County of El Dorado
Department of Transportation
http://www.edcgov.us/TRANSPORTATION/

ATTACHMENT 1
DOT STANDARD PERMIT CONDTIONS

The Permit

The work shall be performed in conformance with the project drawings, the El Dorado County Encroachment Ordinance and Standards, this Attachment 1, the special conditions of the encroachment permit, and the current Caltrans Standard Specifications. There will be no changes in the work without written permission from the Department of Transportation (DOT). The Encroachment Permit or a copy thereof shall be kept at the site of the work and must be shown to any representative of the County of El Dorado Department of Transportation or any law enforcement officer on demand.

Work Shall be Suspended if Permit, including this Attachment 1, is Not At Job Site As Provided.

1. Joint Trench Coordination

Joint trench applicants shall cooperate with the other joint trench utilities (Cable, Gas, Electric, and Telecommunications) to share trench space in order that additional street cuts will not be necessary for the next few years. Documentation of this coordination is required.

2. Notification & Correspondence

The Permittee shall notify the Department of Transportation **24 hours prior** to any work being performed within El Dorado County's right-of-ways by contacting the Utility Encroachment Division at **edcutilitypermits@edcgov.us (West Slope)** or **edcutilitypermits.tahoe@edcgov.us (Tahoe Basin)** for any of the following work items:

A) Initial start of work
B) Restarting work when work has been interrupted
C) Any saw cutting of Asphalt Concrete (AC) or paving

Signalized Intersections: The Permittee shall notify the Department of Transportation for any work within 500 feet of a signalized Intersection a minimum of **14 calendar days (2 weeks) prior** to any excavating to locate and mark underground traffic signal wiring. **West Slope and Tahoe call Shane Cohen at (530) 642-4972 or shane.cohen@edcgov.us.**

All direct correspondence with any county staff shall be cc'd to **edcutilitypermits@edcgov.us (West Slope) or edcutilitypermits.tahoe@edcgov.us (Tahoe Basin)** so that all Utility Encroachment Division staff are aware of the issues being discussed.

3. Inspection and Approval by the Department of Transportation

All work shall be subject to inspection and approval by the Department of Transportation. Periodic Inspections may be performed in regards to the permit to check the progress and compliance of work regardless of requests for inspections. The Permittee shall notify the Department of Transportation when the work has been completed by submitting the **NOTICE OF COMPLETION**.

The Permittee shall pay to the Department of Transportation the actual cost of the County inspection, including material testing if testing is provided. The actual cost will depend upon the length of the job and the amount of inspection required. Charges for inspection services will be billed at 30-day intervals and upon completion of the project.

4. Compliance with California Business and Professions Code Section 8771

Permittee shall use a professional land surveyor (California licensed land surveyor or licensed civil engineer legally authorized to practice land surveying) to research and determine whether Permittee's work will impact existing survey

monuments. If Permittee's professional land surveyor determines that no existing survey monuments will be impacted by the permitted work, then Permittee's professional land surveyor shall stamp, sign and return the El Dorado County Certificate of Monument Preservation. If Permittee's professional land surveyor determines that existing survey monuments will be impacted by the permitted work, Permittee shall comply with Section 8771 and have its licensed land surveyor locate and reference the existing survey monuments and file a corner record or record of survey with the El Dorado County Surveyor's Office. If any existing survey monuments are damaged, destroyed, or otherwise impacted by Permittee's work, Permittee shall comply with California Business and Professions Code Section 8771(c).

5. Working Hours, Signing / Traffic Control, and Public Convenience

Daytime Working Hours:

All work will be performed during the daylight hours of **8:00 am** to **6:00 pm,** Monday through Friday, Non-Holidays, unless otherwise indicated in the permit. Working hours can be re-assessed on a case-by-case basis for special events and conditions.

For worst case areas with excessively heavy traffic, no work will be allowed during commute times (in local areas, this can be from 6:00 AM to 9:00 AM and from 3:00 PM to 7:00 PM). In addition, two through lanes and left turn lanes may be required to be open for use at all times. A traffic control plan, approved by the Department of Transportation, may be required before starting work. If, after work starts, traffic control measures are not satisfactory for existing traffic conditions, then revisions will be necessary.

Nighttime Working Hours

County of El Dorado shall be notified of proposed Nighttime operations at lease 5 working days in advance of the proposed work start date. Nighttime work hours shall be from **9:00 pm.** to **6:00 am,** Sunday night through Friday morning, non-Holidays. Permittee is allowed to have traffic control signage rolled out and ready but shall not take the road until 9:00 p.m. Permittee shall comply with County directives to mitigate noise and light. Permittee shall be responsible for immediately responding to and mitigating all complaints received regarding permittee's night work to the satisfaction of the County. Permittee must be buttoned up, cleaned up, signage down and off the roadways by 6:00 a.m. NO EXCEPTIONS.

Signing / Traffic Control

A traffic control plan (TCP) approved by Transportation staff shall be prepared for specific site conditions prior to work beginning. The TCP will be prepared by an experienced traffic control systems specialist, in compliance with the requirements of the most recent version of the California Manual on Uniform Traffic Control Devices (MUTCD) and Caltrans Standard Plans T-9 thru T-17.

The Permittee, or Permittee's Contractor, shall place warning signs and devices and take other safety measures as necessary, including flagmen, to warn persons of the excavation, obstruction and equipment operations to prevent injury to persons or damage to property. The use of flagmen, barricades and construction signing shall conform to the California Manual of Uniform Traffic Control Devices (CA MUTCD) and to current Caltrans Standard Plans T-9 through T-17 for traffic and T-30 through T-32 for pedestrians. When flaggers are required, permittee shall use only trained flaggers. Permittee shall submit a written record or certification of flagger training to County for approval a minimum of 24 hours in advance before flaggers arrive on site.

When Changeable Message Sign (CMS) boards are required for construction in the County right-of-way, the signs shall be placed 72 hours in advance of construction activity.

When applicable, R30 24" x 24" barricade mounted "NO PARKING" notices should be placed in the area of proposed shoulder closure and work zone a minimum of 72 hours prior to the start of work. Spacing shall be a maximum 20 ft. apart.

Traffic can be held for a maximum of 5 minutes. A longer duration of 15 minutes maximum may be allowed on a case-by-case basis and with prior approval from the County Inspector.

The approach end of temporary railing (Type K) shall be offset a minimum of 15 feet from the edge of the traffic lane open to public traffic. The temporary railing shall be installed on a skew toward the edge of the traffic lane of not more than one foot transversely to 10 feet longitudinally with respect to the edge of the traffic lane. If the 15 foot minimum offset cannot be achieved, the temporary railing shall be installed on the 10-to-1 skew to obtain the maximum available offset between the approach end of the railing and the edge of the traffic lane, and an array of temporary crash cushion modules shall be installed at the approach end of the temporary railing.

Whenever work is performed or vehicles/equipment are operated in the following work areas, the Contractor shall close the adjacent traffic lane unless otherwise provided in the specifications or on the Plans:

Approach Speed of Public Traffic Posted Limit in Miles per Hour	Work Areas
45 mph or Over	Within 6 feet of traffic lane ***but not on a traffic lane***.
Below 45mph	Within 3 feet of traffic lane ***but not on a traffic lane.***

The lane closure provisions of this section shall not apply if permanent or temporary railing or barrier protects the work area.

When traffic cones or delineators are used to delineate a temporary edge of traffic lane, the line of cones or delineators shall be considered to be the edge of traffic lane; however, the Contractor shall not reduce the width of an existing lane to less than **12** feet without written approval from the Department of Transportation.

Public Convenience

The fact that rain or other causes, either within or beyond the control of the Contractor, may force delay of the work that shall in no way relieve the Permittee of their responsibility for maintaining traffic through the project and providing local access as specified herein. At all times there shall be kept on the job such material, force, and equipment as may be necessary to keep roads, shoulders and driveways within the project open to traffic and in good repair, and shall expedite the passage of traffic using such force and equipment as may be necessary.

The work shall be in an expeditious manner so as to cause as little inconvenience to the traveling public as possible. The Permittee or Permittee's Contractor shall be responsible for maintaining a free and clear travel way for any and all emergency vehicles. Private driveways may only be closed between 8 AM and 4 PM and all private driveway closures must be coordinated with residents to allow for reasonable resident use of the driveway during construction. Driveways shall be open for use at night and during other periods when work is not in progress. Commercial driveways shall not be closed during business hours.

Permittee shall provide safe passage for pedestrians and bicyclists around the active work zone at all times. When applicable, Type II barricades with "SIDEWALK CLOSED TO PEDESTRIANS" shall be placed prior to start of work. Sidewalks may only be closed to through traffic and shall not prevent local pedestrian's access. Detours shall not increase the path of travel by more than 500 ft. Detour routes shall be limited to existing sidewalks and crossings at roadway intersections. Pedestrians MAY NOT be detoured onto private property. During working hours, at least one worker shall be assigned the responsibility to escort elderly, disabled or any other pedestrians in need of assistance through the construction site. Worker assigned this responsibility may also participate in other construction activities however, the assigned worker shall be aware of his or her responsibilities for providing this assistance and escort.

Road closures, when allowed, require application for a "Special Use Permit" and a Department of Transportation approved traffic control plan . Applicant should allow four (4) weeks for County review and approval. This includes review / comment time for El Dorado County Law Enforcement Agency(s), Fire Protection Agency(s), Emergency Services, and School Districts

6. Earthwork

A. In the Tahoe Basin there shall be no grading or land disturbance between October 15 and May 1. The permittee is referred to the Tahoe Regional Planning Agency (TRPA) Code of Ordinances, subsection 33.3 and Attachment Q: Standard Conditions of Approval for Grading Projects regarding grading standards in the Tahoe Basin.

B. No blasting shall be permitted within the County's right-of-way without written authorization from the Department of Transportation.

C. Where an excavation consists of trenching parallel to the centerline of the road, the total length of open trench shall not exceed 500 feet at any time. All open trenches crossing the travel way or running parallel within six feet of the edge of pavement must be backfilled and temporarily patched at the end of each work day. All other open excavations outside the limits of paving and/or behind curb and gutter shall be backfilled or covered with steel plate bridging and protected with appropriate barrier fencing at the end of each work day. Steel plate bridging is required over open trenches in private driveways during working hours.

D. Facilities installed under this Permit shall have a minimum separation of one foot from drainage culverts and other utilities, unless greater separation is required by the adjacent utility company facility. This requirement typically results in the utility lines being placed below all storm drain pipes, manholes and drainage inlets. Any exceptions may require the utility to be placed in a sleeve as approved in writing by the Department of Transportation. Sleeves, when allowed, will be required to extend a minimum of 10 feet either of the culvert crossing with no joints allowed directly over the existing culvert pipe. Minimum cover from the bottom of drainage ditches to the top of the facility is 18".

