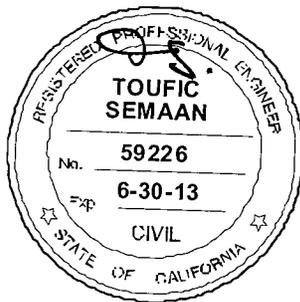
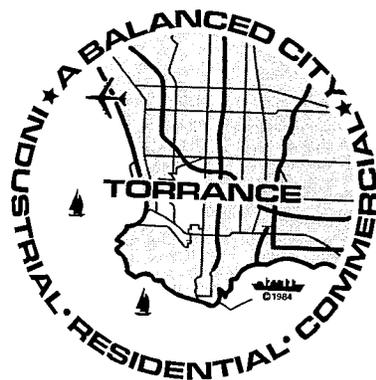


PROPOSAL, SPECIFICATIONS, BOND  
AND AFFIDAVIT  
FOR THE CONSTRUCTION OF  
MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111

B2012-48



TOUFIC (TED) SEMAAN  
Acting City Engineer

NOVEMBER 2012



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**SECTION A**

**NOTICE INVITING BIDS**

**CITY OF TORRANCE, CALIFORNIA  
NOTICE INVITING BIDS**

Notice is hereby given that sealed bids for performing the following described work will be received at the Office of the City Clerk of the City of Torrance, California, **until 2:00 p.m. on Thursday, December 13, 2012**, after which time they will be publicly opened and read at 2:15 p.m. in the Council Chambers of said City:

**CONSTRUCTION OF  
MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111  
B2012-48**

Plans, Bid Schedule and Specifications are available for viewing and printing by prospective bidders and subcontractors on the City's website at <http://www.torranceca.gov/25435.htm>

Those who only view and/or print the Plans, Bid Schedule and Specifications from the City's website will not automatically be added to the City's Plan Holder list for this project.

**The official and required form of Proposal must be obtained at the Office of the City Clerk (310) 618-2870, City Hall, 3031 Torrance Boulevard, Torrance, California. There is no cost if picked up at City Hall. A payment of \$5 is required if requested by mail.** The amount includes tax and is not refundable. A prospective bidder must provide to the City Clerk the firm's name, address, telephone and fax numbers, a contact person and a valid email address. This will ensure that your firm is listed as a "Plan Holder" and that you will be informed of any and all information issued subsequent to obtaining the official form of Proposal. Addenda will be issued only by email and only to those that provide the required information to the City Clerk. Receipt of any Addendum must be acknowledged by a bidder in its submitted form of Proposal.

Full-size 24" x 36" Plans and a bound Specifications booklet may also be obtained at the Office of the City Clerk (310) 618-2870, City Hall, 3031 Torrance Boulevard, Torrance, California upon payment of \$20 if picked up at City Hall, or payment of \$25 if requested by mail. Both amounts include tax. Neither amount is refundable. The \$25 includes a copy of the official form of Proposal.

If requesting any item(s) by mail, please send check to the following:

**CITY OF TORRANCE  
OFFICE OF THE CITY CLERK  
3031 TORRANCE BLVD  
TORRANCE, CA 90503  
ATTN: B2012-48**

The Engineer's estimate of the contract total is between \$210,000 and \$230,000. All work shall be completed within 25 working days from the date of the Notice to Proceed (NTP).

Per Division 2, Chapter 2 of the Torrance Municipal Code, the Torrance City Council may reject any and all bids, waive any informality or irregularity in such bids, and determine the lowest responsible bidder. No facsimile bids shall be accepted by the City.

Substitution of securities for withheld funds is permitted per Section 22300 of the Public Contract Code.

The City has determined that a Class **A** Contractor's license is necessary to bid this project, but reserves the right to accept another Class at the sole discretion of either the Public Works Director or Engineer.

Pursuant to Section 1770 et seq. of the California Labor Code, the minimum prevailing rate of per diem wages for each craft, classification, or type of workman needed to execute the Contract shall be those determined by the Director of Industrial Relations of the State of California. These wages are set forth in the General Prevailing Wage Rates for this project, available from the California Department of Industrial Relations' Internet web site at <http://www.dir.ca.gov/DLSR/PWD>.

By order of the City Council of the City of Torrance, California.

For further information, contact Stephanie Comon, Assistant Engineer at (310) 618-3079 in the Public Works Department or via the main office at (310) 781-6900.

**SECTION B**

**INSTRUCTIONS TO BIDDERS**

## CITY OF TORRANCE, CALIFORNIA

### INSTRUCTIONS TO BIDDERS

#### A. QUALIFICATION OF BIDDERS

##### 1. Competency of Bidders

The Bidder shall be thoroughly competent and capable of satisfactorily performing the Work covered by the Bid. As specified in the Bid Documents, the Bidder shall furnish statements of previous experience on similar work. When requested, the Bidder shall also furnish the plan of procedure proposed; the organization, machinery, plant and other equipment available for the Work; evidence of its financial condition and resources; and any other such documentation as may be required by the City to determine if the Bidder is responsible.

##### 2. Contractor's License

At the time of submitting the Bid, the Bidder shall be licensed as a contractor in accordance with the provisions of Chapter 9, Division 3, of the California Business and Professions Code. The required prime contractor license class for the Work is shown in the project Notice Inviting Bids. However, the City reserves the right to award the Contract to a contractor with another class if the City determines that the license is proper for the work.

#### B. BIDDER RESPONSIBILITY

A responsible Bidder is a Bidder who has demonstrated the attribute of trustworthiness, as well as ability, fitness, capacity and experience to satisfactorily perform the work.

Bidders are notified that, in accordance with Division 2, Chapter 2 of the Torrance Municipal Code, the City Council may determine whether the Bidder is responsible based on a review of the Bidder's performance on other contracts.

If, based on the provision and criteria in Division 2, Chapter 2 of the Torrance Municipal Code, the Engineering Director proposes not to recommend the award of contract to the apparent low bidder, the Director shall notify the Bidder in writing of its intention to recommend to the City Council that the Council award the contract to the 2<sup>nd</sup> lowest responsible bidder. If the Bidder presents evidence in rebuttal to the recommendation, the Director shall evaluate the merits of such evidence, and based on that evaluation, make a recommendation to the City Council.

#### C. ADDENDA TO THE CONTRACT DOCUMENTS

The City may, for any reason, issue Addenda to the Contract Documents during the period of advertising. The Bidder shall acknowledge the receipt of the Addenda in their Bid. Failure of the Bidder to do so may result in the rejection of the Bid as non-responsive.

D. PREPARATION OF THE BID

1. Examination of Site, Plans and Specifications

Prior to submitting a Bid, the Bidder shall examine the Plans and the Work site, carefully read the Specifications, and satisfy itself that it has the abilities and resources to complete the Work. The Bidder agrees that if it is awarded the Contract, no claim will be made against the City based on ignorance or misunderstanding of the provisions of the Contract Documents, the nature and amount of the work, and the physical and climatic conditions of the work site.

The Contractor shall have included in the contract price a sufficient sum to cover all items, including labor, materials, tools, equipment and incidentals, that are implied or required for the complete improvements as contemplated by the drawings, specifications, and other contract documents.

2. Estimated Quantities

The quantities shown in the Bid are approximate only. The Contractor will be paid for the actual quantities of work based on field measurements as provided for in these Specifications. The City reserves the right to increase or decrease the amount of any item or portion of work to be performed or materials furnished, or to delete any item, in accordance with the Specifications.

3. Bid Instructions and Submissions

The Bid shall be submitted on the Bid Proposal forms provided by the City Clerk of the City of Torrance and/or on forms subsequently issued as part of any Addendum, when provided by the Engineer. All Bid Documents must be completed, executed and submitted with the Bid by the Bidder.

Required Submittal Documents:

- 1) Bidder's Proposal
- 2) Acknowledgment Of Addenda Received
- 3) Contractor's Affidavit
- 4) Bid Bond (10%)
- 5) List of Subcontractors
- 6) References (2 pages)
- 7) Violations of Federal or State Law
- 8) Equal Employment Opportunity Certification
- 9) Debarment and Suspension Certification

All prices submitted will be considered as including any and all sales or use taxes. In the case of discrepancy between unit bid price and total bid, the unit price shall prevail.

4. Disadvantaged Business Enterprise (DBE) Requirements

There is no DBE requirement for this project. However, bidders are encouraged to perform outreach to DBE firms that can provide needed services, etc.

E. BID BOND

The Bid must be accompanied by either cash, a certified or cashier's check or a surety bond (bid bond) payable to the City of Torrance. Bids must be submitted on the proposal forms furnished by the Public Works Department. The Bid Guaranty shall be in an amount equivalent to at least 10% of the Total Contract Bid Price.

F. NONRESPONSIVE BIDS AND BID REJECTION

1. A Bid in which any one (1) of the required Bid proposal documents are not completed, executed and submitted may be considered non-responsive and be rejected.
2. A Bid in which the Contract Unit Prices are unbalanced, which is incomplete or which shows alteration of form or irregularities of any kind, or which contains any additions or conditional or alternate Bids that are not called for, may be considered non-responsive and be rejected.

G. AWARD OF CONTRACT

In accordance with Division 2, Chapter 2 of the Torrance Municipal Code, the City Council reserves the right to reject any and all bids received, to take all bids under advisement for a period not-to-exceed sixty (60) days after date of opening thereof, to waive any informality or irregularity in the Bid, and to be the sole judge of the merits of material included in the respective bids received.

H. EXECUTION OF CONTRACT

After the Contract is awarded, the awarded shall execute the following ten (10) documents:

- 1) Bond (100% of Bid)
- 2) Labor and Material Bond (100% of Bid)
- 3) Public Works Agreement
- 4) Verification of Insurance Coverage (Certificates and Endorsements)
- 5) Construction or Service Contract Endorsement
- 6) Workers' Compensation Insurance Certificate
- 7) Construction Permit Application Form
- 8) Business License Application Form

I. APPRENTICESHIP EMPLOYMENT STANDARDS

The Contractor is directed to the provisions in Sections 1776, 1777.5 and 1777.6 of the California Labor Code concerning the employment of apprentices by the contractor or any subcontractor under them.

J. PERMITS, LICENSES AND PUBLIC WORKS AGREEMENT

The Contractor shall procure and execute all permits, licenses, pay all charges and fees, and give all notices necessary and incidental to the completion of the Work. The Contractor shall execute a Public Works Agreement. No fee is charged for a Construction-Excavation Permit issued by the City of Torrance for a public works project. The Contractor shall obtain a City of Torrance Business License.

K. INSURANCE

The Contractor shall maintain Insurance as specified in the Public Works Agreement included in Section D of these Specifications.

L. PRE-BID INQUIRIES

A Bidder with a Pre-Bid Inquiry must submit its question(s) in writing to the Torrance Public Works Department. Any and all questions must be emailed to Mr. Craig Bilezerian, Engineering Manager at [cbilezerian@torranceCA.gov](mailto:cbilezerian@torranceCA.gov) and to Ms. Stephanie Comon, Assistant Engineer at [scomon@torranceca.gov](mailto:scomon@torranceca.gov) Please list "**Maple/Sepulveda RFI**" in the subject line of the email.

**All questions must be received no later than 5:00 p.m. on the Tuesday, 9 calendar days prior to the date for opening the bid.** Questions received after this date may not be considered. For questions of a general nature, a bidder may call Ms. Stephanie Comon directly at (310) 618-3079 or via the main office line at (310) 781-6900.

**SECTION C**  
**BID DOCUMENTS**

## BIDDER'S PROPOSAL

Company: \_\_\_\_\_

Total Bid: \_\_\_\_\_ (PROVIDE NUMBERS)

### MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111 B2012-48

Honorable Mayor and Members  
of the Torrance City Council  
Torrance, California

Members of the Council:

In accordance with the Notice Inviting Bids pertaining to the receiving of sealed proposals by the City Clerk of the City of Torrance for the above titled improvement, the undersigned hereby proposes to furnish all Work to be performed in accordance with the Plans, Specifications, Standard Drawings, and the Contract Documents, for the unit price or lump sum set forth in the following schedule.

### BID SCHEDULE

ITEM NO.	ITEM DESCRIPTION	SPEC	QTY.	UNIT OF MEASURE	UNIT PRICE	TOTAL BID
<b>SECTION 1 – CONTRACT ADMINISTRATION</b>						
1	MOBILIZATION/DEMobilIZATION (NOT TO EXCEED 5% OF TOTAL BID)	9-3.4	1	LS	\$	\$
2	STORMWATER CONTROL/BMPs	7-8.6.2	1	LS	\$	\$
3	CONSTRUCTION SURVEYING	2-9	1	LS	\$	\$
4	SURVEY MONUMENTS	2-9.1	6	EA	\$	\$
5	TRAFFIC CONTROL	7-10.1	1	LS	\$	\$
6	CONSTRUCTION SIGN	7-15	1	EA	\$	\$
7	PORTABLE CHANGEABLE MESSAGE SIGNS	7-15	4	EA	\$	\$
8	CONSTRUCTION SCHEDULE	2-9	1	LS	\$	\$
<b>SECTION 2 – STREET IMPROVEMENTS</b>						
9	CLEARING AND GRUBBING	300-1	1	LS	\$	\$
10	REMOVE EXISTING PCC SIDEWALK OR ACCESS RAMP AND UNDERLYING BASE/SUBGRADE	300-1.3.2c 6-1.3	2500	SF	\$	\$
11	REMOVE EXISTING PCC CURB AND GUTTER (HEIGHT AND WIDTH VARIES), INCLUDING 1-FOOT SLOT TRENCH	303-5	330	LF	\$	\$

ITEM NO.	ITEM DESCRIPTION	SPEC	QTY.	UNIT OF MEASURE	UNIT PRICE	TOTAL BID
12	UNCLASSIFIED EXCAVATION (AFTER CURB/GUTTER REMOVAL) TO DEPTH OF 16 INCHES BELOW FUTURE GUTTER GRADE	300-2	60	CY	\$	\$
13	8" CRUSHED MISC. BASE (UNDER AC ONLY)	200-2.4 301-2.1 301-2.4	25	CY	\$	\$
14	CONSTRUCT PCC CURB AND GUTTER PER SPPWC STD PLAN 120-2 [TYPE: A2-8(200)] OVER 8" CMB. MATCH EXISTING CURB HEIGHT AND GUTTER WIDTH	201-1 303-5	330	LF	\$	\$
15	CONSTRUCT 3.5" THICK PCC SIDEWALK PER STD PLAN 112-2 AND 113-2 OVER 4" CMB	303-5.1.1 201-1, 303-5	1500	SF	\$	\$
16	CONSTRUCT 3.5" THICK PCC CURB RAMP ON 4" CMB PER SPPWC 111-4 (CASE A TYPE 1) WITH NO DETECTABLE WARNING SURFACE PANEL. CURB RAMP MAY NOT BE MONOLITHIC WITH CURB AND GUTTER	201-1 303-5	1	EA	\$	\$
17	CONSTRUCT 2" ASPHALT CONCRETE (C2 - PG70-10)	203-6 302-5.9	12	TONS	\$	\$
18	CONSTRUCT 6" THICK SECTION OF 1-SACK CEMENT AND SAND SLURRY MIX (100-E-100)	86-2.05C	17	CY	\$	\$
19	TYPE II SLURRY SEAL WITH 2.5% LATEX, INCLUDING PREPARATORY CRACK SEALING	203-5 302-4	21000	SF	\$	\$
20	REMOVE EXISTING FIRE HYDRANT; FURNISH AND INSTALL FIRE HYDRANT IN LOCATION INDICATED ON "ROADWAY WIDENING PLAN" PER CITY OF TORRANCE STD PLAN T 706	215-2 306-1.4.7 313-4	1	LS	\$	\$
21	ADJUST EXISTING UTILITY TO GRADE	301-1.6 301-1.7	4	EA	\$	\$
22	ADJUST ELECTRICAL MANHOLE FRAME & COVER TO GRADE	301-1.6 301-1.7	1	EA	\$	\$
23	RELOCATE TRAFFIC SIGNAL PULL BOX	5-4	2	EA	\$	\$
<b>SECTION 3 – TRAFFIC SIGNAL UPGRADES</b>						
24	REMOVE EXISTING OVERHEAD ILLUMINATED STREETNAME SIGN. FURNISH AND INSTALL NEW INTERNALLY ILLUMINATED STREET NAME SIGN ON TRAFFIC SIGNAL MAST ARM	86-6.09	4	EA	\$	\$
25	REMOVE EXISTING SIGN FROM SIGNAL POLE OR MAST ARM. FURNISH AND INSTALL NEW SIGN ON TRAFFIC SIGNAL POLE OR MAST ARM		8	EA	\$	\$
26	REMOVE EXISTING PEDESTRIAN INDICATION. FURNISH AND INSTALL NEW COUNTDOWN PEDESTRIAN INDICATION	86-4.06	8	EA	\$	\$

ITEM NO.	ITEM DESCRIPTION	SPEC	QTY.	UNIT OF MEASURE	UNIT PRICE	TOTAL BID
27	FURNISH AND INSTALL NEW VIDEO DETECTION SYSTEM, COMPLETE IN PLACE, INCLUDING ALL WIRING AND DISCONNECT OF EXISTING PRIMARY DETECTOR LOOPS	86-5.01B	1	LS	\$	\$
<b>SECTION 4 – SIGNS, STRIPING, AND PAVEMENT MARKINGS</b>						
28	REMOVE EXISTING SIGN AND POST	315	2	EA	\$	\$
29	FURNISH AND INSTALL 4 NEW SIGNS ON 2 NEW POSTS	315-1 56-2.06	2	EA	\$	\$
30	INSTALL TRAFFIC LOOP DETECTORS	86-5.01A	2	EA	\$	\$
31	THERMOPLASTIC STRIPING AND PAVEMENT MARKINGS	210-1.6.2 84-2 85-1.09	1	LS	\$	\$

**TOTAL BID PRICE \$** \_\_\_\_\_  
(Figures)\*

**TOTAL BID PRICE:** \_\_\_\_\_  
(Words)\*

**\*BID MAY BE REJECTED IF TOTAL IS NOT SHOWN IN FIGURES AND WORDS.**

**B2012-48**

**BIDDER'S PROPOSAL (Continued) B2012-48**

The undersigned furthermore agrees to enter into and execute a contract, with necessary bonds, at the unit prices set forth herein and in case of default in executing such contract, with necessary bonds, the check or bond accompanying this bid and the money payable thereon shall be forfeited thereby to and remain the property of the City of Torrance.

The above unit prices include all work appurtenant to the various items as outlined in the Specifications and all work or expense required for the satisfactory completion of said items. In case of discrepancies between unit prices and totals, the unit prices shall govern.

The undersigned declares that it has carefully examined the Plans, Specifications, and Contract Documents, and has investigated the site of the work and is familiar with the conditions thereon.

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_ By: \_\_\_\_\_

Contractor's State License No. \_\_\_\_\_ Class \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

**ACKNOWLEDGMENT OF ADDENDA RECEIVED – B2012-48**

The Bidder shall acknowledge the receipt of addenda by placing an "X" by each addendum received.

Addendum No. 1 \_\_\_\_\_

Addendum No. 2 \_\_\_\_\_

Addendum No. 3 \_\_\_\_\_

Addendum No. 4 \_\_\_\_\_

Addendum No. 5 \_\_\_\_\_

If an addendum or addenda have been issued by the City and not noted above as being received by the Bidder, the Bid Proposal may be rejected.

\_\_\_\_\_  
Bidder's Signature

\_\_\_\_\_  
Date



**CONTRACTOR'S AFFIDAVIT (CONTINUED)**

7. That the Contractor did not, directly or indirectly, submit the Contractor's bid price or any breakdown thereof, or the contents thereof, or divulge information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, or to any individual or group of Individuals, except to the City of Torrance, or to any person or persons who have a partnership or other financial interest with said Contractor in its business.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_.

Subscribed and Sworn to  
before me this \_\_\_\_\_ day \_\_\_\_\_ (Contractor)  
of \_\_\_\_\_, 20\_\_\_. \_\_\_\_\_  
(Title)

\_\_\_\_\_  
Notary Public in and for said  
County and State.  
(Seal)

**BID BOND (10%)**

**B2012-48**

**KNOW ALL MEN BY THESE PRESENTS:** That we, \_\_\_\_\_  
\_\_\_\_\_

as principal, and \_\_\_\_\_

as sureties, are held and firmly bound unto the City of Torrance, State of California, in the penal sum of \_\_\_\_\_ dollars (\$\_\_\_\_\_), for the payment whereof we hereby bind ourselves, our successors, heirs, executors or administrators jointly and severally, firmly by these presents.

The condition of this obligation is such that, whereas the above bounded principal is about to file with and submit to the City of Torrance a bid or proposal for the performance of certain work as required in the City of Torrance, Project No. B201x-xx; said work being: the Construction of **MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111**, and in compliance with the Specifications therefor under an invitation of said City contained in a notice or advertisement for bids or proposals; now if the bid or proposal of the said principal shall be accepted and if the said work be thereupon awarded to the principal by said City and if the said principal shall enter into a contract with the said City in accordance with said bid or proposal, or if the bid or proposal of the said principal is rejected, then this bond shall be void and of no effect and otherwise in full force and effect.

**WITNESS** our hands this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Principal

\_\_\_\_\_  
Surety/Attorney-in-Fact

\_\_\_\_\_  
Signature

Name: \_\_\_\_\_  
Local Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone No.: \_\_\_\_\_  
Fax No.: \_\_\_\_\_

**LIST OF SUBCONTRACTORS  
B2012-48**

The Bidder is required to fill in the following blanks in accordance with the provisions of the Subletting and Subcontracting Fair Practices Act (Chapter 2 of Division 5, Title 1 of the Government Code of the State of California). The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of Title 49 CFR (Code of Federal Regulations) part 26 in the award and administration of US DOT assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the recipient deems appropriate. Each subcontract signed by the bidder must include this assurance.

Failure of the bidder to fulfill the requirements of the Special Provisions for submittals required to be furnished after bid opening, including but not limited to escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contracts.

Name Under Which Subcontractor is Licensed: \_\_\_\_\_

Subcontractor's Address: \_\_\_\_\_

Specific Description of Sub-Contract: \_\_\_\_\_

License Number: \_\_\_\_\_ CA License Classification/Type: \_\_\_\_\_

Name Under Which Subcontractor is Licensed: \_\_\_\_\_

Subcontractor's Address: \_\_\_\_\_

Specific Description of Sub-Contract: \_\_\_\_\_

License Number: \_\_\_\_\_ CA License Classification/Type: \_\_\_\_\_

Name Under Which Subcontractor is Licensed: \_\_\_\_\_

Subcontractor's Address: \_\_\_\_\_

Specific Description of Sub-Contract: \_\_\_\_\_

License Number: \_\_\_\_\_ CA License Classification/Type: \_\_\_\_\_

Subcontractors listed must be properly licensed under the laws of the State of California for the type of work which they are to perform. Do not list alternate subcontractors for the same work.

**REFERENCES (Page 1 of 2)**  
**B2012-48**

(Work similar in magnitude and degree of difficulty completed by Contractor within the past three [3] years.)

1. Name (Firm/Agency): \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Person: \_\_\_\_\_ Telephone No.: \_\_\_\_\_  
Title of Project: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Date of Completion: \_\_\_\_\_ Contract Amount: \$ \_\_\_\_\_

2. Name (Firm/Agency): \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Person: \_\_\_\_\_ Telephone No.: \_\_\_\_\_  
Title of Project: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Date of Completion: \_\_\_\_\_ Contract Amount: \$ \_\_\_\_\_

3. Name (Firm/Agency): \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Person: \_\_\_\_\_ Telephone No.: \_\_\_\_\_  
Title of Project: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Date of Completion: \_\_\_\_\_ Contract Amount: \$ \_\_\_\_\_

4. Name (Firm/Agency): \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Person: \_\_\_\_\_ Telephone No.: \_\_\_\_\_  
Title of Project: \_\_\_\_\_  
Project Location: \_\_\_\_\_  
Date of Completion: \_\_\_\_\_ Contract Amount: \$ \_\_\_\_\_

**REFERENCES (Continued) Page 2 of 2**

If Contractor has not performed work for the City of Torrance within the last five (5) years, list all work done within said five years (attach additional sheets if necessary). Note if work was done as subcontractor [include only subcontract amount]:

Work Description & Contract Amount	Agency	Date Completed

Contractor's License No.: \_\_\_\_\_ Class: \_\_\_\_\_

a. Date first obtained: \_\_\_\_\_ Expiration \_\_\_\_\_

b. Has License ever been suspended or revoked? \_\_\_\_\_

If yes, describe when and why: \_\_\_\_\_

c. Any current claims against License or Bond? \_\_\_\_\_

If yes, describe claims: \_\_\_\_\_

Principals in Company (List all – attach additional sheets if necessary):

<u>NAME</u>	<u>TITLE</u>	<u>LICENSE NO.</u> (If Applicable)
_____	_____	_____
_____	_____	_____
_____	_____	_____

**VIOLATIONS OF FEDERAL, STATE OR LOCAL LAWS**

**B2012-48**

1. Has your firm or its officers been assessed any penalties by an agency for noncompliance or violations of Federal, State or Local labor laws and/or business or licensing regulations within the past five (5) years relating to your construction projects?

Yes/No: \_\_\_\_\_ Federal/State: \_\_\_\_\_

If "yes," identify and describe, (including agency and status): \_\_\_\_\_

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Have the penalties been paid? Yes/No: \_\_\_\_\_

2. Does your firm or its officers have any ongoing investigations by any public agency regarding violations of the State Labor Code, California Business and Professions Code or State Licensing Laws?

Yes/No: \_\_\_\_\_ Code/Laws: \_\_\_\_\_ Section/Article: \_\_\_\_\_

If "yes," identify and describe, (including agency and status):

---

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THE BIDDER'S SIGNATURE ON THE BIDDER'S PROPOSAL  
SUBMITTED WITH ITS BID SHALL ALSO CONSTITUTE  
AN ENDORSEMENT AND EXECUTION OF THIS CERTIFICATION

**EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION**

The bidder \_\_\_\_\_, proposed subcontractor \_\_\_\_\_, hereby certifies that he has \_\_\_\_\_, has not \_\_\_\_\_, participated in a previous contract or subcontract subject to the equal opportunity clauses, as required by Executive Orders 10925, 11114, or 11246, and that, where required, he has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance, a Federal Government contracting or administering agency, or the former President's Committee on Equal Employment Opportunity, all reports due under the applicable filing requirements.

**Note:** The above certification is required by the Equal Employment Opportunity Regulations of the Secretary of Labor (41 CFR 60-1.7(b) (1)), and must be submitted by bidders and proposed subcontractors only in connection with contracts and subcontracts, which are subject to the equal opportunity clause. Contracts and subcontracts which are exempt from the equal opportunity clause are set forth in 41 CFR 60-1.5. (Generally only contracts or subcontracts of \$10,000 or under are exempt.)

Currently, Standard Form 100 (EEO-1) is the only report required by the Executive Orders or their implementing regulations.

Proposed prime CONTRACTORS and subcontractors who have participated in a previous contract or subcontract subject to the Executive Orders and have not filed the required reports should note that 41 CFR 60-1.7(b) (1) prevents the award of contracts and subcontracts unless such CONTRACTOR submits a report covering the delinquent period or such other period specified by the Federal Highway Administration or by the Director, Office of Federal Contract Compliance, U.S. Department of Labor.

*Note: Providing false information may result in criminal prosecution or administrative sanctions*

**Exhibit 12-E, Attachment C**

THE BIDDER'S SIGNATURE ON THE BIDDER'S PROPOSAL  
SUBMITTED WITH ITS BID SHALL CONSTITUTE  
AN ENDORSEMENT AND EXECUTION OF THIS CERTIFICATION

**NONCOLLUSION AFFIDAVIT**  
(Title 23 United States Code Section 112 and  
Public Contract Code Section 7106)

To the CITY of TORRANCE, DEPARTMENT OF PUBLIC WORKS.

In conformance with Title 23 United States Code Section 112 and Public Contract Code 7106 the bidder declares that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

**Note:** The above Noncollusion Affidavit is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Noncollusion Affidavit.

Bidders are cautioned that making a false certification may subject the certifier to criminal prosecution.

*Note: Providing false information may result in criminal prosecution or administrative sanctions*

**Exhibit 12-E, Attachment D**

THE BIDDER'S SIGNATURE ON THE BIDDER'S PROPOSAL  
SUBMITTED WITH ITS BID SHALL CONSTITUTE  
AN ENDORSEMENT AND EXECUTION OF THIS CERTIFICATION

**DEBARMENT AND SUSPENSION CERTIFICATION**  
TITLE 49, CODE OF FEDERAL REGULATIONS, PART 29

The bidder, under penalty of perjury, certifies that, except as noted below, he/she or any other person associated therewith in the capacity of owner, partner, director, officer, manager:

- is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any Federal AGENCY;
- has not been suspended, debarred, voluntarily excluded or determined ineligible by any Federal AGENCY within the past 3 years;
- does not have a proposed debarment pending; and
- has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

If there are any exceptions to this certification, insert the exceptions in the following space.

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted above, indicate below to whom it applies, initiating AGENCY, and dates of action.

**Notes:** Providing false information may result in criminal prosecution or administrative sanctions.

The above certification is part of the Proposal. Signing this Proposal on the signature portion thereof shall also constitute signature of this Certification.

**Exhibit 12-E, Attachment E**

**SECTION D**

**DOCUMENTS TO BE COMPLETED  
AND DELIVERED TO CITY PRIOR  
TO AWARD OF CONTRACT**

**PERFORMANCE BOND  
B2012-48**

**KNOW ALL MEN BY THESE PRESENTS:**

That we, \_\_\_\_\_ as Principal(s) and \_\_\_\_\_ a corporation, incorporated, organized, and existing under the laws of the State of \_\_\_\_\_, and authorized to execute bonds and undertakings and to do a general surety business in the State of California, as Surety, are jointly and severally held and firmly bound unto the City of Torrance, a municipal corporation, located in the County of Los Angeles, State of California, in the full and just sum of: \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), lawful money of the United States of America, for the payment of which sum, well and truly to be made, we bind ourselves and our respective heirs, executors, administrators, representative, successors and assigns, jointly and severally, firmly by these presents.

**THE CONDITION OF THIS OBLIGATION IS SUCH**, that: **WHEREAS**, said Principal(s) have/has entered into, or are/is about to enter into, a certain written contract or agreement, dated as of the \_\_\_\_\_ day of \_\_\_\_\_, 2013, with the said City of Torrance for the Construction of **MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111; B2012-48**, all as is more specifically set forth in said contract or agreement, a full, true and correct copy of which is hereunto attached, and hereby referred to and by this reference incorporated herein and made a part hereof;

**NOW, THEREFORE**, if the said Principal(s) shall faithfully and well and truly do, perform and complete, or cause to be done, performed and complete, each and all of the covenants, terms, conditions, requirements, obligations, acts and things, to be met, done or performed by said Principal(s), including any guarantee period as set forth in, or required by, said contract or agreement, all at and within the time or times, and in the manner as therein specified and contemplated, then this bond and obligation shall be null and void; otherwise it shall be and remain in full force, virtue and effect.

The said Surety, for value received, hereby stipulates and agrees that no amendment, change, extension of time, alteration or addition to said contract or agreement, or of any feature or item or items of performance required therein or thereunder, shall in any manner affect its obligations on or under this bond; and said Surety does hereby waive notice of any such amendment, change, extension of time, alteration, or addition to said contract or agreement, and of any feature or item or items of performance required therein or thereunder.

In the event any suit, action or proceedings is instituted to recover on this bond or obligation, said Surety will pay, and does hereby agree to pay, as attorney's fees for said City, such sum as the Court in any such suit, action or proceeding may adjudge reasonable.

**EXECUTED, SEALED AND DATED** this \_\_\_\_\_ day of \_\_\_\_\_, 2013.

CORPORATE SEAL PRINCIPAL(S):

BY \_\_\_\_\_

BY \_\_\_\_\_

CORPORATE SEAL SURETY:

BY \_\_\_\_\_

**LABOR AND MATERIAL BOND  
B2012-48**

**KNOW ALL MEN BY THESE PRESENTS:**

That we, \_\_\_\_\_  
As Principal(s) and \_\_\_\_\_ a corporation,  
incorporated, organized, and existing under the laws of the State of \_\_\_\_\_, and authorized to  
execute bonds and undertakings and to do a general surety business in the State of California, as Surety, are  
jointly and severally held and firmly bound unto:

- (a) The State of California for the use and benefit of the State Treasurer, as ex-officio Treasurer and custodian of the Unemployment Fund of said State; and
- (b) The City of Torrance, California; and
- (c) Any and all persons who do or perform or who did or performed work or labor upon or in connection with the work or improvement referred to in the contract or agreement hereinafter mentioned; and
- (d) Any and all materialmen, persons, companies, firms, association, or corporations, supplying or furnishing any materials, provisions, provender, transportation, appliances or power, or other supplies used in, upon, for or about or in connection with the performance of the work or improvement contracted to be executed, done, made or performed under said contract or agreement; and
- (e) Any and all persons, companies, firms, associations, or corporations furnishing, renting, or hiring teams, equipment, implements or machinery for, in connection with, or contributing to, said work to be done or improvement to be made under said contract or agreement; and
- (f) Any and all persons, companies, firms, associations, or corporations who supply both work and materials;

and whose claim has not been paid by said Principal(s), in full and just sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), lawful money of the United States of America, for the payment of which will and truly to be made, said Principal(s) and said Surety do hereby bind themselves and their respective heirs, executors, administrators, representatives, successors and assigns, jointly and severally, firmly by these presents.

**THE CONDITION OF THE FOREGOING OBLIGATION IS SUCH, THAT: WHEREAS,** said Principal(s) have/has entered into or are/is about to enter into a certain written contract or agreement, dated as of the \_\_\_\_\_ day of \_\_\_\_\_ 2013, with the City of Torrance for the Construction of **MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111; B2012-48**, all as is more specifically set forth in said contract or agreement, a full, true and correct copy of which is hereunto attached, and hereby referred to and by this reference incorporated herein and made a part hereof;

**NOW, THEREFORE,** if the said Principal(s) (or any of his/her, its, or their subcontractors) under said contract or agreement fails or fail to pay:

- (1) For any materials, provisions, provender, transportation, appliances, or power, or other supplies; or
- (2) For the hire of any teams, equipment, implements, or machinery; or
- (3) For any work or labor; supplies, furnished, provided, used, done or performed in, upon, for or about or in connection with the said work or improvement; or

**LABOR AND MATERIAL BOND (CONTINUED)**

- (4) For amounts due under the Unemployment Insurance Act of the State of California with respect to such work or improvement;

the Surety on this bond will pay the same in an amount not exceeding the sum hereinabove specified in this bond; and, also, in case suit is brought upon this bond, said Surety will (and does hereby agree to) pay a reasonable attorney's fee, to be fixed and taxed as costs, and included in the judgment therein rendered.

This bond shall (and it is hereby made to) insure to the benefit of any and all persons entitled to file claims under Section 1192.1 of the Code of Civil Procedure of the State of California, so as to give a right of action to them or their assigns in any suit brought upon this bond, all as contemplated under the provisions of Section 4205 of the Government Code, and of Chapter 1 of Title 4 of Part 3 of the Code of Civil Procedure, of the State of California.

