



PUBLIC WORKS DEPARTMENT

INVITATION FOR BIDS,  
SPECIFICATIONS, AND CONTRACT DOCUMENTS

FOR

2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)

SANTA CRUZ CITY COUNCIL

Fred Keeley, Mayor

Renee Golder, Vice Mayor

Martine Watkins

Sandy Brown

Scott Newsome

Shebreh Kalantari-Johnson

Matt Huffaker, City Manager

Bonnie Bush, City Clerk Administrator

Anthony P. Condotti, City Attorney

Nathan Nguyen, Public Works Department Director

Kevin Crossley, City Engineer/Assistant Public Works Director

**BID OPENING JULY 30, 2024 @ 2:00 PM PACIFIC STANDARD TIME**

Closing time to receive bids  
will be verified by the on-line clock maintained by the  
US Naval Observatory, found at:

<https://www.usno.navy.mil/USNO/time/display-clocks/simpletime>



## NOTICE INVITING SEALED PROPOSALS OR BIDS

NOTICE IS HEREBY GIVEN that the City of Santa Cruz, California (the “City”), invites sealed Bids for the following “Project”:

### “2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”

1. Date and Place of Opening Bids. Sealed bids for the construction of the Project will be received at the Public Works Department, 809 Center Street, Room 201, Santa Cruz, California 95060, until **JULY 30, 2024, at 2:00 PM local time** in a sealed envelope plainly endorsed with the Project Name and Number, listed above. At that time, the Bids received will be publicly opened and read. Attendees will be required to wear face masks, social distance, and follow any other safety measures currently recommended by the County Public Health Officer. Bids received after the date and time stated above will be rejected as nonresponsive.
2. Location of Project. The project extents are Escalona Drive between Grandview and Bay and between Walnut and Highland, Highland Avenue between Mission and Spring, and Bay Drive between Escalona and Nobel/Iowa.
3. Description of Work. The proposed improvements in the project area (Escalona Dr, Highland Ave, and Bay Dr) include the replacement of non-Americans with Disability Act (ADA) compliant curb ramps with compliant curb ramps, installation of an ADA-compliant sidewalk along the Escalona corridor, installation of a protected bike and pedestrian path along NB Bay Drive, protected bike lane along SB Bay Drive. Additionally, replacing deteriorating asphalt pavement and installing new striping will help reduce any potential conflict between motorists, bicyclists, and pedestrians. The striping improvements include, but are not limited to, shared lane markings and bike lane buffers where possible (the “Work”). For additional information, please contact the individual listed in Paragraph 17, below.
4. Time for Completion. The Project shall be completed in **30** working days. All time limits stated herein are of the essence
5. Bidding Documents. The “Bidding Documents” shall include this Notice Inviting Bids, the Bid Form including all attachments included herein, General Requirements, Technical Specifications (including all plans, drawings, and reports), Addenda, draft Agreement, the City’s Standard Specifications (dated 2002), as amended<sup>1</sup>, the State of California’s Department of Transportation Standard Specifications (dated 2018), as amended, and all other documents identified herein.
6. Obtaining the Bidding Documents. Bidding Documents may be downloaded, without charge, from the following designated website: City of Santa Cruz Public Works webpage ([www.cityofsantacruz.com](http://www.cityofsantacruz.com)). Paper Bidding Documents may be examined and copies secured from the office of the Public Works Department, 809 Center Street, Room 201, Santa Cruz,

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<sup>1</sup> The City’s Standard Specifications (dated 2002) are located via the City Website at: <https://www.cityofsantacruz.com/home/showpublisheddocument?id=2467>.

California 95060 for a non-refundable fee of \$30.00 (thirty dollars) per set or from e-bid board.

Prospective bidders are urged to register with the designated website as a Bidding Documents holder, even if Bidding Documents are obtained from a source other than the designated website or City in either electronic or paper format. The designated website will be updated periodically with Addenda, reports, and other information relevant to submitting a bid for the Project. All official notifications, Addenda, and other Bidding Documents will be offered only through the designated website. Neither City nor any City official, employee, or agent will be responsible for Bidding Documents, including Addenda, if any, obtained from sources other than the designated website or the City.

7. Submitted Bid. Each sealed Bid shall comply with the Bidding Documents and be submitted on the Bid Form, including all attachments. Contractor must clearly and legibly set forth all information requested in the manner and form indicated.

By submitting a Bid, the Bidder represents that it has carefully examined and investigated the Project site and all Bidding Documents.

Each Bid shall include a bid security in the form of a certified check, cashier's check, or bidder's bond made payable to the order of the City of Santa Cruz, California, for an amount not less than (10) percent of the amount of the Proposal. The bid security shall be given as a guarantee that the successful bidder will enter into the contract, and will be declared forfeited if the successful bidder refuses or fails to enter into said contract.

All bidders shall submit with its Bid the included sworn statement of its financial responsibility, technical ability, and experience.

8. Addenda. All submitted Bids shall verify if the City has issued any addenda for this Project. It is the bidder's sole responsibility to ensure that all addenda requirements are included in the submitted Bid. All addenda shall be posted on the City's designated website.
9. Section intentionally omitted
10. Withdrawing Submitted Bid. A bidder may withdraw a submitted Bid at any time prior to the time of bid opening only by written request to the City. Unless otherwise required by law, no bidder may withdraw its Bid for a period of sixty (60) days after the bid opening.
11. Award of Contract. The City will award the Project to the lowest responsible and responsive bidder based the BASE BID. The City reserves the right to reject any and all Bids, including but not limited to for any minor irregularities, or waive any informalities or minor defects in proposals received. The City may reject a Bid if it determines that any of the bid prices are materially unbalanced to the potential detriment of the City.

Within ten (10) calendar days after receiving written notice that the contract has been awarded, the successful bidder shall return to the City the signed agreement, together with the completed Labor and Material Bond and Faithful Performance Bond each in an amount equal to one hundred percent (100%) of the contract price (issued by a corporate surety company

approved by the City Attorney), insurance certificates, and all other documents as required by the Bidding Documents.

12. Department of Industrial Relations Monitoring. This Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations (DIR). Prevailing wages as published by the DIR are required for all workers, including those employed by subcontractors, for all non-federally funded projects.

No contractor or subcontractor may be listed on a Bid or awarded the contract for the Project unless registered with the DIR pursuant to Labor Code section 1725.5 and 1771.1. Refer to the DIR website, <http://www.dir.ca.gov>, to register and to find the correct wage rates and answers to questions related to prevailing wage requirements.

13. Section intentionally omitted

14. Licenses. Bidders and their proposed subcontractors shall hold such licenses as may be required by the laws of the State of California for the performance of the Work. The Contractor is required to ensure that all subcontractors listed in the Bid Form and working on this Project hold valid licenses and certifications suitable for their trade. Bidder is required to provide with its Bid satisfactory proof of licensure to the City.

Bidders bidding as the Prime Contractor shall possess a valid **California Contractor's Class "A" License** at the time of bid submittal, and all listed subcontractors shall hold valid licenses suitable for their trade at the time of bid submittal. Failure to possess required licenses at the time of bid submittal may render the bid non-responsive and shall act as a bar to award of the contract to the bidder and shall result in a forfeiture of the bid security.

Bidder and all subcontractors shall maintain the required licenses throughout the entire Project until the City issues a Notice of Completion.

15. Retention. Progress payments are subject to 5% retention withholding until thirty-five (35) calendar days after recording the notice of completion. Pursuant to California Public Contract Code Section 22300, for monies earned by the General Contractor and withheld by the City to ensure the performance of the Contract. The General Contractor, may, at its option, choose to substitute securities meeting the requirements of California Public Contract Code Section 22300, or have the retained, earned monies deposited in an escrow account at a federal or state-chartered bank.
16. Business License. All Contractors and subcontractors working in the City must have a valid City of Santa Cruz business license at the time the contract is awarded, pursuant to Santa Cruz Municipal Code (SCMC) Chapter 5.04.
17. Questions for City. All questions relative to this Project prior to the opening of Bids shall be in writing and received a minimum of five (5) working days prior to the above-stated Bid opening date and shall be directed to:

City of Santa Cruz, Public Works Department  
809 Center Street, Room 201, Santa Cruz, California 95060  
Miguel Lizarraga  
Associate Professional Engineer  
Email: mlizarraga@cityofsantacruz.com  
Tel.: (831) 420-5176  
Fax: (831) 420-5161

18. Pursuant to the provisions of California Labor Code Section 6707, each Bid submitted shall contain, as a separate bid item, adequate sheeting, shoring, and bracing, or equivalent method, for the protection of life or limb in trenches and open excavation, exceeding five feet, which shall conform to applicable safety orders. Neither this requirement, nor any payment by City for this separate bid item, shall be construed to impose tort liability on City, or its employees or agents, for any injury or damage caused by failure of any excavation or protective equipment or methods.

This Advertisement is issued by the City of Santa Cruz, California.

Dated: May 29, 2024



Kevin Crossley  
City Engineer/Assistant Public Works  
Director  
Public Works Department  
809 Center Street, Rm. 201  
Santa Cruz, CA 95060

**BID FORM**  
**For**  
**“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”**

TO:           The Council of the City of Santa Cruz

PROPOSAL OF: \_\_\_\_\_

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

Business Telephone: \_\_\_\_\_

The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement, in the form specified in the Contract Documents, with the City of Santa Cruz (“City”) to perform all work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the Bidding Documents.

The undersigned Bidder understands that any or all quantities of work shown herein are approximate only and are subject to increase or decrease, and offers to do the work whether the quantities are increased or decreased at the unit prices as stated in the following tabulation. The undersigned Bidder agrees to take in full payment for the work, including all applicable state and local taxes, the amount shown on the bid sheet.

Please note closing time to receive bids will be verified according to local telephone company time.

**IT IS UNDERSTOOD THAT THIS BID IS BASED UPON COMPLETION OF THE WORK AS SPECIFIED IN THE SPECIAL PROVISIONS WITHIN 30 WORKING DAYS, AND THE PRICES INCLUDE ALL STATE, FEDERAL, AND OTHER TAXES APPLICABLE TO THE PROJECT.**

The undersigned Bidder agrees to do any extra work, not covered by the above schedule of price, which may be ordered by the City, and to accept as full compensation therefore, such prices as may be agreed upon in writing by the City and the Contractor in accordance with the “Measurement and Payment” Section of the Standard Specifications.

If awarded the contract, the undersigned Bidder hereby agrees to submit the following documents to the City within ten (10) business days of the Notice of Award: a signed Agreement, executed bonds (including Faithful Performance Bond and Payment Bond), proper evidence of insurance, and any other forms or documents identified in the Bidding Documents and Notice of Award. The undersigned Bidder further agrees to begin work within ten (10) days after receiving the Notice to Proceed.

The undersigned Bidder has carefully examined the form of the Agreement, the Standard Specifications, the Plans and Special Provisions for the project hereinbefore described and referred to in the “Invitation to Bidders” inviting proposals for **“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”** and also the site of the work and will provide all necessary machinery, tools apparatus and other means of construction, and do all the work and furnish all materials required by said Specifications and Plans and Special Provisions in the manner described therein.

No bid will be considered for less than all items of this schedule and one contract will be awarded for the entire Project.

The undersigned has carefully checked the bid prices, and all computations involved in the preparation of this bid, and understands that the City of Santa Cruz will not be responsible for any errors or omissions on the part of the undersigned in making up this bid.

This Bid is made with a full knowledge of the kind, quantities, and quality of the work and of materials, equipment, and plans required. This proposal is also made after a complete, careful, and independent examination and investigation of the site of the work, local conditions affecting the same, and materials to be encountered.

The undersigned Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

The Bidder furthermore agrees that in case of its default in executing said Agreement with necessary bonds, the check or bond accompanying this Bid and money payable will become and remain the property of the City of Santa Cruz.

Enclosed is Bidder’s bond, certified check, or cashier’s check no. \_\_\_\_\_ of the \_\_\_\_\_ Bank for \$ \_\_\_\_\_ which is not less than 10 percent of the Bid submitted by the undersigned, payable to the City of Santa Cruz, California, and which is given as a guarantee that the undersigned will enter into the contract if awarded the work.

It is understood and agreed that the City may reject any or all proposals, or waive any informalities or minor defects in proposals received.

It is agreed that this bid may not be withdrawn over a period of sixty (60) days from the opening thereof.

Bidder submits the following complete and executed documents herewith to form a complete Bid:

1. Bid Form
2. Basis of Bid (Base Bid & Alternate Bid)
3. Bid Bond (if used as security)
4. List of Subcontractors Form
5. DIR Compliance Affidavit
6. Contractor Reference Information
7. Non-Collusion Declaration
8. Bidder's Financial Qualification Form
9. Iran Contracting Act Certification

**Note: Bidders should not add any conditions or qualifying statement to this bid as otherwise the bid may be declared irregular as being not responsive to the Advertisement for Bids.**

The undersigned declares under penalty of perjury that the information contained in this Bid and all accompanying documents are true and correct. **A notary acknowledgment is required.**

Dated: \_\_\_\_\_ Firm Name: \_\_\_\_\_

Official Address: \_\_\_\_\_ Phone: \_\_\_\_\_

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

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

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

DIR Registration No.: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_



**Basis of Bid**

Name of Bidder: \_\_\_\_\_

Project Name/Number: **2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)**

**Base Bid**

<b>Item No.</b>	<b>Item Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit Price (\$)</b>	<b>Item Total (\$)</b>
1	Mobilization	LS	1.00		
2	Water Pollution Control	LS	1.00		
3	Traffic Control System and Construction Area Signs	LS	1.00		
4	Changeable Message Signs	EA	4.00		
5	Adjust Water Valve Box (Revocable Item)	EA	35.00		
6	Adjust Manhole Frame & Cover (Revocable Item)	EA	26.00		
7	Full Depth Base Repair (6-inch Depth) (Revocable Item)	SY	400.00		
8	SAMI-R (3/8-inch Gradation)	SY	14,400.00		
9	Microsurfacing	SY	16,700.00		
10	Grind Thermoplastic	LS	1.00		
11	Relocate (E) Sign	EA	1.00		
12	Install (N) City Standard Post	EA	5.00		
13	Install (N) R1-5 Sign (Yield Here) (24" x 24")	EA	2.00		
14	Install (N) R2-1 Sign (Speed Limit 25) (24" X 30")	EA	1.00		
15	Install (N) R10-12 Sign (Left Turn Yield On Green) (30" x 36")	EA	2.00		
16	Install (N) R3-7 Sign (Right Lane Must Turn Right) (30" X 36")	EA	1.00		
17	Install (N) R61-5 Sign (Intersection Lane Control) (36" X 30")	EA	2.00		
18	Install (N) W73A (Right Lane Turns Right Ahead) (36" X 36")	EA	2.00		
19	Install (N) W74 Sign (Thru Traffic Merge Left) (36" X 36")	EA	1.00		
20	Curb and Post (C&P)	EA	56.00		
21	Red Paint on Concrete Curb	LF	129.00		
22	Grind Thermoplastic Stripe	LS	1.00		

23	Grind Thermoplastic Legend	LS	1.00		
24	4" Yellow Stripe (4-YEL)	LF	75.00		
25	4" White Stripe	LF	512.00		
26	4" White Stripe w/ Black Contrast	LF	389.00		
27	8" White Stripe	LF	363.00		
28	Type I Arrow - 14 SF (A1)	EA	2.00		
29	Type IV Arrow Left/Right - 15 SF (A4(L/R))	EA	24.00		
30	Buffer Lane 1 (BBL1)	LF	1,180.00		
31	Buffer Lane 2 (BBL2)	LF	380.00		
32	Buffer Lane 3 (BBL3)	LF	60.00		
33	Bike Box - Green (BBG)	SF	1,112.00		
34	Bike/Left Arrow (BLA)	EA	4.00		
35	Bike/Through Arrow (BTA)	EA	4.00		
36	Bike/Through Arrow with Green (BTAG)	EA	22.00		
37	"BUS" Marking - 20 SF (BUS)	EA	6.00		
38	Crosswalk - 12" White (CWW)	LF	930.00		
39	Crosswalk - 12" Yellow (CWY)	LF	490.00		
40	Crosswalk - 12" White w/ Black Contrast (CWWB)	LF	140.00		
41	Crosswalk - 12" Yellow w/ Black Contrast (CWYB)	LF	220.00		
42	Detail 22 Stripe (D22)	LF	1,451.00		
43	Detail 22 Stripe (D22) with Black Contrast	LF	276.00		
44	Detail 29 Stripe (D29)	LF	556.00		
45	Detail 32 Stripe (D32)	LF	374.00		
46	Detail 37B Stripe (D37B)	LF	772.00		
47	Detail 38 Stripe (D38)	LF	556.00		
48	Detail 38A Stripe (D38A)	LF	125.00		
49	Detail 39 Stripe (D39)	LF	2,159.00		
50	Detail 40 Stripe (D40)	LF	22.00		
51	Detail 41 Stripe (D41)	LF	169.00		
52	Detail 39A Stripe with Premark Vizigrip Green (D39AG)	LF	516.00		
53	Modified Detail 39A Stripe (2' Stripes, 6' Gap) (D39Z)	LF	154.00		
54	Detail 39Z with Premark Vizigrip Green Between Stripes (D39ZG)	LF	402.00		

55	"KEEP CLEAR" Making - 51 SF (KC)	EA	5.00		
56	Limit Line - 12" White (LL-12)	LF	306.00		
57	Limit Line - 24" White (LL-24)	LF	115.00		
58	Parking Tee (Tee)	EA	38.00		
59	"PED XING" Marking - 39 SF (PDX)	EA	4.00		
60	Railroad Crossing Marking - 70 SF(RR)	EA	2.00		
61	"25" Speed Limit Marking - 17.5 SF (S25)	EA	3.00		
62	"SLOW" Marking - 12.5 SF (SLWW)	EA	2.00		
63	"SLOW: Marking - 23 SF (SLWW)	EA	3.00		
64	"SLOW SCHOOL XING" Marking - 79 SF (SCHX)	EA	6.00		
65	Sharrow Legend with Green (SHRG)	EA	8.00		
66	"STOP" Marking - 22 SF (STP)	EA	2.00		
67	Yield marking (YL)	LF	171.00		
68	Speed Reduction Marking	LF	240.00		
		SUBTOTAL			
		10% CONTINGENCY			
		TOTAL			

Total Basis of Bid Plus Contingency in Words: \_\_\_\_\_

*The contingency is reserved for unforeseen project tasks. No payment will be made to the Contractor for any portion of the contingency unless a contract change order is approved by the City.*

**Bid Bond  
(If Bond Posted as Security)**

KNOW ALL PERSONS BY THESE PRESENT:

THAT WE, \_\_\_\_\_, AS PRINCIPAL,  
AND \_\_\_\_\_, AS SURETY, are held and firmly bound unto the City of Santa Cruz in the penal sum of 10 PERCENT OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the City of Santa Cruz for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made to the City of Santa Cruz to which said bid was submitted, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents. In no case shall the liability of the surety hereunder exceed the sum of \$ \_\_\_\_\_.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, WHEREAS, the Principal has submitted the above-mentioned bid to the City of Santa Cruz, aforesaid, for certain construction specifically described as follows, for which bids are to be opened at:

**2:00 p.m. / July 30, 2024**  
809 Center Street, Room 201, Santa Cruz, CA 95060

For: **“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”**

NOW, THEREFORE, if the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him/her for signature enters into a written contract, in the prescribed form, in accordance with the bid, and files the certificate of insurance and two bonds with the City, one to guarantee faithful performance, and the other to guarantee payment for labor and materials as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

PRINCIPAL

SURETY

\_\_\_\_\_  
(Seal)

\_\_\_\_\_  
(Seal)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

(Note: Signatures of those executing for the surety as an Attorney-in-Fact must include a Notary Acknowledgement.)

## List of Subcontractors Form

Name of Bidder: \_\_\_\_\_  
 Project Name/Number: \_\_\_\_\_

Bidder will use Subcontractors for the Work:  YES       NO

For each subcontractor to whom the Bidder proposes to subcontract portions of the work in an amount in excess of one-half of one percent, Bidder shall indicate on this form each proposed subcontractor's legal/contracting entity name, business address and phone number, the Contractor's State Licensing Board license number, the public works contractor registration number issued pursuant to California Labor Code Section 1725.5, the dollar amount and proportion (in percent) of the Work of each Subcontractor (of any tier) to whom a portion of the Work will be awarded via one or more subcontracts, and the work to be performed by the subcontractor.

Subcontractor's Legal Name	Business Address and Phone Number	CSLB License Number	Public Works Contractor DIR Number	Subcontract Amount and Proportion of Total Bid Price	Work to Be Performed

(Attach additional sheets, if necessary)

## DIR COMPLIANCE AFFIDAVIT

Name of Bidder: \_\_\_\_\_  
Project Name/Number: \_\_\_\_\_

California Labor Code requires private contractors, and their subcontractors, to pay prevailing wages to their workers when working on a project funded by a public entity. Prevailing wages are due if the project costs more than \$1,000, and involves the following construction work: new construction, alteration, demolition, installation, repair and maintenance. Contractors must also make an attempt to hire apprentices when the total project costs exceed \$30,000.

Prior to commencement of the Contract, all Contractors and subcontractors are required to register, and maintain active registration throughout the duration of the contract with the California Department of Industrial Relations (DIR). For information regarding registration, please go to <https://www.dir.ca.gov/Public-Works/PublicWorks.html>.

- No contractor or subcontractor may be listed on a bid proposal for a public works project (effective March 1, 2015) unless registered with the DIR pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].
- No contractor or subcontractor may be awarded a contract for public work on a public works project (effective April 1, 2015) unless registered with the DIR pursuant to Labor Code section 1725.5.
- DIR registration is required each fiscal year (July 1 – June 30).

I, the Bidder, certify that:

I acknowledge that this project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. I am aware of the provisions of Senate Bill SB 854 and Labor Code sections 1725.5, 1771.1(a), 1774-1776, 1777.5, 1813, and 1815 which require Contractors to comply with all labor compliance requirements, including but not limited to, prevailing wage requirements, Public Works Contractor Registration Program, Electronic Certified Payroll Reporting, and other requirements described in the DIR website. I will comply with such provisions before commencing the performance of the work of this contract, and maintain compliance throughout the completion of said contract.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

### Contractor Reference Information

Name of Bidder: \_\_\_\_\_  
Project Name/Number: \_\_\_\_\_

Failure to provide this information may constitute grounds for rejection of the bid.

The Bidder has been engaged in the contracting business under State License No.(s) \_\_\_\_\_  
for a period of years.

The following are five owners for whom the Bidder has constructed projects of similar scope to the Project. Such projects will have been completed within the past five years.

1. Name, Address, Phone No, Email: \_\_\_\_\_  
\_\_\_\_\_  
Project Description: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_
  
2. Name, Address, Phone No, Email: \_\_\_\_\_  
\_\_\_\_\_  
Project Description: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_
  
3. Name, Address, Phone No, Email: \_\_\_\_\_  
\_\_\_\_\_  
Project Description: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_
  
4. Name, Address, Phone No, Email: \_\_\_\_\_  
\_\_\_\_\_  
Project Description: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_
  
5. Name, Address, Phone No, Email: \_\_\_\_\_  
\_\_\_\_\_  
Project Description: \_\_\_\_\_  
\_\_\_\_\_  
Date Completed: \_\_\_\_\_

**Non-Collusion Declaration**  
(Pursuant to Section 7106 of the Public Contract Code)

Name of Bidder: \_\_\_\_\_  
Project Name/Number: \_\_\_\_\_

The undersigned declares:

I am the \_\_\_\_\_ of \_\_\_\_\_, the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. 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. All statements contained in the bid are true. 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 to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on \_\_\_\_\_, 20\_\_, at \_\_\_\_\_[City], \_\_\_\_\_, [State].

\_\_\_\_\_  
(Signature)



**Bidder's Financial Qualification**

Name of Bidder: \_\_\_\_\_  
Project Name/Number: \_\_\_\_\_

Reference is hereby made to the following bank or banks as to the financial responsibility of the Bidder:

Name of Bank	Address/Phone Number/Contact Name & Title

Reference is hereby made to the following surety companies as to the financial responsibility and general reliability of the Bidder:

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

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

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

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

I certify that Bidder is financially and technically capable of performing and has the necessary experience to perform the work of the contract.

I declare under penalty of perjury that the foregoing is true and correct. This certificate is executed on \_\_\_\_\_ [date], at \_\_\_\_\_ [city], \_\_\_\_\_ [state].

BIDDER

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

**Iran Contracting Act Certification**  
**California Public Contract Code §§ 2202 – 2208**  
*(If Bid For More than \$1,000,000)*

Name of Bidder: \_\_\_\_\_  
Project Name/Number: \_\_\_\_\_

Bidders are ineligible to bid on or submit a bid for any contract with a public entity for goods or services of one million dollars (\$1,000,000) or more if the Bidder engages in investment activities in Iran (Public Contract Code § 2204). For bids \$1,000,000 or more, Bidders must certify that it is not on the list of ineligible vendors prohibited from doing business with the State of California and shall complete the Iran Contracting Act Certification attached and submitted with their Bid. Failure to do so may deem the Bid nonresponsive. To submit a bid for this Project, please check one of the two options and complete the declaration, below. Please note: California law establishes penalties for providing false certifications, including civil penalties equal to the greater of \$250,000 or twice the amount of the contract for which the false certification was made, contract termination, and a three-year ineligibility to bid on contracts. (Public Contract Code § 2205).

Option 1: Certification

I, the official named below, certify that I am duly authorized to execute this certification on behalf of the vendor listed below, and the vendor identified below is **not** on the current list of persons engaged in investment activities in Iran created by the Department of General Services (DGS) and is not a financial institution extending twenty million dollars (\$20,000,000) or more in credit to another person/vendor, for 45 days or more, if that other person/vendor or person will use the credit to provide goods or services in the energy sector in Iran and is identified on the current list of persons engaged in investment activities in Iran created by DGS.

Option 2: Exemption

Pursuant to PCC Sections 2203(c) and (d), a public entity may permit a vendor engaged in investment activities in Iran, on a case-by-case basis, to be eligible for or to bid on, submit a proposal for, or enter into or renew a contract for goods and services. Vendor has obtained an exemption from the certification requirement under the Iran Contracting Act and attaches documentation herein demonstrating the exemption approval.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this Certificate is executed on \_\_\_\_\_ [date], at \_\_\_\_\_ [city], \_\_\_\_\_ [state].

BIDDER

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

**AGREEMENT**

THIS AGREEMENT, made and entered into this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ (“Effective Date”), by and between the CITY OF SANTA CRUZ, a municipal corporation, hereinafter called “City,” and \_\_\_\_\_ hereinafter called “Contractor;”

WITNESSETH, that the parties hereto do mutually agree as follows:

### ARTICLE I

That for and in consideration of the covenants and agreements herein contained and the payments at the prices stated in the bid proposal attached hereto, and by this reference made a part hereof, the Contractor hereby covenants and agrees to furnish any and all required supervision, labor, equipment, material, services, and transportation, as set forth in the Contract Documents as hereinafter defined, and will bear any and all other expense necessary or incidental to the performance of certain work hereinafter specified, and to build, construct, reconstruct, pave or repave and complete improvements for:

#### **“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”**

The Project to be performed consists of furnishing all labor, materials, tools, equipment, and transportation required to complete the Project, with a scope of work to generally include, but is not limited to, the following: Removal and replacement of ADA compliant curb ramps on Ocean Street from Highway 17 to Water Street, street paving along Ocean Street from Highway 17 to Water Street, and striping improvements in this same area.

(the “Project”) in strict conformity and compliance with the Contract Documents, and to do everything required by this Agreement, and by said Contract Documents as hereinafter defined (the “Work”).

### ARTICLE II

It is expressly agreed and understood by each and every party to this Agreement that the following documents are hereby incorporated and made a part of this Agreement (hereinafter the “Contract Documents”):

1. All applicable Laws and Regulations
2. Duly issued Agreement modifications, and allowance authorization(s) signed by the City, in chronological order by effective date of each.
3. This Agreement, including:
  - a. Exhibit A – Contractor’s Bid Proposal, including all attachments
4. Labor and Material Bond (Payment Bond)
5. Performance Bond
6. Insurance Certificates, including Contractor’s Certificate Relating to Worker’s Compensation
7. Invitation For Bids for **“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”** including the Project Specifications, drawings, and plans, all Exhibits, and all Addenda in the reverse order of date of issuance
8. General Conditions
9. Standard Specifications, including the City Specifications and all applicable State Specifications and/or Drawings

The parties to this Agreement do hereby expressly acknowledge that they have read, understand, and promise to comply with each and every provision of Contract Documents. There are no Contract Documents other than those indicated above. In the event inconsistencies, conflicts, or ambiguities between and among the Contract Documents are discovered, the parties shall attempt to resolve any ambiguity, conflict, or inconsistency informally, recognizing that the Contract Documents shall take precedence in the order in which they are listed above. Inclusion of an order of precedence herein does not in any way negate or reduce Contractor's obligation to report conflicts, discrepancies, apparent omissions, and similar matters to the City.

### ARTICLE III

It is expressly agreed and understood by the Contractor that the "Standard Specifications" consists of the documents on file at the Public Works Department of the City of Santa Cruz, entitled:

1. City of Santa Cruz Department of Public Works, Department of Parks and Recreation, and Water Department 2002 Standard Specifications ("City Specifications");
2. Standard Specifications of the State of California, Department of Transportation, dated 2018 ("State Specifications"); and
3. State of California /Caltrans: California Manual on Uniform Traffic Control Devices (CA MUTCD) (2014 Revision 6).

Where conflicts arise between the City's Standard Specifications and the State Specifications, the City's Standard Specifications shall control and apply.

