***City of Oakley***
***ADDENDUM NO. 2 to contract documents for***
***FY 2019-20 Street Repair & Resurfacing Project, CIP No. 237***

**BID OPENING DATE: February 20, 2020, 2:00 PM**

Notice is hereby given that the following clarifications and revisions are made to the above referenced contract documents:

## Update to the Plans and Specifications:

1. For all Rubberized Hot Mix Asphalt (RHMA), the aggregate shall be 3/8 inch RHMA-G and shall conform to the gradations and production tolerance as specified in the Technical Specifications, Part III, Section 10-1.12. No aggregate size substitutions will be allowed.

2. Additional Striping Plan Sheets. The striping plan sheets attached to this addendum shall be used to replace the striping adjacent to the school in the Summer Lakes Subdivision. All other striping in the project shall be replaced per the original plan sheets.

3. Specifications, Part I

   Updated Bid Form (Bid Alternate 1). This includes the updated striping quantities for Bid Alternate 1

All bidders shall acknowledge receipt and acceptance of Addendum No. 2 by signing in the space provided at the end of this Addendum and submitting the signed addendum with their proposal.

Kevin Rohani 2-12-20

Kevin Rohani
Public Works Director/City Engineer
February 12, 2020

_____
Contractor Signature

_____
Date

_____
Company Name

**CITY OF OAKLEY**
**FY 2019-20 STREET REPAIR & RESURFACING PROJECT CIP 237 - ALTERNATE 1, AREA B**
**BID SCHEDULE**

**BIDDER:** _____

| ITEM NO. | BID ITEMS | PAYMENT REFERENCE | UNIT | TOTAL QUANTITIES | UNIT PRICE | *TOTAL COST |
|---|---|---|---|---|---|---|
| 1 | Mobilization, Bonds & Insurance | 10-1.02 | LS | 1 | | |
| 2 | Traffic Control & Construction Area Signs | 10-1.03 | LS | 1 | | |
| 3 | Water Pollution Control Program | 10-1.04 | LS | 1 | | |
| 4 | Crack Seal & Slurry Seal (Type II w/Black Rock) | 10-1.12 | SF | 1,150,270 | | |
| 5 | 3/8" RHMA-G Thin Maintenance Overlay | 10-1.11 | TN | 0 | | |
| 6 | Remove & Replace 4" HMA | 10-1.15 | SF | 265 | | |
| 7 | 6" Deep Lift Stabilization (Allowance) | 10-1.15 | SF | 13 | | |
| 8 | Remove & Replace HMA Speed Hump | 10-1.16 | EA | 0 | | |
| 9 | Keycut A (1-1/4") | 10-1.16 | LF | 0 | | |
| 10 | Keycut B (1-1/4") | 10-1.16 | LF | 0 | | |
| 11 | Cold Plane HMA Flush (with Gutter Lip) | 10-1.16 | LF | 0 | | |
| 12 | Remove & Replace PCC Curb & Gutter | 10-1.17 | LF | 0 | | |
| 13 | Remove & Replace PCC Driveway | 10-1.17 | SF | 0 | | |
| 14 | Remove & Replace PCC Sidewalk | 10-1.17 | SF | 0 | | |
| 15 | Prune & Remove Tree Roots (Under PCC/HMA Repairs) | 10-1.09 | EA | 0 | | |
| 16 | Install Root Barrier | 10-1.09 | EA | 0 | | |
| 17 | Lower Sewer Cleanout Cover | 10-1.19 | EA | 0 | | |
| 18 | Lower Sewer Manhole Cover | 10-1.19 | EA | 0 | | |
| 19 | Lower Storm Drain Manhole Cover | 10-1.19 | EA | 0 | | |
| 20 | Lower Survey Monument Cover | 10-1.19 | EA | 0 | | |
| 21 | Lower Water Valve Cover | 10-1.19 | EA | 0 | | |
| 22 | Adjust Sewer Cleanout Cover to Finish Grade | 10-1.19 | EA | 0 | | |
| 23 | Adjust Sewer Manhole Cover to Finish Grade | 10-1.19 | EA | 0 | | |
| 24 | Adjust Storm Drain Manhole Cover to Finish Grade | 10-1.19 | EA | 0 | | |
| 25 | Adjust Survey Monument Cover to Finish Grade | 10-1.19 | EA | 0 | | |
| 26 | Adjust Utility Box Cover to Finish Grade | 10-1.19 | EA | 0 | | |
| 27 | Adjust Water Valve Cover to Finish Grade | 10-1.19 | EA | 0 | | |
| 28 | Install Blue RPM at Fire Hydrant | 10-1.20 | EA | 79 | | |
| 29 | Install White RPM at Speed Hump | 10-1.20 | EA | 0 | | |
| 30 | 12" White Crosswalk/Limit Line (Thermo) | 10-1.20 | LF | 4,109 | | |
| 31 | 12" Yellow Crosswalk/Limit Line (Thermo) | 10-1.20 | LF | 560 | | |
| 32 | 24" White Crosswalk Line (Thermo) | 10-1.20 | SF | 720 | | |
| 33 | 24" Yellow Crosswalk Line (Thermo) | 10-1.20 | SF | 900 | | |
| 34 | Yield Markings | 10-1.20 | SF | 72 | | |
| 35 | Stripping Detail #2 (Thermo & Markers) | 10-1.20 | LF | 0 | | |
| 36 | Stripping Detail #22 (Thermo & Markers) | 10-1.20 | LF | 9,906 | | |
| 37 | Stripping Detail #39 (Thermo) | 10-1.20 | LF | 10,608 | | |

**CITY OF OAKLEY**
**FY 2019-20 STREET REPAIR & RESURFACING PROJECT CIP 237 - ALTERNATE 1, AREA B**
**BID SCHEDULE**

**BIDDER:** _____

| ITEM NO. | BID ITEMS | PAYMENT REFERENCE | UNIT | TOTAL QUANTITIES | UNIT PRICE | *TOTAL COST |
|---|---|---|---|---|---|---|
| 38 | Stripping Detail #39A (Thermo) | 10-1.20 | LF | 1,680 | | |
| 39 | Type IV (L or R) Arrow (Thermo) | 10-1.20 | EA | 0 | | |
| 40 | Bike Lane Arrow (Thermo) | 10-1.20 | EA | 19 | | |
| 41 | Pavement Marking "AHEAD" Legend (Thermo) | 10-1.20 | EA | 7 | | |
| 42 | Pavement Marking "BIKE" Legend (Thermo) | 10-1.20 | EA | 19 | | |
| 43 | Pavement Marking "BUMP" Legend (Thermo) | 10-1.20 | EA | 0 | | |
| 44 | Pavement Marking "CLEAR" Legend (Thermo) | 10-1.20 | EA | 6 | | |
| 45 | Pavement Marking "KEEP" Legend (Thermo) | 10-1.20 | EA | 6 | | |
| 46 | Pavement Marking "LANE" Legend (Thermo) | 10-1.20 | EA | 19 | | |
| 47 | Pavement Marking "MPH" Legend (Thermo) | 10-1.20 | EA | 0 | | |
| 48 | Pavement Marking "PED" Legend (Thermo) | 10-1.20 | EA | 6 | | |
| 49 | Pavement Marking "SIGNAL" Legend (Thermo) | 10-1.20 | EA | 1 | | |
| 50 | Pavement Marking "SLOW" Legend (Thermo) | 10-1.20 | EA | 0 | | |
| 51 | Pavement Marking "STOP" Legend (Thermo) | 10-1.20 | EA | 60 | | |
| 57 | Pavement Marking "XING" Legend (Thermo) | 10-1.20 | EA | 6 | | |
| 58 | Pavement Marking "10" Legend (Thermo) | 10-1.20 | EA | 0 | | |
| 59 | Pavement Marking "25" Legend (Thermo) | 10-1.20 | EA | 0 | | |
| 60 | Red Curb Paint | 10-1.20 | LF | 150 | | |
| 61 | Install Roadside Sign and Post | 10-1.21 | EA | 13 | | |
| 62 | Install Roadside Sign | 10-1.21 | EA | 5 | | |
| 63 | Install Pedestrian Barricade | 10-1.21 | EA | 2 | | |
| 64 | Remove Roadside Sign and Post | 10-1.21 | EA | 3 | | |
| 65 | Remove Roadside Sign | 10-1.21 | EA | 10 | | |
| 66 | Install Shoulder Backing | 10-1.22 | LF | 0 | | |

## TOTAL

**BASE BID TOTAL AMOUNT IN FIGURES:**

**BASE BID TOTAL AMOUNT IN WORDS:**

*NOTE: In case of error in extension of price into the total price column, the unit price will govern.

# CITY OF OAKLEY
# SUMMER LAKE ELEMENTARY SCHOOL
# OFFSITE SIGNAGE AND STRIPING PLANS

## GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST VERSION OF THE CITY OF OAKLEY STANDARD PLANS, 2018 CALTRANS STANDARD PLANS AND SPECIFICATIONS WITH SUBSEQUENT REVISIONS, SPECIAL PROVISIONS, AND LATEST EDITION OF THE CA–MUTCD. ALL WORK AND MATERIALS SHALL BE SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEER, OR HIS/HER DESIGNATED REPRESENTATIVE.
2. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY FIELD CHANGES MADE WITHOUT WRITTEN AUTHORIZATION FROM THE CITY OF OAKLEY.
3. APPROVAL OF THESE IMPROVEMENT PLANS AS SHOWN DOES NOT CONSTITUTE ANY CONSTRUCTION OUTSIDE THE PROJECT BOUNDARY.
4. THE CITY ENGINEER, ADJACENT BUSINESS AND PROPERTY OWNERS SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF ANY WORK.
5. THE CONTRACTOR SHALL SCHEDULE A PRE–CONSTRUCTION MEETING AT THE JOB SITE. THE MEETING SHALL INCLUDE REPRESENTATIVES FROM THE CITY OF OAKLEY, SUBCONTRACTORS, AFFECTED UTILITY COMPANIES, AND ANY OTHER RELEVANT AGENCIES.
6. USE OF CONSTRUCTION EQUIPMENT SHALL BE RESTRICTED TO NON–HOLIDAY WEEKDAYS BETWEEN 8:30 AM AND 5:00 PM, OR AS APPROVED BY THE CITY ENGINEER.
7. THE CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY OF THE JOBSITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE CITY OF OAKLEY AND PROJECT OWNERS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE CITY OF OAKLEY, THE PROJECT OWNERS OR THE ENGINEER.
8. IT IS INTENDED THAT THESE PLANS AND SPECIFICATIONS REQUIRE ALL LABOR AND MATERIALS NECESSARY AND PROPER FOR THE WORK CONTEMPLATE AND THAT THE WORK BE COMPLETED IN ACCORDANCE WITH HEIR TRUE INTENT AND PURPOSE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY REGARDING ANY DISCREPANCIES AND AMBIGUITIES WHICH MY EXIST IN THE PLANS OR SPECIFICATIONS. IF THE PLANS OR SPECIFICATIONS DESCRIBE PORTIONS OF THE WORK IN GENERAL TERMS BUT NOT IN COMPLETE DETAIL, IT IS UNDERSTOOD THAT ONLY THE BEST GENERAL PRACTICE IS TO PREVAIL AND THAT ONLY MATERIALS AND WORKMANSHIP OF THE FIRST QUALITY ARE TO BE USED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE TO ACQUIRE ALL NECESSARY PERMITS AND LICENSES REQUIRED FOR THE CONSTRUCTION AND COMPLETION OF THE PROJECT.
10. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER, PRIOR TO FINAL ACCEPTANCE, AS–BUILT DRAWINGS OF ALL IMPROVEMENTS REPRESENTED BY THE PROJECT PLANS AND SPECIFICATIONS. AFTER CONSTRUCTION OF ALL IMPROVEMENTS, THE CONTRACTOR SHALL SUBMIT ONE SET OF AS–BUILT REPRODUCIBLE PLANS TO THE CITY ENGINEER.
11. IT IS STRONGLY RECOMMENDED THAT THE CONTRACTOR REVIEW THE SITE BEFORE BIDDING.

## GENERAL NOTES (FOR SIGNAGE AND STRIPING WORK ONLY):

1. SIGNING AND STRIPING SHALL CONFORM TO THE APPLICABLE DETAILS OF THE 2018 CALTRANS STANDARD PLANS, SPECIFICATIONS, AND LATEST CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) CA–MUTCD, AND THE SPECIAL PROVISIONS.
2. ALL STRIPING AND PAVEMENT MARKERS SHALL BE THERMOPLASTIC, PER SECTION 84–2 OF THE CALTRANS STANDARD SPECIFICATIONS.
3. EXACT LOCATION OF ROADSIDE SIGNS SHALL BE DETERMINED BY THE ENGINEER.
4. ALL CURB LANE WIDTH SHALL BE MEASURED TO FACE OF CURB.
5. TRAFFIC SIGNS SHALL BE INSTALLED BEHIND SIDEWALK IF SIDEWALK WIDTH IS LESS THAN 7 FEET. SIGNS IN PEDESTRIAN AREAS SHALL BE AT LEAST 7 FEET HIGH. IF EXISTING SIGN POST IS NOT TALL ENOUGH AFTER ADDING NEW SIGN PANELS, CONTRACTOR SHALL INSTALL NEW SIGN POST.
6. ALL SIGNING AND STRIPING WORK SHALL CONFORM TO CITY OF OAKLEY STANDARDS UNLESS OTHERWISE NOTED.
7. ANY EXISTING STRIPING THAT CONFLICTS WITH THE PROPOSED STRIPING SHALL BE REMOVED BY SAND BLASTING, GRINDING, OR APPROVED METHODS AS SPECIFIED IN THE STANDARD SPECIFICATIONS TO THE SATISFACTION OF CITY ENGINEER.


VICINITY MAP
NOT TO SCALE

## SHEET INDEX :

| No. | DRAWING | DESCRIPTION |
|---|---|---|
| 1 | C–1 | COVER SHEET |
| 2 | SS–1 | SIGNING AND STRIPING PLAN 1 |
| 3 | SS–2 | SIGNING AND STRIPING PLAN 2 |
| 4 | SS–3 | SIGNING AND STRIPING PLAN 3 |
| 5 | SS–4 | SIGNING AND STRIPING PLAN 4 |

## APPLICABLE CALTRANS STANDARD PLANS:

A24C A24E
A24D A24F

## CALTRANS STANDARD ABBREVIATIONS:

RS REMOVE AND SALVAGE EQUIPMENT.