This bond is executed and filed in connection with said contract or agreement hereunto attached to comply with each and all of the provisions of the laws of the State of California above mentioned or referred to, and of all amendments thereto, and the obligors so intend and do hereby bind themselves accordingly.

The said Surety, for value received, hereby stipulates and agrees that no amendment, change, extension of time, alteration, or addition to said contract or agreement, or of any feature or item or items of performance required therein or thereunder, shall in any manner affect its obligations on or under this bond; and said Surety does hereby waive notice of any such amendment, change, extension of time, alteration, or addition to said contract or agreement, and of any feature or item or items of performance required therein or thereunder.

**EXECUTED, SEALED AND DATED** this \_\_\_\_\_ day of \_\_\_\_\_, 2013.

CORPORATE SEAL

PRINCIPAL:

BY \_\_\_\_\_

CORPORATE SEAL

SURETY:

BY \_\_\_\_\_

## PUBLIC WORKS AGREEMENT

This PUBLIC WORKS AGREEMENT ("Agreement") is made and entered into as of \_\_\_\_\_, 2013 (the "Effective Date"), by and between the CITY OF TORRANCE, a municipal corporation ("CITY"), and \_\_\_\_\_ ("CONTRACTOR").

### RECITALS:

- A. The CITY wishes to retain the services of an experienced and qualified CONTRACTOR to construct the **MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111, B2012-48**;
- B. In order to obtain the desired services, The CITY has circulated a Notice Inviting Bids for the construction of the **MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111**, Notice Inviting Bids No. B2012-48 (the "NIB"); and
- C. CONTRACTOR has submitted a Bid (the "Bid") in response to the NIB. CONTRACTOR represents that it is qualified to perform those services requested in the Plans and Specifications. Based upon its review of all Bids submitted in response to the NIB, The CITY is willing to award the contract to CONTRACTOR.

### AGREEMENT:

#### 1. SERVICES TO BE PERFORMED BY CONTRACTOR

CONTRACTOR will provide the services and install those materials listed in the Plans and Specifications, which are on file in the Engineering Department. The NIB and the Plans and Specifications are made a part of this Agreement. A copy of the Bid is attached as Exhibit A.

#### 2. TERM

Unless earlier terminated in accordance with Paragraph 4 below, this Agreement will continue in full force and effect for two years from the Effective Date.

#### 3. COMPENSATION

- A. CONTRACTOR's Fee.

For services rendered pursuant to this Agreement, CONTRACTOR will be paid in accordance with CONTRACTOR's Bid; provided, however, that in no event will the total amount of money paid the CONTRACTOR, for services initially contemplated by this Agreement, exceed the sum of \$ \_\_\_\_\_ ("Agreement Sum"), unless otherwise first approved in writing by the CITY.

- B. Schedule of Payment.

Provided that the CONTRACTOR is not in default under the terms of this Agreement, upon presentation of an invoice, CONTRACTOR will be paid monthly, within 30 days after the date of the monthly invoice.

#### 4. TERMINATION OF AGREEMENT

- A. Termination by CITY for Convenience.

- 1. CITY may, at any time, terminate the Agreement for CITY's convenience and without cause.
- 2. Upon receipt of written notice from CITY of such termination for CITY's convenience, CONTRACTOR will:

- a) cease operations as directed by CITY in the notice;
- b) take actions necessary, or that CITY may direct, for the protection preservation of the work; and
- c) except for work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

3. In case of such termination for CITY's convenience, CONTRACTOR will be entitled to receive payment for work executed; and costs incurred by reason of such termination, along with reasonable overhead and profit on the work not executed.

B. Termination for Cause.

1. If either party fails to perform any term, covenant or condition in this Agreement and that failure continues for 15 calendar days after the nondefaulting party gives the defaulting party notice of the failure to perform, this Agreement may be terminated for cause; provided, however, that if during the notice period the defaulting party has promptly commenced and continues diligent efforts to remedy the default, the defaulting party will have such additional time as is reasonably necessary to remedy the default.
2. In the event this Agreement is terminated for cause by the default of the CONTRACTOR, the CITY may, at the expense of the CONTRACTOR and its surety, complete this Agreement or cause it to be completed. Any check or bond delivered to the CITY in connection with this Agreement, and the money payable thereon, will be forfeited to and remain the property of the CITY. All moneys due the CONTRACTOR under the terms of this Agreement will be retained by the CITY, but the retention will not release the CONTRACTOR and its surety from liability for the default. Under these circumstances, however, the CONTRACTOR and its surety will be credited with the amount of money retained, toward any amount by which the cost of completion exceeds the Agreement Sum and any amount authorized for extra services.
3. Termination for cause will not affect or terminate any of the rights of the CITY as against the CONTRACTOR or its surety then existing, or which may thereafter accrue because of the default; this provision is in addition to all other rights and remedies available to the CITY under law.

C. Termination for Breach of Law.

In the event the CONTRACTOR or any of its officers, directors, shareholders, employees, agents, subsidiaries or affiliates is convicted (i) of a criminal offense as an incident to obtaining or attempting to obtain a public or private contract or subcontract, or in the performance of a contract or subcontract; (ii) under state or federal statutes of embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, or any other offense indicating a lack of business integrity or business honesty which currently, seriously, and directly affects responsibility as a public consultant or contractor; (iii) under state or federal antitrust statutes arising out of the submission of bids or proposals; or (iv) of violation of Paragraph 19 of this Agreement; or for any other cause the CITY determines to be so serious and compelling as to affect CONTRACTOR's responsibility as a public consultant or contractor, including but not limited to, debarment by another governmental agency, then the CITY reserves the unilateral right to terminate this Agreement or to impose such other sanctions (which may include financial sanctions, temporary suspensions or any other condition deemed appropriate short of termination) as it deems proper. The CITY will not take action until CONTRACTOR has been given notice and an opportunity to present evidence in mitigation.

5. **FORCE MAJEURE**

If any party fails to perform its obligations because of strikes, lockouts, labor disputes, embargoes, acts of God, inability to obtain labor or materials or reasonable substitutes for labor or materials,

governmental restrictions, governmental regulations, governmental controls, judicial orders, enemy or hostile governmental action, civil commotion, fire or other casualty, or other causes beyond the reasonable control of the party obligated to perform, then that party's performance shall be excused for a period equal to the period of such cause for failure to perform.

**6. RETENTION OF FUNDS**

CONTRACTOR authorizes the CITY to deduct from any amount payable to CONTRACTOR (whether or not arising out of this Agreement) any amounts the payment of which may be in dispute or that are necessary to compensate the CITY for any losses, costs, liabilities, or damages suffered by the CITY, and all amounts for which the CITY may be liable to third parties, by reason of CONTRACTOR's negligent acts or omissions or willful misconduct in performing or failing to perform CONTRACTOR's obligations under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by CONTRACTOR, or any indebtedness exists that appears to be the basis for a claim of lien, the CITY may withhold from any payment due, without liability for interest because of the withholding, an amount sufficient to cover the claim. The failure of the CITY to exercise the right to deduct or to withhold will not, however, affect the obligations of CONTRACTOR to insure, indemnify, and protect the CITY as elsewhere provided in this Agreement.

**7. THE CITY'S REPRESENTATIVE**

The Public Works Director is designated as the "City Representative," authorized to act in its behalf with respect to the work and services specified in this Agreement and to make all decisions in connection with this Agreement. Whenever approval, directions, or other actions are required by the CITY under this Agreement, those actions will be taken by the City Representative, unless otherwise stated. The City Manager has the right to designate another City Representative at any time, by providing notice to CONTRACTOR.

**8. CONTRACTOR REPRESENTATIVE(S)**

The following principal(s) of CONTRACTOR are designated as being the principal(s) and representative(s) of CONTRACTOR authorized to act in its behalf with respect to the work specified in this Agreement and make all decisions in connection with this Agreement:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**9. INDEPENDENT CONTRACTOR**

The CONTRACTOR is, and at all times will remain as to the CITY, a wholly independent contractor. Neither the CITY nor any of its agents will have control over the conduct of the CONTRACTOR or any of the CONTRACTOR's employees, except as otherwise set forth in this Agreement. The CONTRACTOR may not, at any time or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of the CITY.

**10. BUSINESS LICENSE**

The CONTRACTOR must obtain a City business license prior to the start of work under this Agreement, unless CONTRACTOR is qualified for an exemption.

**11. OTHER LICENSES AND PERMITS**

CONTRACTOR warrants that it has all professional, contracting and other permits and licenses required to undertake the work contemplated by this Agreement.

**12. FAMILIARITY WITH WORK**

By executing this Agreement, CONTRACTOR warrants that CONTRACTOR (a) has thoroughly investigated and considered the scope of services to be performed, (b) has carefully considered how the services should be performed, and (c) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, CONTRACTOR warrants that CONTRACTOR has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services set forth in this Agreement. Should CONTRACTOR discover any latent or unknown conditions that will materially affect the performance of the services set forth in this Agreement, CONTRACTOR must immediately inform the CITY of that fact and may not proceed except at CONTRACTOR's risk until written instructions are received from the CITY.

**13. CARE OF WORK**

CONTRACTOR must adopt reasonable methods during the life of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and other components to prevent losses or damages, and will be responsible for all damages, to persons or property, until acceptance of the work by the CITY, except those losses or damages as may be caused by the CITY's own negligence.

**14. CONTRACTOR'S ACCOUNTING RECORDS; OTHER PROJECT RECORDS**

Records of the CONTRACTOR's time pertaining to the project, and records of accounts between the CITY and the CONTRACTOR, will be kept on a generally recognized accounting basis. CONTRACTOR will also maintain all other records, including without limitation specifications, drawings, progress reports and the like, relating to the project. All records will be available to the CITY during normal working hours. CONTRACTOR will maintain these records for three years after final payment.

**15. INDEMNIFICATION**

CONTRACTOR will indemnify, defend, and hold harmless CITY, the City Council, each member thereof, present and future, its officers, agents and employees from and against any and all liability, expenses, including defense costs and legal fees, and claims for damages whatsoever, including, but not limited to, those arising from breach of contract, bodily injury, death, personal injury, property damage, loss of use, or property loss however the same may be caused and regardless of the responsibility for negligence. The obligation to indemnify, defend and hold harmless includes, but is not limited to, any liability or expense, including defense costs and legal fees, arising from the negligent acts or omissions, or willful misconduct of CONTRACTOR, its officers, employees, agents, subcontractors or vendors. It is further agreed, CONTRACTOR's obligations to indemnify, defend and hold harmless will apply even in the event of concurrent negligence on the part of CITY, the City Council, each member thereof, present and future, or its officers, agents and employees, except for liability resulting solely from the negligence or willful misconduct of CITY, its officers, employees or agents. Payment by CITY is not a condition precedent to enforcement of this indemnity. In the event of any dispute between CONTRACTOR and CITY, as to whether liability arises from the sole negligence of the CITY or its officers, employees, agents, subcontractors or vendors, CONTRACTOR will be obligated to pay for CITY's defense until such time as a final judgment has been entered adjudicating the CITY as solely negligent. CONTRACTOR will not be entitled in the event of such a determination to any reimbursement of defense costs including but not limited to attorney's fees, expert fees and costs of litigation.

**16. NON-LIABILITY OF THE CITY'S OFFICERS AND EMPLOYEES**

No officer or employee of the CITY will be personally liable to CONTRACTOR, in the event of any default or breach by the CITY or for any amount that may become due to CONTRACTOR.

**17. INSURANCE**

- A. CONTRACTOR must maintain at its sole expense the following insurance, which will be full coverage not subject to self insurance provisions:
  - 1. Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
    - a. Combined single limits of \$2,000,000 per occurrence.
  - 2. General Liability including coverage for premises, products and completed operations, independent contractors, personal injury and contractual obligations with combined single limits of coverage of at least \$3,000,000 per occurrence, with an annual aggregate of no less than \$5,000,000.
  - 3. Workers' Compensation with limits as required by the State of California and Employers Liability with limits of at least \$1,000,000.
- B. The insurance provided by CONTRACTOR will be primary and non-contributory.
- C. The CITY of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insureds under the automobile and general liability policies.
- D. CONTRACTOR must provide certificates of insurance and/or endorsements to the City Clerk of the City of Torrance before the commencement of work.
- E. Each insurance policy required by this Paragraph must contain a provision that no termination, cancellation or change of coverage can be made without thirty days notice to the CITY.
- F. CONTRACTOR must include all subcontractors as insureds under its policies or must furnish separate certificates and endorsements for each subcontractor. All coverage for subcontractors will be subject to all of the requirements of this Paragraph 17.

**18. SUFFICIENCY OF INSURERS**

Insurance required by this Agreement will be satisfactory only if issued by companies admitted to do business in California, rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category Class VII or better, unless these requirements are waived by the Risk Manager of the CITY ("Risk Manager") due to unique circumstances. In the event the Risk Manager determines that the work or services to be performed under this Agreement creates an increased or decreased risk of loss to the CITY, the CONTRACTOR agrees that the minimum limits of any insurance policies and/or the performance bond required by this Agreement may be changed accordingly upon receipt of written notice from the Risk Manager; provided that CONTRACTOR will have the right to appeal a determination of increased coverage by the Risk Manager to the City Council of the CITY within 10 days of receipt of notice from the Risk Manager.

**19. CONFLICT OF INTEREST**

- A. No officer or employee of the CITY may have any financial interest, direct or indirect, in this Agreement, nor may any officer or employee participate in any decision relating to the Agreement that effects the officer or employee's financial interest or the financial interest of any corporation, partnership or association in which the officer or employee is, directly or indirectly interested, in violation of any law, rule or regulation.
- B. No person may offer, give, or agree to give any officer or employee or former officer or employee, nor may any officer or employee solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, preparation or any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any way pertaining to any program requirement, contract or subcontract, or to any solicitation or proposal.

**20. NOTICE**

- A. All notices, requests, demands, or other communications under this Agreement will be in writing. Notice will be sufficiently given for all purposes as follows:
  - 1. Personal delivery. When personally delivered to the recipient: notice is effective on delivery.
  - 2. First Class mail. When mailed first class to the last address of the recipient known to the party giving notice: notice is effective three mail delivery days after deposit in an United States Postal Service office or mailbox.
  - 3. Certified mail. When mailed certified mail, return receipt requested: notice is effective on receipt, if delivery is confirmed by a return receipt.
  - 4. Overnight delivery. When delivered by an overnight delivery service, charges prepaid or charged to the sender's account: notice is effective on delivery, if delivery is confirmed by the delivery service.
  - 5. Facsimile transmission. When sent by fax to the last fax number of the recipient known to the party giving notice: notice is effective on receipt. Any notice given by fax will be deemed received on the next business day if it is received after 5:00 p.m. (recipient's time) or on a non-business day.
  - 6. Addresses for purpose of giving notice are as follows:

CONTRACTOR:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Fax: \_\_\_\_\_

CITY:

City Clerk  
City of Torrance  
3031 Torrance Boulevard  
Torrance, CA 90509-2970  
Fax: (310) 618-2931

- B. Any correctly addressed notice that is refused, unclaimed, or undeliverable because of an act or omission of the party to be notified, will be deemed effective as of the first date the notice was refused, unclaimed or deemed undeliverable by the postal authorities, messenger or overnight delivery service.

- C. Either party may change its address or fax number by giving the other party notice of the change in any manner permitted by this Agreement.

**21. PROHIBITION AGAINST ASSIGNMENT AND SUBCONTRACTING**

This Agreement and all exhibits are binding on the heirs, successors, and assigns of the parties. The Agreement may not be assigned or subcontracted by either the CITY or CONTRACTOR without the prior written consent of the other.

**22. INTEGRATION; AMENDMENT**

This Agreement represents the entire understanding of the CITY and CONTRACTOR as to those matters contained in it. No prior oral or written understanding will be of any force or effect with respect to the terms of this Agreement. The Agreement may not be modified or altered except in writing signed by both parties.

**23. INTERPRETATION**

The terms of this Agreement should be construed in accordance with the meaning of the language used and should not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction that might otherwise apply.

**24. SEVERABILITY**

If any part of this Agreement is found to be in conflict with applicable laws, that part will be inoperative, null and void insofar as it is in conflict with any applicable laws, but the remainder of the Agreement will remain in full force and effect.

**25. TIME OF ESSENCE**

Time is of the essence in the performance of this Agreement.

**26. GOVERNING LAW; JURISDICTION**

This Agreement will be administered and interpreted under the laws of the State of California. Jurisdiction of any litigation arising from the Agreement will be in Los Angeles County, California.

**27. COMPLIANCE WITH STATUTES AND REGULATIONS**

CONTRACTOR will be knowledgeable of and will comply with all applicable federal, state, county and city statutes, rules, regulations, ordinances and orders.

**28. WAIVER OF BREACH**

No delay or omission in the exercise of any right or remedy by a nondefaulting party on any default will impair the right or remedy or be construed as a waiver. A party's consent or approval of any act by the other party requiring the party's consent or approval will not be deemed to waive or render unnecessary the other party's consent to or approval of any subsequent act. Any waiver by either party of any default must be in writing and will not be a waiver of any other default concerning the same or any other provision of this Agreement.

**29. ATTORNEY'S FEES**

Except as provided for in Paragraph 15, in any dispute, litigation, arbitration, or other proceeding by which one party either seeks to enforce its rights under this Agreement (whether in contract, tort or both) or seeks a declaration of any rights or obligations under this Agreement, the prevailing party will be awarded reasonable attorney's fees, together with any costs and expenses, to resolve the dispute and to enforce any judgment.

30. **EXHIBITS**

All exhibits identified in this Agreement are incorporated into the Agreement by this reference.

31. **CONTRACTOR'S AUTHORITY TO EXECUTE**

The persons executing this Agreement on behalf of the CONTRACTOR warrant that (i) the CONTRACTOR is duly organized and existing; (ii) they are duly authorized to execute this Agreement on behalf of the CONTRACTOR; (iii) by so executing this Agreement, the CONTRACTOR is formally bound to the provisions of this Agreement; and (iv) the entering into this Agreement does not violate any provision of any other Agreement to which the CONTRACTOR is bound.

CITY OF TORRANCE,  
a Municipal Corporation

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Frank Scotto, Mayor

By: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
Sue Herbers, City Clerk

APPROVED AS TO FORM:

JOHN L. FELLOWS III  
City Attorney

By: \_\_\_\_\_  
(name)  
Deputy City Attorney

Attachments: Exhibit A: Bid

**EXHIBIT A**

**Bid**

**[To be attached]**

## CITY OF TORRANCE, CALIFORNIA

### CONSTRUCTION OR SERVICE CONTRACT ENDORSEMENT

To be attached to and made a part of all policies insuring the liability of any person, form or corporation performing services under contract for the City of Torrance.

Notwithstanding any inconsistent expression in the policy to which this endorsement is attached, or in any other endorsement now or hereafter attached thereto, or made a part thereof, the protection afforded by said policy shall:

1. Include the City of Torrance as an additional insured. (To include the elected officials, appointed officials, and employees.)
2. Indemnify and save harmless the City of Torrance against any and all claims resulting from the undertaking specified in the contract known as:

**PROPOSAL, SPECIFICATIONS, BOND AND AFFIDAVIT  
FOR THE CONSTRUCTION OF  
MEASURE R: N47 MAPLE AVENUE @ SEPULVEDA BOULEVARD, I-111  
B2012-48**

This hold harmless assumption on the part of the underwriters shall include all costs of investigation and defense, including claims based on damage to substructures not shown, not located on the plans, or shown incorrectly.

3. Not be cancelled except by notice to the City Attorney of the City of Torrance at least thirty (30) days prior to the date of cancellation.
4. Provide single limit for Bodily Injury Liability and Property Damage Liability combined, \$1,000,000 each Occurrence, and \$1,000,000 Aggregate.
5. Limited classifications, restricting endorsements, exclusions or other special provisions contained in the policy shall not act to limit the benefits of coverage as they shall apply to the City of Torrance as enumerated in this endorsement. However, nothing herein contained shall affect any rights of the insurer against the insured.
6. It is further expressly agreed by and between the parties hereto that the following two provisions, (a) and (b), are a part of this contract:
  - (a) That the Contractor specifically agrees to comply with applicable provisions of Section 1777.5 of the Labor Code relating to the employment by contractor or subcontractor under it, of journeyman or apprentices, or workmen, in any apprenticeable craft or trade.
  - (b) By my signature hereunder, as Contractor, I certify that I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract.

The limits of liability as stated in this endorsement apply to the insurance afforded by this endorsement notwithstanding that the policy may have lower limits of liability applying elsewhere in the policy.

\_\_\_\_\_  
Duly Authorized Agent

Attached to and forming part of  
Policy No. \_\_\_\_\_  
of the \_\_\_\_\_

Date: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

**WORKERS' COMPENSATION INSURANCE CERTIFICATION  
B2012-48**

In compliance with Section 7-4 of the Standard Specifications, the Contractor shall complete and submit the following certification with a Certificate of Insurance before execution of the contract.

I am aware of, and will comply with, Section 3700 of the Labor Code, requiring every employer to be insured against liability for Workers' Compensation or to undertake self-insurance before commencing any of the work.

\_\_\_\_\_  
CONTRACTOR

By: \_\_\_\_\_

Title: \_\_\_\_\_

## **SECTION E**

### **SPECIAL PROVISIONS**

**The following Special Provisions supplement and amend the Standard Specifications for Public Works Construction (2009) and the Standard Specifications of the State of California Department of Transportation (Caltrans) 2006, as noted herein. These Special Provisions have been arranged into a format that parallels the Standard Specifications for Public Works Construction.**

**SECTION E - SPECIAL PROVISIONS**

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**PART 1 - GENERAL PROVISIONS**

**SECTION 1: TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS**

**1-2 DEFINITIONS**

Add or redefine the following:

- AGENCY** – THE CITY OF TORRANCE, HEREIN REFERRED TO AS CITY.
- Board** – The City Council of the City of Torrance, herein referred to as City Council.
- Caltrans** – The State of California, Department of Transportation Standard Specifications, May 2006
- Engineer** – Engineer of the City of Torrance, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.
- Claim** – A separate demand by the Contractor for (A) a time extension, (B) payment of money or damages arising from work done by or on behalf of the Contractor pursuant to the Contract and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the Agency.

**1-3 ABBREVIATIONS**

**1-3.2 Common Usage:**

Add the following abbreviations:

Approx	Approximate
APWA	American Public Works Association
M.L.	Main Line
Ped.	Pedestrian
Reconst.	Reconstruct
Temp.	Temporary
WM	Wire mesh or water meter

**SECTION 2 - SCOPE AND CONTROL OF THE WORK**

**2-1 AWARD AND EXECUTION OF CONTRACT**

Replace the entire subsection with the following:

Within ten (10) working days after the date of the CITY'S award of contract, the Contractor shall execute and return all Contract Documents required by the CITY. The CITY reserves the right to terminate the award if the above requirement is not met. Such termination will result in the forfeiture of the Proposal Guaranty.

The Contract shall not be considered binding upon the CITY until executed by the authorized CITY officials.

**2-3 SUBCONTRACTS**

**2-3.2 Additional Responsibility.** Replace the second sentence of the second paragraph with the following:

The following work will be considered as "Specialty Items":

- Traffic Signal Modification – Maple Ave @ Sepúlveda Blvd
- Electrical

## 2-4 CONTRACT BONDS

Revise the second sentence of the fourth paragraph to read as follows:

The "Performance Bond" shall remain in effect for one year following the date specified in the Notice of Completion or, if no Notice of Completion is recorded, for one year following the date of final acceptance by the Engineer.

## 2-5 PLANS AND SPECIFICATIONS.

**2-5.1 General.** Add the following sentence to the first paragraph to read as follows:

The Contractor shall maintain a control set of Plans and Specifications on the Work site at all times. All final locations determined in the field, and any deviations from the Plans and Specifications, shall be marked in red on this control set to show as-built conditions. Upon completion of the Work, the Contractor shall submit the control set to the Engineer for approval. Final payment will not be made until this requirement is met.

Add the following subsections:

**2-5.1.1 Plans.** Included as part of the Contract Documents are the following, which show the location, character, dimensions or details of the Work:

1) Project Plans

The existing utility information data provided with the Contract Documents are based on existing plans and documents. The data provided for information only. The Owner does not guarantee their accuracy and correctness. If the Bidder in preparing the Bid Proposal uses this information, the Bidder assumes all risks resulting from conditions differing from the information shown. The Bidder, in consideration for the information being provided, hereby releases the Owner and Consulting Engineer from any responsibility of obligation as to the accuracy of such information or for any additional compensation for work performed due to assumptions based on the use of such information.

2) Standard Plans

- a. City of Torrance Standard Plans, latest edition
- b. Standard Plans for Public Works Construction, 2003, promulgated by Public Works Standards, Inc.
- c. Standard Plans of the State of California Department of Transportation (Caltrans), 2010

Applicable Standard Plans for this project are included in the Appendices of these Specifications.

**2-5.1.2 Specifications.** The Work shall be performed or executed in accordance with these Special Provisions and the following:

- 1) Standard Specifications for Public Works Construction, 2009 and supplements thereto, hereinafter referred to as the Standard Specifications, as written and promulgated by Public Works Standards, Inc. The Standard Specifications are published by BNi Building News, Inc., 1612 South Clementine Street, Anaheim, CA 92802, Phone: (800) 873-6397.
- 2) When referenced in these Special Provisions, the State of California Department of Transportation (Caltrans) Standard Specifications, (2010 or latest edition).

**2-5.2 Precedence of Contract Documents.** Replace the entire subsection with the following:

If there is a conflict between any of the Contract Documents, the document highest in precedence shall control. The order of precedence shall be as follows:

- 1) Permits issued by other agencies.
- 2) Change Orders (including Plans and Specifications attached thereto).
- 3) Public Works Agreement
- 4) Addenda
- 5) Special and General Provisions
- 6) Plans
- 7) City Standard Plans
- 8) Other Standard Plans
- 9) Standard Specifications for Public Works Construction
- 10) Reference Specifications

With reference to the Plans/Drawings, the order of precedence is as follows:

- 1) Change Order plans govern over Addenda and Contract plans
- 2) Addenda plans govern over Contract plans
- 3) Contract plans govern over standard plans
- 4) Detail plans govern over general plans
- 5) Figures govern over scaled dimensions

Within the Specifications, the order of precedence is as follows:

- 1) Change Orders
- 2) Permits from other agencies and/or Supplemental Contract Agreements
- 3) Special Provisions
- 4) Instruction to Bidders
- 5) Referenced Standard Plans
- 6) Referenced Standard Specifications

If the Contractor, in the course of the Work, becomes aware of any claimed errors or omissions in the Contract Documents or in the CITY's fieldwork, the Contractor shall immediately inform the Engineer. The Engineer shall promptly review the matter, and if the Engineer finds an error or omission has been made the Engineer shall determine the corrective actions and advise the Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of work called for in the Contract, the CITY shall issue an appropriate Change Order in accordance with 3-3. After discovery of an error or omission by the Contractor, any related work performed by the Contractor shall be done at the Contractor's risk unless authorized by the Engineer.

**2-5.3 Submittals**

**2-5.3.4 Supporting Information.** Add the following to the second paragraph:

- 9) Ductile iron pipe, fittings and appurtenances
- 11) Crushed miscellaneous base mix design/properties
- 12) Asphalt Concrete mix designs from one or more suppliers
- 13) 1-sack sand and cement slurry
- 14) Fire hydrant and appurtenances
- 15) Pedestrian Countdown Displays
- 16) Video Detection Equipment
- 17) Internally Illuminated Street name signs

In addition to the above, submittals may be required for any product, manufactured item, or system not specifically listed above.

Section 2 is amended by adding thereto the following new Subsection 2-5.4 Examination of Contract Documents:

**2-5.4 Examination of Documents.** The bidder shall examine carefully the entire site of the work, including but not restricted to the conditions and encumbrances related thereto, the Plans and Specifications, and the proposal and contract forms therefore. The submission of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of the work to be performed, the quantities of material to be furnished and as to the requirements of the proposal, Plans, Specifications, and the contract.

## **2-6 WORK TO BE DONE**

Add the following:

The Work generally consists of widening a 290-foot long section of the west side of Maple Avenue, north of Sepulveda Blvd, including but not limited to paving, curb/gutter installation and fire hydrant installation.

## **2-9 SURVEYING**

**2-9.1 Permanent Survey Markers.** Replace the entire Subsection 2-9.1 with the following:

The Contractor shall not disturb survey monuments, lot stakes (tagged), centerline ties, or benchmarks without notifying the Engineer. The Contractor shall be responsible to have a surveyor document all surveying monuments, lot stakes (tagged), centerline ties, and bench marks that may be disturbed during construction. In the event that identification numbers on survey monuments are illegible, it shall be the responsibility of the Contractor to obtain all information necessary to restore the monuments in their correct location. The Contractor or its Surveyor shall file a Corner Record Form at the Los Angeles County Surveyor referencing survey monuments subject to disturbance prior to the start of construction and also prior to the completion of construction, including a location for reestablishment of disturbed monuments. Copies of the records shall be provided to the City. **Final payment will not be made until the aforementioned documentation is provided to the CITY.**

All surveying shall be done by a Registered Licensed Land Surveyor or a Registered Civil Engineer authorized to practice land surveying within the state. All monuments and centerline ties shall be tied out and reset in accordance with Section 8771 (Land Surveyors Act) of the Business and Professions Code of the State of California.

The contract unit price for SURVEY MONUMENTS shall include full compensation for furnishing all labor, materials, equipments, tools and incidentals for doing all the work involved in preserving and/or constructing of the survey monuments, complete in place, and no additional compensation shall be made.

**2-9.2 Survey Service.** Replace the first two paragraphs with the following:

All construction surveying necessary to complete the Work shown on the Plans and provided in these Contract Documents shall be accomplished by or under the direction of a Registered Land Surveyor or Registered Civil Engineer authorized to practice land surveying in the State of California, retained and/or provided by the Contractor. The CITY reserves the right to direct additional construction survey work to be performed at no additional cost when the City determines it is required to adequately construct the Work.

The Contractor shall notify the Engineer in writing at least 2 working days prior to the actual survey. The Contractor shall provide any required traffic control necessary for construction surveying. Prior to disturbing survey monuments, the Contractor shall notify the Engineer in accordance with Section 2-9.1.

Stakes shall be set and stationed by the Contractor for curbs, curbs and gutters, sidewalks, access ramps, cross gutters, driveways, headers, storm drains, sewers, water lines, spandrels, catch basins, rough grade, and other items as necessary. A corresponding cut or fill to finished grade (or flow line) shall be indicated on a grade sheet. A copy of each grade sheet shall be furnished to the Engineer. If any construction survey stakes are lost or disturbed and need to be replaced, such replacement shall be by the Contractor at its expense.

Construction stakes shall consist of the following:

- a. One set of paving stakes
- b. Line and grade of new curb and gutter
- c. Line and grade of existing features shown on the plan to be replaced in kind sufficient for their construction

The Contractor shall submit to the City within 2 days after completion of each respective survey, setting of each stake and heading check a copy of the survey notes and calculations certified by the licensed Land Surveyor for the following:

- a. Level and horizontal control circuit for survey control
- b. Grade sheets for stakes
- c. Grade sheets for curb and gutter

**2-9.5 Payment**

Payment for CONSTRUCTION SURVEYING shall be on a Lump Sum basis per the Contract unit price. All costs for construction surveying including, but not limited to, construction staking, professional services, office calculations, furnishing all labor, materials, equipment, tools and incidentals, and for doing all work involved shall be considered as included.

**2-10 AUTHORITY OF BOARD AND ENGINEER**

Add the following:

Failure of the Contractor to comply with the requirements of the Contract Documents, or to follow the directions of the Engineer, and/or to immediately remedy such noncompliance or to follow directions, may, upon notice from the Engineer, result in the suspension of the Contract monthly progress payments. Any monthly progress payments so suspended may remain in suspension until the Contractor is in compliance with the Contract Documents and the directions of the Engineer, as determined by the Engineer.

## 2.11 INSPECTION

Replace the entire subsection with the following:

The Work is subject to inspection and approval by the Engineer. The Contractor shall notify the Engineer a minimum of 48 hours in advance of the required inspection.

The Engineer will make, or have made, such inspections and tests as he deems necessary to see that the Work is in conformance with the Contract Documents. In the event such inspections or tests reveal noncompliance with the Contract Documents, the Contractor shall bear the cost of such corrective measures as deemed necessary by the Engineer, as well as the cost of subsequent re-inspection and re-testing.

Work done in the absence of inspection by the Engineer may be required to be removed and replaced under the inspection of the Engineer, and the entire cost of removal and replacement, including the cost of all materials which may be furnished by the CITY and used in the work thus removed, shall be borne by the Contractor, regardless of whether the work removed is found to be defective or not. Work covered without the approval of the Engineer shall, if so directed by the Engineer, be uncovered to the extent required by the Engineer, and the Contractor shall similarly bear the entire cost of performing all the work and furnishing all the materials necessary for the removal of the covering and its subsequent replacement, including all costs for additional inspection.

The Engineer and any authorized representatives shall at all times have access to the Work during its construction at shops and yards as well as the Work site. The Contractor shall provide every reasonable facility for ascertaining that the materials and workmanship are in accordance with the Contract Documents.

Inspection of the Work shall not relieve the Contractor of the obligation to fulfill all conditions of the Contract.

Add the following subsections:

**2-11.1 Special Inspection Fees.** If the Contractor elects to work under this Contract more than 8 hours/day or more than 40 hours/week, Saturday, Sunday, or CITY holidays, the Contractor shall arrange with the Engineer for the required inspection service and pay the Special Inspection Fees which will be charged at the following rates:

Mondays through Fridays	-	\$125.00 per hour
Saturdays, Sundays, Holidays	-	\$1,000.00 per day

Fees may be deducted from payments due to the Contractor at the discretion of the Engineer.

If the Contractor works under this contract at times other than within the allowed working hours without permission from or prior arrangement with the Engineer, the Contractor will be charged a lump sum amount of \$1,000.00 for each occurrence, in addition to the above fees. The amount will be deducted from a Progress Payment.

### 2-11.3 Material Inspection/Testing and other City Expenses.

- (a) If a City subcontractor hired to perform material inspection and/or testing is required to work additional time to perform inspection and testing as a result of an action or delay caused by the Contractor, except for specific work allowed by the Engineer, the subcontractor may charge the City an additional fee. The Engineer may deduct the additional fee for said inspection and testing from a Progress Payment to the Contractor. The Engineer also may deduct the cost to perform additional testing when an initial test fails to meet the requirements of this Contract. The typical rates for material testing and inspection are available upon request from the Public Works Department.

- (b) If the Contractor does not comply with a requirement of these Special Provisions or if it does not respond, after being informed, to a request by the Engineer to amend a site condition that jeopardizes the public health, safety or welfare, the Engineer may direct City crews or others to perform the work. For each occurrence, the City may charge the Contractor a base charge in the amount of \$750 in addition to all costs incurred by City crews for labor, equipment and materials. The standard rates for City crews are available upon request from the Public Works Department.
- (c) For each sign, drum, delineator, cone, barricade, warning device, or other type of required traffic control device that is not provided and/or replaced by the Contractor when required by the Traffic Control Plans and/or directed by the Engineer, the Engineer may deduct \$75 per day for each missing device from a Progress Payment.