E. Trench excavation backfill requirements:

a. Where a trench excavation is made within an existing paved area or drivable shoulder, backfill shall consist of pipe zone material per utility company standards and Controlled Low Strength Material (**CLSM**) wet flow-able fill per one of the following designs and specifications:
   i. Popcorn CLSM
   ii. Two-sack Cement Sand Slurry

b. Trench backfill must immediately follow the placement of the utility. See Section 6, Temporary Steel Plate Bridging if trench backfill cannot be performed in the same day. Aggregate Base (AB) backfill will only be allowed outside of the drivable shoulder areas within the County right-of-ways and shall be compacted to 90% or greater. The permittee shall be responsible for compaction testing. Testing shall be performed by a recognized Geotechnical/Engineering firm regularly engaged and certified in materials testing for each 8-inch lift of backfill for the full trench profile. All testing results must be submitted to The Department of Transportation within 10 days of work completion.

F. **CLSM** shall consist of a wet flowable workable mixture of aggregate, cementitious materials with a high Fly-ash to cement ratio and water, and shall conform to the provisions in Section 19-3, Structure Excavation and Backfill, of the current Caltrans Standard Specifications and this Attachment 1.

a. When backfilling trenches that have been excavated under paved portions of County roads or shoulders, Permittee shall use 'wet flowable fill' from the top of the pipe zone backfill to the bottom of the asphalt concrete (UD-02 zone 7- intermediate backfill) to minimize the potential for future trench failure. Approved mixes include:
   i. Central Concrete Co. **Mix ID P0C138PA** (Popcorn CLSM) – Cameron Park Plant
   ii. Livingston's Concrete **Mix ID 200016** (2 sack Sand Slurry) – Rancho Cordova Plant.
   iii. Sierra Tahoe Ready Mix **Mix M02 series** (Dry or Wet) – South Lake Tahoe

   Permittee may use alternate mix designs and/or alternate vendors, but any such alternate mix design must be submitted to the County for review and approval prior to use. Any alternate mix submitted to the County for approval for use as trench backfill must contain between 141 and 188 pounds of cementitious material per cubic yard of mix. Use of compacted aggregate base or any other earthen material as trench backfill under County pavement is prohibited.

b. When **CLSM** is used for structure backfill, the clear width on each side of the pipe may be reduced to a minimum of 6" instead of the 12" as shown on UD-02 (Trench Detail) (typical).
   i. This minimum may also be reduced to 6" when either the height of cover is less than or equal to 20 feet or the pipe diameter or span is less than 3.5 feet.

c. **CSLM** shall not be permanently placed higher than:
   i. The basement soil for new construction;
   ii. The bottom of any existing pavement permeable drainage layer;
   iii. The bottom of existing asphalt concrete, if no drainage layer exists; or
   iv. The top of base below an existing Portland Cement Concrete pavement.

   Any CSLM placed to the surface of existing pavement will need to be removed to accommodate final HMA thickness.

d. The contractor shall submit a mix design and test data to the Department of Transportation for approval prior to excavating the trench for which **CLSM** is being used. The test data shall demonstrate that the mix design provides:

i. A 28-day compressive strength of 50 psi (minimum) to 100 psi (maximum) is required. Compressive strength shall be determined by ASTM Designation: D4832, Preparation and Testing of Soil-Cement Slurry Test Cylinders.

ii. When **CLSM** is used as structure backfill for pipe culverts, the section of pipe culvert in contact with the controlled low strength material shall meet the requirements of Chapter 850 of the current Caltrans Highway Design Manual using the minimum resistivity, pH, chloride content, and sulfate content of the hardened controlled low strength material. Minimum resistivity and pH shall be determined by California Test 422 and the sulfate content shall be determined by California Test 417.

iii. Cement shall be any type of Portland cement conforming to the provisions of ASTM Designation: C 150; or any type of blended hydraulic cement conforming to either ASTM Designation: C 595M or the physical requirements of ASTM Designation: C 1157M. Testing of cement will not be required.

iv. Admixtures may be used in conformance with Section 90 of the current Caltrans Standard Specifications. Chemical admixtures containing chlorides as C1 in excess of one percent (1%) by mass of admixture, as determined by California Test 415, shall not be used.

G. Structure backfill for all manholes in streets shall conform to the **CLSM** provisions noted above.

H. All areas where apparent water pumping or seepage exists due to disruption of subsurface conditions encountered during excavating in the County's right-of-way shall be addressed and corrected by means of a DOT approved subsurface drainage system at the expense of the permittee.

7. Temporary Steel Plate Bridging – Non-Skid Surface

When backfilling operations of an excavation in the travel way, whether transverse or longitudinal, cannot be properly completed within a work day, steel plate bridging with a non-skid surface and shoring shall be required to open the road to public traffic. In such cases, the following conditions shall apply;

A. Steel plates shall only be utilized when placed parallel or perpendicular to the travel way.

B. Steel plates used for bridging must extend a minimum of 12" beyond the edges of the trench.

C. Steel plate bridging shall be installed to operate with minimum noise.

D. All excavations left open with the intention of steel plate bridging shall be shored. Permittee shall supply the Department of Transportation with documentation that complies with the California Occupational Safety and Health Administration (Cal OSHA) Standards for Excavations demonstrating that the shoring system is adequate for the soil type and surcharge loading to support bridging and traffic loads. Use the current Caltrans Encroachment Permits Manual/Traffic Operations/ – Section 602.5C "Temporary Steel Plate Bridging" and the current Caltrans Trenching and Shoring Manual for design of trenching and shoring protective systems.

E. Steel plate bridging shall be secured against displacement by using pins, adjustable cleats, shims or other devices and plates shall be tack welded together.

F. Signing and warning devices are required. Barricades with flashing beacons, W8-24 Steel Plate Ahead" signs, and reflective cones will be needed depending on the location of the project.

G. Steel plate bridging and shoring shall be installed as follows:

- Where speeds are 25-mph or less, steel plates may be placed on top of the existing pavement for up to 48-hours with prior approval from the Department of Transportation. Steel plate bridging must be recessed into the surrounding pavement (cold planed) to a depth equal to the thickness of the plate and to a width and length equal to the dimensions of the plate after 48-hours.

- Temporary Asphalt Concrete (AC) cold mix paving shall be placed around the steel plate bridging and appropriate signage placed to advise the traveling public of the obstruction in the roadway.

- Where speeds are greater than 25-mph all steel plates must be recessed by grinding the pavement to match the thickness of the steel plate.

The Contractor is responsible for maintenance of steel plate bridging and shoring. Unless specifically noted in the provisions of the Permit, steel plate bridging shall not remain in place above the surface of the existing road for more than 48-hours; recessed plates shall not remain in place for more than four (4) consecutive working days within any given week. After removal of steel plate bridging and prior to opening the roadway to public traffic, excavations shall be backfilled and paved with a minimum 3" temporary paving or final Hot Mix Asphalt (HMA) permanent paving.

The following table shows the required minimal thickness of steel plate bridging for a given trench width:

Trench Width	Minimum Plate Thickness
1.0'	1"
1.5'	1"
2.0'	1"
3.0'	1"
4.0'	1-1/2"

Note: For spans greater than four (4) feet, a structural design shall be prepared by a registered Civil Engineer.

Steel plate bridging shall be steel plate designed for HS20-44 truck loading per the current Caltrans Bridge Standard Details xs8-140. The Permittee shall maintain a non-skid surface on the steel plate having a minimum coefficient of friction equivalent to 0.35, as determined by California Test Method 342. If a different test method is used, the Permittee may utilize standard test plates with known coefficients of friction available from each Caltrans District Materials Engineer to correlate skid resistance results to California Test Method 342.

8. Roadway Surfacing and Base Materials (see El Dorado County Standard Plan UD-02 for details)

When the Permit authorizes installation by the open cut method, surfacing and base materials and thickness thereof shall be as specified in the Permit.

Permanent repairs to pavements shall be made within one week of completion of backfill. Failure to comply with this will result in no future encroachment permits for the Permittee until in compliance.

Utility Placement:

Where a utility crossing is to be installed within an existing paved area, the utility shall be placed as near as perpendicular to centerline as possible, and in no case at an angle less than 45 degrees from the centerline of the roadway. Where a utility is to be installed longitudinally within an existing paved area, the utility shall be placed parallel to the centerline.

Temporary Pavement Repair:

Temporary repairs to pavements shall be made and maintained upon completion of backfill until permanent repairs are made. Temporary pavement patches shall be placed and maintained with a smooth riding plane.

Temporary Pavement Patches shall consist of:

- Hot Mix Asphalt on all Major and Minor collector roadways, Arterial roadways and Expressways having a posted speed limit greater than 25 mph, and on un-posted rural roadways.
- Cold mix (cut-back) asphalt, free of humps or depressions and made suitable for pedestrian, bicycle, and vehicle traffic may be used as temporary patch material on low-speed residential roadways and roadways having a posted speed limit of 25 mph or less.

Permanent Pavement Requirements:

Hot Mix Asphalt (HMA) Mix shall consist of:

- AC aggregate size and grading shall be Caltrans Type A ½ inch HMA, unless otherwise directed by the Department of Transportation. Up to 25% RAP is acceptable.
- AC Binder will be PG 64-16 (for AC dike use PG 70-10) (West Slope) and PG 64-22 or PG 64-28 (Tahoe Basin).
- For RAP substitution of 15% or less, the grade of the virgin binder must be the specified grade shown above. For RAP substitution greater than 15% and not exceeding 25%, the grade of the virgin binder must be the specified grade of asphalt binder for Type A HMA with the upper and lower temperature classification reduced by 6 degrees C.

Thickness of new pavement shall match existing pavement thickness (6" maximum thickness) or a minimum of 3", whichever is greater. T-Cut limits within 3 feet of the edge of pavement (ep) or a prior patch require extension of the final pavement limits to the ep or prior patch limits.

Any damage to existing adjacent pavements caused by construction activity will require repair or AC overlay as determined by the Department of Transportation.

Final patch pave to include a minimum 12" wide full depth T-cut of existing pavement on all sides of the excavation. A minimum pave back overlay width of 2 feet is required beyond all sides of the trench excavation. An increased width of 10 feet is required in the direction of travel with full lane pave back on the following roadways:

1) Classified as Minor Collector or Greater
2) With Speed Limits greater than 35 MPH, or
3) With Average Daily Traffic (ADT) counts greater than 2000.

Use a 2" grind and overlay standard when the existing pavement thickness is 3" or greater. Use a full-depth grind-out and replace with 3" HMA when existing asphalt is less than 3" in depth.

Finish pavement surfacing shall have a straight uniform appearance without numerous jogs and placed level with the adjacent paving after compaction and shall match existing cross-slope and roadway crown. All specifications shall be confirmed using a 12-foot straightedge. The finished surface must conform to Caltrans Standard Specifications Section 36-3.01D(3)(b)(i) General. If new surfacing is too high, it shall be cold planed to grade, and a Bituminous Seal coat applied. If new surfacing is too low, it shall be removed and repaved.