## ABBREVIATIONS:

EX. EXISTING
LF LINEAR FEET
SF SQUARE FEET

## LEGEND:

- INSTALL NEW THERMOPLASTIC STRIPING PER DETAIL NUMBER
- EXISTING STRIPING TO REMAIN
- EXISTING PAVEMENT MARKING TO REMAIN
- EXISTING STOP PAVEMENT MARKING TO REMAIN
- EXISTING SIGN
- PROPOSED SIGN
- INSTALL YIELD LINE PER CALTRANS STD PLAN A24E
- INSTALL STOP PAVEMENT MARKING PER CALTRANS STD PLAN A24D
- XX XX' (DETAIL NUMBER) LENGTH OF DETAIL
- REMOVE EXISTING STRIPING

2-12-20

KEVIN ROHANI, CITY ENGINEER DATE
R.C.E. NO. 51138

RECEIVED FOR CONFORMANCE WITH THE CITY OF OAKLEY STANDARDS AND REQUIREMENTS. APPROVAL FOR CONSTRUCTION IS SUBJECT TO THE INFORMATION SHOWN HEREIN. THE CITY OF OAKLEY AND THE UNDERSIGNED ARE NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS THAT MAY EXIST ON THESE PLANS.

REVISIONS

| NO. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

PREPARED BY DATE

DRAWN: A. DICKINSON
DESIGNED: A. DICKINSON
CHECKED: R. PATEL

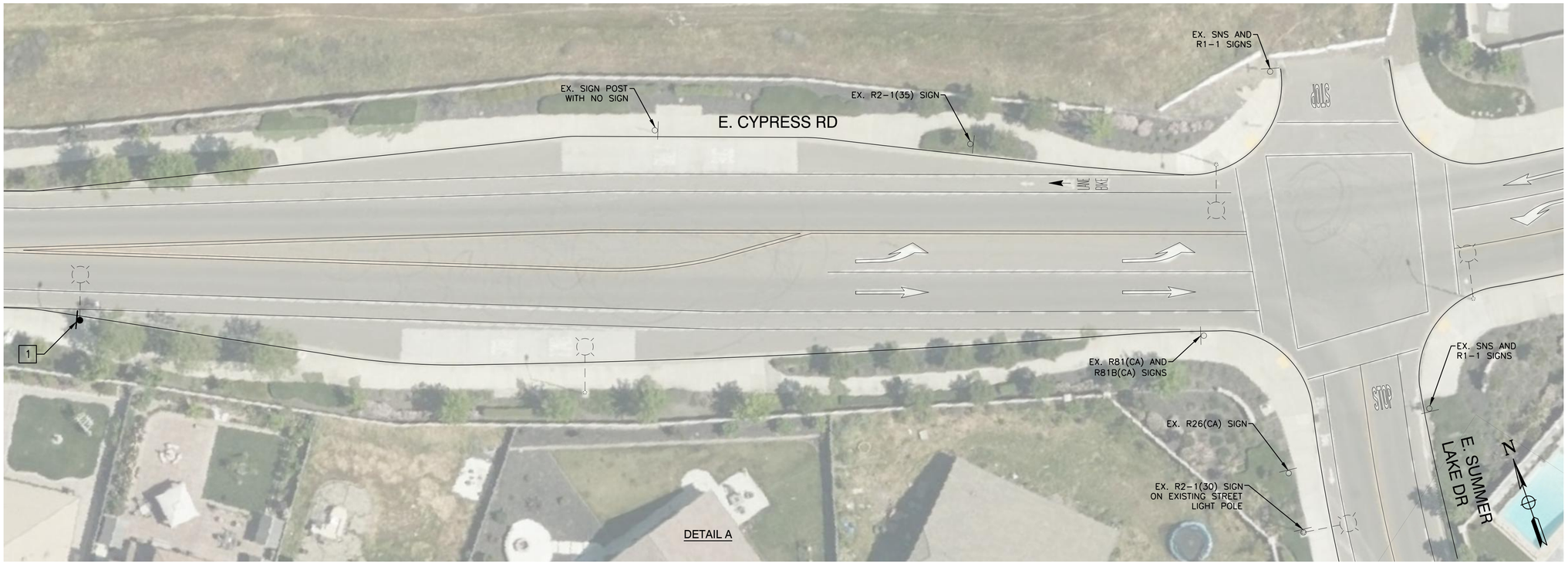
PROFESSIONAL ENGINEER
PUTA ANGELA PATEL
No. 20771
CIVIL
STATE OF CALIFORNIA
REGISTERED

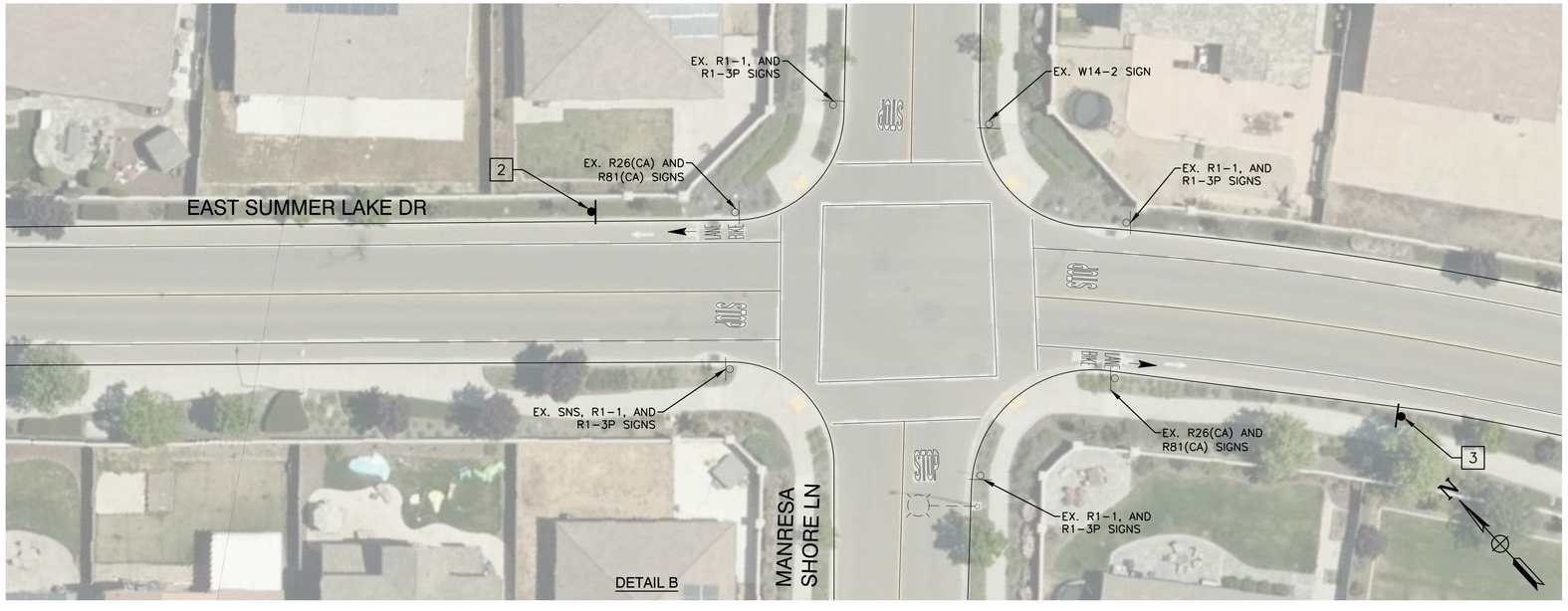
CITY OF OAKLEY
SUMMER LAKE ELEMENTARY SCHOOL
COVER SHEET

OAKLEY CALIFORNIA

SCALE: AS SHOWN
HORIZONTAL: N/A
VERTICAL: N/A

SHEET
C–1




PROJECT NOTES (THIS SHEET ONLY):

1. FURNISH AND INSTALL G7-1(CA) SIGN "Summer Lake Dr" SIGN ON EXISTING STREET LIGHT POLE
2. FURNISH AND INSTALL R2-1(30 MPH) SIGN AND POST
3. FURNISH AND INSTALL SR4-1(CA) SIGN AND POST

0 20' 40'

SCALE: 1"=20'

REVISIONS

| NO. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

PREPARED BY: DATE

DRAWN: A. DICKINSON

DESIGNED: A. DICKINSON

CHECKED: R. PATEL

REGISTERED PROFESSIONAL ENGINEER
PUTA ASSEMBLA
No. C85540
Exp. 6/30/21
CIVIL
STATE OF CALIFORNIA

CITY OF OAKLEY

# SUMMER LAKE ELEMENTARY SCHOOL
# SUMMER LAKE DRIVE
# SIGNING AND STRIPING PLAN 1

OAKLEY CALIFORNIA

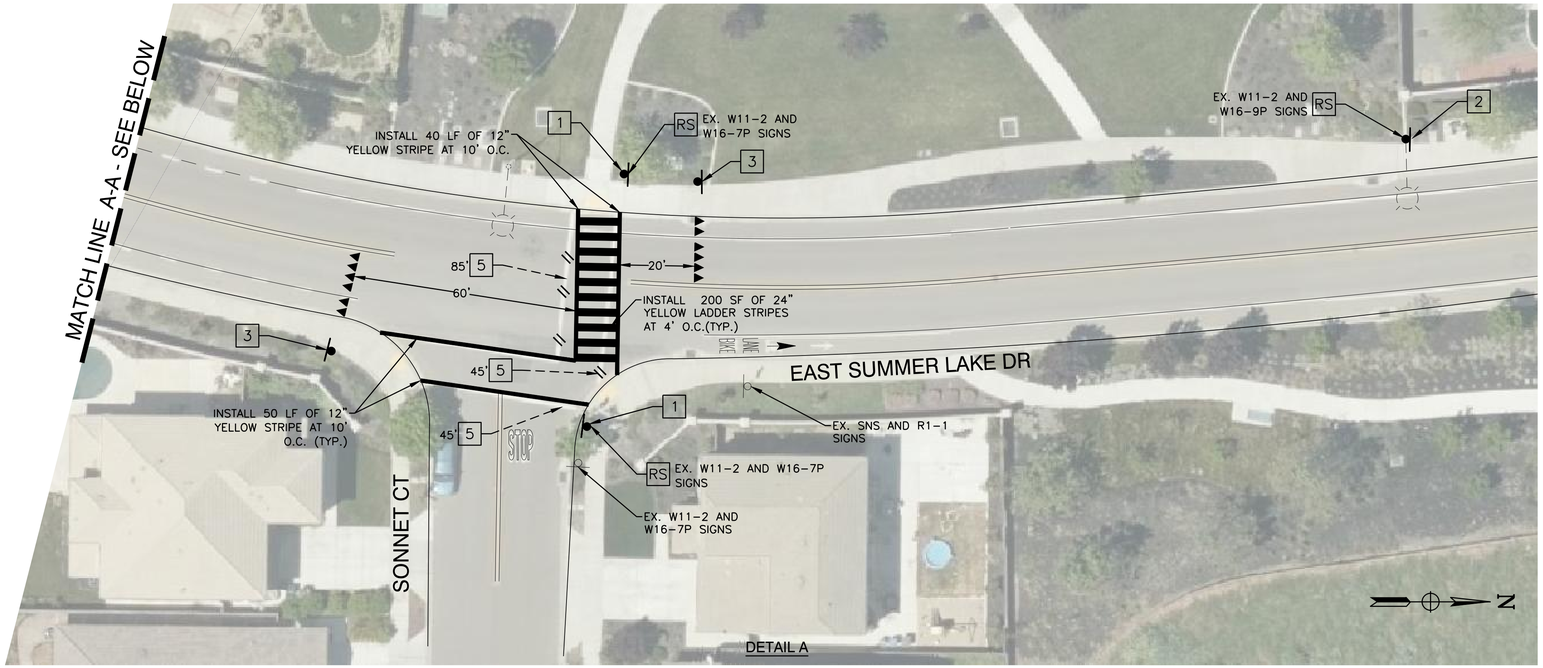
SCALE: AS SHOWN

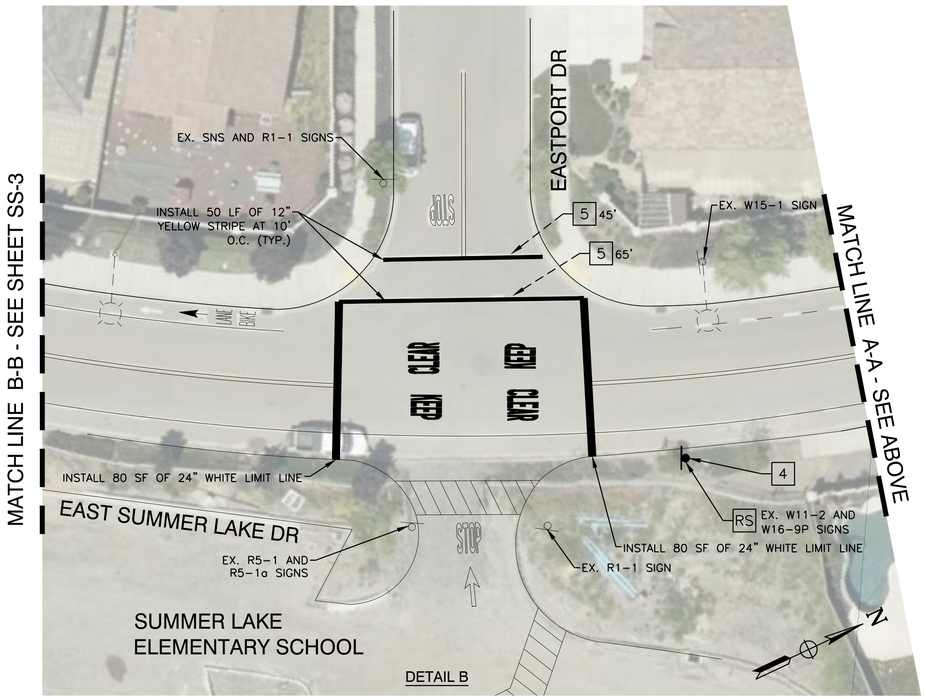
HORIZONTAL: N/A

VERTICAL: N/A

SHEET

SS-1




PROJECT NOTES (THIS SHEET ONLY):

1. FURNISH AND INSTALL SW24-2(CA) SIGN AND POST.
2. FURNISH AND INSTALL SW24-3(CA) SIGN ON EXISTING STREET LIGHT POLE.
3. FURNISH AND INSTALL R1-5 SIGN AND POLE.
4. FURNISH AND INSTALL SW24-3(CA) SIGN ON EXISTING SIGN POST.
5. REMOVE 12" WHITE STRIPE

0 20' 40'

SCALE: 1"=20'

