be evaluated by City staff to determine if the trenching activities classifies as excessive pavement removal.

8.6 Pavement Surfacing -- Where there are existing surface coats on the existing paving, open graded paving, slurry seal, chip seal or any type of surfacing that has been removed, the surfacing and paving shall be replaced in kind to the extents of the pavement repair.

All permanent pavement patches and repairs shall be made with "in kind" materials. For example, concrete patches in concrete surfaces, full depth asphalt patches with full depth asphalt, concrete pavement with asphalt overlay patches will be expected in permanent "overlaid" concrete streets, etc. In no case is there to be an asphalt patch in concrete streets or concrete patch in asphalt streets. Any repair not meeting these requirements will be removed and replaced by the contractor at no expense to the City of Duarte.

8.7 Driveway Approaches -- Driveway approaches constructed of asphalt concrete shall be repaired as required and shall also be overlaid with a 1-1/2-inch-thick full width overlay to the property line or slurry sealed. Any asphalt driveway approach removal of 30% or more shall be constructed of Portland cement concrete (PCC) as directed by the Public Works Inspector.

Concrete shall be removed to neatly sawed edges to full depth for sidewalks and curb and gutter and shall be saw-cut in straight lines either parallel to the curb or perpendicular to the alignment of the sidewalk or curb. Any removal shall be done to the nearest joint. Replaced sections may require doweling connections if required by the Public Works Inspector.

8.8 Portland Cement Concrete -- Potholes or trenches in PCC shall be repaired by sawcutting or grinding and removed in full panels at the score lines or as directed by Public Works Inspector.

The concrete pavement shall be replaced with 4,000 psi concrete to match the finish and thickness of the existing pavement, but not less than eight (8) inches thick. All concrete construction shall be protected from vehicular traffic, including contractor vehicles, until the concrete has achieved eighty (80) percent of its ultimate strength. Concrete shall be coated and sealed with a uniform application of membrane curing compound applied in accordance with manufacturer's recommendations.

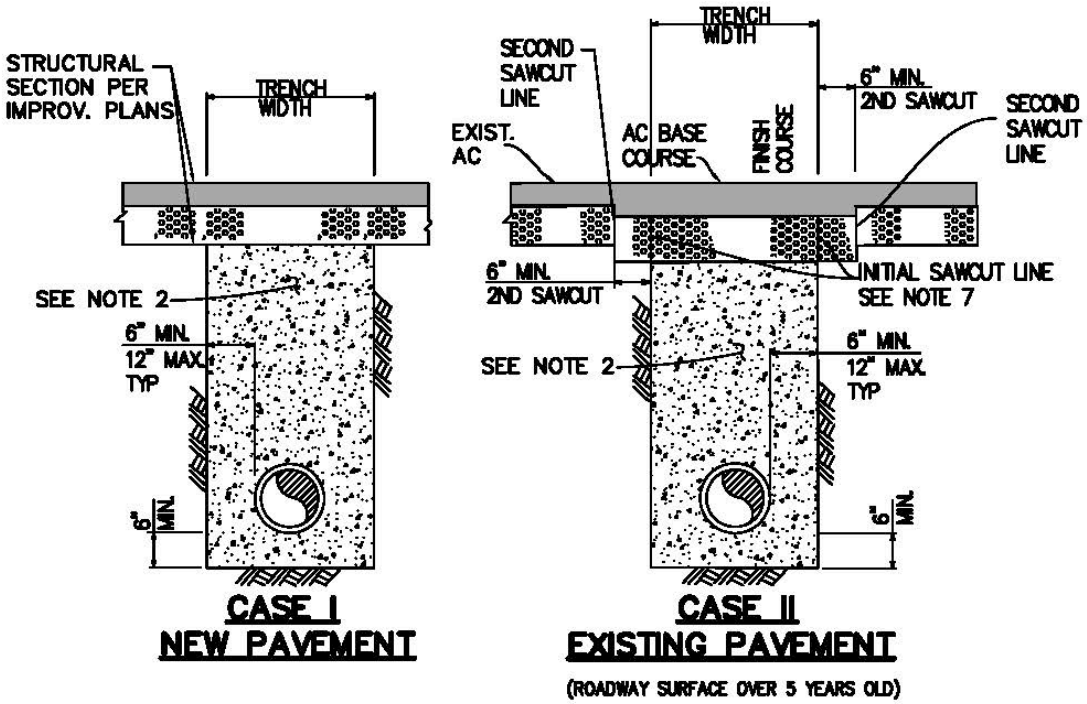
The use of quick-curing concrete (3000 psi strength within 48 hours) shall be used on all arterial and collector streets when requested by the City Public Works Division. Quick-curing concrete repairs may be opened to traffic within two (2) days or when the concrete has achieved eighty (80) percent of its ultimate strength.

