



Caltrans

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PROJECT REQUIREMENTS

BOOK 2

Sacramento River Viaduct and West End Viaduct Deck Rehabilitation

FOR DESIGN AND CONSTRUCTION ON STATE HIGHWAY IN

Sacramento/West Sacramento in Sacramento and Yolo Counties

DISTRICT 03, ROUTE US-50/I-5

For Use in Connection with Standard Specifications Dated 2010, Standard Plans Dated 2010, and Labor
Surcharge and Equipment Rental Rates.

CONTRACT NO. 03-2F21U4

On Routes US-50 PM 2.5-3.2/L0-0.06 & I-5 PM 23.6/24.2

Project ID 03130001724

Federal Aid Project
ACBHNH-000C(362)N

Dated: July 24, 2013

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1 GENERAL

1.1 General

The Design-Builder shall perform all Work necessary to meet the requirements of the Contract.

1.2 Introduction to Books 2 and 3

This introduction is intended to provide instructions to the Design-Builder on the relationship between Books 2 and 3. It does not replace the order of precedence set forth in Book 1. Book 1, Section 1.3 defines the order of precedence for the Contract Documents. If there are any conflicts between this introduction and Book 1; Book 1, Section 1.3 shall control.

Book 3 sets forth the standards applicable to the Project. Some standards have been modified for application to the Contract. Those modified standards are identified in Book 3. Book 3 includes Technical Memoranda that modify the Department's Manuals and Special Provisions that modify the Department's Standard Specifications.

Book 2 sets forth requirements that are intended to apply to this Project. Book 2 incorporates the standards in Book 3 by reference. In many cases, Book 2 will modify, supplement, or replace the standards in Book 3.

The text of Book 2 shall take higher precedence than the exhibits of Book 2, unless otherwise specified.

1.3 Project Description

1.3.1 Basic Configuration

The Preliminary Design Plans provided in the RID convey the general intent of the Project. The Basic Configuration means those portions of the Preliminary Design Plans that depict:

1. Existing structures including approximate area to be protected with overlay
2. General configuration of existing on-ramps, off-ramps, and connector ramps to be protected with overlay
3. Approximate lane and shoulder widths
4. Number of lanes
5. Approximate location of Project Limits
6. Planned R/W Limits
7. Existing drainage related items throughout the limits of the Project

The following will be allowed without being considered a change to the Basic Configuration. This is subject to the restrictions listed elsewhere in the Contract Documents with specific attention to the following paragraph:

1. Adjusting the approximate limits of overlay(s) for all components
2. Minor modifications to the existing vertical and horizontal alignments of such a nature as to improve drainage or geometric configuration
 - a. These modifications are limited to those which may be achieved by modifying the thickness of the overlay without reducing the planned thickness of the overlay.

Subject to the restrictions outlined below and as stipulated elsewhere in the Contract Documents, any changes which result in the following are considered changes in the Basic Configuration and shall require Department approval. These changes may additionally require approval of the Federal Highway

Authority. Approval shall be at the sole discretion of the Department and may be subject to additional conditions depending upon the specific proposed changes to the Basic Configuration.

1. Creation and/or identification of Design Exceptions
2. Reduction in the Level of Service (LOS) of any project related facilities
3. Creation of new operational deficiencies
4. Conflict with the approved Environmental Document necessitating additional Environmental review and/or approvals
5. Changes requiring additional R/W Limits, Easements, Temporary Construction Easements, or access contrary or in addition to that anticipated and addressed in the Contract Documents
6. Changes proposed to the approved Traffic Handling Plan and/or Lane Closure charts

1.3.2 Project Limits

The Project is located in Sacramento and Yolo Counties in the Cities of Sacramento and West Sacramento. The Project limits are as follows:

The Project Limits for the work to be performed on or about the Route 50 portion of the project extend from Post Mile (PM) 2.5 in Yolo County through PM 0.06 in Sacramento County. For that work to be performed on and about Interstate 5, the Project Limits extend from PM 23.6 through 24.2 in Sacramento County. The project generally consists of placing overlays; replacing all bridge joint seals and/or joint seal assemblies; and correcting drainage issues on Sacramento River Viaduct (Br. No. 24-0004L/R); West End Viaduct (Br. No. 22-0069L/R); and the associated on-ramps, off-ramps, and connector ramps as shown in the contract documents.

It is anticipated that all Project related work will be accommodated within existing State Right of Way and that no additional Temporary Construction Easements, Permanent Easements, Rights of Entry, acquisition of Right of Way, or other access or procurement efforts will be necessary for successful completion of the intended Scope of Work. If Design-Builder identifies or desires any additional R/W related access, attention is directed to Section 1.3.1 and the requirements therein regarding Department approval for changes in the Basic Configuration.

1.3.3 General Description

The Design-Builder shall not rely on the physical description contained in this Section 1 to identify all Project components. The Design-Builder shall determine the full scope of the Project via a thorough examination of the RFP and the Project Site, or as may be reasonably inferred from such examination.

The Project nominally consists of the following:

Sacramento River Viaduct (Br. No. 24-0004L/R):

- Place 3/8" multi-layer polymeric overlay throughout limits as shown on Plan Sheets in Reference Information Documents (RID)..
- Remove AC overlay on ramp A6.
- Place appropriate overlay throughout all on-ramp, off-ramp, and connector-ramp locations in compliance with limits as shown on Plan Sheets in the RID
- Replace all joint seal and joint seal assemblies throughout structure.
- Remove and replace finger joints and membrane seals in spans 22 and 25 with modern joints that have a movement rating of six inches.
- Clean, repair, and upgrade entire drainage system throughout structure and ramp system limits.

- Mitigate for the known ponding issues located on ramp A-6 between Bent A6-41 and A6-42.
- Mitigate for the known ponding issues located on ramp A-13 between Bent A13-27 and A13-28.
- Replace all existing 3-piece drainage grates with 1-piece drainage grates or Department approved alternate design grates

West End Viaduct (Br. No. 24-0069L/R):

- Place ¾" polyester concrete overlay throughout structure limits as shown on Plan Sheets included in the RID
- Place appropriate overlay throughout all on-ramp, off-ramp, and connector-ramp locations in compliance with limits as shown on Plan Sheets included in the RID
- Replace all joint seal and joint seal assemblies throughout structure.
- Clean, repair, and upgrade entire drainage system throughout structure and ramp system limits as shown on Plan Sheets included in the RID.
- Replace all existing 3-piece drainage grates with 1-piece drainage grates or Department approved alternate design grates

General:

- Environmental compliance
- Signing and striping
- Business development and public information activities
- Maintenance, repair, and upgrade of existing ramp metering systems as affected by Project specific work
- Traffic handling and public safety
- Erosion control including slope stabilization and storm water pollution prevention.

1.3.4 Cooperation

Attention is directed to Section 5-1.20, "Coordination With Other Entities" and Section 5-1.36D, "Non-Highway Facilities," of the Standard Specifications and these project requirements. It is anticipated that work by other contractors may be in progress adjacent to or within the limits of this project during progress of the work on this contract. Should construction be under way by other forces or by other contractors within or adjacent to the limits of the work specified or should work of any other nature be under way by other forces within or adjacent to those limits, the Design-Builder shall cooperate with all the other contractors or other forces to the end that any delay or hindrance to their work will be avoided. The right is reserved to perform other or additional work at or near the site (including material sources) at any time, by the use of other forces.

When 2 or more contractors are employed on related or adjacent work, or obtain materials from the same material source, each shall conduct their operations in such a manner as not to cause any unnecessary delay or hindrance to the other.

Each contractor shall be responsible to the other for all damage to work, to persons or property caused to the other by their operations, and for loss caused the other due to unnecessary delays or failure to finish the work within the time specified for completion.

A list of ongoing contracts within the Project limits includes but is not limited to:

- Department EA:03-0F230
Rehabilitate two bridge decks on the Camellia City Viaduct. This project is ongoing and scheduled to be completed by November of 2015.
- Department EA: 03-3F600
Ramona Avenue Extension scheduled to commence in October of 2013.
- Department EA: 03-4M850
Placing Rubberized Asphalt Concrete Overlay from Watt Ave Overcrossing to Sunrise Boulevard Overcrossing on Highway 50 is scheduled to commence in January of 2014.
- Department EA: 03-3F170
Gore paving at numerous locations along routes 5, 50, 51 and 99 scheduled to commence in October 2014.
- Department EA: 03-0F880
Install Native landscaping at various locations along Route 50. This project is ongoing and scheduled to be completed in December of 2015
- Department EA: 03-3797U
Replace PCCP with HMA along I-80 at post miles M0 to M10.4. This project is scheduled to be completed in November of 2015.

The Design Builder shall at all times accommodate the schedule and traffic control necessary for the Camellia City Viaduct project (03-0F230) when determining scheduling and traffic control needs for this project (03-2F21U.) When an irresolvable conflict arises between these two projects, priority shall be given to the needs of the Camellia City Viaduct project with this project remaining subordinate. When the Design Builder believes that an irresolvable conflict will occur, notice will immediately be provided to the Department, in writing, so that any appropriate resolution may be pursued timely.

2 PROJECT MANAGEMENT

2.1 Scope Management

2.1.1 General

The Design-Builder shall perform all Work necessary to meet the requirements associated with Scope Management in accordance with the requirements of the Contract Documents and these Technical Provisions. In general, this includes preparing, documenting, revising, and submitting information that details the Work and changes to the Work.

2.1.2 Administrative Requirements

Following NTP1, the Design-Builder shall structure its project management processes, including payment breakdown on invoices and file structure for document control according to the activity breakdown provided in the Project Schedule. The Design-Builder shall schedule, conduct, prepare, and distribute the minutes of all Project meetings for the duration of the contract.

2.1.3 Deliverables

The Design-Builder shall submit Project meeting minutes to the Department within seven Days for review and comments prior to making final.

2.2 Cost Management

2.2.1 General

The Design-Builder shall perform all Work necessary to meet the requirements associated with Cost Management in accordance with the requirements of the Contract Documents and these Technical Provisions. In general this includes preparing, processing, revising, and submitting of invoices and progress reports.

2.2.2 Administrative Requirements

2.2.2.1 Payment Breakdowns

Following NTP1, the Design-Builder shall develop a payment breakdown based on Form 9 of the RFP and the activity breakdown in the Project Schedule. This breakdown shall be documented in an Original Payment Breakdown.

The Design-Builder shall ensure that all costs necessary to meet the particular requirements of each item are included in the payment breakdown.

During the course of the Project, the Design-Builder shall incorporate any Approved changes to the payment breakdown and document the new payment breakdown in a Revised Payment Breakdown.

In all payment breakdowns, the Design-Builder shall show the total cost per item and the cost per billing period for each item.

The Design-Builder shall ensure that all cost breakdowns are consistent and total up to the Contract Price.

2.2.2.2 Invoices

2.2.2.2.1 General

The Department reserves the right to withhold processing of an invoice if the requirements of this section are not met.

The Design-Builder shall structure the billing periods to start on the twenty-first of the month and end on the twentieth day of the following month. The Design-Builder shall include the following on the invoice cover sheet:

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- Project numbers (federal and State) and title
 - Invoice number (numbered consecutively starting with “01”)
 - Period covered by the invoice (specific Days)
 - Total earned to date for the Project as a whole and for each Work Segment and Pay Item Breakdown
 - Authorized signature and title of signatory
 - Date that invoice was signed

The Design-Builder shall include the Progress Report, for the period being billed, with the invoice.

On a monthly basis, at a minimum, the Design-Builder shall meet with the Department to review the following prior to submitting invoices:

- Activity percent completes, which are based on physical percent complete estimated by the Design-Builder’s field personnel relating to a resource and cost loaded schedule activity
- Incorporation of approved Change Orders as individual activities with proper title, coding by Change Order number, associated logic, duration, as well as cost/resource loading
- Verification of any unit price items
- Status of outstanding Nonconforming Work and Warranties
- Status of Submittals
- Backup documentation for cost reimbursable procurement and Change Order schedule activities

2.2.2.2 Invoice Calculations

The Department will base payments on the Department’s estimate of physical percent complete of the Work, not on measured quantities (except where specifically stated in the Contract).

The payment to the Design-Builder will be the amount shown on the Design-Builder’s Approved invoice less deductions made by the Department.

The following Project Management items from Form 9 submitted with the price proposal will be paid by prorating any unpaid balances by the amount of time remaining until Substantial Completion or Final Acceptance as determined by the Department:

- Contract Management (includes Scope Management, Cost Management, and Schedule Management)
- Quality Management
- Safety Management
- Public Information Management
- Environmental Management
- Maintenance during Construction

Payment for insurance and premiums will be made upon presentation of a paid invoice by the Design-Builder.

The Department makes the payments for Mobilization according to Public Contract Code § 10264. The Department pays the item total for mobilization in excess of 10 percent of the total bid in the first payment after Final Acceptance

The Department will base payments for design based on estimated percentage complete for each Release for Construction (RFC) package with the following limitations:

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- A maximum 90 percent will be paid when RFC Documents have been issued.
 - A maximum of 95 percent will be paid when all construction Work associated with each RFC package is complete.
 - A maximum of 100 percent will be paid when all As-Built Documents have been accepted by Department.

The Department will base payments for Time Related Overhead on the number of Working Days that occurred during that monthly estimate period, including compensable suspensions and delays. Working Days granted by Contract Change Order due to Extra Work or changes in character of the work, will be paid for upon completion of the Contract. The amount earned per Working Day for time-related overhead shall be the amount for Time Related Overhead on Form 9 submitted with the Price Proposal divided by the number of Working Days in the Contract.

2.2.2.3 Progress Report

The Design-Builder shall include the following in a monthly progress report:

1. Summary of work performed during the previous month. Include digital color photographs of the Project progress.
2. Safety
 - Summary of Project accidents (frequency and severity) and corrective actions taken
 - Updates to emergency services access points to the Project Site
 - Updates on safety training provided
3. Labor compliance
 - The total monthly labor hours for construction/maintenance and non-construction personnel by classification of management, engineering, and other technical personnel used on the job.
 - Disadvantaged Business Enterprise (DBE) and Project updates
 - Equal Employment Opportunity (EEO) progress and Project updates
 - Update on labor compliance unresolved issues
4. Quality updates
 - A statement verifying continued compliance with the Quality Manual signed by the Quality Manager
 - Summary of quality audits, Quality Control and Validation inspections and testing performed and summary of anticipated quality activities for the next month.
 - Listing of non-conformances and resolutions
 - Summary of Quality Manual updates
5. Public Information updates
 - Summary of public input received and responses
 - Summary of media contacts
 - Summary of complaints and resolution
 - Summary of information provided to the public regarding closures and construction staging changes.
6. Environmental compliance
 - Summary and copies of environmental monitoring reports
 - Summary of non-compliance issues and resolution
 - Summary of agency inspections

7. Maintenance of Traffic

- Summary of traffic switches and a look ahead to future traffic switches
- Summary of known traffic incidents within the Work zone

8. Change Orders

- Summary of outstanding change orders

9. Earned Value analysis for project cost and schedule.

2.2.3 Deliverables

2.2.3.1 Invoices

The Design-Builder shall include with the monthly invoice an electronic copy of the billing spreadsheet, and an updated schedule in an electronic media compatible with the Department's software.

2.2.3.2 Monthly Progress Reports

The Design-Builder shall provide six (6) hardcopies of the Monthly Progress Report and an electronic copy in Adobe Acrobat (pdf) format.

2.2.3.3 Original Payment Breakdown

The Design-Builder shall submit for the Department Acceptance the Original Payment Breakdown for Approval as a condition of NTP2. The Department will respond within 20 Working Days of receipt of the Original Payment Breakdown.

2.2.3.4 Revised Payment Breakdown

The Design-Builder shall submit the Revised Payment Breakdown for the Department Acceptance of any change to the Payment Breakdown. The Department will respond within twenty (20) Working Days of receipt of the Revised Payment Breakdown. No payment shall be processed without the Department acceptance of the Payment Breakdown.

2.2.3.5 Design Breakdown Report

Within 30 Days of NTP1, the Design-Builder shall provide a breakdown of the design hours and design costs for the Project in accordance with the following:

- The breakdown shall be provided in an electronic Excel spreadsheet.
- The breakdown shall list all major design activities. At a minimum, the breakdown should be broken down to a level of detail consistent with the Baseline CPM schedule.
- The breakdown shall list hours and rates per activity for each employee classification (e.g., Technicians, Senior Engineers, Project Managers, Administration.)
- The breakdown shall list budgeted expenses per activity.
- The breakdown shall list a combined mark-up factor for overhead and profit.
- The spreadsheet shall sum the design activities, hours per activity, expenses, and overhead/profit mark-up into a single Lump Sum value equal to Form 9, Line 9 – Design Services.

2.3 Schedule Management

2.3.1 General

The Design-Builder shall complete and maintain a “Primavera Project Planner” (P6) Project Management Critical Path Method (CPM) Schedule

2.3.2 Administrative Requirements

2.3.2.1 Definitions

The following definitions used in this Section are intended to supplement or supersede definitions provided with Oracle Primavera P6 Professional Project Management for Windows and shall have the following intents and meanings:

- **As-Built Schedule:** A schedule that records actual dates, work days, non-workdays, re-work and/or out of sequence work.
- **As-Planned Schedule:** The schedule representing the Design-Builder's best judgment and intended plan for completion of the Work in compliance with Contract Documents. The as-planned schedule shall take into account all foreseeable activities; to include but not limited to activities by any separate contractors, interface dates with utility owners/railroads/municipalities/agencies, submittal and submittal review.
- **Baseline Schedule:** The first Accepted As-Planned Schedule, which incorporates activities developed in the Preliminary Schedule; and fully includes the entire scope of Work from NTP1 to Final Acceptance. The Baseline Schedule shall show the work plan starting on the date of Contract Approval. This schedule shall show no completed work to date and no negative float or negative lag to any negative.
- **Controlling Item of Work:** The non-completed activity(s) with the earliest start date that resides on the Longest Path(s) of the current Working Schedule.
- **CPM Schedule:** The CPM schedule is a standardized algorithm for scheduling a set of project activities. CPM is a computerized network based planning technique using activity durations and relationships between activities to calculate a schedule for the entire report.
- **CPM Format:** The structure of the computerized schedule. CPM Format defines the construction logic in terms of all of the activities with their logical dependencies. All activities shall be logically tied to a predecessor and successor with the exception of the first and last activities respectively. All activities shall have at least one finish-to-start (FS) relationship. Dangling activities must be avoided.
- **Critical Activity:** An activity with zero or negative Total Float.
- **Critical Path(s):** The chain or parallel chain(s) of continuous activities controlling the last activity of the schedule and/or Milestone(s). See also Longest Path.
- **Date Constraint:** A constraint placed on an activity that overrides or impedes logic and/or restricts or distributes Float to control a network and/or sub-network of logic. A Date Constraint shall only be used on contractual obligate date(s).(see definition of "Milestone")
- **Free Float:** The number of Days available to an activity without delaying the early start of a successor activity. Free Float is uniquely available to an activity.
- **Impact Schedule:** A schedule prepared to demonstrate the impacts of a change, or a proposed change from the last accepted working schedule. An accepted Impact Schedule becomes the current Working Schedule and is submitted via a Time Impact Analysis.
- **Longest Path:** The String of directly related activities that comprise the longest path from the data date to the last activity in the schedule. **Milestone:** A contractual obligated Project Start or deadline and shall be designated with an activity type of Milestone. Milestones are the only activities allowed a Start and Finish date constraint. The Design-Builder may use activity coding to designate other activities of interest.
- **Near Critical Activities:** Activities with equal or less than 10 Days Total Float.

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- **Preferential Sequence:** A sequence of Work chosen by the Design-Builder that otherwise could be performed in a different sequence than the one chosen. At any time if the Preferential Sequence contradicts the As-Planned Sequence the As-Built Sequence shall take precedence.
 - **Preliminary Schedule(s):** The schedule(s) submitted as parties work toward Baseline Schedule Acceptance.
 - **Revision Schedule:** Any accepted schedule that substantially differs from the plan depicted in the accepted Baseline Schedule. An Accepted Revision Schedule becomes the current Working Schedule and is submitted via an Impact Schedule.
 - **Sequestered Float:** The causation of a withdraw into seclusion to screen from view and make smaller a value of Float other than that as shown in the schedule as a result of manipulation and techniques of network logic intentional or unintentional, that diminishes, sequesters or removes Float that would otherwise be available to both parties.
 - **Total Float:** Number of Days by which a part of the Work in the Schedule may be delayed from its Early Dates without extending the Contract Time or Milestone.
 - **Two Week Look-Ahead Schedule:** Schedule which spans a forward looking, rolling period of at least fourteen (14) Working Days.
 - **Working Schedule:** The current accepted Schedule. The Working Schedule shall be used for planning the remainder of the Work, as well as recording actual start/finish dates of activities, and work/non-work days.

2.3.2.2 Computer Software

The Design-Builder shall use scheduling software that is compatible with “Primavera Project Planner (P6)” current version for Windows operating system in use by the Department. If the Design Builder uses software other than P6, the schedule shall be submitted in P6 format. The Design-Builder is responsible for any conversion discrepancies.

2.3.2.3 Schedule Calculations

The following scheduling settings will govern, and the schedule will be calculated in P6, current version.

2.3.2.3.1 Interruptible Activities

The schedule method shall be set to interruptible activities.

2.3.2.3.2 Total Float Calculations

Total Float shall be calculated utilizing the Finish Dates. Hammocks will be ignored when determining Float and Critical Path(s).

2.3.2.3.3 Retained Logic

The schedule will be calculated utilizing Retained Logic. It is the responsibility of the Design-Builder to work in the sequence of the as-planned schedule.

2.3.2.4 General Requirements

Changes to the Schedule shall be closely coordinated with the Department and are subject to the Department’s Acceptance. If the Department deems Work is performed substantially out of sequence, the Department may request the Design-Builder to demonstrate the impacts in accordance with the Time Impact Analysis (TIA) section contained herein.

The Design-Builder shall manage and Work with each Subcontractor and Supplier to obtain information on Activities for implementation and sequencing of the Work. The schedules shall reflect Contract requirements and known limitations.

Errors or omissions within schedules shall not relieve the Design-Builder from finishing all Work within the time limit specified for completion of the Contract. If, after a schedule has been Accepted by the Department, and either the Design-Builder, or the Department discovers that any aspect of the Schedule has an error or omission, it shall be corrected within ten (10) Working Days, and the effects indicated in accordance with the Time Impact Analysis section contained herein.

Any condition or Work that impacts the Design-Builder's commencement of an activity shall be identified as outside impacts to the Schedule, such as work under another contract, which affects the Project. In a case where Work affects or is affected by work under another contract and the affected contracts are being performed by the same contractor, the Design-Builder shall coordinate the Work to minimize impacts to both contracts' project completion dates. No additional time shall be given for coordination with other contracts.

2.3.2.5 Naming Convention

2.3.2.5.1 Preliminary and Baseline Schedule

Schedules shall be assigned a file name and a version, starting with file name "BL00" and version "Rev. 0". Until the Department accepts the schedule the Design-Builder shall resubmit the same file name and increment the version number by one (e.g., BL00 Rev1). The Preliminary Schedule that is ultimately accepted as the Baseline shall be resubmitted with file name of "BL00" and a version "Baseline". Updates shall increment the file by one with version starting back at "Rev 0" and versions incremented by one until accepted (e.g., BL01 Rev0).

2.3.2.5.2 Impact Schedule

Impact Schedules are submitted via a Time Impact Analysis in accordance with the "Time Impact Analysis" section contained herein. Impact Schedules shall be assigned a file name starting with file name "I001" and incremented by one for every submitted Impact Schedule.

2.3.2.5.3 Revision or Recovery Schedule

The first accepted Impact Schedule (new Working Schedule) shall be assigned a file name starting with file name "RE00"; however, the revision shall indicate the accepted Impact Schedule's file name (e.g., file name RE00 RevI001). Subsequent updates shall have a file name incremented by one, with revision started back at "Rev.0" (e.g., RE01 Rev0).

2.3.2.6 Notice to Proceed(s)

2.3.2.6.1 Preliminary Schedule(s)

All schedules submitted prior to Acceptance of the Baseline Schedule will be considered Preliminary Schedules. The Preliminary Schedule shall communicate that all Milestone dates are understood and sufficiently detail a 30-Day look-ahead period.

Preliminary Schedules shall be submitted with data dates of the 21st day of the month; the schedule shall be submitted to the Department as soon as possible after the applicable data date, but in no instance shall be later than four (4) Working Days after applicable data date.

2.3.2.6.2 Baseline Schedule

The Baseline Schedule shall not extend beyond any Completion Deadlines, contain negative Float, or negative lag, or utilize any other prohibited scheduling techniques. A total of not more than 20 percent of the Baseline Schedule activities shall be Critical Activities or 30 percent Near Critical Activities, unless otherwise authorized by the Department.

The Baseline Schedule shall include, at a minimum, the applicable level of detail indicated in the "Level of Detail" section contained herein, unless changes are approved by the Department. Failure to include any element of required Work in any Schedule shall not relieve the Design-Builder from completing all Work necessary to complete the Project according to Completion Deadlines.

2.3.2.7 Schedule Updates

At a minimum, the Design-Builder shall submit an updated schedule, with a data date of the 21st day of every month, which accurately records the dates work started and subsequently completed. The schedule shall be received, by the Department no later than four (4) Working Days past the data date. Changes to the Schedule shall be closely coordinated with the Department and are subject to the Department's acceptance. At the Department's sole discretion, the Design-Builder may be required to submit separate Schedule Updates—one that has Status Updating only and one that includes duration, logic and other changes with Status Updating. If the Department deems work is performed substantially out of sequence, the Design-Builder shall demonstrate the impacts in accordance with the "Time Impact Analysis" section contained herein.

The Design-Builder shall minimize the number of changes and state within the update narrative, the reasons for any changes to the Schedule. The Department may elect to allow the Design-Builder to include modifications such as adding or deleting activities or modifying activity descriptions, durations or logic without submitting a "Time Impact Analysis" as long as, in the sole opinion of the Department, the modifications do not:

- Alter the critical path(s) or near critical path(s)
- Extend the scheduled Completion Deadlines or Milestone(s) compared to that shown on the current accepted Working Schedule
- Disrupt the integrity or comparative relationship between the last accepted Working Schedule
- Consume "unreasonable" amount of Total Float
- Modify Budget Estimates on In-Progress Activities
- Delete In-Progress Activities with Budget Estimates

The Design-Builder shall minimize the number of changes and state in writing, within the update narrative report, the reasons for any changes to the Schedule or planned work. If, in the opinion of the Department, any proposed changes in planned work result in any of the above stated conditions, the Design-Builder shall submit a "Time Impact Analysis" as described herein. The Department may, at its sole discretion, elect to deny duration or logic changes that it deems either unreasonable or of a preferential nature.

2.3.2.8 Acceptance of Schedule

The Department's review and acceptance of Schedules will not waive any Contract requirements and shall not relieve the Design-Builder of any obligation or responsibility for submitting complete and accurate information. By review and acceptance of the Schedule, the Department does not endorse or otherwise certify the validity or accuracy of any part of the Schedules. The responsibility for validity and accuracy of all Schedules is the sole responsibility of the Design-Builder. Errors or omissions within Schedules shall not relieve the Design-Builder from finishing all Work within the time limit specified for Completion Deadlines.

If, after a Schedule has been accepted by the Department, and either the Design-Builder or the Department discovers that any aspect of the Schedule has an error or omission, it shall be corrected and the effects indicated in accordance with the "Time Impact Analysis" section contained herein.

2.3.2.8.1 Preliminary and Baseline Schedules

The Department will accept or return comments on submitted schedules within seven (7) Working Days after being received. Schedules that are not accepted shall be corrected by the Design-Builder within seven (7) Working Days after the Department has returned comment. It is the Design-Builder's responsibility to meet with the Department as often as necessary to satisfy the Department's comments within said seven (7) Working Days.

The Department will accept or return comments on submitted schedules within fifteen (15) Working Days after being received. Schedules that are not accepted shall be corrected by the Design-Builder within seven (7) Working Days after the Department has returned comments. It is the Design-Builder's responsibility to meet with the Department as often as necessary to satisfy the Department's comments within said seven (7) Working Days.

The time allowed for the review of a submittal starts when the Department receives the submittal. For each submittal, the Department shall have a review time of fifteen (15) Working days.

2.3.2.8.2 Schedule Updates

The Department will accept or return comments on submitted schedules within seven (7) Working Days after being received. Schedules that are not accepted shall be corrected by the Design-Builder within seven (7) Working Days. It is the Design-Builder's responsibility to meet with the Department as often as necessary to satisfy the Department's comments within said seven (7) Working Days. All Change Orders shall be incorporated into the Schedule Updates by separate activities with Approved Costs and Resources. All Change Orders must be coded appropriately by Change Order number and appropriate activity coding.

The Department will accept or return comments on submitted schedules within ten (10) Working Days after being received. Schedules that are not accepted shall be corrected by the Design-Builder within seven (7) Working Days. It is the Design-Builder's responsibility to meet with the Department as often as necessary to satisfy the Department's comments within said seven (7) Working Days. All Change Orders shall be incorporated into the Schedule Updates by separate activities with Approved Costs and Resources. All Change Orders must be coded appropriately by Change Order number and appropriate activity coding.

The time allowed for the review of a submittal starts when the Department receives the submittal. For each submittal, the Department shall have a review time of ten (10) Working days.

2.3.2.8.3 Impact Schedules

The Department will Accept or return comments on submitted schedules within fourteen (14) Working Days after being received. Schedules that are not Accepted, shall be corrected by the Design-Builder within seven (7) Working Days. It is the Design-Builders responsibility to meet with Department as often as necessary to satisfy the Department's comments within said seven (7) Working Days.

The Department will accept or return comments on submitted schedules within fourteen (14) Working Days after being received. Schedules that are not accepted, shall be corrected by the Design-Builder within seven (7) Working Days. It is the Design-Builders responsibility to meet with the Department as often as necessary to satisfy the Department's comments within said seven (7) Working Days.

The time allowed for the review of a submittal starts when the Department receives the submittal. For each submittal, the Department shall have a review time of fourteen (14) Working days.

2.3.2.9 Weekly Look-Ahead Schedule

The Design-Builder shall submit weekly, a detailed forward looking schedule, covering the period of at least fourteen (14) Working Days. This schedule may be a hand- or computer-generated bar chart, but specifically references the applicable CPM Activity ID. This Look-Ahead Schedule" shall be in greater detail than the "Working Schedule" and define specific daily operations at each specific location to be performed during a two-week period.

2.3.2.10 Schedule Recovery

Unless otherwise directed in writing by the Department, whenever the current working schedule indicates negative Float greater than five (5) percent of the remaining Calendar Days before a contractual obligate

milestone, but in no case greater than negative twenty (20) Working Days, the Design-Builder shall submit, within seven (7) Calendar Days, a Time Impact Analysis (TIA) as described in “Time Impact Analysis” section herein; whereas the impact schedule shall recover the negative Float regardless of fault of either party for past delays. The requirement to recover negative Float regardless of fault is not a directive by the Department to accelerate the Work but rather a directive to provide a proposal. Any cure involving acceleration, at a cost to the Department, shall be directed in writing from the Department prior to any execution of acceleration thereof.

2.3.2.11 Change Management

The Design-Builder shall provide the Department with the schedule activity(s) that were affected and document them in the appropriate Change Order. All Change Orders shall be incorporated into the schedule. Each Change Order shall have its own activity ID and specifically reference the Change Order Number as the P6 Resource; and be assigned to a cost account “CO”. All change orders shall include TIA and any additional time shall be accompanied with the change order.

2.3.2.12 Time Impact Analysis

The Design-Builder shall determine the effect of an impact as contemporaneously as possible, and shall not wait to analyze the effects of an impact; this may require estimates of the duration of the impact. The Design-Builder shall submit a Time Impact Analysis (TIA) at any time the Design-Builder is unsure if any one event, or accumulation of events, impacts an internal milestone or a Completion Deadline. Failure of the Design-Builder to submit a TIA addressing the impact, will be considered prima facie evidence that the Department was not afforded the opportunity to mitigate the impact. At any time the Department may require the Design-Builder to demonstrate the impacts of any change, or proposed change, to the schedule via (TIA) procedure; upon receipt of such request the Design Builder shall submit requested TIA schedule within ten (10) Working Days of receiving the request, even if the Design-Builder believes that there is no impact to the schedule.

A Time Impact Analysis (TIA) shall include a statement that there is “No effect to the schedule” OR, the (TIA) shall include the following:

- An Impact Schedule
- Any associated cost burden or savings
- A narrative report developed specifically to demonstrate effects of deviations from the current working schedule to include:
 - A detailed factual statement of the impact, and its cause, providing all necessary dates, locations, and items of Work affected and included in each impact
 - The dates or dates on which actions resulting in the impact occurred or conditions resulting in the impact became evident
 - Identification and copies of all pertinent documents relating to such impact
 - Basis for entitlement and identification of the provisions of the Contract which support the impact
 - All, if any, concurrent Design-Builder caused delays during the time frame of the impact
 - Affected activity ID(s) of the Schedule for which the impact is to be presented and how they were affected
 - Any additional information requested by the Department

The Department may accept the Impact Schedule as the new Working Schedule while parties determine associated cost burden or savings. All accepted Impact Schedules shall become the next Working Schedule and with the Impact Schedules file name referenced in the Revision field.

2.3.2.13 Float Suppression / Sequestered Float / Use of Float

The Design-Builder shall not engage in Float suppression manipulations which have the net effect of sequestering Float time. It is expressly agreed and understood that the Design-Builder shall not be entitled to any compensation or damages on account of delays which could have been avoided by revising activity time or logic used to sequester Float and will exclude the Design-Builder's right to recover any delay damages or compensation. Lags/Leads are subject to the consent of the Department. The Design-Builder shall remove any Lags/Leads and replace them with an activity identifying the Lag/Lead upon request of the Department, regardless of prior Acceptance on previous schedules

The Design-Builder acknowledges that all Float is a shared commodity available to the Project and is not for the exclusive benefit of any party, but is an expiring resource available to accommodate changes in the Work, however originated. Contract time extensions for Contract performance will be granted only to the extent that delays or disruptions to effected work paths exceed Total Float along those paths of the current Working schedule in effect at the time of delay or disruption. It is understood that identified contingencies, as described in the "Calendar and Identified Contingency" section, become available Total Float as time elapses and the contingency was not used.

2.3.2.14 Early Completion

Should the Design-Builder intend to complete, or complete the Work, or any portion thereof, earlier than any Completion Deadline, it is understood that Project benefits from the increase in shared Total Float. The Design-Builder agrees that delays shall only be based on impacts to the Completion Deadlines, not the Planned Early Finish date of the Schedule. Completion Deadlines can only be changed by an executed Change Order.

2.3.2.15 Calendars and Identified Contingency

The duration of each activity shall include the necessary work days to actually complete the work defined by the activity; contingency shall not be built into the durations. Each activity shall be assigned the appropriate calendar as it relates to each major item of Work. Each calendar, with the exception of the calendar utilized for tracking Calendar Days, shall include contingent non workdays. It is the responsibility of the Design-Builder to estimate sufficient weather contingency. The Design-Builder shall include a minimum of 15 percent weather contingency for each major item of Work affected by weather. The Design-Builder shall submit a statement indicating duration (in hours) of their normal work day as it relates to the work week (e.g., M-F [10 hrs] and Sat [6 hrs] for each calendar).

Contingency will be the amount of indicated non workdays compared to this statement. If the Design-Builder does not submit this statement it will be considered prima facie evidence that the Design-Builder did not account for sufficient weather impacts.