REVISIONS

| NO. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

PREPARED BY DATE

DRAWN: A. DICKINSON

DESIGNED: A. DICKINSON

CHECKED: R. PATEL

REGISTERED PROFESSIONAL ENGINEER PUTA ASSEMBLA No. C 85540 Exp. 6/30/21 CIVIL STATE OF CALIFORNIA

CITY OF OAKLEY

# SUMMER LAKE ELEMENTARY SCHOOL
## SUMMER LAKE DRIVE
## SIGNING AND STRIPING PLAN 2

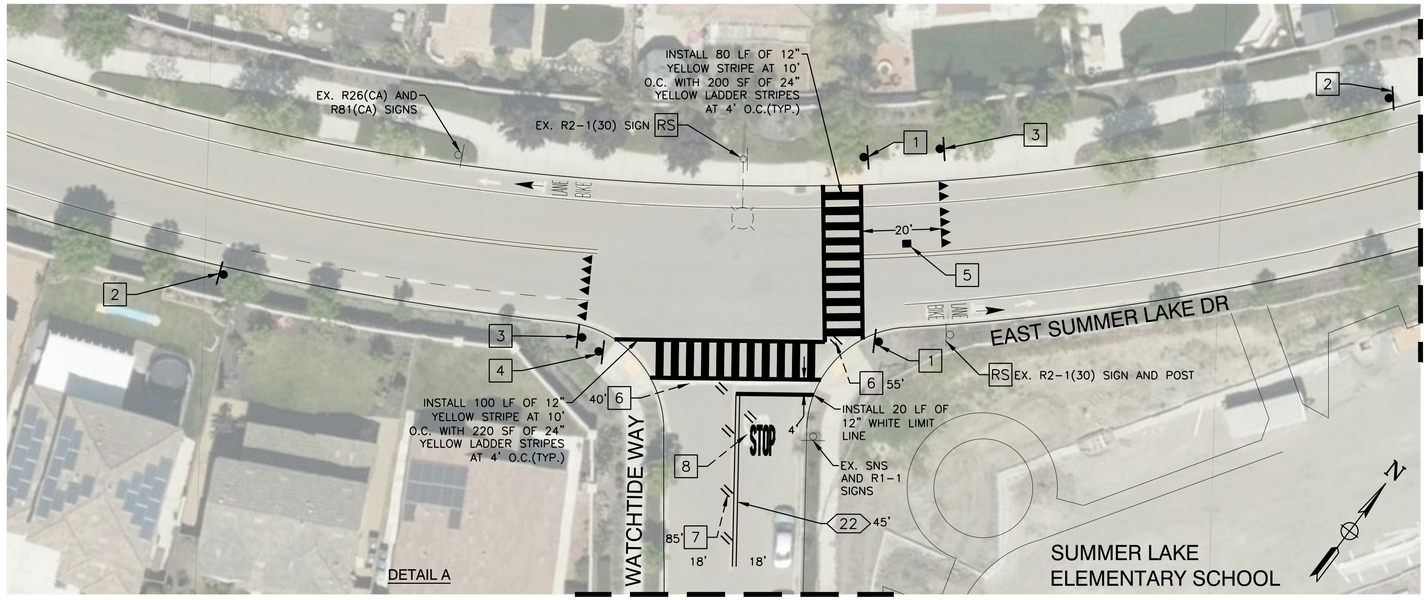
OAKLEY CALIFORNIA

SCALE: AS SHOWN

HORIZONTAL: N/A

VERTICAL: N/A

SHEET SS-2

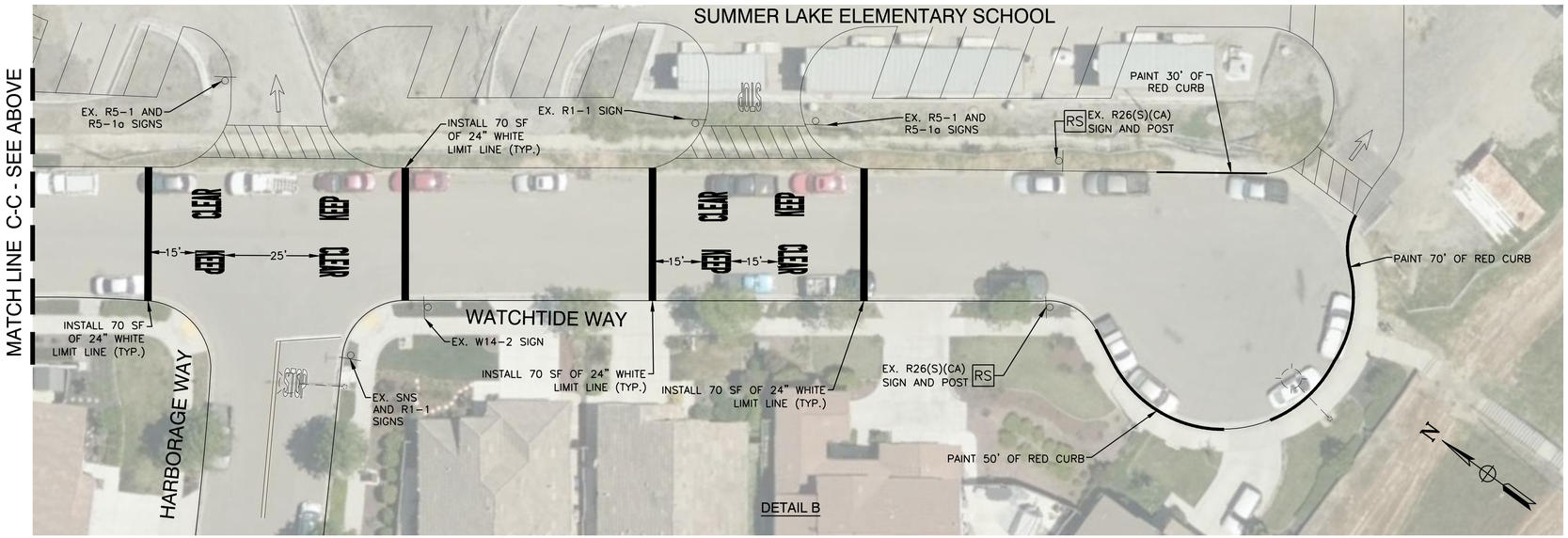



MATCH LINE B-B - SEE SHEET SS-2

MATCH LINE C-C - SEE BELOW

**PROJECT NOTES (THIS SHEET ONLY):**

1. FURNISH AND INSTALL SW24-2(CA) SIGN AND POST.
2. FURNISH AND INSTALL SW24-3(CA) SIGN AND POST.
3. FURNISH AND INSTALL R1-5 SIGN AND POST.
4. FURNISH AND INSTALL R49(CA) SIGN AND PEDESTRIAN BARRICADE.
5. FURNISH AND INSTALL BLUE FIRE HYDRANT MARKER.
6. REMOVE 12" WHITE STRIPE.
7. REMOVE 4" YELLOW STRIPE.
8. REMOVE PAVEMENT MARKING.




MATCH LINE C-C - SEE ABOVE

0 20' 40'

SCALE: 1"=20'

REVISIONS

| NO. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

PREPARED BY DATE

DRAWN: A. DICKINSON
DESIGNED: A. DICKINSON
CHECKED: R. PATEL

REGISTERED PROFESSIONAL ENGINEER PUTA-GOSWAMI No. C85540 Exp. 6/30/21 CIVIL STATE OF CALIFORNIA

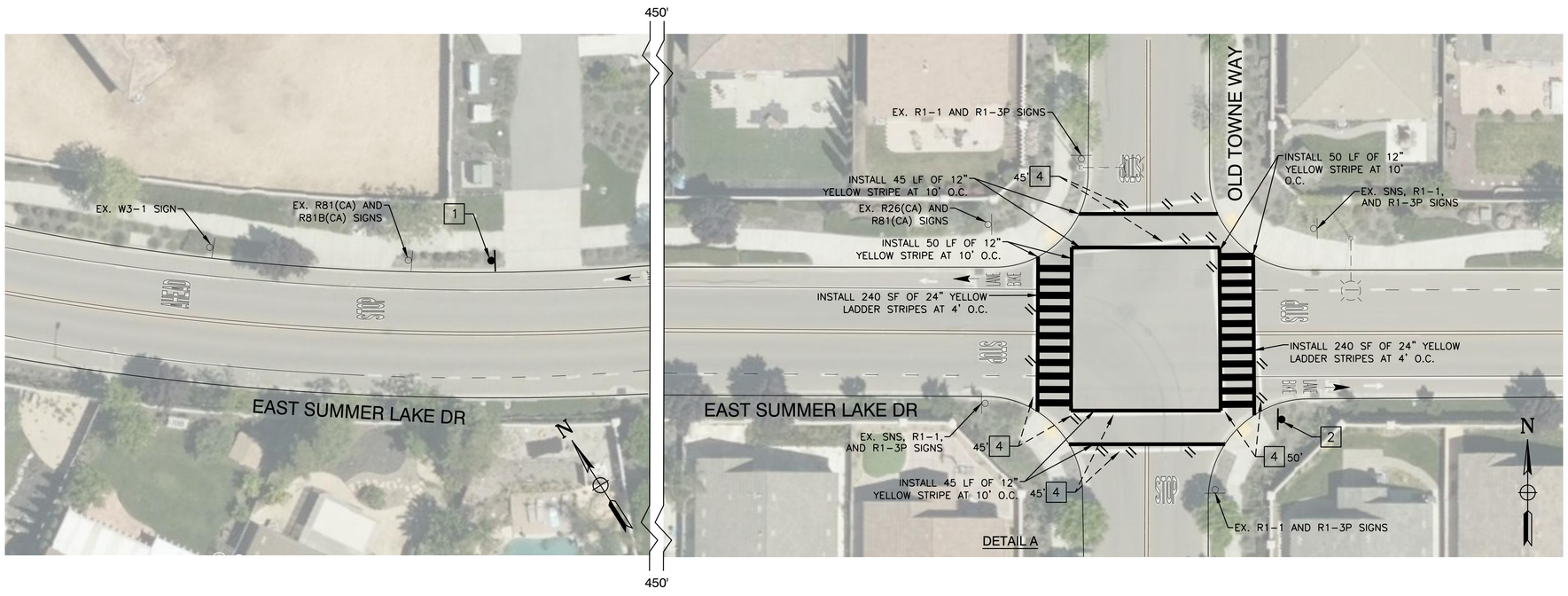
CITY OF OAKLEY

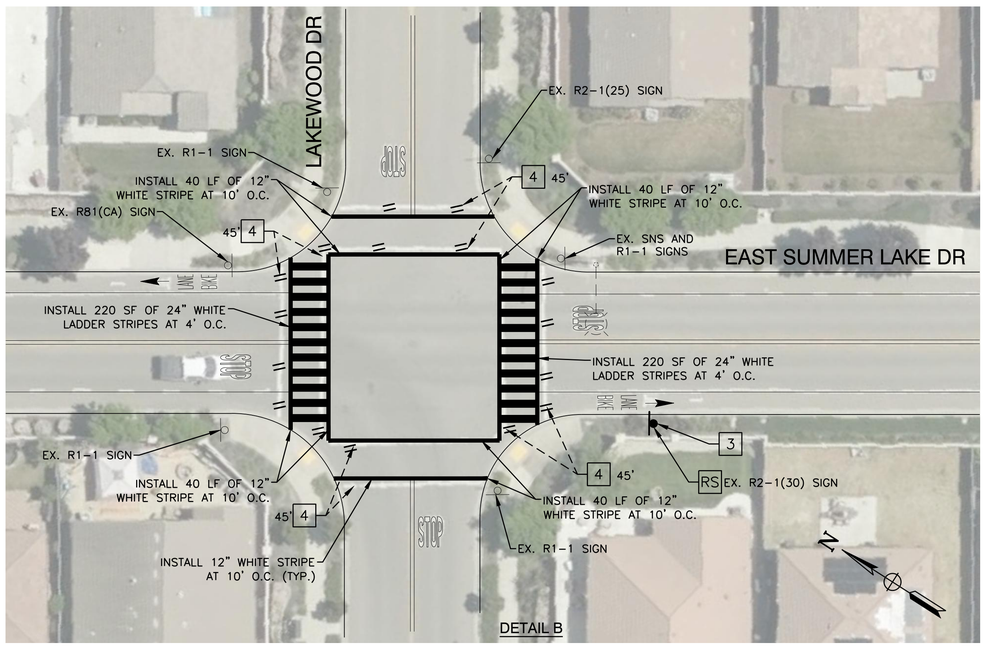
# SUMMER LAKE ELEMENTARY SCHOOL
## SUMMER LAKE DRIVE
## SIGNING AND STRIPING PLAN 3

OAKLEY CALIFORNIA

SCALE: AS SHOWN
HORIZONTAL: N/A
VERTICAL: N/A

SHEET
SS-3




PROJECT NOTES (THIS SHEET ONLY):

1. FURNISH AND INSTALL S5-3 AND R2-1(30) SIGNS AND POST.
2. FURNISH AND INSTALL R49(CA) SIGN AND PEDESTRIAN BARRICADE.
3. FURNISH AND INSTALL SR4-1(CA) SIGN ABOVE EXISTING R81(CA) SIGN ON EXISTING SIGN POST
4. REMOVE 12" WHITE STRIPE.

0 20' 40'

SCALE: 1"=20'

REVISIONS

| NO. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| | | | |

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

PREPARED BY: DATE

DRAWN: A. DICKINSON

DESIGNED: A. DICKINSON

CHECKED: R. PATEL

REGISTERED PROFESSIONAL ENGINEER
PUTA ASSEMBLA
No. C 75540
Exp. 6/30/21
CIVIL
STATE OF CALIFORNIA

CITY OF OAKLEY

SUMMER LAKE ELEMENTARY SCHOOL
SUMMER LAKE DRIVE
SIGNING AND STRIPING PLAN 4

OAKLEY CALIFORNIA

SCALE: AS SHOWN

HORIZONTAL: N/A

VERTICAL: N/A

SHEET

SS-4

# TECHNICAL SPECIFICATIONS

# FOR

# FY 2019-20
# STREET REPAIR & RESURFACING PROJECT
# CIP No. 237

## Part III

**December 18th, 2019**

For Further Information Contact

Department of Public Works & Engineering
Engineering Division
3231 Main Street
Oakley, CA 94561
(925) 625-7037

# FY 2019-20 STREET REPAIR & RESURFACING PROJECT
# CIP No. 237

**These Technical Specifications were prepared under the direction of the following:**


Joseph L. Ririe, P.E.

12/17/19
Date

# TABLE OF CONTENTS

Technical Provisions

# Section 10
# TECHNICAL PROVISIONS

## 10-1.01 GENERAL

Description of Work
The work to be done, in general, consists of roadway repairs, including: cold planning, remove and replace hot mix asphalt (HMA), crack sealing, slurry sealing, rubberized hot mix asphalt (RHMA) thin maintenance overlays, reconstructing concrete driveway, sidewalk, and curb and gutter, tree root pruning and removal, root barrier installation, lowering and adjusting utility covers to finish grade, shoulder backing installation, traffic striping and related items of work as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**The Contractor is required to inspect the site of the proposed work in order to satisfy himself, by personal examination, the location of the proposed work and the actual conditions of the proposed work. The Contractor is also required to have all sub-contractors personally inspect the site.**

All work shall be done in conformance to the applicable provisions of the Standard Specifications except as modified herein. Payment for work, equipment and materials not specifically covered herein shall be included in the payment for related items of work. No additional payment will be made for work, equipment or materials not covered in these Technical Specifications, but necessary to insure a completed project as specified.