## **SECTION 3 – CHANGES IN WORK**

### **3.3 EXTRA WORK**

#### **3-3.1 General.** Add the following:

Payment for additional work and all expenditures in excess of the Contract price must be authorized in writing by the Engineer. Such authorization shall be obtained by the Contractor prior to engaging in additional work. It shall be the Contractor's sole responsibility to obtain written approval from the Engineer for any change(s) in material or in the work proposed by suppliers or subcontractors. No payment shall be made to the Contractor for additional work which has not been approved in writing, and the Contractor hereby agrees that it shall have no right to additional compensation for any work not so authorized.

The Contractor shall be responsible to provide all data and to obtain all approvals required by the Specifications, including submittal of Daily Extra Work Reports. No claims or extras shall be approved by the Engineer unless all work was done under the direction of and subject to the approval of the Engineer. Disputed work claims shall comply with 3-3 as modified herein.

#### **3-3.2.2 Basis for Establishing Costs.** Replace the second paragraph of part (c) with the following:

The Contractor will be paid for the use of equipment at the lower of the actual rental rates paid by the Contractor or the rental rates listed for such equipment in either the "Rental Rate Blue Book" published by Dataquest, Inc., 1290 Ridder Park Drive, San Jose, California 95131; telephone (408) 971-9000 or the California Department of Transportation publication entitled "Labor Surcharge and Equipment Rates" available at the Caltrans web site, [www.dot.ca.gov/hq/eqsc/inforesources.htm](http://www.dot.ca.gov/hq/eqsc/inforesources.htm), which is in effect on the date upon which the work is accomplished, and that hereby is made a part of the Contract, regardless of ownership or any rental or other agreement, if such may exist, for the use of such equipment entered into by the Contractor. If it is deemed necessary by the Engineer to use equipment not listed in the said publication, a suitable rental rate will be established by the Engineer. The Contractor may furnish any cost data that might assist the Engineer in the establishment of such rental rate.

#### **3-3.2.3 Markup.** Replace the entire subsection with the following:

The markups mentioned hereinafter shall include, but are not limited to, all costs for the services of superintendents, project managers, timekeepers and other personnel not working directly on the change order, and pickup or yard trucks used by the above personnel. These costs shall not be reported as labor or equipment elsewhere except when actually performing work directly on the change order and then shall only be reported at the labor classification of the work performed.

**(a) Work by Contractor.** The following percentages shall be added to the Contractor's costs and shall constitute the mark-up for all overhead and profit, which shall be deemed to include all items of expense not

specifically designated as cost or equipment rental in Subsections 3-3.2.2(a), 3-3.2.2(b), and 3-3.2.2(c).

Labor	20
Materials	15
Equipment Rental	15
Other Expenditures	15

To the sum of the costs and markups provided for in this subsection, one (1) percent shall be added as compensation for bonding.

**(b) Work by Subcontractor.** When any part of the extra work is performed by a subcontractor, the markup established in 3-3.2.3(a) shall be applied to the subcontractor's actual cost of such work. A markup of ten (10) percent on the first \$5,000 of the subcontracted portion of the extra work and a mark-up of 5 percent on work added in excess of \$5,000 of the subcontracted portion of the extra work may be added by the Contractor.

The markups specified in parts (a) and (b) above shall be considered as including, but not limited to, the Contractor's labor costs for personnel not working directly on the extra work, including the cost of any tools and equipment that they may use. Such costs shall not be reported as labor or equipment costs elsewhere except when they are actually used in the performance of the extra work. Labor costs shall in that case be reported for the labor classification corresponding to the type and nature of extra work performed.

**3-4 CHANGED CONDITIONS.** Add the following:

This subsection does not apply to utilities.

**SECTION 4 – CONTROL OF MATERIALS**

**4-1 MATERIAL AND WORKMANSHIP**

**4-1.1 General.** Add the following paragraph after the second paragraph:

If the work, or any portion thereof, shall be damaged in any way, or if any defective materials or faulty workmanship shall be discovered at any time prior to the final payment, the Contractor shall forthwith, at its own cost and expense, repair said damage, or replace such defective materials, or remedy such faulty workmanship in a manner satisfactory to the Engineer.

**4-1.2 Protection of Work and Materials.** Add the following:

The Contractor shall assume all risks and expense of interference and delay in his operations, and the protection from or the repair of damage to improvements being built under the contract, as may be caused by water of whatever quantity from floods, storms, industrial waste, irrigation, underground or other sources. However, the Contractor shall be entitled to an extension of time in accordance with the provisions of Subsection 6-6. The Contractor shall also assume full responsibility and expense of protecting, or removing and returning to the site of Work, all equipment or materials under his care endangered by any action of the elements.

Furthermore, the Contractor shall indemnify and hold the City harmless from all claims or suits for damages arising from his operations in dewatering the Work and control of water.

## **SECTION 5 – UTILITIES**

### **5-1 LOCATION**

Add the following:

The Contractor shall provide coordination with all the utility companies involved and shall provide protection from damage to their facilities. The Contractor shall be responsible for repair or replacement of said facilities made necessary by its failure to provide required protection. The Contractor is required to include utility requirements in the Construction Schedule per Section 6-1.

The Contractor shall utilize the services of "Underground Service Alert-Southern California" for utility locating in all public right-of-ways by calling 1-800-227-2600 at least 48 hours prior to any excavation.

The new piping shall go over or under the existing utilities as indicated on the plans. Where not indicated, the Contractor shall assume that the new piping will cross under the existing utility. The Contractor shall pothole existing utilities which may interfere with construction as shown on the plans, as directed by the Engineer or as deemed necessary by the Contractor. The cost of potholing herein specified shall be included in the prices paid for other items of work and no additional compensation will be allowed.

Where water lines exist, at each angle point, cross connection and "T" connection, the Contractor, for bidding purposes, shall assume the existence of a concrete thrust block located such as to resolve thrust loads. Any and all costs resulting from the existence of a thrust block, including costs for its removal and restoration if required, shall be deemed as being included in the prices bid for the various items of work.

Underground lines that are potentially hazardous such as oil company lines, natural gas mains, and electrical conduits will be carefully located by the owner as provided in the Standard Specifications. The Contractor shall take special precautions in determining the precise location and depth of these structures to ensure that they will not be damaged by its operations.

Substitute the following for the last paragraph:

Prior to starting construction, the Contractor shall be responsible to determine the location and depth of all utilities which have been marked by the respective owners and which may affect or be affected by its operations. The Contractor also shall determine the location and depth of each service connection, whether or not marked. Full compensation for such work shall be considered as included in the prices bid for other items or work. If a utility which was marked or a service connection is found to interfere with the work after construction has commenced, the Contractor shall be solely responsible for all costs of any delay and for any costs which could have been avoided if the Contractor had located the utility prior to start of construction.

### **5-2 PROTECTION**

Add the following:

If, in the course of construction, the Contractor damages a sewer lateral or water lateral, the Contractor shall be responsible to completely expose said lateral from the main line to the point of connection at private property to verify integrity of all joints to the satisfaction of the Engineer. This shall not be considered to be extra work and no extra costs shall be allowed therefor.

Add the following after the final paragraph:

As noted in subsections 5-2.1, 5-2.2 and 5-2.3 utilities are classified and are to be handled in one of three ways by the Contractor in the course of performing the contract.

### 5-2.1 Noninterfering Utilities

Utilities that are not abandoned by the owner and do not physically interfere with the permanent work in its final location shall be supported, protected and maintained in place by the Contractor, and the Contractor shall be solely responsible for any damage, loss or injury, or death resulting from his/her failure to do so and the Contractor shall indemnify and hold harmless the City from any and all such consequences. Noninterfering utilities may, with the permission of the owner and the Engineer, be relocated still farther from the permanent work in its final locations, but the Contractor shall not so consider, in submitting his bid, unless the relocation is shown on the plans.

### 5-2.2 Abandoned Utilities

Abandoned utilities are those portions of any utility which are no longer needed or desired by the owner and whose destruction is consented to by the owner and/or is permitted by notation on the plans. Abandoned utilities which physically interfere with the permanent work or with the construction thereof shall be removed by the Contractor and the Contractor shall be solely responsible for any damage, loss or injury, or death resulting from the removal and the Contractor shall indemnify and hold harmless the City from any and all such consequences.

### 5-2.3 Interfering Utilities

Any utility shall be deemed an interfering utility (1) which physically occupies any part of the space to be occupied by the permanent work in its final locations, or (2) whose length within the theoretical width of excavation for the permanent work exceeds five times the width of said theoretical excavation whether or not the utility physically interferes with the permanent work. Interfering utilities that are not abandoned by the owner shall be relocated so as not to interfere with the permanent work in its final location. Such relocation will be performed by the owner or the City unless otherwise shown on the plans.

The Contractor shall exercise caution to prevent damage to or movement of the utilities while constructing the permanent work along and adjacent to the utilities.

Should a manhole extend within a trench excavation, the Contractor shall choose one of the following methods of construction and shall assume all responsibilities thereof:

- (1) Support and maintain the manholes in place during the construction of the permanent work in open cut.
- (2) Remove the shaft and maintain the base of the manhole in place until the backfill is placed and compacted; then reconstruct the manhole shaft.
- (3) Use another method of construction which has been submitted to and approved by the Engineer. All costs for the work pertaining to the manholes that might be found to extend partially within the excavation limits or any protective measures required due to the proximity of the manholes and the permanent work at these locations shall be absorbed in the prices bid for the various items of work.

**5-2.2 Protection of Underground Hazardous Utilities.** This Subsection shall apply to projects where there are underground utilities within the Work area which may be potentially hazardous if damaged. A hazardous substance shall be defined as one having the potential for an immediate disaster such as, but not limited to, gasoline, electricity, fuel oil, butane, propane, natural gas, chlorine or other chemicals.

Abandoned or inoperative utilities designed to carry hazardous substances and unidentified or unknown utilities shall be considered hazardous until determined otherwise. Whenever the Contractor is directed by the Engineer to tap these lines, the Contractor shall provide personnel specialized in this work and payment therefore will be considered as extra work per 3-3 of these Special Provisions.

The Contractor shall comply with the following requirements when working around underground

hazardous utilities:

- 1) The Contractor shall not trench or excavate within the area where a utility known to carry a hazardous substance exists until its location has been determined by excavation or other proven methods acceptable to the Engineer. The intervals between exploratory excavations or location points shall be sufficient to determine the exact location of the line. Unless otherwise directed by the Engineer, excavation for underground hazardous utilities shall be performed by the Contractor and paid for as specified per 5-1 of these Special Provisions.
- 2) If it is determined that the horizontal or vertical clearance between the utility known to carry hazardous substances and the construction limit is less than 300 mm (12 inches) (450mm (18 inches) if scarifying), the Contractor shall confer with its owner. Unless the owner elects to relocate the line or take it out of service, the Contractor shall not excavate until the line has been completely exposed within the limits of construction.
- 3) Once the physical location of the utility known to carry hazardous substances has been determined, the Contractor, in cooperation with and with the concurrence of the utility owner, shall determine how to protect and/or support the utility from damage before proceeding with the Work.
- 4) During all excavation and trenching operations, the Contractor shall exercise extreme caution and protect the utilities from damage.
- 5) The Contractor shall notify the Engineer, the public agency maintaining records for the jurisdiction in which the Project is located and the owner, if known, whenever previously unidentified or unknown underground utilities are encountered so that the location can be accurately established and made a part of permanent substructure records.

Full compensation for protecting underground hazardous utilities as specified or noted on the Plans shall be considered as included in the prices bid for the various items of work.

### **5-3 REMOVAL**

Add the following:

It shall be the Contractor's responsibility irrespective of the notations on the plans to confirm or determine that a utility is to be abandoned before treating the same as an abandoned utility and shall assume all risks in so determining.

### **5-4 RELOCATION**

Substitute the following for the last paragraph:

For the purpose of these specifications, service connections shall be construed to mean all, or any portion of, the pipe, conduit, cable, or duct which connects a utility main distribution line to the meter of an individual user, and further, shall include the meter and such portions of said pipe, conduit, cable or duct on the user's side of the meter which affect the contract work or its prosecution.

The City will arrange for the alteration or permanent relocation of only such service connections, except sewer house connections and water laterals, that interfere with the permanent work in its final location and such alteration or permanent relocation will be performed by others at no expense to the Contractor. The Contractor shall be responsible for the alteration or permanent relocation of sewer connections and water laterals, unless otherwise approved by the Engineer.

In instances where the alteration or permanent relocation of interfering service connections can be avoided by encasing same in the slabs or walls of poured-in place concrete structures the Contractor shall, when directed by the Engineer, so encase such service connections, and any costs for such work shall be

absorbed in the unit prices or included in the lump sum amounts bid for the various items of work.

Service connections which do not interfere with the project structures shall be maintained in place by the Contractor. The cost of such work shall be absorbed in the unit prices or included in the lump sum amounts bid for the various items of work.

## **5-5 DELAYS**

Substitute the following:

If the contractor while performing the contract discovers utility facilities not identified by the public agency in the contract plans or specifications, he shall immediately notify the City and utility in writing. The Contractor shall not be entitled to damage or additional payment, nor shall it be entitled to standby time for labor if a delay does occur. The Contractor also shall not be entitled to damage or additional payment for equipment not on the project during the occurrence of the event that caused the related delay. The Engineer will determine the extent of the delay attributable to such interferences, the affect of the delay on the project as a whole, and any commensurate extension of time.

Any failure of the City and/or utility company to accomplish relocations in a reasonable manner in light of the Contractor's operations (to the extent such operations would otherwise be feasible and in accordance with the contract and as disclosed to the City prior to the Contractor encountering any such utility) shall entitle the Contractor to an extension of contract time to the extent that, in the judgment of the Engineer, the Contractor's completion of the overall contract work has been delayed; however, the Contractor shall be entitled to no other remedy and, in submitting its bid, thereby waives such other remedies, if any, unless the relocation delay is the result of arbitrary, capricious or malicious conduct by the City.

## **SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF THE WORK**

### **6-1 CONSTRUCTION SCHEDULE AND COMMENCEMENT OF WORK**

Replace the entire subsection with the following:

**6-1.1 General.** Within ten (10) and no later than fifteen (15) working days after the date of the CITY's execution of the Contract, the Contractor shall submit a proposed construction schedule to the Engineer for approval. The schedule shall be in accordance with 6-1.2 and 6-1.3 and shall be in sufficient detail to show chronological relationship of all activities of the Work. These include, but are not limited to: estimated starting and completion dates of various activities, submittal of shop drawings to the Engineer for approval, procurement of materials and scheduling of equipment.

Prior to issuing the Notice to Proceed, the Engineer will schedule a Pre-Construction Meeting with the Contractor to review the proposed construction schedule and delivery dates, arrange utility coordination and clarify inspection procedures.

An Administrative Notice to Proceed may be given, at the City's option, to allow the contractor to begin some of the contract work. Contractor access to the site may or may not be authorized with the Administrative Notice to Proceed. The duration of time between the Administrative Notice to Proceed and Full Notice to Proceed shall not be included in the required contract duration.

Notwithstanding any other provisions of the Contract, the Contractor shall not be obligated to perform any work and the CITY shall not be obligated to accept or pay for any work performed by the Contractor prior to delivery of a Notice to Proceed. The CITY's knowledge of work being performed prior to delivery of the Notice to Proceed shall not obligate the CITY to accept or pay for such work. The Contractor shall provide all required Contract bonds and evidences of insurance prior to commencing work at the site.

**6-1.2 Criteria.** The construction schedule shall conform to the following criteria:

- 1) The schedule shall be prepared using the latest version of Primavera, Microsoft Project or approved equal.

- 2) Work activities shall be based on the items of work per 2-6, and the following:
  - a) Contract unit price items shall be subdivided into those portions to be constructed during each stage or phase of construction.
  - b) Lump sum items shall be subdivided into those portions to be constructed during each stage or phase of construction.
- 3) Utility relocations by Contractor and "By Others" shall be considered as activities.
- 4) Required submittals and shop drawings shall be included as activities.
- 5) The procurement of construction materials and equipment with long lead times for deliveries shall be included as activities.
- 6) Work to be performed by subcontractors shall be identified and shown as work activities.
- 7) Start and completion dates of each activity shall be illustrated.
- 8) Completion of all Work under the Contract shall be within the time specified in 6-7 of these Special Provisions and in accordance with the Plans and Specifications.

**6-1.3 Requirements.** In preparing the construction schedule, the following items shall be considered:

- 1) Sequence of Construction - The Contractor shall sequence the Work in a manner to expeditiously complete the project with a minimum of inconvenience to the adjacent properties and to conform to the following:
- 2) Concrete removal - All concrete removed shall be hauled off the Work site (including the Contractor's storage yard) no later than the calendar day following the day that the removal is performed. If the calendar day following the removal is a non-working day (Saturday, etc.) the concrete shall be hauled off the Work site on the same day it was removed. Unless otherwise authorized by the Engineer, failure by the Contractor to haul concrete from the Work site and/or Contractor's storage yard(s) in a timely manner may result in a liquidated damage assessed upon the Contractor. Such liquidated damage shall be determined by the Engineer and will be deducted, accordingly, from a Progress Payment due to the Contractor.
- 3) Pavement removal - All pavement removed as a result of trenching or cold milling shall be hauled off the Work site on the same day that the removal is performed
- 4) PCC construction - Construction of PCC sidewalks, access ramps, curbs, and gutters shall be formed and poured within 2 working days following removal of the existing material at any location. Any adjacent trench shall be restored per these Specifications no later than 3 calendar days following the construction of said PCC improvements. Failure by the Contractor to comply with these requirements in a timely manner may result in a liquidated damage assessed upon the Contractor. Such liquidated damage shall be determined by the Engineer and will be deducted, accordingly, from a Progress Payment due to the Contractor.
- 5) Irrigation systems - Irrigation systems disrupted by the Contractor shall not be left inoperable for more than three working days.
- 6) Subsection 307-1.3 regarding the ordering of materials.
- 7) Potholing as discussed in Section 9 of this Specification.
- 8) All Work shall only be performed between the hours of 7:00 a.m. and 4:00 p.m. unless otherwise approved by the Engineer.
- 9) A move-in period of 15 calendar days will be allowed starting on the date in the Notice to Proceed.

Should the Contractor fail to meet these requirements, the Engineer reserves the right to prohibit the Contractor from making further removals until the clean up, construction, or rehabilitation of sprinklers is in conformance with the aforementioned requirements. Furthermore, if after notice is given to the Contractor to perform work to meet these requirements, and the Contractor refuses or for any reason fails to perform sufficiently to meet these schedules, CITY may perform said work and charge the Contractor for all costs incurred.

#### **6-1.4 Updates.**

The Contractor shall submit 2 copies of an updated construction schedule to the Engineer on the first working day of each week. The updated construction schedule shall indicate the progress of all work items and the schedule for all upcoming work items.

Furthermore, if the Contractor makes a significant change in the construction schedule or method of operations after commencing construction, or if the schedule fails to reflect the actual upcoming work or progress of work, the Contractor shall submit to the Engineer an updated construction schedule. The updated construction schedule shall be submitted prior to commencing any work considered to be "re-scheduled". The Contractor shall submit 3 copies of any updated construction schedule to the Engineer and within 2 calendar days following the day of which the existing construction schedule was deemed "inaccurate".

#### **6-1.5 Payment**

Full compensation for complying with all requirements of Section 6-1.4 will be per the Contract unit price for CONSTRUCTION SCHEDULE. If the Contractor fails to timely submit any updated Construction Schedule to the Engineer, the CITY may deduct an appropriate and reasonable amount from the Contract unit price for each work day after the due date, thereafter. After the fifth subsequent working day, the Contractor will not be compensated for the updated schedule, regardless of whether or not it is eventually submitted.

### **6-7 TIME OF COMPLETION**

#### **6-7.1 General.** Replace the first sentence with the following:

The Contractor shall complete the work within 25 working days from the start date specified in the Notice to Proceed.

### **6-8 COMPLETION, ACCEPTANCE AND WARRANTY**

Replace the second paragraph with the following:

If, in the Engineer's judgment, the Work, or portion of the entire Work, has been completed and is ready for acceptance, the Engineer will so certify and will determine the date when the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect the Work. The Engineer may cause a Notice of Completion to be filed and recorded with the Los Angeles County Recorder's Office. At the Engineer's option, the Engineer may certify acceptance to the City Council who may then cause a Notice of Completion to be filed and recorded with the Los Angeles County Recorder's Office.

Add the following subsection:

**6-8.1 Manufacturer's Warranties.** Manufacturer's warranties shall not relieve the Contractor of liability under these Specifications. Such warranties only shall supplement the Contractor's responsibility.

The Engineer may, at his option, require a manufacturer's warranty on any product offered for use.

### **6-9 LIQUIDATED DAMAGES**

In each of the two paragraphs, substitute "\$500" in place of "\$250" as the amount of the liquidated damages per each consecutive calendar day.

## **SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR**

### **7.2 LABOR**

Add the following subsections:

#### **7-2.3 Payrolls and Payroll Records**

Any payroll and payroll records required for this project shall be submitted, for each week in which any contract work is performed, to the Engineer. A retention of \$500 per report (individual or collective) per pay period will be withheld from a progress payment for a late or missing report. A report shall be deemed as late or missing when not submitted to the Engineer within 10 calendar days from the close of the pay period for which the report applies.

#### **7-2.4 Subcontractor and DBE Records**

At the completion of the contract if the Contractor does not submit its Subcontractor and/or DBE Records to the Engineer, a retention in the amount of \$1,000 per record will be withheld from a progress payment for a late or missing record. A record shall be deemed as late or missing when not submitted to the Engineer within 15 calendar days from the completion of the contract.

### **7-3 LIABILITY INSURANCE**

Replace the second sentence of the second paragraph with the following:

The Contractor must maintain at its sole expense the following insurance, which will be full coverage not subject to self-insurance provisions:

- 1) Automobile Liability, including owned, non-owned and hired vehicles, with at least the following limits of liability:
  - a) Combined single limits of \$2,000,000 per occurrence.
- 2) General Liability including coverage for premises, products and completed operations, independent Contractors, personal injury and contractual obligations with combined single limits of coverage of at least \$3,000,000 per occurrence, with an annual aggregate of no less than \$5,000,000.

Add the following:

The Contractor must include all subcontractors as insureds under its policies or must furnish separate certificates and endorsements for each subcontractor.

### **7-4 WORKER'S COMPENSATION INSURANCE**

Add the following after the first sentence of the second paragraph:

Worker's Compensation Insurance shall be with limits as required by the State of California and Employer's Liability with limits of \$1,000,000 per accident.

### **7-5 PERMITS**

Replace the second paragraph with the following:

The Contractor shall obtain a City of Torrance Business License and a no-fee Construction Excavation Permit before commencing construction.

#### **7-5.2 Payment**

There shall be no separate or additional payment for obtaining permits. The cost shall be included in the appurtenant items of work included in the Bid Schedule.

**7-6 THE CONTRACTOR'S REPRESENTATIVE**

Add a third paragraph to the section stating the following:

The Contractor's Representative shall be approved by the CITY prior to the start of the Work. If the designated representative is rejected, the Contractor shall immediately designate another representative in writing and submit to the City for consideration. The CITY shall have the authority to require the Contractor to remove its representative and/or alternate representative at any time and at no cost to the CITY.

**7-8 PROJECT SITE MAINTENANCE.**

**7-8.5 Temporary Light, Power, and Water.** Add the following:

The Contractor shall obtain a construction water meter from the CITY by calling Torrance Customer Service Operations ("CSO") at (310) 921-6449. A \$1,000 deposit is required and refundable upon return of the meter in good working condition. The Contractor shall pay for the water used, at the CITY's current water rates.

Some water mains in Torrance are owned/operated by California Water Service. For rental of a hydrant meter the contractor shall call California Water Service at (310) 257-1400.

**7-8.6.2 Best Management Practices.** Add the following:

Best Management Practices (BMPs) shall be defined as any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution. The Contractor shall obtain and refer to the California Storm Water Best Management Practice Handbooks, Volume 3 Construction BMP Handbook and the Los Angeles County Department of Public Works Best Management Practices Handbook for Construction Activities. These publications are available from:

Los Angeles County  
 Department of Public Works  
 Cashier's Office  
 900 S. Fremont Avenue  
 Alhambra, CA 91803  
 Telephone (626) 458-6959

The Contractor shall have a minimum of two (2) readily accessible copies of each publication on the Work site at all times. The Contractor shall implement BMPs in conjunction with the following construction operation and activities:

CONSTRUCTION PRACTICES	Clearing, Grading and Excavating
	Water Conservation Practices
	Dewatering
	Paving Operations
	Structure Construction and Painting
MATERIAL MANAGEMENT	Material Delivery and Storage
	Material Use
	Spill Prevention and Control
WASTE MANAGEMENT	Solid Waste Management
	Hazardous Waste Management
	Contaminated Soil Management
	Concrete Waste Management
	Sanitary/Septic Waste Management
VEHICLE AND EQUIPMENT MANAGEMENT	Vehicle and Equipment Cleaning
	Vehicle and Equipment Fueling

	Vehicle and Equipment Maintenance
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The Contractor shall implement the following BMPs in conjunction with the previously listed construction operation activities:

VEGETATIVE STABILIZATION	Scheduling of Planting
	Preservation of Existing Vegetation
	Temporary Seeding and Planting
	Mulching
PHYSICAL STABILIZATION	Geotextiles and Mats
	Soil Stabilizer/Dust Control
	Temporary Stream Crossing
	Stabilized Construction Roadway
	Stabilized Construction Entrance
RUNOFF DIVERSION	Sodding, Grass Plugging, and Vegetative Buffer strips
	Earth Dikes, Drainage Swales, and Lined Ditches
	Top and Toe of Slope Diversion Ditches/Berms
	Slope Drains and Subsurface Drains

VELOCITY REDUCTION	Flared Culvert End Sections
	Outlet Protection/Velocity Dissipation Devices
	Check Dams
	Slope Roughening/Terracing/Rounding
SEDIMENT TRAPPING	Slit Fences
	Straw Bale Barrier
	Sand Bag Barrier
	Brush or Rock Filter
	Storm Drain Inlet Protection
	Sediment Traps
	Sediment Basin

Additional BMPs may be required as a result of a change in actual field conditions, Contractor activities, or construction operations. When more than one BMP is listed under each specific BMP category, the Contractor shall select the appropriate and necessary number of BMPs within each category in order to achieve the BMP objective.

BMPs for Contractor activities shall be continuously implemented throughout the year. BMPs for erosion control and sedimentation shall be implemented during the period from October 15 to April 15, and whenever the National Weather Service predicts rain within 24 hours. BMPs for erosion control and sedimentation shall also be implemented prior to the commencement of any Contractor activity or construction operation that may produce run-off, and whenever run-off from other sources may occur.

The CITY, as a Permittee, is subject to enforcement actions by the State Water Resources Control Board, the Environmental Protection Agency and private citizens. The CITY may assess the Contractor a penalty of \$1,000 for each calendar day that the Contractor has not fully implemented the appropriate BMPs and/or is otherwise in noncompliance with these provisions. In addition, the CITY will deduct, from the final payment due the Contractor, the total amount of any fines levied on the CITY, plus legal and staff costs, as a result of the Contractor's lack of compliance with these provisions and/or less than complete implementation of the appropriate BMPs.

**7-8.6.5 Payment.** Full compensation for implementation and maintenance of BMPs, including the construction, removal, and the furnishing of all necessary labor, equipment, and materials, shall be considered as included in the lump sum price bid for the STORM WATER CONTROL/BMPs.

**7-8.8 Contractor's Storage Yard.** The Contractor shall be responsible for obtaining a storage yard for the duration of the work. If the proposed location of the yard is located within the boundaries of the CITY, the Contractor shall obtain prior approval from the Engineer.

**7-8.9 Graffiti Removal.** The Contractor shall maintain the Work, all of its equipment, and all traffic control devices, including signage, free of graffiti throughout the duration of the Contract. The Contractor shall respond to any request from the Engineer to remove graffiti within 4 hours of notification. Should the Contractor fail to respond to such request, the CITY reserves the right to make other arrangements for the requested graffiti removal and deduct the cost from any monies due the Contractor.

## **7-9 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS**

Add the following paragraph:

The Contractor shall be responsible to protect all new concrete work from being etched, scratched or otherwise marked or having wet slough material deposited thereon. If new concrete work is marked, the Contractor shall replace it at its expense in accordance with 303-5.7 of these special provisions.

Add the following subsections:

**7-9.1 Replacement of Plantings.** The Contractor shall be responsible to replace any lawn or plant damaged by Contractor's operations, at its expense, to the satisfaction of the Engineer.

**7-9.2 Replacement of Sprinkler Systems.** Damaged sprinklers shall be replaced so that the area watered by the original system is watered by the reconstructed system without undue waste of water. Any additional material or work required to obtain said adequate coverage shall be furnished by the Contractor, at its expense.

**7-9.3 Trees.** The Contractor shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs not designated for removal and shall not trim or remove any trees unless such trees have been approved for trimming or removal by the Engineer. Tree trimming and replacement shall be accomplished in accordance with the following requirements

- (a) Trimming. Symmetry of the tree shall be preserved; no stubs, splits torn branches or torn roots left; clean cuts to be made close to trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over one and one-half inches in diameter shall be coated with a suitable tree wound paint as approved by the Engineer.
- (b) Replacement. The Contractor shall immediately notify the Engineer if any tree not designated for removal is damaged by its operations. If, in the opinion of the Engineer, the damage is such that replacement is necessary, the Contractor shall replace the tree at its own expense. The tree shall be of a like variety as the tree damaged, subject to the approval of the Engineer. The size of the tree shall be minimum 24" box size.

## **7-10 PUBLIC CONVENIENCE AND SAFETY**

**7-10.1 Traffic and Access.** Add the following before the last paragraph:

The Contractor shall provide the necessary measures to prevent public access to private property during removal and replacement of fences during non-working hours.

Replace the fourth paragraph with the following:

At least three (3) days prior to starting work at any location, the Contractor shall distribute written notices to businesses that will be impacted by the work. The City will provide the notice.

Should any change in these requirements be necessitated by extraordinary occurrences or requirements during the execution of the work, the Contractor shall obtain prior written approval of the Engineer.

Add the following subsections:

**7-10.1.1 Traffic Control Plan.** No additional traffic control plan is required by the Contractor. However, the Contractor shall fully comply with the 2012 California MUTCD and the traffic control plans included in this contract. The Contractor shall provide all signs, warning devices, barricades, channelization devices, arrow boards, lights, temporary pavement markings and flaggers, as required, and shall be responsible to install, maintain and remove same in accordance with this contract. Any failure to provide or maintain any traffic control device or requirement, including those required for pedestrian access, shall be deemed a breach of contract, and the Contractor may be required to stop work until the item has been provided or corrected.

**7-10.1.2 Minimum Requirements for Maintaining Traffic Flow.** The Contractor shall observe the following minimum requirements:

- a) Unless otherwise permitted by this Contract or authorized by the Engineer, all roadways, driveways, travel and turning lanes, sidewalks and access ramps shall remain open at all times.
- b) For southbound Maple Ave, the Contractor shall maintain open one (1) twelve (12) foot-wide southbound through lane and the southbound left-turn lane during the work. All other travel and turn lanes shall be kept open all other times.
- c) All westbound lanes on Sepulveda Blvd shall kept open to traffic at all times, except as when needed to close the westbound curb lane on Sepulveda Blvd to complete work at the northwest corner of the Maple Ave/Sepulveda Blvd intersection. The lane closure on Sepulveda Blvd shall be in conformance with the traffic control plans of this contract, unless otherwise directed and/or authorized by the Engineer.
- d) Traffic signs, flaggers, warning devices, safety traffic devices and, on select streets, electronic arrow boards for diverting and directing traffic shall be furnished, installed and maintained by the Contractor throughout the project.

**7-10.1.3 Temporary Pavement Markings.** If permanent pavement markings cannot be restored by the end of the work shift in which they were obliterated, temporary markings shall be provided by the Contractor prior to leaving the Work site on all streets except any street closed to through traffic. These temporary markings shall be as follows:

Temporary lane lines and/or centerlines shall consist of day/night reflectorized raised pavement markers, approved by the Engineer, spaced approximately twenty-four (24) feet apart. A list of approved day/night reflectorized raised pavement markers may be obtained from the CITY.

Where approved by the Engineer, the Contractor may use reflectorized lines approximately twenty-four (24) inches long and four (4) inches wide, spaced approximately twenty-four (24) feet apart.

All temporary pavement markings and signs shall be maintained, or replaced as necessary by the Contractor, until permanent pavement markings are restored.

**7-10.1.4 Temporary Pavement Markers/Delineation.** Temporary pavement delineation shall be furnished, placed, maintained and removed in accordance with the provisions of Section 12-3.01, of the Caltrans Standard Specifications. Nothing in these Special Provisions shall be construed as to reduce the minimum standards specified in the Manual of Traffic Controls published by Caltrans or as relieving the Contractor from responsibility as provided in 7-10 of these Special Provisions.

Whenever the work causes obliteration of pavement markers and/or delineation, the Contractor shall set in place temporary pavement markers/delineation prior to opening the traveled way to traffic. All pavement

markers/delineation, including but not limited to lane lines, centerlines, directional arrows, pavement legends, etc, shall be provided at all times for traveled ways open to traffic.

All work necessary to establish temporary pavement markers/delineation shall be performed by the Contractor. Surfaces on which temporary pavement delineation is to be applied shall be cleaned of all dirt and loose material and shall be dry when the pavement delineation is applied. Temporary pavement markers/delineation shall not be applied over existing pavement delineation or other temporary pavement delineation.

Temporary pavement markers/delineation shall be maintained until replaced with permanent pavement markers/delineation. Temporary pavement delineation shall be removed when 1) it conflicts with the permanent pavement delineation; 2) a new traffic pattern is established or 3) as determined by the Engineer.

Temporary pavement delineation shall consist of temporary reflective raised pavement markers placed on lane lines and centerlines at longitudinal intervals of not more than 24 feet apart. Temporary reflective raised markers shall be the same color as the lane line or centerline the markers replace. Temporary reflective raised pavement markers shall be, at the option of the Contractor, one of the following or approved equal:

Apex Universal Product No. 2SCSM-1W or 2SCSM-2Y markers manufactured by Apex Universal, 11033 Forest Place, Santa Fe Springs, CA 90607, Telephone (562) 944 8878

Flex-O-Lite Raised Construction Marker (RCM), manufactured by Flex-O-Lite, Lukens Company, P.O. Box 4366, St. Louis, MO 63123-0166, Telephone (800) 325-9525.

Temporary reflective raised pavement markers shall be placed as directed by the Engineer. Temporary reflective raised pavement markers shall be applied to the pavement surface with the adhesive in accordance with the manufacturer's instructions. Epoxy adhesive shall not be used to apply temporary reflective raised pavement markers in areas where the pavement will not be removed.