9. Care of Drainage

Roadside ditches, cross culverts, and other drainage facilities pertinent to the County roads shall be protected from damage. Those facilities disturbed or damaged shall be returned to their original conditions or replaced to the satisfaction of the Department of Transportation inspector. All damaged asphalt concrete dike, concrete curb, gutter, and sidewalk shall be replaced in-kind, as well as any other County of El Dorado facility, including but not limited to, existing culvert drainage systems that have been damaged by reason of permittee's work.

Any removal of curb and gutter shall be to the expansion joints and replaced with a concrete mix design having a minimum of 463 lb. /cu yd. cementitious material with 3 each #4 rebar dowels drilled and epoxied into existing. **Any utility service location stamps i.e.: "S", "W", "G", "R" that are in the existing curb face and removed by reason of permittee's work shall be included in the new concrete replacement.** Tunnel under curb and gutter shall be backfilled with a CLSM mix. Asphalt mix for AC dike shall be PG 70-10.

10. Shoulder Restoration

All disturbed soils off pavement and within the County Right-of-way that have been affected by permittee activity shall be groomed and compacted to 90% minimum. Disturbed soils shall be remediated with Erosion Control measures and placement of appropriate BMP's.

Disturbed shoulder areas that are drivable, unpaved and un-landscaped will be re-established dependent on the width of the existing shoulder (2' to 4' wide) with Class II Aggregate Base a minimum of 4" thickness (compacted to 95%) and match existing roadway cross-slope (made to drain).

All landscape improvements previously existing in shoulder (decorative rock or fiber mulch surface cover including fabric barrier, ornamental iron fencing, established lawn, perennial shrubs, etc.) shall be re-established to pre-work conditions and match existing in same or better condition.

11. Obstructions

Above ground obstructions shall be placed outside of the roadway cross section (pavement, shoulder, and roadside ditch) TEN (10) feet clear from the outside edge of the travel lane, and shall not obstruct corner sight distances or interfere with drainage. Air release valves, splice boxes, etc., shall be placed underground in vaults or manholes.

Utility pole placement in County right of way shall comply with Standard Plan # 120. Poles being removed and relocated shall be removed in their entirety. Below ground stumps of poles shall be exhumed and removed from the County ROW.

Valves, blow-off, or any other structure or obstruction shall not be placed in roadside ditch. If they are located between edge of pavement (EP) and ditch, they shall be recessed 3/8" directly adjacent with EP and surrounded with 5' of A.C. Valve boxes shall have a concrete collar placed beneath the final 3" of asphalt concrete.

Service pedestals/risers shall be taken to the property line or taken to just beyond top of cuts and toe of fills, whichever is further from centerline. (If slopes are 3:1 or flatter, take to property line).

12. Clean-Up of Right of Way

During work activities:
No spoils or backfill material shall be placed on the street or in the County right of way. All roadways shall remain free of dirt and debris during the following: all periods of excavation, load-out, boring and trench backfill. The construction site is to be kept clean by periodic push broom sweeping. In large work areas, the roadways shall be kept clean using a Vacuum Street Sweeper, for a minimum of twice daily. A Kick-Broom sweeper will not be allowed as an alternative cleaning method.

End of workday:
All debris and material shall be entirely removed and the County's right-of-way left in a presentable condition as before work started.

Completion of work:
Permittee shall replace any roadway striping or pavement markings that becomes marred, chipped or otherwise obliterated due to construction activities. Thermoplastic (type) shall comply with State Specification PTH-02SPRAY, PTH-02HYDRO OR PTH-02ALKYD. Primer must comply with the thermoplastic manufacturers' recommendations. Paint striping (type) shall be 2 (double) coats of Waterborne Traffic Line paint with Retroreflective Microspheres (beads) and shall meet Caltrans Standard Specification (2015), Section 84-2.02C, PTWB-01 R2 for Waterborne Paint Traffic Line. Striping shall match the size and type as to what is existing.

All USA marks will be blacked out by contractor of work. Black out will be geometric to form a square or rectangle over the original USA markings for permanent and 100% masking. Do not use water/chalk-based paints

13. Locator Wire

All runs of non-metallic pipe shall have a minimum No. 12 gauge, solid insulated soft-drawn copper wire securely affixed along the top of the pipe. The wire shall be stubbed up inside each valve box and dead-end blow-off assembly. **Local Variance Granted:** County of El Dorado (Tahoe Basin) grants SW Gas Corporation a variance to use 14-gauge copper wire per their standards.

14. Horizontal Directional Drilling

- The Permittee shall ensure that all drilling fluids are disposed of in a manner acceptable to the appropriate local, state, or federal regulatory agencies.

- Excess drilling fluids shall be contained at entry and exit points until recycled or removed from the site. Entry and exit pits should be of sufficient size to contain the expected return of drilling fluids and soil cuttings. Precautions shall be taken to keep drilling fluids out of the streets, manholes, sanitary sewers, storm drains and all other drainage systems.

- Restoration of damage to any highway or non-highway facility caused by escaping (frac-out) drilling fluid, or the directional drilling operation, shall be the responsibility of the Permittee. Restoration may include, but not limited to, removal of overlying AC pavement, removal and replacement of effected subgrade in 8-inch lifts compacted to 95%, and final AC pavement restoration.

- The Permittee shall, prior to and upon completion of the directional drill, establish a Survey Grid Line and provide monitoring as outlined in their submitted detailed monitoring plan.

- Subsurface monitoring points shall be utilized to provide early indications of settlement as large voids may not materialize during drilling due to pavement bridging.

- Should pavement heaving or settlement occur, saw cutting and replacement of the asphalt shall be the responsibility of the Permittee. To prevent future settlement, should the drilling operation be unsuccessful, the Permittee shall ensure the backfill of any void(s) with grout or backfilled by other means.

- Should the drilling operation be unsuccessful the permittee shall ensure the backfill of any void(s) with grout to prevent future settlement. If a bore hole beneath a roadway must be abandoned, the hole shall be pressure backfilled with grout to prevent future subsidence.

- Construction Plan Requirements (to be submitted by Contractor):
  1. Pipe size and depth
  2. Location and pitch of entry and exit pits (including test pits or boreholes undertaken during the soil investigation)
  3. Working areas and their approximate size
  4. Proposed pipe fabrication and layout areas
  5. County right-of-way lines, property lines, easement lines
  6. All existing utilities (both horizontal and vertical)
  7. Construction method including diameter of pilot hole, number and size of pre-reams
  8. No materials are to be placed on pavement. Spoils will be loaded directly into trucks

- Prior to Beginning Project:
  1. Call “811” to locate underground utilities
  2. Location of all “USA” identified lines pot holed if within 10’ of proposed project line to verify depth of all lines
  3. Visually check surrounding area for other possible underground utilities not marked (storm drain manholes, fire hydrants, pedestals within the vicinity)
  4. Pre-job meeting, construction schedule, and traffic control plan are required
  5. Need Certificate of Insurance from Contractor prior to any work in County’s right-of-way

- Drilling Fluid Management Plan (to be submitted by Contractor):
  1. Submit mix design of drilling fluid
  2. Method of slurry containment
  3. Method of recycling drilling fluid and spoils (if applicable)
  4. Method of transporting drilling fluid and spoils off-site

- Safety:
  1. The drilling unit must be equipped with an electrical strike safety package. The package should include warning sound alarm, grounding mats (if required for that specific rig), and protective gear.
  2. Drilling unit and bore pit hole shall be fenced. All potholes, entry pits, and exit pits are to be barricaded. An additional condition may occur if the bore pit is closer than 12 feet from the travel lane, K-Rail shall be placed with a 10:1 longitudinal taper. If the leading end of the rail is within 15 feet of the travel way, crash cushions shall be placed.

15. Fugitive Dust, Asbestos Dust Controls, and Water Quality Regulations

County, State and Federal air and water quality regulations shall be strictly adhered to.

Fugitive Dust and Asbestos Dust Controls

El Dorado County has a "zero dust" policy. Water must be always available on-site for dust control.

Fugitive and asbestos dust shall be mitigated in accordance with El Dorado Air Quality Management District (AQMD) ***Rule 223-1, Fugitive Dust - Construction Requirements*** and/or ***Rule 223-2, Fugitive Dust - Asbestos Hazard Mitigation.***

The Permittee shall be responsible for checking and following the most current procedures and regulations of the AQMD prior to beginning project. These are available at: www.edcgov.us/airqualitymanagement

Fugitive Dust and/or Asbestos Dust Mitigation Plans if required by AQMD’s Construction Project Applicability Flow Chart must be approved by AQMD and submitted to the Department of Transportation prior to beginning project.

If no Fugitive Dust Plan is required by the AQMD’s Construction Project Applicability Flow Chart, the project must still comply with the provisions of AQMD’s Rule 223-1.

Water Quality Regulations

Permittee shall comply with the Clean Water Act and the State of California Water Resources Control Board’s (SWRCB) rules, regulations, policies, and orders as applicable to the project.

Permittee shall provide a ***Storm Water Pollution Prevention Plan*** (SWPPP) to the Department of Transportation upon request if required by the SWRCB.

Permittee shall provide a ***Qualified SWPPP Developer*** (QSD) and a ***Qualified SWPPP Practitioner*** (QSP) if required by the SWRCB.

Permittee shall comply with the ***Storm Water Management Plan (SWMP) for Western El Dorado County*** and the El Dorado County ***Grading, Erosion and Sediment Control Ordinance.*** In the Tahoe Basin, Permittee shall comply with the El Dorado County ***Tahoe Basin Storm Water Ordinance.***

For projects that do not require a permit from the SWRCB, Permittee shall implement Best Management Practices for Erosion and Sediment Control to reduce or eliminate discharge of sediments and other pollutants to any natural or man-made drainage course.

For projects that do not require a permit from the SWRCB, erosion and sediment control measures are to be in place prior to any storm event, and in place and in operable condition by October 15. Site inspections must be conducted by the Permittee before and after each storm event to identify areas that contribute to erosion and sediment problems or any other pollutant discharges. During each inspection, determine if additional Best Management practices are needed and implement those practices as soon as possible. Maintenance and repair of control measures shall be routinely conducted.

The Permittee shall be responsible for fines, penalties, and damages, whether proposed, assessed, or levied against the Permittee or Contractor, or El Dorado County (including employees, agents and assigns of the County), including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Act, by governmental agencies or as a result of citizen suits. Penalties shall also include payments made or costs incurred in settlement for alleged violations of the Federal, State or County laws. Costs incurred include sums spent in lieu of penalties, such as settlement agreements, mitigation, or remediation.

Permittee shall complete re-vegetation and stabilization of all disturbed soils, both within and outside of County's right-of-way, as required by the Department of Transportation.

When applicable, Permittee is required to comply with:

- Section 404 of the Clean Water Act regulating dredging and filling of Waters of the United States and shall provide evidence of such to the County upon demand.
- Section 1600 of the State of California Fish and Wildlife Code regulating work in streambeds and shall provide evidence of such to the Department of Transportation upon demand.