Any plan or method of work suggested by the City representative to the Contractor but not specified or required, if adopted or followed by the Contractor in whole or in part, may be used at the risk and responsibility of the Contractor; and the City representative shall assume no responsibility therefor and in no way be held liable for any defects in the work which may result from or be caused by use of such plans or method of work.

Order of Work
Order of Work shall conform to the provisions in Section 8-1.02, “Schedule,” of the Standard Specifications and these Technical Provisions.

The City shall approve the order of work prior to the Contractor beginning construction.

The Contractor shall submit a construction schedule to the City representative for review and approval at the pre-construction meeting for the project. In preparing the construction schedule, the Contractor shall review, coordinate and allocate sufficient time to accommodate any permitting or material lead-time activities.

Twenty-Four (24)-Hour Contact Number
The Contractor shall assign a project superintendent who has the complete authority to make decisions on behalf of the Contractor. The Contractor shall provide to the City a twenty-four (24)-hour contact number for the project superintendent. This number shall not direct calls to a recorder or other message taking service. Should the project superintendent not respond when called, the City representative shall make decisions as necessary and the resultant cost of such decisions shall be borne by the Contractor.

Cooperation

Attention is directed to Section 5-1.20, "Coordination with Other Entities," and Section 8-1.04, "Nonhighway Facilities," of the Standard Specifications.

Haul Routes

The Contractor and all subcontractors shall only use haul routes approved prior to the start of construction by the City representative.

Permits

The Contractor shall comply with Section 5-1.20B, "Permits, Licenses, Agreements and Certifications," of the Standard Specifications and these Technical Provisions.

Submittals

The materials proposed by the Contractor to be used on this contract shall be submitted for approval by the City representative, at least two (2) working days prior to the pre-construction conference. The Contractor shall submit one (1) electronic copy of each submittal for approval by the City.

Submittals and support information shall be separated and clearly labeled when submitted to the City for approval. The list supplied is intended to be comprehensive, but no claim for its completeness is implied and submittal of the complete list will not relieve the Contractor of supplying all the information needed or of complying with any of the other requirements of the specifications. Revised lists may be issued, and items may be added to the list supplied.

The Manufacturer's specifications shall be supplied along with submittal list for all applicable products on the list. Certificates of Compliance shall be submitted in accordance with Section 6-3.05E, "Certificates of Compliance," of the Standard Specifications, including the individual material specification of these Technical Provisions.

The City reserves the right to reject any item that does not fulfill the requirements of these Technical Specifications and the Standard Specifications.

Submittals shall contain:

1. The dates of submissions and the dates of any previous submissions, including identification of revision or re-submittals.
2. The Project Title and Number.
3. Contractor identification, names of subcontractors, suppliers and manufacturers.
4. Specification Section Number(s) and Bid Item(s) that pertain to the submittal.
5. Applicable standards, such as ASTM, Federal or State Specification numbers. Certified test results indicating performance of materials/products with regard to Specification requirements.

6. A blank space for the City representative stamps. The Contractor's stamp shall be required and shall be initialed or signed, certifying the review of submittals and verification of products, field construction criteria, and coordination of the information within the submittal and the specifications.

The Contractor shall be required to review and approve all submittals and provide them stamped and signed as evidence thereof, prior to submitting to the City for review. Submittals that are not stamped and signed by the Contractor will be rejected. Submittals shall be numbered consecutively.

The preparation of plans, drawings and necessary documents, as required by the following submittal lists, shall be considered as part of the requirements of other items of work and no additional compensation shall be allowed therefor.

The City representative reserves the right to reject any item that does not fulfill the requirements of these Technical Specifications and the Standard Specifications.

The Contractor shall submit the following to the City representative the following at least two (2) working days prior to the pre-construction conference:

1. Construction Schedule
2. Traffic Control Plan
3. Material Submittals
4. Water Pollution Control Plan
5. Notice to Residents

All submittals listed above must be received and processed by the City prior to the issuance of the Notice to Proceed. Any exceptions or rejected submittals will be remedied and resubmitted for the City representative's review prior to the issuance of the Notice to Proceed.

Project Appearance

The Contractor shall maintain a neat and orderly appearance to the work site at all times. Debris developed during construction shall be disposed concurrently with its generation. Stockpiling of debris or construction materials shall not be allowed unless otherwise approved by the City representative.

Streets, gutter pans, sidewalks and driveways immediately adjacent to the construction area streets shall be swept daily and immediately following all grinding, sandblasting, rock-wheeling, grading, trucking operations and other construction activity that leaves dirt or debris in roadway. The Contractor shall sweep the street, sidewalk, curb and gutter pans with a power pick-up broom immediately prior to the paving operations. The Contractor shall keep a power sweeper on the job at all times and it shall be used to keep the streets and gutters free of loose or tracked material from the Contractor’s operations. Should the Contractor fail to perform these duties, the City representative, at the City representative’s sole discretion, may elect to have the City, or contract forces, perform the duties, deducting the expenses incurred from any monies that are due, or to become due, to the Contractor. By exercising this option, the Contractor is in no way relieved of the responsibility to

perform these duties.

Construction Staking

Necessary benchmarks and controlling lines for the work are provided in the construction drawings. The Contractor shall engage the services of a Professional Land Surveyor (PLS), currently registered in the State of California, to lay out and construct all parts of the work accurately to the lines and elevations indicated by the drawings. The Contractor shall check the lines, dimensions, and elevations of each unit of work as it is completed to insure the proper installation of subsequent improvements. Should any discrepancies by found when these checks and rechecks are made, Contractor shall report them immediately to the City's representative. Contractor shall use all reasonable precautions to preserve lines and grades.

All distances and measurements that are given will be made in a horizontal plane. Grades are given from the top of stakes or nails unless otherwise noted on the plans.

The Contractor shall preserve all stakes and points set for lines, grades or measurements of the work in their proper places until authorized in writing to remove them by the City's representative. The contractor shall pay for all expenses incurred in replacing stakes that have been removed without proper authority.

## MEASUREMENT AND PAYMENT

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

## 10-1.02 MOBILIZATION

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

Mobilization shall include the furnishing and providing for regular maintenance of temporary sanitary facilities on the job for the duration of the project. Failure to comply with this requirement will result in withholding of mobilization payments in the amount deemed appropriate by the Director of Public Works.

## MEASUREMENT AND PAYMENT

The contract lump sum price paid for **"Mobilization, Bonds & Insurance"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in Mobilization complete in place, including but not limited to preparation and submittal of all project records and documents, bonds, insurance, obtaining all required permits, licenses and paying all applicable fees, delivery of all materials and equipment to the site required for operation, all preparatory work, coordination and cooperation with utility companies and other Contractors, attending project meetings, providing, maintaining and removing on-site sanitary facilities, providing

and adhering to occupational safety and health standards, developing a temporary construction staging area, demobilization and all other mobilization work, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## 10-1.03 TRAFFIC CONTROL & CONSTRUCTION AREA SIGNS

General
Attention is directed to Sections 7-1.03, "Public Convenience," and Section 12, "Temporary Traffic Control," of the Standard Specifications and to the provisions in "Public Safety" of these special provisions as well as these Technical Specifications. The provision in this Section will not relieve the Contractor from his/her responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Section 7-1.04, "Public Safety," of the Standard Specifications.

The Contractor shall fulfill the requirements of this section, twenty-four (24) hours per day, seven (7) days a week, including holidays, from the time the Notice to Proceed is issued until the project is formally accepted.

Traffic control shall be coordinated for the minimum inconvenience and maximum safety of the public during the construction period. The Contractor shall bear full responsibility for maintaining traffic control during the construction period.

The Contractor shall furnish all traffic control equipment, signs, flagmen and barricades necessary to complete the project.

Where work reduces street width, the Contractor shall provide flaggers to guide traffic. Flaggers and all personnel working near traffic shall wear CAL OSHA-approved safety clothing and equipment. Flaggers shall guide traffic with an appropriate stop/slow sign.

Property Access
Property access shall be maintained to all residents at all times unless otherwise approved by the City. Upon approval by the City, access to certain properties may be temporarily closed if the resident and/or property owner agrees to the closure.

Traffic Control Plan
The Contractor shall submit an engineered traffic control plan to the City representative prior to the start of work and at the pre-construction conference. The traffic control plan shall be reviewed and accepted by the City representative prior to any work commencing on the project. All traffic control plans shall be prepared in accordance with the State of California Department of Transportation, “Manual of Traffic Controls for Maintenance and Construction Work Zones 2012,” or latest adopted version.

Individual Traffic Control Plans shall be required for each construction activity or proposed detour that will result in a diversion or disruption of the existing traffic flow. The Contractor shall submit the plans to the City representative a minimum of five (5) days prior to the start of work.

Four (4) separate notifications shall be **hand-delivered** a minimum of seventy-two (72) hours prior to the beginning of any work affecting traffic. Notifications shall include language informing residents of the damaging effects of power steering movements to

fresh slurry seal. Copies of submittals shall be given to the City's Public Works Director for review and approval.

## MEASUREMENT AND PAYMENT

The contract lump sum price paid for **"Traffic Control & Construction Area Signs"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of traffic control and construction area signs complete in place, including but not limited to preparation of a Traffic Control Plan, traffic control supervision, flaggers (when necessary), barricades, flashing arrow boards, message boards, detour signs, "No-Parking, Tow Away" signs, notification and door hangers, temporary traffic delineation, all lane closures necessary for any activities during the life of the project, all work necessary to provide for the convenience & safety of the public, and all other work to facilitate the performance of contract work as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer.

## 10-1.04 WATER POLLUTION CONTROL

The contractor will be required to implement a Water Pollution Control Program (WPCP) and shall use Best Management Practices (BMP's). Water Pollution Control shall conform to the provisions in Section 13, "Water Pollution Control," Section 17-6.03C, "Temporary Drainage Inlet Protection," and Section 13-7, "Temporary Tracking Control," of the Standard Specification, project plans, and these Special Provisions. All operations shall comply with the provisions of the Clean Water Act, Regional Water Quality Control Board, and the City of Oakley Storm Water Ordinance and policies with regard to protection of the storm water system from any pollutants. The Contractor is required to secure all necessary permits.

The Contractor shall implement BMP's for the WPCP at the start of construction. The contractor shall provide a copy of the WPCP at the preconstruction meeting showing the BMP's that will be used to the City and will be available for review at the office of the City Engineer, 3231 Main Street, Oakley, CA. The WPCP will be implemented and modified by the Contractor for compliance with the RWQCB requirements. Any modifications or revisions to the WPCP shall be the responsibility of the Contractor.

The Contractor shall know and fully comply with applicable provisions of the WPCP and all modifications thereto, the 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 Standard Specifications.

The Permits shall apply to storm water and certain permitted 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 WPCP for those areas and shall implement, inspect and maintain the BMP's required as part of the water pollution control practices. The Engineer shall be allowed full access to these areas during construction to assure Contractor's proper implementation of water pollution control practices.

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 Federal, State and local regulations and requirements as set forth therein.

Penalties as used in this section, “Water Pollution Control” 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 Permits, the Manuals, or applicable laws, regulations, or requirements. Costs incurred could include sums spent instead of penalties, in mitigation, to remediate, or correct violations.

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 Permits, 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 the 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 Permits and modifications thereto, 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 thirty (30) days’ 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.

B. No retention of additional amounts out of progress payments will be made if the amount to be retained does not exceed the amount being withheld from progress payments pursuant to Section 9-1.16, "Progress Payments," of the Standard Specifications.

During the first estimate period that the Contractor fails to conform to the provisions in this section, “Water Pollution Control,” the City may retain an amount equal to 25 percent of the estimated value of the contract work performed.

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 violation, enforcement actions or proposed fines by regulatory agencies to the requesting regulatory agency.

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 practices, including addition of new water pollution control practices, will be allowed.

BMP Implementation

Unless otherwise specified, 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 temporary suspensions of work ordered in conformance with the provisions in Section 13-2.03, "Construction," of the Standard Specifications.

Requirements for installation, construction, inspection, maintenance, removal, and disposal of water pollution control practices shall conform to the requirements in the WPCP and these Special Provisions.

If the Contractor or the Engineer identifies a deficiency in the implementation of the WPCP or amendments, the deficiency shall be corrected immediately unless 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, “Water Pollution Control.” Attention is directed to Section 5-1.03, "Engineer’s Authority," of the 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.

## MEASUREMENT AND PAYMENT

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

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

Payment for the work involved under the bid item for the WPCP may be made on a partial

payment system based on the completion of the following stages of the work:

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

The provisions of Sections 4-1.05 "Changes and Extra Work" of the Standard Specifications, shall not apply to these items of work.

## 10-1.05 TEMPORARY DRAINAGE INLET PROTECTION

### GENERAL

Temporary storm drain inlet protection shall be constructed, installed, maintained, and removed at the locations shown in the Water Pollution Control Plan, shall conform to the provisions in Section 13-6.03C "Temporary Drainage Inlet Protection," in conformance the WPCP, BMPs, and these Special Provisions, and as directed by the Engineer. Attention is directed to "Water Pollution Control" of these Special Provisions.

### MATERIALS

Temporary Storm Drain Inlet Protection shall consist of Temporary Drainage Inlet Filters and Temporary Storm Drain Inlet Protection. Temporary Drainage Inlet Filters shall be installed and maintained throughout the project and Temporary Storm Drain Inlet Protection shall be installed and maintained during the defined rainy season.

### CONSTRUCTION

Temporary Storm Drain Inlet Protection
Temporary Strom Drain Inlet Protection shall conform to the specifications and details of Detail SE-10, "Strom Drain Inlet Protection" of the Construction Best Management Practices (BMP's) in the WPCP.

Temporary Drainage Inlet Filters
The Contractor shall furnish, install, maintain and remove drainage inlet filters suitable for installation on existing drain inlets for removal of sedimentation and debris from water flow into the drainage inlet at the locations shown on the plans and as directed by the Engineer.

Temporary Drainage Inlet Filters shall be installed at all storm drain inlets within or adjacent to the project limits

Temporary drainage inlet filter shall be obtained from a commercial manufacturer, as approved by the Engineer.

The filter shall include a high-density polymeric support structure with an ultimate strength of 7,000 lb/ft2, junction strength of 5,300 lb/ft2.

