

SAN BERNARDINO COUNTY DEPARTMENT OF PUBLIC WORKS



GENERAL PERMIT CONDITIONS AND TRENCH SPECIFICATIONS

Updated September 1, 2019

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NOTE:

Upon receipt of the appropriate permit application and fees, the Department of Public Works will review the submittals and determine the minimum paving requirements, as applicable. The Department strongly advises applicants to read the conditions and requirements in their permits. Applicants may wish to discuss the requirements with staff. Failure by the Permittee to budget for all permit requirements is not a valid reason to request a variance.

1 - GENERAL

1.1 Standards and Specifications -- Permitted work shall be done in accordance with the current San Bernardino County Standards and Specifications, California Manual of Uniform Traffic Control Devices (MUTCD), Caltrans Standards and Specifications, San Bernardino County General Permit Conditions and Trench Specifications, and under authority of Title V – Highways, Traffic, of the San Bernardino County Code. Any deviation shall be approved in writing by the Permit Engineer prior to the issuance of the permit. Should conflict arise among the above listed documents for an item of work in a particular permit, the Permit Engineer shall determine the document that ultimately governs for that item of work in that particular permit.

1.2 Changes or Additions to Permit -- The Department of Public Works 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 the roads or for the health and safety of the public.

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 County improvement projects, it shall be removed or relocated as directed by the Department of Public Works at the expense of the Permittee or his successor in interest.

1.4 Utility Construction -- Permits for utility trenching, including utility service trenching, within County right-of-way, shall be issued to the respective utility purveyor or a California licensed contractor. The Permittee and Permittee's contractor shall warranty the trench repair for one year from the Department of Public Works' acceptance date. Following this one year warranty period, the respective utility purveyor shall be responsible for the lifetime trench maintenance and repair. Utility companies may have licensed contractors perform work.

Installation of utility facilities within County road right-of-way is allowed only after the utility company has obtained the County's approval by way of a franchise agreement, a similar right granted by the State of California, or provides documentation that establishes prior rights over the road dedication.

New housing tract developers already working under a Road Tract Permit may apply for a no fee permit for trenching of all utilities within the tract boundaries and be responsible for the

warranty period of a minimum of one year from the date of acceptance of work, following which the utility purveyor shall be responsible for the lifetime trench maintenance and repair.

1.5 Licensed Contractor -- All excavation, repair and restoration in County road right-of-way shall be performed by: a) a contractor with an appropriate license, (e.g. Class A, C-8, C-12) and/or any other appropriate class as issued by the State of California Contractors License Board or b) by the utility purveyor's regular employees.

1.6 Permit Possession -- Other than emergency repairs performed under authority of an annual permit, no work shall be performed within the County road right-of-way until a road permit is issued.

Title V – Streets, Highways section 51.107 – Violation, of the County Code states: “Every person is guilty of a misdemeanor who violates any provision of this Chapter or any permit issued pursuant to the provisions of this Chapter, or who fails or neglects to comply with any requirement of this Chapter, or who does any of the acts specified in § [51.0106](#) of this Chapter for which a permit is required, without first obtaining a permit from the Commissioner so to do. Such person is guilty of a separate offense for each and every day during any part of which any such violation or noncompliance occurs, and is punishable by a fine of not more than \$500.00 or by imprisonment in the County Jail for not more than six months, or by both such fine and imprisonment.”

A copy of the issued permit, a set of approved plans and permits required by any other regulatory agency shall be on site at all times while construction is in progress. Permits that require excavation shall be valid only after an Underground Service Alert (USA) inquiry identification number is issued and evidence of the same provided to the Inspector or Permit Engineer upon request. All permitted work in the mountain regions shall cease between October 31 and April 15 of the following year unless approved by the Department of Public Works. Start work approval shall be dependent upon weather conditions.

1.7 Sanitary Facilities -- It shall be the responsibility of the Permittee to provide and maintain enclosed toilets for the use of employees at all times while work is in progress. If Permittee or agent is observed not using facilities, the permit may be immediately revoked. Location of the sanitary facility shall adhere to BMP standards and must not be within the roadway.

1.8 Permittee's Responsibility -- The Permittee is responsible for the safety and for the implementation of all construction requirements within the limits of the project. The Permittee or his employees shall abide by all prevailing laws, rules and regulations governing construction activities within public right of way. The Permittee shall also be responsible for obtaining any and all necessary approvals/permits, etc. from all applicable agencies, including regulatory agencies, prior to beginning the permitted work. This includes providing a Waste Discharge Identification (WDID) number as appropriate.

1.9 Hold Harmless -- The Permittee shall preserve and save harmless the County 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 [51.0113 County Code].

The Permittee shall indemnify and hold the County of San Bernardino (County) and all officers, employees and agents of said public body free and harmless from any and every claim, demand or action for damages, or injury to any person or persons or property of any kind whatsoever, and any cost or expense in connection therewith, and agrees to defend the County and all officers, employees and agents of said public body against any claims or demands which may arise out of or result from Permittee's construction, operation, use or activities on County road right-of-way.

1.10 Notification -- Except in emergency, the Permittee shall notify the assigned Inspector a minimum of two working days in advance, excluding weekends and County holidays, prior to starting a project and for each phase of the construction requiring inspection. In addition, the Permittee shall: **a)** notify DIG ALERT a minimum of 48 hours (excluding weekends and County holidays) prior to any excavation, and **b)** notify residents/businesses/schools and others, located within a 300 feet segment of the same road on which construction is being performed, including those located within the project reach, at least 5 working days in advance of beginning the work provided any such work is scheduled to last longer than a work day, and **c)** notify residents/businesses/schools and others on any residential low volume or narrow roads on which construction or utility work is being performed, at least 5 working days in advance of beginning **any** work, through the use of door hangers delivered to each primary doorway and/or through the use of barricades with appropriate signage placed on the side of the road at each end of the scheduled work as directed by the permit inspector. Minor utility work (e.g. potholing, valve/manhole adjustments, minor repairs, etc.) on these roads can utilize barricades with date of work and scope information 2 working days prior. Depending upon the site conditions, the Inspector can request Permittee to notify additional nearby residents/businesses on adjoining streets. Any variation to this shall be as approved by the Inspector. Notification of all emergency work performed under an Annual Permit shall be done within one (1) business day of the emergency by email to the appropriate permit inspector as shown on your permit, or by phone to (909)387-1863 or the inspector's cell phone.

1.11 Inspection -- All construction authorized by a road permit shall be inspected by County personnel during construction. **Failure to notify the inspector may result in a stop work notice and the construction performed without 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 removed installation was found to be defective. Inspection requests should be made by email to the appropriate permit inspector as shown on your permit, or by phone to (909)387-1863 or the inspector's cell phone.

1.12 Failure To Comply -- Should a Permittee fail to comply with the provisions of the road permit, the Department may order the Permittee to stop work, wholly or in part, until the discrepancies have been resolved to the Department's satisfaction. Upon satisfactory completion of corrections, written approval from the Department shall be required before work resumes. Failure to comply shall result in revocation of permits and may result in additional consequences in accordance with the County's Title 5 Highway Code. The Department may perform the work required or arrange for the work to be performed and the entire cost of the required work shall be borne by the Permittee.

1.13 Well Permits—Borings for geotechnical investigations or the installation/removal of monitoring wells within County Maintained Road System will require a well permit from Environmental Health Services (EHS) or a letter/email from EHS stating that a well permit is not required. You can contact EHS at 800-442-2283. A well permit will be required if you meet any one of the following criteria:

- Digging in excess of 20 feet
- Hitting ground water regardless of depth
- The use of any type of casing regardless of size or depth

1.14 Permit Issuance – The property owner is the Permittee and the permit must be signed by the property owner. The permit may be applied for and obtained by the contractor or consultant.

1.15 American Disability Act (ADA) Compliance – Permittees shall be responsible for compliance with all current state and federal regulations pertaining to ADA , including making improvements to nearby facilities as required.

1.16 Construction of Storm Drain --- The construction of new storm drains that are to be maintained by the County shall be video inspected prior to the permit completion, at the Permittee’s expense, with a copy of the inspection video to be submitted on a media device to be determined by the inspector. Permittee shall be responsible for completing and submitting as-built plans (mylar) to the County. As-built submittals are to be stamped by a licensed engineer.

1.17 Effective July 1st, 2013, the County of San Bernardino Department of Public Works Road Permit Section (County) began requiring proof of Waste Discharge Identification Number (WDID) provided by the State of California Water Resources Control Board for projects greater or equal to one (1) acre prior to issuance of a road permit. This applies to both traditional projects, standard roadway construction projects, and Linear Underground Projects (LUP).

The project size for standard roadway construction projects will include the entire project and not just the area that encroaches into County road right-of-way. The project size for LUP will include the total length of excavation, staging area and contractor yard area. Also, if a LUP is broken down into various phases, then the project size will be the entire project and not the individual phase.

Any false information in reference to the above requirements may result in a fine from the State Water Resources Control Board.

