

**ADDENDUM NO. 1**  
**June 2<sup>nd</sup>, 2023**

Project:       **2022-2023 Fairfax Road Improvement Project**  
Town of Fairfax and  
Pavement Engineering Inc  
(PEI)

From:         Loren Umbertis  
Public Works Director  
Fairfax, CA 94930

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This Addendum forms a part of the Contract Documents and modifies the original bidding documents as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

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**CHANGES TO BIDDING REQUIREMENTS**

1.       Project Manual Section 00 11 16 – Notice Inviting Bids – paragraph regarding determination of award shall be changed to read “Town shall award the contract for the Project to the lowest responsive, responsible Bidder as determined by the Town from the Base Bid Plus All Alternates”
2.       Engineer’s Estimate for the 2022-2023 Fairfax Road Improvement Project is Six Hundred Thousand Dollars and no/100 (\$600,000.00)

**CHANGES TO SPECIFICATIONS**

3.       Project Manual Table of Contents includes reference to “Technical Specs 1-20”, Appendix A – Bid Items Quantities” and Appendix B – Standard Plans”. These items and sections are now provided and shall become a part of the Project Manual.

# TABLE OF CONTENTS

<b>TECHNICAL SPECIFICATIONS .....</b>	<b>4</b>
TS-1 GENERAL DESCRIPTION OF WORK .....	4
TS-2 PAYMENT FOR EXTRA WORK .....	4
TS-3 EXISTING FACILITIES .....	4
TS-4 GENERAL REQUIREMENTS .....	6
TS-5 TRAFFIC CONTROL.....	10
TS-6 WATER POLLUTION CONTROL PROGRAM.....	12
TS-7 TRIMMING, CLEARING AND GRUBBING .....	15
TS-8 HOT MIX ASPHALT (HMA) .....	16
TS-9 COLD PLANING & MICRO MILLING.....	25
TS-10 REMOVE AND REPLACE HMA.....	29
TS-11 SLURRY SEAL (TYPE II) .....	32
TS-12 CRACK SEAL.....	37
TS-13 ASPHALT TACK COAT.....	39
TS-14 MISCELLANEOUS CONCRETE.....	40
TS-15 MISCELLANEOUS EXCAVATION & GRADING .....	47
TS-16 PRUNE & REMOVE TREE ROOTS.....	49
TS-17 LOWERING AND ADJUSTING EXISTING UTILITY FACILITIES TO GRADE .....	50
TS-18 TRAFFIC STRIPES, PAVEMENT MARKINGS AND PAVEMENT MARKERS .....	53
TS-19 ROADSIDE SIGNS .....	60
TS-20 FINAL CLEAN-UP.....	62
<b>APPENDIX A – BID ITEM QUANTITIES BY STREET.....</b>	<b>65</b>
<b>APPENDIX B – STANDARD PLANS.....</b>	<b>73</b>

# TECHNICAL SPECIFICATIONS



Joseph L. Ririe, P.E.

5/18/2023

Date

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## **TECHNICAL SPECIFICATIONS**

### **TS-1 GENERAL DESCRIPTION OF WORK**

The work shall generally consist of:

The work generally consists of mobilization; developing, setup and maintenance of a traffic control system; developing and implementing a water pollution control program; removing and replacing, and constructing new concrete curb, gutter, and valley gutters; cold planing; micro milling; removing and disposing of existing pavement, concrete, aggregate base and/or native materials; pruning and removing tree roots; placement of hot mix asphalt (HMA); crack seal & slurry seal application, lowering and adjusting to utility covers to finish grade; traffic striping, pavement markings and raised pavement markers; removing and replacing delineators and roadside signs; cleanup of the project area and other items of work as shown in the contract documents.

The Contractor shall take all reasonable precautions to restrict his operations to the least area of work possible and shall not disturb property beyond the areas of work.

The Contractor shall provide a safe continuous path of travel for pedestrian traffic during all phases of construction. If pedestrians are directed away from the existing pedestrian travel way due to construction, a suitable alternate path shall be provided. A suitable alternate path may include but is not limited to temporary ADA compliant ramps, traffic control, physical barriers to separate pedestrians from traffic and signage. It shall be clearly understood that it is the Contractor's responsibility to provide a safe path of travel at all times.

The Contractor shall provide to the Engineer the names, address and telephone numbers of at least two emergency contacts for the duration of this contract.

The unit price bid for each item shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in the bid item.

### **TS-2 PAYMENT FOR EXTRA WORK**

Refer to 00 72 13 – General Conditions, Article 44 Changes and Extra Work. When payment is made on a force account basis the amount shall be determined in accordance with Sections 9-1.04 through 9-1.04D of the State Specifications, except that actual payroll taxes and required contributions will be used in lieu of the labor surcharge specified in Section 9-1.04B (2).

### **TS-3 EXISTING FACILITIES**

#### **A. General**

Attention is directed to 00 73 13 – Special Conditions and these Technical Specifications.

It is not the intent of the plans and construction documents to show the exact locations of existing underground utilities or structures and the agency Engineer assumes no responsibility therefore. Whenever any such utilities are indicated thereon the Contractor shall be responsible for verifying their actual location and depth in the field, by potholing if necessary. The Contractor shall be responsible for any damage to utilities shown on the plans, located by Underground Service Alert, or as specified herein, as a result of his operations.

The Contractor's attention is directed to the existence of certain underground facilities that may require special precautions to protect the health, safety and welfare of the workmen and of the public. These facilities include, but are not limited to: irrigation lines and peripherals, parking light electric supply system conductors or conduits, telephone and cable service lines, either directly buried or in duct or conduit, and underground water, gas and electrical distribution systems.

The Contractor shall not be entitled to any right of way delays associated with the relocation or repair of these utilities and other facilities and shall cooperate fully with the owners of these utilities and other facilities for their relocation and repair work.

Existing utilities in the easements on private property that are not shown on the plans: the Contractor shall be responsible for locating said utilities prior to any construction and shall keep said utilities continuously functioning during the course of the work. If the Contractor for his own reasons needs to shut off or relocate any of said utilities, the Contractor shall give advance notice to and coordinate with the owner of the property and the occupant.

Equipment operating under PG&E electric and AT&T communications lines shall observe minimum clearance from the lines, and all other requirements, as set forth in Article 86 of the Electrical Safety Orders of the State division of Industrial Safety and AT&T requirements.

Where excavations are performed in the vicinity of underground utility mains and/or services the Contractor shall, as necessary, perform initial exploratory excavations to determine their exact depth and location. Payment for exploratory excavation shall be included in the various items of work needed to complete the excavation work. Extreme care shall be exercised to avoid damage, and it will be the Contractor's responsibility to have repairs made to existing facilities at his/her expense in the event of damage.

If applicable the Contractor shall keep the existing drainage system and sanitary sewer system fully functional at all times. If the Contractor for his own reasons desires to block off any portion of these systems, he shall construct a bypass system

capable of handling the flow. This bypass system, if constructed, will be for the convenience of the Contractor and shall be constructed at his own expense.

The Contractor shall exercise care not to damage existing property including but not limited to trees, shrubs and landscaping outside the work area. Any damage caused by the contractor shall be replaced by the Contractor at his expense.

Any bypass systems shall be subject to review and approval of the utility owner.

Prior to commencing any excavation, the Contractor shall notify Underground Service Alert (USA) three (3) days in advance of any excavations:

**Underground Service Alert: Dial 811 or (800) 227-2600**

All existing facilities in conflict with the proposed improvement shall be relocated by the contractor, subject to the rules and regulations of the facility owner as may exist.

Nothing in these Special Provisions shall relieve the Contractor from his responsibilities as provided in Section 7-1.04, "Public Safety," of the State Standard Specifications.

**B. Measurement and Payment**

Full compensation for "**Existing Facilities**" shall be considered as included in the contract prices paid for the various bid items of work involved and no additional compensation will be allowed therefore.

**TS-4 GENERAL REQUIREMENTS**

**A. General**

All work shall conform to the applicable provisions of the State of California, Department of Transportation, Standard Specifications (Caltrans); these Special Provisions; and the plans and typical sections.

**B. Mobilization**

Mobilization includes preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site, for the establishment of all offices, buildings and other facilities necessary for work on the project, and for all other work and operations which must be performed or costs incurred prior to beginning work on the various items on the project site.

Mobilization shall include the furnishing and providing for regular maintenance of temporary sanitary facilities on the job for the duration of the project. Failure to

comply with this requirement will result in withholding of mobilization payments in the amount deemed appropriate by the Engineer.

Just prior (ten calendar days maximum) to beginning work at the subject site, the Contractor shall photograph and videotape the project site in sufficient detail to show the existing site conditions, including but not limited to the proposed alignment, staging areas, routes of ingress and egress for hauling and delivering, and all other areas that the Contractor believes are appropriate. The Contract shall provide a copy of photographs and video(s) to the Town prior to all work.

The Contractor shall arrange for and develop a temporary construction staging area(s) for the storage and operation of construction equipment and supplies. The staging area shall be located outside the public right-of-way. No staging of equipment or materials will be permitted within the public right-of-way without written authorization from the Engineer. The Contractor must obtain written permission from the property owners to use their property in any fashion and provide a copy of permission to the Town. All Contractor, subcontractor, and supplier employees shall park vehicles and equipment at the temporary construction staging area only.

The Contractor shall not permit any waste or damage to be done to the staging area and shall maintain the area in good condition, free of litter and debris. Upon completion of the work, the area shall be restored to its pre-construction or better condition, including the repair of any damaged pavement, curbs, markings, or other infrastructure components.

Partial payment for Mobilization shall conform to Public Contract Code 10264.

C. Submittals

10 days prior to the preconstruction meeting, Contractor shall provide the Town the following submittals for review:

1. Traffic Control Plan
2. Water Pollution Control Program
3. Notification to Businesses, Residence and Agencies
4. Job Mix Formulas for HMA
5. Quality Control Plan for HMA Paving
6. Paving Grade Asphalt
7. Tack Coat
8. Aggregate Base
9. Traffic Striping, Pavement Markings and Raised Pavement Markers
10. Roadside Signs
11. Detectable Warning Surface



12. Concrete Mix Designs for General and Heavy Vehicular Facilities 10 days prior to the start of construction, Contractor shall provide the Town the following submittals for review:

D. Roadway Preparation

The work under this section consists of preparing the roadway prior to resurfacing or reconstruction as specified in these Special Provisions and as required by the Engineer. Such work shall include controlling nuisance water; sweeping; watering; removal of all raised pavement markers; removal of all thermoplastic pavement markings; removal of loose and broken concrete, hot mix asphalt pavement, and foreign material; and the mechanical removal of all weed growth from the roadway surface.

In addition, the Contractor shall implement their Water Pollution Control Program prior to the start of construction, as specified in these Special Provisions.

E. Project Site Maintenance

Throughout all phases of construction until final acceptance, including any periods of work suspension, the site shall be kept clean and free from rubbish and debris. The Contractor shall furnish and operate a self-loading motor sweeper with spray nozzles at least once each working day for the purpose of keeping paved areas acceptably clean wherever construction, including restoration, is incomplete.

The Contractor shall abate dust by sprinkling water or other means as necessary, but the use of water resulting in mud on public streets will not be permitted.

Excess excavated materials from any source shall be removed from the site immediately. Forms, nails and lumber shall be removed the day of form removal. Materials and equipment shall be removed from the site as soon as they are no longer necessary.

Before the final inspection, the site shall be cleared of equipment, unused materials, and rubbish so as to present a satisfactory clean and neat appearance. All pavement areas shall be swept with a street sweeper immediately prior to the final inspection. All concrete areas shall be broom cleaned.

All topsoil areas shall be raked. All cleanup costs shall be included in the Contractor's bid. In the event that the Contractor fails to perform this final cleanup, the Agency may remove and/or dispose of the articles or materials at the Contractor's expense.

Care shall be taken to prevent spillage on haul routes. Any such spillage shall be removed immediately and the area cleaned.

F. Sanitary Facilities

The Contractor shall provide and maintain enclosed, portable restrooms for the use of personnel engaged in the work. The portable restroom must be lined with secondary containment to prevent leaks and spills. These accommodations shall be maintained in a neat and sanitary condition, and shall comply with all applicable laws, ordinances, and regulations pertaining to public health and sanitation.

G. Protection and Restoration of Existing Improvements

The Contractor shall be responsible for the protection of public and private property adjacent to the work and shall exercise due caution to avoid damage to such property.

The Contractor shall repair or replace all existing improvements within the right-of-way which are not designated for removal, but that are damaged or removed as a result of its operations. Repairs and replacements shall be at least equal to existing improvements and shall match them in finish and dimension.

H. Notification of Residents, Businesses, and Agencies

Contractor shall deliver by mail a notice approved by the Town Engineer all properties, residents and business owners fronting the work areas no later than 72-hours prior to performing any work on this contract. The letter shall contain basic project and Contractor contact information and shall be on Contractor's letterhead.

The Contractor shall notify the affected residents and businesses 72-hours in advance of the start of paving operations. Notification shall be done by using "door knob" type notices which shall include a description of the impending work, the date and time when traffic will be restricted, a date and time when parking will not be allowed along the street scheduled for renovation and 48 hour window of "no landscape irrigation" prior to work. Contractor shall submit a sample notice for review and approval by the Town five (5) calendar days prior to distribution.

Separate Notification: Separate notification and coordination will be required with Marin Transit twenty (20) days prior to the start of the project to re-reroute bus service. Marin Transit's contact is Mohamed Osman and shall be contracted at the following: (415) 226-0869, [mosman@marintransit.org](mailto:mosman@marintransit.org)

Ten (10) calendar days prior to beginning construction, the Contractor shall notify local schools, hospitals, ambulance services, police and fire departments, transit agencies, refuse collectors and Underground Service Alert (USA) of its schedule of work.

The Contractor shall furnish and place “NO PARKING” signs, 12 inches by 18 inches minimum size and approved by the Engineer, throughout the area of work at fifty foot intervals 72-hours (five calendar days prior to work beginning on a Monday or Tuesday) prior to the start of construction. The signs shall include the date and time during which parking is prohibited. The Contractor shall remove these signs immediately at the end of the last day of parking restrictions as indicated on the sign.

If for any reason the work is delayed or rescheduled after the required notifications have been issued, the Contractor shall re-date the signs affected, notify residents and businesses of the change and re-contact the local services and agencies. If work is rescheduled to an unknown date, signs shall be completely removed and replaced with new dates 72-hours (5-calendar days for work beginning on Monday or Tuesday) in advance of work. “No parking” restriction dates will require Town Engineer approval. “No parking” restrictions shall be removed during inactive periods of three (3) or more working days.

I. Measurement and Payment

Full compensation for **“Submittals”, “Roadway Preparation”, “Project Site Maintenance”, “Sanitary Facilities”, “Protection and Restoration of Existing Improvements”** and **“Notification of Residents, Businesses, and Agencies”** shall be considered as included in the contract prices paid for the various bid items of work involved and no additional compensation will be allowed therefore.

The contract lump sum price paid for **“Mobilization, Bonds & Insurance”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in Mobilization, Bonds and Insurance, complete in place, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

**TS-5 TRAFFIC CONTROL**

A. General

The work shall consist of maintaining and controlling all vehicular and pedestrian traffic through the construction zone and/or detour routes and shall conform to the latest edition of the Traffic Manual published by the State of California, Department of Transportation. The manual prescribes minimum standards for the application of uniform traffic control devices such as traffic cones, barricades, regulatory signs, warning signs, and guide signs. The Contractor shall have a copy of the manual at the work site and shall comply with its provisions.

Requirement to safely Maintain Access to public facilities and all commercial parking will be required at all times during construction. Any modifications to circulation to accommodate ingress/egress must be safely restored to normal conditions outside

of work hours. The contractor is responsible for coordination with business owners, property management companies, residents, and agencies for modifications to parking, access and circulation at least 10 days in advance of impacts, and for installation and maintenance of traffic control signage on public and private property as may be required.

B. Material and Equipment

All traffic control supplies and materials including signs, posts, temporary mounting stands, cones, delineators, and barricades shall comply with NCHRP No. 350. Each traffic control plan shall include a compliance letter indicating each type of material or equipment to be used on the project, date of purchase, manufacturer contact information, and a compliance letter or reference.

C. Construction

Traffic control shall include the installation, maintenance, and removal of all necessary traffic control equipment. Damaged or missing equipment shall be replaced upon discovery. Equipment left in place over weekends or during other periods of non-work shall be checked and maintained on a daily basis until the work is complete and all traffic control devices are removed from the project.

D. Traffic Control Plan

Two weeks (ten working days) prior to starting any construction work, the Contractor shall submit to the Engineer for his review a detailed traffic maintenance and control plan for the various affected project sites or streets. No work may begin in any area until the Traffic Control Plan has been reviewed and approved by the Town Traffic Engineer.

E. Construction Signing

Construction signing shall consist of furnishing, installing, maintaining, and removing construction signs, cones, delineators, and barricades. The contractor shall furnish and maintain a minimum of two (2) Changeable Message Signs (CMS), one in each direction of Magnolia Avenue. CMS locations and messaging shall be reviewed and approved by the Town Engineer prior to installation.

F. Flagmen

If required in the traffic control plan, and always during one-way traffic control, flagmen will be required to direct traffic during construction. The number and location of flagmen shall be sufficient to allow safe control and passage of traffic through the work zone. During the paving of intersections, two flagmen shall be posted at each intersection for the entire time between tack coat and finish rolling.

Flagmen shall have proper training, certification, and supervision as required by state and local jurisdictions.

G. Portable Delineators

Portable delineators shall be either cones or tubular markers. Delineators to be used at night or in low light conditions shall be reflectorized. The minimum height of either style of delineator shall be thirty-seven inches above the road surface.

All portable delineators shall comply with the current version of the Traffic Manual.

The portable delineators shall be spaced as necessary for proper traffic control. However, in no case shall the spacing between the portable delineators exceed fifty feet on tangents or twenty-five feet on curves.

H. Restrictions on Closure of Traffic Lanes

The Contractor shall submit to the Town a traffic control plan showing the detouring of traffic during construction. Road closures on all streets and lane closures on major arterial streets are not allowed unless approved by the Town Engineer. In such case, the contractor shall submit to the Town a traffic control plan showing detouring or lane closure during construction for review and approval by the Town Engineer. Road closure and/or lane closure on a major arterial approved by the Town Engineer is subject to restrictions on work hours.

I. Measurement and Payment

The contract lump sum price paid for **“Traffic Control & Construction Area Signs”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in Traffic Control, complete in place, including but not limited to preparation and implementation of Traffic Control Plan; furnishing, installing, maintaining, relocating and removing all traffic control and construction signing components; CMS boards; traffic control supervision; flagmen; portable delineators; pilot cars; coordination with business owners, property management companies, residents and agencies; and the convenience and safety of the public; as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

**TS-6 WATER POLLUTION CONTROL PROGRAM**

A. General

The Contractor shall provide a Water Pollution Control Program (WPCP) which describes in specific detail the Contractor’s program to prevent contamination of the storm water collection system. The program shall address both common construction activities and extraordinary events.

The WPCP shall comply with the requirements of the storm water quality management plans of the local governing jurisdictions. The plan shall address the prevention of particulates or pollutants from entering the storm water system from the job site, whether due to routine operations or spills.

**B. Construction**

The Contractor shall continuously provide at the job site all of the tools, equipment, and materials necessary to implement the WPCP. This requirement shall be enforced at all times from project initiation through completion, including any punch list or warranty work on the project.

**1. Submittals**

The Contractor shall submit one (1) electronic copy of the WPCP a minimum of 10 working days prior to the preconstruction meeting. Construction shall not begin until the WPCP is approved.

**2. Protection of Existing Storm Water System**

As the first order of work, the Contractor shall protect the existing storm water system from entrance of particulates and pollutants. Such protection shall include implementing the Best Management Practices (BMP) as outlined in the WPCP.

In addition to the Best Management Practices outlined in the local governing jurisdiction's plans, the protection system shall have a minimum of three (3) features:

- a. A particulate filter of geosynthetic material securely fastened in place such that it cannot be bypassed without significant physical damage,
- b. A pre-filter for the particulate filter, and
- c. On-hand materials to close off an inlet or opening in the case of a significant pollution spill.

**3. Material Storage Areas**

All material and/or equipment storage areas where liquid construction materials are kept, including but not limited to asphalt emulsions, paving oils, and seal coat materials, shall be protected by a physical barrier capable of containing the entire volume of stored liquid materials. During active construction activities, portions of the barrier may be removed for access. However, the barrier materials must be readily accessible for replacement by

on-site construction personnel. The barrier must be in place at all times when construction personnel are absent from the storage site.

4. System Inspection and Maintenance

The Contractor shall inspect and repair or replace any damaged or clogged element on a daily basis. During periods of precipitation where runoff occurs, the system shall be checked twice daily, seven days a week, whether or not any work has been performed. The daily checks shall be between 9 p.m. and 11 p.m., and 4 a.m. and 8 a.m.

The Contractor shall provide a monitoring log of each inspection.

5. Non-Storm Spills or Pollution

The WPCP shall address practices for the cleanup of spilled or leaked pollutants such as hydraulic oil from damaged or leaking equipment. The plan shall include readily available equipment and materials to contain and absorb the pollutants, collection of these materials, and disposal of the materials to an approved disposal facility. The plan shall include ultimate disposal from the Contractor's yard.

The Contractor shall keep a record of any spills on the daily inspection logs. In addition, at the end of the project, the Contractor must certify that all contaminated materials have been properly disposed of in accordance with the WPCP.

C. Measurement and Payment

The contract lump sum price paid for "**Water Pollution Control Program**" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in Water Pollution Control Program, complete in place, including but not limited to preparing, implementing, inspecting, maintaining, and removing the WPCP as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

In addition, failure to perform and document the required daily inspections shall result in a daily penalty of \$250.00 per calendar day. The imposition of the penalty shall not relieve the Contractor of any obligations of these project requirements.

Payment for the work involved under the bid item for the WPCP may be made on a partial payment system based on the completion of the following stages of the work:

<u>Work Description</u>	<u>Payment Percentage</u>
Develop plan	10% of bid price
Initial plan implementation	10% of bid price
Removal of BMP's at completion	10% of bid price
Inspection and Maintenance of WPCP	70% of bid price/contract time in calendar days

**TS-7 TRIMMING, CLEARING AND GRUBBING**

**A. General**

This work shall consist of trimming and removing vegetation along the road edge and in areas of PCC curb, gutter and curb ramp construction to a minimum distance of 12" beyond the edge of work limits and within paving limits, and all branches which hang within 15 feet above finished roadway grade.

Prior to trimming any vegetation within or outside the Town's right-of-way, the Town and residents shall be notified one (1) week prior to work so as to allow the affected resident the opportunity to trim any vegetation that may be impacted by the Contractor's work.

All such work shall conform to Section 16 "Clearing and Grubbing" of the Standard Specifications, these Special Provisions, the plans and typical sections, and as directed by the Engineer.

**B. Construction**

The contractor shall remove all branches which hang within 15 feet above finished roadway grade, and all other vegetation along roadway and in limits of work area. Vegetation shall be trimmed a minimum of 12" beyond the edge of pavement or PCC facilities construction limit, or as necessary for concrete reconstruction, cold planing, grading, excavation, and paving operations, and other operations as required.

The contractor shall notify the Town 48 hours in advance of any tree trimming or root pruning so that the Town arborist can be on site to inspect the operation. No tree trimming or root pruning work can be performed without the Town arborist present unless authorized by the Town Engineer.

Damage to trees due to lack of care, protection or following these Specifications shall be subject to financial damages up to the cost of removing and replacing the damaged tree. Damage assessment shall be made by the Town's Certified Arborist.



C. Measurement and Payment

Full compensation for **“Trimming, Clearing and Grubbing”** shall be considered as included in the contract prices paid for the various bid items of work involved and no additional compensation will be allowed therefore.

**TS-8 HOT MIX ASPHALT (HMA)**

A. General

1. Summary

This work includes producing and placing Hot Mix Asphalt (HMA) surface courses using the Standard Process, and producing and placing HMA leveling course and Minor HMA using the Method Process as indicated herein.

Comply with Section 39, “Hot Mix Asphalt,” of the 2010 Standard Specifications (unrevised) except as modified in these special provisions.

2. Submittals

Submit JMF information on Form CEM-3511 and Form CEM-3512. Submit Form CEM-3513 or CEM-3514 for mixes that have been verified within last 12 months. Provide most recent CEM-3513 if mix has not been verified within the last 12 months. For unverified mixes or out of date mix tests, final acceptance will be based on production startup tests and Contractor will be paving at their own risk.