### ARTICLE IV

Contractor shall conform to all laws and regulations of the United States and the State of California, as well as laws of Santa Cruz, as may be applicable to the Project. In addition, the City Council of the City of Santa Cruz endorses the MacBride Principles and the Peace Charter and encourages all companies doing business in Northern Ireland to abide by the MacBride Principles.

### ARTICLE V

The City hereby contracts to pay said Contractor the prices provided for in the Bid Proposal in the manner, to the extent, and at the times set forth in the Contract Documents.

### ARTICLE VI

It is agreed by the parties hereto that the acceptance of the Contractor's performance will be made only by an affirmative action of the City of Santa Cruz City Council in session, evidenced by resolution, and upon the filing by the Contractor of a Release of all Claims of every nature on account of work done under this Agreement, together with an affidavit that all claims have been fully paid. The acceptance by the Contractor of said final payment shall constitute a waiver of all claims against the City arising out of or in connection with this Agreement.

### ARTICLE VII

To the fullest extent permitted by law, Contractor shall defend, indemnify, and hold harmless the City and its respective officials, officers, directors, partners, employees, and authorized agents (“Indemnitees”) from and against any and all claims, suits, actions, judgments, demands, liabilities, losses, damages, expenses, including attorneys’ fees and costs of litigation (collectively, “Losses”), arising from personal or bodily injuries, death, property damage, or otherwise in any way related to, connected with, or resulting from the obligations or performance of the Work under this Agreement by Contractor, Subcontractors, Suppliers, and their respective officers, directors, employees, agents, or other third parties directly or indirectly employed by or under their authority or control. This provision shall not be deemed to require the Contractor to indemnify or hold harmless an Indemnitee for any Loss proximately caused by the sole or active negligence or willful misconduct of the Indemnitee, as determined by a court or other adjudicatory body of competent jurisdiction. This provision shall survive the termination of the Agreement or the completion of the Work.

## ARTICLE VIII

Contractor shall be responsible for complying with the provisions of California Public Contract Code Section 7104 regarding trenching and excavations that extend deeper than four (4) feet below the surface. No change order issued pursuant to California Public Contract Code Section 7104 shall provide for any increase in compensation that would exceed the recovery allowed pursuant to the “Claims” section of the General Requirements.

## ARTICLE IX General Terms

1. Complete Agreement. This Agreement, along with the terms and conditions in the Contract Documents and any attachments, is the full and complete integration of the Parties’ agreement with respect to the matters addressed herein, and that this Agreement supersedes any previous written or oral agreements between the Parties with respect to the matters addressed herein. Unless otherwise stated, to the extent there is any conflict between this Agreement and any other agreement (written or oral), the terms of this Agreement shall control.
2. Severability. The unenforceability, invalidity or illegality of any provision(s) of this Agreement shall not render the other provisions unenforceable, invalid or illegal.
3. Waiver. Waiver by any party of any portion of this Agreement shall not constitute a waiver of the same or any other portion hereof.
4. Governing Law. This Agreement shall be governed by and interpreted in accordance with California law.
5. Contract Interpretation. Each party acknowledges that it has reviewed this Agreement and that the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement.
6. Counterparts. The Parties may execute this Agreement in two or more counterparts, which shall, in the aggregate, be deemed an original but all of which, together, shall constitute one and the same instrument. A scanned, electronic, facsimile or other copy of a party’s signature shall be accepted and valid as an original.
7. Warranty of Authority. The signatories to this Agreement warrant and represent that each is authorized to execute this Agreement and that their respective signatures serve to legally

obligate their respective representatives, agents, successors and assigns to comply with the provisions of this Agreement.

*Signature Page to Follow*

IN WITNESS WHEREOF, this Agreement is executed by the City Manager of the City of Santa Cruz, under and pursuant to a resolution of the City Council authorizing such execution, and the Contractor has affixed his/her signature hereto the day and year first hereinabove written.

**Approved as to Form by:**

\_\_\_\_\_  
Anthony P. Condotti, City Attorney

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

**For Contractor Name:**

Signature: \_\_\_\_\_  
(Name, Title)

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

**For CITY OF SANTA CRUZ, a municipal corporation**

\_\_\_\_\_  
Matt Huffaker, City Manager

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

**LABOR AND MATERIAL BOND**

WHEREAS, as the City Council of the City of Santa Cruz, a municipal corporation in the County of Santa Cruz, State of California (the “City”), has awarded to \_\_\_\_\_ hereinafter designated as the “Principal”, a contract for constructing the work or improvement described in the contract documents entitled:

**“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”**

adopted by the City Council of the City **June 25, 2024**; and

WHEREAS, said Principal is required under the terms of said contract to furnish a Labor and Material Bond, the surety of this bond will pay the same to the extent hereinafter set forth; and

WHEREAS, the said Principal is about to enter into the annexed contract with the City to complete the work or improvement referred to above for the City, all as more particularly and in detail shown upon the Contract Documents filed in the Office of the City Clerk of the City:

NOW, THEREFORE, we, the Principal, and \_\_\_\_\_, a corporation organized and existing under and by virtue of the laws of the State of California as “Surety”, are held and firmly bound unto the City of Santa Cruz in the sum of \_\_\_\_\_ (\_\_\_\_\_), such sum being not less than one hundred percent (100%) of the estimated contract cost of the work, lawful money of the United States of America, to be paid to the City of Santa Cruz, for payment of which sum, well and truly to be made, we hereby bind ourselves, our heirs, administrators, executors, successors and assign jointly and severally.

THE CONDITION OF THIS OBLIGATION IS SUCH, that if said Principal or its heirs, executors, administrators, successors or assigns, shall fail to pay for any materials, provisions, vendor supplies, or equipment as provided in the contract documents, upon, for, or about the performance of the work contracted to be done, or for any work or waiver thereon of any kind, or for amounts due under the Unemployment Insurance Code with respect to work or labor performed by any such claimant, or fails to pay any of the persons authorized under Civil Code Section 9100 to assert a claim against a payment bond, or fails to pay for any amounts required to be deducted, withheld, and paid over to the Franchise Tax Board for the wages of employees of the Principal or his/her subcontractor pursuant to Section 18806 of the Revenue and Taxation Code, or fails to pay for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the principal and all subcontractors with respect to such work and labor that the surety or sureties will pay for the same, in an amount not exceeding the sum specified in this bond, and also, in case suit is brought upon the bond, will pay, in addition to the face amount hereof, a reasonable attorney's fee, to be fixed by the Court.

The condition of this obligation is such that its terms inure to the benefit of any of the persons and entities authorized in Civil Code Section 9100 to assert a claim against a payment bond so as to give a right of action to such persons or entities or their assigns in any suit brought upon or action to enforce liability on the bond.



The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder shall in any manner affect its obligation upon this bond, and it does hereby explicitly waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder, and further explicitly hereby waives its rights under Civil Code Section 2819.

IN WITNESS WHEREOF, the above parties have executed this instrument under their seals this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and duly signed by its undersigned representative, pursuant to the authority of its governing body.

**PRINCIPAL:**

Firm name: \_\_\_\_\_

Printed name: \_\_\_\_\_

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

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

**SURETY:**

Firm name: \_\_\_\_\_

Printed name: \_\_\_\_\_

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

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

I hereby approve the form of the within bond.

\_\_\_\_\_  
City Attorney

\_\_\_\_\_  
Date

(Note: Signatures of those executing for the surety as an Attorney-in-Fact must include a Notary Acknowledgement.)

**FAITHFUL PERFORMANCE BOND**

WHEREAS, the City Council of the City of Santa Cruz, a municipal corporation in the County of Santa Cruz, State of California (the “City”), and \_\_\_\_\_ hereinafter designated as “Principal” have entered into an agreement whereby Principal agrees to install and complete the work or improvement described in the contract documents entitled:

**“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”**

adopted by the City Council of the City on \_\_\_\_\_, 2022; and

WHEREAS, said Principal is about to enter into the annexed agreement with the City as is required to furnish security for the faithful performance of said Agreement.

NOW, THEREFORE, we, the Principal, and \_\_\_\_\_, a corporation organized and existing under and by virtue of the laws of the State of California, as “Surety”, are held and firmly bound unto the City, in the sum of \_\_\_\_\_ (\_\_\_\_\_), such sum being not less than one hundred percent (100%) of the estimated contract cost of the work, lawful money of the United States of America, to be paid to the City, for payment of which sum, well and truly to be paid, we hereby jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns, by these presents;

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bound Principal, its heirs, executors, administrators, successors, or assigns will in all things abide by and well and truly keep and perform the covenants, conditions and provisions in the said agreement and any alteration thereof made as therein provided, on his or her part, to be kept and performed at the time and in the manner therein specified, and in all respects according to the true intent and meaning, and will indemnify and save harmless the City, its officers and agents, and employees, as therein stipulated, then this obligation will become null and void, otherwise it will be and remain in full force and effect.

As a part of the obligation secured hereby and in addition to the face amount specified therefore, there will be included costs and reasonable expenses and fees, including reasonable attorneys’ fees, incurred by the City.

As a condition precedent to the satisfactory completion of the said contract, an obligation in the amount of \_\_\_\_\_ (\_\_\_\_\_), being not less than ten percent (10%) of the estimated contract cost, will remain in force for a period of one (1) year after the official acceptance of said work, during which time if the Principal, its heirs, executors, administrators, successors or assigns will fail to make full, complete and satisfactory repairs and replacements or totally protect the City of Santa Cruz from loss or damage made evident during said period of one (1) year from the date of official acceptance of said work and resulting from or caused by defective materials or faulty workmanship in the prosecution of the work done, the above obligation in the sum of \_\_\_\_\_, will remain in full force and effect, otherwise the obligation will be discharged. However, notwithstanding any other provisions of this paragraph, the obligation for the surety hereunder will continue so long as any obligation of the Principal remains.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or to the work to be performed thereunder or the specifications will in any manner affect this obligation upon this bond, and it does hereby explicitly waive notice of any such changes, extensions of time, alterations, or additions to the terms of the contract or to the work to be performed thereunder, or to the specifications, and it further explicitly hereby waives its rights under California Civil Code § 2819.

IN WITNESS WHEREOF, the parties have executed this instrument under their seals this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and duly signed by its undersigned representative, pursuant to the authority of its governing body.

**PRINCIPAL:**

Firm name: \_\_\_\_\_

Printed name: \_\_\_\_\_

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

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

**SURETY:**

Firm name: \_\_\_\_\_

Printed name: \_\_\_\_\_

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

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

I hereby approve the form of the within bond.

\_\_\_\_\_  
City Attorney

\_\_\_\_\_  
Date

(Note: Signatures of those executing for the surety as an Attorney-in-Fact must include a Notary Acknowledgement.)

**Contractor's Certificate Relating to Worker's Compensation**

I, THE UNDERSIGNED, HEREBY CERTIFY that at all times during the performance of any work under contract with the City of Santa Cruz (check one of the following) for **“2024 LAUREL STREET SURFACE SEAL PROJECT (C400809)”**

- I have and will maintain in full force and effect Workers' Compensation Insurance, as required by Section 3700 of the Labor Code, for the performance of the Work. My Workers' Compensation insurance carrier and policy number are:

Insurance Carrier: \_\_\_\_\_

Policy Number: \_\_\_\_\_

- I have and will maintain in full force and effect and have attached hereto a Certificate of Consent to Self-Insure issued by the Director of Industrial Relations, as provided for by Section 3700 of the Labor Code, for the performance of the Work.

I declare under penalty of perjury that the foregoing is true and correct and executed on \_\_\_\_\_, 20\_\_ at \_\_\_\_\_, California.

CONTRACTOR

\_\_\_\_\_  
Name: \_\_\_\_\_

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

## GENERAL REQUIREMENTS

### 1. Failure to Execute Contract

Failure of the lowest responsible and responsive bidder to execute the Contract and provide all acceptable bonds and documents as required by the Contract Documents as provided herein within ten (10) calendar days after such bidder has received the Contract for execution shall be just cause for the annulment of the award and the forfeiture of the bid security. This period of time shall be subject to extension for such further period as may be agreed upon in writing between the City and Bidder concerned.

### 2. Contractor's Insurance

Contractor will procure and maintain for the duration of the contract, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by the Contractor, its/his agents, representatives, employees or subcontractors.

#### **A. CERTIFICATE REQUIREMENTS**

The City will be issued a Certificate of Insurance (a Memorandum of Understanding will not be accepted) with the following minimum requirements:

- Certificate(s) will show current policy number(s) and effective dates,
- Coverage and policy limits will meet, or exceed, requirements below,
- The Certificate Holder will be City of Santa Cruz, Risk Management, 333 Front Street., Suite 200, Santa Cruz, CA 95060,
- Certificate will be signed by an authorized representative,

#### **B. MINIMUM SCOPE AND LIMITS OF INSURANCE**

Consultant acknowledges that the insurance coverage and policy limits set forth in this section constitute the minimum amount of coverage required. The City will be entitled to coverage for the highest limits maintained by Consultant. Coverage will be at least as broad as:

- **COMMERCIAL GENERAL LIABILITY (CGL): \$5,000,000 PER OCCURRENCE; \$10,000,000 AGGREGATE**  
Proof of coverage for **\$5 Million per occurrence** including products and completed operations, property damage, bodily injury, personal and advertising injury will be provided on Insurance Services Office (ISO) Form CG 00 01 covering CGL. If a general aggregate limit applies, either the general aggregate limit will apply separately to this project/location or the general aggregate limit will be at least twice the required occurrence limit.
- **AUTOMOBILE LIABILITY:**  
Proof of coverage for \$1,000,000 provided on ISO Form Number CA 00 01 covering any auto (Code 1), or if Consultant has no owned autos, hired, (Code 8) and non-owned autos (Code 9), per accident for bodily injury and property damage.

- WORKERS' COMPENSATION AS REQUIRED BY THE STATE OF CALIFORNIA, WITH STATUTORY LIMITS, AND EMPLOYER'S LIABILITY INSURANCE: \$1,000,000 per accident for bodily injury or disease.

The Worker's Compensation policy must be **endorsed** with a waiver of subrogation in favor of the City for all work performed by the Consultant and its employees.

**(Not required if Consultant provides written verification it has no employees)** - If Contractor has no employees, Contractor shall complete and sign a [Workers' Compensation Exemption Declaration and Release of Liability](#)

- CONTRACTORS POLLUTION LIABILITY and/or ASBESTOS POLLUTION LIABILITY (CPL) (if project involves environmental hazards) with limits no less than **\$2,000,000 per occurrence or claim, and \$4,000,000 policy aggregate.**

1. If the services involve lead-based paint or asbestos identification / remediation, the Pollution Liability shall not contain lead-based paint or asbestos exclusions. If the services involve mold identification / remediation, the Pollution Liability shall not contain a mold exclusion and the definition of "Pollution" shall include microbial matter including mold.

2. The Automobile Liability policy shall be **endorsed** to include **Transportation Pollution Liability** insurance, covering hazardous materials to be transported by Contractor pursuant to the Agreement. This coverage may also be provided on the Contractors Pollution Liability policy.

- BUILDER'S RISK (Course of Construction) insurance utilizing an "All Risk" (Special Perils) coverage form, with limits equal to the completed value of the project and no coinsurance penalty provisions.

***Builder's Risk (Course of Construction) Insurance***

Contractor may submit evidence of Builder's Risk insurance in the form of Course of Construction coverage. Such coverage shall **name the City as a loss payee** as their interest may appear.

If the project does not involve new or major reconstruction, at the option of the City, an Installation Floater may be acceptable. For such projects, a Property Installation Floater shall be obtained that provides for the improvement, remodel, modification, alteration, conversion or adjustment to existing buildings, structures, processes, machinery and equipment. The Property Installation Floater shall provide property damage coverage for any building, structure, machinery or equipment damaged, impaired, broken, or destroyed during the performance of the Work, including during transit, installation, and testing at the City's site.

**C. OTHER INSURANCE PROVISIONS**

If Consultant maintains broader coverage and/or higher limits than the minimums shown above, the City of Santa Cruz requires and shall be entitled to the broader coverage and/or higher limits maintained by Consultant. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City of Santa Cruz.

The insurance policies are to comply with the following provisions:

- ADDITIONAL INSURED STATUS

The City, its officers, officials, employees, agents, and volunteers are to be covered as

additional insureds on the CGL, Contractors Pollution Liability, and automobile insurance (if transporting hazardous materials policy(ies) with respect to liability arising out of work or operations performed by or on behalf of Consultant including materials, parts, or equipment furnished in connection with such work or operations. General liability coverage will be provided in the form of an **endorsement** to Consultant's insurance at least as broad as ISO Form CG 20 10 11 85, or if not available, through the addition of **both** CG 20 10 CG 20 26, CG 20 33, or CG 20 38; **and** CG 20 37 (if a later edition is used).

- **PRIMARY COVERAGE**

For any claims related to this Agreement, Consultant's insurance coverage will be **primary** insurance as respects the City, its officers, officials, employees, agents, and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees, agents, or volunteers will be excess of Consultant's insurance and will not contribute with it.

- **NOTICE OF CANCELLATION**

Each insurance policy required above shall state that the coverage shall not be canceled, except with notice to the City.

- **WAIVER OF SUBROGATION**

Consultant hereby grants to the City a waiver of any right to subrogation which any insurer of said Consultant may acquire against the City by virtue of the payment of any loss, including attorney's fees under such insurance. Consultant agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not the City has received a waiver of subrogation endorsement from the insurer.

- **EXCESS LIABILITY/UMBRELLA INSURANCE POLICIES**

The excess/liability policies will provide similar coverage as the primary CGL policy with no new exclusions - Excess liability insurance must **follow form** the terms, conditions, definitions, and exclusions of the underlying CGL insurance. The excess/umbrella policy must also be written on a primary and noncontributory basis for an additional insured, and that it will apply before any other insurance that is available to such additional insured which covers that person or organization as a named insured, and we will not share with that other insurance.

The policy regarding Limits of Insurance regarding Aggregates must provide that the aggregate limits if applicable shall apply in the same manner as the aggregate limits shown in the Schedule of the Underlying Insurance.

- **SELF-INSURED RETENTIONS**

Self-insured retentions must be declared to and approved by the City. City may require Consultant to purchase coverage with a lower retention or provide proof of ability to pay losses and related expenses. The policy language shall provide, or be endorsed to provide, that the self-insured retention may be satisfied by either the named insured or City.

- **ACCEPTABILITY OF INSURERS**

Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A: VII, unless otherwise acceptable to the City.

- **CLAIMS MADE POLICIES**

If any of the required policies provide coverage on a claims-made basis:

1. The Retroactive Date must be shown and must be before the date of the contract or the beginning of contract work.
2. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of the contract of work.
3. If coverage is canceled or non-renewed, and not *replaced with another claims-made policy form with a Retroactive Date* prior to the contract effective date, the Consultant must purchase “extended reporting” coverage for a minimum of *five (5) years* after completion of contract work.

- **VERIFICATION OF COVERAGE**

Consultant will furnish the City with original Certificates of Insurance including all required amendatory endorsements (or copies of the applicable policy language effecting coverage required by this clause) and a copy of the Declarations and Endorsement Page of the CGL,CPL, and automobile Policy(ies) listing all policy endorsements to be approved by the City before work commences. However, failure to obtain the required documents prior to the work beginning will not waive the Consultant’s obligation to provide them. The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements required by these specifications, at any time.

**D. SUBCONTRACTORS**

Consultant shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein, and Contractor shall ensure that City is an additional insured on insurance required from subcontractors.

**E. SPECIAL RISKS/CIRCUMSTANCES**

City reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances and provide notice to Consultant.

3. Claims

**A. Definition of “Claim”.**

All provisions of California Public Contract Code Section 9204 are incorporated into and form an integral part of the Contract Documents for this Project. The City and Contractor shall comply with California Public Contract Code Section 9204 when applicable.

As used herein, the term “Claim” means a separate written demand or assertion by Contractor sent by registered mail or certified mail, with return receipt requested, for one or more of the following arising out of or related to the Contract Documents or the performance of the Work: (A) a time extension, including, without limitation, for relief from damages or penalties for delay assessed by the City under the Contract; (B) payment by the City of money or damages arising from work done by, or on behalf of, the Contractor pursuant to the Contract and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled; (C) payment of an amount that is disputed by the City, as defined in Public Contract Code Section 9204(c).

A Claim does not include, and the procedures for processing of Contractor Claims do not apply to the following:



- (i) Claims respecting penalties for forfeitures prescribed by statute or regulation which a government agency is specifically authorized to administer, settle, or determine (other than penalties for delay assessed by the City under the Contract).
- (ii) Claims respecting personal injury, death, reimbursement, or other compensation arising out of or resulting from liability for personal injury or death.
- (iii) False claims liability under California Government Code Section 12650, et seq.
- (iv) Defects in the Work first discovered by City after final payment by City to Contractor.
- (v) Claims respecting stop notices.
- (vi) The right of City to specific performance or injunctive relief to compel performance of any provision of the Contract Documents or for other City claims against the Contractor.

#### **B. Time Period for Submission of Claim.**

If a Claim involves an adjustment to the Contract Sum or to the Contract Time due to Extra Work, then the Claim arises upon issuance of a decision denying, in whole or in part, Contractor's Change Order Request. All other Claims arise when Contractor discovers, or should have discovered, the circumstances giving rise to the Claim (even if Contractor has not yet been damaged or delayed).

A Claim that does not involve an adjustment to the Contract Sum or Contract Time for Extra Work may be asserted if, and only if, Contractor gives written notice of intent to file the Claim to the City within five (5) calendar days of the date the Claim arises. A written notice of intent to file a Claim shall be valid if, and only if, it identifies the event or condition giving rise to the Claim, states its probable effect, if any, with respect to Contractor's entitlement to an adjustment of the Contract Sum or Contract Time, and complies with the requirements of Section 3(C), below.

All Claims and supporting documentation and certifications must be filed as soon as possible, but no later than thirty (30) calendar days after the Claim arises. No Claims shall be filed after the final payment has been issued unless otherwise permitted by law.

#### **C. Reasonable Documentation.**

The Claim must include the following:

- (i) A statement that it is a Claim and a request for a decision on the Claim;
- (ii) A detailed factual narrative of events fully describing the nature and circumstances giving rise to the Claim, including but not limited to, necessary dates, locations, and items of Work effected and reasonable documentation to support the Claim;
- (iii) A certification, executed by each Subcontractor claiming not less than 5% of the total monetary amount sought by the Claim, that the Subcontractor's portion of the Claim is filed in good faith.
- (iv) If the Claim involves an adjustment to the Contract Sum or Contract Time for Extra Work, a statement demonstrating that a Change Order Request was submitted in a timely manner as required by the Contract Documents. If the Claim does not involve an adjustment to the Contract Sum or Contract Time for Extra Work, a statement demonstrating that a notice of intent to file the Claim was submitted in a timely manner as required by the Contract Documents.

- (v) A detailed justification for any remedy or relief sought by the Claim, including, without limitation:
  - a. A detailed cost breakdown in the form required for submittal of Change Order Requests, including an estimate of the costs incurred or to be incurred. To the extent costs have been incurred when the Claim is submitted, the Claim must include actual cost records (including, without limitation, payroll records, material and rental invoices, and the like) demonstrating that costs claimed have actually been incurred. To the extent costs have not yet been incurred at the time of Claim submittal, actual cost records must be submitted on a current basis not less than once a month during any periods costs are incurred.
  - b. Copies of actual job cost records demonstrating that the costs have been incurred.
  - c. If the Claim is based on an error, omission, conflict, or ambiguity in the Contract Documents: (1) a sworn statement by Contractor and any Subcontractors or Sub-subcontractors involved in the Claim, to the effect that the error, omission, conflict, or ambiguity was not discovered prior to submission of the Bid, or (2) if not discovered, a statement demonstrating that the error, omission, conflict, or ambiguity could not have been discovered by Contractor, its Subcontractors or Sub-subcontractors in exercise of the degree of care required of them under the Contract Documents for review of the Bid Documents prior to submission of the Bid.
- (vi) If the Claim involves a request for adjustment of the Contract Time, written documentation demonstrating that Contractor has complied with the requirements of the Contract Documents pertaining to proving the right to an extension of time and demonstrating that Contractor is entitled to an extension of time under the Contract Documents.
- (vii) A written certification signed by a responsible managing officer of Contractor's organization, who has the authority to sign subcontracts and purchase orders on behalf of Contractor and who has personally investigated and confirmed the truth and accuracy of the matters set forth in such certification, in the following form:

"I hereby certify under penalty of perjury under the laws of the State of California that I am a managing officer of (Contractor's name) and that I have reviewed the Claim presented herewith on Contractor's behalf and/or on behalf of (Subcontractor's/Sub-subcontractor's name(s)) and that the following statements are true and correct.

- a. The facts alleged in or that form the basis for the Claim are true and accurate.
- b. The Claim is submitted in good faith.
- c. The Change Order Request was timely submitted, as required by the Contract Documents.
- d. Contractor does not know of any facts or circumstances, not alleged in the Claim, that by reason of their not being alleged render any fact or statement alleged in the Claim materially misleading.
- e. Contractor has, with respect to any request for money or damages alleged in or that forms the basis for the Claim, reviewed the job cost records (including those maintained by Contractor and by any Subcontractor or Sub-subcontractor, of any Tier, that is asserting all or any portion of the Claim) and confirmed with reasonable certainty that the Losses or damages suffered by Contractor and/or such

Subcontractor or Sub-subcontractor were in fact suffered in the amounts and for the reasons alleged in the Claim.

- f. Contractor has, with respect to any request for extension of time or claim of Delay, disruption, hindrance or interference alleged in or that forms the basis for the Claim, reviewed the job schedules (including those maintained by Contractor and by any Subcontractor or Sub-subcontractor, of any Tier, that is asserting all or any portion of the Claim) and confirmed on an event-by-event basis that the delays or disruption suffered by Contractor and /or such Subcontractor or Sub-subcontractor were in fact experienced for the durations, in the manner, and with the consequent effects on the time and/or sequence of performance of the Work, as alleged in the Claim; and.
- g. Contractor has not received payment from City for, nor has Contractor previously released City from, any portion of the Claim.

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

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

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

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

**D. Assertion of Claims.**

- (i) Notwithstanding the making of any Claim or the existence of any dispute regarding any Claim, unless otherwise directed by City, Contractor shall not delay, slow, or stop performance of the Work, but shall diligently proceed with performance in accordance with the Contract Documents and City will continue to make payments as required by the Contract Documents.
- (ii) All Claims and supporting documentation must be sent to the City by registered mail or certified mail with return receipt requested.
- (iii) Strict compliance with these requirements is conditions precedent to Contractor's right to an informal conference to meet and confer to resolve a Claim, mediate a Claim, or arbitrate or litigate a Claim. The failure of Contractor to strictly comply with the requirements of this Section constitutes a failure by Contractor to exhaust its administrative remedies with the City, thereby denying any court or arbitration panel of jurisdiction to adjudicate the Claim.
- (iv) There shall be no waiver of any of the rights set forth in California Public Contract Code Section 9204; provided, however, that (i) upon receipt of a Claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (ii) the City may prescribe reasonable Change Order, Claim, and Dispute Resolution Procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise the timeframes and procedures set forth in Public Contract Code Section 9204.
- (v) The City's right to commence the Contract dispute resolution process shall arise at any time following the City's actual discovery of the circumstances giving rise to the

dispute. Nothing herein shall preclude the City from asserting disputes in response to a Claim asserted by Contractor.

**E. Decision of City on Claims.**

- (i) Pursuant to Public Contracting Code section 9204(d), upon receipt of a Claim, the City shall conduct a reasonable review of the claim and, within 45 days, shall provide the Contractor a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of the Claim, the Owner's Representative, City, and Contractor may, by mutual agreement, extend the time period provided in this Section. If City determines that additional supporting data are necessary to fully evaluate a Claim, City will request such additional supporting data in writing. Such data shall be furnished by Contractor to City no later than 10 days after the date of such request. Any payment due to Contractor by City on an undisputed portion of the Claim shall be processed and made within 60 days after the written statement is issued.
- (ii) If the City needs approval from its governing body to provide the Contractor with a written statement identifying the disputed portion and the undisputed portion of the Claim, and the governing body does not meet within the forty-five (45) days or within the mutually agreed to extension of time following receipt of a Claim sent by registered mail or certified mail, return receipt requested, the City shall have up to three (3) days following the next duly publicly noticed meeting of the governing body after the forty-five (45) day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.
- (iii) Failure by the City to respond to a Claim from Contractor within the time periods described in this Section 3 and California Public Contract Code Section 9204 or to otherwise meet the time requirements shall result in the Claim being deemed rejected in its entirety. A Claim that is denied by reason of the City's failure to have responded to a Claim, or its failure to otherwise meet the time requirements of this Article 4.2 and California Public Contract Code Section 9204, shall not constitute an adverse finding with regard to the merits of the Claim or the responsibility or qualifications of the Contractor.
- (iv) Any payment due on an undisputed portion of the Claim shall be processed and made within 60 days after the City issues its written statement.
- (v) Amounts not paid in a timely manner as required by this Section shall bear interest at 7 percent per annum, pursuant to Public Contracting Code section 9204(d)(4).
- (vi) If a subcontractor or a lower tier subcontractor lacks standing to assert a Claim against the City because privity of contract does not exist, the Contractor may present to the City a Claim on behalf of a subcontractor or a lower tier subcontractor. A subcontractor may request in writing, either on its own behalf or on behalf of a lower tier subcontractor, that the Contractor present a Claim for work which has been performed by the subcontractor or lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting the Claim be presented to the City shall furnish reasonable documentation supporting the Claim. Within 45 days of receipt of this written request, the Contractor shall notify the subcontractor in writing as to whether the Contractor

presented the Claim to the City and, if the Contractor did not present the Claim, provide the subcontractor with a statement of the reasons for not having done so.