The support structure and filter media shall be supported with a metal mounting support frame.

Each drain shall include a removable bag filter constructed of 8.0 oz non-woven filter fabric. The bag filter shall be fitted with grommets for mounting to the metal support frame. Grommets shall be located no more than 6 inches apart along the entire top of the filter bag. A metal retention bar shall be installed holding the filter bag firm against the metal support structure to prevent bypass flows.

## MEASUREMENT AND PAYMENT

Full compensation for **"Temporary Drainage Inlet Protection"** shall be considered as included in the contract lump sum price paid for "**Water Pollution Control Program"** and no separate payment will be made therefor.

## 10-1.06 EXISTING FACILITIES

## GENERAL

Existing Facilities shall conform to Section 5-1.36, "Property and Facility Preservation," Section 5-1.36D, "Nonhighway Facilities," and Section 15, "Existing Facilities," of the Standard Specifications and these Technical Specifications.

## CONSTRUCTION

Protect Existing Facilities to Remain

The Contractor shall work around and protect all existing improvements to remain, including but not limited to existing utilities, monumentation, storm drainage facilities, street lights and conduit, concrete and asphalt concrete pavement, pavement markings, landscaping and appurtenances that are within or adjacent to the construction areas. The Contractor shall notify Underground Service Alert (USA) 811 prior to beginning any work. Notification shall be in full compliance with USA requirements.

The Contractor, prior to beginning any work on or adjacent to the utility, shall verify the location of all utilities. The Contractor shall protect existing facilities to stay in place, including existing electroliers, when placing construction signs.

The Contractor shall immediately repair or remove and replace any item damaged by his/her operations at his/her sole expense and to the satisfaction of the City representative. The Contractor shall immediately notify the appropriate owner of the improvement or facility and the City representative of any damage as a result of his/her operations to existing improvements or facilities. If the improvement belongs to a private

residence and the property owner or occupant is not at home, such notification shall be attached to the front door of the property.

Location of Existing Facilities
The Contractor shall verify the location of all existing utilities, including but not limited to street light conduit including laterals, all manholes (including but not limited to storm, sanitary, telephone and water valves), all pull boxes (including traffic signal, electrical, water and gas valve boxes), all monuments and monument boxes, and all other miscellaneous boxes and facilities.

## MEASUREMENT AND PAYMENT

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

## 10-1.07 CLEARING & GRUBBING

## GENERAL

The work consists of removing objectionable material from within the roadway and project limits, material sites within the right-of-way, and other specified areas.

All such work shall conform to Section 16 of the Standard Specifications and these Special Provisions.

## CONSTRUCTION

General
Clear and grub construction areas on the job site where facilities are shown to be constructed, per Subsection 16-1.03A "General," of the Standard Specifications. Clear and grub before performing earthwork in an area.

In lieu of the requirements in the seventh paragraph of Subsection 16-1.03A, "General," of the Standard Specifications, clear and grub only the curb ramp, sidewalk, curb, and gutter area where new facilities are to be constructed as necessary to complete the work.

Clearing
The work shall conform to Subsection 16-1.03B, "Clearing," of the Standard Specifications.

Grubbing
The work shall conform to Subsection 16-1.03C, "Grubbing," of the Standard Specifications.

The Contractor shall notify the City 48 hours in advance of any clearing and grubbing

operations so that the locations and limits can be reviewed by the Engineer.

Disposal of Materials
In lieu of the requirements of paragraph two of Subsection 16-1.03D, "Disposal of Materials," the Contractor shall coordinate with the Engineer prior to spreading any material from clearing and grubbing activities in the public right-of-way.

**MEASUREMENT AND PAYMENT**

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

## 10-1.08 TRIM VEGETATION IN WORK ZONE

## GENERAL

This work shall consist of trimming and removing vegetation along the road edge and above finished roadway grade. All such work shall conform to Section 16 "Clearing and Grubbing" of the Standard Specifications, these Special Provisions, the plans and typical section, and as directed by the Engineer.

## CONSTRUCTION

The Contractor shall remove all branches which hang within 13.5 feet above finished roadway grade, and all other vegetation along roadway and in limits of work area. Vegetation shall be trimmed a minimum of 12 inches beyond the edge of pavement, or as necessary for cold planning and paving operations.

Vegetation trimming for cold planning and paving operations shall be performed only as necessary to complete the work.

The Contractor shall notify the City 48 hours in advance of any trimming operations so that the City arborist can be on site to inspect the operation.

## MEASUREMENT AND PAYMENT

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

## 10-1.09 ROOT PRUNE & ROOT BARRIER INSTALLATION

## GENERAL

The work shall consist of pruning and removing the existing tree roots as detailed on the Plans, and coordination with City arborist. After the tree roots are removed and a trench dug along the curb, a water permeable impregnated root barrier shall be placed. Removal of tree roots shall be done adjacent to and under all damaged concrete to be removed and replaced under this contract. Any damage to irrigation systems or other utilities

caused by the Contractor shall be repaired by the Contractor at his expense. Concrete shall be removed in such a manner that tree roots and trunk are not damaged or scarred.

## MATERIALS

The barrier shall be 19 inches tall and shall be made of water permeable fabric. The fabric shall have attached nodules spaced no further than 1-1/2 inches apart. The nodules shall be impregnated with slow release trifluralin (Typar Bio Barrier or approved equal).

## CONSTRUCTION

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

A trench 6 inch wide by 23 inch deep below the sidewalk or curb shall be hand dug along the curb line or sidewalk. The trench shall extend a minimum of 7.5 feet beyond the center of the tree or tree root, in both directions, if possible.

Root removal within the pavement area shall be performed to a depth of 18-inches within the marked limits of the pavement marked to be removed and replaced. Cut roots and contaminated base and subbase shall be removed within the limits prescribed.
All roots encountered within this trench area shall be cut by hand (i.e. chain saw, hand pruners, hand saw, axe, etc.) or a root pruner approved by the City arborist, such as, Dosko Model RC 14SP. Root removal by other mechanical means (trencher, backhoe, loader, etc.) is specifically prohibited.

All pruned roots with a diameter equal to or greater than 2-inches shall be sealed with black plastic to prevent moisture loss and parasite invasion to the satisfaction of the City Engineer.

The root barrier shall be placed against the trench wall adjacent to the concrete curb and gutter or sidewalk. The top of the barrier shall be 2 inches below the soil line at new sidewalk location, 4 inches below the soil line at new curb and gutter locations and shall extend down to the bottom of the trench.

During backfilling with native soil, the barrier shall be held in place to avoid damage. All soil lumps larger than 1-1/2 inches shall be removed from the backfill soil prior to placement. The backfill soil shall be hand tamped in place using tools without sharp edges to prevent damage to the fabric.

Roots between the trench and tree are not to be disturbed. Roots outside the trench may be removed by any means after the hand-dug trench is dug and roots therein removed.

Damage to the tree due to lack of care, protection or following these Specifications shall be subject to financial damages up to the cost of removing and replacing the damaged tree. Damage assessment shall be made by the Parks and Recreation Department.

## MEASUREMENT AND PAYMENT

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

## 10-1.10 HOT MIX ASPHALT (HMA)

## GENERAL

Summary
This work includes producing and placing hot mix asphalt (HMA) for areas of remove and replace HMA using the Method Process as indicated herein.

Comply with Section 39, "Hot Mix Asphalt," of the 2010 Standard Specifications (Unrevised Edition) except as modified in these special provisions.

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

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

### MATERIALS

Asphalt Binder
The grade of asphalt binder mixed with aggregate for all HMA Type A used for remove and replace must be PG 64-10.

The grade of asphalt binder mixed with aggregate for all HMA Type A used for speed humps shall be PG 70-10.

Aggregate
Generally, the hot mix asphalt to be used will be as follows unless modified by the Engineer:

| | |
|---|---|
| Base Courses: | 1/2 inch Type A, hot mix asphalt for base courses. |
| Surface Courses: | 1/2 inch Type A, hot mix asphalt for surface courses. |
| Speed Humps: | 1/2 inch Type A, hot mix asphalt for speed humps. |

**Mix voids shall be targeted at 4.0%.**

**The allowable production range for mix voids shall be 2.5% to 5.5%.**

**TSR shall be minimum 70 in accordance with CTM 371.**

## CONSTRUTION

Surface Preparation

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

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

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

Seal all cracks prior to placing HMA. All cold joints, both longitudinal and transverse, shall be heated with a torch immediately prior to paving. Cold joints include previous passes placed more than three hours prior. All cold joints shall be tack coated. Rolling shall be performed as indicated in the referenced Caltrans specifications. The roller water shall contain a soap type compound to prevent sticking of the HMA material to the rollers.

Speed Humps

Speed humps shall be removed prior to performing keycuts and shall be replaced after placement of RHMA Thin Maintenance Overlay.

Speed humps shall be constructed per City of Oakley Standard Plan No. C-09, “Speed Hump”, except where noted herein.

Sampling

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

Construction Sequencing

The HMA for remove and replace shall be placed on the same day as the removal. The HMA shall be placed and compacted in two lifts unless shown otherwise on the plans. The HMA for remove and replace shall be completed prior to slurry seal and RHMA Thin Maintenance Overlay application.

Engineer’s Acceptance

Modify 39-3.02A Testing as follows:

Add the following footnote:

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

i. Engineer will monitor the contractor’s work for conformance to the Method Process. In Addition, the engineer will collect HMA samples and verify the mix.

## MEASUREMENT AND PAYMENT

The contract unit price paid for **"Remove & Replace HMA Speed Hump"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Hot Mix Asphalt, complete in place, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer.

Full compensation for **"Hot Mix Asphalt (HMA)"** used for areas of remove and replace shall be considered as included in the contract price paid per square foot for **"Remove & Replace 4" HMA"** and no separate payment will be made therefor.

## 10-1.11 RUBBERIZED HOT MIX ASPHALT (RHMA)

## GENERAL

Summary
This work includes producing and placing rubberized hot mix asphalt (gap graded) (RHMA-G) using the Standard process.

Comply with Section 39, "Hot Mix Asphalt," of the 2010 Standard Specifications except as modified herein.

Submittals
Submit JMF information on Form CEM-3511 and Form CEM-3512. Submit Form CEM-3513 or CEM-3514 for mixes that have been verified within last 12 months. For unverified mixes, coordinate mix verification with Engineer.

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

## MATERIALS

General
All hot mix asphalt materials shall be as specified in Section 39, "Hot Mix Asphalt", of the 2010 Standard Specifications; these Technical Provisions; and the plans and typical sections.

The aggregate shall be **3/8-inch** RHMA-G and shall conform to the following gradation and production tolerances:

| 3/8-inch RHMA-G | | |
|---|---|---|
| **Sieve sizes** | **Target value limits** | **Allowable tolerance** |
| 1/2” | 100 | --- |
| 3/8” | 78 – 94 | TV ± 6 |
| No. 4 | 28 – 42 | TV ± 7 |
| No. 8 | 15 – 25 | TV ± 6 |
| No. 30 | 5 – 15 | TV ± 5 |
| No. 200 | 2.0 – 7.0 | TV ± 2 |

In addition to complying with all aggregate quality requirements for RHMA-G in Section 39 (Hot Mix Asphalt) of the California Department of Transportation’s 2010 Standard Specifications, the following aggregate quality requirements shall apply:

| Quality characteristic | Test method | Requirement |
|---|---|---|
| Coarse durability | California Test 229 | 65 minimum |
| Fine durability | California Test 229 | 50 minimum |

Asphalt Binder
The asphalt binder mixed with asphalt modifier and crumb rubber modifier shall be PG 64-10 and shall conform to Subsection 92-1.02(B) of the Caltrans Standard Specifications.

Crumb Rubber
Only California-generated waste tires, processed in California, shall be used in the crumb rubber portion of the project(s). Recycled end-of-life crumb rubber that meets all specifications and standards can be used, as appropriate with prior written permission from the Grant Manager.

The binder material must contain a minimum of 360 pounds and a maximum of 440 pounds (equivalent to 18 percent to 22 percent by weight) of the tire-derived crumb rubber per ton of rubberized binder. The binder shall be asphalt rubber. Terminal blend shall not be used.

Mix Properties
The RHMA-G mix design shall target 3.5% air voids and shall comply with all RHMA-G requirements in Section 39 (Hot Mix Asphalt) of the California Department of Transportation’s 2010 Standard Specifications.

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

**Hamburg wheel track shall be minimum 20,000 passes at 0.5 inch rut depth and 15,000 passes at inflection point in accordance with AASHTO T 324 (Modified).**

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

## CONSTRUCTION

General
The paving shall be performed in such a way as to not leave any transverse paving joints at the end of each day's operation.

Surface Preparation
The work shall consist of preparing the existing street surfaces prior to the commencement of paving. Such work shall include removing raised pavement markers, removing thermoplastic traffic markings and legends, **crack sealing**, controlling nuisance water, sweeping, watering, and removing loose and broken hot mix asphalt pavement and foreign material as specified in the Caltrans Standard Specifications and these Construction Specifications, and as directed by the Engineer.

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

Layout
The Contractor shall layout and mark the location of the edges of the paving passes of the surface course to match the new layout of the lane lines. The layout shall be made at least 24 hours prior to paving. The layout shall be approved by the Engineer prior to paving.

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

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

For paving which incorporates new quarter points or grade breaks due to keycuts or other conditions, the contractor shall provide equipment capable of adjusting to the new surface profile at the appropriate locations. The profile adjustments shall be within twelve inches of the actual quarter point or grade break.

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

Tolerances

The finished rubberized hot mix asphalt surface shall be flush with, to 1/4 inch (0.02 feet or 6 mm) above, the gutter lips. The finished pavement surface shall not be lower than the gutter lips.

The average pavement thickness shall be equal to the specified thickness for the project. For total pavement thicknesses of less than four inches, the minimum allowable thickness will be 1/4 inch less than that specified. For total pavement thicknesses of four inches or more, the minimum allowable thickness will be 1/2 inch less than that specified.

Engineer's Acceptance

Modify 39-2.03A Testing as follows:

Change footnote e(1) to read as follows:

1. Use one location per pavement repair if the repair area is less than 200 square feet. Use three locations for areas between 200 and 1200 sf. Use three tests per 1200 sf thereafter.

Compaction shall be between 90.0% and 97.0%.

Add the following footnotes:

k. Engineer shall perform testing in accordance with CT 375 for acceptance, except maximum specific gravity (CT 309) shall replace TMD testing. Contractor shall perform independent quality control testing continuously during paving using nuclear or non-nuclear methods.

l. Failing tests shall be verified by coring if requested by the Contractor. The Contractor will take cores at locations randomly determined by the Engineer and give them to the engineer for testing. A minimum of 1 core per 250 tons or 3 cores per street, whichever is greater, shall be taken. Results shall be reported as the average of 3 cores.