Submit Quality Control Plan that conforms to the current Caltrans Quality Control Plan Review Checklist for Hot Mix Asphalt. Allow 20 calendar days for review.

Material Delivery Tickets shall be submitted daily.

Contractor shall submit all quality control field test results daily and laboratory test results within 5 calendar days of sampling.

B. Materials

1. Asphalt Binder

The grade of asphalt binder mixed with aggregate for all HMA Type A shall be PG 64-16.

2. Aggregate

The hot mix asphalt to be used will be as follows unless modified by the plans, these special provisions, or the Engineer:

Digouts: 1/2 inch, Type A  
Surface Course: 1/2 inch, Type A

3. Mix Properties:

Mix voids shall be targeted at 3.5%.

The allowable production range for mix voids shall be 2.0% to 5.0%.

The mix shall include 0.5% liquid antistrip. No warm mix additive shall be allowed.

4. Delivery Tickets:

Material Delivery Tickets shall be submitted daily. Each delivery ticket shall include information on the material type, binder type, oil content, and the mix design number. Material delivered to the project without such annotations shall be subject to rejection.

C. Construction

1. General

The paving shall be performed so no longitudinal paving joints remain at the end of each day's paving operation.

2. Surface Preparation

The work shall consist of preparing the existing street surfaces prior to the commencement of paving. Such work shall include removing raised pavement markers, removing thermoplastic traffic markings and legends, controlling nuisance water, sweeping, watering, and removing loose and broken pavement and foreign material as specified in the Standard Specifications and these Technical Provisions, and as directed by the Engineer.

All vertical edges to be paved against shall be tack coated. These include, but are not limited to, curb faces, gutter lips, swale edges, cross gutter edges, and pavement edges.

Tack coat shall be utilized and shall be either emulsified asphalt Grade RS-1, RS-1h, SS-1, or SS-1h conforming to Section 94, "Asphaltic Emulsions," or paving grade asphalt conforming to Section 92, "Asphalts Binder."

The asphalt tack coat shall be placed with a calibrated distributor truck per Subsection 93-1.03C of the Standard Specifications, unless otherwise specified

by the Engineer. The application temperature of the asphalt emulsion shall be 300 degrees Fahrenheit minimum and 375 degrees Fahrenheit maximum.

All cold joints, both longitudinal and transverse, shall be heated with a torch immediately prior to paving. Cold joints include previous passes placed more than three hours prior. All cold joints shall be tack coated.

3. Leveling, Transitions, and Hot Mix Asphalt Fills

A leveling course of variable thickness shall be placed and compacted prior to placing the surface course at locations where directed by the Engineer. The leveling course will be used to correct pavement irregularities such as rutting, variable cross slope, or variable longitudinal slope. Where two overlays of different thickness abut at a longitudinal joint, the Contractor shall add to the thinner leveling course section to match the thicker lift and provide a smooth transition and uniform cross-fall. Cold planing ridges or other rises in the pavement surface may be required by the Engineer. The Engineer will determine the exact limits and thickness of the leveling courses, hot mix asphalt fills, and transitions.

The Contractor shall construct temporary pavement transitions at all paving conforms, planned edges, cross gutters, and commercial and residential driveways with drop-offs greater than 1-3/4 inch, prior to allowing traffic onto the paved surface. Temporary pavement transitions shall have a maximum slope of 20:1 or as approved by the engineer and be constructed on Kraft paper or other suitable bond breaker such that upon removal of the temporary pavement transition, a clean notch remains. The temporary transitions may be constructed of either cold mix or hot mix. A tack coat is required on the transition area prior to final paving.

The Contractor shall continuously maintain the temporary pavement until final paving. Each temporary transition shall be inspected by the Contractor and repaired as necessary to comply with these provisions at the end of each day including weekends and holidays.

**Failure to comply with these provisions will result in a liquidated damage of \$250 per day per transition and/or the cost of Town crews making the repairs if necessary, to correct for public safety.**

4. Layout

The Contractor shall layout and mark the location of the edges of the paving passes of the surface course to match the new layout of the lane lines. The

layout shall be made at least 24 hours prior to paving. The layout shall be approved by the Engineer prior to paving.

If the striping is to remain unchanged, the edges of the paving passes shall conform to existing lane edges.

In all cases where practical, each lane shall be paved in a single pass. In tapered transition areas, the shoulder areas shall be paved first, then the through lane shall be paved immediately after the shoulder paving.

For paving which incorporates new quarterpoints or grade breaks due to keycuts or other conditions, the Contractor shall provide equipment capable of adjusting to the new surface profile at the appropriate locations. The profile adjustments shall be within twelve inches of the actual gradebreak or quarterpoint.

The Contractor shall take sufficient measurements during laydown to ensure that the full design hot mix asphalt layer depth is provided at each quarterpoint, gradebreak, or transition. Failure to provide the design depth at these areas will result in rejection of the work. Correction of this rejected work will include milling out the new hot mix asphalt from the road edge to the centerline or nearest inside lane line and repaving. The minimum length of the milled and corrected area shall be fifty feet.

5. Tolerances

The finished hot mix asphalt surface shall be flush with or no greater than 1/4 inch (0.02 feet or 6 mm) above, the gutter lips. The finished pavement surface shall not be lower than the gutter lips.

The average pavement thickness shall be equal to the specified thickness for the project.

For total pavement thicknesses of less than four inches, the minimum allowable thickness will be 1/4 inch less than that specified.

For total pavement thicknesses of four inches or more, the minimum allowable thickness will be 1/2 inch less than that specified.

6. Automatic Screed Controls

For all main line street or roadway paving with single lane length exceeding 300 feet, automatic screed controls shall be required. Automatic screed controls shall not be required for the paving of parking lots, intersections, cul-de-sacs, alleyways or other irregular areas.

In addition to the requirements in Section 39-1.10 and 39-1.11 of the Standard Specifications, hot mix asphalt shall be placed with spreading equipment equipped with fully automatic screed and grade sensing controls which shall control the longitudinal grade of the screed. Automatic controls shall conform to and be operated in accordance with the provisions herein.

Unless approved otherwise, ski-type devices with a minimum length of 30 feet shall be used to provide a reference for the grade sensor. Skis shall be constructed and installed in such a manner that a reference to the average elevation of the existing pavement, along the length of the ski, is maintained at the sensor point. When placing surfacing adjacent to surfacing previously placed in conformance with these provisions, a joint matching shoe of adequate size and type to properly sense the grade of the previously placed mat may be used in lieu of the 30-foot ski.

The ski shall be mounted at a location which will provide an accurate reference for the surfacing being placed. This may require the ski to be mounted ahead of and inside the outer limits of the screed. Automatic cross slope control may be accomplished by use of a ski and grade sensor on each side of the paving machine.

Automatic screed controls shall be installed in such a manner that the occasional manual adjustments necessary to maintain the altitude of the screed parallel to the underlying pavement are readily accomplished. Automatic screed controls shall be installed so that with little or no delay, use of the automatic controls can be discontinued and the screed controlled by manual methods.

If it is determined by the Engineer that the existing grade and cross slope are too irregular for the automatic controls to provide the quality of work required, the use of the automatic controls shall be discontinued and the spreading equipment adjusted by manual methods. Use of automatic controls shall resume when the Engineer has determined that it is again practical and so orders.

7. Compacting

Rolling shall be performed as indicated in the referenced Caltrans specifications.

The roller water shall contain a soap type compound to prevent sticking of the HMA material to the rollers. The soap type compound shall not damage the HMA or impede the bonding of layers.

The number of rollers required for each paving operation shall be such that all rolling for density can be completed before the temperature of the hot mix asphalt mixture drops below 240 degrees Fahrenheit.

Breakdown rolling shall commence when the hot mix asphalt is placed. Rolling shall be accomplished with the drive wheel forward and with the advance and return passes in the same line.

For leveling courses, breakdown rolling shall consist of three coverages with an 8 to 12-ton pneumatic roller followed by a finishing coverage with a steel wheel roller. The rolling may begin with a single pass of a steel wheel roller until the pneumatic has sufficient opportunity to warm up to avoid tracking and picking up material from the mat. The pneumatic roller tires shall be treated with a non-petroleum based product to prevent pickup. Failure to successfully provide for breakdown rolling with the pneumatic roller after a reasonable warm up time will be cause for termination of paving activities until the Contractor can provide equipment which will perform without pickup.

The Contractor shall have hand-compaction equipment immediately available for compacting all areas inaccessible to rollers. Hand-compaction shall be performed concurrently with breakdown rolling. If for any reason hand-compaction falls behind breakdown rolling, further placement of hot mix asphalt shall be suspended until hand-compaction is caught up. Hand-compaction includes vibraplates and hand tampers. Hand torches shall be available for rework of areas which have cooled.

After compaction, the surface texture of all hand work areas shall match the surface texture of the machine placed mat. Any coarse or segregated areas shall be corrected immediately upon discovery. Failure to immediately address these areas shall cause suspension of hot mix asphalt placement until the areas are satisfactorily addressed, unless otherwise allowed by the Engineer.

8. Contractor Quality Control

The HMA shall be verified by the engineer prior to placement on the jobsite. If agreed to by the Contractor and the Engineer, the production start-up may be used for verification. If the production start-up is used for verification the Engineer may require removal and replacement of the HMA, at his discretion, in the event of verification failure.

Contractor quality control testing is required. If the Contractor fails to submit quality control results to the engineer within 72 hours of HMA placement,

the Contractor waives all rights to dispute the Engineer's results. In the event of asphalt binder or Hamburg wheel track testing by the Engineer, the Contractor has 5 days to submit their test results from the time the Engineer informs the Contractor that he is performing testing or the Contractor waves the right to dispute the Engineer's results.

The Engineer shall test for conformance with aggregate quality characteristics at the beginning of the project.

The Engineer shall test air void content, Hveem stability, and voids in mineral aggregate (VMA) a minimum of once per day.

The Engineer may sample the hot mix asphalt from truck beds at the plant, from the hopper of the paving machine, or from the mat behind the paver at the discretion of the Engineer. The Contractor shall facilitate the sampling process.

8. Engineer's Acceptance

a. General

The Town shall be notified 48-hours prior to scheduling pavement placement so that Quality Assurance personnel can be scheduled.

b. Modify 39-3.02A Testing as follows:

Add the following footnotes:

h. Contractor can perform independent quality control testing continuously during paving using nuclear or non-nuclear methods.

i. For minor HMA placement, the Engineer will monitor the Contractor's work for conformance to the Method Process. In addition, the Engineer will collect HMA samples and verify the mix.

c. Materials Acceptance

The Engineer may withhold acceptance in the event of any failing test result until the Contractor has addressed the failing material to the Engineer's satisfaction.

d. Compaction Acceptance

Sublots to determine compaction testing shall be based on the following:

- Each 750 tons, or part thereof, placed on an individual street in a paving day. If over 750 tons are placed in a single paving day on an individual street, up to 150 tons over 750 tons can be moved in to the previous 750 ton subplot.
- If multiple streets are paved in a day, each street will be considered its own subplot with multiple sublots on streets where greater than 750 tons are placed.

The in-place density shall be between 92.0 percent and 97.0 percent of maximum theoretical specific (RICE) gravity using a nuclear gauge. Gauge compaction testing shall be performed in accordance with CTM 375. Final compaction is based on the average nuclear gauge results for the subplot. The nuclear gauge will be core correlated the first day of paving using as many cores as the Engineer deems appropriate.

If nuclear gauge compaction testing results are failing, the contractor can request coring to verify the results. Three cores will be sampled for each subplot and the average of the three cores for each subplot will determine the in-place density. The core locations will be determined using random sampling charts in CTM 375. The engineer will mark the core locations.

Cores may be taken up to 5 calendar days after placement and may be 4 or 6 inches in diameter. The Engineer shall provide results within 3 working days of receiving the cores.

Passing cores shall be paid for by the owner. Failing cores will be paid for by the Contractor. If the core testing produces both passing and failing cores, the cost will be prorated between the contractor and the owner.

Contractor shall core the full depth of the new overlay and existing asphalt layers and backfill the cores holes with rapid set concrete. The cores shall be sawcut at the new overlay line prior to testing. **Failure to backfill the core holes on the same day as the coring is performed will subject the Contractor to liquidated damages in the amount of \$250 per day per location.**

For the percent of maximum theoretical density, the following table shall apply to deductions for average compaction of a subplot:



**Reduced Payment Factors for Percent of Maximum Theoretical Density**

HMA Type A Percent of Maximum Theoretical Density	Reduced Payment Factor	HMA Type A Percent of Maximum Theoretical Density	Reduced Payment Factor
92.0	0.0000	97.0	0.0000
91.9	0.0125	97.1	0.0125
91.8	0.0250	97.2	0.0250
91.7	0.0375	97.3	0.0375
91.6	0.0500	97.4	0.0500
91.5	0.0625	97.5	0.0625
91.4	0.0750	97.6	0.0750
91.3	0.0875	97.7	0.0875
91.2	0.1000	97.8	0.1000
91.1	0.1125	97.9	0.1125
91.0	0.1250	98.0	0.1250
90.9	0.1375	98.1	0.1375
90.8	0.1500	98.2	0.1500
90.7	0.1625	98.3	0.1625
90.6	0.1750	98.4	0.1750
90.5	0.1875	98.5	0.1875
90.4	0.2000	98.6	0.2000
90.3	0.2125	98.7	0.2125
90.2	0.2250	98.8	0.2250
90.1	0.2375	98.9	0.2375
90.0	0.2500	99.0	0.2500
< 90.0	Remove and Replace	> 99.0	Remove and Replace

**D. Measurement and Payment**

The contract price paid per ton for **“1/2” HMA (Type A) PG 64-16”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in hot mix asphalt, complete in place, including surface preparation, tack coat, temporary transitions, pavement transitions between differing typical sections, HMA fills, Job Mix Formula preparation, Contractor’s Quality Control Plan, and the costs of coring to verify core densities, if required, as shown on the plans, as specified in the Standard Specification and these special provisions, and as directed by the Engineer.

Section 39-6, “Payment,” of the Standard Specifications shall not apply.

## **TS-9 COLD PLANING & MICRO MILLING**

### **A. General**

Cold planing shall include all work necessary to remove existing asphalt, concrete, base, and/or native materials to a predetermined depth as indicated in the bid documents. The work includes, but is not limited to, removal of the existing pavement adjacent to or on top of gutters, cross gutters, ends of overlays, equipment crossings, railroad crossings, and bridge approaches.

Existing pavement surface on roadways to be cold planed prior to pavement inlay shall be cold planed as specified herein.

Cold planing may be used for "Remove & Replace HMA" and "6" Deep Lift Stabilization".

Micro Milling shall include all work necessary to remove existing asphalt concrete pavement from the surface of a bridge deck.

All core locations shown on the plan are approximate. Existing conditions may differ from the information specified in the boring logs as shown on the plans.

### **B. Equipment**

#### **1. Cold Planing Equipment**

The machine used for planing shall have performed satisfactorily on similar work and shall meet the following requirements:

The planing machine shall be specifically designed and built for the planing of bituminous pavements without the addition of heat. It shall have the ability to plane Portland cement concrete patches in the bituminous pavement, or Portland cement concrete pavements. The cutting drum shall be a minimum of forty-eight inches wide and shall be equipped with carbide tipped cutting teeth placed in a variable-lacing pattern to produce the desired finish.

The machine shall be capable of being operated at speeds of zero to forty feet per minute, it shall be self-propelled, and have the capability of spraying water at the cutting drum to minimize dust. The machine shall be operated in such a way so that no fumes or smoke will be produced. The machine shall be capable of removing the paving material next to curbs or gutters and be designed such that the operator thereof can at all times observe the planing operation without leaving the controls. The machine shall be adjustable for slope and depth and shall be equipped with sonic sensing devices for controlling depth.

#### **2. Micro Milling Equipment**

The machine used for micro milling shall have performed satisfactorily on similar work and shall meet the requirements meet following requirements:

1. Have a minimum concrete removal depth of 0.04 inch
2. Provide a surface relief of at most 0.045 inch
3. Provide a 5/32-inch grade tolerance
4. Produce consistent depth of texture in the finished surface
5. 3 or 4 riding tracks
6. Automatic grade control system with electronic averaging and 3 sensors on each side
7. Conveyor system that leaves no debris on the bridge
8. Drum that operates in an up-milling direction
9. Bullet tooth tools with polycrystalline diamond enhanced cutting tips
10. Maximum tool spacing of 0.20 inch
11. Maximum operating weight of 66,000 lb
12. Maximum track unit weight of 6,000 lb/ft
13. New tooth tools at the start of the work

C. Construction

1. General

Cold planing & milling may require removal of existing asphalt concrete above gutter lips, in addition to the required depth below the gutter lip, due to prior overlays.

Cold planing & milling operation will not commence until a sweeper is on site.

Pavement to be cold planed may contain pavement fabric.

Cold planing & milling shall be performed in such a manner so as to create clean vertical edges. Any broken, damaged, or non-vertical pavement edges shall be re-cut prior to paving.

2. Lowering Utility Covers

Prior to cold planing on streets to have a uniform depth of the existing surface removed, all utility covers shall be lowered such that the cutting teeth of the planing machine passes over the adjusted lid without causing damage to the lid or frame. Contractor shall be responsible for maintaining any temporary asphalt fill material over these facilities until the final paving surface is installed. The Contractor shall clearly mark or reference lowered

sanitary sewer and water valves in case emergency access is required by the agency responsible for operation of the sewer and water system.

3. Pavement Removal

Pavement against curb faces shall be removed to the full depth designated for that particular section of roadway. If pavement against curb faces cannot be removed by the planing machine, the Contractor shall use other means to remove this material.

On areas where the underlying material appears to be wet or soft, or where it deflects under wheel loads, the Contractor shall employ excavation and grading techniques which do not worsen the subgrade condition.

If pavement against utility covers, gutter lips, or other features cannot be removed by the cold planing machine, the Contractor shall use other means to remove this material.

4. Temporary Striping

Streets to be milled shall be temporarily striped after placement of the leveling course material. Temporary striping shall consist of temporary tab markers and reflective traffic striping tape by 3M (or equal) and shall be continuously maintained by the Contractor until resurfacing work is performed. Temporary striping will be placed to delineate lane lines, center lines, crosswalks, and other traffic striping legends.

5. Tolerances

The pavement surface after cold planing shall be uniformly rough. The grade shall not deviate from a suitable straight edge more than 1/4 inch at any point. When multiple passes are required to create the cold planed surface, the maximum variation from a string-line or straight edge shall be 1/4 inch high to 1/2 inch low. High points out of tolerance shall be re-planed to fall within tolerance. Low areas shall be filled with hot mix asphalt as specified herein to meet tolerances. The cost of such correction of low areas shall be entirely the Contractors.

The bridge deck surface after micro milling shall be uniformly smooth. The grade shall not deviate from a suitable straight edge more than 5/32 inch at any point. When multiple passes are required to create the cold planed surface, the maximum variation from a string-line or straight edge shall be 5/32 inch high to 5/32 inch low. High points out of tolerance shall be re-planed to fall within tolerance. Low areas shall be filled with rapid setting

concrete patching material to meet tolerances. The cost of such correction of low areas shall be entirely the Contractors.

6. Removal and Disposal of Material

During the cold planing operation, the Contractor shall sweep the roadway with mechanical equipment and remove all loosened material from the project site until completion of the removal work.

All material removed shall be considered the property of the Contractor and shall be removed and legally disposed of at the Contractor's expense. At the request of the Engineer, proof of legal disposal shall be provided.

7. Air Pollution Control

The Contractor shall take all necessary measures to avoid the dispersion of dust.

8. Correction of Tear Out Areas

If tear-out to the underlying layers occurs during the cold planing operation, the Contractor shall adjust his operation to minimize tear-out. Corrections shall include changing operation speed and replacing cutting teeth. Changes in cold planing depth shall only be made with approval of the Engineer. Areas torn out by lack of diligence on the Contractor's part shall be corrected by placement of hot mix asphalt conforming to the requirements of these special conditions. Areas torn out due to pre-existing adhesion problems in the existing hot mix asphalt shall be corrected at the Town's expense as directed by the Engineer.

9. Temporary Transitions

The Contractor shall construct temporary pavement transitions at all paving conforms, planned edges, cross gutters, and commercial and residential driveways with drop-offs greater than 1-3/4 inch, prior to allowing traffic onto the paved surface. Such transitions shall have a maximum slope of 20:1 and be constructed on kraft paper or other suitable bond breaker such that upon removal of the transition a clean notch remains. Transitions shall be continuously maintained for the duration of the project such that they do not settle or break off.

10. Schedule

The Contractor shall schedule the work such that the final surface course is completed within 5 working days after cold planing. Milled pavement

surface shall not be opened to traffic and all traffic lanes shall be open to traffic outside the approved working hours, unless authorized otherwise in writing by the Engineer.

Pavement removed under bid items for "Remove & Replace HMA" of the various depths, and "6" Deep Lift Stabilization (Allowance)" shall be restored the same day as the removal.

**Failure to comply with these provisions shall subject the Contractor to \$1,500 per location per calendar day in liquidated damages. Multiple occurrences of liquidated damages per calendar day are not restricted.**

D. Measurement and Payment

The contract price paid per square foot for " **Cold Plane 2"**", " **Cold Plane 3"**", " **Cold Plane 4"**", " **Wedge Grind @ Bridge Deck**", and " **Micro Mill Existing AC on Bridge Deck**" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Cold Planing & Micro Milling, complete in place, including removing and disposing of all planed materials above the gutter lips, corrections or patches to milled surface, and to the depths required as measured from the lip of gutter or as shown in the typical sections and construction details, regardless of the number of equipment passes required to achieve the design depth, corrections or patches to milled surface, and constructing, maintaining and removing temporary paving transitions, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer.

Cold planing required for areas of " **Remove & Replace 4" HMA**", " **Remove & Replace 5" HMA**", " **Remove & Replace 6" HMA**", " **Remove, Regrade, & Replace 4" HMA**", " **Remove, Regrade, & Replace 8" HMA**", and " **6" Deep Lift Stabilization (Allowance)**" shall be included in the price paid for those items of work, and no additional compensation will be allowed.

**TS-10 REMOVE AND REPLACE HMA**

A. General

The work shall consist of removing and replacing existing Hot Mix Asphalt, and concrete, base and/or native materials, if necessary, to the specified depth by cold planing.

Quantities for " **Remove & Replace HMA**" shown in the bid schedule include a 25% increase allowance versus areas shown on the plans. Only increased areas approved by the Town Engineer will be measured for payment.

B. Materials

The Hot Mix Asphalt for remove and replace areas must conform to Section 39 of the 2010 Standard Specifications, and these Special Provisions.

C. Construction

The Town shall be notified 48-hours prior to scheduling digout operation so that digout areas can be field marked. Where digouts are required after the cold plane operation, the Contractor shall provide the Town with a cleanly swept milled surface so the Town can determine the digout location extents. The Contractor shall allow 48 hours after the cold plane operation for the Town to mark digout locations.

The pavement areas designated to be replaced shall be removed to a uniform depth as specified, and shall be removed by cold planing. Any broken or damaged pavement edges shall be re-cut prior to paving. All removed material shall be cleared from the site.

All pavement areas removed shall be restored the same day as the removal. **Failure to comply with these provisions will result in liquidated damage of \$1,500 per day per digout location.**

The excavated areas shall be graded as shown on the plans as necessary to provide a uniform pavement thickness. The base rock or native soil shall be compacted to 95% relative compaction. Compaction testing shall be performed in accordance with CTM 216 and 231. All segregated or loose material shall be removed.

On areas where the underlying material appears to be wet or soft or where it deflects under wheel loads, the Contractor shall employ excavation and work techniques which do not worsen the sub-grade condition.

At the Engineer's discretion, prior to placing aggregate base or Hot Mix Asphalt, each pavement replacement area shall be proof-rolled with a loaded construction vehicle, preferably a ten cubic yard dump truck or equivalent. The compacted surface shall not visibly yield or deflect. Soft, yielding, unstable, or unsuitable areas shall be removed and replaced with base rock or Hot Mix Asphalt. If the areas were caused or significantly worsened by the Contractor's operations, these areas shall be replaced at the Contractor's expense.