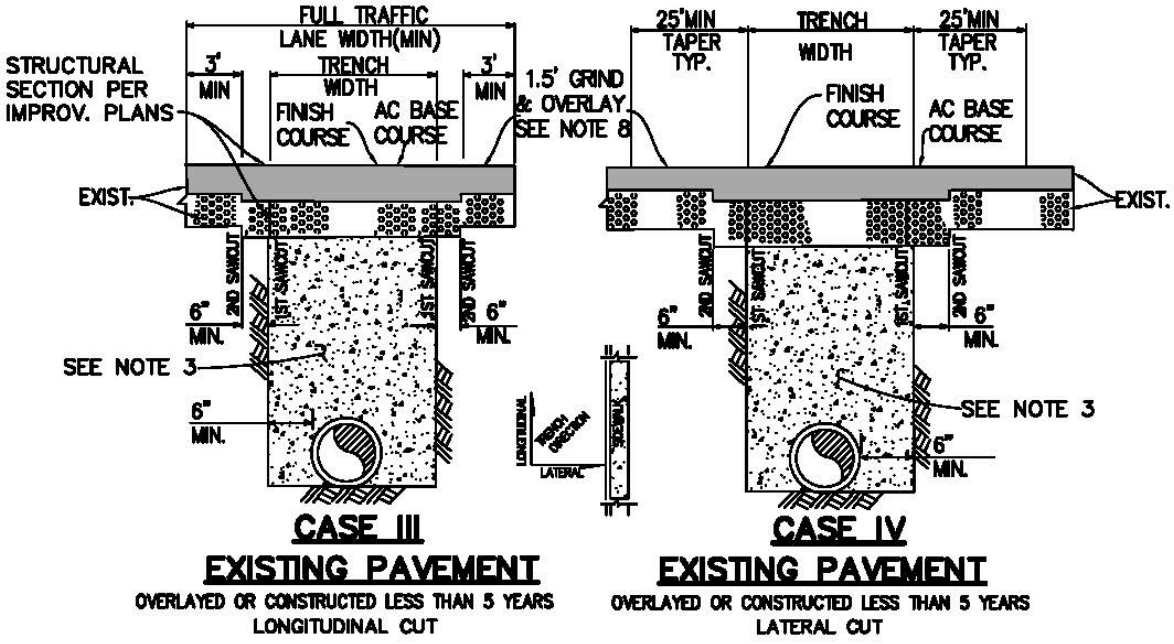
Where existing cracks or damage is adjacent to the area being repaired, the repair area shall include the cracked or damaged concrete. Pavement repairs shall include all areas of damage, including leak test holes, pot holes, equipment, and/or material scarring of the exiting surface.

8.9 Trench Failure and Repair -- When the City notifies Permittee of a failure of the trench (settlement, excessive cracking or alligatoring, etc.) Permittee shall coordinate the proposed trench repair method and schedule with the City. If the

Permittee fails to repair the trench within 14 calendar days from the date of written notice, the City will complete the repair and the Permittee will be responsible for all costs incurred by the City.

Some examples of repair methods that are not acceptable and the corresponding acceptable method are provided in the following Figures 1 through 13.





	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION
		PIPE BACKFILL IN TRENCHES
	DRAWN BY CHECKED BY APPROVED 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.*