Temporary lane line or centerline delineation consisting of temporary reflective raised pavement markers placed on longitudinal intervals of not more than twenty-four (24) feet, shall be used on lanes opened to public traffic for a maximum of fourteen (14) days. Prior to the end of the fourteen (14) days the planned permanent pavement delineation, except permanent pavement markers, shall be placed. If the planned permanent pavement delineation, exclusive of permanent pavement markers, is not placed within fourteen (14) days, the Contractor shall provide, at its expense, additional temporary pavement delineation as directed by the Engineer. The additional temporary pavement delineation to be provided shall be equivalent to the pattern specified for the permanent traffic lines as determined by the Engineer.

#### **7-10.1.5 Payment**

1. All costs for the requirements for developing, construction and maintaining access and traffic shall be included in the Contract lump sum price for TRAFFIC CONTROL.
2. All costs associated with the above requirements shall be included in the Contract unit price for TRAFFIC CONTROL.
3. Full compensation for establishing, furnishing, placing, maintaining, and sandblasting of temporary striping/markings, temporary pavement markers/delineation shall be considered as included in the Contract unit price for TRAFFIC CONTROL and no extra costs will be allowed.
4. Full compensation for furnishing, placing, maintaining and removing temporary signs shall be considered as included in the Contract unit price for TRAFFIC CONTROL.

### **7-10.3 Street Closures, Detours, Barricades.**

#### **7-10.3.1 Payment**

Full compensation for furnishing, installing, maintaining and removing traffic control devices shall be considered as included in the Contract lump sum price for TRAFFIC CONTROL.

Revise the final sentence of the third paragraph to include:

Except as modified hereinafter or within the Special Provisions.

Add the following paragraph after the third paragraph:

The Contractor shall conform to Section 74.6.8 of the Torrance Municipal Code. In addition, the Contractor shall comply with directions from the Engineer to provide protection at excavations, trenches and/or other potentially hazardous construction areas. The Contractor shall be required to erect temporary railing (Type K) per Caltrans Standard Plan T3, five-foot high chain link fences, or equivalent protection, to completely enclose all open excavations over three feet (3') in depth. Fencing shall be approved by the Engineer, and provide adequate security. Fencing may be removed during working hours to the extent necessary to provide access and working room, in which case the Contractor shall provide equivalent security, to the satisfaction of the Engineer, during said periods. Any excavation not secured to the satisfaction of the Engineer shall be completely backfilled prior to the end of each day's construction activities. The Engineer may require additional security devices, lighting or other protection in addition to said fencing. Full compensation for furnishing, placing and removing temporary protection shall be considered as included in the price for the various items of work.

### **7-13 LAWS TO BE OBSERVED**

Add the following:

The Contractor shall obtain a CITY of Torrance Business License and a no-fee Construction Excavation Permit before commencing construction. The Contractor shall obtain no-fee Electrical from the City before commencing installation of new electrical services and/or on-site irrigation systems, as applicable.

Add the following subsection:

### **7-15 PROJECT CONSTRUCTION SIGNS AND PORTABLE CHANGEABLE MESSAGE SIGNS**

The Contractor shall furnish and install one (1) 75" x 60" colored Measure R Construction sign, per the detail provided in Appendix VI. Prior to manufacturing the sign, the Contractor shall request from the City the Adobe Illustrator file to be used by the sign fabricator for sign fabrication. The sign shall also include two additional logos at the bottom of the sign. One logo for the South Bay Cities Council of Governments and the other logo for City of Torrance. The City will provide the Contractor the electronic files of these two additional logos.

The Contractor shall furnish and install four (4) Portable Changeable Message signs (PCMS) for use during construction. Each PCMS shall be manufactured by Solar Tech and be model MB2 (contact BC Rentals at (714) 279-6868 for information) or be an approved equal. The Contractor shall install a locking device on each PCMS to prohibit access to the computer keyboard. The Contractor shall provide to the Engineer the key or combination to each locking device and the computer password to each PCMS. Contractor shall relocate each PCMS as directed by Engineer at no additional cost to the City.

#### **7-15.1 Payment**

Full compensation for furnishing, installing, maintaining and removal of the Measure R Construction sign shall be per unit per the Contract unit price for CONSTRUCTION SIGN.

Full compensation for furnishing, installing, maintaining, entering/modifying message screens, relocation on the job site and removal shall be per unit per the Contract unit price for PORTABLE CHANGEABLE MESSAGE SIGNS. If the contractor does not possess the electronic equipment, on any working day, to enter or modify a message for a PCMS, the Engineer may deduct \$50 per day, per each PCMS, from a Progress Payment until said message is entered or modified.

## **SECTION 9 - MEASUREMENT AND PAYMENT**

### **9-1 MEASUREMENT OF QUANTITIES FOR UNIT PRICE WORK**

Add the following sections:

#### **9-1.2.1 Payment for Labor and Materials.**

The Contractor shall pay and cause the subcontractors to pay any and all accounts for labor, including Worker's Compensation premiums, State Unemployment and Federal Social Security payments and all other wage and salary deductions required by law. The Contractor also shall pay and cause the subcontractors to pay any and all accounts for services, equipment and materials used by it and the subcontractors during the performance of work under this contract. All such accounts shall be paid as they become due and payable. If requested by the Engineer, the Contractor shall immediately furnish the City with proof of payment of such accounts.

#### **9-1.2.2 Measurement and Payment**

Payment of each item will include full compensation for furnishing all labor, materials, tools, equipment and backup equipment; transportation and technical competence for performing all work necessary to complete each item as indicated on the plans and as specified in these Contract Documents, including but not limited to obtaining all applicable certifications necessary for specialty personnel and major equipment in conformance with Subsection 7-5, and all other applicable permits; securing a storage yard to store all equipment and materials to be used on the job, disposal of waste materials, restoration of the site, etc. The storage yard may also be used as a temporary storage for excavated materials, and traffic control items.

### **9-2 LUMP SUM WORK**

Replace the second paragraph with the following:

The Contractor shall, within five (5) working days of receipt of a request from the Engineer, submit a complete breakdown of lump sum bid prices showing the value assigned to each part of the work, including an allowance for profit and overhead. In submitting the breakdown, the Contractor certifies that it is not unbalanced and that the value assigned to each part of the work represents its estimate of the actual cost, including profit and overhead, of performing that part of the work. The breakdown shall be sufficiently detailed to permit its use by the Engineer as one of the bases for evaluating requests for payment. No extra costs shall be allowed for providing these breakdowns.

### **9-3 PAYMENT**

**9-3.2 Partial and Final Payment.** Replace the third paragraph with the following:

For each progress estimate, 5 percent will be deducted and retained by the CITY, and the remainder less the amount of all previous payments will be paid. In addition 125% of the amount of outstanding "Stop Notices" shall be withheld.

Add the following:

The Contractor shall submit all requests for payment on a Progress Payment Invoice to be provided by the CITY.

Prior to submittal of said invoice, all items for which payment is requested shall be checked and approved in writing by the Engineer. No payments will be made unless all back-up data is submitted with the payment

request and the Progress Payment Invoice is signed by both Contractor and Engineer.

**9-3.4 Mobilization.** Replace the entire subsection with the following:

Mobilization shall include the provisions of the Emergency Response Plan; site review; obtaining all permits, insurance, and bonds; moving onto the site all plant and equipment; furnishing and erecting plants, potholing; temporary buildings, and other construction facilities, and removal of same at completion of the Work; and other work, all as required for the proper performance and completion of the Work.

Mobilization shall also include, but not be limited to, the following items:

- (a) Moving on to the site of all Contractor's plant and equipment required for the first month's operations.
- (b) Installing temporary construction power and wiring.
- (c) Establishing fire protection system.
- (d) Developing construction water supply.
- (e) Providing on-site sanitary facilities and portable water facilities, as required.
- (f) Arranging for and erection of Contractor's work and storage yard.
- (g) Submittal of all required insurance certificates and bonds, including subcontractors.
- (h) Obtaining all Contractor required permits.
- (i) Posting all OSHA required notices and establishment of safety programs.
- (j) Potholing for proposed storm drain pipelines, traffic signal foundations and street light foundations and other research and review as necessary to verify site conditions and utility locations
- (k) Having the Contractor's Superintendent present at the job site full-time.
- (l) Removal (including all spray-painted markings on any surface), cleanup, and restoration

**9-3.4.1 Payment**

Payment for MOBILIZATION/DEMobilIZATION will be made on a basis lump sum.

**9-3.5 Noncompliance with Plans and Specifications.** Add the following section:

Failure of the Contractor to comply with any requirement of the Plans and Specifications, and/or to immediately remedy any such noncompliance upon notice from the Engineer, may result in suspension of Contract Progress Payments. Any Progress Payments so suspended shall remain in suspension until the Contractor's operations and/or submittals are brought into compliance to the satisfaction of the Engineer. No additional compensation shall be allowed as a result of suspension of Progress Payments due to noncompliance with the plans or specifications. The Contractor shall not be permitted to stop work due to said suspension of Progress Payments.

#### **9-4 CLAIMS**

The Contractor shall not be entitled to the payment of any additional compensation for any cause, including any act, or failure to act, by the CITY, or the happening of any event, thing or occurrence, unless the Contractor shall have given the CITY due written notice of potential claim as hereinafter specified.

The written notice of potential claim shall set forth the reasons for which the Contractor believes additional compensation will or may be due, the nature of the costs involved, and, insofar as possible, the amount of the potential claim. Said notice shall be submitted on a form approved by the CITY at least forty-eight (48) hours (two working days) in advance of performing said work, unless the work is of an emergency nature, in which case the Contractor shall notify and obtain approval from the Engineer prior to commencing the work. The Engineer may require the Contractor to delay construction involving the claim, but no other work shall be delayed, and the Contractor shall not be allowed additional costs for any said delay but may be allowed an extension of time if the Engineer agrees that the work delayed is a controlling element of the Construction Schedule. The Contractor shall be required to submit any supporting data (or a detailed written explanation justifying further delay) within five (5) work days of a request from the Engineer and shall be responsible for all costs associated with any delays resulting from late and/or incomplete submittals. By submitting a Bid, the Contractor hereby agrees that this subsection shall supersede 6-6.3 and 6-6.4 of the Standard Specifications.

It is the intention of this subsection that differences between the parties arising under and by virtue of the Contract be brought to the attention of the Engineer at the earliest possible time in order that such matters may be settled, if possible, or other appropriate action promptly taken. The Contractor hereby agrees that it shall have no right to additional compensation for any claim that may be based on any such act, failure to act, event, thing or occurrence for which no written notice of potential claim as herein required was timely filed.

## **PART 2 - CONSTRUCTION MATERIALS**

### **SECTION 200 – ROCK MATERIALS**

#### **200-2 UNTREATED BASE MATERIALS**

**200-2.1 General.** Replace the entire subsection with the following:

Untreated base for pavement, curb, gutter, cross gutters, hardscape and other improvements shall be crushed miscellaneous base conforming to 200-2.4.

### **SECTION 203 – BITUMINOUS MATERIALS**

#### **203-5 EMULSION-AGGREGATE SLURRY.**

**203-5.1 General.** Replace the first sentence with the following:

Emulsion-aggregate slurry shall be a stable mixture of emulsified asphalt, mineral aggregate, water and retardant and is herein referred to as Slurry.

The material to be used shall be a quick-set Type II slurry mix, with the addition of 2.5% latex modifier.

#### **203-6 ASPHALT CONCRETE**

**203-6.1 General.** Add the following:

Asphalt concrete shall be Type C2-PG-70-10.

### **SECTION 207 – PIPE**

#### **207-1 NONREINFORCED CONCRETE PIPE.**

**207-1.1 General.** Add the following as the last paragraph:

Where non-reinforced concrete pipe is specified on the Plans, the Contractor shall have the option of using reinforced concrete pipe with an equivalent D-load at no extra charge. The Contractor shall have the option of using either bell and spigot or tongue and groove pipe.

#### **207-9 IRON PIPE AND FITTINGS**

##### **207-9.2 Ductile Iron Pipe for Water and Other Liquids.**

**207-9.2.1 General.** Replace the last paragraph with the following:

Ductile iron pipe (DIP) shall comply with AWWA C150 and C151. Unless otherwise specified on the Plans or Specifications, the minimum pipe wall thickness shall be equal to Pressure Class 350.

**207-9.2.2 Pipe Joints.** Replace the entire subsection with the following:

Unless otherwise specified on the Plans or Specifications, all pipe joints shall be ductile iron and shall comply with the requirements of Table 207-9.2.2 (A) of these Special Provisions. Pipe joints shall be rated for a working pressure of 350 psig.

**TABLE 207-9.2.2 (A)**

Type of Joint	Specifications
Rubber Gasket Push-on Joint	AWWA C111
Mechanical Joint	AWWA C111
Flanged Joint	AWWA C153 or C110
Flanged Joint (Threaded Flanges)	AWWA C115
Restrained Joint	ANSI / AWWA C111 / A21.11

Gaskets shall be 1/8-inch thick and made of styrene butadiene rubber (SBR). Gaskets shall conform to AWWA C111 and 208-1.2. Flange gaskets shall be full-face, with bolt holes pre-punched and rated for 350 psi working pressure.

Flange assembly bolts shall be square head machine bolts conforming to ANSI/ASME B18.2.1 with heavy hexagon nuts conforming to ANSI/ASME B18.2.2. Bolts and nuts shall be threaded according to ANSI/ASME B1.1, course thread series, Class 2 fit. Bolt length shall be such that after joints are made up, the bolts shall protrude through the nut by no more than ½-inch. Bolts for use in buried installations shall be stainless steel Type 316. Bolts for use in submerged installations shall be stainless steel Type 304.

**207-9.2.2.1 Restrained Joints.** Add the following subsection:

Restrained joints for piping 6 inches and larger shall be American Cast Iron Pipe Company "MJ Coupled Joint," "Lok-Ring" or "Flex-Ring," U.S. Pipe "TR-Flex," or equal. All weldments for restrained joints shall be tested by the liquid penetrant method per ASTM E 165. The CalWater 18" line shall use restrained joint U.S. Pipe "Field-Lok" gaskets at fittings and tie-ins, when indicated on drawings, and be installed per manufacturer's recommendations. Use of restrained joints shall be used on the pipe runs on both sides of the fittings per the DIPRA Thrust Restraint Design recommendations.

Alternatively, restrained joints in 12-inch diameter and smaller buried piping shall be American Cast Iron Pipe Company "Fast-Grip," U.S. Pipe "Field-lok" gasket within Tyton joint pipe and fittings, or equal. Joint restraint shall be certified to four times rated pressure of 200 psi by Factory Mutual.

**207-9.2.3 Fittings.** Replace the entire subsection with the following:

Unless otherwise specified on the Plans and Specifications, all fittings shall be ductile iron and manufactured in accordance with AWWA C153 or C110. Fittings shall be furnished with restrained joints or thrust blocked and anchored in accordance with City of Torrance Standard Plan No. T713. Fittings shall have a minimum pressure rating of 350 psig working pressure. Restrained joint fittings shall be used on the 24" City of Torrance line where noted. The 18" CalWater line shall use restraint joint fittings.

Sleeve-type couplings shall be MJ x MJ, 12-inches minimum length and rated 350 psig working pressure. Romac type sleeves may be used where approved by the Engineer.

Special fittings are not allowed without the prior written approval from the Engineer.

Rubber gaskets, bolts and nuts shall conform to 207-9.2.2 of these Special Provisions.

**207-9.2.4 Lining and Coating.** Add the following:

Cement for mortar lining shall be Type II or V. Fly ash or pozzolan shall not be used as a cement replacement.

Fittings lined and/or coated in the field will not be accepted as conforming to AWWA C104, C151, or C153.

The exterior surfaces of ductile iron pipe, fittings, valves and appurtenances that will be exposed to the atmosphere inside structure or above ground shall be thoroughly cleaned and painted with a rust-inhibitive primer conforming to the requirements of 210-1.8 of these Special Provisions.

**207-9.2.6 Polyethylene Encasement for External Corrosion Protection.** Replace the entire subsection with the following:

All ductile iron pipes, fittings, valves and appurtenances shall be wrapped with 8 mil. polyethylene film. The polyethylene film shall be pulled snugly around the pipes, fittings, valves and appurtenances and held in place with a 2-inch wide polyethylene adhesive tape in accordance with AWWA C105 Method A.

## **SECTION 209 – ELECTRICAL COMPONENTS (Referencing Section 86 of Caltrans Standard Specifications)**

Delete the entire Section 209 and replace with Section 86 of the Caltrans Standard Specifications, amended herein under Section 307.

## **SECTION 210 – PAINT AND PROTECTIVE COATINGS**

### **210-1 PAINT**

#### **210-1.6 Paint for Traffic Striping, Pavement Marking, and Curb Marking.**

**210-1.6.1. General.** Replace the entire subsection with the following:

All permanent striping and pavement markings shall be hot applied alkyd thermoplastic in accordance with the provisions of Section 84-2.02 of the Caltrans Standard Specifications.

**210-1.6.2. Thermoplastic Paint, State Specifications.** Replace the entire subsection with the following:

Thermoplastic traffic stripes and pavement markings shall conform to the provisions of Section 84 of the Caltrans Standard Specifications. Contractor shall paint a solid black stripe between all double thermoplastic striping.

Add the following subsections:

**210-1.8. Paint for Exterior Surfaces of Ductile Iron Pipe.** The exterior surfaces of ductile iron pipe, fittings, valves and appurtenances that will be exposed to the atmosphere inside structure or above ground shall be painted with three coats of "Rustoleum No. 7773" or approved equal. The final coat color shall be selected by Engineer or identified on plans. Total thickness of coating shall be 6 mils.

**210-1.9 Coating for Valves.** Except as otherwise provided, all ferrous surfaces (excluding non-corrosive surfaces) in water passages of all valves 4-inches and larger shall be fuse coated with an epoxy coating in accordance with the "Standard for Protective Epoxy Interior Coatings for Valves and Hydrants" (AWWA C550).

**210-1.10.1 Surface Preparation.** Surface preparation shall conform to the following requirements:

Prime Coat: Self-curing, two-component inorganic zinc rich coating recommended by the manufacturer for overcoating with a epoxy finish coat. Minimum zinc content shall be 14 pounds per gallon. Apply to a thickness of 3 mils. Products: Tnemec N90E92, Porter 311 Zinc-Lock, Ameron Dimetcote 9, or approved equal.

Intermediate and Finish Coat: 100 percent solids, thermosetting or catalytic, fusion bonded, dry powder epoxy, suitable for the intended service as recommended by the manufacturer, Scotchkote 134 or approved equal.

Valves shall be coated on their interior metal surfaces excluding seating areas and bronze and stainless steel pieces. Sandblast surfaces in accordance with SSPC SP-5. Remove all protuberances, which may produce pinholes in the lining. Round all sharp edges to be coated. Remove any contaminants, which may prevent ponding of the lining. Coat the interior ferrous surfaces using one of the following methods:

- 1) Apply powdered thermosetting epoxy per the manufacturer's application recommendations to a thickness of 10 to 12 mils.
- 2) Apply two coats of catalytically setting epoxy (Keysite 740, Gilpon, or equal) to a dry film thickness of 10 to 12 mils total. Follow the paint manufacturer's application recommendations including minimum and maximum drying time between required coats.

All epoxy lining shall be fusion epoxy applied by the manufacturer. Coat interior surfaces of cast iron valves at the place of manufacturer. Do not coat seating areas and plastic, bronze, stainless steel, or other high alloy parts.

## **SECTION 214 – PAVEMENT MARKERS (Referencing Section 85 of Caltrans Standard Specifications)**

Delete the entire Section 214 and replace with Section 85 of the Caltrans Standard Specifications, amended herein under Section 312.

Add the following section:

## **SECTION 215 – MISCELLANEOUS POTABLE WATER DISTRIBUTION SYSTEM MATERIALS**

### **215-1 VALVES**

**215-1.1 General.** All valves and gates shall be new and of recent manufacture. The flanges shall be plain faced and shall conform in dimensions and drilling to ANSI B16.1 Class 125 or ANSI/AWWA C153. Each valve body shall be tested to a pressure equal to twice its design water working pressure, except that gate valves shall be tested in accordance with the requirements of AWWA C500.

All interior parts of valves manufactured of bronze or brass except valve stems, shall conform to the requirements of ASTM B62. Gate valve stems shall be of bronze, containing not more than 5 percent of zinc, not more than 2 percent of aluminum, and having a minimum tensile strength of 60,000 psi, a yield strength of 40,000 psi, and elongation of at least 10 percent in two inches, as determined from a test coupon poured from the same ladle from which the valve stems to be furnished are poured.

Except as otherwise provided, all ferrous surfaces (excluding non-corrosive surfaces) in the water passages of all valves, 4 inch and larger, shall be fuse coated with an epoxy coating in accordance with AWWA C550. All buried valves shall be provided with an exterior protective coating.

Unless otherwise shown on the Plans, all in-line valves shall be furnished with mechanical ends.

**215-1.4 Tapping Sleeves and Valves.** Tapping sleeves shall be of ductile iron pipe or stainless steel specifically designed to withstand the strains and vibrations of the tapping machine. The tapping sleeve shall have gaskets at each end of the sleeve. Sleeves with only an O-ring around the tapped hole are not approved. Tapping sleeves shall be Mueller and shall be rated for 200 psi working pressure.

Tapping valves shall meet all of the requirements of 215-1.2 of these Special Provisions, with the exception of items such as oversized seat rings to allow entry of the tapping machine cutter.

**215-1.7 Pressure Relief Control Valves.** Pressure Relief Control Valves shall be designed to provide protection for the system against high-pressure surges when pumps are shut down. Pressure Relief Control Valves relieve the excess pressure. Closing speed shall be adjustable to help eliminate surges.

Pressure Relief Control Valves shall be hydraulically operated, diaphragm actuated in globe or angle pattern. Valves shall maintain a constant upstream pressure to close tolerances. The main valve body and cover shall be made from 300 series stainless steel. It shall contain a resilient synthetic rubber disc having a rectangular cross section, contained on three and one-half sides by a disc retainer. The seat ring shall be held in place by threads or bolts and not pressed into the body. The diaphragm assembly shall be guided at both ends by a bearing in the valve cover and an integral bearing in the valve seat. The diaphragm assembly shall be the only moving part. The diaphragm shall consist of a nylon fabric reinforced BUNA-N rubber and shall not be used as a seating surface. All necessary repairs shall be possible without removing the valve from the line.

All main valve interior components shall be manufactured from non-corrosive materials.

The pilot valve shall be adjustable, bronze bodied, direct acting, spring loaded and normally closed. The relief pilot shall be supplied with a stainless steel seat ring.

Pressure Relief Control Valves shall maintain a constant inlet pressure by relieving excess pressure downstream. When in a relief application, the valve shall be located on a tee off the main line. The valve will open when the line pressure exceeds the set point of the pilot. When in a sustaining application, the valve shall be located on the main line. The valve will open when the main line pressure exceeds the pilot set point. The pilot will cause the main valve to modulate toward the closed position as the line pressure approaches the pilot set point.

When a check feature is added and a pressure reversal occurs, the downstream pressure is directed to the main valve cover chamber closing the valve to prevent return flow.

The valve shall be as manufactured by "AMES Company, Inc.," or approved equal.

**215-1.8 Miscellaneous Small Valves.** Miscellaneous small valves shall be as specified in the Plans or Specifications. Where not specifically labeled, valves smaller than 3-inch shall be lever-operated ball valves, as manufactured by The James Jones Company or approved equal.

**215-1.11 Valve Boxes.** Valve boxes shall be in accordance with City of Torrance Standard Plan No. T712.

## **215-2 FIRE HYDRANTS**

Fire hydrants shall be as manufactured by The James Jones Company, Model J-3700 or J-3765 as shown on the Plans and shall conform to the requirements of AWWA C503. Each fire hydrant shall be assembled with a gray-iron 6-inch nominal diameter hydrant extension with break-away grooves and flanged ends, and a gray-iron 6-inch nominal diameter hydrant bury with top end flanged and bottom end having a mechanical joint connection. Flanges shall be 6-hole pattern. The hydrant flange shall be connected to the extension by means of breakaway bolts in accordance with AWWA C110.

## **215-4 INSULATING COUPLINGS, BUSHINGS AND UNIONS**

Insulating couplings, bushings and unions shall be furnished to provide dielectric protection from electrolytic corrosion at all points where piping and fittings of dissimilar metals are joined, as manufactured by Smith Blair; Corrosion Control Products, Co.; or approved equal. Couplings, bushings, and unions shall be lined with an inert, non-conductive, linen impregnated material and threaded to NPS standards, with sufficient separation between pipe ends to prevent bridging.

**215-4.1 Insulating Flange Kits.** Kits shall be furnished as shown on the Plans and shall consist of a dielectric gasket, insulating sleeves and washers.

- a) Gaskets. Gaskets shall be Type "E" neoprene faced phenolic material for operation between 20 and 150 degrees Fahrenheit per ANSI B16.21.
- b) Insulating Sleeves. Insulating sleeves shall be 1/32-inch thick, full length, CE phenolic tubing for operation between 20 and 150 degrees Fahrenheit. For installation at threaded valve flanges, the sleeves shall be half-length.
- c) Insulating Washers. Insulating washers shall be laminated CE phenolic for operation at ambient temperatures to be placed directly adjacent to the flange face.

Moisture, soil, or other foreign matter must be carefully prevented from contacting any portion of the mating surfaces prior to installing insulator gasket. If moisture, soil, or other foreign matter contacts any portion of the surfaces, the entire joint shall be disassembled, cleaned with a suitable solvent, and dried prior to re-assembly.

### 215-7 WATER METER BOX

The Contractor shall furnish water meter boxes as follows:

3/4", 1" Meters	Brooks Products Model Nos. 33S (non-traffic areas), 33T (traffic areas) or approved equal.
1-1/2", 2" Disc or Turbine Meters	Brooks Products Model Nos. 66S (non-traffic areas), 66TR (traffic areas) or approved equal.
1-1/2", 2" Compound Meters	Brooks Products Model Nos. 67S (non-traffic areas), 67TR (traffic areas) or approved equal.

### 215-8 FLEXIBLE COUPLINGS

Unless otherwise specified, flexible couplings shall conform to the following:

- 1) Each coupling shall consist of one steel middle ring, two steel followers, gaskets, and sufficient numbers of Type 316 stainless steel bolts to compress the gasket without distorting the followers.
- 2) The thickness of the middle ring shall be such that the stress in the steel shall not exceed 50 percent of the yield point when subjected to the hydrostatic test pressure of the pipeline. The pressure rating shall be no less than the indicated design pressure. The middle ring thickness shall not be less than the thickness of the pipe jointed.
- 3) Middle rings shall be cold expanded a minimum of one-percent increase in diameter to test the weld and the size of the proper dimension.
- 4) The middle rings shall be coated with Keysite 740 or approved coating to a minimum dry film thickness of 10 mils. Follower rings shall be coated with a compatible shop coat for field coating.
- 5) Bolts shall be 5/8-inch diameter carriage bolts with hexagon nuts. The steel shall have minimum yield strength of 40,000 psi.
- 6) Buried coupling shall be coated with fusion bonded epoxy and provided with Type 316 stainless steel bolts and nuts.
- 7) Provide thrust ties where shown and where required to restrain the force developed by 1-1/2 times the operating pressures specified. Attach thrust ties to ductile iron pipe with socket clamps against a grooved joint coupling or flange.
- 8) Flexible couplings shall be by one of the following manufacturers or approved equal:
  - 1) Baker
  - 2) Dresser
  - 3) Rockwell
  - 4) Ford

## **SECTION 216 – MARKERS AND DELINEATORS**

Markers and delineators shall conform to Section 82 of the Caltrans Standard Specifications.

## PART 3 - CONSTRUCTION METHODS

### SECTION 300 – EARTHWORK

#### 300-1 CLEARING AND GRUBBING

##### 300-1.3 Removal and Disposal of Materials.

###### 300-1.3.1 General. Replace the entire subsection with the following:

Unless otherwise stated on the Plans or Specifications, all material removed from the Work shall become the property of the Contractor and shall be disposed of in a lawful manner. Clearing and Grubbing shall include, but is not limited to removal of:

1. All excess excavation material
2. Trees, plants and stumps
3. Debris
4. Miscellaneous piles of debris
5. Interfering portions of curb, gutters, asphalt and PCC concrete pavements and sidewalks (including base, where applicable)
6. Bollards
7. Signs and posts
8. Abandoned underground conduits in conflict with construction
9. Miscellaneous items as shown on the Plans.

The Contractor shall conform to the following requirements:

- (a) The Contractor shall not start any removal work unless it is prepared to perform reconstruction work within 24 hours of the time removals were begun, unless otherwise approved by the Engineer.
- (b) The Contractor shall complete forming and pouring of PCC construction within five (5) working days following the removal of existing material at any location.
- (c) The Contractor shall not remove on-site improvements until it is prepared to construct the adjacent street section and shall promptly restore all such improvements as applicable, upon completion of the adjacent street work.

All concrete removed shall be hauled off the Work site no later than the calendar day following the day that the removal is performed.

###### 300-1.3.2 Requirements. Revise as follows:

- (a) **Bituminous Pavement.** Replace the first and second sentences with the following:

Bituminous pavement shall be removed to neatly sawed edges.

Add the following subsection:

###### 300-1.3.3 Construction and Demolition Debris Recycling.

- A. **General.** Consistent with the Agency's efforts to comply with the California Integrated Waste Management Act of 1989 (AB 939), the Contractor shall reduce, reuse, and/or recycle to the maximum extent feasible,

the construction and demolition debris (debris) generated by this Contract hereby diverting the debris from disposal facilities, saving landfill space, and conserving virgin materials and natural resources.

**B. Definitions.**

Shall be as defined in the TORRANCE MUNICIPAL CODE, DIVISION 4, CHAPTER 3, ARTICLE 8 (or Section 43.8.1).

**C. Recycling Summary.**

The Contractor shall prepare and submit a Recycling Summary report using the form included in the Appendices summarizing the disposal, reuse, and/or recycling activities which occurred throughout the Contract duration. This report shall be submitted by the Contractor to the Agency, before or with its request for the final Progress Payment for said Contract.

Failure of the Contractor to submit the Recycling Summary within the time specified will result in damages being sustained by the Agency. Such damages are, and will continue to be, impracticable and extremely difficult to determine. For failure to submit the Recycling Summary, as required, the Contractor shall pay to the Agency, or have withheld from monies due it, the sum of \$10,000 for a contract of \$500,000 or more. The Contractor shall pay to the Agency, or have withheld from monies due it, 2% of the total contract amount for a contract of \$499,999 or less.

Execution of the Contract shall constitute agreement by the Agency and Contractor that \$10,000 (2% for contracts \$499,999 or less) is the minimum value of the costs and actual damage caused by the failure of the Contractor to submit the Recycling Summary within the time specified. Such sum is liquidated damages and shall not be construed as a penalty, and may be deducted from payments due the Contractor.

**300-2 UNCLASSIFIED EXCAVATION**

**300-2.2 Unsuitable Material.**

**300-2.2.1 General.** Replace the first paragraph with the following:

If unsuitable material is found, the Contractor shall remove said material to the limits to be determined by the Engineer and shall replace said material with select fill or base material, as to be determined by the Engineer.

Payment for unsuitable material excavation and backfill shall be measured and paid for as Unclassified Excavation and Crushed Miscellaneous Base, respectively.

**300-2.9 Payment.**

Payment for Unclassified Excavation will be made at the Contract unit price per cubic yard.

**SECTION 301 – TREATED SOIL, SUBGRADE PREPARATION, AND PLACEMENT OF BASE MATERIALS**

**301-2 UNTREATED BASE**

**301-2.1 General.** Add the following:

Base is required under all PCC and AC improvements as shown on the Plans. Additional base may be required after review of work areas following removals. Prior to constructing new improvements, the Contractor shall verify with the Engineer that the base sections as shown on the Plans (including areas where no base is called for) are adequate. Payment for any changes shall be made pursuant to Section 3.

A minimum of 8-inches CMB shall be placed under curbs, curbs and gutters and AC pavement.

**301-2.4. Measurement and Payment.** Delete the second paragraph and add the following:

Payment for construction of Crushed Misc. Base (CMB) under AC pavement shall be per the Contract Unit Price per CY.

Payment for construction of Crushed Misc. Base (CMB) under curb, curb and gutter, sidewalks, and access ramps shall be considered as included in the price bid for the item of work and no additional compensation will be allowed therefor.

## **SECTION 302 – ROADWAY SURFACING**

### **302-4 EMULSION-AGGREGATE SLURRY.**

Mixing and application shall conform to this subsection.

**302-4.2.1 General.** Add the following:

Prior to slurry application, the Contractor shall do the following preparation Work:

- 1) Remove all existing thermoplastic and painted striping, pavement markings, and legends per Section 310, "PAINTING" in these Special Provisions.
- 2) Remove all raised pavement markers.
- 3) Apply crack seal in accordance to Section 302-13 of these Special Provisions.

**302-4.5 Measurement and Payment.** Delete this subsection and replace with the following:

Quantities included in the Bidder's Proposal are approximate only.

Payment for furnishing, preparing and placing slurry seal will be made at the Contract Unit Price per square foot bid for "TYPE II SLURRY SEAL WITH 2.5% LATEX, INCLUDING PREPARATORY CRACK SEAL" in Bidder's Proposal, and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the Work involved in the application of slurry seal including all surface preparations; weed removal; protection of manholes, valve boxes, drop inlets and other service entrances; and site clean-up.

Compensation for preparation Work described in this Section will be considered as included in the Contract Unit Price for the items of work involved and no additional compensation will be allowed therefore.

No payment shall be made for any area required to be resealed due to damage to the slurry seal prior to acceptance.

### 302-5 ASPHALT CONCRETE PAVEMENT

#### 302-5.4 Tack Coat. Add the following:

A Tack Coat shall be applied on the 1-sack cement and sand slurry Mix, prior to placing the C2-PG70-10 asphalt concrete and to the adjacent existing paved surface where new asphalt concrete overlaps or abuts existing pavement. Tack Coat shall be as specified in Section 302-5.4. There shall be no separate payment for Tack Coat.

#### 302-5.5 Distribution and Spreading. Delete the fourth paragraph and substitute the following:

Asphalt concrete shall not be placed until the atmospheric temperature is a minimum of 10°C (50°F) and rising, and the surface temperature of the underlying material is a minimum of 4°C (40°F). Asphalt concrete shall also not be placed during unsuitable weather.

Fully automatic screeds will be required on this Project. A fully automatic screed shall have a sled, 9.1m (30 feet) in length, on the side of the machine which will receive the next mat of material. A joint maker, ski, etc., placed on the side of the machine to ride on the existing or previously constructed surface or mat of asphalt concrete material may be required as directed by the Engineer.