In the event that the underlying material is soft, yielding, unstable, or unsuitable, the Engineer may direct the Contractor to excavate to the depth of 0.5 feet below the design depth required above and disposed of in accordance with these Special Provisions. The limits of removal shall be designated by the Engineer. The resulting space shall be filled with a single lift of hot mix asphalt. Alternately the Engineer may direct the Contractor to place a first, thicker lift of hot mix asphalt by alternate

means including by floating in with tracked equipment to bridge the unsuitable subgrade followed by conventional paving of subsequent lift(s).

Unsuitable material is defined as material the Engineer determines to be:

1. Of such unstable nature as to be incapable of being compacted to specified density using ordinary methods at optimum moisture content, or
2. Too wet to be properly compacted and circumstances prevent in-place drying prior to incorporation into the work, or
3. Otherwise unsuitable for the planned use.

After compaction of the sub-grade, all vertical edges of existing pavement or concrete shall receive a tack coat immediately prior to paving. A tack coat between layers of Hot Mix Asphalt shall be required if not paved on the same day or if the surface has been contaminated or soiled. Any contamination or soiling shall be thoroughly cleaned and a tack coat placed between layers immediately prior to paving.

No prime coat shall be required.

Care shall be taken to assure compaction of the inside corners of the first lift. Ramping shall not be allowed on the course placed immediately prior to the surface course.

A minimum of two lifts shall be used for each replacement area with a depth greater than three inches. The surface course shall be 1-1/2 inches minimum thickness. No single base or intermediate course may exceed three inches, unless shown otherwise in the typical sections and construction details, or as allowed by the Engineer.

The repaired areas shall conform to the level of the surrounding pavement so that no elevation variation is evident. The surface shall have a maximum variation from high to low of 0.01 feet maximum when measured with a twelve-foot level. Variation at the edges shall not exceed 0.01 feet maximum. When matching existing pavement, the finished surface shall not inhibit drainage. The upslope edge of the replacement shall be 0.00 feet high to 0.01 feet low. On the downslope edge of the replacement, the finished surface shall be 0.01 feet high to 0.00 feet low. Any resulting variations shall be corrected to the satisfaction of the Engineer.

All material removed shall be considered the property of the Contractor and shall be removed and legally disposed of at the Contractor's expense. At the request of the Engineer, proof of legal disposal shall be provided.

D. Measurement and Payment



The contract price paid per square foot for **“Remove & Replace 4" HMA”, “Remove & Replace 5" HMA”, “Remove & Replace 6" HMA”, “Remove, Regrade, & Replace 4" HMA”, “Remove, Regrade, & Replace 8" HMA”, and “6" Deep Lift Stabilization (Allowance)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Remove & Replace HMA, complete in place, including cold planing, removal, off haul and disposal of existing pavement, concrete, brick, aggregate base and native material, proof rolling, compaction of base materials, tack coat, furnishing, placing and compaction HMA, and clean-up, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer.

Quantities for **“Remove & Replace 4" HMA”, “Remove & Replace 5" HMA”, “Remove & Replace 6" HMA”, “Remove, Regrade, & Replace 4" HMA”, “Remove, Regrade, & Replace 8" HMA”, and “6" Deep Lift Stabilization (Allowance)”** shall be approved by the Engineer prior to commencing removal operations. The Town does not pay for remove and replace HMA areas that have not been approved by the Engineer in advance of any work.

Sections 9-1.06B “Increases of More Than 25 Percent”, 9-1.06C “Decreases of More Than 25 Percent”, and Section 9-1.07 “Payment Adjustments for Price Index Fluctuation” do not apply to the bid items related to remove and replace HMA.

#### **TS-11 SLURRY SEAL (TYPE II)**

##### **A. General**

Placement of the slurry seal shall conform to these Special Provisions and Section 37 of the 2010 Standard Specifications.

The Contractor shall plan for proper quantities for daily placement of slurry so that it can be fully cured prior to removal of all traffic control. All work, including traffic control, must be removed and open to traffic as required by the Town’s working hours. Failure to comply will result in either liquidated damages or suspension of work.

##### **B. Materials**

##### **1. General**

A minimum of twenty (20) working days prior to placement of the slurry seal, Contractor shall submit a mix design for Type II slurry seal. The design shall be prepared in accordance with the International Slurry Seal Association Design Technical Bulletin No. 111. A change in either the aggregate or emulsion during the course of work will require the preparation of a new mix

design. **In addition to the requirements of Bulletin No. 111, the slurry seal mix design shall also contain 2.5 percent latex.**

The materials used in Type II slurry seal shall conform to Section 37-3.02B, "Materials", of the 2010 Standard Specifications

2. Asphalt Emulsion

Asphalt emulsion shall conform to the provisions in Section 94-1.02, Table 3, "Requirements for Polymer Modified Asphaltic Emulsion", except as modified below, and shall be of the grade specified herein.

Asphalt emulsion shall be cationic type polymer modified asphaltic emulsion Grade PMCQS-1h. Bituminous binder shall be determined by use of California Test Method 302, Film Stripping, 10% Maximum, for Compatibility to Cationic or Anionic Emulsions.

Cationic type asphaltic emulsion Grade PMCQS-1h shall conform to the requirements in Section 37-3.02B(3), "Asphaltic Emulsion" of the 2010 Caltrans Specifications.

Due to field conditions or performance of the finished product, modifications to the asphaltic emulsion may be necessary. Modifications will be as requested by the Engineer, will be within the ranges specified in these Special Provisions, and shall be performed at no additional cost to the Town.

The liquid rubber latex polymer shall be "co-milled" into the emulsion through the water phase at the time of manufacturing. Each load of polymer modified asphaltic emulsion shall have a certificate which guarantees that this "co-milling" process was used, and which also guarantees the percentage of liquid rubber latex polymer added to the asphaltic, or in the case of EVA the certificate shall guarantee the minimum amount of solid polymer was used in the asphalt prior to emulsification.

The Contractor shall submit a sample of the following materials:

- a. The base asphalt
- b. One quart of the polymer modified asphaltic emulsion

The above sample (No. 1) shall be submitted to the Engineer in a clean, air-tight, sealed, labeled **one-gallon** container, and the above sample (No. 2) shall be submitted in a clean, air-tight, sealed, labeled **one-quart** plastic container. Both samples shall be submitted a minimum of fourteen days prior to the beginning of chip sealing work. The Engineer shall have the submittal tested by an independent testing laboratory. No asphaltic

emulsion shall be applied until the testing demonstrates that the proposed asphaltic emulsion conforms to the contract specifications. If the initial submittal does not conform, the costs of testing additional submittals shall be borne by the Contractor.

Additional samples of the polymer modified asphaltic emulsion, as delivered to the project, will be taken by the Engineer from the spray bar of the distributor truck at mid-load.

3. Screenings

The screenings shall conform to the Medium (3/8 inch by No. 6) gradation. The materials used in slurry sealing shall conform to Section 37-2, "Seal Coats", of the 2010 Standard Specifications. Chip seal material samples shall include a minimum of fifty pounds of aggregate.

4. Submittals

The contractor shall provide material tags for tonnage of the aggregate and emulsion used to show that the application rate of aggregate and emulsion was within the range required by the specifications. If the application rate of aggregate or emulsion falls outside the minimum amount required, the Contractor shall reapply the slurry seal on those streets that are determined to have not met the contract requirements.

C. Construction

1. General

Placement of the slurry seal shall conform to these Special Provisions and Section 37 of the 2010 Standard Specifications.

The Contractor shall plan for proper quantities for daily placement of slurry so that it can be fully cured prior to removal of all traffic control. All work, including traffic control, must be removed and open to traffic as required by the Town's working hours. Failure to comply will result in either liquidated damages or suspension of work.

2. Preparation

All vegetation on pavement surfaces to be slurry sealed shall be removed completely in advance of the slurry seal and as required by the Engineer.

The roadway shall be crack sealed prior to slurry seal application.

Low areas and where the pavement has raveled to create holes, shall be skin patched prior to slurry sealing.

Slurry seals shall not be placed when the atmospheric temperature is below 65 degrees Fahrenheit or during unsuitable weather, unless approved otherwise by the Engineer.

The Contractor shall remove and dispose of all painted, preformed, and thermoplastic paint markings; and all raised pavement markers prior to placing slurry seal. Removal methods shall conform to Section 15-2.02C of the Standard Specifications.

It is the Contractor's responsibility to clean pavement surfaces prior to application of the slurry seal. Surfaces shall be free of clay, dust, weeds, and other objectionable materials which may adversely affect bonding of the slurry seal. Cleaning equipment shall be capable of effectively removing clay, dust, and other objectionable materials from the pavement surfaces. Protection and maintenance of the street surface, to the condition required for proper slurry seal application, shall be the sole responsibility of the Contractor. The Contractor shall reseal all areas of the pavement which have not been sealed properly and completely or have been damaged by traffic.

All surface oil and grease shall be removed, or sealed with emulsified gilsonite or an approved equivalent, prior to application of the slurry seal.

The sites for stockpiling and batching materials shall be clean and free from objectionable materials and shall be located outside the road right-of-way. Arrangements for these sites shall be the responsibility of the Contractor. If on private property, a written agreement shall be approved by the Town prior to commencing operations.

Contractor shall tie off survey monuments, manholes, water valves, and all other utilities prior to application of the slurry seal. Immediately before commencing the slurry seal operation, all surface metal utility covers (including survey monuments) shall be protected by thoroughly covering the surface with an appropriate adhesive and oiled or plastic paper. No adhesive material shall be permitted to cover, seal or fill the joint between the frame and cover of the structure. Covers are to be uncovered and cleaned of slurry material by the end of the same work day.

No slurry seal shall be placed until the pavement area has been prepared to the satisfaction of the Engineer, including but not limited to tie downs for striping dimensions.

### 3. Application

Type II slurry seal shall be applied onto the gutter lip, but shall not extend more than 3/4 inch onto the gutter lip.

After the emulsion has broken, the slurry seal shall be rolled with a 6 to 8-ton pneumatic tire roller with a minimum tire pressure of 40 psi. The roller shall be on site prior to the start of slurry placement. Areas which require rolling shall receive a minimum of two (2) full coverage passes.

Adequate means shall be provided to protect the slurry seal from damage by traffic until such time that the mixture has cured sufficiently so that a slurry seal will not adhere to and be picked up by the tires of the vehicles. In the event the slurry seal does not set in 8 hours, the Contractor will not be allowed to place additional material the following day without approval of the Engineer.

Hand tools shall be available in order to remove spillage. Ridges or bumps in the finished surface will not be permitted.

The mixture shall be uniform and homogeneous after spreading on the road and shall not show separation of the emulsion and aggregate after settling.

Any slurry seal tracked onto concrete facilities by the Contractor's vehicles or equipment, or by resident's vehicles shall be removed by power washing or other means at the Contractor's expense.

#### 4. Street Sweeping

After completing, setting, and rolling of the slurry seal, any loose material shall be immediately removed by sweeping with a vacuum sweeper the day of application. Interim sweeping using a vacuum sweeper shall be accomplished as more loose material appears. At a minimum, interim sweeping shall be accomplished on the 3rd, 7th, 14th and 21st day after surfacing. A final post construction sweeping of all the slurry seal streets shall be performed 30 days after completion of all of the slurry sealing. The entire street surface, including sidewalks and driveways, shall be swept to the satisfaction of the Town. No loose material will be allowed in the street, gutters, sidewalks or other areas. If necessary, the Contractor will employ additional vacuum sweepers to remove the loose materials.

Final cleaning of the streets shall include removal of any tracked material, misapplied slurry seal, cleaning of all utility covers of any new or old materials, and removal of any miscellaneous debris resulting from construction activities.

#### 5. Engineer's Acceptance

Sampling for testing will be taken of the slurry seal in place, at the Contractor's expense, to determine the amount of material used. Compliance with the mix design will be verified by the Town's testing laboratory. The Engineer may sample material from stockpiles, trucks, application equipment, or during application.

D. Measurement and Payment

The contract unit price paid per ton for **"Crack Seal & Slurry Seal (Type II)"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in Slurry Seal (Type II), complete in place, including covering street facilities, protecting the slurry seal until it has set, rolling and sweeping, sampling and testing, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**TS-12 CRACK SEAL**

A. General

The work shall comply with Section 37-5 Crack Treatment of the Caltrans 2010 Standard Specifications except as modified in these special provisions.

The work shall consist of treating and removing vegetation, and cleaning and filling cracks greater than 1/8-inches wide on existing pavement surfaces with rubber asphalt joint seal prior to slurry seal application, as specified in these special provisions, and as directed by the Engineer.

B. Materials

Crack sealant shall be a mixture of paving asphalt and ground rubber and shall conform to ASTM D5078, Type II.

C. Construction

Construction Sequencing

All cracks indicating weed growth are to be sprayed and cleaned as follows:

- a. The Contractor shall apply herbicide, or use other approved mechanical removal methods, to all existing weed growth within the roadway area from curb face to curb face including the joint between the gutter lip and asphalt pavement. A minimum of two (2) applications shall be made with a minimum period of seven (7) calendar days between applications. The second application shall be applied to treated areas and any additional new weed growth between applications. Any new weed growth shall be treated a third time after a minimum of seven (7) days from the second application.

The herbicide shall be organic or Non-Proposition 65, E.P.A. approved herbicide. The applied herbicide shall include a dye that is visible after the herbicide dries. The herbicide shall be applied by a licensed applicator and shall comply with the manufacturers' recommendations.

- b. Seven (7) days after the last application of herbicide (either the second or third), all remaining vegetation in the cracks shall be mechanically removed.

All existing vegetation, outside the areas to be cleared and grubbed, shall be protected from the Contractor's operations unless specifically shown on the plans to be removed.

Immediately prior to applying the sealant, the cracks shall be cleaned with high pressure air jets to remove all residue and foreign material. Any remaining weed growth shall be physically removed. Water jets will not be allowed. Crack surfaces shall be surface dry at the time the sealant is applied.

During all construction operations, the Contractor shall protect cracks cleaned for sealing from intrusions of solid foreign materials into the groove or into the sealant.

Crack seal materials shall be placed in conformance with the manufacturer's recommendations. Crack seal materials shall not be placed when the surface temperature is below 50 degrees Fahrenheit.

The finished crack seal shall be bonded to the crack such that there is no separation or opening between the sealant and the crack edge and there shall be no cracks, separation or other opening in the sealant.

After filling the cracks with the sealant, they are to be squeegeed with a "U" shaped squeegee so as to strike off excess material and to provide a band-aid effect with the sealant. After the sealant has cooled, there may be a slight depression of not more than 1/8-inch below the adjacent pavement.

The Contractor shall remove crack seal material that is not placed within the conformance of these provisions, clean cracks as specified herein and then reseal the cracks at his expense.

#### D. Measurement and Payment

Full compensation for Crack Seal shall be considered as included in the contract price paid for "Crack Seal & Slurry Seal (Type II)" and no additional compensation will be allowed therefore.

Section 9-1.07 "Payment Adjustments for Price Index Fluctuation" of the 2018 Caltrans Standard Specifications shall not apply to crack sealant.

### **TS-13 ASPHALT TACK COAT**

#### **A. General**

The work to be performed shall consist of furnishing and applying tack coat in conjunction with hot mix asphalt overlays and other hot mix asphalt paving work.

All such work shall conform to Section 94, "Asphaltic Emulsions", and Section 92, "Asphalts", of the Standard Specifications, these Special Provisions, and as directed by the Engineer.

#### **B. Materials**

The tack coat shall be emulsified asphalt of grades RS1, RS2, SS1, or SS1h, conforming to Section 94, "Asphaltic Emulsions", or PG 64-16 asphalt binder conforming to Section 92, "Asphalts", of the Standard Specifications.

#### **C. Application**

The tack coat shall not be applied until the preparation of the existing surface has been completed, and then only so far in advance of placing the hot mix asphalt as permitted by the Engineer. Preparation of the surface shall be performed as described in these Special Provisions. No tack coat shall be left exposed overnight. Immediately in advance of placing the hot mix asphalt, additional tack coat shall be applied as directed by the Engineer to areas where previously applied tack coat has been destroyed or otherwise rendered ineffective, and no additional compensation will be allowed for such work.

Existing concrete curb faces shall be protected against discoloration from the asphalt. Residue of the material shall be removed from curb faces by sandblasting to the extent required by the Engineer.

Tack coat shall be applied as specified in Subsections 39-1.09 of the Standard Specifications and these Special Provisions.

The Engineer will determine if the pavement is sufficiently dry for the application of the tack coat. Further, tack coat shall not be applied when the temperature of the surface to be tacked is below 40 degrees Fahrenheit in the shade, unless approved otherwise by the Engineer.

Tack coat shall be applied to all vertical edges to be paved against including curb faces and gutter lips. The Contractor shall protect concrete surfaces that are not to be paved against from tack coat spray or splash. Any tack coat more than one inch above the paving surface shall be removed by power washing or other means.

#### **D. Measurement and Payment**



Full compensation for **“Asphalt Tack Coat”** shall be considered as included in the contract prices paid for the various bid items of work involved and no additional compensation will be allowed therefor.

#### **TS-14 MISCELLANEOUS CONCRETE**

##### **A. General**

Existing and new concrete facilities including sidewalks, curbs, gutters, curb ramps, and valley gutters shall be removed and replaced or constructed at the locations indicated on the plans or as directed by the Engineer.

Concrete curbs, sidewalks, gutters, driveways, curb ramps and detectable warning surfaces shall comply with Section 73, “Concrete Curbs and Sidewalks” of the Standard Specifications or as directed by the Engineer

##### **B. Materials**

###### **1. General**

Portland Cement Concrete for concrete pavement must comply with Section 90-1.

Minor Concrete for curbs, curb and gutter, sidewalks, valleys gutters, and commercial and private driveways must comply with Section 90-2, “Minor Concrete” of the Standard Specifications.

Portland Cement Concrete shall be Type II.

###### **2. Concrete Mix Design**

The Contractor shall furnish a concrete mix design to the Engineer at least ten working days prior to the start of the work, based on the following guidelines.

General Concrete Facilities including curb, gutter, sidewalk, access ramps, residential driveways, stamped median, etc. shall meet the following requirements:

Compressive Strength: 2500 psi @ 28 days

Maximum Slump: 5 inches

Heavy Vehicular Facilities including valley gutters, spandrels, swales, commercial driveways, and alley entrances shall meet the following requirements:

Compressive Strength: 4000 psi @ 28 days

Maximum Slump: 4 inches

Lamp black shall be added to all concrete at a rate of 1-1/2 lbs. per cubic yard.

The Contractor shall be responsible for all costs associated with the required mix design.

3. Detectable Warning Surface

The contractor shall furnish and install detectable warning surface material on curb ramps in conformance with 2018 Caltrans Std. Plan A88A & A88B. On all new concrete construction, detectable warning surface shall be 'wet-set' system embedded into new concrete. Surface applied or 'mat' systems for detectable warning surface material only allowed if prior approval is made by the Town's Engineer.

5. Pedestrian Barricade

Where existing drainage structures are within the limits of new curb ramp construction and constrict the curb from transitioning height, contractor to install Type I Pedestrian Barricade per Caltrans 2018 Standard Plan ES-7Q behind curb/catch basin.

6. Material Quality Control / Acceptance Testing

Field testing shall include testing for concrete slump as per ASTM C-143 and compressive strength (C39). Such testing shall be at a frequency determined by the Engineer and shall be performed by the Owner's laboratory at the Owner's expense. The Contractor shall furnish the concrete necessary for casting test cylinders.

C. Construction

1. General

All work shall conform to the provisions of Section 90 of the Standard Specifications. All curb ramps shall comply with Title 24 and current CBC requirements.

The existing concrete shall be sawcut full depth prior to removal. Any concrete broken due to the Contractor's failure to comply with these requirements shall be removed and replaced at the Contractor's expense.

The line and grade of the replaced facilities shall conform to the existing facilities. In most instances, this will consist of a straight line between

existing facilities. However, it may be necessary to construct grade breaks so that replaced facilities conform to the existing pavement surfaces and so that replaced facilities meet slope requirements as required by the Uniform Construction Standards of All Cities and County of Marin, and as specified in the Standard Specification.

The Contractor shall water test all repaired curbs and gutters, cross gutters, and other repaired drainage facilities in the presence of the Town's Inspector.

No horizontal or vertical control will be provided for the forming and placing of new concrete facilities. It is the responsibility of the Contractor to ensure that new concrete facilities are constructed in accordance with the Uniform Construction Standards of All Cities and County of Marin, and as specified in the Standard Specification.

2. Protection of Existing Facilities

The contractor shall protect existing facilities from damage, and discoloration from concrete splash. Adjacent concrete facilities shall be covered during concrete placement to prevent concrete splash and excess concrete from staining the adjacent concrete. After initial placement, strikeoff and finishing, the protection shall be removed and the adjacent concrete cleaned.

Vertical existing facilities such as light poles, walls, etc. shall be protected with plastic extending a minimum of three feet above the concrete surface. After initial placement, strikeoff and finishing, the protection shall be removed and the vertical surfaces cleaned.

3. Subgrade

After the subgrade is prepared, moisture conditioned, and compacted to 95% relative compaction at zero to three percent over optimum, the Contractor shall continuously maintain the sub-grade in a uniform condition at the moisture content obtained during sub-grade compaction until the concrete is placed.

4. Forming

Wooden forming shall be of two-inch nominal thickness staked at two-foot intervals. The maximum gap at the bottom of the forms shall be 1-3/4 inches.

5. Tolerances

The maximum variation from design elevation shall not exceed +/- 0.02 feet. In some instances, particularly in critical drainage areas, tolerances may be reduced to zero. Concrete facilities shall be installed to maintain or provide positive drainage. Questions regarding applicable tolerances shall be directed to the Engineer forty-eight hours in advance of the work.

When existing facilities are to be removed and replaced, they shall conform to the existing elevations and grades. Generally, this will be at a straight line between the start and end points of the removal. However, it may be necessary to construct grade breaks so that replaced facilities conform to the existing pavement surfaces and so that replaced facilities meet the slopes requirements in accordance with the Uniform Construction Standards of All Cities and County of Marin, and as specified in the Standard Specification.

#### Placing and Finishing

a. General

The concrete shall be deposited on a moist grade in such a manner as to require as little re-handling as possible. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

b. Strikeoff, Consolidation, and Finishing

In general, adding water to the surface of the concrete to assist in finishing operations shall not be permitted.

Before final finishing is completed and before the concrete has taken its initial set, the edges shall be carefully finished with the radius shown on the plans or a radius to match the existing construction.

Concrete shall be thoroughly consolidated against and along the faces of all forms and adjacent concrete. After the forms are removed, excess concrete below the form surface shall be removed to be flush with the form face.

All new concrete shall match existing facilities in texture, color, and appearance.

c. Concrete Protection

The Contractor shall always have materials available to protect the surface of the fresh concrete against rain. These materials shall consist of burlap, curing paper, or plastic sheeting. If plastic sheeting is used, it shall not be allowed to contact finished concrete surfaces.

The Contractor shall also protect the concrete against traffic and vandalism. If the concrete is damaged or vandalized, the Contractor shall make the necessary repairs at its own expense. The repair procedure for damaged or vandalized concrete shall be approved in advance by the Engineer.

d. Curing

Concrete shall be cured by protecting it against loss of moisture, rapid temperature change, and mechanical injury for at least three days after placement. White or clear liquid membrane compound shall be used. After finishing operations have been completed, the entire surface of the newly placed concrete shall be covered by the curing medium. The edges of the concrete exposed by the removal of forms shall be protected immediately to provide these surfaces with continuous curing treatment.

The concrete shall be allowed to cure for seventy-two hours prior to placing adjacent hot mix asphalt.

e. Joints

Control joints shall be placed at a maximum spacing of ten feet, score lines no less than 5 feet and against utility boxes/poles/structure.

Control joints in all PCC facilities, except sidewalks, shall be formed by tooling a deep joint or by using expansion joint material. If expansion joint material is used, a minimum of two 1/2 inch by eighteen-inch dowels shall be used with additional dowels placed every twenty-four inches.

Control joints in sidewalks may be made using a tooled joint which shall extend a minimum of 1/4 of the depth of the concrete and shall not be less than 1-1/2 inches in depth.

Expansion joints shall be required at a maximum of forty-foot intervals on curbs, curbs and gutters, cross gutters, swales, and sidewalks. Expansion joints shall also be required on all corners of curbs, curbs and gutters, sidewalks, at the outside boundary of access ramps, and other locations with discontinuities or reentrant corners which may cause cracking.

f. Clean-up and Backfill

After the concrete is placed, cured, and the forms have been removed, the Contractor shall clean the site of all concrete and forming debris.