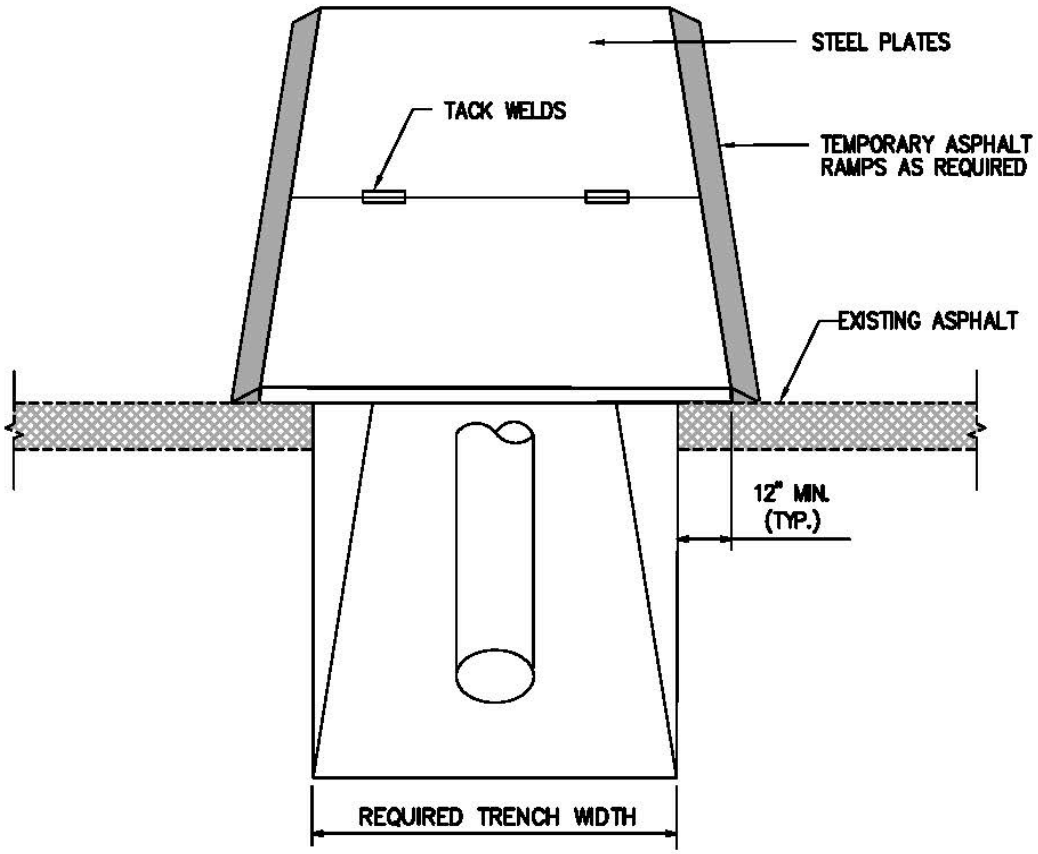
7. *EXISTING A.C. PAVEMENT SHALL BE SAWCUT TWICE.*
   INITIALLY TO EXCAVATE, LAY PIPE, AND BACKFILL.
   AFTER THE TRENCH HAS BEEN BACKFILLED AND COMPACTED PRIOR

   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.

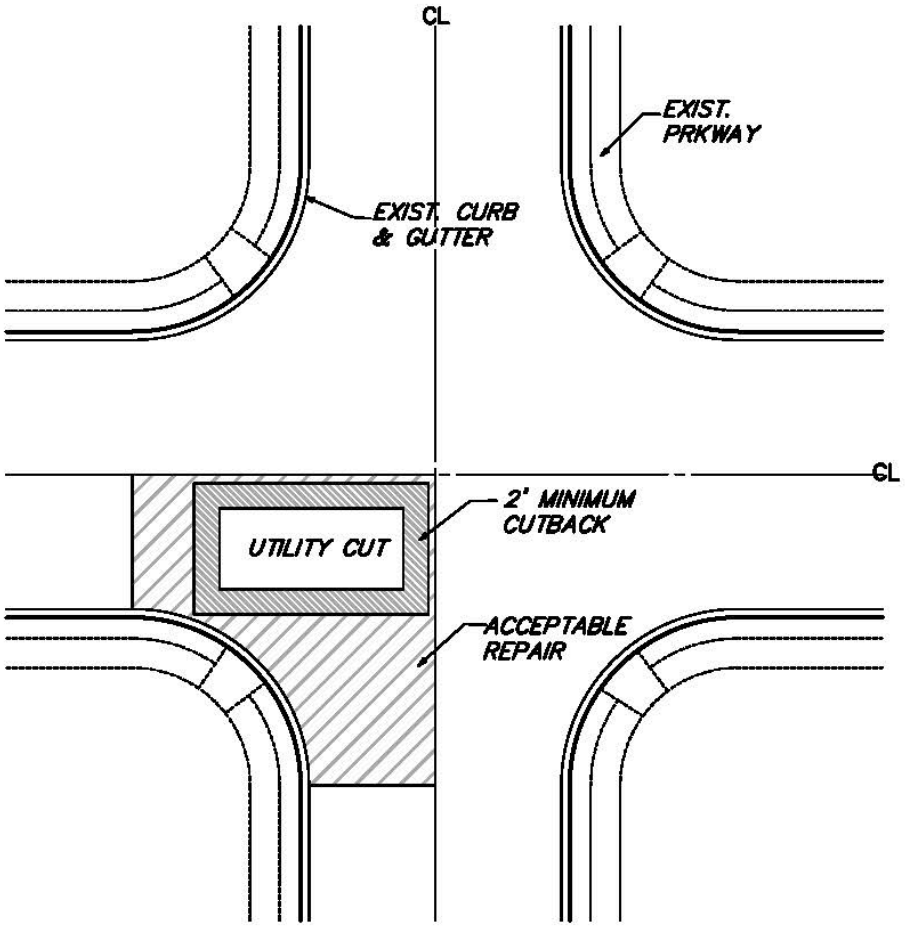
   METHOD 2 (FOR SPEEDS 45 MPH OR LESS): ATTACH APPROACH PLATE(S) AND ENDING PLATE (IF LONGITUDINAL PLACEMENT) TO THE ROADWAY BY A MINIMUM OF TWO DOWELS PREDRILLED INTO THE CORNERS OF THE PLATE AND DRILLED 2 INCHES INTO THE PAVEMENT. BUTT SUBSEQUENT PLATES TO EACH OTHER. COMPACT FINE GRADED ASPHALT CONCRETE 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.