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

The table for deductions indicated in the referenced revised Caltrans Section 39 shall apply to individual cores. The following table provides the reduced pay factor for each failing core representing 250 tons of HMA:

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

| RHMA-G Percent of Maximum Theoretical Density | Reduced Payment Factor | RHMA-G Percent of Maximum Theoretical Density | Reduced Payment Factor |
|---|---|---|---|
| 90.0 | 0.0000 | 97.0 | 0.0000 |
| 89.9 | 0.0125 | 97.1 | 0.0125 |
| 89.8 | 0.0250 | 97.2 | 0.0250 |
| 89.7 | 0.0375 | 97.3 | 0.0375 |
| 89.6 | 0.0500 | 97.4 | 0.0500 |
| 89.5 | 0.0625 | 97.5 | 0.0625 |
| 89.4 | 0.0750 | 97.6 | 0.0750 |
| 89.3 | 0.0875 | 97.7 | 0.0875 |
| 89.2 | 0.1000 | 97.8 | 0.1000 |
| 89.1 | 0.1125 | 97.9 | 0.1125 |
| 89.0 | 0.1250 | 98.0 | 0.1250 |
| 88.9 | 0.1375 | 98.1 | 0.1375 |
| 88.8 | 0.1500 | 98.2 | 0.1500 |
| 88.7 | 0.1625 | 98.3 | 0.1625 |
| 88.6 | 0.1750 | 98.4 | 0.1750 |
| 88.5 | 0.1875 | 98.5 | 0.1875 |
| 88.4 | 0.2000 | 98.6 | 0.2000 |
| 88.3 | 0.2125 | 98.7 | 0.2125 |
| 88.2 | 0.2250 | 98.8 | 0.2250 |
| 88.1 | 0.2375 | 98.9 | 0.2375 |
| 88.0 | 0.2500 | 99.0 | 0.2500 |
| < 88.0 | Remove and Replace | > 99.0 | Remove and Replace |

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

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

Temporary Transitions

The Contractor shall construct temporary pavement transitions at all paving joints greater than 1 inch prior to allowing traffic onto the paved surface. This includes both longitudinal and transverse paving joints for both leveling and surface courses. Temporary pavement transitions shall have a maximum slope of 20:1 or as approved by the engineer and be

constructed on Kraft paper or other suitable bond breaker such that upon removal of the temporary pavement transition, a clean vertical face remains. The temporary transitions may be constructed of either cold mix or hot mix. A tack coat is required on the transition area prior to final paving.

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

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

## MEASUREMENT AND PAYMENT

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

The contract price paid per ton for **"3/8" RHMA-G Thin Maintenance Overlay"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Rubberized Hot Mix Asphalt (RHMA), complete in place, including surface preparation, tack coat, temporary transition, JMF preparation, submission and verification testing costs, Contractor's Quality Control Plan, and the costs of coring to verify core densities, if required, as shown on the plans, as specified in the Standard Specification and these special provisions, and as directed by the Engineer.

## 10-1.12 SLURRY SEAL (TYPE II WITH BLACK ROCK)

## GENERAL

This work includes placement of Type II slurry seal with black rock.

This work shall consist of mixing asphalt emulsion, aggregate and water and spreading the mixture on a surfacing or pavement where shown on the plans, as specified in these specifications and the special provisions, and as described by the Engineer.

The work shall comply with Section 37-3 Slurry Seal and Micro-Surfacing of the Caltrans 2010 Standard Specifications except as modified in these special provisions.

### MATERIALS

General: At least ten working days prior to starting work on placing the slurry seal, the Contractor shall submit a mix design for Type II slurry seal. The design shall be prepared in accordance with the International Slurry Seal Association Design Technical Bulletin No. 111, dated January 1998. A change in either the aggregate or emulsion during the course of work will require the preparation of a new mix design. In addition to the requirements of Bulletin No. 111, the slurry seal mix design shall also contain 2.5 percent latex.

The materials used in Type II slurry seal shall conform to Section 37-3, "Slurry Seal", of the Standard Specifications.

**Add to section 37-3.02B (2) Aggregate of the Standard Specifications:**

Aggregate shall be 100% crushed with no rounded particles, volcanic in origin and black in color, as supplied by George Reed, Table Mountain, Sonora, CA or Equal.

Asphalt Emulsion:

Asphalt emulsion shall conform to the provisions in Section 94, Table 3, "Asphaltic Emulsions", except as modified below, and shall be of the grade specified herein.

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

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

Cationic type asphaltic emulsion Grade PMCQS-1h shall conform to the following requirements when tested in accordance with the specified test methods:

| Test on Emulsions | Test Method | Requirement |
|---|---|---|
| Viscosity SSF, @ 122° F., sec. | AASHTO T 59 | 100-250 |
| Settlement, 5 days, % | AASHTO T 59 | 5 Maximum |
| Storage Stability, 1 day, % | AASHTO T 59 | 1 Maximum |
| Sieve Test, % | AASHTO T 59 | 0.30 Maximum |
| Demulsibility, 35 ml 0.8% sodium dioctyl-sulfosuccinate, % | AASHTO T 59 | 60-95 |
| Particle Charge | AASHTO T 59 | Positive |
| Oil distillate by volume of emulsion, % | AASHTO T 59 | 3 Maximum |

| Test on Residue from Evaporation Using California Test Method 331: | | |
|---|---|---|
| Residue, % | AASHTO T 59 | 65 Minimum |
| Penetration, @ 77° F., with 100 grams for 5 seconds | AASHTO T 59 | 40-65 dmm |
| Solubility in Trichloroethylene, % | ASTM D 2042 | 97.5 Minimum |
| Ductility, 77° F., 5 cm/min., cm RTFO Aged Residue | AASHTO T 51 | 60 Minimum |
| Torsional Recovery, % | Cal Test 332 | 20 Minimum |
| OR<br>Solid Polymer Content (by weight of asphalt), | Cal Test 401 | 2.7 Minimum |
| Ring & Ball Softening Pt, °F | AASHTO T 53 | 125□F Minimum |
| OR<br>Minimum Viscosity @ 140° F. poise RTFO Aged Residue | AASHTO T 202 | 5,000 Minimum |

Note: When the test for polymer content or polymer modified asphaltic emulsion is used, see sampling requirements in Section 94-1.03, “Sampling”, of the Standard Specifications. Percent of solid polymer content will be based on the weight of asphalt.

The polymer shall be, at the option of the Contractor, either neoprene, ethylene vinyl acetate, or a blend of butadiene and styrene.

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

The Contractor shall submit a sample of the following materials:

1) The base asphalt
2) One quart of the polymer modified asphaltic emulsion

The above sample (No. 1) shall be submitted to the Engineer in a clean, air-tight, sealed, labeled **one-gallon** container, and the above sample (No. 2) shall be submitted in a clean, air-tight, sealed, labeled **one-quart** plastic container. Both samples shall be submitted a minimum of fourteen days prior to the beginning of chip sealing work. The Engineer shall have the submittal tested by an independent testing laboratory. No asphaltic emulsion shall be applied until the testing demonstrates that the proposed asphaltic emulsion conforms to the contract specifications. If the initial submittal does not conform, the costs of testing additional submittals shall be borne by the Contractor.

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

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

## CONSTRUCTION

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

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

Slurry seals shall not be placed when the atmospheric temperature is below sixty-five degrees Fahrenheit or during unsuitable weather.

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

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

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

All vegetation on pavement surfaces to be slurry sealed shall be removed completely and an approved soil sterilizer shall be applied to prevent any future weed growth. The soil sterilizer shall be applied a minimum of ten calendar days in advance of the slurry seal or as required by the Engineer.

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

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

the structure. Covers are to be uncovered and cleaned of slurry material by the end of the same work day.

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

Application**:** Type II slurry seal shall be applied onto the gutter lip, but shall not extend more than 3/4 inch onto the gutter lip. Both applications shall be at the rates specified in the Standard Specifications and as approved by the Engineer.

After the emulsion has broken, the slurry seal shall be rolled with a 6 to 8-ton pneumatic tire roller with a minimum tire pressure of 40 psi. The roller shall be on site prior to the start of slurry placement.

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

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

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

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

**A minimum of five (5) post slurry seal street sweepings shall be made on the 3rd, 7th, 14th, 21st and 30th day after placement of the slurry seal using power vacuum-type sweeping equipment. Areas where the slurry seal fails to adhere or experiences excessive aggregate loss shall be resealed at the Contractor's expense.**

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

## MEASUREMENT AND PAYMENT

Slurry Seal (Type II with Black Rock) will be measured and paid for by the square foot for the actual surface areas covered.

The contract unit price paid per square foot for **"Crack Seal & Slurry Seal (Type II w/Black Rock)"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in furnishing and placing of the Slurry Seal (Type II with Black Rock) complete in place, including crack sealing, covering street facilities, cleaning the surface and protecting the slurry seal until it has set, rolling and sweeping, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contractor shall provide material tags for tonnage of the aggregate and emulsion used

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

Failure to place the slurry seal within the indicated time constraints shall subject the Contractor to liquidated damages of $500 per day, per street. The assessment of these liquidated damages shall not relieve the Contractor of any obligations to maintain the street and to provide interim sweepings as required herein.

## 10-1.13 CRACK SEAL

## GENERAL

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

The work shall consist of cleaning and filling cracks on existing pavement surface prior to Slurry Seal application with rubber asphalt joint seal as specified in these special provisions, and as directed by the Engineer. All cracks less than ½ inch in width shall be routed to a depth of ½ inch by ½ inch in width. The contractor shall remove all debris from the roadway.

**All streets prescribed for Slurry Seal (Type II with Black Rock) and 3/8" RHMA-G Thin Maintenance Overlay shall first be Crack Sealed, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.**

## MATERIALS

Crack sealant shall be a mixture of paving asphalt and ground rubber and shall conform to ASTM D 5078, Type II. The crack seal product shall conform to the following requirements:

| Test | Specification Limit |
|---|---|
| Cone Penetration 77°F(25°C)(ASTM D5329) | 35-55 |
| Resilience (ASTM D5329) | 40% min. |
| Softening Point (ASTM D36) | 200°F(93°C) min. |
| Ductility 77°F(25°C)(ASTM D5113) | 30 cm min. |
| Flexibility (ASTM D3111 Modified) | Pass at 20EF(-7EC) |
| Flow 140°F(60°C)(ASTM D5329) | 3 mm max. |
| Brookfield Viscosity 400°F(204°C)(ASTM D2669) | 100 Poise max. |
| Asphalt Compatibility (ASTM D5329) | Pass |
| Bitumen Content (ASTM D4) | 60% min. |
| Tensile Adhesion (ASTM D5329) | 500% min. |
| Safe Heating Temperature | 400°F(204°C) |
| Recommended Pour Temperature | 380°F(193°C) |

## CONSTRUCTION

Construction Sequencing

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

The Contractor shall apply herbicide to all existing weed growth within the roadway area from curb to curb including the joint between the gutter lip and asphalt pavement. A minimum of two applications shall be made with a minimum period of 7 calendar days between applications. The second application shall be applied to treated areas and any additional new weed growth between applications. Any new weed growth shall be treated a third time after a minimum of 7 days from the second application. The herbicide shall be an organic or Non-Proposition 65, E.P.A. approved herbicide. The herbicide shall be applied by a licensed applicator and shall comply with the manufacturers' recommendations.

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

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

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

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

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

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

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

Squeegeeing

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

## MEASUREMENT & PAYMENT

Full compensation for **"Crack Seal"** shall be considered as included in the contract price paid for **"Crack Seal & Slurry Seal (Type II w/Black Rock)"** and **"3/8" RHMA-G Thin**

**Maintenance Overlay"** and no additional compensation will be allowed therefor.

## 10-1.14 ASPHALT TACK COAT

### GENERAL

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

### MATERIALS

The tack coat shall be emulsified asphalt of grades RS1, RS2, SS1, or SS1h, conforming to Section 94, "Asphaltic Emulsions", of the Standard Specifications.

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

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

Tack coat shall be applied as specified in Subsection 39-1.09C of the Standard Specifications and these Special Provisions. The Engineer will determine if the pavement is sufficiently dry for the application of the tack coat. Further, tack coat shall not be applied when the temperature of the surface to be tacked is below 40 degrees Fahrenheit in the shade.

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

### MEASUREMENT AND PAYMENT

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

## 10-1.15 REMOVE & REPLACE HMA

### GENERAL

The work shall consist of removing and replacing existing hot mix asphalt, and base if necessary, to the specified depth by cold planing or other methods.

Remove & Replace HMA quantities shown in the bid schedules include a 25% overage allowance versus areas shown on the plans. Only overages approved by the City Engineer will be measured for payment.

## MATERIALS

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

## CONSTRUCTION

The locations of Remove and Replace HMA shown on the plans are approximate in terms of size and location. Contractor is responsible to coordinate with the design Engineer to walk the project streets to mark areas of Remove and Replace HMA.

All pavement areas removed as part of the “Remove and Replace HMA” and “6” Deep Lift Stabilization” operation shall be replaced the same day.

The pavement areas designated to be replaced shall be removed to a uniform depth as specified, and may be removed either by cold planing or by full depth sawcutting and mechanical removal. Sawcutting is not necessary if the pavement is removed by cold planing. Any broken or damaged pavement edges shall be re-cut prior to paving. All removed material shall be cleared from the site.

Areas of Remove and Replace HMA located in areas of keycuts shall be performed to the depths indicated on the plans as measured from the keycut planed surface, not the existing pavement surface.

**Materials removed using cold plane or other methods shall become the property of the Contractor, and shall be disposed of in accordance with local rules and regulations.**

If the concrete surface is encountered during the process of the removal, the removal will only be taken to the surface of the concrete instead of the depth that was specified on the plan.

The cold planned areas shall be graded as shown on the plans as necessary to provide a uniform pavement thickness. Any loosed material at the surface shall be recompacted. If the Contractor disturbs material to a depth greater than 1-1/2”, the base rock or native soil shall be reconditioned and recompacted to 95% relative compaction. Compaction testing shall be performed in accordance with either CTM 216 and 231 or ASTM D-1557, D-2216, D-2922, and D-3017. All segregated or loose material shall be removed.

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

Prior to placing aggregate base or hot mix asphalt, each pavement replacement area shall

be proof-rolled with a loaded construction vehicle, preferably a ten cubic yard dump truck or equivalent. The compacted surface shall not visibly yield or deflect. Soft, yielding, unstable, or unsuitable areas shall be removed and replaced with base rock or hot mix asphalt. If the areas were caused or significantly worsened by the Contractor's operations, these areas shall be replaced at the Contractor's expense.

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

In the event that the underlying material is soft, yielding, unstable, or unsuitable, it shall be excavated to a depth of 0.5 feet or 6 inches below the depth required above and disposed of in accordance with these Special Provisions. The limits of removal shall be designated by the Engineer. The resulting space shall be filled with a single lift of hot mix asphalt.