You can visit the State Water Resources Control Board for additional information, at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constfaq.shtml.

How do I know if my project requires a State Construction General Permit (WDID)?

Construction activity resulting in a land disturbance of one acre or more, or less than one acre but part of a larger common plan of development or sale must obtain the [Construction Activities Storm Water General Permit](#) (2009-0009-DWQ Permit). Construction activity includes clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. Construction activity does not include routine maintenance such as, maintenance of original line and grade, hydraulic capacity, or original purpose of the facility.

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 by the Inspector, Permit Engineer, and/or Road Commissioner, 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, mailboxes, 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 Department. Trenches that must remain open shall be protected by fencing or steel plates. Pedestrians must not be allowed access to the trenches.

2.2 Traffic Control -- Traffic Control shall conform to the current California Manual of Uniform Traffic Control Devices (MUTCD), Caltrans Traffic Control Standards and any approved traffic control plan. Traffic Control Plan, when prepared, shall be submitted for review **at least 4 weeks prior** to the expected issuance of permit.

2.3 Working Hours -- Except for emergency repairs, no work shall be performed within County road right-of-way on weekends, County holidays, before 7 AM or after 4:30 PM unless authorized by the Permit Engineer.

2.4 Dewatering Operations -- Release of, or the directing of water onto County roads shall be authorized only by the Department of Public Works and shall include traffic control per Section 2.2, clean-up per Section 4.1 and erosion control. Permittee shall exercise caution to minimize erosion. Inadvertently, if it occurs, grading shall be as required in Section 5.4. Discharges shall comply with the National Pollutant Discharge Elimination System and with Federal law, State law and local ordinances.

2.5 Road Closures --

- No road shall be closed partially or fully without authorization from the Department of Public Works except in the case of an emergency under the direction of an authorized agency. A separate Road Closure Permit is required for construction or utility related road closures. 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. **Subsequent to the approval of a traffic detour plan, a minimum of fifteen (15) working days are still required to process the application.** During partial or full emergency road closures, reasonable effort shall be made to comply with MUTCD. A copy of the road closure policy can be obtained by calling the Department at (909)387-7995. To apply for a road closure authorization, a Road Closure Request Application describing the necessity for the road closure along with the time schedule must be submitted to the Road Permit Section, at 825 E. Third Street, Rm. 120, San Bernardino, CA 92415-0835.

- A comprehensive plan, showing detour routes and sign locations etc. signed by a Registered Civil or Traffic Engineer must be submitted by the permittee to be reviewed and approved the Traffic Division of the Department of Public Works.
- Unless absolutely necessary, the Department discourages the detouring of traffic onto non-maintained roads. It shall be the Permittee's responsibility to present the Department with a compelling reason for proposing road closures. The Department's approval may be contingent upon evaluating additional input from the underlining fee owners of the roadways, insurance documents, etc. The Department reserves the right to decline any proposal for road closure.

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 Permittee shall repair, restore or replace improvements damaged or removed as part of the construction of the permitted activity which are not designated for removal on the approved plans. All repair, restoration and replacement work shall meet the prevailing standard and specifications 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 the property owner and the Department 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 County Facilities -- Prior to construction, the Permittee shall assess the condition of County 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 County facilities shall be in the same or better condition as determined by Department personnel. Prior to the start of work, the Permittee is encouraged to take photographs of the areas that are likely to be disturbed for documentation and comparison with the post project condition.

3.3 Traffic Signals -- Traffic signal detector loops, wiring or appurtenant facilities damaged by the Permittee's operation shall be reported immediately to the Traffic Division of the Department of Public Works, 825 East Third Street San Bernardino, CA 92415, telephone (909) 387-8186, the assigned permit inspector and/or the Permits/Operations Support Division at 909-387-1863. Any damage shall be repaired immediately by the Permittee to conform to the current edition of California MUTCD and Caltrans Standard Specifications at no expense to the County and as directed by the Department of Public Works.

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 Department of Public Works. All work shall be performed under the direction of a licensed Land

Surveyor or a registered Civil Engineer who is eligible to practice Land Surveying, and at no expense to the County.

4 - PROJECT SITE MAINTENANCE

Surplus dirt, debris, rocks or building materials shall be contained during permit work and the site cleaned 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. Appropriate Best Management Practices shall be followed. At time of application a Waste Discharge Identification (WDID) number is required to be submitted, as applicable with State laws, along with applicable Storm Water Pollution Prevention Plan (SWPPP) and/or Water Quality Management Plan (WQMP).

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 Haul Routes -- When required by the Department, Permittee shall enter into a Road Maintenance Agreement with the Department before beginning work. Agreements can take several months to prepare and receive approval by the County Board of Supervisors. Care shall be exercised to prevent spillage on, or damage to County 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 County Roads R/W -- There shall be no equipment or materials stored or stockpiled in County road right-of-way. Equipment and materials shall be removed from such road right-of-ways when not in use and at the end of each working day, except as approved by the Department of Public Works. County reserves the right to remove as necessary any obstruction or stockpile from the right-of-way.

4.4 Snow Removal -- The Department of Public Works removes snow on County maintained roads when it is safe to do so. If Permittee's project operations (sunken trenches, irregular paving, encroachments or other hazards) are inhibiting the County personnel and/or equipment from performing the snow removal activities, the Department will cease the snow removal operations in the affected areas. The Permittee shall then be responsible for removal of snow to the surface of the road and maintain such, including sanding operations, for a minimum width of 20-feet or as directed by the Department personnel.

Placing of steel plates during winter season as referenced in Section 1.6, shall require the Permittee to accept the responsibility of the snow removal operations from the effected roadway(s) located within the permit project area.

4.5 Emergency Response -- Before work is started, the Permittee shall furnish names and telephone numbers of staff on-call if emergency work is required by the County. The Department, 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 County.

4.6 Maintenance of Trenches -- Permittee shall perform continuing maintenance of all trenches, including during any periods of suspension of work and during the course of construction. The utility purveyor/owner shall maintain the trench for the life of the installation in accordance with County Ordinance No. 2377. (See Section 1.4 above)

5 - MATERIALS AND EQUIPMENT

5.1 Pavement Traffic Markings and Striping -- All new, removed or damaged pavement traffic markings and striping shall be constructed of two coats of paint material followed by a glass bead application, unless otherwise approved by Department personnel. To ensure visual uniformity, as determined by Department personnel, Permittee may be required, at no cost to the County, to replace all affected markings within an intersection and adjacent areas with thermoplastic material if existing markings are thermoplastic, otherwise apply two coats of paint material followed by glass bead application. At inspector's discretion, removal of all existing thermoplastic material and painting of new markings per instructions above may be required.

5.2 Asphalt Concrete -- Asphalt Paving shall be as follows:

Location	Asphalt Mix Type	Aggregate size	Road classification
Valley Areas	PG 64-10	½" Max Medium	Local roads
	PG 70-10	¾" full depth	Arterial roads and secondary highways
Mountain Areas	PG 64-16	½" Max Medium	Local roads
		¾" full depth	Arterial roads
Desert Areas	PG 70-10	½" Max Medium	Local roads
		¾" full depth and greater	Arterial roads and secondary highways

- Base course paving shall be ¾" aggregate size, asphalt mix per above chart.
- Asphalt Dikes shall be constructed with Type "A", PG 70-10, 3/8" Maximum grading.
- Rubberized Asphalt shall be replaced with RHMA PG 64-16.

5.3 Base Material -- Base shall be Class 2 Aggregate Base or as approved by Department personnel.

5.4 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.

5.5 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 County facility. If pavement is marred, it shall be resurfaced over the entire width as required in Section 8, Trench Resurfacing. If County or private facilities are damaged, they shall be replaced or repaired as specified in Section 3, Preservation of Property.

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

5.7 Emulsion Tacking – Shall be applied as per Caltrans standards and specifications.

5.8 Concrete in Freeze-Thaw Areas – The current Caltrans standards for Concrete in Freeze-Thaw areas shall be applicable. Here is the Caltrans standards in place as of 2018:

90-1.02I Concrete in Freeze-Thaw Areas

90-1.02I(1) General

Section 90-1.02I applies to concrete for projects specified in the special provisions to be in a freeze-thaw area.

90-1.02I(2) Materials

90-1.02I(2)(a) General

The concrete must contain at least 590 pounds of cementitious material per cubic yard unless a higher cementitious material content is specified.

Add an air-entraining admixture to the concrete at the rate required to produce an air content of 6.0 ± 1.5 percent in the freshly mixed concrete.

For concrete placed at least 2 feet below the adjacent undisturbed grade or at least 3 feet below compacted finished grade, an air-entraining admixture is not required unless the concrete will experience freezing conditions during construction.

The cementitious material must satisfy the following equation:

$$[(41 \times UF) + (19 \times F) + (11 \times SL)]/TC \leq 7.0$$

where:

UF = silica fume, metakaolin, or UFFA, including the quantity in blended cement, lb/cu yd

F = natural pozzolan or fly ash complying with AASHTO M 295, Class F or N, including the quantity in blended cement, lb/cu yd. *F* is equivalent to the sum of *FA* and *FB* as defined in section 90-1.02I(2)(b).