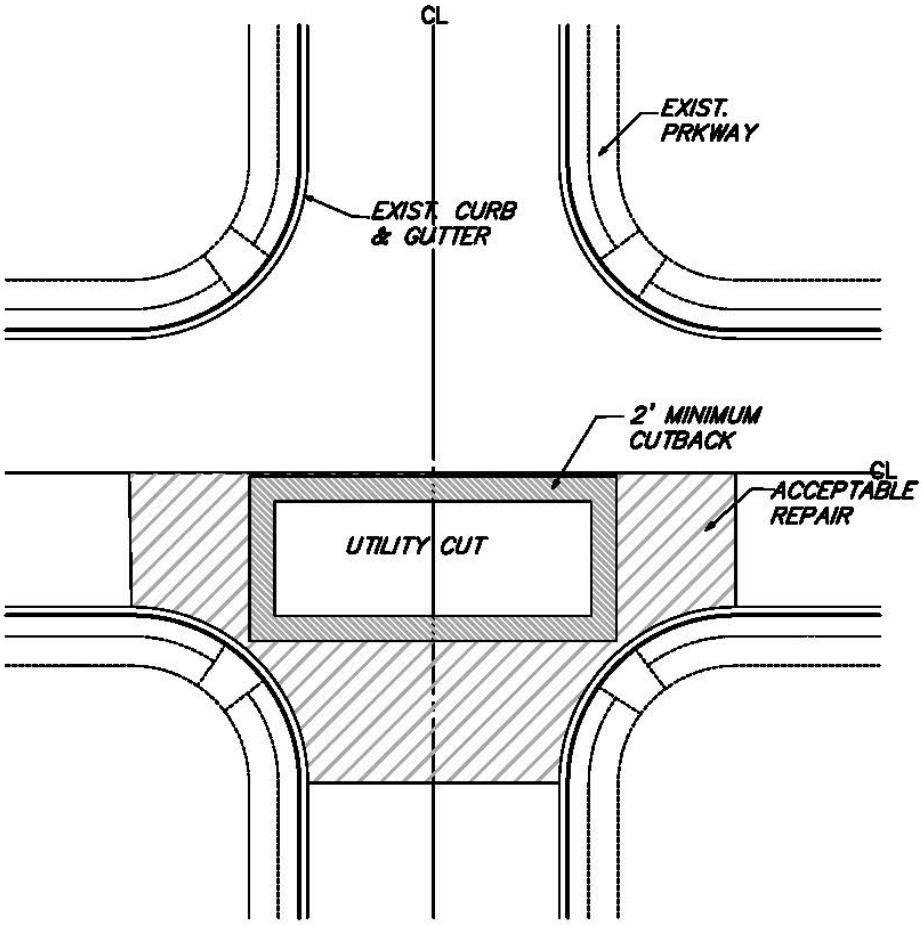
	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		PLATE BRIDGING DETAIL	
	APPROVED BY	DRAWN BY CHECKED BY DATE 08/2019	DRAWING NUMBER BR2 SHEET 2 OF 2