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

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

All vertical edges of existing pavement or concrete shall receive a tack coat immediately prior to paving. Additional tack may be necessary between hot mix asphalt courses. No prime coat shall be required. A tack coat between layers of hot mix asphalt shall be required if not paved on the same day or if the surface has been contaminated or soiled. Any contamination or soiling shall be thoroughly cleaned and a tack coat placed between layers immediately prior to paving.

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

A minimum of two lifts shall be used for each replacement area with a depth greater than three (3) inches. The surface course shall be 1-1/2 inches minimum thickness. No single base or intermediate course may exceed three inches, unless specified otherwise on the plans or by the Engineer.

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

For areas of remove and replace HMA located on the roadway centerline, the Contractor shall ensure that finished pavement surfaces match existing pavement grades and cross slopes.

## MEASUREMENT AND PAYMENT

Remove & Replace HMA and 6” Deep Lift Stabilization will be measured and paid for by the square foot as indicated on the plans.

Areas of Remove & Replace HMA shown on the plan with a width of 6 feet will be measured and paid for based on a width of 6’-7” but only if a 6’-7” wide grinder is used. Otherwise areas of Remove and Replace HMA with a width of 6 feet will be measured and paid for based on a width of 6 feet regardless of the means of removal used.

The contract price paid per square foot for **“Remove & Replace 4" HMA”** and **“6” Deep Lift Stabilization (Allowance)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Remove & Replace HMA, complete in place, including sawcutting, removal, cold planning on Sierra Crete streets, proof rolling, excavation, off-haul, proper disposal of all materials including Sierra Crete, aggregate base, compaction, HMA, reestablishing 2% cross slope with additional HMA tonnage, matching existing pavement grades and tack coat, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer.

Quantities of Remove & Replace HMA and 6” Deep Lift Stabilization (Allowance) shall be approved by the Engineer prior to commencing removal operations. The City does not pay for areas of Remove & Replace HMA that have not been approved by the Engineer in advance of any work.

Subsection 9-1.06B, “Increases of More Than 25 Percent” and subsection 9-1.06C, “Decreases of More than 25 Percent” shall not apply to the bid items related to removing and replacing pavement and subgrade.

## 10-1.16 COLD PLANING

## GENERAL

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

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

Cold planning may be used for Remove & Replace HMA and 6” Deep Lift Stabilization.

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

## EQUIPMENT

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

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

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

## CONSTRUCTION

Limits of cold planing will be determined by the Engineer prior to construction. The depths and dimensions of the cold planing and keycuts are designated in the construction details and/or notes. Cold planing may be used for removal of existing pavement under bid items for “Remove and Replace HMA”.

Cold planing may require removal of existing Hot Mix Asphalt above gutter lips, in addition to the required depth below the gutter lip, due to prior overlays.

Pavement keycuts shall not be allowed more than 5 working days prior to schedule overlay operations without written authorization from the Engineer.

Pavement to be cold planed may contain pavement fabric.

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

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

Pavement removal associated with “Remove & Replace HMA” and “6” Deep Lift Stabilization” shall be replaced the same day. **Liquidated damages of $1,000 per calendar day per street shall be applied for failure to meet this requirement.**

Unsuitable Material

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

In the event that the underlying material is soft, yielding, unstable, or unsuitable, it shall be excavated to the depth of 0.5 feet below the depth required above and disposed of in accordance with these Special Provisions. The limits of removal shall be designated by the Engineer. The resulting space shall be filled with a single lift of Hot Mix Asphalt.

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

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

Pavement Removal Over Utility Covers

Prior to cold planing, on streets to have a uniform depth of the existing surface removed, all utility covers shall be lowered such that the cutting teeth of the planing machine passes over the adjusted lid without causing damage to the lid or frame. Contractor will be responsible for maintaining any temporary asphalt fill material over these facilities until the final paving surface is installed. The Contractor shall clearly mark or reference lowered sanitary sewer, gas and water valves in case emergency access is required by the agency responsible for operation of the sewer, gas and water system.

Pavement Removal Against Curb Faces and Gutter Lips

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

Keycuts

Cold planing along existing gutters at the edges of roadways will typically be “Keycut A” as listed in the Bid Schedule. Cold planing of the pavement edge at cross gutters, across commercial driveways, at equipment crossings, at bridge approaches, or at the end of overlays will typically be “Keycut B” as listed in the Bid Schedule.

On roadways to be cold planed for keycuts, the Contractor shall remove material as shown in the keycut details in the plans. Remaining material around utility covers and at gutter lips shall be removed to the depth of the adjacent milled surface after completion of cold planing.

Tolerances

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

Removal and Disposal of Material

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

completion of the removal work.

All cold planed material including loop detectors shall be considered the property of the Contractor and shall be removed and disposed of at the Contractor's expense.

Air Pollution Control
The Contractor shall take all necessary measures to avoid the dispersion of dust. Attention is directed to Section 14-9 "Air Quality" of the Standard Specifications.

Temporary Transitions
The Contractor shall construct temporary pavement transitions prior to allowing traffic onto cold planed pavement areas. Such transitions shall have a maximum slope of 20:1 and be constructed on kraft paper or other suitable bond breaker such that upon removal of the transition a clean notch remains. Temporary transitions are not necessary in traffic areas if the drop off is less than 0.10 feet. Temporary transitions are required at all conforms, handicap ramps, cross gutters, and driveways.

Correction of Tear Out Areas
If tear-out to the underlying layers occurs during the cold planing operation, the Contractor shall adjust his operation to minimize tear-out. Corrections shall include changing operation speed and replacing cutting teeth. Changes in cold planing depth shall only be made with approval of the Engineer.

Areas torn out by lack of diligence on the Contractor's part shall be corrected by placement of Hot Mix Asphalt conforming to the requirements of these special conditions. Areas torn out due to pre-existing adhesion problems in the existing Hot Mix Asphalt shall be corrected at the City's expense as directed by the Engineer.

## MEASUREMENT AND PAYMENT

The contract price paid per linear foot for **"Keycut A (1-1/4")", "Keycut B (1-1/4")"** and **"Cold Plane HMA Flush (with Gutter Lip)"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in keycuts, complete in place, including cold planing, removal and off haul or existing asphalt concrete above the lip of gutter and to the depths required, as shown on the plans, as specified in the Standard Specifications and in these special provisions, and as directed by the Engineer.

Cold planing for keycuts shall be measured on a linear foot basis along the edge of the adjacent curb, gutter, cross gutter, or pavement.

Cold planing required for Remove & Replace HMA and 6" Deep Lift Stabilization (Allowance) shall be paid for as "Remove & Replace 4" HMA" and 6" Deep Lift Stabilization (Allowance), respectively, and no separate payment will be made therefor.

## 10-1.17 MISCELLANEOUS CONCRETE

## GENERAL

Existing and new concrete facilities including sidewalk, curb and gutter shall be removed and replaced or constructed at the locations indicated on the plans or as directed by the Engineer.

Concrete sidewalks, curbs and gutters shall comply with Section 73, “Concrete Curbs and Sidewalks” of the Standard Specifications and City of Oakley Standard Dwg No. C-01, C-04, C-05 & C-06.

## MATERIALS

General
All section references are to the 2010 Caltrans Standard Specifications.

Portland Cement Concrete: PCC for concrete pavement must comply with section 90-1.

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

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

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

1. 1" maximum aggregate size
2. 5 sack minimum
3. 2,500 psi in 28 days
4. 4 inch maximum slump
5. Fibermesh Polypropylene Fibers, or equivalent, 3/4" minimum length @ 1.5 lbs/cy (0.01% by volume)

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

1. 1" maximum aggregate size
2. 6 sack minimum
3. 2,000 psi in 7 days
4. 4,000 psi in 28 days
5. 4 inch maximum slump.
6. Fibermesh Polypropylene Fibers, or equivalent, 3/4" minimum length @ 3.0 lbs/cy (0.02% by volume).

Omit fibermesh on colored and/or textured concord.

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

Quality Control / Acceptance Testing
Field testing shall include testing for concrete slump as per ASTM C-143 and compressive strength (C39). Such testing shall be at a frequency determined by the Engineer and shall be performed by the Owner’s laboratory at the Owner’s expense. The Contractor shall

furnish the concrete necessary for casting test cylinders.

Detectable Warning Surface
The contractor shall furnish and install detectable warning surface material on curb ramps in conformance with Caltrans Std. A88A (5-16-17 update or most recent). On all new concrete construction, detectable warning surface shall be 'wet-set' system embedded into new concrete. Surface applied or 'mat' systems for detectable warning surface material only allowed if prior approval is made by the City Engineer.

## CONSTRUCTION

General
All work shall conform to the provisions of Section 90 of the Standard Specifications.

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

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

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

Commercial driveway and alley approaches, including the adjacent curb and gutter section, shall be removed and replaced within twenty-four hours. Curing time shall be seventy-two hours.

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

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

Subgrade
After the subgrade is prepared, moisture conditioned, and compacted to 90% relative compaction at zero to three percent over optimum, the Contractor shall continuously maintain the sub-grade in a uniform condition at the moisture content obtained during sub-grade compaction until the concrete is placed.

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

Tolerances
The maximum variation from design elevation shall not exceed +/- 0.02 feet. In some

instances, particularly in critical drainage areas, tolerances may be reduced to zero. Concrete facilities shall be installed to maintain or provide positive drainage. Questions regarding applicable tolerances shall be directed to the Engineer forty-eight hours in advance of the work.

When shown on the drawings, the concrete shall be set at the design elevations. When existing facilities are to be removed and replaced, they shall conform to the existing elevations and grades. Generally, this will be at a straight line between the start and end points of the removal.

Placing and Finishing

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

b. Strike off, Consolidation, and Finishing
   In general, adding water to the surface of the concrete to assist in finishing operations shall not be permitted.

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

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

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

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

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

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

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

e. Joints
Control joints shall be placed at a maximum spacing of ten feet.

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

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

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

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

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

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

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

## MEASUREMENT & PAYMENT

The contract unit price paid per linear foot for **“Remove & Replace PCC Curb & Gutter”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in miscellaneous concrete, complete in place, including but not limited to sawcutting, demolition and removal of curb, gutter and base material; excavation; subgrade preparation; aggregate base; compaction; reconstructing curb and/or under-sidewalk drains; dowelling; concrete; forming; curing compound; reinstalling curb markings; irrigation repairs; backfill and regrading; site restoration; clean-up and other incidental work, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract unit price paid per square foot for **“Remove & Replace PCC Driveway”** and

**"Remove & Replace PCC Sidewalk**" shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in miscellaneous concrete, complete in place, including but not limited to sawcutting, demolition and removal of sidewalk and base material; excavation; removing and disposing of roots; subgrade preparation; aggregate base; compaction; reconstructing curb and/or under-sidewalk drains; dowelling; concrete; forming; curing compound; salvaging and resetting utility boxes to finish grade; irrigation repairs, backfill and regrading; site restoration; clean-up and other incidental work, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## 10-1.18 AGGREGATE BASE

### GENERAL

This work shall consist of furnishing, grading, and compacting aggregate base under concrete repair areas and new structures, and where called for in the plans and these Special Provisions.

### MATERIALS

Aggregate base shall conform to Subsection 26-1.02B, "Class 2 Aggregate Base", of the Standard Specifications. The grading shall be as indicated on the plans, or as directed by the Engineer.

### CONSTRUCTION

Grading shall comply with the requirements of Section 19, "Earthwork", of the Standard Specifications.

The Contractor shall protect any items, facilities, or improvements, as necessary, in order to avoid causing damage.

The existing subgrade material below the new aggregate base shall be ripped, scarified, moisture conditioned to optimum moisture content, and compacted to a minimum of 95 percent relative compaction.

Construction of the new aggregate base shall conform to Section 26 of the Standard Specifications. The constructed thickness of the aggregate base layer shall be not less than the design thickness minus 1/2 inch.

### MEASUREMENT AND PAYMENT

Full compensation for **"Aggregate Base"** be considered as included in the contract prices paid for the various bid items of work involved and no additional compensation will be allowed therefor.

## 10-1.19 LOWERING & ADJUSTING EXISTING UTILITY FACILITIES TO

## GRADE

## GENERAL

This work shall consist of lowering and adjusting existing utility facilities including, but not limited to manholes, valve boxes, sewer clean-outs, monument boxes, electrical boxes, and water meter boxes to the finish grade of the resurfaced asphalt pavement or finished sidewalk grade. On roadways to be milled, facilities shall first be lowered prior to cold planing and then adjusted to finish grade after completion of the resurfacing work.

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

## CONSTRUCTION

Grade rings shall not be used to adjust water utility covers (See Diablo Water District "DWD" 17 Standard Drawing for Raising Valve Boxes).

Raising of sanitary manholes covers shall comply with Section 15.02701 of the current edition of the Standard Specifications for Design and Construction as published by Central Contra Costa Sanitary District.

The Contractor shall properly locate and tie all existing facilities to be raised in advance of paving operations.

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

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

The Contractor shall notify owners of private utility facilities seven (7) days prior to the start of the resurfacing work. Such owners may request the contractor to raise the private facilities. Any contractor raising Diablo Water District (DWD) facilities shall perform any work on said facilities per DWD Specifications and Standards.

Tolerances

The concrete around these adjusted facilities in the roadway shall be brought up to 1-1/2" below finished pavement elevation. The asphalt around these adjusted facilities in the roadway shall be brought up to match the finished pavement elevation.

The surface of the adjusted facilities shall be true to the new pavement surface to within a 1/8-inch deviation. This tolerance shall apply in a single direction only, either up or down. In addition, the adjusted facility shall not vary to the high tolerance on one side and

the low tolerance on the other (i.e. the total aggregate tolerance on both sides shall be limited to the 1/8 inch variation). This variation shall apply to the adjacent patch paving around the facility such that neither the paving nor facility vary by more than the stated tolerances.

The adjusted facilities in the sidewalk shall be flush with adjacent surface.

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

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

Monitoring Wells
Where monitoring wells are to be overlaid, the location of the wells shall be marked on the curbs. A site sketch shall be provided to the city indicating the location and distances on the monitoring wells relative to the curb markings five days prior to paving. If the monitoring wells have frames and covers, the frames and covers shall be adjusted as part of this work.