SL = GGBFS, including the quantity in blended cement, lb/cu yd

TC = total quantity of cementitious material used, lb/cu yd

6 - TRENCHING

6.1 Cal OSHA - 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.

6.2 New Roads -- Trenches installed in roadways that have been paved within 3 years shall not be open-cut unless otherwise authorized by the Permit Engineer. If authorized, the Permittee shall be required to overlay the full width of the affected lanes of the roadway (limits to be established by the Permit Engineer) to restore it to its original condition per the trench overlay section 8.5 and associated drawings.

6.3 Depth of Installation -- Underground installations shall have a minimum of 2.5-feet of cover below finished grade depending upon the type of utility line. Refer to the attached San Bernardino County Standard Plan No. 311 for recommended locations including depths.

6.4 Pavement Removal -- Pavement shall be cut for removal and excavated in a manner that does not disturb the adjacent pavement. Pavement shall be saw cut or cold planed for

permanent repair as specified in Section 8. Remnant strips of pavement less than 3-feet wide as measured from edge of pavement shall be removed and included in the replacement pavement. Replacement pavement along the edge of pavement that does not have curb and gutter, AC dike or AC berm shall be a minimum of 3-feet wide. When sidewall slippage occurs within a trench under the pavement, the pavement in the affected area shall be removed and the area of slippage shall be recompacted and repaved as replacement pavement. Any voids under the pavement including directional boring shall be filled by an appropriate method approved by the inspector.

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 Department personnel, 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 as shown in the Work Area Traffic Control Handbook and the Plate Bridging detail drawing attached.

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, the material obtained from the project excavations can be suitable for use as fill or backfill, provided that all organic material and other objectionable material is removed. Rocks, plain concrete rubble and pavement grindings obtained from the project will be permitted in the fill subject to the following limitations:

- In trenches up to 3-feet wide, the maximum dimension of any piece used shall be 6-inches; in trenches more than 3-feet wide, 1-foot is the maximum dimension.
- Pieces larger than 4-inches shall not be placed within 1-foot of any structure.
- Pieces larger than 3-inches shall not be placed within 1-foot of the sub grade for paving.
- Any trenching that involves bundled conduits of more than (5) 2-inch conduits shall be slurry backfilled.

Rocks or rubble included in the fill shall be mixed with approved material to eliminate voids. Slurry (1-1/2 sack maximum) is also an acceptable option for backfill.

6.9 Narrow Trench -- Unless otherwise authorized paved areas with trenches 14 inches or less in width shall be backfilled to pavement sub grade with 1-1/2 sack maximum aggregate/cement slurry. The slurry shall be protected until cured and pavement placed per Section 8, Trench Resurfacing.

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

6.11 Manhole Construction -- Manholes shall remain below the grading plane until final paving has been completed and then set flush with the surface, except in areas that require snow removal in which the manhole frame shall be set 1/2-inch below pavement surface. In graded earth shoulders or earth flow line areas, asphalt concrete shall be placed to a minimum width of 3-feet around the manhole and paved out at 45 degrees to the edge of existing pavement per San Bernardino County Standard Plan No. 311A. Backfill and testing shall be per Section 7, and shall be independent of the main line trench tests.

7 - COMPACTION

7.1 Relative Compaction (RC) -- RC of 95% minimum shall be required for asphalt pavement, paving base material and that portion of backfill which is within 0.5-foot of the paving base material unless specified otherwise by the Pavement Engineer. RC of 90% minimum shall be required for all other fill or backfill. 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 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-foot of depth or fraction thereof. Pavement subgrade and pavement base material shall be tested at 500-foot intervals. 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 Department 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, which shall be consistent with Caltrans or San Bernardino County Standards and Specifications. 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 Department 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/REPAIR

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. Permanent pavement shall be placed within thirty (30) days of completion of the subsurface installation, or within the time frame as determined by the Permit Engineer.

8.2 Trench Pavement Repair-General -- Damaged pavement adjacent to the trench edges shall be sawcut and removed in rectangular sections. No remnant strips 3 feet or less are allowed. Remnant strips of pavement 3-feet wide or less shall be removed and such area(s) shall be included in the pavement repair. Asphalt pavement shall be in accordance with Caltrans Standards Section 39 and be a minimum of 95% RC. The repaired section shall be 0.10' thicker than the existing pavement but the total thickness not less than 0.25'. Pavement shall be placed within thirty (30) days of completion of the subsurface installation, or within the time frame as determined by the Permit Engineer. Areas to be joined with asphalt pavement shall be cleaned of all soil and foreign material and tacked with 100% coverage of asphaltic emulsion or paint binder. If the existing AC thickness is significantly thick, the Inspector shall seek County's Pavement Engineer's recommendation on whether or not the replacement thickness shall still be 0.10' thicker or not. The Pavement Engineer's recommendation shall be considered as final. See cross section detail drawings for additional information.

8.3 Permanent AC Pavement Repair -- Base pavement shall be placed in compacted lifts of a maximum of 3-inches in thickness. Asphalt mix types shall conform to section 5.2. The finish course shall be 0.17' thick minimum and conform to sections 8.4 and 8.5 and be flush with the finished surface. Trench sections over 6-feet in width shall utilize a self-propelled vibrating screed paving machine (Barber-Green or equivalent) and may be subject to additional requirements.

8.4 Trench Pavement Repair Options -

- T-Cut Trench (For asphalt thickness less than 4"): After trench backfill is completed, trench edges shall be sawcut or ground to full asphalt depth, and to straight lines a minimum of 1.0-foot from the edge of the excavation or pavement removal. The edges shall be parallel and at right angles to the centerline of the road (see Trench Cut T-Cut Detail).
- T-Grind Trench -- In cases where the existing pavement has a thickness in excess of 4-inches, grinding a minimum of 1-foot from each edge of the excavation or pavement removal to a minimum depth of 2-inches may be allowed at the discretion of the Permit Inspector (see Trench Cut T-Grind Detail).
- Butt Trench -- Trench Cut Butt-Joint Detail requires an overlay paving. It may also be used for roadways scheduled for reconstruction.

8.5 Pavement Treatments required:

Pavement Replacement Level	Years Since Last Surface Improvement by County	Street Pavement Resurfacing Requirements:
1	Up to 3 Years* (36 months) After Roadway reconstruction/Resurfacing (Trench Moratorium Applies)	<p>Full-lane milling and resurfacing when existing AC pavement thickness is greater than 4".</p> <p>Full-depth and full-lane replacement when existing AC pavement thickness is 4" or less.</p>
	Up to 3years* (36 months) after Chip or Slurry** (Trench Moratorium Applies)	<p>Full lane slurry**, including all lanes affected by laterals.</p> <hr/> <p>For Pavement Replacement Level 1, project length has no bearing in any of these three requirements. Limits of resurfacing will extend to nearest intersection in both directions, or as determined by the County Road Inspector. Also, see Section 8.6.</p>
2	<p>3-5 years (36-60 months) after Roadway Reconstruction/Resurfacing</p> <p>or</p> <p>3-5 years after Chip or Slurry Seal ** (Trench Moratorium Does Not Apply)</p>	<p>For trenches equal to or greater than 300 linear feet***: Full-lane milling and resurfacing when existing AC pavement thickness is greater than 4".</p> <p>Full-depth and full-lane replacement when existing AC pavement thickness is 4" or less.</p> <p>For trenches less than 300 linear feet, repair pavement utilizing appropriate T- Repair method AND full-width slurry type III***.</p> <p>Full lane slurry for linear cut. For lateral cut, use T-Repair***.</p> <p>Also, see Section 8.6.</p>

3	5-10 years and road identified on CIP project list for reconstruction or resurfacing within the next fiscal year	Butt Joint***
	5-10 years – road not identified on CIP list for reconstruction or resurfacing within next fiscal year	T-Repair*** and full lane slurry**
4	Over 10 years	T-Repair or full lane slurry to be determined by Road Inspector upon field review of road condition***.

*Trench Moratorium – only allowed in emergencies. New Developments may be conditioned otherwise by Land Development Division of Land Use Services.

** Slurry Seal also include other surface seal categories as determined by the Pavement Management Group, i.e., Cape Seal, etc.

*** Mountain roads less than 20 feet wide require full-width Type III slurry or 1-1/4 inch overlay.

When possible, the determination of the overlay shall be made by the Department of Public Works prior to issuance of the permit. Absent this, and subsequent to the issuance of the permit, the Department still reserves the right to make a determination of the overlay based upon field conditions. 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 conditions and will be determined by the Department of Public Works. The overlay, when required, shall still meet asphalt types and grades per Section 5.2. Paving shall be placed with a paving machine per Section 5.6 and shall extend beyond pavement removal a minimum of 1-foot laterally and 5-feet longitudinally and shall cover the driving lane or shoulder full width. Roads that have a super elevation or tilt cross section may require full road width overlay in the area of the super elevation or tilt section.