#### **F. Meet and Confer Conference.**

If the Contractor disputes the City's written response, or if the City fails to respond to a Claim issued pursuant to Section 3(E) within the time prescribed, the Contractor may demand in writing an informal conference to meet and confer for settlement of the issue in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the City shall schedule a meet and confer conference within 30 days for settlement of the dispute.

#### **G. Mediation.**

- (i) Within ten (10) business days following the conclusion of the meet and confer conference, specified in Section 3(F), if the Claim or any portion of the Claim remains in dispute, the City shall provide the Contractor a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the Claim shall be processed and made within sixty (60) days after the City issues its written statement. Any disputed portion of the Claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the City and the Contractor sharing the associated costs equally. The City and the Contractor shall mutually agree to a mediator within ten (10) business days after the disputed portion of the Claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the Claim remaining in dispute shall be subject to applicable procedures outside this section.
- (ii) For purposes of this Section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation, or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.
- (iii) Unless otherwise agreed to by the City and the Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Public Contract Code Section 20104.4 to mediate after litigation has been commenced.

#### **H. Arbitration and Litigation.**

- (i) In the event mediation does not resolve the parties' dispute, the parties shall comply with the Arbitration provisions set forth in Public Contract Code Sections 10240 – 1024.13.
- (ii) Unless the City and Contractor otherwise agree in writing, the arbitration decision shall be binding upon the parties, made under and in accordance with the laws of the State of California, supported by substantial evidence, and in writing. If the total of all Claims or cross Claims submitted to arbitration is in excess of \$50,000, the award shall contain the basis for the decision, findings of fact, and conclusions of law. Any arbitration award shall be subject to confirmation, vacation, or correction under the procedures and on the

grounds specified in the California Code of Civil Procedure including without limitation Section 1296. The expenses and fees of the arbitrators and the administrative fees of the AAA shall be divided among the parties equally. Each party shall pay its own counsel fees, witness fees, and other expenses incurred for its own benefit.

(iii) The City may, but is not required, to assert as a counterclaim any matter arising out of the claims asserted by Contractor in the arbitration. City's failure to assert any such counterclaim in an arbitration shall be without prejudice to the City's right to assert the counterclaim in litigation or other proceeding.

(iv) Any litigation shall be filed in the Superior Court of the State of California for the County of Santa Cruz.

### **I. Waiver.**

A waiver of or failure by the City to enforce any requirement in this Section 3 in connection with any Claim shall not constitute a waiver of and shall not preclude the City from enforcing such requirements in connection with any other Claims.

The Contractor agrees and understands that no oral approval, either express or implied, of any Claim shall be binding upon the City unless and until such approval is ratified by execution of a written Change Order.

### **4. Time of Completion**

Attention is directed to the provisions in Section 8 (Commencement of Work, Time of Completion and Liquidated Damages) of the Standard Specifications and these General Conditions.

The Contractor shall promptly start the work and diligently prosecute the work to completion before the expiration of **60 working days** after the date of the Notice to Proceed.

Full compensation for any additional costs occasioned by compliance with the provisions in this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefore.

### **5. Failure to Complete the Work on Time (Liquidated Damages)**

All time limits stated in the Contract Documents are of the essence. If the work is not completed by Contractor in the time specified in the Contract Documents, or within any period of extension authorized in writing by the City, it is understood that City will suffer damage; and it being impracticable and infeasible to determine the amount of actual damage, it is agreed that Contractor will pay the City, as fixed and liquidated damages, and not as a penalty, the sum of **(\$4,000)** dollars for each calendar day of delay until the work is completed and accepted, and Contractor and his/her surety will be liable for the amount thereof; provided, however, that Contractor shall not be charged liquidated damages because of any delays in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of Contractor.

Contractor shall, within ten (10) days from the beginning of any such delay, notify City in writing of the cause of the delay; whereupon City shall ascertain the facts and the extent of the delay and

extend the time for completing the work when, in its judgment, the findings of fact justify such an extension. City's finding of fact thereon shall be final and conclusive on the parties hereto.

## 6. Existing Facilities

Prospective bidders shall visit the work site and determine for themselves the existing conditions at the Project site, including location of utilities. The Contractor shall take precaution so as to avoid damaging existing public facilities and private improvements.

In accordance with California Government Code Section 4215, the City assumes the responsibility for the timely removal, relocation, or protection of existing main or trunk line utility facilities located on the Project site if such utilities are not identified in the plans and specifications made a part of the invitation for bids. The City will compensate the Contractor for the costs of locating, repairing damage not due to the Contractor's failure to exercise reasonable care, and removing or relocating existing main or trunk line utility facilities located at the Project site and not identified with reasonable accuracy in plans and specifications made a part of the invitation for bids. The City will also compensate the Contractor for the cost of equipment on the Project necessarily idled during such work. The Contractor will not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the City's or utility owner's failure to provide for removal or relocation of such main or trunk line utility facilities.

Nothing in this provision or the Contract Documents will be deemed to require the City to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Work site can be inferred from the presence of other visible facilities, such as buildings, meter, and junction boxes, on or adjacent to the Project site; provided, however, that nothing in this provision or the Contract Documents shall relieve the City from identifying main or trunk lines in the plans and specifications made a part of the invitation for bids.

Nothing in this provision or the Contract Documents will preclude the City from pursuing any appropriate remedy against the utility for delays which are the responsibility of the utility.

Nothing in this provision or the Contract Documents will be construed to relieve the utility from any obligation as required either by law or by contract to pay the cost of removal or relocation of existing utility facilities.

If the Contractor while performing the Work discovers utility facilities not identified by the City in the plans and specifications made a part of the invitation for bids, the Contractor must immediately notify the City and utility in writing.

Either the City or the utility, whichever owns existing main or trunk line utility facilities located on the Work site, shall have sole discretion to effect repairs or relocation work or to permit the Contractor to perform such repairs or relocation work at a reasonable price

The Contractor will be required to work around public utility facilities that are to remain in place within the construction area or that are to be relocated and relocation operations have not been

completed, and (s)he will be held liable to the owners of such facilities for any damage or interference with service resulting from his/her operations.

The exact locations of underground facilities and improvements within the construction area shall be ascertained by the Contractor before using equipment that may damage or interfere with service resulting from his/her operations. It shall be the Contractor's responsibility to notify public utilities that (s)he is working in the vicinity of their facilities.

Other forces may be engaged in moving or reconstructing utility facilities or maintaining service of utility facilities, and the Contractor shall cooperate with such forces and conduct his/her operation in such a manner as to avoid unnecessary delay or hindrance to the work being performed by such other forces.

The City owns, operates, and maintains its own water distribution and sewer collection systems and will cooperate with the Contractor insofar as it is reasonable and practicable. Water, as required for City projects, may be obtained at City-owned fire hydrants provided that application is made to the Water Department and permission obtained with provision for payment.

Full compensation for conforming to the requirements of this article, not otherwise provided for, shall be considered as included in the prices paid for the various contract items of work and no additional allowance will be made therefor.

All underground utilities including but not limited to water service, sewer laterals, electrical service, and gas service broken or disturbed by the Contractor's crew will be replaced or repaired by the Contractor or Utility Company at the Contractor's expense.

The Contractor shall consult with utilities and notify them of any relocation or protection in sufficient time to allow the utilities to perform the work in a complete and orderly manner.

7. Water Pollution Control Program (WPCP) and/or Storm Water Pollution Prevention Program (SWPPP)

Water pollution control work and storm water pollution prevention work shall conform to Chapter 4 of the Best Management Practices Manual for the City's Storm Water Management Program available on the City of Santa Cruz website at:

<http://www.cityofsantacruz.com/government/city-departments/public-works/stormwater/best-management-practices>.

The Contractor shall take all necessary precautions to prevent any leakage or sewage spills of any kind onto adjacent property, public or private roadway, drainage systems, and waterways. The Contractor shall be liable for any and all clean-up costs or any fines that may be levied including those by the Regional Water Quality Control Board (RWCQB) against the City, in the event that such leakage or spill occurs. The Contractor shall also be responsible for reporting any and all spill to the appropriate regulatory agencies, including the RWCQB and the Santa Cruz-County Health Department.



Full compensation for conforming to the requirements of “**WATER POLLUTION CONTROL**” including furnishing all labor, materials, equipment, tools, and incidentals shall be included in the various bid item prices and no additional compensation will be allowed.

#### 8. Maintenance and Clean-Up

Throughout the construction period, the Contractor shall keep the Project site in a neat and clean condition, shall dispose of any surplus materials in an approved manner off the site, and maintain proper housekeeping practices to the satisfaction of the Engineer.

When any material is to be disposed of outside of the easement or street or highway right-of-way, the Contractor shall first obtain written permission from the owner on whose property the disposal is to be made. Disposal must conform to grading ordinance of the jurisdiction in which the Work is performed. Location of disposal sites shall be submitted to the Engineer for review and subject to his/her approval.

Upon completion of the Work, and prior to requesting final inspection, the Contractor shall thoroughly clean the site of the Work of all rubbish, excess materials, false work, temporary structures, and equipment, and all portions of the Work shall be left in a neat and orderly condition. The final inspection, acceptance, and final payment will not be made until this has been accomplished.

#### 9. State of California Department of Transportation Standard Specifications

All Work under the Contract shall conform to the applicable requirements of the most recent published State of California Department of Transportation Standard Specifications. Said State Specifications are to be considered an integral part of the specifications for all purposes related to this Contract.

Definitions of terms not defined in City Standard Specifications shall be as defined in the 2018 State Standard Specifications, available at:

<https://dot.ca.gov/-/media/dot-media/programs/design/documents/f00203402018stdspecsa11y.pdf>.

#### 10. Notification of Project Commencement

The Contractor shall notify the City Engineer at least five (5) business days prior to mobilizing to the Project site.

#### 11. Project Schedule

The Contractor shall prepare a project schedule and submit it to the Engineer for his/her review and approval five (5) days prior to the beginning of the Work. Work shall be conducted between the hours of **8 AM and 4 PM**, Monday to Friday, except with the permission of the Director, except in case of any emergency.

#### 12. Progress and Final Payment

Progress and final payments will be made in accordance with Section 9 of the Standard Specifications, except as herein modified.

Payments are made every two weeks by the City Finance Department. The Contractor may receive partial payments only once for any month. A listing of payment cut-off dates is available upon request.

### 13. Extra Work

Extra work shall conform to the provisions in Section 9 of the California Standard Specifications and to these General Provisions.

Any alleged extra work or delays shall be given in writing within 24 hours of any occurrence to the Project Engineer or Inspector. The Contractor shall submit to the Project Engineer or Inspector an extra work report for each day the extra work is performed. The report shall be submitted prior to the start of work the following day. The report shall include: (1) a description of the extra work; (2) the quantity, classification, and working hours of the extra work labor force; (3) the type of equipment, code number, and hours of operation of the equipment towards extra work; and (4) the quantity and type of materials used for extra work.

### 14. Trenching Requirements

Pursuant to Labor Code Section 6705 and these General Conditions, before the excavation of any trench or trenches five (5) feet or more in depth, where the estimated contract expenditure is twenty-five thousand dollars (\$25,000) or more, the Contractor shall submit a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards, established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer. No excavation shall be started until said plan has been approved by the City Engineer. When the estimated contract expenditure is less than twenty-five thousand dollars (\$25,000) the above mentioned shoring plan may be required at the discretion of the City Engineer prior to or during the course of construction.

Pursuant to Public Contract Code Section 7104, for any project which involves digging trenches or other excavations that extend deeper than four (4) feet:

1. The Contractor shall promptly, and before the following conditions are disturbed, notify the local public entity, in writing, of any:
  - a. Material that the Contractor believes may be hazardous waste material, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law;
  - b. Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids.

- c. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.
2. The City shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the Work shall issue a change order under the procedures described in the Contract.
3. In the event that a dispute arises between the City and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all Work to be performed under the Contract. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the parties.

#### 15. Local Hiring Compliance Forms

The Contractor, and all subcontractors, must comply with the local hiring provisions of Chapter 3.10 of the Municipal Code of the City of Santa Cruz, which is incorporated into these Contract Documents by reference. Chapter 3.10 specifically requires City Contractors and subcontractors to make good faith efforts to hire qualified individuals who are local residents, as workers on City public works projects of estimated value of greater than the formal bid limit, unless prohibited by State or Federal laws or regulations.

The Contractor and all listed subcontractors must complete and submit to the City, after the Award of Contract and prior to the issuance of the Notice to Proceed, the form entitled, "Good Faith Effort Statement for Local Hire," as contained in the Contract Documents.

The Contractor must also complete and submit to the City, on a weekly basis, documentation of local hiring. The certified payroll documents required by the Department of Industrial Relations will be deemed acceptable documentation if the certified payroll documents are accompanied by the form included in the Contract Documents or if certified payroll documents are modified to include the information therein.

#### 16. Apprentice Hiring Records and Compliance Forms

City apprentice requirements do not apply to projects less than fifty thousand dollars (\$100,000) in value.

The Contractor, and all subcontractors, must comply with the apprentice hiring provisions of Chapter 3.10 of the Municipal Code of the City of Santa Cruz, which is incorporated into these Contract Documents by reference. Chapter 3.10 specifically requires each City Contractor or subcontractor to make a good faith effort to hire an apprentice on the Project who is enrolled in a viable apprentice program. Viable apprenticeship programs are listed on the Division of Apprenticeship Standards (DAS) web site (select Santa Cruz County): <http://www.dir.ca.gov/databases/das/pwaddrstart.asp>. The apprenticeship requirement will apply

for each apprenticeable craft in which the Contractor employs workers in performing any of the work under the Contract. Attention is also directed to State Labor Code Sections 1777.5 and 1777.6 and California Apprenticeship Council regulations concerning the employment of apprentices by the Contractor or subcontractor.

Chapter 3.10 further requires the maintenance of documents demonstrating that the Contractor has requested an apprentice from a minimum of two viable apprenticeship programs after the Contractor is awarded the Contract and prior to commencing work. Failure to comply with any of the provisions of Chapter 3.10, including the maintenance of the records, will be deemed a breach of the Contract or subcontract and may result in the Contractor or subcontractor being declared “non-responsible” by the City and ineligible for the award of future City contracts. In addition, State Labor Code 1777.5 provides for penalties of up to one hundred dollars (\$100) a day for non-compliance.

If the Contractor is exempted from the apprentice requirement according to the exemptions described in State Labor Code 1777.5, the Contractor must notify the City in writing of their exemption prior to commencing work and explain the exemption in detail.

Unless exempted, the Contractor will, prior to commencing Work, submit to the City and the appropriate apprenticeship program, a DAS Form 140. The Contractor will submit a copy of the Request for Dispatch of Apprentice Form to the City as evidence that an apprentice was requested. A Request for Dispatch of Apprentice Form is provided in Section 4 of these Special Provisions. The request for an apprentice will be made at least two (2) working days before the date on which one or more apprentices are required. These forms are available from the DAS web site (<http://www.dir.ca.gov/das/PublicWorksForms.htm>).

17. Section intentionally Omitted

18. Third Party Claims

Both parties shall timely notify the other of the receipt of any third-party claim relating to the Contract or Project. The City shall be entitled to recover its reasonable costs incurred in providing such notice.

19. Force Majeure

Neither party hereto shall be considered in default in the performance of its obligation hereunder to the extent that the performance of any such obligation is prevented or delayed by an act of God, natural disaster, pandemic, acts of terrorism, war, or other peril, which is beyond the reasonable control of the affected party and without the negligence of the respective Parties. Each party hereto shall give notice promptly to the other of the nature and extent of any Force Majeure claimed to delay, hinder, or prevent performance of the services under this Agreement. Each Party will, however, make all reasonable efforts to remove or eliminate such a cause of delay or default and will, upon the cessation of the cause, diligently pursue performance of its obligations in this Contract.

20. Contractor Not an Agent

Except as City may specify in writing, Contractor shall have no authority, express or implied, to act on behalf of City in any capacity whatsoever as an agent. Contractor shall have no authority, express or implied, pursuant to this Contract to bind City to any obligation whatsoever.

21. Conflicts of Interest

Contractor owes City a duty of undivided loyalty in performing the Work and services under this Contract. Contractor covenants (on behalf of Contractor and its employees, agents, representatives, and subcontractors) that there is no direct or indirect interest, financial or otherwise, which would conflict in any manner or degree with the performance of services required under this Contract. Contractor acknowledges and agrees to comply with applicable provisions of conflict of interest law and regulations, including the Political Reform Act, Section 1090 of the Government Code, and the City's conflict of interest code. Contractor will immediately advise City if Contractor learns of a conflicting financial interest of Contractor during the term of this Contract.

22. City Property

Unless otherwise provided herein, Contractor agrees that all copyrights which arise from creation of Project-related documents and materials pursuant to this Agreement shall be vested in the City and Contractor waives and relinquishes all claims to copyright or other intellectual property rights in favor of City. Any work product related to this Contract shall be confidential, not to be used by the Contractor on other projects or disclosed to any third party, except by agreement in writing by the City, or except as otherwise provided herein.

**[End of Section]**

**SECTION 23**  
**TECHNICAL CONTRACT SPECIFICATIONS**

**23-1.01 MOBILIZATION**

The provisions of Section 9-1.16D, “Mobilization”, of the Caltrans Standard Specifications shall apply in their entirety except as modified or supplemented herein.

**23-1.01A INCREASE OR DECREASE IN BONDING**

When the final contract price for which the Contractor has bonded for a project increases by over twenty-five percent (25%) of the original base bid price due to change orders and/or increases in the quantities of items incorporated into the project, the Contractor shall be entitled to payment for additional bonding costs that have been paid to the surety company due to this increase. Payment for this cost shall be made via change order and included on the final project billing statement with supporting documentation from Contractor.

When the final contract price decreases by over twenty-five percent (25%) of the original base bid price due to change orders and/or a decrease in the quantities of items incorporated into the project, the City shall be entitled to a reimbursement of the decrease in bonding costs paid by the Contractor. The refund of these costs shall be made via change order and deducted from the final payment for release of retention.

**23-1.01B STAGING AREA**

It is the responsibility of the Contractor to locate a staging area for office setup, construction laydown areas, or the like, and is an appropriate area for mixing and storing materials and equipment. The staging area may be located inside or outside the Santa Cruz City Limits. Temporary utility controls shall be arranged solely by the Contractor. It is the Contractor’s responsibility to inspect the site to determine its suitability for his operations to execute this contract. Contractor is required to obtain and show proof of all permits required by the State and/or local agencies for use of the staging area.

The City is not responsible for providing all said staging area that is needed. If City property is used for staging area temporary chain link fencing with privacy screening will be required on-site and shall be provided by the Contractor. Stockpiling shall be limited to three days’ worth of pavement grindings or off-haul materials.

It is the Contractor’s responsibility to secure a staging area for contract work, and any associated costs are considered to be included in the various contract prices paid, with no additional compensation allowed therefor. However, if the Contractor only uses City property for staging area, no additional costs associated with securing a staging area shall be covered by the City. Contractor is not required to obtain permits for use of City property for staging area.

The Contractor’s proposed staging site(s) shall be approved by the Engineer. If Contractor utilizes private property for staging area, Contractor shall submit proof of an agreement for use of said staging area with private property owner(s) prior to mobilization.

The staging area(s) shall be maintained throughout the duration of the project such that it is not construed as visual blight in the opinion of the Engineer. All adjoining streets, sidewalks and gutters shall be swept free of construction materials tracked onto them at the end of each day. Failure to do so will result in City forces cleaning the area at the Contractor's expense. The City of Santa Cruz labor rate to be used shall be \$150 per hour per person.

### **23-1.01C MEASUREMENT AND PAYMENT**

The **Lump Sum** contract price paid for "**Mobilization**" shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals, and for all the work involved in mobilization, including, but not limited to, furnishing all specified contract bonds and insurance certificates, public notification, furnishing and installing project identification signs and sign posts, transporting equipment, establishing a storage area (revocable item), sanitary restroom facilities and all other work as specified in the Caltrans Standard Specifications and these Contract Specifications and as directed by the Engineer and no additional compensation will be allowed therefor. Updating of project identification and notifications signs and removal of these signs shall also be included in the lump sum price for mobilization. **The price for mobilization shall not exceed 5% of the total bid items exclusive of the cost for Mobilization.**

Payment will be made as follows:

- a) Fifty percent (50%) of the total amount bid for Mobilization will be paid with the first progress payment after at least five percent (5%) of the original Contract Amount for other items of work has been performed.
- b) When at least ten percent (10%) of the original Contract Amount for other items of work has been performed, an amount will be included in the next monthly progress payment to increase the total amount of Mobilization paid to seventy-five percent (75%) of the total amount bid for Mobilization.
- c) When at least twenty percent (20%) of the original Contract Amount for other items of work has been performed, an amount will be included in the next monthly progress payment to increase the total amount of Mobilization paid to ninety percent (90%) of the total amount bid for Mobilization.
- d) Upon substantial completion, one-hundred percent (100%) of the remaining contract price paid for Mobilization will be included in the estimate for payment.

### **23-1.02 ORDER OF WORK**

Attention is directed to "Maintaining Traffic," and "Temporary Pavement Delineation," of these Contract Specifications.

1. Notify Underground Service Alert (USA) to have utilities marked
2. Install construction area signs and project identification signs

3. Install water pollution control measures
4. Install tree protection
5. Clearing, grubbing, tree trimming (as needed)
6. Perform concrete repairs
7. Adjust utility boxes of the various kinds and manhole frame and covers
8. Perform base repairs
9. Remove existing pavement markers, markings, and striping
10. Surface Seal
11. Place permanent striping, markers and markings
12. Complete all other construction work and punch list items
13. Remove tree protection, construction area signs and project identification signs

The Contractor's attention is directed to Section 23-1.04, "Progress Schedule", of these Contract Specifications.

Any deviation from these requirements and provisions shall be sufficient cause for the Engineer to suspend the work in accordance with the provisions of Section 5.55 of the General Conditions. The Contractor will not be permitted to resume the work until Contractor has satisfactorily remedied said deviation in accordance with the provisions of the contract.

The work includes modifications to improvements adjacent to entrance to private property. The Contractor shall notify property owners of the project in writing (with a copy to the Engineer) 5 days in advance of construction adjacent to said properties.

In each stage, after completion of the preceding stage, the first order of work shall be the removal of existing pavement delineation as directed by the Engineer. Pavement delineation removal shall be coordinated with temporary and new delineation so that lane lines are provided at all times on traveled ways open to public traffic.

Wherever final sweeping or brooming of the newly placed asphalt has been completed, permanent traffic stripes and pavement markings shall be completed within 10 days.

Before obliterating any pavement delineation that is to be replaced on the same alignment and location, as determined by the Engineer, the pavement delineation shall be referenced by the Contractor, with a sufficient number of control points to reestablish the alignment and location of the new pavement delineation. The references shall also include the limits or changes in striping pattern, including one- and 2-way barrier lines, limit lines, crosswalks and other pavement markings. Full compensation for referencing pavement delineation shall be considered as included in the contract prices paid for new pavement delineation and no additional compensation will be allowed therefor.

At the end of each working day if a difference in excess of 0.15-foot exists between the elevation of the existing pavement and the elevation of any excavation within 8 feet of the traveled way, material shall be placed and compacted against the vertical cuts adjacent to the traveled way. During excavation



operations, native material may be used for this purpose, however, once the placing of the structural section commences, structural material shall be used. The material shall be placed to the level of the elevation of the top of existing pavement and tapered at a slope of 4:1 or flatter to the bottom of the excavation. Treated base shall not be used of the taper. Full compensation for placing the material on a 4:1 slope, regardless of the number of times it is required, and subsequent removing or reshaping of the material to the lines and grades shown on the plans shall be considered as included in the price paid for contract items involved and no additional compensation will be allowed therefor. No payment will be made of material placed in excess of that required for the structural section.

### **23-1.03 SUBMITTALS**

**The Contractor shall provide all submittals required by the Caltrans Standard Specifications and these Contract Specifications at the preconstruction meeting.**

Any work shown on the Plans to be installed per manufacturer's specifications or directions shall require a submittal. All materials specified by manufacturer name, code, model number, etc. and their approved equals shall require a Submittal.

The Contractor shall submit two (2) copies of each submittal, one (1) of which will be retained by the Engineer. Mark each copy to identify the applicable products, models, options, and any other data. Submit the product source, specifications, gradations, certifications, bulletins and literature in sufficient detail to demonstrate that the product is in compliance with the Contract.

At minimum, the Contractor shall provide the following submittals to the Engineer. Submittals shall be made in advance of the materials planned incorporation into the work, and shall allow the Engineer a minimum of 10 working days to review the submittal and respond to the Contractor. In addition, the Contractor shall allow the Engineer equivalent time periods to review re-submittals for any previously rejected submittals. No material shall be used in the work until written acceptance of the submittal has been made by the Engineer. The Contractor shall submit sufficient information, specifications, and product data to demonstrate compliance with the requirements of the Contract, including these Contract Specifications, for:

- Project schedule
- Traffic control plan(s) and certification of qualified personnel
- Notification to residences and businesses
- Storm water Pollution Control Plan (or Water Pollution Control Program)
- Utility location reference list
- SAMI seal and Microsurfacing mix designs and certificates of compliance
- SAMI seal aggregate
- Scrub seal and slurry seal emulsion
- SAMI seal rubberized asphalt binder

- Equipment calibration documentation for surface seal equipment
- Asphalt concrete mix design and binder for base repairs
- Concrete mix design for concrete construction
- Aggregate base for over-excavation and concrete construction
- Traffic control plan(s)
- Traffic paint and glass beads
- Thermoplastic material
- Pavement markers
- Lane separation system

The Contractor shall provide submittals for all materials, product data, working/shop drawings, diagrams, schedules, or other data prepared by the Contractor in accordance to the Contract requirements. The submittals shall not modify any Contract requirement.

The Contractor shall provide Certificates of Compliance from its material suppliers, in advance of the work, certifying that all materials to be used on the project conform to the requirements of these specifications. The Contractor shall also furnish to the City in triplicate, certified copies of all factory and mill test reports when required by the Engineer. The Certificates shall be signed by the manufacturers of the materials. The City reserves the right to refuse to permit the use of material based on a Certificate of Compliance alone.

Submittals shall be shown on the schedule and shall not be critical path items of work.

The Engineer’s review of Contractor shop drawing submittals shall not relieve the Contractor of the entire responsibility for the correctness of details and dimension. The Contractor shall assume all responsibility and risk for any misfits due to any errors in Contractor submittals. The Contractor shall be responsible for the dimensions and the design of adequate connections and details. Acceptance by the Engineer of a substitute item proposed by the Contractor shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents and for adequacy of the substitute item.

Full compensation for preparing Submittals shall be included in the various bid items and no additional compensation will be allowed therefor.

**23-1.04      PROGRESS SCHEDULE**

Progress schedules will be required for this contract. Within five (5) working days of the notice of contract award, or at the preconstruction meeting (whichever comes first), the Contractor shall submit to the Engineer a baseline progress schedule. Contractor will not be allowed to begin work until the progress schedule has been approved by the Engineer. Work performed without an approved schedule will be considered to be unauthorized work as specified in Section 5-1.30, “Noncompliant and Unauthorized Work,” of the State Standard Specifications.

The Contractor shall provide weekly 'look ahead' schedules at the weekly construction meeting, or as determined by the Engineer, which detail the following week's construction activities.

Full compensation for Progress Schedules shall be included in the various bid items and no additional compensation will be allowed therefore.

### **23-1.05 WATER POLLUTION CONTROL**

Water pollution control work shall conform to the provisions in Section 13, "Water Pollution Control", of the Caltrans Standard Specifications and these Contract Specifications. This project shall conform to the requirements of the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No.2009-009-DWQ, and the Caltrans Statewide Storm Water Permit No. CAS000003, Order No. 99-06-DWG, both issued by the State Water Resources Control Board (SWRCB). These permits, hereafter referred to as the "Permit," regulate storm water discharges associated with construction activities.

In addition, project work shall be conducted in compliance with the applicable provisions of the SWRCB Phase II Storm Water General Permit for Small MS4s, Order 2013-0001-DWQ, which the City is subject to and project work shall not cause the City to be in non-compliance with this General Permit.

#### **23-1.05A GENERAL**

Water pollution control work shall conform to the requirements in the "Water Pollution Control Program (WPCP) Preparation Manual" and the "Construction Site Best Management Practices (BMPs) Manual," and addenda thereto issued up to, and including, the date of advertisement of the project. These manuals are hereinafter referred to respectively as the "Preparation Manual" and the "Construction Site BMPs Manual", and collectively, as the "Manuals". Copies of the Manuals may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, and may also be obtained from the Department's Internet website at: <http://www.dot.ca.gov/hq/construc/stormwater>.

The Contractor shall know and fully comply with applicable provisions of the Manuals, and Federal, State, and local regulations and requirements that govern the Contractor's operations and storm water and non-storm water discharges from both the project site and areas of disturbance outside the project limits during construction. Attention is directed to Sections 7-1.02, "Laws", and 7-1.05, "Indemnification", of the Caltrans Standard Specifications.

Water pollution control requirements shall apply to storm water and non-storm water discharges from areas outside the project site which are directly related to construction activities for this contract including, but not limited to, staging areas, storage yards and access roads. The Contractor shall comply with the Manuals for those areas and shall implement, inspect and maintain the required water pollution control practices. Installing, inspecting and maintaining water pollution control practices on areas outside the project limits not specifically arranged and provided for by the City for the execution of this contract, will not be paid for.