Delete Table 302-5.5(A) and substitute the following:

**TABLE 302-5.5(A)**

Specified Total Thickness of Pavement		Required Number of Courses	Class Of Mixture
Greater Than mm(Inches)	But Not More Than mm(Inches)		
25(1)	75(3)	1	C2-PG 64-10
75(3)	100(4)	1	Base Course: B-PG 64-10 Finish Course: C2-PG 64-10 as directed
100(4)	-	2 or more	Base Course - B-PG 64-10

#### 302-5.9 Measurement and Payment.

Replace the first paragraph with the following:

Payment for Asphalt concrete pavement shall be per the Contract price per Ton, including subgrade and base preparation, base course, leveling course, tack coat, and all work necessary to install complete in place. There shall be no separate payment for tack coat, header paving or temporary pavement, and all costs for any said item shall be included in the bid price for the work to which it is appurtenant.

### 302-13 BITUMINOUS PAVEMENT CRACK SEALING

**302-13.1 General.** Bituminous pavement crack sealing consists of furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the Work involved in the application of bituminous pavement crack sealing.

**302-13.2 Cleaning.** All pavement cracks greater than or equal to 1/4" width shall be cleaned by a hot air lance.

**302-13.3 Materials.** The crack sealing material shall be an asphalt cement, aromatic rubber extender, oil and a minimum of 20% powdered rubber by weight combined in such a manner as to produce a material with the following properties:

- 1) **WORKABILITY.** The material shall pour readily and penetrate large cracks at temperatures below 400 degrees Fahrenheit.
- 2) **CURING.** The product shall contain no water or volatile solvents and shall cure immediately upon cooling to a sufficient viscosity to prevent tracking by traffic.
- 3) **LABORATORY EVALUATION.** When the sample of the product has been heated at 350 degrees Fahrenheit for two hours, it shall pass the following tests:
  - Softening Point (R & B): 135 degrees Fahrenheit Min. (ASTM D312)
  - Flexibility: A 1/8" thick specimen of the product conditioned to 10 degrees Fahrenheit shall be capable of being bent to a 90-degree angle over 1" mandrel without cracking.
  - The sealer shall be forced into the crack by use of a squeegee.

**302-13.4 PAYMENT.** Payment for bituminous pavement crack sealing shall be included in the contract unit price for "TYPE II SLURRY SEAL WITH 2.5% LATEX, INCLUDING PREPARATORY CRACK SEAL" in the bidder's proposal, and shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the work, as specified in the specifications and these special provisions, and as directed by the engineer.

## **SECTION 303 – CONCRETE AND MASONRY CONSTRUCTION**

### **303-5 CONCRETE CURBS, WALKS, GUTTERS, CROSS GUTTERS, ALLEY INTERSECTIONS, ACCESS RAMPS, AND DRIVEWAYS.**

#### **303-5.1 Requirements**

**303-5.1.1 General.** Replace the first sentence of the first paragraph with the following:

Concrete curbs, gutters, curb and gutters, sidewalks, and access ramps, shall be constructed of Portland cement concrete of the class, compressive strength and other requirements prescribed in 201-1.

#### **303-5.5. Finishing**

**303-5.5.2 Curb** Add the following:

The entire affected concrete curb or curb and gutter shall be removed by sawcutting the adjacent AC pavement one (1) foot from the edge of the affected area to be removed. The contractor shall reconstruct this 1-foot wide section per the typical section shown on Plan Sheet 1.

**303-5.5.5. Alley Intersections, Access Ramps, and Driveways.** Add the following:

PCC Access Ramps shall be constructed at the location shown on the Plans and per SPPWC Std Plan 111-4 or Caltrans 2010 Standard Plan A88A, included in the Appendices, as directed by Engineer.

Access ramps constructed in existing curb returns may obliterate survey tie points. The Contractor shall give a minimum of three (3) work days advance notice of each location to the Engineer prior to removals so the CITY may reestablish the existing survey tie points.

The Contractor shall be responsible to protect all new concrete work from being etched, scratched or otherwise marked following replacement thereof. If new concrete work is marked, the Contractor shall replace it at its expense and no extra costs will be allowed.

**303-5.9 Measurement and Payment.** Replace the entire subsection with the following:

Payment for concrete curb and curb and gutter (excluding integral curb and curb/gutter associated with driveways, and cross-gutters) shall include all joints and keyways, Base, protection of existing trees, parkway restoration, repainting of addresses on curb faces where painted addresses have been removed due to new curb construction and repainting of red curb (top and face) where red curb has been removed due to new curb construction and will be per the Contract unit price per linear foot.

Payment for curb and curb gutter transitions to match existing and mountable curbs at connection points and maintenance vehicle pullouts will be measured and paid for as the standard curb or curb and gutter adjacent to the transitions.

Payment for concrete sidewalks includes all joints as shown in standard plans and construction details and includes protection of existing trees, parkway restoration, Base, and will be per the Contract unit price per square foot.

Payment for Concrete Curb Ramps including the integral retaining curb and CMB base shall be per the Contract unit price.

**SECTION 306 – UNDERGROUND CONDUIT CONSTRUCTION**

**306-1 OPEN TRENCH OPERATIONS**

**306-1.1 Trench Excavation**

**306-1.1.1 General.** Add the following:

All trenches shall be sawcut to the bottom of the existing concrete or asphalt section to minimize damage to adjacent pavement. The bottom of the trench shall be excavated uniformly to the grade of the bottom of the pipe and shall be given a final trim using a string line for establishing grade, such that each pipe section when first laid will be continually in contact with the ground along the extreme bottom of the pipe.

Tunneling shall be performed under existing curb, gutter and cross-gutter as shown on the Plans. The Contractor shall exercise caution and care to prevent any damage in tunneling under these structures. There shall be no additional payment for this tunneling work. Payment for this work shall be included in the Contract unit price for the installation of the main pipeline.

**306-1.1.2 Maximum Length of Open Trench.** Replace the first paragraph with the following:

For work areas where the work zone is created by daily lane closures, the total length of work area, covering elements of the Contractor's operation, from exploratory excavations and pavement cutting to pipe installation and placement of base paving, shall be no more than 1,000 feet, or as limited by the applicable permit or traffic control staging plan. The maximum length of open trench shall be 300 feet, or the distance necessary to accommodate the amount of pipe installed within the permitted work hours, whichever is greater. The distance is the collective length at any location, including open excavation, pipe laying and appurtenant construction and backfill which have not been temporarily resurfaced.

The Contractor shall either place backfill or steel plate or place temporary or base pavement at the end of each work day so he can open all travel lanes to traffic. The last twenty (20) feet of each trench may be open provided that this length is covered with traffic rated plating. Steel plates shall be non-skid and shall be tacked

down or spiked and placed flush with the surrounding pavement. The Contractor shall be required to place temporary AC at the edges of the steel plates.

The above requirements for backfilling or use of steel plates will be waived in cases where the trench is located further than 100 feet from any traveled roadway or occupied structure. In such cases, however, barricades and warning lights satisfactory to the Engineer shall be provided and maintained.

**306-1.1.3 Maximum and Minimum Width of Trench.** Add the following:

For sewers, potable and reclaimed water pipelines and storm drains, the bottom of the trench shall have a minimum width equal to the outside diameter of the pipe plus 12 inches and a maximum width equal to the outside diameter of the pipe plus 16 inches, unless otherwise shown on the Plans.

Add the following subsections:

**306-1.1.7 Trench Over-Excavation.** Trenches shall be over-excavated beyond the depth shown when ordered by the Engineer. Such over-excavation shall be to the depth ordered. The trench shall be refilled to the grade of the bottom of the pipe with either selected granular material obtained from the excavation, sand or crushed rock, at the option of the Engineer. When crushed rock is ordered, the material shall be a well-graded material of 1-1/2 inch maximum size. Bedding material shall be placed in layers brought to optimum moisture content, and compacted to 95 percent of maximum density where the pipeline trench passes under structures and 90 percent elsewhere. All work specified in this subsection shall be performed by the Contractor and paid in accordance with 3-3 of these Special Provisions.

Any over-excavation carried below the specified grade and not ordered by the Engineer, specified or shown on the Plans, shall be refilled to the required grade with suitable selected granular material. Such material shall be moistened as required and compacted to 95 percent of maximum density under structures and 90 percent elsewhere. Such work shall be performed by the Contractor at its own expense.

**306-1.2 INSTALLATION OF PIPE**

**306-1.2.1 Bedding.**

(A) **General.** Replace the second sentence of the third paragraph with the following:

There shall be 4 inches minimum of bedding below the pipe barrel of sewer and storm drain pipes and 6 inches minimum of bedding below the pipe barrel of water pipes.

Add the following to the fifth paragraph:

Bedding material for ductile iron water lines shall be sand conforming to the requirements of 200-1.5.3 and 200-1.5.5 and shall be compacted to 95 percent of maximum density where the trench is located under structures, and 90 percent of maximum density elsewhere. Bedding shall be in accordance with City of Torrance Standard Plan No. T701.

Bedding material for reclaimed water pipelines shall have a minimum SE of 30. Bedding shall be imported sand with 100 percent passing a 3/8-inch sieve and not more than 20 percent passing a 200-mesh sieve.

Bedding for storm drain pipes shall conform to City of Torrance Standard Plan No. T302.

**306-1.2.2 Pipe Laying.** Add the following:

Unless otherwise shown on the Plans or directed by the Engineer, minimum pipe cover for water pipes shall be 42 inches below proposed grade. Installation of ductile iron water mains and appurtenances shall conform to the requirements of AWWA C600. Installation of PVC pipes shall conform to the requirements of AWWA C900 and C905. The Contractor shall install pipe closure sections, fittings, valves and appurtenances shown, including pipe supports, bolts, nuts, gaskets and joining materials necessary for a complete installation.

At all times when the work of installing water mains, reclaimed water pipelines, sewers or storm drains is not in progress, all openings into the pipe and the ends of the pipe in the trenches or structure shall be kept tightly closed to prevent entrance of animals and foreign materials. The Contractor shall take all necessary precautions to prevent the pipe from floating due to water entering the trench from any source, shall assume full responsibility for any damage due to this cause and shall, at no cost to the CITY, restore and replace the pipe to its specified condition and grade if it is displaced due to floating. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until its acceptance by the Engineer.

Unless otherwise shown on the Plans or directed by the Engineer, concrete thrust blocks shall be constructed at all changes in direction. Thrust blocks shall be constructed against undisturbed earth. Each thrust block shall be placed so that valves and fittings are accessible for repair. Thrust blocks shall be as shown on City of Torrance Standard Plan No. T713 or as directed by the Engineer.

The Contractor shall furnish and place a blue tape, marked "Caution Water" every 36-inches or less, on top of the bedding and prior to placing concrete slurry or densified backfill along the length of the potable pipelines. The Contractor shall furnish and place an identification tape marked "CAUTION-WATER LINE BELOW."

All water lines shall be installed with a two (2) feet clearance from existing utility lines. A minimum of 1-foot clearance shall be provided when crossing utility lines unless directed otherwise by the Engineer. Separation of water mains from sewer and storm drain lines shall conform to the requirements of City of Torrance Standard Plan No. T714.

All exposed piping shall be adequately supported with devices of appropriate design. Where details are shown on the Plans, the supports shall conform thereto and shall be placed as indicated; provided that the support for all piping shall be complete and adequate regardless of whether or not supporting devices are specifically called for on the Plans.

Add the following subsections:

**306-1.2.14 Flexible Couplings.** Flexible couplings shall be installed according to the following requirements:

- 1) Clean each pipe end for a distance of 6 to 8 inches. Remove oil, dirt, loose scale, and rust so that the gaskets will seat on the pipe barrel to provide a positive seal. Wire brushes or non-oily rags may be used, depending on the condition of pipe ends.
- 2) Slip the follower rings over the pipe ends and slide them back over the cleaned area.
- 3) Wipe the gaskets clean, immerse them in soapy water or approved gasket lubricant, and slide them over the pipe ends.
- 4) Clean the coupling middle ring, paying particular attention to flare on the ends where the gasket will seat. Slip the middle ring entirely over the end of the pipe.
- 5) Position the end of the pipe to be joined to the other pipe such that a 1/2-inch gap is maintained between pipes. Center the coupling middle ring over the gap.
- 6) Lubricate the pipe and the flares of the middle ring with soapy water or gasket lubricant. Slide the gaskets and followers into place making sure the gaskets are pushed under the middle ring flare all the way around.
- 7) Insert the bolts. Nuts should be run on with the rounded or chamfered edge toward the follower ring.
- 8) Wrenching should be done progressively, drawing up the bolts on opposite sides a little at a time and returning to retighten until all bolts have a uniform tightness. During wrenching it is advisable to strike the follower rings with a hammer occasionally to make sure they are seating properly.

- 9) Torque application shall be in accordance with the manufacturer's recommendations.

### **Backfill and Densification.**

**306-1.3.1 General.** Delete the seventh through the eleventh paragraphs and replace with the following:

Where trench is less than two feet wide, the trench shall be backfilled, per City of Torrance Standard Plan No. T116, with trench slurry backfill per 201-1 or CLSM per 201-6 to 1 inch below the existing pavement thickness, unless otherwise approved by the Engineer.

Where trench is greater than or equal to two feet wide, the trench shall be backfilled per City of Torrance Standard Plan No. T116, with suitable imported material, having a sand equivalent value of not less than 30, and shall be select granular material free from organic matter. Imported backfill shall be in accordance with 306-1.3.7. Backfill material shall be moistened to optimum moisture content and compacted to 95 percent of maximum density in the upper 3 feet and 90 percent below the upper 3 feet.

The in-situ material is suitable for trench backfill on this site over the storm drain pipeline. However, overexcavated material from trenching operations shall be considered "impacted" and must be exported and disposed of in accordance with state and federal guidelines.

Please refer to Section 3-4.1 Payment (page E-16) of these Special Provisions regarding "impacted" and/or contaminated soil.

**306-1.3.4 Backfilling Narrow Trenches.** Replace the first paragraph with the following:

Backfill for narrow trenches shall be per City of Torrance Standard Plan No. T116, with trench slurry backfill per 201-1 or CLSM per 201-6 to 1 inch below the existing pavement thickness, unless otherwise approved by the Engineer.

**306-1.3.5 Jetted Bedding and Backfill Compaction Requirements.** Replace the entire subsection with the following:

Trench bedding and backfill densified through jetting shall be densified to a minimum relative compaction of 95 percent in the upper 3 feet of backfill and 90 percent below the upper 3 feet.

**306-1.3.6 Mechanical Compaction Requirements.** Replace the entire subsection with the following:

Mechanically compacted trench backfill shall be densified to a minimum relative compaction of 95 percent in the upper 3 feet of backfill and 90 percent below the upper 3 feet.

Add the following subsection:

**306-1.3.9 Compaction Tests.** Tests to determine soil compaction shall be made by a representative of the CITY, at the CITY's expense, except that all tests which fail to meet the requirements of these Special Provisions shall be paid for by the Contractor. Maximum density shall be determined in accordance with ASTM D1557 method, modified to use five layers. Field density tests shall be performed in accordance with the test procedure specified in ASTM D1556.

### **306-1.4 Testing Pipelines.**

**306-1.4.1 General.** Modify subparagraph 6) as follows:

6) Water Pipelines – Testing and disinfection of potable water mains shall be in accordance with 306-1.4.7 of these Special Provisions.

Add the following subsections:

**306-1.4.7 Pressure Testing of Potable Water Mains.** The Contractor shall furnish all equipment, tools, labor and materials necessary for testing the piping. Equipment shall include all pipes, fittings, valves and blow-off assemblies necessary to complete the test. In case fire hydrants are not available or cannot be used for flushing purposes, blow-off assemblies and other accessories shall be furnished by the Contractor at no cost to the CITY. Water for pressure testing will be furnished by the CITY without charge to the Contractor. The Contractor shall pressure test each phase of new waterline before proceeding to the next phase.

The Contractor shall test the piping after backfilling operations are completed. Pressure testing shall be performed on no more than 1,500 lineal feet of piping at one time. The test shall be made by closing valves when available, or by placing a temporary bulkhead in the pipe and filling the lines slowly with water. Care shall be used to see that air is permitted to escape during filling. After the line has been completely filled, it shall be allowed to stand under slight pressure for a sufficient length of time to allow the mortar lining to absorb what it will and to allow the escape of air from any air pockets, but for not less than 24 hours. During this period, bulkheads, valves, and connections shall be examined for leaks. If any are found, the leak shall be stopped, or in case of leakage through valves in the main line or through bulkheads, provision shall be made for measuring such leakage during the test. The test shall consist of holding the test pressure on each section of the line for a period of four (4) hours. The test pressure at the lowest point in the line shall be 150 psi. In areas designated as high pressure zone, the test pressure shall be 225 psi. The water necessary to maintain this pressure shall be measured through a meter or by other means satisfactory to the Engineer. The leakage shall be considered the amount of the water entering the pipeline during the test, less the measured leakage through valves and bulkheads. The leakage shall not exceed 25 gallons per inch of diameter per mile per 24 hours. Any noticeable leaks shall be repaired with new pipe or new fittings until a leakage is reduced to permissible limits.

**306-1.4.8 Disinfection of Potable Water Mains.** Upon completion of pressure testing, all new water mains shall be disinfected before they are placed in service. The Contractor shall furnish all equipment, tools, labor and materials necessary for disinfecting the water mains. Disinfection shall be accomplished by chlorination in accordance with AWWA C651. All chlorinating and testing operations shall be done in the presence of the Engineer. Disinfection shall be performed on no more than 1,500 lineal feet of piping at one time. No separate cost will be paid for these items.

Disinfection shall conform to the following requirements:

- 1) The Contractor shall prepare and submit for approval a written disinfection plan for each section of pipe to be tested a minimum of two weeks prior to its implementation.
- 2) The disinfection methods and procedures shall be in accordance with AWWA C651 and approved by the Engineer.
- 3) The CITY will collect water samples for analysis prior to placing the new facilities in service. Should any sample fail to meet the requirements of the State Health Department, the chlorination procedures shall be repeated. The Contractor shall be responsible for any costs associated with resampling.
- 4) The Engineer shall be notified 72 hours in advance of any disinfection, flushing, tapping, or connections to the existing system.
- 5) Any new water main, hydrant, valve, service, and accessories that has a chlorine residual of more than 150 ppm, will be flushed to system residual and rechlorinated to less than 150 ppm.
- 6) Where connections are to be made to an existing potable water system, the point of connection shall be disinfected in accordance with AWWA C651.

### **306-1.5 Trench Resurfacing.**

**306-1.5.1 Temporary Resurfacing.** Delete the last two paragraphs and replace with the following:

For concrete slurry backfill, a minimum of 24 hours shall elapse before temporary resurfacing will be allowed to be placed on the backfill. All temporary resurfacing shall be flush to adjacent surfaces. The Contractor shall be responsible to immediately repair or replace any damaged or settled resurfacing. The temporary resurfacing shall be replaced with permanent resurfacing not more than 15 calendar days after placement of temporary resurfacing.

There shall be no separate payment for temporary resurfacing. Full compensation for furnishing, placing, maintaining, removing, and disposing temporary resurfacing materials shall be included in the Contract unit price.

**306-1.5.2 Permanent Resurfacing.** Add the following:

Pavement removed or damaged in connection with performing the Work required under the Contract shall be replaced by the Contractor in accordance with these Special Provisions and City of Torrance Standard Plans. If a strip of existing pavement less than 5 feet is left between a trench and a gutter or edge of pavement, it shall be removed and new pavement placed in its stead. In cutting or breaking up street surfacing, the Contractor shall not use equipment which will damage the adjacent pavement. If the adjacent pavement is damaged, the Contractor shall be responsible for replacing the pavement with the same kind or better at its expense.

## **SECTION 307 – STREET LIGHTING AND TRAFFIC SIGNALS (Replaced with Section 86 of Caltrans Standard Specifications)**

Delete the entire Section 307, and replace with Section 86 of the Caltrans Standard Specifications.

### **86-1 GENERAL**

**86-1.01 Description.** Replace the entire subsection with the following:

The Work shall consist of furnishing and installing, modifying or removing sign illumination systems, communication systems, electrical equipment in structures, provisions for future systems, or combinations thereof, all as shown on the Plans, and as specified in these Special Provisions.

The locations of signals, standards, lighting fixtures, signs, controls, services and appurtenances shown on the Plans are approximate.

Comply with Part 4 of the California MUTCD. Nothing in this Section 86 is to be construed as to reduce the minimum standards in this manual.

The locations of electrical system elements are approximate; the Engineer will approve final location.

**86-1.02 Regulations And Code.** Delete the second paragraph.

**86-1.03 Cost Break-Down.** Delete the entire subsection.

**86-1.04 Equipment List and Drawings.** Replace the entire subsection with the following:

Unless otherwise permitted in writing by the Engineer, the Contractor shall within 15 days following approval of the contract, submit to the Engineer for review a list of equipment and materials which the Contractor proposes to install. The list shall be complete as to name of manufacturer, size and identifying number of each item. The list shall be supplemented by such other data as may be required, including

schematic wiring diagrams and scale drawings of cabinets showing location and spacing of shelves, terminal blocks and equipment, including dimensioning. The above data shall be submitted, in duplicate, for review.

The Contractor shall furnish 3 sets of controller cabinet schematic wiring diagrams made by (1) wet blueprint, white background process using iron-sensitized paper, (2) the offset lithograph process or (3) the electrostatic process. The diagrams shall show the location of the installation and shall list the equipment installed in each controller cabinet. In addition, for each signal installation, the Contractor shall furnish an intersection sketch showing poles, detectors, field wire connection terminals and phasing as shown on the plans. One copy of the controller cabinet diagram and the intersection and phase diagram, as reviewed by the Engineer, shall be placed in a heavy duty plastic envelope and attached to the inside of the door of each controller cabinet.

All schematic wiring diagrams of the controller units and auxiliary equipment, all cabinet diagrams and all operation manuals shall be submitted at the time the controller assemblies are delivered for testing. The diagrams shall show in detail all circuits and parts. All parts shown thereon shall be identified by name or number and in such manner as to be readily interpreted.

All diagrams, plans and drawings shall be prepared using graphic symbols shown in ANSI publication Y32.2, entitled "IEEE Standard and American National Standard Graphic Symbols for Electrical and Electronic Diagrams."

All systems shall be complete and in operating condition at the time of acceptance of the Contract.

Add the following subsection:

**86-1.055 Warranties, Guaranties and Instruction Sheets.**

Guaranty for all Work, materials and labor shall be valid for a period of one year from the date of acceptance of the Work.

Full compensation for furnishing the guaranty will be considered as included in the Contract unit price for the items of work involved and no additional compensation will be allowed therefor.

**86-1.06 Maintaining Existing and Temporary Electrical Systems.** Add the following:

Unless otherwise authorized by the Engineer, all existing traffic signals shall remain in operation at all times. Maintenance of the existing traffic signals, street lighting, signs or approved temporary replacements shall be the responsibility of the Contractor. The Contractor shall provide twenty-four (24) hour telephone number(s) at which its appropriate personnel can be contacted by the City for any problem with the above-referenced items. Unless permission has been granted by the Engineer, a traffic signal must not remain in a flashing mode for more than two (2) hours. Existing traffic signal system shall remain in operation during construction and until the new system is in operation.

Replace the first paragraph with the following:

All work to be done in connection with the modification of an existing traffic signal shall be performed in such a manner that the signal shall be in continuous operation, except for an approved duration when traffic signal may inactivated off for necessary work. All signal indications, detectors and control equipment shall be maintained in operation except during shutdown hours, as specified by the Engineer. For permission by and coordination with the City to shutdown a traffic signal, the Contractor shall notify the Engineer at least 48 hours prior to shutdown. The placement of any temporary devices and/or wiring necessary to maintain traffic signal operations shall provide a minimum of 18 feet vertical clearance for vehicles and a minimum of 10 feet over pedestrian areas. All safety regulations and precautions shall be observed in the installation work.

Full compensation for furnishing, installing, maintaining and removing temporary "STOP AHEAD" and "STOP" signs and for covering signs not in use shall be considered as included in the contract lump sum price paid for the signal item involved and no additional compensation will be allowed therefor.

Replace the third paragraph with the following:

The cost for maintaining existing and temporary electrical systems shall be included in the Contract unit price for each traffic signal.

Delete the fourth and fifth paragraphs.

Replace the sixth paragraph with the following:

If the Contractor fails to complete the repairs within this period, the repairs will be made by City forces at the Contractor's expense.

## **86-2 MATERIALS AND INSTALLATION**

### **86-2.05 CONDUIT**

**86-2.05A Material.** Replace the first sentence with the following:

Conduit and fittings shall, per City of Torrance Requirements, be the rigid metal type manufactured of mild steel and conforming to UL Publication 6 for Rigid Metal Conduit (Types 1 and 2), or the intermediate metal type manufactured of mild steel conforming to UL Publication 1242 for Intermediate Metallic Conduit (Type 5).

Non metallic conduit shall not be used, except as required by Southern California Edison Company.

Conduit shall be installed under existing pavement sections to remain by Jacking or Drilling methods. At the discretion of the Engineer, conduit runs shown on the Plans to be located behind curbs may be installed in the street, within 3 feet of and parallel to the curb, by trenching as provided below. All pull boxes shall be located behind the curb or at the locations shown on the Plans.

For traffic signal conduits, the City will allow the use of Schedule 80 PVC material for new conduit to be installed under AC pavement and extending into the nearest pull box. However, any new conduit that will be installed within and through the concrete foundation of the traffic signal controller or electrical service pedestal, shall not be the Schedule 80 PVC material.

**86-2.05B Use.** Delete the third paragraph.

**86-2.05C Installation.** Add the following:

Conduit shall be installed in conformance with the codes and regulations listed in Caltrans Section 86-1.02, "Regulations and Codes" and these Special Provisions.

Replace the first sentence of the first subparagraph of the seventeenth paragraph with the following:

Conduit, per City of Torrance Requirements shall either be Type 1, 2 or 5.

Type 3 conduit shall be used where required by Southern California Edison Company.

Replace the fourth subparagraph of the seventeenth paragraph with the following:

The conduit shall be placed in the bottom of the trench and the trench shall be backfilled with commercial quality class 100-E-100 concrete slurry to two inches (2") below either existing pavement thickness to remain

or below proposed pavement thickness if applicable and possible. Permanent resurfacing shall match plan plus one inch (1") unless otherwise approved by the Engineer.

Replace the sixth subparagraph of the seventeenth paragraph with the following:

All excavated areas in the pavement shall be backfilled to existing grade or plated at the end of each work period.

Replace the twentieth paragraph with the following:

Conduits terminating in standards or pedestals shall extend not more than 2 inches vertically above the foundation and shall be sloped towards the handhole opening. Conduit entering through the bottom of a pull box shall terminate 2 inches above the bottom and shall be located near the end walls to leave the major portion of the box clear. At all outlets, conduits shall enter from the direction of the run.

Add the following:

After conductors have been installed, the ends of conduits terminating in pull boxes and controller cabinets shall be sealed with an approved type of sealing compound.

## **86-2.06 PULL BOXES**

**86-2.06A Materials.** Replace the entire subsection with the following:

Pull boxes, covers and extensions for installation in the ground or in sidewalk areas shall be of the sizes and details shown on the Plans and shall be precast of reinforced Portland Cement Concrete (PCC). Plastic pull boxes shall not be used.

Pull boxes and covers for installation in structures shall be of the sizes and details shown on the Plans.

Covers shall be secured with 3/8 inch bolts, cap screws, or studs, and nuts which shall be of brass, stainless steel or other non-corroding material. Stainless steel hold-down bolts, cap screws or studs, and nuts and washers shall have a chromium content of not less than 18 percent and a nickel content of not less than 8 percent.

All ferrous metal parts shall be galvanized in conformance with the provisions in Section 75-1.05 of the Caltrans Standard Specifications.

**86-2.06C Installation and Use.** Replace the entire subsection with the following:

Pull boxes shall be installed at the locations shown on the Plans and shall be spaced at no more than 200-foot intervals. The Contractor may, at the Contractor's expense, install additional pull boxes to facilitate the work.

The bottoms of pull boxes installed in the ground or in sidewalk areas, shall be bedded in crushed rock as shown on the Plans. Grout in the bottom of pull boxes will not be required.

Where the sump of an existing pull box is disturbed by the Contractor's operations, the sump shall be reconstructed to the satisfaction of the Engineer.

**86-2.08 CONDUCTORS AND CABLES.** Add the following:

Conductor Cable shall be used where noted on the Project Plans. A 3 type cable shall be used between the No. 6 pull box in each corner and each signal pole for each pedestrian push button and pedestrian indication. A 5 type cable shall be used between the No. 6 pull box in each corner to each pole for each vehicle head.

Existing interconnect cable shall be re-pull into new conduit as shown on the plans.

New interconnect cable shall be 12 pair No. 19. All cable provided shall be certified by the manufacturer as meeting the requirements of the REA Specifications for Type PE-39 cable as related to the materials and construction methods used, and the electrical and mechanical characteristics of the actual cable supplied by the Contractor.

All conductors shall be THW. The Contractor shall provide all new conductors unless otherwise shown on the Plans or provided for in these Special Provisions.

## **86-2.09 WIRING**

**86-2.09C Connectors and Terminals.** Add the following:

Conductors #10 AWG or larger shall be spliced by the use of approved "C" shaped compression connectors.

**86-2.09D Splicing and Terminations.** Add the following:

No splicing shall be permitted except for signal and lighting commons. All conductors shall extend from the cabinet to the terminal compartment in each pole.

Conductors #10 AWG or larger shall be spliced by the use of approved "C" shaped compression connectors.

**86-2.09E Splice Insulation.** Replace the last paragraph with the following:

The Contractor shall use splice insulation "Method B".

## **86-3 CONTROLLER ASSEMBLIES**

**86-3.04C Cabinet Wiring.** Add the following:

A listing of field conductor terminations, in each controller cabinet, will be furnished free of charge to the Contractor at the site of the work.

## **86-4 TRAFFIC SIGNAL FACES AND FITTINGS**

**86-4.06 Pedestrian Signal Faces.** Add the following subsections:

**86-4.06A Types.**

Pedestrian signal faces shall be Type A with L.E.D. indications unless otherwise specified by the Engineer.

**86-4.06B Front Screen.**

Front screen installation for each Type A signal must comply with the following:

Install a 1-1/2-inch deep eggcrate or Z crate type screen of 1/32-inch nominal thickness polycarbonate. Mount screening in a frame constructed of 0.040-inch minimum thickness aluminum alloy or polycarbonate. Install screen parallel to face of message plate and hold in place with stainless steel screws. Visor as specified in Section 86-4.06D, "Visors," is not required.

## 86-5 DETECTORS

### 86-5.01 Vehicle Detectors

#### 86-5.01A Inductive Loop Detectors.

##### 86-5.01A(3) Construction Materials. Replace the first paragraph with the following:

Conductor for each inductive loop detector shall be continuous and unspliced and shall conform to the following:

Type 1 loop wire shall be Type RHW-USE neoprene-jacketed or Type USE cross-linked polyethylene insulated, No. 12, stranded copper wire. The minimum insulation thickness at any point shall be 40 mils.

##### 86-5.01A (4) Installation Details. Add the following:

The Contractor shall test the detectors with a motor-driven cycle, as defined in the California Vehicle Code that is licensed for street use by the Department of Motor Vehicles of the State of California.

Asphaltic emulsion sealant shall be used in all sawcuts.

The unladen weight of the vehicle shall not exceed 220 pounds and the engine displacement shall not exceed 100 cubic centimeters. Special features, components or vehicles designed to activate the detector will not be permitted. The Contractor shall provide an operator who shall drive the motor-driven cycle through the response or detection area of the detector at no less than three miles per hour and no more than seven miles per hour. The detector shall provide an indication in response to this test.

Add the following subsection:

##### 86-5.01B (1) Video Detection System

Video detection system shall be furnished and installed in the cabinet at the location shown on the Plan. The video system equipment, cabling and auxiliary equipment shall be as shown below or equal, and as specified in the Appendices of this Specification and as noted on the Plans. The Engineer reserves the right to select equipment from any manufacturer for the video detection system. As such, the Engineer may ask the Contractor to provide an alternate material submittal and related cost proposal for said other equipment.

#### Iteris

Part Number	Description
CAM-RZ4AWDR	Iteris Vantage Edge 2 Camera
CAMBRKT4	Iteris Universal Mounting Bracket
EDGE2 IOM32 or TS2-1M	Iteris TS-1 or TS-2 Interface Module
	10" Flat Panel Monitor
LAMVIEW ADPT	Iteris Lens Adjustment Module
EDGE2-4N	Iteris Vantage Edge 2 Processor- QUAD
	Turn On Support and Training
	Belden Precision Video Cable RG-59/U Type 20 AWG
Catalog # 01342	General Cable Carolprene Jacketed Type SJOW cord
	Iteris Vantage Input/Output & extension Modules

Considered equal is the Econolite Autoscope ENCORE camera with Autoscope ENCORE branch Cable (3-conductor/18AWG) and other compatible, required auxiliary equipment from Econolite to provide a fully-operational video detection system.

One video detection camera shall be installed on each luminaire mast arm for each direction as shown on the Project Plans and details contained in 86-5.01B(2) herein.

The Contractor shall have a manufacturer's representative present during installation of all cameras and cabinet modifications. The manufacturer's representative shall provide a minimum of 16 hours (2 days) of training with CITY staff.

## **86-5.01B (2) Detailed Specification for Video Detection System**

### **86-5.01B (2.1) Video Detection System**

See Appendix VII

#### **86-5.01B (2.2.3) Video Server**

The contractor shall provide one compatible Video Server to be located at the intersection. The video server shall have four ports for analog video and both Ethernet and RS-232 ports capable of transmitting high-quality de-interlaced video at 30 frames per second (NTSC) per channel.

## **86-6 LIGHTING**

### **86-6.09 Internally Illuminated Street Name Signs.** Add the following:

Each Internally Illuminated Street Name Sign shall have a photoelectric control. Each Internally Illuminated Street Name Sign shall be furnished to the City with the capability and hardware to be illuminated with both fluorescent and LED type illumination.

The Contractor shall furnish and install new mounting hardware for any new and relocated IISNS sign. The IISNS sign format is shown on the Plans.

## **86-7 REMOVING, REINSTALLING OR SALVAGING ELECTRICAL EQUIPMENT**

### **86-7.01 Removing Electrical Equipment.** Replace the first paragraph with the following:

Existing electrical equipment shown on the Plans or specified in these Special Provisions to be removed and not reused or salvaged, and pull boxes, conduit and detector frames not reused, shall become the property of the Contractor, except the controller cabinet which shall be salvaged to the CITY and delivered to the CITY Yard as directed by the Engineer.

## **86-8 PAYMENT**

### **86-8.01 Payment.** Replace the entire subsection with the following sections:

#### **86-8.02 Payment**

Payment for removal of existing and installation of new Internally Illuminated Street Name Signs will be made at the contract unit price and shall include all work needed.

Payment for removal of existing detector loops, wiring modifications for said loops and installation of video detection system, including manufacturer's oversight will be made at the contract unit price and shall include all work needed.

## **SECTION 310 – PAINTING**

### **310-5 PAINTING VARIOUS SURFACES**

**310-5.6 Painting Traffic Striping, Pavement Markings and Curb Markings.** Delete the entire subsection 310-5.6 through 310-5.6.9 and replace with Sections 84-1 and 84-2 of the Caltrans Standard Specifications.