8.6 Excessive Pavement Removal or Multiple Cuts-- Regardless of the trench method used, removal of multiple separate areas of pavement totaling six or more cuts, by a Permittee within 300-foot length of street, shall require Permittee to repair the road per Section 8.5, at the Inspector’s discretion. Please see the attached detail Trench Overlay, Pg. 2 of 2.

These conditions will apply where either single or multiple permits have been issued to the Permittee, or if multiple cuts have been made within the preceding 12 months, and the cumulative number of cuts or area removed meets or exceeds the limits stated in this section.

In the absence of any Conditions of Approval placed on the developer by the Land Use Services Department, the developer of the project is responsible for excessive pavement removal or multiple cuts that cumulatively meet the conditions above.

All pavement repair work is to be performed within 30 days of the completion of installation or repair activities.

8.7 Pavement Resurfacing -- Where there are existing surface coatings on the existing pavement, such as open graded pavement, chip seal or any type of surfacing that has been removed, the surfacing and pavement shall be replaced in-kind.

8.8 Driveway Approaches -- Driveway approaches constructed of asphalt concrete shall be repaired as required and shall also be overlaid 1-inch thick full width to the property line or slurry sealed per Caltrans Section 37-2.01.

8.9 Portland Cement Concrete -- Potholes or trenches in PCC shall be repaired by saw cutting or grinding and removed in full panels at the score lines or as directed by Department personnel.

8.10 Trench Failure and Repair -- When the Department of Public Works notifies Permittee of a failure of their trench (settlement, excessive cracking or aligating, etc.), the Permittee shall coordinate the proposed trench repair method and schedule of repairs with the Department within two working days or sooner depending upon the severity of the failure. This includes any failures of lateral lines.

9 - STRUCTURAL SECTION DESIGN REQUIREMENTS

9.1 Construction of Street Improvements -- This consists of construction of curb & gutter, sidewalk, driveway approaches and new asphalt concrete placement or any combination thereof. Only single family residences with one unit proposal fronting on local streets (non-corner lots) are exempt from obtaining a pavement structural section report. All other developmental proposals must submit the required structural section report in accordance with the General Construction Notes obtained from the San Bernardino County Department of Land Use Services – Land Development Division.

Match asphalt concrete paving for single family residences may be constructed by utilizing an approved detail shown on the attached trench repair drawings.

9.2 Method for soil sampling

Procedures for sampling include:

- A. Soil samples shall be taken from the sub-grade surface under the existing or proposed travelled way within cut or fill areas.
- B. Care should be exercised to ensure that any material near the surface not be allowed to fall into the hole used for sampling, so that the sample taken is not contaminated by any surface material.
- C. Take a new sample for every change in soil type and R-value test performed for each sample. A minimum of one sample shall be taken per each roadway. No single sample shall represent more than 500 feet of roadway. A minimum of one R-value test shall be performed for every 1,000 feet for the lowest sand equivalent.
- D. Each soil sample shall be identified with the date, project name, project number, sample location and sample depth.
- E. The County of San Bernardino reserves the right to request additional soil samples and testing. In addition, the County reserves the right to take soil samples while the developer is grading the road.

9.3 Flexible Pavement - Structural sections shall be designed per Chapter 630 "Flexible Pavement" of the Caltrans Highway Design Manual.

Engineering procedures for the design of structural sections shall use the empirical method per Topic 633 “Engineering Procedures for New and Reconstruction Projects” of the Caltrans Highway Design Manual.

- B. Thickness of Layers – The thickness of each material layer is calculated by dividing the GE by the appropriate gravel factor.
 - C. Minimum HMA Layer = 0.25 feet
 - D. Minimum AB Layer = 0.35 feet
- 9.4 Rigid Pavement - Rigid pavement shall be designed per Chapter 620 “Rigid Pavement” of the Caltrans Highway Design Manual.
- 9.5 Required Submittal Documents for Structural Section Design
- A. R-Value test results, test data sheets for all R-value tests performed, including expansion pressure readings, (CT# 301)
 - B. Sieve Analysis (SA) test results, (CT# 202)
 - C. Sand Equivalent (SE) test results, (CT# 217)
 - D. Map showing proposed street locations and soil sampling locations
 - E. A registered Civil Engineer in the State of California experienced with soil engineering shall submit a stamped and signed statement of recommendation for the structural section and soil sampling locations.
 - F. Traffic Index – It is the responsibility of the Project Engineer and/or the Soils Engineer to provide the calculations and supporting data as defined in Sections 613.3 and 613.4 of the Highway Design Manual, including Tables 613.3A, 613.3B, and 613.3C. Supporting data shall include:
 - 1. Vehicle counts covering no less than 24 continuous hours in the reasonably immediate proximity to the project. The location of vehicle counts shall be shown on a map.
 - a. Construction detours, lane closures, and other restrictions on path of travel will be grounds for invalidating counts
 - 2. Vehicle classification, i.e. type and number of axles
 - 3. Calculations
 - a. Calculations shall add the project volumes to the initial counts
 - 4. TI₂₀ recommendation(s)
 - a. TI recommendations shall not be less than the minimum outlined in the Road Planning and Design Manual

County DPW Traffic will formally review the engineer’s TI recommendation along with the supporting documentation only when it is submitted through the Permits Division as part of the structural section design and approval process. Additionally, the Traffic Division reserves the right to refute or reject the submittal, or recommend a TI value at its discretion.

A copy of the above mentioned required documents shall be submitted for review and approval to:

San Bernardino County - Department of Public Works
Permits/Operations Support Division - Transportation Permits Section
825 East Third Street, Room 108
San Bernardino, CA 92415-0835
Attention: (your Inspector’s name here)

10 - GUIDELINES FOR AREAS WITH POTENTIAL FOR SHOULDER GRADING OR SNOW PLOWING

Note: Adherence to these guidelines will assist in reducing injury to equipment operators, damage to snow removal equipment, and damage to private driveways and structures near the roadway. Encroachment work within County road right-of-way will be considered only as a last resort when all other remedies are not feasible.

10.1 Structures -- Structures such as retaining or garden walls, parking decks, porch supports, steps, fences, permanent trash containers, irrigation systems, backflow devices or similar structures shall not be constructed within County road right of way. Work requiring and encroachment permit will be considered by the County only when it has been determined that such works are necessary or unavoidable to mitigate an undesirable condition to an existing or new improvement and can be justified by the property owner.

10.2 Distance to Edge of Pavement -- It is preferable that improvements, when allowed, are to be constructed or installed five (5) feet horizontally from the existing edge of roadway pavement, the back of asphalt concrete berm, or the concrete curb. NO improvement shall be placed closer than three (3) feet from the pavement edge.

10.3 Concrete Driveway -- No concrete driveway approaches shall be constructed or installed within three (3) feet of the existing roadway pavement edge or back of the asphalt concrete berm. The three (3) feet between the concrete driveway approach and the berm or existing edge of pavement shall be paved with asphalt concrete unless concrete curb and gutter exist along the entire frontage of the lot.

10.4 Driveway Approach -- The driveway approach shall be constructed so as to maintain the grade and alignment of the existing flowline.

10.5 Drainage Connections – Connections to County drainage facilities shall include a cleanout structure at the point of connection.

10.6 Storage in Roads and Shoulders -- Building materials, portable toilets or similar items shall be not stored in the roadway or shoulder area, in drainage ditches or within pedestrian walk areas. Such storage is a violation of the Streets and Highways Code, Chapter 6, Section 1480. Surplus dirt, debris, rocks or building materials shall not be placed in such a manner which might result in the blockage of any drainage structures at either the inlet or outlet.

10.7 Construction Permits -- A Department of Public Works, Permits/Operations Support Division permit is required for all construction within County maintained road right-of-way, including walls which may or may not require a permit from Building & Safety Division of the Land Use Services Department. If it is determined that the Department of Public Works will allow the construction within the road right-of-way, an Erosion Control Permit must be obtained for the Building & Safety Division prior to permit issuance by the Department of Public Works. Any proposed wall three (3) feet or higher, or supporting a surcharge, requires engineered drawings to be approved before issuance of an encroachment permit.

10.8 Detail Drawings -- Please refer to attached detail drawings “Driveway Guidelines for Areas with Potential for Shoulder Grading or Snow Plowing” for clarification of these guidelines.

10.9 Necessary Encroachments Only -- Encroachments shall not be constructed within County maintained road right-of-way where there is adequate area outside of the County road right-of-way to construct the improvements. An encroachment permit will only be considered when it is determined to be necessary, unavoidable and is a last resort to mitigate an undesirable condition and can be justified.

11 - DRIVEWAY ACCESS MANAGEMENT

11.1 DRIVEWAY LOCATIONS - The design, number, and locations of driveway accesses must be approved by the Director of Public Works or his designee when the use of property or its driveway access is changed. The number of driveway accesses shall be kept to a minimum. A project site plan is needed to gain approval of driveway accesses.