For pavements to be overlaid or resurfaced, the aggregate base and hot mix asphalt may be replaced with cement sand slurry in conformance to Section 19-3.02E, "Slurry Cement Backfill", of the Standard Specifications, or CLSM.

After curing has been completed and the forms have been removed from the new curb and gutter or sidewalk, the void between the new concrete and the existing parkway shall be filled with clean native material and the entire parkway left in a clean and orderly condition.

For concrete removed but not replaced, the resulting void after excavation shall be backfilled with clean native material.

All pavement removed to facilitate in concrete form work placement for all valley gutter, curb and gutter construction shall be replaced with full depth hot mix asphalt to match the existing pavement section or 6 inches minimum. The width of hot mix asphalt conforms shall be 24 inches minimum.

6. Curb Ramps

Curb ramps shall be constructed in general conformance with 2018 Caltrans Revised Standard Plans A88A or A88B. Curb ramp construction will typically include removal and replacement of sidewalk, curb and gutter adjacent to new ramp, and installation of detectable warning surface (truncated domes). Truncated dome material shall be Safety Yellow in color. Final determination of constructed curb ramp ADA compliance will be based on current CBC requirements, and curb ramp shall meet current American with Disabilities Act (ADA) guidelines.

At those locations where box lids fall within the area of the detectable warning surface the Contractor shall present solution(s) for installation of truncated domes on the lid surface such that a continuous field of domes is maintained as specified in the standard specifications. The Town of Fairfax will review proposed solutions and approve those method(s) which are found to be suitable prior to implementation by the Contractor.

The contractor's duties as part of curb ramp construction shall include coordinating with utility company representatives for those locations where

existing utility boxes fall within the limits of new ramp and/or sidewalk construction. Coordination efforts should be made early on in the Contract for those items which may require a long lead-in time or may involve significant interaction with utility company personnel.

D. Measurement and Payment

The contract price paid per linear foot for **“Remove & Replace PCC Curb & Gutter”, “Remove & Replace PCC Curb”, “Construct PCC Retaining Curb” and “Install Pedestrian Barricade/Railing Behind Catch Basin”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Miscellaneous Concrete, complete in place including sawcutting, demolition, removal and disposal of curb, gutter, asphalt concrete, aggregate base and native materials; excavation; subgrade preparation; aggregate base; compaction; dowelling; rebar; score marks; weakened plane joints; expansion joints; reconnecting curb drains; furnishing and applying curing compound; HMA conforms; irrigation repairs; restoring existing improvements including sod, mulch, and bricks; protecting in place roadside signs, monuments and utility frames and covers; and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

The contract price paid per square foot for **“Remove & Replace PCC Spandrel/Valley Gutter”, “Remove & Replace PCC Sidewalk/Ramp Surface”, and “Install Detectable Warning Surface”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Miscellaneous Concrete, complete in place including sawcutting, demolition, removal and disposal of curb, gutter, asphalt concrete, aggregate base and native materials; excavation; subgrade preparation; aggregate base; compaction; dowelling; rebar; wire mesh; score marks; weakened plane joints; expansion joints; reconnecting curb drains; furnishing and applying curing compound; HMA conforms; irrigation repairs; restoring existing improvements including sod, mulch, and bricks; protecting in place roadside signs, monuments and utility frames and covers; and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

The contract unit price paid per each for **“Reset Sidewalk Underdrain/Thru-curb Drain”** and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Miscellaneous Concrete, complete in place including sawcutting, demolition, removal and disposal of curb, gutter, asphalt concrete, aggregate base and native materials; excavation; subgrade preparation; aggregate base; compaction; dowelling; rebar; wire mesh; score marks; weakened plane joints; expansion joints; reconnecting curb drains;

furnishing and applying curing compound; HMA conforms; irrigation repairs; restoring existing improvements including sod, mulch, and bricks; protecting in place roadside signs, monuments and utility frames and covers; and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

#### **TS-15 MISCELLANEOUS EXCAVATION & GRADING**

##### **A. General**

This work shall consist of excavation and grading native, aggregate base, and/or fill materials as shown in the contract documents and as specified by the Engineer.

Roadway excavation & grading shall conform to the provisions in Section 19, "Earthwork," and "Constructing Staking" of the Standard Specifications and these Special Provisions.

##### **B. Construction**

All excess and unsuitable excavated materials shall be considered the property of the Contractor and shall be removed and legally disposed of at the Contractor's expense. At the request of the Engineer, proof of legal disposal shall be provided.

All materials shall be excavated as shown on the plan. If you dispose of any surplus materials prematurely and later find a material shortage, you must replace it with authorized material at your expense.

All concrete, soft or spongy, or deleterious materials, structured, and other unsuitable materials encountered during the excavation operation, whether shown or not shown on the plans) shall be removed and disposed of. When the planned excavation or subgrade is made all undesirable materials then encountered shall be removed and disposed of as directed by the Engineer

The accumulation of water in excavated areas shall be prevented by means of pumping or other approved methods. At no time, shall ground water or storm water be allowed to flow into sanitary sewer lines, nor shall groundwater be directly pumped into the storm drain without prior treatment and approval from the Town Engineer.

Excavation shall be carried to the exact depth indicated on the drawing or as specified. Should the Contractor, through his negligence or other fault, excavate below the designated lines, he shall replace such excavation with approved materials at his own expense.



After roadway excavation is completed, aggregate base, native and/or fill material shall be graded to the elevations, slopes, and/or profiles provided in the contract documents, including but not limited to the plans, typical section and/or construction details.

The existing subbase or native material for the finish graded roadway shall be compacted to 95% relative compaction as determined by CTM Test 216 and CTM 231.

It shall be the responsibility of the grading contractor to attain the proper moisture content during compaction. All segregated loose material shall be removed.

On areas where the underlying material appears to be wet or soft, or where it deflects under wheel loads, the Contractor shall employ excavation and grading techniques which do not worsen the subgrade condition.

Prior to placing hot mix asphalt, the area shall be proof-rolled with a loaded construction vehicle, preferably a ten cubic yard dump truck or equivalent. The compacted surface shall not visibly yield or deflect. If the areas were caused or significantly worsened by the Contractor's operations, these areas shall be replaced at the Contractor's expense.

In the event that the underlying material is soft, yielding, unstable, or unsuitable, the Engineer may direct the Contractor to excavate to the depth of 0.5 feet below the design depth required above and disposed of in accordance with these Special Provisions. The limits of removal shall be designated by the Engineer. The resulting space shall be filled with a single lift of hot mix asphalt. Alternately the Engineer may direct the Contractor to place a first, thicker lift of hot mix asphalt by alternate means including by floating in with tracked equipment to bridge the unsuitable subgrade followed by conventional paving of subsequent lift(s).

Unsuitable material is defined as material the Engineer determines to be:

1. Of such unstable nature as to be incapable of being compacted to specified density using ordinary methods at optimum moisture content, or
2. Too wet to be properly compacted and circumstances prevent in-place drying prior to incorporation into the work, or
3. Otherwise unsuitable for the planned use.

C. Measurement and Payment

Miscellaneous excavation and grading required for various items of work shall be included in the price paid for those items of work, and no additional compensation will be allowed.

## TS-16 PRUNE & REMOVE TREE ROOTS

### A. General

The work shall consist of pruning and removing the existing tree roots as detailed on the Plans, and coordination with Town arborist. Removal of tree roots shall be done adjacent to and under all damaged pavement to be removed and replaced under this contract. Any damage to irrigation systems or other utilities caused by the Contractor shall be repaired by the Contractor at his expense. Pavement shall be removed in such a manner that tree roots and trunk are not damaged or scarred.

### B. Construction

The contractor shall notify the Town five (5) days in advance of any root pruning so that the Town arborist can be on site to inspect the operation. No root pruning work can be performed without the Town arborist present unless authorized by the Town Engineer.

All roots encountered within the areas of **“Remove & Replace HMA”** shall be cut by hand (i.e. chain saw, hand pruners, hand saw, axe, etc.) or a root pruner approved by the Town arborist, such as, Dosko Model RC 14SP. Root removal by other mechanical means (trencher, backhoe, loader, etc.) is specifically prohibited.

Roots between the area of **“Remove and Replace HMA”** and tree are not to be disturbed. Roots outside these areas may be removed by any means after the existing pavement, base and/or native material is performed and roots therein removed.

Damage to the tree due to lack of care, protection or following these Specifications shall be subject to financial damages up to the cost of removing and replacing the damaged tree. Damage assessment shall be made by the Town’s Certified Arborist.

### C. Measurement and Payment

The contract unit price paid for **“Prune & Remove Tree Roots (Under PCC/HMA Repairs)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Prune Tree, complete in place, including excavation, root removal and disposal, backfill and clean-up, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer.

Prune & Remove Tree Roots will be measured and paid for by the unit price at each HMA or PCC repair location, regardless of the number of roots pruned and removed at each location.

## **TS-17 LOWERING AND ADJUSTING EXISTING UTILITY FACILITIES TO GRADE**

### **A. General**

This work shall consist of raising or adjusting existing utility facilities such as manholes, valve boxes, sewer clean-outs, monument boxes, electrical and water meter boxes to the finish grade of the resurfaced asphalt pavement. On roadways to be milled, facilities shall first be lowered prior to cold planing and then adjusted to finish grade after completion of the resurfacing work, unless shown otherwise on the plans, or as directed by the Engineer.

The Contractor is responsible for obtaining and purchasing from the appropriate governing jurisdiction any required permits associated with lowering or adjusting to finish grade all utility frames and covers within the limits of work.

### **B. Construction**

#### **1. General**

The Contractor shall properly locate and tie all existing facilities to be lowered and raised in advance of cold planing and paving operations. A minimum of 2 reference points shall be provided on face or top of curb showing distance to utility that is lowered or to be adjusted, and utility type. After all facilities have been adjusted to finished grade, the Contractor shall remove all reference points to the satisfaction of the Town Engineer.

Care shall be taken to keep frames and covers clean. The Contractor shall completely protect with heavy plastic or other suitable material all utility covers or other items that are visible on the surface and will be covered by his operations. This shall be completed prior to the start of operations and approved by the Engineer. Any materials that adhere to the frames and covers shall be removed.

Facilities damaged by the Contractor shall be replaced at the Contractor's expense. Facilities (box and lid or frame and cover) found existing in a damaged condition, and reported to the Engineer before disturbing, shall be replaced by the Contractor with materials furnished by the Owner.

The Contractor shall notify owners of private utility facilities seven days prior to the start of the resurfacing work. Such owners may request the contractor to lower and raise the private facilities.

#### **2. Lowering**

Lower frames and covers of existing facilities before cold planning to sufficient depth so that cold planing equipment passes safely over the top of

the lowered frame and cover without damaging it. Temporarily fill utility depression with compacted hot-mix asphalt (HMA) before opening the lanes to public traffic. The Contractor shall be responsible for maintaining any temporary HMA material over these facilities until the final paving surface is installed.

Where frames and covers cannot be lowered prior to cold planning, cold planer equipment shall “pick-up” and “set-down” on either side of the covers. Non-milled asphalt pavement around lid or cover shall be removed by other means to the specified depth. Lids and covers shall then be protected utilizing the following alternatives:

1. Ramp section (cut-back) around frame and cover and paint white.
2. Place lighted Portable Barricade over frame and cover (only allowed if outside of traffic lane and if approved by the Engineer).

3. Adjustments and Tolerances

The concrete around these adjusted facilities in the roadway shall be brought up to 1-1/2” below the finished pavement elevation. After concrete has been placed and cured, 3/8” HMA (Type A) shall be used to raise the final surface adjacent to the adjusted utility covers to match the finished pavement elevation.

The surface of the adjusted facilities shall be true to the new pavement surface to within a 1/8-inch deviation. This tolerance shall apply in a single direction only, either up or down. In addition, the adjusted facility shall not vary to the high tolerance on one side and the low tolerance on the other (i.e. the total aggregate tolerance on both sides shall be limited to the 1/8-inch variation). This variation shall apply to the adjacent patch paving around the facility such that neither the paving nor facility vary by more than the stated tolerances.

Portland cement concrete used for adjusting coves shall be Class B, 5 sack minor concrete conforming to the provisions in the State Standard Specifications Section 51, “Concrete Structures,” and shall be 1-inch maximum grading as specified in Section 90-1.02C(4)(d), “Combined Aggregate Grading” of the State Standard Specifications.

Mortar used in resetting manhole covers shall conform to the provision in Section 51-1.02F, “Mortar” of the Standard Specifications.

Dirt, rocks or debris shall not be permitted to enter sewer or storm drain lines. When manhole adjustment involves excavation or concrete removal, a temporary cover shall be placed to prevent entry of material into the manhole, sewer and storm drain pipes.

During sealing or paving operations, all surface structures shall be protected and no adhesive materials shall be permitted to fill the joint between the frame and cover.

All existing frames, grates and casting owned by Ross Valley Sanitation District (RVSD) shall be replaced. New frames, grates and castings will be furnished by RVSD and installed by the Contractor. It shall be the responsibility of the Contractor to coordinate with and pick-up all new frames, grates and castings from the RVSD Corp Yard located at 2000 Larkspur Landing Circle, Larkspur, CA. The existing frames, grates, and castings removed shall be considered the property of the Contractor and shall be removed and legally disposed of at the Contractor's expense. At the request of the Engineer, proof of legal disposal shall be provided.

4. Schedule

All facilities shall be adjusted to finish grade within 72 hours after the placement of the final surface paving. If several lifts of pavement are to be placed, the facilities shall be raised if the paving operation ceases for more than 72 hours, or as approved by the Engineer.

**Failure to comply with these schedule provisions shall incur a liquidated damage of \$500 per utility cover per day.**

5. Survey Monuments

Where new survey monument covers are required or where existing survey monument covers are to be lowered and adjusted to finished grade, the Contractor shall perform the work without disturbing the location of the monument. If the monument is disturbed the Contractor will be responsible for re-establishing it as a monument in accordance with State laws. The work for installation of a new cover over an existing monument will include removal and replacement of the hot mix asphalt around the monument.

C. Measurement and Payment

Lowering utility frames and covers of the various types is only required when the utility is located in an area of cold plane. Regardless of the Contractor's means and methods, payment for the lowering utilities will only be made on streets that are

cold planed/milled, or when a utility is located in an area of remove and replace HMA or keycut.

All utilities of the various types will require adjustment to finish grade after placement of the final surface course, unless shown otherwise on the plans.

All quantities will be determined from actual counts. The unit costs shall govern regardless of the method used to make the adjustments.

The contract unit price paid for **“Lower Gas Valve Cover”, “Lower Sanitary Sewer Manhole Cover”, “Lower Storm Drain Manhole Cover”, “Lower Water Valve Cover”, “Adjust Gas Valve Cover to Finish Grade”, “Adjust Sanitary Sewer Manhole Cover to Finish Grade”, “Adjust Storm Drain Manhole Cover to Finish Grade”, and “Adjust Water Valve Cover to Finish Grade”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in lowering and raising utility frames and covers to grade, complete in place, including coordination with the utility companies, obtaining and paying for any required permits, replacing disturbed monuments, salvaging existing utility frames and covers, furnishing and placing concrete, mortar, and 3/8” HMA, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

## **TS-18 TRAFFIC STRIPES, PAVEMENT MARKINGS AND PAVEMENT MARKERS**

### **A. General**

#### **1. Summary**

Work under this section shall include removing and replacing traffic striping, pavement markings, raised pavement markers (RPMs), and paint.

Traffic striping, pavement markings, and paint shall comply with Section 84, "Markings" of the 2018 Standard Specifications except as modified in these special provisions.

RPMs shall comply with Section 81-3, "Pavement Markers" of the 2018 Standard Specifications except as modified in these special provisions.

#### **2. Submittals**

Submit the following for each batch of thermoplastic, paint, and glass beads:

- i. Certificate of compliance, including the product name, lot or batch number, and manufacture date
- ii. METS notification letter stating that the material is authorized for use, except for thermoplastic
- iii. SDS

iv. Material data sheet for thermoplastic primer

For each lot or batch thermoplastic, submit a manufacture's certificate of compliance with test results (per California Test 423) for the tests listed below. The date of test must be within 1 year of use.

- i. Brookfield Thermosel viscosity
- ii. Hardness
- iii. Yellowness index, white only
- iv. Daytime Luminance factor
- v. Yellow color, yellow only
- vi. Glass bead content
- vii. Binder content

For glass beads used in drop-on applications and in thermoplastic formulations, submit a certificate of compliance and test results for each lot of beads specifying the EPA test methods used and tracing the lot to the specific test sample. The testing for lead and arsenic content must be performed by an independent testing laboratory.

Submit a certificate of compliance for each type of RPM used.

B. Materials

1. Thermoplastic

Thermoplastic must comply with State Specification PTH-02SPRAY, PTH-02HYDRO, or PTH-02ALKYD.

2. Glass Beads

Glass beads applied to molten thermoplastic material must be Type 2 beads complying with AASHTO M 247. The glass beads shall have a coating that promotes adhesion of the beads to thermoplastic.

3. Raised Pavement Markers (RPMs)

RPMs must be on the Authorized Material List for signing and delineation materials.

Each package of RPMs delivered to the job site must be marked with the following:

- i. Manufacturer's name
- ii. Type
- iii. Color
- iv. Quantity

- v. Lot number
- vi. Date of manufacture

3. Paint

White and Yellow paint shall be Waterborne traffic line conforming to State Specification PTWB-01R2.

Blue, Red and Green paint shall be Waterborne traffic line for the international symbol of accessibility and other curb markings conforming to Federal Specification TT-P-1952E.

Curb paint shall be Ennis Flint Standard Fast Dry Waterborne Traffic Paint, or an approved equivalent. Color codes for Ennis Flint are as follows:

- Red 985204
- White 985201
- Blue 985205
- Yellow 985202
- Green 985206

C. Construction

1. General

Removal and installation of traffic striping, pavement markings, and curb paint shall comply with Section 84-2.03, "Construction" of the 2018 Standard Specifications.

Removal and installation of RPMs shall comply with Section 81-3.03, "Construction" of the 2018 Standard Specifications.

2. Existing Striping and Markings

In areas adjacent to the reconstructed surfacing where existing striping must be changed to conform to a revised striping pattern, conflicting striping shall be removed by sand blasting, grinding, or other methods as specified in the Standard Specifications or by the Engineer. A primer of the type recommended by the manufacturer of the thermoplastic material shall be applied over the existing pavement to be covered with thermoplastic material.

In areas to be overlaid, the contractor shall remove all existing thermoplastic striping by sand blasting, grinding, or other methods as specified in the Standard Specifications or by the Engineer.



The Contractor shall replace all striping which has been damaged or obliterated by or during the work. This shall include striping replacement completely across the street even in the event that the Contractor's work may not extend that far. Both lines of each crosswalk shall be completely repainted even if only a portion of a line has been obliterated.

When the Contractor's work removes, or reduces the visual appearance of a lane line or centerline, the Contractor shall replace all striping between the adjacent intersections in both directions. Where a median exists, this work will be required only in the roadway where the work has occurred, unless a detour which altered the pavement markings occurred in the other roadway. In such cases, the striping will be replaced in both directions.

3. Layout for Temporary and Permanent Striping

All alignments and layout measurements, and other work necessary to locate and replace traffic stripes, pavement markings, and RPMs shall be performed by the Contractor.

The Town will not provide any assistance, information, or materials to the Contractor. It will be entirely the responsibility of the Contractor to perform all necessary pre-construction and construction layout work, obtain all necessary measurements and information, and prepare all plans for performing the striping and marking work as specified. All traffic control systems necessary for performing striping and marking, as directed by the Engineer, shall be the responsibility of the Contractor.

Traffic striping, pavement markings, and RPMs shall be placed in the same pattern and locations as they were previously, except as shown on the plans or modified herein. The Contractor shall physically tie down the location of the beginning and ending of each paint or thermoplastic marking type in the adjacent curb top. The marking location shall not exceed 50 square inches each. Any locations exceeding this limit shall be removed by the Contractor prior to acceptance of the work. The Contractor shall contact the Town Engineer for review of tie downs.

The Contractor shall be responsible for accurately referencing out and replacing the lines and positions of all traffic lines, directional lines, arrows, and other markings in accordance with the plans and Town standard markings by cat tracking with painted marks. This shall occur no later than 2 hours behind the final surface course paving operation.

Cat tracking shall consist of stretching a rope on a straight line between control points on tangent alignment and on a true arc through control points

on curved alignment and placing spots of paint along the rope. Temporary tab markers shall be placed not more than 12' apart on curves nor more than 24' apart on straight segments.

Temporary tab markers shall be the same color as the traffic stripe that they are replacing, shall measure 2" tall by 3-1/2" wide, and have a reflective lens across the width of the marker.

Prior to application of permanent striping and markers, the Contractor shall call for review and approval of the proposed striping by the Town's Traffic Engineer or agent. The Town shall have the right to make changes in the location and alignment of line stripes. Striping and traffic markings shall not be applied until after approval is granted by the Traffic Engineer. The Contractor shall allow a minimum of 5 working days for review of the layout by the Town, and shall notify the Town 1 week before layout is scheduled for review.

4. Pavement Stencils

The Contractor shall use stencils that conform to Caltrans Standard Plans and Details.

5. Thermoplastic Traffic Stripes and Pavement Markings

Thermoplastic shall be applied as specified in Section 84-2.03C, "Application of Striping & Markings" of the 2018 Standard Specifications.

Pavement temperature shall be measured at the beginning of the shift on each working day and this information shall be provided to the Engineer.

No primer or thermoplastic shall be installed within 48 hours from the last measurable rain report as provided by the Town.

6. Raised Pavement Markers (RPMs)

RPMs shall be placed to the line established by the Contractor and approved by the Engineer, which will consist of temporary painted line or new or existing stripes one for each line of markers.

All additional work necessary to establish satisfactory lines for RPMs shall be performed by the Contractor.

RPMs shall be cement to the pavement using a rapid set epoxy adhesive as specified in Section 95-1.02E, "Rapid Set Epoxy Adhesive for Placement Markers", of the Standard Specifications. At the option of the Contractor, a

hot melt bituminous adhesive may be used as specified in Section 81-3.02D, "Hot Melt Bituminous Adhesive", of the Standard Specifications

The filler material used in bituminous adhesive shall be Type PC, Grade III, calcium carbonate complying with ASTM D1199, and shall conform to the gradations as specified in Section 81-3.02D.

Bituminous adhesive shall be heated indirectly in an applicator with continuous agitation or recirculation. Bituminous adhesive shall not be heated above the maximum safe heating temperature recommended by the manufacturer and shall not be applied at temperatures greater than 425°F nor less than 375°F.

Immediately after application of the adhesive, RPMs shall be placed in position and pressure applied until firm contact is made with the pavement.

7. Curb Paint

If painted curb is removed and replaced with new curb, Contractor shall paint new curb in the same color and length as the removed curb. Contractor shall also paint curb as shown to the color and length shown on the plans.

All existing curb paint shall be removed prior to application of new curb paint.

Use abrasive blast cleaning to remove laitance and curing compound from the surface of new concrete that is to receive the curb paint.

Application shall consist of **two separate coats** of traffic paint of the appropriate color applied to the face and top of the curb.

Paint shall be used at its manufactured consistency.

8. Schedule

Temporary tab markers shall be placed the same day that the existing traffic striping and markings are removed, and the same day that any new pavement surface is placed. Tabs shall be placed for all lane lines, centerlines, crosswalk, and limit lines obliterated as part of the Contractor's work. Tabs shall be the same color as the traffic stripe that they are replacing, and shall measure 2 inches tall by 3-1/2 inches wide, and have a reflective lens across the width of the marker. Temporary yellow marking tape shall be used to denote school crosswalks.

Permanent traffic striping and pavement markings including centerlines, lane lines, legends, crosswalks and limit lines shall be placed no earlier than 14

days and no later than 21 days after paving or surfacing, unless otherwise directed by the Engineer.

When utilizing hot melt bituminous adhesive, RPMs shall be placed after the surface has been open to traffic for at least 7 days. When utilizing epoxy adhesive, RPMs shall be placed after the surface has been open to traffic for at least 14 days. Regardless of which adhesive is utilized, RPMs shall not be placed more than 21 days after paving or surfacing.