UTILITY CUT CONTAINED IN ONE QUARTER OF INTERSECTION

FIGURE A1

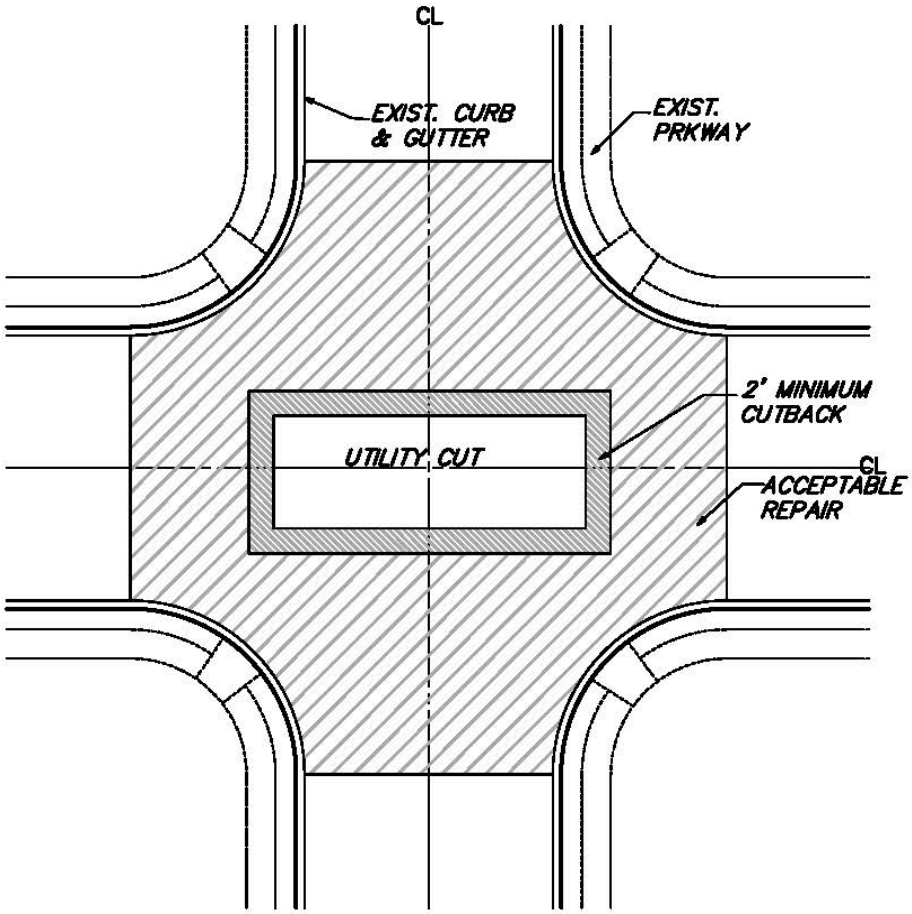
	City of Duarte 1600 HUNTINGTON DR DUARTE, CA 91010 PH:(626) 357-7931	DEPARTMENT COMMUNITY DEVELOPMENT ENGINEERING DIVISION	
		UTILITY CUT REPAIR FOR AREA CONTAINED WITHIN ONE QUARTER OF INTERSECTION	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2019	DRAWING NUMBER A1 SHEET 1 OF 1



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 09/2018	DRAWING NUMBER A2 SHEET 1 OF 1



UTILITY CUT CONTAINED IN MORE THAN ONE-HALF OF INTERSECTION

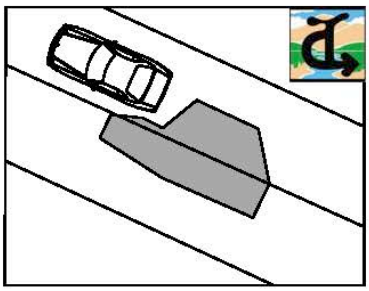
FIGURE A3

	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

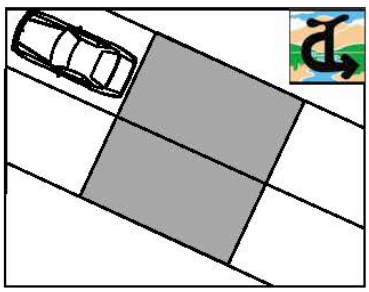
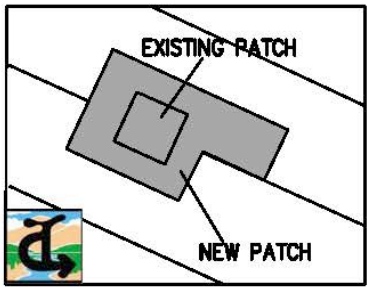


Figure 1. Example 1 : Do not construct patches with angled sides and irregular shapes.