A valid Encroachment Permit is required and must be obtained from the Department of Public Works permit section before any construction of a driveway access connecting to County roads.

11.2 DRIVEWAY ACCESS MODIFICATIONS - When there is a request for a building permit, Land Use Services Department approval or encroachment permit AND

- the driveway or its location is not in conformance with County standards
- OR
- for reasons of public health and safety as determined by the Director or Public Works

Then reconstruction, closure or relocation of driveway accesses may be required.

The following criteria may be considered in determining need for driveway access modification:

- A. The increase in actual or proposed vehicular volume at the driveway access opening causes the road capacity to deteriorate to an unacceptable level of service.
- B. A particular directional characteristic (such as left turns) increases to cause deterioration of level of service.
- C. The change in use or modifications to the property causes the flow of vehicles entering the property to be restricted or to queue or hesitate on the street creating a potential hazard.
- D. The use of driveway access by commercial or other large vehicles that require large turning radii.
- E. If a parcel of land with a driveway access has been in a state of non-use and recommencement of the driveway access exceeds its design limitations or is non-conforming with the current County standards.

11.3 NUMBER OF DRIVEWAY ACCESS POINTS - No more than one driveway access point per property shall be granted, unless a development circulation plan with supporting data is provided to the satisfaction of both the Director of Public Works and Fire Marshall indicating that more than one driveway access is necessary to adequately handle driveway volumes and the additional driveway access will not be detrimental to traffic flow on adjacent public roads.

Where a property has frontage to more than one road, driveway access will generally be limited to the lowest volume road where the impacts of a new driveway access will be minimized.

- A. Joint driveway access between adjacent developments is highly recommended and may be required on Secondary or Major Highways. Mutual easements shall be recorded by both property owners agreeing to share the driveway and be responsible for building it in accordance with County standards.
- B. Driveway access location should be aligned with driveway access located on the opposite side of the street except when only right turns are allowed out of the driveway. Any offset in driveway access location must be approved by the Director of Public Works.

11.4 RESIDENTIAL DRIVEWAYS - Driveways serving property used solely as a single-family, two-family, or three-family residence, including farms and ranches not used for retail purposes, shall be residential type driveways conforming to County standard drawings 130 and 131.

New single family residence construction utilizing a single County standard driveway shall obtain an Encroachment Permit from the Department of Public Works for a single driveway access. Additional driveways will require a review and an Encroachment Permit from the Department of Public Works. Approval of second residential driveways is dependent on lot size, frontage width, and traffic safety considerations.

11.5 ACCESS SPACING FOR RESIDENTIAL DEVELOPMENTS - Residential developments other than those listed in Section 6.5 shall provide a minimum spacing between access points to the development. Such access points are expected to be designed as street type entrances and shall provide a minimum spacing, between centerlines for the street type entrances, that is equivalent to the stopping sight distance for the design speed of the roadway intersected by the access points. In cases where the design speed is not known, the speed limit may be used. Where minimum requirements cannot be met, the driveways shall be located as approved by the County Engineer.

11.6 NON-RESIDENTIAL DRIVEWAYS - Street type entrance shall be used on large commercial, industrial, mobile home parks, large scale housing, schools and where large vehicles are anticipated.

- A. When the non-residential development has more than one driveway, the driveways shall be located to provide a minimum spacing equivalent to the stopping sight distance for the design speed of the roadway intersected by the driveways. In cases where the design speed is not known, the speed limit may be used.
- B. Where minimum requirements cannot be met, the driveways shall be located as approved by the County Engineer.
- C. Driveway accesses that will require vehicles to back out into the public street will not be allowed.

11.7 ON SITE VEHICLE CIRCULATION AND QUEUING REQUIREMENTS - When a development is located adjacent to a public street, the parking facility must have full internal vehicular circulation and storage. Vehicular circulation must be located completely within the

property and vehicles within one portion of the development must have access to all other portions without using the adjacent road system.

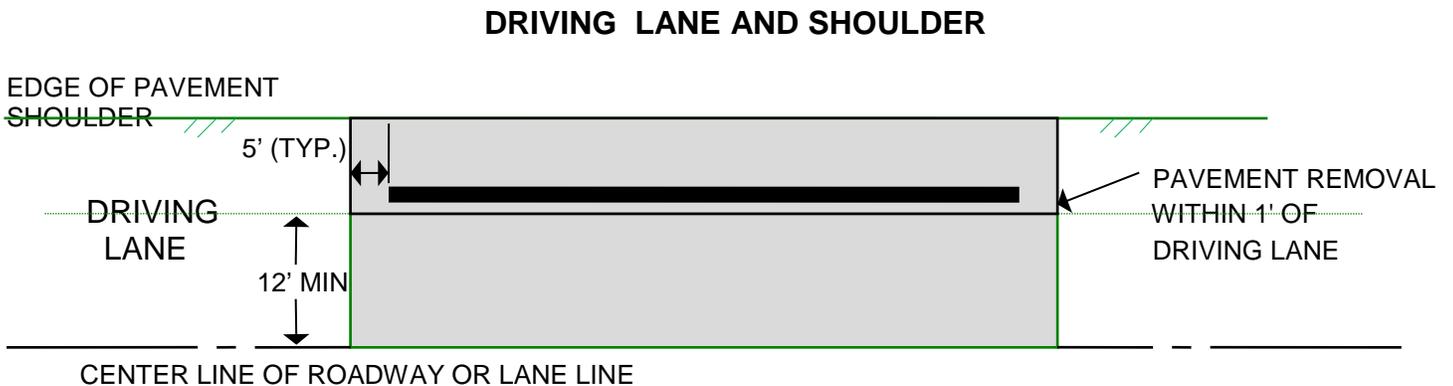
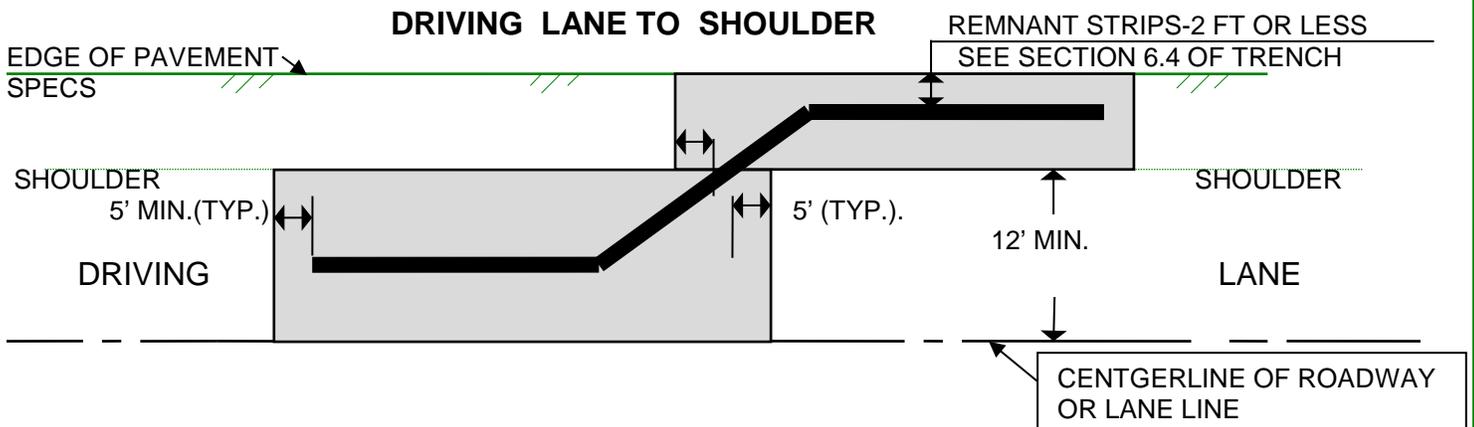
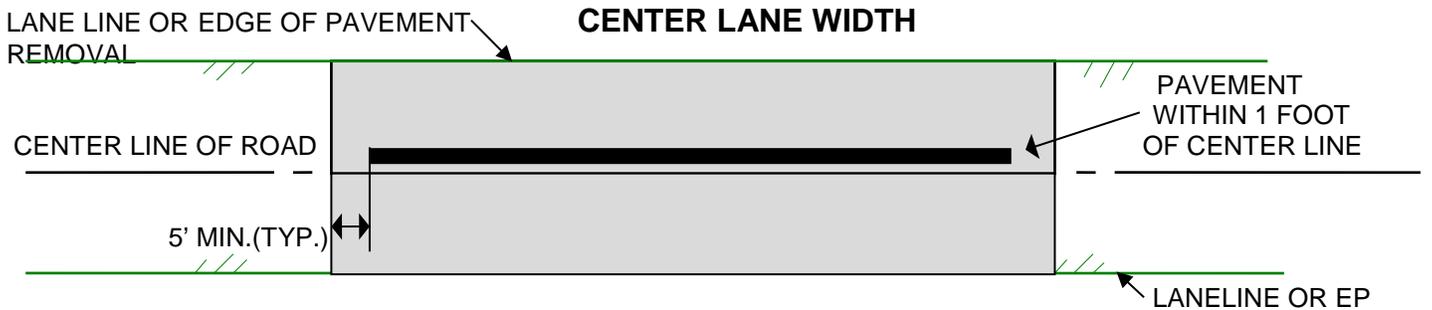
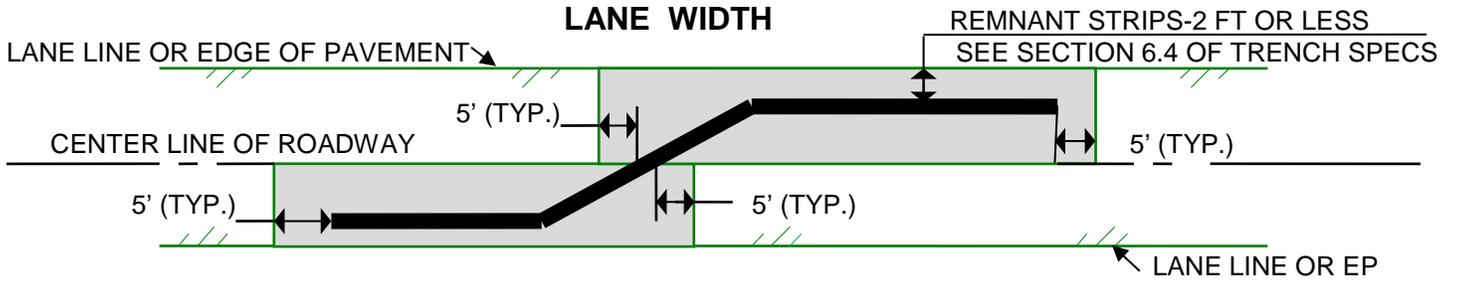
When a proposed development includes a truck loading operation, and has driveway access to a public street, adequate space must be provided so that all truck maneuvering including parking, loading and unloading is performed off street. Combined truck loading and through vehicle driveway access should be avoided.