16. Safety and Health Provisions

In addition to other specifications, definitions and provisions, the Permittee is also hereby categorized and designated as the following types of employer for this project:

- **Exposing Employer –** the employer whose employees are exposed to a hazard
- **Creating Employer –** the employer who actually is creating a hazard
- **Controlling Employer –** the employer who is responsible and who has the authority for ensuring that a hazardous condition is corrected
- **Correcting Employer –** the employer who has the responsibility for actually correcting a hazard

The Contractor's Safety Officer(s) shall be certified as a competent person for controlling this project's workplace safety. A Contractor's Safety Officer shall be on the site, at a minimum, each day that work is in progress or periodically, when work is not active, and shall have the authority to correct any safety violation. In addition, the Contractor is required to develop a Safety Program specifically for this project, which will be available on site, at all times, and updated periodically during the project.

17. Relocation of Facilities–Section 1463, Streets & Highway Code

In the event the future improvement of the highway necessitates the relocation of this encroachment, the Permittee (public agency or a public utility having lawful authority to occupy the highways) will relocate the same at its sole expense. In said event, the Director of the Department of Transportation shall serve on the Permittee his written demand specifying the place of relocation and specifying a reasonable time within which the work of relocation must be commenced. The Permittee must commence such relocation within the time specified.

18. Trees

Any underground work within the drip line of any trees in the County's right-of-way or easement shall conform to the following requirements:

- No trees shall be removed unless specifically authorized by the Department of Transportation.
- No roots over two inches in diameter shall be cut.
- Hand trenching and tunneling will be required when excavation exposes roots two inches in diameter or larger.
- Roots two inches in diameter or larger which are exposed to the air shall be kept moist.
- Roots two inches in diameter or larger which are accidentally damaged shall be treated with material approved by the Department of Transportation.
- If roots two inches in diameter or larger are cut or broken, the tree shall be trimmed to compensate for the decreased root system. Such trimming shall be done to the satisfaction of the Department of Transportation.
- Manholes or boring pits shall not be installed within 20 feet of any tree trunk.

19. Tree Removal and Trimming

- Job plans should be submitted for tree removal/trimming contracts that are not for routine maintenance.
- The Department of Transportation is to be notified 24 hours in advance of any tree trimming or removal. Notification is to include the name of the tree contractor.
- Trees are not to be felled on El Dorado County roads.
- Stumps that are a hazard for public traffic and snow removal operations will be ground to six inches below grade. Other stumps are to be cut flush with ground.
- All debris from tree trimming and cutting shall be removed from the Department of Transportation right-of-way at the end of each day and disposed of by the Permittee.
- Logs, limbs, poles etc., shall be located to not infringe upon sight distance or present a roadside obstruction and shall be removed from drainage ditches at the end of each workday

20. Indemnity

To the fullest extent of the law, the Permittee shall defend, indemnify and hold the County of El Dorado harmless against and from any and all claims, suits, losses, damages and liability for damages, including attorney's fees and other costs of defense brought for or on account of injuries to or death of any person, including but not limited to, workers and the public, or on account of injuries to or death of the County of El Dorado employees, or damage to property, or damages proximately resulting from Permittee's work, operations, or performance hereunder, to the extent consistent with Permittee's County of El Dorado Franchise Agreement, regardless of the existence which are claimed or which shall in any way arise out of or be connected with Permittee's work, operations or performance hereunder, regardless of the existence or degree of fault or negligence on the part of the County of El Dorado, the Permittee, the contractors, subcontractors or employee of any of these, except the active, or sole negligence or willful misconduct of El Dorado County, its officers, employees, contractors, subcontractors or employee of any of these where expressly prescribed by statute.

The duty to indemnify and hold harmless the County of El Dorado specifically includes the duties to defend set forth in Section 2778 of the Civil Code. The insurance obligations of the Permittee, and/or Contractor are separate, independent obligations under the permit, and provision of this defense and indemnity are not intended to modify nor should they be construed as modifying or in any way limiting, the insurance obligations set forth in the Permit documents.

21. Insurance

GENERAL REQUIREMENTS - The Permittee or, its contractor shall provide proof of a policy of insurance satisfactory to the County of El Dorado and documentation evidencing that the Permittee maintains insurance that meets the following requirements:

A. Full Workers Compensation and Employers Liability Insurance covering all employees of the Permittee as required by law in the State of California.

B. Commercial General Liability (CGL) Insurance of not less than One Million Dollars ($1,000,000.00) combined single limit per occurrence for bodily injury and property damage, including but not limited to endorsements for the following coverage: Premises, personal injury, operations, products and completed operations, blanket contractual, and independent contractors' liability. Automobile Liability Insurance of not less than $1,000,000.00 is required in the

event motor vehicles are used by the Permittee in performance of the permit.

C. In the event Permittee is a licensed professional and is performing professional services under this contract, professional liability is required with a limit of liability of not less than One Million Dollars ($1,000,000.00) per occurrence.

D. Explosion, Collapse and Underground coverage is required when the scope of work includes XCU exposures. For the purpose of this permit, XCU coverage is required.

22. Proof of Insurance Requirements

A. Permittee shall furnish proof of coverage satisfactory to the County of El Dorado as evidence that the insurance required herein is being maintained. The insurance will be issued by an insurance company acceptable to the Risk Management Division, or be provided through partial or total self-insurance likewise acceptable to the Risk Management Division. Before beginning work the Permittee shall provide the name, address, and telephone number of the nearest claims adjusting office of the company which has issued his liability insurance.

B. The County of El Dorado, its officers, officials, employees, and volunteers are included as additional insured, but only insofar as the operations under this agreement are concerned. This provision shall apply to General Liability only. Proof that the County of El Dorado is named additional insured shall be made by providing a certified copy, of other acceptable evidence, of an endorsement to Permittee's insurance policy naming the County of El Dorado additional insured.

C. In the event Permittee cannot provide an occurrence policy, Permittee shall provide insurance covering claims made as a result of performance of this Permit for not less than three (3) years following completion of performance of this Permit.

D. Any deductibles or self-insured retentions must be declared to and approved by the County of El Dorado.

22. Insurance Notification Requirements

A. Permittee shall provide at least thirty (30) days prior written notice to the County of El Dorado, DOT, Utility Encroachment Division at the office of the County of El Dorado, Department of Transportation, 2850 Fairlane Court, Placerville, CA 95667 of any cancellation or material reduction in coverage under any policy not otherwise replaced by another policy.

B. Permittee agrees that the insurance required herein shall be in effect at all times during the term of this permit. In the event said insurance coverage expires at any time or times during the term of this contract, Permittee agrees to provide at least thirty (30) days prior to said expiration date, a new certificate of insurance evidencing insurance coverage as provided for herein for not less that the remainder of the term of the contract, or for a period of not less than one (1) year for an occurrence policy or three (3) years for a claims made policy. New certificates of insurance are subject to the approval of the Risk Management.

23. Appeal Process

The appeal process for the Department of Transportation encroachment permit requirements shall escalate to the following individuals, or successors:

	West Slope	Tahoe Basin
1	Greg Hicks, P.E., Senior Civil Engineer	Daniel Kikkert, P.E., Senior Civil Engineer
2	John Kahling, P.E., Deputy Director Department of Transportation	John Kahling, P.E., Deputy Director Department of Transportation
3	Rafael Martinez, Director, Department of Transportation	Rafael Martinez, Director, Department of Transportation

The governing board of each utility agency has the right to appeal to the Board of Supervisors.

No public utility will commence work encroaching upon the County's right-of-way unless it will comply with the encroachment permit conditions. If the public utility does not agree with the encroachment conditions, it can exercise its appeal right.

NOTES

1. SAW CUT EXISTING PAVEMENT PRIOR TO EXCAVATING AND PRIOR TO FINAL T-CUT. ALL SAW CUTS SHALL BE NEAT STRAIGHT LINES, EITHER PARALLEL OR PERPENDICULAR TO THE ROADWAY LANE LINES.

2. PONDING OR JETTING IS NOT PERMITTED WITHIN THE ROADWAY, OR WITHIN FIVE FEET (5') OF THE EDGE OF PAVEMENT

[3] HOT MIX ASPHALT (HMA). TACK COAT EXISTING PAVEMENT PRIOR TO PLACEMENT OF NEW HMA. MINIMUM HMA THICKNESS SHALL BE 3" OR MATCH EXISTING, WHICHEVER IS GREATER AND SHALL CONFORM TO THE FOLLOWING:
- a) CALTRANS TYPE A ½ INCH HMA
- b) BINDER: USE PG64-16 IN WEST SLOPE
- c) BINDER: USE PG64-28 IN TAHOE BASIN
- d) MAXIMUM RAP ALLOWED IS 15%

[4] USE 2" GRIND AND OVERLAY STANDARD WHEN EXISTING ASPHALT IS 3" OR GREATER. USE FULL DEPTH GRIND-OUT AND REPLACE WITH 3" HMA WHEN EXISTING ASPHALT IS LESS THAN 3" IN DEPTH.

[5] FINAL PATCH PAVE SHALL INCORPORATE A 12" WIDE MIN. "T-CUT" FULL DEPTH ON ALL SIDES OF EXCAVATION.

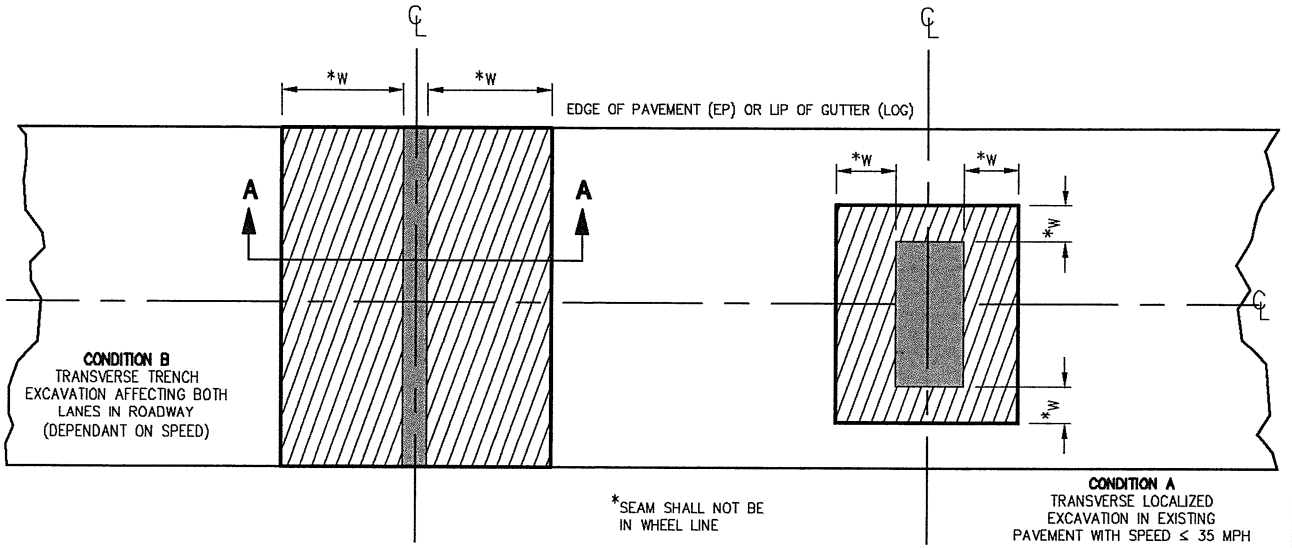
[6] PIPE ZONE BACKFILL SHALL BE APPROVED BY THE UTILITY COMPANY AND CONFORM TO ONE OF THE FOLLOWING MATERIALS COMPACTED TO 90%:
- a) STRUCTURE BACKFILL / BEDDING SAND
- b) 2 SACK CEMENT SLURRY BACKFILL
- c) CONTROLLED LOW STRENGTH MATERIAL (CLSM)

