SPECIFICATIONS
FOR
2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT

DRY CREEK RD. MPM 6.2, RDS 21-30;
DRY CREEK RD. MPM 9.48, RDS 21-39;
DRY CREEK RD. MPM 9.75, RDS 21-06;
DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04

NOTICE TO CONTRACTORS

CONTRACT FOR CONSTRUCTION

PROPOSAL FORM

SPECIAL PROVISIONS
SECTION ‘A’ – General Conditions
SECTION ‘B’ – Technical Specifications

At the time of contract award
Contractor shall possess a Class A

BID DUE DATE: APRIL 7, 2022 @ 11:30 am

Approved
Juan S. Arias  County Engineer RCE No. 63365

PL No. 69167
2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT

DRY CREEK RD. MPM 6.2, RDS 21-30;
DRY CREEK RD. MPM 9.48, RDS 21-39;
DRY CREEK RD. MPM 9.75, RDS 21-06;
DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04

Section “C” - Technical Specifications
Prepared By

Civil and Structural Technical Specifications:

3/8/2022

Registered Civil Engineer C-50238
Majdi Kanaan, ADKO Engineering
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APPENDIX A – GEOTECHNICAL REPORT
NOTICE TO CONTRACTORS

Proposals shall be submitted under sealed cover plainly marked as a proposal, and identifying the project to which the proposal relates and the date of the bid opening therefore. Proposals which are not properly marked will be rejected. Sealed proposals will be received at the office of the Clerk of the Board of Supervisors, Napa County Administration Building, 1195 Third Street, Room 310, Napa, California, until 11:30 A.M. on April 7, 2022 (no bids will be accepted after 11:30 A.M.) after which they will be publicly opened and read under the social distancing protocol in enforcement at the time, for the construction in accordance with the Plans and Special Provisions thereto, to which special reference is made as follows:

**2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT**
- **Dry Creek Rd. MPM 6.2, RDS 21-30;**
- **Dry Creek Rd. MPM 9.48, RDS 21-39;**
- **Dry Creek Rd. MPM 9.75, RDS 21-06;**
- **Diamond Mountain Rd. MPM 1.1, RDS 21-04**

Total Engineer Estimate: $2,015,000

Due to the COVID-19 pandemic, physical attendance in the meeting room is limited at this time and attendance by the public is encouraged to be virtual through the link provided below.

Zoom Meeting link: [https://countyofnapa.zoom.us/j/87014972125](https://countyofnapa.zoom.us/j/87014972125)
To listen to bid opening by phone, dial: 1 (669) 900-6833
Zoom Meeting ID: 870 1497 2125

Bids are required for the entire work called for by the description of work set forth in the special provisions, and neither partial nor contingent bids will be considered. In conformance with Public Contract Code Section 20129, bids must be valid for 60 days from the date bids are opened. Bid documents and any addendums are available at [https://www.countyofnapa.org/1607/Current-Projects](https://www.countyofnapa.org/1607/Current-Projects). Bidders are responsible for monitoring issued addendums at this website.

Bid results of the three apparent low bidders with their subcontractor’s list will be on the County’s website [https://www.countyofnapa.org/1607/Current-Projects](https://www.countyofnapa.org/1607/Current-Projects) the following day after the bids are publicly opened and read.

Complete sets of Contract Documents must be used in preparing Bids. The County does not assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.

The Plans and Specification may be seen at the Napa County Department of Public Works 1195 Third Street, Room 101, Napa, California. Special Provisions (excluding State Standard Specifications and other documents included by reference), Description of Work, Proposal Forms, Contract Form may be obtained at said office by prospective bidders to those licensed by the State of California for the type of work involved or may be found electronically at [https://www.countyofnapa.org/1607/Current-Projects](https://www.countyofnapa.org/1607/Current-Projects).

Pursuant to 1771.1 of the Labor Code, a contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code.
PL No. 69168
Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

No bid will be considered unless it is made on a blank form furnished by the County Engineer of Napa. Pursuant to Sections 1770, et. seq., of the California Labor Code, the successful Bidder shall pay not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations. Copies of such prevailing rate of per diem wages are on file at the Napa County Department of Public Works where copies will be made available to any interested party on request. These rate determinations may also be found on the State of California Department of Industrial Relations’ website at: http://www.dir.ca.gov/dlsr/DPreWageDetermination.htm.

In accordance with Section 1773.2 of the Labor Code, copies of the applicable determinations of the Director of Public Works are on file at the Public Works Office and may be reviewed upon request, and in accordance Section 1774 of the Labor Code, the prevailing wage rates for classifications of labor to be employed in the work have been determined by the County and are included in the Special Provisions referred to above.

The work generally consists of storm slide repair with lagging/retaining walls and roadway reconstruction at the following site locations:

- Dry Creek Rd. MPM 6.2, RDS 21-30
- Dry Creek Rd. MPM 9.48, RDS 21-39
- Dry Creek Rd. MPM 9.75, RDS 21-06
- Diamond Mountain Rd. MPM 1.1, RDS 21-04

Refer to the Special Provisions, Section ‘A’ for more details.

The Contractor shall possess a Class “A” license at the time of the Contract award. A bid guarantee in the amount of 10% of the total bid shall accompany the bid. The Contractor and Sub-Contractor shall be registered with the State of California Department of Industrial Relations (Public Works Contractor (PWC) Registration) at the time of bid opening.

The successful bidder shall be required to furnish a Performance Bond in an amount equal to 100% of the contract price and a Labor and Material Bond in an amount equal to 100% of the contract price with good and sufficient surety.

Work at Dry Creek Rd MPM 6.2, MPM 9.48 and Diamond Mountain Road MPM 1.1 shall commence on May 16, 2022 and be completed by September 30, 2022. Construction work at Dry Creek Rd MPM 9.75 shall commence on August 1, 2022 and be completed by October 14, 2022.

The County is currently working to obtain permits for Dry Creek Rd MPM 9.75 from the California Department of Fish and Wildlife (CDFW). The timeline to obtain permits might prohibit the County from allowing construction to begin on August 1, 2022 at Dry Creek Rd MPM 9.75. In the event construction is not able to commence on August 1, 2022, the total base bid for Dry Creek Rd MPM 9.75 shall be deducted from the total contract amount based on the bid unit price.

Each bidder must be licensed as required by law.

There will be no pre-bid site visit. Contractors shall view locations on their own but a mandatory bidder’s list will be required to participate in bidding for this project. The deadline to submit an entry for the list will be March 25, 2022 by 12:00 P.M.; to be placed on the bidder’s list, contact Dewey Phan (Dewey.Phan@countyofnapa.org). As stated in the Special Provisions, CONTRACTOR shall begin work
within ten (10) working days after the Notice to Proceed that the storm slide repair project is ready to proceed. CONTRACTOR shall complete the work within one hundred seven (107) working days at the four sites (excluding County holidays).

All questions must be mailed, faxed or e-mailed to Dewey Phan (dewey.phan@countyofnapa.org), Napa County Department of Public Works, 1195 Third Street, Room 101, Napa, CA 94559, by March 25, 2022 at 12:00 P.M. No questions will be accepted after this deadline.

Napa County Clerk of the Board of Supervisors reserves the right to reject any or all bids made this March 8, 2022.

NTC-2
NAPA COUNTY AGREEMENT NO. ______

CONSTRUCTION CONTRACT
(UPCCAA - Napa County Code Chapter 2.38)

THIS AGREEMENT, is made and entered into as of this ______, day of ________ 2022, by and between NAPA COUNTY a political subdivision of the State of California, hereinafter referred to as “County”, and ________________________, whose mailing address is ________________________, hereinafter referred to as “Contractor”;

TERMS

ARTICLE I. In consideration of the payments and covenants hereinafter mentioned, to be made and performed by County, and under the conditions expressed in the two (2) bonds attached hereto, Contractor shall, at Contractor’s own cost and expense, do all the work and furnish all materials, except such as are specified herein to be furnished by County, necessary to construct and complete in a good, workmanlike and substantial manner and to the satisfaction of the Napa County Board of Supervisors acting by and through its Public Works Director, that project known as 2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK ROAD MPM 6.2, RDS 21-30; DRY CREEK ROAD MPM 9.48, RDS 21-39; DRY CREEK ROAD MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN ROAD MPM 1.1, RDS 21-04, which shall be constructed in the County of Napa, California, in accordance with the Plans and Specifications (“Plans”) entitled 2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK ROAD MPM 6.2, RDS 21-30; DRY CREEK ROAD MPM 9.48, RDS 21-39; DRY CREEK ROAD MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN ROAD MPM 1.1, RDS 21-04, the Bid submitted by Contractor (“Bid Proposal”), the Special Provisions, and the 2010 Standard Specifications of the State of California Department of Transportation (“Standard Specifications”). The Plans, Bid Proposal, Special Provisions, and Standard Specifications are hereby incorporated by reference as if set forth herein.

ARTICLE II. County hereby promises and agrees with Contractor to employ, and does hereby employ, Contractor to provide the materials and to do the work according to the terms and conditions herein contained for the prices hereinafter set forth, and hereby contracts to pay the same at the time, in the manner, and upon the conditions set forth herein, and both parties hereby agree, for themselves, their heirs, executors, administrators, successors and assigns, to full performance of the covenants contained herein.

ARTICLE III. It is further expressly agreed by and between the parties that if there is any conflict between the Bid Proposal of Contractor and any of the other terms of this Contract, then such other terms shall control and any such conflicting terms of the Bid Proposal shall not been deemed to have been accepted by County.

ARTICLE IV. Contractor agrees to receive and accept the following prices as full compensation for furnishing all materials and for doing all the work contemplated and embraced in this Contract; for all loss and damage, arising out of the nature of such work, from the action of the elements, or from any unforeseen difficulties or obstructions which may arise or be encountered in the prosecution of the work until its acceptance by the Board of Supervisors of the County and for all risks of every description connected with the work; for all expenses incurred by or in consequence of the suspension or discontinuance of work; and for well and faithfully completing the work and the whole thereof in the manner and according to the Plans, Special Provisions, and Standard Specifications and the requirements of the Engineer under them, to wit:
2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT
DRY CREEK ROAD MPM 6.2, RDS 21-30
DRY CREEK ROAD MPM 9.48, RDS 21-39
DRY CREEK ROAD MPM 9.75, RDS 21-06
DIAMOND MOUNTAIN ROAD MPM 1.1, RDS 21-04
BID SCHEDULE

///
## A. GENERAL CONDITION

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>Mobilization</td>
</tr>
<tr>
<td>2</td>
<td>Clearing And Grubbing</td>
</tr>
<tr>
<td>3</td>
<td>Traffic Control</td>
</tr>
<tr>
<td>4</td>
<td>Erosion And Sediment Control (Construction/Post Construction Phase)</td>
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## B. ROADWAY EXCAVATION AND MISC ITEMS

<table>
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<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1F</td>
<td>Roadway Excavation - Pavement Removal and Disposal</td>
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<tr>
<td>2</td>
<td>Sawcut</td>
</tr>
<tr>
<td>3</td>
<td>Hot Mix Asphalt (Type A)</td>
</tr>
<tr>
<td>4</td>
<td>Class 2 Aggregate Base</td>
</tr>
<tr>
<td>5</td>
<td>MGS, Caltrans A77P2, Type 11D Layout with Reflectors</td>
</tr>
<tr>
<td>6</td>
<td>End Treatments &quot;Soft Stop TL-3&quot; (51' Long)</td>
</tr>
<tr>
<td>7</td>
<td>Double Yellow 4&quot; Thermoplastic Traffic Stripe (Detail 21)</td>
</tr>
<tr>
<td>8F</td>
<td>Offhaul Soil (Surplus Material)</td>
</tr>
<tr>
<td>9</td>
<td>Cable Railing</td>
</tr>
<tr>
<td>10</td>
<td>Remove 9 Existing Concrete CMP Piles (at top 7 LF each)</td>
</tr>
<tr>
<td>11</td>
<td>Re-Grading/Cleaning existing Road Ditch</td>
</tr>
<tr>
<td>12</td>
<td>Salvage Guardrail (Deliver to County's Corp. Yard)</td>
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<td>13</td>
<td>Remove Asphalt Concrete Dike</td>
</tr>
<tr>
<td>14</td>
<td>Type F Dike, Caltrans A87B</td>
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## C. CONCRETE

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<tr>
<td>1F</td>
<td>Structure Excavation (Lagging)</td>
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<td>2F</td>
<td>Structure Backfill (Lagging)</td>
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<td>3F</td>
<td>Pervious backfill</td>
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<tr>
<td>4</td>
<td>Filter Fabric</td>
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<tr>
<td>5</td>
<td>W14 x 90 Soldier Pile</td>
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<tr>
<td></td>
<td>Description</td>
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<tr>
<td>---</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>30&quot; Drilled Hole</td>
</tr>
<tr>
<td>7</td>
<td>Clean and Paint Steel Soldier Pile</td>
</tr>
<tr>
<td>8F</td>
<td>Concrete Class 3 (Fill drilled Soldier Piles Hole)</td>
</tr>
<tr>
<td>9F</td>
<td>Structural Concrete, (Pile Cap)</td>
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<tr>
<td>10F</td>
<td>Structural Concrete, (Lagging)</td>
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<tr>
<td>11F</td>
<td>Bar Reinforcing Steel, (Concrete Lagging)</td>
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<tr>
<td>12F</td>
<td>Bar Reinforcing Steel, (Pile Cap)</td>
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</tbody>
</table>

**TOTAL BASE BID: $**

**TOTAL BASE BID (WRITTEN):**

///
## ADDITIVE ALTERNATE BID

### DRY CREEK ROAD MPM 6.2, RDS 21-30- (WALL #3)

**AGENCY: COUNTY OF NAPA**

<table>
<thead>
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<th>ITEM NO.</th>
<th>DESCRIPTION</th>
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<th>QTY</th>
<th>UNIT COST</th>
<th>TOTAL</th>
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<tr>
<td>A. GENERAL CONDITION</td>
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<td>C. CONCRETE</td>
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<tr>
<td>1F</td>
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<td>74.0</td>
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<td>2F</td>
<td>Structure Backfill (Lagging)</td>
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<tr>
<td>3F</td>
<td>Pervious backfill</td>
<td>CY</td>
<td>16.0</td>
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<td></td>
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<tr>
<td>4</td>
<td>Filter Fabric</td>
<td>SY</td>
<td>63.0</td>
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<tr>
<td>5</td>
<td>W14 x 90 Soldier Pile</td>
<td>LF</td>
<td>138.0</td>
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<td>6</td>
<td>30&quot; Drilled Hole</td>
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<td>92.0</td>
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<td>7F</td>
<td>Clean and Paint Steel Soldier Piling</td>
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<td>11F</td>
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<td>12F</td>
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TOTAL ADDITIVE ALTERNATE BID:

TOTAL ADDITIVE ALTERNATE BID (WRITTEN):

///
### BASE BID

**DRY CREEK ROAD MPM 9.48, RDS 21-39**

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<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QTY</th>
<th>UNIT COST</th>
<th>TOTAL</th>
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<tr>
<td><strong>A. GENERAL CONDITION</strong></td>
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<td></td>
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</tr>
<tr>
<td>1</td>
<td>Mobilization</td>
<td>LS</td>
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</tr>
<tr>
<td>2</td>
<td>Clearing And Grubbing</td>
<td>LS</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Traffic Control</td>
<td>LS</td>
<td>1.0</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Erosion And Sediment Control (Construction/Post Construction Phase)</td>
<td>LS</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. ROADWAY EXCAVATION AND MISC ITEMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 F</td>
<td>Roadway Excavation - Pavement Removal and Disposal</td>
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<td>72.0</td>
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<tr>
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<td>Sawcut</td>
<td>LF</td>
<td>48.0</td>
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<td>3</td>
<td>Hot Mix Asphalt (Type A)</td>
<td>TON</td>
<td>40.0</td>
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<td>Class 2 Aggregate Base</td>
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<td>5</td>
<td>Type F Dike, Caltrans A87B</td>
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<td>80.0</td>
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<td>6</td>
<td>MGS, Caltrans A77P2, Type 11D Layout with Reflectors</td>
<td>LF</td>
<td>72.0</td>
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<td></td>
</tr>
<tr>
<td>7</td>
<td>End Treatments &quot;Soft Stop TL-3&quot; (51' Long)</td>
<td>EA</td>
<td>2.0</td>
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<td>8</td>
<td>Double Yellow 4&quot; Thermoplastic Traffic Stripe (Detail 21)</td>
<td>LF</td>
<td>140.0</td>
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<td>9F</td>
<td>Offhaul Soil (Surplus Material)</td>
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<td><strong>C. CONCRETE</strong></td>
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## BASE BID

**DRY CREEK ROAD MPM 9.48, RDS 21-39**

**AGENCY:** COUNTY OF NAPA

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**TOTAL BASE BID:**

**TOTAL BASE BID (WRITTEN):**

///
## BASE BID

### DRY CREEK ROAD MPM 9.75, RDS 21-06

**AGENCY:** COUNTY OF NAPA

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<tr>
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<td>Mobilization</td>
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<td>Clearing And Grubbing</td>
<td>LS</td>
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<td>Traffic Control</td>
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<td>4</td>
<td>Erosion And Sediment Control (Construction/Post Construction Phase)</td>
<td>LS</td>
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<td><strong>B. ROADWAY EXCAVATION AND MISC ITEMS</strong></td>
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<td>CY</td>
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<td>Sawcut</td>
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## BASE BID

### DRY CREEK ROAD MPM 9.75, RDS 21-06

**AGENCY: COUNTY OF NAPA**

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**TOTAL BASE BID:**

**TOTAL BASE BID (WRITTEN):**

"F" Denotes Final Pay Items
## BASE BID

### DIAMOND MOUNTAIN ROAD MPM 1.1

**AGENCY: COUNTY OF NAPA**

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<td>Clearing And Grubbing</td>
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<td>Traffic Control</td>
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<td>Erosion And Sediment Control (Construction/Post Construction Phase)</td>
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<td><strong>B. ROADWAY EXCAVATION AND MISC ITEMS</strong></td>
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<td>W18x175 Soldier Pile</td>
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<td>Concrete Class 3 (Fill drilled Soldier piles hole)</td>
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## BASE BID

**DIAMOND MOUNTAIN ROAD MPM 1.1**

**AGENCY: COUNTY OF NAPA**

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<th>UNIT COST</th>
<th>TOTAL</th>
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**TOTAL BASE BID:**

**TOTAL BASE BID (WRITTEN):**

///
TOTAL BASE BID

COMBINED TOTAL BASE BID (WITHOUT ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04:

$

COMBINED TOTAL BASE BID (WITHOUT ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04 (WRITTEN):

TOTAL ADDITIVE ALTERNATE BID

COMBINED TOTAL ADDITIVE ALTERNATE BID (WITH ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04:

$

COMBINED TOTAL ADDITIVE ALTERNATE BID (WITH ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04 (WRITTEN):

///
IN WITNESS WHEREOF, this Contract has been approved by County and Contractor as of the date first set forth on page 1 of this Contract.

NAPA COUNTY, a political subdivision of the State of California, acting by and through its Director of Public Works

By ____________________________________________
Steven E. Lederer,
Napa County Director of Public Works

“COUNTY”

By ____________________________________________ Signature #1 (see note)

By:___________________________________________ Signature #2 (see note)

“CONTRACTOR”

NOTE: Signature of those executing for the Contractor must be acknowledged by Notary Public. If a corporation, this document must be signed by two corporate officers. The first signature must be either the Chairman of the Board, President, or any Vice President. The second signature must be the Secretary, an Assistant Secretary, the Chief Financial Officer, or any Assistant Treasurer. If one person holds a title from each of the above groups, then that individual can sign twice, once over each title. In the alternative, a single corporate signature is acceptable when accompanied by a corporate document demonstrating the legal authority of the signature to bind the company.
PROPOSAL FORM
(MAY BE DETACHED AND SUBMITTED ALONE)

TO THE DIRECTOR OF PUBLIC WORKS
OF NAPA COUNTY
NAPA, CALIFORNIA

FOR:
FOUR LAGGING WALLS CONSTRUCTION PROJECT
  DRY CREEK RD. MPM 6.2, RDS 21-30
  DRY CREEK RD. MPM 9.48, RDS 21-39
  DRY CREEK RD. MPM 9.75, RDS 21-06
  DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04

NAME OF BIDDER _____________________________________________________________
BUSINESS ADDRESS __________________________________________________________
PLACE OF BUSINESS ___________________________________________________________
EMAIL ADDRESS _____________________________________________________________
LICENSE NUMBER _____________________________________________________________
DIR REGISTRATION NUMBER ____________________________________________________

Location: The work to be done and referred to herein is in Napa County, State of California, more particularly described as follows:

FOUR LAGGING WALLS CONSTRUCTION PROJECT
  DRY CREEK RD. MPM 6.2, RDS 21-30
  DRY CREEK RD. MPM 9.48, RDS 21-39
  DRY CREEK RD. MPM 9.75, RDS 21-06
  DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04

The undersigned, as bidder, declares that the only person or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the location of the proposed work, the annexed proposed form of contract, the Plans, Special Provisions and Standard Specifications; and he proposes, and agrees if this proposal is accepted, that he will contract with Napa County, in the
form of the copy of the contract annexed hereto, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract, in the manner and time therein prescribed, and according to the requirements of payment therefore the following item prices to wit:

**BID SCHEDULE**

**BASE BID**

**DRY CREEK ROAD MPM 6.2, RDS 21-30 (WALL #1 AND #2)**

**AGENCY: COUNTY OF NAPA**

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<th>QTY</th>
<th>UNIT COST</th>
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<td>Clearing And Grubbing</td>
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<td>1.0</td>
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<td>3</td>
<td>Traffic Control</td>
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<td>Erosion And Sediment Control (Construction/Post Construction Phase)</td>
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### C. CONCRETE

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**TOTAL BASE BID: $**

**TOTAL BASE BID (WRITTEN):**

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TOTAL ADDITIVE ALTERNATE BID:

TOTAL ADDITIVE ALTERNATE BID (WRITTEN):
# BASE BID

**DRY CREEK ROAD MPM 9.48, RDS 21-39**

**AGENCY: COUNTY OF NAPA**

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## BASE BID

**DRY CREEK ROAD MPM 9.48, RDS 21-39**

**AGENCY: COUNTY OF NAPA**

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**TOTAL BASE BID:**

**TOTAL BASE BID (WRITTEN):**

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## BASE BID

### DRY CREEK ROAD MPM 9.75, RDS 21-06

**AGENCY: COUNTY OF NAPA**

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# BASE BID

**DRY CREEK ROAD MPM 9.75, RDS 21-06**

**AGENCY: COUNTY OF NAPA**

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**TOTAL BASE BID:**

**TOTAL BASE BID (WRITTEN):**

'F' Denotes Final Pay Items

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## BASE BID

### DIAMOND MOUNTAIN ROAD MPM 1.1

**AGENCY: COUNTY OF NAPA**

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<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QTY</th>
<th>UNIT COST</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. GENERAL CONDITION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Mobilization</td>
<td>LS</td>
<td>1.0</td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Clearing And Grubbing</td>
<td>LS</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Traffic Control</td>
<td>LS</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Erosion And Sediment Control (Construction/Post Construction Phase)</td>
<td>LS</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B. ROADWAY EXCAVATION AND MISCELLANEOUS ITEMS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1F</td>
<td>Roadway Excavation - Pavement Removal and Disposal</td>
<td>CY</td>
<td>128.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Sawcut</td>
<td>LF</td>
<td>36.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hot Mix Asphalt (Type A)</td>
<td>TON</td>
<td>65.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Class 2 Aggregate Base</td>
<td>CY</td>
<td>96.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>MGS, Caltrans A77P2, Type 11D Layout with Reflectors</td>
<td>LF</td>
<td>271.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>End Treatments &quot;Soft Stop&quot; TL-2 (35.25' Long)</td>
<td>EA</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Double Yellow 4&quot; Thermoplastic Traffic Stripe (Detail 21)</td>
<td>LF</td>
<td>150.0</td>
<td></td>
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<tr>
<td>8F</td>
<td>Offhaul Soil (Surplus Material)</td>
<td>CY</td>
<td>96.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Cable Railing</td>
<td>LF</td>
<td>171.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Re-Grading/Cleaning existing Road Ditch</td>
<td>LS</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>RSP Removal</td>
<td>SF</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Tree Removal</td>
<td>EA</td>
<td>2.0</td>
<td></td>
<td></td>
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<tr>
<td><strong>C. CONCRETE</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1F</td>
<td>Structure Excavation (Lagging)</td>
<td>CY</td>
<td>147.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2F</td>
<td>Structure Backfill (Lagging)</td>
<td>CY</td>
<td>49.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3F</td>
<td>Pervious backfill</td>
<td>CY</td>
<td>34.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Filter Fabric</td>
<td>SY</td>
<td>123.0</td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>W18x175 Soldier Pile</td>
<td>LF</td>
<td>442.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>30&quot; Drilled Hole</td>
<td>LF</td>
<td>354.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Clean and Paint Steel Soldier Piles</td>
<td>LF</td>
<td>442.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8F</td>
<td>Concrete Class 3 (Fill drilled Soldier piles hole)</td>
<td>CY</td>
<td>65.0</td>
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</tr>
</tbody>
</table>
# BASE BID

## DIAMOND MOUNTAIN ROAD MPM 1.1

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>QTY</th>
<th>UNIT COST</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>9F</td>
<td>Structural Concrete, (Pile Cap)</td>
<td>CY</td>
<td>17.0</td>
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<td></td>
</tr>
<tr>
<td>10F</td>
<td>Structural Concrete, (Lagging)</td>
<td>CY</td>
<td>15.0</td>
<td></td>
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<tr>
<td>11F</td>
<td>Bar Reinforcing Steel, (Concrete Lagging)</td>
<td>LB</td>
<td>4,700.0</td>
<td></td>
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</tr>
<tr>
<td>12F</td>
<td>Bar Reinforcing Steel, (Pile Cap)</td>
<td>LB</td>
<td>2,300.0</td>
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</tr>
</tbody>
</table>

**TOTAL BASE BID:**

**TOTAL BASE BID (WRITTEN):**

///
**TOTAL BASE BID**

<table>
<thead>
<tr>
<th>COMBINED TOTAL BASE BID (WITHOUT ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04:</th>
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<tr>
<td>COMBINED TOTAL BASE BID (WITHOUT ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04 (WRITTEN):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMBINED TOTAL ADDITIVE ALTERNATE BID (WITH ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04:</th>
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<tr>
<td>COMBINED TOTAL ADDITIVE ALTERNATE BID (WITH ADDITIVE ALTERNATE) FOR FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK RD. MPM 6.2, RDS 21-30; DRY CREEK RD. MPM 9.48, RDS 21-39; DRY CREEK RD. MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN RD. MPM 1.1, RDS 21-04 (WRITTEN):</td>
</tr>
</tbody>
</table>

*Authorized Signature Name Title*

*Authorized Signature Name Title*

* If a corporation, this document must be signed by two corporate officers. The first signature must be either the Chairman of the Board, President, or any Vice President. The second signature must be the Secretary, an Assistant Secretary, the Chief Financial Officer, or any Assistant Treasurer. In the alternative, a single corporate signature is acceptable when accompanied by a corporate document demonstrating the legal authority of the signature to bind the company.
INSTRUCTIONS TO BIDDERS

The Bid and Determining Low Bidder.
Bids are required for the entire work. The amount of the bid for comparison purposes will be the Total Lump Sum Base Bid.

The bidder shall set forth for each item of work, in clearly legible figures, as item price and a total for the item in the respective spaces provided for this purpose. In the case of unit basis items, the amount set forth under the "Total" column shall be the extension of the item price bid on the basis of the estimated quantity for the item.

In case of a discrepancy between the item price and the total set forth for the item, the item price shall prevail, provided, however, if the amount set forth as an item price is ambiguous, unintelligible or uncertain for any cause, or is omitted, or in the case of unit basis items, is the same amount as the entry in the "Total" column, then the amount set forth in the "Total" column for the item shall prevail in accordance with the following:

1) As to lump sum items, the amount set forth in the "Total" column shall be the item price.
2) As to unit basis items, the amount set forth in the "Total" column shall be divided by the estimated quantity for the item and the price thus obtained shall be the item price.

In case of a discrepancy between the Total Lump Sum Base Bid and the calculated total of the amounts in the “Total” column for each line item determined after using the above procedures for resolving the discrepancies, the calculated total of the amounts set forth in the “Total” column for shall become the Total Lump Sum Base Bid and shall be used for comparison purposes in determining the lowest bid.

It is understood and agreed that the quantities of work under each item are approximate only, being given for a basis of comparison of proposal, and the right is reserved to the County to increase or decrease the amount of work under any item as may be required, in accordance with provisions set forth in the specifications for this project.

It is further understood and agreed that the total amount bid for the project does not constitute an agreement to pay a lump sum for the work unless it specifically so states.

If this proposal shall be accepted and the undersigned shall fail to contract as aforesaid and to give the two bonds in the sums to be determined as aforesaid, with surety satisfactory to the Director of Public Works within eight (8) days, not including Saturdays, Sundays and legal holidays, after the bidder has received notice from the County Engineer that the contract has been awarded to him, the Director of Public Works may, at its option, determine that the bidder has abandoned the contract, and thereupon this proposal, and the acceptance thereof shall be null and void, and the forfeiture of such security accompanying this proposal shall operate and the same shall be the property of Napa County.

///
Form of Bid.
(1) To receive consideration, bids shall be made on the forms and in the manner set forth in the Notice to Proposers.

(2) Bids received after the date and time advertised for opening will be considered non-responsive and will be rejected.

(3) Each bid must be completed in ink, typewritten or computer generated, and all changes and/or erasures must be initialed in ink. Each bid must be signed in ink by an authorized representative of the firm.

(4) Bidders shall not change the bid form nor make additional stipulations on the bid form which are not consistent with the provisions of the specifications.

Taxes. Bid prices shall include all applicable federal, state, and local taxes.

Receipt of Bids. All bids must be received sealed in an envelope prior to the time specified in the Notice to Proposers or as amended expressly by an addendum. Late bids will not be opened and will not be considered under any circumstances.

Postponement of Opening. The County reserves the right to postpone the date and time for receiving and/or opening of proposals at any time prior to the date and time established in the Notice to Proposers.

Rejection of Proposals. The County reserves the right to reject any proposals which are incomplete, obscure, or irregular, any proposals which omit a bid on any one or more items for which bids are required; any proposals which omit unit prices if unit prices are required; any proposal in which unit prices are unbalanced in the opinion of the County; any proposals accompanied by insufficient or irregular proposal guaranty; and any proposals from bidders who have previously failed to perform properly or to complete contracts of any nature on time.

Relief of Bidders. Attention is directed to the provisions of Public Contract Code Section 5100, et seq., concerning relief of bidders, and in particular to the requirement therein that if a bidder claims a mistake was made in its bid, the bidder shall give the County written notice within five (5) calendar days after the opening of the bids of the alleged mistake, specifying in the notice, in detail, how the mistake occurred.

Bid Protest Procedures. Any bid protest must be in writing and received by the County at 1195 Third Street, Room 101, Napa, CA 94559 before 5:00 p.m. no later than five (5) working days following the occurrence giving rise to the protest (the “Bid Protest Deadline”) shall be considered pursuant to the procedures set forth in Section 10 of the County Purchasing Manual and must comply with the provisions of that Section and those requirements set forth below:

(1) Only a contractor who has actually submitted a Bid Proposal is eligible to submit a bid protest against another contractor. Subcontractors are not eligible to submit bid protests. A bidder may not rely on the bid protest submitted by another bidder, but must timely pursue its own protest.
(2) The bid protest must contain a complete statement of the basis for the protest and all supporting documentation. Material submitted after the Bid Protest Deadline will not be considered. The protest must refer to the specific portion or portions of the Contract Documents upon which the protest is based. The protest must include the name, address and telephone number of the person representing the protesting bidder if different from the protesting contractor.

(3) The party filing the protest shall concurrently transmit a copy of the protest and all supporting documents by fax or by e-mail, by or before the Bid Protest Deadline, to the protested bidder and any other bidder who has a reasonable prospect of receiving an award depending upon the outcome of the protest.

(4) The protested bidder may submit a written response to the protest, provided the response is received by the County before 5:00 p.m., within two (2) working days after the Bid Protest Deadline or after receipt of the bid protest, whichever is sooner (the “Response Deadline”). The response must include all supporting documentation. Material submitted after the Response Deadline will not be considered. The response must include the name, address and telephone number of the person representing the protested bidder if different from the protested bidder.

(5) The procedure and time limits set forth in this section are mandatory and are the bidder’s sole and exclusive remedy in the event of bid protest. The bidder’s failure to comply with these procedures shall constitute a waiver of any right to further pursue a bid protest, including filing a Government Code Claim or initiation of legal proceedings.

It is the intention of the County to award a contract, if at all, to the lowest bidder who demonstrates the attributes of trustworthiness, as well as quality, fitness (including financial qualifications), capacity and experience to enable it to prosecute the work successfully and properly, and to complete the work within the time period named in the Contract Documents.

To determine the degree of responsibility to be credited to the bidder, the County will weigh any evidence that the bidder has performed satisfactorily other contracts of like nature and magnitude, and comparable difficulty and rates of progress, to the Work. The County shall have sole discretion to determine what contracts are of like nature and magnitude, and comparable difficulty and rates of progress.
NONCOLLUSION DECLARATION TO BE EXECUTED
BY BIDDER AND SUBMITTED WITH BID

"I, ________________________________, hereby declare as follows: that he or she is ________________________________ of ________________________________ the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding, that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid."

I certify and declare under penalty of perjury that the foregoing is true and correct.

Executed on ______________________ at ______________________

(DATE) (PLACE)

SIGNATURE
Accompanying this proposal in an amount equal to at least ten percent (10%) of the total bid is a:

☐ Cashier’s Check ☐ Certified Check ☐ Bidders Bond

[Note: A personal check is not an acceptable form of security]

The names of all persons interested in the foregoing proposal as principals are as follows:

IMPORTANT NOTICE: If bidder or other interested person is a corporation, state legal name of corporation, also names of the president, secretary, treasurer and manager thereof; if a copartnership, state true name of firm, also names of all individual copartners comprising the firm; if bidder or other interested person is an individual, state first and last names in full.

Licensed in accordance with an act providing for the registration of Contractors License No.
________________ Expiration Date ___________ Classification ________________

________________________________________

Signature of bidder

NOTE; if bidder is corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officer authorized to sign contracts on behalf of the corporation; if bidder is a co partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts in behalf of the co partnership; and if bidder is an individual, his signature shall be placed above. If signature is by an agent other than an officer of a corporation or a member of a partnership, a Power of Attorney must be on file with the County prior to opening bids or submitted with the bid; otherwise, the bid will be disregarded as irregular and unauthorized.

Business Address __________________________________________________________

Place of Residence __________________________________________________________

Dated ________________, 2021 Phone __________________________

Email ______________________________________________________
ADDENDUM ACKNOWLEDGEMENT

Bidder acknowledges receipt of the following addendums which are attached to the proposal:

Addendum No. ________________  Date ________________
Addendum No. ________________  Date ________________
Addendum No. ________________  Date ________________
Addendum No. ________________  Date ________________
Addendum No. ________________  Date ________________
Addendum No. ________________  Date ________________
Addendum No. ________________  Date ________________
Addendum No. ________________  Date ________________
Pursuant to Section 4100 to 4113 of the Public Contract Code, Section 5-1.13 of the Standard Specifications, and Resolution 74-3 of the Napa County Board of Supervisors, each bidder shall complete and submit this form with his bid in accordance with the following instructions.

1. For each subcontract item to be performed by a subcontractor, the following shall be indicated herein: the name of the subcontractor, the portion of work to be performed, each subcontractors license number, and the location of the place of business.
2. Only one subcontractor shall be listed for each craft unless there is an alternate bid in which case a different subcontractor, when so designated, may be listed for the alternate work.
3. All fields must be completed as specified or the bid proposal may be rejected as non-responsive.

<table>
<thead>
<tr>
<th>Name of Subcontractor</th>
<th>Portion of Contract (i.e. Electrical, Striping, Roofing, etc.)</th>
<th>Subcontractor License Number</th>
<th>DIR Registration Number[^1]</th>
<th>Dollar Amount of Work to Be Performed</th>
<th>Location of Business (City and State)</th>
</tr>
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<tbody>
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</tbody>
</table>

[^1] All general contractors and subcontractors must be registered with DIR in conformance with Labor Code Section 1725.5 and 1771.1. By requesting the DIR registration numbers of all subcontractors, bidders are put on notice that if they list a subcontractor without a DIR registration number at the time of bid opening, the County, in its sole discretion, may find the failure intentional and find the bid non-responsive. DIR registration number lookup is available online at [https://cadir.secure.force.com/ContractorSearch](https://cadir.secure.force.com/ContractorSearch)
Note: Bid Bonds to be on this form or on a form supplied by a licensed surety insurer

BIDDERS BOND
NAPA COUNTY
STATE OF CALIFORNIA

KNOW ALL PERSONS BY THESE PRESENTS,

That we ____________________________

______________________________ as PRINCIPAL,
and

______________________________ as SURETY,

are held and firmly bound unto the NAPA COUNTY, hereinafter called the COUNTY, in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named, submitted by said Principal to the Napa County Board of Supervisor, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents. In no case shall the liability of the surety hereunder exceed the sum of $ ____________________________

THE CONDITION OF THIS OBLIGATION IS SUCH THAT WHEREAS the Principal has submitted the above mentioned bid to the Napa County Board of Supervisors for the work in Napa County, in accordance with the Specifications entitled 2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK ROAD MPM 6.2, RDS 21-30; DRY CREEK ROAD MPM 9.48, RDS 21-39; DRY CREEK ROAD MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN ROAD MPM 1.1, RDS 21-04, and the Standard Specifications of
the State of California, Department of Transportation, dated, 2018, therefore, heretofore adopted by the Board of Supervisor of the County of Napa.

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

In the event suit is brought upon this bond by the Obligee and judgment is recovered, the surety shall pay all cost incurred by the obligee in such suit, including a reasonable attorney's fee to be fixed by the court.

SEALEDM with our seals and dated this ___ day of _____________________________, 2021.

Principal (contractor):

By: ____________________________________________

Surety:

By: ____________________________________________

By: ____________________________________________

Signatures for Principal and Surety must be acknowledged before a Notary Public

APPROVED AS TO FORM:
Napa County Counsel

By:  John L. Myers (e-sign) _______________________

By:  ________________________________
KNOW ALL PERSONS BY THESE PRESENTS THAT WE, ________________________________, as Principal, and ________________________________, duly authorized under the laws of the State of California to become sole surety on bonds and undertakings, as Surety, are jointly and severally held and firmly bound unto the NAPA COUNTY, a political subdivision of the State of California, as Obligee, in the full and just sum of (______________________) and 00/100 ($______), lawful money of the United States of America, to be paid to the said Obligee, successors or assigns; for which payment, well and truly to be made, we bind ourselves, our heirs, executors, successors, administrators and assigns, jointly and severally, firmly by these presents.

THE CONDITION of the foregoing obligation is such that; whereas, the above bounden Principal has entered into a contract, or is about to enter into a contract with the Obligee to do and perform the following work, to-wit: **2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK ROAD MPM 6.2, RDS 21-30; DRY CREEK ROAD MPM 9.48, RDS 21-39; DRY CREEK ROAD MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN ROAD MPM 1.1, RDS 21-04** as is more specifically set forth in said contract, to which contract reference is hereby made.

NOW, THEREFORE, if the said Principal shall well and truly do the said work, and fulfill each and every of the covenants, conditions and requirements of the said contract in accordance with the plans and specifications, then the above obligation shall be null and void, otherwise is shall remain in full force and effect.

THE SURETY does hereby consent to any and all alterations, modifications and revisions to the agreement secured by this bond including but not limited to, any extension of time for performance or modifications in manner of performance which may be agreed upon and between the NAPA COUNTY as Obligee and the Principal, and the Surety does hereby waive notice of any alterations, modifications, revisions, or extensions.

SEALED with our seals and dated this ______ day of ____________________________, 2021.

Principal (contractor): ________________________________  Surety: ________________________________

By: ________________________________  By: ________________________________

By: ________________________________  , Attorney in Fact

Signatures for Principal and Surety must be acknowledged before Notary Public

APPROVED AS TO FORM:
Napa County Counsel

By: _John L. Myers (e-sign)_ ________________________________
NAPA COUNTY
LABOR AND MATERIAL BOND

KNOW ALL PERSONS BY THESE PRESENTS THAT WE, ________________________________________________________________, as Principal, and ________________________________________________________________, duly authorized under the laws of the State of California to become sole surety on bonds and undertakings, as Surety, are held and firmly bound unto any and all materialmen, persons, companies or corporations furnishing materials, provisions, provender or other supplies used in, upon, for or about the performance of the work contracted to be executed or performed under the contract hereinafter mentioned, and all persons, companies or corporations renting or hiring teams, or implements or machinery, for or contributing to said work to be done, and all persons who performed work or labor upon the same, and whose claim has not been paid by the contractor, company or corporation, in the just and full sum of $______ AND 00/100 DOLLARS ($__________), for the payment whereof, well and truly to be made, said Principal and Surety bind themselves, their heirs, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION of the foregoing obligation is such that; whereas the above bounden principal has entered into a contract, or is about to enter into a contract with the NAPA COUNTY, a political subdivision of the State of California, to do and perform the following work, to-wit: 2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK ROAD MPM 6.2, RDS 21-30; DRY CREEK ROAD MPM 9.48, RDS 21-39; DRY CREEK ROAD MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN ROAD MPM 1.1, RDS 21-04. NOW THEREFORE, if the above bounden Principal, contractor, person, company or corporation, or his or its subcontractor fails to pay for any materials, provisions, provender, other supplies, or terms used in, upon for or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, or for amounts due under the Unemployment Insurance Act with respect to such work or labor, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of the Principal or the subcontractors of the Principal pursuant to Section 13020 of the Unemployment Insurance Code with respect to the work and labor, then the Surety of this bond will pay the same, in an amount not exceeding the sum specified in this bond as well as a reasonable attorney's fee, which shall be fixed and awarded by the court to the prevailing party in said suit, said attorney's fee to be taxed as costs in said suit and to be included in the judgment therein rendered.

THE SURETY does hereby consent to any and all alterations, modifications and revisions to the contract above referred to, and work and labor under which is secured by this bond, including but not limited to, any extension of time for performance or modifications in manner of performance which may be agreed upon by and between the NAPA COUNTY and the Principal, and the Surety does hereby waive notice of any alterations, modifications, revisions, or extensions.

THIS BOND is executed and filed to comply with the provisions of the act of Legislature of the State of California as designated in Civil Code 9550 et seq., inclusive, and all amendments thereeto and shall inure to the benefit of any of the persons named in Civil Code section 9100 so as to give a right of action to those person or their assigns in any suit brought upon the bond.

SEALLED with our seals and dated this _____ day of _________________________________, 2021.

Principal (contractor): _______________________________________________  
By: _______________________________________________________________

Surety: ____________________________________________________________
By: _______________________________________________________________

By: ________________________________________________________________  
, Attorney in Fact

Signatures for Principal and Surety must be acknowledged before Notary Public

APPROVED AS TO FORM: 
Napa County Counsel

By:  John L. Myers (e-sign)
1. **LOCATION**

The project location for each of the four slide repair sites is in an unincorporated area of Napa County and is shown below:

- Dry Creek MPM 6.2 is near 5330 Dry Creek Road, Napa CA (N: 38.382924, E: -122.40119)
- Dry Creek MPM 9.48 is near 6061 Dry Creek Road, Napa CA (N:38.40761, E: -122.44259)
- Dry Creek MPM 9.75 is near 6091 Dry Creek Road, Napa CA (N: 38.40917, E: -122.44639)
- Diamond Mountain Road MPM 1.1 is near 1893 Diamond Mountain Road, Calistoga CA (N:38.555290, E: -122.577944)

2. **DESCRIPTION OF WORK**

**Dry Creek Road MPM 6.2, RDS 21-30:**
A landslide that occurred at MPM 6.2 along Dry Creek Road in Napa County, California, damaged the downhill (west) edge of the roadway over a distance of about 50 feet. The Project area occurs on a very steep slope, and a shallow slope failure below the roadway has reduced lateral confinement of the roadway. The slide material is now at the bottom of the approximate 200-foot slope near Dry Creek. Barriers have been placed in the area to keep vehicles away from the edge of the roadway.

For a Base Bid, the repair will include a re-construction of the roadway with 72 linear-foot (wall #1) and 72 linear-foot (wall #2) soldier pile concrete-retaining walls which are supported on a drilled pier foundation. The wall height varies from 5’ to 14’ and drilled pier foundation varies from 22’ to 41’.

For an Additive Alternate Bid, the repair will include a re-construction of the roadway with 56 linear-foot (wall #3) soldier pile concrete-retaining wall which is also supported on a drilled pier foundation. The wall height is 8’ and drilled pier foundation (6 piers) is 8’.

Best management practices and erosion control measures will be implemented. If any Cultural or Archeological Resources are discovered, all work will cease and the local tribes and /or corner will be contacted. During construction, one lane will remain open for access at all times.

The Project elements are expected to be constructed in the same location as, or immediately adjacent to, the existing roadway.

**Dry Creek Road MPM 9.48, RDS 21-39:**
Dry Creek Road MPM 9.48 is bounded on the north and east by Dry Creek Road and steep hills, and on the south and west by Dry Creek Road and Dry Creek, where the bottom of the channel is approximately
20 feet below the paved surface. Tension cracking is visible in the eastbound travel lane, along with some small settlements along the outer edge of the roadway. The asphalt berm at the top of the bank is cracked in several locations, and the surface soils on the outboard edge of the road are loose and generally susceptible to sloughing. Slopes below the roadway and down to the bottom of channel range from about 2:1 (horizontal: vertical) to near vertical.

The repair will include a re-construction of the roadway and a 32 linear-foot soldier pile concrete-retaining wall which is supported on a drilled pier foundation. The wall height is 9’ and drilled pier foundation (5 piers) is 29’.

Best management practices and erosion control measures will be implemented. If any Cultural or Archeological Resources are discovered, all work will cease and the local tribes and/or corner will be contacted. During construction, one lane will remain open for access at all times.

The Project elements are expected to be constructed in the same location as, or immediately adjacent to, the existing roadway.

**Dry Creek Road MPM 9.75, RDS 21-06:**
Winter storms that occurred between 2017 and 2019 caused damage to Dry Creek Road MPM 9.75. Tension cracking is visible in the eastbound travel lane, along with some small settlements along the outer edge of the roadway. The asphalt berm at the top of bank is cracked in several locations, and the surface soils on the outboard edge of the road are loose and generally susceptible to sloughing.

The Project proposes to repair the damaged section of Dry Creek Road (MPM 9.75) where an existing retaining wall will need to be extended 88’ north along the roadside. A soldier pile concrete-retaining wall will be constructed at the Project location which will be supported on a drilled pier foundation. The wall height is 15’ and drilled pier foundation (11 piers) is 45’.

Best management practices and erosion control measures will be implemented. If any Cultural or Archeological Resources are discovered, all work will cease and the local tribes and/or corner will be contacted. During construction, one lane will remain open for access at all times.

The Project elements are expected to be constructed in the same location as, or immediately adjacent to, the existing roadway.