## MEASUREMENT AND PAYMENT

The contract unit price paid for **"Lower Sewer Cleanout Cover", "Lower Sewer Manhole Cover", "Lower Storm Drain Manhole Cover", "Lower Survey Monument Cover", "Lower Water Valve Cover", "Adjust Sewer Cleanout Cover to Finish Grade", "Adjust Sewer Manhole Cover to Finish Grade", "Adjust Storm Drain Manhole Cover to Finish Grade", "Adjust Survey Monument Cover to Finish Grade", "Adjust Utility Box Cover to Finish Grade"** and **"Adjust Water Valve Cover to Finish Grade"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in lowering and raising utility frames and covers to grade, complete in place, including coordination with the utility companies, the City Engineer, and Surveyors; replacing disturbed monuments; salvaging existing utility frames and covers; concrete; mortar; and HMA (type A); as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

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

## 10-1.20 TRAFFIC STRIPING, MARKINGS & RAISED PAVEMENT MARKERS

## GENERAL

Thermoplastic traffic stripes (traffic lines) shall conform to the provisions in Sections 84-1, "General," 84-2, "Thermoplastic Traffic Stripes and Pavement Markings" of the 2018 Standard Specifications and these Special Provisions. Painted traffic stripes and pavement markings shall conform to Section 84-1, "General" and 84-3, "Painted Traffic Stripes and Pavement Markings", of the 2015 Standard Specifications and these Special Provisions.

## MATERIALS

Thermoplastic
Section 84-2.02, "Materials" of the Standard Specifications is deleted.

The thermoplastic material shall conform to State Specifications 8010-41G-21. Glass beads to be applied to the surface of the molten thermoplastic material shall conform to the requirements of State Specification 8010-22L-22 (Type II), or AASJTP Designation: M 247 (Type 1).

State Specifications for thermoplastic material and glass beads may be obtained from the Transportation Laboratory, P.O. Box 19128, Sacramento, CA. 95819, (916) 739-2400.

Thermoplastic material for traffic stripes shall be applied at a minimum thickness of 0.125-inch.

A primer of the type recommended by the manufacturer of the thermoplastic material shall be applied over all existing painted stripes and pavement legends to be covered with thermoplastic material as shown on the plans.

Paint
Paint for traffic stripes and pavement markings shall comply with Section 84-3 of the Standard Specifications.

The use of either water or solvent-based paint will be determined by the Engineer according to the time of year and air pollution control requirements.

Paint shall be used at its manufactured consistency.

Markers
Raised and reflective pavement markers shall comply with Section 85 of the Standard Specifications. The specific type to be used shall be consistent with the type generally in use within the local jurisdiction unless directed otherwise by the Engineer.

## CONSTRUCTION

All construction shall conform to the respective provisions of the Standard Specifications, manufacturer's installation requirements, and the Special Provisions.

Existing Striping and Markings
In areas adjacent to the reconstructed surfacing where existing striping must be changed

to conform to a revised striping pattern, conflicting striping shall be removed by sand blasting, grinding, or other methods as specified in the Standard Specifications or by the Engineer.

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

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

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

Layout for Temporary and Permanent Striping

The alignment and layout of traffic stripes shall conform to Subsection 84-1.03, "Traffic Stripes and Pavement Markings", of the Standard Specifications.

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

The Contractor shall physically tie down the beginning and ending location of each paint or thermoplastic marking type to the adjacent curb top. Each marking location shall not exceed 50 square inches. Any locations exceeding this limit shall be removed by the Contractor prior to acceptance of the work. The Contractor shall contact the City Engineer for review of tie downs.

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

Cat tracking shall consist of stretching a rope on a straight line between control points on tangent alignment and on a true arc through control points on curved alignment and placing spots of paint along the rope. Temporary tab markers shall be placed not more than 12' apart on curves nor more than 24' apart on straight segments.

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

Prior to application of permanent striping and markers, the Contractor shall call for review and approval of the proposed striping by the City's Traffic Engineer or agent. The City shall have the right to make changes in the location and alignment of line stripes. Striping and traffic markings shall not be applied until after approval is granted by the City's Traffic Engineer or agent. The Contractor shall allow a minimum of three (3) working days for the City to review the layout.

Schedule

Raised pavement markers (RPM's) shall be placed as specified in Subsection 85-1.03A, "General", of the Standard Specifications. When utilizing hot melt bituminous adhesive, RPM's shall be placed after the surface has been open to traffic for at least seven (7) days. When utilizing epoxy adhesive, RPM's shall be placed after the surface has been open to traffic for at least 14 days. Regardless of which adhesive is utilized, the RPM's shall not be placed more than 21 days after paving or surfacing.

Permanent traffic striping and markings including legends and arrows shall be placed 14 calendar days minimum and 21 calendar days maximum after paving or surfacing, unless otherwise directed by the Engineer.

Temporary yellow marking tape denoting school crosswalks shall be placed the same day that the pavement surfacing is placed.

Failure to comply with these requirements shall result in liquidated damages of $1,000 per day for each street that has not received permanent installation of the required traffic striping, pavement markings, and raised pavement markers.

Pavement Stencils

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

Retroreflective and Raised Pavement Markers

Installation of both retroreflective and raised pavement markers shall conform to the provisions of Section 85 of the Standard Specifications. Pavement markers shall be placed in the same pattern and locations as they were previously, except as shown on the plans or modified herein.

Pavement Delineation – Thermoplastic

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

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

Thermoplastic traffic striping, legends, and arrows shall conform to the provisions of Section 84-1, "General"; Section 84-2, "Thermoplastic Traffic Stripes and Pavement Markings"; and refer to Section 85, "Pavement Markers"; and the Special Provisions.

Pavement Markers

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

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

At the option of the Contractor, a hot melt bituminous adhesive may be used to cement the markers to the pavement instead of the Rapid Set Type or Standard Set Type epoxy adhesive specified in 85-1.02E, "Epoxy Adhesive," of the Standard Specifications. Bituminous adhesive material shall conform to the following:

| **Specification** | **ASTM** | **Requirement** |
|---|---|---|
| Flash Point, COC, ºF | D 92 | 550 Min. |
| Softening Point, ºF | D 36 | 200 Min. |
| Brookfield Thermosel Viscosity, Centipoise, No. 27 Spindle, 20 RPM,400ºF | D 4402 | 3,000-6,000 |
| Penetration dmm, 100g, 55 seconds, 77ºF | D 5 | 10 - 20 |
| Filler Cement, percent by weight (Insoluble in1,1,1 Trichloroethane) | D 2371 | 65 - 75 |

Filler material used in bituminous adhesive shall be Type PC, Grade III, calcium carbonate conforming to ASTM D1199, and shall conform to the following gradation:

| **Sieve Size** | **Percent Passing** |
|---|---|
| No. 100 | 100 |
| No. 200 | 95 |
| No. 325 | 75 |

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

Immediately after application of the adhesive, pavement markers shall be placed in position and pressure applied until firm contact is made with the pavement.
Placement of pavement markers using bituminous adhesive shall conform to the requirements of the third, fourth, ninth and tenth paragraphs in said Subsection 85-1.03A of the Standard Specifications, except as follows:

1. Markers shall not be placed when the pavement or air temperature is 50ºF or less.

2. Blast cleaning shall be required.

When bituminous adhesive is used for pavement marker placement, traffic control during placement operations shall conform to the requirements of "Traffic Control System" of these Special Provisions.

## MEASUREMENT AND PAYMENT

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

The contract unit price paid for **“Install Blue RPM at Fire Hydrant”, “Install White RPM at Speed Hump”, “Type IV (L or R) Arrow (Thermo)”, “Bike Lane Arrow (Thermo)”, “Pavement Marking “AHEAD” Legend (Thermo)”, “Pavement Marking “BIKE” Legend (Thermo)”, “Pavement Marking “BUMP” Legend (Thermo)”, “Pavement Marking “CLEAR” Legend (Thermo)”, “Pavement Marking “KEEP” Legend (Thermo)”, “Pavement Marking “LANE” Legend (Thermo)”, “Pavement Marking “MPH” Legend (Thermo)”, “Pavement Marking “PED” Legend (Thermo)”, “Pavement Marking “SIGNAL” Legend (Thermo)”, “Pavement Marking “SLOW” Legend (Thermo)”, “Pavement Marking “STOP” Legend (Thermo)”, “Pavement Marking “XING” Legend (Thermo)”, “Pavement Marking “10” Legend (Thermo)”** and **“Pavement Marking “25” Legend (Thermo)”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in applying pavement markings, markers and delineators, complete in place, including proper removal and disposal of pavement markings and markers, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

The contract price paid per linear foot for **“12” White Crosswalk/Limit Line (Thermo)”, “12” Yellow Crosswalk/Limit Line (Thermo)”, “Striping Detail #2 (Thermo & Markers)”, “Striping Detail #22 (Thermo & Markers)”, “Striping Detail #39 (Thermo)”, “Striping Detail #39A (Thermo)”** and **“Red Curb Paint”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing and applying thermoplastic traffic stripes and pavement markers, complete in place, including proper removal and disposal of traffic stripes and pavement markers, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

The contract price paid per square foot for **“24” White Crosswalk Line (Thermo)”, “24” Yellow Crosswalk Line (Thermo)”** and **“Yield Markings”** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in removing and applying thermoplastic traffic stripes and pavement markers, complete in place, including proper removal and disposal of traffic stripes and pavement markers, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

## 10-1.21 ROADSIDE SIGNS

## GENERAL

Summary: The work shall consist of removal of signs identified for removal and furnishing and install exterior post mounted roadside signs as described in Contract Documents.

Submittals: Submit material data sheets for the following:

1. Sign
2. Posts
3. Mounting Sleeves
4. Setting Grout

## MATERIALS

Concrete: Concrete for sign post foundation shall be 2500 PSI concrete, either prepackaged or ready mix.

Grout: Post setting grout at sleeves shall be by one of the following approved manufactures:

Normal Construction Grout A by W R Bonsal, Charlotte, NC (800) 334-0784

1. Advantage 1107 Grout by Dayton Superior, Oregon, IL (800) 745-3707
2. NS Grout by Euclid Chemical Co, Cleveland, OH (800) 321-7628
3. 5 Star Special Grout 110 by Five Star Products Inc, Fairfield, CT (800) 243-2206
4. Duragrout by L&M Construction Chemicals Inc, Omaha, NE (800) 362-3331
5. Masterflow 713 Pre-mixed Grout by Master Builders, Cleveland, OH (800) 628-9990
6. Sonogrout 10K by Sonneborn Building Products, Shakopee, MN (800) 496-6067
7. Multi-Purpose Grout by Richmond Screw Anchor Co, Fort Worth, TX (817) 284-4981
8. TAMMS Grout 621 by TAMMS Industries, Mentor, OH (800) 218-2667
9. CG-86 Grout by W R Meadows, Elgin, IL (800) 342-5979

Posts: New sign posts shall have a nominal 2 inch outside diameter by minimum 9.5 feet high with wall thickness equivalent to schedule 40 galvanized pipe.

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

Mounting Sleeves: Mounting Sleeves shall be a nominal 2-1/2 inch outside Schedule 40 diameter pipe, 24 inches long. Contractor shall predrill 7/16-inch hole 2 inches from end of pipe. Contractor shall provide 3/8-inch x 3-inch galvanized bolt with nylon type nut.

Signs: All new signs shall have Diamond Grade DG-3 sign sheeting.

## CONSTRUCTION

Removal: Where specified on plans, remove existing signs. Verify if existing pole can be reused at the same location for installation of new signs. If not, removal shall include sign, pole, and buried concrete pole base. Backfill void w/topsoil in landscape areas, aggregate base or controlled density fill (CDF) under pavement areas. For removal of sign posts

embedded in concrete facility, cut post flush with surface and fill void with non-shrink grout.

**INSTALLATION**

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

Sleeves shall extend 4 inches above top of finish concrete elevation.

Post Foundations:

1. Landscape Area:
   Post holes shall be 8 inches in diameter and 30 inches deep. Concrete shall be thoroughly mixed to 4-inch maximum slump. Place concrete to the surface of the turf or mulch. Even up vertical edges with trowel at least 2 inches below top. Finish top of concrete with trowel and slope away from pole. Apply medium broom finish to exposed concrete base.

2. Sidewalks and Concrete Areas:
   Core 8-inch diameter hole in concrete. Excavate 8" diameter hole 30 inches deep. Thoroughly mix concrete to 4-inch maximum slump. Finish top of concrete even with existing concrete. Match ex. Finish.

Post Installation: Install post in mounting sleeve so bottom of post is 6 inches from top of sleeve. Rivet post to mounting sleeve or bolt using tamper-proof bolts.

## MEASUREMENT AND PAYMENT

The contract unit price paid for **"Install Roadside Sign and Post", "Install Roadside Sign", "Install Pedestrian Barricade", "Remove Roadside Sign and Post"** and **"Remove Roadside Sign"** shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in Roadside Signs, complete in place, including removal and disposal of existing signs and post, filling voids with grout, furnishing and installing new signs, posts and brackets, demolition, excavation, coring, grout, concrete, backfill materials, landscape restoration, and clean-up, as shown on the plans, as specified in the Standard Specifications and these special provision, and as directed by the Engineer.

# 10-1.22 SHOULDER BACKING

## GENERAL

This work shall consist of scarifying the existing shoulder material and placing additional material to bring the shoulder up to the new pavement surface as specified. All such work shall conform to the applicable provision of the Standard Specifications and these special provisions, the plans and standard details, and as directed by the Engineer.

## MATERIALS

Material for shoulder backing shall be crushed Class 2 aggregate subbase or Class 2 aggregate base and shall conform to Sections 25 and 26 of the Standard specifications. All grindings larger than two (2) inches shall be removed from the surface of the completed shoulder backing.

## CONSTRUCTION

Installation
The existing shoulder shall be scarified sufficiently to provide bonding between the existing and new materials. The limit of scarification and new shoulder backing material shall be three (3) feet from the edge of the new pavement surface. Shoulder material shall be moisture conditioned, placed, shaped, and compacted such that the new shoulder material is firm and does not displace under longitudinal shoulder traffic. The surface elevation of the compacted shoulder backing shall match the new pavement surface.

Drainage Patterns
Existing roadside drainage patterns shall be maintained. Where unusual shoulder conditions not represented by the typical details are encountered, the Contractor shall notify the Engineer 24 hours in advance of shoulder work. The Engineer will specify the adjustments to be used to ensure that drainage patterns are maintained.

Schedule
Shoulder backing shall start no sooner than three (3) calendar days and shall be completed no more than seven (7) calendar days after completion of the adjacent paving.

## MEASUREMENT AND PAYMENT

Shoulder backing is measured along the pavement edge.

The contract price paid per linear foot for “Install Shoulder Backing” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in installing shoulder backing, complete in place, including removing objectionable material, scarifying existing shoulder, and placing, moisture conditioning, and compacting new shoulder material, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

## 10-1.23 FINAL CLEAN-UP

Before final inspection of the work, the Contractor shall clean the work and all ground occupied by him in connection with the work, of all rubbish, excess materials (including liquid asphalt), and equipment.

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

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

## MEASUREMENT AND PAYMENT

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