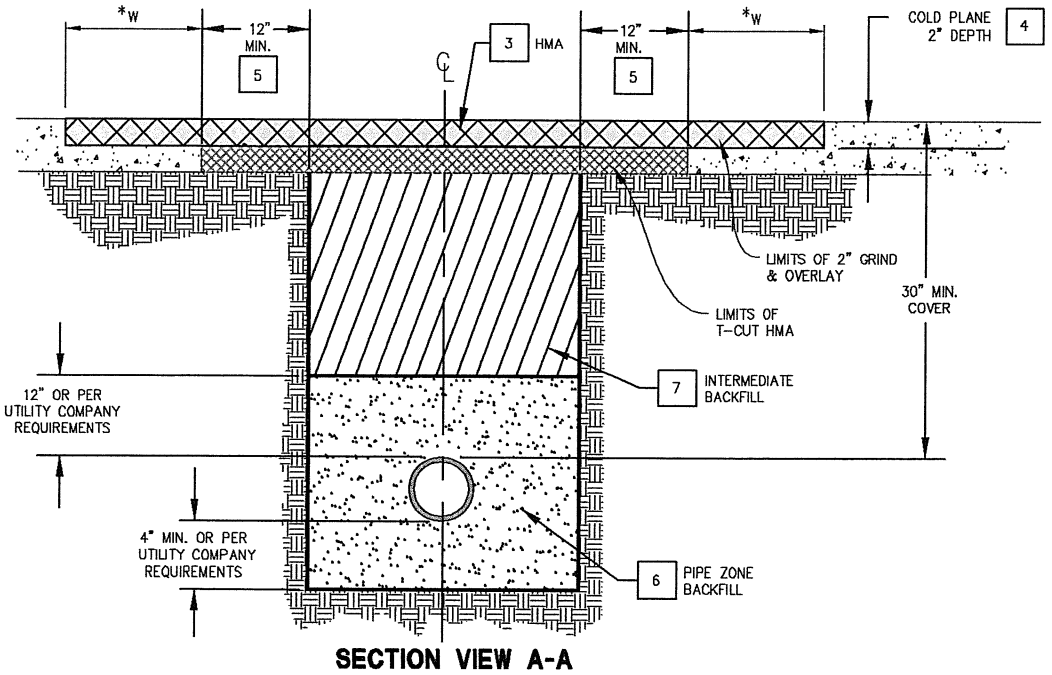
[7] INTERMEDIATE BACKFILL SHALL BE FLOWABLE FILL AND CONFORM TO THE FOLLOWING MATERIAL:
- a) CENTRAL CONCRETE CO. MIX ID POC138PA POPCORN CLSM-CAMERON PARK PLANT...OR
- b) LIVINGSTON CONCRETE MIX ID 200016-2SK SAND SLURRY-RANCHO CORDOVA PLANT.
- c) IN THE TAHOE BASIN, PERMITTEE SHALL USE THE M02 SERIES (WET OR DRY) MIX FROM SIERRA TAHOE READY MIX.
- d) PROPOSED ALTERNATIVE DESIGNS OR VENDORS MUST BE SUBMITTED TO EL DORADO COUNTY DOT FOR APPROVAL PRIOR TO USE.

[W] **CONDITION A:** ON ANY ROADWAY THAT HAS A SPEED LIMIT LESS THAN OR EQUAL TO 35 MPH, THE EXISTING PAVEMENT SHALL BE COLD PLANED TWO INCHES (2") IN DEPTH AND REPLACED WITH HMA PERPENDICULAR TO CENTERLINE OF THE ROADWAY A MINIMUM DISTANCE OF TWO FEET (2') ON ALL SIDES OF THE TRENCH EXCAVATION IN EACH DIRECTION, AS MEASURED FROM THE OUTERMOST EDGE OF THE TRENCH CUT, OR THE FULL WIDTH OF THE ROADWAY IF THE EXCAVATION CROSSES BOTH LANES. THE NEW SEAMS SHALL NOT BE ALLOWED TO FALL IN VEHICULAR WHEEL PATHS.

CONDITION B: ON ANY ROADWAY THAT HAS A SPEED GREATER THAN 35 MPH OR IS CLASSIFIED AS A MINOR COLLECTOR OR GREATER, OR HAS AN AVERAGE DAILY TRAFFIC COUNT (ADT) GREATER THAN (2000), THE EXISTING PAVEMENT SHALL BE COLD PLANED TWO INCHES (2") IN DEPTH AND REPLACED WITH HMA PERPENDICULAR TO CENTERLINE OF THE ROADWAY A MINIMUM DISTANCE OF TEN FEET (10') ON BOTH SIDES OF THE TRENCH EXCAVATION IN EACH DIRECTION OF TRAVEL AS MEASURED FROM THE OUTERMOST EDGE OF THE TRENCH CUT, FOR THE FULL WIDTH OF THE ROADWAY IF THE EXCAVATION AFFECTS MORE THAN ONE HALF (1/2) OF THE TOTAL WIDTH OF THE ROADWAY.

PATCHES THAT ARE CLOSE TOGETHER OR OVERLAPPING, (EITHER EXISTING OR NEW), OR WILL LEAVE AN EXISTING "SLIVER" OF AC LESS THAN 3 FEET IN WIDTH IN PROXIMITY TO THE NEW PATCH WILL BE COMBINED INTO ONE CONTINUOUS PATCH.





SECTION VIEW A-A

APPROVED BY:

Rafael Martinez T.E. No. 2549 — DATE
Department of Transportation
Director of Transportation

DATE
Department of Transportation – County Engineer

COUNTY OF EL DORADO
DEPARTMENT OF TRANSPORTATION

STANDARD PLANS
BOARD OF SUPERVISOR'S RESOLUTION NO. _____

UTILITY TRENCH TRANSVERSE/LOCALIZED EXCAVATION AFFECTING BOTH LANES

STD PLAN
UD-02A

NOTES

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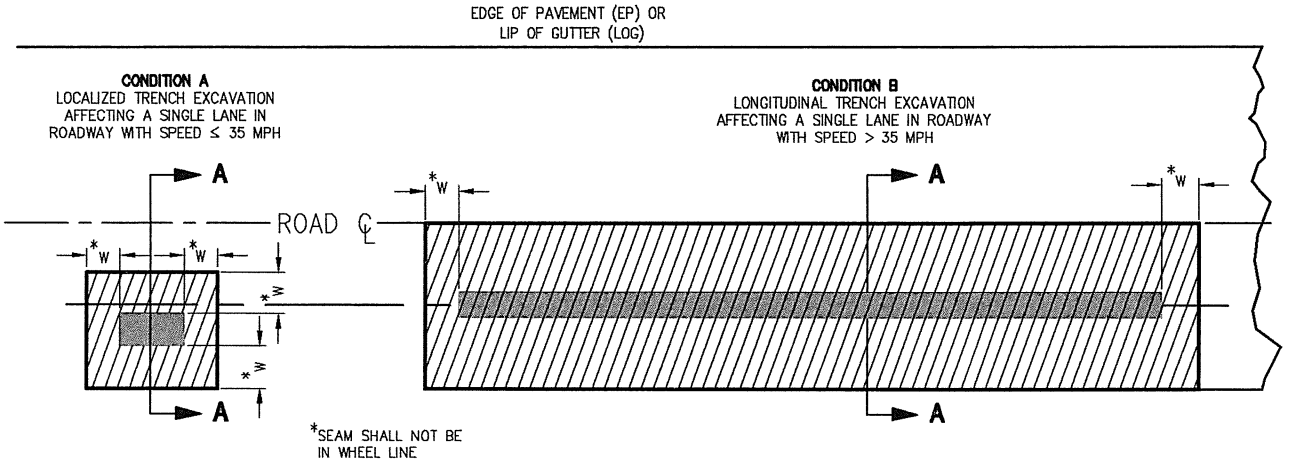
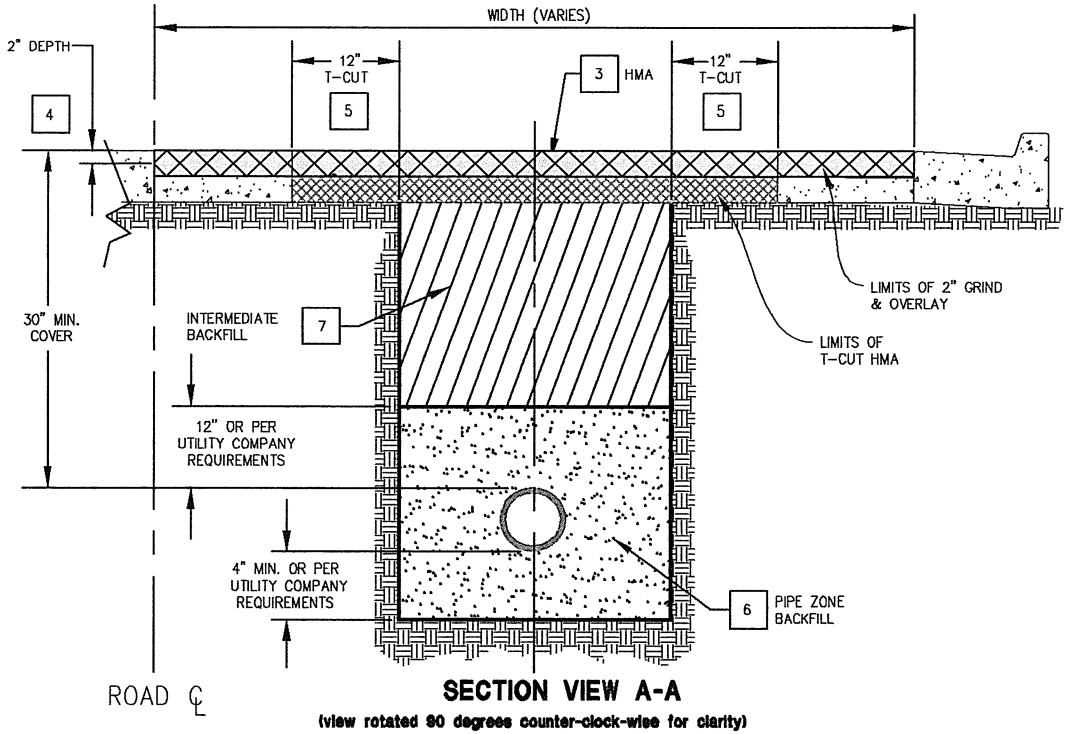