**Diamond Mountain Road MPM 1.1, RDS 21-04:**
The proposed Project is located along Diamond Mountain Road in Napa County, California. A landslide that occurred in 2017 damaged the downhill (north) edge of the roadway along Diamond Mountain Road at MPM 1.1 over approximately 30 feet. In addition, tension cracking and lateral creep in the paved roadway surface extends 30-50 feet west of the slide. This landslide occurred at the western end of a retaining wall that was previously constructed in 2008 to repair another slide. In October of 2020, the Glass Fire burned
through this area of Napa County, which further contributed to the instability of the roadway due to the loss of vegetation and several trees that burned and had to be removed after the fire.

The proposed Project activities involve the repair of this section of Diamond Mountain Road where a retaining wall will need to be constructed along the roadside to stabilize the slide area. To accomplish this, a soldier pile concrete-retaining wall (104 linear feet) will be constructed at the Project location, adjacent to the existing retaining wall, which will be supported on a drilled pier foundation (13 piers). The lagging wall height is 8 feet.

Best management practices and erosion control measures will be implemented. If any Cultural or Archeological Resources are discovered, all work will cease and the local tribes and/or corner will be contacted. During construction, one lane will remain open for access at all times.

The Project elements are expected to be constructed in the same location as, or immediately adjacent to, the existing roadway.

The work for Mt Veeder MPM 5.1, RDS 19-13 generally consists of:

- Mobilization
- Staging Area Setup
- Implementation on Erosion and Sediment Control Best Management Practices (BMP)
- Construction Area Signs per CAMUTCD standards and Special Provisions
- Temporary Traffic Control per CAMUTCD standards and Special Provisions
- Clearing and grubbing that includes tree trimming and removal (as shown on the plans)
- Roadway excavation and grading, backfill, and asphalt pavement
- Soldier piles
- Concrete lagging walls
- Utility coordination
- Crane height restriction applies due to existing overhead utilities. Contractor shall review the site constraint for overhead utilities and pole and determine appropriate crane equipment requirements.
- Auxiliary work shown on the plans and as directed by engineer.
- All construction activities including any temporary staging shall occur within County right-of-way unless directed otherwise by the engineer.
- Final cleanup
- Project Closeout

3. **DEFINITIONS AND TERMS**

   The following terms when used in these Special Provisions or in the Standard Specifications shall have the following meanings when used in this Contract:

   **Contractor.** The person or entity described as "Contractor" in the preamble to this Contract.

   **County.** Napa County, a political subdivision of the State of California.
Department of Transportation. The Board of Supervisors of Napa County, State of California, acting by and through its Director of Public Works.

Department. The Napa County Department of Public Works.

Director of Transportation. The Napa County Public Works Director.

Engineer or County Engineer. The Napa County Public Works Director, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

Laboratory. The established laboratory of the Materials and Research licensed and certified by the Department of Transportation of the State of California or laboratories authorized by the Engineer to test materials and work involved in the contract.

Owner. Napa County.

State of California. Napa County.

Transportation Building. Napa County Administration Building, 1195 Third Street, Suite 101, Napa, California 94559.

State Highway Engineer. The Napa County Public Works Director, acting either directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

Standard Specifications. The 2015 edition of the Standard Specifications of the State of California, Department of Transportation. Any reference therein to the State of California or a State agency, office or officer shall be interpreted to refer to the County or its corresponding agency, office or officer acting under this contract.

Days. As used in these special provisions, days shall mean working days.

4. **CONTRACT DOCUMENTS**

   The Contract Documents shall include the Notice to Contractors, Proposal Form, bonds, these special provisions, the Standard Specifications of the State of California and the Standard Plans of the State of California, Department of Transportation, dated 2018 insofar as same may apply, and pertinent portions of other documents included by reference thereto in the Special Provisions or the Contract pages.

5. **RESERVE**

6. **RESERVE**

7. **BID OPENING**

   The County publicly opens and reads bids at the time and place shown on the Notice to Bidders or as altered by County issued addendums.
8. **BID RIGGING**

   The U.S. Department of Transportation (DOT) provides a toll-free hotline to report bid rigging activities. Use the hotline to report bid rigging, bidder collusion, and other fraudulent activities. The hotline number is (800) 424-9071. The service is available 24 hours 7 days a week and is confidential and anonymous. The hotline is part of the DOT's effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General.

9. **CONTRACT AWARD**

   If the County awards the contract, the award is made to the lowest responsive and responsible bidder. Additional details are set forth in the proposal form. The contractor shall ensure that the bid is valid for 60 days from bid opening.

10. **CONTRACTOR LICENSE**

    The Contractor must be properly licensed as a contractor from contract award through Contract acceptance (Public Contract Code § 210103.5).

11. **DIFFERING SITE CONDITIONS** 23 CFR 635.109 is made a part of this contract and incorporated herein by reference.

   a. **Contractor's Notification**

      Promptly notify the County’s Engineer if you find either of the following conditions:

      1. Physical conditions differing materially from either of the following:
         - Contract documents
         - Job site examination
      2. Physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract

      Include details explaining the information you relied on and the material differences you discovered.

      If you fail to promptly notify the Engineer, you waive the differing site condition claim for the period between your discovery of the differing site condition and your notification to the Engineer.

      If you disturb the site after discovery and before the Engineer's investigation, you waive the differing site condition claim.

   b. **Engineer's Investigation and Decision (Standard Specifications 4-1.06C)**

      Upon your notification, the Engineer investigates job site conditions and:

      1. Notifies you whether to resume affected work
      2. Decides whether the condition differs materially and is cause for an adjustment of time, payment, or both.

12. **BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES**

    Attention is directed to all of the provisions of Section 8, “Prosecution and Progress,” of the Standard Specifications and these Special Provisions.

    Work at Dry Creek Rd MPM 6.2, MPM 9.48 and Diamond Mountain Road MPM 1.1 shall commence on May 16, 2022 and be completed by September 30, 2022. Construction work at Dry Creek Rd MPM 9.75 shall commence on August 1, 2022 and be completed by October 14, 2022.
The County is currently working to obtain permits for Dry Creek Rd MPM 9.75 from the California Department of Fish and Wildlife (CDFW). The timeline to obtain permits might prohibit the County from allowing construction to begin on August 1, 2022 at Dry Creek Rd MPM 9.75. In the event construction is not able to commence on August 1, 2022, the total base bid for Dry Creek Rd MPM 9.75 shall be deducted from the total contract amount based on the bid unit price.

The Contractor shall begin work within five (5) calendar days after receiving notice that the contract has been executed and approved by the County (Notice To Proceed).

This work shall be diligently prosecuted to completion before the expiration one hundred seven (107) WORKING DAYS beginning the day of issuance of Notice To Proceed (currently scheduled to start on May 16, 2022 and finish by October 14, 2022 at the four sites).

Attention is directed to the provisions of Section 8-1.10, “Liquidated Damages,” of the Standard Specifications and these Special Provisions. The Contractor shall pay to Napa County the sum of $2,500 per day for each and every calendar day delay in finishing the work in excess of the number of working days prescribed above and any extension of time granted.

13. **BUY AMERICA (Standard Specifications 6-2.05C)**
Furnish steel and iron materials to be incorporated into the work with certificates of compliance. Steel and iron materials must be produced in the U.S. except:

1. Foreign pig iron and processed, pelletized, and reduced iron ore may be used in the domestic production of the steel and iron materials [60 Fed Reg 15478 (03/24/1995)];
2. If the total combined cost of the materials does not exceed the greater of 0.1 percent of the total bid or $2,500, materials produced outside the U.S. may be used.

Production includes:

1. Processing steel and iron materials, including smelting or other processes that alter the physical form or shape (such as rolling, extruding, machining, bending, grinding, and drilling) or chemical composition;
2. Coating application, including epoxy coating, galvanizing, and painting, that protects or enhances the value of steel and iron materials.

14. **QUALITY ASSURANCE**
The County uses a Quality Assurance Program (QAP) to ensure a material is produced to comply with the Contract.

You may examine the records and reports of tests the County performs if they are available at the job site.

Schedule work to allow time for QAP.

15. **PROMPT PAYMENT OF FUNDS WITHHELD TO SUBCONTRACTORS**
The County shall hold retainage from the prime contractor and shall make prompt and regular incremental acceptances of portions, as determined by the County, of the contract work, and pay retainage to the prime contractor based on these acceptances. The prime contractor, or subcontractor, shall return all monies withheld in retention from a subcontractor within 30 days after receiving payment for work satisfactorily completed and accepted including incremental acceptances of portions of the contract work by the County. Federal law (49 CFR26.29) requires that any delay or
postponement of payment over 30 days may take place only for good cause and with the County’s prior written approval. Any violation of this provision shall subject the violating prime contractor or subcontractor to the penalties, sanctions and other remedies specified in Section 7108.5 of the Business and Professions Code. These requirements shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to the prime contractor or subcontractor in the event of a dispute involving late payment or nonpayment by the prime contractor, deficient subcontract performance, or noncompliance by a subcontractor.

16. TITLE VI ASSURANCES

During the performance of this Agreement, the contractor, for itself, its assignees and successors in interest (hereinafter collectively referred to as CONTRACTOR) agrees as follows:

(1) **Compliance with Regulations:** CONTRACTOR shall comply with the regulations relative to nondiscrimination in federally assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the REGULATIONS), which are herein incorporated by reference and made a part of this agreement.

(2) **Nondiscrimination:** CONTRACTOR, with regard to the work performed by it during the AGREEMENT, shall not discriminate on the grounds of race, color, sex, national origin, religion, age, or disability in the selection and retention of sub-applicants, including procurements of materials and leases of equipment. CONTRACTOR shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the agreement covers a program set forth in Appendix B of the Regulations.

(3) **Solicitations for Sub-agreements, Including Procurements of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by CONTRACTOR for work to be performed under a Sub-agreement, including procurements of materials or leases of equipment, each potential sub-applicant or supplier shall be notified by CONTRACTOR of the CONTRACTOR’S obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

(4) **Information and Reports:** CONTRACTOR shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the California Department of Transportation or FHWA to be pertinent to ascertain compliance with such Regulations or directives. Where any information required of CONTRACTOR is in the exclusive possession of another who fails or refuses to furnish this information, CONTRACTOR shall so certify to the California Department of Transportation or the FHWA as appropriate, and shall set forth what efforts CONTRACTOR has made to obtain the information.

(5) **Sanctions for Noncompliance:** In the event of CONTRACTOR’s noncompliance with the nondiscrimination provisions of this agreement, the California Department of Transportation shall impose such agreement sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

(a) withholding of payments to CONTRACTOR under the Agreement within a reasonable period of time, not to exceed 90 days; and/or

(b) cancellation, termination or suspension of the Agreement, in whole or in part.
(6) Incorporation of Provisions: CONTRACTOR shall include the provisions of paragraphs (1) through (6) in every sub-agreement, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

CONTRACTOR shall take such action with respect to any sub-agreement or procurement as the California Department of Transportation or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance, provided, however, that, in the event CONTRACTOR becomes involved in, or is threatened with, litigation with a sub-applicant or supplier as a result of such direction, CONTRACTOR may request the California Department of Transportation enter into such litigation to protect the interests of the State, and, in addition, CONTRACTOR may request the United States to enter into such litigation to protect the interests of the United States.

MAINTAIN RECORDS AND SUBMIT REPORTS DOCUMENTING YOUR PERFORMANCE UNDER THIS SECTION

17. **SUBCONTRACTING**

Attention is directed to Section 5-1.13, “Subcontracting,” of the Standard Specifications.

18. **PREVAILING WAGES**

Attention is directed to Section 7-1.02K, "Labor Code," of the Standard Specifications and these Special provisions.

In accordance with the provisions of Section 1774 of the Labor Code, the County has ascertained from the Director of Industrial Relations the general prevailing rate of wages (which rate includes employer payments for health and welfare, pension, vacation and similar purposes) is applicable to the work to be done under this Contract.

The general prevailing wage rates and any applicable changes to these wage rates are available:
1. At the Department's Labor Compliance Office of the district in which the work is located
2. From the Department of Industrial Relations' Web site [http://www.wdol.gov/dba.aspx](http://www.wdol.gov/dba.aspx)

Changes in general prevailing wage determinations apply to the Contract when the Director of Industrial Relations has issued them at least 10 days before advertisement. (Labor Code § 1773.6 and 8 CA Code of Regs 16204)

19. **CERTIFIED PAYROLL RECORDS**

Special Attention is directed to the provisions of Section 7-1.02K(3), “Certified Payroll Records,” of the Standard Specifications. A copy of all payrolls shall be submitted weekly to the Engineer. Payrolls shall contain the full name, address and social security number of each employee, employee’s correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. Submitted payroll shall also indicate apprentices and ratio of apprentices to journeymen. The employee's address and social security number need only appear on the first payroll on which his name appears. The payroll shall be accompanied by a "Statement of Compliance" signed by the employer or his agent indicating that the payrolls are correct and complete and that the wage rates contained therein are not less than those required by the contract. The "Statement of Compliance" shall be on forms furnished by the Department or on any form with identical wording. The Contractor shall be responsible for the submission of copies of payrolls of all subcontractors. Failure to submit will delay processing of progress payments.
20. BIDDING REQUIREMENTS AND CONDITIONS

Attention is directed to Section 2, “Bidding,” of the Standard Specifications and these Special Provisions.

(a) Examination of Site. Each bidder shall have examined the site of the work before bidding so he shall have full knowledge of all facilities and difficulties affecting the work which may not be particularly described herein. No variation or allowance from the contract sum will be made because of lack of such examination or knowledge.

(b) State Contract Act. The State Contract Act is not applicable to contracts involving political subdivisions of the State of California. Pre-qualification of bidders will not be required.

(c) Joint Venture. If two or more Bidders desire to bid jointly on a single project or desire to combine their assets for so doing, they must file an affidavit of joint venture with the County Engineer, and such affidavit of joint venture will be valid only for the specific project for which it is filed. If such affidavit of joint venture is not filed as aforesaid and approved by the Engineer prior to the time for opening bids on the specific projects for which it is submitted, a joint bid submitted by the said Bidders will be disregarded.

(d) Registered and Qualified – California Labor Code § 1771.1. A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.

21. CONTRACT AWARD AND EXECUTION (Bonds)

Attention is directed to Section 3, “Contract Award and Execution,” of the Standard Specifications, contract bonds and these Special Provisions. In-lieu of the bonds specified under Section 3-1.05 of the Standard Specifications, the successful bidder shall furnish a faithful Performance Bond as required by Section 20129 of the Public Contract Code in an amount equal to one hundred percent (100%) of the contract price of the work contemplated and the laborer's and material man's payment bond as required by Section 8182 of the Civil Code in an amount equal to one hundred percent (100%) of the contract price of the work contemplated.

22. SCOPE OF WORK

Attention is directed to Section 4, “Scope of Work,” of the Standard Specifications and these Special Provisions.

The intent of the plans and specifications is to cover the entire project ready for use when completed. The Contractor shall accomplish complete installation of facilities, and any other required items to make the unit complete. All units, facilities, etc., shall be in operating condition to the approval of the Engineer. The quantities and items listed in the proposal form and contract form are given as a basis for the comparison of bid and the Board of Supervisors does not, expressly or by implication, agree that the actual amount of work will correspond therewith, but reserves the right to increase or decrease the amount of any class or portion of the work, or to omit portions of the work as may be deemed necessary or expedient by the Engineer.
23. **CHANGE ORDERS**

(a) **Limitations Where Contract Price Changes are Involved.**

   i. **Overhead and Profit for the Contractor.** The Contractor's overhead and profit on the cost of subcontracts shall be a sum not exceeding ten percent (10%) of such costs. The Contractor's overhead and profit on the costs of work performed by the Contractor shall be a sum not exceeding fifteen percent (15%) of such costs. Overhead and profit shall not be applied to the cost of taxes and insurance by Contractor or Subcontractors or to credits. No processing or similar fees may be charged by the Contractor in connection with the Modification.

   ii. **Bond Premiums.** The actual rate of bond premiums as paid on the total cost (including taxes) will be allowed, but with no markup for profit and overhead.

   iii. **Taxes.** State and city sales taxes should be indicated.

(b) **Procedure.** Attention is directed to Section 4-1.05 of the Standard Specifications.

(c) **Authorized Representative / Limits.** No Change Order shall be valid or binding against COUNTY unless such Change Order has been executed in writing by (1) COUNTY’s Director of Public Works consistent with the authority granted to him by the Board of Supervisors pursuant to the limitations set forth under Napa County Resolution No. 2011-18 and Public Contract Code Section 20142, or (2) by the Board of Supervisors.

24. **CONTROL OF THE WORK**

Attention is directed to Section 5 of the Standard Specifications and these Special provisions. After contract approval, submit documents and direct questions in writing to the Engineer.

(a) **Contract Components.** A component in one contract part applies as if appearing in each. The parts are complementary and describe and provide for a complete work.

   If a discrepancy is found or confusion arises, request correction or clarification in writing. Any deviations from the approved Plans and Specifications shall be approved by the Engineer and all changes shall be by written permission only.

(b) **Acceptance of Contract.** Attention is directed to Section 5-1.46, “Final Inspection and Contract Acceptance,” of the Standard Specifications and these Special provisions. Acceptance will consist of the execution and filing with the County Recorder of a Notice of Completion as defined in Civil Code Section 8182. Should it become necessary due to developed conditions to occupy any portion of the work before the contract is fully completed, such occupancy shall not constitute acceptance.

25. **LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC**

Attention is directed to Section 7 of the Standard Specifications and these Special Provisions.

Comply with laws, regulations, orders, and decrees applicable to the project. Immediately report to the Engineer in writing any discrepancy or inconsistency between the contract and a law, regulation, order, and decree.

(a) **Prevailing Wages.** See Section 18 and 19 of these Special Provisions.

(b) **Public Convenience and Public Safety.**

   Attention is directed to Section 7-1.03 and Section 7.1.04 of the Standard Specifications and these Special Provisions.
(1) **Safety Devices.** Furnishing and maintenance of safety devices shall be the responsibility of the Contractor at all times. The Contractor shall respond promptly to correct improper conditions or inoperative devices. Failure to inspect and maintain all necessary safety devices in proper operating condition when in use, or failure to respond promptly to notification of improperly operating equipment, will be sufficient cause for suspension of the contract until such defects are corrected or termination as otherwise provided in this Contract.

(2) **Safety Data Sheets (SDS) –** The Contractor shall provide MSDS for each product used on site upon request by the Engineer.

(3) **Safety Standards; Suspension of Contract for Unsafe Equipment.** The Contractor shall comply with all the applicable provisions of the United States Department of Labor Occupational Safety and Health Act (OSHA), State of California Division of Industrial Safety, Title 8, Safety Orders (Cal-OSHA), the Federal Aviation Administration (FAA) and any other applicable codes and regulations. If, in the opinion of the Engineer, any operation or piece of equipment that is observed by the Engineer appears to be unsafe, the Engineer may immediately halt that portion of the work until the hazard is corrected to the satisfaction of the Engineer and no time extension or additional compensation shall be granted for the time lost due to said halting of the work.

(c) **Hold Harmless/Indemnification.** To the full extent permitted by law, Contractor shall hold harmless, defend at its own expense, and indemnify COUNTY and the officers, agents, employees and volunteers of County from any and all liability, claims, losses, damages or expenses, including reasonable attorney's fees, for personal injury (including death) or damage to property, arising from all acts or omissions to act of Contractor or its officers, agents, employees, volunteers, contractors and subcontractors in rendering services under this Agreement, excluding, however, such liability, claims, losses, damages or expenses arising from the sole negligence or willful acts of County or its officers, agents, employees or volunteers. Each party shall notify the other party immediately in writing of any claim or damage related to activities performed under this Agreement. The parties shall cooperate with each other in the investigation and disposition of any claim arising out of the activities under this Agreement, providing that nothing shall require either party to disclose any documents, records or communications that are protected under peer review privilege, attorney-client privilege, or attorney work product privilege.

(d) **Insurance.** Contractor shall obtain and maintain in full force and effect throughout the term of this Agreement, and thereafter as to matters occurring during the term of this Agreement, the following insurance coverage:

(1) **Workers' Compensation insurance.** To the extent required by law during the term of this Agreement, CONTRACTOR shall provide workers' compensation insurance for the performance of any of CONTRACTOR's duties under this Agreement, including but not limited to, coverage for workers' compensation and employer's liability and a waiver of subrogation, and shall provide COUNTY with certification of all such coverages upon request by COUNTY’s Risk Manager.

(2) **Liability insurance.** Contractor shall obtain and maintain in full force and effect during the term of this Agreement the following liability insurance coverages, issued by a company admitted to transact business in the State of California and having a A.M. Best rating of A VII or better:

   (i) **General Liability.** Commercial or comprehensive general liability [CGL] insurance coverage (personal injury and property damage) of not less than FIVE MILLION DOLLARS ($5,000,000) per occurrence and TEN MILLION DOLLARS ($10,000,000) aggregate, covering liability or claims for any personal injury, including death, to any person and/or damage to the property of any person arising from the acts or omissions of
Contractor or any officer, agent, or employee of Contractor under this Agreement.

(ii) **Comprehensive Automobile Liability Insurance.** Comprehensive automobile liability insurance (Bodily Injury and Property Damage) on owned, hired, leased and non-owned vehicles used in conjunction with Contractor's business of not less than ONE MILLION DOLLARS ($1,000,000) combined single limit per occurrence.

(3) **Certificates.** All insurance coverages referenced in (2), above, shall be evidenced by one or more certificates of coverage or, with the consent of COUNTY’s Risk Manager demonstrated by other evidence of coverage acceptable to COUNTY’s Risk Manager, which shall be filed by CONTRACTOR with the DEPARTMENT OF PUBLIC WORKS prior to commencement of performance of any of Contractor's duties; shall reference this Agreement by its COUNTY number or title and department; shall be kept current during the term of this Agreement; shall provide that COUNTY shall be given no less than thirty (30) days prior written notice of any non-renewal, cancellation, other termination, or material change, except that only ten (10) days prior written notice shall be required where the cause of non-renewal or cancellation is non-payment of premium; and shall provide that the inclusion of more than one insured shall not operate to impair the rights of one insured against another insured, the coverage afforded applying as though separate policies had been issued to each insured, but the inclusion of more than one insured shall not operate to increase the limits of the company's liability.

For the commercial general liability insurance coverage referenced in (2)(i), and, where the vehicles area covered by a commercial policy rather than a personal policy, for the comprehensive automobile liability insurance coverage referenced in (2)(ii) CONTRACTOR shall also file with the evidence of coverage and endorsement from the insurance provider naming COUNTY, its officers employees, agents and volunteers as additional insureds and waiving subrogation, and the certificate or other evidence of coverage shall provide that if the same policy applies to activities of CONTRACTOR not covered by this Agreement then the limits in the applicable certificate relating to the additional insured coverage of COUNTY shall pertain only to liability for activities of CONTRACTOR under this Agreement, and that the insurance provided is primary coverage to COUNTY with respect to any insurance or self-insurance programs maintained by COUNTY. The additional insured endorsements for the general liability coverage shall use Insurance Services Office (ISO) Form No. CG 20 09 11 85 or CG 20 10 11 85, or equivalent including (if used together ) CG 2010 10 01 and CG 2037 10 01; but shall not use the following forms:  CG 20 10 10 93 or 03 94. Upon request of COUNTY’s Risk Manager, CONTRACTOR shall provide or arrange for the insured to provide within thirty (30) days of the request, certified copies of the actual insurance policies or relevant portions thereof.

(4) **Additional Insured.** The general liability and automobile liability policies listed above are to contain, or be endorsed to contain, the following provisions:

Napa County, its officers, agents, employees, and volunteers are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the grantee; and with respect to liability arising out of work or operations performed by or on behalf of the grantee including materials, parts or equipment furnished in connection with the work or operations.

(5) **Deductibles/Retentions.** Any deductibles or self-insured retentions shall be declared to, and be approved by, County’s Risk Manager, which approval shall not be denied unless the County's Risk Manager determines that the deductibles or self-insured retentions are unreasonably large in relation to compensation payable under this Agreement and the risks of liability associated with the activities required of Contractor by this Agreement. At the option of and upon request
by County’s Risk Manager, either the insurer shall reduce or eliminate such deductibles or self-insurance retentions or Contractor shall procure a bond guaranteeing payment of losses and related investigations, claims administration and defense expenses.

26. PROSECUTION AND PROGRESS

Attention is directed to Section 8, “Prosecution and Progress,” of the Standard Specifications, and these Special Provisions.

(a) Preconstruction Meeting
After award of the contract and prior to the commencement of work at the site, a Preconstruction meeting will be held at a mutually agreed time and place which shall be attended by the Contractor, its Superintendent, and its subcontractors as appropriate.

The conference is required to familiarize all authorized persons involved with policies, regulations and procedures and to discuss construction operations and methods in order to avoid any misunderstanding or conflicts during construction.

Unless previously submitted to the Engineer, the Contractor shall bring to the preconstruction meeting six (6) copies each of the following:
1. Draft Construction Schedule.
2. Procurement schedule of major equipment and materials and items requiring long lead time.
3. Shop Drawing/Sample/submittal schedule.
4. Schedule of values (lump sum price breakdown) for progress payment purposes.
5. The Temporary Traffic Control Plan for Engineers review
6. Substitution Requests
7. Letter of Responsibility designating emergency contacts for the Contractor after business hours.

(b) Progress Meetings
The Contractor shall schedule and hold regular on site progress meetings at least weekly and at other times as requested by Engineer. The Contractor, Engineer, Inspector, and all subcontractors active on the site shall be represented at each meeting. The Contractor or Engineer may at its discretion request attendance by the Contractor's suppliers, manufacturer's, and other subcontractors.

The County shall provide for keeping and distribution of the minutes. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop.

(c) Construction Schedule and Progress Schedule
The contractor, promptly after being awarded the contract or upon receiving notice of intent to award, shall prepare and submit a baseline construction schedule for the work. The baseline schedule shall not exceed the number of contract working days. The baseline schedule must include the entire scope of work and demonstrate how the contractor plans to complete all work contemplated and shall provide for expeditious and practicable execution of the work.

The Contractor shall also incorporate all required permit conditions and other coordination into the schedule.

Progress schedules shall be updated and submitted on a weekly basis thereafter. The progress schedule shall be revised at appropriate intervals as required by the conditions of the work and project or when requested in writing by the Engineer. The Contractor shall perform the work in general accordance with the most recent schedules submitted to the Engineer.
(d) **Schedule of Submittals**
A schedule of submittals shall be provided to the Engineer at the preconstruction meeting. The Contractor shall keep the submittal schedule up to date and ensure that it coordinates with the construction schedule, with adequate time for the Engineer to review the submittals.

(e) **Termination of Contract** Attention is directed Section 8-1.13 of the Standard Specifications and these Special provisions.

Whenever, in the opinion of the Board of Supervisors the said work is neglected by the Contractor, or the same is not prosecuted with the diligence and force specified, meant and intended in and by the terms of this contract, it shall be lawful for the Board of Supervisors to make a requisition upon the Contractor for such additional specific force or such additional specific material to be brought into the work under this contract or to remove improper material from the grounds, and its due and faithful fulfillment requires; of which action of the Board of Supervisors due notice in writing of not less than five days shall be served upon the Contractor or his agent having charge of the work; and if the Contractor fails to comply with such requisition within five days, it shall be lawful for the Board of Supervisors to employ upon such work the additional force or supply the materials as specifically required as aforesaid; and the amount paid for such additional force or material shall be charged against the Contractor and be deducted from his next or subsequent estimate and payment, or the same or any part thereof not so deducted may be recovered from the Contractor or his sureties.

Moreover, if the Contractor fails to comply with such requisition within five days, the Board of Supervisors may declare the contract terminated and may itself proceed to complete the work herein specified or may engage any other person or persons to do the same. Upon the completion of such work, the said Board of Supervisors through its proper office or officers shall cause a statement to be made of the default of the Contractor as aforesaid, and in completing the work itself or by any other person or persons. Should the amount in such statement be more than the amount would have been due the Contractor upon the completion of the work by him, the difference shall be paid by the Contractor to Napa County.

27. **TERMINATION FOR CONVENIENCE OF THE COUNTY**
Notwithstanding any other provision of this Agreement, County may, at any time, and without cause, terminate this Agreement in whole or in part, upon not less than seven (7) days' written notice to CONTRACTOR. Such termination shall be effected by delivery to Contractor of a notice of termination specifying the effective date of the termination and the extent of the work to be terminated. Contractor shall immediately stop work in accordance with the notice and comply with any other direction as may be specified in the notice or as provided subsequently by County. County shall pay Contractor for the work completed prior to the effective date of the termination, and such payment shall be Contractor's sole remedy under this Agreement. Under no circumstances will Contractor be entitled to anticipatory or unearned profits, consequential damages, or other damages of any sort as a result of a termination or partial termination under this paragraph. Contractor shall insert in all subcontracts that the subcontractor shall stop work on the date of and to the extent specified in a notice of termination, and shall require subcontractors to insert the same condition in any lower tier subcontracts.

28. **MEASUREMENT AND PAYMENT**
Attention is directed to Section 9, “Payment,” of the Standard Specifications and these Special Provisions.

Payment for the various items of the Bid Sheets, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles,
and for all labor, operations, and incidentals appurtenant to the items of work being described, as necessary to complete the various items of work as specified and shown on the Drawings, including all appurtenances thereto, and including all costs of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the California Division of Industrial Safety. No separate payment will be made for any item that is not specifically set forth in the Bid Sheet(s), and all costs therefor shall be included in the prices named in the Bid Sheet(s) for the various appurtenant items of work.

All pay line items will be paid for at the unit prices named in the Bid Sheet(s) for the respective items of work. The quantities of work or material stated as unit price items on the Bid Sheet(s) are supplied only to give an indication of the general scope of the Work; the County does not expressly nor by implication agree that the actual amount of work or material will correspond therewith, and reserves the right after award to increase or decrease the quantity of any unit price of any major item of work by an amount up to and including 25 percent of any major bid item, without a change in the unit price, and shall have the right to delete any bid item in its entirety, or to add additional bid items up to and including an aggregate total amount not to exceed 25 percent of the contract price.

Section 9-1.07 “Payment adjustments for price index fluctuations,” is deleted.

(a) **Force Account.** Attention is directed Section 9-1.04 of the Standard Specifications and these Special Provisions.

Equipment rental rates shall be those rental rates applicable on contracts advertised by the State of California, Department of Transportation on the date of call for bids on this contract.

(b) **Progress Payments.** Attention is directed Section 9-1.16 of the Standard Specifications and these Special Provisions.

In lieu of Section 9-1.16 F Retentions, the County will retain 5 percent (5%) of the value of all work done and 5 percent (5%) of the value of the materials so estimated to have been furnished and delivered and unused or furnished and stored as aforesaid as part security for the fulfillment of the contract by the Contractor to the extent not inconsistent with Public Contract Code Section 20104.50; all such retentions being subject to the following statutory requirements:

**Public Contract Code Section 7107. Retention proceeds; withholding disbursement**

(a) This section is applicable with respect to all contracts entered into on or after January 1, 1993 relating to the construction of any public work of improvement.

(b) The retention proceeds withheld from any payment by the public entity from the original contractor, or by the original contractor from any subcontractor, shall be subject to this section.

(c) Within 60 days after the date of completion of the work of improvement, the retention withheld by the public entity shall be released. In the event of a dispute between the public entity and the original contractor, the public entity may withhold from the final payment an amount not to exceed 150 percent of the disputed amount. For purposes of this subdivision, "completion" means any of the following:

1. The occupation, beneficial use, and enjoyment of a work of improvement, excluding any operation only for testing, startup, or commissioning, by the public agency, or its agent, accompanied by cessation of labor on the work of improvement.

2. The acceptance by the public agency, or its agent, of the work of improvement.
(3) After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 100 days or more, due to factors beyond the control of the contractor.

(4) After the commencement of a work of improvement, a cessation of labor on the work of improvement for a continuous period of 30 days or more, if the public agency files for record a notice of cessation or a notice of completion.

(d) Subject to subdivision (e), within 10 days from the time that all or any portion of the retention proceeds are received by the original contractor, the original contractor shall pay each of its subcontractors from whom retention has been withheld, each subcontractor's share of the retention received. However, if a retention payment received by the original contractor is specifically designated for a particular subcontractor, payment of the retention shall be made to the designated subcontractor, if the payment is consistent with the terms of the subcontract.

(e) The original contractor may withhold from a subcontractor its portion of the retention proceeds if a bona fide dispute exists between the subcontractor and the original contractor. The amount withheld from the retention payment shall not exceed 150 percent of the estimated value of the disputed amount.

(f) In the event that retention payments are not made within the time periods required by this section, the public entity or original contractor withholding the unpaid amounts shall be subject to a charge of 2 percent per month on the improperly withheld amount, in lieu of any interest otherwise due. Additionally, in any action for the collection of funds wrongfully withheld, the prevailing party shall be entitled to attorney's fees and costs.

(g) If a state agency retains an amount greater than 125 percent of the estimated value of the work yet to be completed pursuant to Section 10261 of the Public Contract Code, the state agency shall distribute undisputed retention proceeds in accordance with subdivision (c). However, notwithstanding subdivision (c), if a state agency retains an amount equal to or less than 125 percent of the estimated value of the work yet to be completed, the state agency shall have 90 days in which to release undisputed retentions.

(h) Any attempted waiver of the provisions of this section shall be void as against the public policy of this state.

Public Contract Code Section 22300. Performance retentions; provision for substitute security; escrow agreement

(a) Provisions shall be included in any invitation for bid and in any contract documents to permit the substitution of securities for any moneys withheld by a public agency to ensure performance under a contract; however, substitution of securities provisions shall not be required in contracts in which there will be financing provided by the Farmers Home Administration of the United States Department of Agriculture pursuant to the Consolidated Farm and Rural Development Act (> 7 U.S.C. Sec. 1921 et seq.), and where federal regulations or policies, or both, do not allow the substitution of securities. At the request and expense of the contractor, securities equivalent to the amount withheld shall be deposited with the public agency, or with a state or federally chartered bank in this state as the escrow agent, who shall then pay those moneys to the contractor. Upon satisfactory completion of the contract, the securities shall be returned to the contractor.
(b) Alternatively, the contractor may request and the owner shall make payment of retentions earned directly to the escrow agent at the expense of the contractor. At the expense of the contractor, the contractor may direct the investment of the payments into securities and the contractor shall receive the interest earned on the investments upon the same terms provided for in this section for securities deposited by the contractor. Upon satisfactory completion of the contract, the contractor shall receive from the escrow agent all securities, interest, and payments received by the escrow agent from the owner, pursuant to the terms of this section.

(c) Securities eligible for investment under this section shall include those listed in Section 16430 of the Government Code, bank or savings and loan certificates of deposit, interest-bearing demand deposit accounts, standby letters of credit, or any other security mutually agreed to by the contractor and the public agency. The contractor shall be the beneficial owner of any securities substituted for moneys withheld and shall receive any interest thereon. Failure to include these provisions in bid and contract documents shall void any provisions for performance retentions in a public agency contract. For purposes of this section, the term "public agency" shall include, but shall not be limited to, chartered cities.

(d) (1) Any contractor who elects to receive interest on moneys withheld in retention by a public agency shall, at the request of any subcontractor, make that option available to the subcontractor regarding any moneys withheld in retention by the contractor from the subcontractor. If the contractor elects to receive interest on any moneys withheld in retention by a public agency, then the subcontractor shall receive the identical rate of interest received by the contractor on any retention moneys withheld from the subcontractor by the contractor, less any actual pro rata costs associated with administering and calculating that interest. In the event that the interest rate is a fluctuating rate, the rate for the subcontractor shall be determined by calculating the interest rate paid during the time that retentions were withheld from the subcontractor. If the contractor elects to substitute securities in lieu of retention, then, by mutual consent of the contractor and subcontractor, the subcontractor may substitute securities in exchange for the release of moneys held in retention by the contractor.

(2) This subdivision shall apply only to those subcontractors performing more than five percent of the contractor's total bid.

(3) No contractor shall require any subcontractor to waive any provision of this section.

(e) The Legislature hereby declares that the provisions of this section are of statewide concern and are necessary to encourage full participation by contractors and subcontractors in public contract procedures.

(f) The escrow agreement used hereunder shall be null, void, and unenforceable unless it is substantially similar to the following form:

ESCROW AGREEMENT FOR SECURITY DEPOSITS IN LIEU OF RETENTION

This Escrow Agreement is made and entered into by and between:

whose address is

hereinafter called "Owner,"

whose address is
For the consideration hereinafter set forth, the Owner, Contractor, and Escrow Agent agree as follows:

(1) Pursuant to Section 22300 of the Public Contract Code of the State of California, Contractor has the option to deposit securities with Escrow Agent as a substitute for retention earnings required to be withheld by Owner pursuant to the Construction Contract entered into between the Owner and Contractor for __________ in the amount of __________ dated __________ (hereinafter referred to as the "Contract"). Alternatively, on written request of the Contractor, the Owner shall make payments of the retention earnings directly to the Escrow Agent. When the Contractor deposits the securities as a substitute for Contract earnings, the Escrow Agent shall notify the Owner within 10 days of the deposit. The market value of the securities at the time of the substitution shall be at least equal to the cash amount then required to be withheld as retention under the terms of the Contract between the Owner and Contractor. Securities shall be held in the name of __________, and shall designate the Contractor as the beneficial owner.

(2) The Owner shall make progress payments to the Contractor for those funds which otherwise would be withheld from progress payments pursuant to the Contract provisions, provided that the Escrow Agent holds securities in the form and amount specified above.

(3) When the Owner makes payment of retentions earned directly to the Escrow Agent, the Escrow Agent shall hold them for the benefit of the Contractor until the time that the escrow created under this contract is terminated. The Contractor may direct the investment of the payments into securities. All terms and conditions of this agreement and the rights and responsibilities of the parties shall be equally applicable and binding when the Owner pays the Escrow Agent directly.

(4) Contractor shall be responsible for paying all fees for the expenses incurred by Escrow Agent in administering the Escrow Account and all expenses of the Owner. These expenses and payment terms shall be determined by the Owner, Contractor, and Escrow Agent.

(5) The interest earned on the securities or the money market accounts held in escrow and all interest earned on that interest shall be for the sole account of Contractor and shall be subject to withdrawal by Contractor at any time and from time to time without notice to the Owner.

(6) Contractor shall have the right to withdraw all or any part of the principal in the Escrow Account only by written notice to Escrow Agent accompanied by written authorization from the Owner to the Escrow Agent that Owner consents to the withdrawal of the amount sought to be withdrawn by Contractor.

(7) The Owner shall have a right to draw upon the securities in the event of default by the Contractor. Upon seven days’ written notice to the Escrow Agent from the owner of the default, the Escrow Agent shall immediately convert the securities to cash and shall distribute the cash as instructed by the Owner.

(8) Upon receipt of written notification from the Owner certifying that the Contract is final and complete, and that the Contractor has complied with all requirements and procedures applicable to the Contract, Escrow Agent shall release to Contractor all securities and interest on deposit less escrow fees and charges of the Escrow Account. The escrow shall be closed immediately upon disbursement of all moneys and securities on deposit and payments of fees and charges.

(9) Escrow Agent shall rely on the written notifications from the Owner and the Contractor pursuant to Sections (5) to (8), inclusive, of this Agreement and the Owner and Contractor shall
hold Escrow Agent harmless from Escrow Agent's release and disbursement of the securities and interest as set forth above.

(10) The names of the persons who are authorized to give written notice or to receive written notice on behalf of the Owner and on behalf of Contractor in connection with the foregoing, and exemplars of their respective signatures are as follows:

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<th>On behalf of Owner:</th>
<th>On behalf of Contractor:</th>
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<tr>
<th>On behalf of Escrow Agent:</th>
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At the time the Escrow Account is opened, the Owner and Contractor shall deliver to the Escrow Agent a fully executed counterpart of this Agreement.

IN WITNESS WHEREOF, the parties have executed this Agreement by their proper officers on the date first set forth above.

“Owner”       “Contractor”

<table>
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Public Contract Code Section 20104.50  Timely progress payments; legislative intent; interest; payment requests

(a)  (1) It is the intent of the Legislature in enacting this section to require all local governments to pay their contractors on time so that these contractors can meet their own obligations. In requiring prompt payment by all local governments, the Legislature hereby finds and declares that the prompt payment of outstanding receipts is not merely a municipal affair, but is, instead, a matter of statewide concern.

(2) It is the intent of the Legislature in enacting this article to fully occupy the field of public policy relating to the prompt payment of local governments' outstanding receipts. The Legislature finds and declares that all government officials, including those in local government, must set a standard of prompt payment that any business in the private sector which may contract for services should look towards for guidance.

(b) Any local agency which fails to make any progress payment within 30 days after receipt of an undisputed and properly submitted payment request from a contractor on a construction contract shall pay interest to the contractor equivalent to the legal rate set forth in subdivision (a) of Section 685.010 of the Code of Civil Procedure.

(c) Upon receipt of a payment request, each local agency shall act in accordance with both of the following:

(1) Each payment request shall be reviewed by the local agency as soon as practicable after receipt for the purpose of determining that the payment request is a proper payment request.

(2) Any payment request determined not to be a proper payment request suitable for payment shall be returned to the contractor as soon as practicable, but not later than seven days, after receipt. A request returned pursuant to this paragraph shall be accompanied by a document setting forth in writing the reasons why the payment request is not proper.

(d) The number of days available to a local agency to make a payment without incurring interest pursuant to this section shall be reduced by the number of days by which a local agency exceeds the seven-day return requirement set forth in paragraph (2) of subdivision (c).

(e) For purposes of this article:

(1) A "local agency" includes, but is not limited to, a city, including a charter city, a county, and a city and county, and is any public entity subject to this part.

(2) A "progress payment" includes all payments due contractors, except that portion of the final payment designated by the contract as retention earnings.

(3) A payment request shall be considered properly executed if funds are available for payment of the payment request, and payment is not delayed due to an audit inquiry by the financial officer of the local agency.
(f) Each local agency shall require that this article, or summary thereof, be set forth in the terms of any contract subject to this article.

(c) **Claims.** All claims under this contract shall be subject to the following statutory requirements:

*Public Contract Code Section 9204 - Claim resolution process for claim by contractor in connection with public works project.*

(a) The Legislature finds and declares that it is in the best interests of the state and its citizens to ensure that all construction business performed on a public works project in the state that is complete and not in dispute is paid in full and in a timely manner.

(b) Notwithstanding any other law, including, but not limited to, Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2, Chapter 10 (commencing with Section 19100) of Part 2, and Article 1.5 (commencing with Section 20104) of Chapter 1 of Part 3, this section shall apply to any claim by a contractor in connection with a public works project.

(c) For purposes of this section:

1. "Claim" means a separate demand by a contractor sent by registered mail or certified mail with return receipt requested, for one or more of the following:
   - (A) A time extension, including, without limitation, for relief from damages or penalties for delay assessed by a public entity under a contract for a public works project.
   - (B) Payment by the public entity of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public works project and payment for which is not otherwise expressly provided or to which the claimant is not otherwise entitled.
   - (C) Payment of an amount that is disputed by the public entity.

2. "Contractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who has entered into a direct contract with a public entity for a public works project.

3. (A) "Public entity" means, without limitation, except as provided in subparagraph (B), a state agency, department, office, division, bureau, board, or commission, the California State University, the University of California, a city, including a charter city, county, including a charter county, city and county, including a charter city and county, district, special district, public authority, political subdivision, public corporation, or nonprofit transit corporation wholly owned by a public agency and formed to carry out the purposes of the public agency.
   - (C) "Public entity" shall not include the following:
     - (i) The Department of Water Resources as to any project under the jurisdiction of that department.
     - (ii) The Department of Transportation as to any project under the jurisdiction of that department.
     - (iii) The Department of Parks and Recreation as to any project under the jurisdiction of that department.
     - (iv) The Department of Corrections and Rehabilitation with respect to any project under its jurisdiction pursuant to Chapter 11 (commencing with Section 7000) of Title 7 of Part 3 of the Penal Code.
     - (v) The Military Department as to any project under the jurisdiction of that department.
     - (vi) The Department of General Services as to all other projects.
     - (vii) The High-Speed Rail Authority.
(4) "Public works project" means the erection, construction, alteration, repair, or improvement of any public structure, building, road, or other public improvement of any kind.

(5) "Subcontractor" means any type of contractor within the meaning of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code who either is in direct contract with a contractor or is a lower tier subcontractor.

(d) (1) (A) Upon receipt of a claim pursuant to this section, the public entity to which the claim applies shall conduct a reasonable review of the claim and, within a period not to exceed 45 days, shall provide the claimant a written statement identifying what portion of the claim is disputed and what portion is undisputed. Upon receipt of a claim, a public entity and a contractor may, by mutual agreement, extend the time period provided in this subdivision.

(B) The claimant shall furnish reasonable documentation to support the claim.

(C) If the public entity needs approval from its governing body to provide the claimant a written statement identifying the disputed portion and the undisputed portion of the claim, and the governing body does not meet within the 45 days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the public entity shall have up to three days following the next duly publicly noticed meeting of the governing body after the 45-day period, or extension, expires to provide the claimant a written statement identifying the disputed portion and the undisputed portion.

(D) Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. If the public entity fails to issue a written statement, paragraph (3) shall apply.

(2) (A) If the claimant disputes the public entity's written response, or if the public entity fails to respond to a claim issued pursuant to this section within the time prescribed, the claimant may demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand in writing sent by registered mail or certified mail, return receipt requested, the public entity shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(B) Within 10 business days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the public entity shall provide the claimant a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 days after the public entity issues its written statement. Any disputed portion of the claim, as identified by the contractor in writing, shall be submitted to nonbinding mediation, with the public entity and the claimant sharing the associated costs equally. The public entity and claimant shall mutually agree to a mediator within 10 business days after the disputed portion of the claim has been identified in writing. If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. If mediation is unsuccessful, the parts of the claim remaining in dispute shall be subject to applicable procedures outside this section.

(C) For purposes of this section, mediation includes any nonbinding process,
including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

(D) Unless otherwise agreed to by the public entity and the contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Section 20104.4 to mediate after litigation has been commenced.

(E) This section does not preclude a public entity from requiring arbitration of disputes under private arbitration or the Public Works Contract Arbitration Program, if mediation under this section does not resolve the parties' dispute.

(3) Failure by the public entity to respond to a claim from a contractor within the time periods described in this subdivision or to otherwise meet the time requirements of this section shall result in the claim being deemed rejected in its entirety. A claim that is denied by reason of the public entity's failure to have responded to a claim, or its failure to otherwise meet the time requirements of this section, shall not constitute an adverse finding with regard to the merits of the claim or the responsibility or qualifications of the claimant.

(4) Amounts not paid in a timely manner as required by this section shall bear interest at 7 percent per annum.

(5) If a subcontractor or a lower tier subcontractor lacks legal standing to assert a claim against a public entity because privity of contract does not exist, the contractor may present to the public entity a claim on behalf of a subcontractor or lower tier subcontractor. A subcontractor may request in writing, either on his or her own behalf or on behalf of a lower tier subcontractor, that the contractor present a claim for work which was performed by the subcontractor or by a lower tier subcontractor on behalf of the subcontractor. The subcontractor requesting that the claim be presented to the public entity shall furnish reasonable documentation to support the claim. Within 45 days of receipt of this written request, the contractor shall notify the subcontractor in writing as to whether the contractor presented the claim to the public entity and, if the original contractor did not present the claim, provide the subcontractor with a statement of the reasons for not having done so.