The Contractor shall be responsible for penalties assessed or levied on the Contractor or the City as a result of the Contractor's failure to comply with the provisions in this section "Water Pollution Control"

including, but not limited to, compliance with the applicable provisions of the Manuals, and Federal, State and local regulations and requirements as set forth therein.

Penalties as used in this section shall include fines, penalties and damages, whether proposed, assessed, or levied against the City or the Contractor, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, by governmental agencies or as a result of citizen suits. Penalties shall also include payments made or costs incurred in settlement for alleged violations of the Manuals, or applicable laws, regulations, or requirements. Costs incurred could include sums spent instead of penalties, in mitigation or to remediate or correct violations.

### **23-1.05B RETENTION OF FUNDS**

Notwithstanding any other remedies authorized by law, the City may retain money due the Contractor under the contract, in an amount determined by the City, up to and including the entire amount of penalties proposed, assessed, or levied as a result of the Contractor's violation of the Manuals, or Federal or State law, regulations or requirements. Funds may be retained by the City until final disposition has been made as to the penalties. The Contractor shall remain liable for the full amount of penalties until such time as they are finally resolved with the entity seeking the penalties.

Retention of funds for failure to conform to the provisions in this section, "Water Pollution Control", shall be in addition to the other retention amounts required by the contract. The amounts retained for the Contractor's failure to conform to provisions in this section will be released for payment on the next monthly estimate for partial payment following the date when an approved WPCP has been implemented and maintained, and when water pollution has been adequately controlled, as determined by the Engineer.

When a regulatory agency identifies a failure to comply with the Manuals, or other Federal, State or local requirements, the City may retain money due the Contractor, subject to the following:

- a) The City will give the Contractor seventy-two (72) hours' notice of the City's intention to retain funds from partial payments which may become due to the Contractor prior to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to the Contractor.

During the first progress payment period after that the Contractor fails to conform to the provisions in this section, "Water Pollution Control", the City may retain an amount equal to twenty-five percent (25%) of the estimated value of all contract work performed on the entire contract.

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records pertaining to water pollution control work. The Contractor and the City shall provide copies of correspondence, notices of violations, enforcement actions or proposed fines by regulatory agencies to the requesting regulatory agency.

### **23-1.05C WATER POLLUTION CONTROL PROGRAM PREPARATION, APPROVAL AND AMENDMENTS**

As part of the water pollution control work, a Water Pollution Control Program (WPCP) is required for

this contract. The WPCP shall conform to the provisions in Section 13, "Water Pollution Control", of the Caltrans Standard Specifications, the requirements in the Manuals, and these Contract Specifications. Upon the Engineer's approval of the WPCP, the WPCP shall be considered to fulfill the provisions in Section 13, "Water Pollution Control", of the Caltrans Standard Specifications for development and submittal of a Water Pollution Control Program.

No work having potential to cause water pollution shall be performed until the WPCP has been approved by the Engineer. Approval shall not constitute a finding that the WPCP complies with applicable requirements of the Manuals and applicable Federal, State and local laws, regulations, and requirements.

The Contractor shall designate a Water Pollution Control Manager. The Water Pollution Control Manager shall be responsible for the preparation of the WPCP and required modifications or amendments, and shall be responsible for the implementation and adequate functioning of the various water pollution control practices employed. The Contractor may designate different Water Pollution Control Managers to prepare the WPCP and to implement the water pollution control practices. The Water Pollution Control Managers shall serve as the primary contact for issues related to the WPCP or its implementation. The Contractor shall assure that the Water Pollution Control Manager(s) have adequate training and qualifications necessary to prepare the WPCP, implement and maintain water pollution control practices, as described in Section 13, "Water Pollution Control", of the Caltrans Standard Specifications.

Within five (5) working days after the execution of the contract, the Contractor shall submit two (2) copies of the draft WPCP to the Engineer. The Engineer will have five (5) working days to review the WPCP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the WPCP within five (5) working days of receipt of the Engineer's comments. The Engineer will have five (5) working days to review the revisions. Upon the Engineer's approval of the WPCP, one (1) approved copy of the WPCP, incorporating the required changes, shall be submitted to the Engineer. In order to allow construction activities to proceed, the Engineer may conditionally approve the WPCP while minor revisions are being completed. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for resulting losses, and an extension of time will be granted, in the same manner as provided for in Section 8-1.07, "Delays", of the Caltrans Standard Specifications.

The WPCP shall incorporate water pollution control practices in the following categories:

- a) Soil stabilization.
- b) Sediment control.
- c) Wind erosion control.
- d) Tracking control.
- e) Non-storm water management.
- f) Waste management and materials pollution control.

The Contractor shall develop a Water Pollution Control Schedule that describes the timing of grading or

other work activities that could affect water pollution. The Water Pollution Control Schedule shall be updated by the Contractor to reflect changes in the Contractor's operations that would affect the necessary implementation of water pollution control practices.

The Contractor shall prepare an amendment to the WPCP when there is a change in construction activities or operations which may affect the discharge of pollutants to surface waters, ground waters, municipal storm drain systems, or when the Contractor's activities or operations violate Federal, State or local regulations, or when directed by the Engineer. Amendments shall identify additional water pollution control practices or revised operations, including those areas or operations not identified in the initially approved WPCP. Amendments to the WPCP shall be prepared and submitted for review and approval within a time approved by the Engineer, but in no case longer than the time specified for the initial submittal and review of the WPCP.

The Contractor shall keep one copy of the approved WPCP and approved amendments at the project site. The WPCP shall be made available upon request by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests by the public shall be directed to the Engineer.

No adjustment in compensation will be made for ordered changes to correct WPCP work resulting from the Contractor's own operations or from the Contractor's negligence.

If requested by the Contractor and approved by the Engineer, changes to the water pollution control program, including addition of new water pollution control practices, will be allowed. Changes shall be included in the approved amendment of the WPCP. If the requested changes result in a net cost increase to the lump sum price for water pollution control, an adjustment in compensation will be made without change to the water pollution control item. The net cost increase to the water pollution control item will be paid for as extra work as provided in Section 4-1.05, "Changes and Extra Work", of the Caltrans Standard Specifications.

### **23-1.05D WPCP IMPLEMENTATION**

Unless otherwise specified, upon approval of the WPCP, the Contractor shall be responsible throughout the duration of the project for installing, constructing, inspecting, maintaining, removing, and disposing of the water pollution control practices specified in the WPCP and in the amendments. Unless otherwise directed by the Engineer, the Contractor's responsibility for WPCP implementation shall continue throughout any temporary suspension of work ordered in conformance with the provisions in Section 8-1.06, "Suspensions", of the Caltrans Standard Specifications. Requirements for installation, construction, inspection, maintenance, removal, and disposal of water pollution control practices shall conform to the requirements in the Manuals and these Contract Specifications.

If the Contractor or the Engineer identifies a deficiency in the implementation of the approved WPCP or amendments, the deficiency shall be corrected immediately. The deficiency may be corrected at a later date and time if requested by the Contractor and approved by the Engineer in writing, but shall be corrected prior to the onset of precipitation. If the Contractor fails to correct the identified deficiency by the date agreed or prior to the onset of precipitation, the project shall be in nonconformance with this section. Attention is directed to Section 5-1.03, "Engineer's Authority", of the Caltrans Standard Specifications, and to "Retention of Funds" of this section for possible nonconformance penalties.

If the Contractor fails to conform to the provisions of this section, "Water Pollution Control", the Engineer may order the suspension of construction operations until the project complies with the requirements of this section.

Implementation of water pollution control practices may vary by season. The Construction Site BMPs Manual and these Contract Specifications shall be followed for control practice selection of year-round, rainy season and non-rainy season water pollution control practices.

### **Year-Round Implementation Requirements**

The Contractor shall have a year-round program for implementing, inspecting and maintaining water pollution control practices for wind erosion control, tracking control, non-storm water management, and waste management and materials pollution control.

The National Weather Service weather forecast shall be monitored and used by the Contractor on a daily basis. An alternative weather forecast proposed by the Contractor may be used if approved by the Engineer. If precipitation is predicted, the necessary water pollution control practices shall be deployed prior to the onset of the precipitation.

Disturbed soil areas shall be considered active whenever the soil disturbing activities have occurred, continue to occur or will occur during the ensuing fifteen (15) working days. Non-active areas shall be protected as prescribed in the Construction Site BMPs Manual within ten (10) working days of cessation of soil disturbing activities or prior to the onset of precipitation, whichever occurs first.

### **Rainy Season Implementation Requirements**

Soil stabilization and sediment control practices conforming to the requirements of these Contract Specifications shall be provided throughout the rainy season, defined as between October 15th and April 15th.

An implementation schedule of required soil stabilization and sediment control practices for disturbed soil areas shall be completed no later than fifteen (15) working days prior to the beginning of each rainy season. The implementation schedule shall identify the soil stabilization and sediment control practices and the dates when the implementation will be twenty-five percent (25%), fifty percent (50%) and one hundred percent (100%) complete, respectively. For construction activities beginning during the rainy season, the Contractor shall implement applicable soil stabilization and sediment control practices.

### **Non-Rainy Season Implementation Requirements**

The non-rainy season shall be defined as days outside the defined rainy season. The Contractor's attention is directed to the Construction Site BMPs Manual for soil stabilization and sediment control implementation requirements on disturbed soil areas during the non-rainy season. Disturbed soil areas within the project shall be protected in conformance with the requirements in the Construction Site BMPs Manual with an effective combination of soil stabilization and sediment control.

## **23-1.05E MAINTENANCE**

To ensure the proper implementation and functioning of water pollution control practices, the Contractor

shall regularly inspect and maintain the construction site for the water pollution control practices identified in the WPCP. The construction site shall be inspected by the Contractor as follows:

- a) Prior to a forecast storm.
- b) After a precipitation event which causes site runoff.
- c) At twenty-four (24) hour intervals during extended precipitation events.
- d) Routinely, a minimum of once every two (2) weeks outside of the defined rainy season.
- e) Routinely, a minimum of once every week during the defined rainy season.

The Contractor shall use the Caltrans Storm water Site Inspection Report Form CEM-2030 provided at <http://www.dot.ca.gov/hq/construc/forms.htm>. One copy of each site inspection record shall be submitted to the Engineer within twenty-four (24) hours of completing the inspection.

### **23-1.05F REPORTING REQUIREMENTS**

If the Contractor identifies discharges into surface waters or drainage systems in a manner causing, or potentially causing, a condition of pollution, or if the project receives a written notice or order from a regulatory agency, the Contractor shall immediately inform the Engineer. The Contractor shall submit a written report to the Engineer within five (5) working days of the discharge event, notice or order. The report shall include the following information:

- a) The date, time, location, nature of the operation, and type of discharge, including the cause or nature of the notice or order.
- b) The water pollution control practices deployed before the discharge event, or prior to receiving the notice or order.
- c) The date of deployment and type of water pollution control practices deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent reoccurrence.
- d) An implementation and maintenance schedule for affected water pollution control practices.

### **23-1.05G MEASUREMENT AND PAYMENT**

The **Lump Sum** contract price paid for providing and complying with “**Water Pollution Control**” shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals, and for doing all the work involved in preparing, revising or amending the Water Pollution Control Plan for the project, installing, constructing, maintaining, removing, and disposing of water pollution control practices, including non-storm water management, and waste management and materials pollution control, and other necessary work.

### **23-1.06 BEST MANAGEMENT PRACTICE**

The Contractor’s work shall conform to the requirements of the Construction Work - Best Management Practices (Chapter 4 of the Best Management Practices Manual for the City’s Storm Water Management



Program) revised in June, 2014 edition and Erosion and Sediment Control Field Manual published by California Regional Water Quality Control Board, August 2002 edition, and addenda thereto issued up to, and including, the date of advertisement of the project. Copies of the Best Management Practices may be obtained from the Public Works Department, 809 Center Street, Santa Cruz, California 95060 or from the City website ([www.cityofsantacruz.com](http://www.cityofsantacruz.com)).

Full compensation for conforming to the most recent requirements for implementing construction best management practices shall be included in the various bid items and no additional compensation will be allowed therefor.

### **23-1.07 CONSTRUCTION AREA SIGNS**

Construction area signs shall be furnished, installed, maintained, and removed when no longer required in accordance with the provisions in Section 12-3.11, "Construction Area Signs," of the State Standard Specifications and these Contract Specifications. Changeable message signs required for resurfacing work shall be provide 2 weeks of advance warning before the resurfacing work.

The Engineer shall approve all locations prior to Contractor installing signs.

Construction area sign panels shall be according to Section 12-3.11B of the Caltrans Standard Specifications. Construction area signs shall conform to Section 12-3.11B(3), "Portable Signs", of the Caltrans Standard Specifications. Signs shall be kept clean and in good repair.

No separate payment shall be made for conforming to the provisions of this section. Full compensation for conforming to all the provisions of this section shall be considered as included in the prices paid for "Mobilization" and "Traffic Control System" items of work and no additional compensation shall be allowed therefor.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to commencing any excavation for construction area signposts.

### **23-1.08 TRAFFIC CONTROL SYSTEM**

#### **23-1.08A GENERAL**

Traffic control shall conform to the requirements of Sections 7-1.03, "Public Convenience", 7-1.04, "Public Safety", and Section 12, "Temporary Traffic Control", of the Caltrans Standard Specifications and these Contract Specifications. Nothing in these Contract Specifications shall be construed as relieving the Contractor from his/her responsibilities as specified in said sections.

All signs, barriers, barricades, steel plates, and other traffic control devices shall be furnished and maintained, including all needed repairs, by the Contractor. Work shall conform to the latest edition of the "California Manual on Uniform Traffic Control Devices" and Section 12, "Temporary Traffic

Control”, of the Caltrans Standard Specifications. All necessary signs and traffic control devices shall be furnished, installed and maintained, and removed when no longer needed, by the Contractor.

The Contractor's attention is directed to Article 7-16 of the City of Santa Cruz Department of Public Works Standard Specifications. Construction is within the City owned right of way and provisions shall be made for the safe passage of public traffic through the necessary portions of work at all times with as little inconvenience to the public as possible. The Contractor shall also make provisions for the safe passage of pedestrians/bicyclists around the area of work at all times. The “Community Traffic Safety Coalition, Recommended Guidelines to protect the Safety of Bicycle, Pedestrians and Disabled Travelers during Road Construction” is appended to these Contract Specifications.

### **23-1.08B TRAFFIC CONTROL PLAN**

The Contractor shall prepare and submit a detailed proposed traffic control plan to the Engineer at or prior to the pre-construction meeting. **The traffic control plan shall be stamped and signed by a professional engineer registered with the state of California.** The traffic control plan shall be approved prior to the start of work. The traffic control plan shall provide sufficient information and details to show detours, typical lane closures, channelizing, locations and usage of flagmen, construction zone signing, and provisions for pedestrians and bicycles, for each street and location of work. The traffic control plan shall show in detail, the proposed sequencing of the work together with the proposed traffic control system for each work task. The proposed traffic control system shall, in all respects, satisfy the requirements of these Contract Specifications. The Engineer will review the proposed traffic control plan and return it to the Contractor for any necessary revisions or corrections within five (5) working days. The Contractor shall revise and resubmit the plan to the Engineer, and this process shall be repeated, until the proposed traffic control plan is accepted by the Engineer. The Contractor will not be permitted to perform any lane closures or implement any part of the traffic control plan until it has been accepted by the Engineer.

### **23-1.08C DRIVEWAY CLOSURES**

Driveways that are closed to access shall be coned off or barricaded.

### **23-1.08D LANE CLOSURES**

“Traffic Lane” shall be defined as that portion of the roadway for the movement of a single line of vehicles.

“Lane Closure” shall be defined as the temporary closure of a portion or the full width of an existing traffic lane. The temporary shifting of an existing traffic lane to shoulders, parking areas, medians or other areas of the roadway shall be considered a lane closure.

**At least one ten (10) foot wide vehicular traffic lane must be open to public traffic at all times,** when work is in progress, for all contract work, except for the pavement phase of work. A minimum of two (2) flagmen are required when lane closures result in only one (1) open lane for two-directional traffic. The Contractor shall provide communication equipment, approved by the Engineer for flagmen. Flagmen shall be capable of relaying information regarding the anticipated duration of the closure, how to proceed through the traffic control limits and answer any questions related to access to properties and businesses. **Flagmen shall remain in place until the entire width of the roadway has been opened to**

**the public.**

Lane closures shall conform to the details shown on Caltrans Standard Plan T13, “Traffic Control System for Lane Closure on Two Lane Conventional Highways”.

**23-1.08E LANE CLOSURE HOURS**

Lane closures will be allowed between the hours of 8:00 a.m. and 3:30 p.m., Monday through Friday. Emergency vehicles shall be provided with immediate access through the construction area at all times. The Engineer may order a lane opened to public traffic if work is not in progress during allowed lane closure hours. Attention is directed to elsewhere in these Contract Specifications for lane closure hours within school areas.

**23-1.08F ROAD CLOSURE AND HOURS**

**Road closures shall only be permitted with prior written permission of the Engineer and only for the times and operations specified.**

Road closure hours shall be 8:30 a.m. to 3:30 p.m. Monday through Friday, excluding holidays.

The Contractor may work under lane closure conditions specified in Section 23-1.08E “Lane Closure Hours” before and after the specified road closure hours.

The Contractor shall coordinate road closures with garbage and recycling collection as well as accommodate residents with medical, health and safety-related needs (e.g. doctor appointments, emergency access, and access requirements due to residents with physical disabilities). **The Contractor shall contact the City Refuse and Recycling Division at (831) 420-5545.**

The full width of the traveled way shall be open for use by public traffic at all other times. Emergency vehicles shall be provided immediate access through the construction area at all times. If work is not in progress during allowed closure hours, the Engineer may order the road opened to public traffic.

A flag person must remain at street access points to the road closure at all times to prevent unauthorized access into the road closure zone.

**23-1.08G MAINTAINING TRAFFIC**

Pedestrian and bicycle access shall be provided at all times through the construction areas.

Vehicular access to private properties shall be maintained outside of the road closure limits. Vehicular access to private properties, at all other times, shall be maintained during construction, except under certain conditions. Contractor may interrupt access when the driveway access interruptions are coordinated with the property owner and the Engineer. In such cases, the Contractor shall obtain permission from the Engineer in advance, and provide written notification to the affected parties forty-eight (48) hours in advance. The Contractor shall further give one (1) hour notice to affected parties prior to restricting vehicular access.

The Contractor shall comply with the current State of California, Department of Transportation Manual

On Uniform Traffic Control Devices for Construction and Maintenance Work Zones for all items related to traffic within the job site.

Construction area signs shall include BIKE MAY USE FULL LANE signs for bicycle safety through the construction zone.

**The streets shall remain open for two-way traffic unless temporary closing and detouring is specifically authorized in writing by the Engineer.**

The Contractor shall clean the area of work and keep it open for two-way traffic for weekends and evenings throughout the construction period. The Contractor shall furnish and place temporary construction area signs required for the direction of public traffic through or around the work during construction.

During construction operations, the Contractor shall also meet the following conditions:

1. Personal vehicles of the Contractor's employees shall not be parked within the construction area, on the traveled way or shoulders, including any section closed to public traffic.
2. Contractor shall maintain access to existing driveways at all times. Contractor shall provide written notification to all businesses/residents one week in advance and again 24 hours prior to work that will disrupt driveway access and shall through thoughtful planning, restore that access as soon as possible. The Contractor shall consult with the inspector on the project and with affected business operators in advance of his/her obstructing vehicular or foot traffic to the properties to be affected, so that the best time for this obstruction can be determined.
3. **The Contractor shall notify and update fire, police, ambulance and transit services of anticipated closures and traffic flow disruptions at least 24 hours prior to construction work that affects traffic.**
4. The Contractor shall notify local authorities of the Contractor's intent to begin work at least **5 calendar days** before work is begun. The Contractor shall cooperate with local authorities relative to handling traffic through the area and shall make all arrangements relative to keeping the working area clear of parked vehicles.

### **23-1.08H CHANGEABLE MESSAGE SIGNS**

This item is to provide compensation for additional notification near the work area. The Contractor shall provide portable changeable message boards for use on the project at the City's request. Each portable message sign unit shall consist of a controller unit, a power supply, and a structural support system, all mounted on a trailer, per Caltrans Standard Specification Section 12-3.12. Message board shall be installed as directed by the Engineer one (1) week prior to start of construction and shall be relocated to the next street location as job progresses or as directed by the Engineer. **Construction signs are included under Bid Item "Traffic Control System and Construction Area Signs"**. Board shall be maintained to the satisfaction of the Engineer.

### **23-1.08I            ADDITIONAL CONSTRUCTION SIGNS AND CONTROLS**

In addition to the requirements of “Construction Area Traffic Control Devices,” of the Caltrans Standard Specifications and these Contract Specifications, the following traffic controls will be required. “Road Work Ahead” (type W20-1) signs shall be placed on all public road approaches to the project site before any work commences on the project. W8-7 “Loose Gravel” and W13-1P (15 MPH), signs shall be used on all streets during surface removal activities. All construction signs shall be reflective. These signs shall be maintained for the duration of the construction and shall be removed once construction is complete.

The Contractor shall provide temporary stands or posts on which to place the required signs, as approved by the Engineer.

“LOOSE GRAVEL”, (W8-7), signs shall be furnished and placed adjacent to both sides of the traveled way on each block where surface removal activities occur. Additional signs shall be placed at a maximum of 500-foot intervals and at public roads entering the construction area as directed by the Engineer. The W13-1P signs shall be maintained in place at each location until final sweeping of the surface at that location is performed. W13-1P signs shall conform to the requirements for construction area signs in Section 12, “Temporary Traffic Control,” of the Caltrans Standard Specifications.

### **23-1.08J            PUBLIC PARKING**

**At locations where parking will be prohibited, the Contractor shall place “No parking” signs on Type II barricades at least three (3) working days prior to parking restrictions and shall be setup as approved by the Engineer.** A minimum of one barricade shall be placed between driveways and the spacing of barricades shall not exceed 50 feet. The “No parking” signs shall clearly show the dates and times of proposed parking restrictions. Parking restriction times shall conform to the lane closure hours listed in Section 23-1.08, “Traffic Control System” of these Contract Specifications. Contractor shall provide notices to residences with alternate parking locations marked on a map with the Resident Notification letters in Section 23-1.11A.

### **23-1.08K            MEASUREMENT AND PAYMENT**

The contract **Lump Sum** price paid for “**Traffic Control System and Construction Area Signs**” shall be considered as full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals needed to perform all traffic control work, for all phases of the work performed by the Contractor or the Contractor’s “subcontractors” including, but not limited to, all signs, barricades, arrow boards, steel plates, traffic control plan, detour plan, maintaining traffic, lane closures, detours, flagmen and all other traffic control devices; and all other work as shown on the Caltrans Standard Plans, as specified in the Caltrans Standard Specifications, these Contract Specifications and as directed by the Engineer and no additional compensation shall be allowed therefor. There shall be no additional compensation for traffic control due to an increase in the quantities shown on the bid proposal for pay items within the project limits.

Traffic Control required by work which is classified as extra work, as provided in Section 5.03, "Changes", of the General Conditions, will be paid for as part of said extra work.

The full costs of furnishing all flaggers under the provisions of this section and Sections 7-1.04, and

Section 12 of the Caltrans Standard Specifications will be borne by the Contractor and shall be considered as included in the price paid for “Traffic Control System” and no additional compensation shall be allowed therefor.

The contract unit price paid per **Each throughout the project for “Changeable Message Signs”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in providing and properly maintaining changeable message signs as specified in the Caltrans Standard Specifications and these Contract Specifications, and as directed by the Engineer.

### **23-1.09      TEMPORARY PAVEMENT DELINEATION**

#### **23-1.09A      GENERAL**

Temporary pavement delineation shall be furnished, placed, maintained and removed in accordance with the provisions in Section 12-6, “Temporary Pavement Delineation,” of the Caltrans Standard Specifications and these Contract Specifications. Nothing in these Contract Specifications shall be construed as to reduce the minimum standards specified in the “Manual of Uniform Traffic Control Devices” and the California Supplement or as relieving the Contractor from his/her responsibility as provided in Section 7-1.04, “Public Safety”, of the Caltrans Standard Specifications.

Whenever the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place prior to opening the traveled way to public traffic.

Temporary pavement delineation placed on the surface seal shall be temporary raised markers for lane lines and paint with reflective glass beads for markings. Temporary permanent delineation placed on the final pavement surface shall be temporary tape and temporary raised markers. The Contractor shall install all temporary pavement delineation including lane lines, shoulder lines, and all other delineation at the same layout, size and width and following the same or equivalent striping patterns or details as the obliterated pavement delineation it is replacing or as the planned permanent striping shown on the Plans. Failure by the Contractor to satisfy this requirement shall be sufficient cause for the City to have the required temporary delineation installed and all costs for this work, including a twenty-five percent (25%) administrative markup, will be deducted from any progress payments due to the Contractor. The intent of this requirement is to have a complete temporary pavement delineation installation in place on any traveled way open to public traffic.

All work necessary, including any required lines or marks, to establish the alignment of temporary pavement delineation shall be performed by the Contractor. Surfaces to receive temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation.

Temporary pavement delineation that is damaged from any cause during the progress of work shall be immediately repaired or replaced by the Contractor at his/her own expense.

### **23-1.09B      TEMPORARY PAVEMENT DELINIATION – TAPE AND MARKERS**

All temporary pavement delineation to be placed on the top layer of new pavement or on existing pavements to remain, shall be temporary raised reflective pavement markers and temporary removable traffic tape. Painted striping or markings in place of temporary markers and tape is not allowed. The temporary markers and tape shall be in place prior to opening the traveled way to the public.

The minimum lane line and centerline delineation to be provided shall be temporary reflective raised pavement markers placed at longitudinal intervals of not more than twenty (20) feet. Existing double yellow stripes shall be delineated with two (2) reflective raised pavement markers placed side-by-side at not more than twenty (20) foot intervals. The temporary reflective raised pavement 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 temporary pavement markers listed for short term day/night use (14 calendar days or less) or long term day/night use (6 months or less) in the latest listing of “*Prequalified and Tested Signing and Delineation Materials*” maintained by Caltrans.

Temporary pavement markers for long term day/night use (6 months or less)

- Vega Molded Products “Temporary Road Marker” (3” x 4”)

Temporary pavement markers for short term day/night use (14 calendar days or less)

- Apex Universal, Model 932
- Bunzl Extrusion, Model T.O.M., T.R.P.M. and “HH” (High Heat)
- Hi-Way Safety, Inc., Model 1280/1281
- Glowlite, Inc., Model 932

Removable type traffic tape and pavement marking tape shall be one of the temporary removable construction grade types listed in the latest listing of “*Prequalified and Tested Signing and Delineation Materials*” maintained by Caltrans.

Temporary removable striping and pavement marking tape

- Advanced Traffic Marking, ATM Series 200
- Brite-Line, Series 100
- Garlock Rubber Technologies, Series 2000
- P.B. Laminations, Aztec, Grade 102
- Swarco Industries, “Director-2”
- Trelleborg Industries, R140 Series
- 3M, Series 620 “CR”, and Series A750
- 3M, Series A145, Removable Black Line Mask  
(Black Tape: for use only on Asphalt Concrete Surfaces)
- Advanced Traffic Marking Black “Hide-A-Line”  
(Black Tape: for use only on Asphalt Concrete Surfaces)
- Brite-Line “BTR” Black Removable Tape  
(Black Tape: for use only on Asphalt Concrete Surfaces)
- Trelleborg Industries, RB-140  
(Black Tape: for use only on Asphalt Concrete Surfaces)

Removable type traffic tape shall be applied in accordance with the manufacturer's installation instructions and shall be rolled slowly with a rubber tired vehicle or roller to ensure complete contact with the pavement surface. Traffic stripe tape shall be applied straight on tangent alignments and on a true arc on curved alignments. Traffic stripe tape shall not be applied, when the air or pavement temperature is less than 50°F, unless the installation procedures to be used are approved by the Engineer, prior to beginning installation of the tape.

Removable type traffic tape and temporary raised pavement markers shall be removed and disposed of by the Contractor when, as determined by the Engineer, they are no longer required for the direction of public traffic, or the permanent pavement markers and striping have been installed.

### **23-1.09C MEASUREMENT AND PAYMENT**

No separate payment shall be made for conforming to the provisions of this section. Full compensation for conforming to all the provisions of this section shall be considered as included in the prices paid for related work and no additional compensation shall be allowed therefor.

### **23-1.10 CONSTRUCTION LAYOUT**

The work in this section includes the furnishing of all labor, equipment, materials, tools, and incidentals, and performing all operations in connection with construction survey and layout, and all work necessary to provide for proper layout of the work, and detail necessary to define the construction layout and staking requirements of this project.

Basic dimensions are shown or described on the plans and/or specifications. The Contractor shall be responsible to set control points/lines at the work site, and provide and establish the construction staking for all improvement work shown on the Plans. It shall be the Contractor's responsibility to layout the work from the basic horizontal and vertical control points and dimensions shown on the plans.

Full compensation for conforming to these requirements shall be included in the various bid items and no additional compensation will be allowed therefor.

**Contractor is responsible to work with the Engineer to establish the final design/layout of curb ramps. Caltrans Detail A88A is provided on the plans to relay minimum design requirements to the contractor. Payment for curb ramp layout shall be included in the unit price of the curb ramp installation.**

### **23-1.11 LEGAL RELATIONS AND RESPONSIBILITIES**

The provisions of Section 7, "Legal Relations and Responsibilities to the Public", of the General Provisions of the Caltrans Standard Specifications shall apply in their entirety and as supplemented herein, and in other related sections of these Contract Specifications.