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

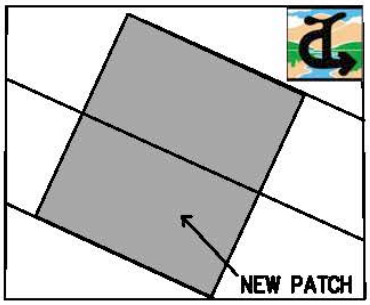


Figure 2. Example 2: Avoid patches within existing patches.

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

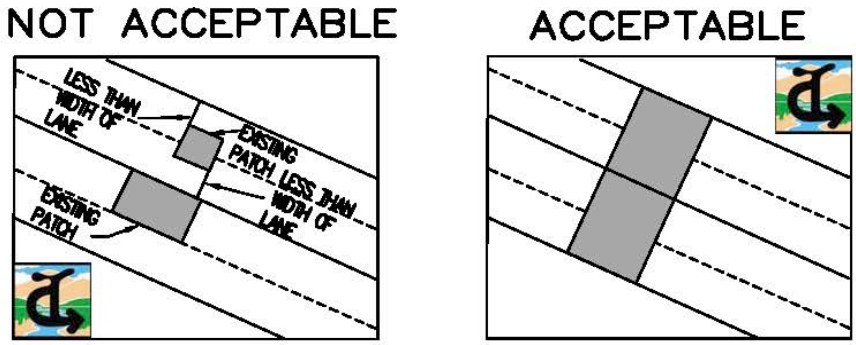


Figure 3. Example 3: Do not leave strips of pavement less than one-half lane in width.

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

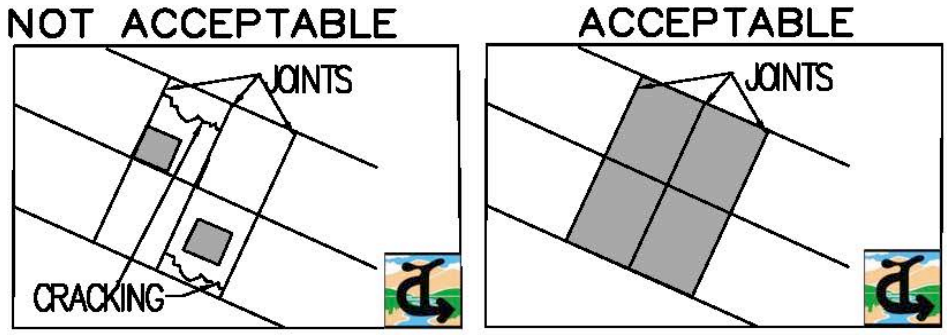


Figure 4. Example 4: In concrete pavements, remove sections to existing joints.

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

EXAMPLE 5

Asphalt and concrete pavements should be removed by saw cutting or grinding. Avoid breaking away the edges of the existing pavement or damaging the remaining pavement with heavy construction equipment.

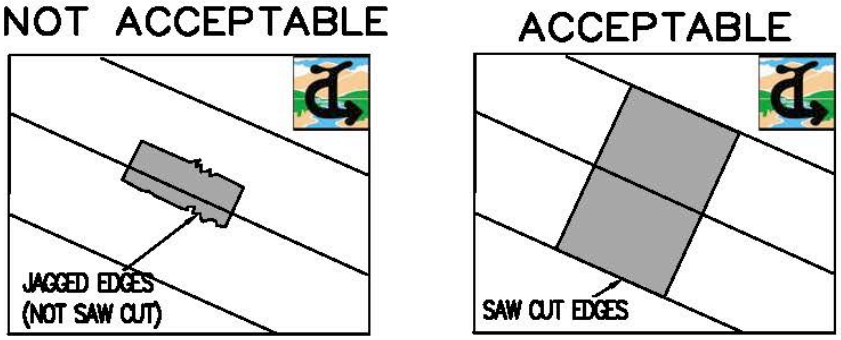


Figure 5. Example 5: All edges shall be saw cut.

EXAMPLE 6

In the case of a series of patches or patches for service lines off a main trench, repair the pavement over the patches by grinding and overlay when the spacing between the patches is less than 10 feet. In cases where the existing pavement is in poor condition (in the Strategic Paving Plan) and may require overlay within the next few years, this requirement may be modified or waived by the City of Duarte Public Works Representative.