2.3.2.16 Non-Compliance

The Design-Builder's refusal, failure, or neglect to diligently pursue timely acceptance of any schedule or TIA shall constitute reasonable evidence that the Design-Builder is not prosecuting the Work, or separable part, with the diligence that will ensure its completion within the applicable Completion Deadline and shall constitute sufficient basis for the Department to exercise one or a combination of the following options: withhold an amount up to 100 percent of the estimated value of work performed, or assess a non-recoverable monetary deduction of \$1,000/Day for every Day past an applicable schedule submittal deadline stated herein.

2.3.2.17 Level of Detail

The Schedule shall be both cost and resource-loaded, and will be used to administer the payments to the Design-Builder. If the Design-Builder intends to bill for materials on hand, all procurement activities must be scheduled and cost/resource loaded separately from the installation activities.

The costs assigned to schedule activities shall roll up to equal the price for the items identified in Form 9 of the ITP. The total cost of all schedule activities shall equal the Contract Price. The cost assigned to individual schedule activities shall reflect the Design-Builder's cost for each activity, and shall not artificially inflate, imbalance, or front-load the items. Each activity shall identify a reasonable estimate of either a commodity or labor hour upon which the activity value is based. Combining multiple Resource/Cost Account codes on single activities is not allowed (i.e., "Install Soundwalls" should not include both Painting and Installation cost/resources).

All activities shall have at least one Finish-to-Start (FS) relationship, except for the Project finish. Submittal activities shall be a one (1) day duration and include a separate activity for the contractual review time.

As a minimum each activity shall:

- Have a unique activity description, which appropriately describes the work to be performed.
- Not be less than one day in duration.
- Have at least one predecessor and one successor activity, except for Project start and finish, respectively
- Express activity duration in Days (Fractional durations shall not be allowed)
- Utilize the Activity Code "DETL" to best represent a geographic area of the project. The DETL code field shall be shorter than 5 characters
- All activities shall have at least one Finish-to-Start (FS) relationship.
- Dangling activities shall be avoided

The Baseline Schedule shall be sufficiently detailed to accurately reflect the complexity and numerous construction operations of this Project to the satisfaction of the Department. The level of detail described below is an example of the kind of detail expected, but can be improved upon or changed as applicable.

Administration:

- Schedule Milestones
- Mobilization
- Foundations, substructure, superstructure, and decks
- All Submittals (Design packages, shop drawings, etc)
- Department review periods
- Utility notification and relocation, by utility
- Material on hand (procured items) requests and payments
- Substantial completion
- Punch list

Bridges:

- Place polyester overlay
- Place multilayer polymer overlay
- Clean deck drains, per structure
- Remove concrete
- Place joint seal assembly, per structure
- Remove unsound concrete, per structure

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- Prepare bridge deck surface, per structure
 - Clean expansion joint, per structure

Roadway:

- Traffic switches
- Submission of job mix formula for asphalt pavement
- Delivery schedule for items such as drainage pipe, guardrail, sign structures and signs, permanent lighting facilities, and permanent traffic signals
- Internal access and haul roads (location and duration in-place)
- Clearing and grubbing by stationing and roadway
- Excavation
- Embankment placed for each roadway
- Drainage – by run with structures for each roadway
- Pavement (asphalt and/or concrete) for each roadway
- Guardrail for each roadway
- Slope pavement or riprap
- Roadway lighting for each roadway
- Signing for each sign structure location and for each roadway
- Striping for each roadway
- Traffic signals per location
- Topsoil, sodding, seeding and mulching for each roadway
- Landscaping
- Finishing roadway and final cleanup

2.3.3 Deliverables

2.3.3.1 Schedule Submission

The Design-Builder shall include a narrative for each schedule submittal to include and discuss:

- A bar chart, of all activities, sorted by Early Start and indicating Longest Path(s) in red
- A bar chart sorted by Early Start for each Milestone's Critical Path
- A bar chart, of only activities with Total Float less than ten (10) Days, sorted by Early Start
- Upcoming and pending coordination required with the Department, or third parties
- Potential problem areas
- Description and reason for any changes made to the schedule and the effects the changes have on Milestones or Project Completion Date including schedule recovery

The Design-Builder shall include Bar Charts for each Schedule submittal containing the following information:

- The Baseline Schedule in grayscale above the current progress bar for each task
- Activity ID and description
- Original Duration
- Remaining Duration

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- Percent Complete
 - Early Start, Early Finish, Late Start, and Late Finish.
 - Total Float
 - Predecessors and successors
 - Include a title block and a timeline on each page. At a minimum, the title block shall include file name, revision, start date, finish date, data date, and run date.

Each schedule submission shall include one (1) CD-R compact disk containing a backup, in P6 compressed format (PRX files).

2.3.3.2 Preliminary Schedule

The Design-Builder shall submit to the Department a Preliminary Schedule for Acceptance. Acceptance of the first Preliminary Schedule shall be a condition of NTP1.

2.3.3.3 Baseline Schedule

The Design-Builder shall submit a Baseline Schedule for the Department Acceptance within 21 Working Days following NTP 1.

2.3.3.4 Schedule Updates

The Design-Builder shall submit an updated schedule, with a data date of the 21st day of the month, or other date established by the Department, that accurately records the dates the Work started and subsequently completed. The schedule shall be submitted as soon as possible after the applicable data date, but in no instance shall be later than four (4) Working Days.

2.3.3.5 Time Impact Analysis

The Design-Builder shall submit a TIA to determine the effect of any delay event or any ordered or proposed change to the current Working Schedule. A TIA includes an Impact Schedule, any associated cost burden or savings, and a narrative report developed specifically to demonstrate effects of deviations from the current working schedule.

2.3.3.6 Weekly Look-Ahead Schedule

The Design-Builder shall submit weekly, a detailed forward looking period of at least fourteen (14) Working Days. This schedule may be a hand- or computer-generated bar chart, but specifically references the applicable CPM Activity ID.

2.4 Quality Management

2.4.1 General

2.4.1.1 Design-Builder Responsibility

The Design-Builder shall develop, implement, and maintain a Quality Program (QP) meeting the requirements of this Section 2.4. The QP shall be comprised of the Design-Builder's quality policy, quality objectives, design and construction quality management plans, quality procedures, Work instructions, and records.

The Design-Builder shall be responsible for all Work for the design and construction quality of the Project and for fully complying with the Project's scope of Work and the Design-Builder's Quality Program (QP). The Design-Builder shall be responsible for Quality Control and Quality Validation as defined below and described in the Quality Manual:

Quality Control: All Design-Builder/Subcontractor/Supplier/Vendor operational techniques and activities (process controls) that are performed or conducted to fulfill the contract requirements.

Quality Validation: Design-Builder’s activities that are independent of Quality Control and are performed by the Quality Manager or their representatives to ensure the quality of the product.

2.4.1.2 Department Role

The Department will assure that the Work is in conformity with the requirements of the Contract by performing verification sampling, testing, and inspection as part of the Acceptance and Independent Validation Program. The Department will use Contractor’s Quality Control (QC) & Quality Validation (QV) results as part of the acceptance as well.

The Department will provide oversight of the Design-Builder’s Quality Program.

The Department will perform systematic audits, reviews, and sampling, testing, and inspection in its role. The Department primary roles are:

- Design auditing will be performed on the products of design (drawings, calculations, specifications, special provisions, studies, reports and other design outputs). Design auditing is performed on an ongoing basis during the design phase of the Project.
- Construction verification sampling, testing, and inspection as part of its Acceptance Program. The Department will provide formal Acceptance of Work by performing verification testing at critical activity points. The Department may also perform verification inspection at the source.
- Management Program auditing of the implementation of the Design-Builder’s management plans and Quality Manual. These audits will be systematic and independent to determine whether quality activities and related results comply with planned quality activities and expected results and whether they are implemented effectively and are suitable to achieve objectives.
- Each organization (i.e., Design-Builder, Subcontractor, Supplier, etc.) will be subject to periodic management system audits.

Auditing will entail the collection and documentation of objective evidence to verify whether requirements have been met. The results of auditing will be documented on standardized audit report forms with copies provided to the Design-Builder. Non-conformances will be communicated and tracked in separate reports. The audit results will also be recorded in a database and regular summary and status reports will be provided to the Design-Builder. The timing, frequency, and depth of auditing will be at the Department’s discretion.

At any time as deemed necessary at the sole discretion of the Department, the Department quality staff may perform inspections or take samples for further investigation of possible Nonconforming Work

2.4.1.3 Quality Management Goals

2.4.1.3.1 Integrated Program

The Design-Builder shall develop, implement, and maintain a Quality Program and describe it in the Quality Manual that:

- Establishes comprehensive quality management processes and procedures.
- Integrates the quality goals of both the design and construction elements of the Project.
- Defines the minimum standards and procedures for quality management.
- Assigns the responsibilities for specific quality management functions.

2.4.1.3.2 Design Quality Management

The Design-Builder shall develop, implement, and maintain a Design Quality Management Plan that includes the following:

- Exhibits sound Design Quality Control and Quality Validation review processes.

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- Ensures the Released for Construction Documents meet the requirements of the Contract.
 - Provides quality measures and encourages continuous improvement of the design deliverable products.
 - Involves the Department throughout the entire design development process.
 - Integrates local and regulatory agencies and other applicable third parties in the design review comment process.

2.4.1.3.3 Construction Quality Management

The Design-Builder shall develop, implement, and maintain a Construction Quality Management Plan that:

- Provides quality measures and encourages continuous improvement of the construction phase.
- Educates all construction staff of their role in the Quality Management Program and ensures they understand their role is to build the Work in accordance with the Released for Construction Documents and the Project requirements.
- Ensures all construction Quality Control and Validation staff understand their roles in determining whether the Work meets the Project requirements.
- Integrates all Subcontractors and Suppliers in the Construction Quality Management Plan.
- Involves the Department throughout the entire construction process.

2.4.1.3.4 Continuous Improvement

The Department expects Quality Program improvements throughout the delivery of the entire Project. It is of the utmost importance that the Design-Builder involves all of its staff and partners with the Department to ensure overall Project satisfaction.

2.4.1.3.5 Flexibility

The description of the Quality Program in this Section 2.4 is not intended to be all encompassing, but to give the Design-Builder and the Department the flexibility to design and develop a program that best fits the needs of the Project and both parties.

2.4.2 Administrative Requirements

2.4.2.1 Standards

The Design Builder shall perform the Work in accordance with the relevant requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder's submittal has a higher standard than any of the listed standards, adhere to the submittal standard.

If there is any unresolved ambiguity in standards, it is the Design-Builder's responsibility to obtain clarification from the Department before proceeding with design and/or construction.

Use the most current version of each listed standard as of the initial publication date of this RFP unless modified by addendum or contract change order.

- Special Provisions*
- Caltrans Standard Specifications
- Standard Plans
- Department Technical Memoranda
- Caltrans *CADD User Manual*

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- AASHTO/NSBA *Steel Bridge Collaboration—Shop Detail Drawing Review/Approval Guidelines*
 - AASHTO/NSBA *Steel Bridge Collaboration—Shop Detail Drawings Presentation Guidelines*
 - AASHTO/NSBA *Steel Bridge Collaboration—Steel Bridge Fabrication QC/QA Guide Specification*
 - Remaining standards set forth in Book 3

*Document modified for design-build.

2.4.2.2 Quality Approach

2.4.2.2.1 General

The overall quality approach defined by this Section requires the Design-Builder to develop, implement, and maintain a Quality Program that encompasses the overall project, the design and the construction quality, as well as documentation requirements for the Project. The Department will audit the Design-Builder's Quality Program to determine whether quality activities are being carried out and implemented in accordance with these quality plans.

The Design-Builder shall perform Quality Control and Quality Validation activities for the design and construction of the Project in accordance with the policies and procedures defined in the Quality Manual described in Section 2.4.2.5. The Design-Builder's Quality Control activities shall include, but not limited to, the total of all design and construction activities to ensure that a product meets Contract requirements. The Quality Validation activities shall include, but not limited to, all systematic monitoring and evaluation of various aspects of the Project to ensure the standards of quality are being met, thereby providing confidence that all Work complies with the Contract and that all materials incorporated in the work, all equipment, and all elements of the Work will perform satisfactorily. The Design-Builder shall perform design quality check and review to ensure that the Work meets Contract requirements. The Design-Builder shall also perform construction quality testing and inspection activities to ensure that materials and the constructed Work meet Contract requirements. The quality tests and inspections shall be in accordance with the policies and procedures defined in the Quality Manual. The Design-Builder's Quality Validation (QV) team personnel shall be independent from and have no responsibilities in the production of the Work. . There should be a clear separation between QC and QV staff, and QV staff would work for and report to the Quality Manager.

The Department's Acceptance Program includes sampling, testing, and inspection to evaluate conformance of the Work with the Contract requirements. The Department will perform contract acceptance testing and inspection for verification that the Work meets Contract requirements.

The Department's oversight role is to perform reviews and audits of the design and construction products, and the Design-Builder's Quality Control and Quality Validation activities. The Department will perform oversight activities that are an unbiased and independent audits and evaluation of all the technical checks, sampling, and testing procedures and equipment calibration. .

The Design-Builder shall document quality activities and maintain quality data in accordance with the policies and procedures defined in the Quality Manual. The Design-Builder shall provide a Document Control System (DCS) to store and record all documents generated under the Contract for document management. The Design-Builder shall enter all Project documents including documentation of quality activities, tests, inspections, plans, reports, and correspondence into the DCS.

2.4.2.2.2 Withholding of Payment and Work Suspension

If there is evidence that the Design-Builder quality procedures are not adequate (as evidenced by the Department's Acceptance Program activities or problems arising during design or construction)), the Department may, at its sole discretion, withhold payment for design and construction until sufficient

quality procedures are in place. If construction is in progress, the Department may suspend ongoing Work represented by deficient work that requires correction of design and/or construction defects.

When there is conflict between the Design-Builder QC/QV and the Department Acceptance testing results, the Department will initiate a dispute resolution process. The Department Materials Engineering and Testing Services (METS) will act as the arbitrator for the dispute resolution

In addition, the Department may deduct from any amounts otherwise owing to the Design-Builder, including each progress payment and the final payment, any additional costs borne by the Department to address lapses to the Design-Builder team's quality management system, as specified in Section 11 - Book 1.

Subject to the Department's determination, the Department may assess the Design-Builder a \$100-per-hour monetary deduction for failure to facilitate satisfactory progress or completion of the Work. Hourly charges may be applied to periods during which the Department determines the Design-Builder has not satisfactorily responded to a documented non-compliance. No charge will be assessed if the deficiency is corrected by the Design-Builder within one hour of written notification from the Department.

2.4.2.3 Control of Material

The Design Builder shall furnish the Department a list of the Design Builder's sources of materials and the locations at which those materials will be available for inspection within seven (7) days after NTP 2. The list shall be submitted on the form shown on Exhibit 2-B, Notice of Materials to Be Used Form (CEM-3101DB), and shall be furnished to the Department within the required time as listed on Exhibit 2-C, Inspection Request Form (TL-38DB) to permit inspecting and testing of materials to be furnished from the listed sources in advance of their use. The Department will perform verification inspection and testing at the source.

The Design-Builder Quality Validation Manager (QVM) will be primarily responsible for material management and the Department will be copied on all the correspondences.

The Design-Builder shall perform Source Inspection and Fabrication Quality Control and Quality Validation on materials or products that will be used in all phases of the project and that are produced or fabricated at locations outside the construction site. Exhibit 2-E, tier Priority List, summarizes a partial tier list of materials that are subject to the Department Source Inspection requirements.

The Department may inspect, sample, or test materials at the source of supply or other locations, but the inspection, sampling or testing will not be undertaken until the Quality Control and Quality Validation personnel working on behalf of the Design Builder have completed their quality checks and the Department is assured by the Design Builder of the cooperation and assistance of both the Design Builder and the supplier of the material. The Design Builder shall assure that the Department or the Department's authorized representative has free access at all times to the material to be inspected, sampled, or tested. The necessary samples for destructive testing will be provided at the Design Builder's expense.

The Department shall be allowed to record, including photograph and video record, to ensure a material is produced to comply with the Contract. It is understood that the inspections and tests if made at any point other than the point of incorporation in the work in no way shall be considered as a guaranty of acceptance of the material nor of continued acceptance of material presumed to be similar to that upon which inspections and tests have been made. The Department's Verification sampling, testing, and inspection as part of its Acceptance Program is the prerogative of the Department and does not relieve the Contractor of responsibility for Quality Control and Quality Validation .

The Design Builder shall furnish all samples selected by the Department for the Department's verification and shall allow reasonable time to perform Contract Acceptance Testing (CAT).

For any materials/products that are shown on the Department's Pre-Qualified Authorized Materials List, the Design Builder shall only utilize suppliers of such products that are on the list. See the Department's Materials Engineering and Testing Services (METS) website

(http://www.dot.ca.gov/hq/esc/approved_products_list/) for the Authorized Materials List.

Where required by the specifications, materials/products should be fabricated at a location that has passed a Department audit, the Design Builder shall only utilize an audited/authorized facility that resides on the latest Department Audited Facility List. See the Department's Materials Engineering and Testing Services (METS) website (http://www.dot.ca.gov/hq/esc/approved_products_list/) for the latest list of Audited Facilities.

2.4.2.4 Quality Manual (QM)

2.4.2.4.1 Quality Manual – General

The Design-Builder's Quality Program shall comprehensively be described in a Quality Manual (QM). The Quality Manual shall encompass all Contract requirements with regard to design, construction, and documentation requirements for all quality processes. The Quality Manual shall be approved and endorsed by the Design-Builder's Executive Committee.

The Department shall approve the Quality Manual prior to start of NTP1 and shall be in effect until all requirements of the Contract have been fulfilled and the Project is accepted.

The Design-Builder shall revise its Quality Manual and its implementation when either the Design-Builder or Department identifies a systemic problem. These revisions shall be approved by the Department prior to implementation.

The structure of the documents describing the Quality Manual shall be: Quality policy (for the entire Quality Program), quality objectives, policies (for each element of the Quality Manual), procedures, forms and work instructions.

The Quality Manual shall graphically show, via flow chart, the processes and their relationships to each other, the inspection and test controls, and a narrative for each process.

Quality Program Procedures

All written procedures shall clearly describe the purpose of the process, overview of the process, responsibilities, steps of the process, and records resulting from the process.

2.4.2.4.2 Quality Manual – Template

To aid the Design-Builder with development of the Quality Management Plan for the Project, the Department has developed a Quality Manual Template (Exhibit 2-A) consisting of four volumes:

- Volume I – Quality Management Plan (includes the overall Quality Management Plan, Design Quality Management Plan, and the Construction Quality Management Plan)
- Volume II – Construction Quality Inspection and Testing Plan
- Volume III – Materials Control Schedule
- Volume IV – Document Management Plan

These manuals contain the quality processes and procedures the Department expects to see in the Design-Builder's final Quality Management Plan for the Project. The template shall be considered minimum and the Design-Builder shall enhance these manuals as necessary to provide an overall comprehensive Quality Management Plan for the Project. The Design-Builder may submit its own Quality Management Plan, but it shall cover all the topics contained in Volumes I-IV of Department's Quality Manual Template and meet all requirements of the Contract. This Quality Manual will be subject to the Approval process detailed in this Section 2.4.3.1.

Other areas the Design-Builder should pay close attention to in their final Quality Management Plan are:

- Unique and/or innovative design items
- Unique and/or innovative construction items
- Warranty Requirements that could lead the Design-Builder to modify their quality processes or procedures

2.4.2.4.3 Quality Manual – Responsibility

The Quality Manual shall:

- Graphically depict the lines of responsibility and interfaces to describe the Design-Builder's organization;
- Require that all Design-Builder personnel be responsible for reporting quality problems;
- Describe all verification resources, such as design verifiers, checkers, inspectors, and testers that the Design-Builder will utilize;
- Depict how the Design-Builder's design technical experts are incorporated into the construction phase of the Project

Quality Manual Personnel/Staff

The Design-Builder's Quality Manager shall:

- Be Approved by the Department.
- Have overall responsibility for the success of the Quality Program.
- Have no responsibilities in the production of the Work.
- Verify and provide confidence that the Work meets or will meet the Contract requirements.
- Be the point of contact to resolve non-conformances and project quality issues with Department.
- Report to the Design-Builder's Executive Committee and be independent of the Design-Builder's Project Manager.
- Provide the Department Contract Manager with all the reports and documents generated under the contract.
- Have the authority to stop work.

Following are the minimal certification requirements for inspection personnel performing quality control and validation activities at the listed assignments.

Type of Inspections	Minimum Required Certifications
Precast plant inspectors	PCI level II or PE
Welding and Misc Steel Inspections	AWS CWI For fracture critical work AWS CWI with FCM experience
Non-Destructive Testing Inspections	ASNT TC- 1A NDT Level II For Fracture critical work ASNT NDT Level III should be available
Paint/Coating Inspections for Structural Elements	NACE Level III
Concrete Field Inspections	ACI Field Grade I
Concrete Lab Inspections	ACI Lab Grade I or Aggregate Grade II as applicable

The Design-Builder shall also identify all other staff with the authority to stop Work, and ensure they understand the processes to implement this.

The Design-Builder’s quality staff shall not have the ability to deviate from Project requirements or to interpret Project specifications. Their role is solely to ensure the finished Work meets the requirements of the Contract. The Design-Builder’s Quality Validation personnel shall be independent from and have no responsibilities in the production of the Work.

Resource Qualifications

Personnel assigned to perform testing or inspection shall possess the necessary Department Technical Certifications for the Work they are testing or inspecting. Critical Activity Point Managers and Lead Structure Inspectors shall be registered Professional Engineers in the State of California and shall have the applicable Department Technical Certifications for the Work performed under the Critical Activity Point.

Management Accountability

The Quality Manual shall describe the Quality Manager’s accountability for ensuring the effective implementation and maintenance of the Quality Manual.

Management Review

The Design-Builder’s Executive Committee shall review the Quality Manual at least quarterly, and more frequently if necessary, to ensure its continuing suitability and effectiveness in satisfying the requirements of this Contract and the Design-Builder’s stated quality policy and objectives.

The Design-Builder shall invite Department to participate in the management reviews.

The management reviews shall, at a minimum, review the results of internal audits, Department audit results, corrective actions taken, trends in nonconformance, and the time for resolution.

The outputs of management reviews shall be incorporated into the Quality Manual.

2.4.2.4.4 Quality Manual - Design

General

All design (including design by Subcontractors) must meet the requirements of the Design-Builder’s Quality Manual and the Contract Documents. Any non-standard designs, details, manuals, or documents other than those approved by the Department shall be submitted to the Department for approval prior to being used for design or the preparation of structure plans.

Design and Development Planning

The Quality Manual shall describe the design and verification activities separately.

The Quality Manual shall describe how the design team schedules the design efforts, including design reviews, verification and checking stages, and issue dates of design deliverables.

The Quality Manual shall include details as to the level of involvement of the Department in the design development process. The Design-Builder is encouraged to involve the Department in all design development processes, including Independent Technical Reviews, and Constructability Reviews.

The Quality Manual shall describe how the security of documents shall be controlled during the Project.

The Quality Manual shall describe the coordination of the design with construction.

Design Input

The Quality Manual shall also describe how all design criteria, Contract requirements, and other design inputs are defined, reviewed, and approved.

The Design-Builder shall maintain an accessible, centrally controlled manual, database, or list that contains all relevant design inputs or references to design inputs to be used by design personnel to incorporate into the design.

The Design-Builder shall ensure that the design inputs are communicated to, and accessible by, the relevant designers responsible for incorporating design inputs into the design outputs.

Design Output

Submission of design documents to agencies other than Department shall be determined by the Design-Builder and included in the Quality Manual. All Work associated with review and comment of the design by outside agencies shall be the responsibility of the Design-Builder. The Design-Builder shall share copies of all correspondence with outside agencies and any design review comments by them with Department.

The Quality Manual shall define the design outputs (i.e., the specific plans and specifications) to be produced.

Released for Construction Documents

Released for Construction Documents shall constitute the documents issued for the purposes of construction.

The Design-Builder shall ensure:

- That no construction Work is undertaken without Released for Construction Documents.
- That the timing of submission of Released for Construction Documents is indicated in the Project schedules.
- That all Work, including modifications to the Work, is designed under the authority of and signed by a California-licensed Professional Engineer.

All Released for Construction Documents shall meet the following requirements:

- The Design-Builder shall prepare plans that are similar in appearance and content as shown in the *Plans Preparation Manual (PPM)*. Variations may result due to design-build delivery. The Design-Builder shall meet with Department to obtain Approval of any variations in plan content and format.
- The Design-Builder shall prepare all drawings in accordance with Department CADD standards.

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- The Design-Builder shall prepare all electronic drawings in MicroStation 8.0 or newer. All electronic data shall be prepared in Civil 3D SP2.1 with conversion to .pdf available. All reports and documents shall be prepared in Microsoft 2007 or later format (e.g. Microsoft Word (.docx), Microsoft Excel (.xlsx), etc)
 - The Design-Builder shall ensure that all deliverables containing CADD data shall be in MicroStation 8.0 or newer, see Section 4.1 of Caltrans *CADD Users Manual*, or Civil 3D SP2.1 format for design deliverables, see Sections 3.6 and 3.7 of the Caltrans *CADD Users Manual*. This shall include CADD data received from other agencies.
 - The Design-Builder shall ensure that all Microstation drawings, and associated documents are organized in a logical manner, have a uniform and consistent appearance, and clearly depict the intention of the design and construction.
 - The Design-Builder shall follow general plotting requirements as stated in Section 4.1 of the Caltrans *CADD Users Manual*.
 - The Design-Builder shall ensure that all designs and drawings are in U.S. Survey Foot.
 - The Design-Builder shall include the limits of excavation for all excavation work.
 - The Design-Builder shall include quantities in all Released for Construction Documents for all items which require inspection or testing in accordance with the Materials Control Schedule (MCS).

The Design-Builder shall ensure that all special provisions, shop drawings, and other items necessary to construct the Work are submitted as Released for Construction (RFC) packages and include the following (at a minimum):

- Cover Sheet with submittal description and schedule activity identification,
- Design Quality Manager Certification in accordance with the Quality Manual,
- Design plans/Design Reports
- Design calculations
- Specifications and Special Provisions

Shop and Working Drawing Documents

The Design-Builder's Engineer of Record shall review, approve, authorize, and confirm any methods or procedures that are contained in the Caltrans *Standard Specifications*, then submit the signed design drawings to the Design-Builder's construction team. The construction team shall then generate shop and working drawings as necessary to clearly define, control, construct, and inspect the Project. These working drawings shall be sent back to the design team for review and internal approval. All such drawings shall be reviewed and approved by the Engineer of Record, and shall be stamped "Approved for Construction" as per the Caltrans *Standard Specifications* prior to being issued for construction.

The Design-Builder shall consult with Department and all other applicable governmental entities that may require review of shop and working drawings and shall coordinate the preparation, submittal, and review of all such shop and working drawings. Where governmental approvals or approvals from Utility Owners are required, shop and working drawings shall be submitted to the applicable party for review and approval in accordance with their requirements.

Shop and working drawings for the Project shall include structural steel fabrication plans, anchor bolt layouts, shop details, erection plans, equipment lists, and any other information specifically required by the Construction Quality Validation Manager, Caltrans *Standard Specifications* or other governmental entities.

Shop and working drawings and calculations for excavation shoring, cribs, cofferdams, falsework, MSE walls, overhead signs, temporary support systems, formwork, and other temporary Project elements that describe the methods of construction proposed to be used for the Project shall be prepared by the Design-Builder in accordance with their Quality Manual and this section and shall be subject to review by the Department shall in no way constitute approval of the planned Project element or impose any liability upon Department.

Approved shop or working drawings and submittals listed in the specifications such as WQCP, PCQCP, PQWP, Splice Prequalification Report, Mix Design, etc shall be provided to the Department the number of Working Days allowed in “Department Review Time Requirements” prior to the start of any construction or fabrication detailed by those drawings. The Department approval/concurrence is required prior to start of any work. The Design-Builder shall make no changes in any approved shop or working drawing after the Engineer Of Record has approved them. Any deviations from approved shop or working drawings shall require the fabricator to submit revised drawings to Design-Builder’s design engineers for their approval, as outlined above.

As-Built Documents

The Design-Builder shall deliver to Department As-Built Documents that depict the final completed Project, including all changes from Released for Construction submittals, and data showing all items such as the electrical systems, drainage systems, lighting systems, underground and overhead Utilities, traffic controls and striping, signing placement, highway alignment and grade revisions, typical sections, and all other relevant data, including any operations and maintenance manuals for mechanical and electrical systems.

The Design-Builder shall ensure that the As-Built Documents meet the requirements of the Released for Construction Documents and the following additional requirements (see Section 4.3 of the Caltrans *CADD Users Manual* and the Caltrans *Construction Manual*):

- As-Built Documents shall include all base mapping (topography), design plans (including shop drawings), design calculations, design reports, specifications, and electronic CADD data.
- The Design-Builder shall ensure that all title blocks of calculation sheets include the calculation title, file number, page number, initials of the designer and the checker, and dates of design and checking.
- The Design-Builder shall ensure that all structure calculations performed using software are independently checked by a California-licensed Professional Engineer with ten (10) years minimum experience. The Design-Builder shall ensure that all calculations are verified.
- The Design-Builder shall ensure that all calculations indicate the design requirement, the assumptions made, the methods used, the source of the information, and the cross-reference for the applicable design drawings.
- The Design-Builder shall provide bridge load rating calculations and information.
- The Design-Builder shall ensure that all calculations are readily accessible, clear, understandable, concise, complete, and accurate.
- The Design-Builder shall ensure that all calculations are bound and numbered with a table of contents.
- The Design-Builder shall ensure that all calculations identify the code or standard utilized and indicate the specific section referenced in the right hand column.
- In the calculations, the Design-Builder shall reference the computer programs used.
- The Design-Builder shall ensure that all manual calculations are printed, neatly and legibly, on 8½-inch by 11-inch or 11-inch by 17-inch standard computation sheets.

The Design-Builder shall ensure that the As-Built Documents reflect the actual condition of the constructed Work. The Design-Builder's Project Manager shall sign and date the title sheet of the As-Built Plans to certify that the Project was completed in accordance with the plans, the Contract Documents, the governmental approvals, and applicable law.

The Design-Builder shall collect, properly identify, and deliver to Department all original diaries, logs, notebooks, accounts, records, reports, and other documents prepared in the performance of the Contract upon completion or termination of the Contract.

Design Review

Department Review Procedures

The Department will perform design reviews of design submittals. Review times for design submittals are applicable only for complete and comprehensive documents that are deemed acceptable for review by the Department

After each formal review, the Design-Builder shall address all comments and concerns raised by the Department by revising the design and/or plans to the Department's satisfaction. The comments, or lack thereof, provided by the Department in no way relieve the Design-Builder of liability or the responsibility to correct any errors in their plans, computations and/or construction. The Design-Builder shall be required to make design and field construction corrections without additional compensation.

Over-the-Shoulder Reviews

Over-the-shoulder reviews are informal examinations by the Department of design documents during the Project design process. Over-the-shoulder reviews will mainly assess whether the requirements and design criteria of the Contract documents are being followed and whether the Design-Builder's Design Quality Management Plan activities are being undertaken in accordance with the approved Quality Manual.

Each design package may have multiple over-the-shoulder reviews at the request of either Department or the Design-Builder. The reviews may, at the Department's discretion, include review of design drawings, electronic files, calculations, reports, specifications, geotechnical data, progress prints, computer images, draft documents, draft specifications and reports, other design documents, and any other relevant design information as requested by the Department.

It is the intent of these reviews to check for concept, level of detail, design criteria, and fatal flaws. Comments made by the oversight team will be considered non-binding. It is the Design-Builder's responsibility to conform to the Contract requirements. These reviews will not routinely include detailed calculation or drawing reviews, although the Department retains the right to perform detailed reviews of any item at any time. If mutually agreed upon between the parties, for specific review items, the over-the-shoulder review may consist of an exchange of electronic files between the Design-Builder's designer and the Department.

The Design-Builder shall permit over-the-shoulder reviews with the Department during the course of the development of each design package, prior to issuance of Released for Construction Documents. The over-the-shoulder reviews are not critical activity points that restrict the progress of design. They are simply reviews of the design as it progresses and opportunities for the Department to provide comments and feedback on the design. The Quality Manual shall define the Plan and format of the over-the-shoulder reviews and as mutually agreed.

Prior to every over-the-shoulder review, the Design-Builder shall provide the Department with hardcopies of the latest design of the element to be reviewed.

In-Progress Design Workshops

Throughout the design process, the Design-Builder or the Department may request (with at least five (5) Working Days notice) in-progress design workshops to discuss and verify design progress and to assist the Design-Builder and/or its designer(s) in resolving design questions and issues.

At least five (5) Working Days prior to each in-progress workshop, the Design-Builder shall assemble and submit drawings or other documents to be reviewed during the workshop to the Department for its information and review.

The Design-Builder shall maintain a written record of all in-progress design workshops, including:

- A list of the participants in attendance, date, time, and location.
- Description of the items covered and discussed
- Identification of discrepancies and comments, and a report on corrective actions (both those taken and those planned)
- Identification of follow-up action items, due dates, the party responsible for action items requiring resolution, and deadlines for resolution

Oversight Visits

Throughout the design process, the Department may make oversight visits to discuss and verify design progress and ascertain the overall progress of the Project with respect to the Design-Builder’s Quality Manual. If, at the sole option of Department, the Design-Builder is not meeting the goals and objectives of the Quality Manual, the Design-Builder shall suspend all Project work and Department may withhold payment for the associated design activities.

Department Review Time Requirements

The Department will complete its review of the Design-Builder’s plans and submittals based on the following review time requirements unless otherwise noted in subsequent sections of these Technical Provisions:

QMP	30 Calendar Days
Design Plans	15 Calendar Days
Structure Plans	15 Calendar Days
Shop Plans	15 Calendar Days
Released for Construction Submittal:	10 Working Days
Other Reports/Plans	***
Design Exceptions	30 Calendar Days
RFI Submittal:	3 Working Days

*** Review times for Other Reports/Plans are established in the Technical Provisions as 15 to 30 Calendar Days

These review timelines depict the maximum allowed time the Department has to review the associated submittals and respond to the Design-Builder without impacting the overall Project schedule. Each design package above may go through multiple iterations of review by the Department before approval. The Department review timelines above start over for each package re-submittal. The actual Department review timeline may be directly related to the extent of involvement the Design-Builder allows during the

design development process. More up-front Department involvement may shorten the review timelines. The Department, however, makes no guarantees of a streamlined review process for any design submittal. Submittal review times may be reduced or extended as mutually agreed upon for simple or complex submittals. The Department does not control and therefore cannot guarantee the review times by third parties.

Design submittals

Released for Construction Submittals

The Design-Builder shall submit the Released for Construction (RFC) Documents to the Design Quality Validation Manager for review and approval prior to submitting the RFC Documents for the Department approval. The Department shall not accept subsequent submittals until prior submittal reviews have been completed of said document. The Design-Builder shall incorporate comments from the over-the-shoulder reviews and/or re-submittals into its design and resolve all concerns and questions to the satisfaction of the Department. RFC Documents are intended to allow construction to begin on segments or elements of the Project as the design progresses and before final design is complete.

The Design-Builder may proceed with construction of elements or portions of the Project in accordance with Released for Construction Documents before the design of the entire Project has been completed at their sole risk.

The Design-Builder acknowledges and agrees that it may not start construction on any Released for Construction Documents until the Department and applicable government entities, approve the Plans. Construction of any item, element, or phase covered by the Design Quality Validation Manager's statement approving construction shall progress only to the extent covered by the design documents included in that approval. Before progressing further with construction, the Design-Builder shall complete the next phase of design or complete the final design, and obtain the Department's approval. Any subsequent phases of design to be Released for Construction shall be checked and approved by the Design Quality Validation Manager in the same manner as indicated above for the initial item or element.