Provision for appropriate vehicular exit queuing should be made at all driveway accesses to a development. At high-volume entrances the internal circulation roads or aisle shall accommodate in-bound traffic surges without forcing traffic to queue back into the external roadway system. A minimum queuing for at least two vehicles shall be maintained, measured from the right-of-way.

11.8 ACCELERATION/DECELERATION LANES - Some developments based on the characteristics of the traffic on either the street or traffic accessing the development may necessitate the provision of acceleration and/or deceleration lanes. The Department of Public Works will notify the developer if acceleration and/or deceleration lanes are needed during the project notice process.

When required, these lanes should be designed according to the latest standards and guidelines set forth in Chapter 400, Intersections at Grade, of the Caltrans Highway Design Manual (Latest Edition) and Chapter 10, Grade Separations and Interchanges, of AASHTO's A Policy on Geometric Design of Highways and Streets (Latest Edition).

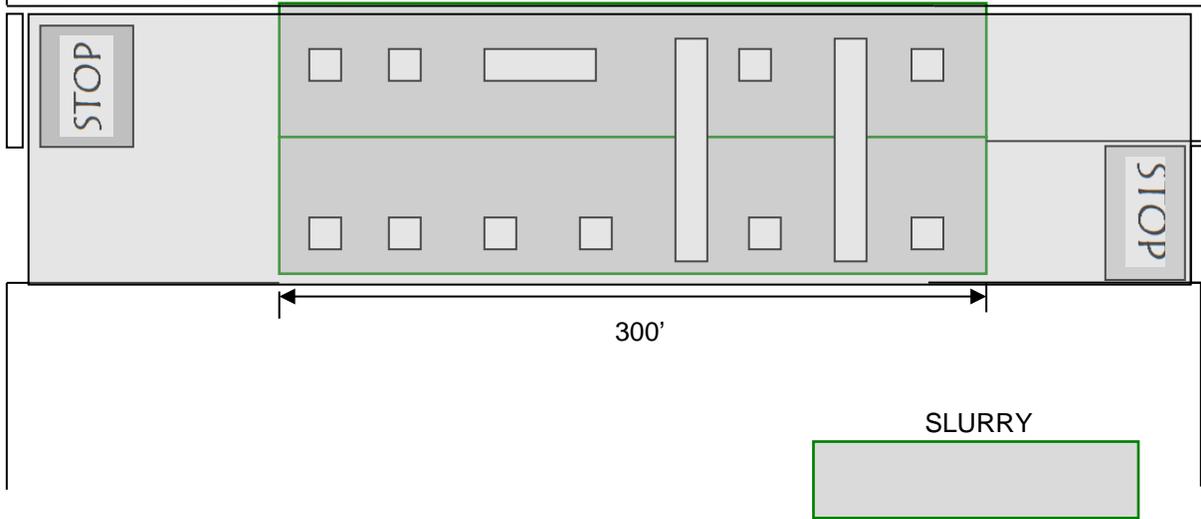
TRENCH OVERLAY – Pg. 1 of 2



NOTE: OVERLAY TO EXTEND BEYOND TRENCH A MINIMUM 5' LONGITUDINALLY. PAVING JOINTS SHALL BE AT THE EDGES OF THE DRIVING LANES OR SHOULDERS.

**ROAD WAY WITH MULTIPLE TRENCH CUTS
IF ROAD IS 3 YEARS OR OLDER**

See Section 8.6 if the work area has 6 or more cuts, or 5% or more of the road surface, or 15% or more of the total area of a lane or shoulder.

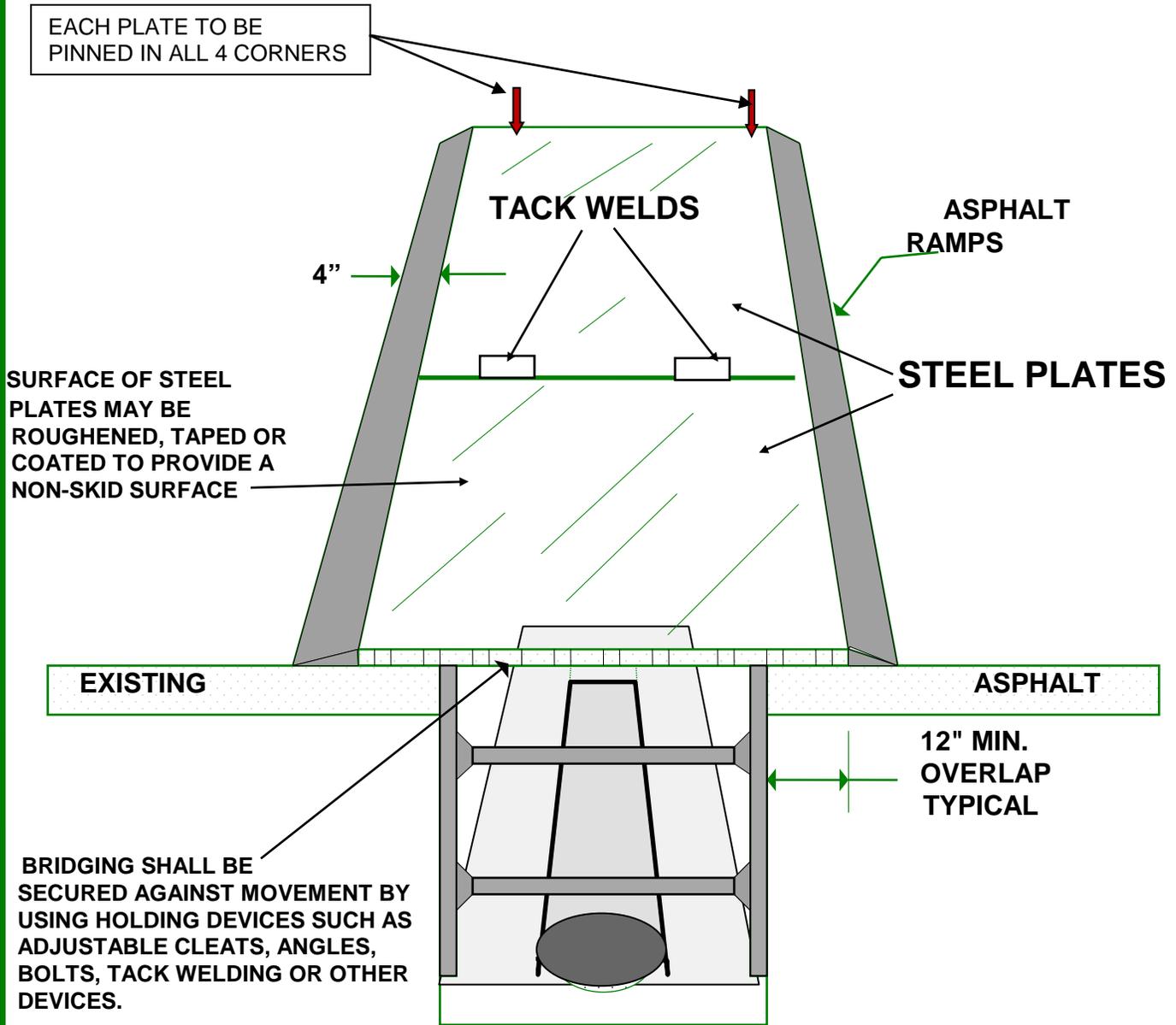


TRENCH OVERLAY – Pg. 2 of 2

PLATE BRIDGING

WIDTH OF TRENCH	MINIMUM PLATE THICKNESS
1.0 FOOT TO 3 FOOT	1 INCH
4.0 FEET	1-1/4 INCH

FOR SPANS GREATER THAN 4 FEET, A STRUCTURAL DESIGN SHALL BE PREPARED BY A REGISTERED CIVIL ENGINEER AND APPROVED BY DEPARTMENT PERSONNEL.