### **23-1.11A RESIDENT NOTIFICATIONS**

At least two (2) weeks in advance of the start of work the Contractor shall provide the Engineer with the



dates for AC and AB excavation, grinding, sealing, base repair, and overlay work for each of the streets listed on the Project Plans. Contractor shall mail the notice to all residents and businesses within the affected limits of work and the mailing list shall be submitted to the Engineer for review. Resident notification letters shall include a map of alternative parking locations.

Advance notice signs for the proposed work shall be furnished and installed on barricades by the Contractor at least five (5) calendar days prior to any construction activity, advising residents and businesses of the scheduled dates for the proposed work.

The Contractor shall notify all businesses/residents with a notice placed on each front door at least 24 hours prior to any pavement planing/removal work or any resurfacing work. The door hanger notices shall include type of work, the time and dates of the scheduled work, and request that cars be parked out of the roadway by 7:00 a.m. to avoid a towing charge. The Contractor shall provide separate notifications for the pavement planing/removal work and again for the resurfacing work. A sample door hanger notice shall be submitted for the approval of the Engineer.

No Parking Signs mounted on barricades must also be placed along each roadway at **least 72 hours in advance** in order for parking restrictions to be enforced by the Police Department. No Parking Signs may be purchased from the City, or the Contractor may elect to provide their own No Parking Signs. If the Contractor provides their own signs, the intended sign must be approved by the Engineer prior to its use.

Businesses/residents should be advised as soon as possible of any changes in proposed work schedules to minimize any unnecessary inconvenience and/or moving of parked cars.

### **23-1.11B            EMERGENCY AND ALL OTHER NOTIFICATIONS**

The Contractor shall notify all emergency, public transportation, post office, garbage/recycle collection, and school bus services by fax of the pending work, at least one (1) week prior to the day the Contractor's forces move on the project site, unless otherwise approved in writing by the Engineer.

In addition the Contractor shall notify all emergency, public transportation, post office, garbage/recycle collection, and school bus services by fax of all work requiring road closures a minimum of two (2) working days in advance of the work occurring. In the event the work is rescheduled the Contractor shall re-notify aforementioned agencies a minimum of forty-eight (48) hours in advance of the work occurring.

Contractor shall provide the Engineer with written confirmation of notices being sent prior to commencing the work covered by the notice.

- Santa Cruz Police Department
- City of Santa Cruz Fire Department
- Santa Cruz Metro
- Santa Cruz City Schools Transportation
- Santa Cruz City School District

- Santa Cruz Resource Recovery Services
- United States Post Office
- Santa Cruz County Department of Public Works
- Roaring Camp Railroads

### **23-1.11C COORDINATION WITH WASTE/RECYCLING OPERATIONS**

The Contractor shall not impair or impede waste hauler and recycling operations scheduled to be conducted within the project area. It is the Contractor's responsibility to determine which waste hauler and recycling operators are scheduled to operate within the project area and to develop a project schedule that will not impair or impede the waste hauler or recycling operations. The project schedule shall indicate the days when waste and recycling hauling occurs.

The Contractor shall confirm the schedule with the waste and recycling prior to commencing his/her operations.

### **23-1.11D PERMITS AND LICENSES**

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.

By execution of this construction contract, Contractor has a permit to do work on City Property as specified in the Project Plans and Contract Specifications. The executed contract shall serve as the encroachment permit with the City.

The Contractor and his/her subcontractors must possess all necessary federal, state and other permits and licenses necessary for performing the work specified in this contract.

The Contractor shall install and maintain appropriate erosion control measures and pollution prevention measures. Contractor is required to comply with the City of Santa Cruz Storm Water Management Plan (a copy may be obtained at the Engineering Division or <http://www.cityofsantacruz.com/departments/public-works/stormwater/storm-water-management-plan>) and State Water Resources Control Board (SWRCB) construction permitting requirements, contained in the Caltrans Water Pollution Control Program (WPCP) Preparation Manual, 2011 (<http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>). A copy of compliance shall be provided to the City before work can begin. Additional SWRCB information can be found at <http://www.swrcb.ca.gov/>.

The Contractor shall protect, install and maintain appropriate erosion control measures to all storm drain inlets in the vicinity. Contractor shall install only approved sediment control devices, a submittal of such is required. Bags for berms shall be woven polypropylene, polyethylene or polyamide fabric. All accumulated sediment shall be removed on a periodic basis.

A National Pollutant Discharge Elimination System (NPDES) permit for construction may be required. The Contractor is required to comply with the Regional Water Quality Control Board (RWQCB) Construction General Permit requirements. The Contractor is required to comply with existing rules and

regulations for any undesirable discharges to storm drain facilities. Additional RWQCB information can be found at <http://www.waterboards.ca.gov/centralcoast/>. The Contractor shall forward a copy of Notice of Intent (NOI), if applicable, to the City.

The Contractor shall comply with all other government regulations and permits that affect any portions of their work.

Compensation for complying with this specification is considered as included in the various bid items and no additional compensation will be allowed.

### **23-1.11E CONTRACTORS LICENSING LAW**

Contractor's License Classification: In accordance with the provisions of California Public Contract Code Section 3300, the City has determined that the Contractor shall possess a valid Class "A" Contractor License at the time that the contract is awarded. Failure to possess the specified license shall render the bid as non-responsive and shall act as a bar to award of the contract to any bidder not possessing said license at the time of award.

### **23-1.11F PAYMENT**

No separate payment will be made for conforming to the provisions of this section. Full compensation for conforming to all the provisions of this section shall be considered as included in the prices paid for various contract items of work and no additional compensation will be allowed therefor.

### **23-1.12 CLEARING, GRUBBING AND TREE TRIMMING**

The provisions of Section 17-2, "Clearing and Grubbing" of the Caltrans Standard Specifications shall apply in their entirety except as modified or supplemented herein.

**All vegetation removal included in this contract shall be done mechanically or by hand, in no circumstance shall herbicides be allowed.**

Clearing and Grubbing shall be performed as required to construct the new improvements. Clearing and grubbing shall consist of (but not limited to) removing and disposing of vegetation and deleterious materials such as trees, roots, brush, grass, weeds, rocks, and asphalt pavement and all other objectionable material along the edge of pavement as required to construct the improvements, use of hot lance to facilitate cleaning operations, **removal of pavement markers, striping and markings**, and removal of asphalt concrete grindings as necessary to construct the improvements, as shown on the Plans and as specified in these Contract Specifications.

Prior to starting clearing and grubbing operations, the Contractor shall inform the Engineer of the intended limits of his/her clearing and grubbing operations and shall obtain the Engineer's approval on such proposed limits. The Contractor shall not clear and grub any area not essential to their construction obligations. The Contractor will not be allowed to work beyond the limits of the public right of way except for cleanup work, unless authorized or directed by the Engineer. The right of way is located approximately three (3) to five (5) feet behind back of walk, curb, or travel way, whichever is furthest

from edge of pavement. Right of way limits shall be discussed during the pre-construction meeting and at the regular scheduled construction meetings.

The Contractor shall protect from injury or damage resulting from his/her operations all vegetation, facilities, or improvements which are to remain. If the Contractor damages an existing improvement which is to remain, he/she shall restore such improvement to as good a condition as existed before the damage or shall replace the improvement, when restoration is not acceptable, with an improvement of at least equal quality. Cost of such restorations or replacements shall be at the Contractor's expense.

The Contractor shall perform daily cleanup operations to keep the job site and adjacent properties free from accumulation of waste materials and debris resulting from the Contractor's operations. The Contractor shall deposit waste material in on-site containers or at a legal disposal area away from the site at the end of each working day.

Nothing herein shall be construed as relieving the Contractor of his/her responsibility for final cleanup of the site as provided in Section 4-1.13 "Cleanup", of the Caltrans Standard Specifications.

Surplus excavated material shall become the property of the Contractor shall be disposed of outside the highway right-of-way as required in Sections 14 and 19 of the Caltrans Standard Specifications within two (2) calendar days of excavation. The depth of excavation shall be to the lines and grades shown on the Plans or as directed by the Engineer.

The cleared areas shall be approved by the Engineer prior to performing surface and base removal or overlay work.

Not all areas requiring clearing are specifically noted on the Plans; however, clearing shall be sufficient to allow unobstructed access for all Contractor's equipment and clear view of all street signs. **Vegetation, debris and trash shall be cleared to a point six (6) foot behind the existing face of curb or edge of pavement and to achieve a vertical clearance of 14 feet-6 inches within the work limits. See additional provisions regarding tree trimming below.** All existing vegetation, outside the areas to be cleared and grubbed, shall be protected from injury or damage resulting from the Contractor's operations.

### **23-1.12A TREE AND BRUSH PRUNING AND TREE PROTECTION**

This project includes work on streets with mature trees adjacent to the work area. In some locations, the tree canopy may extend over the roadway or work area. It is the responsibility of the Contractor to conduct his/her operations around said tree canopy such that the work is accomplished without damage to trees. The Contractor shall inspect and determine required clearance for all equipment and vehicles and perform pruning as necessary with the approval of the Engineer prior to the start of work. The Contractor may, with the Engineer's approval, trim trees in order to better facilitate his/her construction operations. No trimming of trees is allowed without specific written permission from the Engineer AND/OR THE City's Urban Forester. Any trimming that may be required must be approved at least two (2) working days in advance.

When tree trimming is permitted by the Engineer for the Contractor's convenience, tree trimming shall be performed under the direction of a certified arborist and in accordance with *Pruning Standards* published by the Western Chapter of the International Society of Arboriculture. The Certified Arborist

shall be provided by the Contractor and shall be approved in advance by the Engineer. All trimming shall be done in the presence of the Engineer.

Prior to the start of work, the Contractor shall determine if existing tree branches need to be trimmed to allow for the work. The Contractor shall first obtain the Engineer's approval before commencing with the trimming operations. When branches are to be trimmed, they shall be cut off close to the boles in a workmanlike manner. The Contractor shall remove other tree branches under the direction of the Engineer, in such a manner that the tree will present a balanced appearance.

The roots of the removed trees shall also be completely removed or ground. All resulting tree, bush, and other excavation material shall be disposed of outside the street right-of way as required in Section 16 of the Caltrans Standard Specifications.

No tree removal is anticipated for this project. However, only those trees that are specifically designated by the Engineer for removal shall be removed. All other remaining trees shall be protected against injury from construction activities. The Contractor shall take whatever measures are necessary, such as trimming, erecting barricades and performing work by hand, to protect those trees not designated to be removed. Construction activities such as stockpiling materials or scarifying the ground surface shall not be allowed within the base and drip line of a protected tree. If required by the Contract Documents, work within the base and drip line of a protected tree shall only be performed by use of hand labor or using "air spade excavation" in the presence of the Contractor's arborist or as directed by the Engineer.

### **23-1.12B PROTECTION OF EXISTING TREES**

Contractor shall make all personnel on site aware of the tree protection requirements. Failure of any worker to observe these requirements or to operate equipment with sufficient care to avoid damaging trees is grounds for removal of said worker from the project by the Engineer. Trimming of any root greater than or equal to 1" diameter must be approved by the City Arborist. All trimmed roots must be clean cut unless otherwise decided by the City Arborist.

The Contractor shall use extreme care when excavation operations occur in the proximity of trees. At no time shall the Contractor strike trees with excavation equipment. Trees less than six (6) inches in diameter that are damaged by the Contractor shall be mitigated by the replacement of said tree in kind with regards to size and species. Trees greater than six (6) inches in diameter shall be examined by a Certified Arborist and a report provided to the Engineer indicating measures that can be taken to mitigate the damage to the tree at the Contractor's expense. In the event the tree must be removed the Contractor shall replace the tree at a three (3) to one (1) ratio. The trees shall be planted in locations determined by the Engineer. All associated reports, removals and mitigation work shall be performed at no cost to the City.

### **23-1.12C MEASUREMENT AND PAYMENT**

No separate payment will be made for conforming to the provisions of this section. Full compensation for conforming to all other provisions of this section including the cost for the Contractor arborist and any necessary or required reports produced by the Contractor's arborist shall be considered as included in the prices paid for various contract items of work and no additional compensation shall be allowed therefor.

**23-1.13 DUST CONTROL**

The Contractor's attention is directed to Section 14-9, "Air Quality," and Section 14-11.04 "Dust Control," of the Caltrans Standard Specifications. The Contractor shall be responsible for dust control within the project limits. The Contractor shall diligently control dust resulting from his/her operations and from public traffic passing through the work area by the application of water and/or dust palliative. Dust palliative shall conform to Section 18, "Dust Palliative," of the Caltrans Standard Specifications.

The Contractor shall use equipment that will generate the least amount of dust.

The Contractor shall provide dust control at all times including Saturdays, Sundays, and holidays as ordered by the Engineer. Whenever the Contractor, in the opinion of the Engineer, shall appear negligent in controlling dust, the Engineer may direct attention to the existence of a dust hazard and instruct the Contractor to immediately alleviate the dust hazard. The Contractor shall be responsible for any damage caused by dust generated as a result of his/her operations.

Full compensation for complying with the above provisions shall be considered as included in the contract prices paid for the various items of work and no separate payment will be made therefor.

**23-1.13A PAYMENT**

No separate payment shall be made for conforming to the provisions of this section. Full compensation for conforming to all the provisions of this section shall be considered as included in the prices paid for various contract items of work and no additional compensation shall be allowed therefor.

**23-1.14 SOUND CONTROL**

Sound control shall conform to the provisions in Section 14-8.02, "Noise Control", of the Caltrans Specifications and these Contract Specifications. No construction is permitted outside the hours stated in Section 23-1.08 of these Contract Specifications, or on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Exception to this provision shall be "Emergency construction and repair that is necessary for protection of life and property" and "Operation to construct and maintain facilities within the public right-of-way as deemed necessary by the Engineer".

No engines of construction equipment shall be started prior to 8:00 A.M. unless specifically permitted by the Engineer in writing. All equipment on the job or related to the job, including but not limited to trucks, transit mixers or transient equipment that may or may not be owned by the Contractor shall be properly maintained. The use of loud sound signals shall be avoided in favor of light warnings except those required by safety laws or regulations for the protection of personnel. The Director of Public Works may determine that the project has the potential to disrupt traffic and that this disruption could be alleviated by authorizing construction work to commence at 7:00 a.m. or that due to time constraints on project completion it is necessary to allow the contractor to begin work at 7:00 a.m.

Full compensation for conforming to the requirements of this section shall be considered as included in the prices paid for the various contract items of work and no additional compensation will be allowed therefor.

### **23-1.15 EXISTING STREET FACILITIES**

The work performed in connection with various existing highway facilities shall conform to the provisions of Section 5.67 "Coordination with Utilities," Section 5.27 "Laws to be Observed," and Section 5.40 "Preservation of Property" of the General Conditions; and Section 17-2 "Clearing and Grubbing," Section 15 "Existing Facilities," of the Caltrans Standard Specifications, these Contract Specifications, and as directed by the Engineer.

The Contractor shall fully document pre-construction conditions at all points around the work area. This documentation shall consist of notes, still photographs, and video, a digital copy of such data shall be submitted to the Engineer. Special effort shall be made to document the existing conditions at all buildings and private improvements not to be disturbed.

The Contractor shall reference, preserve and protect all manholes, valve covers, survey monuments and recorded survey points including but not limited to railroad spikes, iron pipes, and metal pins prior to construction. Upon completion of the work, all manholes, survey monuments and water valve covers shall be thoroughly cleaned of any construction debris resulting from the Contractor's operations.

**Please note** that if any city facilities have not been cleaned off after pavement work due to being incorrectly marked, or for any other reason, and the facilities are subsequently 'lost,' the contractor shall be responsible for the cost of city crews to locate and clean off said facilities.

The Contractor shall cooperate with and allow representatives and/or contractors of the various agencies and companies that are involved with the work or impacted by the work, to have access to their facilities. This may include access to allow for maintenance and relocation of services and facilities within the project site. Specifically, the Contractor shall be responsible for coordinating all utility relocation work for the project, including but not limited to, the adjustment of utility covers. Any delays caused by these relocations and/or adjustments shall not count towards the Contractors' "working days", unless a written Change Order has been approved by the Engineer.

**Please note that all existing pavement markers, thermoplastic stripes, and markings within the project limits shall be completely removed immediately prior to milling, CIR, or overlaying the roadway. Compensation for this work shall be considered as included in the prices paid for the various contract items of work.**

Full compensation for preservation of property and Existing Street Facilities and as specified in this Section, shall be considered as included in the prices paid for the various contract items of work, for the various schedules of work, complete and in place, and no additional compensation will be allowed therefor.

**23-1.15A STREET SWEEPING**

**At the end of every work day, construction debris of any kind shall be swept from all surfaces within the areas affected by the Contractor’s operations.**

**23-1.15B REFERENCING EXISTING FACILITIES**

Work by the Contractor shall include locating existing facilities and referencing, and setting sufficient marks prior to any excavation to enable their subsequent retrieval by the Contractor or utility company. The Contractor shall reference and set marks for all survey points, storm drain manholes, sewer manholes, rodding inlets, and cleanouts, water valves, Pacific Gas and Electric (PG&E) gas valves, and telecommunication facilities. The Contractor shall submit a plan to the Engineer at least forty-eight (48) hours in advance of pavement excavation, removal, or paving, showing all reference points and offset distances set for each storm drain manhole, and utility facilities.

All reference points made by the Contractor for storm drain, sanitary sewer, water, gas, electrical, and telecommunication facilities shall be protected and remain undisturbed until project completion unless utility adjustment is indicated in the Plans, Contract Specifications, and Standard Specifications.

**23-1.15C MONUMENTS AND PROPERTY CORNERS**

Existing survey monuments shall be preserved, referenced or replaced pursuant to the requirements of State of California Streets and Highways Code Sections 732.5, 1492.5, and 1810.5 and Business and Professions Code Section 8771 and the following:

- The Contractor shall not disturb permanent survey monument or benchmark. The Contractor shall bear the expense of replacing any monument or benchmark that is disturbed without permission. Replacement shall be done only with the direction of and in the presence of the Engineer and a licensed land surveyor.
- Survey monuments shall be adjusted and replaced per Section 23-1.16 of these specifications.

**23-1.15D MEASUREMENT AND PAYMENT**

Full compensation for locating and marking utilities, reference survey monuments and survey points, and the preparation of utility reference point plans shall be considered as included in the contract price paid for various contract items of work and no additional compensation shall be allowed therefor.

**23-1.16 UTILITY SURFACE FACILITY ADJUSTMENT**

These items shall include all work necessary to adjust frames and covers of existing valve boxes, monument covers, or other facilities to grade in conformance with the provisions in Section 15-2.10, “Adjust,” of the Standard Specifications.

Where encountered, existing covers that are currently not at grade shall be adjusted to the roadway grades as for the various stages of work.



**This work includes replacing valve, monitoring well, and monument boxes to set these features to street grade. Temporarily fill utility depressions with HMA (Type A) before opening the lane to public traffic.** Attention is directed to the provisions in Section 15, "Existing Facilities" of the Standard Specifications.

The location of all utility and City-owned structures that are covered over by the new pavement shall be legibly marked with paint on the new pavement and on the adjacent curb and/or sidewalk. In addition, the Contractor must make a list of each utility cover that is paved over and not raised to grade during the paving job (e.g. PG&E utility covers) and must notify the utility in writing of the location of said utility cover and the date that it was paved over. A copy of this written notification must be sent to the City. If a utility cover is paved over and not raised to grade during the paving job, the pavement must be at least 1-1/2 inches thick over the utility cover and no depression in the roadway surface can be left over the utility cover. If 1-1/2 inches of pavement cannot be laid over a recessed utility cover, then the asphalt concrete shall be feathered to the grade of the utility cover and arrangements with the utility must be made to raise it to grade.

Existing valve covers, monitoring well boxes, meter boxes, monument covers, subsurface vaults, and other items listed in these Contract Specifications or shown on the proposal, or as directed by the Engineer, shall be replaced and/or adjusted to final grade. The final pavement grade shall be estimated at one (1) inch above existing grade for streets to receive a scrub seal, with double SAMI seal, and slurry seal. The final adjustments, which shall not be performed until all of the pavement surfacing has been placed, shall conform to the provisions in Section 71-5.013B "Frames, covers, grates and Manholes" of the State Standard Specifications with the following modifications and as amended to include the adjustment of the facilities that are not owned or maintained by the City.

Where frames and covers cannot be lowered flush after cold planning or before replacing asphalt surfacing, frames and covers shall be protected utilizing the following alternatives:

- a) ramp section (cut-back) around "iron" and paint white
- b) place lighted Portable Barricade over iron

All manhole and other utility covers encountered in the area to be resurfaced shall be carefully referenced out using spray chalk or similar non-permanent marking media prior to the surface seals by the Contractor. Using the reference markings, the locations of the covers shall be painted on the pavement surface immediately after paving to assure they can be found in an emergency.

### **23-1.16A WORK BY UTILITY COMPANIES**

Utility companies reserve the right to perform the work using their own forces after the contract is awarded. The Contractor shall notify the utility agencies prior to start of construction for any coordination effort and to determine if the utility owners will perform the work using their own forces.

### **23-1.16B CONSTRUCTION METHODS**

Covers shall be adjusted so that there will not be any perceptible difference in elevation between the finished pavement surface and the cover. The Engineer shall be the sole judge of the acceptable degree of smoothness of passage of a motor vehicle over the adjusted covers.

**Portland cement concrete used for adjusting covers shall be Class A, 6 sack minor concrete** conforming to the provisions in Standard Specification Section 51, "Concrete Structures," and shall be 1 inch maximum grading specified in Section 90-1.02C(4)(d), "Combined Aggregate Grading" of the State Standard Specifications .

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

Salvaged materials which are undamaged may be reinstalled as directed by the Engineer. Structures built of cast-in-place or precast concrete and brick or vitrified clay pipe parts shall be replaced in kind, unless otherwise permitted by the owners of the facilities.

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

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

### **23-1.16C      MANHOLES**

Manholes shall be adjusted to grade per City Standard Details, as shown on the Plans, and as directed by the Engineer.

### **23-1.16D      ADJUST MONUMENT**

The Contractor shall be responsible for the preservation of existing survey monuments, benchmarks, reference points, and stakes. The Contractor shall adjust City Monuments and reference marks removed during the performance of the work. Whenever a City Monument is disturbed or removed during the performance of the work, the Contractor shall replace the monument in accordance with the Plans, as applicable.

Monument adjustment must be done in a neat, workman-like manner. Pavement cuts shall be accurate, with vertical cuts to exact dimensions as shown on the Standard Details and the Plans. Each monument shall be constructed such that the center of the dome brass marker is set within 0.04 foot of the referenced position. Monument frames and covers shall be placed at the proper finished grade and as detailed by City Standard Plan, "Survey Monument." Existing monument frames and covers shall be salvaged by the Contractor and delivered to the City surveyor or Project Manager.

In the event that any non-referenced monuments become in danger of being disturbed due to construction, the Contractor shall cease the threatening activity and notify the Project Manager and City surveyor immediately.

Should any monument not designated for adjustment sustain damage during construction, the Contractor shall bear the expense for rebuilding it as well as for the survey work the City survey crew or its survey consultant must perform in the process. In any instance where the City deems a damaged monument to be irreplaceable, the contractor shall be fined \$20,000 per monument.

Measurement for payment will be for Each (EA) monument installed. Work under this bid item shall include all labor, material, and incidentals necessary to adjust the monument complete in place. The Contractor shall be paid on the basis of work completed as noted on the monthly submission of progress payment and after the delivery of the discarded frames and covers to the City surveyor.

**23-1.16E MEASUREMENT AND PAYMENT**

The contract unit price paid per **Each** for “**Adjust Water Valve Box to Grade,**” and “**Adjust Manhole Frame & Cover to Grade**” shall include full compensation for notifying the respective utility companies, furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in adjusting covers to grade, and constructing concrete collar, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Contract Specifications, and as directed by the Engineer.

Full compensation for protecting any utility in place shall be considered as included in the contract prices for the various items of work and no additional compensation will be made therefor.

**23-1.17 BLANK**

**23-1.18 OVER-EXCAVATION (Revocable Item)**

If the Contractor is unable to achieve the specified compaction below pavement base repairs, pavement areas, or concrete construction areas, the material will be deemed as unsuitable material and the Contractor shall notify the Engineer. The Engineer will make a determination as to whether over-excavation is necessary.

When encountered during construction of pavement surface reconstruction, base repairs, or concrete construction, **unsuitable material shall be over-excavated to a depth of six (6) inches and replaced with Aggregate Base.** Prior to replacing the void with Aggregate Base, the Contractor shall moisture condition and compact the new sub-grade to 95% relative compaction (ASTM D1557) and subsequently install Filter Fabric. One (1) compaction curve of subgrade material shall be developed for each street section. The Aggregate Base shall then be moisture conditioned, placed in lifts not to exceed six (6) inches and compacted to 95% relative compaction.

Over-excavation of unsuitable material may consist of HMA, base material and native material. The material to be excavated may contain reinforcing fabric and/or other typical constituents of asphalt concrete by-products and/or any other naturally occurred deleterious substances encountered with roadway construction. The City makes no guarantee that the material excavated will be reusable, recyclable or disposable to any disposal site designated by the Contractor. No additional compensation shall be allowed to the Contractor if the over-excavated material is not reusable, recyclable, or is required to be disposed of at a Class II disposal facility. Any testing, if required by the disposal site, shall be arranged and paid for by the Contractor.

This work shall consist of furnishing and placing Class 2 Aggregate Base where required by the related work (e.g. curb and gutter, pavement reconstruction, pavement surface reconstruction) and specified in these Contract Specifications.

### **23-1.18A MATERIALS**

Aggregate Base shall be Class 2 Aggregate Base conforming to Section 23-1.25, “Aggregate Base”, of these Contract Specifications.

### **23-1.18B MEASUREMENT AND PAYMENT**

“**Over-excavation (Revocable Item)**” will be measured by the **Cubic Yard** as determined in the field by the Engineer measuring the area and depth of over-excavation. Full compensation for all labor, materials, tools, and equipment required for fulfilling the requirements of this section shall be considered as included in the contract price paid per cubic yard for “Over-excavation (Revocable Item)” and no additional compensation shall be made therefor. This item shall include but not be limited to excavation and disposal of unsuitable material, furnishing, transportation and placement geogrid and Aggregate Base, moisture conditioning, and compaction testing to determine the relative compaction of the subgrade soil and Aggregate Base.

For estimating purposes the quantity for over-excavation listed in the bid schedule assumes that fifteen percent (15%) of the total full depth base repairs and pavement surface reconstruction areas will require over-excavation. The provisions of Section 9-1.06 of the Caltrans Standard Specifications shall not apply to this item of work. Rather, the unit price for “Over-Excavation (Revocable Item)” entered by the Contractor in the Bid Schedule shall govern regardless of the final quantity of over-excavation performed. Further, an increase or decrease of more than twenty-five percent (25%) of the estimated quantity of over-excavation shall not constitute a change in the character of the work.

### **23-1.19 FULL DEPTH BASE REPAIR (IF REQUIRED)**

#### **23-1.19A ASPHALT CONCRETE SECTIONS**

This work shall consist of the removal of existing pavement materials, and any underlying materials, to the depths specified on the Plans and in these Contract Specifications, and replacement with compacted hot mix asphalt concrete (HMA) at locations marked in the field and in these specifications and as directed by the Engineer. The base repairs included in this project are marked in the field in their approximate location and size. The minimum width of base repairs shall be four (4) feet.

**Prior to beginning any work, the Contractor shall arrange for and conduct a field review of each base repair location with the Engineer.** The Engineer and Contractor shall record the agreed upon dimensions for each base repair at each location. Base repair areas are marked and referenced in the field so that they can be easily located. The size of the base repairs shall not vary from this agreement unless specified in writing by the Engineer. Additional compensation shall not be allowed for base repairs in excess of the agreed upon size.

**HMA shall be Type A and be produced at a central mixing plant. The aggregate shall conform to the ¾-inch aggregate gradation as specified in Section 39-2.02, “Aggregate”, of the 2018 Caltrans Standard Specifications.**

**Asphalt binder to be mixed with the aggregate shall conform to the provisions of Section 92**

**“Asphalts” of the 2018 Caltrans Standard Specifications and shall be paving asphalt PG 64-10, unless otherwise directed by the Engineer.**

The base repairs areas shall be performed prior to placement of surface seal. The Contractor shall remove existing asphalt concrete pavement and any underlying materials to the depth specified on the plans either by milling or by saw-cutting with a power-driven saw to the depth specified. The depth of base repairs shall be measured from the existing pavement surface.

Existing asphalt concrete surfacing and underlying base materials removed from vehicular travel lanes during a work period shall be replaced with permanent HMA before the lane is re-opened to public traffic as designated in Section 23-1.08, “Traffic Control System,” of these Contract Specifications.

Surfacing and base materials shall be removed without damage to adjacent asphalt surfacing that is to remain in place. Damage to pavement that is to remain in place shall be repaired to a condition satisfactory to the Engineer, or the damaged pavement shall be removed and replaced with new HMA if ordered by the Engineer. Repairing or removing and replacing pavement damaged outside the limits of pavement to be replaced shall be at the Contractor’s sole expense and will not be measured nor paid for. If during any of the operations the Contractor damages a monument or manhole or other underground utility facility, the Contractor shall be responsible for the repair of those facilities including, but not limited to, replacing any monuments knocked off center point in accordance with the requirements of the Engineer. The Contractor shall return all facilities to their proper places at his/her sole expense.

For this work, refer to Section 23-1.19 for over-excavation of unsuitable materials. This shall supersede Section 19-1.03B, “Unsuitable Material,” of the State Standard Specifications.