SECTION VIEW A-A

(view rotated 90 degrees counter-clock-wise for clarity)

APPROVED BY:

Rafael Martinez T.E. No. 2549 — DATE
Department of Transportation
Director of Transportation

DATE
Department of Transportation – County Engineer

COUNTY OF EL DORADO

DEPARTMENT OF TRANSPORTATION

STANDARD PLANS

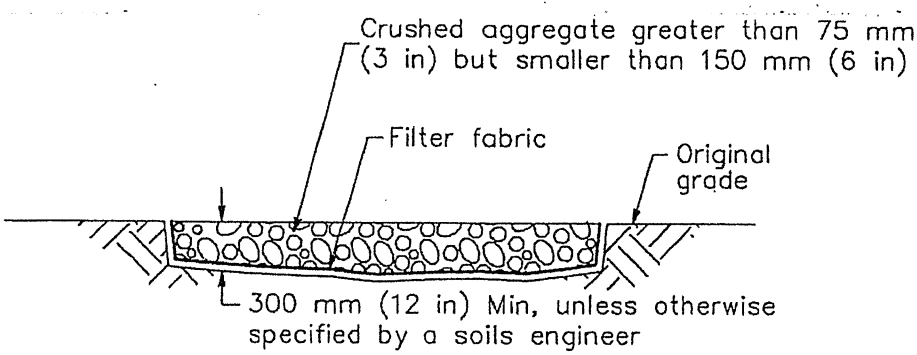
BOARD OF SUPERVISOR'S RESOLUTION NO. _____

LONGITUDINAL/LOCALIZED UTILITY TRENCH DETAIL IN EXISTING PAVEMENT AFFECTING SINGLE LANE

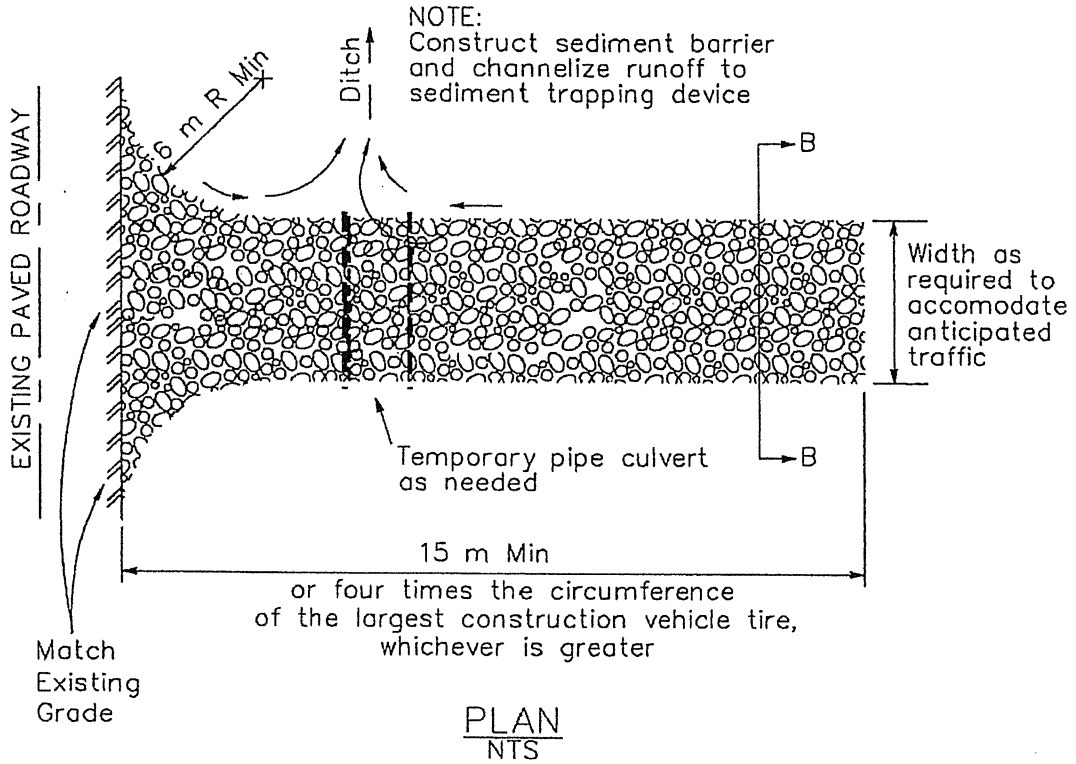
STD PLAN

UD-02B

Stabilized Construction Entrance/Exit TC-1



SECTION B–B
NTS



PLAN
NTS

Stabilized Contraction Entrance/Exit (Type 1)

CONSTRUCTION NOTES:

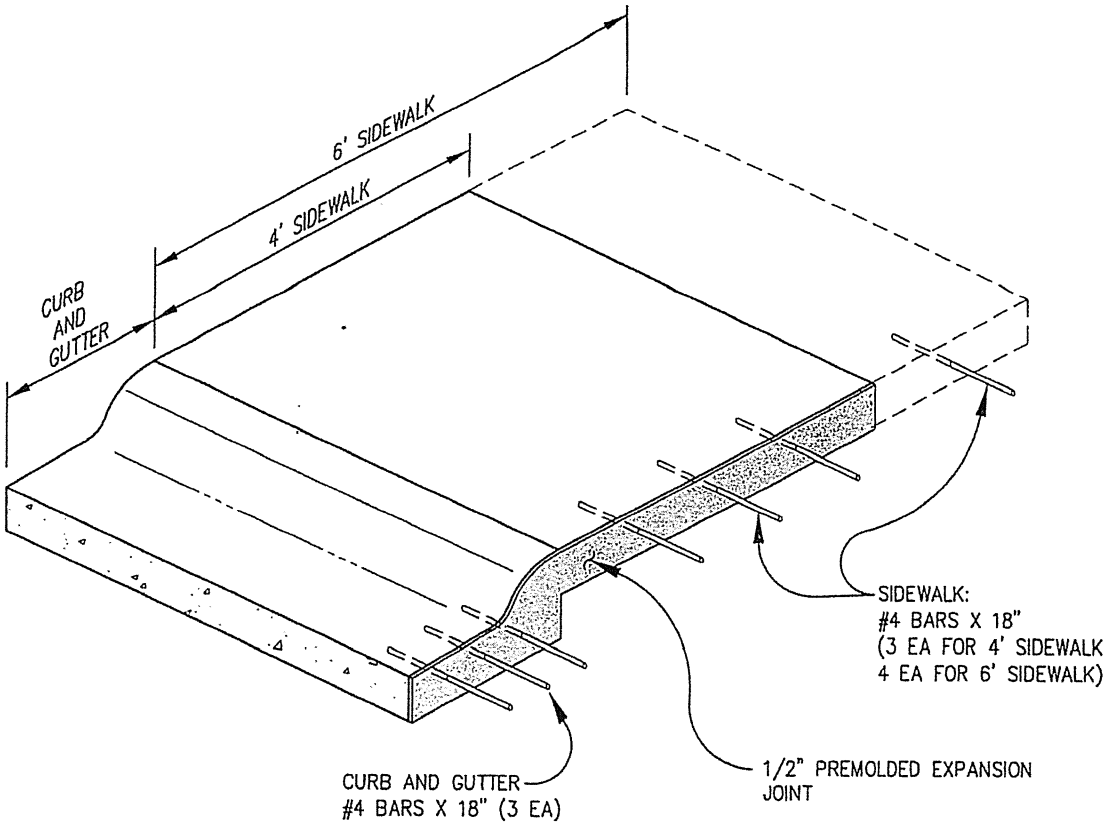
1. DRILLING AND BONDING DOWELS WITH EPOXY CARTRIDGES SHALL CONFORM TO THE DETAILS SHOWN ON THE PLANS AND THESE SPECIAL PROVISIONS.

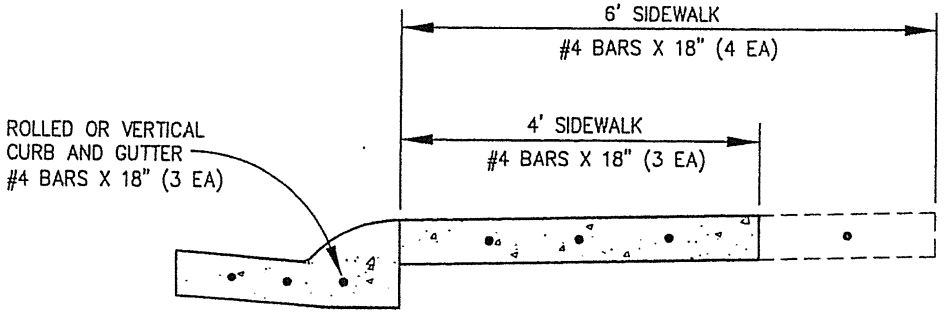
2. THE DRILLED HOLES FOR #4 REBAR DOWELS SHALL BE 5/8" NOMINAL BIT DIAMETER AND SHALL BE CLEANED IN CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND SHALL BE DRY AT THE TIME OF PLACING THE EPOXY CARTRIDGE BONDING MATERIAL AND THE STEEL DOWELS. DRILL HOLE & DOWEL EMBEDMENT DEPTH SHALL BE 9"UNLESS OTHERWISE DIRECTED.

3. THE BONDING MATERIAL SHALL BE A 2-COMPONENT EPOXY SYSTEM CONTAINED IN A CARTRIDGE HAVING 2 SEPARATE CHAMBERS AND SHALL BE INSERTED INTO THE CLEANED HOLE USING A DISPENSING GUN AND REPLACEABLE MIXING NOZZLE APPROVED BY THE MANUFACTURER. THE EPOXY CARTRIDGE SYSTEM USED SHALL BE APPROPRIATE FOR THE AMBIENT CONCRETE TEMPERATURE AND INSTALLATION CONDITIONS AT THE TIME OF INSTALLATION.

4. PREMOLDED EXPANSION JOINT FILLER SHALL BE FULL DEPTH AND MUST COMPLY WITH ASTM D 1751.

5. CONCRETE MIX FOR CURB/GUTTER/SIDEWALK REPAIRS SHALL CONFORM TO CALTRANS STANDARD SPECIFICATIONS SECTION 73 AND SHALL HAVE A MINIMUM OF 463LB/CU YD. OF CEMENTITIOUS MATERIAL CONTENT (5 SACK MIX).