(a) The text of this section or a summary of it shall be set forth in the plans or specifications for any public works project that may give rise to a claim under this section.

(b) A waiver of the rights granted by this section is void and contrary to public policy, provided, however, that (1) upon receipt of a claim, the parties may mutually agree to waive, in writing, mediation and proceed directly to the commencement of a civil action or binding arbitration, as applicable; and (2) a public entity may prescribe reasonable change order, claim, and dispute resolution procedures and requirements in addition to the provisions of this section, so long as the contractual provisions do not conflict with or otherwise impair the timeframes and procedures set forth in this section.

(c) This section applies to contracts entered into on or after January 1, 2017.

(d) Nothing in this section shall impose liability upon a public entity that makes loans or grants available through a competitive application process, for the failure of an awardee to meet its contractual obligations.

(e) This section shall remain in effect only until January 1, 2020, and as of
that date is repealed, unless a later enacted statute, that is enacted before January 1, 2020, deletes or extends that date.

**Public Contract Code Section 20104 Application of article; provisions included in plans and specifications**

(a) (1) This article applies to all public works claims of three hundred seventy-five thousand dollars ($375,000) or less which arise between a contractor and a local agency.

(2) This article shall not apply to any claims resulting from a contract between a contractor and a public agency when the public agency has elected to resolve any disputes pursuant to Article 7.1 (commencing with Section 10240) of Chapter 1 of Part 2.

(b) (1) “Public work” means “public works contract” as defined in Section 1101 but does not include any work or improvement contracted for by the state or the Regents of the University of California.

(2) "Claim" means a separate demand by the contractor for (A) a time extension, (B) payment of money or damages arising from work done by, or on behalf of, the contractor pursuant to the contract for a public work and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (C) an amount the payment of which is disputed by the local agency.

(c) The provisions of this article or a summary thereof shall be set forth in the plans or specifications for any work which may give rise to a claim under this article.

(d) This article applies only to contracts entered into on or after January 1, 1991.

**Public Contract Code Section 20104.2 Claims; requirements, tort claims excluded**

For any claim subject to this article, the following requirements apply:

(a) The claim shall be in writing and include the documents necessary to substantiate the claim.

Claims must be filed on or before the date of final payment. Nothing in this subdivision is intended to extend the time limit or supersede notice requirements otherwise provided by contract for the filing of claims.

(b) (1) For claims of less than fifty thousand dollars ($50,000), the local agency shall respond in writing to any written claim within 45 days of receipt of the claim or may request, in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.

(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency’s written response to the claim, as further documented, shall be submitted to the claimant within 15 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information whichever is greater.

(c) (1) For claims of over fifty thousand dollars ($50,000) and less than or equal to three hundred seventy-five thousand dollars ($375,000), the local agency shall respond in writing to all written claim within 60 days of receipt of the claim, or may request in writing, within 30 days of receipt of the claim, any additional documentation supporting the claim or relating to defenses to the claim the local agency may have against the claimant.
(2) If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of the local agency and the claimant.

(3) The local agency's written response to the claim, as further documented, shall be submitted to the claimant within 30 days after receipt of the further documentation, or within a period of time no greater than that taken by the claimant in producing the additional information or requested documentation, whichever is greater.

(d) If the claimant disputes the local agency's written response, or the local agency fails to respond within the time prescribed, the claimant may so notify the local agency, in writing, either within 15 days of receipt of the local agency's response or within 15 days of the local agency's failure to respond within the time prescribed, respectively, and demand an informal conference to meet and confer for settlement of the issues in dispute. Upon a demand, the local agency shall schedule a meet and confer conference within 30 days for settlement of the dispute.

(e) Following the meet and confer conference, if the claim or any portion remains in dispute, the claimant may file a claim as provided in Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the claimant submits his or her written claim pursuant to subdivision (a) until the time that claim is denied as a result of the meet and confer process, including any period of time utilized by the meet and confer process.

(f) This article does not apply to tort claims and nothing in this article is intended nor shall be construed to change the time periods for filing tort claims or actions specified by Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code.

Public Contract Code Section 20104.4 Civil action procedures; mediation and arbitration: trial de novo: witness

The following procedures are established for all civil actions filed to resolve claims subject to this article:

(a) Within 60 days, but no earlier than 30 days, following the filing or responsive pleadings, the court shall submit the matter to non-binding mediation unless waived by mutual stipulation of both parties. The process shall provide for the selection within 15 days by both parties of a disinterested third person as mediator, shall be commenced 30 days of the submittal, and shall be concluded within 15 days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court or by stipulation of parties. If the parties fail to select a mediator within the 15-day period, any party may petition the court to appoint the mediator.

(b) (1) If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1141.11 of that code. The Civil Discovery Act of (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration.

(2) Notwithstanding any other provision of law, upon stipulation of parties, arbitrators appointed for purposes of this article shall be experienced in construction law, and, upon stipulation of the parties, mediators and arbitrators shall be paid necessary and reasonable hourly rates of pay not to exceed their customary rate, and such fees and expenses shall be paid equally by the parties, except in the case of arbitration where
the arbitrator, for good cause, determines a different division. In no event shall these
fees or expenses be paid by state or county funds.
(3) In addition to Chapter 2.5 (commencing with Section 1141.10) Title 3 of Part 3 of
the Code of Civil Procedure, any party who receiving an arbitration award requests a
trial de novo but does obtain a more favorable judgment shall, in addition to payment
of costs and fees under that chapter, pay the attorney's fees of the other arising out of
the trial de novo.
(c) The court may, upon request by any party, order any witnesses participate in the
mediation or arbitration process.

Public Contract Code Section 20104.6 Payment of portion of claim which is undisputed:
of interest on arbitration award or judgment
(a) No local agency shall fail to pay money as to any portion of a claim which is undisputed
except as otherwise provided in the contract.
(b) In any suit filed under Section 20104.4, the local agency shall pay interest at the legal
rate on any arbitration award or judgment. The interest shall begin to accrue on the
date the suit is filed in a court of law.

(d) Final Payment. Payment will be made in accordance with the provisions of Section 9-1.17 of
the Standard Specifications provided however that in no event will the final payment be made
within 35 calendar days after the filing of Notice of Completion.

29. MISCELLANEOUS PROVISIONS

(a) Licenses and Permits. Any and all licenses and permits required shall be provided by the Contractor
and he shall abide by any and all Federal, State and County laws and rules affecting the work and shall
maintain all required protection for property, employees and the public and insurance in connection
with same, for all of which he shall bear necessary expense.

(b) Building Laws, etc. The Contractor shall conform to and abide by all County and State Building,
Labor, Sanitary and Electrical Codes, Ordinances, Laws, Rules and Regulations. Such laws and
regulations shall be considered a part of this Exhibit "A" as if set forth herein in full and the work and
materials shall be in accordance therewith.

(c) Guarantees. All work performed and equipment or material furnished shall be guaranteed for one (1)
year from date of acceptance against any inherent or developed defects of materials or workmanship
in manufacture or installations. All guarantees normally provided by manufacturers of equipment or
material installed under this project shall be furnished to County and shall remain in force for their
normal life.

(d) Ownership of Plans and Specifications. All drawings, specifications and copies thereof provided to
Contractor by the County shall remain the property of the County and they shall not be used by the
Contractor or its subcontractors on other work.

(e) Addenda. Any addenda or notices issued during the time of bidding and forming a part of the
documents provided to the Bidder for the preparation of the contractor’s bid, shall be covered in the
bid and shall be made a part of the contract. The Bidder shall acknowledge receipt of addenda in the
space provided in the Proposal.

Should a bidder find apparent discrepancies in the drawings or documents, or should he be in doubts to
their meaning, he should at once notify the County of Napa, Public Works Department, which will send
a written instruction to all bidders. Napa County will not be responsible for oral instructions.
30. OWNER'S RIGHT TO DO WORK

Napa County as Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors on the job site reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly connect and coordinate his work with theirs.

If any part of the Contractor's work depends for proper execution or results upon work of any other Contractor, the Contractor shall inspect and promptly report to the Engineer any defects in such work that render it unsuitable for proper execution and results. His failure to so inspect and report shall constitute his acceptance of other Contractors' work as fit and proper for reception of his work, except as to defects which may develop in other Contractors' work after execution of his work.

To insure proper execution of his subsequent work, the Contractor shall measure and inspect work already in place and shall at once report to the Engineer any discrepancy between executed work and contract documents.

The Contractor shall ascertain to his own satisfaction the scope of the project and nature of any other contracts that have been or may be awarded by owner in prosecution of the project to the end that the Contractor may perform this contract in the light of such other contracts, if any. Nothing herein contained shall be interpreted as granting to the Contractor exclusive occupancy at the site of project. The Contractor shall not cause any unnecessary hindrance or delay to any other Contractors working on project. If simultaneous execution of any contract for the project is likely to cause interference with performance of some other contract or contracts, the owner shall decide which Contractor shall cease work temporarily and which Contractor then shall continue or whether work can be coordinated so that the Contractors may proceed simultaneously.

31. EQUAL OPPORTUNITY EMPLOYMENT

During the performance of the Contract, the Contractor shall comply with all applicable laws, ordinances, regulations, and codes, including but not limited to, the following:

(a) Non-Discrimination. During the performance of the work required by the Contract, the Contractor and its subcontractors shall not deny the benefits thereof to any person on the basis of race, color, sex, sexual orientation, religion, age, ancestry or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave, or disability leave. Contractor and its subcontractors will take affirmative action to ensure that employees are treated during employment without regard to their race, sex, sexual orientation, color, religion, ancestry, or national origin, physical disability, medical condition, marital status, political affiliation, family and medical care leave, pregnancy leave, or disability leave. Such action shall include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. Contractor and its subcontractors shall post in conspicuous places, available to employees for employment, notices provided by the State of California setting forth the provisions of this Fair Employment section. The Contractor shall ensure that the evaluation and treatment of employees and applicants for employment are free of such discrimination or harassment. In addition to the foregoing general obligations, the Contractor shall comply with the provisions of the Fair Employment and Housing Act (Government Code section 12900, et seq.), the regulations promulgated thereunder (Title 2, California Code of Regulations, section 7285.0, et seq.), the provisions of Article 9.5, Chapter 1, Part 1, Division 3, Title 2 of the Government Code (sections 11135-11139.5) and any state or local regulations adopted to implement any of the foregoing, as such statutes and regulations may be
amended from time to time. To the extent this Contract subcontracts to the Contractor work required of the County by the State of California pursuant to agreement between the County and the State, the applicable regulations of the Fair Employment and Housing Commission implementing Government Code section 12990 (a) through (f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of regulations are expressly incorporated into this Agreement by reference and made a part hereof as if set forth in full, and the Contractor and any of its subcontractors shall give written notice of their obligations thereunder to labor organizations with which they have collective bargaining or other agreements.

(b) Documentation of Right to Work. The Contractor shall abide by the requirements of the Immigration and Control Reform Act pertaining to assuring that all newly-hired employees of the Contractor performing any of the work under the Contract have a legal right to work in the United States of America, that all required documentation of such right to work is inspected, and that INS Form 1-9 (as it may be amended from time to time) is completed and on file for each employee. The Contractor shall make the required documentation available upon request to the County for inspection.

(c) Inclusion in Subcontracts. To the extent any of the work to be performed by Contractor under the Contract is subcontracted to a third party, the Contractor shall include the provisions of (a) and (b), above, in all such subcontracts as obligations of the subcontractor.

32. COUNTY POLICIES ON WASTE, HARASSMENT, DRUG/ALCOHOL-FREE, VIOLENCE-FREE WORKPLACE.

Contractor hereby agrees to comply, and require its employees and subcontractors to comply, with the following policies, copies of which are on file with the Clerk of the Board of Supervisors and incorporated by reference herein. Contractor also agrees that it shall not engage in any activities, or permit its officers, agents and employees to do so, during the performance of any of the services required under this Agreement, which would interfere with compliance or induce violation of these policies by COUNTY employees or contractors.


(b) County of Napa “Policy for Maintaining a Harassment and Discrimination Free Work Environment” revised effective August 23, 2005.

(c) County of Napa Drug and Alcohol Policy adopted by resolution of the Board of Supervisors on June 25, 1991.

(d) Napa County Information Technology Use and Security Policy adopted by resolution of the Board of Supervisors on April 17, 2001. To this end, all employees and subcontractors of CONTRACTOR whose performance of services under this Agreement requires access to any portion of the COUNTY computer network shall sign and have on file with COUNTY’s ITS Department prior to receiving such access the certification attached to said Policy.

(e) Napa County Workplace Violence Policy, adopted by the BOS effective May 23, 1995 and subsequently revised effective November 2, 2004, which is located in Napa County Policy Manual Part I, Section 37U.

33. REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR.

Before starting each portion of the work, the Contractor shall carefully study and compare the Contract Documents relative to that portion of the work, shall take field measurements of any existing conditions
related to that portion of the work and shall observe any conditions at the site affecting it. These obligations
are for the purpose of facilitating construction by the contractor and are not for the purpose of discovering
errors, omissions, or inconsistencies in the Contract Documents; however, any errors, inconsistencies, or
omissions discovered by the contractor shall be reported promptly to the Engineer as a request for
information in such form as the Engineer may require.

Any design errors or omissions noted by the Contractor during this review shall be reported promptly to
the Engineer, but it is recognized that the Contractor’s review is made in the Contractor’s capacity as a
contractor and not as a licensed design professional unless otherwise specifically provided in the Contract
Documents. The Contractor is not required to ascertain that the contract Documents are in accordance with
applicable laws, statutes, ordinances, building codes, and rules and regulations, but any nonconformity
discovered by or made known to the contractor shall be reported promptly to the Engineer.

34. SUPERVISION AND CONSTRUCTION PROCEDURES

(a) Supervision and Direction of Work. The Contractor shall supervise and direct the work, using the
contractor’s best skill and attention. The Contractor shall be solely responsible for and have control over
construction means, methods, techniques, sequences and procedures and for coordinating all portions of
the work under the contract, unless the Contract Documents give other specific instructions concerning
these matters. If the Contract Documents give specific instructions concerning construction means,
methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and,
except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods,
techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques,
sequences or procedures may not be safe, the Contractor shall give timely written notice to the Engineer
and shall not proceed with that portion of the work without further written instructions from the Engineer.
If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or
procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely
responsible for any resulting loss or damage.

(b) Responsibility of Work. The Contractor shall be responsible to the Owner for acts and omissions
of the Contractor’s employees, subcontractors, and their agents and employees, and other persons
or entities performing portions of the work for or on behalf of the Contractor or any of its
subcontractors.

(c) Subsequent Work. The Contractor shall be responsible for inspection of portions of work already
performed to determine that such portions are in proper condition to receive subsequent work.

(d) Superintendent. The Contractor shall employ a competent superintendent and necessary assistants
who shall be in attendance at the Project site during performance of the work. The superintendent
shall represent the Contractor, and communications given to the superintendent shall be as binding
as if given to the Contractor. Important communications shall be confirmed in writing. Other
communications shall be similarly confirmed on written request in each case.

35. AUDITS/ACCOUNTING/RECORDS

The Contractor shall maintain financial accounts, documents, and records (collectively, “records”) relating
to this agreement, in accordance with the guidelines of “Generally Accepted Accounting Principles”
(“GAAP”) published by the American Institute of Certified Public Accountants. The records shall include,
without limitation, evidence sufficient to reflect properly the amount, receipt, deposit, and disbursement of
all funds related to the construction of the project, and the use, management, operation and maintenance of
the real property. Time and effort reports are also required. The Contractor shall maintain adequate
supporting records in a manner that permits tracing from the request for disbursement forms to the accounting records and to the supporting documentation.

Additionally, the County or its agents may review, obtain, and copy all records relating to performance of the agreement. The grantee shall provide the County or their agents with any relevant information requested and shall permit the County or their agents access to the Contractor’s premises upon reasonable notice, during normal business hours, to interview employees and inspect and copy books, papers, accounting, and other evidence that may be relevant to a matter under investigation for the purpose of determining compliance with this agreement and any applicable laws and regulations.

The Contractor shall retain the required records for a minimum of three years following the later of final disbursement by the County, and the final year to which the particular records pertain. The records shall be subject to examination and audit by the County and the Bureau of State Audits during the retention periods.

If the Contractor retains any subcontractors to accomplish any of the work of this agreement, the Contractor shall first enter into an agreement with each subcontractor requiring the subcontractor to meet the terms of this section and to make the terms applicable to all subcontractors.

36. **INTERPRETATION; VENUE.**
   (a) **Interpretation.** The headings used herein are for reference only. The terms of the Agreement are set out in the text under the headings. This Agreement shall be governed by the laws of the State of California without regard to the choice of law or conflicts.

   (b) **Venue.** This Agreement is made in Napa County, California. The venue for any legal action in state court filed by either party to this Agreement for the purpose of interpreting or enforcing any provision of this Agreement shall be in the Superior Court of California, County of Napa, a unified court. The venue for any legal action in federal court filed by either party to this Agreement for the purpose of interpreting or enforcing any provision of this Agreement lying within the jurisdiction of the federal courts shall be the Northern District of California. The appropriate venue for arbitration, mediation or similar legal proceedings under this Agreement shall be Napa County, California; however, nothing in this sentence shall obligate either party to submit to mediation or arbitration any dispute arising under this Agreement.

37. **SECTIONS OF THE 2015 SPECIAL PROVISIONS NOT APPLICABLE.**

   Section 5-1.09 “Partnering” and all of its subparts and Section 5-1.43 “Alternative Dispute Resolution” and all its subparts are hereby removed in their entirety and shall have no application apply to this Agreement.
SPECIAL PROVISIONS - SECTION ‘B’

GENERAL REQUIREMENTS

1. GENERAL

The Contractor shall take all reasonable precautions to restrict operations to the least area of work possible and to minimize interference with traffic along the County roads, and shall not disturb private property beyond the areas of work.

The Contractor shall provide access to private properties at all times.

The Contractor shall maintain continuous access to the United States Postal Service and emergency services. The Contractor shall notify the local postmaster and emergency services at least 48 hours before work will commence.

Personal vehicles of the Contractor’s employees shall not be parked on the traveled way or shoulders, including any section closed to public traffic. Temporary “NO-STOPPING,” “NO PARKING,” and “TOW-AWAY” signs shall be posted by the Contractor upon authorization of the County.

Weekend work shall be approved in advance by the Engineer.

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

2. GENERAL REQUIREMENTS

(a) LAYOUT OF WORK – The Contractor shall lay out the work as directed by the Engineer in the field.

(b) TRAFFIC CONTROL PLAN – The Contractor shall prepare the Temporary Traffic Control Plan (TTCP) in compliance with the California Manual of Uniform Traffic Control Devices (CAMUTCD) for Engineer’s review and approval. The TTCP shall be submitted to the Engineers at the preconstruction meeting and at the minimum shall include number and location of all Construction Area Signs, Temporary Traffic Control Signs including Portable Changeable Message Signs, number of flaggers, pilot cars, etc.

(c) SAFETY DATA SHEETS (SDS) – The Contractor shall provide SDS for each product used on site.

(d) PROTECTION OF EXISTING FACILITIES AND PROPERTY – Protection of existing facilities shall conform to Section 5-1.36, “Property and Facility Preservation,” of the Standard Specifications and these Special Provisions.

The Contractor shall notify Underground Service Alert (USA) for marking the locations of existing underground facilities at least 2 working days, but not more than 14 calendar days, prior to performing any excavation or other work close to any underground pipeline, conduit, duct, wire or other structure.

Regional notification centers include but are not limited to the following:
<table>
<thead>
<tr>
<th>Notification Center</th>
<th>Telephone Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underground Service Alert-</td>
<td>811 or 1-800-642-2444</td>
</tr>
<tr>
<td>Northern California (USA)</td>
<td></td>
</tr>
<tr>
<td>Underground Service Alert-</td>
<td>1-800-422-4133</td>
</tr>
<tr>
<td>Southern California (USA)</td>
<td>1-800-227-2600</td>
</tr>
</tbody>
</table>

The Contractor shall immediately notify the County Engineer of any facilities found that may interfere with work to be performed. The Contractor shall take all necessary measures to avoid injury to existing surface and underground utility facilities in and near the site of the work. If damage should occur to the existing facilities, the utility company and the County shall be notified immediately and repairs acceptable to the utility company shall be made at the Contractor’s expense.

Existing trees, shrubs, and other plants, that are injured or damaged by reason of the Contractor’s operations, shall be replaced by the Contractor.

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

(e) **DAMAGES** – The Contractor shall be responsible for any damages to existing facilities, utilities and roads due to causes attributable to the work, and all such damaged facilities, utilities and roads shall be repaired when directed by the Engineer and as required to place them in as good as condition as existed before commencement of the work.

(f) **EMERGENCY SERVICE PROVIDERS NOTIFICATIONS** – The Contractor shall furnish the name and phone number of a representative that can be contacted in the event of an emergency. Said information shall be reported to the County Sheriff dispatcher, and updated as required to provide 24-hour phone access.

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

(g) **PUBLIC SAFETY** – The Contractor shall at all times conduct his work in accordance with Construction Safety Orders of the Department of Industrial Relations, Division of Occupational Safety and Health (DOSH), better known as Cal/OSHA, State of California, to insure the least possible obstruction to traffic and inconvenience to the general public, and adequate protection of persons and property in the vicinity of the work.

No access way shall be closed to the public without first obtaining permission from the Engineer.

The Contractor shall furnish, erect and maintain all lights, signs, barricades and barriers necessary to give adequate warning to the public at all times and shall provide such guards as may be necessary to prevent accidents and avoid damage and injury.

Should the Contractor fail to provide public safety as specified or if, in the opinion of the Engineer, the warning devices furnished by the Contractor are not adequate, the County may place any warning lights or barricades or take any necessary action to protect or warn the public.
of any dangerous condition connected with the Contractor’s operations and the Contractor shall be liable to the County for all costs incurred plus 100%.

Nothing in this section shall be construed to impose tort liability on the County or Engineer. Full compensation for conforming to the requirements of this section shall be considered as included in the contract prices paid for the various contract items of work and no additional compensation will be allowed.

(h) WATER FOR CONSTRUCTION – Construction water shall conform to Section 10.6, “Watering,” of the Standard Specifications and these Special Provisions.

Water for construction activities shall be provided by the contractor. The Contractor shall contain all water within the limits of the project and prevent discharge to adjacent wetland, ditches, creeks and other facilities.

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

(i) EXISTING UTILITIES – The Contractor shall notify all utility companies and request field location markings of existing facilities prior to commencing construction. Where potential conflict with existing underground utilities may constitute a safety hazard or interfere with the progress of work, such facilities shall be hand-excavated to determine their precise location. Contractor shall be liable for damages to all utilities whether so located and marked or not.

It is not the intent of the Plans to show the exact location or extent of existing underground utilities or structures, and the Engineer assumes no responsibility therefor. It is the Contractor’s responsibility to verify all existing utility locations and notify the Engineer in case of conflict.

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

(j) COOPERATION – The Contractor shall cooperate with the occupants of the existing facilities adjacent to the project and coordinate the work in such a manner as to minimize the disruption to the existing facilities.

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

(k) SAFETY – The Contractor shall comply with all the applicable provisions of the United States Department of Labor Occupational Safety and Health Act (OSHA), State of California Department of Industrial Relations, Division of Occupational Safety and Health (DOSH), Title 8, Safety Orders (Cal-OSHA) and any other applicable codes and regulations.

If, in the opinion of the Engineer, any operation or piece of equipment that is observed by the Engineer appears to be unsafe, the Engineer may immediately halt that portion of the work until the hazard is corrected to the satisfaction of the Engineer and no time extension or additional compensation shall be granted for the time lost due to said halting of the work.
(l) DISPOSITION OF REMOVED MATERIALS – Attention is directed to Caltrans Standard Specification section 19, “Earthwork” and Section 13 of these special provisions. The Contractor shall be responsible for the disposal of all surplus excavation materials off the site. The Contractor shall not dispose of any materials from demolition or removal by sale, gift or in any manner whatsoever, to the general public at the site. Disposal operations shall comply with all applicable laws and ordinances and must be approved by the Engineer.

(m) CONSTRUCTION LIMITATIONS – The Contractor will be expected to conduct his operations in a manner which creates minimum damage to the natural vegetation and landscaping, paving and gravel areas. Care shall be exercised to avoid hazards that may cause injury to persons, animals or property either during working hours or after work hours, which will include dust control, backfilling trenches or placement of steel plates and temporary fencing as required. Equipment will be restricted to the immediate area of construction and trenches will be backfilled as soon as possible. Receptacles for construction residue, including oil, cleaning fluids and litter, will be covered. Such residues will be disposed of in a proper manner.

Mufflers and/or baffles will be required on all construction equipment.

Construction activity within the existing right-of-way will be scheduled to minimize traffic inconvenience and safety hazards to motorists, pedestrians and cyclists.

(n) CLEAN UP – Clean up shall be performed to prevent accidents to personnel, protect all work in place, and to effect completion of the project in an orderly manner. Excess debris shall be removed from the work area immediately so as not to clutter the existing facilities. Access to all other properties within the project area shall be unobstructed and passable between the hours of 5:00 p.m. and 7:00 a.m. weekdays, on weekends and holidays, and whenever work is not actively in progress.

(o) EQUIPMENT – Standard construction equipment shall be used and shall be maintained in a safe and satisfactory condition at all times and in compliance with the latest provisions of the CAL/OSHA regulations. All trucks and other heavy equipment shall be well maintained and in proper working order and in compliance with all applicable laws and regulations.

(p) WORKING HOURS REQUIREMENTS – Normal work week shall be Monday through Friday 7:00 am to 5:00 pm that are not County holidays unless otherwise approved by the Engineer. At the discretion of the County, the Contractor shall compensate the County for inspection and oversight time outside of the above work window.

(q) SCOPE – Contractor shall take into account all costs associated with the improvements as discussed in the plans and specifications, when preparing the bid and shall take into account the working hour restrictions.

3. ORDER OF WORK

Order of work shall conform to these Special Provisions.

The Contractor shall prepare and submit a work plan and schedule in accordance with Section 8, “Prosecution and Progress,” of the Standard Specifications and in a form provided by, or acceptable to, the Engineer and submit information describing the Contractor's proposed procedures and methods of operation.
No work may begin under the contract until the schedule and description of proposed procedures and methods of operation material have been approved by the Engineer. Time required for review and approval of these items shall not constitute a basis for time extension.

The Contractor shall verify the location of all existing utilities.

No work may begin under the contract until traffic control and construction signage is implemented. Attention is directed to the time requirements of Section 7 “Construction Area Signs” and Section 8 “Maintaining Traffic” of these Special Provisions.

The Contractor shall order work to minimize obstruction to adjacent property owners and inconvenience to the traveling public. The contractor will coordinate with the County and establish traffic control and implement work in a manner which provides the greatest possible access to the property owners adjacent to the work area.

Full compensation for complying with the above provisions shall be considered as included in the contract price for the various bid items, and no separate payment will be made.

4. MOBILIZATION

Mobilization shall conform to Section 9 of the Caltrans Standard Specifications and these Special provisions and shall include but not limited to securing bonds, insurance, construction fencing, office trailers, temporary sheds, temporary utilities, temporary facilities, equipment and supplies, mobilization and demobilization, and all preparatory work prior to the commencement of productive work at the site required under this contract.

Full compensation for conforming to the provisions of this section shall be considered as included in the contract lump sum price under “Mobilization” and no additional compensation will be allowed therefore.

5. SUBMITTALS

Attention is directed to Section 5-1.23 “Submittals,” of the Standard Specifications and Section 4 of these Special Provisions. The contractor shall submit products or materials list, specifications and schedule at the pre-construction meeting. The contractor shall submit for the Engineer’s approval, six cut sheets for all of the products and materials to be used for all work on the project. The cut sheets submitted by the contractor shall clearly describe how the proposed products or materials meet the specifications of the products and materials requested in the project specifications.

Submit at Contractor’s expense, in six (6) sets, Schedule of Shop Drawing and Sample Submittals, Safety Plans, Progress Schedule, Product Data, Shop Drawings, Samples, Substitution Requests, Quality Control Plan, Operations and Maintenance Manuals, Warranties, and Project Record Documents, and all other submittals required by the Contract Documents.

Submit these submittals to Engineer, for review and approval in accordance with accepted schedule of Shop Drawings and Samples submittals. All Shop Drawing, Samples and product data submittals shall be submitted to and approved by the Engineer prior to ordering of material or commencement of work. The Engineer shall be given adequate time for review of submittals per Section 4 of these Special Provisions.
6. SUBSTITUTION OF MATERIALS AND PRODUCTS

All substitution requests and submittals must be made in writing, and be submitted to and approved by the Engineer prior to ordering of material or commencement of work. Submittals shall be made in accordance with the above section.

7. CONSTRUCTION AREA SIGNS

Construction area signs will be provided by the Contractor. Contractor shall coordinate with the Engineer on construction area signs and submit for Engineer’s review and approval at the pre-construction meeting. Full Compensation for Construction Area Signs will be included in the Contract Lump Sum paid for Temporary Traffic Control and no additional compensation will be allowed therefore.

8. MAINTAINING TRAFFIC

Maintaining traffic shall conform to the provisions of Section 7-1.03 “Public Convenience”, Section 7-1.04 “Public Safety” and Section 12 “Temporary Traffic Control” of the Standard Specifications and these Special Provisions. The Contractor shall prepare a Temporary Traffic Control Plan in compliance with Standard Specifications and these Special Provisions and submit for Engineer’s review and approval at the pre-construction meeting.

The Contractor shall install all construction area signs and traffic controls prior to start of work. Construction area signs shall be furnished, installed, maintained and removed when no longer required by the County.

One lane shall be kept open to public traffic at all times. Lane closure will require 72 hours notice to the Engineer and 48 hours notice to the property owners. The full width of the existing roadway shall be available to public traffic when work is not actively in progress, between 3:00 p.m. and 6:00 a.m., on weekends and on holidays.

The Contractor shall coordinate and give adequate warning to the public at all times and shall provide such guards necessary to prevent accidents and avoid damage and injury.

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of work, the Contractor shall immediately notify the Engineer and remedy the situation. Full Compensation for Maintaining Traffic will be included in the Contract Lump Sum paid for “Traffic Control” and no additional compensation will be allowed therefore.

9. TRAFFIC CONTROL SYSTEMS FOR LANE CLOSURES

Traffic Control will be provided by the Contractor. A traffic control system shall consist of closing traffic lanes in accordance the provisions of Section 12, “Temporary Traffic Control”, of the Standard Specifications.

The Contractor shall provide such additional devices or take such measures as may be necessary to comply with Section 7-1.04, “Public Safety,” of the Standard Specifications.

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of work, the Contractor shall immediately notify the Engineer and remedy the situation.
Full Compensation for Traffic Control Systems for Lane Closures will be included in the Contract Lump Sum paid for “Temporary Traffic Control” and no additional compensation will be allowed therefore.

10. STORM WATER POLLUTION PREVENTION MEASURES

Contractor shall comply with all Storm Water Pollution Prevention requirements as required by the Regional Water Quality Control Board and Napa County. The Contractor shall implement water quality control measures as described in the Erosion and Sediment Control Plan to effectively handle storm water run-off both during and after construction. The contractor shall utilize best management practices as directed by the Engineer and as specified in these Special Provisions. See Section 13 Water Pollution Control of these Special Provisions.

Full compensation for complying with the above provisions shall be considered as included in the contract price for the various bid items, and no separate payment will be made.

11. PRESERVATION OF PROPERTY

Preservation of property shall conform to the provisions of Section 5-1.36, “Property and Facility Preservation,” of the Standard Specifications and of these Special Provisions. Attention is directed to Section 9-1.16D, “Mobilization”.

The Contractor shall examine the site and have full knowledge of the conditions and difficulties to be met. No variations or allowance from the contract sum will be made because of lack of knowledge.

The Contractor shall provide the necessary safeguards, shall exercise caution against injury or defacement of existing improvements, survey monuments, and plantings and shall be responsible for the damage resulting from operations. Repair or replacement of such damage shall be at no cost to the County.

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

12. DUST CONTROL

Dust control shall conform to the provisions in Section 14-11.04, "Dust Control" of the Standard Specifications and these Special Provisions.

During the performance of the work called for under these Specifications, or any operations appurtenant thereto, the Contractor shall furnish all labor, equipment and means required, and as often as necessary, to prevent his operations from producing dust in amounts damaging to property or causing a nuisance to persons living nearby or occupying buildings in the vicinity.

Full compensation for conforming to the requirements of this section shall be considered as included in the contract prices paid for the various contract items of work and no separate payment will be made for work performed or material used to control dust resulting from the Contractor’s performance of the work, either inside or outside the right of way.

13. DISPOSAL OF SURPLUS MATERIAL

Attention is directed to Section 17-2, “Clearing and Grubbing” and Section 19 “Earthwork”, of the Standard Specifications and the various sections of the Special Provisions. The Contractor shall load, haul from the site of work and properly dispose of all surplus excavated material including, but not limited
to, rock, concrete and soil prior to the beginning of any earthwork, the Contractor shall make all arrangements for disposal of the surplus material at offsite locations and shall file with the Engineer the written consent of the owner of the property upon which disposal of surplus material is intended.

Full compensation for conforming to the requirements of this section shall include the removal and disposal of all material required to accomplish the work shall be considered as included in the contract prices paid for the various contract items of work and no additional compensation will be allowed.
SPECIAL PROVISIONS - SECTION ‘C’

TECHNICAL SPECIFICATIONS
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**County of Napa**

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1 SUMMARY OF WORK

PART 1 - GENERAL

1.01 GENERAL

A component in one contract part applies as appearing in each. The plans and specifications parts are complementary, describe, and provide for complete work. The work to be done under the Contract shall comply with all requirements of the Plans and Specifications, the Standard Specifications, and the Standard Plans unless modified in writing by the Engineer. In case of conflict, the stricter or more conservative specification, as determined by the Engineer, shall apply.

The work to be done under the Contract, shall comply with:

A. The project plans (Plans) and Special Provisions (Specifications).


D. Caltrans 2018 Standard Plans, (Standard Plans)

E. Caltrans 2018 Revised Standard Plans last updated October 16, 2020

F. 2020 Napa County Road and Street Standards.


H. Caltrans 2014 CA Manual on Uniform Traffic Control Devices (CAMUTCD), revision 5

I. Napa County Public Works Department (County) standards, specifications, and details.

1.02 SUMMARY OF WORK

Winter storms that occurred between 2017 and 2021 caused damage to Dry Creek Road near mile postmarkers (MPM) 6.2, 9.48, 9.75 and Diamond Mountain Road near MPM 1.1. Dry Creek Road MPM 9.48 and MPM 9.75 sustained 15 feet and 70 feet embankment failure, respectively. At Dry Creek Road MPM 6.2, heavy rains over saturated a 70 foot long +/- portion of the road causing two slides and roadway distress. Diamond Mountain Road MPM 1.1 sustained 30 feet embankment failure.

Dry Creek Road MPM 6.2:

As a Base Bid, the repair will include a re-construction of the roadway with 72 linear-foot (wall #1) and 72 linear-foot (wall #2) soldier pile concrete-retaining walls which are supported on a drilled pier foundation. The wall height varies from 5’ to 14’ and drilled pier foundation varies from 22’ to 41’.
As an Additive Alternate Bid, the repair will include an additional 56 linear-foot (wall #3) soldier pile concrete-retaining wall which is also supported on a drilled pier foundation. The wall height is 8’ and drilled pier foundation (6 piers) is 8’. This wall #3 is between wall #1 and #2.

Best management practices and erosion control measures will be implemented. If any Cultural or Archeological Resources are discovered, all work will cease and the local tribes and/or corner will be contacted. During construction, one lane will remain open for access at all times.

The Project elements are expected to be constructed in the same location as, or immediately adjacent to, the existing roadway.

Dry Creek Road MPM 9.75:

The Project proposes to repair the damaged section of Dry Creek Road (MPM 9.75) where an existing retaining wall will need to be extended 88’ north along the roadside. A soldier pile concrete-retaining wall will be constructed at the Project location which will be supported on a drilled pier foundation. The wall height is 15’ and drilled pier foundation (11 piers) is 45’.

Best management practices and erosion control measures will be implemented. If any Cultural or Archeological Resources are discovered, all work will cease and the local tribes and/or corner will be contacted. During construction, one lane will remain open for access at all times.

The Project elements are expected to be constructed in the same location as, or immediately adjacent to, the existing roadway.

Dry Creek Road MPM 9.48:

The repair will include a re-construction of the roadway and a 32 linear-foot soldier pile concrete-retaining wall which is supported on a drilled pier foundation. The wall height is 9’ and drilled pier foundation (5 piers) is 29’.

Best management practices and erosion control measures will be implemented. If any Cultural or Archeological Resources are discovered, all work will cease and the local tribes and/or corner will be contacted. During construction, one lane will remain open for access at all times.

The Project elements are expected to be constructed in the same location as, or immediately adjacent to, the existing roadway.
The work at the sites generally consists of:

- Mobilization
- Staging Area Setup
- Implementation on Erosion and Sediment Control Best Management Practices (BMP)
- Construction Area Signs per CAMUTCD standards and Special Provisions
- Temporary Traffic Control per CAMUTCD standards and Special Provisions
- Clearing and grubbing that includes tree trimming and removal (as shown on the plans)
- Roadway excavation and grading, backfill, and asphalt pavement.
- Pile drilling
- Lagging walls supported on steel soldier piles.
- Utility coordination.
- Auxiliary work shown on the plans and as directed by engineer.
- All construction activities including any temporary staging shall occur within County right of way unless directed otherwise by the engineer.
- Final cleanup
- Project Closeout

1.03 SEQUENCE AND SCHEDULE REQUIREMENTS

A. The construction is anticipated to begin in the spring of 2022 to be completed in the fall of 2022.

B. Ground-disturbing activities may occur between May 15 and October 15.

C. The Contractor shall schedule and sequence the work so that all earthwork is completed no later than October 15th, of each year.

D. The Contractor shall schedule and sequence the work at the four sites and complete all work within 107 working days starting from May 16, 2022 to October 14, 2022 (excluding County holidays)

1.04 DEFINITIONS

A. County: Napa County Public Works Department

B. Engineer: Director of Public Works or his/her designee

C. Scope of Work: the scope of work depicted on the Plans with reference to the Standard Plans, the Standard Specifications, County standards, and these Special Provisions.

1.05 USE OF PROJECT SITE

A. The Contractor shall limit the contractor’s operations to the grading limits shown on the Plans or as approved in writing by the Engineer.
B. Contractor shall submit the construction vehicle and equipment access route(s) to the project site to the Engineer for approval.

C. Staging Area
   1. The contractor shall submit a construction staging plan to be approved by the Engineer.
   2. The Contractor shall restore the site at the Contractor’s own cost prior to demobilization. Failure to restore the site to the property owner’s satisfaction will result in delay in release of final payments until the issue has been resolved.
   3. Staging Area will be allowed within the public Right-of-Way at a location approved by the Engineer.

D. See Section 10 Mobilization of these Special Provisions for further requirements for protection of existing property.

1.06 COORDINATION
   A. Coordination of work shall conform to Section 10, “Coordination of Work” of the Special Provisions.
   B. The Contractor is responsible for coordinating with utility agencies for utility standby and any utility relocation.

1.07 PERMITS OBTAINED BY THE COUNTY
   A. Contractor shall comply to all applicable conditions and requirements in the agreement letter titled “Final Lake or Streambed alteration Agreement, Notification No. XXXXX, 2021 Four Lagging Walls Construction Project” Prepared by California Department of Fish and Wildlife (CDFW) during construction (Letter dated XXXXXX, 2022)

1.08 PERMITS OBTAINED BY THE CONTRACTOR
   A. All other permits as required for Contractor’s Operation

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

PART 4 – MEASUREMENT AND PAYMENT
   A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
2 QUALITY CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

B. The Contractor is responsible for Quality Control.

C. The Contractor is responsible for the quality of the Work including materials and workmanship performed by the subcontractors.

D. The Contractor will cooperate and coordinate with the County for Quality Assurance testing performed by the County.

E. The County performing Quality Assurance inspections and testing does not relieve the Contractor from the responsibility of performing all Quality Control testing required to deliver a quality project.

F. Quality Control includes all tasks required to deliver a coordinated and complete project that is in compliance with the intent of the Contract Documents.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 SITE INVESTIGATION AND CONTROL

A. The Contractor shall verify all dimensions in the field and shall check all field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the Work. The Contractor shall inspect related and appurtenant work and shall report in writing to the Engineer, any conditions which will prevent proper completion of the Work. Any required removal, repair, or replacement caused by unsuitable conditions shall be done by the Contractor at its sole cost and expense.

3.02 INSPECTION OF WORK

A. The Work shall be conducted under the general observation of the Engineer and shall be subject to inspection by the County and other agencies having jurisdiction over the project to assure strict compliance with the requirements of the Contract Documents.

B. The authorized representative of the Engineer on the project site shall be acting directly and through various inspectors at the site. The presence of the inspectors, however, shall not relieve the Contractor of his responsibility for the proper execution of the Work in accordance with all requirements of the contract documents. Compliance is a duty of the Contractor and shall not be avoided by any act or omission on the part of an inspector.
C. All materials and articles furnished by the Contractor shall be subject to inspection. No material or articles shall be used in the Work until it has been inspected and accepted by the Engineer or by the County.

D. Source Inspection: Some material shall be subject to inspection by the Engineer or his authorized representative at the place of production.

E. The presence of the Engineer at the place of production shall not relieve the Contractor of the responsibility for furnishing products, materials, and equipment that comply with all requirements of the contract documents.

3.03 SAMPLING AND TESTING

A. Unless otherwise specified in these Special Provisions all sampling and testing shall be in accordance with the methods prescribed in the current standards of the ASTM or other specified published standards, as applicable to the class and nature of the article or materials considered. The County reserves the right to use any generally accepted system of sampling and testing which, in the opinion of the Engineer, will assure the County that the quality of the workmanship is in full accord with the contract documents.

B. Any waiver by the County of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a "performance bond" to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any prescriptive or performance requirements of the contract documents. "Performance bond" as used in this section is a separate bond in addition to the Contract Performance Bond required in the General Conditions.

C. Notwithstanding the existence of waiver, and in addition to any testing and inspection performed by any other inspector on behalf of the County or any other public agency having jurisdictions over the project, the Engineer shall have the right to make independent investigations and tests, and failure of any portion of the Work to meet any of the requirements of the contract documents shall be reasonable cause for the Engineer to require the removal or correction and reconstruction of any such work in accordance with the General Conditions.

3.04 TIME OF INSPECTIONS AND TESTS

A. Samples and test specimens required under the contract documents shall be furnished by the Contractor and prepared for testing in time for the completion of the necessary tests and analyses before the subject materials or articles are to be used.

B. The County will perform field compaction testing. The Contractor shall furnish all required test specimens at its own expense. Except as otherwise provided in the contract documents performance of the required initial test will be by the County and all costs will be borne by the County except that the cost of any test (retesting) after the initial test shall be borne by the Contractor. The County performing Quality Assurance testing does not
relieve the Contractor from his responsibility of performing all required Quality Control testing to deliver a quality project.

C. The Contractor at the Contractor’s own expense shall perform field testing for utilities that may be affected by the Work. The Contractor shall coordinate and schedule witnessing of field testing with the County and any other agency having jurisdiction over the project. The Contractor shall notify the Engineer no less than 48 hours in advance of beginning field testing.

D. Whenever the Contractor is ready to backfill, bury, cast in concrete, hide, or otherwise cover or make inaccessible any work under the Contract, the Contractor shall notify the Engineer no less than 48 hours in advance of beginning any work of backfilling, burying, casting in concrete, hiding, covering, or making inaccessible any portion of the Work to be inspected so that required inspections can be performed.

E. Failure by the Contractor to notify the Engineer at least 48 hours in advance of any inspection or field testing shall be reasonable cause for the Engineer to require sufficient delay in the Contractor's schedule to allow time for such inspections and any remedial or corrective work required. All costs of such delays, including its impact or effect upon the Work, shall be borne by the Contractor.

3.05 DEFECTIVE AND NONCOMPLIANT WORK

A. Attention is directed to Section 5-1.30 Noncompliant and Unauthorized work and Section 5-1.39 Damage Repair and Restoration of the Standard Specifications

B. Per Section 5-1.30 Noncompliant and Unauthorized work of the Standard Specifications, the contractor shall correct or remove and replace work that does not comply with the Contract at contractor’s cost. County will reduce payment for non-compliant work left in place until the work has been corrected. If the contractor fails to comply promptly with an order under section 5-1.30, the County may correct, remove, or replace noncompliant or unauthorized work. The County will deduct the cost of this work from the contract.

C. Per Section 5-1.39 Damage Repair and Restoration of the Standard Specifications, before Contract acceptance, the contractor shall restore damaged work to the same state of completion as before the damage. The County does not adjust payment for repair or restoration that the Engineer determines was caused by the contractor’s failure to construct the work under the Contract or protect the work.

D. The contractor shall submit a repair or restoration work plan and scheduled for the approval of the Engineer prior to proceeding with work. The submittal must comply with the requirements in Section 4 Submittal Procedures of this Special Provisions.

PART 4 - MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
3 PROJECT MEETINGS

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes:

1. Contractor participation in a preconstruction conference.
2. Administration of progress meetings.

1.02 PRECONSTRUCTION CONFERENCES

A. The Engineer will administer a preconstruction conference for the purpose of executing County-Contractor agreements and will provide clarification of County and Contractor responsibilities in the use of the Work site and for review of administrative procedures, contract documents, standards, correspondence, and submittal requirements.

   1. Personnel present at this meeting are the Engineer, inspector, design consultants, environmental consultant, quality assurance team, archeologist, County representatives, and representatives of other agencies, the Contractor, job superintendent, and the major subcontractors and their foremen or superintendents who will be working on the site.

   2. The Contractor shall be prepared to discuss timing, procedures for smooth job progress, items requiring clarification, distribution of documents, and correspondence with the Engineer and other County representatives.

1.03 PROGRESS MEETINGS

A. The Engineer shall schedule and administer project meetings throughout progress of the Work at weekly intervals and other meetings as needed throughout construction.

   1. The Engineer shall prepare an agenda with copies for participants and record minutes and distribute copies within three (3) days to the Contractor, and to the project team. Those affected by decisions made at the meetings may also be notified.

   2. Attendance: Contractor's job superintendent, major subcontractors and suppliers, design consultants, environmental consultant, quality assurance team, archeologist, other representatives of the County and other agencies as appropriate to address topics for each meeting.

   3. Suggested Agenda: Review of Work progress, status of progress schedule and adjustments, material order and delivery schedules, submittals, maintenance of quality standards, pending changes and substitutions, and other items affecting progress of the Work.

B. The Engineer shall prepare and distribute meeting minutes to the project team and other attendees as requested following each meeting after the minutes have been reviewed and
approved by the Engineer. Meeting minutes shall include a running list of action items for the Contractor. The contents of minutes do not constitute a part of the contract documents. Contract requirements can only be amended by change order.

1.04 ENVIRONMENTAL EDUCATION MEETINGS

A. Each time workers and/or subcontractors come onto the jobsite for the first time the Contractor shall convene a meeting prior to them commencing any work.

B. Required attendance includes jobsite superintendents, foremen, and workers.

C. Discussions shall include wildlife identification and permit requirements for environmental protection.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

PART 4 - MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
4 SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes: Administrative and procedural requirements for submitting shop drawings, product data, samples, and other submittals.