The Department's concurrence/acceptance will not constitute approval of the design or subsequent construction, nor relieve the Design-Builder of its responsibility to meet the Contract requirements. Irrespective of whether the Department provides the Design-Builder with the authority to begin construction on elements of the Project prior to completion of the entire design, the Design-Builder shall bear the responsibility to ensure that construction meets the requirements of the Contract Documents, applicable law, and the governmental approvals.

Re-submittal Process

Re-submittals of any design submittal may be required if deemed necessary by the Design Quality Validation Manager or the Department. Each re-submittal must address all comments received from a prior submittal in a manner satisfactory to the commenting party. The Design-Builder shall not be entitled to any additional compensation or time extension due to any re-submittal requirement by the Design Quality Validation Manager's review process or the Department.

The Design-Builder acknowledges and agrees that re-submittal of any submittal may be required. The Design-Builder shall resubmit the submittal as many times as necessary to address the comments of the Design Quality Validation Manager's review process and the Department.

The Design-Builder may continue its design activities, at its sole risk, during the re-submittal process. Such continuation in no way relieves the Design-Builder of the responsibility to incorporate the comments of the re-submittal process and the Department into the design documents.

Upon completion of the Design Quality Validation Manager's review, the Design-Builder may forward such re-submittals to the Department for review and comment. If the Department requests additional

information during review of the re- submittal, the Design Quality Validation Manager shall conduct an additional review of the resubmitted items.

Concurrent Submittals

During Project Startup, a list and schedule of deliverables will be established and provided to the Department. This list will also be provided to FHWA and other third party reviewers.

If, at any given time, the Department is in receipt of more than ten (10) submittals that are subject to review and comment or approval, then the Department may extend the maximum allowable review time by which the Department may reasonably accommodate the submittals based on the Departments available resources. For any multiple submittals during the same week, the Design-Builder may request in written notice to the Department a reasonable order of priority for processing those submittals.

The maximum number of submittals to the Department allowed per week and per type are as follows:

Design Plans	2
Structure Plans	2
Other Reports/Plans	2

The Design-Builder may request in written notice to make weekly submittals in excess of the stipulated maximum number as part of the evaluation of the comprehensive schedule of submittals and during the design period. The Department reserves the right to withhold approval if it deems the request unreasonable or if the Department determines that its personnel cannot accommodate the additional reviews.

Design Changes

The Quality Manual shall describe how changes to design are identified, reviewed, and approved by authorized personnel prior to their implementation.

The Quality Manual shall describe the method of communicating changes or revisions made in the field.

Either the Design-Builder or Department may initiate design changes for items or elements undergoing construction.

2.4.2.4.5 Quality Manual - Construction

Quality Planning

The Quality Manual shall include an Inspection and Testing Plan describing all of the proposed inspections and tests to be performed throughout the construction process. The Department has provided a Construction Quality Validation Inspection and Testing Plan in Exhibit 2-A Quality Manual Template, Volume II. The Design-Builder shall tailor the Inspection and Testing Plan to meet the Project requirements.

Inspection and Testing Plan

The Inspection and Testing Plan shall:

- Describe all of the incoming, in-process, and final inspections and tests to be undertaken.
- Show what products or services are to be subcontracted.
- Be controlled through the provision of document control and be updated when new Subcontractor or Supplier contracts are implemented.
- Identify critical activity points at which Work shall be formally accepted by independent Quality Validation personnel and the Department prior to proceeding to the next stage of the Work. The Design-Builder shall provide Critical Activity Point Managers to ensure that all required tests and inspections have been performed leading up to critical activity points, and that the test and

inspection results meet Contract requirements. The Design-Builder is encouraged to enhance this portion of the Construction Quality Inspection & Testing Plan from the Quality Manual Template.

- Describe verification of Suppliers' and Subcontractors' compliance with requirements.
- Depict the Quality Inspection (QI) critical activity points from the Materials Control Schedule (Exhibit 2- A Quality Manual Template, Volume III) and shall contain a written sign-off form for this activity.
- Be approved by the Quality Manager.

The Design-Builder shall define the following within the inspection and testing procedures:

- The activity to be tested or inspected
- The agency or laboratory to perform the test or inspection. Both QC and QV laboratories shall be separate as well as accredited as following:
 - Concrete, Asphalt, Aggregate, Soil- AASHTO Accredited
 - Structural Steel, Rebar etc – A2LA Accredited
- The frequency of the test or inspection
- The test or inspection procedure or reference standard
- The specified requirement reference
- The record that documents the results

All material tests shall reference the activity ID.

The Quality Manual shall identify Work for which statistical techniques will be used as a basis of quality and acceptance or rejection of lots.

Materials Control Schedule

The Department has provided the Materials Control Schedule (MCS) for the Project which outlines the minimum sampling, testing, and inspection required for most materials used in highway construction. The MCS is included in Exhibit 2-A Quality Manual Template, Volume III.

The Design-Builder shall review the MCS for areas where inspection or testing is not addressed or the Design-Builder desires an increased rate of inspection or testing. The MCS has been reviewed and approved by the Federal Highway Administration (FHWA), so any recommended changes by the Design-Builder will require Approval from the Department that will require 20 working Days for review and possibly FHWA that will require thirty (30) Working Days for review..

Both the Design-Builder and the Department shall designate a Materials Control Schedule Coordinator for the Project. The Design-Builder's designee will be directly responsible for all MCS issues that arise on the Project, including:

- Ensuring all requirements of the MCS are met.
- Evaluating and resolving of all test result and test tolerance issues.
- Ensuring proper sampling processes and procedures are utilized by all quality staff.
- Ensuring all Quality Inspection (QI) critical activity points are addressed as defined in the MCS.
- Reviewing and tracking all quality training requirements.
- Scheduling Independent Assurance reviews for the Project.
- Ensuring the Materials Certification for the Project is completed and all issues properly addressed.
- Ensuring proper completion of all sample cards and all necessary tests are completed on the sampled materials.

- Coordinating the MCS requirements with all Suppliers and Subcontractors.

The Design-Builder will be taking samples for their Quality Validation and Department may select additional samples at the Design Builder's expense. The sample shall be delivered to the Department's designated laboratory by the Design Builder.

The Design-Builder shall provide all applicable testing and inspection data, in a timely manner. This will ensure the MCS requirements are being adhered to and, if shortcomings are found, improvements to the Inspection & Testing plan shall be made. The Design-Builder shall input and provide all testing and inspection records, including records from suppliers and subcontractors, electronically to the DCS. The Design-Builder's Quality Validation team shall conduct Quality Validation inspection that includes, but not limited to:

- Representative inspection of all quality control functions
- Periodic verification inspections of the materials, welding, and fabrication
- Periodic sampling and testing of materials
- Non-destructive testing (NDT) and verification inspection.
- Intermediate and final release inspections. Release inspections will be documented.
- Participating in Pre-welding and Pre-precast meetings.

Quantities and Production Tracking

The Design-Builder will track general quantities of materials, labor, and equipment and enter the data into DCS.

The Design-Builder will record all labor and equipment on an hourly basis. The recording of labor will include the name and labor classification for each individual and assigned to a specific item of work corresponding to the Contractors approved schedule. The recording of equipment will include the company equipment number, type, and classification of equipment for each piece of equipment and assigned to a specific item of work corresponding to the Contractor's approved schedule

The Design-Builder shall share quantities, as requested, for verification of testing rates (in accordance with the Materials Control Schedule) with both their quality staff and the Department's staff on the Project.

2.4.2.4.6 Quality Manual – Document and Data Control

General

The Design-Builder's Quality Manual shall include a Document Management Plan. The Department has provided a Document Management Plan as Volume IV of the Quality Manual Template (Exhibit 2-A), for the Design-Builder to enhance and include in the Design-Builder's Quality Manual.

The Design-Builder's Document Management Plan shall:

- Describe the Design-Builder's Document Control System (DCS) to store and record all documents, correspondence, design inputs, drawings, progress reports, technical reports, specifications, Contract Documents, submittals, calculations, test results, inspection reports, nonconformance reports, administrative documents, and other documents generated under the Contract. This includes all hardcopy and electronic records.
- Identify how records are to be maintained and kept throughout the duration of the Project. Specifically elaborate on how 3101DB are responded for items that are source and/or jobsite inspected. Also, explain how each material item will have corresponding source and/or field release records for final acceptance..

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- Describe the methods by which all documents issued and received by the Design-Builder will be logged, tracked, and retrieved.
 - Identify how all documents will be tracked using the uniform filing system outlined in the Project Development Procedures Manual (PDPM) and Construction Manual with a unique document control number.

Document Submittals to Department

The Design-Builder shall furnish hardcopies of all Project deliverables to the Department. All management plans, such as the Quality Manual, Public Information Plan, Environmental Management Plan, Utility Plan, and Traffic Management Plan shall be individually bound. Each document that is transmitted to the Department shall be controlled by a unique document control number.

Electronic copies of all documents generated under the Contract, including all Project deliverables, shall be uploaded to DCS in native format and software-generated PDF format. An example would include creating PDF files from MicroStation drawings (DGN) for Released for Construction plan sheets. Scanned PDF files will not be accepted unless the original document is in handwritten form or if the original is not electronic.

All electronic data for Plan submittals; including MicroStation, Civil 3D , and all other design software-specific electronic files to be submitted shall be uploaded to DCS in native format.

Document and Data Approval and Issue

The Design-Builder shall ensure that all deliverables include a signed and dated certification by the originator of the deliverable assuring that the deliverable is complete and meets the Contract requirements.

Document and Data Changes

The Design-Builder shall ensure that any changes to documents provided to the Department are in a format that can enable changes to be readily apparent and trackable (e.g., documents using the redline/strikeout method).

2.4.2.4.7 Access and Testing

Representatives of agencies of the federal government and representatives of other agencies of California shall have the right to inspect the Work to the same extent provided above for the Department and as required by Governmental Rules.

The Design-Builder shall provide safe access to the Work, its organization, and all Subcontractor and Supplier organizations to allow the Department to carry out verification activities. This will include the taking of samples for the purposes of testing at Design Builder's expense, the examination of records, and interviews with personnel from the Design-Builder's organization and all Subcontractor and Supplier organizations. The Design-Builder shall allow reasonable time to perform these verification activities.

The Design-Builder shall not use the results of validation activities carried out by parties other than itself to be used as a substitute for its own quality activities, unless otherwise approved in writing by the Department.

The Design-Builder shall provide the Department with copies of requested records within two (2) Days of receipt of request.

When requested, the Design-Builder shall advise the Department of the time, to within four (4) hours accuracy, when a specific activity is scheduled within the next five (5) Days.

The Design-Builder shall, within five (5) Days of the identification of a construction-related non-conformance(s) by Department, propose a resolution for the Department's Acceptance or Approval.

Following Acceptance or Approval of the proposed resolution by the Department, the Design-Builder shall notify the Department 24 hours prior to implementing the proposed solution so that the Department may witness the implementation, should the Department so choose.

2.4.2.5 Review and Disposition of Nonconforming Product

The Design-Builder shall ensure that non-conformances identified during the design verification and checking, testing, and inspection activities are recorded. The Design-Builder is responsible for the resolution of all non-conformances, including those of subcontractor or suppliers.

The Quality Manual shall describe how the Design-Builder plans to deal with discovered non-conformances, tracking non-conformances, resolving non-conformances, and preventing similar non-conformances from occurring on future work within the Project.

2.4.2.6 Corrective and Preventative Action

2.4.2.6.1 General

The Design-Builder shall review the cause of major and systemic non-conformances and develop corrective action to prevent recurrence.

The Quality Manual shall describe the corrective and preventive actions the Design-Builder will take upon the identification of actual or potential major and systemic non-conformances, identified internally or by the Department.

The Design-Builder's proposed corrective action shall be documented in a format and medium acceptable to the Department.

The Design-Builder shall advise the Department when the corrective action has been implemented so the Department may verify the implementation, should the Department so choose.

2.4.2.6.2 Corrective and Preventive Action

The Design-Builder shall, within five (5) Days of the identification of a major or systemic problem by either Design-Builder or the Department staff, propose to the Department, for their Approval, a corrective or preventive action to prevent the recurrence of the problem. The Design-Builder shall update the Quality Management Plan to incorporate the Approved corrective action.

2.4.2.7 Internal Quality Audits

The Design-Builder shall ensure that internal quality audits, for each element of the Quality Management Plan, are performed at least every six (6) months.

2.4.2.8 Software

The Design-Builder shall use the DCS for logging and tracking their construction inspection and testing data and for design comments logging, tracking, and resolution for this Project. The Design-Builder shall provide DCS access to the Department.

2.4.3 Deliverables

2.4.3.1 Final Quality Manual

2.4.3.1.1 Submittal and Approval

The Design-Builder shall submit six (6) individually bound hardcopies and one electronic version on CD-ROM of the Quality Manual (Vol. I – IV) for the Department's review and approval within thirty (30) Working Days of NTP1. The Design Builder shall not perform Design or Construction work until said Quality Manual is approved by the Department. The Department will respond to the Design-Builder within fifteen (15) Working Days of receipt of the draft Quality Manual, and will either approve or return comments on the submitted manual. If the draft Quality Manual is not approved, the Department's comments shall be incorporated by the Design-Builder. Within ten (10) Calendar Days after the

Department has returned the comments, a new draft Quality Manual shall be resubmitted. It is the Design-Builder's responsibility to meet with the Department as often as necessary to discuss and resolve Department's comments within said ten (10) Calendar Days.

If the Design-Builder begins design before approval of the Quality Manual, they shall do so only at their sole risk. The Department reserves the right to withhold payment for design and construction Work until the Quality Manual has been approved. Once the Quality Manual is approved, the Design-Builder shall not revise any portion without the prior written approval of the Department.

Following approval, the Design-Builder shall provide the Department with ten (10) hardcopies of the Quality Manual and upload an electronic version in native and PDF format into DCS.

2.4.3.1.2 Track Changes

The Design-Builder shall track all changes made to the Department's Quality Manual Templates and clearly depict them to the Department in their submittals. Versions with tracked changes shall be submitted with all native electronic files.

2.4.3.1.3 Ownership

The Design-Builder shall acknowledge in each submittal that they understand the Department has full and complete ownership of the products submitted and may use all products on this and other projects without any compensation or consideration to the Design-Builder.

2.4.3.2 Released For Construction Documents

The Design-Builder shall submit to the Department for Acceptance two (2) hardcopies of all Released for Construction Documents. The Design-Builder shall create electronic PDF versions of all hardcopies and upload them into DCS. RFC packages shall include the following (at a minimum):

- Cover Sheet with submittal description and schedule activity identification
- Design Quality Validation Manager Certification in accordance with the Quality Manual
- Design plans
- Design calculations
- Design reports
- Specifications and Special Provisions
- Governmental, Utility Owner, and Railroad approvals
- Other electronic files included in Released for Construction submittals shall include the following:
 - a) MicroStation and/or Civil 3D files, including all drawings and data files used to create the RFC Documents.
 - b) Excel spreadsheet with drawing index (for DCS compatibility). This spreadsheet shall include the discipline, drawing number, drawing title, sheet number (sequentially), and sheet title.

2.4.3.3 Shop and Working Drawing Documents

The Design-Builder shall submit to the Department two (2) complete hardcopies of all shop and working drawings and upload electronic versions in native and PDF format into DCS.

2.4.3.4 As-Built Documents

The Design-Builder shall submit to the Department for Acceptance two (2) complete hardcopies of all As-Built Plans and one set of electronic files, tiff and dgn, on CD-ROM of all As-Built Documents available in a digital format (See Section 4.3 of the Department's *CADD Users Manual*). The Department will advise the Design-Builder of the status of their Acceptance of the As-Built Documents within thirty

(30) Working Days of receipt of same. Formal written Acceptance of the As-Built Documents must be granted by the Department before finalization of the Contract. Upon Acceptance, the Design-Builder shall upload electronic versions of all As-Built Documents, in native and PDF format into DCS.

2.4.3.5 Product Data

The Design-Builder shall submit to the Department for Acceptance two (2) hardcopies of all manufacturers' warranties, guarantees, instruction sheets, parts lists, and other product data within twenty (20) Days of installation of the items to which they relate, and in any event prior to Final Acceptance. The Department will advise the Design-Builder of the status of this product data within ten (10) Working Days of receipt of same.

Electronic versions in native and PDF format shall be uploaded to DCS.

The Design-Builder shall ensure that the product data cited in this section are organized and indexed in a manner to allow easy retrieval of information.

2.5 Human Resource Management

2.5.1 General

The Design-Builder shall conduct all Work necessary to meet the requirements of human resource management, including personnel, facilities, and equipment.

2.5.2 Administrative Requirements

2.5.2.1 General

All personnel performing Work on the Project shall have the experience, skill, and knowledge to perform the Work assigned to them. All personnel performing Work on the Project shall also have appropriate required professional licenses and certifications.

2.5.2.2 Key Personnel

2.5.2.2.1 General

All Key Personnel will be required to be on-site 100% of the time during activities that involve their areas of responsibility. Key Personnel for the Project shall include the following:

- Design-Builder's Project Manager
- Quality Manager
- Design Manager
- Construction Manager
- Traffic Engineering Manager
- Design Lead Engineer – Roadway (Engineer Of Record)
- Design Lead Engineer – Structures (Engineer Of Record)
- Environmental Compliance Manager
- Safety Manager
- Public Information Coordinator

2.5.2.2.2 Minimum Requirements of Key Personnel

The following provides a brief job description and minimum requirements of the Key Personnel assigned to the Project..

The following provides a brief job description and minimum requirements of the Key Personnel assigned to the Project.

Design-Builder's Project Manager

- Shall reports directly to DB executive management of Proposer
- Shall be responsible for overall design, construction, quality control, and contract administration for the Project
- Shall have full responsibility for the prosecution of the Work
- Shall act as agent and single point of contact in all matters on behalf of the Design-Builder
- Shall have full decision-making and budgetary authority to act on behalf of the Design-Builder and bind the Design-Builder on all matters relating to the project.
- Shall have authority to stop work
- Shall be present at the Site at all times that Work is performed
- Shall have fifteen (15) years experience managing complex infrastructure projects
- Shall have ten (10) years experience managing the design and construction of major urban freeway projects
- Shall have five (5) years of project management experience in design-build on major urban freeway projects
- Shall have recent experience as Project Manager for design and construction of highway projects similar in scope and complexity
- License as Professional Civil Engineer in California preferred, but not required

Quality Manager

- Shall be responsible for developing and implementing the Quality Control/Quality Validation program, responsible for overseeing the day-to-day quality aspect of design, construction and Project management activities including managing the Design-Builder's workmanship inspections, overseeing Design-Builder's production testing, and coordinating with the Department's verification testing and inspection.
- Shall work independently of the Design and Construction teams, shall not have any production-related responsibilities and report directly to Design-Builder's Executive Management Committee
- Shall be assigned full-time to the Project and be on Site during regular business hours whenever any Work is being performed and be available to be on Site within two hours outside of regular business hours
- Reviews contract documents for adherence to quality and testing requirements.
- Shall have the authority to stop any and all Work that does not meet the Contract requirements.
- Recent experience in quality management of design and construction of projects similar in scope and complexity
- Shall have fifteen (15) years of recent experience managing complex infrastructure projects
- Shall have five (5) years of major design-build construction management of major urban freeways,
- Must be a registered Professional Engineer in the State of California.

Design Manager

- Shall be responsible for ensuring that the overall Project design is completed and design criteria requirements are met. The Design Manager must be available for all meetings related to development of design products until the design is 100% complete and as required during construction phase of the project. The design Manager will be responsible for design quality management.

- Shall be assigned full time and work under the direct supervision of the Design-Builder's Project Manager.
- Shall have five (5) years of major design-build project management of major urban freeway systems.
- Shall have at least five (5) or preferred ten (10) years of recent experience in managing the design of highway projects similar in scope and complexity.
- Shall have ten (10) years of experience managing the design of major urban freeways.
- Shall have fifteen (15) years of experience managing complex infrastructure projects.
- Shall be a licensed Professional Engineer in the State of California
- Shall have recent experience in managing the design of highway projects similar in scope and complexity.

Construction Manager

- Shall be responsible for ensuring that the project is constructed in accordance with the design and project requirements.
- Shall be present at the site of work at all times construction is in progress.
- Shall work under the direct supervision of the Design-Builder's Project Manager.
- Fifteen (15) years of experience managing complex infrastructure projects
- Ten years (10) experience managing the construction of major urban freeway systems
- Five (5) years of major design-build construction management of major urban freeways
- Shall have recent experience managing the construction of highway projects similar in scope and complexity.
- Shall have the authority to stop any and all Work that does not meet the Contract requirements.
- Licensed as Professional Engineer in the State of California preferred but not required..

Traffic Engineering Manager

- Shall report to the Design Manager.
- Shall be a licensed Professional Engineer in the State of California
- Shall have ten (10) years recent relevant experience in traffic engineering and traffic management on similar projects.
- Must have completed the American Traffic Safety Systems Traffic Control Supervisor Course with California Module within the last year prior to issuance of notice to proceed.

Design Lead Engineer - Roadway (Engineer of Record)

- Shall be responsible for ensuring that the roadway design is completed and design criteria are met.
- This person is the Engineer of Record for the roadway design
- Shall report directly to Design-Builder Design Manager
- Must be present at all review and design coordination meetings
- Responsible for following the Quality Control processes and activities
- Shall have minimum of Ten (10) years of recent experience as Engineer of Record and in roadway design on the California State Highway System
- Shall have minimum of Ten (10) years of recent experience in the design of roadways in major urban freeway systems similar in scope and complexity

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- Shall have a license as Professional Engineer in California

DB Design Lead Engineer - Structures (Engineer of Record)

- Shall be responsible for ensuring that the structure design is completed and design criteria are met.
- This person is the Engineer of Record for the structure design.
- Reports directly to the Design-Builder Design Manager
- Must be present at all review and design coordination meetings
- Shall have ten (10) years experience as the lead designer of bridge structures similar in scope and complexity
- Shall have minimum of ten (10) years experience in the design of large complex bridge structures
- Shall have ten (10) years experience in the design of bridge structures on the California State Highway System

Shall have a license as Professional Engineer in California Environmental Compliance Manager

- Shall report directly to the Design Manager.
- Shall attend regularly scheduled review, progress, coordination, and other meetings.
- Shall have previous experience on more than one project, which required substantial coordination with Army Corps of Engineers, California State Regional Water Quality Control Board, California Department of Fish and Game (including preparation of permit applications), implementing measures addressing impacts to threatened and endangered species, implementing measures addressing impacts to waters, and implementing measures addressing cultural and paleontological resources (including on-site monitoring related to all of the above).
- Shall have experience on multiple projects requiring implementation of measures to address air quality, noise, and hazardous waste compliance requirements
- Shall have previous experience developing measures to satisfy Section 401, 404, and 1602 requirements as identified by corresponding Resource Agency, pertinent to issuance of same
- Shall have responsibility for environmental compliance management including overseeing the implementation, day-to-day monitoring, and maintenance of all issues relevant to environmental compliance. This shall include issues related to Storm Water Quality and Best Management Practices.
- Shall act as the leader of the Environmental Team and shall not be assigned any other duties or responsibilities on the Project.

Safety Manager

- Must be familiar with the Department's Standards and the California MUTCD Must not be under the direct supervision of construction personnel and shall report directly to Design-Builder executive management
- Shall be assigned to the Project full time and will be required to be on-site for the duration of the Project. Shall provide a daily written report of ongoing contract activities, number of personnel on site, and any safety related incidents which occurred during the work shift.
- Shall have five (5) years experience managing complex infrastructure projects
- Shall have a degree in either an Occupational Health and Safety or Engineering field, or has a Certified Safety Professional, Construction Health and Safety Technician or Occupational Health and Safety Technologist certification from the Board of Certified Safety Professionals.

- Shall have five (5) years of construction safety management experience in implementing and managing safety programs and maintaining compliance with safety regulations during construction activities on major urban freeways.
- Must have authority to stop work and past experience in authorizing to stop work.
- Must be familiar with Department contract standards for work zone safety and California Code of Regulations Title 8. Must have completed the OSHA 30 hour course within the last year prior to issuance of notice to proceed.

Public Information Coordinator

- Responsible for managing public information and community involvement for the Department.
- Shall have previous experience on high profile projects requiring continued coordination with local residents as well as effective outreach to area and regional populations.
- Must interact with the Department’ staff in a team effort to educate and help promote public satisfaction.
- Must provide media interviews and information and deliver messages and materials consistent with the Department’ messaging and standards.
- Must create, reproduce, and distribute flyers and graphics to educate the public about the project and construction and traffic impacts.
- Must quickly and thoroughly respond to community and commuter complaints.

2.5.2.2.3 Approval of Key Personnel

The Department will have the right to Approve or reject the Design-Builder’s Key Personnel prior to their participation on the Project. Such Approval will be based on the qualification requirements set forth above and elsewhere in the Contract Documents for all Key Personnel.

2.5.2.2.4 Deductions for Removal

Unless otherwise Approved, the Design-Builder will be assessed a monetary deduction for Key Personnel who cannot meet the following commitments to the Project, except due to retirement, death, disability, incapacity, or voluntary or involuntary termination of employment

The Design-Builder’s Project Manager is to remain on the Project until Final Acceptance; if not, the monetary deduction to be assessed will be \$20,000, unless waived in writing by the Department..

The Design-Builder will be assessed a monetary deduction of \$15,000 for each of the Key Personnel in the following list who does not remain on the Project for the completion of his or her particular function unless waived in writing by the Department.:

- Project Manager
- Quality Manager
- Design Manager
- Construction Manager
- Traffic Engineering Manager
- Design Lead Engineer – Roadway
- Design lead Engineer - Structures
- Environmental Compliance Manager
- Safety Manager
- Public Information Coordinator

For any changes in personnel, the Design-Builder shall submit the qualification summaries and resume of the individual and obtain written Approval of the person's participation in the Project before his or her start of work.

2.5.2.2.5 Replacement of Key Personnel

The Design-Builder shall notify the Department in writing of any proposed changes to Approved Key Personnel and shall include a detailed resume summarizing the items set forth above and elsewhere in the Contract Documents. No Key Personnel shall be replaced without the prior written Approval of the Department. The changes will only be approved if the replacement Key Personnel are equally qualified or more qualified than the original Key Personnel.

2.5.2.2.6 Directory of Key Personnel

The Design-Builder shall prepare a directory of Approved Key Personnel that includes the following information for each individual: name, Project title, Project office address, Project office location, e-mail address, telephone numbers (office, mobile, pager), and fax number. The directory shall be kept current throughout the course of the Project.

2.5.3 Deliverables

The Design-Builder shall submit to the Department the directory of Approved Key Personnel within seven (7) Days of NTP1.

If the Design-Builder proposes changes to Approved Key Personnel, the Design-Builder shall submit a request in writing setting forth the qualifications of the replacement(s) as required by Section 2.5.2.2 for Approval by the Department.

2.6 Safety Management

2.6.1 General

The Design-Builder is responsible for public safety and shall conduct all Work necessary to meet the requirements of Safety Management.

2.6.2 Administrative Requirements

2.6.2.1 Design-Builder Safety Management Plan

The Design-Builder shall develop, implement, and maintain a written Safety Management Plan that describes the processes to be followed to ensure, public, and worker safety.

The Safety Management Plan shall be Project-specific, shall include Work to be performed by Subcontractors, and shall describe processes to control hazards.

At a minimum, the Design-Builder's Safety Management Plan shall:

1. Be consistent with the Project insurance requirements.
2. Describe the participation of safety personnel in all Work activities.
3. Delineate administrative responsibilities for implementing the Safety Program.
4. Identify responsibilities and accountability.
5. Identify full-time dedicated safety professionals or managers covering all production shifts.
6. Describe the process of conducting safety orientation for all employees. The description of the safety orientation process shall include the following:
 - a. A description of the extent and nature of the Project
 - b. A description of any hazards that can typically be expected during the course of Work that is specific to the job assignment

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- c. Required Work practices, job conduct, and injury-reporting procedures
 - d. Any other general information to acquaint the employee with special Work and safety requirements at the Work Site
7. Describe the Design-Builder's drug policy, including the policy at the Work Site and any pre-job Site and post-incident drug testing to satisfy Project insurance requirements.
 8. Describe employee-training requirements.
 9. Describe safety inspection procedures of Work areas, materials, and equipment to ensure compliance with the Safety Program; methods of record keeping; and correction of deficiencies.
 10. Describe incident and emergency response procedures for land based and river based incidents, including response capabilities, evacuation and egress, responsibilities for reporting and investigating incidents, exposures, contingency plans, and the maintenance of safety-related logs.
 11. Describe incident reporting procedures.
 12. Describe the Design-Builder's Work Site control policy and plans for maintaining Site cleanup, on-Site first aid facilities or medical clinic, and safe access.
 13. Identify public safety requirements (e.g., fencing, signs, barricades).
 14. Describe the Design-Builder's hazard communication program.
 15. Describe the process of including representatives from the Design-Builder and all major Subcontractors, as well as the Department personnel working on the Project.
 16. Describe the Design-Builder's method of tracking open safety issues.
 17. Describe hazard analysis, tracking, reduction of risk, logs, and mapping procedures.
 18. Describe the Design-Builder's management and auditing of the Safety Management Plan.
 19. Describe personal protective equipment (PPE) requirements and policy.
 20. Describe safety procedures for Design-Builder's employees working around and handling contaminated materials.

2.6.3 Design Requirements

[Not used.]

2.6.4 Construction Requirements

All Work under this Contract shall comply with the requirements and standards specified by the Williams-Steiger Occupational Safety and Health Act of 1970, 29 U.S.C. §651, et seq., Public Law 91-596, as well as other applicable federal, State, and local laws. The Design-Builder shall not require any laborer or mechanic to Work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to his/her health and safety as determined under construction safety and health standards promulgated by the U.S. Secretary of Labor.

2.6.5 Deliverables

The Design-Builder shall submit three (3) individually bound copies of the Safety Management Plan and revisions to the plan for Approval within twenty (20) Days of NTP1.

The Design-Builder shall provide verbal notification and a written report to the Department of all incidents arising out of or in connection with the performance of the Work, whether on or adjacent to the Site, which cause death, personal injury, or property damage. The Design-Builder shall verbally notify Department within one hour from time of occurrence of an event causing public injury. Verbal notification shall include date and time, location, brief description, extent of property damage, and extent of injuries.

The Design-Builder shall provide a written monthly incident summary report to the Department as part of the Progress Report conditions of Section 2.2.2.3.

EXHIBITS

Exhibit 2-A Quality Manual Template

Exhibit 2-B Notice of Materials to Be Used Form (CEM-3101DB)

Exhibit 2-C Inspection Request Form (TL-38DB)

Exhibit 2-D Source Inspection Material Control Process

Exhibit 2-E Source Inspection Tier Priority List

These exhibits are provided as electronic files.

3 PUBLIC INFORMATION

3.1 General

The Design-Builder shall perform all Work necessary to meet the requirements associated with public information in accordance with the requirements of the Contract Documents and these Technical Provisions.

3.2 Administrative Requirements

Public information goals for the Project shall be consistent with the Department guidelines and policies. These include meeting customer expectations with information that is reliable and encourages open communications with and among all audiences.

3.2.1 Standards

1. *Caltrans Project Communication Handbook*

3.2.2 Public Information Plan

At a minimum, the Department requires its communications efforts for this (and every) Project to establish and build trust between the Department, the Project Design-Builder, Project stakeholders, and the general public.

To be effective on all projects, three broad categories of information shall be communicated and coordinated between the Department and the Design-Builder. These are messages that communicate the following:

- The Vision of the Project – answers to questions such as why the Project is needed, what Work will be done, how the Project will benefit customers, how the Project fits into the community, and how the Project fits into the State’s broader transportation plans.
- The Project’s Progress – ongoing messages to keep people informed about how the Project is moving forward, whether it’s on schedule and on budget, what disruptions or improvements are coming in the near future, and what beneficial innovations are being used.
- Coping during the Project – information that helps people deal with inconveniences caused by the Project, such as details about detours, blocked driveways, traffic restoration projects, and, construction and noise impacts on local residents and businesses. This shall include describing informational resources available to the public.

The Design-Builder shall develop and maintain a consistent level of public communication with the goal of establishing public awareness and understanding of the Project. To this end, the Design-Builder shall develop, implement, and maintain a Public Information Plan (PIP) that recognizes the fluid nature of the Project, as well as the fact that the communications program’s goals are critical to the overall success of the Project. The Department or delegated Design-Builder shall serve as a facilitator to address public information issues and shall be proactive in providing information and responding to the public. Approval of the PIP by the Department is required prior to implementing any work covered under the PIP.

The Design-Builder’s public information staff shall be accessible 24 hours a Day, seven Days a week, and shall respond within two hours of contact to address Project issues (except in cases of emergency situations, in which case response shall be within 15 minutes). The Design-Builder’s public information staff shall provide contact information, including mobile, office, and fax numbers, to the Department within two Days of NTP1. The Design-Builder’s public information staff shall hold coordination meetings with the Department at a frequency determined by the Department. The Design-Builder shall meet with the Department bi-weekly and as determined by the Department, and other appropriate representatives as designated by the Department to review, assess input, and/or modify the Design-Builder’s Public Information Plan. Regular communications shall occur with the Department, which include phone calls and e-mail updates.

The Design-Builder shall use the Public Information Plan as the framework for disseminating and responding to information from the public. The Design-Builder shall become aware of and comply with the California Records Act throughout the Project. The Design-Builder shall coordinate communications with the Department prior to dissemination.

3.2.3 Customer Groups (Audiences)

The Design-Builder, working directly with the Department, shall identify the initial complete set customer groups that shall be communicated with during the Project. The Design-Builder will be responsible for changes to the initial complete set of customer groups, but must receive approval from the Department before implementing changes. The Design-Builder shall describe in its Public Information Plan its approach to communicating with these groups and coordinating with the Department. The identified groups include, but are not limited to:

- Area residents
- Property owners
- Commuters
- The traveling public
- Commercial vehicle operators, e.g. FedEx Logistics Distribution Center
- Local government staff and regional government officials
- Directly affected Chambers of Commerce
- Advisory Committee
- State legislators
- Local and Regional transits/buses
- Department employees
- School district transportation agencies/charter companies
- Business owners, employees, and customers
- Neighborhood and business associations
- News media, TV , Radio, Print, Social Media Website, Twitter & Facebook
- Emergency response agencies, including but not limited to police, fire, hospital and ambulance agencies
- County Sheriff
- Utilities when necessary
- Local tourist destinations
- Local delivery and courier services
- School districts
- Local Colleges/Universities
- Water management organizations, environmental permitting agencies, and other local service districts
- Railroads

3.2.4 Crisis Communications

The Public Information Plan shall include a crisis communications approach for responding to emergencies and incidents during the Project. The Design-Builder's crisis communications approach shall include the following:

- Designated staff to respond to the emergency

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- Types of potential emergencies
 - Approaches to addressing potential emergencies
 - Cause of specific disruptions (i.e., whether construction-related or not)
 - Actions being taken to alleviate the problem
 - Impact to the public and notification procedures
 - Anticipated duration of the disruption
 - Media response protocol

3.2.5 Data Collection and Management

The Public Information Plan shall include an approach for the collection, organization, and management of information about the Project and about the public's wants and needs. This requires the Design-Builder to collect, compile, and access information regarding construction and to assess the perceptions and concerns of the public during the course of the Work.