**Failure to comply with these requirements shall result in a liquidated damage of \$1,000 per day for each location that has not received temporary tab markers and marking tape, or permanent installation of the required traffic striping, pavement markings or RPMs. Multiple occurrences of liquidated damages per calendar day are not restricted.**

9. Clean-up

Upon completion of installing of traffic striping, pavement markings, raised pavement markers, and curb paint, the Contractor shall thoroughly clean the work site of all waste, rubbish, construction debris, drips, over sprays, improper markings, tracked thermoplastic materials and curb markings, all of which shall be removed immediately from the pavement surface by methods approved by the Engineer.

D. Measurement and Payment

Subsection 9-1.06B, "Increases of More Than 25 Percent" and subsection 9-1.06C, "Decreases of More than 25 Percent" shall not apply to the bid items related to removing and replacing traffic striping, pavement markings, and raised pavement markers.

The contract unit price paid for **"Install Blue RPM at Fire Hydrant "Pavement Marking "CLEAR" Legend (Thermo)", "Pavement Marking "KEEP" Legend (Thermo)", "Pavement Marking "SLOW" Legend (Thermo)", "Pavement Marking "STOP" Legend (Thermo)", "Pavement Marking "YIELD" Legend (Thermo)", and "Shared Roadway Bicycle Marking (Thermo)"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing and applying pavement markings and raised pavement markers, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

The contract price paid per linear foot for **"12" White Crosswalk/Limit Line (Thermo)", "Striping Detail #22 (Thermo & Markers)", and "Red Curb Paint"** shall include full compensation for furnishing all labor, materials, tools, equipment, and

incidentals and for doing all the work involved in removing and applying thermoplastic traffic stripes and raised pavement markers, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

#### **TS-19 ROADSIDE SIGNS**

##### **A. General**

The work shall consist of removing and replacing roadside signs, posts and object markers as shown on the plans.

New posts and signs shall match existing, unless shown otherwise on the plans, or as directed by the Engineer.

Roadside signs shall comply with Section 82-3, "Roadside Signs" of the 2018 Standard Specifications, and with the County of Marin Standard Drawing No. 310, "Street Signs" dated March 2018, except as modified herein.

##### **B. Materials**

###### **1. Concrete**

Concrete for sign post foundation shall be 6 sack mix concrete, either prepackaged or ready mix.

###### **2. Grout**

Post setting grout at sleeves shall be non-shrink Advantage 1107 Grout by Dayton Superior equal as approved by Engineer prior to construction.

###### **3. Posts**

New sign posts shall have a nominal 2 inch outside diameter by minimum 10 feet high, minimum, with wall thickness equivalent to Schedule 40 galvanized pipe.

Sign posts shall be equal as approved by Engineer before installation.

###### **4. Mounting Sleeves**

Mounting Sleeves shall be a nominal 2-1/2 inch outside diameter Schedule 40 galvanized pipe, 18 inches long. Contractor shall predrill 3/8-inch hole 2 inches from end of pipe. Contractor shall provide 5/16-inch x 3-inch galvanized bolt with nylon type nut.

###### **5. Signs**

All new signs and object markers shall have Diamond Grade DG-3 sign sheeting.

C. Construction

1. Removal

Where specified on plans, remove existing signs, posts and object markers. Verify if existing pole can be reused at the location for installation of new signs. If not, removal shall include sign, pole, and buried concrete pole base. Backfill void w/topsoil in landscape areas, aggregate base or controlled density fill (CDF) under pavement areas. For removal of sign posts embedded in concrete facility, cut post flush with surface and fill void with non-shrink grout.

2. Installation

Street signs, posts and sleeves shall be installed as shown in the County of Marin Standard Drawing No. 310, "Street Signs" dated March 2018, except as modified herein.

Install signs square and plumb. Where possible, align signposts in a straight, continuous line.

Sleeves shall extend 2-1/2" inches above top of finish concrete or finished landscape elevation.

Street signs, posts and sleeves shall be installed outside the new curb ramp footprints. This includes the ramp, landing and wing areas of the new curb ramp.

Sign posts shall be install to provide a 48 inch clear path between post and edge of pedestrian travel way, or as directed by the Engineer.

Sidewalks, Concrete & Pavement Areas: Core 12-inch diameter hole in concrete. Excavate 12" diameter hole 24 inches deep. Thoroughly mix concrete to 4-inch maximum slump. Finish top of concrete even with existing concrete or pavement surface. For concrete surfaces, match existing finish.

After mounting sleeve has been installed, the Contractor shall drill 3/8-inch hole in post so that it aligns with predrilled hole in mounting sleeve. Install 5/16-inch x 3-inch galvanized bolt with nylon type nut so that sign post is secured to mounting sleeve.

Install signs on post so that bottom of sign is a minimum of 84" from finished surface.

D. Measurement & Payment

The contract unit price paid for **“Relocate Roadside Sign & Post”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Roadside Signs, complete in place, including removal and replacement of signs, posts, footings and delineators, coring, excavation, concrete, grout, mounting sleeves and hardware, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

#### **TS-20 FINAL CLEAN-UP**

##### **A. General**

Before final inspection of the work, the Contractor shall clean the work and all ground occupied by him in connection with the work, of all rubbish, excess materials (including liquid asphalt), and equipment. All USA markings and curb reference points used to facilitate new striping layout and utility adjustments shall be removed.

**Prior to the final street sweeping, all sidewalks, curbs and gutters shall be thoroughly swept clean of all dirt, dust and foreign material.**

All parts of the work shall be left in neat and presentable condition.

##### **B. Measurement and Payment**

Full compensation for **“Final Clean-up”** shall be considered as included in the contract prices paid for the various bid items of work involved and no additional

# **APPENDIX A – BID ITEM QUANTITIES BY STREET**



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**APPENDIX A – BID ITEM QUANTITIES BY STREET**  
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**TOWN OF FAIRFAX**  
**2023 FAIRFAX ROAD IMPROVEMENT PROJECT**  
**BID ITEM QUANTITIES - BASE BID**

BID ITEM NO.	BID ITEM	PAYMENT REFERENCE	UNIT	Porteous Avenue	Scenic Road	TOTAL ESTIMATED QUANTITY
				Bolinas Road to Wood Lane	Azalea Avenue to Manor Road	
				22,622	23,900	
1	Mobilization, Bonds & Insurance	TS-4.I	LS			1
2	Traffic Control	TS-5.I	LS			1
3	Storm Water Pollution Control Program	TS-6.C	LS			1
4	1/2" HMA (Type A) PG 64-16	TS-8.D	TN	452	435	888
5	Crack Seal & Slurry Seal (Type II)	TS-11.D	SF			0
6	Cold Plane 2"	TS-9.D	SF		14,710	14,710
7	Cold Plane 3"	TS-9.D	SF	22,622		22,622
8	Cold Plane 4"	TS-9.D	SF		8750	8,750
9	Wedge Grind @ Bridge Deck	TS-9.D	SF		420	420
10	Micro Mill Existing AC on Bridge Deck	TS-9.D	SF		450	450
11	Remove & Replace 4" HMA	TS-10.D	SF		4,315	4,315
12	Remove & Replace 5" HMA	TS-10.D	SF	7,268		7,268
13	Remove & Replace 6" HMA	TS-10.D	SF			0
14	Remove, Regrade, & Replace 4" HMA	TS-10.D	SF		440	440
15	Remove, Regrade, & Replace 8" HMA	TS-10.D	SF	950		950
16	6" Deep Lift Stabilization (Allowance)	TS-10.D	SF	363	653	1,017
17	Remove & Replace PCC Spandrel/Valley Gutter	TS-14.D	SF	50		50
18	Remove & Replace PCC Sidewalk/Ramp Surface	TS-14.D	SF	449	882	1,331
19	Remove & Replace PCC Curb & Gutter	TS-14.D	LF	593	273	866
20	Remove & Replace PCC Curb	TS-14.D	LF		71	71
21	Construct PCC Retaining Curb	TS-14.D	LF	60	91	151
22	Install Detectable Warning Surface	TS-14.D	SF	45	133	178
23	Reset Sidewalk Underdrain/Thru-curb Drain	TS-14.D	EA	5	1	6
24	Prune & Remove Tree Roots (Under HMA Repairs)	TS-15.C	EA		4	4
25	Lower Gas Valve Cover	TS-17.C	EA	2	1	3
26	Lower Sanitary Sewer Manhole Cover	TS-17.C	EA	5	5	10
27	Lower Storm Drain Manhole Cover	TS-17.C	EA			0
28	Lower Water Valve Cover	TS-17.C	EA	8	9	17
29	Adjust Gas Valve Cover to Finish Grade	TS-17.C	EA	2	1	3
30	Adjust Sanitary Sewer Manhole Cover to Finish Grade	TS-17.C	EA	5	5	10
31	Adjust Storm Drain Manhole Cover to Finish Grade	TS-17.C	EA			0
32	Adjust Water Valve Cover to Finish Grade	TS-17.C	EA	8	9	17
33	Install Blue RPM at Fire Hydrant	TS-18.D	EA	3	2	5
34	12" White Crosswalk/Limit Line (Thermo)	TS-18.D	LF	30	32	62
35	Striping Detail #22 (Thermo & Markers)	TS-18.D	LF			0
36	Pavement Marking "CLEAR" Legend (Thermo)	TS-18.D	EA			0
37	Pavement Marking "KEEP" Legend (Thermo)	TS-18.D	EA			0
38	Pavement Marking "SLOW" Legend (Thermo)	TS-18.D	EA		2	2
39	Pavement Marking "STOP" Legend (Thermo)	TS-18.D	EA	2	2	4
40	Pavement Marking "YIELD" Legend (Thermo)	TS-18.D	EA	1		1
41	Shared Roadway Bicycle Marking (Thermo)	TS-18.D	EA		4	4
42	Relocate Roadside Sign & Post	TS-18.D	EA	2		2
43	Red Curb Paint	TS-18.D	LF	581	181	762
44	Install Pedestrian Barricade/Railing Behind Catch Basin	TS-14.D	LF			0

**TOWN OF FAIRFAX**  
**2023 FAIRFAX ROAD IMPROVEMENT PROJECT**  
**BID ITEM QUANTITIES - BID ALTERNATE 1**

BID ITEM NO.	BID ITEM	PAYMENT REFERENCE	UNIT	Claus Drive	TOTAL ESTIMATED QUANTITY
				Taylor Drive to Sir Francis Drake Boulevard	
				16,150	
1	Mobilization, Bonds & Insurance	TS-4.I	LS		1
2	Traffic Control	TS-5.I	LS		1
3	Storm Water Pollution Control Program	TS-6.C	LS		1
4	1/2" HMA (Type A) PG 64-16	TS-8.D	TN		0
5	Crack Seal & Slurry Seal (Type II)	TS-11.D	EA	16,150	16,150
6	Cold Plane 2"	TS-9.D	SF		0
7	Cold Plane 3"	TS-9.D	SF		0
8	Cold Plane 4"	TS-9.D	SF		0
9	Wedge Grind @ Bridge Deck	TS-9.D	SF		0
10	Micro Mill Existing AC on Bridge Deck	TS-9.D	SF		0
11	Remove & Replace 4" HMA	TS-10.D	SF		0
12	Remove & Replace 5" HMA	TS-10.D	SF		0
13	Remove & Replace 6" HMA	TS-10.D	SF	2,340	2,340
14	Remove, Regrade, & Replace 4" HMA	TS-10.D	SF		0
15	Remove, Regrade, & Replace 8" HMA	TS-10.D	SF		0
16	6" Deep Lift Stabilization (Allowance)	TS-10.D	SF	117	117
17	Remove & Replace PCC Spandrel/Valley Gutter	TS-14.D	SF		0
18	Remove & Replace PCC Sidewalk/Ramp Surface	TS-14.D	SF		0
19	Remove & Replace PCC Curb & Gutter	TS-14.D	LF		0
20	Remove & Replace PCC Curb	TS-14.D	LF		0
21	Construct PCC Retaining Curb	TS-14.D	LF		0
22	Install Detectable Warning Surface	TS-14.D	SF		0
23	Reset Sidewalk Underdrain/Thru-curb Drain	TS-14.D	EA		0
24	Prune & Remove Tree Roots (Under HMA Repairs)	TS-15.C	EA		0
25	Lower Gas Valve Cover	TS-17.C	EA		0
26	Lower Sanitary Sewer Manhole Cover	TS-17.C	EA		0
27	Lower Storm Drain Manhole Cover	TS-17.C	EA		0
28	Lower Water Valve Cover	TS-17.C	EA		0
29	Adjust Gas Valve Cover to Finish Grade	TS-17.C	EA		0
30	Adjust Sanitary Sewer Manhole Cover to Finish Grade	TS-17.C	EA		0
31	Adjust Storm Drain Manhole Cover to Finish Grade	TS-17.C	EA		0
32	Adjust Water Valve Cover to Finish Grade	TS-17.C	EA		0
33	Install Blue RPM at Fire Hydrant	TS-18.D	EA	2	2
34	12" White Crosswalk/Limit Line (Thermo)	TS-18.D	LF	38	38
35	Striping Detail #22 (Thermo & Markers)	TS-18.D	LF	52	52
36	Pavement Marking "CLEAR" Legend (Thermo)	TS-18.D	EA	1	1
37	Pavement Marking "KEEP" Legend (Thermo)	TS-18.D	EA	1	1
38	Pavement Marking "SLOW" Legend (Thermo)	TS-18.D	EA		0
39	Pavement Marking "STOP" Legend (Thermo)	TS-18.D	EA	1	1
40	Pavement Marking "YIELD" Legend (Thermo)	TS-18.D	EA		0
41	Shared Roadway Bicycle Marking (Thermo)	TS-18.D	EA		0
42	Relocate Roadside Sign & Post	TS-18.D	EA		0
43	Red Curb Paint	TS-18.D	LF	292	292
44	Install Pedestrian Barricade/Railing Behind Catch Basin	TS-14.D	LF		0

**TOWN OF FAIRFAX**  
**2023 FAIRFAX ROAD IMPROVEMENT PROJECT**  
**BID ITEM QUANTITIES - BID ALTERNATE 2**

BID ITEM NO.	BID ITEM	PAYMENT REFERENCE	UNIT	Claus Drive	TOTAL ESTIMATED QUANTITY
				Taylor Drive to Sir Francis Drake Boulevard	
				16,150	
1	Mobilization, Bonds & Insurance	TS-4.I	LS		1
2	Traffic Control	TS-5.I	LS		1
3	Storm Water Pollution Control Program	TS-6.C	LS		1
4	1/2" HMA (Type A) PG 64-16	TS-8.D	TN		0
5	Crack Seal & Slurry Seal (Type II)	TS-11.D	SF		0
6	Cold Plane 2"	TS-9.D	SF		0
7	Cold Plane 3"	TS-9.D	SF		0
8	Cold Plane 4"	TS-9.D	SF		0
9	Wedge Grind @ Bridge Deck	TS-9.D	SF		0
10	Micro Mill Existing AC on Bridge Deck	TS-9.D	SF		0
11	Remove & Replace 4" HMA	TS-10.D	SF		0
12	Remove & Replace 5" HMA	TS-10.D	SF		0
13	Remove & Replace 6" HMA	TS-10.D	SF		0
14	Remove, Regrade, & Replace 4" HMA	TS-10.D	SF		0
15	Remove, Regrade, & Replace 8" HMA	TS-10.D	SF		0
16	6" Deep Lift Stabilization (Allowance)	TS-10.D	SF		0
17	Remove & Replace PCC Spandrel/Valley Gutter	TS-14.D	SF	156	156
18	Remove & Replace PCC Sidewalk/Ramp Surface	TS-14.D	SF	629	629
19	Remove & Replace PCC Curb & Gutter	TS-14.D	LF	197	197
20	Remove & Replace PCC Curb	TS-14.D	LF		0
21	Construct PCC Retaining Curb	TS-14.D	LF	118	118
22	Install Detectable Warning Surface	TS-14.D	SF	101	101
23	Reset Sidewalk Underdrain/Thru-curb Drain	TS-14.D	EA		0
24	Prune & Remove Tree Roots (Under HMA Repairs)	TS-15.C	EA		0
25	Lower Gas Valve Cover	TS-17.C	EA		0
26	Lower Sanitary Sewer Manhole Cover	TS-17.C	EA		0
27	Lower Storm Drain Manhole Cover	TS-17.C	EA		0
28	Lower Water Valve Cover	TS-17.C	EA		0
29	Adjust Gas Valve Cover to Finish Grade	TS-17.C	EA		0
30	Adjust Sanitary Sewer Manhole Cover to Finish Grade	TS-17.C	EA		0
31	Adjust Storm Drain Manhole Cover to Finish Grade	TS-17.C	EA		0
32	Adjust Water Valve Cover to Finish Grade	TS-17.C	EA		0
33	Install Blue RPM at Fire Hydrant	TS-18.D	EA		0
34	12" White Crosswalk/Limit Line (Thermo)	TS-18.D	LF		0
35	Striping Detail #22 (Thermo & Markers)	TS-18.D	LF		0
36	Pavement Marking "CLEAR" Legend (Thermo)	TS-18.D	EA		0
37	Pavement Marking "KEEP" Legend (Thermo)	TS-18.D	EA		0
38	Pavement Marking "SLOW" Legend (Thermo)	TS-18.D	EA		0
39	Pavement Marking "STOP" Legend (Thermo)	TS-18.D	EA		0
40	Pavement Marking "YIELD" Legend (Thermo)	TS-18.D	EA		0
41	Shared Roadway Bicycle Marking (Thermo)	TS-18.D	EA		0
42	Relocate Roadside Sign & Post	TS-18.D	EA		0
43	Red Curb Paint	TS-18.D	LF		0
44	Install Pedestrian Barricade/Railing Behind Catch Basin	TS-14.D	LF		0

**TOWN OF FAIRFAX**  
**2023 FAIRFAX ROAD IMPROVEMENT PROJECT**  
**BID ITEM QUANTITIES - BID ALTERNATE 3**

BID ITEM NO.	BID ITEM	PAYMENT REFERENCE	UNIT	Taylor Drive	TOTAL ESTIMATED QUANTITY
				Burdette Lane to Taylor/Claus Drive	
				5,650	
1	Mobilization, Bonds & Insurance	TS-4.I	LS		1
2	Traffic Control	TS-5.I	LS		1
3	Storm Water Pollution Control Program	TS-6.C	LS		1
4	1/2" HMA (Type A) PG 64-16	TS-8.D	TN	151	151
5	Crack Seal & Slurry Seal (Type II w/Black Rock)	TS-11.D	EA		0
6	Cold Plane 2"	TS-9.D	SF		0
7	Cold Plane 3"	TS-9.D	SF		0
8	Cold Plane 4"	TS-9.D	SF	5,650	5,650
9	Wedge Grind @ Bridge Deck	TS-9.D	SF		0
10	Micro Mill Existing AC on Bridge Deck	TS-9.D	SF		0
11	Remove & Replace 4" HMA	TS-10.D	SF		0
12	Remove & Replace 5" HMA	TS-10.D	SF		0
13	Remove & Replace 6" HMA	TS-10.D	SF		0
14	Remove, Regrade, & Replace 4" HMA	TS-10.D	SF		0
15	Remove, Regrade, & Replace 8" HMA	TS-10.D	SF		0
16	6" Deep Lift Stabilization (Allowance)	TS-10.D	SF	283	283
17	Remove & Replace PCC Spandrel/Valley Gutter	TS-14.D	SF		0
18	Remove & Replace PCC Sidewalk/Ramp Surface	TS-14.D	SF	69	69
19	Remove & Replace PCC Curb & Gutter	TS-14.D	LF	73	73
20	Remove & Replace PCC Curb	TS-14.D	LF		0
21	Construct PCC Retaining Curb	TS-14.D	LF	28	28
22	Install Detectable Warning Surface	TS-14.D	SF	15	15
23	Reset Sidewalk Underdrain/Thru-curb Drain	TS-14.D	EA		0
24	Prune & Remove Tree Roots (Under HMA Repairs)	TS-15.C	EA		0
25	Lower Gas Valve Cover	TS-17.C	EA	1	1
26	Lower Sanitary Sewer Manhole Cover	TS-17.C	EA	1	1
27	Lower Storm Drain Manhole Cover	TS-17.C	EA		0
28	Lower Water Valve Cover	TS-17.C	EA	3	3
29	Adjust Gas Valve Cover to Finish Grade	TS-17.C	EA	1	1
30	Adjust Sanitary Sewer Manhole Cover to Finish Grade	TS-17.C	EA	1	1
31	Adjust Storm Drain Manhole Cover to Finish Grade	TS-17.C	EA		0
32	Adjust Water Valve Cover to Finish Grade	TS-17.C	EA	3	3
33	Install Blue RPM at Fire Hydrant	TS-18.D	EA	2	2
34	12" White Crosswalk/Limit Line (Thermo)	TS-18.D	LF	8	8
35	Striping Detail #22 (Thermo & Markers)	TS-18.D	LF		0
36	Pavement Marking "CLEAR" Legend (Thermo)	TS-18.D	EA		0
37	Pavement Marking "KEEP" Legend (Thermo)	TS-18.D	EA		0
38	Pavement Marking "SLOW" Legend (Thermo)	TS-18.D	EA		0
39	Pavement Marking "STOP" Legend (Thermo)	TS-18.D	EA	1	1
40	Pavement Marking "YIELD" Legend (Thermo)	TS-18.D	EA		0
41	Shared Roadway Bicycle Marking (Thermo)	TS-18.D	EA		0
42	Relocate Roadside Sign & Post	TS-18.D	EA		0
43	Red Curb Paint	TS-18.D	LF	60	60
44	Install Pedestrian Barricade/Railing Behind Catch Basin	TS-14.D	LF	6	6

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## **APPENDIX B – STANDARD PLANS**



**[THIS PAGE LEFT INTENTIONALLY BLANK]**

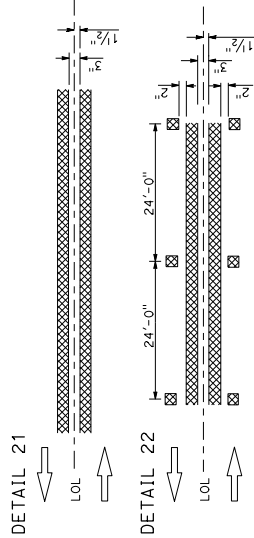
**APPENDIX B – STANDARD PLANS**  
**TO BE INSERTED HERE**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

*Alta Feroz*  
REGISTERED CIVIL ENGINEER  
No. CB0402  
Exp. 3-31-19  
STATE OF CALIFORNIA  
Professional Engineer Seal

DATE: MAY 31, 2018  
THIS SET OF DRAWINGS IS THE PROPERTY OF THE STATE OF CALIFORNIA. IT IS TO BE USED ONLY FOR THE PROJECT AND LOCATION SPECIFICALLY IDENTIFIED ON THESE DRAWINGS. NO PARTS OF THIS SET OF DRAWINGS SHALL BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF THE STATE OF CALIFORNIA.