1.02 DEFINITIONS

A. Action Submittals: Written and graphic information that requires the Engineer’s responsive action.

B. Informational Submittals: Written information that does not require the Engineer’s responsive action. Submittals may be rejected for not complying with requirements.

1.03 SUBMITTAL PROCEDURES

A. General:

1. The minimum required submittals are included in Attachment A
2. The Contractor shall submit six (6) sets of each required submittal
3. Electronic copies of CAD Drawings of the contract drawings will be provided by the Engineer for the Contractor's use in preparing submittals upon the Contractor’s written request.

B. Coordination: The Contractor shall coordinate preparation and processing of submittals with the performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
3. The Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
4. The Contractor shall be responsible for the timely submittal of all project submittals including project submittals for work to be done by subcontractors. The Contractor shall not be entitled to project delays resulting from late, inaccurate, or incomplete submittals.

C. Submittals Schedule: The Contractor shall comply with the construction schedule for time requirements for scheduled performance of related construction activities.
D. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows: Time for review shall commence on the Engineer's receipt of the submittal. No extension of the contract time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow five (5) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Engineer will advise the Contractor when a submittal being processed must be delayed for coordination.

2. Intermediate Review: If an intermediate submittal is necessary process it in same manner as an initial submittal.

3. Resubmittal Review: Allow five (5) days for review of each resubmittal.

E. Identification: Affix a permanent label or title block on each submittal for identification.

1. Indicate the name of the firm or the entity that prepared each submittal on label or title block.

2. Provide a space approximately 6 inches by 8 inches on the label or adjacent to the title block to record the Contractor's review and approval markings and actions taken by the Engineer.

3. Include the following information on label for processing and recording action taken:
   a. Project name.
   b. Date.
   c. Name and address of the Engineer.
   d. Name and address of the Contractor.
   e. Name and address of subcontractor.
   f. Name and address of supplier.
   g. Name of manufacturer.
   h. Submittal number or other unique identifier, including revision identifier. Submittal number shall use Standard Specification section number followed by a decimal point and then a sequential number (e.g., 06100.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06100.01.A).
   i. Number and title of appropriate Standard Specification section.
   j. Drawing number and detail references, as appropriate.
   k. Location(s) where product is to be installed, as appropriate.
   l. Other necessary identification.

F. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the contract documents on submittals.
G. Additional Copies: Unless additional copies are required for final submittal, and unless the Engineer observes noncompliance with provisions in the contract documents, initial submittal may serve as final submittal.

H. Transmittal: Package each submittal individually and appropriately for transmittal and handling and submit directly to the Engineer. Transmit each submittal using a transmittal form.
   1. Transmittal Form: Use standardized form approved by the Engineer.
   2. On an attached separate sheet, prepared on the Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by the Engineer on previous submittals, and deviations from requirements in the contract documents, including minor variations and limitations. Include the same label information as is affixed to the related submittal.

I. Resubmittals: Make resubmittals in same the form and number of copies as the initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block and clearly indicate extent of revision.
   3. Resubmit submittals until they are marked "Approved", or "Approved as Noted".

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, and installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Use only final submittals with mark indicating approval by the Engineer.

PART 2 - PRODUCTS

2.01 ACTION SUBMITTALS

A. General: Prepare and submit action submittals required by individual Standard Specification sections.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
   1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
   2. Mark each copy of each submittal to show which products and options are applicable.
   3. Include the following information, as applicable:
      a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Standard color charts.
e. Manufacturer's catalog cuts.
f. Mill reports.
g. Standard product operation and maintenance manuals.
h. Compliance with specified referenced standards.
i. Testing by recognized testing agency.
j. Application of testing agency labels and seals.
k. Notation of coordination requirements.

4. Submit product data before or concurrent with samples.

5. Number of Copies: Submit six (6) copies of product data, unless otherwise indicated. The Engineer will return two (2) copies to the Contractor. Mark up and retain one (1) returned copy as a project record document.

C. Shop Drawings: Prepare project-specific information, drawn accurately to scale.

1. Preparation: Fully illustrate requirements in the contract documents. Include the following information, as applicable:
   a. Dimensions.
   b. Identification of products.
   c. Fabrication and installation drawings.
   d. Roughing-in and setting diagrams.
   e. Schedules.
   f. Design calculations.
   g. Compliance with specified standards.
   h. Notation of coordination requirements.
   i. Notation of dimensions established by field measurement.
   j. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit shop drawings on sheets at least 8-1/2 inches by 11 inches but no larger than 30 inches by 40 inches.

3. Number of Copies: Submit six (6) opaque (bond) copies of each submittal unless otherwise indicated. The Engineer will return two (2) copies to the Contractor. Mark up and retain one (1) returned copy as a project record document.
D. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Standard Specification section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.
4. Number of Copies: Submit three (3) copies of subcontractor list, unless otherwise indicated. The Engineer will return two (2) copies to the Contractor. Mark up and retain one (1) returned copy as a project record document.

2.02 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit informational submittals required by Standard Specification sections.

1. Number of Copies: Submit three (3) copies of each submittal unless otherwise indicated. The Engineer will not return the copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

B. Contractor's Construction Schedule: Comply with requirements specified in the General Conditions.

C. Qualification Data: Prepare written information that demonstrates the capabilities and the experience of firms and persons. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.

D. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the contract documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

E. Product and Material Certificates: Prepare written statements on manufacturer's letterhead certifying that product or material complies with requirements in the contract documents.

F. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the contract documents.
G. Schedule of values: Prepare a schedule of values breakdown for all lump sum items of work and submit it at the pre-construction meeting.

PART 3 - EXECUTION

3.01 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the contract and for compliance with the contract documents. Note corrections and field dimensions. Mark with approval stamp before submitting to the Engineer.

1. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of the Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the contract documents.

3.02 ENGINEER’S ACTION

A. General: The Engineer will not review submittals that do not bear the Contractor's approval stamp and will return them without action.

B. Action Submittals: The Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. The Engineer will stamp each submittal with an action stamp and will mark the stamp appropriately to indicate action taken.

C. Informational Submittals: The Engineer will review each submittal and will return it if it does not comply with requirements. If the submittal does meet the requirements the submittal will not be returned. The Engineer will forward each submittal to an appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the contract documents may not be reviewed and may be discarded.

PART 4 - MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
1. **WORK INCLUDED**

A. This specification section describes contract requirements for the measurement and payment for work performed under this Contract.

B. Payment for each Contract bid item includes full compensation for all labor, equipment, tools, supplies and incidentals necessary to complete the work.

2. **MEASUREMENT AND PAYMENT**

A. Lump Sum Bid Items:

1. Payment items for the work of this Contract for which contract lump sum payments will be made are listed in the Bid Schedule and described below. All costs for items of work, which are not specifically mentioned in a particular lump sum payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

2. Before the Contractor’s first progress pay request on this project, the Contractor shall provide the Engineer with a Schedule of Values (Lump Sum Breakdown) for each Lump Sum bid item shown on Bid Schedule. The Schedule of Values shall be a well-balanced detailed breakdown of work items consisting of estimated quantities, unit prices, material, and equipment costs the Contractor allocates for the work covered under each lump sum bid item.

3. Such Schedule of Values shall not be unbalanced and will be subject to approval by the Engineer and will be used to compute progress payments for lump sum bid item work. The Contractor shall provide proof of costs to justify the submitted Schedule of Values if requested by the Engineer.

4. Where Contract change orders are issued increasing or decreasing the scope of the work and cost the Contractor shall prepare revisions to the Schedule of Values, where necessary, for approval by the Engineer. The revised Schedule of Values will be used for subsequent progress payments.

B. Unit Price Bid Items:

1. Items of work listed in the Bid Schedule that are Unit Price bid items shall be measured for payment as set forth under the description of each relative bid item.

2. All measurements for payment purposes shall be made by the Engineer unless noted otherwise by the Engineer.
C. Waiver Certificate

1. CALIFORNIA LIEN WAIVER AND RELEASE UPON PROGRESS PAYMENT
   a. The Contractor shall submit a Conditional Waiver and Release on Progress Payment form with each progress payment request.

2. CALIFORNIA LIEN WAIVER AND RELEASE UPON FINAL PAYMENT
   a. The Contractor shall submit a Conditional Waiver and Release on Final Payment form with final payment request.

1.03 DESCRIPTION OF BID ITEMS

The Bid Schedule bid items are presented to indicate major categories of the work for purposes of comparative bid analysis, payment, breakdown for monthly progress payments, and final payment to the Contractor under the Contract. The Bid Schedule is not intended to be exclusive descriptions of work categories and the Contractor shall determine and include in its pricing all materials, labor, equipment, and operations necessary to complete each bid item of work, as shown and specified, and all costs of compliance with all applicable regulations of public agencies having jurisdiction, including, but not limited to, the health and safety requirements of the California Division of Industrial safety and the Occupational Safety and Health Administration of the U.S. Department of labor (OSHA).

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

PART 4 - MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
6 CONTROL OF MATERIALS

PART 1 - GENERAL

1.01 SUMMARY

A. The section includes: Requirements for installation, maintenance, and removal of temporary utilities, facilities, controls, construction signs, traffic control and construction aids during construction.

1.02 TEMPORARY UTILITIES

A. General: The Contractor shall provide all necessary temporary utilities required during construction, including all necessary temporary meters, equipment, wiring, piping, fixtures, and connections. The Contractor shall remove the same when they are no longer necessary and at the completion of the Project.

1.03 CONSTRUCTION FACILITIES

A. Contractor's Field Office: At the Contractor’s option, the Contractor may provide and maintain a temporary job office on the site for the Contractor's use. The location of the office shall not interfere with the Work nor with traffic on public roadways.

B. Temporary Storage for Tools, Materials, and Equipment: It is the Contractor’s responsibility to provide temporary storage sheds or other enclosed temporary structures as required or as deemed necessary by the Contractor to protect material and equipment stored on site. The Contractor shall remove the same when they are no longer necessary and at the completion of Work.

C. Temporary Sanitary Facilities: It is the Contractor’s responsibility to provide and maintain adequate toilets, washing facilities, and drinking facilities for workers. Such items shall comply with all governing health and sanitation requirements. The Contractor shall remove the same at the completion of the Work.

1.04 TRAFFIC CONTROL, TEMPORARY BARRIERS AND ENCLOSURES

A. General Protection: Provide all temporary barricades, fences, caution signs, and warning lights as required for the safety of persons. Operate warning lights during hours from dusk to dawn each day. Take whatever care is necessary to avoid damage to adjacent buildings and property, public rights-of-way, and facilities or utilities to remain, whether on the Work site or adjacent to it, and be liable for any damage thereto or interruption of service due to Contractor's operations.

B. Temporary Fences and Barricades: Provide and maintain all temporary site fences, tree protection fencing, and barricades as required for the Work, and remove the same upon the completion of the Work.
C. Prior to start of work the Contractor shall submit Traffic Control Plans for all project phases for the Engineer’s review and approval. Plans shall include all necessary measures to control public traffic and construction traffic entering, exiting, and traveling adjacent to the Work site.

D. No road closure is allowed at any time.

E. Contractor shall keep access to all private properties at all time.

1.05 SITE MAINTENANCE

A. Cleaning During Construction:
   1. Control accumulation of waste materials and rubbish; periodically dispose of legally off-site.
   2. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

1.06 PROJECT IDENTIFICATION

A. Project Signs: Provide a project job sign (2 signs per site), maximum 30 square feet in size, of wood painted with lettering by a professional sign painter. The content of the sign will be as determined by the County. Obtain approval for location of the sign from the County before installing. Remove the sign on completion of the Work and dispose of legally off the site. Allow no other signs to be displayed.

1.07 REMOVAL

A. Remove temporary facilities, fencing, materials, equipment, services, and construction prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary facilities. Remove temporary underground lines and installations; grade site as indicated on the Plans. Restore existing facilities used during construction to the original condition when first installed unless specified otherwise by the Engineer.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Temporary materials and equipment may be new or used, but shall be adequate in capacity for the required usage, shall not create unsafe conditions, and shall not violate requirements of applicable codes and standards.

B. Hazardous or Flammable Chemicals: Use and store hazardous or flammable chemical liquids or gases brought into the Project site in acceptable containers conforming to requirements of OSHA. Use such materials in a manner that will prevent their accidental
release into other areas. Do not discard such materials on the jobsite. Remove empty containers from the Work sites immediately and dispose of in the proper manner.

PART 3 – EXECUTION - NOT USED

PART 4 - MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
PART I - GENERAL

1.01 DESCRIPTION

A. This section describes the lines, grades, and survey control to be established and maintained by the Contractor, and also describes the survey requirements to be performed by the Contractor.

B. The Contractor shall furnish all labor, equipment and materials necessary to provide construction surveying and staking for the project as shown on the contract documents.

C. All surveying shall be done by, or under the direction of, a land surveyor licensed in the State of California.

D. It is the Contractor’s responsibility to verify the accuracy of all survey controls and stakes set in the field. Provide immediate notification of apparent errors in the initial staking or in the furnished data.

E. Preserve all initial reference and control points. After beginning construction replace all destroyed or disturbed initial reference or control points necessary to the work.

F. Before surveying or staking discuss and coordinate with the Engineer.

G. Include staking activities in the construction schedule submitted. Include the dates and sequence of each staking activity.

H. The County, at its discretion, may perform random survey verification for the project. The Contractor shall give the County 48 hours’ notice prior to setting controls and stakes in the field. Once controls and stakes are set in the field the Contractor shall give the County 48 hours’ notice to perform survey verification.

I. The County’s survey verification of the project shall not relieve the Contractor of the responsibility for the proper execution of the Work in accordance with all requirements of the contract documents. Compliance is a duty of the Contractor and shall not be avoided by acts or omissions by the County.

1.02 STAKING OUT OF WORK

A. Lines and Grades: The Contractor is responsible for providing all staking and surveying needed to achieve all lines, grades and dimensions shown on Plans. Stakes and markers shall be provided as necessary to control the work and assure construction is in conformance with the contract documents and as otherwise directed by the Engineer. The Contractor shall anticipate the site conditions (e.g. wetlands, vandalism etc.) when developing its approach to maintaining construction staking.
B. Equipment and Personnel: The Contractor's instruments and other survey equipment shall be accurate, suitable for the surveys required in accordance with recognized professional standards, and in proper condition and adjustment at all times. Surveys shall be performed under the direct supervision of a land surveyor licensed in the State of California.

C. The Contractor shall use established survey benchmark data as shown on the Plans to lay out the Work.

D. Use by Owner: The County may use line and grade points and markers established by the Contractor. The Contractor's surveys are a part of the Work and may be checked by the County. The Contractor shall be responsible for any lines, grades, or measurements which do not comply with specified or proper tolerances, or which are otherwise defective, and for any resultant defects in the work. The Contractor will be required to conduct resurveys or check surveys to correct errors indicated by review of the field notebooks.

E. Surveys for Layout and Performance: The Contractor shall perform all surveys for layout and performance of the work, shall reduce the field notes, and make all calculations and drawings necessary to carry out such work.

F. When the specifications or the Engineer requires Bid Schedule items of work to be measured by surveying methods, the Contractor shall perform the surveys. All such surveys, including control surveys for establishing the measurement reference lines, shall be performed in the presence of the County. The County may independently reduce the field notes and calculate quantities to verify the Contractor’s payment request. The County reserves the right to conduct an independent survey to determine quantities. The cost of the independent survey will be at the County’s expense.

1.03 GENERAL SURVEY REQUIREMENTS

A. The following requirements apply to surveys performed by the Contractor.

1. Licensed Surveyor: All surveys, computations and supporting drawings shall be prepared at the Contractor's expense by a Licensed Surveyor in the State of California.

2. For survey transects, elevations shall be taken at breaks in slope and at intervals not greater than ten (10) feet. Elevations shall extend at least ten (10) feet beyond the limits of earthwork (excavation and fill). Surveyed grade points shall be converted to elevations relative to NAVD 88 and shall be provided to the nearest one-tenth (1/10) of a foot. Survey transects shall be taken at locations that are representative of existing grade.

3. Survey sections shall be taken at the minimum intervals as stated below. The interval between sections may be reduced if, through surveys, earthwork is consistently found to be out of compliance with design requirements.

4. Subsequent surveys shall re-occupy the same lines so the surveys and quantities can be compared.
PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 CONSTRUCTION SURVEYING AND STAKING REQUIREMENTS

A. Perform all survey, staking, recording of data, and calculations as necessary to construct the project from the initial layout to final completion. Reset stakes as many times as necessary to construct the work.

B. Before surveying or staking, discuss and coordinate the following with the Engineer.
   1. Surveying and staking methods
   2. Stake marking
   3. Grade control for courses of material
   4. Referencing
   5. Structure control
   6. Any other procedures and controls necessary for the work.

C. Perform all surveying, staking, and recording of data essential for establishing the layout and control of the following, as applicable:
   1. Roadway alignment, profile and superelevations
   2. Curb and dike
   3. Guardrail
   4. Signs, delineators, and object markers; and pavement markings.
   5. Limits of grading and excavations
   6. Grade beams and piles
   7. Slope
   8. Storm drain culverts, miscellaneous drainage facilities and ditches
   9. Other features and limits of work to control and complete the Work

D. Control work for construction staking: The Construction Surveyor shall set horizontal and vertical control points to complete the construction staking. Prior to any construction staking, existing survey monuments and pipes shown on the plans shall be surveyed to verify the distances and basis of bearings shown.

   1. Survey and establish controls within the tolerances shown in Table 1 in these Special Provisions.
   2. Prepare field notes in an approved format. Furnish all survey notes at least weekly. All field notes and supporting documentation become the property of the County upon completion of the work.
3. Start work only after staking for the affected work is accepted.
4. The construction survey and staking work may be spot-checked for accuracy, and unacceptable portions of work may be rejected. Resurvey rejected work, and correct work that is not within the tolerances specified in Table 1.
5. Acceptance of the construction staking does not relieve the Contractor of responsibility for correcting errors discovered during the work and for bearing all additional costs associated with the error.
6. Remove and dispose of all flagging, lath, stakes, and other staking material after the project is complete.

E. Control points. Relocate initial horizontal and vertical control points in conflict with construction to areas that will not be disturbed by construction operations. Furnish the coordinates and elevations for the relocated points before the initial points are disturbed.

F. Clearing and Grubbing Stakes. Clearing and grubbing stakes will be set prior to the beginning of construction work. The boundary of the area(s) to be cleared and grubbed shall be staked or flagged at a maximum interval of 200 feet, closer if needed, to clearly mark the limits of work. Set clearing and grubbing limits on both sides of centerline at roadway cross-section locations.

G. Rough Grade Stakes. Cuts and fills will be given to the nearest tenth (0.1) of a foot. Horizontal location will be given to the nearest tenth (0.10) of a foot.
   1. Slope Stakes. Slope stakes will be set at five (5) foot offsets to the toe-of-slope, at angle points, and at midpoints when the horizontal distance exceeds sixty (60) feet. The cut or fill, and the horizontal distance to hinge point, will be given for each slope.
   2. Daylight Stakes. Where design grade intersects natural grade and does not constitute a slope, a daylight stake will be set at approximately fifty (50) foot intervals.
   3. Grade beams. Stakes for grade beams will be set five (5) feet from the face of wall, on approximately twenty-five (25) foot intervals unless otherwise specified by the Engineer. The stakes will be marked with an offset and a cut or fill to the design top of wall grade.
   4. Curbs. Rough grade stakes for curbs will be set three (3) feet from the face of curb; ten (10) feet in areas with sidewalk, on approximately fifty (50) foot intervals on straight sections, twenty-five (25) foot intervals on curves and at grade breaks. Stakes will be marked with a cut or fill to the top of curb.

H. Finish Grade Stakes. Cuts or fills will be given to the nearest hundredth (0.01) of a foot. Set grade finishing stakes, for grade elevations and horizontal alignment, on centerline and on each shoulder at roadway cross-section locations. Set stakes at the top of subgrade and the top of each aggregate course. Set stakes in all ditches to be paved. The maximum longitudinal spacing between stakes is twenty-five (25) feet when the centerline curve radius is less than or equal to five hundred (500) feet. When the centerline curve radius is
greater than five hundred (500) feet, the maximum longitudinal spacing between stakes is fifty (50) feet. The maximum transverse spacing between stakes is twenty (20) feet. Use brushes or guard stakes at each stake.

1. Roadway cross-sections. Take roadway cross-sections normal to centerline. When the centerline curve radius is less than or equal to 500 feet, take cross-sections at a maximum centerline spacing of 25 feet. When the centerline curve radius is greater than 500 feet, take cross-sections at a maximum centerline spacing of 50 feet. Take additional cross-sections at significant breaks in topography and at changes in the typical section. Along each cross-section, measure and record points at breaks in topography, but no further apart than 20 feet. Measure and record points to at least the anticipated slope stake and reference locations. Reduce all cross-section distances to horizontal distances from centerline.

2. Centerline reestablishment. Reestablish centerline from instrument control points. The maximum spacing between centerline points is 25 feet when the centerline curve radius is less than or equal to 500 feet. When the centerline curve radius is greater than 500 feet, the maximum distance between centerline points is 50 feet.

3. Grade beams. Survey and record profile measurements along the face of the proposed wall and 5 feet in front of the wall face. Every 25 feet along the length of the wall and at all major breaks in terrain take cross-sections within the limits shown on the plans. For each cross-section, measure and record points every 25 feet and at all major breaks in terrain. Set adequate references and horizontal and vertical control points.

4. Culverts. Stake culverts to fit field conditions. The location of culverts may differ from the Plans. Perform the following:
   a. Survey and record the ground profile along the culvert centerline.
   b. Determine the slope catch points at the inlet and outlet.
   c. Set reference points and record information necessary to determine culvert length and end treatments.
   d. Plot-to-scale the profile along the culvert centerline. Show the natural ground, the flow line, the roadway section, and the culvert including end treatments and other appurtenances. Show elevations, grade, culvert length, and degree of elbow.
   e. Submit the plotted field-design cross-section for approval of final culvert length and alignment.
   f. When the field design has been approved, set drainage structure survey stakes, reference stakes, and stake inlet and outlet ditches to make the structure functional.
   g. Stake or grade ditches to make the culvert functional.

5. Slope stakes and references. Set slope stakes and references on both sides of centerline at the cross-section locations. Establish slope stakes in the field as the actual point of intersection of the design roadway slope with the natural ground.
line. Set slope stake references outside the clearing limits. Include all reference point and slope stake information on the reference stakes. When initial references are provided, slope stakes may be set from these points with verification of the slope stake location with field measurements. Re-catch slope stakes on any section that does not match the staking report within the tolerances established in Table 1. Take roadway cross section data between centerline and the new slope stake location. Set additional cross section data even when initial references are provided.

6. Permanent monuments and markers. Perform all survey and staking necessary to establish permanent monuments and markers.

I. Miscellaneous Items.

1. Curb Slashes. Curb cut slashes will be set on the top-of-curb, on the prolongation of the side property lines.

J. Construction Survey and Staking Tolerances

**TABLE 1**

<table>
<thead>
<tr>
<th>Staking Phase</th>
<th>Horizontal</th>
<th>Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Government network control points</td>
<td>±0.06 feet</td>
<td>±0.035 feet × M (2)</td>
</tr>
<tr>
<td>Local supplemental control points set from</td>
<td></td>
<td></td>
</tr>
<tr>
<td>existing Government network points</td>
<td>±0.03 feet</td>
<td>±0.01 feet × N (3)</td>
</tr>
<tr>
<td>Centerline points (4) — (PC), (PT), (POT), and (POC) including references</td>
<td>±0.03 feet</td>
<td>±0.03 feet</td>
</tr>
<tr>
<td>Other centerline points</td>
<td>±0.16 feet</td>
<td>±0.16 feet</td>
</tr>
<tr>
<td>Cross-section points and slope stakes (5)</td>
<td>±0.16 feet</td>
<td>±0.16 feet</td>
</tr>
<tr>
<td>Slope stake references (5)</td>
<td>±0.16 feet</td>
<td>±0.16 feet</td>
</tr>
<tr>
<td>Culverts, ditches, and minor drainage structures</td>
<td>±0.16 feet</td>
<td>±0.06 feet</td>
</tr>
<tr>
<td>Grade beams and curb and gutter</td>
<td>±0.06 feet</td>
<td>±0.03 feet</td>
</tr>
<tr>
<td>Bridge substructures</td>
<td>±0.03 feet (6)</td>
<td>±0.03 feet</td>
</tr>
<tr>
<td></td>
<td>±0.03 feet (6)</td>
<td>±0.03 feet</td>
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<tr>
<td>--------------------------------</td>
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</tr>
<tr>
<td>Bridge superstructures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clearing and grubbing limits</td>
<td>±2.00 feet</td>
<td>—</td>
</tr>
<tr>
<td>Roadway subgrade finish stakes (7)</td>
<td>±0.16 feet</td>
<td>±0.03 feet</td>
</tr>
<tr>
<td>Roadway finish grade stakes (7)</td>
<td>±0.16 feet</td>
<td>±0.03 feet</td>
</tr>
</tbody>
</table>

1. At 95% confidence level. Tolerances are relative to existing Government network control points.
2. M is the distance in miles.
3. N is the number of instrument setups.
4. Centerline points: PC - point of curve, PT - point of tangent, POT - point on tangent, POC - point on curve.
5. Take the cross-sections normal to the centerline ±1 degree.
6. Bridge control is established as a local network and the tolerances are relative to that network.
7. Includes paved ditches.

PART 4 - MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
8 CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

A. This section includes: Closeout procedures, final submittals, final cleaning and adjusting, project record documents, submittal of operation and maintenance data, and warranties and bonds.

1.02 SUBSTANTIAL COMPLETION

A. Substantial Completion means completion of all work in the contract documents, except maintenance of erosion control best management practices (BMPs) throughout the maintenance period.

B. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

2. Advise County of pending insurance changeover requirements.

3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

4. Obtain and submit releases permitting the County unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

5. Prepare and submit Project Record Documents, damage or settlement surveys, property surveys, and similar final record information.

6. Terminate and remove temporary facilities from Work site, along with mockups, construction tools, and similar elements.

7. Complete final cleaning requirements, including touchup painting.

8. Restore disturbed areas including staging areas and access routes within and to the site.

C. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, the Engineer will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Engineer will prepare the Certificate of Substantial Completion after inspection or will notify the Contractor of items, either on the Contractor's list or additional items identified by the Engineer that must be completed or corrected before the certificate will be issued.

1. Re-inspection: Request re-inspection when the work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.03 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, the Contractor shall complete the following:

1. Submit a final Application for Payment according to Section 1200 – Measurement and Payment Procedures.

2. Submit certified copy of the Engineer’s Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by the Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.

3. Instruct County personnel in operation, adjustment, and maintenance of products, equipment, and systems. Provide services of skilled and competent supervisory personnel to instruct County personnel in the operation and maintenance of all operating equipment and systems provided as part of the Contract.

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, the Engineer will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Engineer will prepare a final Certificate for Payment after inspection or will notify the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. Re-inspection: Request re-inspection when the work identified in previous inspections as incomplete is completed or corrected.

1.04 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by the Contractor that are outside the limits of construction.

1. Organize items applying to each work area.

2. Include the following information at the top of each page:

   a. Project name.
   b. Date.
   c. Name of the Engineer.
   d. Name of the Contractor.
   e. Page number.

1.05 PROJECT RECORD DOCUMENTS
A. Maintain on the site one set of the following Record Documents to record actual revisions to the Work.
   1. Plans.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other Modifications to the Contract.
   5. Reviewed shop drawings and product data.

B. Store Record Documents separate from documents used for construction. Record information concurrent with construction progress.

C. Record Drawings: Do not permanently conceal any work until required information has been recorded. Legibly mark each item to record actual construction including:
   1. Measured elevations of all improvements.
   2. Measured horizontal and vertical locations of all improvements including but not necessarily limited to: grade beams, guard rails, pedestrian railing, ditches, and drains and drainage systems.
   3. Field changes of dimension and detail.
   4. Details not on original Plans.
   5. Deviations from sizes, locations, and other changes to installation as shown on the contract documents.
   6. Established locations of underground work, points of connection with existing utilities, changes in direction of underground lines, locations of valves, manholes, etc.
   7. Locations of all items not concealed that the Contractor elects to alter or modify from the contract documents contingent upon the approval of the Engineer for the alteration or modification.

D. Specifications: Legibly mark and record at each Product section a description of actual Products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and Modifications with corresponding Addenda or Modification number.

E. Submit all Record Documents to the Engineer with claim for Substantial Completion inspection. Submit documents with a transmittal letter containing date, Project title, the Contractor's name and address, list of documents, and signature of the Contractor.
F. The Engineer will return Contract Drawings and Record Documents to the Contractor. The Contractor shall transfer all as-built information onto a set of reproducible prints for the County’s use.

G. The County will not make Final Payment to the Contractor until the Record Documents are provided by the Contractor.

1.06 WARRANTIES AND BONDS

A. Provide duplicate notarized copies. Execute and assemble documents from the Contractor's submittals and documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in a D three ring binder(s) with durable plastic cover. Submit three (3) sets.

B. Submit warranties and bonds prior to final Application for Payment.

1. For equipment put into use with the County’s permission during construction, submit within ten (10) days after first operation.

2. On request of the County, for designated portions of the Work, submit within ten (10) days of commencement of warranty.

3. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

C. The General Conditions of the Contract Documents cover the Contractor's responsibility to remedy defects due to faulty workmanship and materials which appear within one (1) year from the Date of Acceptance. Warranties for more than one (1) year, where indicated in the various sections of the contract documents, shall be in the form of a warranty written on the letterhead of the Contractor, subcontractor, or supplier doing the work or supplying the item to be warranted, as follows:

WARRANTY FOR THE 2021 FOUR LAGGING WALLS CONSTRUCTION PROJECT; DRY CREEK ROAD MPM 6.2, RDS 21-30; DRY CREEK ROAD MPM 9.48, RDS 21-39; DRY CREEK ROAD MPM 9.75, RDS 21-06; DIAMOND MOUNTAIN ROAD MPM 1.1, RDS 21-04. We hereby warrant that the________________________ which we have installed in NAPA COUNTY, CALIFORNIA for NAPA COUNTY, has been done in accordance with the Drawings and Specifications, and that the work, as installed, will fulfill the requirements of the warranty included in the Specifications. We agree to repair or replace any or all of our work, together with any other and adjacent work which may be displaced by so doing, that may prove to be defective in its workmanship or material within a period of ____ years from the Date of Acceptance of the above named Project, without any expenses whatsoever to the Owner, ordinary wear and tear and unusual abuse or neglect excepted.

In the event of our failure to comply with the above-mentioned conditions within a reasonable time, but in no event longer than thirty (30) days after being notified in writing by the Owner, we, collectively or separately, do hereby authorize the Owner to proceed to have said defects repaired and made good at our expense, and we will honor and pay the costs and charges therefore upon demand.
PART 2 – PRODUCTS

2.01 MATERIALS

A. Cleaning Agents and Equipment: As recommended by the manufacturer or fabricator of the surface to be cleaned.

1. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.01 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for the Work or for a portion of Work:

1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

3. Pave all access roads to and within the site that are materially damaged from pre-project conditions.

4. Remove tools, construction equipment, machinery, and surplus material from Project site.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the County and private property. Do not discharge volatile,
harmful, or dangerous materials into drainage systems. Remove waste materials from Work site and dispose of lawfully.

D. Remove tools, surplus materials, equipment, temporary buildings, sheds, and construction facilities from the site.

PART 4 - MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
9 COORDINATION OF WORK

PART I - GENERAL

1.01 DESCRIPTION

A. The Contractor shall coordinate work with work to be performed by others which may include but may not be limited to:

1. Environmental survey and monitoring
2. Quality Assurance: Survey Verification, QSD Inspections, Geotechnical Observations, Special Inspections, Material Testing, etc.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

PART 4 – MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
10 MOBILIZATION

PART I - GENERAL

1.01 DESCRIPTION

A. These Special Provisions replace Section 10, “General” of the Standard Specifications.

B. Mobilization shall consist of the following work:

1. Bonds and insurance.
2. Mobilization of materials and equipment to the site.
3. Providing construction fencing, office trailers, temporary sheds, temporary utilities, and temporary facilities and all preparatory work prior to the commencement of productive work at the site required under this Contract.
4. Provide construction utilities. The Contractor shall locate utility connection points make necessary arrangement with utility agencies for construction water, power and communication, etc. In the event that such utilities are not easily available then the Contractor shall provide such utilities at no additional cost to the County.
5. Preparation of all necessary permits, submittals, notifications, record drawings and other documentations.
6. Coordination and any other items required to complete the construction not otherwise measured and paid for.
7. Demobilization of all of materials and equipment from the site.
8. On-going and final site clean-up.

C. Ground-disturbing activities may not occur during rain.

PART 2 – PRODUCTS - NOT USED

PART 3 – EXECUTION

3.01 MOBILIZATION AND DEMOBILIZATION

A. The Contractor shall inspect the site to observe actual field conditions prior to bidding the project.

B. Mobilization shall also include finish work and operations (demobilization) including, but not limited to, removal of personnel, equipment, supplies and incidentals from the project site and clean-up of the project site. The Contractor shall not demobilize equipment from the site until the project is accepted as complete, unless directed otherwise in writing by the Engineer.

C. Mobilization shall also include preparation of all necessary permits, submittals, notifications and other documentation necessary for the performance of the Work.
D. Contractor shall clean all equipment of dirt, mud, and plant material prior to entering the work areas to prevent the introduction of invasive plants.

3.02 PERMITS OBTAINED BY THE COUNTY

A. The County has obtained a CDFW SAA for the project. A copy of the CDFW SAA is available to the Contractor in Attachment B.

B. The Contractor shall obtain all other permits required for the performance of the Work.

3.03 PROTECTION OF EXISTING PROPERTY AND CONDITIONS

A. Protection of Work and Property:
   1. Confine the storage of materials and workmen's operations to the limits established on the contract documents and by law, permits, and/or directions of the Engineer. Do not unreasonably encumber the premises with materials.
   2. Contractor is responsible for the protection and preservation of all materials and equipment located on the construction site.
   3. Provide watchman services as may be deemed necessary to safeguard properly all materials, tools, appliances, and work. The County will not assume any responsibility for the loss of or damage to materials, tools, appliances, or work arising from acts of theft, vandalism, malicious mischief, or other causes which may occur during or after working hours.
   4. Contractor shall promptly comply with all reasonable requests of the Engineer to protect the site.
   5. Repair or replace all work performed or materials, supplies, or equipment furnished which may be damaged or lost by any cause, to the satisfaction of the Engineer.

B. Contractor shall be responsible for all damage to all roads, existing vegetation, existing buildings, utilities and other property and improvements resulting from the contractor’s use and shall repair all damage resulting from such use to the satisfaction of the Engineer and at no cost to County.

C. Contractor's Staging Area: Store construction materials and equipment within boundaries of designated staging and storage areas as shown on the Plans and as approved by the Engineer.

D. Tree and Plant Protection:
   1. Do not store materials or equipment, or operate or park equipment under the branches of any existing plant to remain except as actually required for construction in those areas.
   2. Provide barricades, fences, or other barriers as necessary at the drip line to protect existing plants and trees from damage during construction.
3. Notify Engineer where Contractor feels grading or other construction called for by Contract Documents may damage existing plants/trees to remain.

4. If existing plants to remain are damaged during construction, Contractor shall replace such plants with others of the same species and size as those damaged or as directed by Engineer, at no cost to the County.

3.04 EXISTING UTILITIES

A. The Contractor shall identify, locate, and protect all existing utilities within the limits of work, including onsite and offsite access routes.

B. The location of existing utilities and underground facilities known to the County are shown in their approximate location based on information available at the time of preparing the Contract Documents. The actual location, size, type and number of utilities and underground facilities may differ from that shown, and utilities or underground facilities present may be present that are not shown.

C. Obtain from the respective agencies the best available current information on location, identification and marking of existing utilities, piping and conduits and other underground facilities before beginning any excavation. Call Underground Service Alert at 800-642-2444 for information at least 48 hours in advance of beginning work.

D. The Contractor will have to coordinate location, connection points for construction power, water, communication etc., with respective utility.

3.05 WORK HOURS

A. Construction activities shall be limited to the hours between 7 a.m. and 5 p.m. Monday through Friday unless otherwise authorized. Work shall not occur on weekends or holidays, except during emergency conditions, and at the Engineer’s approval.

3.06 ACCESS TO THE PROJECT SITE

A. Access to the site is over public roads. Exercise care in the use of such roads and repair any damage to the satisfaction of the County or agency having jurisdiction over the road.

B. Under no circumstances shall the Contractor use any other private roads that are not designated for access.

C. Comply with all dust control requirements per Section 14, “Environmental Protection”.

D. Do not track mud onto private or public roads. The Contractor shall employ a street sweeper as needed to keep all paved surfaces free of tracked mud or dirt.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract lump sum price paid for “Mobilization” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work
involved in mobilization and demobilization as specified in this section and conforming to the provisions of this section and no additional compensation will be allowed. Mobilization will be prorated at an agreed upon percentage for each pay estimate.
12 TEMPORARY TRAFFIC CONTROL

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. This section includes specifications for all Temporary Traffic Control required for the project and shall include and not be limited to: temporary traffic signal and lighting system, construction area signs, flagging, placing and installing temporary traffic-handling equipment and devices, maintaining traffic, placing and installing temporary traffic control systems, and placing temporary pavement delineation, etc.

B. The construction work is to be performed at the following locations: Dry Creek Road MPM 6.2, 9.48, 9.75, and Diamond Mountain Road MPM 1.1.

C. Temporary Traffic Control Plan shall conform to Section 12, “Temporary Traffic Control” of the Standard Specifications and these Special Provisions. Temporary Traffic Control must also comply with Part 6, "Temporary Traffic Control," of the California MUTCD.

D. The Contractor shall inspect the site to observe actual field conditions prior to bidding the project.

E. The Contractor shall furnish all labor, materials and equipment necessary to complete the work as shown on the Plans and to maintain the temporary traffic control and signal system in full time operation for the duration of the construction work requiring single lane traffic control, as specified in these Special Provisions, as directed by the Engineer and in strict accordance with the conditions of the Contract. All incidental work not shown on the Plans or specified in this section which is necessary to complete the work necessary to provide and maintain the system described, or shown, shall be furnished and installed as part of this contract at no additional cost.

F. The Temporary Traffic Control System for lane closures is for closing traffic lanes with stationary lane closures on one lane, 2-way highways. The traffic control system for a lane closure must comply with the approved Traffic Control Plan, Section 12, CAMUTCD, and "Temporary Traffic Control" of the Standard Specifications and these Special Provisions.

G. Temporary Traffic Signal System shall conform to these Special Provisions.

H. Type III Barricade shall conform to Section 12-3.10, “Barricades” of the Standard Specifications and these Special Provisions.

I. Construction Area Signs shall conform to Section 12-3.11, “Construction Area Signs” of the Standard Specifications and these Special Provisions.

J. Temporary Pavement Delineations shall conform Section 84-2, "Painted Traffic Stripes and Pavement Markings" of the Standard Specifications and these Special Provisions and shall include but not be limited to: Traffic Stripe (Tape), Temporary Pavement Marker (Tape), Channelizer (Surface Mounted), etc.
K. Temporary Railing (Type K) shall conform to Section 12-3.20, "Type K Temporary Railing" of the Standard Specifications.

L. Temporary Crash Cushion Module shall conform shall conform to Section 12-3.22, “Temporary Crash Cushion Module “of the Standard Specifications and these Special Provisions.

1.02 SUBMITTALS

A. Prior to the commencement of work, and within ten (10) days following the notice to proceed, the Contractor shall submit:
   1. Three (3) copies in three-ring binders of a complete list of equipment and materials to be furnished, including all substitutions proposed to the Engineer for approval.
   2. Temporary Traffic Control Plan for Engineer’s approval.
   3. Shop drawings shall be submitted in a complete package. Partial submittal will not be considered.

1.03 WARRANTIES, GUARANTEES, AND INSTRUCTION SHEETS

A. The Contractor shall be responsible for all work and materials and/or equipment installed under these Plans and Specifications.

B. The Contractor shall repair or replace at his expense, any defective work, material, or equipment that may become evident during the operation of the temporary traffic signal system.

C. If any part (or parts) of the temporary traffic signal system fails while the temporary single lane traffic control system is in operation, the Contractor shall provide flaggers until such time as the temporary traffic signal system is operational.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Temporary Traffic Signal System shall conform to these Special Provisions.

B. Type III Barricade shall conform to Section 12-3.10B, “Materials” of the Standard Specifications.


D. Temporary Pavement Delineations shall conform to these Special Provisions. Painted traffic stripes used for temporary delineation must comply with Section 84-2, "Painted Traffic Stripes and Pavement Markings" of the Standard Specifications and these Special Provisions.
1. Temporary Centerline Delineation - Temporary pavement markers must be the same color as the centerline markers being replaced. Temporary pavement markers must be one of the temporary pavement markers on the Authorized Material List for short-term day or night use, 14 days or less, or long-term day or night use, 180 days or less.

2. Temporary Edge Line Delineation - Temporary, removable, construction-grade striping and pavement marking tape must be one of the types on the Authorized Material List. Apply temporary, removable, construction-grade striping and pavement marking tape under the manufacturer's instructions.

E. Temporary Railing (Type K) shall conform to Section 12-3.20B, "Materials" of the Standard Specifications.

F. Temporary Crash Cushion Module shall conform to Section 12-22B “Materials” of the Standard Specifications.

PART 3 – EXECUTION

3.01 INTERRUPTION OF EXISTING UTILITIES

A. The Contractor shall bear the cost of any utility interruption, temporary relocation, modification, or other modifications as needed to install or remove any traffic signal equipment.

3.02 REGULATIONS AND CODE

A. All work and materials shall conform to the latest codes, rules and regulations of the following:
   1. State codes and ordinances
   2. Local City and/or County ordinances
   3. National Electrical Code
   4. International Building Code

B. Nothing in these Special Provisions is to be construed to permit work not conforming to the above; expense for compliance with the above shall be paid for by the Contractor. Whenever the Plans and Specifications require higher standards or larger sizes than those required by the Ordinances and Statutes, the Plans and Specifications shall take priority.

C. The Contractor shall have Special Dispensation from the California Occupational Safety and Health Administration to conduct operations no closer than 6 feet, but within 10 feet, of a high voltage line prior to any work in these areas.

3.03 MAINTAINING TEMPORARY TRAFFIC CONTROL SYSTEM
A. Whenever components of the traffic control system are displaced or cease to operate or function as specified from any cause, immediately repair the components to the original condition or replace the components and restore the components to the original location.

B. For a stationary lane closure made only for the work period, remove the components of the traffic control system from the traveled way and shoulder, except for portable delineators placed along open trenches or excavation adjacent to the traveled way at the end of each work period.

C. The Contractor may store the components at selected central locations designated by the Engineer with the limits of the roadway.

3.04 TEMPORARY PAVEMENT DELINEATIONS

A. Painted traffic stripes used for temporary delineation must comply with Section 84-2, “Traffic Stripes and Pavement Markings" of the Standard Specifications and these Special Provisions. The scope of work shall include: placing, applying, maintaining, and removing temporary pavement delineation.

B. Whenever work activities obliterate pavement delineation, place temporary or permanent pavement delineation before opening the traveled way to traffic. Place centerline pavement delineation for traveled ways open to traffic.

C. Establish the alignment for temporary pavement delineation, including required lines or markers. Surfaces to receive an application of paint or removable traffic tape must be dry and free of dirt and loose material. Do not apply temporary pavement delineation over existing pavement delineation or other temporary pavement delineation. Maintain temporary pavement delineation until it is superseded or you replace it with a new striping detail of temporary pavement delineation or permanent pavement delineation.

D. Place temporary pavement delineation on or adjacent to lanes open to traffic for a maximum of 14 days. Before the end of the 14 days, place the permanent pavement delineation. If the permanent pavement delineation is not placed within the 14 days, replace the temporary pavement markers with additional temporary pavement delineation equivalent to the striping detail specified for the permanent pavement delineation for the area. The Department does not pay for the additional temporary pavement delineation.

E. When the Engineer determines the temporary pavement delineation is no longer required for the direction of traffic, remove the markers, underlying adhesive and removable traffic tape from the final layer of surfacing and from the existing pavement to remain in place. Remove temporary pavement delineation that conflicts with any subsequent or new traffic pattern for the area.

F. Temporary Lane Line and Centerline Delineation

1. Whenever lane lines or centerlines are obliterated, the minimum lane line and centerline delineation must consist of temporary pavement markers placed longitudinally at intervals not exceeding 24 feet. The temporary pavement markers
must be temporary pavement markers on the Authorized Material List for short-
term day or night use, 14 days or less, or long-term day or night use, 180 days or
less. Place temporary pavement markers under the manufacturer's instructions.
Cement the markers to the surfacing with the adhesive recommended by the
manufacturer, except do not use epoxy adhesive to place pavement markers in areas
where removal of the markers will be required.

2. For temporary lane line or centerline delineation consisting entirely of temporary
pavement markers, place the markers longitudinally at intervals not exceeding 24
feet.

G. Temporary Edge Line Delineation

1. Whenever edge lines are obliterated on multilane roadways, freeways, and
expressways, place edge line delineation for that area adjacent to lanes open to
traffic consisting of (1) solid, 4-inch wide traffic stripe tape of the same color as the
stripe being replaced, (2) traffic cones, (3) portable delineators or channelizers
placed longitudinally at intervals not exceeding 100 feet. You may apply temporary
painted traffic stripe where removal of the 4-inch wide traffic stripe will not be
required.

2. The Engineer determines the lateral offset for traffic cones, portable delineators,
and channelizers used for temporary edge line delineation. If traffic cones or
portable delineators are used for temporary pavement delineation for edge lines,
maintain the cones or delineators during hours of the day when the cones or
delineators are being used for temporary edge line delineation.

3. Channelizers used for temporary edge line delineation must be an orange surface-
mounted type. Cement channelizer bases to the pavement as specified in section 85
for cementing pavement markers to pavement except do not use epoxy adhesive to
place channelizers on the top layer of the pavement. Channelizers must be one of
the 36-inch, surface-mounted types on the Authorized Material List.

4. Remove the temporary edge line delineation when the Engineer determines it is no
longer required for the direction of traffic.

3.05 TEMPORARY RAILING (TYPE K)

A. Temporary Railing (Type K) shall conform to Section 12-3.08C, "Construction" of the
Standard Specifications.

3.06 CONSTRUCTION AREA SIGNS

A. Construction Area Signs shall conform to Section 12-3.06C, “Construction” of the
Standard Specifications.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract lump sum price paid for “Traffic Control” shall include full compensation for
furnishing all labor, materials, tools, equipment, and incidentals and for performing all the
work involved as shown on the Plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.
13 WATER POLLUTION CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

A. These Special Provisions replace Section 13, "Water Pollution Control" of the Standard Specifications.

B. This section describes the following work:
   1. Implementation of the Best Management Practices and Erosion Control Plan
   2. Implementation of sediment and erosion control measures (1) during construction, and (2) upon completion of construction.