The Design-Builder's data collection and management approach shall account for the ongoing information needs of various customers. For example, residents, commuters, and most other customers will need information about the construction schedule and what roads will be affected and/or closed by construction. Likewise, commercial vehicle operators will need specific information on any conditions that would restrict or prevent commercial vehicles from using roadways under construction. Emergency response providers shall be notified by the Design-Builder if designated routes for emergency vehicles are altered. All Project customers and stakeholders will require reliable, accurate, accessible, and timely information on when and where construction is taking place.

In addition, the Design-Builder's data collection and management approach shall describe strategies to identify and respond to customers' perceptions and concerns, and stakeholder concerns throughout the duration of the Work. This shall include a detailed description of the information-gathering process and specific timelines developed to ensure timely responses.

In addition to its own innovative strategies and solutions, the Design-Builder shall employ the following methods for collection and management of data.

3.2.5.1 Construction Activities and Maintenance of Traffic Information

The Design-Builder shall collect and maintain current and accurate information of construction activities, including location, estimated duration of activity, type of work being performed, physical impacts (e.g., lane closures, narrowed lanes, commercial vehicle restrictions, etc.), and planned construction detours. The Design-Builder shall update this information as conditions change. The Design-Builder shall also collect information about how Work activities affect traffic flow and movement.

Information gathered by the Design-Builder shall be reviewed for accuracy and forwarded as soon as it becomes available (within a maximum of two hours) to the Department and prior to dissemination.

The Design-Builder shall collect and disseminate this information to the Project's public Web site and to the Department. The Design-Builder shall enter the information in Department's 511 Condition Acquisition and Reporting System (CARS). In developing the functional requirements, the Design-Builder's data collection and management approach shall include the following:

- Type of information to be collected and stored
- Aggregation of data
- Data collection methodology
- User data needs

- Archiving procedures
- Access to information (will vary depending on user – i.e., Department versus general public)

In addition:

- Information gathered by the Design-Builder shall be posted on the Project's public Web site no later than one business day after it becomes available.
- The Design-Builder shall work with the Department to coordinate and develop the technical interfaces between the Project's public Web site, the construction information recorded, and any other relevant information dissemination systems identified by the Design-Builder and/or Department.
- Changes in information gathered by the Design-Builder shall be posted immediately by the Design-Builder to the Project's public Web site as described in Section 3.2.7.2.1.
- The Design-Builder shall coordinate the dissemination of information (construction, commercial vehicle, incident, etc.) with the Department, other agencies, and relevant customers (e.g., the media) throughout the Project.
- The Design-Builder shall be responsible for the accuracy and reliability of the information provided.

This information includes changes to short-term construction-related closures or emergency closures and changes, in scheduled construction activities. The Design-Builder shall report on all unscheduled activities as quickly as possible.

The Design-Builder shall meet the following requirements for providing information:

- All planned construction activities shall be recorded no later than thirty (30) Days before planned start date and shall include possible construction noise impacts.
- Construction information updates/changes shall be recorded within 24 hours of the information being made available to the Department and the Project's public Web site.
- Construction updates (i.e., planned closure cancelled, planned nighttime construction noise impacts canceled or completed, lane closed, closure removed, etc. that directly affect the public) shall be monitored by the Design-Builder. The Design-Builder shall immediately notify the Department of changes. Upon Department's approval of such changes, the Design-Builder shall post the information on the Web site, and disseminate it through other technologies.
- All information, unless otherwise stipulated in advance by the Department, shall be verified for accuracy and approved by the Department before release.

The Design-Builder shall maintain basic information, contact names, and phone numbers for other construction projects that may affect traffic conditions on the Project or surrounding local street network. This information shall be included in the construction information maintained by the Design-Builder.

The Design-Builder shall verify, record, maintain, and make all of the above construction information available to the Department for use and dissemination.

The Design-Builder shall operate and maintain the construction information dissemination process for the entire duration of the Work. The process shall operate 24 hours a Day, seven Days a week. Requests for information and system faults shall be acknowledged within two hours of notification and resolved within the following two hours. The Design-Builder shall provide regular reports as requested, summarizing activities and adherence to the Contract requirements.

Recording and dissemination of information shall be operational within fourteen (14) Days following NTP1.

The Design-Builder shall include the following types of information and minimum performance requirements in the Public Information Plan.

3.2.5.1.1 Construction Schedule

Construction notification shall be made available to the Department and publicized by the Design-Builder through its information tools (see Section 3.2.7) seven Days prior to the beginning of construction in any area of the Project.

Notification of construction events shall include the following:

- Description of the activity
- The start of the activity
- The end of the activity
- Detours (if applicable)
- Hours of work

The Design-Builder shall provide current construction information to the Department as an input to incident management strategies to prevent traffic from being rerouted into areas of construction-related congestion.

3.2.5.1.2 Maintenance of Traffic and Access

The Design-Builder shall provide maintenance of traffic (MOT), in accordance with Section 18 of Book 2, and access information for the entire Project to commuters, residents, businesses and identified customer groups (from Section 3.2.3) throughout the project life.

The Design-Builder shall include the following elements within the notifications to the public:

- Residents, businesses, and access to public areas of interest or scheduled activities affected
- Alternate routes and detours
- A contact for further information
- Time of day and duration of the impact

3.2.5.1.3 Traffic Conditions

The Design-Builder shall inform the Department of any unusual traffic conditions (such as road obstructions, etc.) within 15 minutes of detection.

3.2.5.1.4 Commercial Vehicle Access and Restriction Information

Twenty Working Days prior to an activity taking place that may restrict or impede the movement of commercial vehicles due to reduced lane widths, reduced height clearances, or lower weight limits, the Design-Builder shall provide the California Highway Patrol, Department's District 3 Department's Office of Truck Services (Transportation Permits), and Department's Project Manager with notice including:

- Description of the event
- The start of the event
- The end of the event
- Any additional information required by the respective agencies or units

3.2.5.1.5 Emergency Services Vehicle Access

The Design-Builder shall communicate information regarding access for emergency services to the necessary parties by a schedule agreed upon by the Design-Builder, the Department and the emergency services providers. This schedule agreement shall be included in the Public Information Plan and the crisis communications approach developed by the Design-Builder and communicated in writing to the Department and emergency services..

3.2.5.1.6 Changes to Access

The Design-Builder shall inform businesses and residents of any changes to access at least 10 Working Days prior to the start of any construction activities that may affect them. Information shall include the purpose of the access change, expected duration, detour options, and Design-Builder contact information. 10 Working Days prior to start of construction, the Design-Builder shall submit to the Department information regarding changes in access.

3.2.5.1.7 Bicycle, Pedestrian, Handicapped Mobility, and Access

The Design-Builder shall clearly define and communicate to the Department accommodations for access by bicycles, pedestrians, and handicapped persons, equestrian including alternate routes and detours. The Design-Builder shall make every effort to accommodate and maintain accessibility throughout the duration of the Project.

3.2.5.1.8 Utility Shut-Offs

Regular communication with businesses and/or residents affected by Utility shut-offs shall be conducted by the Design-Builder to mitigate the impacts of potential Utility disruptions. The Design-Builder shall personally contact all affected businesses and residents and shall maintain a record of each notification. The Design-Builder shall provide a written notice to the affected parties at least 48 hours in advance of the Utility shut-off. Notices shall indicate the expected duration of the outage and provide information indicating how those affected by the outage can contact the Design-Builder. Such notices shall also be provided to the Department and the City and County of Sacramento.

The Design-Builder shall provide an emergency Utility contact list of all Utility Owners' representatives with facilities within the Project Site as part of the Public Information Plan. The Design-Builder shall be responsible for keeping the emergency Utility contact list updated on at least a quarterly basis.

3.2.5.1.9 Incident Information

The Design-Builder shall act as an additional source of incident information in the Project. This incident information includes traffic accidents, disabled vehicles, oversized vehicles traveling on the network, Utility disruptions, adverse weather conditions (e.g., wind, ice, rain, and snow), and debris and/or animals on roadways.

As the Design-Builder becomes aware of incidents, the Design-Builder shall report such incidents within 15 minutes of detection to the Department's Contract Manager and follow the emergency plan

3.2.5.1.10 Events

The Design-Builder shall compile a weekly listing of special events in and around the Project area that may be affected by the Work. The Design-Builder shall coordinate, communicate, and provide a plan to minimize conflicts for public events held by public and private entities. (Examples include city festivals, parades, and sport events.) The Design-Builder shall notify the Department of planned events that may be affected by construction a minimum of 14 Days before each event takes place. Also, see section 18 Maintenance of Traffic for District 3 special events.

The following are some of the public and private entities that can provide current scheduled events.

- City of Sacramento
- Sacramento County
- Yolo County
- Sacramento Chamber of Commerce

3.2.5.1.11 Nighttime Construction Noise

The Design-Builder shall notify nearby residents in writing of the expected start and completion of construction activities expected to generate nighttime construction noise. Notifications shall be made at least seven Days in advance. Changes in the expected schedule of these activities shall be made within one Day of determination. The Design-Builder shall continually inform the affected residences of these possible nighttime construction noise impacts.

3.2.6 Methods of Disseminating Information

The public interest in the different aspects of the Project will be extensive, ranging from understanding of the construction schedule to the specifics of design and how it fits with community needs and aesthetics. In close coordination with the Department, the Design-Builder shall provide specific Project information for the public, as well as respond to the public's day-to-day needs and concerns. The Design-Builder shall provide credible, timely information to establish an effective working partnership with the Project's customer groups.

In addition to its own innovative strategies and solutions, the Design-Builder with authorization from the Department shall use the following methods for managing and disseminating information.

3.2.6.1 Communications Matrix

A communications matrix process shall be developed and used by the Design-Builder to manage the dissemination of information to customer groups and to report to the Department. The Design-Builder shall develop a communications matrix for the customer groups, which will identify the following:

- The customer group(s) requiring information
- Location or region of customer group(s)
- What information is needed
- When information is needed
- Tools to be used to disseminate information
- Results of information dissemination

As part of the communications matrix management process, the Design-Builder shall incorporate a coordination effort that integrates public information, Maintenance of Traffic (MOT), and intelligent transportation systems (ITS) requirements.

The communications matrix shall be used to assess performance during the scope of the Project and shall be updated continuously.

3.2.6.2 Public Contact

The Design-Builder shall work with the Department to facilitate coordinated and consistent efforts when contacting and disseminating information to the public. The Design-Builder shall track all contacts, at a minimum, the names, addresses, e-mail addresses, fax and phone numbers, questions, comments, concerns, dates of contact, and the response provided, using an electronic database capable of producing reports.

Reports detailing public contacts shall be provided to the Department on a weekly basis.

3.2.6.3 Telephone Hotline

The Design-Builder shall implement a telephone hotline with trained personnel knowledgeable of the Project as a means of receiving community input, answering questions, and prompting possible solutions regarding Project-related activities. The hotline shall be available to the public 24 hours a Day, seven Days a week and shall be publicized in all Project information materials. The hotline must be a handicap-accessible, free call for the public. An immediate response is preferable for all calls, although a voice mail option is permissible. All voice mail messages shall be replied to within 24 hours of receipt. All calls and resulting actions from this hotline shall be tracked and integrated into the Project's electronic contacts database for the

Department's inspection. The Design-Builder, in developing design and conducting its construction activities, shall consider data received from this hotline.

3.2.6.4 Media Relations

When media relations efforts are required by the project, as determined by the Department, media relations will be managed by the Department's District 3 Public Affairs Coordinator. The Department may delegate media relations to the Design-Builder on a case-by-case basis. The Department will be responsible for conveying Vision messages (as described in Section 3.2) to the media and addressing Project-specific Progress (see Section 3.2) questions such as budget, milestones, etc. The Department and the Design-Builder shall work together to develop key talking points and to convey Coping messages (see Section 3.2), such as day-to-day lane closures, and specific phasing questions.

During the Work, the Design-Builder shall immediately notify the Department of any situations involving the media, and all communications requests shall be tracked by the Department. The Design-Builder shall direct media questions through the Department. The Design-Builder shall not use information gained on or from the Project for its own business promotion purposes without written consent of the Department.

3.2.6.5 Community and Business Relations

As part of the communication matrix process and with oversight from the Department, the Design-Builder shall develop and implement community relations strategies that communicate Coping messages to the public. Coping strategies shall focus on providing the public with the information they need to make short- and long-term decisions about how they can deal with the Work with as little disruption as possible.

3.2.6.6 Government Affairs

The Department will be responsible for Federal, State, and local government affairs (except where responsibility is specifically assigned to the Design-Builder, such as for coordination purposes and for securing permits). The Design-Builder shall assist in giving timely information to the Department regarding construction activities, and shall participate in meetings with elected officials and staff as requested.

3.2.6.7 Information Service Providers

Third-party information service providers, such as traffic-information Web sites, may play a valuable role in assisting to disseminate Project-related information to the public. The Design-Builder shall describe strategies to communicate relevant information to these entities via the Department. The Design-Builder will take specific Project information (e.g., lane closures, ramp/loop closures, roadway closures) and provide it to the Department and traffic-information Web sites.

3.2.6.8 Project Identity

The Design-Builder shall support the Department in efforts to provide key educational messages and to build awareness about the Project. The Department has created a project identity, or "brand," that will allow the various entities of the Project team to present Project information seamlessly to the public. The Design-Builder shall use the Department logo, as well as the Project name, to identify itself as part of the Project team and in its communication vehicles to the public. The goal is to eliminate individualism and to portray all communications about the Project as a partnership between the Department, Sacramento Associated Governments and the Design-Builder. Approval of all Project identity and brand materials will be a cooperative effort between the Design-Builder and the Department.

3.2.7 Tools for Disseminating Information

In addition to its own innovative strategies and solutions, the Design-Builder shall use the following tools for disseminating information.

3.2.7.1 Project Identification Boards

The Design-Builder shall install signs near the Project to be placed in prominent traffic zones and at the Design-Builder's field office. The signs shall identify relevant Project information, including the Project's public contact information.

3.2.7.2 Electronic Information Dissemination

A wide range of information concerning conditions in the Project area will be available from the Design-Builder and the Department. The Design-Builder shall employ multiple means to disseminate information about conditions in the Project through existing and Project-specific means. The primary electronic methods will be through Project and Department Web sites, e-mail, Twitter, Facebook, variable message signs, and the IE511 Roadway Information System.

3.2.7.2.1 Web Site

With oversight by the Department, the Design-Builder shall create and maintain the Project's public Web site to provide Project information about construction, transit options, alternate routes, and other relevant information. The Design-Builder shall work with the Department to develop innovative and creative strategies to enhance the existing Web site and the information provided on the Web site. The Design-Builder shall provide, at a minimum, construction information, commercial vehicle restrictions, regular input for a community/construction calendar of events, frequently asked questions (and the answers to those questions), and other relevant information. The Design-Builder shall update this information daily, or more often if needed. The Design-Builder shall be responsible for evaluating user needs, including the type of information that is of interest to specific users (e.g., general public, commercial vehicle operators, etc.), and shall develop the format for displaying information according to the Department Project Web requirements.

The Project Web site shall adhere to State web accessibility requirements, including the W3C Web Accessibility Guidelines 1.0 Priority Levels 1 and 2, as well as Federal Rehabilitation Act Section 508 standards. Additional information can be found here:

http://webtools.ca.gov/Accessibility/State_Standards.asp

The Design-Builder shall maintain a project-specific Twitter handle for the project. All closures and public meeting notices shall be tweeted from the project-specific Twitter handle a minimum of 3 days prior to their occurrence.

The Design-Builder shall maintain a project-specific Facebook presence. All closures and public meeting notices shall be posted to status updates on the project-specific Facebook page.

3.2.7.2.2 Radio Advertising

For all major lane closures (closures exceeding 30 minutes delay), radio advertising spots shall be utilized to inform the public of the closure. The radio advertising spots shall be run at least one week prior to the start of the closure and continue throughout the closure. Radio advertising spots shall adhere to the following requirements:

- Be broadcast on a minimum of 3 stations with coverage in the Sacramento area. Radio stations shall be in the top 6 stations of preferred stations for households with one or more vehicles and employment or residence in Sacramento County (per Arbitron ratings). The list of stations shall be approved by the Department prior to purchase of the spots.
- A minimum of six radio spots per day, with two spots in the morning peak hour, two spots in the evening peak hour and two spots during the day between peak hours.
- Each spot must be a minimum of 20 seconds in length, with the script approved by the Department prior to running.

3.2.7.2.3 Newspaper Advertising

For all major lane closures (closures exceeding 30 minutes delay), newspaper advertising shall be utilized to inform the public of the closure. Advertisement shall be run 2 day starting at least 3 days prior to the start of the closure, and shall adhere to the following requirements:

- Be advertised in at least two newspapers with circulation in Sacramento County, as well as the largest paper of record in the Bay Area..
- Advertisement shall be a minimum size of 1/8th of a page and be approved by the Department prior to purchase.

3.2.7.3 Emergency Information Dissemination

As part of the crisis communications approach, the Design-Builder shall establish and manage an emergency response telephone tree. All appropriate stakeholder personnel shall be included on this telephone tree for immediate response in the event of an emergency. The telephone tree shall be divided into areas of expertise so the proper people are called for specific emergency situations. The Department Contract Manager, Department public information staff, designated local agencies representatives and the Design-Builder's Project Manager shall be included on the telephone tree for notification of any emergency that may surface.

3.2.7.3.1 List of Emergency Service Providers

The Design-Builder shall develop and maintain a contact list of emergency service providers as part of the crisis communications approach. The Design-Builder shall provide information to emergency service providers as outlined in the communications matrix and crisis communications approach. The list shall be updated as changes occur.

3.2.7.4 Public Meetings and Personal Contact

3.2.7.4.1 Public Information Meetings and Open Houses

The Design-Builder shall conduct monthly construction meetings at a convenient location for community members located in active project areas. The Design-Builder's management and public information teams and the Department shall attend all meetings. The Design-Builder shall organize and arrange all Project meetings and extend invitations to appropriate participants listed above in Section 3.2.3 as agreed upon by the Department. The purpose of these meetings shall be to update affected local agencies and to address inquiries or ongoing concerns. The Design-Builder shall provide the meeting facility.

The Design-Builder's Project Manager and other Design-Builder selected personnel shall meet with the Department Project Manager prior to the construction meeting when requested by either party.

The Design-Builder shall conduct an Open House within fourteen (14) Days of NTP1 to discuss construction staging, maintenance of traffic, and other issues of interest to the community.

3.2.7.4.2 Personal Contacts

A representative from the Design-Builder's public information team shall implement and manage door-to-door and phone contact with residents and businesses in areas of major activity, such as road and driveway closures or construction operations at night. Contact shall occur at least thirty(30) Days before work begins and shall consist of information explaining the planned work and the expected duration of the work, and providing contact information and answering questions. These contacts shall be conducted within a minimum four-block radius of the activity.

3.2.7.4.3 Supplying Information to Third Parties

The Design-Builder shall furnish Project information, including plan sheets, electronic data files (description of content), and construction and design information, to third parties (such as owner's attorneys or agents) within seven Days of contact and notification of the Department. When appropriate, this information shall be

furnished via an FTP site or may be disseminated in both paper and electronic format. Any documents or accident report/information shall require approval by the Department prior to supplying the information to a third party.

3.2.7.5 Information Materials

The Design-Builder, in coordination with the Department, shall prepare information materials for any business, resident, news media outlet, or others to support its communications efforts as necessary in the Project area. These materials shall include tentative schedules, contact names, telephone numbers, Project descriptions and maps. The Department shall review and approve all content of the information materials, which shall also be available on the Project Web site.

3.3 [NOT USED]

3.4 [NOT USED]

3.5 Deliverables

Five hardcopies of the Design-Builder's final Public Information Plan shall be submitted to the Department for Approval within 14 Days of NTP1. The Department will respond within ten (10) Working Days of receipt of the plan.

The Design-Builder shall submit specific public information dissemination pieces (i.e., faxes, e-mails, collateral materials, and access maps) to the Department for Approval on a schedule agreed to by the Design-Builder and the Department prior to dissemination by the Design-Builder.

Upon Approval of the above mentioned deliverables, the Design-Builder shall provide electronic versions to the Department.

4 ENVIRONMENTAL COMPLIANCE

4.1 General

The Design-Builder shall perform all Work necessary to meet the requirements for Environmental Compliance as set forth in the Standard Environmental Reference (www.dot.ca.gov/ser) and in any previously approved environmental documentation for Project.

4.2 Administrative Requirements

4.2.1 Standards

The Design-Builder shall perform the Work in accordance with the relevant requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder’s Submittal has a higher standard than any of the listed standards, adhere to the Submittal Proposal standard.

If there is any unresolved ambiguity in standards, it is the Design-Builder’s responsibility to obtain clarification from the Department before proceeding with design and/or construction.

Use the most current version of each listed standard as of the initial publication date of this RFP unless specified herein or modified by Addendum or Change Order.

Environmental Standards and Requirements

Priority	Agency	Title
1	Department	Exhibit 4-A, Environmental Commitments Record
2	Department	Exhibit 4-B, MS4 Stormwater Permit
3	Department	Standard Environmental Reference
4	Department	Standard Special Provisions
5	Department	Standard Specification 2010 (including Revisions)
6	Department	Design Build Modifications to the Standard Specifications
7	Department	Standard Plans 2010 (including Revisions)
8	Department	Construction Site Best Management Practices (BMPs) Manual
9	Department	Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
10	Various	Technical Memoranda
11	RWQCB	SUSMP Requirements
12	Department	Volume II, CT Environmental Handbook; Cultural Resources
13	Department	Volume III, CT Environmental Handbook; Biological Resources
14	Department	Volume IV, CT Environmental Handbook, Community Impact

Remaining Standards set forth in Book 3.

4.2.2 References

Use the references listed below as supplementary guidelines for all environmental related analysis, design and construction. These references have no established order of precedence.

Environmental Publications References

Agency	Title
Department	Surveys Manual
Department	Ready-To-List and Construction Contract Award Guide (RTL Guide)
Department	Construction Manual
Department	California Test Methods
Department	Erosion Control Toolbox
U.S. ACE	Wetlands Delineation Manual

4.2.3 Permits

No permits are anticipated for this project. Should the Design-Builder’s design necessitates permits, it is the Design-Builder’s responsibility to obtain all necessary agency approvals. Unless otherwise indicated in Table 01, all permits required for the Project will be the responsibility of the Design-Builder and permits. The Design-Builder shall provide Department with copies of all permit applications, drawings, correspondence, and environmental management plans at least three (3) days prior to the Design-Builder approval of permits so that the Department may review, comment, and approve.

The Design-Builder shall comply with the requirements of all permits.

Table 01: Project Environmental Permit, Agreement, and/or Approval Responsibilities							
REQUIRED PERMITS, AGREEMENTS, & Approvals	N/A	COORDINATE	PREPARE APPLICATION	OBTAIN	IMPLEMENT	RENEW	AMEND
404 USACOE							
401 RWQCB							
NPDES SWRCB							
State Waste Discharge Requirements (Porter Cologne) RWQCB							
FESA Section 7 USFWS		DT		DT		DT	DT
BO Section 7 USFWS		DT		DT		DT	DT
FESA Section 7 NOAA/NMFS		DT		DT		DT	DT
BO Section 7 NOAA/NMFS		DT		DT		DT	DT
FESA Section 10 USFWS							
EFH - NOAA/NMFS		DT		DT		DT	DT
		• DT		DT		DT	DT

		• DT		DT		DT	DT
1602 DFG							
2080.1 DFG		DT		DT		DT	DT
2081 DFG		DT		DT		DT	DT
Air Quality Permits							

DT: Designates Department

4.2.4 Avoidance Measures

The Design Builder shall be responsible for the design, implementation, and maintenance of all avoidance measures during the life of the Project to minimize potential environmental impacts. Avoidance measures include, but are not limited to, those identified in the Preliminary Engineering Documents and these Technical Provisions, any additional measures resulting from permit requirements, and any other environmental commitments. The Design Builder shall ensure the Project design is in compliance with all applicable Governmental Rules and shall prepare plans and procedures to assure compliance, where required.

Avoidance measures may be subject to inspections by the Department and other environmental regulatory agencies. These agencies may include, but are not limited to, the California Department of Fish and Wildlife (CDFW), United States Fish and Wildlife Service (USFWS), Regional Water Quality Control Board (RWQCB), and United States Army Corps of Engineers (USACE).

4.2.5 Environmental Notification Contact List

The Design Builder shall prepare an Environmental Notification Contact List that includes all contact persons and reporting and notification requirements for unforeseen potential environmental impacts encountered during the course of the Project. The Environmental Notification Contact List shall:

- Include all contact Persons representing the Design Builder, governmental entities, and regulatory agencies regarding environmental matters.
- Specify the chain of contact.
- Include for each contact: the person’s name; agency or corporate affiliation; address; e-mail address; cellular, office telephone number(s); and fax number.
- The list shall specify, at a minimum, the appropriate contact person(s) for reporting and notification of the following events:
 1. Design Builder-caused hazardous material spill
 2. Discharge to groundwater
 3. Discovery of:
 - Hazardous materials such as petroleum-contaminated soils, asbestos-containing materials, solid wastes, and other regulated materials
 - NPDES inspections by RWQCB
 - Illicit discharges of water and/or sediment leaving site

-
- Violation of permits and regulations
4. Any pollution issue not covered in items listed above

The Design-Builder will contact the Department and the Department will contact and coordinate with the appropriate agencies in the following events:

1. Discovery of:
 - An active bird nest (with eggs or young)
 - Cultural or historic artifacts
 - Human bones or remains
 - Wildlife injured during construction activities
 - Disturbance of any threatened or endangered species or its habitat

The Environmental Notification Contact List shall be current at all times. Updated copies shall be submitted to the Department as required.

4.2.6 Environmental Management Plan

The Design-Builder shall submit an Environmental Management Plan (EMP) that describes the Design-Builder's approach for avoiding environmental impacts. The EMP will contain the following elements:

- Environmental personnel and training
- Monitoring and Reporting Record (MRR)• Weekly and monthly reporting
- Environmental notification contact list
- Schedule of EMP activities
- Spill Containment and Countermeasure Plan to describe the Design-Builder's plans to prevent, contain, clean up, remove, dispose and mitigate all regulated material spills caused by the Design-Builder or any Design-Builder related entities. The Plan shall be in accordance with the July 2002 United States Environmental Protection Agency (EPA) update. The Spill Containment Plan shall include a Notification List for containing and reporting.
- Hazardous Materials Management Plan, including procedure for discovery of unanticipated hazardous waste or contaminated materials
- Construction Noise Monitoring Plan
- Air Quality Management Plan
- Asbestos Control Management Plan
- Lead-Based Paint Control Management Plan
- Aerially Deposited Lead (ADL) Soils Management Plan
- Storm Water Data Report (SWDR)
- Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP)
- Sedimentation and Erosion Control Plan
- Noise Control Plan
- Natural Resource Protection Plan

- Traffic Management Plan

All plans shall be developed by the Design-Builder and reviewed and approved by the Department, and/or the appropriate jurisdictional agency, if any.

4.2.6.1 Environmental Personnel and Training

4.2.6.1.1 Environmental Personnel

The Design-Builder shall designate an Environmental Team that consists of those persons responsible for permitting, erosion and sediment control, environmental compliance, environmental monitoring, and hazardous materials.

Permitting Specialist

The Design-Builder shall provide a Permitting Specialist to supervise the work necessary to acquire any permits required, as a result of the Design-Builder's Work, for the Project that were not included in the Contract Documents. The Permitting Specialist shall supervise the work necessary to develop all permit applications, drawings, correspondence, and environmental management plans. This work will include assembling a permit application package as required by each permitting agency. The Permitting Specialist shall also ensure that the Design-Builder is complying with all requirements of the Permits. The status of permits applications and permit compliance shall be reported in each Environmental Management Plan.

Storm Water Pollution Prevention Plan Manager

The Design-Builder shall provide a Water Pollution Control Manager (WPCM) and/or SWPPP Preparer that has the qualifications provided in the General Permit, Department's *Standard Special Provisions*, and current Storm Water Quality Handbooks, Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual. The Design-Builder's WPCM shall be responsible for preparation and compliance with the NPDES permit.

Erosion and Sediment Control Specialist

The Design-Builder shall assign a California Licensed Landscape Architect, in accordance with Section 14 Landscape of Book 2 with Certified Professional in Erosion and Sediment Control (CPESC) Certification with detailed knowledge, skills, and experience in each of the following:

- Permit requirements and application processes, design standards, specifications, and special provisions for storm water facilities.
- Selection, design, and implementation of permanent best management practices. Design and implementation of temporary best management practices in compliance with the NPDES permit. The Certified Erosion Control Specialist shall be responsible for the installation and maintenance of all temporary and permanent erosion and sediment control during the life of the project. The Certified Erosion Control Specialist shall perform the required weekly erosion control inspection reports.

Erosion Control Installer

At least one California Licensed Landscape Contractor with a C-27 license specializing in erosion control application at the time of installation shall be required for the following erosion control activities: seeding, planting, mulching, silt fence or other perimeter sediment control device installations, erosion control blanket installation, hydraulic soil stabilizer installation, check dam installation, storm drain inlet protection, riprap placement, compost installation, and rolled erosion control product installation.

4.2.6.1.2 Environmental Protection Training

The Design-Builder shall design and implement an environmental protection-training program for all of the Design-Builder's employees and Subcontractors (including truck drivers and equipment operators). Every employee of the Design-Builder who works on the Project (management through workers, including each

new employee who begins work after Project commencement) and all of the Design-Builder's Subcontractors shall participate in an environmental protection-training program. The training program shall orient employees and Subcontractors to the following:

- The overall importance of environmental issues in achieving a successful project
- The particular environmental sensitivities of the Project
- Erosion and sediment control procedures in accordance with the SWPPP including the functions and proper installation of Best Management Practices (BMPs) to be implemented on the project.
- Proper procedures for spill containment
- Proper and safe handling of contaminated soil and groundwater

Assistance will be provided regarding clarification and understanding of Department environmental goals and policies.

4.2.7 Certification Requirements

The Design-Builder shall perform all laboratory testing at a Department certified and approved lab and an AMRL-accredited facility for material tests required by this section. All material testers are to be certified for the materials they are testing.

4.2.8 Coordination with Other Agencies and Disciplines

The Department will assist in the coordination and resolution of all environmental issues with affected interests and regulatory agencies. The Design-Builder shall document the resolutions of issues for the correspondence file, including meeting minutes and memoranda for the record. The Design-Builder shall document the permit requirements and contacts with the permitting agencies.

4.2.9 Meetings

The Department and the Design Builder shall meet at the request of one of the parties, as necessary, to discuss and resolve matters relating to Environmental compliance during the design and construction stages. The requesting entity shall provide the other parties with not less than five (5) days prior notice of such meetings. The Design Builder shall prepare and distribute a record of the minutes to the meeting within five (5) days.

4.2.10 Environmental Reevaluation

The Design Builder shall make every effort to keep the project within the boundaries identified when the project Environmental approval was completed. Should the scope or extent of the project be altered during the project design or construction phase, those changes that extend the project beyond the limits of construction shall be reviewed by the Department's Environmental staff members to determine the need to obtain an environmental reevaluation.

4.3 Design Requirements

The Design-Builder shall design and construct all elements of the project related to Environmental Compliance in accordance with all the standards and regulations listed in this Technical Provision.

4.3.1 Project Specifics

4.3.1.1 Permits

- Other than storm water permits, there are no permits anticipated for this project. Refer to section 4.2.3 Permits.

4.4 Construction Requirements

4.4.1 Avoidance Measures

4.4.1.1. Contaminated Materials

Asbestos Containing Material (ACM) and Regulated Waste

All Asbestos-related work shall be performed by a properly licensed Asbestos Abatement Design-Builder or subcontractor, certified by the Contractors State License Board (CSLB) and registered with the Department of Industrial Relations, Division of Occupational Safety and Health Cal/OSHA. Lead abatement work, if required, shall only be performed by a person certified by the Department of Health Services. All work shall be done in accordance with all city and/or county codes and regulations and Air Quality Management District (AQMD) regulations.

Upon discovery, the Design-Builder shall immediately stop working in and notify the Department in compliance with Section 14-11.02A, “*Unanticipated Discovery of Asbestos and Hazardous Substances*” of the Standard Specifications

The Design-Builder shall abate all hazardous materials to include but not limited to friable and non-friable asbestos and lead paint, according to all environmental laws and regulations, and provide any necessary Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Program (WPCP) and implementation of such Plan(s).

Prior to starting demolition operations, the Design-Builder shall be responsible to ensure utility companies have disconnected and removed meters, service lines, LP tank or natural gas tank.

The Design-Builder shall procure all necessary permits and pay all fees related to ACM and Regulated Waste.

NESHAP Asbestos Notification shall be required if structures will be disturbed during construction. The appropriate special provisions for testing of areas suspected to contain ACM and for handling and disposal of ACM shall be provided for review and approval. The Design-Builder shall prepare an Asbestos and Regulated Materials Assessment Report that describes the results of the assessment and of the abatement and removal activities.

In the event that additional waste materials suspected of containing asbestos or other regulated materials are encountered during construction activities, the Design-Builder shall immediately stop work and provide notification. The Design-Builder will perform all work necessary to assess, abate, and remove any asbestos or other regulated materials.

Health and Safety Plan

Hazardous Materials may exist on the surface, subsurface, groundwater, or on structures to be demolished, and may be mixed with soil, water, and/or other waste materials.

The Design-Builder shall prepare a Hazardous Waste Operations Safety and Health Program for Hazardous Waste Operations, following Federal, State of California and local requirements including CAL/OSHA, CCR Title 8, 5192 et seq., and Federal OSHA, 29 CFR 1910 et seq, and 1926 et seq. A Certified Industrial Hygienist licensed by American Board of Industrial Hygiene shall approve the Hazardous Waste Operations Safety and Health Program.

The Design-Builder shall submit a site specific Health and Safety Plan (HASP) as Part of the Hazardous Waste Operations Safety and Health Program, and as defined in CCR Title 8, 5192(1)(B), within thirty (30) days of receiving Notice to Proceed.

The Design-Builder shall distribute the HASP to all employees that could be potentially exposed to Hazardous Materials. Employees shall be required to read the HASP, sign a compliance agreement, and abide by all provisions. The HASP shall be displayed or made available on the Project at all times. The Design-Builder shall develop and maintain on site all industrial hygiene information, including “right-to-know” information. It is anticipated and considered as part of the Scope of Work that the Design-Builder will

perform Hazardous Waste Operations requiring protective gear up to and including Level C. The Design-Builder shall provide Personal Protective Equipment (PPE) and monitoring equipment to conform to the requirements set forth by CAL/OSHA and Federal/OSHA.

In the event that the Design-Builder encounters or has reason to believe it has encountered Hazardous Materials requiring Hazardous Waste Operations on the Project, the Design-Builder shall provide verbal notification and proceed with the Hazardous Waste Operations work.

The Design-Builder shall then provide written notification by implementing an avoidance plan. If the finding of Hazardous Substances precludes the continuation of work in that work area, the Design-Builder shall continue Working in areas not affected thereby.

The Design-Builder shall maintain documentation and provide information, as requested, regarding potential or actual exposure to the public.

The Design-Builder shall maintain records of all related incidents and provide notification immediately.

The Design-Builder shall be responsible for management of the Hazardous Materials and Hazardous Waste encountered on the Project.

Removal, Handling, and Transportation of Hazardous Materials

The Design-Builder shall be responsible for the removal, handling, transportation and disposal, if any, of Hazardous Materials, including but not limited to asbestos, yellow striping, lead paint, and ADL contaminated soil resulting from the Project. Design-Builder shall be responsible for filing any information regarding the discovery, handling, removal, transportation and disposal of Hazardous Materials related to this Project with the appropriate Federal, State or local regulatory agencies. Such information includes investigation reports, health and safety plans, transportation and waste tracking documentation, field-testing results and reports, NPDES Permit and DTSC variance records and correspondence, regulatory notifications, and any hazardous waste or contaminated material correspondence. All draft documents for the regulatory agencies are to be provided for review and concurrence.