SCALE: NONE

CURB, GUTTER AND SIDEWALK EPOXY DOWELING DETAIL

1 OF 1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Charles D. Suszko
REGISTERED CIVIL ENGINEER

August 1, 2022
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Charles D. Suszko
No. C43029
Exp. 3-31-24
CIVIL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING

SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
					X	Y	Z **
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	50	100	25
60	1440	720	360	240	50	100	25
65	1560	780	390	260	50	100	25
70	1680	840	420	280	50	100	25
75	1800	900	450	300	50	100	25

* - For other offsets, use the following merging taper length formula for L:
For speed of 40 mph or less, $L = WS^2/60$
For speed of 45 mph or more, $L = WS$

Where: L = Taper length in feet
W = Width of offset in feet
S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING

SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
mph	ft	ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891
75	820	866	927	1003

* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

** - Longitudinal buffer space or flagger station spacing

*** - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommmended distances.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM TABLES FOR LANE AND RAMP CLOSURES

T9

6-24-22

Return to Table of Contents

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Charles D Sparks
REGISTERED CIVIL ENGINEER

August 1, 2022
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — Charles D. Sparks — No. C43028 — Exp. 3-31-24 — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

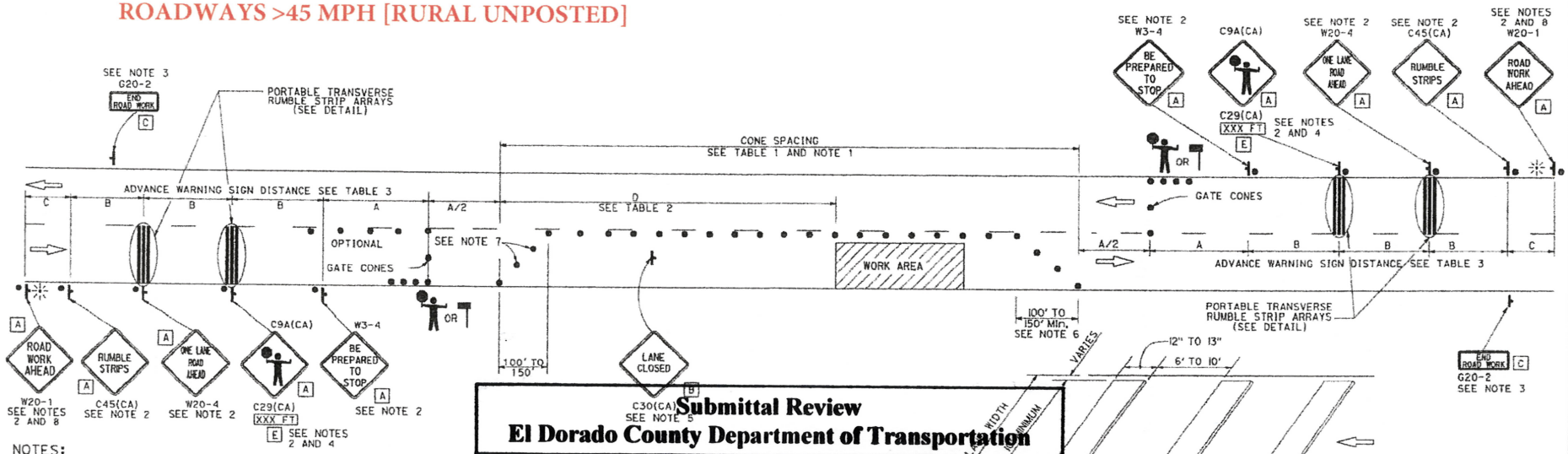
NOTES:

See Standard Plan T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Provide at least one person to continuously maintain traffic control devices for lane closures.

RUMBLE STRIP ARRAYS REQUIRED ON EL DORADO CO. ROADWAYS >45 MPH [RURAL UNPOSTED]



NOTES:

1. Portable delineators placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
2. Sign must be equipped with at least two flags for daytime closures. Flags must be orange in color and at least 16 inches by 16 inches in size. Place flashing beacons as shown for closures during hours of darkness.
3. A G20-2 "END ROAD WORK" sign, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within the larger project's limits.
4. An optional C29(CA) sign may be placed below the C9A(CA) sign.
5. Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area. They are optional if the work area is visible from the flagger station.
6. Length may be reduced by the Engineer to address site conditions.
7. Either traffic cones or barricades shall be placed on the taper. Barricades shall be Type I, II, or III.
8. If C45(CA) is not used, measure distance C from W20-4.

Submittal Review
El Dorado County Department of Transportation

The review of submittals is to assist the Contractor in complying with provisions of the Contract Documents. This review is subject to all provisions of the Contract Document and does not alter the Contractor's requirement to comply with such documents.

	NO EXCEPTIONS TAKEN		AMEND & RESUBMIT
	MAKE CORRECTIONS NOTED (No resubmission required)		REJECTED - RESUBMIT

By _____ Date _____

PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL

SIGN PANEL SIZE (Min)	
A	48" × 48"
B	30" × 30"
C	36" × 18"
D	36" × 42"
E	20" × 7"

LEGEND
- TRAFFIC CONE
- TEMPORARY TRAFFIC CONTROL SIGN
- PORTABLE FLASHING BEACON
- FLAGGER
- AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM WITH REVERSIBLE CONTROL ON TWO LANE CONVENTIONAL HIGHWAYS

NO SCALE

T13

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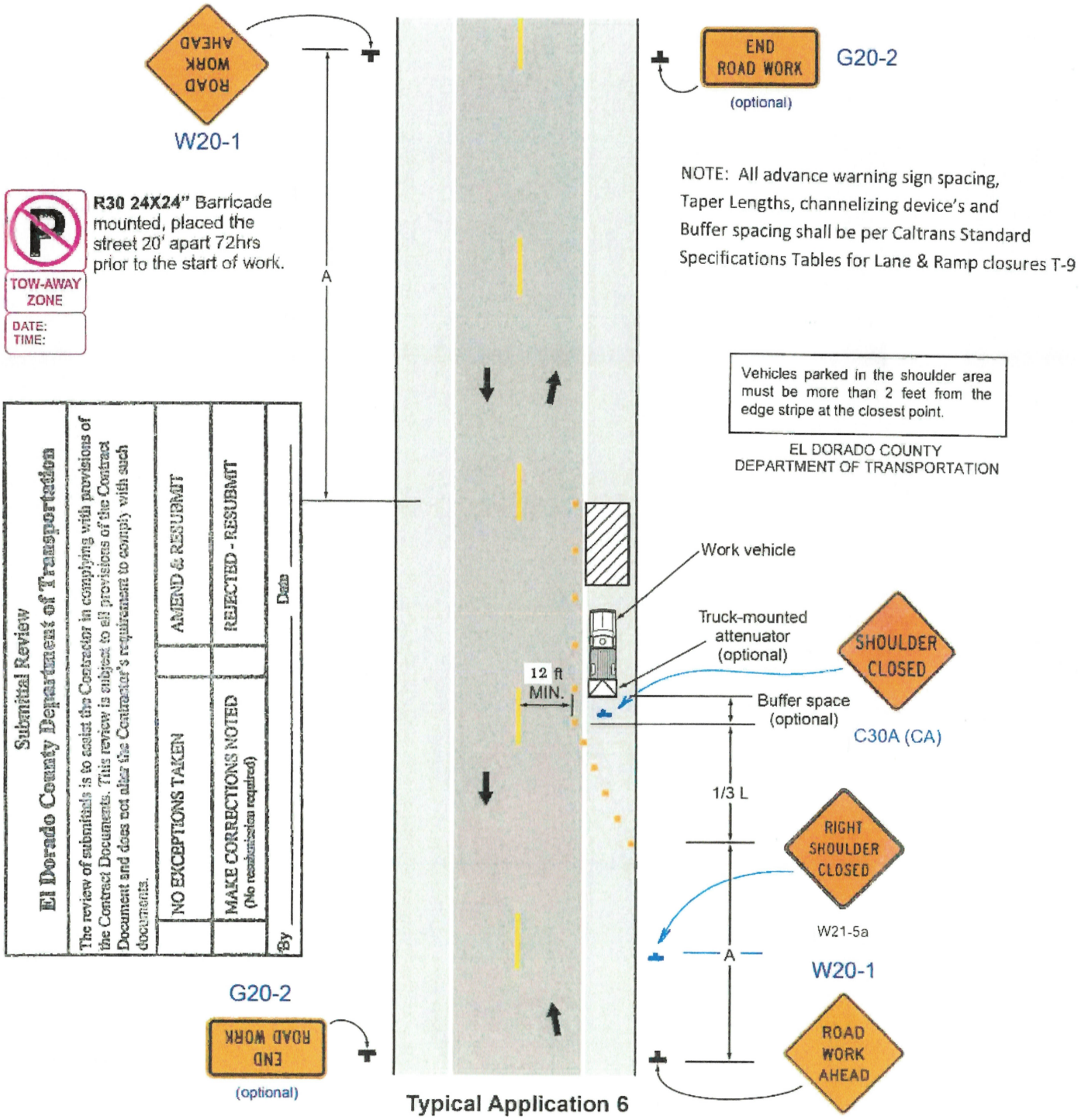
Figure 6H-6. Shoulder Work with Minor Encroachment (TA-6)