Removed materials shall be disposed at licensed disposal facilities according to local and state laws and regulations.

The material remaining in place, after removing surfacing and, if encountered, base to the required depth, shall be graded to a plane, watered, and compacted to ninety-five percent (95%) relative compaction. One (1) compaction curve of subgrade material shall be developed for every five (5) street sections, based on relative locality of the streets. The finished surface of the remaining material shall not extend above the grade established by the Engineer.

Areas of the base material that are low as a result of over excavation shall be filled, at the Contractor’s expense, with HMA.

The thickness of the HMA shall be as indicated on the Plans. HMA shall be placed in lifts conforming to Sections 39-2.02C of the State Standard Specifications. The HMA shall be placed and compacted to ninety-one to ninety-seven percent (91% to 97%) of theoretical maximum density and shall meet the elevation of the existing pavement contour. In-place density shall be determined by test method ASTM D1557 (nuclear density gauge) to determine the theoretical maximum density. Areas inaccessible to rollers shall be compacted by use of a power compactor of the high impact, vibra-plate type, capable of attaining the same compaction as the rolled areas. The Contractor shall apply a tack coat to the vertical faces of the existing asphalt pavement and to the base material prior to placement of HMA.

Pavement repairs shall be made using two equal lifts of HMA. The second lift of HMA shall not be placed until the underlying layer is 160°F or less, unless otherwise directed by the Engineer. Failure to

meet these requirements shall be cause for rejection of the work.

The Contractor shall not perform pavement repair or skin patch operations when the weather is rainy, foggy or when the atmospheric temperature is below 50°F. It shall be the Contractor's responsibility, based on weather predictions, to schedule pavement repair and skin patch operations to avoid placing HMA in the rain or fog. If the day's operations are canceled because of predicted rain or fog, a non-working day will be allowed. HMA shall not be placed on any surface which contains ponded water or excessive moisture in the opinion of the Engineer. If paving operations are in progress and rain or fog forces a stoppage of work, loaded trucks in transit shall return to the plant and no compensation shall be allowed for unused materials.

The Contractor shall furnish and use canvas tarpaulins to cover all loads of HMA from the time that the mixture is loaded until it is discharged from the delivery vehicle. Failure to cover HMA loads shall be grounds for rejection of the load.

Batch data and load slips shall be presented to the Engineer as HMA is delivered to the project site to allow verification of materials and use. Failure to do so may result in non-payment for disputed loads.

Paint markings delineating the approximate size and location of the pavement base repair areas have been made in the field on all streets. The Contractor shall submit a request for any re-marking in writing five (5) working days in advance of beginning pavement base repair work. Actual quantities may be greater or less than the quantities shown on the bid schedule.

In areas designated for "Full Depth Base Repair", as marked in the field by the Engineer, the existing base and bituminous surfacing shall be removed by cold planing or grinding and excavating to the depth shown on the contract plans. Pavement repair areas shall be a minimum of four (4)-feet in width. Pavement removed beyond the limits designated by the Engineer shall be considered to be for the Contractor's convenience and shall be at no additional expense to the City. The excavated area shall be backfilled with asphalt concrete, compacted, and finished as specified in these Contract Specifications.

All excavations for base failure repairs and pavement repairs shall be backfilled to the existing pavement level in the same working period during which the excavation is performed, and prior to opening the full roadway to public traffic. Lane closures shall remain in full force until such time as the repair area has been finished to the existing pavement level.

If necessary, due to unforeseen occurrences, excavations shall be temporarily filled to the existing pavement level at the end of the working period, and subsequently re-excavated at the Contractor's expense. Temporarily filled excavations shall have a minimum two-inch thick asphalt concrete surface, or covered with a steel trench plate held in place with temporary HMA ramps not less than ten (10) inches long all along the plate edges on all sides.

The finished pavement surface shall be smooth and free of cracks, shoving, displacement, and segregation of coarse and fine materials. Paving shall be to a clean neat joint with existing grade. Paving with evidence of poor workmanship such as rock pockets, ripples, voids, segregation, or out of tolerance as determined by the Engineer or defined by contract specifications, may be removed.

**23-1.20 PORTLAND CEMENT CONCRETE (PCC) BUS PAD (REVOCABLE ITEM)**

The material remaining in place, after removing surfacing and, if encountered, base to the required depth, shall be graded to a plane 6-inches below surrounding pavement surface, watered, and compacted to ninety-five percent (95%) relative compaction. One (1) compaction curve of subgrade material shall be developed for every five (5) street sections, based on relative locality of the streets. The finished surface of the remaining material shall not extend above the grade established by the Engineer. Any additional material required shall conform to Section 23-25 Aggregate Base of these Contract Specifications.

**If there is PCC adjacent to bus pad location, the new concrete sections to be replaced shall be dowelled into the surrounding concrete with #5 bars placed every 18-inches.** The dowels will be secured in the existing concrete panels to remain and shall be inserted at the mid-point of the depth of the panels to remain, embedded to a depth of 9-inches and secured in place with an approved epoxy.

**Concrete shall be Rapid Strength Concrete (RSC), 8 sacks and have a minimum 3-day compressive strength of 3,000 psi** and shall contain not less than 705 lbs. of cementitious material per cubic yard, an average slump of 4-inches, and in general shall comply with Section 90 of the State Standard Specifications.

**23-1.20A MEASUREMENT AND PAYMENT**

The contract unit price paid per Square Yard for “**Install New PCC Bus Pad (Revocable Item)**” shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals and for doing all the work involved including, but not limited to, cold planing or grinding, excavating, loading, off hauling, disposing of materials, subgrade sampling and testing, subgrade preparation and compaction, asphalt emulsion, and furnishing, placing, spreading, and compacting the HMA to the specified depth (or placing concrete) and all other work as shown on the Plans, as specified in the Caltrans Standard Specifications and these Contract Specifications, and as directed by the Engineer and no additional compensation shall be allowed therefor.

**23-1.21 BLANK**

**23-1.22 SLURRY SEAL**

The provisions of Section 37, “Bituminous Seals,” of the Caltrans Standard Specifications shall apply in their entirety except as modified or supplemented herein.

Slurry seal shall consist of mixing a polymer modified cationic quickset emulsion, aggregate, mineral filler, set-control additives, and water, and spreading the mixture on a pavement surface where shown on the plans, in conformance with the provisions in these special provisions, and as directed by the Engineer.

**MATERIAL**

The material for slurry seal shall conform to the following requirements:

**Emulsion**

The asphalt emulsion shall be a polymer modified cationic emulsion (PMCQS-1h) conforming to the requirements of Section 94, “Asphaltic Emulsions”, of the Standard Specification and these Special Provisions. Latex emulsified asphalt shall be an accelerated curing, quick traffic, and quick cure (QT-QC) type, shall be homogenous and show no separation after thorough mixing, and shall break and set on the aggregate within 5 minutes and be ready for cross traffic within 15 to 45 minutes. The polymer shall be milled or blended into the asphalt or blended into the emulsifier solution prior to the emulsification process. Polymer solids must be a minimum of 3.5% by weight of the emulsion’s residual asphalt. Provide a certificate of compliance certifying the amount of polymer.

The PMCQS-1h emulsion shall conform to the following requirements when tested in conformance with the following test methods:

<b>Polymer Modified, Cationic Quickset Emulsion</b>		
Specification Designation	Test Method	Requirement
Viscosity SSF @ 77°F (25°C)	AASHTO T 59	15-90 Seconds
Sieve, max.	AASHTO T 59	0.30 Percent
Settlement, 5 days, max.*	ASTM D 244	5 Percent
Residue by Evaporation, min.	AASHTO T59	62 Percent
*Waived if to be used within 48 hours of manufacture.		

<b>Specification Designation for Residue</b>		
Specification Designation	Test Method	Requirement
Penetration @ 77°F (25°C), 100g, 5s ,0.1mm	AASHTO T 51	40-90
Softening Point °F (°C) min.	AASHTO T 53	135 (57)
Torsional Recovery min.	California Test 332	20

**Water and Additives**

The water shall be potable and free of harmful soluble salts or reactive chemicals and other contaminants. If necessary for workability, a set-control agent may be used and must be included as part of the mix design and be compatible with the other components of the mix.

If necessary, additives may be used to accelerate or retard the break and set such as to insure that the applied slurry mix can support controlled vehicular traffic within two hours after application. The kind and amount shall be determined based on the approved mix design and field test results as required by the Engineer. Set-control additives shall not adversely affect the polymer modified slurry seal.

**Mineral Filler**



Mineral filler shall be Portland cement or hydrated lime that is free of lumps. The type of mineral filler shall be determined by the Contractor based on laboratory mix designs and will be considered part of the aggregate gradation.

**Aggregate**

The mineral aggregate used shall be of the type and grade specified for the particular use of slurry seal. Aggregate shall consist of sound, durable, crushed stone or crushed gravel and approved mineral filler. The material shall be free from vegetable matter and other deleterious substances. All aggregate shall be free of caked lumps and oversize particles.

The aggregate, prior to the addition of emulsion, shall conform to the requirements of this section. If aggregates are blended, each component aggregate shall meet the sand equivalency and abrasion resistance and shall be 100% crushed.

The percentage composition by weight of the aggregate (including mineral filler) shall conform to the following grading requirements when tested in conformance with AASHTO T 27 and AASHTO T 11:

Type II		If the results of the aggregate grading do not meet the	Type III	
Sieve Size	Percentage Passing		Sieve Size	Percentage Passing
3/8"	100		3/8"	100
No. 4	94-100		No. 4	70-90
No. 8	65-90		No. 8	45-70
No. 16	40-70		No. 16	28-50
No. 30	25-50		No. 30	19-34
No. 200	5-15		No. 200	5-15

Aggregate (excluding mineral filler)		
shall conform to the following quality requirements:		
Test	Test Method	Requirements
Sand Equivalent (Min.)	AASHTO T 176	65
Durability Index (Min.)	AASHTO T 210	60
Percentage of Crushed Particles (Min.)	ASTM D 5821	100%
Loss Angeles Rattler Loss at 500 Rev. (Max.) <sup>1</sup>	AASHTO T 96	35%
Notes: 1. Los Angeles Rattler shall be performed on the parent aggregate before crushing		

specified gradation, the slurry seal represented by the test shall be removed. However, if requested in writing by the Contractor and approved by the Engineer, the slurry seal may remain in place and the Contractor shall pay to the City \$2.00 per ton for the aggregate represented by the tests and left in place.

If the results of the Sand Equivalent test for aggregate do not meet the specified requirement, the slurry seal represented by the test shall be removed. However, if requested in writing by the Contractor and approved by the Engineer, the slurry seal may remain in place and the Contractor shall pay to the City \$2.00 per ton for the aggregate represented by the tests and left in place.

When the results of both the aggregate grading and the Sand Equivalent tests do not conform to the specified requirements, both payments to the City shall apply. The Department may deduct these amounts from any moneys due or to become due to the Contractor.

No single aggregate grading or Sand Equivalent test shall represent more than 300 tons or one day's production, whichever is smaller.

**MIX DESIGN**

At least 7 working days before the slurry seal placement commences, the Contractor shall submit for approval of the Engineer a laboratory report of tests and a proposed mix design covering the specific materials proposed for use on the project.

The percentages of each individual material proposed in the mix design shall be shown in the laboratory report. Individual materials shall be within the following limits:

<b>Residual Asphalt</b>	5.5% to 10.5% by dry weight of aggregate
<b>Mineral Filler</b>	0.5% to 3% by dry weight of aggregate
<b>Additive and Water</b>	As needed

Adjustments may be required during construction based on field conditions.

The mix design and aggregate tests shall be performed by a laboratory capable of performing the applicable International Slurry Surfacing Association (ISSA) tests. The proposed slurry seal mixture shall conform to the specified requirements when tested in conformance with the following tests:

Test	ISSA Test Method	Requirements
Wet Cohesion @ 30 Minute (Set) (Min.)  @ 60 Minute (Traffic) (Min.)	TB*139	12 kg-cm 20 kg-cm
Excess Asphalt	TB*109	540 g/m <sup>2</sup>
Wet Stripping (Min.)	TB* 114	90%
Wet Track Abrasion 6-day Soak Loss (Max.)	TB*100	810g/m <sup>2</sup>
Displacement Lateral (Max.)  Specific Gravity After 1000 Cycles of 125 lbs. (56.8 kg)(Max.)	TB*147A	5% 2.1
Classification Compatibility	TB* 144	(AAA, BAA) 11 Grade
Mix Time @ 77°F (25°C)	TB* 113	Controllable to 120
TB* = Technical Bulletin		

The laboratory that performed the tests and designed the mixture shall sign the laboratory report and shall be AMRL certified and/or participate in the AASHTO Proficiency Program. The report shall show the results of the tests on individual materials and shall compare their values to those required by these special provisions. The report shall clearly show the proportions of aggregate, mineral filler (minimum and maximum), water (minimum and maximum), set control additive, and PMCQS-1h solids content (minimum and maximum) based on the dry weight of aggregate. The laboratory shall report the quantitative effects of moisture content on the unit weight of the aggregate (bulking effect) in conformance with the requirements of ASTM Designation C 29M. Previous laboratory reports covering the same materials may be accepted provided the material test reports were completed within the previous 12 months.

The component materials used in the mix design shall be representative of the slurry seal materials proposed by the Contractor for use on the project.

Once the mix design is approved by the Engineer, no substitution of other material will be permitted unless the materials proposed for substitution are first tested and a laboratory report is submitted for the substituted design in conformance with the provisions of these special provisions. Substituted materials shall not be used until the mix design for those materials has been approved by the Engineer.

The completed mixture, after addition of water and set control agent, if used, shall be such that the slurry seal mixture has proper workability. At the expiration of the road closure hours, in conformance with the provisions in “Maintaining Traffic” of these special provisions, the slurry seal mixture shall be sufficiently cured to support unrestricted traffic.

**PROPORTIONING**

Aggregate, mineral filler, PMCQS-1h, water, and additives, including the set-control agent, if used, shall be proportioned by volume utilizing the mix design approved by the Engineer. If more than one kind of aggregate is used, the correct amount of each kind of aggregate to produce the required grading shall be proportioned separately, prior to adding the other materials of the mixture, in a manner that will result in a uniform and homogeneous blend.

The aggregate shall be proportioned using a belt feeder operated with an adjustable cut off gate. The height of the gate opening shall be determinable. The PMCQS-1h shall be proportioned by a positive displacement pump. Variable rate emulsion pumps, if used, shall be calibrated and sealed in the pump's calibrated condition in conformance with the ISSA Inspector's Manual MA-1 prior to usage.

The delivery rate of aggregate and PMCQS-1h per revolution of the aggregate feeder shall be calibrated at the appropriate gate settings for each mixer-spreader truck used on the project in conformance with ISSA Inspector's Manual MA-1 and in conformance with the provisions of these special provisions.

The aggregate belt feeder shall deliver aggregate to the pug-mill with such volumetric consistency that the deviation for any individual aggregate delivery rate check-run shall not exceed 2.0 percent of the mathematical average of 3 runs of at least three tons each. The emulsion pump shall deliver PMCQS-1h to the pug-mill with such volumetric consistency that the deviation for any individual delivery rate check-run shall be within 2.0 percent of the mathematical average of 3 runs of at least 300 gallons each. The water pump shall deliver water to the pug-mill with such volumetric consistency that the deviation for any individual delivery rate check-run shall be within 2.0 percent of the mathematical average of 3 runs of at least 300 gallons each.

The PMCQS-1h storage tank shall be located immediately before the emulsion pump and shall be equipped with a device which will automatically shut down the power to the emulsion pump and aggregate belt feeder when the PMCQS-1h level is lowered to a point where the pump suction line is exposed.

A temperature-indicating device shall be installed in the emulsion storage tank at the pump suction level. The device shall indicate the temperature of the PMCQS-1h and shall be accurate to within 10°F.

The belt delivering the aggregate to the pug-mill shall be equipped with a device to monitor the depth of aggregate being delivered to the pug-mill. The device for monitoring the depth of aggregate shall automatically shut down the power to the aggregate belt feeder whenever the depth of aggregate is less than the target depth of flow. A second device shall be located where the device will monitor the movement of the aggregate belt by detecting revolutions of the belt feeder. The devices for monitoring no flow or belt movement shall automatically shut down the power to the aggregate belt when the aggregate belt movement is interrupted. The device to detect revolutions of the belt feeder will not be required where the aggregate delivery belt is an integral part of the drive chain. To avoid erroneous shutdown by normal fluctuation, a delay of 3 seconds will be permitted between sensing and shutdown of the operation.

## **MIXING AND SPREADING EQUIPMENT**

The slurry seal shall be mixed in continuous pug-mill mixers of adequate size and power for the type of slurry seal to be placed. All indicators shall be in conformance with the provisions of these special provisions and shall be in working order prior to commencing mixing and spreading operations.

**If truck-mounted mixer-spreaders are used, the contractor shall keep at least 3 operational spreaders at the job site during placement.**

Mixer-spreader trucks shall be equipped to proportion the PMCQS-1h, water, aggregate, mineral filler, and set-control additives by volume. Rotating and reciprocating equipment on mixer-spreader trucks shall be covered with metal guards.

The mixer-spreader truck shall not be operated unless low-flow and no-flow devices and revolution counters are in good working condition and functioning and metal guards are in place. Indicators required by these special provisions shall be visible while walking alongside the mixer-spreader truck.

Aggregate feeders shall be connected directly to the drive on the emulsion pump. The drive shaft of the aggregate feeder shall be equipped with a revolution counter reading to the nearest one-tenth of a revolution.

In addition to the requirements of the fourth paragraph of Section 5-1.33, "Equipment," of the Standard Specifications, the identifying number of mixer-spreader trucks shall be at least three inches in height, located on the front and rear of the vehicle.

The slurry seal mixture shall be spread by means of a spreader box conforming to the requirements in the "Spreader Box" section of these specifications.

### **Spreader Box**

For Type II slurry seal, the spreader box shall be capable of spreading a lane width and equipped with a material such as flexible rubber belting on each side and in contact with the pavement. Spreader boxes shall have baffles and double shafted reversible motor driven augers. The spreader box shall be equipped with rear flexible strike-off blades making close contact with the pavement and adjustable to various crown shapes in order to apply a uniform slurry seal. The spreader box shall be equipped with flexible drags attached to the rear and cleaned daily and changed if longitudinal scouring occurs. The spreader box shall be clean and free of excess slurry seal and/or PMCQS-1h at the start of each work shift.

**For Type III slurry seal** the spreader box shall be capable of placing a minimum of 12 feet wide and shall have strips of flexible rubber belting or similar material on each side of the spreader box and in contact with the pavement to prevent the loss of slurry seal from the box. Spreader boxes shall have baffles and double shafted reversible motor driven augers. Spreader box skids shall be maintained in such manner as to prevent chatter (wash boarding) in the finished mat. The spreader box in use shall be clean and free of slurry seal and PMCQS-1h at the start of each work shift.

**For Type III slurry seal** the spreader box shall have a series of strike-off devices at the rear of the box. The leading strike-off device shall be fabricated of steel, stiff rubber, or other suitable material. The number of strike-off devices shall be determined by the Contractor. The first strike-off device shall be designed to maintain close contact with the pavement during the spreading operations, shall obtain the thickness required, and shall be capable of being adjusted to the various pavement cross sections for application of a uniform slurry seal finished surface. The final strike-off device shall be fabricated of flexible material and shall be designed and operated to ensure a uniform texture is achieved in the finished surface of the slurry seal. The final strike-off device shall be cleaned or changed daily if problems with longitudinal scouring occur.

### **Wheel Path Depression (Rut) Box**

The wheel path depression (rut) box shall be designed to have adjustable strike-off devices to regulate the depth and shall have a width of between five feet and six feet. Hydraulic augers, or similar devices, shall be installed and shall be capable of moving the mixed material from the rear to the front of the filling chamber. These devices shall also be capable of guiding the larger aggregate into the center, deeper section of the wheel path depression, and forcing the finer material toward the outer edges of the spreader box.

The slurry seal mixture, to be spread in areas inaccessible to the controlled spreader box, may be spread by other methods upon approval of the Engineer.

### **PREPARATION FOR SLURRY SEAL**

Before placing the slurry seal, the pavement surface shall be cleaned by sweeping, flushing, or by other means necessary to remove loose particles of paving, dirt, and other extraneous material. When required, the roadway surface may be fogged with water ahead of the spreader box. The application of the fog spray may be adjusted to suit temperatures, surface texture, humidity, and dryness of pavement.

A tack coat of asphaltic emulsion shall be applied to all Portland cement concrete surfaces when there is a contract item for the work or when the work is required in these special provisions. The asphaltic emulsion for tack coat shall be grade SS-1, SS-1h, CSS-1, or CSS-1h and shall conform to the provisions in Section 94, "Asphaltic Emulsions," of the 2006 Standard Specifications. The asphaltic emulsion shall be mixed in the proportion of one part of emulsion (which contains up to 43 percent water) to 3 parts water. The mixture shall be applied at the approximate rate of 0.04 – 0.08 gal/yd<sup>2</sup>. When asphaltic emulsion is used as a tack coat, slurry seal shall not be placed until the asphaltic emulsion has cured.

### **PLACING**

The slurry seal mixture shall be uniformly spread on the existing surface within the rate specified without spotting, re-handling, or otherwise shifting of the mixture.

The slurry seal mixture shall not be placed when the ambient temperature is below 50 °F or during unsuitable weather. Slurry seal shall not be placed if rain is imminent or if there is the possibility that there will be freezing temperatures within 24 hours.

The spreader box shall be pulled at a rate NOT GREATER THAN 270 FEET PER MINUTE.

When wheel path depressions have a cross section that is deformed ½ inch or more, the individual wheel paths shall first be filled with slurry seal utilizing a wheel path depression (rut) box in conformance with the provisions of the special provisions. The depth of the wheel path depression shall be determined after the adjacent ridges have been removed, when applicable. The maximum single application for wheel path depressions shall be one inch. Wheel path depressions of depths greater than one inch shall require multiple applications in each depression.

Wheel path depression repair shall be constructed with a slight crown to allow for initial compaction by traffic on the slurry seal.

Freshly filled wheel path depressions shall be compacted by traffic for a minimum of 12 hours before additional lifts of slurry seal material are placed for rut filling purposes or as surface courses.

Slurry seal shall be spread at a rate within the following ranges of pound of dry aggregate per square yard:

<b>Slurry seal Type</b>	<b>Location</b>	<b>Spread Rate (lbs. agg./sq.yd.)</b>
Type II	Full Traffic Width	14-18
Type III	Full Traffic Width	30-35

Longitudinal joints shall correspond with the edges of the traffic lanes. The Engineer may permit other patterns of longitudinal joints if the patterns will not adversely affect the quality of the finished product. At longitudinal joints, a straight line cut-off shall be obtained by laying down a strip of building paper or other approved material. Such paper and any excess slurry shall be removed and disposed of by the Contractor application of the slurry seal.

Through traffic lanes shall be spread in full lane widths only. Longitudinal joints common to 2 traffic lanes shall be butt joints with overlaps not to exceed 3 inches. Building paper shall be placed at the transverse joints to avoid double placement of the slurry seal. Other suitable methods to avoid double placement of the slurry seal will be allowed. Hand tools shall be available to remove spillage.

Edge limits of the slurry on both sides of the street shall be maintained in a neat, straight, uniform line. Slurry shall extend to the lip of gutter, and not overlap into the gutter. In the event the slurry extends into the gutter pan more than 1", or a straight uniform line is not maintained, it will be the responsibility of the Contractor to remove excess slurry from gutters using an appropriate method approved by the Engineer. Any drips or runs that spill onto and concrete surface shall be removed the same day the spill occurs; at the completion of removal operations concrete shall be restored to original condition and coloring. For multi-layer seals adjacent to gutters, where the existing pavement is flush with the gutter, only the topmost seal layer shall extend to the gutter lip, all lower seal layers shall stop short of the gutter by 1 foot or as directed by the engineer. For multi-layer seals adjacent to gutters where the existing pavement is lower than the gutter lip, lower layer seals may be extended to the gutter lip as needed to achieve a flush condition with the topmost seal. The Engineer shall provide direction in the field as needed regarding edge grinding locations and seal edge overlaps.

For areas without gutters, slurry shall extend to the edge of pavement, and shall not spill over to side roads, driveways, or landscaped areas; any slurry spilled in this fashion shall be removed as described above. All work associated with removal of slurry as outlined above shall be conducted at the Contractor's expense and no additional payment will be made therefor.

The mixture shall be uniform and homogeneous after placing on the surfacing and shall not show separation of the PMCQS-1h and aggregate after setting. The completed surface shall be of uniform

texture and free from ruts, humps, depressions, or irregularities.

Adequate means shall be provided to protect the slurry seal from damage by traffic until such time that the mixture has cured sufficiently so that the slurry seal will not adhere to or be picked up by the tires of vehicles.

When placing multiple layers of slurry seal (excluding wheel path depressions) the second layer shall not be placed until the following day or later.

When used as the bottom layer in a 3-layer system, after the initial break of the slurry seal and within a minimum of 2 hours after placement, **the slurry seal shall be rolled (as soon as possible following placement without causing damage to material) with two pneumatic tire rollers meeting the following requirements:**

1. 9.3 tons minimum weight.
2. Each roller shall be equipped with 7 total wheels, 4 in the rear and 3 in the front of the roller.
3. Each roller shall make a minimum of three passes on the surface.
4. Rollers shall be used in unison in a staggered formation such that the lane being rolled has full coverage.

Placement of the slurry seal shall cease a minimum of one hour before the expiration of the road closure hours as specified in "Maintaining Traffic" of these special provisions, unless the Contractor proves to the satisfaction of the Engineer that the surface will be ready for unrestricted traffic at the expiration of the road closure hours.

## **TEST STRIP**

The Contractor shall construct a test strip for evaluation by the Engineer. The test strip shall be 300 feet to 500 feet long and shall consist of the application courses specified. The location of the test strip shall be chosen by the Engineer and may be located on non-project streets. The test strip shall be constructed at the same time of day or night that the full production of slurry seal will be placed and may be constructed in 2 days or nights when multiple course applications are specified.

The Engineer will evaluate the completed test strip after 12 hours of traffic on the completed test strip to determine if the mix design and placement procedure are acceptable. If the mix design or the placement procedure is determined by the Engineer to be unacceptable, the test strip will be rejected, the Contractor shall make modifications, and a new test strip shall be constructed and evaluated by the Engineer. The cost of materials and placement of the test strips, which have been rejected, shall be borne by the Contractor and will not be considered as part of the contract work. If ordered by the Engineer, rejected test strips shall be removed at the Contractor's expense. If approved by the Engineer, the Contractor may continue with production work after placement of the test strip at his own risk. If the test strip is rejected, all production work shall be stopped and evaluated by the Engineer. The production work will be evaluated in the same manner as the placement of the test strip and shall conform to the same requirements for the test strip material.

Test strips are not included in the bid quantities. Full compensation for test strips shall be considered as



included in the prices paid for the contract items for which the test strips apply.

**REPAIR OF EARLY DISTRESS**

If bleeding, raveling, delamination, rutting, or wash boarding occurs within 60 days after placing the slurry seal, the Contractor shall diligently pursue repairs by any method approved by the Engineer. The Contractor shall not be relieved from maintenance until repairs have been completed.

**MEASUREMENT**

Slurry seal will be measured by the square yard placed or by the tons of dry aggregate, whichever is specified by the bid item(s). If Square yard placed is used, the Contractor must supply emulsion and aggregate delivery tickets as well as calibration data to verify that the required spread rate has been met. Payment deductions will be taken, or removal and replacement of the slurry seal will be required, if the minimum required spread rate is not met, as follows:

Slurry seal Type	Spread Rate (lbs. agg./sq.yd.)	Deduction (% of Bid Price)
Type II	13-14	10%
Type II	12-13	20%
Type II	< 12	REMOVE & REPLACE
<b>Type III</b>	<b>25-30</b>	<b>15%</b>
<b>Type III</b>	<b>20-25</b>	<b>30%</b>
<b>Type III</b>	<b>&lt; 20</b>	<b>REMOVE &amp; REPLACE</b>

Quantities of asphaltic emulsion for paint binder (tack coat), to be paid for as contract items of work, will be determined in accordance with the methods provided in Section 94, "Asphaltic Emulsions," of the Standard Specifications.

**23-1.22A MEASUREMENT AND PAYMENT**

The contract unit price paid per **Square Yard** for "**Type III Slurry Seal**" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing slurry seal, complete in place, including testing for and furnishing mix design, cleaning the surface, furnishing added water and set-control additives, tack coat (if necessary), and protecting the slurry seal until it has set, as shown on the plans, as specified in these special provisions, and as directed by the Engineer. If this item is a component of a multi-layer seal which is listed as the primary bid item, then this item is to be used for construction purposes only - payment will be made per the unit price for the multi-layer seal and no separate payment will be made for this bid item.

**23-1.23 STRESS ABSORBING MEMBRANE INTERLAYER (SAMI-R)**

The provisions of Section 37, “Bituminous Seals,” of the Caltrans Standard Specifications shall apply in their entirety except as modified or supplemented herein.

Rubberized chip seal shall consist of an application of rubberized asphalt binder and hot screenings pre-coated with paving asphalt followed by a second application of rubberized asphalt binder and hot screenings pre-coated with paving asphalt. Rubberized chip seal shall conform to the provisions specified for seal coat in Section 37-2, “Seal Coats,” of the Caltrans Standard Specifications and these Contract Specifications.

**DEFINITIONS**

Crumb rubber modifier: Ground or granulated high natural crumb rubber or scrap tire crumb rubber.