The Design-Builder shall be responsible for obtaining the Environmental Protection Agency Identification (EPA ID) number from DTSC no later than seven (7) calendar days in advance of the excavation and or removal of any Hazardous Material, Hazardous Waste, or contaminated material. The following information shall be required:

- Type of material (physical characteristics)
- Volume (cubic yards or gallons)
- Site address (at a minimum, route, post miles, and cross streets)
- Zip Code (mandatory for tracking purposes)
- Test results or waste profile

Once an EPA ID number has been obtained, the material shall be manifested by a transporter that possesses the credentials required under Title 22 (§66263) of the CCR. Design-Builder shall submit copies of the manifests signed by the disposal facility.

Bills of lading are needed for tracking and transporting ADL-affected soils to reuse sites. Copies of the bills of lading are to be attached to As-Builts prepared for the Project. After notification in writing, the qualification of ADL material for reuse will be verified.

The Design-Builder shall have means for conducting emergency Hazardous Materials Management (i.e., tank removal, lead abatement, asbestos abatement, spills, etc.). The Design-Builder shall immediately notify the Department of such conditions.

Removal and Disposal of Yellow Thermoplastic and Paint

Yellow striping removal poses a hazardous waste concern whether the striping is ground off alone or ground off with pavement. The Design-Builder shall provide a Lead Compliance Plan (LCP) and shall be submitted for comments and approval at least two (2) weeks before fieldwork begins. Testing on removed material must be conducted for classification purposes. The Design-Builder shall remove and dispose of yellow striping per Department's *Standard Special Provisions*.

Soil and Groundwater - General

The Design-Builder shall review all Phase I and Phase II Environmental Site Assessment (ESA) reports completed for the Project. The Design-Builder shall be responsible for updating the Phase I ESA if Department or the Design-Builder determines the Phase I ESA is inadequate in its coverage of the Project area. The Design-Builder shall be responsible for additional drilling investigation and/or Phase II work that may be needed to accommodate the work.

The Design-Builder shall sample and test the soils and groundwater that are suspected to be contaminated. The Design-Builder shall also monitor soil excavation activities and evaluate planned treatment procedures. When all contaminated soil excavation and corrective action, and all groundwater dewatering has been completed for the Project, the Design-Builder shall prepare a Corrective Action Implementation Report for the entire Project. The report shall be completed in accordance with applicable California Pollution Control Program requirements. The Design-Builder shall install wheel/undercarriage washing equipment, or a functional equivalent, at excavation locations, as the first method by which to ensure that haul trucks have clean wheels and undercarriages before entering the roadway.

Contaminated Soil Contingency Plan

In the event on-site observations indicate contaminated materials (such as solid waste including demolition debris, containers or free product) or contaminated soil (based on organic vapor detector readings above background, visual staining or olfactory evidence) have been encountered in the Project area, the Design-Builder shall be responsible for notifying and for filing any information with the appropriate Federal, State or local regulatory agencies.

No excavation of contaminated materials or soil shall take place without Approval.

The Design-Builder shall stockpile all contaminated material or soil encountered within excavation limits as described in these provisions. To expedite the bridge substructure construction, the Design-Builder may haul and temporarily stockpile all excavation materials from the bridge substructure construction to the temporary stockpiles sites designated near the Project site as approved by Department.

The Design-Builder's disposal plan for contaminated soil may include re-using the contaminated soil in fill areas on this Project. The Design-Builder shall locate the contaminated soil on the As-Built Plans.

The Design-Builder may determine that some or all of the contaminated soil and all of the contaminated materials must be disposed at a California-permitted municipal solid waste (MSW) landfill facility or industrial landfill facility. The Design-Builder shall select the California permitted MSW landfill facility or industrial landfill facility for disposal of the contaminated soils and materials.

The Design-Builder shall be responsible for providing all required information to the landfill (typically waste profile information and soil analytical data) in order to obtain landfill acceptance of the contaminated soil for disposal or for use as daily cover as dictated by landfill acceptance criteria.

The Design-Builder shall provide access to in-place and/or stockpiled soil to collect and analyze any additional samples required by the landfill.

The Design-Builder shall provide the landfill-required waste profile form(s) for review and signature.

Contaminated material shall not be hauled to the landfill facility until the Design-Builder has written approval from the landfill accepting the contaminated material for disposal at the landfill facility.

The Design-Builder shall provide copies of shipping papers/manifests and landfill scale tickets daily while material is being hauled to the landfill.

Temporary Stockpile of Contaminated Soil

The stockpile shall be placed at a location near the Project as approved by Department. The Design-Builder shall stockpile the contaminated soil on minimum 10-mil plastic, and cover the stockpile with minimum 10-mil reinforced plastic. Fencing shall surround the stockpile. The stockpile cover shall be securely anchored. The Design-Builder shall be responsible for the maintenance of the stockpile cover for the duration of the Contract or until all contaminated material is removed. The Design-Builder shall inspect the stockpile a minimum of once per week. The Design-Builder shall keep records of the weekly stockpile inspection, recording at minimum, the date and time inspected, and the stockpile coverage pre and post-inspection. Contaminated soil from different locations that may contain different contaminants shall be placed and maintained in separate stockpiles.

Contaminated Groundwater Contingency Plan

It is not known if any groundwater within the Project limits is contaminated. Because of the potential for contaminated properties with known or potential PAH, volatile organic compound (VOC), and petroleum-impacted groundwater located in the Project area, all groundwater dewatering necessary to complete the Project must be done under the assumption that the dewatered groundwater is contaminated. The Design-Builder shall provide notification no less than five (5) days prior to beginning any Project dewatering. The Design-Builder shall account for the treatment of contaminated groundwater in the Design-Builder's Project schedule where construction work will disturb these areas. The Design-Builder shall minimize Project dewatering to the greatest extent possible.

The Design-Builder shall obtain a groundwater discharge National Pollutant Discharge Elimination System (NPDES) Water Quality Permit to treat contaminated groundwater and to discharge treated groundwater to the storm sewer and all other necessary permits and approvals for dewatering. A groundwater discharge NPDES permit could replace the dewatering permit.

For all Project dewatering, the Design-Builder shall ensure that groundwater discharged to the storm sewer shall outlet at no more than two final discharge points. A final discharge point is the point at which the dewatered groundwater leaves a man-made pipe conveyance system and enters the environment in a ditch, pond, or river or other water body. Samples of dewatered groundwater will be periodically collected and analyzed at the final discharge points until all dewatering for the Project is completed. The Design-Builder shall provide notification no less than five (5) days prior to placing an active discharge point on or off-line to collect samples, if necessary. The Design-Builder shall provide access to all active discharge points.

The Design-Builder shall measure the rate of groundwater discharge during dewatering. The Design-Builder shall record the rate of discharge daily, and shall submit a discharge report weekly.

In the event groundwater cannot be directly discharged into the storm or sanitary sewer because of excess contaminant concentrations or because it contains free (undissolved) petroleum products, the groundwater shall be treated prior to discharge. The Design-Builder shall supply a portable groundwater treatment system that includes but is not limited to the following components: flow equalizer, oil/water separator, suspended solids removal (filtration through a bag filter), granular activated carbon filtration, and/or aeration. The portable groundwater treatment system shall have a treatment capacity equal to or greater than the rate of temporary construction dewatering. The portable groundwater treatment system shall be Approved prior to mobilization of any groundwater treatment system components to the Project site.

Ground Water Quality

For available depth ground water data, refer to Table 3: Depth to Groundwater Based on Geotechnical Branch and Figure 1: Overview of the Project Showing Depth to GW in the Reference Documents. If the Design-Builder chooses to dewater during construction at any location along the project, ground water samples shall be collected and analyzed for contaminants of concern by the Design-Builder. The Design-Builder shall submit a work plan for approval.

Aerially Deposited Lead

Aerially deposited lead is lead deposited within unpaved areas or formerly unpaved areas, primarily due to vehicle emissions. ADL is typically found within the top five (5) feet of material in unpaved areas within the highway ROW. ADL is present within the planned ROW limits. To verify the preliminary classification of soil, the soil may either be sampled in situ (before excavation) or sampled from stockpiles after excavation. The Design-Builder shall use a laboratory certified by the California Department of Health Services for testing of samples. Sampling, analysis and reporting of test results shall be performed according to USEPA, SW-846 “Test Methods for Evaluating Solid Waste,” Volume II; Field Manual Physical/Chemical, Chapter Nine, Section 9.1.

GIS Data Collection

The locations of samples/borings shall be recorded in the field, using the Department’s GPS NAD83 datum. The Design-Builder shall be provided with an electronic Microsoft Access 2000 Database file to record investigative data for each boring, sample, and test performed. GPS data shall be recorded in accordance with the allowable format and tolerances required in the *Caltrans Surveys Manual*. All borings shall be identified by a pre-assigned unique identification number system as described below.

Borehole Naming Convention

For Borehole naming convention, the Design-Builder shall use a 3-digit unique ID assigned by Department followed by a dash and sequential boring numbers beginning with “101C”. (Example: for this project where the assigned Unique ID is 964, the borehole names would be 964-101C, 964-102C, 964-103C, etc.)

Sample Naming Convention.

For sample naming convention, the Design-Builder shall label the sample with the name of the borehole from which it was derived, followed by a dash and the depth of the sample in meters. For this project, samples taken from borehole 964-101C at the surface, 0.60 meters and 0.90 meters would be named 964-101C-0, 964-101C-0.60 and 964-101C-0.90, respectively.

The sample data and analytical results shall be recorded in the appropriate tables. Note that the database tables are related such that the borehole data record must be created first, followed by sample data records, and finally the analytical result records. The Design-Builder shall collect GPS data at the completion of each boring sample.

The Design-Builder shall submit a final electronic file of the GIS database in conjunction with the submittal of an electronic file of the final sampling results.

If sampled in situ, the Design-Builder shall follow the same protocol used in the Lead SI cited above. The sample depths shall be defined as follows:

- The surface sample is taken between 0 and 6 inches;
- The one-foot sample is taken between 1 and 1.5 feet;
- The two-foot sample is taken between 2 and 2.5 feet;
- The three-foot sample is taken between 3 and 3.5 feet, and
- The five-foot sample is taken between 4.5 and 5 feet.

Grading samples only need to be taken in the surface, one-foot and two-foot layers. Widening and footing samples need to be taken in the surface, one-foot, two-foot, three-foot and five-foot layers.

The Design-Builder shall submit for review and approval, a work plan at least three (3) weeks prior to sampling and testing areas for ADL, pH and Title 22 metals. All samples shall be tested for total lead, Total Threshold Limit Concentration (TTLC). All samples with TTLC exceeding 50 mg/kg shall be tested for soluble lead, Soluble Threshold Limit Concentration (STLC), using the California Waste Extraction Test (WET) by EPA Method 3050A (Citrate Acid). The Design-Builder shall test 50 % of the samples using STLC. Any STLC results equal to or greater than 5 mg/L shall be tested using the De-Ionized Water (DI-WET) method. Any TTLC results exceeding 1,000 mg/kg shall be tested using the Toxicity Characteristic leaching Procedure (TCLP) with extraction by EPA Method 1311. A total of 30% of all soil samples with the highest TTLC values shall be tested using the TCLP method. 10% of all samples shall be tested for pH. 5% of all soil samples with highest TTLC values shall be tested for Title 22 metals.

The Design-Builder shall comply with the Department of Toxic Substances Control's Variance in handling ADL material and recognizing the purpose of 'SB14 Hazardous Waste Source Reduction', the Design-Builder shall reuse all the ADL contaminated soils that meet the Variance criteria. The Design-Builder shall survey the locations where ADL soil is reused according to the DTSC Variance. These locations shall be shown on the as-built plans and the coordinates shall be provided. During construction of previous projects within the project limits ADL contaminated soils were reused per the DTSC Variance.

The Design-Builder shall prepare special provisions identifying the limits, extent of ADL, and handling of ADL in accordance with the Variance for each design submittal. The Design-Builder shall prepare an LCP and an Evacuation and Transportation Plan (ETP). The LCP and ETP shall be submitted for review and approval 2 weeks prior to excavation activities.

The LCP shall prevent or minimize worker exposure to lead while handling material containing ADL. It shall include perimeter air monitoring incorporating upwind and downwind locations. Daily monitoring shall take place, under the direction of a Certified Industrial Hygienist, while the Design-Builder clears, grubs and performs earthwork operations.

The ETP shall include an excavation schedule, temporary locations of stockpiled material, appropriate plastic sheeting to cover the stockpiles, locations of samples and laboratory results, dust control measures, the proposed site for disposal of the hazardous waste and a spill contingency plan for ADL soil.

Unless all soil is tested in situ, grab samples shall be taken from stockpiled soil. The Design-Builder shall comply with DTSC Variance for reuse of stockpiled soil. At least one sample shall be taken for each 200 cubic yards of stockpiled soil and tested for lead using EPA Method 6010 or 7000 series.

Excavation, transportation, reuse and disposal of material containing ADL shall be in conformance with all environmental laws.

The Design-Builder shall perform and submit a statistical analysis of laboratory results in accordance with the SW-846 and as specified in the DTSC Variance. The Design-Builder shall determine:

- If the soil is defined as a hazardous waste per CCR Title 22 due to the total lead concentration greater than 1,000 mg/kg and/or soluble lead concentration greater than 5.0 mg/L or,
- If the Variance issued by DTSC to reuse soil containing lead on-site is applicable, and under what conditions the lead contaminated soil can be reused

The Design-Builder shall note that No statistical analysis shall be performed if none of the samples contained hazardous levels of lead. The Design-Builder bids should assume the Project contains the following quantities of ADL:

- Type Y-1 ADL: 39,000 cubic yards (may be reused on Project)

- Type Y-2 ADL: 131,000 cubic yards (may reused on Project)
- Type Z-3 ADL: 8,820 cubic yards

Once the Design-Builder has completed the permanent placement of material containing aerially deposited lead in conformance with the requirements of the Contract Documents, the Design-Builder shall have no further responsibility for such materials in place. The Design-Builder will not be considered a generator of such contaminated materials, except as expressly provided in the Contract. Further cleanup, removal or remedial actions for such materials will not be required if handled or disposed of as specified herein.

The Design-Builder is required to notify the DTSC in writing prior to Work in the vicinity of the discovery, fence off the area and notify the Department. The Design-Builder shall not resume Work in the area until receiving notification-allowing Work to re-commence.

Wells

Prior to the start of construction, the Design-Builder shall locate all wells, including active and inactive potable and non-potable wells, piezometers, abandoned wells, and monitoring wells within the Project limits. The Design-Builder shall provide recommendations on which wells shall be sealed. Written notification will be given to the Design-Builder whether to seal the wells. A Design-Builder licensed by the California Department of Health in accordance with the Water Well Construction Code, California Rules, shall seal the wells. For any wells that must remain in place during construction (typically monitoring wells), the Design-Builder shall protect the wells and conduct all activities in a manner that will not damage or jeopardize the wells. Replacement or repair of wells damaged by the Design-Builder shall be at the expense of the Design-Builder.

4.4.1.2 Noise

This project is considered a Type III project and it is exempt from traffic noise impact analysis under Title 23, Part 772 of the Code of Federal Regulations (23CFR772). Therefore, noise abatement is not considered.

Construction Noise

During construction noise may be generated from the Design-Builder's equipment and vehicles. The Design-Builder shall conform to the provisions of the Department's *Standard Specification* Section 14-8.02 "Noise Control"

4.4.1.3 Air Quality

This project is exempt from all air quality conformity analysis requirements per Table 2 of 40 Code of Federal Regulations (CFR) §93.126, subsection "Safety" under "reconstructing bridges".

Construction Impacts

The proposed project may result in the generation of short-term construction-related air emissions, including fugitive dust and exhaust emissions from construction equipment. Fugitive dust, sometimes referred to as windblown dust or PM₁₀, would be the primary short-term construction impact, which may be generated during excavation, grading and hauling activities. However, both fugitive dust and construction equipment exhaust emissions would be temporary and transitory in nature. Caltrans Standard Specifications, a required part of all construction contracts, should effectively reduce and control emission impacts during construction under the provisions of Section 7-1.02C "Emission Reduction" and Section 14-9.03 "Dust Control". Provision 14-9.02 "Air Pollution Control" requires the contractor to comply with all pertinent rules, regulations, ordinances, and statutes of the local air district.

4.4.1.4 Water Quality

It is anticipated that the Design-Builder will generate two water streams: storm water and construction wastewater (resulting from truck wash-downs, construction activities, etc.). The Design-Builder has the option of adopting a zero-discharge option (meaning all water will be collected and hauled off-site),

discharging only storm water, or discharging both waste streams in accordance with applicable permits. The following are the requirements:

If the Design-Builder decides to use the zero-discharge option, the Design-Builder shall not discharge any wastewater on site. All wastewaters must be hauled offsite for disposal. None of the remaining requirements of Subsection 3.2 apply if this option is chosen.

For the storm water discharge option, the Design-Builder will NOT be allowed to discharge construction wastewater (other than storm water) from the site until the Design-Builder files a Notice of Intent (NOI) with the State Water Resources Control Board to comply with the terms of the General Permit to Discharge Storm water associated with construction activity. If Design-Builder chooses not to file a NOI, Design-Builder must collect truck wash-downs and general construction wastewater (other than storm water and dispose of it off-site. The NOI requires the Design-Builder to prepare a Storm Water Pollution Prevention Plan and submit it to the State Water Resources Control Board, and submit a Notice of Termination (NOT) when construction is complete.

For all wastewaters, if the Design-Builder elects to file an NOI, the Design-Builder shall provide notification of its intent immediately. Design-Builder may discharge truck wash-down and other construction generated wastewater (in addition to storm water) if Design-Builder complies with the following requirements:

- No discharges other than storm water may be discharged into the storm drain, unless Design-Builder obtains an applicable permit from Central Valley Regional Water Quality Control Board. Design-Builder is responsible for obtaining NPDES permits. If used, Design-Builder must comply with all terms and conditions of their permit. Discharges to the storm drain must be in compliance with applicable NPDES permit.
- Submit, 30 days after NTP, a fully detailed Wastewater Management Plan for Project discharges for approval.
- Prepare and submit a Storm Water Pollution Prevention Plan in accordance with the Clean Water Act, NPDES General Permit for construction discharges, and related federal and state laws and regulations. SWPPP shall be submitted within 30 days of NTP.
- If applicable, the Design-Builder shall coordinate with all MS4 Permit holders who have jurisdictional authority over the projects Area of Potential Effect (APE).
- All connections and transport of wastewaters shall be by closed conduit. If necessary install and maintain pumps to deliver wastewaters to their destination(s) described herein.
- Design-Builder Testing Requirements – At the frequency required by permit, sample and test effluent quality for those parameters of Design-Builder’s responsibility. Record daily discharged quantities. Submit certified monthly reports not later than seven days after the end of the month detailing the daily flows and the testing data.
- Design-Builder Noncompliance - Design-Builder shall bear any fines incurred as a direct result of Design-Builder’s failure to treat those, herein, parameters that Design-Builder is responsible for.
- Do not discharge pollutant wastes such as chemicals, fuels, lubricants, bitumens, raw sewage and other harmful wastes onto the land nor into or alongside rivers, streams and impoundments, nor into gutters, storm drains or channels leading thereto.
- Control use of lubricating oils, hydraulic fluids, greases and other such products. Promptly clean up and properly dispose of materials contaminated by spillage or leakage of products. Comply with storage and containment requirements of these materials in accordance with Federal, State or local Storm Water Permit Regulations.

4.4.1.5 Waters and Wetlands

The Design-Builder shall comply with all regulatory requirements related to Waters and Wetlands as stated in Section 4.2.1.

4.4.1.6 Wildlife

This project is within or near habitat for the following regulated species: Bats.

The Design-Builder is responsible for providing at least one biologist to monitor construction and other activities that may harm regulated species.

Within seven (7) days after Contract approval, the Design-Builder shall submit each biologist's name, resume, and statement of qualifications. The Department will have seven (7) days for the review and approval of the biologist's qualifications. If the submittal is incomplete, the Department will provide comments. Within 7 days of receiving the Engineer/Department's comments, the Design-Builder shall update and resubmit qualifications data and any other information requested by the Department. The Design-Builder shall not begin any construction activity until a minimum of one biologist has been authorized by the Department. .

Biologists must have at least one (1) year of experience conducting bat surveys and excluding bats from structures during construction projects.

The Design-Builder's biologist must prepare a Natural Resource Protection Plan (NRPP) that defines measures the Design-Builder will take to protect bats.

The Design-Builder will submit the NRPP within seven (7) days after Contract approval. The Design-Builder shall allow seven (7) days for the Department's review. If the submittal is incomplete, the Department The Department will provide comments. Within seven (7) days after receiving the Department's comments, Design-Builder shall update and resubmit the NRPP.

The natural resource protection plan must be prepared and signed by a biologist approved by the Department.

The natural resource protection plan must include:

1. List of species and habitats addressed in the plan
2. Design for bat exclusion Protection measures for bats
3. Implementation plan for protection measures, including monitoring schedule
4. Monitoring duties
5. Justification for each instance where protection measures and an implementation plan are not necessary for a regulated species
6. Schedule for inspecting protection measures
7. Schedule for maintaining protection measures
8. Schedule for submittal of monitoring reports
9. Response plan for instances where regulated species are encountered

The Design-Builder shall submit the following reports to the Department within the specified timeframes:

- Pre-construction survey report shall be submitted within seven (7) days before beginning any construction activities.
- Monitoring Reports according to the schedule in the Natural Resources Protection Plan.
- Incident Report within 24 hours of the incident.
- Annual Monitoring Report no later than January 15 during each year of construction.
- Final Monitoring Report no later than seven (7) days after completion of the project.

All reports must include the following:

1. Name(s) of the biologist(s) conducting biological activity
2. Date(s) and time(s) of monitoring
3. Locations and activities monitored
4. Representative photographs
5. Findings
6. If regulated species are observed, reports must recommend actions to protect the regulated species
7. Name of the biologist who prepared the report
8. Signature of the biologist certifying the accuracy of the report

The Pre-Construction Survey Report includes one of the following:

1. Detailed observations and locations where regulated species were observed
2. Statement that no regulated species were observed by each biologist

The Incident Report includes:

1. Description of any take incident
2. Species name and number taken
3. Corrective actions proposed or taken
4. Incidental take details, including species name, number taken, people contacted, contact information, and disposition of taken species

The Annual Monitoring Report includes:

1. Construction beginning and ending dates
2. Identification of project impacts on the species covered in the plan
3. Species protection measures with protection measure implementation details
4. Incidental take details, including species name, number taken, people contacted, contact information, and disposition of taken species

The Final Monitoring Report must be a cumulative report following the format of the Annual Monitoring Report.

Within the project area the Design-Builder will implement the following protection measures:

1. Upon discovery of a regulated species, stop construction activities within a 10 ft radius of the discovery immediately notify the Department. Do not resume activities until receiving notification from the Department.
2. Survey the work area for regulated species within fourteen (14) days before starting construction activities.
3. Install exclusionary devices as described in the Natural Resource Protection Plan (14-6.07)
4. Exclusionary devices will be installed in bridge joints that provide roost habitat for bats.
5. Exclusionary devices will be installed between December 15 and February 15.

6. After the exclusionary devices have been installed, the Design-Builder must wait fourteen (14) days, and have an authorized biologist perform exit surveys to document that all bats have exited the joint, before beginning work on those joints.

4.4.1.7 Staging

The Design-Builder shall be responsible for obtaining proper environmental clearance for construction staging areas. Use of staging areas shall not result in significant impacts to the environment.

The contractor will submit the following items to the Department for review and approval:

1. A site plan, including site limits and access roads
2. Release of liability from property owners
3. Final property owner agreements
4. Environmental documentation prepared by appropriately qualified environmental specialists
5. All necessary permits, licenses, agreements, and certifications
6. A site restoration plan
7. A Water Pollution Control Plan

4.4.1.8 Erosion and Sediment Control Mixing SWPPP with Final Measures

The Design-Builder shall use both temporary and permanent erosion and sediment control measures. Temporary measures shall be used during construction and permanent measures shall be used for the long-term stabilization of disturbed areas. Minimizing slope length and ratio, preservation of existing vegetation and reestablishing vegetation are the basic erosion prevention methods.

SWPPP requirements for Temporary Erosion and Sediment Control During Construction – The Design-Builder shall develop an erosion and sediment control plan with design details for each stage of construction. The Design-Builder shall control erosion and limit its negative impacts. The Design-Builder shall use best management practices for temporary erosion and sediment control, including temporary erosion control ponds. Temporary erosion control best management practices include temporary seed, mulch, blanket, and other devices. Other devices may include gravel bag (berms) barriers, temporary drains for fill slopes, or temporary flumes to safely carry water down a slope and other items, such as check dams, earth diversions, and other diversions.

Permanent Erosion and Sediment Control – Permanent erosion control measures are primarily designed to function with established vegetation after projects are complete. The Design-Builder shall use best management practices for permanent erosion control. The Design-Builder shall follow the requirements in Section 14 Landscape of Book 2 for erosion control.

4.4.2 Environmental Monitoring and Reporting

The Design-Builder shall include an environmental monitoring plan in the EMP, which shall indicate times, locations, and other monitoring parameters.

4.4.2.1 Weekly Reports

The content of the weekly reports shall document evidence of the Design-Builder's performance and include the following:

- Name of environmental monitoring inspector
- Date of monitoring
- Weather conditions
 - Location

- Resource(s) addressed
- Locations and nature of violations
- Recommended remedial actions

4.4.2.2 Monthly Reports

The Design-Builder shall combine the weekly report forms into a document that summarizes the month's environmental monitoring activities and submit for approval.

4.4.4 Schedule

The Design-Builder shall include with the EMP a schedule of activities for environmental avoidance related to Project phasing.

The Design-Builder shall include a schedule for implementation of the environmental protection-training program in the EMP. The schedule shall include training sessions at key times (e.g., prior to construction in sensitive areas or construction timing restrictions to protect threatened and endangered species) to update workers on specific restrictions, conditions, concerns, or requirements.

4.5 Deliverables

4.5.1 Environmental Management Plan (EMP)

The Design-Builder shall submit an EMP 90 days prior to construction that must be approved prior to construction. Response to the EMP submittal will be given within fifteen (15) Days.

4.5.2 Environmental Documents

The Design-Builder shall submit the following documents and must receive approval prior to construction:

- Storm Water Pollution Prevention Plan and amendments, as required, to reflect Project development and staging
- Completed permit applications and permits as issued
- Environmental Notification Contact List

The Design-Builder shall submit the following documents for approval.

Asbestos and Regulated Waste

- Asbestos and Regulated Materials Assessment Report – Shall be submitted for approval.
- Asbestos and Regulated Materials Abatement and Removal Report – Draft shall be submitted for Approval. The final report of the results of abatement and removal activities shall be submitted no later than 30 Days after all abatement/removal actions are complete.

Contaminated Materials

- Investigation Work Plan – Shall be submitted for approval.
- Contaminated Soil Cleanup Plan – Shall be submitted for approval.
- Contaminated Soil Documentation Report – Shall be submitted for acceptance.
- Non-petroleum Contaminated Soil Voluntary Investigation and Cleanup (VIC) applications – Shall be submitted for approval and signature.
- Non-Petroleum Contaminated Soil Response Action Plan – The draft Response Action Plan(s) shall be submitted for Approval. The Design-Builder shall submit a draft Response Action Implementation Report for Approval no later than 40 Days after the cleanup actions are completed at each VIC site. If requested,

the Design-Builder shall meet with to review the draft and final Response Action Implementation Report(s). After receiving the Department approval of the final Response Action Implementation Report(s), the Design-Builder shall submit the Response Action Implementation Report(s) to the MPCA VIC program for approval.

- Health and Safety Plan - Shall be submitted for approval.
- Lead Compliance Plan - Shall be submitted for approval.
- Evacuation and Transportation Plan - Shall be submitted for approval.

Groundwater

- Groundwater Discharge Report – Shall be submitted weekly.
- Contaminated Groundwater Dewatering Plan – Shall be submitted for approval.
- Contaminated Groundwater Documentation Report – Shall be submitted for acceptance no later than 60 Days after all contaminated groundwater-dewatering actions are complete.
- Wastewater Management Plan – Shall be submitted for approval.
- Correspondence file
- All final reports for environmental work

4.5.3 Environmental Monitoring Reports

The Design-Builder shall submit copies of the environmental monitoring reports on a monthly basis or as directed.

4.5.4 Final Design Documents

The Design-Builder shall submit final design documents when design is complete, including office and field generated design changes. Final design documents include:

- Plans
- Shop drawings
- Design calculations
- Reports/Project documentation
- Specifications and Special Provisions
- Copies of applications for environmental approvals.
- Copies of all environmental submittals, correspondence, and secured environmental approvals.
- Noise reduction plan that outlines compliance with standards and local noise ordinances.
- Plan to communicate how advance notification of nighttime construction activities will occur.
- Copies of well abandonment forms submitted for each of the wells that are abandoned as a result of the Project.
- Hazardous Waste Contingency Plan.
- All final reports for environmental work.

4.5.5 As-Builts Documents

Upon completion of the Project and prior to Final Acceptance, the Design-Builder shall deliver to Department a complete set of as-built documents and design files that incorporate all design changes and

details of Accepted Work that occurred throughout the Project. As-Built Documents must be submitted in both hardcopy and electronic form. The As-Built Documents shall meet the format and content requirements of Final Design Documents.

4.5.6 Measurement and Payment

All environmental items not specifically identified for payment under will be paid for as a lump sum for Environmental work, as part of the Contract Price.

EXHIBITS

- Exhibit 4-A: Environmental Commitments Record
- Exhibit 4-B MS4 Stormwater Permit

These exhibits are provided as electronic files.

5 THIRD-PARTY AGREEMENTS

5.1 General

The Design-Builder shall conduct all Work necessary to meet the requirements associated with agreements necessary to complete the Project.

The current scope of work for this project does not entail nor anticipate any third-party agreements being necessary. If the Design-Builder proposes any modifications or additional work which would necessitate the pursue and execution of third-party agreements, the Department shall at that time furnish additional language to this section (Book 2, Section 5) with which the Design-Builder shall be required to conform.

This additional language shall consist of, but not be limited to: administrative requirements, standards, and references; design requirements; construction requirements; and deliverables.

6 UTILITIES

6.1 General

Due to the nature and scope of the Project work, no utility involvement is anticipated. If Design-Builder intends to perform any Work which will affect the existing utilities in any way, shape, or form, the Design-Builder will immediately notify the Department of this intent in writing. The Department will then have ten (10) Working Days in which to review the Design-Builder's proposed Work affecting said systems. If, in the Department's sole opinion, the Work is appropriate and justified, the Department will respond in writing to that effect and supply the Design-Builder with appropriate Specifications as well as an updated Book 2, Section 6 dealing specifically with utility requirements.

7 RIGHT OF WAY (R/W)

7.1 General

The Department will acquire all Rights Of Way (R/W), permanent or temporary, necessary for the Project in accordance with the *Caltrans Right of Way Manual*.

The Design-Builder shall not enter into negotiations for purchase or lease of any property or property rights required to construct Project. The Design-Builder, at its sole cost, may negotiate directly Permits to Enter private property for temporary use that would facilitate the design or construction of the Project, if it is determined by the Design-Builder, and agreed upon by the Department, that these properties would not otherwise be required but are for the sole benefit of the Design-Builder.

Right of possession of the R/W (and upon contract acceptance the improvements made thereon by the Design-Builder) shall remain at all times with the Department. The Design-Builder's right to enter and use of the Site arises solely from permission granted by the Department under the Contract, and as directed.

Currently, additional R/W has not been identified as necessary for this project. If the Design-Builder determines that additional R/W will be required, then the Department will provide the Design-Builder monthly status updates regarding the status of the acquisition process for parcels for which access has not been provided. In addition, the Department will provide written notification to the Design-Builder of the availability of each required parcel and notify the Design-Builder of any access restrictions that may be applicable. The Design-Builder shall not be allowed access to any parcel until said written notification is provided.

7.2 Administrative Requirements

The Design-Builder shall comply with those administrative requirements set forth in Section 7 that are applicable to Work performed by Design-Builder.

7.2.1 Standards

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder's Submittal has a higher standard than any of the listed standards, adhere to the Design-Builder Submittal standard.

If there is any ambiguity in standards, the Design-Builder shall obtain clarification in writing from the Department before proceeding with design or construction.

Use the most current version of each listed standard as of the Request for Proposal (RFP) issue date unless specified herein or modified by Addendum or Change Order. In the event of a conflict among the standards set forth in Book 3 relating to R/W activities, the order of precedence shall be as set forth below, unless otherwise specified:

Right of Way Standards and Requirements

Priority	Agency	Title
1	Department	Right of Way Manual
2		FHWA Uniform Relocation Assistance and Real Property Acquisition Policies Act 1970 as amended

3	Department	Survey Manual
4	Department	Project Development Procedures Manual (PDPM) and Highway Design Manual (HDM)
5	Department	CADD Users Manual
6	Department	Plans Preparation Manual
7	Department	Special Provisions
8	Department	Design-Build Modifications to the Standard Specifications for Construction
9	Department	2010 Standard Specifications (including Revisions)
10	Department	2010 Standard Plans (including Revisions)
11	Department	Technical Memoranda

See remaining Standards and References in Book 3

Pursuant to 23 CFR §710.313(d)(1)(i), the Design-Builder shall comply with the procedures, guidelines, and standards set forth in the Department *Right of Way Manual* regardless of whether the procedures, guidelines, or standards are written as mandatory requirements. Wherever the *Right of Way Manual* refers to activities to be performed by the Department or Department personnel, the Design-Builder shall be responsible for conducting those activities unless otherwise stated herein. If there are any questions regarding the scope of the Design-Builder's obligations pursuant to the *Right of Way Manual*, the Design-Builder shall be responsible for requesting clarification from the Department. The determination of whether the obligation is mandatory shall be in the sole discretion of the Department.

7.2.2 Meeting Requirements

The Design-Builder shall:

- Conduct progress meetings with the Department, affected governmental persons, and other required groups, held monthly or as otherwise agreed upon by the Department and the Design-Builder
- Participate in meetings between the Department and affected property owners as requested
- Participate in condemnation meetings as requested.
- Conduct other meetings either identified within this section or requested by the Department, and in support of acquiring property rights.
- Prepare all necessary displays, agendas (sent to all participants one week prior to scheduled meetings), and meeting minutes (sent to the Department within five Working Days of the meeting).

7.2.3 Software Requirements

The Design-Builder shall prepare all electronic drawings in MicroStation 8.0 or newer. All supporting electronic data shall be prepared in Civil 3D 2012 SP2.1 with conversion to .pdf available. All reports and documents shall be prepared in Microsoft Office 2007 or later format (e.g. Microsoft Word (.docx), Microsoft Excel (.xlsx), etc.)

7.3 Deliverables

7.3.1 *Certificate of Sufficiency / Hazardous Material Disclosure Document*

The Department will provide R/W Appraisal Maps for each parcel to be acquired. The Design-Builder shall verify that the designated R/W lines are sufficient to construct the project by completing the Certificate of Sufficiency (CoS) (Exhibit 7-A) and a Hazardous Material Disclosure Document (HMDD) (Exhibit 7-B) and returning to the Department. Additional CoS submittals will be required for any subsequent right of way changes as described below.

7.3.2 *R/W Requirement Maps*

The Design-Builder shall submit a map showing R/W Requirements as described in Chapter 14, Section 2, Article 5 of the *Caltrans Project Development Procedures Manual* if any of the following occurs:

- Any designated right of way line is moved or deleted.
- Any additional right of way is required.