Add the following:

The Contractor shall paint red curb markings as shown on the signing and striping plans. When street addresses painted on curb faces have been eliminated due to work associated with this contract, each street address shall be restored by painting on the face of new curb. Background shall be white in color and address numbers shall be black in color and 4 inches in height. Existing paint markings on curbs shall be removed prior to applying the new paint markings..

## **84-1 GENERAL**

**84-1.01 Description.** Replace the first two paragraphs with the following:

This work shall consist of applying thermoplastic traffic stripes (traffic lines) and pavement markings at the locations and in accordance with the details shown on the Plans or designated by the Engineer, and as specified in these Specifications and Special Provisions.

The thermoplastic material shall conform to the provisions of 84-2.02 of the Caltrans Standard Specifications.

## **84-2 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS**

**84-2.06 Payment.** Replace the entire subsection with the following:

The contract lump sum price paid for thermoplastic traffic striping, pavement markings, legends, and arrows shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in applying thermoplastic traffic stripes; furnishing and placing retroreflective pavement markers, and thermoplastic pavement markings, complete in place, including adhesives, and establishing alignment for stripes, pavement markers, pavement markings and layout work, as shown on the plans, as specified in the standard specifications and these special provisions, and as directed by the engineer.

Add the following subsections:

### **310-5.7 Exterior Coatings for Exposed Water Pipes and Appurtenances**

**310-5.7.1 General.** The exterior surfaces of water pipes and appurtenances that will be exposed to the atmosphere inside structure or above ground shall be thoroughly cleaned and then given a shop coat of rust-inhibitive primer conforming to 210-1.8 of these Special Provisions.

Where practicable, each succeeding coat of paint shall be of a different color. Colors as specified shall be maintained unless found to be no longer available from the manufacturer. If an alternative paint system is selected and approved by the Engineer, the Engineer will select the colors to be utilized from the color samples presented.

Each coat shall produce a minimum film thickness as specified herein. In areas where this thickness is not developed, sufficient additional coats shall be applied to produce it. All coating thicknesses specified herein refer to minimum dry film thickness.

Manufacturer's instructions shall be strictly followed in the application of proprietary coatings and materials.

**310-5.7.2 Ungalvanized Ferrous Metals.** Prior to coating, surfaces shall be sandblasted in accordance with SSPC-SP-6 (Commercial Blast Cleaning), except that where, in the Engineer's opinion, sandblasting is inappropriate because of the size, location or nature of the surface, or because of the difficulty in protecting adjacent work, such surfaces shall be either power tool cleaned in accordance with SSPC-SP-3 (Power Tool Cleaning) or hand tool cleaned in accordance with SSPC-SP-2 (Hand Tool Cleaning).

All paint shall be brush applied unless an alternate method is approved in advance by the Engineer. Surfaces shall be primed or spot primed as required. Prime coat shall be 2 mils. followed by two succeeding coats of 2 mils. each. Total thickness of the completed coating system shall be 6 mils.

**310-5.7.3 Galvanized Ferrous Metals.** Prior to coating, surfaces shall be cleaned in accordance with SSPC-SP-7 (brush-off blast cleaning).

All paint shall be brush applied unless an alternate method is approved in advance by the Engineer. Surfaces shall be primed or spot primed as required. Prime coat shall be 2 mils. followed by two succeeding coats of 2 mils. each. Total thickness of the completed coating system shall be 6 mils.

**310-5.7.4 Payment.** There shall be no separate payment for painting and coating. This cost shall be included in the work to which it is appurtenant.

**310-5.8.3 Aboveground or Exposed Pipeline.** Pipeline which will be aboveground or permanently exposed to the environment will be prepared and coated using Zinc Rich Primer/Epoxy/Urethane coating system as follows:

**310-5.8.3.1 Preparation.** Surfaces may be shop primed and coated or field coated. Preparation of metal surfaces shall be in accordance with the manufacturer's recommendations and in accordance with SPC-SP10, "Near White Blast Cleaning."

Coated surfaces damaged during shop priming or installation shall be prepared and recoated in accordance with the coating manufacturer's recommendations and these specifications.

**310-5.8.3.2 Coating System.** The coating system shall be a 3-coat system as follows:

Primer: Tnemec; Series 90-97, "TnemeZinc," Zinc Rich Urethane Primer - 3 mils.

Intermediate: Tnemec; Series 66, "Hi-Build Epoxoline," Epoxy - Polyamide Coating - 4 mils.

Finish: Tnemec; Series 75 "Endura-Shield," Hi-Build Acrylic Polyurethane Enamel - 4 mils.

**310-5.8.3.3 Inspection.** Inspection shall be as follows:

Shop primed or factory finished items shall be inspected at the job site before further painting or coating. Areas of chipped, peeled, or abraded coating shall be in accordance with these requirements.

Contractor shall provide scaffolding and testing equipment to permit inspection.

Color shall be selected by the Engineer from submitted paint samples of the manufacturer's standard colors.

**310-5.8.4 Payment.** There shall be no separate payment for painting and coating. This cost shall be included in the work to which it is appurtenant.

### **310-5.9 Waterproofing (Concrete)**

**310-5.9.1 General.** The Contractor shall furnish all material, labor and equipment necessary to waterproof the interior and exterior of all manholes and vaults.

#### **310-5.9.2 Surface Preparation**

- 1) Do not treat concrete surfaces with chemical hardeners or curing agents prior to the application of waterproofing.

- 2) Examine surfaces to be waterproofed for form tie holes and structural defects, such as honeycombing, rock pockets, faulty construction joints, cracks, etc. Repair these areas in accordance with Section 303.
- 3) Concrete surfaces shall have an open capillary system to provide tooth and suction and shall be clean, free from scale, form oil, latency, curing compounds, and any other foreign matter. Lightly sandblast, water blast, or acid etch with muriatic acid (15% to 20%) to provide a clean absorbent surface. Saturate surfaces to be acid etched with water prior to application of acid. Vertical surfaces may have a sacked finish. Do not apply a slurry coat of water materials to horizontal concrete deck surfaces that are less than 20 hours old.
- 4) Use light sandblasting or etching to remove the surface glaze of dense or steel troweled concrete.
- 5) Abrasive clean and wash construction joints.

### **310-5.9.3 Application**

- 1) After completing repairs, apply a top-coat system to the concrete surfaces to be treated, apply after curing and finishes are complete. Application of waterproofing and any point top coatings shall conform to the manufacturers recommended application procedures.
- 2) The Contractor shall have the manufacturer's representative advise and/or supervise the waterproofing application in person.
- 3) Apply crystalline waterproofing material to concrete, which has been thoroughly saturated with clean water. Moisten surfaces to be treated prior to application. Remove free water prior to application of waterproofing material.
- 4) Apply crystalline waterproofing to:
  - (a) Interior walls and roof of concrete vaults and manholes. Exterior walls of concrete vaults and manholes.
  - (b) Joints of precast concrete manholes as shown on the Plans.
  - (c) The interior surfaces shall have a white color and the exterior a gray color.
- 5) Apply second coat when the first coat has reached an initial set. Use light water spray on surfaces to be coated if rapid drying occurs.

**310-5.9.4 Payment.** There shall be no separate payment for waterproofing. This cost shall be included in the work to which it is appurtenant.

### **SECTION 312 – PAVEMENT MARKER PLACEMENT AND REMOVAL (Replaced with Sections 85-1.06, 85-1.07 and 85-1.09 of Caltrans Standard Specifications)**

Delete the entire Section 312 and replace with Section 85 of the 2010 Caltrans Standard Specifications and with the following amendments:

Add the following:

#### **85-1.02F Placement.**

The 50-foot long 4" solid white lines at intersections shall have a marker installed at each end. These markers shall be placed on the line.

Markers shall not be installed on bike lane striping.

**85-1.04 Payment.** Replace the entire subsection with the following:

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing all thermoplastic striping, pavement markings, legends, arrows and retroreflective pavement markers, complete in place, including adhesives, and establishing alignment for pavement markers, as shown on the plans, as specified in these specifications and as directed by the Engineer shall be per the lump sum unit price for THERMOPLASTIC STRIPING AND PAVEMENT MARKINGS.

Add the following Section 313 in its entirety.

### **SECTION 313 – INSTALLATION OF MISCELLANEOUS POTABLE WATER DISTRIBUTION SYSTEM MATERIALS**

#### **313-4 FIRE HYDRANTS**

The Fire hydrant assembly shall include the hydrant, hydrant extension, bury, thrust blocks, 6" service line, and other appurtenances as indicated in City of Torrance Standard Plan No. T706 and the contract plans. Hydrant extension and bury shall be cement-mortar lined per AWWA C 104.

All fire hydrants shall be painted yellow after receiving a prime coat, as described in Section 210 of these Special Provisions.

The plan layout of the proposed hydrant is diagrammatic only. Actual location of new hydrant shall be laid out in the field in the presence of the Engineer.

When the location of a proposed fire hydrant is in conflict with the existing water main, the Contractor shall install the fire hydrant in phases and protect the existing water main in place until the new water main has been put into service.

**313-4.1 Payment.** Payment for fire hydrant assemblies shall be per the Contract unit price and shall include all related appurtenant work.

Add the entire section 315.

### **SECTION 315 – SIGNAGE**

**315-1 ROADSIDE SIGNS.** All signs shall be installed in accordance with the requirements of Section 56-2.03 of the Caltrans Standard Specifications Latest Edition, Caltrans Standard Plans Latest Edition, and these Special Provisions. Roadside signs shall be installed at the locations shown on the Plans or where directed by the Engineer.

All signs shown on the signing and striping plans shall be new signs provided and installed by the Contractor, except for existing signs specifically indicated on the plan to be relocated or to remain.

All signs shall be of 3M Diamond Grade Cubed, with 1160 protective anti-graffiti overlay film and matched components system warranty (12 years) on 0.080 Aluminum with "Torrance" on border.

**56-2.03 CONSTRUCTION.** Delete the third paragraph and last sentence of the eleventh paragraph.

Delete the entire subsection 56-2.05.

**56-2.06 PAYMENT.** Replace the entire subsection with the following:

Payment for roadside signs shall be per unit per the Contract Unit Price and shall include all labor, materials, tools, equipment, and individuals, and for doing all the work involved in furnishing and installing roadside signs, complete in place, as shown on the Plans and these Special Provisions, and as directed by the Engineer.



**APPENDIX I**

**CITY OF TORRANCE PERMIT AND BUSINESS LICENSE**



City of Torrance, Community Development Department

# Permit Application Form

3031 TORRANCE BLVD. • TORRANCE, CA 90503

## OWNER/APPLICANT INFORMATION

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City/State: \_\_\_\_\_  
Zip: \_\_\_\_\_  
Phone: \_\_\_\_\_

Evacuation permits will not be issued without  
USA LD. number.

Underground Service Alert  
Call 1-800/227-2600

USA I.D. #: \_\_\_\_\_

## CONTRACTOR INFORMATION ON FILE

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

State License #: \_\_\_\_\_

Class: \_\_\_\_\_ Exp. Date: \_\_\_\_\_

City Business #: \_\_\_\_\_

Workers Comp. #: \_\_\_\_\_

Exp. Date: \_\_\_\_\_

## JOB LOCATION/ADDRESS

(or closest street address)

Please list cross streets: \_\_\_\_\_  
\_\_\_\_\_

## DESCRIPTION OF WORK

\_\_\_\_\_  
\_\_\_\_\_

Lin/Ft Trench \_\_\_\_\_

Width of Trench \_\_\_\_\_

Lin/Ft Curb & Gutter \_\_\_\_\_

Lin/Ft Bore \_\_\_\_\_

Sewer Connection \_\_\_\_\_

Number of Curb Drains \_\_\_\_\_

Sq/Ft Asphalt \_\_\_\_\_

Sq/Ft Concrete \_\_\_\_\_

Sq/Ft Dirt \_\_\_\_\_

Work Order Number (for utility companies): \_\_\_\_\_

Applicant or Authorized Signature: \_\_\_\_\_

For further permit information, please call 310/618-5898 or Fax 310/618-2846.



**NOTICE  
CITY OF TORRANCE  
COMMUNITY DEVELOPMENT DEPARTMENT/  
ENGINEERING DIVISION  
NEW INSURANCE REGULATIONS**

The City of Torrance Community Development Department/Engineering Division will be requiring proof of liability insurance from each contractor applying for a Construction & Excavation permit to work in the public right-of-way or in a public easement beginning October 1, 2001. Insurance shall cover contractor and vehicles used in the construction. The attached requirements dated September 20, 2001 will detail the insurance limits.

**All insurance certificates shall have an additional clause that states: "The City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer"** as additional insured.

Contractors should bring in proof of insurance at the time of application for permit. For major companies that are self-insured, a letter stating this fact and signed by an officer of the firm will be acceptable. Annual insurance may also be kept on file for contractors working periodically within the City of Torrance.

If you have any questions, please contact the Engineering Division Permit Counter at 310-618-5898.

JEFFERY W. GIBSON  
Community Development Director  
City of Torrance

**EFFECTIVE 8/11/03**

8/11/03

CITY OF TORRANCE  
COMMUNITY DEVELOPMENT DEPARTMENT/  
ENGINEERING DIVISION

PERMIT APPLICATION FORM  
INSURANCE REQUIREMENTS

Any entity performing work on City streets, right-of-way, and property must comply with the following requirements.

1. TYPE OF INSURANCE

Any entity performing work must maintain at their sole expense the following insurance, which shall be full coverage not subject to self-insurance provisions.

- General Liability including coverage for premises, products and completed operations, underground hazards, independent contractors, personal injury and contractual obligations with combined single limits of at least \$1,000,000 per occurrence.
- Automobile Liability including owned, non-owned and hired vehicles, with at least the following limits of liability:
  - Primary Bodily Injury with limits of at least \$500,000 per person, \$1,000,000 per occurrence AND; Primary Property Damage with limits of at least \$500,000 per occurrence, OR
  - Combined single limits of at least \$1,000,000 per occurrence.
- Workers' Compensation with limits as required by the State of California and Employer's Liability with limits of at least \$1,000,000.

2. CERTIFICATES

- Certificates or an attached endorsement must be provided that contains the following provisions:
  - The City of Torrance, the City Council and each member thereof, members of boards and commissions, every officer, agent, official, employee and volunteer must be named as additional insured under the automobile and general liability policies.
  - The insurance policies required by this clause shall contain a provision that no termination, cancellation or change of coverage can be made without 30 days written notice to the City.

3. FILING REQUIREMENTS

- Certificates of insurance and/or endorsements must be provided to the Community Development Department, Permits and Records Section, 3031 Torrance Blvd., Torrance, CA 90503, prior to the issuance of the permit.

4. ADDITIONAL REQUIREMENT

- Insurance required of any entity performing work will be satisfactory only if issued by companies rated "B+" or better in the most recent edition of Best's Key Rating Guide, and only if they are of a financial category of a VII or better, unless these requirements are modified or waived by the City's Risk Manager.

Please call the Business License Office at 310-618-6823 for fee amounts. Payment must be submitted with your application.

<b>FOR OFFICIAL USE ONLY</b>	
1. LICENSE NO.	2. CATEGORY NO.
HOME OCCUPATION	HEALTH PERMIT
	A.I.C. CODE



**City of Torrance, Revenue Division  
 Business License Application**

3031 Torrance Boulevard, Torrance, California 90503 • 310/618-5828

**PART I. APPLICANT TO ANSWER ALL QUESTIONS IN THIS SECTION (print or type)**

3. BUSINESS NAME OR FEA \_\_\_\_\_ 4. CORPORATION NAME (IF DIFFERENT FROM ABOVE) \_\_\_\_\_

5. BUSINESS ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

6. MAILING ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

7. NATURE OF BUSINESS (name of business being conducted at this location) \_\_\_\_\_

8. BUSINESS PHONE \_\_\_\_\_ 9. BUSINESS PHONE \_\_\_\_\_

10. NAME OF PERSON WORKING AT LOCATION \_\_\_\_\_ 11. TITLE \_\_\_\_\_

12. HOME PHONE \_\_\_\_\_ 13. DRIVER'S LICENSE NO. \_\_\_\_\_ 14. STATE SALES TAX NO. \_\_\_\_\_

15. RESIDENCE ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_ 16. SOCIAL SECURITY NO. \_\_\_\_\_ 17. BIRTH DATE \_\_\_\_\_ 18. SEX \_\_\_\_\_

19. STATE CONTRACTOR'S LICENSE NO. \_\_\_\_\_ 20. PERM NO. \_\_\_\_\_ 21. SOCIAL SECURITY NO. \_\_\_\_\_

22. OWNERSHIP INFORMATION

PARTNERSHIP  CORPORATION  SOLE OWNERSHIP

NAME OF OWNER, PARTNER, OR PRINCIPAL OFFICERS \_\_\_\_\_ HOME ADDRESS \_\_\_\_\_ HOME PHONE \_\_\_\_\_

TITLE \_\_\_\_\_

TITLE \_\_\_\_\_

TITLE \_\_\_\_\_

I declare that I am the owner, partner, corporate officer or person with the power of attorney, and I understand that the information provided above is not the true business license being applied for may be reviewed as outlined in section 31.9.10 of the Torrance Municipal Code.

I am duly authorized to make this application and all of the information provided in this application is true and correct. The business will not provide any service, good or product which is illegal under Federal, State, or Local Laws. I declare under penalty of perjury that the foregoing is true and correct.

SIGNATURE \_\_\_\_\_ DATE \_\_\_\_\_

**PART II. FOR OFFICIAL USE ONLY**

APPLICATION FOR CREDIT PROCESSOR FEE \_\_\_\_\_ FEE RPT. FEE \_\_\_\_\_ OTHER \_\_\_\_\_

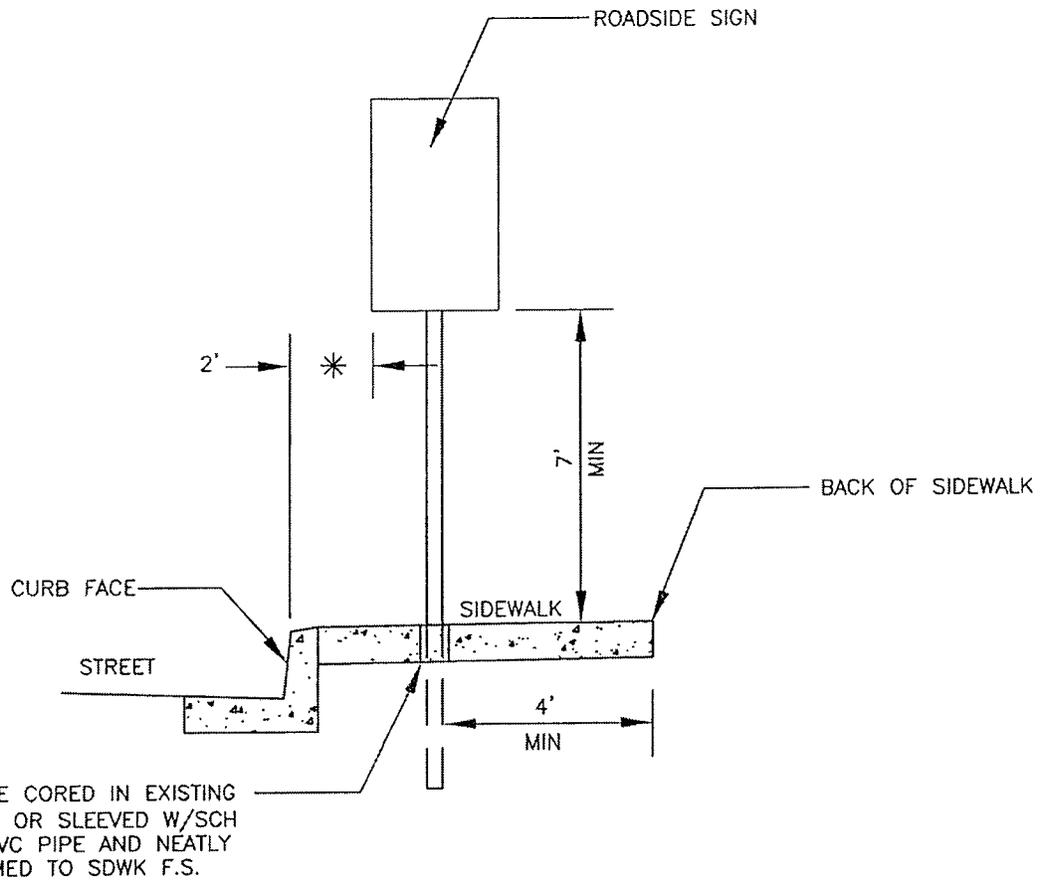
PER PERMIT FEE  YES  NO  OTHER (LIST) \_\_\_\_\_

ACTIVITY FEE  HOLD  YES  NO  EMPLOYEE  EMPLOYEE

RECEIVED BY \_\_\_\_\_ CHECK NO. \_\_\_\_\_ CASH \_\_\_\_\_ TOTAL AMOUNT \$ \_\_\_\_\_

**APPENDIX II**

**CITY OF TORRANCE STANDARD PLANS**



\* 1' MIN. WHERE LATERAL CLEARANCE LIMITED

NOTES :

1. THIS STANDARD APPLIES TO THE PLACEMENT OF PERMANENT ROADSIDE SIGNS, INCLUDING WARNING SIGNS, REGULATORY SIGNS, AND GUIDE SIGNS.
2. FOR SIGN POSTS WITH MULTIPLE SIGNS, THE 7-FOOT MINIMUM CLEARANCE SHALL BE TO THE BOTTOM OF THE LOWEST SIGN.

**CITY OF TORRANCE**

**ROAD SIGN PLACEMENT**

DATE ISSUED  
02 JUL 2008

STANDARD NO.  
**T502**

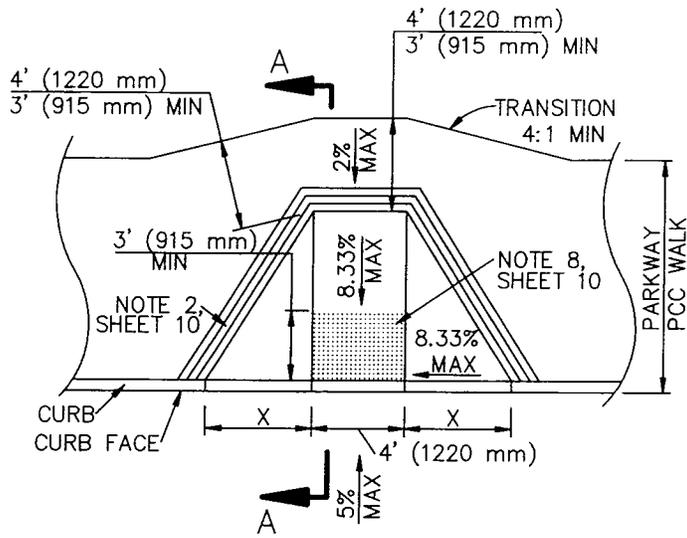
ROBERT J. BESTE  
PUBLIC WORKS DIRECTOR  
R.C.E. NO. 50737

SHEET 1 OF 1

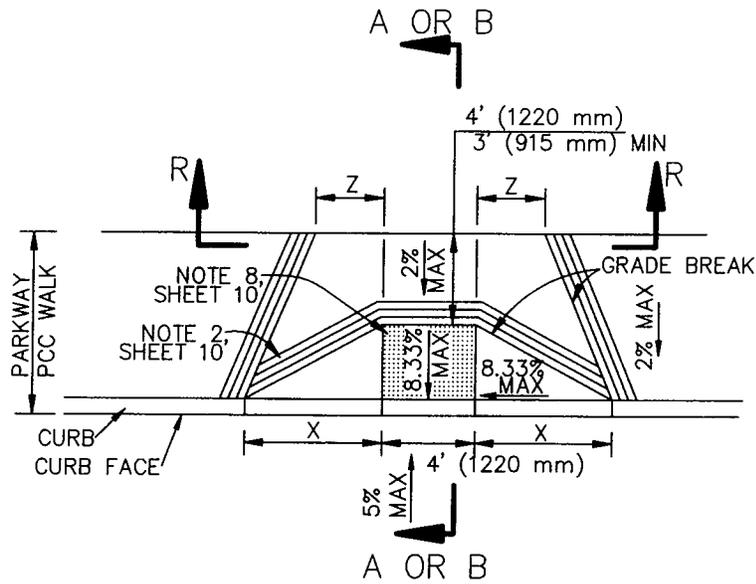
TT\T502



**APPENDIX III**  
**SPPWC STANDARD PLANS**



TYPE 1



SEE SHEET 7, THIS SECTION

TYPE 2

CASE A

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1992  
REV. 1996, 2000, 2005, 2009

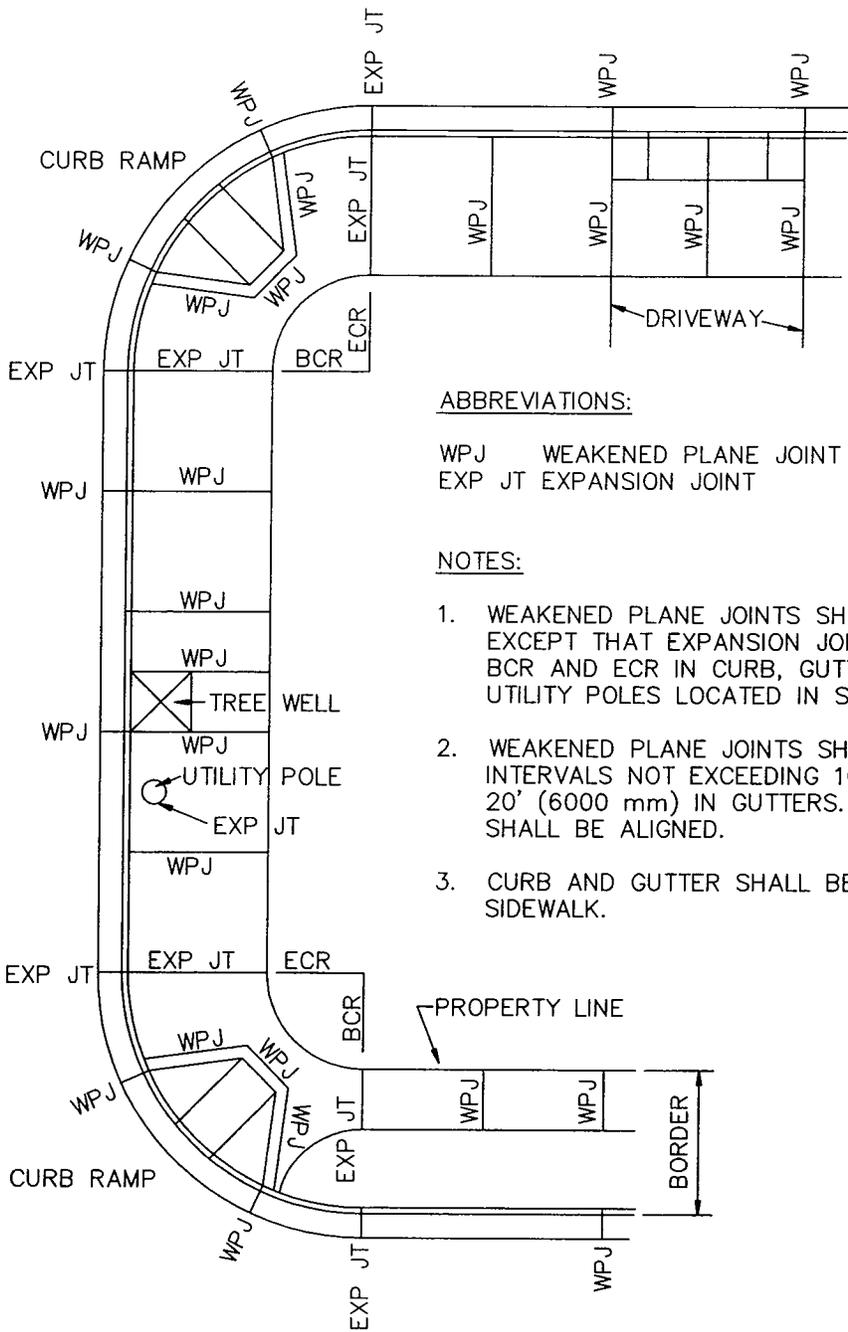
CURB RAMP

STANDARD PLAN

111-4

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 10



ABBREVIATIONS:

WPJ WEAKENED PLANE JOINT      BCR BEGINNING OF CURB RETURN  
 EXP JT EXPANSION JOINT      ECR END OF CURB RETURN

NOTES:

1. WEAKENED PLANE JOINTS SHALL BE USED FOR ALL JOINTS, EXCEPT THAT EXPANSION JOINTS SHALL BE PLACED AT THE BCR AND ECR IN CURB, GUTTER AND SIDEWALK, AND AROUND UTILITY POLES LOCATED IN SIDEWALK AREAS.
2. WEAKENED PLANE JOINTS SHALL BE CONSTRUCTED AT REGULAR INTERVALS NOT EXCEEDING 10' (3000 mm) IN WALKS AND 20' (6000 mm) IN GUTTERS. JOINTS IN CURB AND WALK SHALL BE ALIGNED.
3. CURB AND GUTTER SHALL BE CONSTRUCTED SEPARATELY FROM SIDEWALK.

STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
 PUBLIC WORKS STANDARDS INC.  
 GREENBOOK COMMITTEE  
 1984  
 REV. 1996, 2009

**CURB AND SIDEWALK JOINTS**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

**112-2**

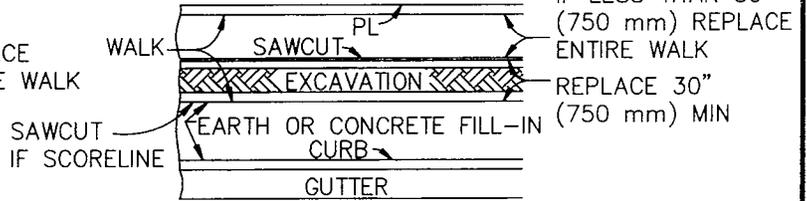
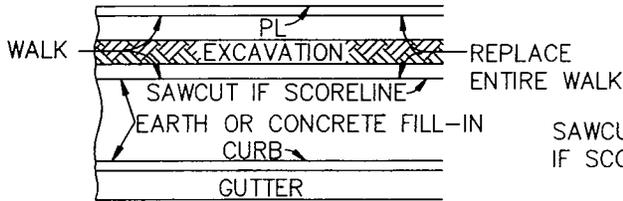
SHEET 1 OF 1

# WALK OR FILL-IN REPLACEMENT FOR EXCAVATIONS MADE PARALLEL TO CURB OR PROPERTY LINE

## WALK ADJACENT TO PROPERTY LINE

WALK LESS THAN 5' (1500 mm) WIDE

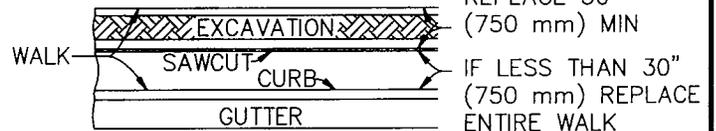
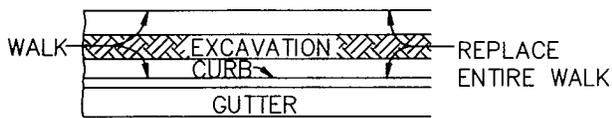
WALK 5' (1500 mm) WIDE OR MORE



## WALK ADJACENT TO CURB

WALK LESS THAN 5' (1500 mm) WIDE

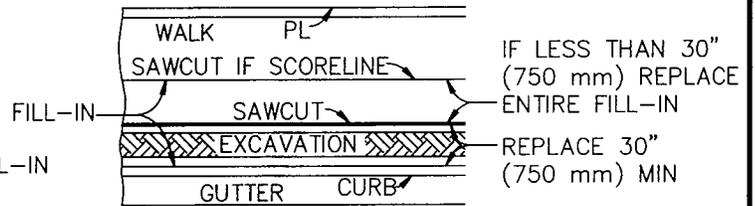
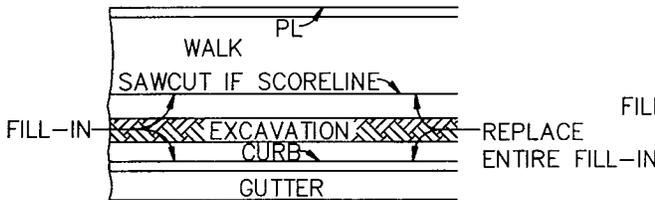
WALK 5' (1500 mm) WIDE OR MORE



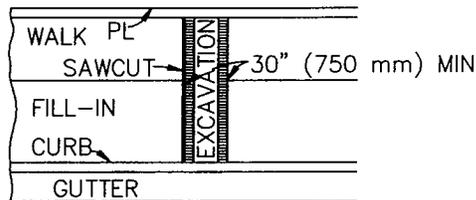
## FILL-IN REPLACEMENT

FILL-IN LESS THAN 5' (1500 mm) WIDE

FILL-IN 5' (1500 mm) WIDE OR MORE



# WALK OR FILL-IN REPLACEMENT FOR EXCAVATIONS MADE NORMAL TO CURB OR PROPERTY LINE



THESE REQUIREMENTS ALSO APPLY TO ENDS OF PARALLEL EXCAVATIONS.

IF AN EXCAVATION FALLS WITHIN 30" (750 mm) OF AN EXPANSION JOINT, CONSTRUCTION JOINT, WEAKENED PLANE JOINT, OR EDGE, THE CONCRETE SHALL BE REMOVED AND REPLACED TO THE JOINT OR EDGE.

IF AN EXCAVATION FALLS WITHIN 12" (300 mm) OF A SCORELINE, THE CONCRETE SHALL BE REMOVED AND REPLACED TO THE SCORELINE. THE SCORELINE SHALL BE SAWCUT BEFORE CONCRETE REMOVAL. THE MINIMUM LENGTH OF REPLACEMENT IN BOTH CASES SHALL BE 30" (750 mm).

## STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1993  
REV. 1996, 2009

# SIDEWALK & DRIVEWAY REPLACEMENT

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

STANDARD PLAN

# 113-2

SHEET 1 OF 2

## NOTES

1. CONCRETE WALK, FILL-IN AND DRIVEWAYS REMOVED IN CONNECTION WITH CONSTRUCTION SHALL BE REPLACED TO NEATLY SAWED EDGES. ALL CUTS SHALL BE PARALLEL TO OR PERPENDICULAR TO THE CURB; ON CURVES, THE CUT SHALL BE RADIAL TO THE CURB.
2. DRIVEWAY APRONS IN WHICH THE "W" DISTANCE IS LESS THAN 11' (3300 mm) SHALL BE REPLACED IN THEIR ENTIRETY IF CUT IN ANY AREA.
3. DRIVEWAY APRONS IN WHICH THE "W" DISTANCE IS 11' (3300 mm) OR MORE MAY BE CUT WITHIN THE "W" SECTION. THE MINIMUM REPLACEMENT SHALL BE 30" (750 mm) IN LENGTH. THE MINIMUM DISTANCE ALLOWED BETWEEN SUCH CUTS SHALL BE 14' (4200 mm).
4. DRIVEWAY APRONS IN WHICH THE "W" DISTANCE IS 11' (3300 mm) OR MORE MAY BE CUT IN THE "X" OR "R" SECTION. REPLACEMENT SHALL BE THE ENTIRE "X" OR "R" SECTION.
5. DRIVEWAY APRONS SHALL BE REPLACED FROM THE BACK OF THE CURB TO THE FRONT EDGE OF THE WALK, EXCEPT, WHERE WALK IS ADJACENT TO CURB, REPLACEMENT SHALL BE FROM BACK OF CURB TO BACK OF WALK.
6. WALK PORTIONS OF DRIVEWAYS SHALL BE REPLACED AS SHOWN ABOVE FOR EXCAVATIONS MADE PARALLEL OR NORMAL TO CURB.
7. REPLACEMENT OF THE "X" OR "R" SECTION SHALL MATCH EXISTING CONSTRUCTION.