NOTE: TRENCH WALLS AND ADJACENT SOIL SHALL BE SUFFICIENTLY STABLE FOR THE USE OF THE ABOVE PLATE.

PAVEMENT REMOVAL
SEE SECTION 6.4 OF
THE TRENCH SPECS

EDGE OF
PAVEMENT

REMNANT STRIPS 3 FEET OR LESS

FROM EDGE OF PAVEMENT,
REMOVE & INCLUDE IN REPAIR

95% MIN. R.C. AC PAVEMENT TO BE 0.25' MIN.
AND 0.10' THICKER THAN EXISTING.
TOP 0.10' - 0.17' TO BE PER SECTION 8.3-8.5

90% MIN. R.C.
14" WIDE OR LESS
USE 1-1/2 SACK
CEMENT SLURRY.

SAWCUT OR COLD PLANE

6" MIN.

95 % MIN. RC.
CLASS II BASE (IF EXISTING)
MATCH EXISTING
THICKNESS OR 6" MIN.

90% MIN RC.

NOTES :

1. ALL EXCAVATIONS WITHIN COUNTY RIGHT-OF-WAY SHALL REQUIRE AN EXCAVATION PERMIT FROM THE ROAD PERMIT SECTION.
2. ROAD PERMITS ARE NOT VALID WITHOUT FULL COMPLIANCE WITH REQUIREMENTS OF UNDERGROUND SERVICE ALERT REQUIREMENTS.
3. ALL EXCAVATIONS SHALL BE CONSTRUCTED AS PRESCRIBED BY CAL-OSHA.
4. TEMPORARY PAVING SHALL BE MINIMUM 0.17 FEET THICK COMPACTED, SMOOTH AND FLUSH, AND SHALL BE PLACED IN ALL AREAS WHERE PAVING WAS REMOVED, PRIOR TO OPENING TO TRAFFIC AND AT THE END OF EACH DAY (SEE SECTION 8.1).
5. COMPACTION TEST ON BACKFILL IN THE 90% RC ZONE SHALL BE AT VARYING DEPTHS ON 250' INTERVALS AND SUBMITTED TO THE INSPECTOR PRIOR TO PERMANENT PAVING. CLASS II AGGREGATE BASE AND THE GRADING PLANE SHALL BE 95% RC ON 500' INTERVALS.
6. NOTIFY PERMIT INSPECTOR TWO WORKING DAYS PRIOR TO STARTING A PROJECT AND FOR EACH PHASE OF CONSTRUCTION.
7. OVERLAY IS REQUIRED AND SHALL BE PER SECTION 8.5 AND 8.6 OF THE GENERAL PERMIT AND TRENCH SPECIFICATIONS.

TRENCH CUT BUTT-JOINT DETAIL

PAVEMENT REMOVAL
SEE SECTION 6.4 OF
THE TRENCH SPECS

SAWCUT OR COLD PLANE
1' FROM TRENCH CUTS

SAWCUT OR COLD PLANE
FOR TRENCHING

EDGE OF
PAVEMENT

REMNANT STRIPS
3 FEET OR LESS FROM
EDGE OF PAVEMENT,
REMOVE & INCLUDE
IN REPAIR

6" MIN.

1' MIN. (TYP.)

95% MIN. R.C. REPLACEMENT
AC PAVEMENT TO BE 0.25' MIN.
AND 0.10' THICKER THAN
EXISTING. TOP 0.17' SHALL BE
PER SECTIONS 8.3 THRU 8.5.

95 % MIN. RC.
CLASS II BASE(IF EXISTING)
MATCH EXISTING
THICKNESS OR 6" MIN.

90% MIN. R.C.
14" WIDE OR LESS
USE 1-1/2 SACK
CEMENT SLURRY.

90% MIN. R.C.

NOTES :

1. ALL EXCAVATIONS WITHIN COUNTY RIGHT-OF-WAY SHALL REQUIRE AN EXCAVATION PERMIT FROM THE ROAD PERMIT SECTION.
2. ROAD PERMITS ARE NOT VALID WITHOUT FULL COMPLIANCE OF UNDERGROUND SERVICE ALERT REQUIREMENTS.
3. ALL EXCAVATIONS SHALL BE CONSTRUCTED AS PRESCRIBED BY CAL-OSHA.
4. TEMPORARY PAVING SHALL BE A MIN. 0.17 FEET THICK, COMPACTED SMOOTH AND FLUSH, AND SHALL BE PLACED IN ALL AREAS WHERE PAVING WAS REMOVED, PRIOR TO OPENING TO TRAFFIC AND AT THE END OF EACH DAY (SEE SECTION 8.1)
5. COMPACTION TEST ON BACKFILL IN THE 90% RC ZONE SHALL BE AT VARYING DEPTHS ON 250' INTERVALS AND SUBMITTED TO THE INSPECTOR PRIOR TO PERMANENT PAVING. CLASS II AGGREGATE BASE AND THE GRADING PLANE SHALL BE 95% RC ON 500' INTERVALS.
6. NOTIFY PERMIT INSPECTOR TWO WORKING DAYS PRIOR TO STARTING A PROJECT AND FOR EACH PHASE OF CONSTRUCTION.
7. OVERLAY PAVING SHALL COMPLY WITH SECTION 8.5.

TRENCH CUT T-CUT DETAIL

PAVEMENT REMOVAL
SEE SECTION 6.4 OF
THE TRENCH SPECS

4" MIN. EXISTING AC

SAWCUT OR COLD PLANE
FOR TRENCHING

0.17' MIN. COLD PLANE
1' FROM TRENCH CUTS (TYP.)

EDGE OF
PAVEMENT

REMNANT STRIPS

3 FEET OR LESS FROM
EDGE OF PAVEMENT, REMOVE
& INCLUDE IN REPAIR

6" MIN.

0.17' MINIMUM
AC PAVEMENT
PER SECTION 8.3-8.5.

95% MIN. RC. AC
PAVEMENT TO BE 4" MIN.

AND 1" THICKER THAN
EXISTING.

95% MIN. RC.
CLASS II BASE (IF EXISTING)
MATCH EXISTING THICKNESS OR
6" MIN.

90% MIN. RC.
14" WIDE OR LESS
USE 1-1/2 SACK
CEMENT SLURRY

90% MIN. R.C.

NOTES :