1.02 PERMITS

RESERVED

1.03 DEFINITIONS

A. Construction Period: Between the dates of Notice to Proceed and Substantial Completion of the Work.

B. Maintenance Period: Between the date of Substantial Completion and three (3) months from substantial completion.

C. Seeding: Application of seed by hydraulically applied methods. Used interchangeably with Hydro-mulching.

1.04 STORM WATER POLLUTION AND EROSION CONTROL PLAN

D. The Contractor shall select and implement additional BMPs that are appropriate for the site and the Contractor’s actual methods of construction, access and project phasing. The BMPs included in the Erosion Control Plan shall be selected in conformance with the SWRCB BMPs Construction Practice Handbook and the Napa County Grading Ordinance Chapter 16.28, Storm water Management and Discharge Control.


1.05 NPDES GENERAL PERMIT COMPLIANCE

No required.

1.06 SEDIMENT AND EROSION CONTROL
A. The Contractor shall install and maintain erosion and sediment control measures as needed to mitigate the potential for sediment migration away from the work area and other open waters. The Contractor shall modify and enhance these measures to meet permitting requirements and/or as needed to mitigate sediment migration at no additional expense to the County.

B. Comply with specific measures for sediment and erosion control as required for compliance and as directed by the Engineer.

1.07 NON-STORM WATER CONTROL

A. The Contractor shall designate one fueling and wash area within the staging areas. The Contractor shall only perform fueling, maintenance and emergency repair of vehicles and equipment within the designated fueling area or offsite.

B. The designated fueling and wash area shall be constructed to provide containment of any spills and to prevent any waste from contacting and penetrating the ground by use of methods such as berms and/or liners. The Contractor shall submit details of its fueling and wash area for Engineer’s approval.

C. Inspect all equipment for leaks immediately prior to the start of construction, and regularly thereafter until equipment is removed from the site. Equipment repair (other than emergency repairs) shall be performed offsite.

D. Any hazardous materials and/or hazardous substances that the Contractor deems necessary for performance of the work shall be stored, used and contained within the fueling and wash area. Dispose of all contaminated water, sludge, spill residue, or other hazardous compounds offsite at a lawfully permitted or authorized facility.

E. Clean up any accidental leaks or spills immediately and remove any contaminated soils or other materials offsite. Dispose offsite in accordance with all applicable laws. Contractor shall maintain onsite spill kits for emergency cleanup throughout the life of the project.

F. Immediately notify the Engineer in the event of any spill or release of any chemical in any physical form in the site during construction.

G. In case of any accidental spill, upon the Contractor’s removal and cleanup of the designated fueling area, the Contractor will sample and analyze underlying soil for petroleum hydrocarbons and/or other chemical constituents as appropriate to determine if any contamination has occurred. The Contractor shall submit test results to the Engineer. The Contractor shall be solely responsible for all costs incurred in removing any contamination caused by its activities. This includes, but is not limited to, contamination caused by accidental spills or leaks, wheel tracking, water runoff, water run on and erosion.

1.08 SUBMITTALS

Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.
1.09 QUALITY ASSURANCE

A. Contractor Qualifications: The Contractor shall demonstrate to the satisfaction of the Engineer that it is a qualified landscape Contractor with a valid California C-27 license and a minimum of five (5) years of experience whose work has resulted in successful establishment of native grass cover in disturbed wild land settings.

B. Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

1.10 DELIVERY, HANDLING AND STORAGE

A. Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

B. All commercially processed or packaged materials shall be delivered to the site in sealed bags or containers clearly marked to identify the item or materials.

C. The Contractor shall provide a storage yard with appropriate temporary security fencing at the staging area(s) shown on the contract documents or as designated by the Engineer, in which to secure and store equipment and associated construction materials used in this work.

D. Fabric Materials:
   1. Each roll of fabric material shall be wrapped with a material covering that will protect them from damage due to shipment, direct sunlight and storage.
   2. Handling of the materials on site shall utilize manufacturer-approved methods, such as forklifts, cables and slings. Materials shall be kept clean and free from damage prior to installation. Fabric materials shall be protected from direct sunlight, ultraviolet rays, and temperatures greater than 140 degrees Fahrenheit, mud, dirt, dust and debris during shipment and storage. To the extent possible, the fabric shall be maintained wrapped in a heavy duty protective coating.

1.11 WARRANTY

A. All work shall be done by an experienced contractor familiar with California native grasses and their horticulture and industry methods and standards for grass seeding. The Contractor shall employ modern equipment and state of the art methods and techniques. The Contractor shall have a minimum of five (5) years of applicable on the job experience with native grass seeding and weed control during native grassland establishment periods.

PART 2 - PRODUCTS

2.01 BEST MANAGEMENT PRACTICES (BMPs)
A. The following is a list of products for typical BMPs that the Contractor shall employ throughout the site for erosion and sediment control.

1. Silt Fence: Woven filter fabric, UV resistant silt fence. Wooden or steel posts three feet high minimum (does not include embedment).

2. Straw/coir Fiber roll: 100% Biodegradable 10-inch minimum diameter straw or coir/straw fiber roll. North American Green Sediment STOP, or approved equivalent.

3. Check dams shall be installed as directed by the Engineer.

4. Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

2.02 SEED

A. Attention is directed to all the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

2.03 INOCULANTS

A. Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

2.04 HYDRAULIC WOOD/STRAW FIBER MULCH

A. Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

2.05 ORGANIC TACKIFIER

A. Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

2.06 WATER

A. Attention is directed to all of the provisions of Section 21, “Erosion Control,” of the Standard Specifications and these Special Provisions.

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

A. At a minimum, the Contractor shall install and maintain temporary erosion and sediment control measures in accordance with the Erosion Control Plan and manufacturer’s recommendations, as shown on the Plans and as required by these Special Provisions. In case of a conflict, the more rigorous installation requirements, as determined by the Engineer, shall apply.
B. Implement additional measures as needed to control erosion from exposed soil surfaces and to reduce sediment runoff from the project site. These measures shall be implemented and maintained throughout the construction and maintenance periods.

C. During the construction period, the Contractor shall maintain onsite sufficient quantities of erosion and sediment control materials to be installed in the event that rain is forecast, and for rapid response to failures or emergencies. The Contractor shall consult the local weather forecast daily.

D. If rain is forecast during construction, the Contractor shall, at a minimum, secure all soil stockpiles by covering and/or installing a perimeter silt barrier.

E. All temporary erosion control measures shown on the Plans and additional measures deemed necessary for the maintenance period shall be installed at the time of substantial completion.

3.02 COIR/STRAW FIBER ROLLS

A. Coir/straw fiber rolls shall be installed in accordance with manufacturer’s recommendations and as shown on the Plans.

B. Coir/straw fiber rolls shall be installed on all areas disturbed during construction, spaced as shown on the Plans, or closer, if needed for adequate erosion control. Risk level 2 projects require that linear sediment controls such as fiber rolls be installed at the toe of slope, face of slope and at grade breaks to comply with sheet flow lengths at no more than 20-feet apart on slopes less than 25%.

C. Install all coir/straw fiber rolls subsequent to completion of fine grading in an area, and in all cases by October 15. Maintain coir/straw fiber rolls throughout the maintenance period. Following each rain event inspect coir fiber rolls, and replace anchoring stakes and/or coir fiber rolls as needed.

D. Install coir fiber roll in accordance with manufacturer’s recommendations and the following requirements:

1. Embed the fiber roll a minimum of four (4) inches below grade. Install fiber rolls by excavating a four (4) inch deep by ten (10) inch wide trench, placing the fiber roll into the trench, and backfilling with soil or gravel, as needed for proper anchoring.

2. Stake the fiber roll at three (3) feet on center. Install additional stakes as needed to completely anchor the coir fiber roll.

3. Align coir fiber roll installations along elevation contours.

4. Turn last ten (10) feet of fiber roll at right angles in the upslope direction (in an “L” shape), to allow for capture and dispersion of surface runoff.
3.03 SILT FENCE

A. Silt Fences shall be used and installed as necessary during the project construction period as a temporary measure for sediment and erosion control.

B. At a minimum, install silt fences to enclose soil stockpiles if rain is forecast and at the active channel bank (wet edge) throughout floodplain grading operations.

C. Silt fence placement and removal shall be coordinated and approved by the Engineer.

D. Install silt fence in accordance with manufacturer’s recommendations.

3.04 CHECK DAMS

A. Check dams shall be installed after construction and as directed by the Engineer.

3.05 JUTE MAT

A. Jute mat shall be installed after construction in accordance with manufacturer’s recommendations and as shown on the Plans.

3.06 MAINTENANCE

A. The Contractor shall regularly inspect, maintain and repair temporary erosion control measures throughout construction and the maintenance period. Inspect all temporary erosion control measures when rain is forecast, and immediately following rainfall events. Inspect graded areas after storm events.

B. Following each event, remove accumulated sediment, repair any damage and install any additional measures as needed. Follow all monitoring and reporting requirements per Section 14 Environmental Protection of these Special Provisions.

3.07 CLEANUP

A. Upon completion of the maintenance period, remove all materials and dispose of properly at approved offsite facility. Regrade and restore natural drainage patterns at locations of disturbance and smooth grades and replace erosion control BMPs.

PART 4 MEASUREMENT AND PAYMENT

A. The contract lump sum price paid for “Erosion and Sediment Control (Construction/Post Construction Phase)” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as shown on the plans and as directed by the Engineer and no additional compensation will be allowed.
14 ENVIRONMENTAL STEWARDSHIP

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Technical Specifications replaces Section 14, “Environmental Stewardship” of the Standard Specifications

B. This section describes environmental protection measures to be applied throughout the duration of the Work, including the following:
   1. Dust Control
   2. Noise Control
   3. Wildlife Protection
   4. Cultural and Prehistoric Resources

C. General Requirements: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and ground contamination or pollution.

D. Work Windows
   1. Ground-disturbing activities may not occur during rain.

1.02 PERMITS

A. Environmental document obtained for this project include specific requirements for sediment, erosion, water and pollution control and wildlife protection which shall be adhered to at all times. See Section 10, “Mobilization” for permits obtained by the County, if any.

1.03 DUST CONTROL

A. During the performance of all Work under the contract documents, the Contractor shall employ conscientious and effective means of dust control. The Contractor shall assume responsibility for all damages, delays, government-imposed penalties or fines, and claims that result from the Contractor’s dust control practices. Comply with Bay Area Air Quality Control District (BAAQCD) published guidelines.

B. Dust control activities will primarily be associated with soil excavation, backfill and compaction, hauling and transport loading operations; however, the Contractor’s responsibility for dust control shall cover all the Contractor’s operations and shall be continuous (even outside of business hours) throughout the duration of the Work.

C. At a minimum, the Contractor shall control dust using the following methods.
   1. Limit vehicle speeds to 10 miles per hour (mph) on unpaved roads.
2. Water all active construction areas and access routes at least three (3) times daily during dry and dusty conditions.

3. Water exposed soil surfaces, soil stockpiles, or other dust generation sites, at the frequency necessary to prohibit dust generation.

4. Provide watering equipment capable of applying water to the point of dust generation.

5. Use the minimum practicable drop heights during transport vehicle loading.

6. Wash all equipment prior to delivery to the site, periodically during construction, and prior to leaving the Work site.

7. To the extent practicable, equipment shall be selected and operated in a manner that minimizes dust generation. All equipment shall be checked by a certified visible emissions evaluator.

8. Maintain equipment engines in good condition and properly tuned (in accordance with manufacturer’s specifications).

9. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

10. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.

D. Excessive Watering: Except as required by the Engineer, the Contractor shall not employ dust control methods that result in ponded water, erosion, or an increase of the water content of excavated soil by more than one (1) percent above the water content that existed when excavated.

E. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District’s phone number shall also be visible to ensure compliance with applicable regulations.

1.04 NOISE CONTROL

A. Comply with local noise ordinances. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from residences or businesses located near the Work site. See Section B of these Special Provisions for work hours.

B. Internal combustion engines shall be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for construction shall utilize the best available noise control techniques (e.g., engine enclosures, acoustically-attenuating shields or shrouds, intake silencers, ducts, etc.).

C. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five (5) minutes (as required by the California
airborne toxics control measure Title 13, Section 2485 of the CCR). Signage shall be provided for construction workers at all access points.

D. Construction workers shall be cautioned on published risks associated with not using ear protection when around heavy equipment operations.

E. Stationary noise sources and staging areas shall be located as far from sensitive receptors as possible. Dewatering pumps and generators, if required to operate during the nighttime, will be placed so that the estimated noise level at the nearest residential receptor does not exceed 60 dBA. This can be achieved by locating the pump and generator at least 725 feet from the nearest receptor or incorporation of mufflers and noise barriers to reduce the noise levels.

F. Signs shall be posted at the construction site that include and describe permitted construction days and hours and a day and evening contact number for the job site. A complaint and enforcement manager shall be appointed to respond to and to track noise complaints.

1.05 WILDLIFE PROTECTION

A. Install orange construction fencing and signage designating construction limits. Restrict equipment and personnel access to environmental sensitive areas.

B. Disturbance or removal of vegetation outside of the designated construction area is not allowed.

C. The County’s Biological Monitor (Biologist) will perform pre-construction surveys, inspection of construction limits and the locations of the environmental sensitive area fence, and provide environmental training, and monitoring and wildlife relocation if required as summarized in the table below.

D. Environmental Sensitive Area fence will be implemented and adjusted per the Biologist recommendations throughout the project.

E. The Contractor shall cooperate with the Biologist throughout construction and provide adequate notification to the County’s Representative to allow sufficient time for required activities.

F. Contractor and Sub-Contractor shall participate in environmental training by the Biologist and sign training log.

1.06 MINIMUM WILDLIFE PROTECTION MEASURES

A. At a minimum, the Contractor shall comply with the following measures for wildlife protection:

   1. Trash and waste material must be properly disposed of in trash receptacles that prevent the access or trapping of native animals. These containers shall be available and used at all times.
2. Trash shall be removed from the site daily.

3. All equipment such as buckets, and open holes, trenches or items that may potentially trap sensitive animals must be covered by the end of each workday. (If this is not possible, one or more escape ramps constructed of earth fill or wooden planks will be established in the hole at an angle no greater than 30 degrees.)

4. Thoroughly inspect all holes or trenches for animals before filling. If at any time, wildlife is discovered trapped in a trench or pit, halt work and notify the County’s representative immediately.

5. Storage of any pipes measuring four (4) inches or greater in diameter at the site will be avoided, or the ends of any such pipes will be sealed with tape as they are brought to the site. Visually check all sections of construction materials for the presence of wildlife sheltering within them prior to the pipe sections being placed and attached together, or shall have the ends capped while stored on site so as to prevent wildlife from entering. After attachment of the pipe sections to one another, whether installed or not, the exposed end(s) of the pipeline shall be capped at the end of each day during construction to prevent wildlife from entering and being trapped within the pipeline.

6. Allow any wildlife encountered during the course of construction to leave the construction area unharmed. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the removed material.

7. No cats or dogs or firearms (except for federal, state, or local law enforcement officers or security personnel) will be permitted onsite to avoid harassment, killing, or injuring of protected wildlife.

8. Erosion control fabric with plastic netting may not be used.

9. Lighting of the project site by artificial lighting during night time hours should be minimized to the maximum extent practicable.

1.07 CULTURAL AND PREHISTORIC RESOURCES

A. The Contractor shall (1) suspend work in the area and (2) notify the Engineer immediately, if evidence of any of the following are items encountered during performance of the Work:

1. Archaeological artifacts
2. Fossils
3. Human remains

PART 4 – MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
15 EXISTING FACILITIES

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. Removal of asphalt concrete pavement shall conform to Section 15-1.03B “Remove Concrete” of the Standard Specifications and these Special Provisions.

B. Removal of Existing CMP Piles shall conform to Sections 19 and 60 of the Standard Specifications and these Special Provisions.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 SUMMARY

A. Existing asphalt concrete pavement where shown on the Plans to be removed, shall be removed completely to the limits of removal.

   1. Asphalt concrete pavement where shown on the plans shall be saw cut neatly at the limits of removal as shown on the Plans.

B. Existing concrete piles where shown on the Plans to be removed, shall be removed per described vertical lengths of removal.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract price per linear foot paid for “Sawcut” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as shown on the plans and as directed by the Engineer and no additional compensation will be allowed.

B. The contract price per linear foot paid for “Remove 9 Existing Concrete CMP Piles (at top 7 LF each)” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as shown on the plans and as directed by the Engineer and no additional compensation will be allowed.

C. The contract price per linear foot paid for “Salvage Guard Rail (Deliver to County’s Corp. Yard)” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as shown on the plans and as directed by the Engineer and no additional compensation will be allowed.

D. The contract price per linear foot paid for “Remove Asphalt Concrete Dike” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as
shown on the plans and as directed by the Engineer and no additional compensation will be allowed.

E. The contract price per square foot paid for “RSP Removal” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as shown on the plans and as directed by the Engineer and no additional compensation will be allowed.

F. The contract price per lump sum paid for “Extend Cleanout Riser & Install Cap” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as shown on the plans and as directed by the Engineer and no additional compensation will be allowed.
17 CLEARING AND GRUBBING

PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. Clearing and Grubbing shall conform to Section 17-2, “Clearing and Grubbing” of the Standard Specifications and these Special Provisions.

B. The work includes the following:
   1. Removal of debris and minor demolition within the limits of work.
   2. Specific non-native vegetation removal practices within the project area.
   3. Trimming of tree limbs where shown on the plans, above the grade beam, and as needed for equipment access.
   4. Legal disposal of removed vegetation and debris off-site.

C. The Contractor shall protect all native trees and all other native vegetation not slated for demolition. Prior to commencing construction, the Contractor shall install temporary fencing, flagging or equivalent around the perimeter of all vegetated areas and/or individual trees to be preserved, including dead trees (i.e. “snags”), and any other on-site improvements. Prior to commencing work, the Contractor shall review all tree and other protection fencing with the Engineer and field adjust the limits as directed by the Engineer.

D. The Contractor shall remove debris including timber, rock, concrete, rubble, trash, and other items which may exist within the limits of work for this contract. Rocks and boulders may be reused in the Work as directed by the Engineer. The Contractor shall verify potential for reuse of these materials with the Engineer prior to off-haul and disposal activities.

E. Unless shown to be removed or altered, existing improvements and facilities, utilities, adjacent property, trees and plants are not to be removed and shall be protected from injury or damage.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION

3.01 CONSTRUCTION

A. Work shall conform to Section 16, “Clearing and Grubbing” of the Standard Specifications and these Special Provisions.

3.02 CLEARING AND GRUBBING

A. Limit clearing to three (3) feet beyond limits of earthwork.
B. Areas shall be cleared and grubbed by removing obstructions, trees, shrubs, grass, and other vegetation. Use only hand methods for grubbing within the drip lines of remaining trees.

C. The Contractor shall take care to avoid damaging any trees or native herbaceous plants designated to remaining.

3.03 TREE REMOVAL

A. The Contractor shall only remove trees slated for removal as shown on the Plans and marked in the field by the Engineer. Trees to be removed from the project site shall be marked with blaze-orange marking paint. All other trees within or adjacent to the project limits shall be retained and surrounded by protection fencing.

B. Perform tree removal work in a safe and proper manner, adhering to CAL-OSHA and ANSI Standards.

3.04 MINOR DEMOLITION AND DEBRIS REMOVAL

A. Remove any man-made structures to prevent interference with the work outlined within these specifications. Any demolition of unidentified structures by the Contractor not visible and accounted for during the initial bid walk shall be negotiated as extra work, subject to authorization by the Engineer.

B. Remove incidental debris encountered during vegetation removal and segregate and dispose of debris off-site. Vegetative matter is not debris. Any debris removal that meets any one of the following criteria shall be negotiated as extra work, subject to authorization by the Engineer:
   1. Debris that requires special equipment for removal.
   2. Hazardous debris that requires special off-site disposal per the County’s direction.

C. Except for materials indicated to remain as the Owner’s property, removed vegetation, debris and other materials are the Contractor's property. Remove materials from site and dispose of in a legal manner.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract lump sum price paid for “Clearing and Grubbing” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions and as directed by the Engineer and no separate payment will be made.

B. The contract unit price paid for “Tree Removal” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work, as shown on the Plans, as specified in the Standard Specifications and these Special Provisions and as directed by the Engineer and no separate payment will be made.
PART 1 - GENERAL

1.01 SUMMARY OF WORK

A. Earthwork shall conform to Section 19, “Earthwork” of the Standard Specifications and these Special Provisions.

B. This section applies to all earthwork required for the Work (embankment, ditch, structure, etc.) and shall include but may not be limited to:
   1. Excavation
   2. Excavation and replacing unsuitable material
   3. Excavation, Stockpiling, Sampling
   4. Rough grading
   5. Roadway excavation
   6. Embankment Construction
   7. Backfilling
   8. Grading, spreading and compaction
   9. Export - Off haul of excess or unsuitable material
   10. All other subsidiary work necessary to complete the grading of the slope and roadway areas in conformance with the lines, grades and slopes as shown on the Plans and as specified in the contract documents.

C. Roadway Excavation shall conform to Section 19-2, “Roadway Excavation” of the Standard Specifications, unless otherwise specified in these Special Provisions.

D. The Class 2 Aggregate Base shall comply with Section 26, “Aggregate Bases” of the Standard Specifications.

E. Ditch Excavation shall conform to Section 19--2.03H, “Ditch Excavation" of the Standard Specifications, unless otherwise specified in these Special Provisions.

F. Structure Excavation shall conform to Section 19-3, “Structural Excavation and Backfill” of the Standard Specifications unless otherwise specified in these Special Provisions.

G. Embankment construction shall conform to Section 19-2.03G, "Slopes" of the Standard Specifications unless otherwise specified in these Special Provisions.

H. Surplus Material shall conform to Section 19-2.03B, "Surplus Material" of the Standard Specifications unless otherwise specified in these Special Provisions.
I. Pervious Backfill Material shall conform to Section 19-3.02D, “Pervious Backfill Material” of the Standard Specifications unless otherwise specified in these Special Provisions.

1.02 SUBMITTALS

A. Refer to Section 4 “Submittal Procedures” of these Special Provisions.

B. The Contractor shall not deviate from the approved Operations Plan unless a revised plan has been approved in writing by the County. Failure to adhere to an approved plan shall be cause for rejection of Contractor's request for payment for Excavation bid items, until the plan has been brought into conformance.

C. Offsite Disposal Location(s): Prior to transporting any excavated material offsite, the Contractor shall submit the proposed offsite disposal locations for approval by the Engineer.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials for Structure Backfill shall conform to Section 19-3.02, “Materials” of the Standard Specifications unless otherwise specified in these Special Provisions.

B. Imported borrow shall conform to Section 19-7.02C, “Imported Borrow.”

PART 3 – EXECUTION

3.01 SEQUENCE OF WORK

A. Prior to commencing earthwork, the Contractor shall stake the grading limits of all earthwork items for review and approval by the Engineer. Adjust stakes as instructed by the Engineer to meet the design intent and to provide protection of existing trees to remain.

B. Excavation and fill placement shall progress in an orderly manner, with completion of contiguous areas as work progresses. Limit the area of active grading as needed for dust and erosion control.

C. Comply with all restrictions on timing and duration of earthwork activities as required by project Environmental Documents.

D. See also tentative schedule and sequence requirements listed in Section 1 Summary of Work. Contractor shall submit a construction schedule and sequence of work plan for the Engineer’s approval.

3.02 CONTROL OF WATER
A. The Contractor shall be aware that surface water and/or groundwater may enter the areas of excavation. The work includes excavation of material from below the groundwater surface.

B. The Contractor shall provide and operate equipment to control water as needed to keep excavations free of standing water as the Contractor deems necessary for safe and efficient execution of the Work. The Contractor shall provide equipment to remove, contain, treat and dispose of surface and groundwater entering the excavation. The Contractor shall treat and contain removed water as needed to adequately remove suspended sediment prior to disposal. Dispose of water in an environmentally acceptable manner, in accordance with project permits, applicable law, and such that property is not damaged. The Contractor shall avoid settlement or damage to adjacent property from dewatering operations.

C. Contractor shall be responsible for obtaining all necessary permits for treatment and disposal of groundwater removed from the excavation.

3.03 SEGREGATING MATERIALS

A. The Contractor should not assume that all earthen fill material needed for the project will be available onsite. Import may be required.

B. The Contractor shall segregate excavated material onsite as needed to meet the project specifications.

C. The Contractor shall segregate debris from earthen and gravel materials for all excavated material. Debris is considered to be all non-earthen material that is unsuitable for reuse onsite and must be disposed offsite of separately from earthen material.

3.04 FILL PLACEMENT AND COMPACTION

A. Subgrade Grading: The Contractor shall grade and compact subgrade to meet lines and grades for the work.

B. Unless otherwise noted, the Contractor shall place fill for the following items in horizontal, uniform layers not exceeding eight (8) inches in thickness, unless otherwise specified by the Engineer, before compaction. The fill shall be brought up uniformly. Each lift shall be mechanically compacted to the relative compaction (RC) shown on Plans, and to 90% RC if no density is specified on Plans. Fill and compaction for structure backfill shall conform to Section 19-3 “Structure Excavation and Backfill”, these Special Provisions, and as approved by the Engineer.

C. During all compacting operations the Contractor shall maintain optimum moisture content of the fill so that the specified relative compaction is obtained in each lift. The Contractor shall conduct the necessary moisture conditioning as needed to place fill in accordance with these Special Provisions. Maintain moisture content uniform throughout the lift. At the time of compaction the water content of the materials shall be at optimum moisture content, plus 0 to 3 percentage points.
D. Fill compaction by ponding and jetting will not be permitted.

E. The County has the option to perform in-place density and moisture content testing on each lift of fill. The Contractor shall cooperate with this testing by leveling small test areas. The frequency and location of testing will be determined solely by the County. As the Contractor nears completion of compaction of each lift, notify the County so that the County is able to test each lift.

3.05 FINE GRADING

A. The Contractor shall finish the work within the grading limits to smooth slopes to the lines and grades shown on the Plans.

B. All excavated surfaces shall be graded to drain.

3.06 SURPLUS MATERIAL

A. The second, third, and fourth paragraphs of Section 19-2.03B, “Surplus Material” of the Standard Specifications shall be replaced with the following:

1. Dispose of surplus material. Ensure enough material is available to complete the slope repair before disposing of it.

3.07 SLOPES

A. Roughen excavation slopes and flat surfaces to receive erosion control materials by scarifying to a depth of two (2) inches.

3.08 STRUCTURE EXCAVATION, ROADWAY EXCAVATION,

A. Adequately support the excavation using shoring, lagging, casings, liners, or other bracing.

B. The Roadway Excavation consists of structural excavation for construction of soldier pile grade beam excluding the pile foundation.

3.09 BORROW MATERIAL

A. The portion of imported borrow placed within four (4) feet of the finished grade must have a resistance (R-value) of at least fifty (50).

B. Obtaining imported borrow includes the following.

1. Clearing and grubbing the material site. Strip the site of materials that may adversely affect the specified material properties.

2. Selecting material within the source.

3.10 TOLERANCES AND ACCEPTANCE
A. The Contractor shall endeavor to excavate and place fill to the finish grade neat lines indicated on the Plans. A tolerance of plus or minus 3 inches (+/- 0.25 foot) vertical deviation of final grade from these neat lines will be allowed at all locations unless noted otherwise.

B. The project may not be accepted as complete if finished grade is outside the limits of these tolerances. In addition, areas of contour grading shall conform to the shapes and slopes indicated in the Plans so that graded areas drain. The County may require the Contractor to conduct additional work at the Contractor’s expense to complete excavation and fill to the lines and grades shown on the Plans, within these tolerances. The County may require surveying to demonstrate conformance with the finished grades shown on the Plans.

C. The Contractor shall perform post-construction surveys as described in Section 7 Construction Survey. Any additional surveying required due to non-conformance shall be performed by the Contractor and at no expense to the County.

D. The Contractor shall furnish the use of equipment and personnel to the County if requested by the County as may be reasonably necessary for inspection of the work.

E. Excavation and fill placement that is continuously over or under the finished grade, as determined by the Engineer, is not allowed.

F. The Contractor shall be responsible for the repair of slope failures that occur during his operations at the Work site.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract price paid per cubic yard for “Roadway Excavation and Grading” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work, as shown on the plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer.

B. The contract price paid per cubic yard for “Structure Excavation (lagging)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved (including sheeting, shoring, bracing, etc.) as shown on the plans and as specified in these Special Provisions, the Special Provisions, and as directed by the Engineer and no additional compensation will be allowed.

C. The contract price paid per cubic yard for “Structure Backfill (Lagging)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.

D. The contract price paid per cubic yard for “Offhaul Soil (Surplus Material)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special
Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.

E. The contract price paid per cubic yard for “Pervious Backfill” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.

F. The contract lump sum price paid for “Re-grading/Cleaning Existing Road Ditch” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.
21 EROSION CONTROL

GENERAL

1.01 SUMMARY

A. The contractor shall provide all labor, materials, and equipment necessary to complete all work required to conduct soil preparation and seeding operations described in this Section. Work described in this Section includes:
   1. Soil Amendments
   2. Broadcast Seeding
   3. Hydraulic Wood/Straw Fiber Mulch

B. All bioretention basins, slopes and other exposed area shall be seeded with specified seed mixes as indicated in this section.

1.02 DEFINITIONS

A. For standard products, the manufacturer's analyses guarantee will be acceptable. For all other materials, analyses shall be by a recognized laboratory. Analyses shall be made in accordance with the current methods of the Association of Official Agricultural Chemists, and paid for by Contractor.

B. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting topsoil layer.

C. Finish Grade: Elevation of finished surface of topsoil ready for planting.

D. Establishment Maintenance Period: Until acceptable germination of seeding has occurred and is approved by Engineer.

1.03 SUBMITTALS

A. Submittals, per Section 4: For each type of product submit product certificates for:
   1. Seed
   2. Mycorrhizal Inoculant
   3. Hydraulic Wood/Straw Fiber Mulch
   4. Organic Tackifier

B. Product Certificates: For each type of manufactured product, signed by product manufacturer, and complying with the following:
   1. Manufacturer's certified analysis for standard products.
   2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable, and stating source, physical/chemical composition and quantity available.

C. Mulch: Product certificate for soil amendment showing physical and chemical analysis, certificate of amendment and signed by product manufacturer.
D. Certification of Grass Seed: The supplier for each seed mix or single species bag shall provide a label attached to each bag with information for each species in the mix stating the botanical and common name and percentage by weight of each species and percentage of purity, germination rate, and percent pure-live-seed as well as weed seed content. The year of production and date of packaging shall be included on the label.

E. At the option of the Engineer, the Contractor may be required to submit a sample of any materials delivered to the site and analyses of the samples for review and approval by the Engineer.

1.04 QUALITY ASSURANCE

A. All seeding work shall be performed by personnel familiar with procedures and equipment required for the work and supervised by a qualified foreman with experience in seeding and establishment of native grasses on habitat restoration projects.

B. The Engineer shall inspect seed upon arrival at the job site for conformity to species and quality as indicated in the Drawings and these Specifications. The Contractor shall provide the Engineer with receipts of the seed purchased and delivered to the site. Contractor shall provide the seed certification information tag from each of the bags of seed used on the project. Seed certification information shall conform to the information listed in Submittals. All seed not conforming to the requirements in these Specifications shall be considered defective, immediately removed from the project site, and replaced with conforming seed at the Contractor’s expense.

C. Immediately prior to commencement of seeding operations, the Contractor shall adjust and calibrate equipment as per manufacturer’s specifications and field test in the presence of the Engineer. Seeding equipment shall be thoroughly clean and not contain remnants of seed mixes from previous jobs.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Seed shall be stored in a cool, clean location away from moisture, contaminants, and rodents. Seed shall be kept free of other seed sources such as weeds or agricultural products and shall not be stored where temperatures exceed 95 degrees Fahrenheit. The seed mix shall be delivered to the project site in sealed bags with the manufacturer’s tag indicating where the seed was purchased from, date purchased, the composition of the seed mix, the percent purity and germination rate. Tags shall be saved and submitted to the Engineer.

B. Fertilizers, inoculants, pesticides and other chemicals shall be delivered to and stored on-site in original unopened containers bearing the manufacturer’s guaranteed chemical analysis, name, trade-name, trademark and conformance to state law, bearing name and warranty of producer.

1.06 TIMING AND CONDITIONS

A. Seeding operations should be performed during desirable weather conditions. When excessive moisture, winds, or other unsatisfactory conditions prevail, the work shall be stopped until favorable weather conditions are present.
B. Prior to seed installation all grading activities as specified in Section 19 Earthwork must be completed and approved by the Engineer. All seeding areas shall be reasonably smooth and conform to the grading plan before seed bed preparation is begun.

C. Contractor will seed all improvements within 48 hours of completing finished grade and compaction, weather permitting.

D. All new and disturbed soil surfaces (except for areas to receive aggregate base, asphalt concrete or concrete) shall be seeded.

1.07 WARRANTY

A. Seed mixes installed shall be guaranteed throughout the Establishment Maintenance period against failure due to defects in materials, installation equipment, and routine maintenance.

B. The performance standard for successful establishment of seed mixes shall be as indicated on the Drawings.

C. The seed mix guarantee shall apply to normal growing conditions during which these species would be expected to survive. This guarantee does not apply to mortality resulting from abnormal weather conditions, floods, excessive rains, severe freezing, or drought as defined by the Engineer and the Engineer.

1.08 MAINTENANCE

A. Maintenance shall begin immediately after each area is seeded and continue until acceptable germination occurs.

PRODUCTS

1.09 SEED MIX

The Contractor shall make every effort to obtain the following commercially grown native grass seed from stock originating from within the Napa River Watershed. If such seed source is not available then the Contractor shall submit alternative sources for the specified mix to the Engineer for approval prior to ordering the seed.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th># per acre seed</th>
</tr>
</thead>
<tbody>
<tr>
<td>California brome</td>
<td>Bromus carinatus</td>
<td>3</td>
</tr>
<tr>
<td>Blue wildrye</td>
<td>Elymus glaucus</td>
<td>8</td>
</tr>
<tr>
<td>Creeping Wildrye</td>
<td>Leymus triticoides</td>
<td>8</td>
</tr>
<tr>
<td>California Poppy</td>
<td>Eschscholzia Californica</td>
<td>3</td>
</tr>
<tr>
<td>Three Week Fescue</td>
<td>Vulpia (festuca) microstachys</td>
<td>6</td>
</tr>
<tr>
<td>Idaho Fescue</td>
<td>Festuca Idahoensis</td>
<td>6</td>
</tr>
<tr>
<td>Tidy Tips</td>
<td>Layia platyglossa</td>
<td>2</td>
</tr>
<tr>
<td>Pigmy-Leaved Lupine</td>
<td>Lupinus bicolor</td>
<td>4</td>
</tr>
<tr>
<td>Bush Lupine</td>
<td>Lupinus arbores</td>
<td>2</td>
</tr>
<tr>
<td>Baby Blue Eyes</td>
<td>Memophila menziesii</td>
<td>3</td>
</tr>
<tr>
<td>Purple Needlegrass</td>
<td>Nassella (Stipa) pulchra</td>
<td>8</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td># per acre seed</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Tomcat Clover</td>
<td><em>Trifolium wildenovii</em></td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>55</strong></td>
</tr>
</tbody>
</table>

A. State-certified seed of the latest season shall be provided in original sealed packages bearing the producer’s guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS-01 and applicable state seed laws.

B. Wet, moldy, insect infested or otherwise damaged seed shall be rejected and removed from the project site.

C. Substitutions will not be allowed without written request and approval from the Engineer.

D. Seed mixes shall be state certified seed of specified grass species with no less than 90% purity and 80% germination rate with no more than 1.00% weed seed and guaranteed to be 100% free of prohibited and restricted noxious weeds identified in Section 52332 of the Food and Agriculture Code.

1.010 INOCULANTS

A. Inoculants shall be endomycorrhizal biological inoculum manufactured by Mycorrhizal Applications or approved equivalent. Endomycorrhizal inoculum shall consist of spores, mycelium, and mycorrhizal root fragments of arbuscular fungi in a solid carrier suitable for handling by hydro-seeding or dry-seeding equipment. The rate of application of endomycorrhizal inoculum shall be based on the guarantee of the supplier or the analysis returned by an independent laboratory and shall be a minimum of 3,600,000 propagules per acre.

1.011 HYDRAULIC WOOD/STRAW FIBER MULCH

A. Hydraulic Wood/Straw Fiber mulch used to cover mechanically broadcast seed and ensure proper erosion protection shall be produced from annually renewable and certified weed-free rice straw, recycled paper, and other natural materials. Fiber mulch shall be free from plastic material, growth inhibiting additives, or other non-biodegradable substances. Fiber mulch shall be of such character that the fiber will disperse into a uniform slurry when mixed with water. Contractor shall use FiberWood Hydraulic Straw/Fiber Blend mulch manufactured by Fiber Wood, LLC, or approved equivalent.

B. Fiber Mulch shall be colored green, and shall not stain concrete or painted surfaces. Fiber shall be free from growth or germination inhibiting materials.

1.012 ORGANIC TACKIFIER

A. Tackifier shall be a concentrated, biodegradable and organic derivative of corn or other organic material. Tackifier shall be non-toxic to plant and animal life, non-corrosive and non-crystalline and be non-staining to concrete or painted surfaces. Tackifier shall conform to Sections 21-2.01 and 21-2.02.

1.013 WATER
A. Water shall be the responsibility of the Contractor, unless otherwise noted. Water shall not contain elements toxic to plant life.

EXECUTION

1.014 PREPARATION

A. All seeding zones shall be broadcast seeded. Prior to broadcast seeding, the seed bed must be scarified to a minimum one (1) inch in depth using a flexible tine harrow or hand tools to create a loose and friable topsoil medium.

1.015 BROADCAST SEEDING

A. Areas shall be broadcast seeded with native seed at appropriate rates specified on the planting palette. Native seed shall be broadcast seeded at the rates specified in the Drawings along with a mycorrhizal inoculant at a rate of 60 pounds per acre. After seeding, all areas shall be harrowed or lightly raked to ensure proper seed to soil contact. The finished soil surface shall be covered where applicable in accordance with the erosion control measures specified on the Drawings and Sections 13 and 21 Water Pollution Control and Erosion Control. After erosion control measures are in place, the Contractor shall hydraulically mulch all disturbed and seeded areas as specified in these Specifications.

B. The Contractor shall broadcast all seed plus inoculant using cyclone, knapsack hand-operated or other broadcast type seeder whereby dry seed shall be uniformly distributed at the prescribed application rates. All equipment used shall be calibrated to apply the specified pounds per acre of the seed mix for each unique habitat zone. Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate, guarding against missed areas and excessive overlaps. Contractor can apply seed using multiple passes on contour. Seed passes shall overlap by one (1) foot within seed mix zone, and may overlap no more than one (1) foot with other seed mix zones.

C. Contractor shall install erosion control measures and Hydraulic Wood/Straw Fiber Mulch in the areas seeded within 24 hours of broadcast seeding.

1.016 HYDRAULIC WOOD/STRAW FIBER MULCH AND TACKIFIER

A. All ties from the straw mulch bales and seed bags are to be removed from the construction site before the start of the mulching operations.

B. FiberWood Hydraulic Straw/Fiber Blend (hydro-mulch) or approved equal shall be mixed in a hydroseeding machine with organic tackifier and water. Organic tackifier shall be mixed with hydro-mulch to ensure an application rate of 120 pounds per acre (lbs/ac). Hydraulic Wood/straw fiber much and tackifier shall be applied over all seeded and disturbed areas at a rate of 3,000 lbs/ac.

C. Hydraulic Wood/straw fiber much and tackifier shall be started on the windward side of relatively flat areas or on the upper part of a steep slope, and continued uniformly until the areas is covered. Mulching shall be distributed loosely and evenly, without clumping or piling.
1.017 DISPOSAL

A. Disposal: Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off site.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract lump sum price paid for “Erosion and Sediment Control (Construction/Post Construction Phase)” shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in this section as specified in this Special Provisions, as shown on the plans and as directed by the Engineer and no additional compensation will be allowed.
23 DEWATERING

PART I - GENERAL

1.02 DESCRIPTION
A. There may be dewatering activity associated with the Work.
   1. Dewatering activity to control ground water during excavation for piers and lagging walls.
B. The work shall consist of the design, furnishing, installation, operation, maintenance, monitoring, and removal of a dewatering system or systems to control groundwater to achieve proper completion of all work performed under this contract.
C. Dewatering shall conform to the provisions in the Standard Specifications, these Special Provisions, the Project Plans and as directed by the Engineer.
D. The Contractor shall coordinate this activity with the County prior to installation of the dewatering system.

1.03 SUBMITTALS
A. Drawings indicating the location and size of berms, dikes, ditches, gravel drains, treatment facilities, discharge lines and points and outfall design. The drawings shall include at a minimum all dewatering system elements.

PART 2 – EXECUTION

2.01 DEWATERING ACTIVITY SUMMARY
Dewatering activities will comply with the requirements of any required permits issued by the Regional Water Quality Control Board, County, and CAL OSHA.
A. Dewatering activity to control ground water during excavation for the grade beam piers:
   1. The pier excavations may act as dewatering wells. The diameter and depth of the excavations are as shown on the Plans. Dewatering for control of ground water shall conform to the provisions in the California Stormwater BMP Handbook Construction NS-2.

PART 3 – QUALITY ASSURANCE

3.01 EXPERTISE
A. The Contractor shall include, at a minimum, all of the elements necessary for furnishing, installing, operating, and maintaining the dewatering system.

3.02 METHODS, MATERIALS, AND EQUIPMENT
A. The Contractor shall employ materials, equipment, and construction methods commonly used and proven as suitable for the duration of construction dewatering. The Contractor shall provide submittals and/or product data that demonstrate the
suitability of the materials and equipment proposed for use on these systems. The Contractor shall test the dewatering system to the reasonable satisfaction of the Engineer and make operational any deficiency prior to excavation.

3.03 CONSTRUCTION

A. The Contractor shall integrate all dewatering, shoring, and excavation activities to ensure that dewatering, shoring, and excavation activities do not impede or conflict to the detriment of the work. The Contractor shall be responsible for any impacts to the project from conflicts between dewatering, shoring and/or excavation.

PART 4 – MEASUREMENT AND PAYMENT

A. Full compensation for complying with the provisions of this section shall be considered as included in the contract price for the various bid items, and no separate payment will be made.
PART 1 - GENERAL

1.01 SUMMARY OF WORK
   A. This section covers the permeable and non-permeable aggregate base for roadway sections, structure backfill, Shoulder backing, etc., unless modified by the Technical Specifications in the various items of work.
   B. Aggregate bases shall conform to Section 26, "Aggregate Bases," of the Standard Specifications and these Special Provisions.
   C. The work to be performed includes the preparation of the aggregate base course, the production, stockpiling, transporting, placing, compacting of the aggregate base course and all other required incidental work.

1.02 SUBMITTALS
   A. Contractor shall submit aggregate base source and certified laboratory test results to the Engineer for approval.
   B. Contractor shall submit tickets for each load of aggregate.

PART 2 – PRODUCTS

2.01 MATERIALS
   A. Aggregate base shall be Class 2 with ¾ inch maximum aggregate and conform to Section 26.1.02 of the Standard Specifications.

PART 3 – EXECUTION

3.01 CONSTRUCTION
   A. Construction shall conform to Section 26-1.03, “Construction” of the Standard Specifications and these Special Provisions.

3.02 DELIVERY, STORAGE, AND HANDLING
   A. On Site Storage: Store aggregate-base material on-site covered or in a location where material will not be contaminated. Stockpiles of aggregate base shall be covered with plastic or geotextile, or protected with a linear sediment barrier at all times during the rainy season, and when precipitation is forecast during the non-rainy season.

3.03 EXAMINATION
   A. The Contractor shall call for an inspection by the Engineer and obtain written acceptance of the prepared sub grade before proceeding with the placement of the aggregate base course.
   B. The sub grade to receive aggregate base course, immediately prior to spreading, shall conform to the compaction and elevation tolerances indicated and shall be free of standing water and loose materials.
3.04 PLACEMENT AND COMPACTION

A. Subgrade shall be prepared and compacted per Section 19 and 26 of the Standard Specifications and the Technical Specifications.

B. Spreading and compactions of Aggregate base shall conform to Section 26 of the Standard Specifications. Compact each layer to at least 95% relative compaction under California Test 231.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract price paid per cubic yard for “Class 2 Aggregate Base” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.
39 HOT MIX ASPHALT

PART 1 – GENERAL

Hot Mix Asphalt (HMA) shall be Type A as shown on the plans and shall conform to the provisions in Section 39, "Asphalt Concrete," of the Standard Specifications and as modified in these special provisions. All references to Superpave HMA in Section 39 shall be disregarded.

1.01 SUMMARY OF WORK

A. This section applies to all hot mix asphalt (HMA) for the road pavement section.
B. Hot mix asphalt shall be Type A HMA
C. Asphalt Concrete (AC) and HMA may be used interchangeably on the plans and specifications.
E. The work to be performed includes the preparation of the aggregate base course, application of tack coat, the production, transporting, placing, compacting of the HMA and all other required incidental work.

1.02 SUBMITTALS

A. The Contractor shall submit HMA source and mix design prepared by a certified laboratory to the Engineer for review and approval.
B. Accompanying mix design, submit materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceed, specified requirements.
C. The Contractor shall submit tickets for each load of asphalt concrete.
D. Submit certificate of compliance for tack coat per Section 94 and Section 39-2.05A(2)(b), "Asphaltic Emulsions," of the Standard Specifications.

PART 2 – PRODUCTS

2.01 DESCRIPTION

A. Asphalt Binder shall be Steam-refined paving asphalt Grade PG 64-10 per Section 92, “Asphalt Binders” of the Standard Specifications.
B. Tack Coat shall be applied to the finished surfaces of the aggregate base or FDR-cement surface prior to placement of the HMA, between HMA layers where a layer is placed with a delay of 7 days or more from the previous, and to vertical surfaces of curbs, gutters, construction joints per Section 39-2.01B(10). Tack Coat shall be slow setting asphalt emulsion SS1h per Section 94, "Asphaltic Emulsions," of the Standard Specifications.
C. Raw aggregate may only contain very limited “soft” or “highly absorptive” material. The County may sample the raw aggregate on the days of paving to perform LA Rattler tests and to determine absorption ratios. The hot plant operator(s) shall assist the County in obtaining belt samples immediately prior to asphalt batching at the County’s sole discretion/scheduling. If an absorption ratio of a coarse aggregate sample is greater than 4%, the asphalt placed on that day shall be rejected, and removed and replaced at no cost to County. LA Rattler test results and acceptance
criteria shall be per the Standard Specifications. Contractor shall ensure its subcontracts with material suppliers allow the County to enter the facilities and obtain samples in accordance with this paragraph.