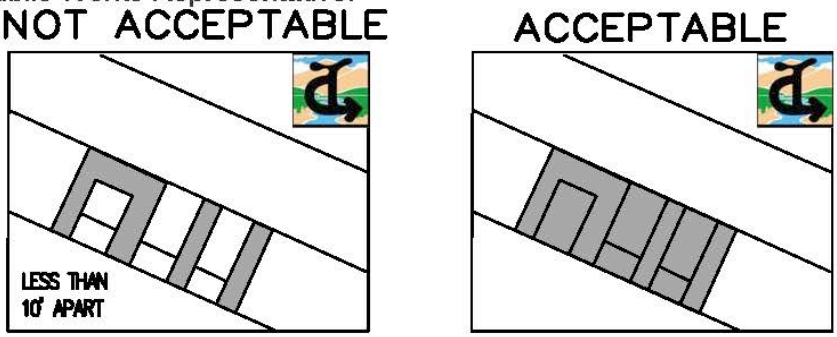


Figure 6. Example 6: The patched area must include any existing patches within 10 feet.

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		ACCEPTABLE METHODS FOR MAKING STREET REPAIR	
	APPROVED BY	DRAWN BY CHECKED BY DATE 09/2018	DRAWING NUMBER EX5 & EX6 SHEET 3 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.

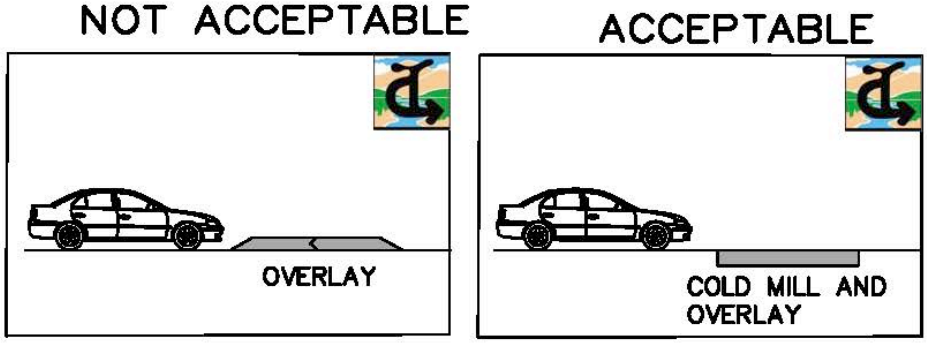

Figure 7. Example 7: Patches may not decrease rideability.

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.

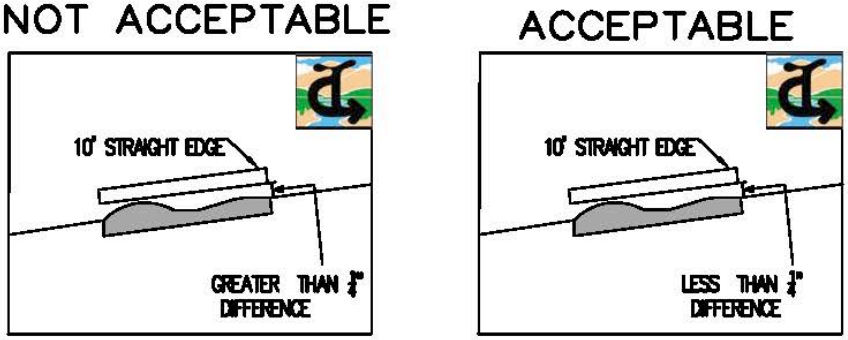

Figure 8. Example 8: Surface tolerances for street repairs should meet the standard for new construction.

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		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.

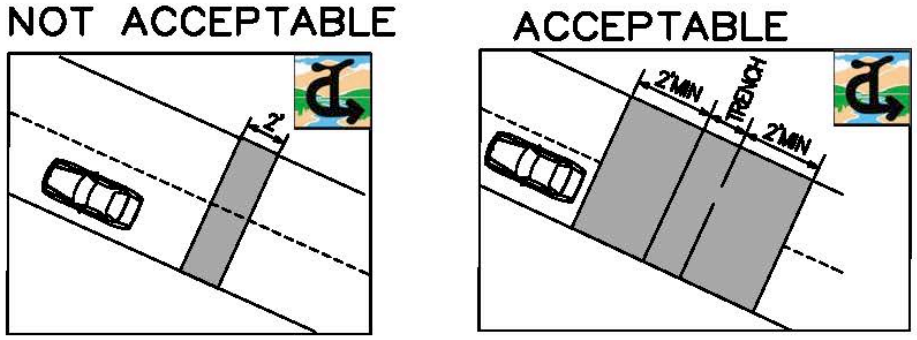

Figure 9. Example 9: Trenches must be patched using a T-Patch.