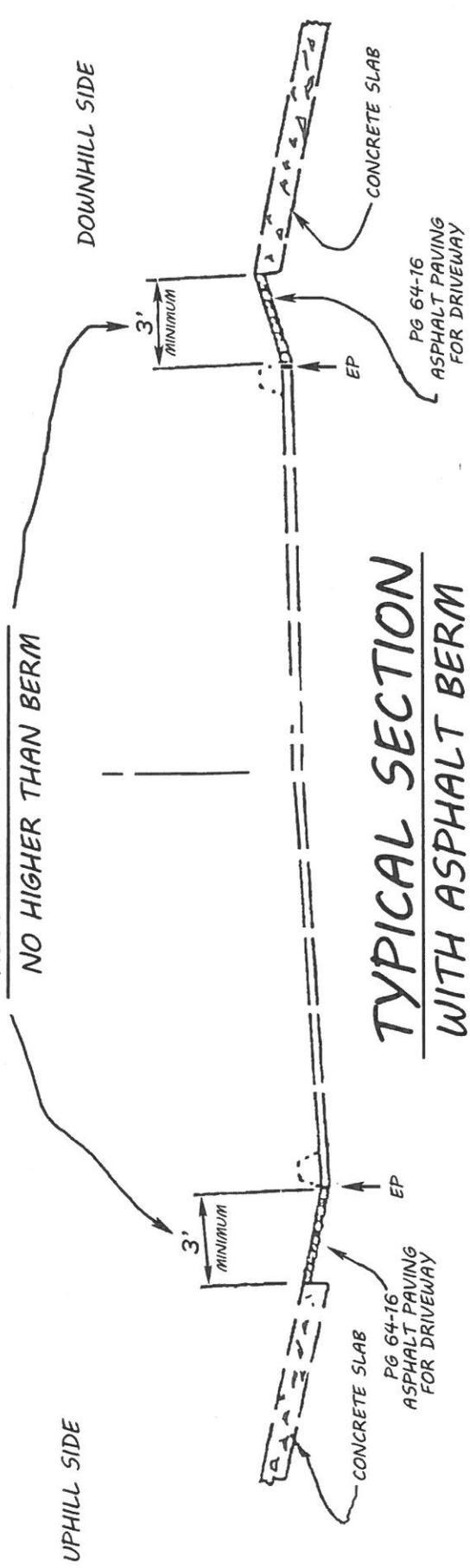
1. ALL EXCAVATIONS WITHIN COUNTY RIGHT-OF-WAY SHALL REQUIRE AN EXCAVATION PERMIT FROM THE ROAD PERMIT SECTION.
2. ROAD PERMITS ARE NOT VALID WITHOUT FULL COMPLIANCE OF UNDERGROUND SERVICE ALERT REQUIREMENTS.
3. ALL EXCAVATIONS SHALL BE CONSTRUCTED AS PRESCRIBED BY CAL-OSHA.
4. TEMPORARY PAVING SHALL BE 0.17' THICK, COMPACTED SMOOTH AND FLUSH, AND SHALL BE PLACED IN ALL AREAS PAVING WAS REMOVED PRIOR TO OPENING TO TRAFFIC AND AT THE END OF EACH DAY (SEE SECTION 8.1).
5. COMPACTION TESTS IN THE 90% RC PIPE ZONE SHALL BE ON 250' INTERVALS AND RESULTS SHALL BE SUBMITTED TO THE INSPECTOR PRIOR TO PERMANENT PAVING.
6. NOTIFY PERMIT INSPECTOR TWO WORKING DAYS PRIOR TO STARTING A PROJECT AND FOR EACH PHASE OF CONSTRUCTION.
7. OVERLAY PAVING SHALL COMPLY WITH SECTION 8.5 8.6.

TRENCH CUT T-GRIND TRENCH DETAIL

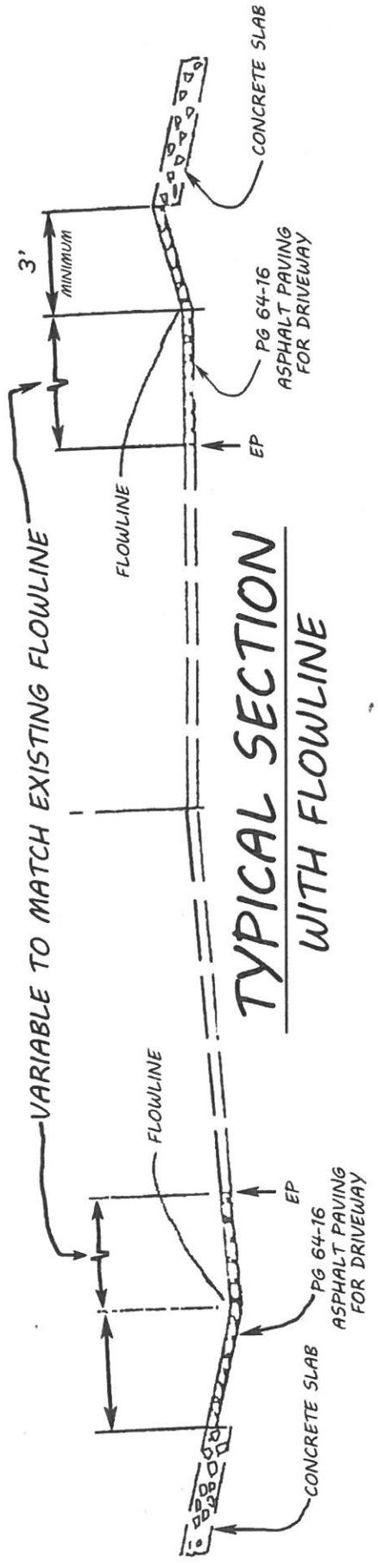
TRANSPORTATION PERMITS DIVISION
 DRIVEWAY GUIDELINES FOR AREAS WITH POTENTIAL
 FOR

SHOULDER GRADING OR SNOW PLOWING

THESE AREAS SHOULD BE
 NO HIGHER THAN BERM

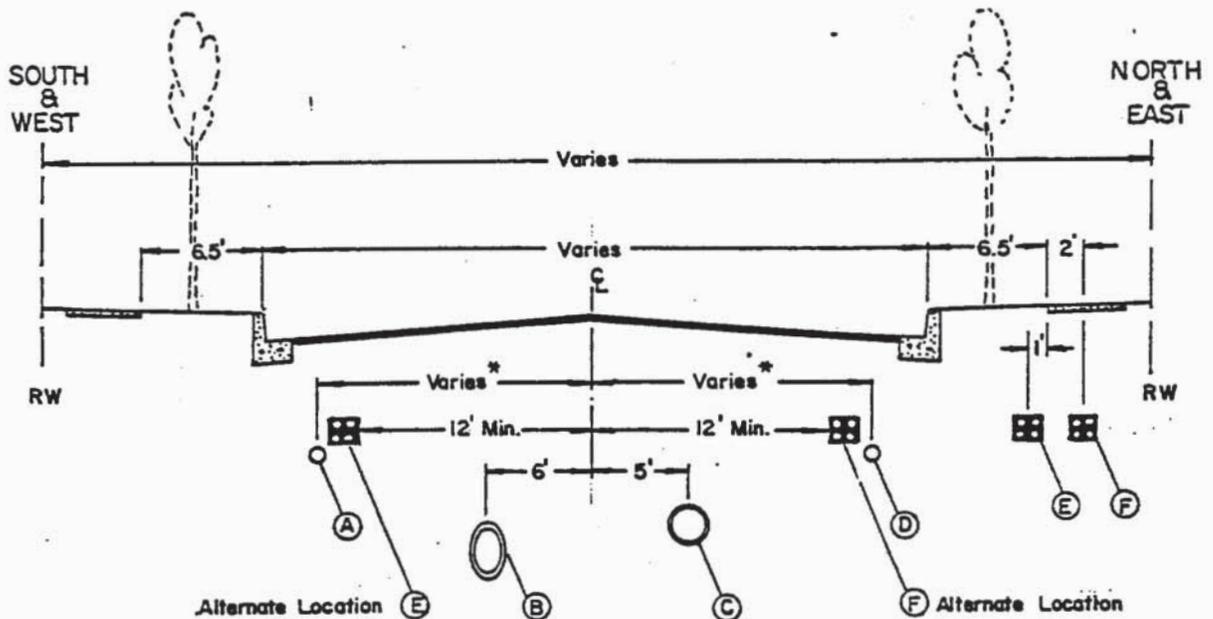


TYPICAL SECTION WITH ASPHALT BERM



TYPICAL SECTION WITH FLOWLINE

RECOMMENDED UTILITY LOCATION



UTILITY	MIN. COVER
(A) WATER	30"
(B) STORM DRAIN	Varies
(C) SEWER	Varies
(D) GAS	30"
(E) POWER	36"
(F) TELEPHONE-CATV	30"

RECOMMENDED UTILITY INSTALLATION SCHEDULE

1. STORM DRAIN
2. SEWER
3. POWER & TELEPHONE
4. CURB & GUTTER
5. WATER
6. GAS
7. PAVING

NOTES:

1. WHERE ULTIMATE STREET IMPROVEMENTS ARE TO BE CONSTRUCTED, MINIMUM COVER OF UTILITY LINES MAY BE VARIED TO FACILITATE INSTALLATION.
2. THE UTILITY COMPANIES SHALL MAKE EVERY EFFORT TO LOCATE THEIR FACILITIES IN THE RECOMMENDED LOCATIONS, PARTICULARLY IN NEW SUBDIVISIONS.
3. EDISON & TELEPHONE UTILITIES MAY USE A COMMON TRENCH. ALTERNATE LOCATION MAY BE EITHER THE EDISON POSITION OR THE TELEPHONE POSITION.
- * 4. VARIES 3' FROM THE CURB FACE TO 14' FROM C.
5. THE CENTER 24' OF THE STREET SHALL BE RESERVED FOR SEWER AND STORM DRAIN INSTALLATION.
6. SURFACE OF VAULT OR MANHOLE MUST MATCH PAVEMENT AND PARKWAY GRADES.
7. REPAIR OF TRENCHES AND REPLACEMENT OF PAVED SURFACING IN EXIST COUNTY ROADS SHALL BE IN ACCORDANCE WITH CURRENT "SPECIFICATIONS FOR TRENCH REPAIR."
8. WHENEVER POSSIBLE, MANHOLE COVERS SHALL NOT BE PLACED WITHIN THE SIDE-WALKS.

SAN BERNARDINO COUNTY ROAD DEPARTMENT

DATE: 7-17-72

M. A. Nicholas
COUNTY ENGINEER

**UNDERGROUND
UTILITY LOCATION**

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