### NO PASSING ZONES-TWO DIRECTION



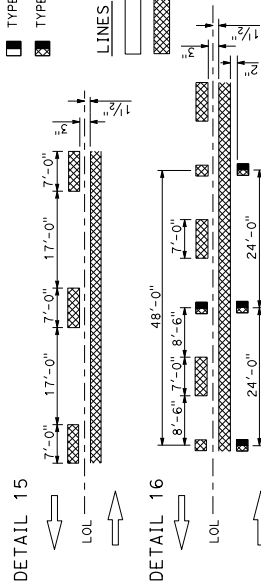
DETAIL 23 DELETED

DETAIL 23 DELETED

#### LEGEND MARKERS

- TYPE C RED-CLEAR RETROREFLECTIVE
- TYPE D TWO-WAY YELLOW RETROREFLECTIVE
- TYPE G ONE-WAY CLEAR RETROREFLECTIVE
- TYPE H ONE-WAY YELLOW RETROREFLECTIVE

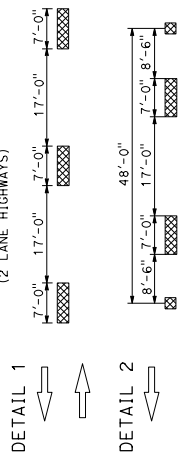
### NO PASSING ZONES-ONE DIRECTION



DETAIL 17 DELETED

DETAIL 17 DELETED

### CENTERLINES (2 LANE HIGHWAYS)

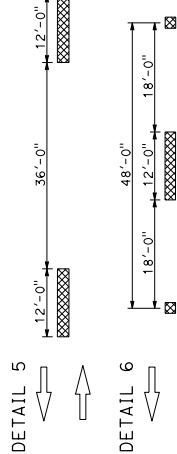


DETAIL 3 DELETED

DETAIL 3 DELETED

DETAIL 4 DELETED

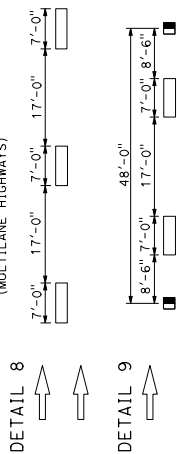
DETAIL 4 DELETED



DETAIL 7 DELETED

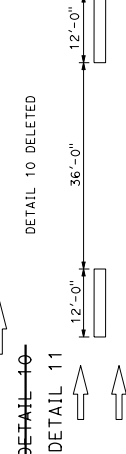
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### LANELINES (MULTILANE HIGHWAYS)



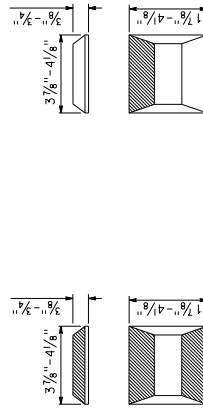
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DETAIL 10 DELETED



DETAIL 10 DELETED

DETAIL 10 DELETED



### TYPE C AND TYPE D TYPE G AND TYPE H

RETROREFLECTIVE FACE

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## PAVEMENT MARKERS AND TRAFFIC LINES TYPICAL DETAILS

NO SCALE

A20A

NOTE:  
FOR FREEWAY APPLICATION ONLY

DETAIL 20 DELETED

DETAIL 20 DELETED

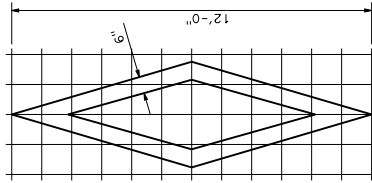
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

*Alfio Ferrell*  
REGISTERED CIVIL ENGINEER

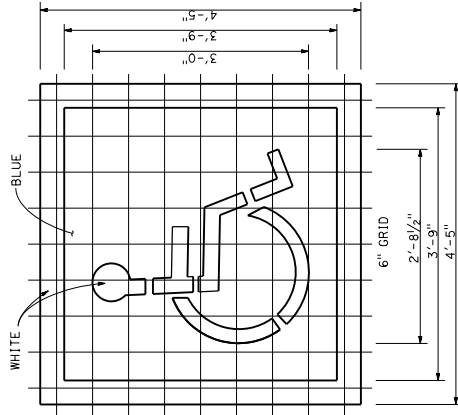
NOV 31, 2018  
PLANS FOR THE  
STATE OF CALIFORNIA  
ON THESE PLANS THE  
ENGINEER SHALL NOT BE RESPONSIBLE FOR  
THE ACCURACY OF THE DATA OR THE  
COMPLETION OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
ALFIO FERRELL  
No. 33119  
CIVIL  
STATE OF CALIFORNIA

**NOTE:**  
Minor variations in dimensions may be accepted by the Engineer.

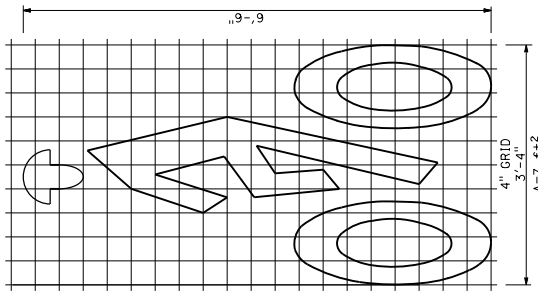


**DIAMOND SYMBOL**



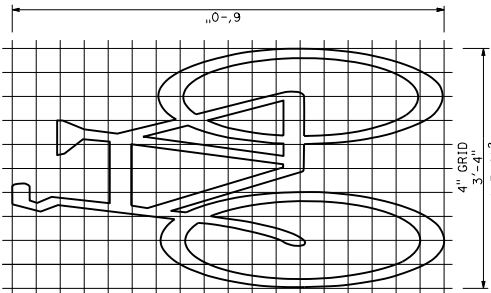
A (WHITE) = 9 ft+2  
A (BLUE) = 14 ft+2

**INTERNATIONAL SYMBOL  
OF ACCESSIBILITY (ISA) MARKING**



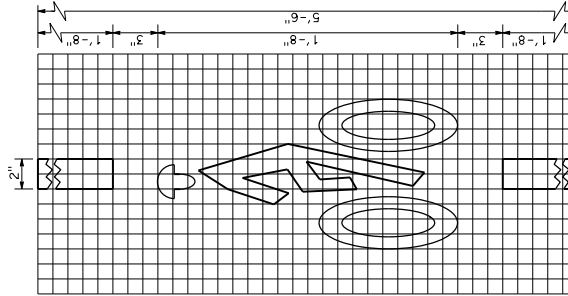
A=7 ft+2

**BIKE LANE SYMBOL  
WITH PERSON**



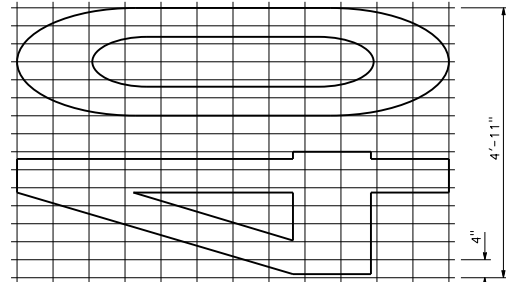
A=7 ft+2

**BIKE LANE SYMBOL  
WITHOUT PERSON**

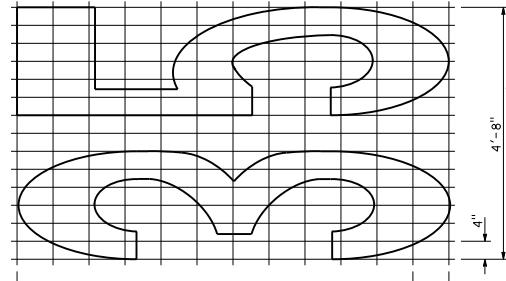


A=2 ft+2  
A=19.5 ft+2

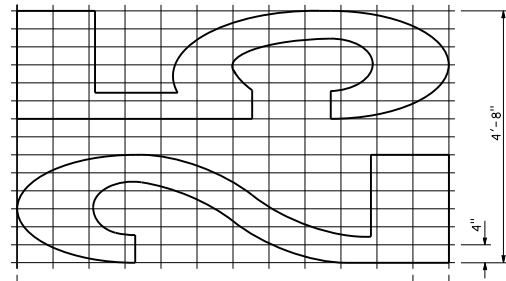
**BIKE LOOP  
DETECTOR SYMBOL**



A=19.5 ft+2



A=16.5 ft+2



A=17.5 ft+2

**NUMERALS**

**SHARED ROADWAY BICYCLE MARKING**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION


**PAVEMENT MARKINGS  
SYMBOLS AND NUMERALS**

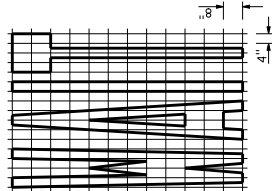
NO SCALE

**A24C**

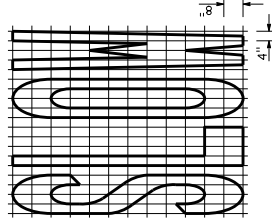
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

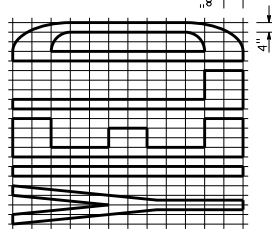
	
<b>Atiq Ferouzi</b> REGISTERED CIVIL ENGINEER May 31, 2018 BUILDING APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ANY COPIES OF THIS PLAN SHEET.	



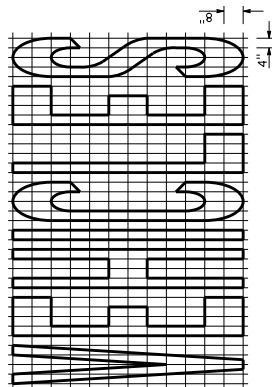
A=19 f +2



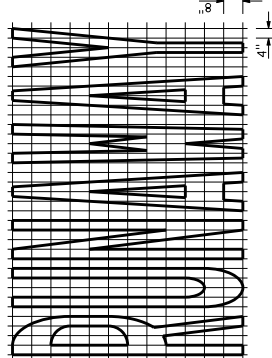
A=23 f +2



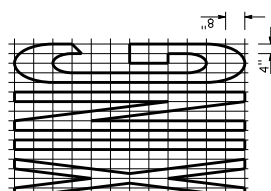
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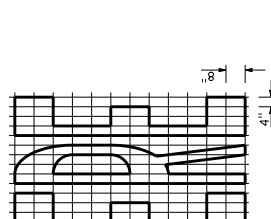
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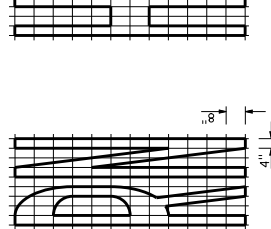
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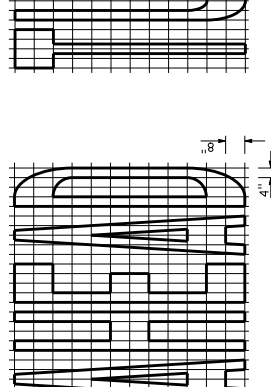
A=21 f +2



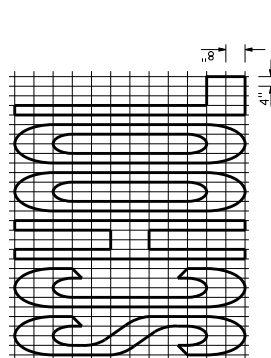
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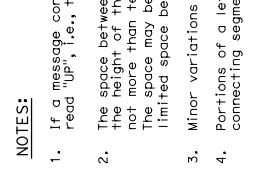
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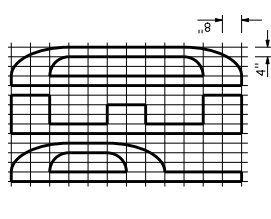
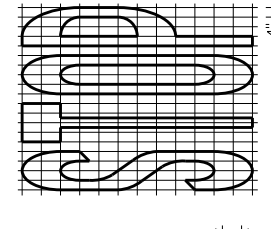
A=31 f +2



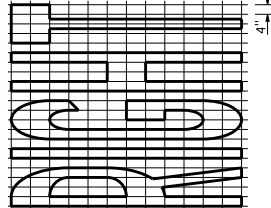
A=35 f +2



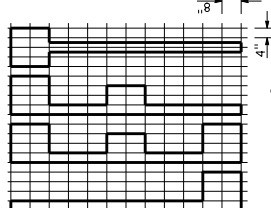
A=18 f +2

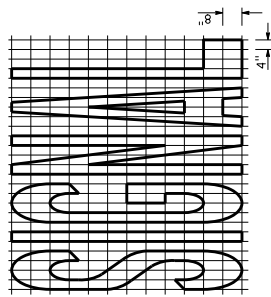
A=22 f +2



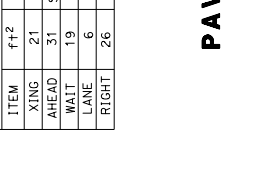
A=26 f +2



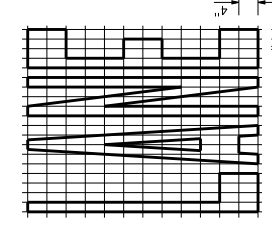
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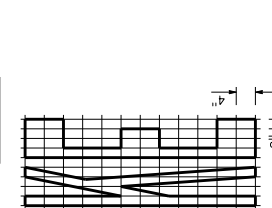
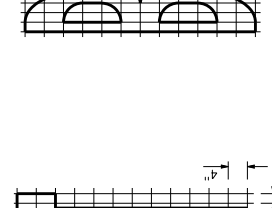
A=32 f +2



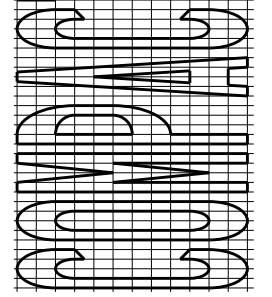
A=6 f +2

A=5 f +2

A=10 f +2


**NOTES:**

1. If a message consists of more than one word, it must read "up", i.e., the first word must be nearest the driver.
2. The space between words must be at least four times the height of the characters for low speed roads, but not more than ten times the height of the characters. The space may be reduced appropriately where there is limited space because of local conditions.
3. Minor variations in dimensions may be accepted by the Engineer.
4. Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.

WORD MARKINGS					
ITEM	f +2	ITEM	f +2	ITEM	f +2
XING	21	YIELD	24	BIKE	5
AHEAD	31	SCHOOL	35	SLOW	23
WAIT	19	SIGNAL	32	STOP	22
LANE	6	TURN	24	LEFT	19
RIGHT	26	HERE	26	VEHICLES	42

 STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**PAVEMENT MARKINGS  
WORDS**

NO SCALE

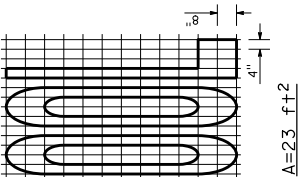
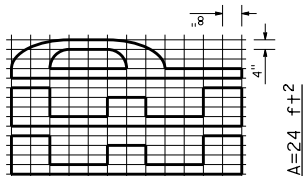
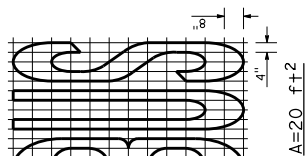
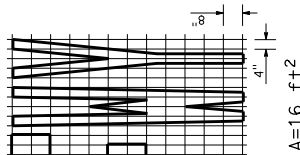
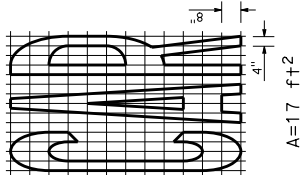
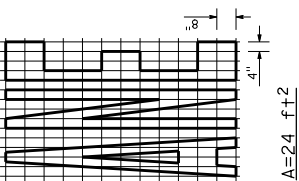
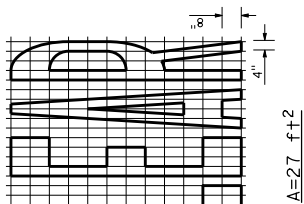
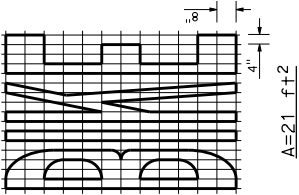
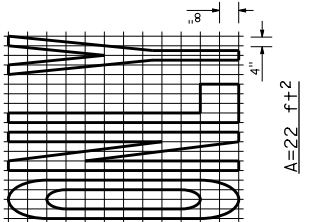
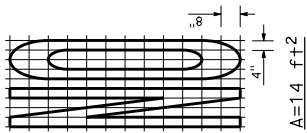
**A 24D**

1-86-18

Return to Table of Contents

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

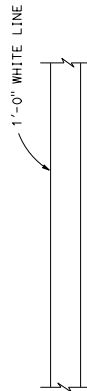
Atif Ferouz  
REGISTERED CIVIL ENGINEER  
May 31, 2018  
PLANS APPROVED  
THE STATE OF CALIFORNIA OR ITS OFFICERS  
OR AGENTS SHALL NOT BE RESPONSIBLE FOR  
THE ACCURACY OR COMPLETENESS OF ANY  
COPIES OF THIS PLAN SHEET.



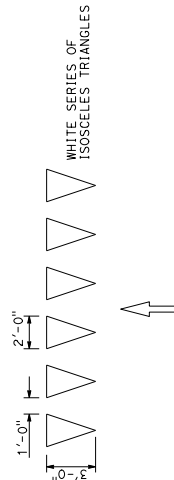
WORD MARKINGS			
ITEM	f+2	ITEM	f+2
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16

NOTES:

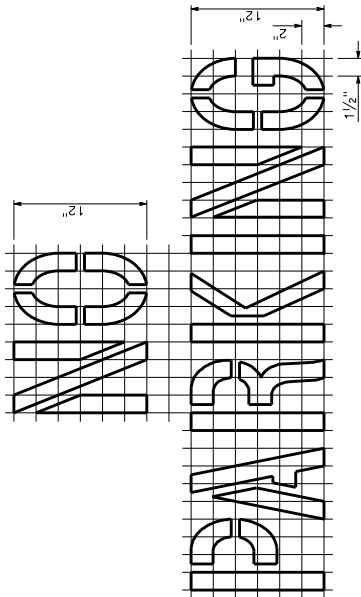
1. If a message consists of more than one word, it must read "UP", i.e., the first word must be nearest the driver.
2. The space between words must be at least four times the height of the characters for low speed roads, but not more than ten times the height of the characters. The space may be reduced appropriately where there is limited space because of local conditions.
3. Minor variations in dimensions may be accepted by the Engineer.
4. Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.
5. The words "NO PARKING" pavement marking is to be used for parking facilities. For typical locations of markings, see Standard Plans A90A and A90B.
6. The words "NO PARKING" shall be painted in white letters no less than 1/2" high on a contrasting background and located so that it is visible to traffic enforcement officials.



LIMIT LINE (STOP LINE)



YIELD LINE



See Notes 6 and 7

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
WORDS, LIMIT AND YIELD LINES**

NO SCALE

**A 24E**

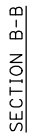
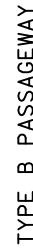
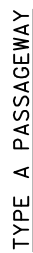
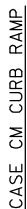


1-29-18

reach full length.

3. Where an island passageway length is greater than 10 feet, each detectable warning surface shall extend the full width and 2'-0" depth of the passageway length. Where an island passageway length is greater than or equal to 8'-0", each detectable warning surface shall extend the full width and 3'-0" depth of the passageway length. Where an island passageway length is less than 8'-0", each detectable warning surface shall extend the full width of the island passageway except a maximum gap of 1 inch is allowed on each side of the passageway.

- \_\_\_\_\_



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ISLAND PASSAGEWAY**

**CURB RAMP AND**

NO SCALE

NO SCALE

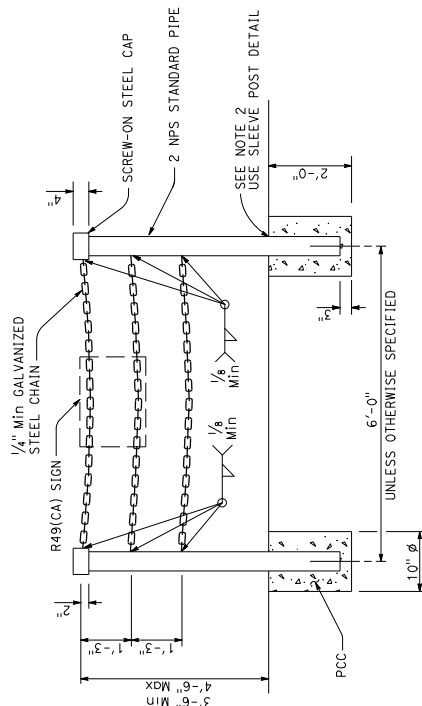
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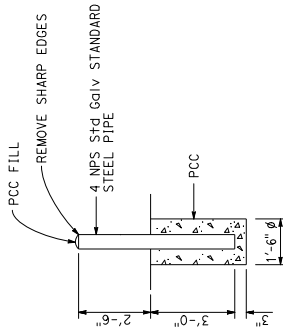
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

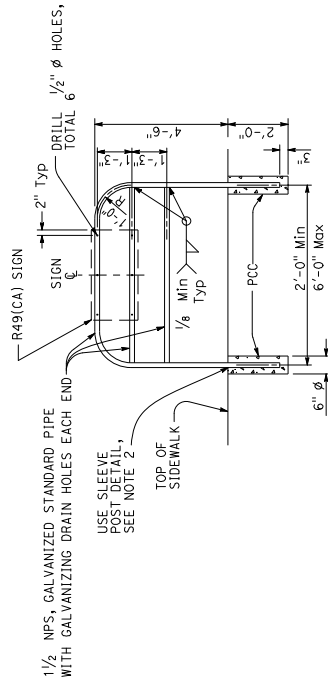
REGISTERED CIVIL ENGINEER May 31, 2018 PLANS APPROVED DATE No. 03783 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.		PROFESSIONAL ENGINEER No. 03783 CIVIL STATE OF CALIFORNIA
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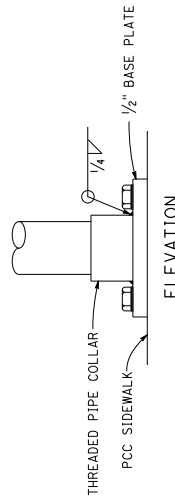
**TYPE II**  
DETAIL A



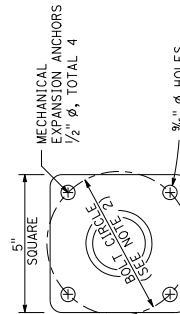
**GUARD POST**  
DETAIL B



**TYPE I**  
DETAIL C



**ELEVATION**



**PLAN**

**POST ANCHORAGE DETAIL**  
DETAIL D

**SLEEVE POST DETAIL**  
Use unless otherwise specified or shown on plans  
DETAIL E

**NOTES:**

1. Pipe post to be set 1'-6" back from face of curb unless otherwise specified.
2. Where barricade posts are installed in existing concrete sidewalk, the post may be anchored to the sidewalk as shown in the "Post Anchorage Detail". Bolt circle diameter shall be 4" minimum for Type I barricade and 5" minimum for Type II barricade.
3. Steel sleeve shall be constructed with an inside diameter 1/8" larger than the post's outside diameter. Wall thickness of sleeve shall be same as post or larger.
4. Alternative details may be submitted for approval by the Engineer.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

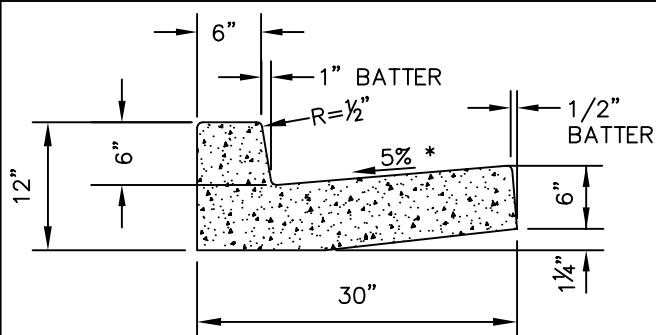
**ELECTRICAL SYSTEMS  
(PEDESTRIAN BARRICADES)**