7.3.3 *Identification of Additional R/W including Construction Easements*

If the Design-Builder determines that additional R/W is necessary or required the Design-Builder shall prepare and submit a written request to the Department for consideration. This request shall identify:

- additional R/W sought
- duration of need for property
- type of property rights needed
- desired date needed and
- justification for its need

The Design-Builder shall include drawings depicting proposed construction limits and cross-sections. The Department will review the request and will determine whether the acquisition is reasonable, necessary, and within the scope of the Environmental Document.

The Department will notify the Design-Builder in writing regarding the schedule and processes required to complete the acquisition, if accepted. The Design-Builder shall reimburse the Department for all costs associated with acquisition of additional Right of Way. Depending on parcel complexity, the Department may require up to eighteen (18) calendar months from the date the right of way requirements are received from the Design-Builder to certify the parcel(s) for access. Schedule implications shall be incorporated into the Design-Builder's schedule and the Department shall not be responsible for any construction delays resulting from the acquisition and clearance of such Additional R/W. Access to the Additional R/W will not be allowed until the Department has notified the Design-Builder in writing that it is available for use.

7.3.4 Final Monumentation

The Department shall monument the final right of way in accordance with the Business and Professions Code and Department policy. The Design-Builder shall notify the Department when the locations to be monumented are prepared in accordance with *Caltrans' Standard Plans* (A85 "Chain Link Fence" and A86 "Barbed Wire and Wire Mesh Fences"). The cost of any re-monumenting necessitated by the Design-Builder's operations subsequent to said monumentation shall be deducted from the most current partial payment due the Design-Builder.

7.4 Acquisition Activities

The Department will be responsible for payments to all property owners, except as directed elsewhere in this Section 7. All costs of the Design-Builder's activities in support of R/W work shall be included in the Design-Builder's Proposal Price.

7.4.1 Early Access

Where early access (rights of entry, permits for testing, or similar permissions) are requested by the Design-Builder for any additional property intended to be used temporarily or permanently, the Design-Builder may request in writing, that R/W negotiate with property owners or occupants for early access provided there is no violation of law. Early access will not be permitted for parcels within the planned R/W limits. The Design-Builder shall in no event use its own forces to negotiate for early access within the Project limits whereas any violations of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended may jeopardize Project funding. The Design-Builder may use its own forces to negotiate any Temporary rights or permission to use properties outside the proposed Project right of way for its purposes to complete the Project construction. In the event that the Design-Builder's request for early access is approved in writing by R/W, such activities will be subject to the provision that R/W may withdraw from such activities at any time solely under its own discretion.

7.4.2 Relocations

The Design-Builder shall not interfere with the Department in the relocation of any occupants from any property within the planned R/W limits or from any additional property that the Department agrees to acquire, to avoid any negative impacts to project during relocation. The Design-Builder shall not undertake any activities that are not in accordance with applicable State of California and Federal Law (including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended). Any and all appeals for relocation Assistance shall be heard by the Department in compliance with the Departmental policy and procedures and in compliance with guidelines set forth by the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended.

7.4.3 Eminent Domain – Condemnation

The Design-Builder shall provide support for eminent domain acquisition activities, if necessary, including but not limited to depositions, testifying in court, and preparation of exhibits.

It is anticipated that parcels acquired through Condemnation will take an additional nine (9) months after California Transportation Commission (CTC) resolution when the parcel does not require relocation. It is anticipated that parcels acquired through Condemnation will take an additional eighteen (18) months after California Transportation Commission (CTC) resolution when the parcel requires relocation.

7.5 Deliverables

7.5.1 Acquisition Activities Deliverables Summary

For acquisition of additional R/W and/or construction easements, the Department will provide R/W Appraisal / R/W Maps for the Design-Builder.

The Design Builder shall provide the following items related to Eminent Domain - Condemnation:

- All items necessary for justification of eminent domain actions
- Materials and exhibits for hearings or trials as required
- Expert witness for hearings or trials as required
- Hard copy and electronic format of the Project Report, signed by a California-licensed Professional Engineer

For acquisition of additional R/W and/or construction easements, the Design-Builder shall submit a written request to the Department.

EXHIBITS

- Exhibit 7-A Certificate of Sufficiency (CoS)
- Exhibit 7-B Hazardous Materials Disclosure Document - Acquisition

These exhibits are provided as electronic files

8 GEOTECHNICAL

8.1 General

Due to the nature and scope of the Project work, no geotechnical involvement is anticipated. If Design-Builder intends to perform any work which will require a geotechnical analysis, the Design-Builder will immediately notify the Department of this intent in writing. Department will then have ten (10) Working Days in which to review the Design-Builder's proposed work. If, in the Department's sole opinion, the Work is appropriate and justified, the Department will respond in writing to that effect and supply Design-Builder with appropriate Specifications as well as an updated Book 2, Section 8 dealing specifically with geotechnical requirements.

9 LAND SURVEYING

9.1 General

The Design-Builder shall perform all work necessary to meet the requirements associated with land surveying, including project, and supplemental horizontal and vertical control surveys, subsequent mapping and topographic surveys, bridge-site surveys, utility surveys, soils surveys, construction surveys, as-built surveys, and all other land surveying services necessary to complete the project in an accurate, neat, and timely fashion. When Department Standards exist for survey activities, such surveying shall be done in accordance with the Department’s Standards. This work shall not include primary horizontal and vertical control surveys, right way engineering, right-of-way surveys, and all land surveying associated with right-of-way engineering close-out activities and right-of-way monumentation.

The Department will perform primary horizontal and vertical control surveys, right-of-way surveys, right-of-way engineering including close-out activities, and right-of-way monumentation required in support of the work.

9.2 Administrative Requirements

9.2.1 Laws, Standards, and Specifications

All of the land surveying work performed by the Design-Builder shall be conducted in accordance with the requirements of California Statutes and the standards and specifications listed below. Note: the standards and specifications below are listed by order of priority. Also, the most current version of each shall be used unless otherwise specified herein or modified by an Addendum or Change Order.

If there is any ambiguity in the laws, standards, or specifications, the Design-Builder shall seek clarification from the Department before doing the work.

In the event of a conflict among the standards set forth in Book 3 relating to land surveying, the order of precedence shall be as set forth below, unless otherwise specified:

Priority	Entity	Title
1	State	All California Law
2	Department	Surveys Manual
3	Department	Standard Specifications
4	Department	Standard Plans
5	Department	Safety Manual
6	Department	Plans Preparation Manual and the CADD Users Manual
7	Federal Geographic Data Committee (FGDC)	Geospatial Accuracy Standards, Part 3. National Standards for Spatial Data Accuracy

9.2.2 Quality Management Plan

The Design-Builder shall develop a Quality Management Plan (QMP) that includes the complete description of the quality control (QC) and quality validation (QV) activities for each surveying product.

The QMP shall be written to achieve the following:

- All individuals responsible for land surveying shall be knowledgeable of what constitutes quality survey products.
- All individuals responsible understand the specifications, standards, and legal requirements for the survey products.
- To have a clearly defined QC plan and QV plan for each survey product.

The Department will perform an Independent Quality Assurance (IQA) of the QMP as well as for the resultant survey products.

9.2.3 Meetings

The Department and the Design-Builder shall meet at the request of any of the parties, as necessary, to discuss and resolve any questions, problems, or issues related to the land surveying work for this project. The requesting party shall provide the other party with not less than five (5) Working Days notice of such meetings.

9.2.4 Survey Data Provided to the Design-Builder

The Design-Builder shall verify and confirm the location, accuracy, and datum of all land surveying data provided to the Design-Builder, regardless of the source of the information. The Design-Builder shall document all forms of data verification. If the Design-Builder identifies any discrepancy, the discrepancy shall be reported in writing to the Department for review. The Department shall respond to the discrepancy within ten (10) Working Days

9.2.5 Survey Coordination and Qualifications

The Design-Builder shall designate a Survey Manager for the Project. The Survey Manager shall possess either a valid California Professional Land Surveyor license, or a valid California Registered Civil Engineer license issued prior to January 1, 1982. The Survey Manager will manage all Design-Builder survey activities associated with the Project and shall be responsible for directing and reviewing all Design-Builder and Subcontractor survey work and be the point of contact for all survey activities. The Survey Manager shall be in responsible charge of each land surveying activity, or designate a licensed Land Surveyor or a pre-1982 licensed Civil Engineer to be in responsible charge of specific land surveying tasks.

The Design-Builder's Survey Manager shall be available for regular, periodic technical meetings with the Department's survey staff in association with the land surveying tasks required for this project. The Survey Manager shall be available to be on-site during design and construction activities. All land surveying required, as part of the project shall be in full compliance with all State and local laws. The Survey Manager shall have a thorough knowledge and understanding of all aspects of the standards and specifications identified in Section 9.2.1 above.

9.2.6 Department Supplied Information

The Department will provide all Department land surveying data relevant to the project which may include, but not limited to, the following items:

- The location and coordinate values of the available horizontal and vertical control stations within the Project, Exhibit 9-A.
- Existing Horizontal and Vertical Control
- Engineering survey data.
- Photogrammetric mapping.
- Right of Way mapping.

- Land net retracement mapping.

Design Utilities branch provides as-built data

9.2.7 Safety Requirements

The Survey Manager and all staff performing land surveying tasks for this project shall have a thorough knowledge and understanding of all of the relevant safety practices and procedures as outlined in the Caltrans *Safety Manual* and the Caltrans *Surveys Manual*. The Design-Builder's land surveying staff shall be properly outfitted with the necessary safety equipment to perform any surveying as part of this project.

9.3 Design Requirements

9.3.1 Survey Control Requirements

9.3.1.1 Survey Control Adjustments and Accuracy

The Design-Builder shall document the use of present survey control networks and the establishment of any subsequent survey control networks that will be used in conjunction with the Project. These records shall include survey control monument locations, types, accuracy values, adjustment results, and establishment methods.

The accuracy standard for any subsequent control networks established by the Design-Builder shall be in conformance with Chapter 5 and Figure 5-1 of the Caltrans *Surveys Manual* and all other specifications described in the Caltrans *Surveys Manual*.

9.3.1.2 Survey Control Datum

The horizontal survey datum used for the Project shall be the California Coordinate System of 1983 (CCS83) as described in the Public Resources Code, Sections 8801 et. seq., and using the zone and epoch designated by the Department.

The vertical survey datum shall be the California Orthometric Heights of 1988 (COH88) as described in the Public Resources Code, Section 8890 et. seq..

9.3.2 Preservation of Survey Monuments

9.3.2.1 Public and Private Land Survey Monuments

The Design-Builder shall locate and preserve all previously established survey monuments located within the Project in accordance with Section 8771 of the Business and Professions Code, and provide an itemized list of the monument to the Department.

9.3.3 Prepare Base Maps and Plan Sheets

The Design-Builder shall conduct all tasks necessary to complete all mapping for the Project. This shall include all planimetric, topographic, design, utility, centerline alignment, and base maps necessary to complete the Project.

9.3.3.1 [NOT USED]

9.3.3.2 Surveys and Photogrammetric Mapping for Design

This shall include location surveys as described below. This list is not intended to be all-inclusive, but rather to cover design surveys commonly encountered.

9.3.3.3 Photogrammetric Maps and Products

Photogrammetric maps and products shall conform to the specifications within Chapter 13: Photogrammetry of the Caltrans *Surveys Manual*.

9.3.3.4 Engineering Surveys

Engineering survey maps and products shall conform to the specifications within Chapter 11: Engineering Surveys of the Caltrans *Surveys Manual*.

9.3.4 Survey Records and Reports

The Design-Builder shall maintain neat, accurate, and complete documentation for all land survey work performed for this project. These records shall include all calculations, mapping, staking notes, and field crew daily diaries. The Design-Builder shall prepare a formal survey report for all survey calculations related to survey control networks, design surveys, and construction surveys. The intent of each report is to document and perpetuate the information and rationale used to perform the land surveying task.

9.4 Construction Requirements

9.4.1 Construction Surveys

The Design-Builder shall perform all construction surveying necessary to facilitate all construction operations for the duration of the Project and shall conform to the specifications within Chapter 12: Construction Surveys of the Caltrans *Surveys Manual*.

9.5 Deliverables

9.5.1 General Requirements

The Design-Builder shall index and submit all calculations, notes, computer files, raw data, project reports, meeting notes, correspondence, digital images, maps, corner records, records of survey, aerial photogrammetric products, centerline alignment maps, and other maps and related items as part of the work.

Deliverables shall be submitted in both hardcopy where appropriate (i.e. electronic measurement raw data should only be provided in electronic format) and electronic formats at the completion of each activity. Electronic data submitted shall be compatible with Department software and operating systems. Mapping shall conform to the Caltrans *Plans Preparation Manual* and the Caltrans *CADD Users Manual*. GIS deliverables shall adhere to the FGDC Geospatial Positioning Accuracy Standards and the National Spatial Data Infrastructure (NSDI) requirements.

Photogrammetric products shall conform to the specifications within Chapter 13: Photogrammetry of the Caltrans *Surveys Manual*.

Final acceptance for the survey portion of the Work will not be given until all deliverables have been submitted and approved by the Department. The Department will have ten (10) Calendar Days to complete its compliance review of the Design-Builder's submitted project deliverables.

9.5.2 Survey Records

Survey records shall be delivered in both hardcopy where appropriate (i.e. electronic measurement raw data should only be provided in electronic format) and electronic file format. They shall be delivered at the time of Substantial Completion unless requested by the Department at an earlier time.

9.5.3 Survey Reports

Each survey report shall be submitted to the Department within thirty (30) Calendar Days of the completion of each survey regardless of the type of survey performed.

The report shall be in a hardcopy format and also in electronic file format when possible. The reports shall include information related to the source data used, the calculations performed, and the data produced as part of the survey process. The Department will provide the format specifications of each

report type upon request of the Design-Builder's Survey Manager. Each report shall be reviewed and signed by a California Professional Land Surveyor, or California Registered Civil Engineer licensed prior to January 1, 1982.

9.5.4 As-Builts

The Design-Builder shall produce reports documenting the location of the as-built alignments, profiles, structure locations, and utilities. These reports shall include descriptive statements for any survey methods used to determine the as-built location of the feature being surveyed. The Design-Builder's as-built data shall include the coordinate types (x , y , and/or z) and feature codes in the same format in which the preliminary construction data was generated. Where data has been provided to the Design-Builder from the Department in an x , y only coordinate format, or z only coordinate format, the Design-Builder shall provide the Department with data in an x , y only coordinate format, or z only coordinate format.

9.5.4.1 Survey Base Map

The Design-Builder shall provide to the Department an as-built survey base map file in MicroStation v8 format (.DGN). This file shall include:

- Tress or natural vegetation, all public and private roads, curbs, edge of road, power and telephone poles, signs, sidewalks, underground and above ground utilities, manholes, fences, buildings, hydrographic features such as lakes, rivers, streams and natural channels, drainage and irrigation structures, and contours of the original terrain per section 3.8 sub-section B of the Caltrans *CADD Users Manual*.

The Design-Builder shall provide an XML file written in schema 1.0 containing coordinate geometry and feature code information for the above mentioned utilities, property information, centerline alignments, and survey control items.

The Design-Builder shall provide an XML file written in schema 1.0 consisting of all as-built storm sewer, roadway drainage, and structure drainage related systems.

All as-built survey files shall be delivered within thirty (30) Working Days of Substantial Completion of the Project.

EXHIBIT 9-A

Horizontal and Vertical Control Stations Within Project Limits

This exhibit is provided as an electronic file.

10 EARTHWORK

10.1 General

The Design-Builder shall perform all Work necessary to meet the requirements of earthwork, including clearing and grubbing; excavation and embankment; removal of pavement, pavement markings, and miscellaneous structures; subgrade preparation and stabilization; dust control; aggregate surfacing; and earth shouldering in accordance with the requirements of this Section 10 and the standards below.

10.2 Administrative Requirements

10.2.1 Standards

In the event of a conflict among the standards set forth in Book 3 relating to grading, the order of precedence shall be as set forth below, unless otherwise specified:

<i>Priority</i>	<i>Author or Agency</i>	<i>Title</i>
1	Department	Standard Special Provisions
2	Department	Standard Specifications*
3	Department	Highway Design Manual
4	Department	Storm Water Quality Handbook – Project Planning and Design Guide
5	Department	Technical Memoranda
6	Department	Geotechnical and Pavement Manual
7	Department	Asbestos and Regulated Waste Manual for Structure Demolition or Relocations for Construction Projects
8	Department	Construction Manual

Remaining Standards listed in Book 3

*Documents modified for Design-Build.

10.2.2 References

Use the references listed below as supplementary guidelines for the grading analysis and design. These publications have no established order of precedence.

Grading Publication References	
<i>Agency</i>	<i>Title</i>
Department	Construction Procedures Directives
Department	Construction Policy Bulletins
Department	Standard Test Methods – Volumes 1, 2 & 3
Department	Plans Preparation Manual

10.3 Design Requirements

10.3.1 Grading Concept Meeting

The Design-Builder shall schedule and participate in a grading concept meeting to present a layout of the in-place and proposed grading on the Project. The Design Builder shall use the outcome of the meeting to finalize the grading needs of the Project.

10.3.2 Grading Requirements

The Design-Builder shall provide grading plans and shall be responsible for ensuring that the final grading is consistent with all Contract requirements, including environmental, landscape, visual quality management, stormwater, roadway design, and geotechnical requirements. Erosion control in accordance with Section 14 of Book 2 and site protection treatments shall be provided by Design-Builder for all areas where grading is performed or disturbed soil exists due to construction activities.

10.4 Construction Requirements

The Design-Builder shall remove the appropriate thickness of existing pavement, per Section 1 of Book 2., within the Project limits necessary to construct the Project. The Design-Builder shall remove all unused pavements within the Project limits. When removing such items, the Design-Builder shall saw cut the pavement with neat vertical lines at the removal terminations.

10.4.1 Removal of Miscellaneous Objects

The Design-Builder shall remove and properly dispose of all objects encountered within the Right of Way that are not otherwise designated for removal, salvage, or reuse, such as abandoned automobiles, furniture, appliances, garbage, and other waste materials.

10.4.2 Disposal of Materials

Disposal of surplus excavated material on the Department Right of Way will not be permitted. The Design-Builder shall develop, implement, and maintain a Disposal Site Plan showing grading and restoration of any such areas.

Topsoil and duff shall not be removed from the Site. Topsoil and duff shall be stripped, stockpiled, and reused within the project limits.

Attention is directed to Section 4 of Book 2 when removing and disposing of Thermoplastic pavement striping and markings.

10.5 Deliverables

If the Design-Builder proposes to dispose of surplus excavated material on the Department's Right of Way, the Design-Builder shall submit a Disposal Site Plan to the Department for approval and receive the Department's approval before disposing any material. The Department will respond within 10 Working Days of receipt of the plan.

The Design Builder must submit the approved "Solid Waste Disposal and Recycling Reports" to the Department no later than February 1st of each year or within 15 days after receiving the final report. Contact information for the Department and statewide recycling coordinators is available via the following Internet address: <http://www.dot.ca.gov/hq/oppd/rescons/sb1016/coordinators.htm>

11 [NOT USED]

12 DRAINAGE/HYDRAULICS

12.1 General

The Design-Builder shall perform all Work necessary to meet the requirements associated with drainage, including culverts, bridge hydraulics, roadway ditches, permanent and temporary stormwater management systems, structural pollution control devices, retention/detention facilities (ponds), and closed storm drain systems.

12.2 Administrative Requirements

12.2.1 Standards

Design and construct the drainage systems in accordance with the relevant requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder's Submittal has a higher standard than any of the listed standards, adhere to the Submittal Proposal standard.

If there is any unresolved ambiguity in standards, it is the Design-Builder's responsibility to obtain clarification from the Department before proceeding with design and/or construction.

Use the most current version of each listed standard as of the initial publication date of this RFP unless otherwise specified herein or modified by addendum or change order.

Drainage Standards

Priority	Agency	Title
1	Department	Highway Design Manual
2	Department	Bridge Design Specifications (LFD Version, April 2000)
3	Department	Bridge Design Aids
4	Department	Bridge Design Details
5	Department	Bridge Design Practice
6	Department	Standard Special Provisions and Non-Standard Special Provisions
7	Department	Standard Specifications 2010 (including Revisions)
8	Department	Design-Build Modifications to the Standard Specifications
9	Department	Standard Plans 2010 (including Revisions)
10	Department	Construction Site Best Management Practices (BMPs) Manual
11	Department	Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
12	Department	Project Planning and Design Guide
13	Department	Construction Manual
14	Department	Design Information Bulletin 83
15	FHWA	Hydraulic Engineering Circular Number 21 (HEC-21) Design of Bridge Deck Drainage Systems

Remaining Standards set forth in Book 3.

12.2.2 References

Use the references listed below as supplementary guidelines for the drainage systems analysis and design. These publications have no established order of precedence.

Drainage Publications References

Agency	Title
AASHTO	Roadside Design Guide
AASHTO	Model Drainage Manual
Department	Ready –To-List and Construction Contract Award Guide (RTL Guide)
Department	Fish Passage Design for Road Crossings
Department	Highway Design Manual
Department	Bridge Design Aids
FHWA	Hydraulic Design and Procedures Manual
FHWA	Hydraulic Engineering Circulars (as listed in Department’s <i>Highway Design Manual</i>)
FHWA	Hydraulic Design Series (as listed in Department’s <i>Highway Design Manual</i>)

Remaining Standards set forth in Book 3.

12.2.3 Preliminary Engineering Plans

The Preliminary Engineering Documents show only a preliminary design for the Project. These drawings and the supporting electronic files are included to illustrate the general scope of improvements. Verify all information prior to use.

The Design-Builder shall have the flexibility to make Project changes without impairing the essential functions and characteristics of the Project, such as safety, traffic operations, durability, desired appearance, maintainability, environmental protection, drainage, and other permitted constraints.

12.2.4 Software

The Design-Builder shall choose drainage design software from various drainage software packages listed in the Caltrans *Highway Design Manual* for analyzing and designing all systems.

The Design-Builder shall prepare all electronic drawings in MicroStation 8.0 or newer. All supporting electronic data shall be prepared in Civil 3D 2012 SP2.1 with conversion to .pdf available. All reports and documents shall be prepared in Microsoft Office 2007 or later format (e.g. Microsoft Word (.docx), Microsoft Excel (.xlsx), etc.)

12.2.5 Data Collection

To establish a drainage system that complies with the requirements and accommodates the historical hydrologic flows in the Project limits, the Design-Builder is responsible for collecting all necessary data, including, but necessarily limited to, the elements outlined below:

The Design-Builder shall identify all water resources issues, using available data, including water quality requirements as imposed by local, State, and federal government regulations; National Wetland Inventory and other wetland/protected waters inventories; and official documents concerning the Project, such as the environmental studies. The Design-Builder shall also acquire local agency drainage and stormwater management plans, and records of citizen concerns.

Water resources issues include areas with historically inadequate drainage (flooding or citizen complaints), environmentally sensitive areas, localized flooding, and maintenance problems associated

with drainage and areas known to contain hazardous waste. The Design-Builder shall also determine watershed boundaries, protected waters, county ditches, areas classified as wetlands, floodplains, and boundaries between regulatory agencies (i.e., watershed districts and watershed management organizations).

The Design-Builder shall acquire existing storm drain plans and/or survey data, including all data on culverts, drainage systems, and storm sewer systems within the Project area. The Design-Builder shall also determine existing drainage areas that contribute to the highway drainage system and the estimated runoff used for design of the existing system.

The Design-Builder shall obtain additional photogrammetric and/or geographic information system (GIS) data for the Project area that depicts the outstanding resource value waters and/or impaired waters. The Design Builder shall collect additional data and information not included in the RID required for the hydraulics analysis.

12.2.4 Coordination with Other Agencies and Disciplines

The Design-Builder shall coordinate all water resource issues with local agencies, affected interests, and regulatory agencies. The Design-Builder shall document the resolutions of issues for the correspondence file, including meeting minutes and memoranda for the record.

The Design-Builder shall comply with and document the permit requirements, modifications, and contacts with the permitting agencies.

12.3 Design Requirements

Drainage facilities shall be compatible with existing and/or proposed drainage systems in adjacent properties and shall preserve existing drainage patterns. Where drainage patterns must be changed from existing patterns, the Design-Builder shall secure all permits, drainage easements, local agency and Department approval prior to construction of any drainage facilities.

The Design-Builder shall develop a Project Drainage Overview Map, which shall serve as the base plan for final drainage design. The Project Drainage Overview Map shall show the existing drainage features and proposed Project drainage master plan, including drainage areas and contributing flows of existing and proposed drainage. The Project Drainage Overview Map shall also show impacts from the Project and proposed mitigation within the Map extents; and all waters of the State, outstanding resource value waters and impaired waters within 2,000 feet of the Project, or waters receiving Project runoff, and comply with permit or local agency requirements.

12.3.1 Project Requirements

The Design-Builder shall complete the following for the Sacramento River Viaduct:

- Clean, repair, and upgrade entire drainage system throughout structure and ramp system limits.
- Mitigate for the known existing drainage issues located on ramp A- between Bent A6-41 and A6-42.
- Mitigate for the known existing drainage issues located on ramp A-13 between Bent A13-27 and A13-28.
- Replace all existing 3-piece drainage grates with 1-piece drainage grates or Department approved alternate design grates

The Design-Builder shall complete the following for the West End Viaduct:

- Clean, repair, and upgrade entire drainage system throughout structure and ramp system limits as shown on Plan Sheets included with these Contract Documents.
- Replace all existing 3-piece drainage grates with 1-piece drainage grates or Department approved alternate design grates

12.3.2 Surface Hydrology

12.3.2.1 Design Frequencies

The drainage design frequencies shall be as indicated by the *Caltrans Highway Design Manual*, but in no instance shall the storm sewer system be designed for a frequency less than the 10-year rainfall event.

The Design-Builder shall use rainfall intensity and design storm criteria specified in the *Caltrans Highway Design Manual*. The Design-Builder shall evaluate flood potential for extreme storms, including areas inundated and flow routes for water leaving the Department facilities

12.3.2.2 Hydrologic Methods

The Design-Builder shall perform hydrologic analyses and follow design methodology as prescribed by the *Caltrans Highway Design Manual*.

Ponding problems are known to exist on the Sacramento River Viaduct at ramp A-6 between Bent A6-41 and A6-42 and at ramp A-13 between Bent A13-27 and A13-28. For design rainfall total amounts, the Design-Builder shall use *Caltrans Highway Design Manual*. The drainage areas shall be modeled to include future development and increased runoff associated with development. Flood damage potential for the completed Project shall not exceed pre-Project conditions.

12.3.3 [NOT USED]

12.3.4 Hydraulic Structures

For all crossings (bridges and culverts) requiring structures greater than 48 inches in diameter, the Design-Builder shall complete a bridge or culvert Hydraulics Recommendation Letter and supporting hydraulic computations. These documents shall be submitted to the Department for approval.

12.3.4.1 Culverts

A culvert is a hydraulic structure sized to convey water runoff under a highway, railroad, or other embankment. Minor culverts are 48 inches or less in diameter; major culverts are 54 inches or larger.

The Design-Builder shall analyze the existing and proposed culverts and drainageways impacted, replaced, or created by the Project design for any localized flooding problems. The Design-Builder shall design culvert replacements and improvements to meet the requirements of the local watershed management organization and the affected cities' stormwater management criteria or master drainage plans.

The Design-Builder shall complete culvert design in accordance with Department's and industry standards..

12.3.4.2 Bridges

Bridge deck drainage design shall be completed in accordance with the most current version of *Caltrans Bridge Design Aids*.

12.3.4.2.1 Method Used to Estimate Flow

The Design-Builder is responsible for determining the appropriate discharge in accordance with Department's and industry standards.

Design discharges should be confirmed and agreed upon with the Department.

12.3.4.2.2 Design Frequency

Design frequency will be selected based on Department's design standards.

12.3.4.2.3 Hydraulic Analysis

Hydraulic Analysis will be performed using an approved method listed in latest edition of the Department's *Highway Design Manual*.

12.3.4.2.4 Bridge/Culvert Waterway Design

For an existing crossing, the new culvert or bridge shall be designed so that it does not cause a significantly greater headwater than the current condition.

Since the Sacramento River is a navigable waterway, the Design-Builder shall follow appropriate recommendations and provide sufficient clearance with any new deck drainage features.

Hydrologic and hydraulic information and waterway design recommendations shall be submitted to the Department on the Hydrologic Summary Table as shown in the Memos to Designers, with the appropriate information also shown on the bridge and/or grading plan. Definitions for terms used can be found in the in the following information:

Culverts

- Stage – Unconfined water surface elevation just upstream of the culvert (i.e., natural conditions)
- Headwater – Constricted water surface elevation just upstream of the culvert (i.e., culvert existing or culvert proposed)
- Stage Increase – Difference in elevation between headwater and stage taken at the same location

Bridges

- Stage – Unconfined water surface elevation sufficiently upstream of the bridge as to not have effects of drawdown (i.e., natural conditions)
- Headwater – Constricted water surface elevation sufficiently upstream of the bridge (i.e., bridge existing and bridge proposed)
- Stage Increase – Difference in elevation between headwater and stage, taken at the same location

12.3.4.2.5 Bridge Deck Drainage

Runoff from bridge decks shall be carried off the bridge and into the adjacent drainage systems. The roadway drainage design shall include bridge approach drains to intercept gutter flow at both ends of the bridge. These drains, or temporary drains, are to be constructed at time of bridge deck placement to prevent erosion. Bridge deck drainage shall be routed through an approved stormwater management system before discharge to the natural waters of the State. The Design-Builder shall comply with bridge deck drainage design as outlined in *Bridge Design Aids*. Drainage design frequencies for bridge deck drainage shall have the same criteria as those for roadways.

12.3.4.3 Storm Drains and Sewer

12.3.4.3.1 Design Elements

The storm sewer system design shall include these items:

- Drainage area maps for each storm drain inlet with pertinent data, such as boundaries of the drainage area, topographic contours, runoff coefficients, times of concentration, and land use with design curve number and/or design runoff coefficient.
- Location and tabulation of all existing and proposed pipe and drainage structures including all pipe and drainage structures proposed to be removed or abandoned. These will include size, class or gauge, catch basin spacing, detailed structure designs, and any special designs.

- Complete pipe profiles, including pipe size, type, and gradient; station offsets from the centerline of the roadway; gutter spread calculations, length of pipe; class/gauge of pipe; and numbered drainage structures with coordinate location and elevations.

The minimum longitudinal slope shall be such that when flowing half full, a self cleaning velocity of 3 feet per second is attained.

12.4 Construction Requirements

Drainage shall be designed to accommodate construction staging and shall be provided during all stages of construction. The Design-Builder shall provide drainage design details for each stage of construction. The design shall include temporary erosion control and other Best Management Practices needed to satisfy the NPDES and other regulatory requirements. The water resources notes in the plans shall include a description of the drainage design for each stage of construction.

The Design-Builder shall obtain the Department's approval for abandonment methods for all existing drainage features that the Design-Builder is abandoning with this Project.

Storm sewer construction can occur by either open cut or trenchless methods.

The Design-Builder shall phase construction activities to maintain detour routes and traffic during storm sewer installation.

The Design-Builder shall coordinate all construction activities with businesses impacted by the construction. All surfaces impacted by construction shall be restored.

Storm sewer within the roadway area being milled and overlaid shall remain in place. Castings shall be adjusted if needed on a case-by-case basis to meet the required casting depth below pavement. If castings need adjusting, they shall be raised as a whole. No additional rings shall be added to supplement for raising the entire casting assembly.

The following pipe joints shall be tied:

- All joints either within 100 feet of an outlet or from the last manhole prior to the outlet, whichever is less
- All bend sections and three joints on each side of bend

12.5 Deliverables

12.5.1 Project Drainage Overview Map

The Design-Builder shall submit a Project Drainage Overview Map to the Department for acceptance prior to initiating detailed design, and shall submit a copy of the Project Drainage Overview Map in MicroStation format.

The Design-Builder shall submit preliminary drainage calculations and drainage models to the Department for acceptance prior to initiating detail design.

12.5.2 Released for Construction Documents (RFC)

The Design-Builder shall produce plans and specifications in a format that facilitates design review by the Department. The Released for Construction Documents shall include the following items:

- Drainage Area Map with time of concentration (T_c), nodes, areas, curve numbers, runoff coefficients, and/or any other relevant criteria utilized
- Drainage/Utility plans including the SWPPP
- Drainage/Utility profiles
- Drainage tabulations and estimated quantities

- Drainage calculations and drainage models
- Specifications and Special Provisions

12.5.2.1 Drainage/Utility Plans

- Provide drainage structure data (type, location, diameter, length, class tabulations) and details, roadway cross slope and superelevation, and a complete set of roadway cross-sections to show the construction staging and associated temporary drainage.
- Label alignments, stationing, walls, bridges, paths/walks, lakes, rivers, environmentally sensitive areas, R/W and easements, existing drainage structures, proposed drainage structures, surface flow arrows, riprap locations, and ditch blocks.
- Show existing and proposed contours, high and low point station and elevation, roadway cross slope and superelevation, ponds, normal water line, high water line, and coordinate grid ticks and labels (minimum of three per sheet).
- Show dimensions for roadways and shoulders.

12.5.2.2 Drainage/Utility Profiles

- Label elbows, bends, reducers, existing and proposed ground lines, Utilities adjacent to structures or pipes, pipe data (type, diameter, length, class), and structure numbers.
- Show existing structures or pipes (dashed) and existing and proposed ground lines.

12.5.2.3 Drainage Tabulations

- Provide structure/pipe data (type, diameter, length, class, structure numbers, guide post locations, station and offset for aprons, pipes, and structures).

12.5.2.5 Specifications and Special Provisions

If the Design-Builder requests the Department's approval to use methods or materials that are not Department standards, such request should include comprehensive specifications and provisions associated with the proposed non-standard methods or materials. A minimum 72-hour review period applies.

12.5.3 Reports/Project Documentation

The Design-Builder shall provide the Department with a Drainage Design Report signed by a California-licensed Professional Engineer, which shall be a record set of all drainage computations, both hydrologic and hydraulic, and all support data. The Report shall include:

- Hydraulic notes, models, and tabulations
- Culvert designs and reports for major stream crossings
- Pond designs, including graphic display of treatment areas and maintenance guidelines for operation
- Complete set of calculations and detailed drainage area maps
- Grit chamber, proprietary device, and any underground storage device designs and maintenance manuals (including recommended maintenance and inspection timelines).
- Correspondence file

The Design-Builder shall prepare bound reports and Project documentation in hardcopy and electronic format, organized by design topic, and delivered to the Department prior to Final Acceptance.

The Design-Builder shall deliver an inventory of the hydraulic infrastructure of the completed Project by providing a digital list of all installed pipes and structures.

12.5.4 As-Built Plans

Upon completion of the Project, the Design-Builder shall deliver to the Department a complete set of As-Built Documents and design files that incorporate all design changes and details of Accepted Work that occurred throughout the Project. The As-Built shall be signed by a licensed California Professional Engineer.

13 STRUCTURES DESIGN

13.1 General

All structural design shall comply with the specifications and requirements contained in the technical manuals listed in the Structure Design and Plans Section of this provision and any additional requirements noted in these Technical Provisions. The terms “latest” and “current” applied to the manuals, documents and specifications in the Structure Design and Plans Section of this provision and these Technical Provisions will be “latest” and “current” as of the date when the Final Contract documents are signed.

Hydrologic investigation/scour analysis and hydraulics report is required for bridges over waterways and bridges that are adjacent to streams or waterways. Also refer to the Drainage Section in the Technical Provisions.