D. Unacceptable Asphalt Concrete Containing Soft or Highly Absorptive Material; Liquidated Damages

a. “Soft or highly absorptive” material is defined as material that is generally whitish or light in color (color can vary) and breaks into a powder easily when routed in a dry state with hand tools such as a screw driver and may exhibit clay like characteristics when wet.

b. An unacceptable concentration of material is defined as any location larger than 100 square feet (or locations) where greater than a .096% concentration by area of soft or highly absorptive material occurs.

i. Measurement of the concentration of soft or highly absorptive material may be taken by County at any time and within any area of the work at County’s sole discretion.

ii. Discovery of any area of paving work that exceeds the limit of soft or highly absorptive material described in this subsection (b) is defective work which shall be addressed by the Contractor in accordance with subsection (c) below if County notifies Contractor at any time prior to one (1) year from the date of recording of a Notice of Completion for the work, or one (1) year from the date the road is open for public use if no Notice of Completion is recorded.

c. Soft or highly absorptive material can substantially reduce the useful life of the roadway, the extent of which is difficult to determine accurately. For each area, as determined by the County pursuant to subsection (b), that exceeds the maximum allowable amount of soft or highly absorptive material, the Contractor shall pay as liquidated damages, and not as a penalty, the amount calculated at one-half of the Contractor’s bid item prices to replace that specified area. Contractor shall pay the County the liquidated damages determined in accordance with this section within sixty (60) days of written demand by the County. If a court determines this calculation of liquidated damages is unenforceable for any reason, the Contractor shall pay the County the actual cost incurred by the County to remove and repave the section of the roadway that exceeds the maximum allowable amount of soft or highly absorptive material.

i. This subsection (c) shall not apply to any area, as determined by the County pursuant to subsection (b), where a concentration of more than .096% by area of soft or highly absorptive material resides in an area of less than 100 square feet, or to any work, other than an area determined by the County pursuant to subsection (b), that contains .096% or less of soft or highly absorptive material.

d. Nothing in this paragraph F shall preclude County from seeking any or all legal and/or equitable remedies upon discovery of soft or highly absorptive material after the one (1) year period specified in subsection (b), or in the event that Contractor fails to tender the liquidated damages specified in subsection (c).

E. Liquid anti-stripping agent (LAS) shall be added to the asphalt binder at a rate of 0.5% by weight of asphalt binder. The LAS shall be AD-Here LOF 65-00 or equivalent, and shall be stored, measured, and blended with the asphalt binder in accordance with the anti-stripping agent manufacturer’s recommended practice. The LAS can be added at the asphalt plant or at the refinery. When added at the asphalt plant, the equipment shall indicate and record the amount of
LAS added. If added at the refinery, the shipping ticket from the refinery shall certify the type and amount of LAS added.

F. In addition to the quality requirements in Section 39-2.02, "Aggregate," of the Standard Specifications, the aggregate for all types of asphalt concrete shall achieve a minimum Durability Index of 35 for contract compliance. The aggregate shall not be treated with lime, cement or other chemical material before the Durability Index test is performed.

G. The eighth paragraph of Section 39-2.02, "Aggregate," of the Standard Specifications is amended to read: No single grading test shall represent more than one day's paving.

H. The last paragraph in Section 39-2.02, "Aggregate," of the Standard Specifications is amended to read: “The combined aggregate shall also conform to the following quality requirements when mixed with an amount of asphalt determined to give 4 percent air voids by the job mix formula in accordance with the section entitled "Job Mix Formula" of these Special Provisions.”

I. The area to which paint binder (tack coat) has been applied shall be closed to public traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of construction.

PART 3 – EXECUTION

3.01 GENERAL

A. Placement of HMA shall be in accordance with Section 39 of the Standard Specifications, the Revised Standard Specifications dated 4-16-21, and these Special Provisions.

B. A tack coat treatment shall be applied to finished surfaces of aggregate and concrete surfaces where HMA will meet and shall be applied per Section 39-2.01B(10), “Tack Coat” and 39-2.01C(3)(f) “Tack Coat” of the Standard Specifications.

C. Total HMA thickness shall be as specified on the plans.

D. Full compensation for furnishing, placing and maintaining the paint binder (tack coat) shall be considered as included in the contract price paid per ton of asphalt binder and no separate payment will be made therefore.

E. The Contractor shall have a backup paver and rollers that meet the specifications of the primary equipment, on site, in the event of breakdown of the primary equipment.

3.02 JOB MIX FORMULA

The Contractor shall submit in writing a satisfactory job mix formula for each mixture to the Engineer a minimum of five (5) working days before producing asphalt concrete. The job mix formula shall be in effect until a change is approved in writing by the Engineer.

The job mix formula shall be prepared at the Contractor’s expense by a materials testing laboratory approved by the Engineer, and shall be designed in accordance with ASTM Test Methods D1560 and D1561, Hveem Method; D2041, Rice's Method; and D1188, "Bulk Specific Gravity of Compacted Bitumen Mixtures, Using Paraffin-Coated Specimens." The asphalt content shall be
calculated on the percentage basis by weight of dry aggregate. The voids in the mineral aggregate shall be computed based upon ASTM Bulk Specific Gravities; minimum values shall be as follows:

<table>
<thead>
<tr>
<th>Size</th>
<th>Max</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2 inch</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>3/4 inch</td>
<td>12%</td>
<td></td>
</tr>
</tbody>
</table>

The job mix formula for each mixture shall establish a single percentage of aggregate passing each required sieve size. If the aggregate is separated into 2 or more sizes, the proposed gradation shall consist of gradations for individual sizes, and the proposed proportions of individual sizes, combined mathematically to indicate one proposed gradation. Such gradation shall meet the applicable grading requirements shown in Section 39-2.02A(4)(b)(ii), "Aggregate." The gradation established for the job mix formula shall produce a smooth curve within the moving average limits designated and shall not vary from the low limit on one sieve to the high limit on the adjacent sieves, or vice versa.

The job mix formula for each mixture shall be designed with sufficient samples to demonstrate the performance of the mixture having a minimum stabilimeter value of 37 at 4 percent air voids, as determined with ASTM Test Methods D2041 and D1188 or D2726.

All individual aggregate cold feed materials, prior to the addition of asphalt binder, shall have a durability of at least 35 as determined by California Test 229.

Upon prior approval of the Engineer, the Contractor may submit, in writing, a job mix formula based on data from actual plant production or recent mix designs from previous jobs using the same mixture.

Regardless of the source, the job mix formula must establish to the satisfaction of the Engineer that it conforms to all the requirements of this Section. The Engineer reserves the right to verify the job mix formula with testing personnel prior to placement of any material.

The Engineer shall specify the percentage of asphalt binder to be used in asphalt concrete and asphalt concrete base using the "Job Mix Formula" data submitted. The specified percentage of asphalt binder chosen shall provide a minimum stabilimeter value required, air voids in the lab compacted samples will be allowed to vary a maximum of one and a half percent (1.5%) below to one and a half percent (1.5%) above the air voids provided in the "Job Mix Formula" for the specified percentage of asphalt binder.

Air voids variation exceeding the above shall be cause to reject the job mix formula, unless otherwise permitted by the Engineer, the paving operation will cease until a new job mix formula is approved.

After the job mix formula is approved, a trial plant mix shall be made to verify compliance of the plant with the job mix formula requirements. Should the trial plant mix fail to conform to these requirements during the trial run or during actual production, production of asphalt concrete shall stop until such compliance is reestablished or until a new job mix formula is approved.
A new job mix formula shall be submitted for approval prior to use of the mixture when there is a change in the character or source of the materials composing the mix, when unsatisfactory results or other conditions make it necessary.

3.03 PROPORTIONING

The Contractor will be allowed to use two or more asphalt concrete plants provided the following conditions are met:

1. The Contractor shall give the Engineer one working day notice prior to using two or more plants.
2. The lab density, hereinafter specified, shall be the highest of the separate densities obtained that day for asphalt mixtures from each of the plants.
3. If asphalt concrete that does not meet these specifications cannot be identified in the field, asphalt concrete placed for that entire day will be rejected.
4. Asphalt concrete arriving on the project from separate plants shall not vary more than 10 degrees Fahrenheit in temperature.

3.04 ROADWAY

A. The 2nd, 3rd, and 4th paragraphs of Section 39-2.01C(5) of the Revised Standard Specifications shall be replaced with the following:

   Place HMA on adjacent traveled way lanes so that at the end of each work shift the distance between the ends of HMA layers on adjacent lanes is from 5 to 10 feet. Place additional HMA along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional HMA to form temporary conforms. You may place Kraft paper or another authorized bond breaker under the conform tapers to facilitate the taper removal when paving operations resume.

B. Before placing successive lifts of asphalt concrete on any other type of asphalt concrete or on an existing bituminous pavement, paint binder (tack coat) shall be applied in one application at a rate of from 0.08 to 0.10 gallon per square yard of surface covered. The exact rate of application will be determined by the Engineer.
3.04  SPREADING AND COMPACTING

The first paragraph of Section 39-2.01C(2), "Spreading and Compacting Equipment," of the Standard Specifications is amended to read:

Asphalt pavers shall be self-propelled mechanical spreading and finishing equipment provided with a screed or strike off assembly capable of distributing the material to not less than the full width of a traffic lane, or a traffic lane together with its adjoining shoulder. Screed action shall include any cutting, crowding or other practical action which is effective on the mixture without tearing, shoving or gouging, and which produces a surface texture of uniform appearance. The screed shall be adjustable to the required section and thickness. The paver shall be provided with either a full width roller or tamper or other suitable compacting devices. Pavers that leave ridges, indentations, or other marks in the surface that cannot be eliminated by rolling or prevented by adjustment in operation shall not be used.

Unless otherwise provided in the Special Provisions or directed by the Engineer, all asphalt concrete pavers shall be equipped with a mobile grade reference system capable of averaging the existing grade or pavement profile over a minimum 30 feet distance or by a non-contacting laser or sonar type ski with at least four referencing stations mounted on the paver at a minimum length of 24 feet shall be used. Equipment, which in the judgment of the Engineer, does not perform satisfactorily will be disallowed. The automatic screed controls shall be used for all paving unless otherwise directed by the Engineer.

When paving contiguously with previously placed mats, the end of the screed adjacent to the previously placed mat shall be controlled by a sensor that responds to the grade of the previously placed mat and will reproduce the grade in the new mat within a 0.01 foot tolerance. The end of the screed farthest from the previously placed mat shall be controlled in the same manner as when placing the initial mat.

Should the methods and equipment furnished by the Contractor fail to produce a layer of asphalt concrete conforming to the requirements, including straightedge tolerance, of the subsection entitled "Compacting" of this section of these Special Provisions, the paving operations shall be discontinued and the Contractor shall modify his equipment or furnish substitute equipment.

Should the automatic screed controls fail to operate properly during the day's work, the Contractor may use manual control of the spreading equipment for the remainder of that day, however, the equipment shall be corrected or replaced with alternative automatically controlled equipment conforming to the requirements in this section before starting another day's work.

Where shown on the plans and/or specified in these Special Provisions the Contractor shall provide a means to place asphalt concrete or asphalt concrete base at the required slope at the edge of the shoulder. This shall be done by some mechanical method concurrently with the placement of the shoulder. The method of placement of the sloped material shall produce a smooth, compacted texture equal to the mat produced by the machine.
Do not allow traffic on new AC pavement until its mid-depth temperature is below 160 degrees Fahrenheit.

Equipment which does not perform satisfactorily in the opinion of the Engineer shall be disallowed and removed from the site of the work.

Unless otherwise allowed or directed by the Engineer or otherwise provided in these Special Provisions, paving shall be performed in the following order:

1. Asphalt concrete base, if any, shall be placed.

2. The base course of asphalt concrete, if any, shall be placed.

3. The top layer of asphalt concrete shall be placed.

4. Where asphalt concrete base or a base course of asphalt concrete is used, all intersecting roads, driveways and ditches shall be paved before commencement of placing the top layer of asphalt concrete.

Section 39-6.03, "Compacting," of the Standard Specifications is superseded by the following:

General Requirements

After the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. Rolling shall be performed in such a manner that cracking, shoving or displacement will be avoided.

The completed surfacing shall be thoroughly compacted, smooth, and free from ruts, humps, depressions, or irregularities. Any ridges, indentations or other objectionable marks left in the surface of the asphalt concrete by blading or other equipment shall be eliminated by rolling or other means. The use of any equipment that leaves ridges, indentations, or other objectionable marks in the asphalt concrete shall be discontinued, and acceptable equipment shall be furnished by the Contractor.

When a straightedge 12 feet is laid on the finished surface and parallel with the center line, the surface shall not vary more than 0.01 foot from the lower edge of the straightedge. The transverse slope of the finished surface shall be uniform to a degree such that no depressions greater than 0.02 foot are present when tested with a straightedge 12 foot laid in a direction transverse to the center line and extending from edge to edge of a 12-foot traffic lane.

If the finished surface of the asphalt concrete does not meet the specified surface tolerances, it shall be brought within tolerance by either (1) abrasive grinding (with fog seal coat on the areas which have been ground), (2) removal and replacement, or (3) placing an overlay of asphalt concrete. The method will be selected by the Engineer. The corrective work shall be at the Contractor's expense.
If abrasive grinding is used to bring the finished surface to specified surface tolerances, additional grinding shall be performed as necessary to extend the area ground in each lateral direction so that the lateral limits of grinding are at a constant offset from, and parallel to the nearest lane line or pavement edge, and in each longitudinal direction so that the grinding begins and ends at lines normal to the pavement centerline, within any ground area. All ground areas shall be neat rectangular areas of uniform surface appearance. Abrasive grinding shall conform to the requirements in Section 42-3 of the Standard Specifications.

Compacting Courses Less Than 0.13 Foot Thick

Compacting equipment shall conform to the provisions of the subsection entitled "Compacting Equipment" of this section of these Special Provisions.

A pass shall be one movement of a roller in either direction. A coverage shall be as many passes as are necessary to cover the entire width being paved. Overlap between passes during any coverage, made to ensure compaction without displacement of material in accordance with good rolling practice, shall be considered to be part of the coverage being made and not part of a subsequent coverage. Each coverage shall be completed before subsequent coverages are started.

Rolling shall commence at the lower edge and shall progress toward the highest portion, except that if directed by the Engineer, rolling shall commence at the center and shall progress outwards.

Initial or breakdown compaction shall consist of 3 coverages of a layer of asphalt mixture and shall be performed with a 2-axle or a 3-wheel roller weighing not less than 12 tons and having rolling wheels with a diameter of 40 inches or more. Fewer coverages than specified above may be ordered by the Engineer if necessary to prevent damage to the layer being compacted.

The initial or breakdown compaction shall be followed immediately by additional rolling consisting of 3 coverages with a pneumatic tired roller. Coverages with a pneumatic-tired roller shall start when the temperature of the mixture is as high as practicable, preferably above 180 Deg F, and shall be completed while the temperature of the mixture is at or above 150 Deg F.

Each layer of asphalt concrete and asphalt concrete base shall be compacted additionally without delay by a final rolling consisting of not less than one coverage with a steel-tired roller weighing not less than 8 tons. Except as otherwise provided for low rates of production, a separate finish roller will be required.

Rolling shall be performed so that cracking, shoving or displacement will be avoided.
Provided it is demonstrated to the satisfaction of the Engineer that one roller can perform the work, the required minimum rolling equipment specified above may be reduced to one 2-axle tandem roller, weighing at least 8 tons, for each paver under any of the following conditions:

1. When asphalt concrete is placed at a rate of 50 tons, or less, per hour at any location.
2. When asphalt concrete is placed at a rate of 100 tons, or less, per hour and at the locations or under the conditions as follows:
   2.1. Placed on miscellaneous areas in accordance with the provisions in Section 39-2.01C(9), "Miscellaneous Areas and Dikes".
   2.2. When the width to be placed is less than 8 feet.
   2.3. When the total thickness to be placed is less than 0.1 foot.
3. When the total amount of asphalt concrete included in the contract is 1,000 tons, or less.

When rolling equipment is reduced as provide in this Section F(2) the rolling requirements may be reduced to a least 3 complete coverages with said tandem roller.

Alternative compacting equipment, approved by the Engineer in accordance with California Test 113, may be used for the initial or breakdown compaction if operated according to the procedures and under the conditions designated in the approval. Such allowance of alternative compacting equipment for breakdown and finish compaction does not waive the requirement for using pneumatic-tired rollers. A vibratory roller may be used as the finish roller provided that it meets the requirements for a finish roller and is operated with the vibratory unit turned off.

During rolling operations and when ordered by the Engineer, the asphalt concrete shall be cooled by applying water. No layer shall be cooled with water unless so ordered or permitted by the Engineer.

Courses 0.13 Foot Thick or more

The Contractor shall cover the loads of asphalt concrete with tarpaulins. The Tarpaulins shall completely cover the exposed asphalt concrete until the asphalt concrete has been completely transferred into the asphalt concrete paver hopper or deposited on the roadbed.

The Contractor shall use a minimum of three rollers with separate operators: two for breakdown, and one for finish work. These rollers shall conform to the requirements for breakdown rollers as specified in Section 39 of the Standard Specifications, except that vibratory rollers using vibratory mode shall be used for initial breakdown rolling. Backup rollers shall be supplied at all paving sites.
Breakdown compaction shall be completed before the temperature in the mat drops below 250 Deg F.

Asphalt concrete shall be compacted to an average density of not less than 91 percent of the average density of specimens of the asphalt concrete mixture compacted in the laboratory per Section 39-2.01A(4)(i)(ii) of the Standard Specifications.

Average in-place density will be determined by nuclear gauge in conformance with ASTM Test Method D2950. Laboratory specimens will be compacted in conformance with California Test 304.

Nuclear gauge tests for determining average in-place density shall be taken at the locations determined by the Engineer and which represent lots of 500 tons or less of mix. A minimum of five (5) randomly selected locations within the lot shall be tested.

The extent of each lot shall be determined by the Engineer. In determining the limits of each lot consideration will be given to such factors as productions rate, location (main line, shoulders, etc.), lift thickness and differences in the asphalt concrete mix.

The field density of asphalt mixtures, for the purpose of deduction, will be determined from a minimum of three drilled specimens per lot.

Standard Specifications Section 39-2.01A(4)(i)(ii) “In-Place Density, Reduced Payment Factors for Percent of Maximum Theoretical Density Table” applies.

The field density will be the average of the required drilled specimens.

The laboratory density, for the purpose of deduction, shall be the average density for all asphalt concrete samples taken for the project that represent the same grading, type and oil content as the material in question.

The amount of asphalt mixture involved will be computed from the field density and the volume of asphalt mixture. The volume of the mixture will be computed from the average thickness of the drilled specimens and the measured area of the asphalt mixture.

The limits of the asphalt mixture in question will be defined by the Engineer.

3.05 SHOULders, MEDIANS, AND OTHER ROADWAY CONNECTIONS
A. Add the following to Section 39-2.01C(7) of the Revised Standard Specifications:
   1. Pave shoulders and median borders adjacent to the lane before opening a lane to traffic.
   2. Place shoulder conform tapers concurrently with the adjacent lane's paving.
3. Place additional HMA along the pavement's edge to conform to road connections and driveways. Hand rake, if necessary, and compact the additional HMA to form a smooth conform taper.

PART 4 – MEASUREMENT AND PAYMENT

A. The contract price per tons for “Hot Mix Asphalt (Type A)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the Plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.

B. Tack Coat will be included in the cost of “Hot Mix Asphalt (Type A)” and no additional compensation will be allowed
PART 1 - GENERAL

1.01 STEEL SOLDIER PILING
Section 49-4 includes specifications for drilling holes and installing steel soldier piles in the holes. Steel soldier piles must comply with section 49-2.03.

PART 2 – MATERIALS

2.01 Concrete anchors must comply with the specifications for studs in clause 7 of AWS D1.1.

2.02 Add to section 49-3.02B(6)(c) of the Standard Specifications:
The synthetic slurry must be one of the materials shown in the following table:

<table>
<thead>
<tr>
<th>Material</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>SlurryPro CDP</td>
<td>KB INTERNATIONAL LLC</td>
</tr>
<tr>
<td></td>
<td>735 BOARD ST STE 209</td>
</tr>
<tr>
<td></td>
<td>CHATTANOOGA TN 37402</td>
</tr>
<tr>
<td></td>
<td>(423) 266-6964</td>
</tr>
<tr>
<td></td>
<td>PDS CO INC</td>
</tr>
<tr>
<td></td>
<td>105 W SHARP ST</td>
</tr>
<tr>
<td></td>
<td>EL DORADO AR 71731</td>
</tr>
<tr>
<td></td>
<td>(870) 863-5707</td>
</tr>
<tr>
<td></td>
<td>CETCO CONSTRUCTION DRILLING PRODUCTS</td>
</tr>
<tr>
<td></td>
<td>2870 FORBS AVE</td>
</tr>
<tr>
<td></td>
<td>HOFFMAN ESTATES IL 60192</td>
</tr>
<tr>
<td></td>
<td>(800) 527-9948</td>
</tr>
<tr>
<td>Terragel or Novagel Polymer</td>
<td>GEO-TECH SERVICES LLC</td>
</tr>
<tr>
<td></td>
<td>220 N. ZAPATA HWY STE 11A-449A</td>
</tr>
<tr>
<td></td>
<td>LAREDO TX 78043</td>
</tr>
<tr>
<td></td>
<td>(210) 259-6386</td>
</tr>
</tbody>
</table>

Use synthetic slurries in compliance with the manufacturer's instructions. Synthetic slurries shown in the above table may not be appropriate for a given job site.

Synthetic slurries must comply with the Department's requirements for synthetic slurries to be included in the above table. The requirements are available from the Offices of Structure Design, P.O. Box 168041, MS# 9-4/11G, Sacramento, CA 95816-8041.

SlurryPro CDP synthetic slurry must comply with the requirements shown in the following table:
# SLURRYPRO CDP

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>Mud Weight (density), API RP 13B-1, section 4</td>
<td>≤ 67.0 pcf&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>During drilling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td>≤ 64.0 pcf&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Marsh Funnel and Cup, API RP 13B-1, section 6.2</td>
<td>50–120 sec/qt</td>
</tr>
<tr>
<td>During drilling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td>≤ 70 sec/qt</td>
</tr>
<tr>
<td>pH</td>
<td>Glass electrode pH meter or pH paper</td>
<td>6.0–11.5</td>
</tr>
<tr>
<td>Sand content, percent by volume</td>
<td>Sand, API RP 13B-1, section 9</td>
<td>≤ 0.5 percent</td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>If authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf. Slurry temperature must be at least 40 degrees F when tested.
Super Mud synthetic slurry must comply with the requirements shown in the following table:

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>Mud Weight (Density), API RP 13B-1, section 4</td>
<td>≤ 64.0 pcf&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During drilling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>Marsh Funnel and Cup. API RP 13B-1, section 6.2</td>
<td>32–60 sec/qt</td>
</tr>
<tr>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During drilling</td>
<td></td>
<td>≤ 60 sec/qt</td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>Glass electrode pH meter or pH paper</td>
<td>8.0–10.0</td>
</tr>
<tr>
<td>Sand content, percent by volume</td>
<td>Sand, API RP 13B-1, section 9</td>
<td>≤ 0.5 percent</td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> If authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf.

Slurry temperature must be at least 40 degrees F when tested.
Shore Pac GCV synthetic slurry must comply with the requirements shown in the following table:

**SHORE PAC GCV**

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>Mud Weight (Density), API RP 13B-1, section 4</td>
<td>≤ 64.0 pcf&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>During drilling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td>≤ 64.0 pcf&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Marsh Funnel and Cup. API RP 13B-1, section 6.2</td>
<td>33–74 sec/qt</td>
</tr>
<tr>
<td>During drilling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td>≤ 57 sec/qt</td>
</tr>
<tr>
<td>pH</td>
<td>Glass electrode pH meter or pH paper</td>
<td>8.0–11.0</td>
</tr>
<tr>
<td>Sand content, percent by volume</td>
<td>Sand, API RP 13B-1, section 9</td>
<td>≤ 0.5 percent</td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>If authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf.

Slurry temperature must be at least 40 degrees F when tested.

Terragel or Novagel Polymer synthetic slurry must comply with the requirements shown in the following table:
TERRAGEL OR NOVAGEL POLYMER

<table>
<thead>
<tr>
<th>Property</th>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During drilling</td>
<td>Mud Weight (Density), API RP 13B-1, section 4</td>
<td>≤ 67.0 pcf&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td>≤ 64.0 pcf&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Marsh Funnel and Cup. API RP 13B-1, section 6.2</td>
<td>45–104 sec/qt</td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td>≤ 104 sec/qt</td>
</tr>
<tr>
<td>pH</td>
<td>Glass electrode pH meter or pH paper</td>
<td>6.0–11.5</td>
</tr>
<tr>
<td>Sand content, percent by volume</td>
<td>Sand, API RP 13B-1, section 9</td>
<td>≤ 0.5 percent</td>
</tr>
<tr>
<td>Before final cleaning and immediately before placing concrete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>If authorized, you may use slurry in salt water. The allowable density of slurry in salt water may be increased by 2 pcf. Slurry temperature must be at least 40 degrees F when tested.

PART 3 - EXECUTION

3.01 Drill holes for steel soldier piles into natural foundation material. Drilled holes must be accurately located, straight, and true.
Furnish and place temporary casings or tremie seals where necessary to control water or to prevent caving of the hole.
Before placing the steel soldier pile, remove loose materials existing at the bottom of the hole after drilling operations have been completed.
Do not allow surface water to enter the hole. Remove all water in the hole before placing concrete.
If temporary casings are used, they must comply with section 49-3.02C(3).

3.02 Plumb and align the pile before placing concrete backfill and lean concrete backfill. The pile must be at least 2 inches clear of the sides of the hole for the full length of the hole to be filled with concrete backfill and lean concrete backfill. Ream or enlarge holes that do not provide the clearance around steel piles.
Maintain alignment of the pile in the hole while placing backfill material.
Clean and prepare piles in anticipated heat affected areas before splicing steel piles or welding concrete anchors.
PART 4 – MEASUREMENT AND PAYMENT

A. The contract price per linear foot paid for “W14 x 90 Soldier Pile” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer.

B. The contract price per linear foot paid for “30” Drilled Hole” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer.

C. The contract price per linear foot paid for “W18x175 Steel Soldier Pile” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer.

D.
51  CONCRETE STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY OF WORK
A. This section applies to concrete used for the following applications:
   1. Structural Concrete (Grade Beam)
B. Concrete Structures shall conform to Section 51, “Concrete Structures” of the Standard Specifications and these Special Provisions.

1.02 SUBMITTALS
A. Contractor shall submit Concrete source and mix design prepared by a certified laboratory to the Engineer for review and approval.
B. Accompanying mix design, submit materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceed, specified requirements.
C. Contractor shall submit tickets for each load of concrete.

PART 2 – PRODUCTS

2.01 Materials shall conform to Section 51-1.02, “Materials” of the Standard Specifications.

PART 3 – EXECUTION

3.01 CONSTRUCTION
A. Construction shall conform to Section 51-1.03, “Construction” of the Standard Specifications.

PART 4 – MEASUREMENT AND PAYMENT

4.1 The contract price per cubic yard paid for “Structural Concrete (Pile Cap)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer.

4.2 The contract price per cubic yard paid for “Structural Concrete (Lagging)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer.
4.3 The contract price per cubic yard paid for “Concrete Class 3 (Fill drilled Solider Piles Hole)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all work associated with this item as shown on the Plans, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer.
52 REINFORCEMENTS

PART I - GENERAL

1.01 DESCRIPTION
   A. This section shall apply to all concrete reinforcement rebar and Welded Wire Fabric (WWF) shown on the plans or as specified in the Technical Specifications.
   B. Reinforcement (reinforcing bars and welded wire fabric) shall conform to Section 52, “Reinforcement” of the Standard Specifications and these Special Provisions.

1.02 SUBMITTALS
   A. Contractor shall submit reinforcement material submittal to the Engineer for review and approval.

PART 2 – PRODUCTS

2.01 DESCRIPTION
   A. Rebar shall conform to Section 52-1.02B, “Bar Reinforcement” of the Standard Specifications for deformed bars, plain bars will not be allowed.
   C. All reinforcement shall be Grade 60 unless otherwise approved by the Engineer.

PART 3 – EXECUTION

3.01 PLACEMENT, CLEANING AND BENDING
   A. Placement, cleaning and bending shall conform to Section 52-1.03, “Construction” of the Standard Specifications.

MEASUREMENT AND PAYMENT

A. The contract price per pound for “Bar Reinforcing Steel (Concrete Lagging)” shall include full compensation for furnishing all labor, reinforcement and appurtenant materials, tools, equipment and incidentals, and for doing all the work involved in execution as specified in this section and conforming to the provisions of this section and no additional compensation will be allowed.

B. The contract price per pound for “Bar Reinforcing Steel (Pile cap)” shall include full compensation for furnishing all labor, reinforcement and appurtenant materials, tools, equipment and incidentals, and for doing all the work involved in execution as specified in this section and conforming to the provisions of this section and no additional compensation will be allowed.
55 STEEL STRUCTURES

PART I - GENERAL

3.02 DESCRIPTION

A. Section 55-1 includes general specifications for furnishing and erecting structural steel or metalwork.

Structural steel (soldier pile wall) includes furnishing and erecting structural steel.

Furnish structural steel (bridge) includes fabricating and delivering structural steel to the job site ready to incorporate into the work.

Erect structural steel (bridge) includes erecting structural steel at the job site into final position in the work.

Apply Coal tar epoxy paint on surface Structural steel (soldier pile wall).

SUBMITTALS

Submit copies of mill orders when orders are placed.

Submit certified mill test reports before fabrication. Include CVN impact test results if impact testing is specified. Include grain size if fine grain steel is specified.

Except for unidentified stock material, submit certificates of compliance for materials used in the work.

Submit a calibration certificate for each bolt tension measuring device and calibrated wrench before use.

Submit reports from testing performed on fastener components and assemblies before shipment to the job site. Test reports must include the rotational capacity lot numbers and the reports listed in the "Test Reports," "Report," "Number of Tests and Retests," and "Certification and Test Report" sections of the referenced ASTM standards. For ASTM F1554 anchor bolts, include chemical composition and carbon equivalence for each heat of steel.

For HS connections, submit a record of which lots are used in each joint as an informational submittal.

MATERIALS

Materials must comply with the requirements shown in the following tables:

<table>
<thead>
<tr>
<th>Structural Steel Material</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon steel</td>
<td>ASTM A709/A709M, Grade 36 or {ASTM A36/A36M}</td>
</tr>
<tr>
<td>HS low alloy columbium vanadium steel</td>
<td>ASTM A709/A709M, Grade 50 or {ASTM A992/A992M or ASTM A572/A572M, Grade 50}</td>
</tr>
<tr>
<td>HS low alloy structural steel</td>
<td>ASTM A709/A709M, Grade 50 or Grade HPS 50W, or {ASTM A588/A588M}</td>
</tr>
</tbody>
</table>
PART 2 – PRODUCTS

4.01 DESCRIPTION
   A. Rebar shall conform to Section 52-1.02B, “Bar Reinforcement” of the Standard Specifications for deformed bars, plain bars will not be allowed.
   C. All reinforcement shall be Grade 60 unless otherwise approved by the Engineer.

PART 3 – EXECUTION

5.01 PLACEMENT, CLEANING AND BENDING
   A. Placement, cleaning, and bending shall conform to Section 52-1.03, “Construction” of the Standard Specifications.

MEASUREMENT AND PAYMENT

   A. The contract price per linear foot for Structural steel (Soldier Pile) “W18x175 Soldier Pile” shall include full compensation for furnishing all labor, reinforcement and appurtenant materials, tools, equipment, and incidentals, and for doing all the work involved in execution as specified in this section and conforming to the provisions of this section and no additional compensation will be allowed.
   B. The contract price per linear foot for Structural steel (Soldier Pile) “W14x90 Soldier Pile” shall include full compensation for furnishing all labor, reinforcement and appurtenant materials, tools, equipment, and incidentals, and for doing all the work involved in execution as specified in this section and conforming to the provisions of this section and no additional compensation will be allowed.
   C. The contract price per linear foot for “Clean and Paint Steel Soldier Piles” shall include full compensation for furnishing all labor, reinforcement and appurtenant materials, tools, equipment, and incidentals, and for doing all the work involved in execution as specified in this section and conforming to the provisions of this section and no additional compensation will be allowed.
   D.
PART 1 – GENERAL

A. Subsurface drain work shall include but not be limited to, furnishing and placement of geocomposite drains with edge drains, pervious backfill material and filter fabric as shown on the plans, and as directed by the Engineer.

B. Subsurface drain work shall conform to the provisions of Section 68, “Subsurface Drains” of the Standard Specifications and these Special Provisions.

PART 2 – MATERIALS

A. Pervious backfill material shall conform to Section 19-3.02D. Filter fabric shall be Class A and conform to Section 96, “Geosynthetics” of the Standard Specifications.

B. Geocomposite drain must comply with the specifications for Geocomposite drain.

C. 18” Edge drain must comply with the specifications for 18” edge drain.

PART 3 – EXECUTION

A. Filter fabric shall be installed in conformance with Section 19-3.03E(3)

B. Pervious backfill material shall be installed in conformance with Section 19-3.03G

PART 4 – MEASUREMENT AND PAYMENT

A. The contract price per square foot paid for “Filter Fabric” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the Plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed.
PART 1 – GENERAL

1.01 DESCRIPTION
A. This section shall apply to Midwest Guard Rail System used in the project.
B. Section 83-2.02 “Midwest Guard Rail Systems” of the Standard Specifications for Midwest Guard Rail System.
C. Refer to Section 81 “Miscellaneous Traffic Control Devices” of the Standard Specifications for Traffic Delineators.

PART 2 – SUBMITTALS

A. Submittals Midwest Guard Rail System shall be per Section 83-2.02A (3) “Submittals” of the Standard Specifications.
B. Submittals for Delineators shall be per Section 81-2.01C “Submittals” of the Caltrans Standard Specifications.
C. Submittals for Reflectors shall conform to section 83-2.02, “Midwest Guardrail System” of the Caltrans Standard Specifications.

PART 3 – MATERIALS

3.01 DESCRIPTION
A. Midwest Guard Rail System shall be with steel line post with plastic blocks in accordance with Section 83-2.02B, “Materials” of the Standard Specification and Caltrans Standard Plans A77L2, A77N3 and A77P2 Type 11D layout.
B. The SoftStop Terminal System End Treatment (Test Level 3) shall be in accordance with section 83-2.02B “Materials” of the Standard Specifications and Caltrans Standard Plans A77P2 and A77U5
C. Traffic delineators shall be spaced at 25 feet on centers and in accordance with Section 81-2.02 of the Standard Specifications and Caltrans Standard Plans A77N4

PART 4 – EXECUTION

4.01 CONSTRUCTION
A. Midwest Guard Rail System shall be in accordance with Section 83-2.02(C), “Construction” of the Standard Specification and the manufacturer’s requirements.
B. Delineators shall be in accordance with Section 81-2.03 of the Standard Specification.
C. Guardrail Terminal End Treatment
   1. Construct terminal section at locations shown in accordance with Section 83-2.02C, “Construction” of the Standard Specifications. Terminal sections consists of posts,
railing, hardware, anchorage assembly, etc. necessary to construct the type of terminal section specified.

2. Where concrete anchors are installed, construct either cast-in-place or precast units. Do not connect the guardrail to cast-in-place anchors until the concrete has cured 7 days.

D. Guardrail Post

1. When pavement is within three (3) feet of the guardrail, set posts before placing the pavement.
2. Do not shorten guardrail posts unless the cut end is set in concrete per Caltrans “Traffic Safety Systems Guidance”. Do not shorten posts in terminal sections.
3. Drive posts into pilot holes that are punched or drilled. The dimensions of the pilot hole shall not exceed the dimensions of the posts by more than 3 %". Set posts plumb, backfill and compact.
4. When longer posts are specified, do not use them in the terminal sections. Stamp the post length on the top of all wood posts. Re-stamp numbers disturbed during installation.
5. Alternate hole arrangements do not apply to posts in the anchorage assembly.

PART 5 – MEASUREMENT AND PAYMENT

A. The contract lineal foot price paid for the “MGS, Caltrans A77P2, Type 11D Layout with Reflectors” shall include, delineators, and full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefore. The length of the Midwest Guardrail System does not include the length of the Terminal System End Treatment.

B. The contract unit price paid for the “End Treatments “Soft Stop TL-3” (51’ Long)” shall include, delineators and full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefore. The length of the Terminal System is separate from the MGS length.

C. The contract unit price paid for the “End Treatments “Soft Stop TL-2” (35.25’ Long)” shall include, delineators and full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefore. The length of the Terminal System is separate from the MGS length.

D. The contract per square foot paid for the “Cable Railing” shall include, delineators and full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these
Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed therefore. The length of the Terminal System is separate from the MGS length.

E.
84 MARKINGS

PART I – GENERAL

1.01 DESCRIPTION

A. This section shall apply to all pavement markings and striping.
B. Refer to Section 84 Markings” of the Standard Specifications for all pavement markings and striping.
C. Thermoplastic Traffic Striping and Pavement Markings shall conform to the requirements of Section 84-2 Traffic Stripes and Pavement Markings” of the Standard Specifications.

1.02 SUBMITTALS

A. Submittals shall be per Section 84-2.01C “Submittals” of the Standard Specifications.

PART 2 – PRODUCTS

2.01 DESCRIPTION

A. All pavement markings and striping shall be thermoplastic and must comply with Section 84-2.02 of the Standard Specifications.

PART 3 – EXECUTION

3.01 PLACEMENT

A. Placement shall be in accordance with Section 84-2.03 of the Standard Specification.

MEASUREMENT AND PAYMENT

A. The contract price per linear foot paid for “Double Yellow 4” Thermoplastic Traffic Stripe (Detail 21)” shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for performing all the work involved as shown on the plans and as specified in these Special Provisions, the Standard Specifications, and as directed by the Engineer and no additional compensation will be allowed, therefore.
PART 1 - GENERAL

3.02 Concrete for cast-in-drilled-hole piling, and grade beams shall conform to Section 90, “Concrete” of the Standard Specifications and these Special Provisions.

PART 2 - MATERIALS

4.01 Concrete for cast-in-drilled-hole piling, and grade beams shall conform to Section 90-1, “General” of the Standard Specifications.

PART 3 - EXECUTION – NOT USED

PART 4 – MEASUREMENT AND PAYMENT - NOT USED
100 ATTACHMENT ‘A’ – SUBMITTAL LIST

THE REQUIRED SUBMITTALS FOR THE PROJECT SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, THE FOLLOWING:

1. PROJECT SCHEDULE
2. UPDATED SUBMITTAL LOG, RFI LOG, AND PROGRESS SCHEDULE
3. SCHEDULE OF VALUE FOR LUMP SUM ITEMS
4. TRAFFIC CONTROL PLAN
5. EMERGENCY CONTACT LIST
6. BEST MANAGEMENT PRACTICE PLAN
7. DEWATERING PLAN (IF REQUIRED)
8. IMPORT FILL SOURCE AND TEST RESULTS
9. CL 2 AGGREGATE BASE SOURCE AND TEST RESULTS
10. HOT MIX ASPHALT SOURCE AND MIX DESIGN
11. PCC MIX FOR PILE BACKFILL
12. PCC MIX FOR MISCELLANEOUS CONCRETE. (IF REQUIRED)
13. PCC MIX FOR CONCRETE LAGGING & PILE CAP
14. REBAR FOR PCC CONCRETE LAGGING
15. REBAR FOR PCC CIDH PILE
16. COAL TAR EPOXY PAINT
17. GUARDRAIL AND TERMINAL END TREATMENT
18. THERMOPLASTIC TRAFFIC STRIPE
19. EROSION CONTROL HYDROSEED MIX
20. OTHER EROSION CONTROL MATERIAL SUBMITTAL
21. WARRANTIES
22. RECORD DRAWINGS
December 20, 2021
File: 3125.007altr.doc

ADKO Engineering, Inc.
140 Diamond Creek Place
Roseville, California 95747

Attn: Majdi Kanaan, PE

Re: Geotechnical Investigation
   Retaining Wall to Improve Roadway Support
   Dry Creek Road MP 6.2
   Napa, California

Introduction and Project Description

This letter summarizes our Geotechnical Investigation for retaining walls and backfill that will repair the damage and restore lateral support to a portion of Dry Creek Road in the hills of western Napa County, California. The project area is located about 400 feet south of the driveway to 5334 Dry Creek Road as shown on Figure 1, Site Location Map and includes two areas of instability that are about one hundred feet apart. The purpose of our Geotechnical Investigation is to describe site conditions and provide geotechnical recommendations for the design and construction of the project.

Our scope includes exploring subsurface conditions with two auger borings, laboratory testing of select samples, evaluating field and laboratory data and preparing this letter with a summary of site conditions and geotechnical criteria for the work.

The recommended work includes constructing drilled-pier supported retaining walls that will restore lateral support the outboard edge of roadway and allow fill placement where the roadway shoulder was damaged by landsliding. Where the instability removed lateral support to near the edge of pavement and the slope is especially steep, the retaining walls will likely be up to fifteen feet high (depending on setback from edge of pavement). Relatively closely-spaced piers will transfer lateral soil loads to deeper and stronger materials. Backfilling the new wall and repaving the roadway will be required to restore the asphalt surface and pre-slide drainage patterns. A photo of the site conditions is shown on the following page:
Photo of the site conditions, the “southern” slide is in the foreground and the “northern” slide in the background. Note the very steep slope.

**Regional Geology and Seismicity**

Regional geologic maps\(^1\) indicate that the project area is underlain by Great Valley Sequence sandstone, pebble conglomerate, siltstone, and shale rocks of Early Cretaceous and Late Jurassic ages. A large area of landsliding is mapped south of the project site, on the opposite side of the steep drainage (Dry Creek) that is located just below the project site. The nearest known active fault is the West Napa Fault which is mapped approximately 3.9 kilometers east of the site. A Regional Geologic Map is presented on Figure 3.

Site Conditions

Landsliding occurred on the steeply-sloping, downhill side of the roadway in two locations that are about one hundred feet apart. The “northern” area of instability is about 60 feet long and includes a very steep slope below the roadway that extends down to Dry Creek. The “southern” area of instability is also about 60 feet long with similar steep slope down to Dry Creek. In both areas, instability has resulted in loss of lateral support to the edge of roadway, with arguably more damage at the southern location where some distress to the edge of pavement is evident and k-rails have been placed to protect the edge of roadway from vehicle loads.

The pavement surface in the southbound (downhill) travel lane exhibits varying levels of pavement distress, with some areas in relatively good condition but other areas exhibiting closely-spaced “alligator” cracking and more widely spaced “block” cracking. The northbound lane is in better condition with less cracking and distress. The slope below the roadway, where the sliding occurred, is very steep with a slope of perhaps 1:1 (horizontal:vertical) and locally steeper, and Dry Creek is located about 65 feet below the roadway surface.

Ground surfaces in the project area are vegetated with low grasses, brush and young to mature trees. “Cut” slopes on the uphill (eastern) side of the public roadway are very steep and about 0.5:1. Overhead power lines are on the “uphill” or “cut” side of the roadway, so should not be a significant factor in construction of new retaining walls.

Subsurface Exploration Conditions and Laboratory Testing

We explored subsurface conditions with two borings drilled with truck-mounted equipment on November 17, 2021 at the locations shown on Figure 2. The borings were located in the southbound/downhill travel lane as close, as our truck-mounted drill rig could be to the edge of roadway. The soils and rock encountered were logged in the field and select samples were obtained for laboratory testing. Laboratory testing is presented in Appendix A, and included determining the dry density, moisture content and unconfined compressive strength of select samples. A Soil Classification Chart is included as Figure A-1 and a Rock Classification Chart is included as Figure A-2. Our Boring Logs and results of the laboratory testing are included on Figures A-3 through A-6.

In general, the conditions encountered in our borings are consistent with the mapped geology. The borings encountered approximately 5 feet of crushed rock fill overlying Sandstone and Shale bedrock that became quite hard about six to eight feet below the rock surface. The maximum explored depth was 23 feet and both borings were terminated in hard rock due to auger and sampler “refusal” with our Mobile B24 drill rig. The existing pavement section at our borings was comprised of about 2.5 inches of asphalt concrete over a 4.0 inches of subbase.
We did not encounter groundwater in the borings which were completed in November of a relatively dry (2021) rainfall year. However, the borings were not left open for an extended period of time after drilling was completed so a stabilized depth to groundwater may not have been observed. Groundwater will fluctuate seasonally, and seepage may be near the ground surface during the winter and springtime or after periods of heavy rainfall. Groundwater levels are expected to be below 30 feet late in the summer and fall of “normal” rainfall years and with shallow/hard rock, significant sloughing or caving of piers is not expected during low water levels.

Geotechnical Evaluation and Recommendations

To restore and/or improve lateral support to the roadway and protect it against additional instability and damage, we recommend retaining walls be constructed along the pavement edge or at a suitable distance downslope to allow for sufficient roadway shoulder and guard rail installation. This structural repair should be supported on a drilled pier foundation and tiebacks could be installed to reduce pier depths into the hard rock.

Given the very steep slope below the roadway, we anticipate a maximum wall height on the order of 15 feet and the walls will likely “taper” to less height at the wall ends. The bottom of wall should be “keyed” into the slope or deep enough so that additional instability below the wall has a reduced potential for undermining the wall and subsequent loss of wall backfill about one foot into the steeply-sloping slide surface so that wall backfill does not “flow” under the wall. We judge a five-foot wide "bench" between bottom of wall and face of existing slope should be appropriate to reduce risks of wall undermining, and this “bench” should slope so water does not pond against the base of the wall. Wall lengths will on the order of 70 to 80 feet for both north and south walls seem appropriate with a “gap” of about 60 feet between the walls.

With the tall wall height and relatively narrow travel lanes, construction may be easier with a steel soldier pile and precast concrete retaining wall alternative. With this wall type, pier drilling could occur prior to excavation for the wall stem, and then that excavation could occur with a relatively steep slope for lagging placement. This construction sequence might not be “OSHA” compliant for people in the space between the wall and temporary cut slope, but if workers were only downhill of the wall during lagging placement and crushed rock backfill was placed between the wall and temporary cut slope, a northbound travel lane could be maintained during the work.

Excavation Conditions

We judge the majority of excavation/benching for the wall stem at the site can be reasonably performed with “traditional” grading equipment, such as medium-size excavators and medium to large-sized auger-type drilling equipment. Sandstone and shale rock will become hard relatively soon during pier drilling however, so “hard rock drilling” is anticipated at the site and the contractor should be prepared with core barrels or other equipment that can penetrate the rock to the design depth. Limiting pier depth by designing the wall with tiebacks could be considered, but the additional cost of tiebacks and the complexity of a waler system may be such that additional costs for hard rock drilling make more sense at the site.
The California Division of Occupational Safety and Health, better known as Cal/OSHA, has promulgated rules for excavations. Cal/OSHA dictates allowable slope configurations and minimum shoring requirements based on categorized soil types. During the dry “construction” season (i.e., June 1 to October 15) we recommend using “Type B” soils for design of temporary cut slopes. Where workers will not be endangered, steeper slopes may be possible, but the Contractor should evaluate site safety risks.

We did not encounter groundwater in our borings, but deeper excavations could encounter groundwater, especially if holes are left open for an extended period during the earlier months of the year. The rate of groundwater infiltration into deeper excavations will depend on the groundwater level and permeability of the adjacent soils and rock. Because the drilled excavations will be in rock at depths below about 10 to 13 feet, sloughing should not be a significant hazard for the short duration that holes are typically open prior to steel and concrete placement. Pumps could be used to dewater drilled excavations, or concrete could be carefully tremmied to displace the water.