Descending viscosity reading: Subsequent viscosity reading at least five (5) percent lower than the previous viscosity reading.

High natural crumb rubber: Material containing 40 to 48 percent natural rubber.

Scrap tire crumb rubber: Any combination of:

1. Automobile tires
2. Truck tires

**SUBMITTALS**

**Contractor shall submit proof of successful completion of at least three (3) asphalt rubber chip seal projects of like magnitude and comparable difficulty and rates of progress. In addition, Contractor shall submit proof that the superintendent or foreman to be utilized and present throughout the entire project has successfully completed at least three (3) asphalt rubber chip seal projects of like magnitude and comparable difficulty and rates of progress.**

**At least twenty-one (21) calendar days prior to start of the project submit the name of your laboratory for quality control testing. The laboratory must be AMRL accredited.**

**For each delivery of asphalt rubber binder ingredients and asphalt rubber binder to the job site, submit a certificate of compliance and a copy of the specified test results.**

Submit MSDS for each asphalt rubber binder ingredient and the asphalt rubber binder.

At least fourteen (14) calendar days before use, submit:

1. Four 1-quart cans of mixed asphalt rubber binder
2. Samples of each asphalt rubber binder ingredient
3. Asphalt rubber binder formulation and data as follows:

a) For asphalt binder and asphalt modifier submit:

- i) Source and grade of asphalt binder
  - ii) Source and type of asphalt modifier
  - iii) Percentage of asphalt modifier by weight of asphalt binder
  - iv) Percentage of combined asphalt binder and asphalt modifier by weight of asphalt rubber binder
  - v) Test results for the specified quality characteristics
- b) For crumb rubber modifier submit:
- i) Each source and type of scrap tire crumb rubber and high natural rubber
  - ii) Percentage of scrap tire crumb rubber and high natural rubber by total weight of asphalt rubber binder
  - iii) Test results for the specified quality characteristics
- c) For asphalt rubber binder submit:
- i) Test results for the specified quality characteristics
  - ii) Minimum reaction time and temperature

At least fourteen (14) calendar days before use, submit the permit issued by the local air quality agency for asphalt rubber binder:

1. Field blending equipment
2. Application equipment

If an air quality permit is not required by the local air quality agency for producing asphalt rubber binder or spreading asphalt rubber binder, submit verification from the local air quality agency to the Engineer that an air quality permit is not required for this Contract.

Submit a certified volume or weight slip for each delivery of asphalt rubber binder ingredients and asphalt rubber binder.

Submit a certificate of compliance and accuracy verification of test results for viscometers.

When determined by the Engineer, submit notification fifteen (15) minutes before each viscosity test or submit a schedule of testing times.

Submit the log of asphalt rubber binder viscosity test results each day of asphalt rubber binder application.

### **QUALITY CONTROL AND ASSURANCE**

Test and submit results at least once per project:

1. For crumb rubber modifier except for grading, at least once per 250 tons. Samples of scrap tire crumb rubber and high natural crumb rubber must be sampled and tested separately. Test each delivery of crumb rubber modifier for grading.

2. For asphalt binder, test and submit at least once per 200 tons of asphalt binder production.
3. For asphalt modifier, test and submit at least once per 25 tons of asphalt modifier production.

Scrap tire crumb rubber and high natural crumb rubber must be delivered to the asphalt rubber production site in separate bags.

Take viscosity readings of asphalt rubber binder under ASTM D7741 during asphalt rubber binder production. Start taking viscosity readings of samples taken from the reaction vessel at least forty-five (45) minutes after adding crumb rubber modifier and continue taking viscosity readings every thirty (30) minutes until two (2) consecutive descending viscosity readings have been obtained and the final viscosity meets the specification requirement. After meeting the two (2) descending viscosity readings requirement, continue to take viscosity readings hourly and within fifteen (15) minutes before use. Log the test results, including time of testing and temperature of the asphalt rubber binder.

## **MATERIALS**

### **Asphalt Rubber Binder**

Asphalt rubber binder must be a combination of:

1. Asphalt binder
2. Asphalt modifier
3. Crumb rubber modifier

The blending equipment must allow the determination of weight percentages of each asphalt rubber binder ingredient.

Asphalt rubber binder must be  $79 \pm 1$  percent by weight asphalt binder and  $21 \pm 1$  percent by weight of crumb rubber modifier. The minimum percentage of crumb rubber modifier must be 20.0 percent and lower values may not be rounded up.

Crumb rubber modifier must be  $76 \pm 2$  percent by weight scrap tire crumb rubber and  $24 \pm 2$  percent by weight high natural rubber.

The blend of asphalt binder and asphalt modifier must be combined with crumb rubber modifier at the asphalt rubber binder production site. The asphalt binder and asphalt modifier blend must be from 375 to 440°F when crumb rubber modifier is added. Combined ingredients must be allowed to react at least forty-five (45) minutes at temperatures from 375 to 425°F except the temperature must be at least 10°F below the flash point of the asphalt rubber binder.

After reacting, the asphalt rubber binder must have the values for the quality characteristics shown in the following table:

Blended Asphalt Rubber Binder

Quality characteristic	Test method	Value	
		Min	Max
Cone penetration @ 25 °C, 1/10 mm	ASTM D 217	25	60
Resilience @ 25 °C, percent rebound	ASTM D 5329	18	40
Field softening point, °C	ASTM D 36	55	88
Viscosity @190 °C, Pa • s (x10 <sup>-3</sup> )	See section 37-2.01D(3)	1500	2500

Maintain asphalt rubber binder at a temperature from 375 to 415°F.

Stop heating unused asphalt rubber binder four (4) hours after the 45-minute reaction period. Reheating asphalt rubber binder that cools below 375°F is a reheat cycle. Do not exceed two (2) reheat cycles. If reheating, asphalt rubber binder must be from 375 to 415°F before use.

During reheating, you may add scrap tire crumb rubber. Scrap tire crumb rubber must not exceed ten percent (10%) by weight of the asphalt rubber binder. Allow added scrap tire crumb rubber to react for at least forty-five (45) minutes. Reheated asphalt rubber binder must comply with the specifications for asphalt rubber binder.

**Asphalt Binder**

Asphalt binder for asphalt rubber binder seal coat must be **PG 64-16** and conform to Section 92 of the Caltrans Standard Specifications.

**Asphalt Modifier**

Asphalt modifier must be a resinous, high flash point, and aromatic hydrocarbon. Asphalt modifier must have the values for the quality characteristics shown in the following table:

**Asphalt Modifier for Asphalt Rubber Binder**

Quality characteristic	Test method	Value
Viscosity, m <sup>2</sup> /s (x 10 <sup>-6</sup> ) at 100 °C	ASTM D 445	X ± 3 <sup>a</sup>
Flash point, CL.O.C., °C	ASTM D 92	207 min
Molecular analysis		
Asphaltenes, percent by mass	ASTM D 2007	0.1 max
Aromatics, percent by mass	ASTM D 2007	55 min

<sup>a</sup> "X" denotes the proposed asphalt modifier viscosity from 19 to 36. A change in "X" requires a new asphalt rubber binder submittal.

Asphalt modifier and asphalt binder must be blended at the production site. Asphalt modifier must be from 2.5 to 6.0 percent by weight of the asphalt binder in the asphalt rubber binder. The asphalt rubber binder supplier determines the exact percentage.

If blended, the asphalt binder must be from 375 to 440°F when asphalt modifier is added and the mixture must circulate for at least twenty (20) minutes. Asphalt binder, asphalt modifier, and crumb rubber modifier may be proportioned and combined simultaneously.

**Crumb Rubber Modifier**

Crumb rubber modifier must be ground or granulated at ambient temperature.

Scrap tire crumb rubber and high natural crumb rubber must be delivered to the asphalt rubber binder production site in separate bags.

Steel and fiber must be separated. If steel and fiber are cryogenically separated, it must occur before grinding and granulating. Cryogenically-produced crumb rubber modifier particles must be large enough to be ground or granulated.

Wire must not be more than 0.01 percent by weight of crumb rubber modifier. Crumb rubber modifier must be free of contaminants except fabric, which must not exceed 0.05 percent by weight of crumb rubber modifier. Method for determining the percent weight of wire and fabric is available under Laboratory Procedure 10 at the following METS Web site:

<http://www.dot.ca.gov/hq/esc/Translab/ofpm/fpmlab.htm>

The length of an individual crumb rubber modifier particle must not exceed 3/16 inch.

Crumb rubber modifier must be dry, free-flowing particles that do not stick together. A maximum of three percent (3%) calcium carbonate or talc by weight of crumb rubber modifier may be added. Crumb rubber modifier must not cause foaming when combined with the asphalt binder and asphalt modifier.

Specific gravity of crumb rubber modifier must be from 1.1 to 1.2 determined under California Test 208.

When tested under ASTM D 297, crumb rubber modifier must comply with the requirements shown in the following table:

**Crumb Rubber Modifier**

Quality characteristic	Scrap tire crumb rubber (percent)		High natural rubber (percent)	
	Min	Max	Min	Max
Acetone extract	6.0	16.0	4.0	16.0
Rubber hydrocarbon	42.0	65.0	50.0	--
Natural rubber content	22.0	39.0	40.0	48.0
Carbon black content	28.0	38.0	--	--
Ash content	--	8.0	--	--

Scrap tire crumb rubber must have the gradation shown in the following table:

Sieve size	Gradation limit (%)	Operating Range	Contract Compliance
No. 8	100	100	100
No. 10	98–100	95–100	90–100
No. 16	45–75	35–85	32–88

Sieve size	Gradation limit (%)	Operating Range	Contract Compliance
No. 30	2–20	2–25	1–30
No. 50	0–6	0–10	0–15
No. 100	0–2	0–5	0–10
No. 200	0	0–2	0–5

High natural rubber gradation must have the gradation shown in the following table:

Sieve size	Gradation limit (%)	Operating Range	Contract Compliance
No. 10	100	100	100
No. 16	95–100	92–100	85–100
No. 30	35–85	25–95	20–98
No. 50	10–30	6–35	2–40
No. 100	0–4	0–7	0–10
No. 200	0–1	0–3	0–5

Test the crumb rubber modifier gradation under ASTM C 136 except:

- Split or quarter  $100 \pm 5$  g from the crumb rubber modifier sample and dry to a constant mass at a temperature from 57 to 63 degrees C and record the dry sample mass. Place the crumb rubber modifier sample and 5 grams (g) of talc in a 1/2-liter jar. Seal the jar, then shake the jar by hand for at least one (1) minute to mix the crumb rubber modifier and the talc. Continue shaking or open the jar and stir until the particle agglomerates and clumps are broken and the talc is uniformly mixed.
- Place one (1) rubber ball on each sieve. Each ball must weigh  $8.5 \pm 0.5$  g, measure  $24.5 \pm 0.5$  mm in diameter, and have a Shore Durometer "A" hardness of  $50 \pm 5$  determined under ASTM D 2240. After sieving the combined material for  $10 \pm 1$  minutes, disassemble the sieves. Brush material adhering to the bottom of a sieve into the next finer sieve. Weigh and record the mass of the material retained on the 2.36-milimeter sieve and leave this material (do not discard) on the scale or balance. Fabric balls must remain on the scale or balance and be placed together on the side to prevent them from being covered or disturbed when the material from finer sieves is placed onto the scale or balance. The material retained on the 2.00-milimeter sieve must be added to the scale or balance. Weigh and record that mass as the accumulative mass retained on the 2.00-milimeter sieve. Continue weighing and recording the accumulated masses retained on the remaining sieves until the accumulated mass retained in the pan has been determined. Before discarding the crumb rubber modifier sample, separately weigh and record the total mass of fabric balls in the sample.
- Determine the mass of material passing the 75-micrometer sieve by subtracting the accumulated mass retained on the 75-micrometer sieve from the accumulated mass retained in the pan. If the material passing the 75-micrometer sieve has a mass of 5 g or less, cross out

the recorded number for the accumulated mass retained in the pan and copy the number recorded for the accumulated mass retained on the 75-micrometer sieve and record that number, next to the crossed out number, as the accumulated mass retained in the pan. If the material passing the 75-micrometer sieve has a mass greater than 5 g, cross out the recorded number for the accumulated mass retained in the pan, subtract 5 g from that number and record the difference next to the crossed out number. The adjustment to the accumulated mass retained in the pan accounts for the 5 g of talc added to the sample. For calculation purposes, the adjusted total sample mass is the same as the adjusted accumulated mass retained in the pan. Determine the percent passing based on the adjusted total sample mass and record to the nearest 0.1 percent (0.1%).

**Screenings**

Before precoating with asphalt binder when tested under California Test 202 the screenings shall be clean, have crushed faces, be cubical in shape, and there shall be minimal flat and elongated particles. Screenings must have the gradation and physical testing properties shown below.

<b>GRADATION</b>		
	<b>First Application Medium 1/2" max</b>	<b>Second Application Fine 3/8" max</b>
<b>Sieve Sizes</b>	<b>Percent Passing</b>	<b>Percent Passing</b>
3/4"	100	100
1/2"	85-90	95-100
3/8"	0-30	70-85
#4	0-5	0-15
#8	--	0-5
#200	0-1	0-1

**TESTING REQUIREMENTS – ALL AGGREGATE APPLICATIONS**

<b>Test</b>	<b>CA Test Method</b>	<b>Requirements</b>
Crushed Particles	205	90% min
Loss in Los Angeles Rattler (after 100 revolutions)	211	10% max
Loss in Los Angeles Rattler (after 500 revolutions)	211	40% max
Film Stripping	302	25% max
Cleanness Value	227	80 min
Durability	229	52 min

**The City will collect a sample of screenings for testing on each day of Asphalt Rubber Chip Seal work.**



## **EQUIPMENT AND CONSTRUCTION**

### **General**

Equipment for must include and comply with the following:

1. Screenings haul trucks. Haul trucks must have:
  - a) Tailgates that discharge screenings
  - b) Devices to lock onto the rear screenings spreader hitch
  - c) Dump beds that will not push down on the spreader when fully raised
  - d) Dump beds that will not spill screenings on the roadway when transferred to the spreader hopper
  - e) Tarpaulins to cover precoated screenings when haul distance exceeds 30 minutes or ambient temperature is less than 65 degrees F.
2. Self-propelled screenings spreader. The spreader must have:
  - a) Screenings hopper in the rear
  - b) Belt conveyors that carry the screenings to the front
  - c) Spreading hopper capable of providing a uniform screening spread rate over the entire width of the traffic lane in 1 application.
3. Self-propelled power brooms. Do not use gutter brooms or steel-tined brooms. Brooms must be capable of removing loose screenings adjacent to barriers that prevent screenings from being swept off the roadway, including curbs, gutters, dikes, berms, and railings.
4. Pneumatic-tired rollers. Pneumatic-tired rollers must be an oscillating type at least 4 feet wide. Each roller must be self-propelled and reversible. Pneumatic tires must be of equal size, diameter, type, and ply. The roller must carry at least 3,000 lbs. of load on each wheel and each tire must have an air pressure of  $100 \pm 5$  psi.

### **Asphalt Rubber Equipment**

Equipment for asphalt rubber application must include and comply with the following:

1. Tank to heat and maintain the temperature of blended asphalt binder and asphalt modifier before adding crumb rubber modifier. The tank must have a thermostatic heat control device and a temperature reading device accurate to within 5 degrees F. The heat control device must be the recording type.
2. Mechanical mixer for complete, homogeneous blending of asphalt binder, asphalt modifier, and crumb rubber modifier. Asphalt binder and asphalt modifier must be introduced into the mixer through meters. The blending system must vary the rate of delivery for asphalt binder and asphalt modifier proportionate to crumb rubber modifier delivery. The mixer must not allow the temperature of asphalt binder and asphalt modifier to vary more than 25 degrees F. Each ingredient feed must be equipped with a rate-of-feed indicator for determining the amount delivered during production. The meters used to proportion each liquid ingredient must be equipped with rate-of-flow indicators with resettable totalizers so that the total amount can be determined. Feed liquid and dry ingredients directly into the mixer at a uniform and controlled rate. Reduce the quantity of ingredients in the mixer if dead areas occur. The mixer must have a safe

- sampling device that delivers completed asphalt rubber binder in the quantity needed for testing.
3. Storage tank for asphalt rubber binder. The storage tank must have a heating system to maintain the temperature and an internal mixing device to prevent separation.
  4. Self-propelled distributor truck. The truck must have the following features:
    - i) Heating unit
    - ii) Internal mixing unit
    - iii) Pumps that spray asphalt rubber binder within 0.05 gal/sq yd of the specified rate
    - iv) Fully circulating spray bar that applies asphalt rubber binder uniformly
    - v) Tachometer
    - vi) Pressure gages
    - vii) Volume measuring devices
    - viii) Thermometer
    - ix) Observation platform on the rear of the truck for an observer on the platform to see the nozzles and unplug them if needed.
  5. Under supports for scale bearing points for scale structures where the total load, the live load plus dead load is less than 17 tons, must be constructed as follows:
    - i) Use 4 legs. Total load on any leg may not exceed 14.5 psi.
    - ii) Use structural grade steel with a minimum cross sectional dimension of 20 inches and a minimum thickness of 1.5 inches.
    - iii) Construct under supports in a way that they do not move or deflect during production operations.
    - iv) Install mechanical indicating elements level, plumb, and rigidly mounted on the under supports.
    - v) Prevent saturation of the ground under the scale with adequate drainage and provide support of 14.5 psi at each support.
    - vi) Scale structure may be installed using concrete under supports and comply with Section 9-1.02 "Measurement" of the Standard Specifications.

## Surface Preparation

Pavement must be completely dry prior to both applications of asphalt rubber chip seal.

Special care shall be taken to clean the pavement before the chip seal application. When seal is applied on top of scrub seal, (or second application on top of first seal), care shall be taken during cleaning to avoid damaging existing seal. Immediately prior to the application of the chip seal the surface to receive the chip seal shall be cleaned by power brooming, flushing or other means necessary to remove all vegetation, loose particles of paving, all dirt, and all other extraneous material. Vegetation shall be removed from cracks in pavement and at the interface of pavement and gutter prior to sweeping. The Contractor shall blow the cracks clean of loose materials, away from pavement or previously cleaned cracks, with a high pressure air nozzle (90 psi or greater and free of oil). Pavements impregnated with grease, oil, or fuel shall be thoroughly scrubbed with water and an approved detergent and then flushed and swept clean. Wash water shall be vacuumed up and disposed of and shall not be permitted to enter the storm drain system. Contractor shall be responsible for sweeping the streets until sufficiently cleaned to the satisfaction of the Engineer. Streets shall be swept from face of curb to face of curb. Pavement missed by or inaccessible to power brooms shall be swept manually or by other methods approved by

the Engineer.

All existing temporary and permanent pavement markers and temporary delineation shall be removed in accordance with Section 10-1.15, "Existing Street Facilities" of these Contract Specifications.

All surface metal utility covers (including survey monuments) shall be protected by thoroughly covering the surface with an appropriate adhesive and paper or plastic. No adhesive material shall be permitted to cover, seal or fill the joint between the frame and cover of the structure. Covers are to be uncovered and cleaned of chip seal material by the end of the same work day.

### **Precoat Screenings**

Screenings must be preheated from 260 to 325°F. Coat with any of the asphalts specified in the table titled "Performance Graded Asphalt Binder" in Section 92 of Caltrans Standard Specifications.

Coat screenings at a central mixing plant. The asphalt must be from 0.5 to 1.0 percent by weight of dry screenings. The Engineer shall determine the exact rate.

The plant must be authorized under California Test Method 109 and the Department's material plant quality program.

Do not stockpile preheated or pre-coated screenings.

### **Application of Asphalt Rubber Binder**

Apply asphalt rubber binder immediately after the reaction period. At the time of application, the temperature of asphalt rubber binder must be from 385 to 415°F.

For the first application of asphalt rubber, apply asphalt rubber binder at a nominal rate from 0.55 to 0.65 gal/sq yd. The application rate could potentially be lower or higher than 0.55 to 0.65gal/sq yd. depending upon test strip findings. The Engineer determines the exact rate. Apply the second layer of asphalt rubber at a nominal rate from 0.3 to 0.5 gal/sq yd. The application rate could potentially be lower or higher than 0.3 to 0.5 gal/sq yd. depending upon test strip findings. The Engineer determines the exact rate.

Avoid application over the specified rate which may result in "bleeding" or under application which may result in chip loss. **If medium severity "bleeding" occurs over an area greater than 10 square feet, Contractor shall remove and replace affected areas at their own cost during the warranty period.** Medium severity "bleeding" is defined as that asphalt sticks to shoes and vehicles during more than 3 weeks of the year.

Apply asphalt rubber binder when the atmospheric temperature is from 60 to 105°F and the pavement surface temperature is between 75°F and 140°F.

Do not apply asphalt rubber binder unless there are sufficient screenings available to cover the asphalt rubber binder within two (2) minutes. Intersections, turn lanes, gore points, and irregular areas must be covered within fifteen (15) minutes.

Do not apply asphalt rubber binder when weather or road conditions are unsuitable, including high wind or when the pavement is damp. Unsuitable weather conditions include when temperatures below 40°F are anticipated for the next twenty-four (24) hours after applying the rubberized chip seal, or sustained winds are greater than ten (10) mph. Complete surface treatment application at least two (2) hours before sunset.

If you request to use a variable application rate apparatus and the Engineer authorizes, the rate in the wheel paths may be reduced to 0.50 gal/sq yd.

### **Spreading Screenings**

Prevent vehicles from driving on asphalt rubber binder before spreading screenings.

Broom excess screenings at joints before spreading adjacent screenings.

Operate the spreader at speeds slow enough to prevent screenings from rolling over after dropping.

If the spreader is not moving, screenings must not drop. If you stop spreading and screenings drop, remove the excess screenings before resuming activities.

During transit, cover pre-coated screenings for asphalt rubber seal coat with tarpaulins if the ambient air temperature is below 65°F or the haul time exceeds thirty (30) minutes.

At the time of application, screenings for asphalt rubber seal coat must be from 225 °F to 325°F.

Spread screenings for both applications at a rate from 28 to 40 lb/sq yd. The exact rates determined by the Engineer. Spread to within ten percent (10%) of the determined rate.

Leave uncovered a strip of sprayed asphalt approximately six (6) inches wide to permit an overlap of asphalt material.

### **Finishing and Rolling Operations**

Chip seal shall be finished and screenings compacted in accordance with the first paragraph of Section 37-2.01C(6) "Finishing" of the State Standard Specifications In addition the following shall apply to both applications of screenings:

- a. A minimum of three (3) pneumatic tired rollers conforming to the requirements specified in Section 39-2.01C(2), "Spreading and Compacting Equipment", of the Caltrans Standard Specifications shall be used, except that the rollers shall carry a minimum loading of 3,000 pounds on each wheel and air pressure of between 95 and 105 pounds per square (psi) inch in each tire.
- b. Operate rollers at a maximum speed of five (5) mph. Do not permit the aggregate to be displaced by pickup or sticking of material to the tire or drum surfaces. Roll the surface to uniformity and thoroughly bond the aggregate over the full width. Complete rolling within one (1) hour after asphalt is applied to the surface.
- c. In the course of construction where the asphalt-rubber distributor truck creates a joint by stopping at some point along the length of the roadway, the screenings spreader shall stop short

of this joint, leaving a small strip of uncovered asphalt rubber. This is to prevent an overlapping double thickness joint from being created once work resumes. All reasonable precautions shall be taken to avoid skips and overlaps at joints. Any defect shall be corrected at the Contractor's expense by use of a shovel and/ or broom prior to continuing operations.

- d. The seal coat shall be applied in such a manner that the joint between the new and existing surface is neat and uniform in appearance true to the line show on the plans and as established by the Engineer. The cut-off of asphaltic binder shall be made on building paper or similar material spread over the surface.
- e. Initial rolling of the asphalt-rubber chip seal shall consist of a minimum of one (1) complete coverage with three pneumatic-tired rollers working in tandem and shall begin immediately behind the screenings spreader. The distance between the rollers and the screenings spreader shall not exceed 200 feet at any time during the spreading of screenings operations.
- f. A minimum of three (3) additional complete coverages with the three pneumatic-tire rollers shall be made after the initial coverage on the asphalt-rubber chip seal.
- g. In addition to the three pneumatic-tired rollers one (1) 8-10 ton steel wheel roller shall be used on the final pass for each application as the finish roller.
- h. Limit traffic speeds to fifteen (15) mph for twenty-four (24) hours after rolling operations have ceased; use of pilot cars may be necessary for the roadways that are typically driven on at higher rate of speed.

### **Final Sweeping**

A minimum of three (3) vacuum sweepers shall be used that are capable of cleaning the existing pavement and removing loose screenings without dislodging screenings set in the asphalt-rubber mixture. Gutter brooms or steel-tined brooms shall not be used.

Sweeping shall be completed prior to allowing uncontrolled traffic on the road surface. Sweeping and vacuuming shall be performed on top seal only if both layers are applied consecutively without trafficking. On the day of the actual chip seal operations, three (3) vacuum sweepers shall be used on those streets being chip sealed that day. Two (2) sweepers shall be used to remove excess screenings from the road surface, and one (1) sweeper shall sweep the morning after chip seal operations and be used to clean the surrounding streets and road surfaces outside of the project area to avoid tracking loose material. During sweeping the day of the chip seal, water shall not be used in the removal of loose material.

The Contractor must remove all loose chips from the street surface per the Engineer's specifications. A broom sweeper may not be able to pick up excess chips on cul-de-sacs. The Contractor is responsible for removing these chips through the use of a vacuum sweeper or other acceptable means as approved by the Engineer.

Three (3) additional sweepings shall be performed. The first sweeping shall be done one (1) day after placement of the chip seal, the second two (2) days after placement of the chip seal and the final sweeping shall occur seven (7) calendar days after placement of the chip seal and prior to placing the slurry seal. The Contractor shall spray water on these subsequent sweepings for dust removal. Excess screenings shall be removed from the job site by the Contractor and disposed of in accordance with Sections 14 and 19 of the Caltrans Standard Specifications. At the end of each day's sweeping

operations the Contractor shall remove any and all loose materials from sidewalks, landscaped areas and adjacent properties manually or by any other means acceptable to the Engineer. Do not displace embedded material. Do not vacuum sweep the surface when the air temperature is above 90°F.

**23-1.23A MEASUREMENT AND PAYMENT**

The contract unit price paid per **Square Yard** for the “**SAMI-R (1/2-Inch Gradation)**” and “**SAMI-R (3/8-Inch Gradation)**”, shall be considered as full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in installing rubberized chip seal, including but not limited to; site preparation, cleanup, protecting utility and manhole covers, applying asphalt rubber chip seal, preparation of test strip(s), street sweeping and all other incidental work required to complete the work as shown and specified.

**If test results for gradation tests do not comply with the specifications, deductions are taken.** Each gradation test for scrap tire crumb rubber represents 10,000 lbs or the amount used in that day's production, whichever is less. Each gradation test for high natural rubber represents 3,400 lbs or the amount used in that day's production, whichever is less.

For each gradation test, the following pay deductions will be taken from the asphalt rubber bid item:

<b>Gradation Test</b>		
<u>Material</u>	<u>Test result a</u>	<u>Deduction</u>
Scrap tire crumb rubber	Operating range < TR < Contract compliance	\$250
Scrap tire crumb rubber	TR > Contract compliance	\$1,100
High natural crumb rubber	Operating range < TR < Contract compliance	\$250
High natural crumb Rubber	TR > Contract compliance	\$600

a Test Result = TR

**23-1.24 MICROSURFACING**

Microsurfacing shall consist of mixing a polymer modified, cationic microsurfacing emulsion (MSE), aggregate, mineral filler, set-control additives, and water and spreading the mixture on a pavement surface where shown on the plans, in conformance with the provisions in these Contract Specifications, and as directed by the Engineer. The provisions of Section 37, “Bituminous Seals,” of the Caltrans Standard Specifications shall apply in their entirety except as modified or supplemented herein.

**Materials**

The materials for microsurfacing shall conform to the following requirements:

**Microsurfacing Emulsion**

Microsurfacing Emulsion (MSE) shall be homogenous and shall conform to these Contract Specifications. The polymer shall be milled or blended into the asphalt or blended into the emulsifier solution prior to the emulsification process.

The MSE shall conform to the following requirements when tested in conformance with the following test methods:

POLYMER MODIFIED, CATIONIC MICROSURFACING EMULSION (MSE)

<u>SPECIFICATION DESIGNATION</u>	<u>METHOD OF TEST</u>	<u>REQUIREMENTS</u>
Viscosity, SSF, @ 77°F, sec	AASHTO T 59	15-90 seconds
Sieve, Max	AASHTO T 59	0.30%
Settlement, 5 days, max.	ASTM D244	5%
Storage Stability, 1 day, max.	AASHTO T 59	1%
Residue by Evaporation, min.	California Test 331	62%

<u>TESTS ON EMULSIFIED ASPHALT RESIDUE</u>	<u>METHOD OF TEST</u>	<u>REQUIREMENTS</u>
Penetration, 77°F, 100g, 5s, 0.1mm	AASHTO T 51	40-90
Softening Point (Ring-and Ball Apparatus), Min	AASHTO T53	135°F (57°C)

**Aggregate**

Aggregate shall consist of sound, durable, crushed stone or crushed gravel and approved mineral filler. The material shall be free from vegetable matter and other deleterious substances. Aggregate shall be one hundred percent (100%) crushed with no rounded particles. The Contractor shall submit aggregate samples for approval at least ten (10) working days prior to starting microsurfacing operations.