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.

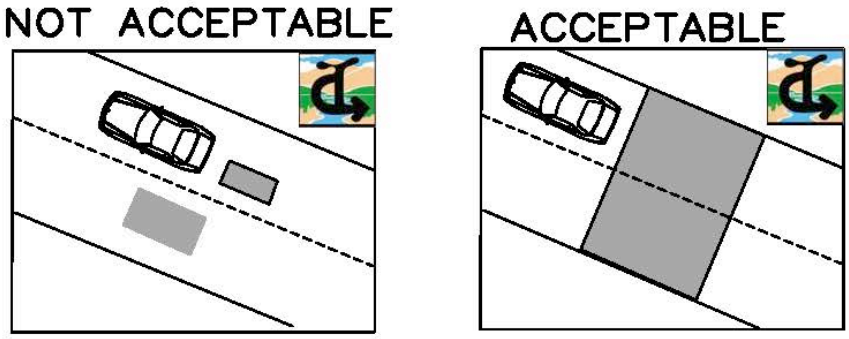

Figure 10. Example 10: Do not allow the edges of patches to fall in wheel paths.

	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.

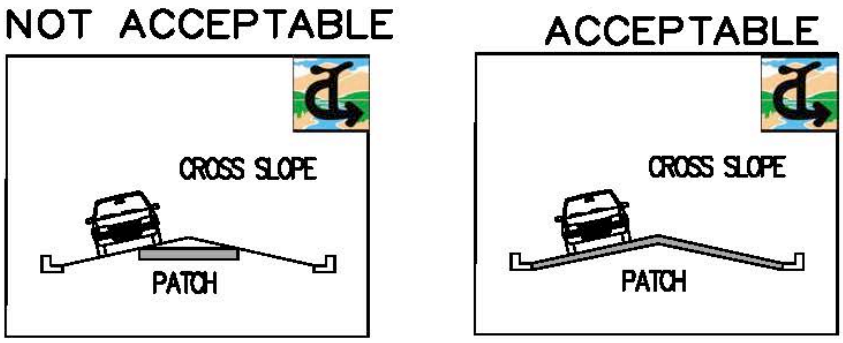

Figure 11 . Example 11. Patch slope and grade must match existing pavement.

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.

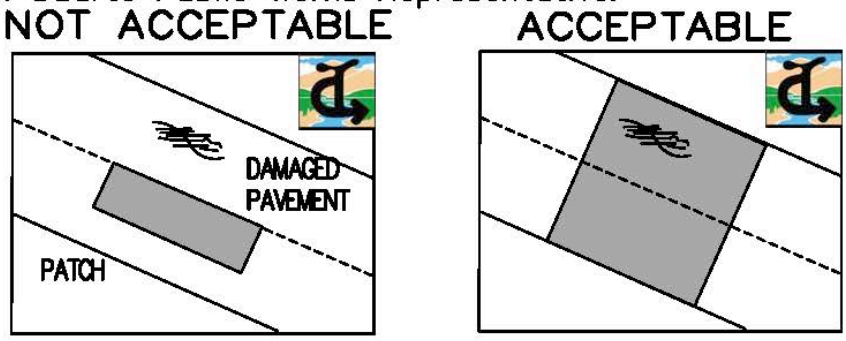

Figure 12. Example 12: Damaged pavement within 10 feet of a patch must also be patched.

	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

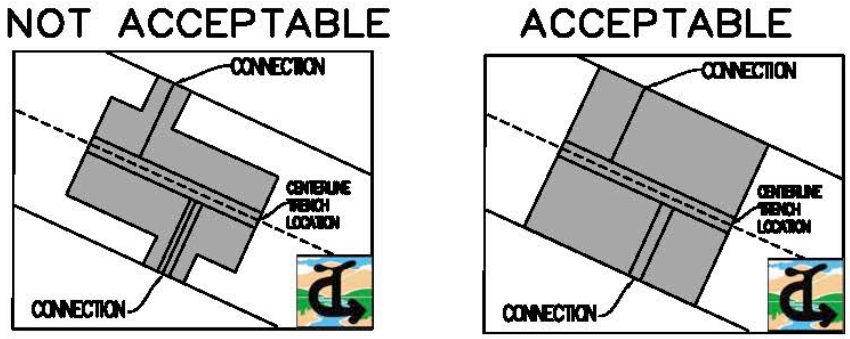

Figure 13. Example 13: Patches must avoid frequent width changes

	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