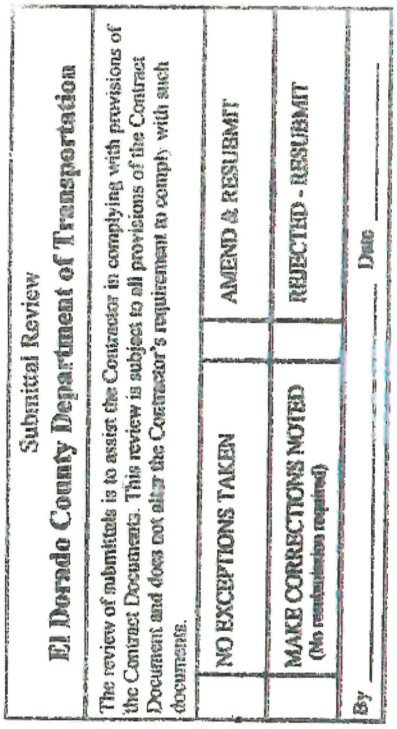
Typical Application 6

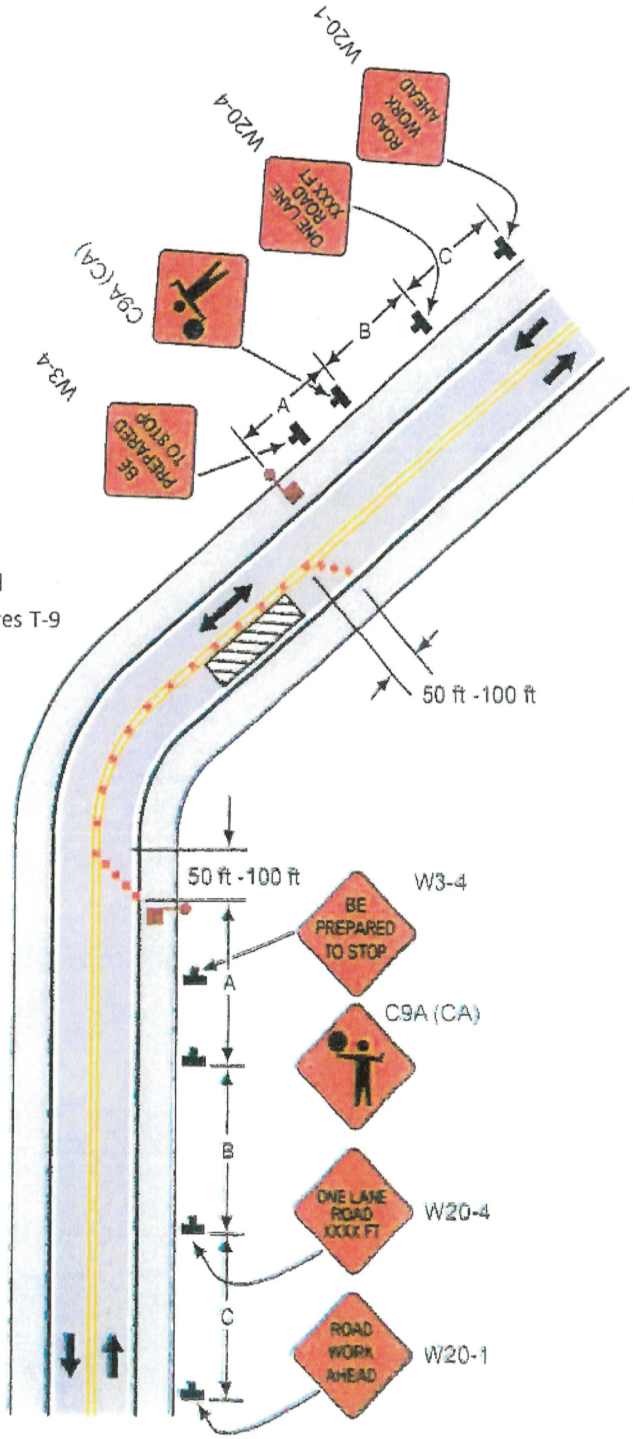
Figure 6H-10 (CA). Lane Closure on Two-Lane Road Using Flaggers (TA-10)

Same as CalTrans T-13

R30 24X24" Barricade mounted, placed the street 20' apart 72hrs prior to the start of work.

NOTE: All advance warning sign spacing, Taper Lengths, channelizing device's and Buffer spacing shall be per Caltrans Standard Specifications Tables for Lane & Ramp closures T-9

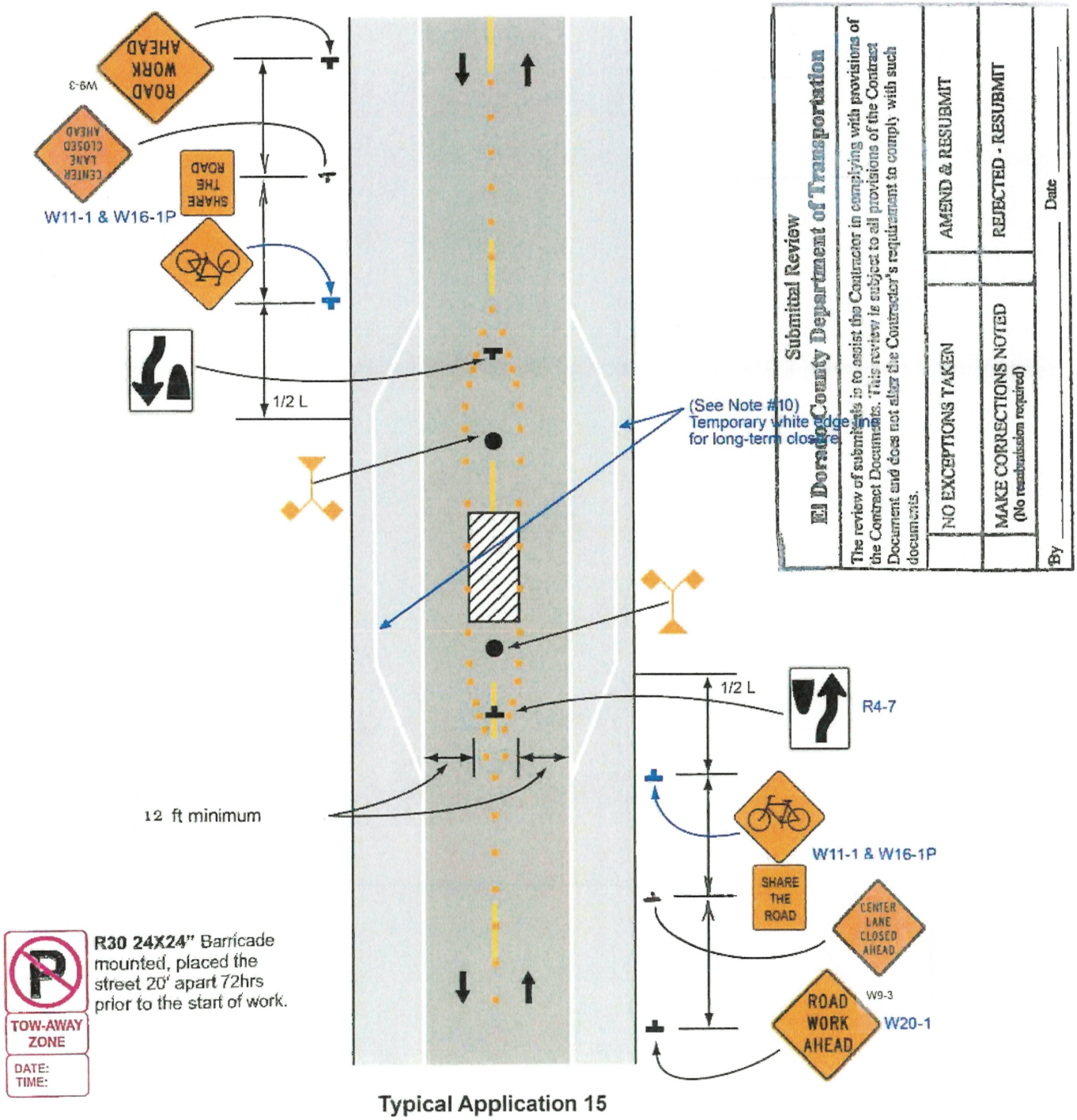




Typical Application 10

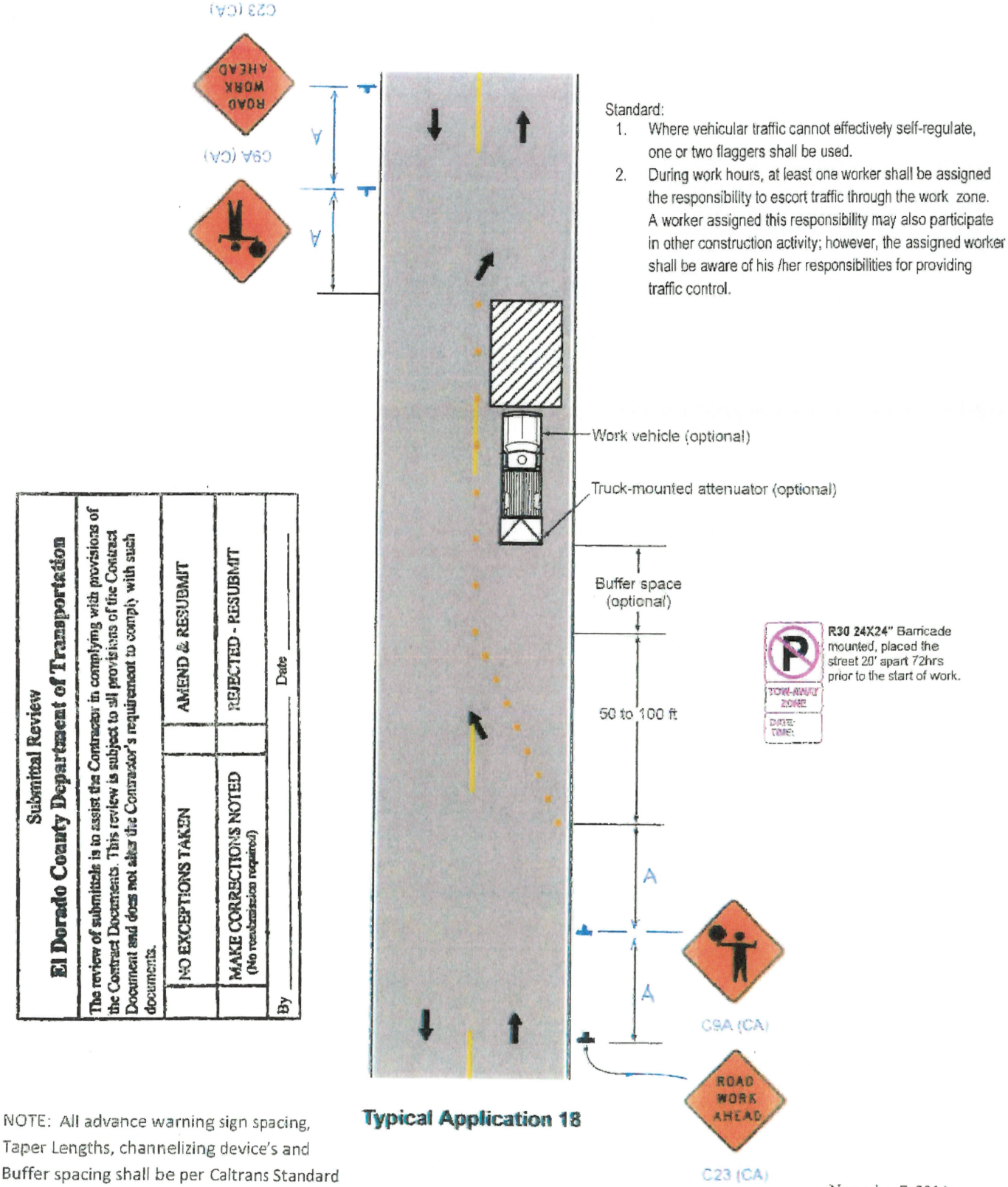
Figure 6H-15. Work in Center of Road with Low Traffic Volumes (TA-15)

Approved for minor residential – low volume roadways with adequate shoulder only



Typical Application 15

Figure 6H-18. Lane Closure on a Minor Street (TA-18) Modified



Typical Application 18

NOTE: All advance warning sign spacing, Taper Lengths, channelizing device's and Buffer spacing shall be per Caltrans Standard Specifications Tables for Lane & Ramp closures T-9