NO SCALE

**ES-7Q**

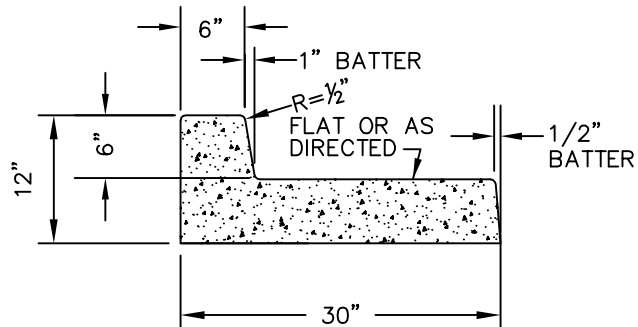
1. EXISTING CONCRETE SHALL BE REMOVED AT EXPANSION OR WEAKENED PLANE JOINTS OR AT SAWCUTS AS FIELD MARKED BY AGENCY ENGINEER. SAWCUTS MUST GO ENTIRELY THROUGH CONCRETE.
2. FOR NEW DEVELOPMENT, NO UTILITY BOXES OR POLES WILL BE PERMITTED IN THE SIDEWALK AREA WITHOUT THE PRIOR WRITTEN APPROVAL OF THE AGENCY ENGINEER.
3. WHERE UNDERCUT SUBGRADE OR UNSUITABLE SUBGRADE MATERIAL IS ENCOUNTERED, THE AGENCY ENGINEER MAY REQUIRE REMEDIAL WORK TO BE DONE, INCLUDING OVER EXCAVATION AND BACKFILLING WITH CRUSHED ROCK AND, WHEN DIRECTED BY THE ENGINEER, PLACING GEOTEXTILE FABRIC BENEATH THE NEW CONCRETE SECTION.
4. SUBGRADE SHALL BE COMPACTED TO AT LEAST 95% RELATIVE COMPACTION IN THE TOP SIX INCHES.
5. NEW WORK SHALL MATCH EXISTING AS CLOSELY AS POSSIBLE IN FINISH, SCORING AND COLOR. FOR NEW INSTALLATIONS PLACED ADJACENT TO EXISTING, 2LB. DAVIS BLACK #8084 (OR EQUIVALENT) PER CU. YD. CONCRETE SHALL BE ADDED TO MIX.
6. EXCEPT WHERE SPECIFIED OTHERWISE HEREIN, NO ADMIXTURES SHALL BE USED WITHOUT THE PERMISSION OF THE AGENCY ENGINEER.
7. FORMS SHALL MEET GRADE AND FORM FACES SHALL NOT VARY FROM THE DIMENSIONS SHOWN BY MORE THAN 1/2 INCH.
8. NO CONCRETE SHALL BE PLACED UNTIL THE AGENCY ENGINEER HAS INSPECTED AND APPROVED FORMS AND SUBGRADE/BASE.
9. SUBGRADE/BASE SHALL BE THOROUGHLY WETTED IMMEDIATELY PRIOR TO PLACING CONCRETE.
10. CONCRETE SHALL BE A MINIMUM CLASS B (5 SACK MIX) WITH 1 INCH MAXIMUM AGGREGATE FROM AN APPROVED MIXING PLANT. NO BAGGED MIX IS PERMITTED.
11. CONCRETE SHALL HAVE A SLUMP OF NOT MORE THAN FOUR INCHES.
12. FOR SIDEWALKS AND DRIVEWAY APPROACHES, 1/4 INCH DEEP SCORE LINES SHALL BE PLACED AT FOUR FEET ON CENTER OR AS DIRECTED BY THE AGENCY ENGINEER.
13. WEAKENED PLANE JOINTS AT LEAST 3/4" DEEP SHALL BE PLACED AT A MINIMUM 16 FEET ON CENTER EXCEPT FOR SIDEWALKS AND DRIVEWAY APPROACHES WHICH SHALL BE A MINIMUM 5 FEET ON CENTER.
14. 3/8 INCH THICK EXPANSION JOINTS SHALL BE PLACED ON BOTH SIDES OF DRIVEWAY APPROACHES, AT CURB AND SIDEWALK RETURN POINTS, DRAINAGE STRUCTURES AND OTHER LOCATIONS AS SHOWN ON THE PLANS.
15. ALL EXPOSED EDGES SHALL BE ROUNDED WITH 1/2 INCH RADIUS TOOL.
16. ALL FLAT SURFACES SHALL BE LIGHT BROOM FINISHED UNLESS OTHERWISE SPECIFIED BY AGENCY ENGINEER.
17. CURBS, SIDEWALKS AND DRIVEWAY APPROACHES SHALL HAVE FORMS REMOVED AND BE BACKFILLED WITHIN SEVEN DAYS AFTER POURING.
18. THE DESIGNATED DIMENSIONS AND SLOPES MAYBE MODIFIED TO ACCOMMODATE EXISTING ADJACENT FACILITIES SUBJECT TO THE APPROVAL OF THE AGENCY ENGINEER.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	REQUIREMENTS FOR CONCRETE CURB, GUTTER, SIDEWALK, DRIVEWAY AND OTHER "FLATWORK"				MAY 2008
					DWG. NO.
					100
		REV.	DATE	BY	

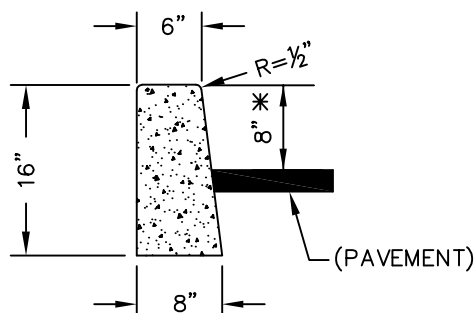


TYPE "A" CURB

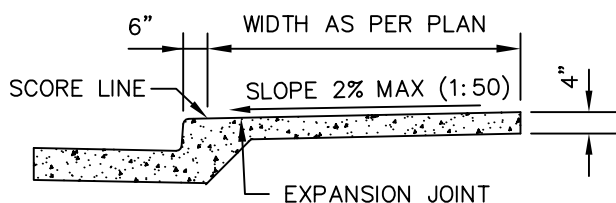
\* 3% MAX. AT CURB RAMPS



TYPE "C" CURB

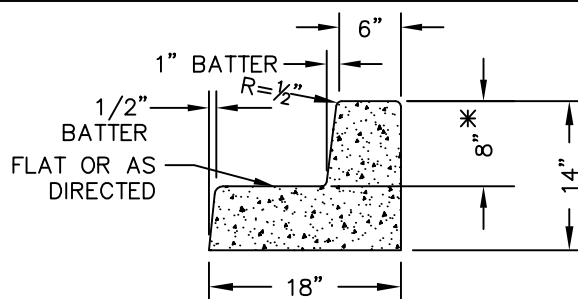


TYPE "E" CURB

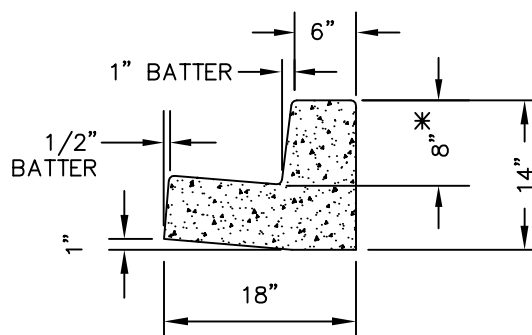


## TYPE "A" SIDEWALK

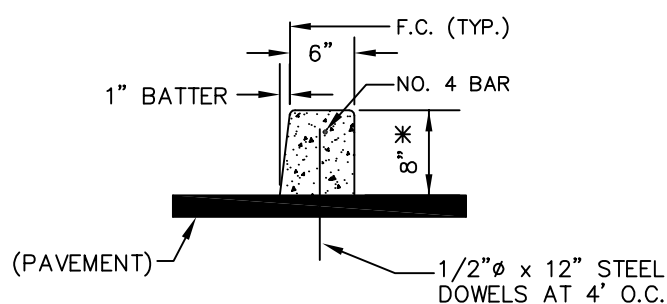
POUR CURB & GUTTER  
SEPARATELY FROM SIDEWALK



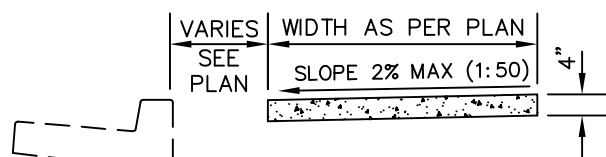
## TYPE "B" CURB



TYPE "D" CURB



TYPE "F" CURB



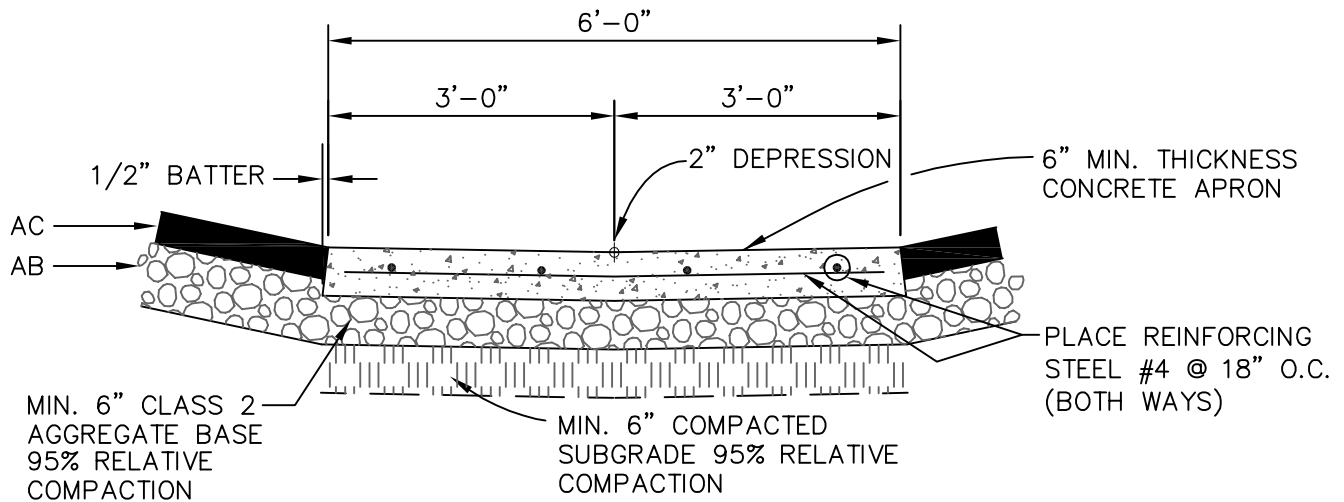
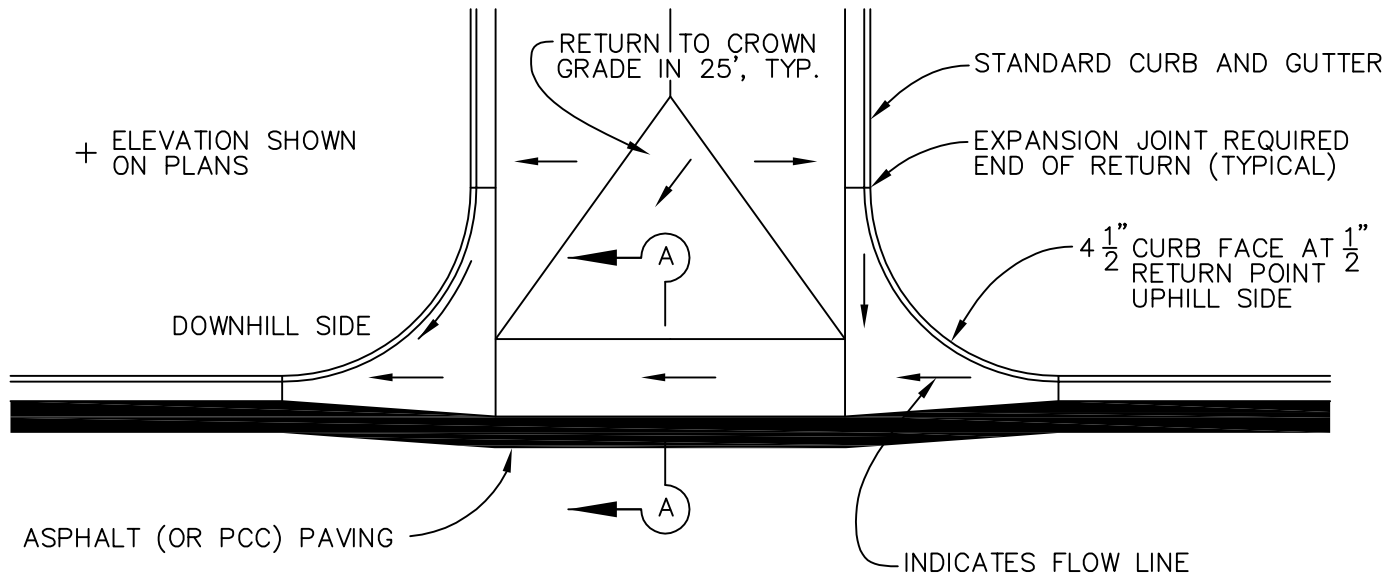
## TYPE "B" SIDEWALK

POURED SEPARATE FROM CURB

NOTES:

1. SEE DRAWING NO. 100 FOR GENERAL REQUIREMENTS.
2. \* 8" CURB HEIGHT UNLESS 6" HEIGHT APPROVED BY AGENCY ENGINEER.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	CURB, GUTTER AND SIDEWALK DETAILS				MAY 2008
					DWG. NO.
					105
		REV.	DATE	BY	



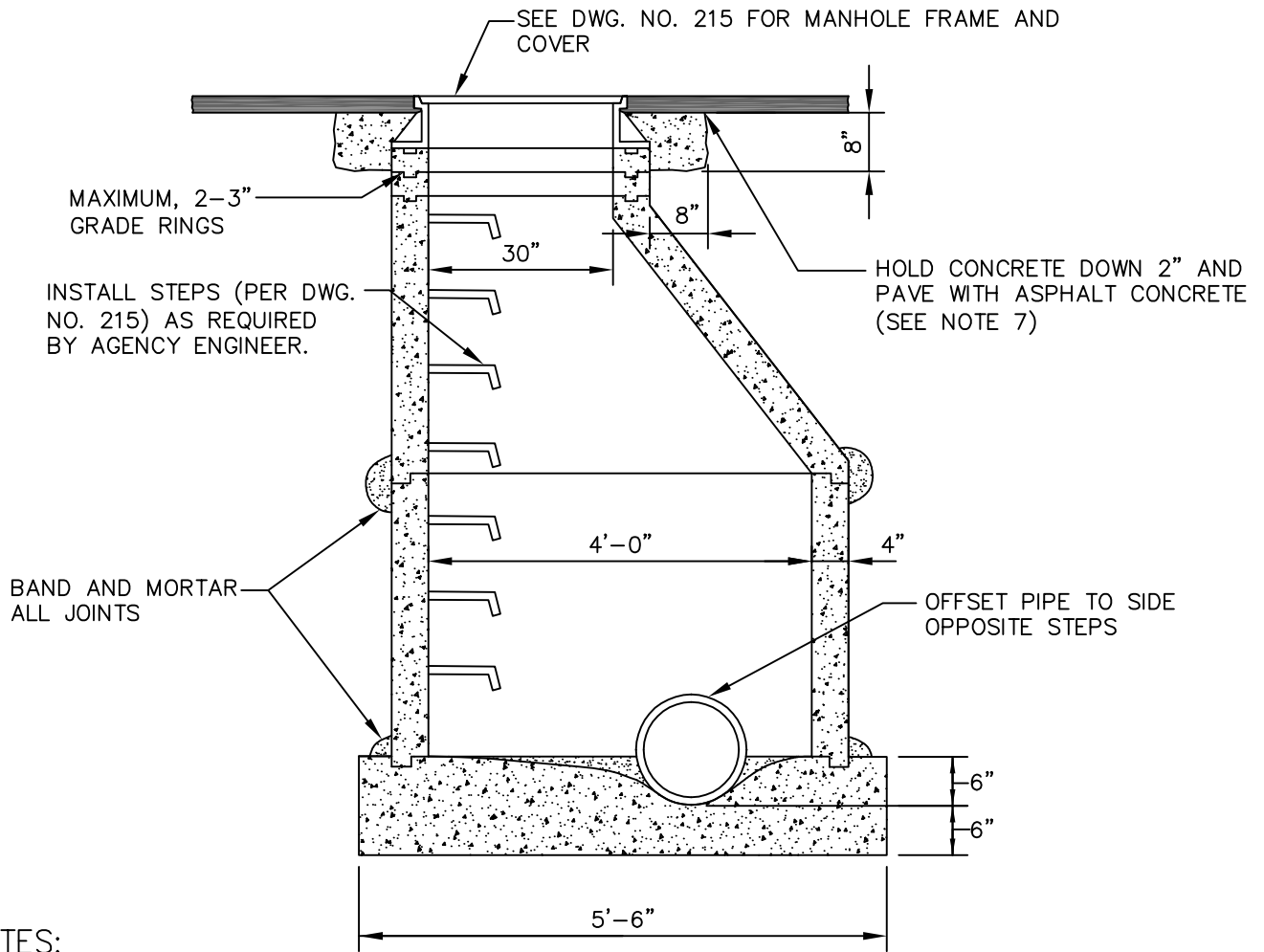
NOTES:

1. SEE DWG. NO. 100 REGARDING CONCRETE REQUIREMENTS.
2. ASPHALT CONCRETE SHALL BE HELD 1/4" HIGH AT EDGE OF CONCRETE.

UNIFORM STANDARDS  
ALL CITIES AND  
COUNTY OF MARIN

VALLEY  
GUTTER

			MAY 2008
			DWG. NO.
			110
REV.	DATE	BY	



NOTES:

1. BASE SHALL BE CLASS "B" ( 5 SACK ) CONCRETE PLACED AGAINST UNDISTURBED EARTH.
2. CONDUIT SHALL BE LAID THROUGH MANHOLE WHENEVER POSSIBLE.
3. CONCRETE CHANNELS SHALL BE BRUSH FINISHED.
4. PRECAST BARREL AND ECCENTRIC CONE SHALL CONFORM TO ASTM SPECIFICATION C-478 EXCEPT THAT TYPE II CEMENT SHALL BE USED.
5. MORTAR JOINTS SHALL BE 2 PARTS SAND TO 1 PART CEMENT.
6. MANHOLE FRAME MAY BE ADJUSTED EITHER BEFORE OR AFTER PAVING, BUT THE FINAL GRADE OF THE FRAME MUST MATCH THAT OF THE PAVING WITHIN 1/4".
7. WHERE FRAME IS SET AFTER PAVING, EXPOSED CONCRETE SURFACES WILL NOT BE ALLOWED EXCEPT AS PERMITTED BY AGENCY ENGINEER IN WRITING.
8. COLLAR SHALL BE CLASS "B" ( 5 SACK ) CONCRETE.
9. NO CONCRETE SHALL BE PLACED PRIOR TO FORM INSPECTION BY THE AGENCY ENGINEER.

UNIFORM STANDARDS  
ALL CITIES AND  
COUNTY OF MARIN

TYPE "A" MANHOLE  
(6" THROUGH 18" DIA. PIPE)

REV.

DATE

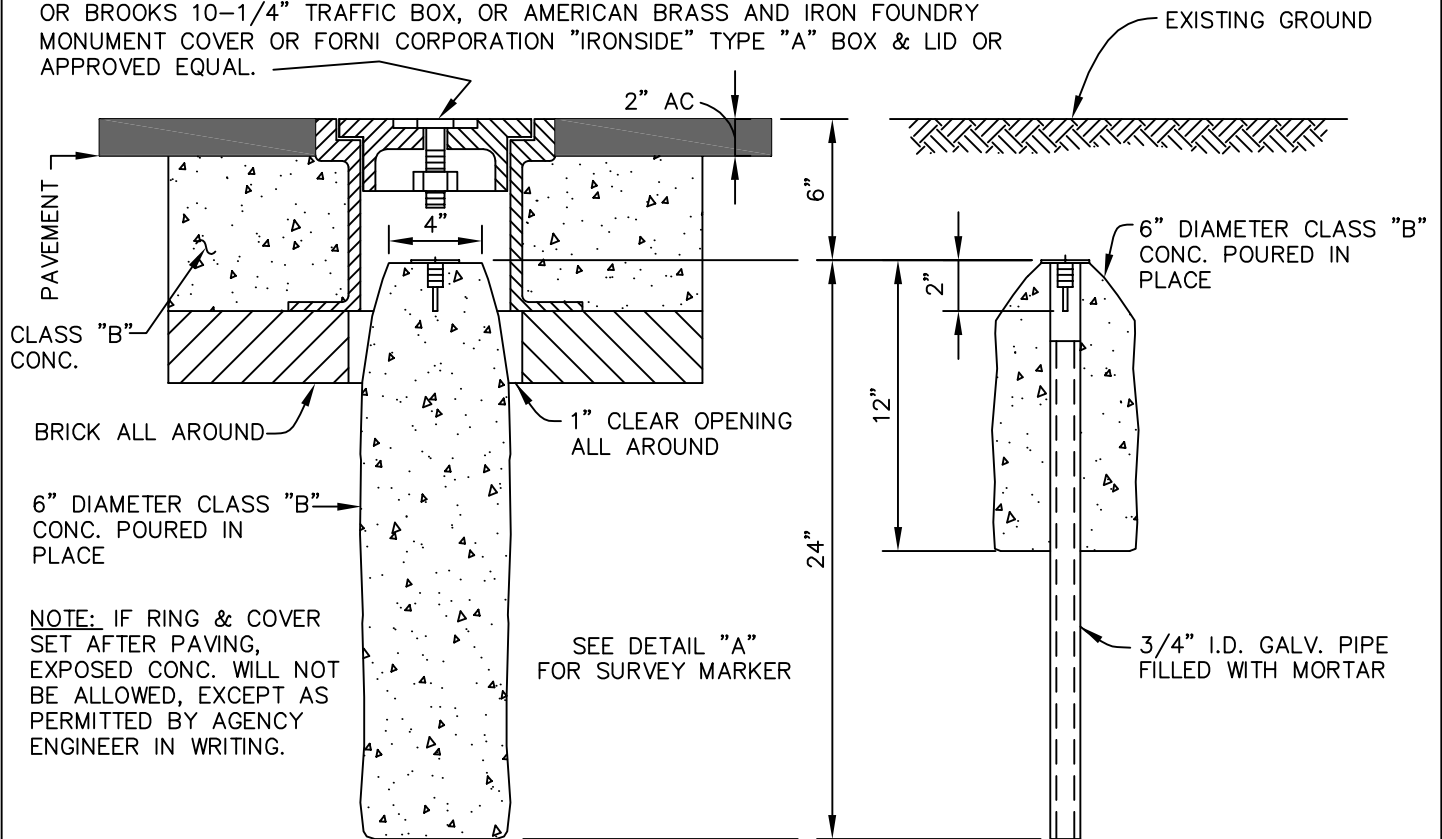
BY

MAY  
2008

DWG. NO.

205

C.I. MONUMENT RING AND COVER, PHOENIX P-2001-E, OR ARTMARK APC-51, OR BROOKS 10-1/4" TRAFFIC BOX, OR AMERICAN BRASS AND IRON FOUNDRY MONUMENT COVER OR FORNI CORPORATION "IRONSIDE" TYPE "A" BOX & LID OR APPROVED EQUAL.

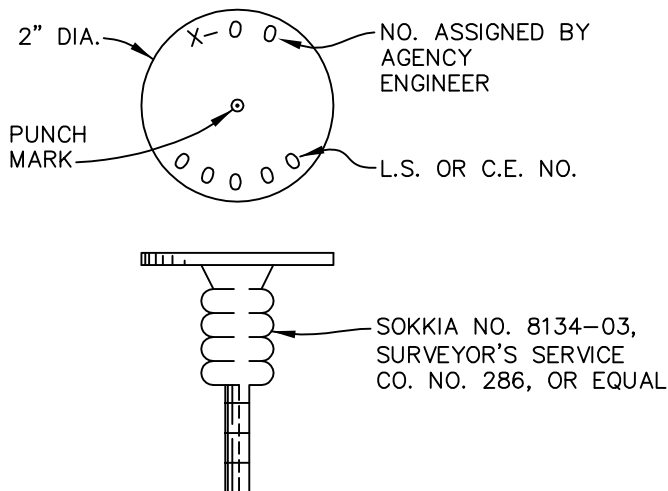


NOTE: IF RING & COVER SET AFTER PAVING, EXPOSED CONC. WILL NOT BE ALLOWED, EXCEPT AS PERMITTED BY AGENCY ENGINEER IN WRITING.

THE WORD "MONUMENT" SHALL BE CLEARLY STAMPED ON ALL COVERS.

## STREET MONUMENT

## PIPE MONUMENT



DETAIL "A"

### NOTES:

1. MONUMENTS SHALL BE SET AT THE LOCATIONS DESIGNATED ON THE PLANS AND ON THE FINAL MAP.
2. STREET MONUMENTS SHALL BE USED IN ALL PAVED AREAS AND OTHER LOCATIONS AS SHOWN ON THE PLANS. IRON PIPE MONUMENTS SHALL BE USED AT ALL OTHER LOCATIONS IN THE PUBLIC RIGHT OF WAY.
3. NO CONCRETE SHALL BE PLACED PRIOR TO EXCAVATION INSPECTION BY THE AGENCY ENGINEER.
4. MONUMENTS SET ON SUBDIVISION BOUNDARIES SHALL BE 3/4" DIAMETER GALVANIZED IRON PIPE 24" LONG FILLED WITH MORTAR.

UNIFORM STANDARDS  
ALL CITIES AND  
COUNTY OF MARIN

## MONUMENTS

REV.