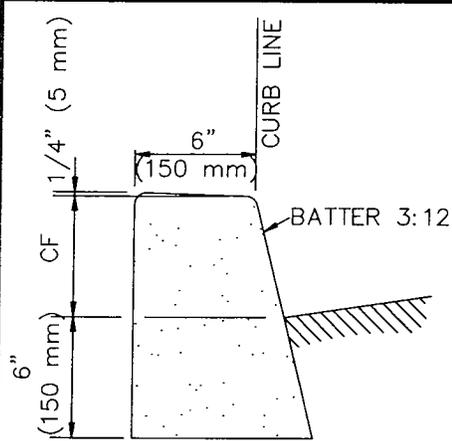
STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION

**SIDEWALK & DRIVEWAY REPLACEMENT**

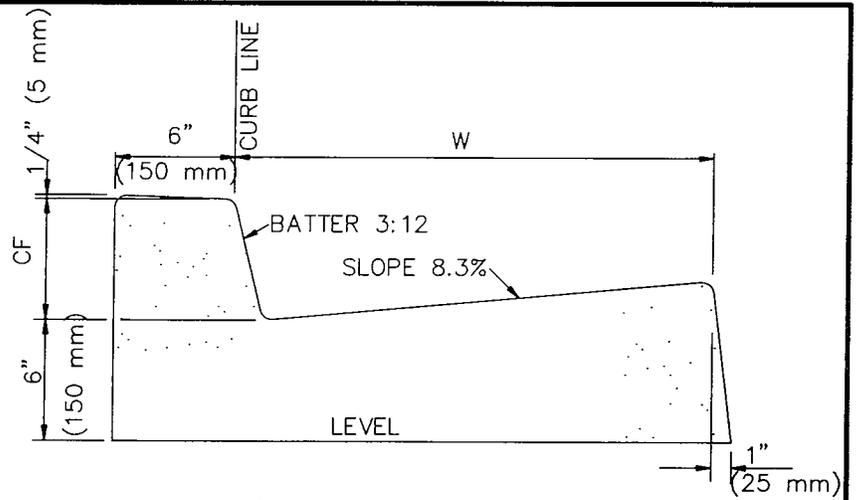
STANDARD PLAN

**113-2**

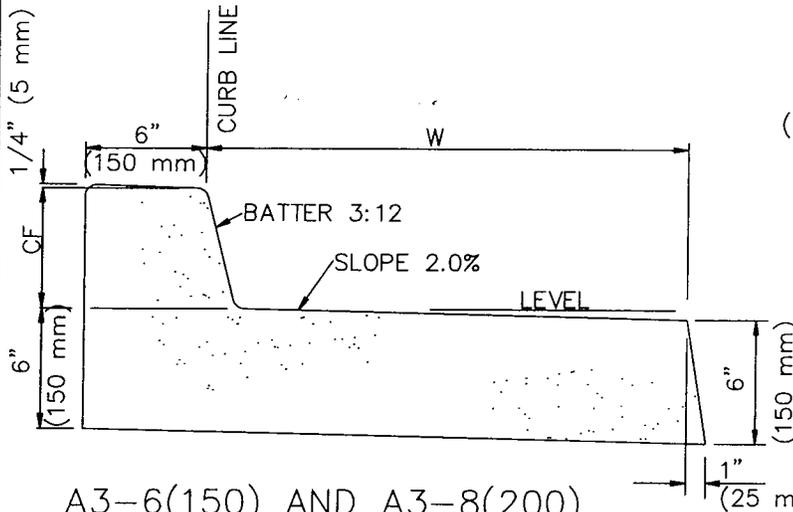
SHEET 2 OF 2



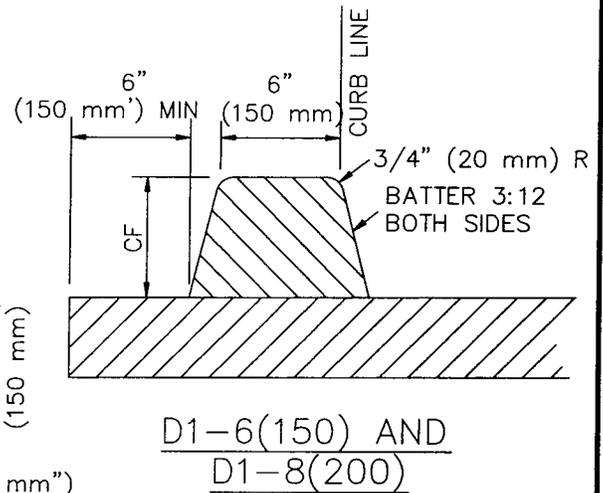
A1-6(150) AND  
A1-8(200)



A2-6(150) AND A2-8(200)



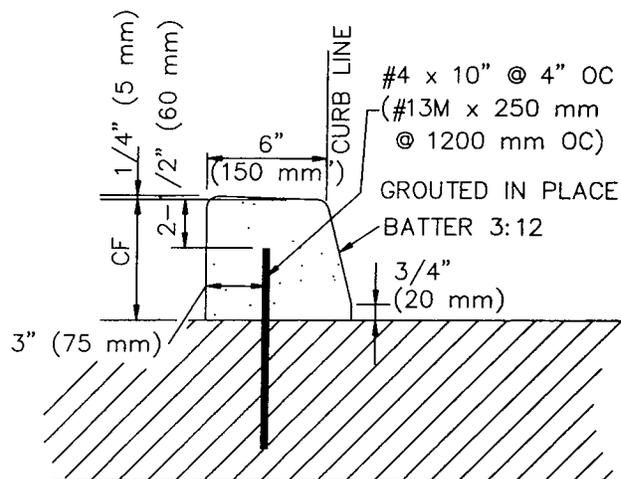
A3-6(150) AND A3-8(200)



D1-6(150) AND  
D1-8(200)

NOTES:

1. THE LAST NUMBER IN THE DESIGNATION IS THE CURB FACE (CF) HEIGHT, INCHES (mm).
2. GUTTER WIDTH, W, IS 24" (600 mm) UNLESS OTHERWISE SPECIFIED.
3. TYPES A1, A2, A3 AND C1 SHALL BE CONSTRUCTED FROM PCC.
4. TYPE D1 CURB SHALL BE CONSTRUCTED FROM ASPHALT CONCRETE.
5. TYPE C1 CURB SHALL BE ANCHORED WITH STEEL DOWELS AS SHOWN OR WITH AN EPOXY APPROVED BY THE ENGINEER.
6. ALL EXPOSED CORNERS ON PCC CURBS AND GUTTERS SHALL BE ROUNDED WITH A 1/2" (15 mm) RADIUS.



C1-6(150) AND C1-8(200)

STANDARD PLAN FOR PUBLIC WORKS CONSTRUCTION

PROMULGATED BY THE  
PUBLIC WORKS STANDARDS INC.  
GREENBOOK COMMITTEE  
1984  
REV. 1996, 2009

**CURB AND GUTTER - BARRIER**

STANDARD PLAN

**120-2**

USE WITH STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

SHEET 1 OF 1

**APPENDIX IV**

**CONSTRUCTION & DEMOLITION WASTE MANAGEMENT PLAN (WMP)**

Building Permit Number: \_\_\_\_\_

**CITY OF TORRANCE**

**Construction & Demolition Waste Management Plan (WMP)**

**THE REQUIREMENT IS TO REUSE OR RECYCLE AT LEAST 50% OF PROJECT WASTE AND 100% OF EXCAVATED SOIL AND LAND-CLEARING DEBRIS**

- 1) As part of your application, you must complete the front and back of this page and the "estimate" or left side of the table on the backside of this page to the best of your ability, indicating that you will recycle at least 50% of the waste from the project and 100% of excavated soil and land-clearing debris.
- 2) As your project proceeds, collect and keep receipts of all waste disposed, recycled, reused or donated. Receipts must show material type, weight of material, how the material was treated and the facility used.
- 3) To final your project, you must then fill out the "actual" or right side of the table on the backside of this sheet, and submit it again with all the receipts to verify that at least 50% of the project's waste and 100% of excavated soil and land-clearing debris was diverted from the landfills.

Please note, if you are contracting with a different company to haul your waste or using a roll off box from another company, that company must have a business license to operate in the City of Torrance.

**A COPY OF THIS WMP AND RECEIPTS (SHOWING MATERIAL TYPE, WEIGHT, TREATMENT AND FACILITY USED) FOR ALL RECYCLING AND DISPOSAL SHALL BE SUBMITTED BEFORE THE PROJECT WILL RECEIVE FINAL BUILDING APPROVAL. (FOR DEMO PERMITS, THE RECEIPTS FOR THE DEMOLITION WASTE SHOULD BE PROVIDED BEFORE THE FIRST FOOTING INSPECTION AFTER THE BUILDING PERMIT HAS BEEN ISSUED.)**

Project Name: \_\_\_\_\_

Location: \_\_\_\_\_

Requesting Infeasibility Exemption:     Yes     No

Contractor Name: \_\_\_\_\_ Contact Name: \_\_\_\_\_

Address: \_\_\_\_\_ Contact Phone: \_\_\_\_\_

Recycler: \_\_\_\_\_ Recycler Contact: \_\_\_\_\_

Recycler Address: \_\_\_\_\_ Recycler Contact Phone: \_\_\_\_\_

<b>CITY USE ONLY</b>	
	Application (Date)      Final (Date)
Approved	
Further explanation needed (see attached)	
Denied	
Infeasibility Exemption Approved	
Reviewed By	

Submit this form and the attached Waste Management Plan Table to: **WMP Compliance Official**

For questions or for in-person visit (by appointment only), please call 310-781-

**Alison Sherman, Public Works**  
asherman@TorranceCA.Gov  
Fax: 310-781-6902

**CITY OF TORRANCE**

**Construction & Demolition Waste Management Plan Table**

Project Name: \_\_\_\_\_

Total Estimated Waste Generated by Project: \_\_\_\_\_ (in tons).  
 (Ask your hauler, recycler or site cleanup vendor to assist you. Use receipts from your previous jobs for estimates)

Complete and return with Building Permit Application			Complete and return with receipts prior to final building approval		
Material Type	Estimated Reused/ Recycled	Estimated Disposed/ Landfilled	Actual Reused/ Recycled	Actual Disposed/ Landfilled	Vendor or Facility Used (Destination)
	(In Tons)	(In Tons)	(In Tons)	(In Tons)	
Asphalt & Concrete					
Bricks/Masonry/Tiles					
Building Materials (doors, windows, fixtures, etc.)					
Cardboard					
Excavated dirt and land-clearing debris					
Dirt					
Landscape Debris (Plant & Tree Trimmings)					
Scrap Metal					
Unpainted Wood & Pallets					
Other (painted wood & drywall, roofing, etc.)					
Mixed C&D*					
Trash/Garbage					
<b>TOTAL</b>					

If you are requesting an infeasibility exemption and the estimated amount reused/recycled is less than 50%, please explain why (attach additional sheets if necessary):

\_\_\_\_\_

Prepared by (print): \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_ Phone Number: \_\_\_\_\_

*Must be signed by Contractor or Owner. Signatory accepts financial responsibility for penalties for non-compliance.*

\* *Mixed C&D* is defined as a mixture of three or more materials (e.g. wood, drywall, roofing, etc.) from construction or demolition sites that will be taken to a facility capable of recycling those commingled materials.

## CONVERSION RATES

The following conversion rates are estimates to help complete the Waste Management Plan by converting materials into tonnage format. The ranges vary widely, depending on how the materials are handled (compacted, loose, chipped, etc.). Use the conversion factors and receipts from any previous projects to help you estimate the potential amount of materials and diversion. Take into consideration the type and load of vehicles that will be used to haul the materials. Ask your hauler or recycler to assist you in estimating these numbers.

Material	Lbs/cy	Tons/cy
Asphalt	1,400 lbs/cy	0.7 tons/cy
Brick	2,430 lbs/cy	1.21 tons/cy
Cardboard	100 lbs/cy	0.05 tons/cy
Concrete	2,600 lbs/cy (Sources range from 1,000 to 4,000)	1.3 tons/cy
Dirt/Soils	2,660 lbs/cy	1.33 tons/cy
Drywall	700 lbs/cy	0.35 tons/cy
Wood (chipped)	300 - 650 lbs/cy	0.15 – 0.3 tons/cy
Mixed C&D Debris	900 lbs/cy	0.45 tons/cy
Mixed Waste/Trash	100 - 350 lbs/cy	0.5 - 0.175 tons/cy

**APPENDIX V  
CALTRANS STANDARD PLANS**

Blk# COUNTY ROUTE TOTAL SHEETS NO. SHEETS

REGISTERED CIVIL ENGINEER

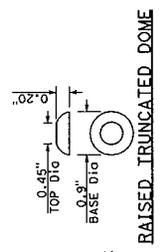
May 20, 2011

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OFFICE OF THE ENGINEER

ON THESE PLANS SHALL NOT BE RESPONSIBLE FOR THE CONSTRUCTION OF THIS PLAN SHEET.

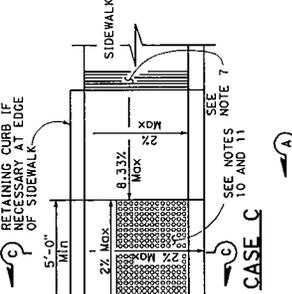
PROFESSIONAL SEAL: David Corcoran, No. 33117, State of California



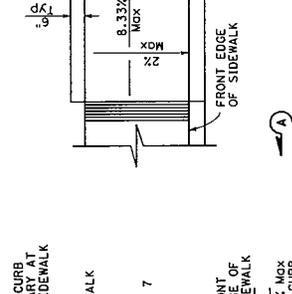
RAISED TRUNCATED DOME

NOTES:

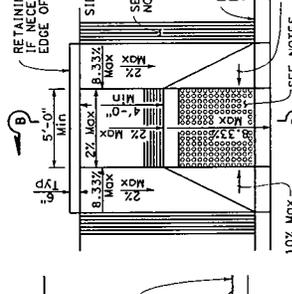
- As site conditions dictate, Case A through Case C curb ramps may be used for corner installations similar to those shown in Detail A and B. For other corner installations, the curb ramp may be provided as the same Case A through Case G curb ramps, also may be used at mid block locations, as site conditions dictate.
- If distance from curb to back of sidewalk is too short to Case A, the sidewalk may be depressed longitudinally as in Case B, or C or may be widened as in Case D.
- When ramp is located in center of curb return, crosswalk configuration must be similar to that shown for Detail B.
- As site conditions dictate, the retaining curb side and the flared side of the Case G ramp shall be constructed in reversed position.
- If located on a curve, the sides of the ramp need not be parallel, but the minimum width of the ramp shall be 4'-0".
- Side slope of ramp flares vary uniformly from a maximum of 10% at the ramp, except in Case C and Case F.
- The curb ramp shall be outlined, as shown, with a 1'-0" wide border with 1/4" grooves approximately 3/4" on center. See grooving detail.
- Transitions from ramps and landing to walks, gutters or streets shall be flush and free of abrupt changes.
- Maximum slopes of adjoining gutters, the road surface immediately adjacent to the curb ramp or accessible route shall not exceed 5 percent within 4'-0" of the top and bottom of the curb ramp.
- Curb ramps shall have a detectable warning surface that extends fully across the width of the ramp. Detectable warning surface requirements in the Special Provisions.
- The edge of the detectable warning surface nearest the street shall be between 6" and 8" from the gutter flowline.
- Sidewalk and ramp thickness, "T", shall be 3 1/2" minimum.
- Utility pull boxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp will be relocated or adjusted to grade by the owner prior to, or in conjunction with, curb ramp construction.
- For retrofit conditions, removal and replacement of curb on a project will be at the Contractor's option, unless otherwise shown on project plans.



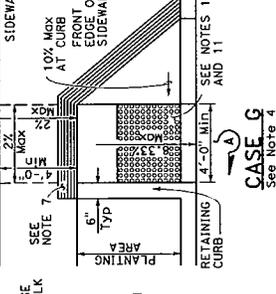
CASE C



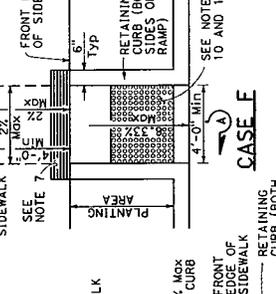
CASE B



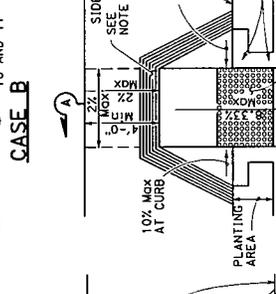
CASE A



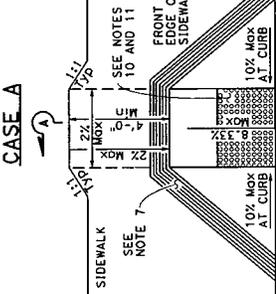
CASE G



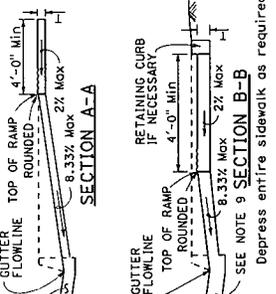
CASE F



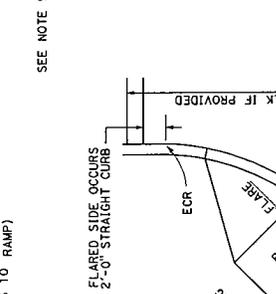
CASE E



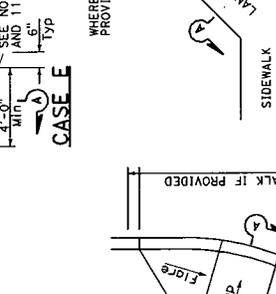
CASE D



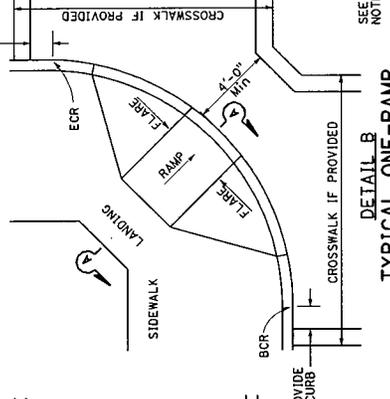
SECTION A-A



SECTION B-B

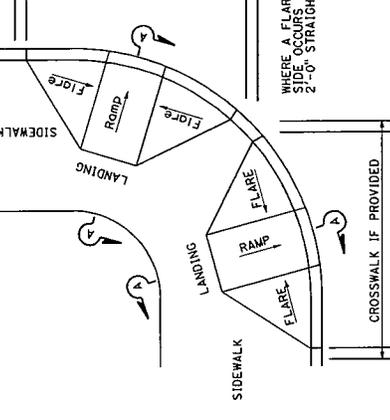


SECTION C-C



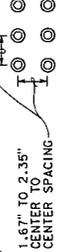
TYPICAL ONE-RAMP CORNER INSTALLATION

See Notes 1 and 3



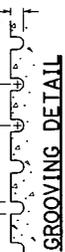
TYPICAL TWO-RAMP CORNER INSTALLATION

See Note 1



RAISED TRUNCATED DOME PATTERN (IN-LINE) DETECTABLE WARNING SURFACE

See Note 10



GROOVING DETAIL



RETROFIT DETAIL

Existing curb and sidewalk

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

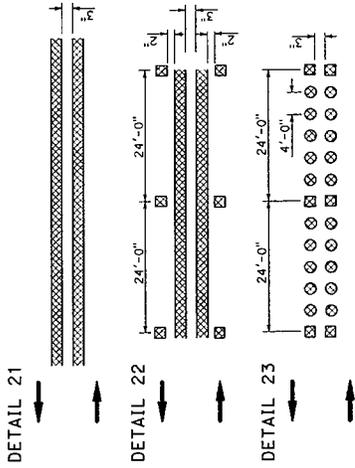
CURB RAMP DETAILS

NO SCALE

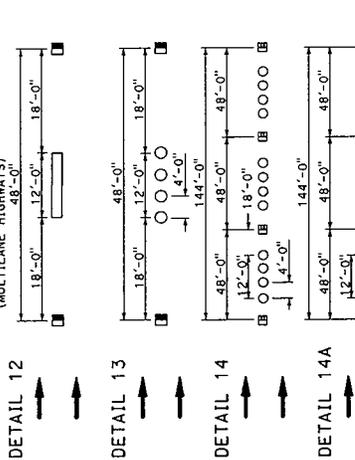
A88A

DISTRICT COUNTY ROUTE POST MILES PROJECT SHEETS TOTAL SHEETS  
 REGISTERED CIVIL ENGINEER  
 ROBERTO L. MORALES  
 PROFESSIONAL ENGINEER  
 NO. 45113  
 STATE OF CALIFORNIA  
 MAY 20, 2011  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION  
 HAS REVIEWED THESE PLANS AND APPROVES THEM FOR CONSTRUCTION OF THIS PROJECT.  
 CONSTRUCTION OF THIS PROJECT SHEET.

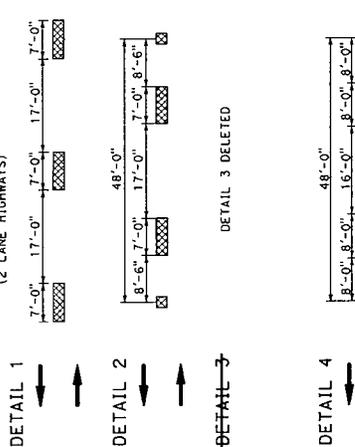
**NO PASSING ZONES-TWO DIRECTION**



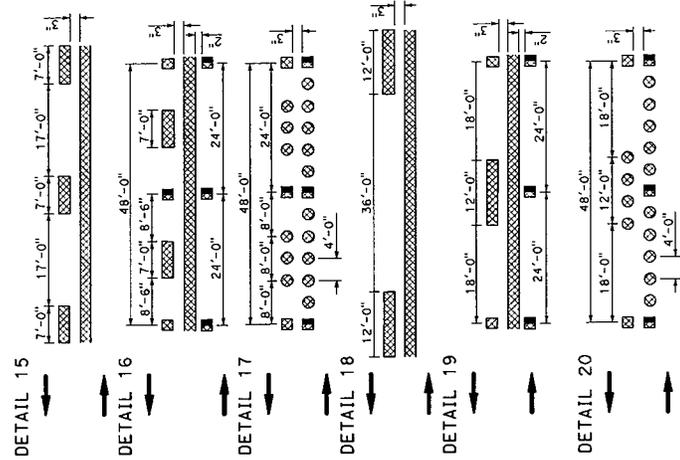
**LANELINES (Cont)**



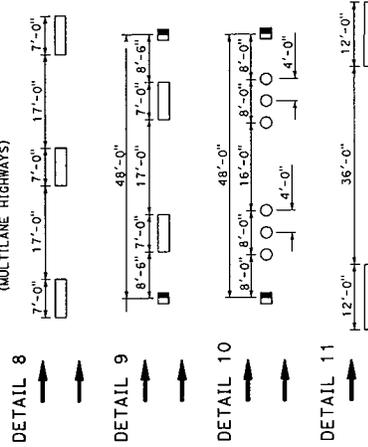
**CENTERLINES**



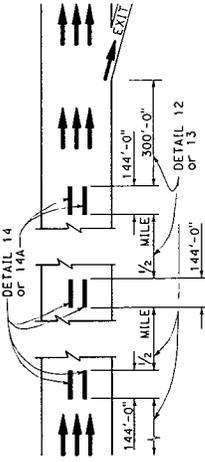
**NO PASSING ZONES-ONE DIRECTION**



**LANELINES**



**TYPICAL LANE LINE DELINEATION IN ADVANCE OF EXIT RAMP**

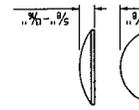


NOTE:  
 Detail 14 is to be used in combination with Detail 13.  
 Detail 13 is to be used in combination with Detail 12.

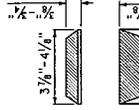
- LEGEND MARKERS**
- TYPE A WHITE NON-REFLECTIVE
  - ⊙ TYPE AY YELLOW NON-REFLECTIVE
  - ⊞ TYPE C RED-CLEAR RETROREFLECTIVE
  - ⊞ TYPE D TWO-WAY YELLOW RETROREFLECTIVE
  - ⊞ TYPE G ONE-WAY CLEAR RETROREFLECTIVE
  - ⊞ TYPE H ONE-WAY YELLOW RETROREFLECTIVE
- LINES**
- ▬ 4" WHITE
  - ▬ 4" YELLOW
- MARKER DETAILS**
- 3 3/8" x 4 1/8"
  - 3 1/2" x 4 1/8"
  - 3 1/2" x 4 1/8"
  - 3 1/2" x 4 1/8"

DIRECTION OF TRAVEL

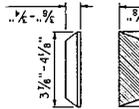
**TYPE A AND TYPE AY**



**TYPE C AND TYPE D**



**TYPE G AND TYPE H**



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKERS AND TRAFFIC LINES AND TYPICAL DETAILS**

NO SCALE

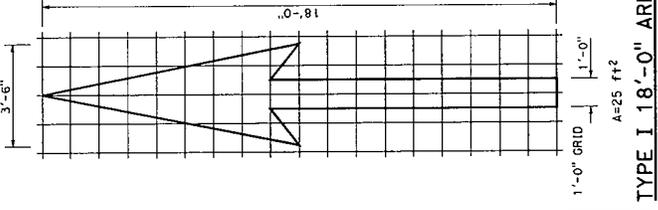
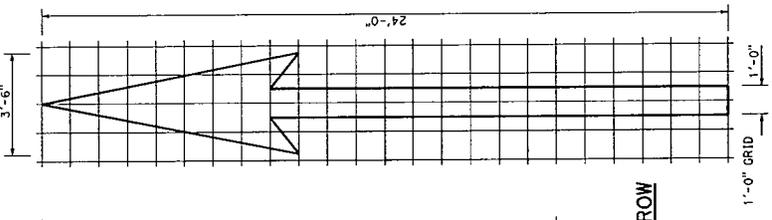
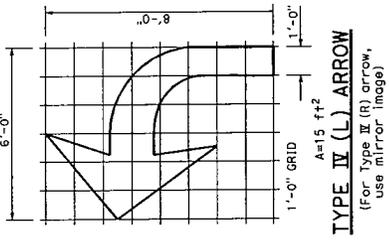
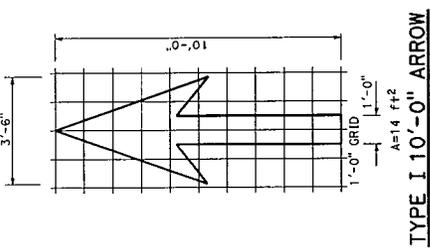
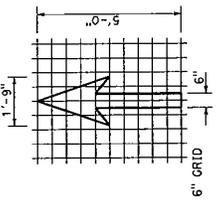
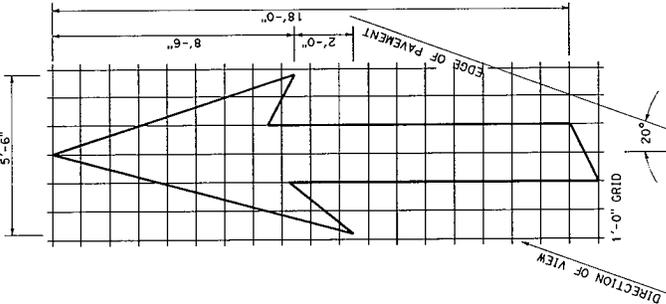
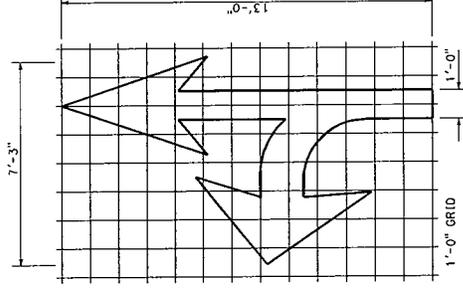
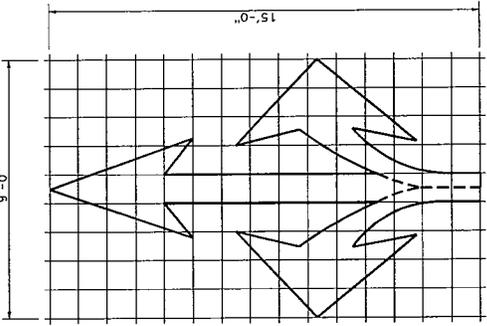
A20A



DIST.	COUNTY	ROUTE	POST MILEAGE	SHEET NO.	TOTAL SHEETS

**Professional Engineer Seal:**  
 REGISTERED CIVIL ENGINEER  
 Roberto A. Rodriguez  
 No. 540375  
 Exp. 3-31-13  
 State of California  
 License No. 540375

**Approval:**  
 MAY 20, 2011  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICIALS OR AGENCIES SHALL NOT BE RESPONSIBLE FOR CORRECTIONS OR CHANGES OF THIS PLAN SHEET.



**TYPE V ARROW**  
 A=33 ft<sup>2</sup>

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
 ARROWS**

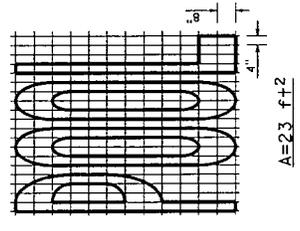
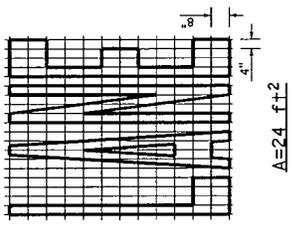
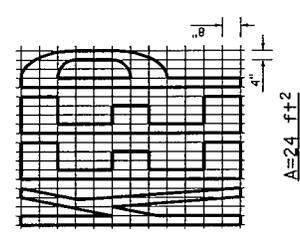
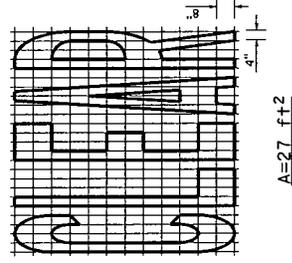
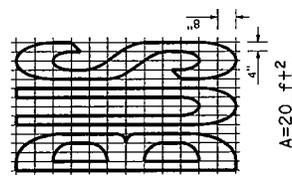
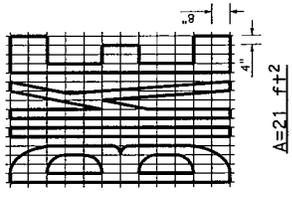
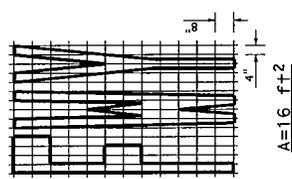
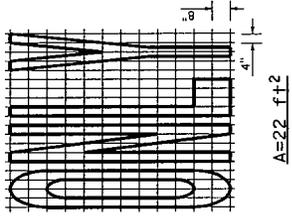
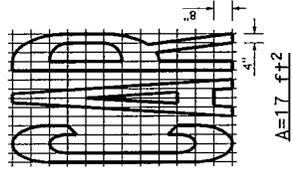
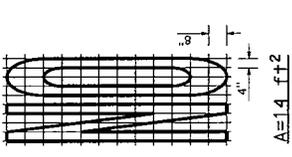
NO. SCALE

**A 24A**

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

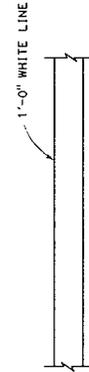
DISTRICT COUNTY ROUTE PROJECT NO. SHEET TOTAL  
 REGISTERED CIVIL ENGINEER  
 MAY 20, 2011  
 THE ENGINEER'S RESPONSIBILITY FOR THE DESIGN SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF THIS PLAN SHEET.

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



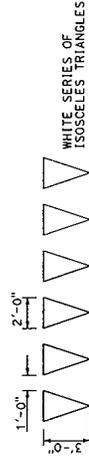
**NOTES:**

- If a message consists of more than one word, it should read "Up", i.e., the first word should be nearest the driver.
- The spaces between words should 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.
- Minor variations in dimensions may be accepted by the Engineer.
- Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.
- Crosswalks contiguous to school grounds are to be 1'-0" yellow lines in place of 1'-0" white shown.
- The words "NO PARKING" pavement marking is to be used for parking facilities. For typical locations of markings, see Standard Plans A50A and A50B.
- The words "NO PARKING", shall be painted in white letters no less than 1'-0" high on a contrasting background and located so that it is visible to traffic enforcement officials.



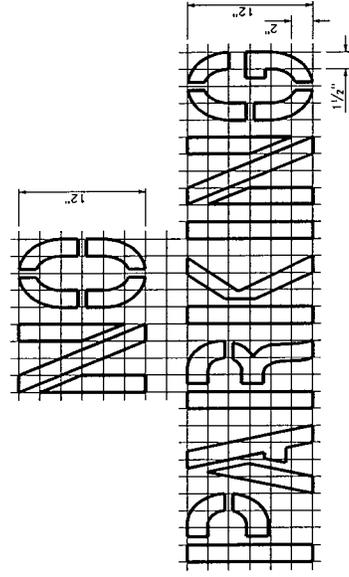
**CROSSWALK AND LIMIT LINE**

See Note 5



**YIELD LINE**

A=2 ft+2  
See Notes 6 and 7



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS**  
**WORDS AND CROSSWALKS**

NO SCALE

A24E

11-1-04

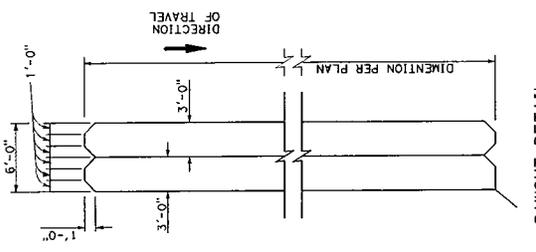
DIST COUNTY ROUTE TOTAL PROJECT SHEET NO. OF SHEETS

REGISTERED ELECTRICAL ENGINEER  
 MICHAEL G. WOOD  
 No. E-15417  
 No. E-30-12  
 No. E-30-12

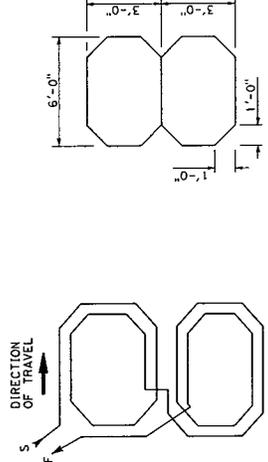
PROFESSIONAL ENGINEER  
 MICHAEL G. WOOD  
 No. E-15417  
 No. E-30-12  
 No. E-30-12

PLANS APPROVAL DATE  
 MAY 20, 2011

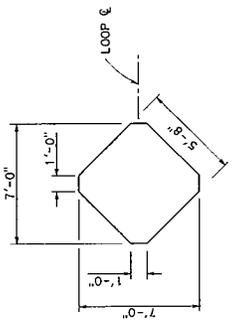
THE STATE OF CALIFORNIA PER ITS OFFICERS  
 OF PUBLIC UTILITIES, AND BY RESPONSIBLE JOB  
 CONTRACTOR OF THIS PLAN SHEET.