Retaining Wall Design

As noted above, we recommend constructing a drilled-pier supported, concrete-lagging retaining wall along the downslope shoulder of the roadway to rebuild the slope and/or restore lateral support as previously noted. The retaining structure should be supported on a drilled pier foundation with tiebacks included in the project (if needed) to improve efficiency and reduce pier excavation depth. Conceptual cross sections of this wall are presented on Figures 4 and 5 along with lateral pressures. Depending on the final alignment of the wall, retained height will likely be up to fifteen feet as previously described. Design criteria is also presented in Tables A:
TABLE A
RETAINING WALL DESIGN CRITERIA
Dry Creek Road MPM 6.2
Napa, California

Lateral Active Earth Pressure:
- Retaining Wall with Level Backfill\(^1\): 50 pcf
- Vehicle Surcharge\(^2\): 200 psf
- Seismic Surcharge\(^3\): 100 psf

Drilled Pier Foundations:
- Minimum diameter: 24 inches
- Minimum pier spacing: 3 Pier Diameters
- Skin Friction (dead plus live loads): 600 psf
- Lateral passive resistance\(^4,5\):
  - Sandstone and Shale (> 12 feet below road): 450 pcf

Notes:
1. Equivalent Fluid Pressure. Apply this pressure to the entire wall stem height. Active pressures could be reduced to 25 pcf if lava rock backfill is used.
2. Vehicle surcharge applied only to upper 4-feet of retaining wall/grade beam (to be verified based on final wall location and proximity to travel lanes).
3. Seismic Surcharge applied as a uniform pressure over the entire retaining wall stem. Factors of safety for design may be reduced to 1.1. Simultaneous use of the vehicle and seismic surcharge probably not required.
4. Equivalent fluid pressure, apply values over effective width of two pier diameters.
5. Apply passive resistance at elevations shown on Figures 4 and 5.

Retaining Wall Backfill

A perforated pipe subdrain could be installed at the base of the wall but if precast concrete lagging is placed with small gaps between the lagging boards, drainage could also be accommodated directly thru the wall stem. Where perforated pipes are placed, they should be at the bottom of a gravel “chimney” that extends to within about a foot of the top of wall backfill. If ¾-inch crushed rock is used, it should be wrapped in Mirafi 140N filter fabric or Caltrans Class 2 Permeable Rock may be used without fabric. The gravel chimney should be at least 12 inches wide as shown on Figure 6.

Wall backfill, if very steep slopes are selected to minimize the horizontal limits of the work and reduce impacts on the northbound travel lane, should consist of ¾-inch crushed rock that is wrapped in filter fabric. If a wider excavation is planned, on-site soils and rock pieces could be used to backfill the walls provided they are well-graded (i.e., free of voids when compacted), free of organics, and have a maximum particle size of four inches. Crushed rock backfill should be
vibrated every two vertical feet with a small “plate” type compaction. Soil backfill should be compacted at near optimum moisture content in thin lifts to at least 92% relative compaction to reduce risks of settlement of wall backfill. Surface drainage at the top of wall backfill should also be collected and discharged at an appropriate location.

Roadway Restoration

Where the roadway section is to be reconstructed, we recommend a minimum pavement section of three inches of asphalt concrete over eight inches of Class 2 Aggregate Baserock which should be better than the adjacent roadway structural section which consisted of 2.5 inches of asphalt over four to five inches of baserock in our borings. While the northbound lane could also be “reconstructed”, it could also be rehabilitated with a simple three inch thick “mill and fill” of asphalt.

Asphalt and baserock should conform to the requirements in Caltrans’ Standard Specifications (latest edition) and baserock should be compacted to at least 95% (ASTM D1557). The upper 12 inches of subgrade surface below the new baserock should also be compacted to at least 95% and a firm and unyielding surface.

Plan Review and Construction Observation

We should review the design plans as they are nearing completion to confirm that the intent of our geotechnical recommendations has been incorporated. During construction, we should also observe and test the pier drilling, fill placement, drainage and other geotechnically related work items to verify that our recommendations are suitable for the observed conditions and that the work is performed in accordance with our recommendations.

If there are any questions or if we can be of further assistance, please call.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP

Michael P. Morisoli
Geotechnical Engineer No. 2541
(Expires 12/31/22)

Attachments: Figures 1 through 6
SITE LOCATION

SITE COORDINATES
LAT. 38.3829°
LON. -122.4012°

REFERENCE: Google Earth, 2021
Approximate boring location completed by MPEG, 2021

REFERENCE:
LEGEND

Qls  Debris Flow Landslides: Deposits of unconsolidated and unsorted soil and rock debris that have moved down slope en masse or in increments by flow or creep processes.

Qht  Steam Terrace Deposits: Stream terraces deposited as point-bar and overbank deposits; composed of moderately to well sorted and bedded gravel, sand, silt and minor clay.

KJgv  Great Valley Sequence: Sandstone, pebble conglomerate, siltstone, and shale.

KJfm  Franciscan Complex Melange: Tectonic mixture of masses of resistant rock types including sandstone, altered mafic volcanic rocks (greenstone), chert, gabbro, and exotic metamorphic rocks embedded in a matrix of pervasively sheared shale.

---  Fault: Solid where accurately located, dashed where approximate.

▲  Thrust Fault: Barbs on upper plate, dashed where approximately located.
NOTES

\( P_A = \) 50 PCF FOR SOIL BACKFILL
25 PCF FOR LAVA ROCK BACKFILL

\( P_T = \) 200 PSF TRAFFIC SURCHARGE (UPPER 4' OF WALL ONLY)

\( P_{AE} = 100 \) PSF APPLIED TO WALL HEIGHT, DO NOT APPLY CONCURRENTLY WITH TRAFFIC SURCHARGE. FACTOR OF SAFETY CAN BE REDUCED TO >1.1

PASSIVE = 450 PCF, START AT BOTTOM OF WALL AS SHOWN ON CROSS SECTIONS
NOTES

\( P_A = 50 \text{ PCF FOR SOIL BACKFILL} \)
\( 25 \text{ PCF FOR LAVA ROCK BACKFILL} \)

\( P_T = 200 \text{ PSF TRAFFIC SURCHARGE (UPPER 4' OF WALL ONLY)} \)

\( P_{AE} = 100 \text{ PSF APPLIED TO WALL HEIGHT, DO NOT APPLY CONCURRENT WITH TRAFFIC SURCHARGE, FACTOR OF SAFETY CAN BE REDUCED TO >1.1} \)

\( \text{PASSIVE} = 450 \text{ PCF, OK TO START AT BOTTOM OF WALL AS SHOWN ON CROSS SECTIONS} \)
NOTES:

1. Wall drainage should consist of clean, free draining 3/4 inch crushed rock (Class 1B Permeable Material) wrapped in filter fabric (Mirafi 140N or equivalent) or Class 2 Permeable Material. Alternatively, pre-fabricated drainage panels (Miradrain G100N or equivalent), installed per the manufacturers recommendations, may be used in lieu of drain rock and fabric.

2. All retaining walls adjacent to interior living spaces shall be water/vapor proofed as specified by the project architect or structural engineer.

3. Perforated pipe shall be SCH 40 or SDR 35 for depths less than 20 feet. Use SCH 80 or SDR 23.5 perforated pipe for depths greater than 20 feet. Place pipe perforations down and slope at 1% to a gravity outlet. Alternatively, drainage can be outlet through 3" diameter weep holes spaced approximately 20' apart or the gaps between the precast concrete lagging.

4. Clean outs should be installed at the upslope end and at significant direction changes of the perforated pipe. Additionally, all angled connectors shall be long bend sweep connections.

5. During compaction, the contractor should use appropriate methods (such as temporary bracing and/or light compaction equipment) to avoid over-stressing the walls. Walls shall be completely backfilled prior to construction in front of or above the retaining wall.

6. Refer to the geotechnical report for lateral soil pressures.

7. All work and materials shall conform with Section 68, of the latest edition of the Caltrans Standard Specifications.
<table>
<thead>
<tr>
<th>MAJOR DIVISIONS</th>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COARSE GRAINED SOILS over 50% sand and gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLEAN GRAVEL</td>
<td>GW</td>
<td>Well-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td></td>
<td>GP</td>
<td>Poorly-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td>GRAVEL with fines</td>
<td>GM</td>
<td>Silty gravels, gravel-sand-silt mixtures</td>
</tr>
<tr>
<td></td>
<td>GC</td>
<td>Clayey gravels, gravel-sand-clay mixtures</td>
</tr>
<tr>
<td>CLEAN SAND</td>
<td>SW</td>
<td>Well-graded sands or gravelly sands, little or no fines</td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>Poorly-graded sands or gravelly sands, little or no fines</td>
</tr>
<tr>
<td>SAND with fines</td>
<td>SM</td>
<td>Silty sands, sand-silt mixtures</td>
</tr>
<tr>
<td></td>
<td>SC</td>
<td>Clayey sands, sand-clay mixtures</td>
</tr>
<tr>
<td>SILT AND CLAY liquid limit &lt;50%</td>
<td>ML</td>
<td>Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity</td>
</tr>
<tr>
<td></td>
<td>CL</td>
<td>Inorganic clays of low to medium plasticity, gravely clays, sandy clays, silty clays, lean clays</td>
</tr>
<tr>
<td></td>
<td>OL</td>
<td>Organic silts and organic silt-clays of low plasticity</td>
</tr>
<tr>
<td>SILT AND CLAY liquid limit &gt;50%</td>
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<td>Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts</td>
</tr>
<tr>
<td></td>
<td>CH</td>
<td>Inorganic clays of high plasticity, fat clays</td>
</tr>
<tr>
<td></td>
<td>OH</td>
<td>Organic clays of medium to high plasticity</td>
</tr>
<tr>
<td>HIGHLY ORGANIC SOILS</td>
<td>PT</td>
<td>Peat, muck, and other highly organic soils</td>
</tr>
<tr>
<td>ROCK</td>
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</tr>
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</table>

**KEY TO BORING AND TEST PIT SYMBOLS**

**CLASSIFICATION TESTS**
- PI: PLASTICITY INDEX
- LL: LIQUID LIMIT
- SA: SIEVE ANALYSIS
- HYD: HYDROMETER ANALYSIS
- P200: PERCENT PASSING NO. 200 SIEVE
- P4: PERCENT PASSING NO. 4 SIEVE

**STRENGTH TESTS**
- UC: LABORATORY UNCONFINED COMPRESSION
- TXCU: CONSOLIDATED UNDRained TRIAXIAL
- TXUU: UNCONSOLIDATED UNDRained TRIAXIAL
- DS: DRAINED DIRECT SHEAR (NORMAL PRESSURE, ksf)

**SAMPLER TYPE**
- MODIFIED CALIFORNIA
- STANDARD PENETRATION TEST
- THIN-WALLED / FIXED PISTON
- HAND SAMPLER
- ROCK CORE
- DISTURBED OR BULK SAMPLE

**NOTE:** Test boring and test pit logs are an interpretation of conditions encountered at the excavation location during the time of exploration. Subsurface rock, soil or water conditions may vary in different locations within the project site and with the passage of time. Boundaries between differing soil or rock descriptions are approximate and may indicate a gradual transition.

**SOIL CLASSIFICATION CHART**

ADKO - Dry Creek Road MP 6.2
Napa, California

**Project No. 3125.007**  **Date: 12/10/2021**

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FILENAME: 3125.007 BL.dwg
# FRACTURING AND BEDDING

<table>
<thead>
<tr>
<th>Fracture Classification</th>
<th>Spacing</th>
<th>Bedding Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushed</td>
<td>less than 3/4 inch</td>
<td>Laminated</td>
</tr>
<tr>
<td>Intensely fractured</td>
<td>3/4 to 2-1/2 inches</td>
<td>Very thinly bedded</td>
</tr>
<tr>
<td>Closely fractured</td>
<td>2-1/2 to 8 inches</td>
<td>Thinly bedded</td>
</tr>
<tr>
<td>Moderately fractured</td>
<td>8 to 24 inches</td>
<td>Medium bedded</td>
</tr>
<tr>
<td>Widely fractured</td>
<td>2 to 6 feet</td>
<td>Thickly bedded</td>
</tr>
<tr>
<td>Very widely fractured</td>
<td>greater than 6 feet</td>
<td>Very thickly bedded</td>
</tr>
</tbody>
</table>

# HARDNESS

<table>
<thead>
<tr>
<th>Hardness</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Carved or gouged with a knife</td>
</tr>
<tr>
<td>Moderate</td>
<td>Easily scratched with a knife, friable</td>
</tr>
<tr>
<td>Hard</td>
<td>Difficult to scratch, knife scratch leaves dust trace</td>
</tr>
<tr>
<td>Very hard</td>
<td>Rock scratches metal</td>
</tr>
</tbody>
</table>

# STRENGTH

<table>
<thead>
<tr>
<th>Strength</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friable</td>
<td>Crumbles by rubbing with fingers</td>
</tr>
<tr>
<td>Weak</td>
<td>Crumbles under light hammer blows</td>
</tr>
<tr>
<td>Moderate</td>
<td>Indentations &lt;1/8 inch with moderate blow with pick end of rock hammer</td>
</tr>
<tr>
<td>Strong</td>
<td>Withstands few heavy hammer blows, yields large fragments</td>
</tr>
<tr>
<td>Very strong</td>
<td>Withstands many heavy hammer blows, yields dust, small fragments</td>
</tr>
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</table>

# WEATHERING

<table>
<thead>
<tr>
<th>Weathering</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>Minerals decomposed to soil, but fabric and structure preserved</td>
</tr>
<tr>
<td>High</td>
<td>Rock decomposition, thorough discoloration, all fractures are extensively</td>
</tr>
<tr>
<td></td>
<td>coated with clay, oxides or carbonates</td>
</tr>
<tr>
<td>Moderate</td>
<td>Fracture surfaces coated with weathering minerals, moderate or localized</td>
</tr>
<tr>
<td>Slight</td>
<td>discoloration, no mineral decomposition, no affect on cementation</td>
</tr>
<tr>
<td>Fresh</td>
<td>Rock unaffected by weathering, no change with depth, rings under hammer</td>
</tr>
<tr>
<td></td>
<td>impact</td>
</tr>
</tbody>
</table>

**NOTE:** Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in other locations and with the passage of time.
**BORING 1**

**EQUIPMENT:** Mobile B-53 Drill Rig with 6.0-inch Hollow Flight Auger

**DATE:** 11/1/2021

**ELEVATION:** 418 - feet

*REFERENCE: Google Earth, 2021*

---

**DEPTH**

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</tr>
<tr>
<td>5</td>
<td>16.4</td>
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<tr>
<td>6</td>
<td>19.7</td>
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**SAMPLE SYMBOL**

(4)

---

**BLOW COUNT** (1)

13

**DRY UNIT WEIGHT** pcf (2)

6.8

**MOISTURE CONTENT (%)**

- 3 min

**SHEAR STRENGTH** psf (3)

3.7

**WEIGHT**

- 3 min

**SHEAR**

- 3 min

**OTHER Test DATA**

- 3 min

---

**2" Asphalt Concrete over 4" Subbase**

---

**GRAVEL (GW)**

Size varied, predominantly derived of yellow brown to dark gray, low hardness, low strength, sandstone and dark gray, low hardness, low strength shale [Fill]

---

Harder drilling at 7.5'

---

**Interbedded SANDSTONE and SHALE**

Shale is dark gray, low hardness, thinly bedded, weak. Sandstone is yellow brown, fine grained, low to moderate hardness, less prevalent. [Bedrock]

---

Grades predominantly shale, moderately to pervasively sheared, weathered locally completely to clay

---

**NOTES:**

1. UNCORRECTED FIELD BLOW COUNTS
2. METRIC EQUIVALENT DRY UNIT WEIGHT kN/m³ = 0.1571 x DRY UNIT WEIGHT (pcf)
3. METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
4. GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

---

**OTHER TEST DATA**

- Water level encountered during drilling
- Water level measured after drilling

---

**BORING LOG**

ADKO - Dry Creek Road MP 6.2
Napa, California

Project No. 3125.007
Date: 12/10/2021

---

**FILENAME:** 3125.007 BL.dwg

---

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---

**504 Redwood Blvd.**
**Suite 220**
**Novato, CA 94947**
**T 415 / 382-3444**
**F 415 / 382-3450**
**www.millerpac.com**
<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>SYMBOL (4)</th>
<th>Depth (feet)</th>
<th>Depth (meters)</th>
<th>Blows / Foot</th>
<th>Dry Unit Weight (pcf)</th>
<th>Moisture Content (%)</th>
<th>Shear Strength (psf)</th>
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Shale with minor interbedded Sandstone
Shale is dark gray, low hardness, thinly bedded, weak. Sandstone is yellow brown, fine grained, low to moderate hardness, less prevalent. [Bedrock]

End of boring at 22-feet 7-inches due to auger refusal
No groundwater encountered

NOTES:
(1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m³ = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY
**BORING 2**

**EQUIPMENT:** Mobile B-53 Drill Rig with 6.0-inch Hollow Flight Auger

**DATE:** 2/25/2020

**ELEVATION:** 418 - feet*

*REFERENCE: Google Earth, 2021

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<th>MOISTURE CONTENT (%)</th>
<th>SHEAR STRENGTH psf (3)</th>
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<table>
<thead>
<tr>
<th>DEPTH</th>
<th>BLOWS / FOOT (1)</th>
<th>DRY UNIT WEIGHT kN/m (2)</th>
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</thead>
<tbody>
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<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

1. UNCORRECTED FIELD BLOW COUNTS
2. METRIC EQUIVALENT DRY UNIT WEIGHT kN/m$^3$ = 0.1571 x DRY UNIT WEIGHT (pcf)
3. METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
4. GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

---

**2.5" Asphalt Concrete over 5" Subbase**

**GRAVEL (GW)**
Size varied, predominantly derived of yellow brown to dark gray, low hardness, low strength, sandstone and dark gray, low hardness, low strength shale [Fill]

**SHALE**
Dark gray, moderately hard, moderately strong, highly weathered, locally crushed, possible fill from upslope side [Fill/Bedrock]

**SHALE**
Grades strong, in situ, thinly bedded to locally pervasively sheared [Bedrock]

---

End of boring at 16-feet 4-inches due to auger refusal
No groundwater encountered

---

Water level encountered during drilling
Water level measured after drilling

---

**ADKO - Dry Creek Road MP 6.2**
Napa, California

Project No. 3125.007 Date: 12/10/2021

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FILENAMES: 3125.007 BL_dwg
January 28, 2022
File: 3125.008ltr.doc

ADKO Engineering, Inc.
140 Diamond Creek Place
Roseville, California 95747

Attn: Majdi Kanaan, PE

Re: Geotechnical Investigation
Retaining Wall to Improve Roadway Support
Dry Creek Road MP 9.48
Napa, California

Introduction and Project Description

This letter summarizes our Geotechnical Investigation for a retaining wall and backfill that will repair the damage and restore lateral support to a portion of Dry Creek Road in the hills of western Napa County, California. The project area is located at Mile Post 9.48 and about 200 feet east of the driveway to 6061 Dry Creek Road as shown on Figure 1, Site Location Map. The purpose of our Geotechnical Investigation is to describe site conditions and provide geotechnical recommendations for the design and construction of the project.

Our scope includes exploring subsurface conditions with one auger boring, laboratory testing of select samples, evaluating field and laboratory data and preparing this letter with a summary of site conditions and geotechnical criteria for the work.

The recommended work includes constructing drilled-pier supported retaining walls that will restore lateral support the outboard edge of roadway and allow fill placement where the roadway shoulder was damaged by landsliding. Where the instability removed lateral support to near the edge of pavement and the slope is especially steep, the retaining wall will likely be eight to ten feet high (depending on setback from edge of pavement). Relatively closely-spaced piers will transfer lateral soil loads to deeper and stronger materials. Backfilling the new wall and repaving the roadway will be required to restore the asphalt surface and pre-slide drainage patterns. A photo of the site conditions is shown on the following page:
Photo of the site conditions, note the small landslide/slope failure and alligatored and rutted pavements.

**Regional Geology and Seismicity**

Regional geologic maps¹ indicate that the project area is mapped on a contact between stream channel deposits (downslope) and Great Valley Sequence (upslope) sandstone, pebble conglomerate, siltstone, and shale rocks of Early Cretaceous and Late Jurassic ages. A large area of landsliding is mapped south of the project site, on the opposite side of the steep drainage (Dry Creek) that is located just below the project site. The nearest known active fault is the West Napa Fault which is mapped approximately 6.8 kilometers east of the site. A Regional Geologic Map is presented on Figure 3.

**Site Conditions**

A small landslide/"popout" occurred on the steeply-sloping, downhill side of the roadway creating an area of instability is about 15 feet long and includes a very steep slope below the roadway that extends down to Dry Creek. Instability has resulted in loss of lateral support to the edge of roadway, where some distress to the edge of pavement is evident. The pavement surface in the eastbound (downhill) travel lane exhibits varying levels of

---

¹ Clahan, Kevin B., Wagner, David L. & others, "Geologic Map of the Rutherford 7.5' Quadrangle, Sonoma and Napa Counties, California, Version 1, 2005."
pavement distress, with some areas in relatively good condition but other areas exhibiting closely-spaced “alligator” cracking and some rutting along with more widely spaced “block” cracking. The northbound lane is in better condition with less cracking and distress. The slope below the roadway, where the sliding occurred, is very steep with a slope of perhaps 1:1 (horizontal:vertical) and locally steeper, and Dry Creek is located about 20 feet below the roadway surface.

Ground surfaces in the project area are vegetated with low grasses, brush and young to mature trees. “Cut” slopes on the uphill (eastern) side of the public roadway are very steep and about 0.5:1. Overhead power lines are located on the downslope side of the roadway and over the creek, so should not be a significant factor in construction of the new retaining wall.

Subsurface Exploration Conditions and Laboratory Testing

We explored subsurface conditions with one boring drilled with truck-mounted equipment on January 18, 2022 at the location shown on Figure 2. The boring was located in the eastbound/downhill travel lane as close as our truck-mounted drill rig could be to the edge of roadway. The soils and rock encountered were logged in the field and select samples were obtained for laboratory testing. Laboratory testing is presented in Appendix A, and included determining the dry density, moisture content and unconfined compressive strength of select samples. A Soil Classification Chart is included as Figure A-1 and a Rock Classification Chart is included as Figure A-2. Our Boring Log and results of the laboratory testing are included on Figures A-3 through A-4.

In general, the conditions encountered in our borings are consistent with the mapped geology. The borings encountered approximately 6 feet of crushed rock fill overlying Shale bedrock that became harder and more competent with depth. The maximum explored depth was 27.5 feet and the existing pavement section at our boring location was comprised of about 2.0 inches of asphalt concrete over a 6.0 inches of baserock.

We encountered groundwater at 15.5-feet in the boring which was completed in January during a dry period with the most recent significant rains occurring two to three weeks prior. However, the boring was not left open for an extended period of time after drilling was completed so a stabilized depth to groundwater may not have been observed. Groundwater will fluctuate seasonally, and seepage may be near the ground surface during the winter and springtime or after periods of heavy rainfall. Groundwater levels are expected to coincide with the creek level and with shallow/hard rock, significant sloughing or caving of piers is not expected during low water levels.

Geotechnical Evaluation and Recommendations

To restore and/or improve lateral support to the roadway and protect it against additional instability and damage, we recommend a retaining wall be constructed along the pavement edge or at a suitable distance downslope to allow for sufficient roadway shoulder and guard rail installation. This structural repair should be supported on a drilled pier foundation.

Given the steep slope below the roadway, we anticipate a maximum wall height on the order of eight to ten feet. The bottom of wall should be “keyed” into the slope or deep enough so that
additional instability below the wall has a reduced potential for undermining the wall. We judge a five-foot wide “bench” between bottom of wall and face of existing slope should be appropriate to reduce risks of wall undermining, and this “bench” should slope so water does not pond against the base of the wall. The wall length will on the order of about 32-feet.

With the relatively tall wall height and relatively narrow travel lanes, construction may be easier with a steel soldier pile and precast concrete retaining wall alternative. With this wall type, pier drilling could occur prior to excavation for the wall stem, and then that excavation could occur with a relatively steep slope for lagging placement. This construction sequence might not be “OSHA” compliant for people in the space between the wall and temporary cut slope, but if workers were only downhill of the wall during lagging placement and crushed rock backfill was placed between the wall and temporary cut slope, a westbound travel lane could be maintained during the work.

**Excavation Conditions**

We judge the majority of excavation/benching for the wall stem at the site can be reasonably performed with “traditional” grading equipment, such as medium-size excavators and medium to large-sized auger-type drilling equipment. Sandstone and shale rock will become relatively hard in the drilled pier excavations, so “hard rock drilling” is anticipated at the site and the contractor should be prepared with core barrels or other equipment that can penetrate the rock to the design depth.

The California Division of Occupational Safety and Health, better known as Cal/OSHA, has promulgated rules for excavations. Cal/OSHA dictates allowable slope configurations and minimum shoring requirements based on categorized soil types. During the dry “construction” season (i.e., June 1 to October 15) we recommend using “Type B” soils for design of temporary cut slopes. Where workers will not be endangered, steeper slopes may be possible, but the Contractor should evaluate site safety risks.

We encountered groundwater at a depth of about 15 feet in our boring which is a few feet higher than the channel invert which included flowing water in mid-January. Groundwater will likely be lower during the summer and fall months, but will likely be encountered at some depth during pier drilling. The rate of groundwater infiltration into deeper excavations will depend on the groundwater level and permeability of the adjacent soils and rock. Because the drilled excavations will be in rock at depths below about 10 feet below the paved roadway surface, sloughing should not be a significant hazard for the short duration that holes are typically open prior to steel and concrete placement. Pumps could be used to dewater drilled excavations, or concrete could be carefully tremmied to displace the water.

**Retaining Wall Design**

As noted above, we recommend constructing a drilled-pier supported, concrete-lagging retaining wall along the downslope shoulder of the roadway to rebuild the slope and/or restore lateral support as previously noted. The retaining structure should be supported on a drilled pier foundation. A conceptual cross section of the wall is presented on Figure 4 along with lateral pressures. Depending on the final alignment of the wall, retained height will likely be up to ten feet, as previously described. Design criteria is also presented in Tables A:
TABLE A
RETAINING WALL DESIGN CRITERIA
Dry Creek Road MPM 9.48
Napa, California

<table>
<thead>
<tr>
<th>Lateral Active Earth Pressure:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Retaining Wall with Level Backfill¹:</td>
<td>50 pcf</td>
</tr>
<tr>
<td>Vehicle Surcharge²:</td>
<td>200 psf</td>
</tr>
<tr>
<td>Seismic Surcharge³:</td>
<td>100 psf</td>
</tr>
</tbody>
</table>

Drilled Pier Foundations:

| Minimum diameter:                                   | 24 inches |
| Minimum pier spacing:                              | 3 Pier Diameters |
| Skin Friction (dead plus live loads)               | 600 psf    |
| Lateral passive resistance ⁴,⁵                      |           |
| Very Stiff Soil and Shale Rock                     | 450 pcf    |

Notes:
(1) Equivalent Fluid Pressure. Apply this pressure to the entire wall stem height. Active pressures could be reduced to 25 pcf if lava rock backfill is used.
(2) Vehicle surcharge applied only to upper 4-feet of retaining wall/grade beam (to be verified based on final wall location and proximity to travel lanes).
(3) Seismic Surcharge applied as a uniform pressure over the entire retaining wall stem. Factors of safety for design may be reduced to 1.1. Simultaneous use of the vehicle and seismic surcharge probably not required.
(4) Equivalent fluid pressure, apply values over effective width of two pier diameters.
(5) Apply passive resistance beginning at bottom of wall stem. Recommended passive resistance suitable for very stiff soils and rock expected in the drilled piers.

Retaining Wall Backfill

A perforated pipe subdrain could be installed at the base of the wall but if precast concrete lagging is placed with small gaps between the lagging boards, drainage could also pass directly thru the wall stem. Where perforated pipes are placed, they should be at the bottom of a gravel “chimney” that extends to within about a foot of the top of wall backfill. If ¾-inch crushed rock is used, it should be wrapped in Mirafi 140N filter fabric or Caltrans Class 2 Permeable Rock may be used without fabric. The gravel chimney should be at least 12 inches wide as shown on Figure 5.

Wall backfill, if very steep slopes are selected to minimize the horizontal limits of the work and reduce impacts on the northbound travel lane, should consist of ¾-inch crushed rock that is wrapped in filter fabric. If a wider excavation is planned, on-site soils and rock pieces could be used to backfill the walls provided they are well-graded (i.e., free of voids when compacted), free of organics, and have a maximum particle size of four inches. Crushed rock backfill should be
vibrated every two vertical feet with a small “plate” type compaction. Soil backfill should be compacted at near optimum moisture content in thin lifts to at least 92% relative compaction to reduce risks of settlement of wall backfill. Surface drainage at the top of wall backfill should also be collected and discharged at an appropriate location.

Roadway Restoration

The existing roadway at our boring was relatively thin at two inches of asphalt concrete over six inches of aggregate baserock. This section seems to be thin for the traffic loads we would anticipate and is also not performing well as shown in the photo above. We therefore recommend that where the roadway section is to be reconstructed, a minimum pavement section of four inches of asphalt concrete over eight inches of Class 2 Aggregate Baserock be placed. While the northbound lane could also be “reconstructed”, it could also be rehabilitated with a simple three inch thick “mill and fill” of asphalt.

Asphalt and baserock should conform to the requirements in Caltrans’ Standard Specifications (latest edition) and baserock should be compacted to at least 95% (ASTM D1557). The upper 12 inches of subgrade surface below the new baserock should also be compacted to at least 95% and a firm and unyielding surface.

Plan Review and Construction Observation

We should review the design plans as they are nearing completion to confirm that the intent of our geotechnical recommendations has been incorporated. During construction, we should also observe and test the pier drilling, fill placement, drainage and other geotechnically related work items to verify that our recommendations are suitable for the observed conditions and that the work is performed in accordance with our recommendations.

If there are any questions or if we can be of further assistance, please call.

Yours very truly,

MILLER PACIFIC ENGINEERING GROUP

Attachments: Figures 1 through 5; Appendix A – Boring Log
REFERENCE: Google Earth, 2022

SITE LOCATION MAP
ADKO - Dry Creek Road MP 9.48
Napa, California

SITE COORDINATES
LAT. 38.3829°
LON. -122.4012°

SITE LOCATION
N.T.S.
Approximate boring location completed by MPEG, 2022

REFERENCE: Plan provided by ADKO
LEGEND

Qhc  Modern Stream Channel Deposits: Deposits in active, natural stream channels consisting of loose alluvial sand, gravel, and silt.

Qha  Alluvium, undivided: Alluvium deposited on fans, terraces, or in basins consisting of sand, gravel, silt and clay that are poorly sorted.

Qls  Debris Flow Landslides: Deposits of unconsolidated and unsorted soil and rock debris that have moved down slope en masse or in increments by flow or creep processes.

Qht  Steam Terrace Deposits: Stream terraces deposited as point-bar and overbank deposits; composed of moderately to well sorted and bedded gravel, sand, silt and minor clay.

KJgv  Great Valley Sequence: Sandstone, pebble conglomerate, siltstone, and shale.

Fault: Solid where accurately located, dashed where approximate.
NOTES

$P_a = 50 \text{pcf for soil backfill}$

$P_a = 25 \text{pcf for lava rock backfill}$

$P_t = 200 \text{psf traffic surcharge (upper 4' of wall only)}$

$P_{ae} = 100 \text{psf applied to wall height. Do not apply concurrent with traffic surcharge, factor of safety can be reduced to }>1.1$

PASSIVE = 450 pcf. Start at bottom of wall as shown on cross sections.
NOTES:

1. Wall drainage should consist of clean, free draining 3/4 inch crushed rock (Class 1B Permeable Material) wrapped in filter fabric (Mirafi 140N or equivalent) or Class 2 Permeable Material. Alternatively, pre-fabricated drainage panels (Miradrain G100N or equivalent), installed per the manufacturers recommendations, may be used in lieu of drain rock and fabric.

2. All retaining walls adjacent to interior living spaces shall be water/vapor proofed as specified by the project architect or structural engineer.

3. Perforated pipe shall be SCH 40 or SDR 35 for depths less than 20 feet. Use SCH 80 or SDR 23.5 perforated pipe for depths greater than 20 feet. Place pipe perforations down and slope at 1% to a gravity outlet. Alternatively, drainage can be outlet through 3" diameter weep holes spaced approximately 20' apart or the gaps between the precast concrete lagging.

4. Clean outs should be installed at the upslope end and at significant direction changes of the perforated pipe. Additionally, all angled connectors shall be long bend sweep connections.

5. During compaction, the contractor should use appropriate methods (such as temporary bracing and/or light compaction equipment) to avoid over-stressing the walls. Walls shall be completely backfilled prior to construction in front of or above the retaining wall.

6. Refer to the geotechnical report for lateral soil pressures.

7. All work and materials shall conform with Section 68, of the latest edition of the Caltrans Standard Specifications.
DATA SOURCE:
SITE COORDINATES
LAT. 38.3829°
LON. -122.4012°

LEGEND & DATA SOURCE:
<table>
<thead>
<tr>
<th>MAJOR DIVISIONS</th>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COARSE GRAINED SOILS over 50% sand and gravel</td>
<td>GW</td>
<td>Well-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td></td>
<td>GP</td>
<td>Poorly-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td></td>
<td>GM</td>
<td>Silty gravels, gravel-sand-silt mixtures</td>
</tr>
<tr>
<td></td>
<td>GC</td>
<td>Clayey gravels, gravel-sand-clay mixtures</td>
</tr>
<tr>
<td>CLEAN SAND</td>
<td>SW</td>
<td>Well-graded sands or gravelly sands, little or no fines</td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>Poorly-graded sands or gravelly sands, little or no fines</td>
</tr>
<tr>
<td>SAND with fines</td>
<td>SM</td>
<td>Silty sands, sand-silt mixtures</td>
</tr>
<tr>
<td></td>
<td>SC</td>
<td>Clayey sands, sand-clay mixtures</td>
</tr>
<tr>
<td>SILT AND CLAY liquid limit &lt;50%</td>
<td>ML</td>
<td>Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity</td>
</tr>
<tr>
<td></td>
<td>CL</td>
<td>Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays</td>
</tr>
<tr>
<td></td>
<td>OL</td>
<td>Organic silts and organic silt-clays of low plasticity</td>
</tr>
<tr>
<td>SILT AND CLAY liquid limit &gt;50%</td>
<td>MH</td>
<td>Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts</td>
</tr>
<tr>
<td></td>
<td>CH</td>
<td>Inorganic clays of high plasticity, fat clays</td>
</tr>
<tr>
<td></td>
<td>OH</td>
<td>Organic clays of medium to high plasticity</td>
</tr>
<tr>
<td>HIGHLY ORGANIC SOILS</td>
<td>PT</td>
<td>Peat, muck, and other highly organic soils</td>
</tr>
<tr>
<td>ROCK</td>
<td></td>
<td>Undifferentiated as to type or composition</td>
</tr>
</tbody>
</table>

**KEY TO BORING AND TEST PIT SYMBOLS**

**CLASSIFICATION TESTS**
- PI: PLASTICITY INDEX
- LL: LIQUID LIMIT
- SA: SIEVE ANALYSIS
- HYD: HYDROMETER ANALYSIS
- P200: PERCENT PASSING NO. 200 SIEVE
- P4: PERCENT PASSING NO. 4 SIEVE

**STRENGTH TESTS**
- UC: LABORATORY UNCONFINED COMPRESSION
- TXCU: CONSOLIDATED UNDRAINED TRIAXIAL
- TXUU: UNCONSOLIDATED UNDRAINED TRIAXIAL
- DS (2.0): DRAINED DIRECT SHEAR (NORMAL PRESSURE, ksf)

**SAMPLER TYPE**
- MODIFIED CALIFORNIA
- STANDARD PENETRATION TEST
- THIN-WALLED / FIXED PISTON
- HAND SAMPLER
- ROCK CORE
- DISTURBED OR BULK SAMPLE

**NOTE:** Test boring and test pit logs are an interpretation of conditions encountered at the excavation location during the time of exploration. Subsurface rock, soil or water conditions may vary in different locations within the project site and with the passage of time. Boundaries between differing soil or rock descriptions are approximate and may indicate a gradual transition.
FRACTURING AND BEDDING

<table>
<thead>
<tr>
<th>Fracture Classification</th>
<th>Spacing</th>
<th>Bedding Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushed</td>
<td>less than 3/4 inch</td>
<td>Laminated</td>
</tr>
<tr>
<td>Intensely fractured</td>
<td>3/4 to 2-1/2 inches</td>
<td>Very thinly bedded</td>
</tr>
<tr>
<td>Closely fractured</td>
<td>2-1/2 to 8 inches</td>
<td>Thinly bedded</td>
</tr>
<tr>
<td>Moderately fractured</td>
<td>8 to 24 inches</td>
<td>Medium bedded</td>
</tr>
<tr>
<td>Widely fractured</td>
<td>2 to 6 feet</td>
<td>Thickly bedded</td>
</tr>
<tr>
<td>Very widely fractured</td>
<td>greater than 6 feet</td>
<td>Very thinly bedded</td>
</tr>
</tbody>
</table>

HARDNESS

<table>
<thead>
<tr>
<th>Low</th>
<th>Carved or gouged with a knife</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>Easily scratched with a knife, friable</td>
</tr>
<tr>
<td>Hard</td>
<td>Difficult to scratch, knife scratch leaves dust trace</td>
</tr>
<tr>
<td>Very hard</td>
<td>Rock scratches metal</td>
</tr>
</tbody>
</table>

STRENGTH

<table>
<thead>
<tr>
<th>Friable</th>
<th>Crumbles by rubbing with fingers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>Crumbles under light hammer blows</td>
</tr>
<tr>
<td>Moderate</td>
<td>Indentations &lt;1/8 inch with moderate blow with pick end of rock hammer</td>
</tr>
<tr>
<td>Strong</td>
<td>Withstands few heavy hammer blows, yields large fragments</td>
</tr>
<tr>
<td>Very strong</td>
<td>Withstands many heavy hammer blows, yields dust, small fragments</td>
</tr>
</tbody>
</table>

WEATHERING

<table>
<thead>
<tr>
<th>Complete</th>
<th>Minerals decomposed to soil, but fabric and structure preserved</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Rock decomposition, thorough discoloration, all fractures are extensively coated with clay, oxides or carbonates</td>
</tr>
<tr>
<td>Moderate</td>
<td>Fracture surfaces coated with weathering minerals, moderate or localized discoloration</td>
</tr>
<tr>
<td>Slight</td>
<td>A few stained fractures, slight discoloration, no mineral decomposition, no affect on cementation</td>
</tr>
<tr>
<td>Fresh</td>
<td>Rock unaffected by weathering, no change with depth, rings under hammer impact</td>
</tr>
</tbody>
</table>

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in other locations and with the passage of time.
BORING 1

EQUIPMENT: Truck-Mounted B-53 Drill Rig with 6.0-inch Solid Flight Auger

DATE: 1/18/2022

ELEVATION: 611 - feet*

*REFERENCE: Google Earth, 2022

EQUIPMENT:

- Truck-Mounted B-53 Drill Rig with 6.0-inch Solid Flight Auger

SYMBOL (4)

SAMPLE

DEPTH

feet

meters

0

0

2

4

5

6

1

3

10

15

20

22

24

26

28

30

32

34

36

38

40

42

44

46

48

50

52

54

56

58

60

62

64

66

68

70

72

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80

82

84

86

88

90

92

94

96

98

100

102

104

106

108

110

112

114

116

118

120

2" Asphalt Concrete over 6" Aggregate Base

Silty GRAVELS with Sand (GM)

Medium brown, dry to slightly moist, medium dense, angular gravels up to 1" diameter, low plasticity fines, fine to coarse sand, gravels predominately native Franciscan sandstone and shale. [Native Fill]

Harder drilling starting at 4.0ft, grades dense.

Drill rate variable from ~30 sec/ft to ~1 min/ft.

Average 40 sec/ft drill rate between 13-ft to 18-ft.

Grades laminated, low to moderate hardness, and high to moderate weathering, pervasively sheared.

Shale

Gray, moderate hardness, moderate strength, moderate weathering, locally crushed. [Bedrock]

NOTES:

- Water level encountered during drilling
- Water level measured after drilling

NOTES:

- (1) UNCORRECTED FIELD BLOW COUNTS
- (2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m³ = 0.1571 x DRY UNIT WEIGHT (pcf)
- (3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
- (4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY
<table>
<thead>
<tr>
<th>Depth (feet)</th>
<th>Sample Symbol</th>
<th>Blows / Foot</th>
<th>Dry Unit Weight pcf</th>
<th>Moisture Content (%)</th>
<th>Shear Strength psf</th>
<th>Other Test Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7</td>
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<tr>
<td>12</td>
<td></td>
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</tr>
</tbody>
</table>

**Shale**

Gray, laminated, low to moderate hardness, moderate strength, high to moderate weathering, pervasively sheared. [Bedrock]

- ~40 sec/ft drill rate.
- ~1 min/ft drill rate.

Grades strong.

Bottom of boring 27.5-ft. Groundwater encountered at 15.5-ft and measured at 15.5-ft after drilling.

**NOTES:**

1. UNCORRECTED FIELD BLOW COUNTS
2. METRIC EQUIVALENT DRY UNIT WEIGHT kN/m$^3 = 0.1571 \times$ DRY UNIT WEIGHT (pcf)
3. METRIC EQUIVALENT STRENGTH (kPa) $= 0.0479 \times$ STRENGTH (psf)
4. GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY
June 4, 2021
File: 1114.429altr.doc

ADKO Engineering, Inc.
140 Diamond Creek Place
Roseville, California 95747
Attn: Majdi Kanaan, PE

Re: Geotechnical Investigation
New Retaining Wall at
Dry Creek Road MP 9.75
Napa, California

Introduction and Project Description

This letter summarizes our Geotechnical Investigation for a retaining wall and backfill that will improve stability of a portion of Dry Creek Road and in the hills of western Napa County, California. The site is located about 300 feet east of the driveway to 6091 Dry Creek Road at Mile Post Marker 9.75 as shown on Figure 1. The purpose of our Geotechnical Investigation is to describe site conditions and provide geotechnical recommendations for the design and construction of the project.

Our scope included exploring subsurface conditions with one auger boring, laboratory testing of select samples, evaluating field and laboratory data and preparing this letter with a summary of site conditions and geotechnical criteria for the work. The location of our exploratory boring along with previous borings and the wall plan is shown on Figure 2. With erosion, settlements and increased risk of greater damage in the project area, the recommended work includes constructing a drilled-pier supported retaining wall to extend the existing wall and improve lateral support to the outboard edge of roadway.

Regional Geology and Seismicity

Regional geologic maps\(^1\) indicate that the project area is underlain by Great Valley Sequence, which is composed predominantly of sandstone, pebble conglomerate, siltstone and shale rocks of Early Cretaceous and Late Jurassic ages. A very large landslide is mapped in the project area, primarily in the slopes southwest and on the opposite side of the creek channel. We did not observe indications of significant instability in the cut slope on the “uphill” side of the roadway nor significant tension cracks or distress in the asphalt-paved roadway surface suggesting instability exists beyond the creekbank that is below the roadway. The nearest known active fault is the West Napa Fault which is mapped about ½-mile east of the site although the Holocene “active” portion of the fault is thought to be closer to the City of Napa, about eight miles to the southeast. A Regional Geologic Map is presented on Figure 3.

Site Conditions

The project area is immediately west of a 15-foot high retaining wall and rip-rap slope armoring

that was constructed around 2010 to address erosion and pavement damage, similar to what is occurring in the current project area. The project site is bounded to the north by steep hills, and to the south by Dry Creek which includes a bottom of channel that is about 20 feet below the paved surface. Tension cracking is visible in the eastbound travel lane, along with some small settlements along the outer edge of roadway. The asphalt berm at the top of bank is cracked in several locations, and the surface soils on the outboard edge of the road seem loose and generally susceptible to sloughing.

View toward the project site facing southeast not the very steep creekbank and 2010-era wall in the background.

As shown in the above photo, the ground surfaces in the project area are vegetated with low grasses, brush and young to mature trees. Slopes below the roadway and down to the bottom of channel range from about 2:1 (horizontal:vertical) to near vertical.

Subsurface Exploration Conditions and Laboratory Testing

We explored subsurface conditions with one boring drilled with truck-mounted equipment on April 13th, 2021 at the location shown on Figure 2. The soils and rock encountered were logged in the field and select samples were obtained for laboratory testing. Laboratory tests included determining the dry density, moisture content and unconfined compressive strength of select samples. Soil and Rock Classification Charts and Boring Logs are presented in Appendix A as Figures A1 through A4. In addition to our boring, three reference borings from the retaining wall construction immediately to the south are included as Figures B1 thru B3.
In general, the conditions encountered in our borings are consistent with the mapped geology. The pavement section at our Boring 1 included 3.5 inches of asphalt-concrete over 24.0 inches of aggregate baserock. Below the roadway asphalt and baserock, we encountered stiff silty clay with gravel to approximately 16.5 feet below ground surface. Below the surface soils, weathered shale bedrock was encountered to the maximum explored depth of 26.5 feet. The shale was completely weathered and friable to weak near its surface and became firmer and less weathered with increasing depth. At the bottom of our Boring 1, the rock became relatively hard, including practical SPT sampler refusal and slow drilling rates with our Mobile B53 drill rig. The reference borings just to the south encountered similar materials with practical refusal in hard rock at depth ranging from 15 to 29 feet below the paved roadway surface.

We did not encounter groundwater in the borings which were completed in early April of a relatively low (2020-2021) rainfall year and there was no water flowing in Dry Creek at the time of our exploration. The reference borings also did not encounter groundwater when drilled in August, 2008. We note the borings were not left open for an extended period of time after drilling was completed, so a stabilized depth to groundwater may not have been observed. Groundwater will fluctuate seasonally, and seepage may be near the ground surface during the winter and springtime or after periods of heavy rainfall. Groundwater levels are expected to be below 30 feet late in the summer and fall of “normal” rainfall years.

Geotechnical Evaluation and Recommendations

To protect the roadway against instability and damage that will result from additional erosion and steepening of the creekbank, we recommend a retaining wall be constructed along the pavement edge or at a suitable distance downslope to allow for sufficient roadway shoulder and guard rail installation. This structural repair should be supported on a drilled pier foundation and while we don’t anticipate the need, tiebacks could be considered to reduce pier depths. The new retaining wall will be similar to the existing wall to the south and will effectively increase the length of the existing wall so it extends about 100 feet to the north of the old wall.

The toe of the existing wall is protected with large rip-rap that would also be desirable in this “new” project area, but we understand permitting and environmental restrictions are such that additional rip-rap at the site is probably not possible. We therefore recommend the wall height/bottom of wall elevation be carefully considered so that additional erosion/creekbank sloughing does not expose the bottom of wall within a reasonable design life. A wall height of 15 to 18 feet would seem to be reasonable with a taller wall allowing for a longer expected design life before armoring or protecting the base of wall against erosion is needed. Without rip rap “toe” protection, we do recommend monitoring of the creekbank below the new wall for erosion and potential undermining of the new wall. At some point in the future, rip-rap could be placed, the wall could be extended to a deeper depth or other protective measures could be considered.

Firm claystone and shale bedrock is anticipated at a depth of about 16 feet below the road surface so depending on wall height, spacing of drilled piers and variations in rock quality, hard rock drilling is anticipated at the site and the contractor should be prepared for core drilling or other hard rock excavation techniques below a depth of about 20 to 25 feet from the roadway surface.
Excavation Conditions

We judge the majority of excavation at the site can be reasonably performed with “traditional” grading equipment, such as medium-size excavators and medium to large-sized auger-type drilling equipment. As noted above, shale and claystone rock will likely become hard at depths ranging from 20 to about 25 feet below the paved roadway surface, so pier depths should ideally be limited to 25 to 30 feet below the roadway surface for “constructability” reasons. However, rock hardness and depths can vary significantly and shallower hard rock was encountered in exploratory borings for the existing wall to the south.