Design-Builder shall furnish individual bridge quantities and project quantities summarized on the appropriate Department Quantity Summary and Estimate Forms.

Bridge Specific Technical Provisions recommended for each structure shall over-ride the General Technical Provisions.

13.2 Administrative Requirements

13.2.1 Structure Design and Plans

Structure Plans shall be prepared in accordance with, but by no means limited to, the latest editions of manuals and documents listed below.

Use the most current version of each listed standard and required software as of the Request For Proposals (RFP) issue date unless specified here or modified by Addendum or Change Order.

13.2.1.1 All Structures and Structural Appurtenances and Retaining Walls

Structures Standards

Priority	Agency	Title
1	AASHTO	California Amendments to AASHTO LRFD Bridge Design Specifications – Latest Edition
2	AASHTO	LRFD Bridge Design Specifications, 4 th Edition and applicable Interim Revisions
3	Department	Bridge Design Specifications (LRFD Version, April 2000)
4	Department	Bridge Design Aids
5	Department	Bridge Design Details
6	Department	Bridge Design Practice, as appropriate
7	Department	Bridge Memo to Designers (MTD)
8	Department	Bridge Standard Detail Sheets (XS Sheets)
9	Department	Seismic Design Criteria
10	Department	Structural Detailing Standards
11	Department	Standard Plans

12	Department	Standard Specifications
13	Department	Bridge Deck Construction Manual
14	Department	Falsework Manual
15	Department	Foundation Manual
16	Department	Office of Special Funded Projects (OSFP)

Information and Procedures Guide

Priority	Agency	Title
1	Department	Prestress Manual
2	Department	Trenching and Shoring Manual
3	Department	Outline of Field Construction Practices
4	Department	Plans Preparation Manual

Sign and Lighting Structures

Agency	Title
AASHTO	Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals

Any manuals or documents other than those approved by the Department will require approval prior to being used for design or the preparation of structure plans.

Current Bridge Standard Details Sheets (XS-Sheets) and current Standard Plans including Revisions to Standard Plans (RSPs) shall be incorporated into the structure plans as applicable.

13.3 Design Requirements

13.3.1 Bridge Design

The OSFP Information and Procedures Guide shall apply to all of the following items listed below.

- Structure Type Selection
- Unchecked Details Submittal
- PS&E Deliverables, Review & Approval

13.3.2 [NOT USED]

13.3.3 [NOT USED]

13.3.4 Other Structure Design

13.3.4.1 Approach Slabs

The Design-Builder shall inspect structure approach slabs for deficiencies. Results of previous condition analysis performed by the Department can be found in Structure Maintenance Reports. Approach slab repairs or replacements, if required, shall be addressed as part of the bridge Type Selection Process.

13.3.4.2 [NOT USED]

13.3.4.3 Utilities and Existing Facilities

The Design-Builder's attention is directed to the existence of several underground and overhead utilities on or adjacent to the existing structures as well as utilities which may be present upon the structures throughout the superstructure and barrier railings.

13.3.4.4 [NOT USED]

13.3.5 Reference Materials

Structure reference materials included in the Reference Documents are for Design-Builder's information only. The structure reference materials include existing bridge data, As-Built plans, approved Advanced Planning Study reports, retaining wall/drainage structure sections, survey information, existing bridge photographs, etc.

13.3.5.1 Advance Planning Studies

Advance Planning Study (APS) reports are included in the Reference Documents. The APS contain information that The Design-Builder may find valuable in preparing the Final Design Documents. The scope of work for this Project has been revised since the APS was completed. Revisions to the structure type and/or alignment, if not specifically limited elsewhere in the project documentation or indicated in the APS, may be necessary and shall be subject to analysis at the Type Selection stage of the Project to ensure that all Contract requirements are met.

The following information is provided to assist The Design-Builder in determining the level of completion and suitability of any portion of the APS documents:

- In most cases, the APS reports include a single structure alternative. Other structure alternative types may be considered but must be approved by the community if previous approval had been obtained through a Context Sensitive Solution process. Such structure alternative types shall be evaluated at the Type Selection phase of the Project.
- Structure aesthetics features are not included in the APS reports. The Type Selection reports shall clearly delineate Aesthetic features and shall be consistent with the Corridor Master Plan or Visual Quality Manual.
- Seismic retrofit recommendations included in the APS reports are based on a qualitative evaluation. A quantitative seismic retrofit evaluation of all existing structures to be widened, modified, or replaced is required to ensure conformance with current standards and to determine the extent of required retrofit. Evaluation results and seismic retrofit recommendations, if any, shall be included in the Type Selection reports.
- Work recommended for inclusion in the structure maintenance records for bridge structures is included in the APS reports. The Type Selection reports shall describe recommended maintenance work.
- Deck drains may be necessary for structures that are being widened. The Design-Builder's attention is directed to necessary drainage related remediation and/or improvements. These are addressed more comprehensively in Book 2, Section 2 of these documents.

13.3.6 Structure Design Specific Locations and Elements**13.3.6.1 Sacramento River Viaduct Bridge No. (Br. No. 24-0004L/R)**

Location 1 is the Sacramento River Viaduct (Br. No. 24-0004L/R) which carries Route 50 traffic over the Sacramento River. This structure consists of twin mainline structures and the following fifteen on-ramps, off-ramps, and connector-ramps as listed in the following table:

Component	Location	Description
24-0004L	Route 50 over Sacramento River	Westbound Route 50
24-0004R	Route 50 over Sacramento River	Eastbound Route 50
G-6 Ramp	West Sacramento	On-ramp from Jefferson Blvd to Eastbound Route 50
G-15 Ramp	West Sacramento	Off-ramp from Eastbound Route 50 to South Jefferson Blvd
G-17 Ramp	West Sacramento	Off-ramp from Eastbound Route 50 to South River Road
G-8 Ramp	West Sacramento	On-ramp from South River Road to Eastbound Route 50
A-4 Ramp	Sacramento	Connector-ramp from Eastbound Route 50 to Northbound Route 5
A-25 Ramp	Sacramento	Connector-ramp from Eastbound Route 50 to Southbound Route 5
A-6 Ramp	Sacramento	Connector-ramp from Westbound 50 to Northbound Route 5
C-5 Ramp	Sacramento	On-ramp from W Street to Northbound Route 5
A-13 Ramp	Sacramento	On-ramp from W Street and X Street to Southbound Route 5
A-1 Ramp	Sacramento	On-ramp from W Street and X Street to Westbound Route 50
A-2 Ramp	Sacramento	Off-ramp from Eastbound Route 50 to W Street and X Street
A-17 Ramp	Sacramento	Connector-ramp from Westbound Route 50 to Southbound Route 5
C-12 Ramp	Sacramento	Connector/off-ramp from Southbound Route 5 to X Street or Eastbound Route 50
C-30 Ramp	Sacramento	Connector-ramp from Northbound Route 5 to Westbound Route 50
C-13 Ramp	Sacramento	Connector-ramp from Southbound Route 5 to Westbound Route 50

- The Design-Builder shall address the drainage issues as outlined in Book 2, Section 2.

13.3.6.2 West End Viaduct (Br. No. 24-0069L/R)

Location 2 is the West End Viaduct (Br. No. 24-0069L/R) which is located on Route 5 from K Street to approximately ½ mile south of Richards Boulevard. This structure consists of twin mainline structures and the following on-ramps and off-ramps as listed below:

Component	Location	Description
24-0069L	Sacramento	Mainline Viaduct Southbound Route 5
24-0069R	Sacramento	Mainline Viaduct Northbound Route 5
L-21 Ramp	Sacramento	On-ramp from L Street to Northbound Route 5
I-26 Ramp	Sacramento	On-ramp from I Street to Northbound Route 5
J-26 Ramp	Sacramento	Off-ramp from Southbound Route 5 to J Street
J-32 Ramp	Sacramento	Connector ramp from Eastbound I Street Bridge to J Street
I-22 Ramp	Sacramento	On-ramp from I Street to Southbound Route 5

- The Design-Builder shall address the drainage issues outlined in Book 2, Section 2.

13.4 Construction Requirements**13.4.1 Source of supply for concrete**

Aggregates used in concrete for this project shall be provided from sources which comply with the requirements of the “Surface Mining and Reclamation Act of 1975”.

Attention is directed to the “Surface Mining and Reclamation Act of 1975”, commencing in Public Resource Code, Mining and Geology, Section 2710, which establishes regulations pertinent to surface mining operations, and to California Public Contract Code Section 10295.5.

Material from mining operations furnished for this project shall only come from permitted sites in compliance with California Public Contract Code Section 10295.5.

13.4.2 Bridge Deck Joint Seals

The existing joint seals shall be replaced in accordance with the scope of work set forth in the contract documents. Any proposed changes to the scope of work or contract documents shall be submitted to the Department in accordance with the contract documents.

13.4.3 Finger Joint Replacement (with modular joint MR=6’)

The existing joint seals shall be replaced in accordance with the scope of work set forth in the contract documents. Any proposed changes to the scope of work or contract documents shall be submitted to the Department in accordance with the contract documents.

13.4.4 Replace Unsound Concrete

The Design Builder shall remove and replace unsound concrete as outlined in section 15-5 “Bridge Rehabilitation” of the *Caltrans 2010 Standard Specifications*. The Contract Price shall include a lump sum price “Replace Unsound Concrete” for the following quantities:

- 3,300 Cubic Feet for the Sacramento River Viaduct Bridges
- 1,900 Cubic Feet for the West End Viaduct Bridges

The unit price specified for Replace Unsound Concrete shall include all work required for removal and replacement of unsound concrete including traffic control.

13.5 Deliverables

13.5.1 Structure Construction Forms and Documents Required

The Design-Builder shall submit following completed forms and documents to the Department:

- Any Test Result Summary sheet for materials or components incorporated into the project on either a temporary or permanent basis;
- Notice of Change in Clearance or Bridge Weight Rating, (Form TR-0019);
- Notice of Change in Vertical or Horizontal Clearance;
- Joint Movement calculations for all joint seals and joint seal assemblies;
- Structures as-built plans;
- Bridge demolition plans;
- Final bridge deck profile;
- Shop Plans for Modular Joint Seals (MR=6”);
- Shop Plans for New Deck Grates and/or any portion of work related to the replacement of the Deck Grates;
- Shop Plans for Installation of all joint seals;
- Project Plans for drainage related work on Sac River Viaduct (Br. No. 24-0004L/R);
- Shop Plans for drainage related work on Sacramento River Viaduct (Br. No. 24-0004L/R);
- Project Plans for the overall Deck Rehabilitation Procedure;

The Design-Builder shall provide the Department with completed project files at the end of the project.

13.5.2 Mock-ups and Samples

Mock-ups and samples of textures, colors, and construction methods will be required for all structure components for approval by the Department a minimum of 14 days prior to construction. Approved mock-ups and samples will be used as a standard throughout construction. Any materials which vary from the thusly established standard will, at the Department’s discretion, be removed from the project and replaced at the Design-Builder’s sole expense. If the Department determines that the component may remain as incorporated into the project, an administrative deduction shall be made against any monies owed to the Design-Builder not to exceed one-hundred percent (100%) of the Design-Builder’s cost (as

substantiated by certified receipts and payroll) to bring such work into compliance with the approved standard for each particular component.

14 LANDSCAPE

14.1 General

The Design-Builder shall perform all Work necessary to meet the requirements for landscape, including erosion control, highway planting, irrigation systems and miscellaneous roadside treatments, preservation and protection of existing vegetative assets, weed control, hazardous tree control, plant establishment and worker and traveler safety.

The current scope of work for this project does not entail any modifications or work to be performed for landscape as described above beyond erosion control within the Project Limits. If the Design-Builder proposes any modifications or additional work which would impact any existing or proposed landscaped facilities, the Department shall at that time furnish additional language to this section (Book 2, Section 14) with which the Design-Builder shall be required to conform.

This additional language shall consist of, but not be limited to: administrative requirements, standards, and references; design requirements; construction requirements; and deliverables.

The Design-Builder shall design and construct the landscape in accordance to the requirements of this specification, including performance requirements, standards and references, warranties, design and construction criteria, maintenance during construction, and required submittals.

14.2 Administrative Requirements

14.2.1 Standards

The Design-Builder shall design and construct the landscape elements in accordance with the relevant requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder's Submittal has a higher standard than any of the listed standards, adhere to the Design-Builder's Submittal standard.

If there is any unresolved ambiguity in standards, obtain clarification from Department before proceeding with design or construction.

Use the most current version of each listed standard as of the initial Publication Date of this RFP unless modified by Addendum or Change Order.

Landscape Standards

Priority	Agency	Title
1	Department	Highway Design Manual (HDM)
2	Department	Special Provisions
3	Department	Standard Specifications 2010 (including revisions)
4	Department	Standard Plans 2010 (including revisions)
5	Department	Construction Site Best Management Practices (BMPs) Manual
6	Department	Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
7	Department	Project Planning and Design Guide
8	Department	The Plant Setback and Spacing Guide

9	Department	Final Environmental Document
10	Department	Technical Memoranda
11	Department	Landscape Architecture Program P.S.&E. Guide

Remaining Standards set forth in Book 3.

14.2.2 References

Use the references listed below as supplementary guidelines for the design and construction of the landscaping and irrigation elements. These publications have no established order of precedence.

Landscape References

Agency	Title
Department	The California Native Wildflower Checklist and Native Plant Database
Department	The Water Conservation Deputy Directive (DD-13)
ISOA	International Society of Arboriculture Guide for Plant Appraisal
Department	Maintenance Manual Volume 1
AASHTO	A Guide for Transportation Landscape and Environmental Design
FHWA	Code of Federal Regulations, Title 23 (Highways), Chapter 1, Part 752 Landscape and Roadside Development
Department	Project Development Procedures Manual (PDPM)
Department	Construction Manual
California Department of Agriculture	California Noxious Weed Law, California Statutes and the current state prohibited noxious weeds and restricted noxious weeds (“Noxious Plants of California”)
Department	Landscape Architecture Program website

Remaining Standards set forth in Book 3.

14.2.3 Qualifications

14.2.3.1 Project Landscape Architect

The Design-Builder shall assign a Landscape Architect licensed to practice in the State of California to perform or directly supervise the tasks required in this Landscape section.

14.2.4 Preliminary Engineering Plans

The Preliminary Engineering Plans show only a preliminary design for the Project. These drawings and the supporting electronic files are included to illustrate the general scope of improvements. Verify all information prior to use.

The Design-Builder shall have the flexibility to make Project changes without impairing the essential functions and characteristics of the Project, such as safety, traffic operations, durability, desired appearance, maintainability, environmental protection, drainage, and other permitted constraints.

14.2.5 Software

The Design shall prepare all electronic drawings in Microstation 8.0 or newer. All supporting electronic data shall be prepared in Civil 3D 2012 SP 2.1 with conversion to .pdf available. All reports and

documents shall be prepared in Microsoft Office 2007 or later format (e.g/Microsoft Word (.docx), Microsoft Excel (.xlsx) etc).

14.2.6 Meetings

The Department and the Design-Builder shall meet at the request of one of the parties, as necessary, to discuss and resolve matters relating to the landscape Work during the design and construction stages. The requesting party shall provide the other parties with not less than five (5) days prior notice of such meetings. The Design-Builder shall prepare and distribute a record of the minutes meeting within five (5) days.

14.3 Design Requirements

14.3.1 Landscape Concept Meeting

The Design-Builder shall take an inventory of all the existing landscape elements in the Project. The Design-Builder shall schedule and participate in a landscape concept meeting to present a layout of the in-place and proposed landscape elements on the Project to Department.

The Design-Builder shall use the meeting to determine the permanent landscape needs of the Project.

14.3.2 Requirements

Design and construct all landscape elements to meet the following performance requirements:

- At a minimum, erosion control treatment to disturbed slopes;
- Provide a natural, aesthetically pleasing appearance without decreasing motorist safety;
- Use of native species of plant material;
- Is maintainable and prevents erosion;

The Design-Builder shall prepare all necessary studies and applicable design reports to justify all the project landscape elements used in the project.

The Design-Builder shall design all temporary landscape elements to comply with the same design and construction requirements as that of the permanent landscape elements.

14.3.3 [NOT USED]

14.3.4 [NOT USED]

14.3.5 Erosion Control

The Design-Builder shall design an Erosion Control Plan per Section 22 “Stormwater” of Book 2 of this contract. The Erosion Control Plan shall include temporary and permanent erosion and sediment control methods complying with all applicable laws including the Clean Water Act General Construction Permit and the Department’s NPDES Permit and Section 4 “Environmental Compliance” of Book 2 in a manner that will not prohibit or compromise the installation, effectiveness, health, or design intent of vegetation.

The Design-Builder shall re-establish all areas within Project Limits, including temporary construction easements, to original condition or better. Provide grading; strip, stockpile and reapply all topsoil and duff; and provide plant material as needed. Obtain the Departments approval on the final condition of the site. The Design Builder shall treat all disturbed slopes immediately after construction to reduce erosion.

Prior to any soil disturbances or prior to performing work having the potential to cause water pollution, the erosion control plans and the SWPPP shall be submitted for review and approval by the Department, which the Department will have fifteen (15) Working Days to complete each review.

14.4 Construction Requirements

Construction shall be in accordance with the requirements of the standard specifications and the special provisions.

14.4.1 Vegetation Preservation

The Design-Builder shall place temporary fencing according to Caltrans *Standard Specifications and Special Provisions* at Environmentally Sensitive Areas to protect any plants or plant areas designated to be preserved and protected in the Vegetation Preservation plan. The Design-Builder shall remove the fencing when the Project has reached Final Acceptance.

14.5 Deliverables

14.5.1 Landscape Plan

The Landscape Plan shall include revegetative erosion control treatments and shall be submitted at 60% and 100% design review submittal

14.5.2 Erosion Control, SWPPP and Revegetation Plans

The Design Builder shall prepare and submit to the Department an Erosion Control Plan and the SWPPP. These plans shall be submitted for the Department's approval prior to any soil disturbances. The Department shall have fifteen (15) Working Days for review.

The Landscaping Plans shall be prepared by the Design Builder Licensed Landscape Architect. The Landscaping Plans shall be printed in full color and incorporate the Revegetation Treatment and Location Concept plan and be prepared in conformance with Caltrans *Plans Preparation Manual* and Department's *Landscape Architecture PS&E Guide*.

14.5.3 As-Built Documents

As-Built Documents, shall be provided upon completion of the Project. The Design-Builder shall provide final calculations and design reports signed by a licensed Landscape Architect for all design elements used under this section. The Design Builder shall deliver to the Department a complete set of as-built documents and design files that incorporate all design changes and details of Accepted Work that occurred throughout the Project. As-Built Documents must be submitted in both hardcopy and electronic form. The As-Built Documents shall meet the format and content requirements of Final Design Documents.

The Design-Builder shall provide as-built plans for landscape. The plans shall include layouts, cross sections, details, and summary of quantities. The plans shall be prepared in conformance with the *Caltrans Plans Preparation Manual and Caltrans Landscape Architecture P.S.&E. Guide*.

14.5.3.1 Final Design Documents

The Design-Builder shall submit final landscape documents to Department when final landscape work is complete. . Final design documents include, but not limited to:

- Plans Shop Drawings
- Reports/Project documentation
- Design Calculations
- Specifications and Special Provisions

- Office and field generated design changes

A copy of the final irrigation plans are to be laminated and placed in each irrigation controller enclosure.

14.5.3.2 Over-the-Shoulder Design Documents

During the landscape design process, any submittals required in the Design Standards or other Contract Documents shall be prepared by the Design-Builder and submitted to Department. Submittals shall be in a format acceptable to Department and organized to facilitate review by Department.

14.5.3.3 Released for Construction Documents

The Design-Builder shall produce plans and specifications in a format that aids and facilitates design review by Department, and provide adequate information for safe, efficient, and high-quality construction. Plan sets and sheet types shall be developed in accordance with the *Caltrans CADD Standards*, *Caltrans Plan Preparation Manual*, and the *Design Quality Management Plan* before construction may begin. Department Approval for Landscape RFC plans is required.

14.5.3.4 Non- Standard Specifications and Non-Standard Special Provisions

If the Design-Builder requests Department's Approval to utilize methods or materials that are not Department standards, such request shall include comprehensive specifications and provisions associated with the proposed non-standard methods or materials.

EXHIBIT 14-A

Pesticides

This exhibit is provided as an electronic file.

15 VISUAL QUALITY MANAGEMENT

15.1 General

Due to the nature and scope of the Project work, Visual Quality Management is not anticipated. If Design-Builder intends to perform any work which will affect the visual quality of the structures, the Design-Builder will immediately notify the Department of this intent in writing. Department will then have ten (10) Working Days in which to review the Design-Builder's proposed work. If, in the Department's sole opinion, the Work is appropriate and justified, the Department will respond in writing to that effect and supply Design-Builder with appropriate Specifications as well as an updated Book 2, Section 15 dealing specifically with Visual Quality Management requirements.

16 SIGNING AND PAVEMENT MARKING

16.1 General

The Design-Builder shall conduct all Work necessary to meet the requirements for permanent signing and permanent pavement marking, for the Project.

The Design-Builder shall coordinate with the Department to ensure the appropriate design methods, procedures, submittals, plan preparation, analysis methodology, review and comment processes, approval procedures, specifications and construction requirements are met.

16.2 Administrative Requirements

16.2.1 Standards

16.2.1.1 General Standards

The Design-Builder shall design and construct the Signing and Pavement Marking, in accordance with the requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder's Submittal has a higher standard than any of the listed standards, adhere to the Submittal standard.

If there is any unresolved ambiguity in standards, it is the Design-Builder's responsibility to obtain clarification before proceeding with design and/or construction. Use the most current version of each listed standard as of the Request for Proposals (RFP) issue date unless otherwise specified herein or modified by Addendum or Change Order.:

16.2.1.2 Permanent Signing Standards

Priority	Agency	Title
1	Department	California Manual on Uniform Traffic Control Devices (CA MUTCD)
2	Department	Highway Design Manual
3	Department	Special Provisions and Non-Standard Specifications
4	Department	Standard Specifications 2010 (including Revisions)
5	Department	Design-Build Modifications to the Standard Specifications
6	Department	Standard Plans 2010 (including Revisions)
7	Department	Sign Specifications
8	Department	2011 HOV Guidelines for Planning, Design, and Operations
9	Various	Technical Memoranda and Preliminary Engineering Documents
10	AASHTO	A Policy on Geometric Design of Highways and Streets
11	AASHTO	Standard Specifications for Structural Support for Highway Signs, Luminaires, and Traffic Signals, 4 th Edition with 2002, 2003, and 2006 Interims
12	AASHTO	Roadside Design Guide
13	Department	Plans Preparation Manual
14	Department	CADD Users Manual

Remaining Standards set forth in Book 3.

*Document modified for design-build.

16.2.1.3 Pavement Delineation Standards and Requirements

Priority	Agency	Title
1	Department	California Manual on Uniform Traffic Control Devices (CA MUTCD)
2	Department	Highway Design Manual
3	Department	Special Provisions and Non- Standard Special Provisions
4	Department	Standard Specifications 2010 (including Revisions)
5	Department	Design-Build Modifications to the Standard Specifications
6	Department	Standard Plans 2010 (including Revisions)
7	Department	Sign Specifications
8	Department	HOV Guidelines for Planning, Design, and Operations
9	Various	Technical Memoranda and Preliminary Engineering Documents
10	AASHTO	A Policy on Geometric Design of Highways and Streets
11	AASHTO	Roadside Design Guide
12	Department	Plans Preparation Manual
13	Department	CADD Users Manual

Remaining Standards set forth in Book 3.

*Document modified for design-build.

16.2.1.4 [NOT USED]

16.2.1.5 Permanent Lighting Standards

Priority	Agency	Title
1	Department	Roadway Lighting Design Manual
2	Department	CADD Data Standards (Lighting Cell Library)
3	Department	April 2007 Signal, Lighting, and Electrical System Design Guide
4	Department	Special Provisions and Non- Standard Special Provisions
5	Department	Standard Specifications 2010 (including Revisions)
6	Department	Design-Build Modifications to the Standard Specifications
7	Department	Standard Plans 2010 (including Revisions)
8	Various	Technical Memoranda and Preliminary Engineering Documents
9	Department	Traffic Manual
10	Department	Plans Preparation Manual
11	ANSI	Illuminating Engineering Society of North America Roadway Lighting ANSI Approved

12 AASHTO Roadway Lighting Design Guide

Remaining Standards set forth in Book 3.

*Document modified for design-build.

16.2.2 References

Use the references listed below as supplementary guidelines for the design and construction of signing and pavement marking.

Agency	Title
Department	New Policy and Directives (Pavement Delineation and Signing)
Department	Ready to List and Construction Contract Award Guide (RTL Guide)
Department	Reference Sheets for Structural Design Aids Overhead and Roadside Signs
Department	Standard Highway Signs
EIA	Electronics Industries Alliance (EIA) Standards
NCHRP	Report 350 – Recommended Procedures for the Safety Performance Evaluation of Highway Features
NEMA	National Electrical Manufacturers Association (NEMA) Standards
TIA	Telecommunications Industries Association (TIA) Standards
AASHTO	Roadside Design Guide

16.2.3 [NOT USED]

16.2.4 Preliminary Engineering Documents

The Preliminary Engineering Documents in the Reference Information Documents show only a preliminary design for the Project. These drawings and the supporting electronic files are included to illustrate the general scope of improvements. Verify all information prior to use.

The Design-Builder shall have the flexibility to make Project changes without impairing the essential functions and characteristics of the Project, such as safety, traffic operations, durability, desired appearance, maintainability, environmental protection, drainage, and other permitted constraints; provided that

The Design-Builder shall perform the Work in accordance with the Standards and Requirements set forth in these Technical Provisions unless the Design-Builder obtains a deviation or Exception of those Standards or Requirements in accordance with the design review process set forth in the Design Build Contract.

16.2.5 Software Requirements

The Design-Builder shall prepare drawings in MicroStation V8 or newer. All supporting electronic data shall be prepared in Civil 3D 2012 SP2.1 with conversion to .pdf available. All reports and documents shall be prepared in Microsoft Office 2007 or later format (e.g. Microsoft Word (.docx), Microsoft Excel (.xlsx), etc.)

The Design-Builder shall use the latest version of SignCAD, by SignCAD Systems, Inc. to design signs.

16.2.6 Meetings

The Department, and the Design-Builder shall meet at the request of one of the parties, as necessary, to discuss and resolve matters relating to the Signing, and Pavement Marking Work during the design and construction stages. The requesting entity shall provide the other parties with not less than five (5) days prior notice of such meetings. The Design-Builder shall prepare and distribute within five (5) days of the meeting a record of the minutes to the meeting.

16.3 Design Requirements

16.3.1 Permanent And Temporary Signing

Design, furnish, and install all components of a sign system necessary to provide a complete and functional system that meets the following performance requirements:

- Comply with State requirements for all temporary and permanent traffic control devices.
- Provide for the orderly and predictable movement of all traffic including bicycles and pedestrians.
- Provide such guidance and warnings as are needed to ensure the safe and informed operation of individual elements of the traffic stream.

16.3.1.1 Lettering Height

All sign lettering height shall conform to Department's latest versions of Standard Plans and Standard Specifications.

16.3.1.2 Other Signage Requirements

Do not attach signs to any bridge structure unless no alternative exists.

16.3.2 Permanent Pavement Marking

Pavement delineation Work shall include designing, installing, modifying, or removing striping and pavement markings. All pavement delineation shall conform to the CA MUTCD, Caltrans *Standard Plans* and *Standard Specifications*. The Design-Builder shall prepare pavement delineation plans that show HOV striping, edge striping, lane line striping, arrows, legends, and pavement markings consistent with the needs of the project. The Design-Builder shall design all temporary pavement delineation to comply with the same design and construction requirements as that of the permanent delineation. The Design-Builder shall prepare all necessary engineering studies and applicable design reports to justify all the project pavement delineation elements used in the project.

Design, furnish, and install all components of a pavement delineation system necessary to provide a complete and functional system that meets the following performance requirements:

Provide for the orderly and predictable movement of all traffic.

Provide such guidance and warnings as are needed to ensure the safe and informed operation of individual elements of the traffic stream.

The Design-Builder shall design and install both temporary and permanent pavement delineation as required to complete the Work. Pavement delineation shall be in accordance with applicable Department and CA MUTCD standards. The scope of the pavement delineation includes striping, pavement markers, and roadway delineators.

16.3.2.1 Pavement Delineation Concept Meetings

The Design-Builder shall take an inventory of all in-place pavement delineation elements in the Project. The Design-Builder shall schedule and participate in a pavement delineation concept meeting to present a layout of the in-place and proposed pavement delineation on the Project to the Department. The Design-Builder shall use the outcome of the meeting to finalize the pavement delineation needs of the Project.

16.3.2.2 Pavement Delineation Plans

The pavement delineation plans (permanent or temporary) shall include the following:

- A plan view of the entire Project or roadway segment to have pavement delineation.
- All existing pavement delineation for a minimum of 500 feet past the limits of construction and adequate transition and tapers to maintain traffic at the design speed.
- Existing pavement delineation identified by material type, color, and width and completely dimensioned pavement delineation across the roadway.
- Identification of pavement delineation to be removed.
- All new pavement delineation identified by material type, color, line width and completely dimensioned pavement delineation across the roadway, tying the pavement delineation to a construction centerline or monument line.
- Location by station or dimension lines all proposed pavement arrows, legends, crosswalks, and other pertinent features.
- Design drawings other than Department standard drawings that show details of pavement delineation, tapers, and transitions.

16.3.2.3 Pavement Delineation Material Requirements

The Design-Builder shall provide permanent or temporary pavement delineation that meets *Caltrans Standard Specifications*. The permanent pavement markings shall be uniform in type, color, dimensions, location, and reflectivity as if in new condition.

16.3.2.4 Striping and Pavement Markings

All striping details shall conform to the CA MUTCD, *Caltrans Standard Plans* and *Standard Specifications*, and *Caltrans HOV Guidelines for Planning, Design, and Operations*.

All striping and pavement markings on the mainline and ramps shall be thermoplastic. All markers on the mainline shall conform to *Caltrans Standard Plans*.

Striping and pavement marking modifications that may be required on local streets shall conform to standards required by local jurisdictions.

16.3.2.5 High Mast Lighting

High mast lighting shall not be used on this project.

16.4 Construction Requirements

Construction shall be in accordance with the requirements of *Caltrans Standard Specifications* and the *Special Provisions*.

The Design-Builder shall use Materials listed on the Department Approved Products List for Work Zones and Signals. The Design-Builder shall obtain the current Approved Products List.

The Design-Builder shall make appropriate arrangements with the electric company for installation or relocation of power service.

16.4.1 [NOT USED]

16.4.2 Permanent Pavement Marking

All pavement markings, permanent or temporary, where no longer required for traffic demarcation shall be completely removed.

16.4.3 [NOT USED]

16.5 Deliverables

The Design-Builder shall develop Released for Construction (RFC) Documents, As-Built Plans and Final Design Documents in accordance with the requirements of these technical provisions.

16.5.1 [NOT USED]

16.5.2 [NOT USED]

16.5.3 Signing Concept Plan

The Signing Concept Plan (permanent or temporary) with incorporated comments received at the Signing Concept Meeting shall be submitted 60 days after the concept meeting.

16.5.4 Over-the-Shoulder Design Documents

During the design process, any submittals required in the Design Standards or other Contract Documents shall be prepared and submitted by the Design-Builder. Submittals shall be in an acceptable format and organized to facilitate their review.

16.5.5 Released for Construction (RFC) Documents

The Design-Builder shall produce plans and specifications in a format that aids and facilitates design review, and provide adequate information for safe, efficient, and high-quality construction. Plan sets and sheet types shall be developed in accordance with the Caltrans *CADD Standards*, Caltrans *Plans Preparation Manual*, and the Design Quality Management Plan before construction may begin. Acceptance by the Department is required.

16.5.6 Final Design Documents

The Design-Builder shall submit final design documents when final design is complete, including office and field generated design changes. Final design documents include:

- Plans
- Shop drawings
- Design calculations
- Reports/Project documentation
- Specifications and Special Provisions

16.5.7 Shop Drawings

Copies of Approved shop drawings shall be provided at least five (5) days prior to the start of any Work detailed by those drawings. The Design-Builder shall make no changes in any approved shop drawing after approval has been received. Any deviations from approved shop drawings shall require that the Design-Builder submit revised shop drawings back for their approval.

16.5.8 Design Justification Reports and Project Documentation

Upon request, the Design-Builder shall submit design justifications when the Design-Builder shall consider various factors or alternatives. Documentation may be computer generated or hand written and shall clearly identify the following:

- Design issue

- Items requiring consideration
- Basis for evaluation
- Final decision and justification

16.5.9 Non- Standard Specifications and Non- Standard Special Provisions

If the Design-Builder requests Approval to utilize methods or materials that are not Department standards, such request shall include comprehensive specifications and provisions associated with the proposed non-standard methods or materials.

16.5.10 As-Built Documents

Upon completion of the Project and prior to Final Acceptance, the Design-Builder shall deliver a complete set of as-built documents and design files(.dgn) that incorporate all design changes and details of Accepted Work that occurred throughout the Project. As-Built Documents must be submitted in both hardcopy and electronic form. The As-Built Documents shall meet the format and content requirements of Final Design Documents.

17 [NOT USED]

18 Maintenance of Traffic

18.1 General

The Design-Builder shall perform all Work necessary to meet the requirements associated with Maintenance of Traffic (MOT) in accordance with the requirements of the Contract Documents and these Technical Provisions. This work includes, but is not limited to, providing for the safe and efficient movement of people, goods, and services around the Project while minimizing impacts to residents, commuters, and businesses.

18.2 Administrative Requirements

18.2.1 Standards

The Design Builder shall perform the Work in accordance with the requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder's submittal has a higher standard than any of the listed standards, adhere to the submittal standard.

If there is any unresolved ambiguity in standards, it is the Design-Builder's responsibility to obtain clarification from Department before proceeding with design and/or construction.

Use the most current version of each listed standard as of the initial publication date of this RFP unless modified by Addendum or Change Order.

Maintenance of Traffic Standards and Requirements

Priority	Agency	Title
1	Department	Transportation Management Plan (TMP) Guidelines
2	Department	Technical Memoranda
3	Department	California Manual on Uniform Traffic Control Devices (MUTCD)
4	Department	Standard Special Provisions
5	Department	Standard Plans 2010 (including Revisions)
6	Department	Design-Build Modifications to the Standard Specifications
7	Department	Standard Specifications* 2010 (including Revisions)
8	Department	Highway Design Manual*
9	Department	Plans Preparation Manual
10	Department	Traffic Manual, Chapter 7
11	Department	CADD User Manual
12	AASHTO	A Policy on Geometric Design of Highways and Streets,
13	AASHTO	Roadside Design Guide,
14	Department	Ramp Meter Design Manual

*Document modified for design-build.

Remaining Standards set forth in Book 3

18.2.2 References

Use the references listed below as supplementary guidelines for Maintenance of Traffic. These publications have no established order of precedence.