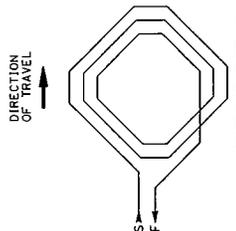
SAWCUT DETAIL  
 WINDING DETAIL  
 TYPE C LOOP DETECTOR CONFIGURATION



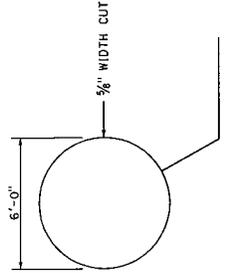
SAWCUT DETAIL  
 WINDING DETAIL  
 TYPE Q LOOP DETECTOR CONFIGURATION



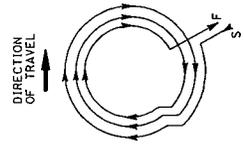
SAWCUT DETAIL  
 TYPE B LOOP DETECTOR CONFIGURATION



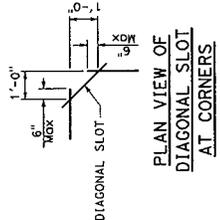
WINDING DETAIL  
 TYPE B LOOP DETECTOR CONFIGURATION



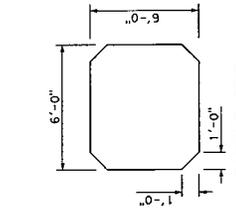
SAWCUT DETAIL  
 TYPE E LOOP DETECTOR CONFIGURATION



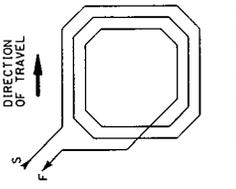
WINDING DETAIL  
 TYPE E LOOP DETECTOR CONFIGURATION



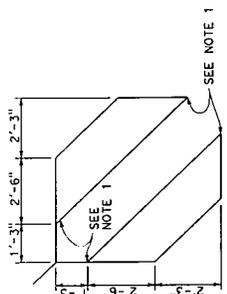
PLAN VIEW OF  
 DIAGONAL SLOT  
 AT CORNERS



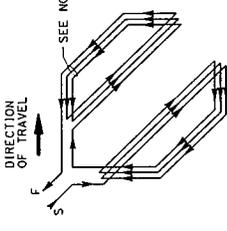
SAWCUT DETAIL  
 TYPE A LOOP DETECTOR CONFIGURATION



WINDING DETAIL  
 TYPE A LOOP DETECTOR CONFIGURATION



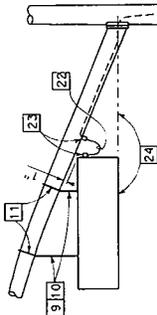
SAWCUT DETAIL  
 TYPE D LOOP DETECTOR CONFIGURATION



WINDING DETAIL  
 TYPE D LOOP DETECTOR CONFIGURATION

- NOTES:**
1. Round corners of acute angle sawcuts to prevent damage to conductors.
  2. Install 3 turns when one Type D loop is on a sensor unit channel.  
 Install 5 turns when one Type D loop is connected with 3 additional  
 6'-0" x 6'-0" loops on a sensor unit.
  3. Typical distance separating loops from edge is 10' for Type A, B  
 and E installation in single lane.

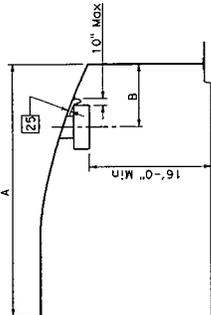
DISTRICT COUNTY ROUTE PROJECT SHEETS TOTAL PROJECT SHEETS  
 PROJECT NO. SHEETS NO. SHEETS  
 REGISTERED CIVIL ENGINEER  
 MAY 20, 2011  
 FILING APPROVAL DATE  
 THE STATE OF CALIFORNIA HAS REVIEWED THIS SET OF PLANS FOR CONFORMANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND HAS FOUND THEM TO BE IN ACCORDANCE WITH THE SAID SPECIFICATIONS. THIS REVIEW IS LIMITED TO THE TECHNICAL ASPECTS OF THE PLANS AND DOES NOT CONSTITUTE A GUARANTEE OF THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED HEREON.



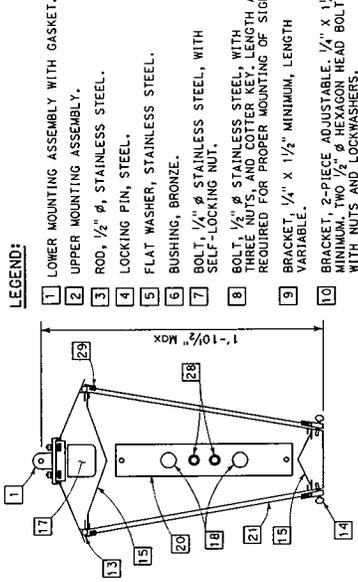
**SIGN MOUNTING  
DETAIL H**

**SIGN PLACEMENT**

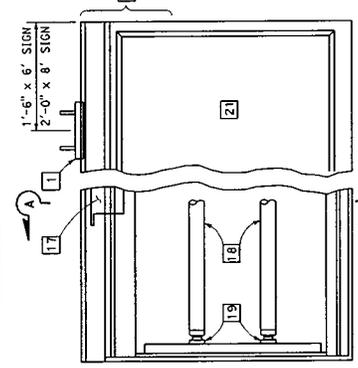
A	B	PROJECTED LENGTH	6'-0" SIGN	8'-0" SIGN
20'-0"	7'-10"	8'-10"	10'-2"	11'-6"
25'-0"	9'-2"	10'-2"	11'-6"	13'-6"
30'-0"	9'-6"	10'-6"	11'-6"	
35'-0"	10'-6"	11'-6"		
40'-0"				
45'-0"				
50'-0"				
55'-0"				
60'-0"				
65'-0"				



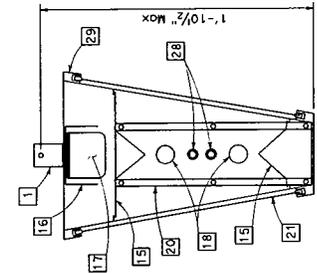
**SIGN PLACEMENT  
DETAIL G**



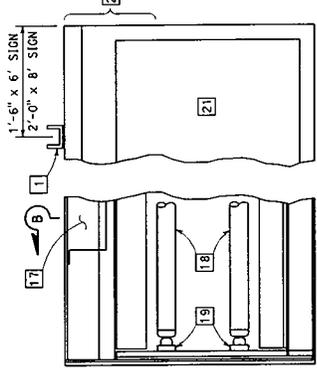
**SECTION A-A**



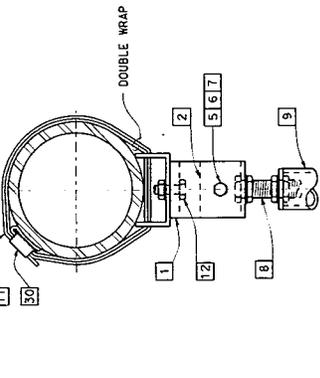
**DETAIL A-1  
TYPE A SIGN  
DETAIL A**



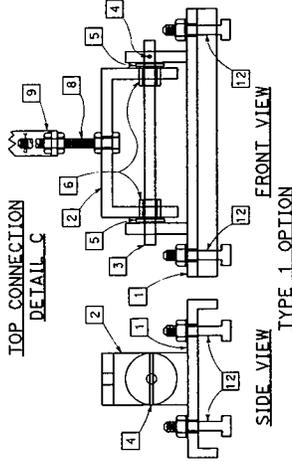
**SECTION B-B**



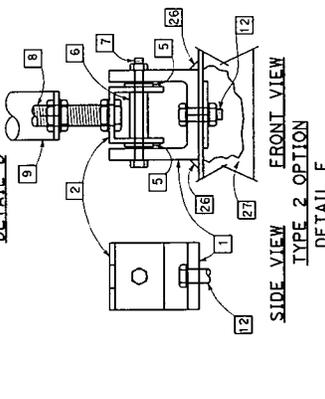
**DETAIL B-1  
TYPE B SIGN  
DETAIL B**



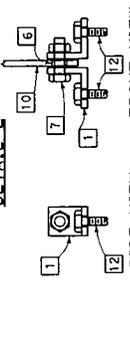
**TOP CONNECTION  
DETAIL C**



**FRONT VIEW  
TYPE 1 OPTION  
DETAIL D**



**FRONT VIEW  
TYPE 2 OPTION  
DETAIL E**



**SIDE VIEW  
TYPE 3 OPTION  
DETAIL F**

**MOUNTING ASSEMBLY OPTIONS  
DETAIL F**

- LEGEND:**
- LOWER MOUNTING ASSEMBLY WITH GASKET.
  - UPPER MOUNTING ASSEMBLY.
  - ROD, 1/2" Ø, STAINLESS STEEL.
  - LOCKING PIN, STEEL.
  - FLAT WASHER, STAINLESS STEEL.
  - BUSHING, BRONZE.
  - BOLT, 1/4" Ø STAINLESS STEEL, WITH SELF-LOCKING NUT.
  - BOLT, 1/2" Ø STAINLESS STEEL, WITH THREE NUTS AND COTTER KEY. LENGTH AS REQUIRED FOR PROPER MOUNTING OF SIGN.
  - BRACKET, 1/4" X 1/2" MINIMUM, LENGTH VARIABLE.
  - BRACKET, 2-PIECE ADJUSTABLE. 1/4" X 1/2" MINIMUM. TWO 1/2" Ø HEXAGON HEAD BOLTS WITH NUTS AND LOCKWASHERS.
  - 3/4" X 0.002" MINIMUM ROUNDED EDGE STAINLESS STEEL STRAP WITH 2" LONG BEND UNDER BUCKLE. IF ATTACHING TO A MULTISIDED SECTION BEND UNDER SECTION SHALL BE LONG ENOUGH TO CONTACT AT LEAST 3 CORNERS.
  - MOUNTING BOLT, 1/2" Ø MINIMUM, WITH NUT AND LOCKWASHER, OR SELF-LOCKING NUT AND COTTER KEY.
  - CONTINUOUS HINGE.
  - THUMB SCREW, 3/8" Ø MINIMUM TWO PER SIDE ON 4'-0" CENTERS.
  - REFLECTOR, 0.040" MINIMUM THICKNESS.
  - ALUMINUM STIFFENER.
  - FLUORESCENT BALLAST (2 REQUIRED).
  - LAMP, F72T12CW FOR 6'-0" SIGN  
F96T12CW FOR 8'-0" SIGN
  - LAMP HOLDER.
  - LAMP HOLDER TURRET.
  - SIGN PANEL, 1'-3" MINIMUM HEIGHT. MESSAGE IS SHOWN ELSEWHERE.
  - CORO, 18/2 TYPE SUT, CONTINUOUS FROM MOUNTING TERMINAL COMPARTMENT. HEAD FORM A 1'-0" DRIP LOOP BETWEEN SIGN AND SIGNAL MAST ARM.
  - CORO CONNECTOR, 90° ANGLE CONNECTOR AT THE SIGN LOCATED ON UPPER 1/3 OF THE SIGNAL MAST ARM. DRILL AND TAP BOTTOM OF THE SIGNAL MAST ARM.
  - ADJUST FIXTURE LEVEL NO LOWER THAN CENTER OF SIGNAL MAST ARM CONNECTION.
  - APPROXIMATE CLEARANCE, 1".
  - 1/4" FILLET WELD, 1/4" LONG.
  - SIGN FRAME.
  - FUSE HOLDER AND FUSE.
  - CLOSE CELL NEOPRENE GASKET (CONTINUOUS).
  - STAINLESS STEEL STRAP BUCKLE.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (INTERNALLY ILLUMINATED  
 STREET NAME SIGN)**  
 NO SCALE

**ES-7P**

Return to Table of Contents

CITY	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			DATE PROJECT	NO. SHEETS

**Professional Engineer**  
 License No. 41512  
 State of California  
 Electrical Engineering  
 May 20, 2011  
 Plans Approval Date  
 The State of California or its agencies  
 are not responsible for the accuracy or  
 completeness of the information  
 contained on this plan sheet.



"METER ON" SIGN  
DETAIL\_C

**NOTES:**

1. Mounting shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. Bracket arms shall be long enough to permit proper alignment of signals.
3. See Standard Plan ES-4D for attachment fittings details.

**ABBREVIATIONS:**

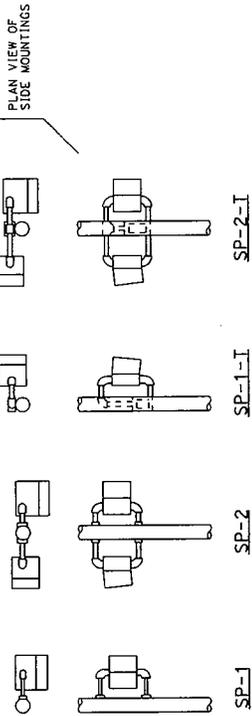
- 1, 2 NUMBER OF SIGNAL FACES
- SP SIDE MOUNTED PEDESTRIAN SIGNAL
- T TERMINAL COMPARTMENT
- TP TOP MOUNTED PEDESTRIAN SIGNAL

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

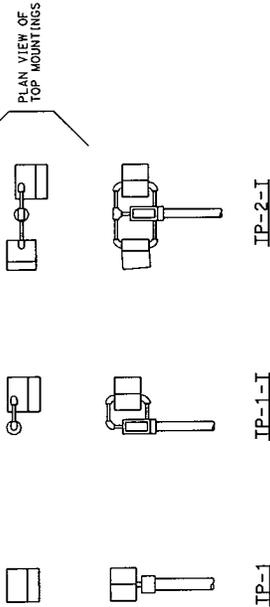
**ELECTRICAL SYSTEMS  
(PEDESTRIAN SIGNAL AND  
RAMP METERING)**

NO SCALE

**ES-4B**



SIDE MOUNTINGS



TOP MOUNTINGS  
PEDESTRIAN SIGNALS AND MOUNTINGS  
DETAIL\_A

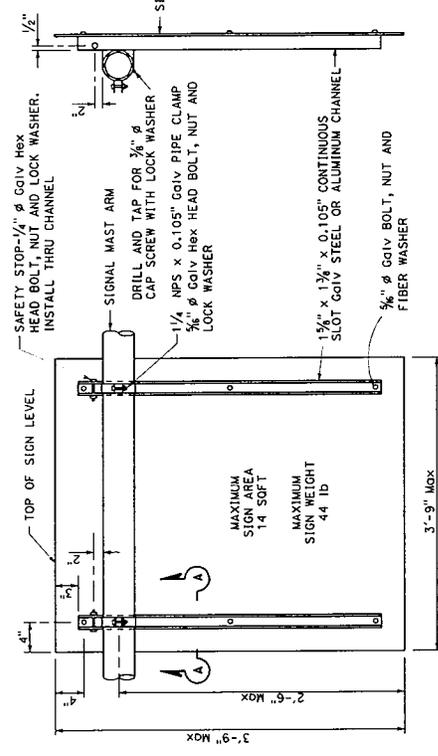


PEDESTRIAN SIGNAL FACE  
DETAIL\_B



DATE	COUNTY	ROUTE	POST MILES	SHEET NO.	TOTAL SHEETS

MAY 20, 2011  
 PLANS APPROVED DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS  
 SHALL NOT BE HELD RESPONSIBLE FOR THE  
 ACCURACY OR COMPLETENESS OF THESE  
 COPIES OF THIS PLAN SHEET.

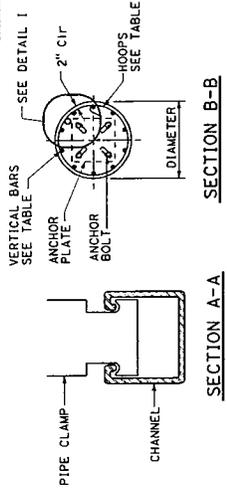


REAR VIEW

SIDE VIEW

**SIGN MOUNTING DETAILS**

DETAIL U

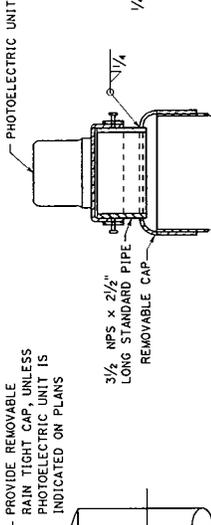


SECTION A-A

SECTION B-B

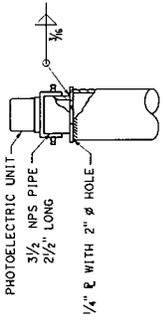
**POLE TOP DETAILS**

DETAIL B

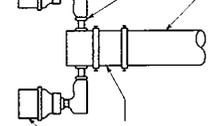


MOUNTING ADAPTER FOR PHOTOELECTRIC UNIT  
DETAIL B-2

ALTERNATIVE MOUNTING ADAPTER  
DETAIL B-3



DETAIL C-1



DETAIL C-2

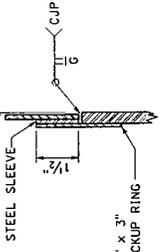
DUAL PHOTOELECTRIC UNIT MOUNTING  
DETAIL C

**CIDH REINFORCING AND INSPECTION TUBE SCHEDULE**

CIDH DIAMETER	VERTICAL BARS (WELDED)	HOOPS (WELDED)	INSPECTION TUBE
2 ft	8-#5	#4 AT 6	2
2.5 ft	10-#6	#4 AT 6	4*
3 ft	12-#7	#5 AT 6	4
3.5 ft	14-#8	2-#4 AT 7	5
4 ft	18-#9	2-#4 AT 7	6
5 ft	22-#10	2-#5 AT 7	7
6 ft	26-#11	2-#6 AT 7	7

\* FOR SLIP BASE VERSIONS WITH 3 ANCHOR BOLTS USE 3 INSPECTION TUBES.

DETAIL I

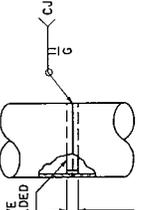


DETAIL T-2

DETAIL T-1

**INSPECTION TUBE PLACEMENT**

DETAIL I



FOR POLES TO BE INSTALLED ON EXISTING FOUNDATION:  
The Contractor shall verify bolt circles, anchor bolt sizes and dependent dimensions for poles to be installed on existing foundations before fabricating the poles.

**CAST-IN-DRILLED HOLE PILE FOUNDATION, REINFORCED PILE**

DETAIL A

**AT TUBE THICKNESS CHANGE**

POLE SPLICES  
DETAIL I

**FOR UNIFORM TUBE THICKNESS**

POLE SPLICES  
DETAIL I

**ELECTRICAL SYSTEMS  
(SIGNAL AND LIGHTING STANDARD,  
DETAIL No. 2)**

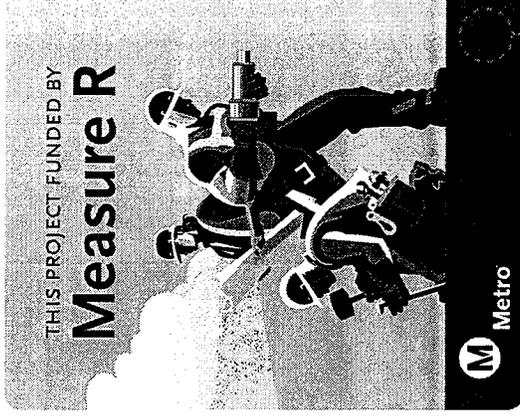
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

NO SCALE

ES-7N

**APPENDIX VI**  
**MEASURE R CONSTRUCTION SIGN**

# Measure R Local Construction Project sign

 <p>60" 75"</p>	 <p>74" 92"</p>	 <p>84" 105"</p>
<p>Optional partner/city logo placement location</p>	<p>Optional partner/city logo placement location</p>	<p>Optional partner/city logo placement location</p>
<p>SIZE A</p>	<p>SIZE B</p>	<p>SIZE C</p>

This pdf is for reference only. It is not the correct file to supply to vendors. Instead, the accompanying Adobe Illustrator file(s) should be supplied to your sign vendor for fabrication. First determine the proper sign size for your project based on the dimensions shown in this pdf, and then supply the appropriate Illustrator file to your vendor. The Illustrator files have been properly sized and are the best format for fabricating a high-quality sign that accurately translates the supplied design.



**APPENDIX VII**  
**VIDEO DETECTION**  
**GENERAL PROCUREMENT SPECIFICATION**

## 1. Video Detection - General

This specification sets forth the minimum requirements for a system that monitors vehicles on a roadway via processing of video images. The detection of vehicles passing through the field-of-view of an image sensor shall be made available to a large variety of end user applications as simple contact closure outputs that reflect the current real-time detector or alarm states (on/off) or as summary traffic statistics that are reported locally or remotely. The contact closure outputs shall be provided to a traffic signal controller and comply with the National Electrical Manufacturers Association (NEMA) type C or D detector rack or 170 input file rack standards.

The system architecture shall fully support Ethernet networking of system components through a variety of industry standard and commercially available infrastructures that are used in the traffic industry. The data communications shall support direct connect, [modem,] and multi-drop interconnects. Simple, standard Ethernet wiring shall be supported to minimize overall system cost and improve reliability, utilizing existing infrastructure and ease of system installation and maintenance. Both streaming video and data communications shall optionally be interconnected over long distances through fiber optic, microwave, or other commonly used digital communications transport configurations.

On the software application side of the network, the system shall be integrated through a client-server relationship. A communications server application shall provide the data communications interface between as few as one to as many as hundreds of Machine Vision Processor (MVP) sensors and a number of client applications. The client applications shall either be hosted on the same PC as the communications server or may be distributed over a local area network of PC's using the industry standard TCP/IP network protocol. Multiple client applications shall execute simultaneously on the same host or multiple hosts, depending on the network configuration. Additionally, a web-browser interface shall allow use of industry standard Internet web browsers to connect to MVP sensors for setup, maintenance, and playing digital streaming video.

### *1.1 System Hardware*

The machine vision system hardware shall consist of three components: 1) a color, 559 step adjustment, 10x zoom, MVP sensor 2) a modular cabinet interface unit 3) a communication interface panel. Additionally, an optional Personal Computer (PC) shall host the server and client applications that are used to program and monitor the system components. The real-time performance shall be observed by viewing the video output from the sensor with overlaid flashing detectors to indicate the current detection state (on/off). The MVP sensor shall optionally store cumulative traffic statistics internally in non-volatile memory for later retrieval and analysis.

The MVP shall communicate to the modular cabinet interface unit via the communications interface panel and the software applications using the industry standard TCP/IP network protocol. The MVP shall have a built-in, Ethernet-ready, Internet Protocol (IP) address and shall be addressable with no plug in devices or converters required. The MVP shall provide standard MPEG-4 streaming digital video. Achievable frame rates shall vary from 5 to 30 frames/sec as a function of video quality and available bandwidth.

The modular cabinet interface unit shall communicate directly with up to eight (8) MVP sensors and shall comply with the form factor and electrical characteristics to plug directly into a NEMA type C or D detector rack providing up to thirty-two (32) inputs and sixty-four (64) outputs or a 170 input file rack providing up to sixteen (16) contact closure inputs and twenty-four (24) contact closure outputs to a traffic signal controller.

The communication interface panel shall provide four (4) sets of three (3) electrical terminations for three-wire power cables for up to eight (8) MVP sensors that may be mounted on a pole or mast arm with a traffic signal cabinet or junction box. The communication interface panel shall provide high-energy transient protection to electrically protect the modular cabinet interface unit and connected MVP sensors. The communications interface panel shall provide single-point Ethernet connectivity via RJ45 connector for communication to and between the modular cabinet interface module and the MVP sensors.

## *1.2 System Software*

The MVP sensor embedded software shall incorporate multiple applications that perform a variety of diagnostic, installation, fault tolerant operations, data communications, digital video streaming, and vehicle detection processing. The detection shall be reliable, consistent, and perform under all weather, lighting, and traffic congestion levels. An embedded web server shall permit standard internet browsers to connect and perform basic configuration, maintenance, and video streaming services.

There shall be a suite of client applications that reside on the host client / server PC. The applications shall execute under Microsoft Windows XP, Vista or Windows 7. Available client applications shall include:

- Master network browser: Learn a network of connected modular cabinet interface units and MVP sensors, display basic information, and launch applications software to perform operations within that system of sensors.
- Configuration setup: Create and modify detector configurations to be executed on the MVP sensor and the modular cabinet interface unit.
- Operation log: Retrieve, display, and save field hardware run-time operation logs of special events that have occurred.
- Software install: Reconfigure one or more MVP sensors with a newer release of embedded system software.
- Streaming video player: Play and record streaming video with flashing detector overlay.
- Data retrieval: Fetch once or poll for traffic data and alarms and store on PC storage media.
- Communications server: Provide fault-tolerant, real-time TCP/IP communications to / from all devices and client applications with full logging capability for systems integration. The communications server shall operate as a Windows® Service.

## 2. Functional Capabilities

### 2.1 MVP Sensor

The MVP sensor shall be an integrated imaging color CCD array with zoom lens optics, high-speed, dual-core image processing hardware bundled into a sealed enclosure. Total weight of the map sensor shall be less than 4 lbs. and not more than 1 square foot equivalent pressure are (EPA) total. The CCD array shall be directly controlled by the dual-core processor, thus providing high-quality video for detection that has virtually no noise to degrade detection performance. It shall be possible to zoom the lens as required for setup and operation. It shall provide JPEG video compression as well as standard MPEG-4 digital streaming video with flashing detector overlay. The MVP shall provide direct real-time iris and shutter speed control. The MVP image sensor shall be equipped with an integrated 559 step adjustment, 10x zoom lens that can be changed using either configuration computer software. The digital streaming video output and all data communications shall be transmitted over the three-wire power cable.

#### 2.1.2 Power

The MVP sensor shall operate on 110/220 VAC, 50/60Hz at a maximum of 15 watts. The camera and processor electronics shall consume a maximum of 5 watts and the remaining 10 watts shall support an enclosure heater.

#### 2.1.3 Detection Zone Programming

Placement of detection zones shall be by means of a PC with a Windows XP, Vista or Windows 7 operating system, a keyboard, and a mouse. The PC monitor shall be able to show the detection zones superimposed on images of traffic scenes.

The detection zones shall be created by using a mouse to draw detection zones on the PC monitor. Using the mouse and keyboard it shall be possible to place, size, and orient detection zones to provide optimal road coverage for vehicle detection. It shall be possible to download detector configurations from the PC to the MVP sensor and cabinet interface module, to retrieve the detector configuration that is currently running in the MVP sensor, and to back up detector configurations by saving them to the PC fixed disks or other removable storage media.

The supervisor computer's mouse and keyboard shall be used to edit previously defined detector configurations to permit adjustment of the detection zone size and placement, to add detectors for additional traffic applications, or to reprogram the MVP sensor for different traffic applications or changes in installation site geometry or traffic rerouting.

#### 2.1.4 Optimal Detection

The video detection system shall optimally detect vehicle passage and presence when the MVP sensor is mounted 30 feet (10 m) or higher above the roadway, when the image sensor is adjacent to the desired coverage area, and when the distance to the farthest detection zone locations are not greater than ten (10)

times the mounting height of the MVP. The recommended deployment geometry for optimal detection also requires that there be an unobstructed view of each traveled lane where detection is required. Although optimal detection may be obtained when the MVP is mounted directly above the traveled lanes, the MVP shall not be required to be directly over the roadway. The MVP shall be able to view either approaching or receding traffic or both in the same field of view. The preferred MVP sensor orientation shall be to view approaching traffic since there are more high contrast features on vehicles as viewed from the front rather than the rear. The MVP sensor placed at a mounting height that minimizes vehicle image occlusion shall be able to simultaneously monitor a maximum of six (6) traffic lanes when mounted at the road-side or up to eight (8) traffic lanes when mounted in the center with four lanes on each side.

#### *2.1.5 Count Detection Performance*

Using an installed camera that meets the optimal viewing specifications described above for count station traffic applications, the system will be able to accurately count vehicles with at least 98% accuracy under normal operating conditions (day and night), and at least 93% accuracy under artifact conditions.

Artifact conditions are combinations of weather and lighting conditions that result from shadows, fog, rain, snow, etc. The volume count will be accumulated for the entire roadway (all traveled lanes), and accumulated over time intervals that contain a minimum of one hundred (100) vehicles to ensure statistical significance.

#### *2.1.6 Demand Presence Detection Performance*

Using an installed camera that meets the optimal viewing specifications described above for intersection control traffic applications, the system will be able to accurately provide demand presence detection.

The demand presence accuracy will be based on the ability to enable a protected turning movement on an intersection stop line, when a demand exists. The probability of not detecting a vehicle for demand presence will be less than 1% error under all operating conditions. In the presence of artifact conditions, the MVP will minimize extraneous (false) protected movement calls to less than 7%.

To ensure statistical significance, the demand presence accuracy and error will be calculated over time intervals that contain a minimum of one hundred, protected turning movements.

These performance specifications will be achieved with a minimum of 2 presence detectors coupled with a single detector function (Type-9) to provide adequate road coverage to sample the random arrival pattern of vehicles at the stop line.

The calculation of the demand presence error will not include turning movements where vehicles do not pass through the presence detectors, or where they stop short or stop beyond the combined detection zones.

#### *2.1.7 Speed Detection Performance*

The MVP will accurately measure average (arithmetic mean) speed of multiple vehicles with more than 97% accuracy under all operating conditions for approaching and receding traffic.

The average speed measurement will include a minimum of 100 vehicles in the sample to ensure statistical significance. Optimal speed detection performance requires the camera location to follow the specifications described above for count station traffic applications with the exception that the camera must be higher than 13 m (40) feet.

The MVP will accurately measure individual vehicle speeds with more than 94% accuracy under all operating conditions for vehicles approaching the camera (viewing the front end of vehicles), and more than 90% accuracy for vehicles receding from the camera (viewing the rear end of vehicles).

These specifications will apply to vehicles that travel through both the count and speed detector pair and will not include partial detection situations created by lane-changing maneuvers.

To ensure statistical significance, the average speed accuracy and error will be calculated over time intervals that contain a minimum of one hundred vehicles.

Using a MVP sensor installed within the optimal viewing specifications described above or count station traffic applications.

## *2.2 Modular Cabinet Interface Unit*

The modular cabinet interface unit shall provide the hardware and software means for up to eight (8) MVP sensors to communicate real-time detection states and alarms to a local traffic signal controller. It shall comply with the electrical and protocol specifications of the detector rack standards. The card shall have 1500 Vrms isolation between rack logic ground and street wiring.

The modular cabinet interface unit shall be a simple interface card that plugs directly into a 170 input file rack or a NEMA type C or D detector rack. The modular cabinet interface unit shall occupy only 2 slots of the detector rack. The modular cabinet interface unit shall accept up to sixteen (16) phase inputs and shall provide up to twenty-four (24) detector outputs.

## *2.3 Communications Interface Panel*

The communications interface panel shall support up to six MVPs. The communications interface panel shall accept 110/220 VAC, 50/60 Hz power and provide predefined wire termination blocks for MVP power connections, a Broadband-over-Power-Line (BPL) transceiver to support up to 10Mb/s inter-device communications, electrical surge protectors to isolate the modular cabinet interface unit and MVP sensors, and an interface connector to cable directly to the modular cabinet interface unit.

The interface panel shall provide power for up to eight (8) MVP sensors, taking local line voltage 110/220 VAC, 50/60 Hz and producing 110/220 VAC, 50/60 Hz, at about 20 watts to each MVP sensor. Two 1.25-amp SLO-BLO fuses or two 625 MA 510 – BLO fuses at 220 VAC. shall protect the communications interface panel.

### 3. System Installation & Training

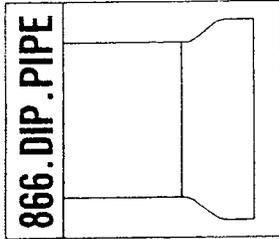
The supplier of the video detection system may supervise the installation and testing of the video detection system and computer equipment as required by the contracting agency.

Training is available to personnel of the contracting agency in the operation, set up, and maintenance of the video detection system. The MVP sensor and its support hardware / software is a sophisticated leading-edge technology system. Proper instruction from certified instructors is recommended to ensure that the end user has complete competency in system operation. The User's Guide is not an adequate substitute for practical classroom training and formal certification by an approved agency.

### 4. Warranty, Service, & Support

For a minimum of three (3) years, the supplier shall warrant the video detection system. An option for additional year(s) warranty for up to 6 years shall be available. Ongoing software support by the supplier shall include software updates of the MVP sensor, modular cabinet interface unit, and supervisor computer applications. These updates shall be provided free of charge during the warranty period. The supplier shall maintain a program for technical support and software updates following expiration of the warranty period. This program shall be available to the contracting agency in the form of a separate agreement for continuing support.

**APPENDIX VIII**  
**RESTRAINED JOINT DUCTILE IRON PIPE AND FITTINGS**  
**ASSEMBLY INSTRUCTIONS**



866 DIP PIPE

## TR FLEX®

RESTRAINED JOINT DUCTILE IRON PIPE AND FITTINGS



2009 EDITION

P 7

## Assembly Instructions for Pipe and Fittings 4"-10"

### Two Bell Slots

1. Lay pipe or fitting such that one of the bell slots is accessible.
2. Clean the socket and insert a TYTON® Gasket.
3. Clean the pipe spigot end back to the assembly stripes.
4. Lubricate the exposed surface of the gasket and the pipe spigot end back to the weld bead.
5. Make a conventional push-on joint assembly, fully homing the pipe until the first assembly stripe is in the bell socket. Keep the joint in straight alignment during assembly.
6. Insert the right-hand locking segment into a bell slot and slide the segment clockwise around the pipe.
7. Insert the left-hand locking segment into the same bell slot and slide the segment counter-clockwise around the pipe.
8. Hold the segments apart and wedge the rubber retainer into the slot between the two locking segments. The opposite bell slot is not used but is required for use with a TR FLEX GRIPPER® Ring.
9. Extend the joint to remove the slack in the locking segment cavity. Joint extension is necessary to obtain the marked laying length on the pipe and to minimize growth or extension of the line as it is pressurized. (Refer to the Table on page 22 for average pull-out of each size.)
10. Set the joint deflection as required. (See Table on page 22.)

### Components required for each joint:

1 right-hand locking segment  
(painted red, marked RH)

1 left-hand locking segment  
(painted black, marked LH)

1 rubber retainer

1 TYTON® Gasket

TYTON JOINT® Lubricant