The California Division of Occupational Safety and Health, better known as Cal/OSHA, has promulgated rules for excavations. Cal/OSHA dictates allowable slope configurations and minimum shoring requirements based on categorized soil types. During the dry “construction” season (i.e. June 1 to October 15) we recommend using “Type B” soils for design of temporary cut slopes. Where workers will not be endangered, steeper slopes may be possible, but the Contractor should evaluate site safety risks.

We did not encounter groundwater in our boring in early April, but deeper excavations could encounter groundwater, especially if holes are left open for an extended period. The rate of groundwater infiltration into deeper excavations will depend on the groundwater level and permeability of the adjacent soils and rock. Because the drilled excavations will be in rock at depths likely less than 25 feet, sloughing should not be a significant hazard for the short duration that holes are typically open prior to steel and concrete placement. Pumps could be used to dewater drilled excavations, or concrete could be carefully tremmied to displace the water.

Retaining Wall Design

We recommend constructing a drilled-pier supported, concrete or concrete-lagging retaining wall along the downslope shoulder of the roadway to provide lateral support as previously noted. The retaining structure should be supported on a drilled pier foundation with tiebacks included in the project (if needed) to improve efficiency and reduce pier excavation depth. Depending on the final alignment of the wall, retained height will likely be on the order of 15 to 18 feet as previously described. Design criteria is presented in Table A:
### TABLE A
**RETAINING WALL DESIGN CRITERIA**
Dry Creek Road MPM 9.75
*Napa, California*

#### Lateral Active Earth Pressure:
- Retaining Wall with Level Backfill\(^1\): 50 pcf
- Vehicle Surcharge\(^2\): 150 psf
- Seismic Surcharge\(^3\): 10xH psf

#### Drilled Pier Foundations:
- Minimum diameter: 24 inches
- Minimum pier spacing: 6 feet
- Skin Friction (dead plus live loads): 1000 psf
- Lateral passive resistance \(^4,5\)
  - Shale and Claystone (>16 feet below road surface): 500 pcf

**Notes:**
1. Equivalent Fluid Pressure. Apply this pressure to the entire +/- eight-foot height of retaining wall where significant movement occurred and four feet high where the “edge beam” will be located.
2. Vehicle surcharge applied only to upper 4-feet of retaining wall or grade beam (to be verified based on final wall location and proximity to travel lanes).
3. Seismic Surcharge applied as a uniform pressure over the entire retaining wall stem or grade beam face where H is the height of wall in feet. Factors of safety for design may be reduced to 1.1. Simultaneous use of the vehicle and seismic surcharge probably not required.
4. Equivalent fluid pressure, apply values over effective width of two pier diameters.
5. Apply passive resistance starting one foot below the bottom of retaining wall or grade beam.

---

**Retaining Wall Backfill**

A perforated pipe subdrain should be installed at the base of the wall and the “logical” place to outlet this pipe is on the existing rip rap where the new wall will structurally connect to the old wall. If concrete lagging is placed with “gaps” between the lagging pieces, the perforated pipe could potentially be omitted. Where a perforated pipe is placed, it should be at the bottom of a gravel “chimney” that extends to within about a foot of the top of wall backfill. If ¾-inch crushed rock is used, it should be wrapped in Mirafi 140N filter fabric or Caltrans Class 2 Permeable Rock may be used without fabric. The gravel chimney should be at least 12 inches wide as conceptually shown on Figure 4. As an equal alternative to the gravel chimney, a prefabricated “Miradrain” type panel could be placed against the wall and then a small area of gravel, approximately one foot by one foot could be placed around a perforated pipe at the bottom of drain panel as generally recommended by the various drain panel manufacturers.

If on-site soils and rock pieces are used to backfill new retaining walls, they should be well-graded (i.e. free of voids when compacted), free of organics and have a maximum particle size of 6-inches. Most of the on-site soils that will be excavated during the work should be suitable for re-
use as backfill and backfill should be moisture conditioned to just above optimum and compacted in thin lifts to at least 95% relative compaction to reduce risks of settlement of wall backfill. Surface drainage at the top of wall backfill should also be collected and discharged at an appropriate location, most likely on the existing rip rap at the south end of the new wall.

If imported fill is used, it should free of organics, be well-graded with a maximum particle size of six inches, Plasticity Index less than 20 and R-value of at least 15. Imported fill should be approved by the project Geotechnical Engineer and also compacted as noted above.

**Roadway Restoration**

Where the roadway section is to be reconstructed over retaining wall backfill, we recommend a minimum pavement section of six inches of asphalt concrete over 12 inches of Class 2 Aggregate Baserock which is thicker asphalt but thinner baserock than the existing conditions. The existing asphalt of 3.5 inches seems thin for a moderately travelled roadway so we generally recommend additional asphalt but thinner baserock. Asphalt and baserock should conform to the requirements in Caltrans' Standard Specifications (latest edition) and baserock should be compacted to at least 95% (ASTM D1557).

Where new pavements are planned beyond the limits of new wall backfill, the entire 3.5 inch +/- layer of existing asphalt could be removed and replaced as underlying cracks would likely propagate thru a thinner section relatively quickly. Paving shall be performed per Caltrans' Standard Specifications.

**Plan Review and Construction Observation**

We should review the design plans as they are nearing completion to confirm that the intent of our geotechnical recommendations have been incorporated. During construction, we should also observe and test the pier drilling, fill placement, drainage and other geotechnically related work items to verify that our recommendations are suitable for the observed conditions and that the work is performed in accordance with our recommendations.

If there are any questions or if we can be of further assistance, please call.

Yours very truly,

MILLER PACIFIC ENGINEERING GROUP

Michael P. Morisoli
Geotechnical Engineer No. 2541
(Expires 12/31/22)

Attachments: Figures 1 through 4, Appendix A and B
**SITE PLAN**

**SCALE**

0 15 30 60 FEET

**B -1** Approximate boring location completed by MPEG, 2021


REFERENCE: ADKO Engineering for County of Napa, "Dry Creek Road MPM 9.75" 65% Plans, Layout and Typical Cross Section, Sheet 2 of 9, 4-9-21.
LEGEND

Qht  Fan Levee Deposits (Holocene): Fan sediments deposited as long, low ridges oriented down fan.

Qls  Landslide Deposits (Holocene and Pleistocene): Include debris flows and block slides.

Qhc  Modern stream channel deposits (Holocene <150 years): Deposits in active, natural stream channels; consists of loose alluvial sand, gravel and silt.

Qha  Alluvium, undivided (Holocene): Alluvium deposited on fans, terraces, or in basins; composed of sand, gravel, silt and clay that are poorly sorted.

KJgv  Great Valley Sequence (Early Cretaceous and Late Jurassic): Sandstone, pebble conglomerate, siltstone and shale.

Tsvt  Volcanic Tuff: Light colored tuff, lithic rich in places. Locally include tuffaceous, diatomaceous lacustrine sediments.

Tsvrb  Rhyolite of Bismark Knob - Plagioclase phryic, bluish-gray rhyolite and/or dacite tuff. Often has near-source breccia; some water-laid deposits.

NOTES:

1. Wall drainage should consist of clean, free draining 3/4 inch crushed rock (Class 1B Permeable Material) wrapped in filter fabric (Mirafi 140N or equivalent) or Class 2 Permeable Material. Alternatively, pre-fabricated drainage panels (Miradrain G100N or equivalent), installed per the manufacturers recommendations, may be used in lieu of drain rock and fabric.

2. All retaining walls adjacent to interior living spaces shall be water/vapor proofed as specified by the project architect or structural engineer.

3. Perforated pipe shall be SCH 40 or SDR 35 for depths less than 20 feet. Use SCH 80 or SDR 23.5 perforated pipe for depths greater than 20 feet. Place pipe perforations down and slope at 1% to a gravity outlet. Alternatively, drainage can be outlet through 3" diameter weep holes spaced approximately 20' apart.

4. Clean outs should be installed at the upslope end and at significant direction changes of the perforated pipe. Additionally, all angled connectors shall be long bend sweep connections.

5. During compaction, the contractor should use appropriate methods (such as temporary bracing and/or light compaction equipment) to avoid over-stressing the walls. Walls shall be completely backfilled prior to construction in front of or above the retaining wall.

6. Refer to the geotechnical report for lateral soil pressures.

7. All work and materials shall conform with Section 68, of the latest edition of the Caltrans Standard Specifications.
<table>
<thead>
<tr>
<th>MAJOR DIVISIONS</th>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COARSE GRAINED SOILS over 50%</td>
<td>GW</td>
<td>Well-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td>sand and gravel</td>
<td>GP</td>
<td>Poorly-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td>GRAVEL with fines</td>
<td>GM</td>
<td>Silty gravels, gravel-sand-silt mixtures</td>
</tr>
<tr>
<td></td>
<td>GC</td>
<td>Clayey gravels, gravel-sand-clay mixtures</td>
</tr>
<tr>
<td>CLEAN SAND</td>
<td>SW</td>
<td>Well-graded sands or gravelly sands, little or no fines</td>
</tr>
<tr>
<td></td>
<td>SP</td>
<td>Poorly-graded sands or gravelly sands, little or no fines</td>
</tr>
<tr>
<td>SAND with fines</td>
<td>SM</td>
<td>Silty sands, sand-silt mixtures</td>
</tr>
<tr>
<td></td>
<td>SC</td>
<td>Clayey sands, sand-clay mixtures</td>
</tr>
<tr>
<td>SILT AND CLAY liquid limit &lt;50%</td>
<td>ML</td>
<td>Inorganic silts and very fine sands, rock flour, silty or clayey fine sands</td>
</tr>
<tr>
<td></td>
<td>CL</td>
<td>Inorganic clays of low to medium plasticity, gravelly clays, sandy clays,</td>
</tr>
<tr>
<td></td>
<td>OL</td>
<td>Organic silts and organic silt-clays of low plasticity</td>
</tr>
<tr>
<td>FINE GRAINED SOILS over 50%</td>
<td>MH</td>
<td>Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic</td>
</tr>
<tr>
<td>silt and clay</td>
<td>CH</td>
<td>Inorganic clays of high plasticity, fat clays</td>
</tr>
<tr>
<td></td>
<td>OH</td>
<td>Organic clays of medium to high plasticity</td>
</tr>
<tr>
<td>HIGHLY ORGANIC SOILS</td>
<td>PT</td>
<td>Peat, muck, and other highly organic soils</td>
</tr>
</tbody>
</table>

KEY TO BORING AND TEST PIT SYMBOLS

CLASSIFICATION TESTS
- PI: PLASTICITY INDEX
- LL: LIQUID LIMIT
- SA: SIEVE ANALYSIS
- HYD: HYDROMETER ANALYSIS
- P200: PERCENT PASSING NO. 200 SIEVE
- P4: PERCENT PASSING NO. 4 SIEVE

STRENGTH TESTS
- UC: LABORATORY UNCONFINED COMPRESSION
- TXCU: CONSOLIDATED UNDRAINED TRIAXIAL
- TXUU: UNCONSOLIDATED UNDRAINED TRIAXIAL
- DS (2.0): DRAINED DIRECT SHEAR (NORMAL PRESSURE, ksf)

SAMPLER TYPE
- MODIFIED CALIFORNIA
- STANDARD PENETRATION TEST
- THIN-WALLED / FIXED PISTON
- HAND SAMPLER
- ROCK CORE
- DISTURBED OR BULK SAMPLE

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the excavation location during the time of exploration. Subsurface rock, soil or water conditions may vary in different locations within the project site and with the passage of time. Boundaries between differing soil or rock descriptions are approximate and may indicate a gradual transition.

SOIL CLASSIFICATION CHART

Dry Creek Road MPM 9.75
Napa, California

Project No. 1114.459  Date: 4/29/2021
FRACTURING AND BEDDING

<table>
<thead>
<tr>
<th>Fracture Classification</th>
<th>Spacing</th>
<th>Bedding Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushed</td>
<td>less than 3/4 inch</td>
<td>Laminated</td>
</tr>
<tr>
<td>Intensely fractured</td>
<td>3/4 to 2-1/2 inches</td>
<td>Very thinly bedded</td>
</tr>
<tr>
<td>Closely fractured</td>
<td>2-1/2 to 8 inches</td>
<td>Thinly bedded</td>
</tr>
<tr>
<td>Moderately fractured</td>
<td>8 to 24 inches</td>
<td>Medium bedded</td>
</tr>
<tr>
<td>Widely fractured</td>
<td>2 to 6 feet</td>
<td>Thickly bedded</td>
</tr>
<tr>
<td>Very widely fractured</td>
<td>greater than 6 feet</td>
<td>Very thickly bedded</td>
</tr>
</tbody>
</table>

HARDNESS

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Carved or gouged with a knife</td>
</tr>
<tr>
<td>Moderate</td>
<td>Easily scratched with a knife, friable</td>
</tr>
<tr>
<td>Hard</td>
<td>Difficult to scratch, knife scratch leaves dust trace</td>
</tr>
<tr>
<td>Very hard</td>
<td>Rock scratches metal</td>
</tr>
</tbody>
</table>

STRENGTH

<table>
<thead>
<tr>
<th>Strength</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friable</td>
<td>Crumbles by rubbing with fingers</td>
</tr>
<tr>
<td>Weak</td>
<td>Crumbles under light hammer blows</td>
</tr>
<tr>
<td>Moderate</td>
<td>Indentations &lt;1/8 inch with moderate blow with pick end of rock hammer</td>
</tr>
<tr>
<td>Strong</td>
<td>Withstands few heavy hammer blows, yields large fragments</td>
</tr>
<tr>
<td>Very strong</td>
<td>Withstands many heavy hammer blows, yields dust, small fragments</td>
</tr>
</tbody>
</table>

WEATHERING

<table>
<thead>
<tr>
<th>Weathering</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>Minerals decomposed to soil, but fabric and structure preserved</td>
</tr>
<tr>
<td>High</td>
<td>Rock decomposition, thorough discoloration, all fractures are extensively</td>
</tr>
<tr>
<td></td>
<td>coated with clay, oxides or carbonates</td>
</tr>
<tr>
<td>Moderate</td>
<td>Fracture surfaces coated with weathering minerals, moderate or localized</td>
</tr>
<tr>
<td></td>
<td>discoloration</td>
</tr>
<tr>
<td>Slight</td>
<td>A few stained fractures, slight discoloration, no mineral decomposition,</td>
</tr>
<tr>
<td></td>
<td>no affect on cementation</td>
</tr>
<tr>
<td>Fresh</td>
<td>Rock unaffected by weathering, no change with depth, rings under hammer</td>
</tr>
<tr>
<td></td>
<td>impact</td>
</tr>
</tbody>
</table>

NOTE: Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in other locations and with the passage of time.
**BORING 1**

**EQUIPMENT:** Mobile B53 Drill Rig with 6-inch Solid Flight Auger

**DATE:** 4/13/2021

**ELEVATION:** 191 - feet*

*REFERENCE: Albion Surveyors, 2021

<table>
<thead>
<tr>
<th>DEPTH (feet)</th>
<th>SAMPLE SYMBOL (4)</th>
<th>BLOWS / FOOT (1)</th>
<th>DRY UNIT WEIGHT pcf (2)</th>
<th>MOISTURE CONTENT (%)</th>
<th>SHEAR STRENGTH psf (3)</th>
<th>OTHER TEST DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3.5&quot; Asphalt Concrete</td>
<td>11 107 10.5 347</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24&quot; Aggregate Base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>24&quot; Aggregate Base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Silty CLAY (CL)</td>
<td>20 111 8.1 495</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark brown, dry, medium stiff, low plasticity, approximately 10% claystone gravel present [Colluvium or possible Fill]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades stiffer at 5-ft, increase in gravel content shown in cuttings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Silty CLAY with Gravel (CL)</td>
<td>41 116 8.1 1025</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown, moist, medium stiff, low plasticity, approximately 10% claystone gravel present [Colluvium]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravel increase at 10.5-ft, increase stiffness during drilling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grades to increased gravel size (typ. 1&quot; diameter)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td>Claystone</td>
<td>47 6.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey, highly weathered, friable, low hardness, magnesium oxide present on fractures, grades more competent with depth [Bedrock]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

(1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m³ = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

---

**BORING LOG**

<table>
<thead>
<tr>
<th>Boring Log</th>
<th>Date: 4/29/2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Creek Road MPM 9.75</td>
<td></td>
</tr>
<tr>
<td>Napa, California</td>
<td></td>
</tr>
</tbody>
</table>

**A-3 FIGURE**

---

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FILENAME: 1114.459 Boring Logs.dwg

304 Redwood Blvd.
Suite 220
Novato, CA 94947
T 415 / 382-3444
F 415 / 382-3450
www.millerpac.com
### BORING 1
**CONTINUING**

<table>
<thead>
<tr>
<th>Depth (meters/feet)</th>
<th>Sample Symbol</th>
<th>Water Level</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>Grey, highly weathered, friable, magnesium oxide present, low hardness. [Bedrock]</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>SHALE</td>
</tr>
<tr>
<td>25/1&quot;</td>
<td></td>
<td></td>
<td>Grey-black in color, pervasively sheared, friable, white veining present, low hardness, highly weathered. [Bedrock]</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td>Auger refusal at 26.5 ft.</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td>Groundwater not encountered.</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td>Water level encountered during drilling</td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
<td>Water level measured after drilling</td>
</tr>
</tbody>
</table>

### OTHER TEST DATA

- **BLOW/FOOT (1)**: 25/1"
- **DRY UNIT WEIGHT pcf (2)**: 8.8
- **MOISTURE CONTENT (%)**:
- **SHEAR STRENGTH psf (3)**: 8.8
- **OTHER TEST DATA**:

**NOTES**:

1. UNCORRECTED FIELD BLOW COUNTS
2. METRIC EQUIVALENT DRY UNIT WEIGHT kN/m³ = 0.1571 x DRY UNIT WEIGHT (pcf)
3. METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
4. GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY
## Reference Boring Log

### Dry Creek Road MPM 9.75

**Location:** Napa, California

**Date:** 4/29/2021

---

### Log of Boring

<table>
<thead>
<tr>
<th>Sample Number</th>
<th>Depth (ft)</th>
<th>Description and Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>Very stiff mudstone</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>Plagioclase (CL) - brownish, fine-grained sandstone (CL)</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>Plagioclase (CL) - brownish, fine-grained sandstone (CL)</td>
</tr>
<tr>
<td>4</td>
<td>12</td>
<td>Plagioclase (CL) - brownish, fine-grained sandstone (CL)</td>
</tr>
</tbody>
</table>

---

**Figure:**

- **Drawn:** [Signature]
- **Checked:** [Signature]
- **Project No.:** 504 Redwood Blvd. Suite 220 Novato, CA 94947
- **Date:** 4/29/2021
- **Total Depth:** 20 ft
- **Ground Elevation:** 0 ft
- **Ground Water:** Depth 10 ft

---

**Document Information:**

- **Filename:** 1114.459 Boring Logs.dwg
- **A California Corporation, © 2021, All Rights Reserved**
- **Project No.:** 1114.459
- **Date:** 4/29/2021
## LOG OF BORING

<table>
<thead>
<tr>
<th>DATE</th>
<th>DESCRIPTION AND CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/29/2021</td>
<td>Silty Clay (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
<tr>
<td></td>
<td>M30-41</td>
</tr>
<tr>
<td></td>
<td>Silty Clay (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
<tr>
<td></td>
<td>M30-50</td>
</tr>
<tr>
<td></td>
<td>Claystone (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
<tr>
<td></td>
<td>M30-60</td>
</tr>
<tr>
<td></td>
<td>Claystone (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
<tr>
<td></td>
<td>M30-70</td>
</tr>
<tr>
<td></td>
<td>Claystone (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
<tr>
<td></td>
<td>M30-80</td>
</tr>
<tr>
<td></td>
<td>Claystone (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
<tr>
<td></td>
<td>M30-90</td>
</tr>
<tr>
<td></td>
<td>Claystone (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
<tr>
<td></td>
<td>M30-100</td>
</tr>
<tr>
<td></td>
<td>Claystone (gray) lenses with claystone fragments, fluorescent.</td>
</tr>
</tbody>
</table>

**SITE:** Dry Creek Road MPM 9.75  
**LOCATION:** Napa, California

**Date:** 4/29/2021  
**Suite:** 220  
**City:** Novato, CA 94947  
**T:** 415 / 382-3444  
**F:** 415 / 382-3450  
**www.millerpac.com**  
**FILENAME:** 1114.459 Boring Logs.dwg  
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**B-3**  
**REFERENCE BORING LOG**  
**Dry Creek Road MPM 9.75**  
**Napa, California**  
**Project No. 1114.459**  
**Date: 4/29/2021**
September 27, 2021
File: 3125.006altr.doc

ADKO Engineering, Inc.
140 Diamond Creek Place
Roseville, California 95747

Attn: Majdi Kanaan, PE

Re: Geotechnical Investigation
Landslide Mitigation / Roadway Repairs
Diamond Mountain Road MPM 1.1
Calistoga, California

Introduction and Project Description

This letter summarizes our Geotechnical Investigation for a retaining wall to support the
outboard edge of Diamond Mountain Road at Milepost 1.1 in Calistoga, California. The site is
located about two miles up from Highway 29 on Diamond Mountain Road as shown on Figure 1.
The purpose of our Geotechnical Investigation is to describe site conditions and provide
geotechnical recommendations for the design and construction of the project.

Our scope includes exploring subsurface conditions with two auger borings, laboratory testing of
select samples, evaluating field and laboratory data, and preparing this letter with a summary of
site conditions and geotechnical criteria for the work.

Landsliding in 2017 damaged the downhill/outboard edge of roadway over a distance of about 30
feet, but “tension cracking” and lateral creep in the paved roadway surface to the west of the 2017
ground movement extends for several 10’s of additional feet. The 2017 landslide is also at the
western end of a retaining wall that was constructed in 2008 to repair a previous slide. The 2008
retaining wall is shown on Figure 2.

The relatively steep slope below the road and depth of the 2017 landslide will require a retaining
wall of at least eight feet in height (similar to the 2008 wall height), depending on final roadway
alignment and width of travel lane(s) / need for guardrail above the new wall. A relatively simple
“extension” of the existing wall is the recommended improvement strategy. Relatively closely
spaced piers will transfer lateral soil loads to deeper and stronger materials, improving stability of
the adjacent roadway. Since the 2008 wall includes pre-cast concrete lagging set in steel I-
beams, this is the preferred structural system.

Regional Geology and Seismicity

Regional geologic maps\(^1\) indicate that the project area is underlain by tuff of Petrified Forest that
contains tuff breccia, and agglomerate with several intercalated andesitic to dacitic lava flows. The
nearest known active fault is the Maacama Fault which is mapped approximately 8.7
kilometers west of the site.

\(^1\) Delattre, Marc P., & others, "Preliminary Geologic Map of the Calistoga 7.5’ Quadrangle, Napa and
Sonoma Counties, California, 2013."
Site Conditions

The project site (slide) conditions include a “cut-fill” roadway with steep slopes of 2:1 (horizontal:vertical) below the roadway and a +/- 1:1 cut slope on the uphill side of road. As noted previously, the portion of roadway that was significantly damaged by the 2017 movement is about 30 feet long, but tension cracking is evident in the roadway surface for some additional distance to the west. Site conditions are shown in the photo below with the 2017 slide being under the sandbags/visqueen sheeting and the 2008 wall visible in the background:

Photo 1 taken by MPEG in October, 2020 shortly after the Glass Fire had burned vegetation in the project area.

Vegetation in the project area has somewhat returned since last fall’s fire and includes low grasses and scattered trees. Overhead power and telephone wires are also located in the project area but are on the “uphill” side of the roadway so should not be a significant issue with pier drilling.
Subsurface Exploration Conditions and Laboratory Testing

We explored subsurface conditions with two borings drilled with truck-mounted equipment on September 8th, 2021, at the approximate locations shown on Figure 2. The borings were located close to the downslope edge of roadway near the edge of pavement. The soils and rock encountered were logged in the field and select samples were obtained for laboratory testing. Laboratory tests included determining the dry density, moisture content and unconfined compressive strength of select samples. A Soil Classification Chart is included as Figure 3 and a Rock Classification Chart is included as Figure 4. Our Boring Logs and results of the laboratory testing are included on Figures 5 through 7.

Our 2021 borings supplement 2007 borings that were advanced for the previous retaining wall design. The 2007 boring logs are included in Appendix A.

In general, the conditions encountered in our borings and the 2007 borings are consistent with the mapped geology. Boring 1 encountered ten inches of asphalt and baserock over about four feet of loose silty sand fill soils underlain by stiff sandy silt colluvial soils over friable lapilli tuff bedrock to a maximum explored depth of 22.5-feet below the ground surface. Boring 2 encountered about two feet of asphalt and baserock over one to two feet of loose silty sand fill soils over loose silty gravel with sand colluvial soils underlain by large cobbles of basalt bedrock to the maximum explored depth of 13.5-feet. The pavement structural section in Boring 1 was four inches of asphalt concrete over about six inches of aggregate baserock and Boring 2 was four inches of asphalt concrete over about 20 inches of aggregate baserock. Both of our 2021 borings terminated in hard rock with drill rig refusal, and the 2007 borings also encountered hard rock and drilling refusal at depths ranging from 10 to 20 feet. Our 8-inch diameter Boring 2 also “caved” when augers were extracted so that only the upper 10 feet was still open.

We did not encounter groundwater in either of our borings which were completed in early September of a relatively low (2020-2021) rainfall year. However, the borings were not left open for an extended period of time after drilling was completed so a stabilized depth to groundwater may not have been observed. Groundwater will fluctuate seasonally, and seepage may be near the rock/soil interface during the winter and springtime or after periods of heavy rainfall. Groundwater levels are expected to be at least 20 feet below the paved surface late in the summer and fall of “normal” rainfall years.

Geotechnical Evaluation and Recommendations

To restore and/or improve lateral support to the roadway and protect it against additional instability and damage, we recommend a retaining wall be constructed along the pavement edge or at a suitable distance downslope to allow for sufficient roadway shoulder and guard rail installation. This structural repair should be supported on a drilled pier foundation. To reduce embedment into the hard rock, retaining wall heights could be minimized by constructing the wall close to the edge of the existing pavement, more closely spaced piers could be installed, or tiebacks could also be used for lateral loads which would reduce pier depths.
The slide depth is judged to be relatively shallow and limited to the +/- 6 foot thick “fill” material that was placed when the roadway was constructed. The bottom of the wall should be “keyed” at least one foot below the slide surface (for a minimum height of seven feet) and the wall should also have a minimum horizontal “bench” at least five feet wide on the downhill side of wall.

Excavation Conditions

We judge the excavations at the site can be performed with “traditional” grading equipment, such as medium-size excavators and backhoes. Since the retaining wall will be a few feet downhill from where our borings were located, firm volcanic rock is expected at 10 to 15 feet below the asphalt surface and this rock becomes harder with depth. Pier depths greater than about five feet into the rock may require the use of a rock “core-barrel” and slow drilling should be anticipated but shallower piers can likely be excavated with a relatively large (Lo-Drill) type equipment and an auger with carbide rock teeth. To reduce pier depths, 24-inch diameter piers spaced at eight feet on-center, similar to the 2008 wall, should be considered. We note that rock hardness can vary greatly over short distances due to variations in rock fracturing, weathering, and other factors, so field adjustments may be needed to the pier design.

As noted above, our Boring 2 caved and loose, near surface sandy soils in Boring 1 could also be prone to caving, so “casing” may be needed to prevent sloughing and caving of vertical pier walls. Drilling piers later in the summer or early fall months when groundwater levels are lower could reduce the potential for caving and more difficult excavation conditions.

The California Division of Occupational Safety and Health, better known as Cal/OSHA, has promulgated rules for excavations. Cal/OSHA dictates allowable slope configurations and minimum shoring requirements based on categorized soil types. During the dry “construction” season (i.e., June 1 to October 15) we recommend using “Type C” soils for design of temporary cut slopes. Where workers will not be endangered, steeper slopes may be possible, but the Contractor should evaluate site safety risks.

We did not encounter groundwater in either of our borings in early September, but deeper excavations could encounter groundwater later in the year, especially if holes are left open for an extended period during the earlier months of the year. The rate of groundwater infiltration into deeper excavations will depend on the groundwater level and permeability of the adjacent soils and rock. Because the drilled excavations will extend into rock, sloughing should not be a significant hazard at deeper depths but may be a factor in the upper 5 to 10 feet of piers. If groundwater collects in the piers, pumps could be used to dewater drilled excavations, or concrete could be carefully tremmied to displace the water.

Retaining Wall Design

We recommend constructing a drilled pier supported concrete lagging and I-beam retaining wall along the downslope shoulder of the roadway to rebuild the slope and to restore lateral support as previously noted. The retaining structure should be supported on a drilled pier foundation with tiebacks included in the project (if needed) to improve efficiency and reduce pier excavation depth into the firm rock at the site. Depending on the final alignment of the wall, retained height will likely be at least seven feet and we recommend the wall stem be at least one foot below a
“construction” bench that will likely be needed to form the wall and that the bottom of wall have at least 5 feet of horizontal confinement to the steep slope on the downhill side of the wall. Design criteria is presented in Tables A and B:

---

**TABLE A**

**RETAINING WALL DESIGN CRITERIA**

Diamond Mountain Road MP 1.1
Calistoga, California

**Lateral Active Earth Pressure:**

- Retaining Wall with Level Backfill¹: 50 pcf
- Vehicle Surcharge²: 150 psf
- Seismic Surcharge³: 10xH psf

**Drilled Pier Foundations:**

- Minimum diameter: 24 inches
- Minimum pier spacing: 3 Pier Diameters
- Skin Friction (dead plus live loads): 600 psf
- Lateral passive resistance ⁴,⁵
  - Silty Sand/Sandy Silt (0-12 feet below road surface): 250 pcf
  - Volcanic Rock (> 12 feet below road surface): 650 pcf

**Notes:**

1) Equivalent Fluid Pressure. Apply this pressure to the entire height of retaining wall.
2) Vehicle surcharge applied only to upper 4-feet of retaining wall/grade beam (to be verified based on final wall location and proximity to travel lanes).
3) Seismic Surcharge applied as a uniform pressure over the entire retaining wall stem or where H is the height of wall in feet. Factors of safety for design may be reduced to 1.1. Simultaneous use of the vehicle and seismic surcharge probably not required.
4) Equivalent fluid pressure, apply values over effective width of two pier diameters.
5) Apply passive resistance starting at the bottom of wall stem, maximum passive resistance to be 5000 psf.

---

For design of the retaining wall, specialty software such as L-pile may also be used. L-pile criteria is included in Table B.
TABLE B
L-PILE DESIGN CRITERIA
Diamond Mountain Road MP 1.1
Calistoga, California

Retained and Surficial Soils (Silty Sand to Sandy Silt to 12 feet below road surface):
Soil Type: clay and sand
Total Unit Weight: 100 pcf
Friction Angle: 26°
K (py) Value 80 pci

Foundation Rock, > 12 feet below roadway surface (Weathered Tuff and Basalt):
Soil Type: volcanic rock
Total Unit Weight: 100 pcf
Shear Strength: 2,000 psf
E50 Strain 0.01
RQD¹ <10% estimated

Design Water Level: bottom of wall stem

Notes:
1) RQD was not measured as the onsite rock was excavated with auger equipment and coring was not performed to the maximum explored depth. RQD will be higher at a depth of about 20 feet below the roadway surface.

Retaining Wall Backfill
If 12-inch-tall concrete lagging boards with 1/8” to ¼” spacers are used for vertical “gaps”, drainage through the wall stem will naturally occur and a perforated pipe need not be installed at the base of the wall. A 12-inch-wide minimum gravel layer (as discussed below) should still be placed against the lagging pieces to reduce potential for “piping” of wall backfill through gaps in the lagging.

If a poured-in-place wall stem is included in the project, a perforated pipe subdrain should be installed at the base of the wall to prevent build-up of hydrostatic pressures. The pipe should be at the bottom of a gravel “chimney” that extends to within about a foot of the top of wall backfill. If ¾-inch crushed rock is used, it should be wrapped in Mirafi 140N filter fabric or Caltrans Class 2 Permeable Rock may be used without fabric. The gravel chimney should be at least 12 inches wide as shown on Figure 8. Since only small volumes of water (seepage) are anticipated behind the wall, weepholes or a single outlet of the perforated pipe should be appropriate at the site. With the very small amount of water that is anticipated, we do not expect a significant erosion or scour issue at the outlet(s). The new subdrain could also be connected to the 6” diameter subdrain that should exist at the base of the 2008 wall.
If on-site soils and rock pieces are used to backfill between the gravel chimney and a temporary cut on the uphill side of the wall, they should be well-graded (i.e., free of voids when compacted), free of organics and have a maximum particle size of 6-inches. Most of the on-site soils that will be excavated during the work should be suitable for re-use as backfill and backfill should be compacted in thin lifts to at least 92% relative compaction to reduce risks of settlement of wall backfill. Surface drainage at the top of wall backfill should also be collected and discharged at an appropriate location.

Trench Backfill and Roadway Restoration

Trench backfill (if needed) should consist of poorly graded “bedding sand” that is consistent with the pipe manufacturer’s requirements and this bedding typically extends to about six inches above the pipe. The remainder of the trench should be backfilled with Class 2 Aggregate Baserock that is moisture conditioned to near optimum and compacted to at least 95%.

Since the slope failure did not result in a significant failure or loss of the asphalt surface, we are unsure of how extensive the project pavement rehabilitation might be. A temporary excavation/slope will likely be required for construction of the retaining wall, so some pavement “reconstruction” will likely be needed as the temporary cut is backfilled. We recommend pavement restoration include a new structural section of four inches of asphalt concrete over at least twelve inches of Class 2 Aggregate Baserock. This pavement section should be appropriate for a Traffic Index of about 6 using an assumed R-value of 15.

We note that existing pavements in the project area include some rough surfaces and cracking. If pavement improvements are desired beyond the limits of temporary excavations and roadway reconstruction noted above, a two-inch “mill” and two to three inches of new asphalt could be considered as a minimum to improve conditions. Depending on the severity of cracking of underlying pavements, this “thin” layer of asphalt could be prone to “reflective” cracking so thicker asphalt will provide improved long-term performance and reduced maintenance needs. Therefore, if budget allows and to reduce potential for future cracking, we suggest removing existing asphalt and placing four inches of new asphalt in areas of the project where the road is not reconstructed so that a uniform pavement thickness exists across the project area.

Asphalt and baserock should conform to the requirements in Caltrans’ Standard Specifications (latest edition) and baserock should be compacted to at least 95% (ASTM D1557). The upper 12 inches of subgrade surface below the new baserock should also be compacted to at least 95% and a firm and unyielding surface.

Plan Review and Construction Observation

We should review the design plans as they are nearing completion to confirm that the intent of our geotechnical recommendations has been incorporated. During construction, we should also observe and test the pier drilling, fill placement, drainage and other geotechnically related work items to verify that our recommendations are suitable for the observed conditions and that the work is performed in accordance with our recommendations.
If there are any questions or if we can be of further assistance, please call.

Yours very truly,
MILLER PACIFIC ENGINEERING GROUP

Michael P. Morisoli
Geotechnical Engineer No. 2541
(Expires 12/31/22)

Attachments: Figures 1 through 8, Appendix A
SITE LOCATION

SITE: LATITUDE, 38.5553°
      LONGITUDE, -122.5777°

REFERENCE: Google Earth, 2021
"LENGTHEN" EXISTING WALL BY 100 TO 110 FEET

Approximate location of boring completed by MPEG, 2021

Approximate location of boring completed by Kleinfelder, 2007

<table>
<thead>
<tr>
<th>MAJOR DIVISIONS</th>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COARSE GRAINED SOILS over 50% sand and gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLEAN GRAVEL</td>
<td>GW</td>
<td>Well-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td>GP</td>
<td></td>
<td>Poorly-graded gravels or gravel-sand mixtures, little or no fines</td>
</tr>
<tr>
<td>GRAVEL with fines</td>
<td>GM</td>
<td>Silty gravels, gravel-sand-silt mixtures</td>
</tr>
<tr>
<td>GC</td>
<td></td>
<td>Clayey gravels, gravel-sand-clay mixtures</td>
</tr>
<tr>
<td>CLEAN SAND</td>
<td>SW</td>
<td>Well-graded sands or gravelly sands, little or no fines</td>
</tr>
<tr>
<td>SP</td>
<td></td>
<td>Poorly-graded sands or gravelly sands, little or no fines</td>
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<td>SAND with fines</td>
<td>SM</td>
<td>Silty sands, sand-silt mixtures</td>
</tr>
<tr>
<td>SC</td>
<td></td>
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</tr>
<tr>
<td>FINE GRAINED SOILS over 50% silt and clay</td>
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<td></td>
</tr>
<tr>
<td>SILT AND CLAY liquid limit &lt;50%</td>
<td>ML</td>
<td>Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity</td>
</tr>
<tr>
<td>CL</td>
<td></td>
<td>Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays</td>
</tr>
<tr>
<td>OL</td>
<td></td>
<td>Organic silts and organic silt-clays of low plasticity</td>
</tr>
<tr>
<td>SILT AND CLAY liquid limit &gt;50%</td>
<td>MH</td>
<td>Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts</td>
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<tr>
<td>CH</td>
<td></td>
<td>Inorganic clays of high plasticity, fat clays</td>
</tr>
<tr>
<td>OH</td>
<td></td>
<td>Organic clays of medium to high plasticity</td>
</tr>
<tr>
<td>HIGHLY ORGANIC SOILS</td>
<td>PT</td>
<td>Peat, muck, and other highly organic soils</td>
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<tr>
<td>ROCK</td>
<td></td>
<td>Undifferentiated as to type or composition</td>
</tr>
</tbody>
</table>

### KEY TO BORING AND TEST PIT SYMBOLS

#### CLASSIFICATION TESTS
- PI: PLASTICITY INDEX
- LL: LIQUID LIMIT
- SA: SIEVE ANALYSIS
- HYD: HYDROMETER ANALYSIS
- P200: PERCENT PASSING NO. 200 SIEVE
- P4: PERCENT PASSING NO. 4 SIEVE

#### STRENGTH TESTS
- TV: FIELD TORVANE (UNDRAINED SHEAR)
- UC: LABORATORY UNCONFINED COMPRESSION
- TXCU: CONSOLIDATED UNDRAINED TRIAXIAL
- TXUU: UNCONSOLIDATED UNDRAINED TRIAXIAL
- UC, CU, UU = 1/2 Deviator Stress

#### SAMPLER DRIVING RESISTANCE
Modified California and Standard Penetration Test samplers are driven 18 inches with a 140-pound hammer falling 30 inches per blow. Blows for the initial 6-inch drive seat the sampler. Blows for the final 12-inch drive are recorded onto the logs. Sampler refusal is defined as 50 blows during a 6-inch drive. Examples of blow records are as follows:
- 25 sampler driven 12 inches with 25 blows after initial 6-inch drive
- 85/7" sampler driven 7 inches with 85 blows after initial 6-inch drive
- 50/3" sampler driven 3 inches with 50 blows during initial 6-inch drive or beginning of final 12-inch drive

#### NOTE:
Test boring and test pit logs are an interpretation of conditions encountered at the excavation location during the time of exploration. Subsurface rock, soil or water conditions may vary in different locations within the project site and with the passage of time. Boundaries between differing soil or rock descriptions are approximate and may indicate a gradual transition.

---

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Diamond Mountain Road MP 1.1
Calistoga, California
Project No. 3125.006
Date: 9/27/2021

FILENAME: 3125.006 Figures.dwg
### FRACTURING AND BEDDING

<table>
<thead>
<tr>
<th>Fracture Classification</th>
<th>Spacing</th>
<th>Bedding Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushed</td>
<td>less than 3/4 inch</td>
<td>Laminated</td>
</tr>
<tr>
<td>Intensely fractured</td>
<td>3/4 to 2-1/2 inches</td>
<td>Very thinly bedded</td>
</tr>
<tr>
<td>Closely fractured</td>
<td>2-1/2 to 8 inches</td>
<td>Thinly bedded</td>
</tr>
<tr>
<td>Moderately fractured</td>
<td>8 to 24 inches</td>
<td>Medium bedded</td>
</tr>
<tr>
<td>Widely fractured</td>
<td>2 to 6 feet</td>
<td>Thickly bedded</td>
</tr>
<tr>
<td>Very widely fractured</td>
<td>greater than 6 feet</td>
<td>Very thickly bedded</td>
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### HARDNESS

<table>
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<tr>
<th>Strength</th>
<th>Weathering</th>
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<tbody>
<tr>
<td>Low</td>
<td>Carved or gouged with a knife</td>
</tr>
<tr>
<td>Moderate</td>
<td>Easily scratched with a knife, friable</td>
</tr>
<tr>
<td>Hard</td>
<td>Difficult to scratch, knife scratch leaves dust trace</td>
</tr>
<tr>
<td>Very hard</td>
<td>Rock scratches metal</td>
</tr>
</tbody>
</table>

### STRENGTH

<table>
<thead>
<tr>
<th>Friable</th>
<th>Crumbles by rubbing with fingers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weak</td>
<td>Crumbles under light hammer blows</td>
</tr>
<tr>
<td>Moderate</td>
<td>Indentations &lt;1/8 inch with moderate blow with pick end of rock hammer</td>
</tr>
<tr>
<td>Strong</td>
<td>Withstands few heavy hammer blows, yields large fragments</td>
</tr>
<tr>
<td>Very strong</td>
<td>Withstands many heavy hammer blows, yields dust, small fragments</td>
</tr>
</tbody>
</table>

### WEATHERING

<table>
<thead>
<tr>
<th>Weathering</th>
<th>Rock classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete</td>
<td>Minerals decomposed to soil, but fabric and structure preserved</td>
</tr>
<tr>
<td>High</td>
<td>Rock decomposition, thorough discoloration, all fractures are extensively coated with clay, oxides or carbonates</td>
</tr>
<tr>
<td>Moderate</td>
<td>Fracture surfaces coated with weathering minerals, moderate or localized discoloration</td>
</tr>
<tr>
<td>Slight</td>
<td>A few stained fractures, slight discoloration, no mineral decomposition, no affect on cementation</td>
</tr>
<tr>
<td>Fresh</td>
<td>Rock unaffected by weathering, no change with depth, rings under hammer impact</td>
</tr>
</tbody>
</table>

**NOTE:** Test boring and test pit logs are an interpretation of conditions encountered at the location and time of exploration. Subsurface rock, soil and water conditions may differ in other locations and with the passage of time.
BORING LOG

Diamond Mountain Road MP 1.1
Calistoga, California

NOTE:

1) UNCORRECTED FIELD BLOW COUNTS
2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m$^3$ = 0.1571 x DRY UNIT WEIGHT (pcf)
3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

EQUIPMENT: Truck-mounted B-53 Hydraulic Drill Rig with 6.0-Inch Solid Flight Augers
DATE: 9/8/2021
ELEVATION: 1102 - feet*

REFERENCE: Google Earth, 2021

**FILENAMES: 3125.006 Figures.dwg**

**A CALIFORNIA CORPORATION, © 2018, ALL RIGHTS RESERVED**
## BORING LOG

**Diamond Mountain Road MP 1.1**  
**Calistoga, California**

<table>
<thead>
<tr>
<th>Depth (Feet)</th>
<th>Sample</th>
<th>Boring Terminated at 22-feet 7-inches due to auger refusal. No groundwater encountered during exploration.</th>
</tr>
</thead>
</table>
| 20           | Lapilli Tuff | Light-medium gray-tan-yellow, hard, strong, volcanic clasts in ash matrix, completely weathered. [Bedrock]  
|               |         | auger refusal at 22.5', no recovery of sample |

### NOTES:

1. **UNCORRECTED FIELD BLOW COUNTS**
2. **METRIC EQUIVALENT DRY UNIT WEIGHT (kN/m²) = 0.1571 x DRY UNIT WEIGHT (pcf)**
3. **METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)**
4. **GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY**

### DRILL RATE (MIN/FT)

<table>
<thead>
<tr>
<th>Depth (Feet)</th>
<th>Drill Rate (MIN/FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0.4</td>
</tr>
</tbody>
</table>

---

**Water level encountered during drilling**

**Water level measured after drilling**

---

**Project No. 3125.006**  
**Date: 9/27/2021**

---

**filenames: 3125.006 Figures.dwg**
BORING 2

EQUIPMENT: Truck-mounted B-53 Hydraulic Drill Rig with 6.0-Inch Solid Flight Augers
DATE: 9/8/2021
ELEVATION: 1098 - feet*

NOTES:
(1) UNCORRECTED FIELD BLOW COUNTS
(2) METRIC EQUIVALENT DRY UNIT WEIGHT kN/m² = 0.1571 x DRY UNIT WEIGHT (pcf)
(3) METRIC EQUIVALENT STRENGTH (kPa) = 0.0479 x STRENGTH (psf)
(4) GRAPHIC SYMBOLS ARE ILLUSTRATIVE ONLY

4.0-Inches Asphalt Concrete
20.0-Inches Aggregate Baserock

Silty SAND (SM)
Medium brown, moist, loose, fine to coarse sand, ~35-40% low plasticity silt, up to 10% gravels.
[Fill]

Silty GRAVEL with Sand (GM)
Medium brown-tan-yellow, moist, loose, angular tuff gravels up to 1/2" Ø, ~25-35% fine to coarse sand, ~10-20% low plasticity silt. [Colluvium]

as above

Volcanic Agglomerate
Dark gray, very hard, very strong, slightly weathered, basalt cobbles up to 3" Ø. [Bedrock]

Boring terminated at 13.5 feet due to auger refusal. No groundwater encountered during exploration.

\[\begin{array}{cccc}
\text{Depth (feet)} & \text{Boring Terminated at 13.5'} & \text{No Groundwater Encountered During Exploration.}
\end{array}\]
NOTES:

1. Wall drainage should consist of clean, free draining 3/4 inch crushed rock (Class 1B Permeable Material) wrapped in filter fabric (Mirafi 140N or equivalent) or Class 2 Permeable Material. Alternatively, pre-fabricated drainage panels (Miradrain G100N or equivalent), installed per the manufacturers recommendations, may be used in lieu of drain rock and fabric.

2. All retaining walls adjacent to interior living spaces shall be water/vapor proofed as specified by the project architect or structural engineer.

3. Perforated pipe shall be SCH 40 or SDR 35 for depths less than 20 feet. Use SCH 80 or SDR 23.5 perforated pipe for depths greater than 20 feet. Place pipe perforations down and slope at 1% to a gravity outlet. Alternatively, drainage can be outlet through 3" diameter weep holes spaced approximately 20' apart.

4. Clean outs should be installed at the upslope end and at significant direction changes of the perforated pipe. Additionally, all angled connectors shall be long bend sweep connections.

5. During compaction, the contractor should use appropriate methods (such as temporary bracing and/or light compaction equipment) to avoid over-stressing the walls. Walls shall be completely backfilled prior to construction in front of or above the retaining wall.

6. Refer to the geotechnical report for lateral soil pressures.

7. All work and materials shall conform with Section 68, of the latest edition of the Caltrans Standard Specifications.
APPENDIX A – 2007 BORING LOG