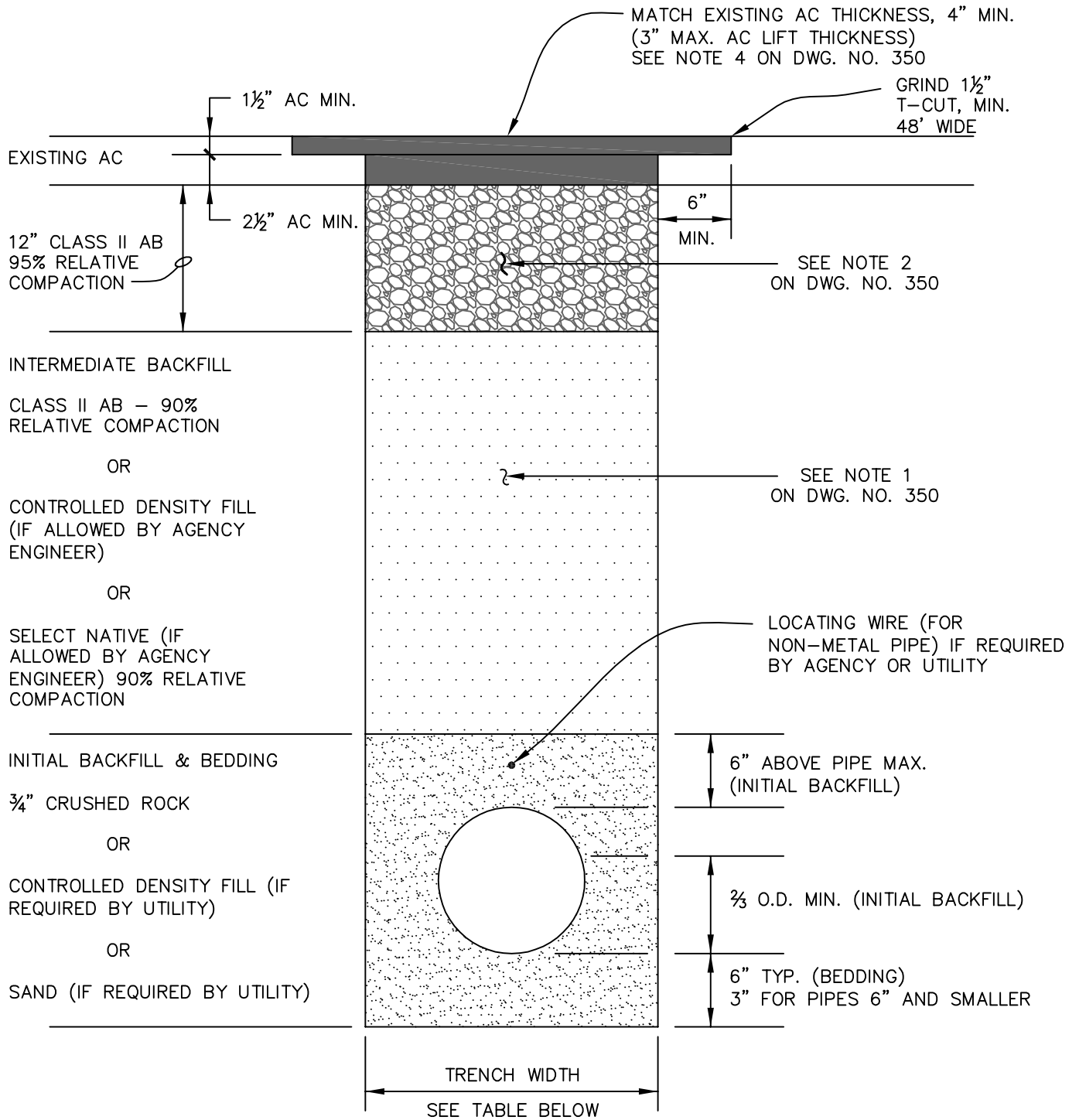
DATE

BY

MAY  
2008

DWG. NO.

300



**NOTE:** IF ROADWAY HAS EXISTING AC OVER CONCRETE, TRENCH RESTORATION SHALL BE DETERMINED BY THE AGENCY ENGINEER.

## TYPE 1

### ASPHALT CONCRETE PAVED STREETS

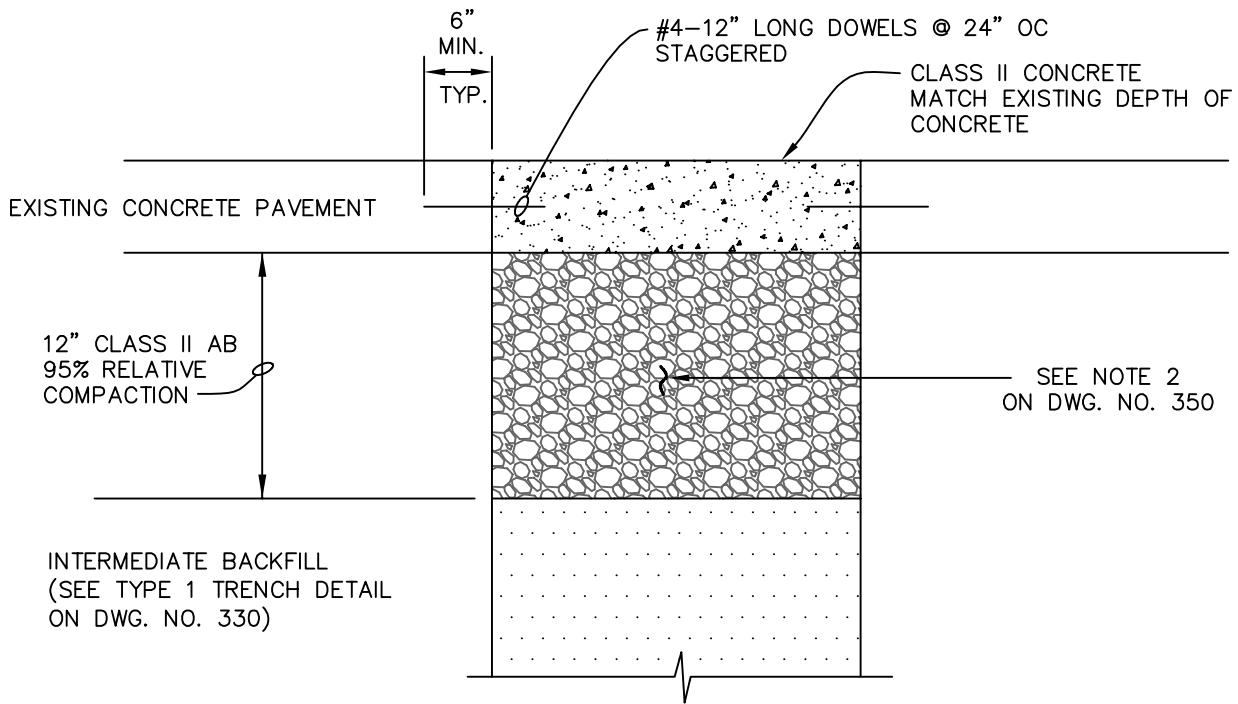
CONDUIT SIZE	LESS THAN 6"	6" TO 24"	OVER 24" TO 60"	OVER 60"
TRENCH WIDTH	O.D. + 12"	O.D. + 24"	O.D. + 24"	O.D. + 24"

FOR PIPES WITH MORE THAN 36" OF COVER, THE AGENCY ENGINEER MAY ALLOW A REDUCED TRENCH WIDTH INCLUDING A CHANGE TO A SELF-COMPACTING ENGINEERED TYPE OF INITIAL BACKFILL MATERIAL.

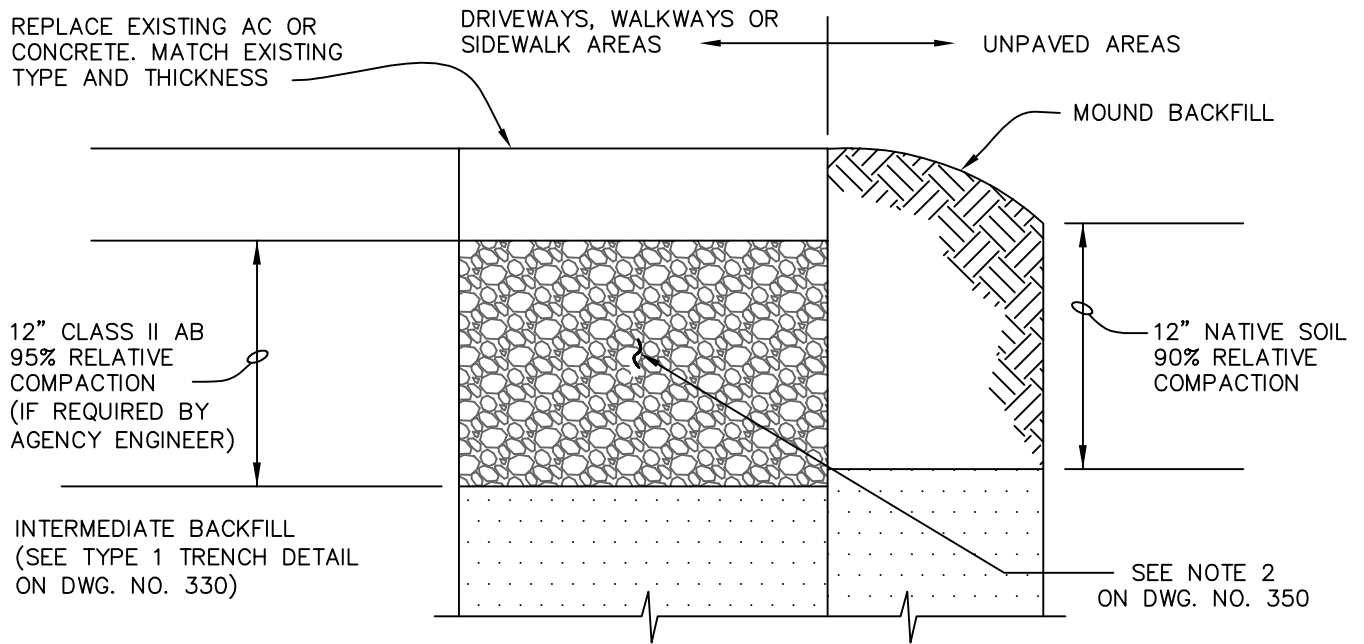
UNIFORM STANDARDS  
ALL CITIES AND  
COUNTY OF MARIN

TRENCH DETAILS  
SHEET 1 OF 3

			MAY 2008
			DWG. NO.
			330
REV.	DATE	BY	



TYPE 2  
CONCRETE PAVED STREETS



NOTE: FOR TRENCHES IN UNPAVED SHOULDERS, TOP 12" SHALL BE CLASS II AB  
95% RELATIVE COMPACTION.

TYPE 3  
AREAS OTHER THAN STREETS IN  
THE PUBLIC RIGHT OF WAY

UNIFORM STANDARDS  
ALL CITIES AND  
COUNTY OF MARIN

STANDARD  
TRENCH BACKFILL  
& RESURFACING  
SHEET 2 OF 3

			MAY 2008
			DWG. NO.
			340
REV.	DATE	BY	



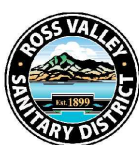
## MATERIAL AND COMPACTION REQUIREMENT FOR TRENCH BACKFILL

1. INTERMEDIATE BACKFILL SHALL BE CLASS II AGGREGATE BASE. SUITABLE NATIVE OR IMPORTED GRANULAR MATERIAL MAY BE USED IF ALLOWED BY AGENCY ENGINEER. RELATIVE COMPACTION SHALL BE AT LEAST 90%.
2. CLASS II AGGREGATE BASE SHALL CONFORM TO THE STATE STANDARD SPECIFICATIONS. MINIMUM RELATIVE COMPACTION SHALL BE 95%. IF PAVEMENT HAVING A STRUCTURAL SECTION GREATER THAN 15" IS CUT, ADDITIONAL BASE MATERIAL MAY BE REQUIRED BY THE AGENCY ENGINEER. BASE SHALL BE PLACED AND COMPACTED PRIOR TO PLACING OF TEMPORARY PAVING.
3. TESTING OF MATERIALS AND PERFORMANCE SHALL BE IN CONFORMANCE WITH THE METHODS STATED IN THE LATEST EDITION OF THE STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS, EXCEPT THAT RELATIVE COMPACTION MAY BE TESTED BY AASHTO METHOD T180, ASTM D-1557, OR TEST METHOD CALIF. 231 (NUCLEAR DENSITOMETER).
4. PLACE AC IN 3" MAX, LIFTS, EXCEPT FINAL LIFT SHALL BE 2 1/2" MAX. ADDITIONAL THICKNESS AND LIFTS OF ASPHALT CONCRETE MAY BE REQUIRED TO MATCH EXISTING STRUCTURAL SECTION ON MAJOR ROADS, OR PER LOCAL JURISDICTION REQUIREMENTS.
5. "JETTING" OF BACKFILL MATERIAL IS NOT PERMITTED.
6. THE USE OF PEA GRAVEL (OR SIMILAR ROUNDED AGGREGATE), IS NOT PERMITTED.
7. THE USE OF CONTROLLED DENSITY FILL (CDF) SHALL BE APPROVED BY THE AGENCY ENGINEER PRIOR TO PLACEMENT.
8. TRENCH EDGES SHALL BE TRIMMED TO A NEAT LINE AS REQUIRED BY THE AGENCY ENGINEER. TRIMMING SHALL BE BY SAWCUT OR ROTARY GRINDER.
9. THE SURFACE COURSE OF TRENCH RESTORATION SHALL EXTEND TO THE LIP OF GUTTER IF THE EDGE OF TRENCH IS WITHIN 4' OF THE LIP OF GUTTER, AND TO THE EDGE OF PAVEMENT IF THE EDGE OF TRENCH IS WITHIN 4' OF AN UNPAVED SHOULDER.
10. CONTRACTOR MUST SHORE ALL TRENCHES IN CONFORMANCE WITH OSHA AND STATE SAFETY STANDARDS.

UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN	TRENCH NOTES SHEET 3 OF 3				MAY 2008
					DWG. NO.
					350
		REV.	DATE	BY	



1. FRAME AND COVER SHALL CONFORM TO ROAD SURFACE FINISH GRADE WITHIN 1/8".

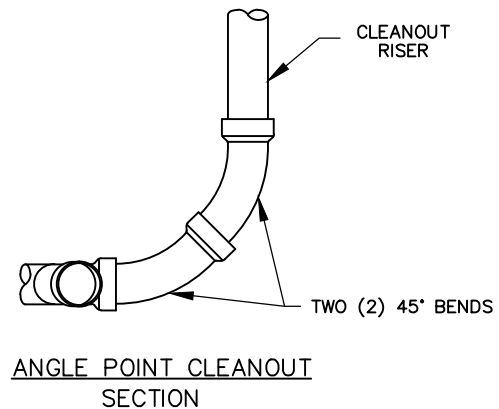
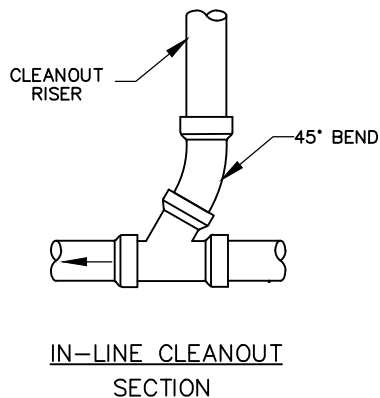
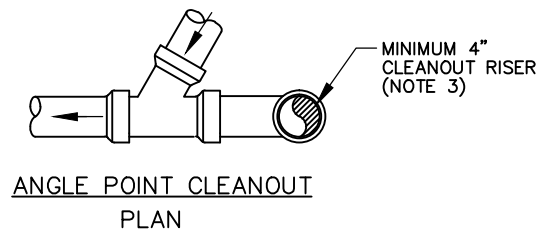
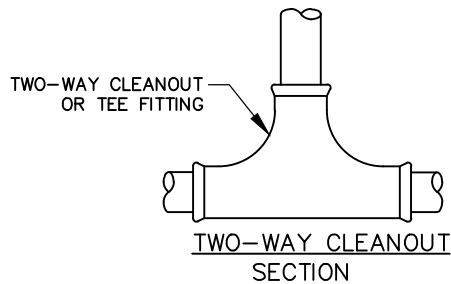
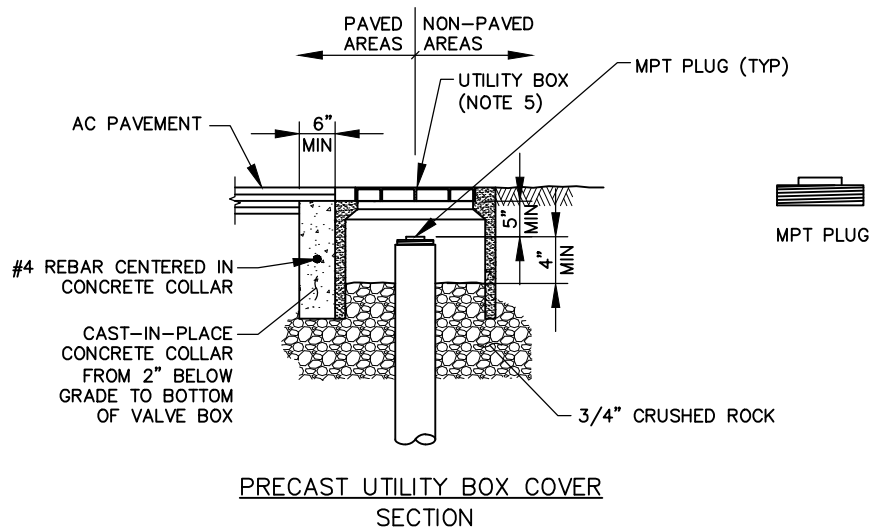


NO.	BY	DATE	REVISION

# ROSS VALLEY SANITARY DISTRICT STANDARD DRAWINGS

### MANHOLE ADJUSTMENT TO FINISH GRADE

SD-11



**NOTES:**

- CLEAN-OUT SHALL BE THE SAME SIZE AS THE SIDE SEWER.
- FITTINGS FOR CLEANOUTS AND SIDE SEWERS SHALL BE PER THE DISTRICT'S APPROVED MATERIALS LIST, SEE SIDE SEWER FITTINGS.
- ANGLE POINT CLEAN-OUT REQUIRED AT SIDE SEWER DEFLECTIONS EQUAL TO OR GREATER THAN 45°, OR/AND AT INTERVALS NOT TO EXCEED NINETY FEET OF LAID PIPE LENGTH.
- CLEAN-OUT IS REQUIRED AT INTERVALS NOT TO EXCEED NINETY FEET OF LAID PIPE LENGTH. IF TWO-WAY (TEE) CLEAN-OUTS ARE BEING INSTALLED AT BOTH ENDS, THE LENGTH IN BETWEEN CAN BE UP TO ONE HUNDRED AND EIGHTY FEET.
- THE CLEAN-OUT NEAREST TO SEWER MAIN (NEAR THE PROPERTY LINE) SHALL BE PROVIDED WITH A UTILITY BOX. ALSO, THE DISTRICT ENCOURAGES THE USE OF TWO-WAY CLEANOUTS WHERE FEASIBLE FOR PROPERTY LINE CLEANOUTS.
- ALL SEWER LATERAL CLEANOUTS SHALL BE INSTALLED IN PRECAST UTILITY BOXES. PRECAST UTILITY BOXES SHALL BE PER DISTRICT'S APPROVED MATERIALS LIST. ALL COVERS SHALL BE MARKED "SEWER". CLEANOUT BOXES SHALL BE REQUIRED FOR ALL CLEANOUTS IN PAVED AREAS.
- THE CLEAN-OUT NEAREST TO BUILDING/HOME SHALL HAVE AN BACKWATER PROTECTION DEVICE PER SD-31.



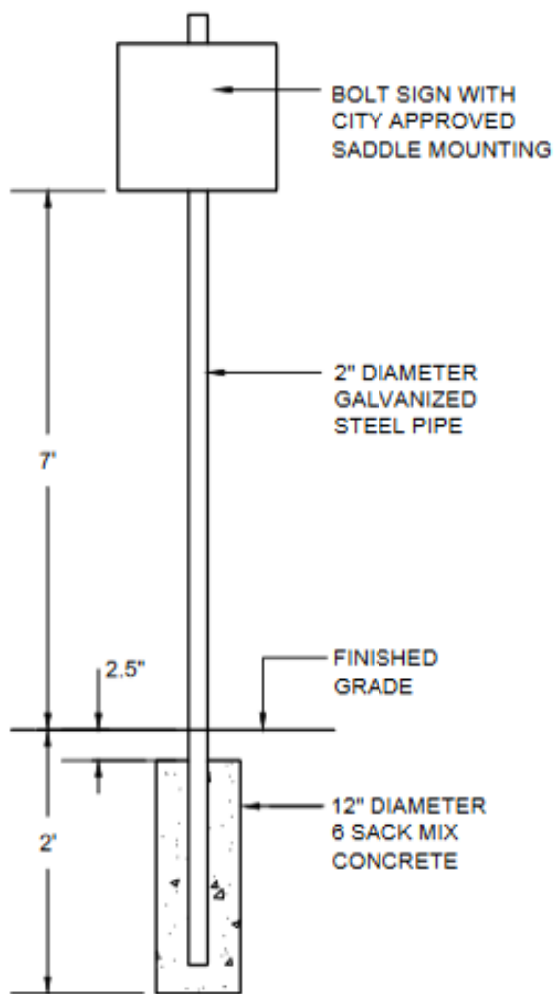
NO.	BY	DATE	REVISION

**ROSS VALLEY SANITARY DISTRICT  
STANDARD DRAWINGS**

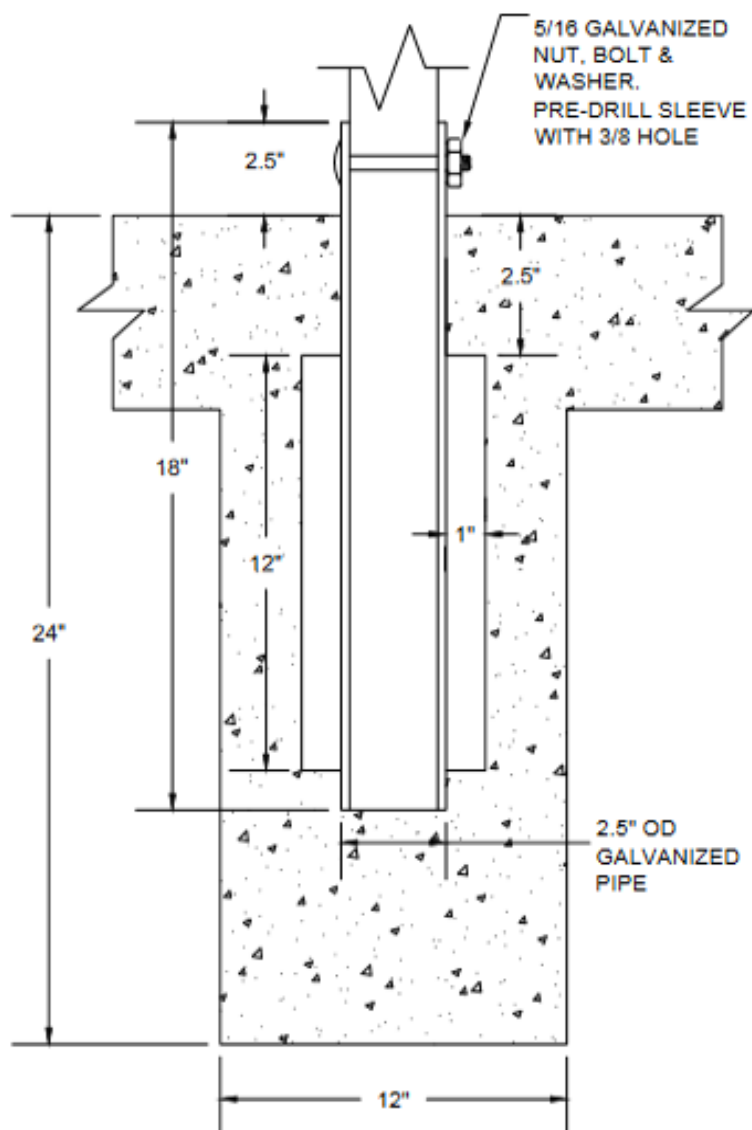
**SIDE SEWER CLEANOUT**

**SD-30**

**2020**



TRAFFIC SIGN  
INSTALLATION



1" WIDE WING  
WELDED

SLEEVE POST DETAIL  
FOR TRAFFIC SIGN INSTALLATION  
IN CONCRETE SIDEWALK

TRAFFIC SIGN  
INSTALLATION

REV. DATE BY

MAY  
2013  
DWG. NO.  
**310N**

Signature   
Public Works Director, Fairfax

END OF ADDENDUM NO. 1