The aggregate, prior to the addition of emulsion shall conform to the requirements of this section. If aggregates are blended each component aggregate shall meet the sand equivalency and abrasion resistance and shall be one hundred percent (100%) crushed as tested in accordance with California Test 205. The definition of a crushed particle in California Test 205 Section D is amended to read: “Any particle having two (2) or more fresh mechanically fractured faces shall be considered a crushed particle.”

The percentage composition by weight of the aggregate (including mineral filler) shall conform to the following grading requirements when tested in conformance with California Test 202:

**PERCENTAGE PASSING**

<u>SIEVE SIZES</u>	<u>TYPE II</u>
3/8" (9.5mm)	100
No. 4 (4.75 mm)	94-100
No. 8 (2.36 mm)	65-90
No. 16 (1.18 mm)	40-70
No. 30 (600 um)	25-50
No. 200 (75 um)	5-15

The aggregate (excluding mineral filler) shall also conform to the following quality requirement:

<u>TEST ON AGGREGATE</u>	<u>METHOD OF TEST</u>	<u>REQUIREMENTS</u>
Sand Equivalent	California Method 217	70 min.
Durability Index	California Method 229	75 min.
Percentage of Crushed Particles (Min) <sup>1</sup>	California Method 205	100%
Los Angeles Rattler Loss at 500 Rev. (Max) <sup>2</sup>	California Method 211	35%

Notes: 1. CT205, Section D, is amended to read: "Any particle having two (2) or more freshly, mechanically fractured faces shall be considered a crushed particle." 2. Los Angeles Rattler shall be performed on the parent aggregate before crushing.

**Mineral Filler**

The mineral filler shall be either Portland cement or hydrated lime that is free of lumps. Portland cement shall be either Type I, Type II, Type III, or combination thereof. The type of mineral filler shall be determined by the Contractor based on laboratory mix designs. The mineral filler will be considered part of the aggregate gradation requirement.

**Water**

Water shall be of such quality that the asphalt will not separate from the MSE before the microsurfacing is placed on the pavement. If necessary for workability, a set-control agent that will not adversely affect the microsurfacing product may be used.

**Mix Design**

At least fourteen (14) working days before the microsurfacing placement commences, the Contractor shall submit for approval of the Engineer a laboratory report of tests and a proposed mix design covering the specific materials proposed for use on the project.



The percentages of each individual material proposed in the mix design shall be shown in the laboratory report. Individual materials shall be within the following limits:

Residual Asphalt	5.5% to 10.5% by dry weight of aggregate
Polymer Solids	3% Minimum based on bitumen weight content
Mineral Filler	0% to 3% by dry weight of aggregate
Additive	As needed
Water	As needed

Adjustments may be required during construction based field conditions.

The mix design and aggregate tests shall be performed by an AMRL (AASHTO Material Reference Laboratory) accredited laboratory capable of performing the applicable International Slurry Surfacing Association (ISSA) tests. The proposed microsurfacing mixture shall conform to the specified requirements when tested in conformance with the following tests:

<u>TEST</u>	<u>ISSA TEST METHOD</u>	<u>REQUIREMENT</u>
Wet Cohesion @30 Minute (Set)(Min.) @60 Minute (Traffic)(Min.)	TB139	12 kg-cm 20 kg-cm
Excess Asphalt (Max)	TB109	540 g/m <sup>2</sup>
Wet Stripping (Min.)	TB114	90%
Wet Track Abrasion 6-day Soak Loss (Max)	TB100	810 g/m <sup>2</sup>
Displacement Lateral (Max) Specified Gravity After 1000 Cycles of 125 lbs (56.8 kg)(Max)	T147A	5% 2.10
Classification Compatibility	TB144	11 Grade Points Minimum (AAA,BAA)
Mix Time @77°F(25°C)	TB113	Controllable to 120 Seconds
TB=Technical Bulletin		

The AMRL-accredited laboratory that performed the tests and designed the mixture shall sign the laboratory report. The report shall show the results of the tests on individual materials and shall compare their values to those required by these Contract Specifications. The report shall clearly show the proportions of aggregate, filler (minimum and maximum), water (minimum and maximum), set

control additive, and MSE solids content (minimum and maximum) based on the dry mass of aggregate. The laboratory shall report the quantitative effects of moisture content on the unit mass of the aggregate (bulking effect) in conformance with the requirements of ASTM Designation C 29M. Previous laboratory reports covering the same materials may be accepted provided the material test reports were completed within the previous twelve (12) months. The mix design shall further show the recommended changes in mineral filler, water, and additive proportions for high temperature weather conditions by reporting proportions of materials required for sixty (60) seconds of mix time with materials heated to 100°F (38°C). This 100°F (38°C) mixing report will not be required for projects requiring nighttime application.

The component materials used in the mix design shall be representative of the microsurfacing materials proposed by the Contractor for use on the project.

Once the mix design is approved by the Engineer, no substitution of other material will be permitted unless the materials proposed for substitution are first tested and a laboratory report is submitted for the substituted design in conformance with the provisions of these Contract Specifications. Substituted materials shall not be used until the mix design for those materials has been approved by the Engineer.

The completed mixture, after addition of water and set control agent, if used, shall be such that the microsurfacing mixture has proper workability. At the expiration of the road closure hours, in conformance with the provisions in Section 10-1.08, "Traffic Control System" of these Contract Specifications, the microsurfacing mixture shall be sufficiently cured to support unrestricted traffic.

### **Proportioning**

Aggregate, mineral filler, MSE, water, and additives, including the set-control agent, if used, shall be proportioned by volume utilizing the mix design approved by the Engineer. If more than one kind of aggregate is used, the correct amount of each kind of aggregate to produce the required grading shall be proportioned separately, prior to adding the other materials of the mixture, in a manner that will result in a uniform and homogeneous blend.

The aggregate shall be proportioned using a belt feeder operated with an adjustable cutoff gate. The height of the gate opening shall be determinable. The MSE shall be proportioned by a positive displacement pump. Variable rate emulsion pumps, if used, shall be calibrated and sealed in the pump's calibrated condition in conformance with California Test 109 prior to usage.

The delivery rate of aggregate and MSE per revolution of the aggregate feeder shall be calibrated at the appropriate gate settings for each mixer-spreader truck used on the project in conformance with Caltrans MPQP (*Material Plant Quality Program*), California Test 109 and these Contract Specifications.

The aggregate belt feeder shall deliver aggregate to the pugmill with such volumetric consistency that the deviation for any individual aggregate delivery rate check-run shall not exceed two percent (2.0%) of the mathematical average of three (3) runs of at least three tons (3 tonnes) each. The emulsion pump shall deliver MSE to the pugmill with such volumetric consistency that the deviation for any individual delivery rate check-run shall be within two percent (2.0%) of the mathematical average of 3 runs of at least 300 gallons (1135 L) each. The water pump shall deliver water to the pugmill with such

volumetric consistency that the deviation for any individual delivery rate check-run shall be within two percent (2.0%) of the mathematical average of three (3) runs of at least 300 gallons (1135 L) each.

The MSE storage tank shall be located immediately before the emulsion pump and shall be equipped with a device which will automatically shut down the power to the emulsion pump and aggregate belt feeder when the MSE level is lowered to a point where the pump suction line is exposed.

A temperature-indicating device shall be installed in the emulsion storage tank at the pump suction level. The device shall indicate the temperature of the MSE and shall be accurate to within 10°F (5°C).

The belt delivering the aggregate to the pugmill shall be equipped with a device to monitor the depth of aggregate being delivered to the pugmill. The device for monitoring the depth of aggregate shall automatically shut down the power to the aggregate belt feeder whenever the depth of aggregate is less than the target depth of flow. A second device shall be located where the device will monitor the movement of the aggregate belt by detecting revolutions of the belt feeder. The devices for monitoring no flow or belt movement shall automatically shut down the power to the aggregate belt when the aggregate belt movement is interrupted. The device to detect revolutions of the belt feeder will not be required where the aggregate delivery belt is an integral part of the drive chain. To avoid erroneous shutdown by normal fluctuation, a delay of three (3) seconds will be permitted between sensing and shutdown of the operation.

### **Mixing and Spreading Equipment**

The microsurfacing shall be mixed in continuous pugmill mixers of adequate size and power for the type of microsurfacing to be placed. All indicators shall be in conformance with the provisions of these Contract Specifications and shall be in working order prior to commencing mixing and spreading operations.

Mixer-spreader trucks shall be equipped to proportion the MSE, water, aggregate, mineral filler, and set-control additives by volume. Rotating and reciprocating equipment on mixer-spreader trucks shall be covered with metal guards.

The mixer-spreader truck shall not be operated unless low-flow and no-flow devices and revolution counters are in good working condition and functioning and metal guards are in place. Indicators required by these Contract Specifications shall be visible while walking alongside the mixer-spreader truck.

Aggregate feeders shall be connected directly to the drive on the emulsion pump. The drive shaft of the aggregate feeder shall be equipped with a revolution counter reading to the nearest one-tenth of a revolution.

Each mixing unit to be used in the performance of the work shall be calibrated in the presence of the Engineer at the mixing plant prior to the start of the project. Previous calibration documentation covering the exact materials to be used will be acceptable, provided that no more than sixty (60) calendar days have lapsed. The documentation shall include an individual calibration of each material at various settings that can be related to the machine metering devices. Any component replacement

affecting material proportioning requires that the machine be recalibrated. No machine will be allowed to work on the project until the calibration has been completed and/or accepted.

The microsurfacing mixture shall be spread by means of a spreader box conforming to the following requirements:

### **Spreader Box**

The spreader box shall be capable of placing the microsurfacing a minimum of twelve (12) feet (3.6 m) wide and shall have strips of flexible rubber belting or similar material on each side of the spreader box and in contact with the pavement to prevent the loss of microsurfacing from the box. The edges of the spreader box shall be outside the edge (and/or striping line) of the pavement when paving outside or inside lanes. Spreader boxes over eight (8) feet (2.38 m) in application width shall have baffles, reversible motor driven augers or other suitable means to insure uniform application on superelevated sections and shoulder slopes. Spreader box skids shall be maintained in such manner as to prevent chatter (wash boarding) in the finished mat. The spreader box in use shall be clean and free of microsurfacing and MSE at the start of each work shift.

The spreader box shall have a series of strike-off devices at the rear of the box. The leading strike-off device shall be fabricated of steel, stiff rubber or other suitable material. The number of strike-off devices shall be determined by the Contractor. The first strike-off device shall be designed to maintain close contact with the pavement during the spreading operations, shall obtain the thickness required, and shall be capable of being adjusted to the various pavement cross sections for application of a uniform microsurfacing finished surface. The final strike-off device shall be fabricated of flexible material suitable for the intended use and shall be designed and operated to ensure a uniform texture is achieved in the finished surface of the microsurfacing. The final strike-off device shall be cleaned and/or changed daily.

Flexible fabric drags attached to the rear of the spreader box shall not be used.

Microsurfacing spreader box shall be wrapped in plastic or other suitable material to prevent microsurfacing materials being dropped on the haul routes while in transit to and from the stockpile area or from one project street to another. Failure to comply with this specification shall be grounds for suspension of work until corrective measures are implemented.

### **Surface Preparation**

Pavement must be completely dry prior to the application of microsurfacing.

Special care shall be taken to clean the pavement before the microsurfacing application. Immediately prior to the application of the microsurfacing, the surface to receive the microsurfacing shall be cleaned by vacuum sweeping, flushing or other means necessary to remove all vegetation, loose particles of paving, all dirt, and all other extraneous material. Pavements impregnated with grease, oil, or fuel shall be thoroughly scrubbed with water and an approved detergent and then flushed and swept clean. Wash water shall be vacuumed up and disposed of and shall not be permitted to enter the storm drain system. Contractor shall be responsible for sweeping the streets until sufficiently cleaned to the satisfaction of

the Engineer. Streets shall be swept from face of curb to face of curb. Pavement missed by or inaccessible to broom sweepers shall be swept manually or by other methods approved by the Engineer.

All vegetation and debris removed from the roadway surface shall become the property of the Contractor and shall be disposed of in accordance with Sections 14 and 19 of the Caltrans Standard Specifications.

All existing temporary and permanent pavement markers and temporary delineation shall be removed in accordance with Section 10-1.15, "Existing Street Facilities" of these Contract Specifications.

All surface metal utility covers (including survey monuments) shall be protected by thoroughly covering the surface with an appropriate adhesive and paper or plastic. No adhesive material shall be permitted to cover, seal or fill the joint between the frame and cover of the structure. Covers are to be uncovered and cleaned of surface seal material by the end of the same work day.

### **Placing**

The microsurfacing mixture shall be uniformly spread on the existing surfacing within the rate specified without spotting, rehandling or otherwise shifting of the mixture.

The microsurfacing mixture shall not be placed when the ambient temperature in the shade and the pavement temperature are below 50°F (10°C) or during unsuitable weather (i.e. foggy or rainy). Microsurfacing shall not be placed if rain is imminent or if there is the possibility that there will be freezing temperatures within twenty-four (24) hours. Microsurfacing application shall conclude no later than 3:00 p.m. and guarantee public traffic access within one (1) hour. The surface shall be black and cured prior to opening to traffic. Test the mixture with a screwdriver or similar tool in several locations to demonstrate to inspector proper adhesion and curing of the layer.

**Microsurfacing shall be spread at the rate of 14-18 lbs. of dry aggregate per square yard.**

Longitudinal joints shall correspond with the edges of the traffic lanes. The Engineer may permit other patterns of longitudinal joints if the patterns will not adversely affect the quality of the finished product.

Through traffic lanes shall be spread in full lane widths only. Longitudinal joints common to 2 traffic lanes shall be butt joints with overlaps not to exceed 3 inches (76 mm). Building paper or roofing felt shall be placed at the transverse joints to avoid double placement of the microsurfacing. Other methods to avoid double placement of the microsurfacing are not allowed. Suitable hand tools shall be available to remove spillage.

The mixture shall be uniform and homogeneous after placing on the surfacing and shall not show separation of the MSE and aggregate after setting. The completed surface shall be of uniform texture and free from washboarding, segregation, drag marks, ruts, humps, depressions, or irregularities.

Adequate means shall be provided to protect the microsurfacing from damage by traffic until such time that the mixture has cured sufficiently so that the microsurfacing will not adhere to or be picked up by the tires of vehicles.

Any microsurfacing material that is spilled onto concrete gutter surfaces shall be removed on the same day the material was placed. Concrete surfaces that are stained due to spilled materials shall be cleaned to the satisfaction of the Engineer.

**Rolling**

The surface of the street shall be rolled by a self-propelled, 10-ton (maximum) pneumatic tire roller equipped with a water spray system. All tires shall be inflated per manufacturer’s specifications and to within +/- 5 PSI. Rolling shall not start until the micro surfacing has cured sufficiently to avoid damage by the roller. Areas which require rolling shall receive a minimum of two (2) full coverage passes.

**Joints**

The maximum difference between the pavement surface and the bottom edge of a 12-foot straightedge placed perpendicular to the joint must be:

1. 0.04 foot for longitudinal joints
2. 0.03 foot for transverse joints

**Street Sweeping**

Sweep the micro-surfacing 24 hours after placement without damaging the micro-surfacing. At least one (1) week after the microsurfacing has cured and is open to traffic, sweep the microsurfacing to remove any raveling. Sweeping shall continue until such time when the raveling ceases. Failure to provide adequate sweeping shall result in the Town performing said work at the Contractor’s sole expense, which shall be deducted from any monies due to the Contractor. Sweeping by Town forces shall not relieve the Contractor of any liability arising from his failure to comply with these Contract Specifications.

**Test Strip**

The Contractor shall construct a test strip for evaluation by the Engineer. The test strip shall be 300 feet (100 m) to 500 feet (150 m) long and shall consist of the application courses specified. The test strip shall have one intentional transverse joint mid-way the in test strip to evaluate start/stop/restart smoothness. Space permitting and if directed by the engineer, paving of adjacent lane may be performed to demonstrate longitudinal joint construction. The test strip shall be located on a low volume street. The test strip shall be constructed in the early morning in a sunny area on the pavement and shall cure and be open to traffic within sixty (60) minutes of application.

The Engineer will evaluate the completed test strip after one (1) hour of traffic on the completed test strip to determine if the materials, mat smoothness, and texture as placed are acceptable. If the materials, smoothness, and texture as placed are determined by the Engineer to be unacceptable, no additional work will be permitted until the Contractor’s proposed remediation has been approved by the Engineer. The cost of materials and placement of the test strip(s), which have been rejected, shall be borne by the Contractor and will not be considered as part of the contract work.

The approved test strip will be used for public relations purposes by the Town for local residents to observe.

**Finished Surface**

Finished micro-surfacing must be free of irregularities such as scratch or tear marks. You may leave up to 4 marks that are 1/2 inch or more wide and 6 inches or more long per 75 linear feet of micro-surfacing placed. Do not leave any marks that are over 1 inch wide or 6 inches long.

**Repair of Early Distress**

If bleeding, raveling, delamination, rutting, or washboarding occurs within sixty (60) calendar days after placing the microsurfacing, the Contractor shall diligently pursue repairs by any method approved by the Engineer. The Contractor shall not be relieved from maintenance until repairs have been completed. Inability to provide a satisfactory repair shall be grounds for the Engineer rejecting the microsurfacing as defective. The Engineer's decision is final regarding whether a repair is considered satisfactory.

**23-1.24A MEASUREMENT AND PAYMENT**

The contract unit price paid per **Square Yard** for "**Microsurfacing**" shall be considered as full compensation for furnishing all labor, materials, tools, equipment and incidentals and for doing all the work involved in microsurfacing, including but not limited to; site preparation, cleanup, protecting utility and manhole covers, applying microsurfacing, preparing test strip(s), spread-rate calibration procedures, rolling, protection during curing, street sweeping and all other incidental work required to complete the work as shown and specified.

**23-1.25 AGGREGATE BASE**

Aggregate base shall be Class 2 and conform to the requirements in Section 26, "Aggregate Bases," of the Standard Specifications and these special provisions.

Aggregate Base exceeding a workable moisture content will be rejected by the City and shall be immediately removed from the project site by the Contractor. At least six (6) inches of Aggregate Base shall be placed under concrete curb, gutter, valley gutter, sidewalk and other minor repairs unless specified otherwise on the Plans or elsewhere in these Contract Specifications.

The grading of the material shall conform to the 3/4-inch maximum, specified in Section 26-1.02B, "Class 2 Aggregate Base," of the Caltrans Standard Specifications.

Aggregate Base shall be spread in accordance with the provisions of Section 26-1.03C, "Spreading" and Section 26-1.03D, "Compacting," of the Caltrans Standard Specifications. Spreading and compacting shall be performed by methods that will produce a uniform base, firmly compacted and free from pockets of coarse or fine material. No spreading operation shall begin until the physical characteristics of Aggregate Base have been approved by the Engineer.

Aggregate Base, regardless of its use, shall be compacted to 95% (ninety-five percent) relative compaction. The subgrade shall be graded to the road prism of the finished grade and shall be moisture conditioned and compacted to 95% relative compaction. The Contractor shall take soil samples and provide soil testing to determine maximum dry density and optimum moisture content of the subgrade.

**23-1.25A MATERIALS**

Class 2 Aggregate Base shall conform to the 3/4-inch maximum grading and quality requirements as specified in Section 26, "Aggregate Bases", of the Caltrans Standard Specifications. Recycled Class 2 Aggregate Base is allowed and shall be free of deleterious material with no organics, glass, or clods. The recycled asphalt concrete (RAP) content of the placed Aggregate Base may not exceed ten percent (10%).

The Contractor shall provide a Certificate of Compliance for each material delivery in accordance with Section 6, "Control of Materials," of the 2018 Caltrans Standard Specifications.

**23-1.25B MEASUREMENT AND PAYMENT**

No separate payment will be made for conforming to the provisions of this section. Full compensation for conforming to all the provisions of this section shall be considered as included in the prices paid for various contract items of work and no additional compensation will be allowed therefor.

**23-1.26 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS**

Pavement markings shall be thermoplastic and shall be applied in conformance with the provisions in Section 84, "Traffic Stripes and Pavement Markings," of the Standard Specifications and these Contract Specifications. Pavement markings shall include all work and materials required to install thermoplastic traffic striping and pavement markings.

Thermoplastic material shall be free of lead and chromium, and shall conform to the requirements in State Specification PTH-02ALKYD.

Retroreflectivity of the thermoplastic pavement markings shall conform to the requirements in ASTM Designation: D 6359-99. White thermoplastic pavement markings shall have a minimum initial retroreflectivity of 250 mcd m<sup>-2</sup> lx<sup>-1</sup>. Yellow thermoplastic pavement markings shall have a minimum initial retroreflectivity of 150 mcd m<sup>-2</sup> lx<sup>-1</sup>.

Before the permanent pavement markings are applied, the Contractor shall provide "cat-track" marking layout for review and approval of the Engineer. Changes, if any, to the marking layout as a result of the Engineer's review shall be the responsibility of the Contractor. If the Contractor fails to obtain the Engineer's approval of the marking layout prior to the permanent marking installation, changes to the permanent markings as required by the Engineer, including removal and replacement, shall be the Contractor's responsibility. The Contractor is responsible for blacking out any visible cat-tracking that remains after striping work is completed at no cost to the City.

Thermoplastic pavement markings shall be free of runs, bubbles, craters, drag marks, stretch marks, and debris.

Pavement Markings shall be constructed in conformance with the State of California's Standard Plan A24D, the Project Plans, and as directed by the Engineer.



### 23-1.26A MEASUREMENT AND PAYMENT

**“4” YELLOW THERMOPLASTIC STRIPE (4-YEL)”, “6” WHITE THERMOPLASTIC STRIPE (6-WHT)”, “8” WHITE THERMOPLASTIC STRIPE (8-WHT)”, “BUFFERED BIKE LANE 1 (BBL1)”, “BUFFERED BIKE LANE 2 (BBL2)”, “BUFFERED BIKE LANE 3 (BBL3)”, “MODIFIED DETAIL 22 STRIPE - 4” YELLOW LINES (D22)”, “MODIFIED DETAIL 29 STRIPE - 4” YELLOW LINES (D29)”, “MODIFIED DETAIL 32 STRIPE - 4” YELLOW LINES (D32)”, “DETAIL 37B STRIPE (D37B)”, “DETAIL 38 STRIPE (D38)”, “DETAIL 38A STRIPE (D38A)”, “DETAIL 39 STRIPE (D39)”, “DETAIL 39A STRIPE WITH GREEN VIZIGRIP (D39AG)”, “MODIFIED DETAIL 39A (2’ STRIPE, 6’ GAP) (D39Z)”, “MODIFIED DETAIL 39A GREEN STRIPE (2’ STRIPES, 6’ GAP) (D39ZG)”, “MODIFIED DETAIL 40 STRIPE - 4” WHITE LINE (D40)”, “MODIFIED DETAIL 41 STRIPE - 4” YELLOW LINE (D41)”, “LIMIT LINE (12” WHITE LINE) (LL)”, and “LIMIT LINE (24” WHITE LINE) (LL-24)”**of the various Details and of the various widths listed in the Bid Schedule will be measured by the **Linear Foot**.

The contract unit price paid per linear foot for “4” YELLOW THERMOPLASTIC STRIPE (4-YEL)”, “6” WHITE THERMOPLASTIC STRIPE (6-WHT)”, “8” WHITE THERMOPLASTIC STRIPE (8-WHT)”, “BUFFERED BIKE LANE 1 (BBL1)”, “BUFFERED BIKE LANE 2 (BBL2)”, “BUFFERED BIKE LANE 3 (BBL3)”, “MODIFIED DETAIL 22 STRIPE - 4” YELLOW LINES (D22)”, “MODIFIED DETAIL 29 STRIPE - 4” YELLOW LINES (D29)”, “MODIFIED DETAIL 32 STRIPE - 4” YELLOW LINES (D32)”, “DETAIL 37B STRIPE (D37B)”, “DETAIL 38 STRIPE (D38)”, “DETAIL 38A STRIPE (D38A)”, “DETAIL 39 STRIPE (D39)”, “DETAIL 39A STRIPE WITH GREEN VIZIGRIP (D39AG)”, “MODIFIED DETAIL 39A (2’ STRIPE, 6’ GAP) (D39Z)”, “MODIFIED DETAIL 39A GREEN STRIPE (2’ STRIPES, 6’ GAP) (D39ZG)”, “MODIFIED DETAIL 40 STRIPE - 4” WHITE LINE (D40)”, “MODIFIED DETAIL 41 STRIPE - 4” YELLOW LINE (D41)”, “LIMIT LINE (12” WHITE LINE) (LL)”, and “LIMIT LINE (24” WHITE LINE) (LL-24)”of the various Details shall include full compensation for furnishing all labor, material, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic pavement markings, complete in place, as shown on the Plans, as specified in the Standard Specifications and these Contract Specifications, and as directed by the Engineer.

The contract unit price paid per **Linear Foot** for **“CONTINENTAL CROSSWALK (12” WHITE LINE) (CWW)”, “CONTINENTAL CROSSWALK WITH BLACK BACKING (12” WHITE LINE) (CWWB)”, and “CONTINENTAL CROSSWALK (12” YELLOW LINE) (CWY)”** shall include full compensation for furnishing all labor, material, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic pavement striping, complete in place, as shown on the plans, as specified in the Standard Specifications and these Contract Specifications, and as directed by the Engineer. **Basis for measuring Basic Crosswalk is the actual length of the stripes installed at the crosswalk. The Continental Crosswalk markings shall be 10’ long (along the axis of the roadway) 1’ wide and 3’ on centers.**

The contract unit price paid per **Square Foot** for **“PREMARK VIZIGRIP GREEN BIKE BOX (BBG)”** shall include full compensation for furnishing all labor, material, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic pavement markings, complete in place, as shown on the plans, as specified in the Standard Specifications and these Contract Specifications, and as directed by the Engineer.

The contract unit price paid per EACH for “BIKE AND LEFT ARROW (BLA)”, “BIKE AND THROUGH ARROW (BTA)”, “BIKE AND THROUGH ARROW WITH GREEN VIZIGRIP (BTAG)”, “BUS MARKING (BUS)”, “KEEP CLEAR MARKING (KC)”, “PED XING MARKING (PDX)”, “RAILROAD CROSSING SYMBOL (RR)”, “25 MPH SPEED LIMIT MARKING (S25)”, “SLOW SCHOOL XING MARKING (SCHX)”, “SHARROW MARKING WITH GREEN VIZIGRIP (SHRG)”, “SLOW (WHITE) MARKING (SLWW)”, “STOP MARKING (STP)”, “CALTRANS ARROW TYPE 1 (A1)”, “TYPE IV (LEFT/RIGHT) ARROW LEGEND (A4(L/R))”, and “TYPE VII (LEFT/RIGHT) ARROW LEGEND (A7(L/R))” shall include full compensation for furnishing all labor, material, tools, equipment and incidentals, and for doing all the work involved in applying thermoplastic pavement markings, complete in place, as shown on the plans, as specified in the Standard Specifications and these Contract Specifications, and as directed by the Engineer.

**23-1.27 PAVEMENT MARKERS**

Reflectorized markers shall be installed in conformance with the requirements of Section 85, “Pavement Markers” of the Standard Specifications

Reflectorized markers shall be installed accurately at the locations called for in the Contract Documents or as required by the MUTCD.

Blue Retroreflective Fire Hydrant Markers - Blue reflective markers shall be installed to mark all fire hydrants. At each hydrant, a marker shall be placed on a line perpendicular to the centerline running through the hydrant, one foot from the centerline, with reflective surfaces perpendicular to the centerline. They shall be installed with the same adhesive as the lane markers.

The portion of the street surface, which will receive the pavement markers, shall be free of dirt, oil, moisture, or any other material that would adversely affect the bonding of the adhesive.

Adhesive for pavement markers shall be either rapid set epoxy or hot melt bituminous adhesive conforming to the requirements of Section 85 of the Standard Specifications.

Adhesive shall be placed in sufficient quantity to completely cover the bottom of the marker with no voids and with slight excess after the marker has been pressed into place. The marker shall be protected against impact until the adhesive has hardened.

**23-1.27A MEASUREMENT AND PAYMENT**

The contract unit price paid per Each for “Type D Blue Retroreflective Markers” shall include full compensation for furnishing all labor, material, tools, equipment and incidentals, and for doing all the work involved in applying pavement markers, complete in place, including, epoxy as shown on the Plans, as specified in the Standard Specifications and these Contract Specifications, and directed by the Engineer.

**23-1.28 BLANK**

**23-1.29 LANE SEPARATION SYSTEM**

Lane separation system must be “**CURB AND POST (C&PW)**” or approved equal and have **white curb with 36-inch white posts**. Installation of lane separation system must comply with manufacturer’s instructions.

**23-1.29A MEASUREMENT AND PAYMENT**

The contract unit price paid per **Each** for “**CURB AND POST (C&PW)**”, shall include full compensation for furnishing all labor, material, tools, equipment and incidentals, and for doing all the work involved in installing lane separation system, complete in place, including, manufacturer’s installation process and equipment, as specified in the Standard Specifications and these Contract Specifications, and directed by the Engineer.

**23-1.30 RED PAINT ON CONCRETE CURB**

Red paint on concrete curb shall conform to the requirements of Section 78-4.03 “Painting Concrete” of the State Standard Specifications and these Special Provisions. Curbs shall be painted as shown on the plans or as directed by the Engineer.

**23-1.30A MEASUREMENT AND PAYMENT**

The contract unit price paid per **Linear Foot** for “**Red Paint on Concrete Curb**” shall include full compensation for furnishing all labor, materials, equipment, tools and incidentals, and for doing all the work involved in applying red paint on curbs as shown on the Plans, as specified in the Standard Specifications and these Contract Specifications, and directed by the Engineer. No additional compensation will be allowed.