Maintenance of Traffic References

Agency	Title
TRB	Highway Capacity Manual

18.2.3 Traffic Management Plan

The Design-Builder shall develop, implement, and maintain a Traffic Management Plan (TMP) that includes the following items:

- Identify, address and resolve project-related construction traffic impact issues on the project area roadways, and shall recommend mitigation measures for project related construction traffic impacts,
- Descriptions of the duties of the Traffic Engineering Manager, Traffic Control Supervisor and other personnel with Maintenance Of Traffic (MOT) responsibilities.
- A Traffic Management Plan Checklist completed under the direction of the Traffic Engineering Manager. See attachment 18-A.
- Procedures to identify and incorporate the needs of emergency service providers, law enforcement entities, local governments and agencies, and other related corridor users.
- Procedures to address special circumstances such as equipment malfunctions, traffic incidents, lane closures not reopening on time, motorist property being damaged and special events.
- Procedures to modify the TMP as needed to adapt to current Project circumstances.
- Procedures to communicate TMP information to the Design-Builder's public information personnel, the Department's Public Information Office, and notify the public of Maintenance of Traffic issues in conjunction with the requirements of Book 2, Section 3.
- The TMP shall minimize project related traffic delays and potential accidents by the effective application of traditional traffic mitigation strategies and an innovative combination of public and motorist information, demand management, incident management, system management, alternate route strategies, construction strategies, or other strategies,
- The Transportation Management Plan must be submitted for review at least 60 days prior to any construction, and must be approved before issuance of NTP2,
- No lane closure, on either the mainline or ramp closures will be allowed prior to approval of the TMP.

18.2.4 MOT Task Force

18.2.4.1 Membership

The Design-Builder shall establish a MOT task force, inviting representatives of the Design-Builder, Department, Cities, Counties, law enforcement agencies, emergency response providers, and other agencies whose operations affect or are affected by the Project MOT plans.

18.2.4.2 Meetings

The Design-Builder shall schedule and chair MOT task force meetings once a month from NTP2 to Project completion. The meeting schedule and frequency may be adjusted upon the agreement of the MOT task force members. The purpose of the meetings shall be to:

-
- Review and refine the TMP and its implementation.
 - Review and refine the Design-Builder’s MOT plans, specifications, and details,
 - disseminate MOT information to task force meeting attendees,
 - Determine additional membership invitees affected by the MOT as needed.

The Design-Builder shall deliver to the Department a list of all parties invited to take part in the MOT task force and the responses to all the invitations. The Design-Builder shall also take meeting minutes and distribute them to the task force members within 3 working days of the meeting.

18.3 Design Requirements

The Design-Builder shall use the procedures in the TMP to develop plans, specifications, and details to address all construction related traffic control issues. This includes construction area signs, stage construction, traffic handling, and detours.

18.3.1 Project Specific Requirements

The Design-Builder shall incorporate the Lane Closure Charts provided by the Department (see Exhibit 18-A). Any revisions to the Lane Closure Charts provided, or additional Lane Closures Charts required, shall be submitted to the Department for approval. The Department will have 15 Working Days to review the request.

Requests for revisions or additional Lane Closure Charts shall include:

- Delay calculations,
- The purpose of requests,
- Per lane capacity for work zone,
- Field traffic counts,
- Detour plans (if necessary).

Closures exceeding 30 minutes delay will require a major lane closure approval process. The Department will have 20 Working Days to review the request.

Major Lane Closure Approval Process requirements:

- Location and Vicinity maps showing the State Highway(s), local street network, and other adjacent lane closures or nearby work that may affect traffic during the same period. Including special events,
- Dates, times and locations of the lane closure(s),
- Description of the work being performed during the lane closure(s),
- Description of each lane closure and its anticipated affect on traffic,
- Amount of expected delay and corresponding queue length for each lane closure,
- Summary of TMP strategies that will be used to reduce delay and motorist inconvenience during the lane closure(s).
- A copy of the TMP,
- Contingency plan.

The Design-Builder shall incorporate the detour routes for on-ramp closures provided by the Department (see Section 18 of the RID) in the development of final Detour Plans. Any revisions to the detour routes provided, or additional detours required, shall be submitted to the Department for approval. The Department will have 15 Working Days to review the request. It is the Design-Builder's responsibility to contact and obtain approval from local agencies for detours on roads or streets under their jurisdiction.

The Design-Builder shall provide Sign Details plans showing how to fabricate any sign not detailed in the CA MUTCD. This includes sign dimensions, message, lettering sizes, and colors.

Prior to using shoulders or portions of shoulders as freeway lanes, the Design Builder shall verify that the structural section of the shoulders is adequate to support existing traffic volumes.

Adopt-A-Highway activities if any shall be suspended during the project. The Design Builder shall remove and store existing signs, reinstalling them upon completion of construction in that area. Any signs damage during storage or reinstallation shall be replaced in kind by the Design Builder at the Design Builder's expense.

The Design Builder shall install Construction Area Signs prior to any field investigations, preliminary design work, or any kind of construction. See also Issuance of NTP1 and NTP2.

Temporary construction minimum lane widths shall be 11ft for the inside and middle lanes and 12ft for the outside lanes.

The Design Builder shall provide coordination with established truck routes. And notify the Department's Regional Transportation Permit Office at least 21 Days prior to any reduction of vertical or horizontal clearance.

18.3.1.1 COZEEP

The Design-Builder may request for California Highway Patrol (CHP) officers in critical lane closures through the Construction Zone Enhanced Enforcement Program (COZEEP). Such service does not relieve the Design Builder from the responsibilities specified in Section 7-1.04, "Public Safety", and Section 12, "Temporary Traffic Control", of the Department's Standard Specifications. The request shall be submitted a minimum of seven days in advance. The Design Builder shall be responsible for all cost accrued for CHP services utilized or not utilized as scheduled. Cost includes, but not limited to , cancellations or changes done within 48 hours from the scheduled time of service.

18.3.1.2 Freeway Service Patrol (FSP)

Freeway Service Patrol is a service that involves the use of dedicated near-site towing services to reduce the time required to remove disabled vehicles from the roadway. The Design Builder may request FSP Service from the Department on certain or critical closures and such service is at the discretion of the Department. As part of TMP strategies, the Design Builder may enhance the service and contract with the Department's existing provider.

18.3.2 [NOT USED]

18.3.3 Pedestrian Access and Trails

The Design-Builder shall maintain pedestrian access on all sidewalks, trails, and intersections along all streets as much as possible. If access cannot be maintained, the Design-Builder shall obtain Approval from Department and the appropriate governing agency to close or modify the pedestrian access and shall furnish and install proper signing for pedestrians.

Department and other appropriate governing agencies shall be notified 10 Working Days prior to the closure, and advanced signing shall be provided notifying all users of the closure. This signing shall be erected a minimum of five (5) prior to the closure and shall note the closure duration.

18.3.4 Temporary Mainline Crossovers

Temporary mainline crossovers shall be designed and constructed for single lane in each direction, in accordance with the following criteria:

- Minimum design speed: 45 mph

-
- Minimum width of paved driving surface: 18 feet
 - Minimum width of aggregate shoulder on each side of the traveled way: 3 feet
 - Design curves: 4 degrees
 - Infield slope: no steeper than 1:4 (v:h)
 - Temporary crossovers must be located outside the area of an entrance or exit ramp that is open to traffic by a minimum of:
 - 800 feet from the end of the taper on an entrance ramp
 - 400 feet from the end of the taper on an exit ramp

18.3.5 Temporary Auxiliary Lanes and Exit Ramp Extensions

Temporary lanes and extensions for exit ramps shall be designed and constructed to meet the following requirements:

- Exiting traffic must not have to slow down in the through lanes to less than 50 mph in order to safely gain access to the temporary auxiliary lane.
- The temporary auxiliary lane must be long enough so that traffic leaving the through lane at 50 mph can slow down safely to a speed of 30 mph.
- The temporary auxiliary lane shall have a paved surface width of at least 12 feet and an aggregate shoulder width of at least 3 feet.
- Temporary bypass extensions shall have a paved surface width of at least 16 feet and an aggregate shoulder width of at least 3 feet on both sides.
- The infield slope shall not be steeper than 1:4 (v:h).
- Acceleration lanes shall be designed to meet the standards shown in the Department's *Highway Design Manual*.
- A minimum 2-foot reaction distance shall be provided for any temporary or permanent barrier device, including portable temporary concrete barrier.
- The Design-Builder shall install the final signing and pavement markings required to safely open the road to traffic. This Work shall be completed on or before the date of opening.

18.4 Construction Requirements

The Design-Builder shall be responsible for all Project Maintenance of Traffic starting at 12:01 a.m. on the Day work begins on the Project. All traffic control devices must be continually and adequately monitored and maintained to ensure proper placement and function and the safe and efficient flow of all construction traffic into and out of the Project. Such responsibility and maintenance shall continue until 11:59 p.m. on the Day of Substantial Completion of the Project and when such traffic control devices are no longer required as determined by the Department. The Department may, in writing, temporarily suspend such responsibility in conjunction with an official suspension for weather or other reasons.

18.4.1 Construction Area Traffic Control Devices

Flagging, signs, and temporary traffic control devices furnished, installed, maintained, and removed when no longer required shall conform to the provisions in the MUTCD and Section 12, "Temporary Traffic Control," of the Standard Specifications and these Technical Provisions.

Category 2 temporary traffic control devices shall be on the Federal Highway Administration's (FHWA) list of Acceptable Crashworthy Category 2 Hardware for Work Zones. This list is maintained by FHWA and can be located at:

http://safety.fhwa.dot.gov/roadway_dept/policy_guide/road_hardware/listing.cfm?code=workzone

The Department also maintains this list at:

<http://www.dot.ca.gov/hq/traffops/signtech/signdel/pdf/Category2.pdf>

Category 3 temporary traffic control devices shall be shown on the plans or on the Department's Highway Safety Features list. This list is maintained by the Division of Engineering Services and can be found at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

Temporary traffic control devices that have not received FHWA acceptance shall not be used.

18.4.2 Maintaining Traffic

Maintaining traffic shall conform to the provisions in Sections 7-1.03, "Public Convenience," Section 7-1.04, "Public Safety," and Section 12, "Temporary Traffic Control," of the Caltrans *Standard Specifications* and these Technical Provisions.

Closure is defined as the closure of a traffic lane or lanes, including shoulder, ramp or connector lanes, within a single traffic control system.

Closures shall conform to the provisions in "Traffic Control System for Lane Closure" of these Technical Provisions.

Closures shall conform to the closure charts provided by the Department (see attachment 18-C in the RID).

Work that interferes with public traffic shall be limited to the hours when lane closures are allowed, except for work required under Sections 7-1.03, "Public Convenience," and Section 7-1.04, "Public Safety," of the Standard Specifications.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday. When November 11th falls on a Saturday, the preceding Friday shall be a designated legal holiday.

Special days are: the third Monday in January.

The maximum length of a single stationary lane closure shall be 1.0 mile.

Not more than one (1) separate stationary lane closures will be allowed in each direction of travel at one time.

Local authorities shall be notified at least five (5) business days before work begins. The Design-Builder shall cooperate with local authorities to handle traffic through the work area and shall make arrangements to keep the work area clear of parked vehicles.

Adjacent ramps, in the same direction of travel, servicing two (2) consecutive local streets shall not be closed simultaneously unless directed by the Department.

SC6-3(CA) (RAMP CLOSED) sign shall be used to inform motorists of the temporary closing of a connector, entrance ramp or exit ramp for 1 business day.

SC6-4(CA) (RAMP CLOSED) sign shall be used to inform motorists of the temporary closing of a connector, entrance ramp or exit ramp for more than 1 business day.

The SC6-3(CA) or SC6-4(CA) signs shall be installed at least 7 days before closing the connector or ramp, but not more than 15 days before the connector or ramp closure. The Design-Builder shall notify the Department at least 2 business days before installing the SC6-3(CA) or SC6-4(CA) signs.

Accurate information shall be maintained on the SC6-3(CA) or SC6-4(CA) signs. The SC6-3(CA) or SC6-4(CA) signs, when no longer required, shall be immediately covered or removed.

Personal vehicles of the Design-Builder's employees shall not be parked on the traveled way or shoulders including sections closed to public traffic.

When work vehicles or equipment are parked within 6 feet of a traffic lane to perform active construction, the shoulder area shall be closed in conformance with Section “Temporary Traffic Control System” of the Department’s *Standard Plans*. The Design-Builder shall immediately restore to the original position and location a traffic cone or delineator that is displaced or overturned, during the progress of work.

If minor deviations from the lane requirement charts are required, a written request shall be submitted to the Department at least 15 days before the proposed date of the closure. The Department may approve the deviations at its sole discretion if the work can be expedited and better serve the public traffic.

Lane Closure Restriction for Designated Legal Holidays and Special Days										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
x	H xx	xx	xx							
	SD xx									
x	xx	H xx	xx							
		SD xx								
	x	xx	H xx	xx						
			SD xx							
	x	xx	xx	H xx	xxx					
	x	xx	xx	SD xx	xxx					
				x	H xx					
				x	SD xx					
					x	H xx				
						SD xx				
						x	H xx	xx	xx	xx
							SD xx			
Legends:										
	Refer to lane closure charts									
x	The full width of the traveled way shall be open for use by public traffic after <u>7:00 AM</u> .									
xx	The full width of the traveled way shall be open for use by public traffic.									
xxx	The full width of the traveled way shall be open for use by public traffic until <u>2:00 PM</u> .									
H	Designated Legal Holiday									
SD	Special Day									

18.4.3 Closure Requirements and Conditions

Closures shall conform to the provisions in “Maintaining Traffic” and these Technical Provisions.

18.4.3.1 Closure Schedule

A written schedule of planned closures for the next week period, defined as Sunday noon through the following Sunday noon, shall be submitted by noon each Monday. A written schedule shall be submitted not less than 25 days and not more than 125 days before the anticipated start of any operation that will:

1. Reduce horizontal clearances, traveled way, including shoulders, to two lanes or less due to such operations as temporary barrier placement and paving
2. Reduce the vertical clearances available to the public due to such operations as pavement overlay, overhead sign installation, or falsework or girder erection

The Closure Schedule shall show the locations dates and times of the proposed closures. The Closure Schedule request forms furnished by the Department shall be used. Closure Schedules submitted to the Department with incomplete or inaccurate information will be rejected and returned for correction and resubmittal. The Design-Builder will be notified of disapproved closures or closures that require coordination with other parties as a condition of approval.

Closure Schedule amendments, including adding additional closures, shall be submitted by noon to the Department, in writing, at least 3 business days in advance of a planned closure. Approval of Closure Schedule amendments will be at the discretion of the Department.

The Department shall be notified of cancelled closures 2 business days before the date of closure. Failure to notify the Department of cancelled closures by the Design-Builder may result in a fine of \$300 per unreported cancelled closure.

Closures that are cancelled due to unsuitable weather may be rescheduled at the discretion of the Department.

18.4.3.2 Contingency Plan

A detailed contingency plan shall be prepared for reopening closures to public traffic. The contingency plan shall be submitted to the Department within one business day of the Department's request.

18.4.3.3 Late Reopening Of Closures

If a closure is not reopened to public traffic by the specified time, work shall be suspended in conformance with the provisions in Sections 8-1.06 and 8-1.07, "Suspensions," and "Delays", respectively, of Caltrans *Standard Specifications*. No further closures are to be made until the Department has accepted a work plan, submitted by the Design-Builder that will ensure that future closures will be reopened to public traffic at the specified time. The Department will have 2 business days to accept or reject the Design-Builder's proposed work plan. The Design-Builder will not be entitled to compensation for the suspension of work resulting from the late reopening of closures.

For each 10-minute interval, or fraction thereof past the time specified to reopen the closure, the Department will deduct the amount per interval shown below from moneys due or that may become due the Design-Builder under the contract. Damages are limited to 5 percent of project cost per occurrence and will not be assessed when the Department requests that the closure remain in place beyond the scheduled pickup time.

Type of Facility	Route or Segment	Period	Damages/interval (\$)
Mainline	I-5 NB/SB	1st half hour	\$2,621 / 10 minutes
		2nd half hour	\$3,932 / 10 minutes
		2nd hour and beyond	\$5,242/ 10 minutes
Mainline	US 50 EB/WB	1st half hour	\$1,931/ 10 minutes
		2nd half hour	\$2,896 / 10 minutes
		2nd hour and beyond	\$3,862 / 10 minutes
Ramps	I-5 NB/SB	1st half hour	\$2,621 / 10 minutes
		2nd half hour	\$3,932 / 10 minutes
		2nd hour and beyond	\$5,242/ 10 minutes
Ramps	US 50 EB/WB	1st half hour	\$1,931/ 10 minutes
		2nd half hour	\$2,896 / 10 minutes
		2nd hour and beyond	\$3,862 / 10 minutes

18.4.3.4 Denied Closures

The Department shall be notified of delays in the Design-Builder's operations due to the following conditions, and if, in the opinion of the Department, the Design-Builder's controlling operation is delayed or interfered with by reason of those conditions, an extension of time will be granted to the Design-Builder and no additional compensation will be made by the Department:

1. The Design-Builder's proposed Closure Schedule is denied and his planned closures are within the time frame allowed for closures in "Maintaining Traffic" of these Technical Provisions.
2. The Design-Builder is denied a confirmed closure.
3. The Department directs the Design-Builder to remove a closure before the time designated in the approved Closure Schedule.

18.4.4 Impact Attenuator Vehicle

18.4.4.1 General

Work includes protecting traffic and workers by using impact attenuator vehicle as a shadow vehicle when placing and removing components of a traffic control system, and when performing a moving lane closure.

Comply with Section 12-3.03, "Flashing Arrow Signs," of the Standard Specifications.

Impact attenuator vehicle must comply with the following test levels under National Cooperative Highway Research Program 350:

1. Test level 3 for pre-construction posted speed limit of 50 mph or more
2. Test levels 2 or 3 for pre-construction posted speed limit of 45 mph or less

Comply with the attenuator manufacturer's recommendations for:

1. Support truck
2. Trailer-mounted operation
3. Truck-mounted operation

Definitions

Impact attenuator vehicle: Support truck towing a deployed attenuator mounted to a trailer or support truck with a deployed attenuator mounted to the support truck.

Submittals

Upon request, submit a Certificate of Compliance for attenuator to the Department under Section 6-3.05E "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

Attenuator must be a brand listed on the Department's pre-approved list under Highway Safety Features at:

http://www.dot.ca.gov/hq/esc/approved_products_list/

18.4.4.2 Materials

The combined weight of the support truck and the attenuator must be at least 19,800 pounds, except the weight of the support truck must not be less than 16,100 pounds or greater than 26,400 pounds.

If using the Trinity MPS-350 truck-mounted attenuator, the support truck must not have any underneath fuel tank mounted within 10'-6" of the rear of the support truck.

Each impact attenuator vehicle must:

1. Have standard brake lights, taillights, sidelights, and turn signals
2. Have an inverted "V" chevron pattern placed across the entire rear of the attenuator composed of alternating 4 inch wide non-reflective black stripes and 4 inch wide yellow retroreflective stripes sloping at 45 degrees
3. Have a Type II flashing arrow sign
4. Have a flashing or rotating amber light
5. Have an operable 2-way communication system for maintaining contact with workers

18.4.4.3 Construction

Use impact attenuator vehicle to follow behind equipment and workers who are placing and removing components of a traffic control system for a lane closure or a ramp closure. Flashing arrow sign must be operating in arrow mode during this activity. Follow at a distance to prevent intrusion into the workspace from passing traffic.

After placing components of a traffic control system for a lane closure or a ramp closure you may use impact attenuator vehicle in a closed lane and in advance of a work area to protect traffic and workers.

Secure objects including equipment, tools and ballast on impact attenuator vehicle to prevent loosening upon impact by an errant vehicle.

Do not use a damaged attenuator in the work. Replace, at your expense, an attenuator damaged from an impact during work.

18.4.5 Traffic Control System for Lane Closure

A traffic control system shall consist of closing traffic lanes and ramps in conformance with the details shown on the plans, the MUTCD, the provisions in Section 12, "Temporary Traffic Control," of Caltrans *Standard Specifications*, the provisions under "Maintaining Traffic" and "Construction Area Signs" and these Technical Provisions.

The provisions in this section will not relieve the Design-Builder of responsibility for providing additional devices or taking measures as may be necessary to comply with the provisions in Section 7-1.04, "Public Safety," of the Standard Specifications.

During traffic stripe operations and pavement marker placement operations using bituminous adhesive, traffic shall be controlled, at the option of the Design-Builder, with either stationary or moving lane closures. During other operations, traffic shall be controlled with stationary lane closures. Attention is directed to the provisions in Section 84-1.03B, "Protection From Damage," and Section 85, "Pavement Markers," of the Standard Specifications.

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Design-Builder shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

18.4.5.1 Stationary Lane Closure

When lane and ramp closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or

excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Design-Builder so elects, the components may be stored at selected central locations, designated by the Department within the limits of the highway right of way.

18.4.5.2 Moving Lane Closure

Flashing arrow signs used in moving lane closures shall be truck-mounted. Changeable message signs used in moving lane closure operations shall conform to the provisions in Section 12-3.12, "Portable Changeable Message Signs," of the Standard Specifications, except the signs shall be truck-mounted and the full operation height of the bottom of the sign may be less than 7 feet above the ground, but should be as high as practicable.

Truck-mounted attenuators (TMA) for use in moving lane closures shall be any of the following approved models, or equal:

1. Hexfoam TMA Series 3000, Alpha 1000 TMA Series 1000, and Alpha 2001 TMA Series 2001, manufactured by Energy Absorption Systems, Inc., 35 East Wacker Drive, Suite 1100, Chicago, IL 60601:
 - 1.1. Northern California: Traffic Control Service, Inc., 8585 Thys Court, Sacramento, CA 95828, telephone (800) 884-8274, FAX (916) 387-9734
 - 1.2. Southern California: Traffic Control Service, Inc., 1818 E. Orangethorpe, Fullerton, CA 92831-5324, telephone (800) 222-8274, FAX (714) 526-9501
2. Cal T-001 Model 2 or Model 3, manufacturer and distributor: Hexcel Corporation, 11711 Dublin Boulevard, P.O. Box 2312, Dublin, CA 94568, telephone (925) 551-4900
3. Renco Rengard Model Nos. CAM 8-815 and RAM 8-815, manufacturer and distributor: Renco Inc., 1582 Pflugerville Loop Road, P.O. Box 730, Pflugerville, TX 78660-0730, telephone (800) 654-8182

Each TMA shall be individually identified with the manufacturer's name, address, TMA model number, and a specific serial number. The names and numbers shall each be a minimum 1/2 inch high and located on the left (street) side at the lower front corner. The TMA shall have a message next to the name and model number in 1/2 inch high letters which states, "The bottom of this TMA shall be _____ inches \pm _____ inch above the ground at all points for proper impact performance." Any TMA which is damaged or appears to be in poor condition shall not be used unless recertified by the manufacturer. The Department shall be the sole judge as to whether used TMAs supplied under this contract need recertification. Each unit shall be certified by the manufacturer to meet the requirements for TMA in conformance with the standards established by the Transportation Laboratory.

Approvals for new TMA designs proposed as equal to the above approved models shall be in conformance with the procedures (including crash testing) established by the Transportation Laboratory. For information regarding submittal of new designs for evaluation contact: Transportation Laboratory, 5900 Folsom Boulevard, Sacramento, California 95819.

New TMAs proposed as equal to approved TMAs or approved TMAs determined by the Department to need recertification shall not be used until approved or recertified by the Transportation Laboratory.

18.4.6 Portable Changeable Message Signs

18.4.6.1 General

Summary

Work includes furnishing, placing, operating, maintaining, and removing portable changeable message signs.

Comply with Section 12-3.12 "Portable Changeable Message Signs," of Caltrans *Standard Specifications*.

Definitions

Useable shoulder area: Paved or unpaved contiguous surface adjacent to the traveled way with:

1. Sufficient weight bearing capacity to support portable changeable message sign
2. Slope not greater than 6:1 (horizontal:vertical)

Submittals

Upon request, submit a Certificate of Compliance for each portable changeable message sign under Section 6-3.05E, "Certificates of Compliance," of the Standard Specifications.

Quality Control and Assurance

Shall conform to the provisions in Section 12-3.12A(3), "Quality Control and Assurance," of Caltrans *Standard Specifications*.

Only display the message ordered by the Department or specified in these Technical Provisions.

18.4.6.2 Materials

Shall conform to the provisions in Section 12-3.12B, "Materials," of the Department's *Standard Specifications*.

18.4.6.3 Construction

Shall conform to the provisions in Section 12-3.12C, "Construction," of Caltrans *Standard Specifications*.

Start displaying the message on portable changeable message sign 15 minutes before closing the lane.

Place 1 portable changeable message sign in advance of the first warning sign for:

1. Each stationary lane closure
2. Each ramp closure
3. Each connector closure
4. Each shoulder closure

18.4.7 Pavement Markings During Construction

The Design-Builder shall inspect and replace all damaged or missing pavement markings daily.

The Design-Builder shall clean or replace all pavement markings when they become damaged or lose reflectivity.

The Design-Builder shall use equipment that is not detrimental to the roadway surface for removing pavement markings, as Approved by Department.

The Design-Builder shall replace or clean temporary pavement markings whenever the reflectivity of the markings has deteriorated to 80% or less of the value specified for the material when new. Reflectance

values shall be measured in accordance with ASTM D4061. The Design-Builder shall perform the required tests monthly at 1-mile intervals or at specific locations requested by Department.

18.4.8 [NOT USED]

18.4.9 [NOT USED]

18.4.10 MOT Traffic Control Supervisor

The Design-Builder shall provide a MOT Traffic Control Supervisor (TCS) to manage and monitor all MOT operations for the duration of the construction. The TCS will be considered a critical component of the Design-Builder's management team and must have prior experience managing MOT operations on similarly complex projects. The TCS does not need to be a licensed professional engineer; however, the Design-Builder may elect to use his Traffic Engineering Manager in this position.

The TCS or his designate shall be available on a 24-hour per day basis throughout the duration of the Project, must participate in all changes in the MOT setup, and perform daily Project reviews to verify that MOT devices are correctly placed and traffic is safely and efficiently moving through the Project. The TCS or his designate shall be available on the Site within 45 minutes of notification of an emergency situation and be prepared to positively respond to the need to repair the work zone traffic control or to provide alternate traffic arrangements. The TCS shall have enough authority and resources to immediately correct any deficiencies discovered or to demobilize any construction operation that is resulting in excessive delays to traffic or creating an unsafe condition.

18.4.11 Access

At a minimum, the Design-Builder shall provide the following:

- Access for emergency vehicles and buses to all residences and businesses at all times
- Access to properties of existing property owners during construction by the end of each day
- Temporary access where needed to maintain access to properties

18.5 Deliverables

18.5.1 Traffic Management Plan (TMP)

The Traffic Management Plan must be approved prior to issuance of NTP2. The TMP shall be signed and sealed by a Licensed Professional Engineer. The Department will respond to the submittal within fifteen (15) Working Days. Modifications and revisions to the TMP must be submitted to the Department for approval. The Department will respond to those submittals within ten (10) Working Days.

18.5.2 Released For Construction Documents (RFC)

The Design-Builder shall produce plans and specifications in a format that facilitates design review by the Department. Refer to the Caltrans CADD User Manual, Plans Preparation Manual, and the Design Quality Management Plan, for required information on Released for Construction documents. The RFC documents shall include the following items:

- Stage Construction Plans
- Traffic Handling Plans
- Detour Plans
- Specifications and Special Provisions

These RFC documents, and any subsequent revisions, shall be signed and sealed by a California licensed Professional Engineer and submitted to the Department for approval. The Department will respond to the submittals within fifteen (15) working days. The approved RFC documents must be distributed to all stakeholders at least two (2) working days prior to any construction activities relating to these documents.

18.5.3 Reports/Project Documentation

The Design-Builder shall provide the Department with all correspondences and meeting minutes regarding MOT issues.

The Design-Builder shall prepare bound reports and Project documentation in hardcopy and electronic format, organized by design topic, and delivered to the Department prior to Final Acceptance.

18.5.4 As-Built Plans

Upon completion of the Project, the Design-Builder shall deliver to the Department a complete set of As-Built Documents and design files that incorporate all design changes and details of Accepted Work that occurred throughout the Project. The As-Built Plans shall be signed by a licensed California Professional Engineer and be provided in both electronic and hardcopy formats.

EXHIBIT 18-A

Lane Requirement Charts

This exhibit is provided as an electronic file.

19 MAINTENANCE DURING CONSTRUCTION

19.1 General

The Design Builder shall perform all Work necessary to meet the requirements associated with maintenance during construction.

Design, construct and maintain the highway right-of-way in accordance with requirements of this specification, including performance requirements, standards, warranties, design and construction criteria, maintenance during construction, and required submittals.

The Design Builder shall be responsible for the maintenance and upkeep of the entire area within the planned right of way limits, including highway, local roads, bridges, landscaping and appurtenant facilities. The Design Builder shall also be responsible for maintenance and upkeep of facilities within those portions of the Planned Right of Way limits and outside of the Planned Right of Way limits while construction Work is ongoing in the area or while such facilities are being used for maintenance of traffic related to the Project. The goal shall be to maintain the facilities in the condition in which they have been constructed, or as close to such condition as is reasonably possible. Maintenance responsibilities shall include the operation of highway and local road facilities and services to provide satisfactory and safe conditions for highway and local road traffic and emergency responses as necessary to ensure public safety in all areas open to public traffic.

19.2 Administrative Requirements

19.2.1 Standards

The Design Builder shall maintain the project during construction in accordance with the requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Submittal has a higher standard than any of the listed standards, adhere to the submittal standard.

If there is any unresolved ambiguity in standards, obtain clarification from the Department before proceeding with design or construction.

Use the most current version of each listed standard as of the RFP issue date unless otherwise specified herein or modified by Addendum or Change Order.

Maintenance During Construction Standards and Requirements

Priority	Author	Agency Title
1	Department	Maintenance Manual Volumes I and II
2	Department	Construction Manual
3	Department	Standard Special Provisions
4	Department	Standard Plans 2010 (including Revisions)
5	Department	Design-Build Modifications to the Standard Specifications
6	Department	Standard Specifications 2010 (including Revisions)
7	Department	Highway Design Manual (HDM)
8	AASHTO	Roadside Design Guide,
9	AASHTO	Policy on Geometric Design of Highway and Streets
10	Department	Project Development Procedure Manual

11	Department	Technical Memoranda
12	Department	Environmental Document

19.2.2 Maintenance Management Plan

The Design-Builder shall prepare a Maintenance Management Plan that includes the following:

- A list of all proposed routine maintenance activities
- Schedule of proposed routine maintenance activities
- Name of the Design-Builder’s supervisor who will be in charge of maintenance efforts

19.2.3 Meetings

The Design-Builder’s supervisor responsible for maintenance during construction shall attend weekly field meetings.

19.3 [NOT USED]

19.4 Construction Requirements

19.4.1 Design-Builder’s Responsibilities

The Design-Builder shall assume maintenance of the entire Project, except for those activities that will be performed by Department, counties, and cities as specified in Section 19.4.2 below, commencing at 12:01 a.m. on the first Day after Contract execution. This maintenance responsibility shall continue until 11:59 p.m. on the date of Final Acceptance by Department. In general, this maintenance will include the required maintenance and repair of all Work facilities damaged by normal wear, forces of nature, or acts of third parties. The Design-Builder shall be responsible for maintenance of the following:

1. Temporary facilities
2. Existing facilities that are to be later replaced or reconstructed as part of the Contract Work
3. Existing facilities that are to remain
4. Haul routes for Project materials
5. Project detours initiated by the Design-Builder

Maintenance on temporary or existing facilities to be replaced shall be performed to provide a safe, effective, and aesthetically pleasing transportation corridor.

Responsibilities of the Design-Builder include the following:

- Repair of shoulder drop-offs
- Replacement/Repair of existing asphalt shoulders if used for temporary traffic control or hauling
- Replacement/Repair of temporary roadways and crossovers
- Replacement/Repair of traffic attenuators Maintenance of temporary delineators, temporary signing, and temporary pavement marking
- Drainage/erosion control maintenance related to construction activities
- Immediately) repair any facility damaged by the Design-Builders operations, actions, or inactions. The Department shall be notified immediately within 30 minutes should any facility be damaged.
- Maintenance of haul routes
- Maintenance of temporary fencing
- Maintenance of storm sewer system and drainage facilities related to construction activities

19.4.2 Department Responsibilities

Department will be responsible for the following:

- Inspections of existing structures,
- Repairs to existing major structures to remain (bridges and overhead sign structures),
- Maintenance of existing facilities that are to remain and are not part of the Work.

The Design-Builder shall immediately notify the Department if any facility is damaged due the Design-Builders operations, actions, or inactions.

19.5 Deliverables

The Design-Builder shall submit the Maintenance Management Plan to Department for their Acceptance within 60 Days after issuance of NTP1.

The Design-Builder shall prepare and submit to Department a monthly Maintenance Report detailing all maintenance activities performed. The report shall subdivide the reported activities as detailed in Section 19.4.1 above.

20 BICYCLE AND PEDESTRIAN FACILITIES

20.1 General

The current scope of work for this project does not entail any modifications or work to any bicycle and pedestrian facilities within the Project Limits. If the Design-Builder proposes any modifications or additional work which would impact any existing or proposed bicycle or pedestrian facilities, the Department shall at that time furnish additional language to this section (Book 2, Section 20) with which the Design-Builder shall be required to conform.

This additional language shall consist of, but not be limited to: administrative requirements, standards, and references; design requirements; construction requirements; and deliverables.

21 [NOT USED]

22 STORMWATER

22.1 General

The Design-Builder shall conduct all Work necessary to meet the requirements associated with stormwater, including permanent and temporary best management practices, structural pollution control devices, retention/detention facilities (ponds), conveyances, erosion control, protection of downstream water bodies, sampling, erosion control, permit compliance, and overall water quality protection in accordance with all applicable state and federal regulations.

22.2 Administrative Requirements

22.2.1 Standards

Design and construct the stormwater systems in accordance with the relevant requirements of the standards listed by priority below.

If there is any conflict in standards, adhere to the standard with the highest priority. However, if the Design-Builder's Submittal has a higher standard than any of the listed standards, adhere to the Submittal Proposal standard.

If there is any unresolved ambiguity in standards, it is the Design-Builder's responsibility to obtain clarification from Department before proceeding with design and/or construction.

Use the most current version of each listed standard as of the Request for Proposal issue date unless modified by Addendum or Change Order.

Stormwater Standards

Priority	Agency	Title
1.	Department	Highway Design Manual
2.	Department	Standard Special Provisions
3.	Department	Standards Specifications 2010 (including Revisions)
4.	Department	Standard Plans 2010 (including Revisions)
5.	Department	Project Planning and Design Guide (PPDG)
6.	Department	Caltrans Treatment BMP Design Guidance Documents
7.	Department	Stormwater Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
8.	Department	Construction Site Best Management Practices (BMPs) Manual
9.	Department	Construction Site Stormwater Quality Sampling Manual
10.	USDA	Revised Universal Soil Loss Equation, Version 2 (RUSLE II)
11.	Department	Construction Manual

Remaining Standards set forth in Book 3.

22.2.1.1 Permits

1. Department NPDES Permit, Board Order No. 99-06-DWQ
2. Department approved Stormwater Management Plan
3. NPDES General Permit For Storm Water Discharges Associated with Construction 2009-

0009-DWQ (CGP 2009-0009-DWQ effective July 1, 2010)

22.2.2 References

Use the references listed below as supplementary guidelines for the drainage systems analysis and design. These publications have no established order of precedence.

Stormwater Publications References

Agency	Title
AASHTO	Roadside Design Guide
AASHTO	Model Drainage Manual
Department	Ready-To-List and Construction Contract Award Guide (RTL Guide)
Department	Fish Passage Design for Road Crossings
FHWA	Hydraulic Engineering Circulars (as listed in Caltrans Highway Design Manual)
FHWA	Hydraulic Design Series (as listed in Caltrans Highway Design Manual)
CASQA	California Stormwater Quality Association (CASQA) Construction BMP Handbook

Remaining Standards/References set forth in Book 3.

22.2.3 Preliminary Engineering Plans

The Preliminary Engineering Documents show only a preliminary design for the Project. These drawings and the supporting electronic files are included to illustrate the general scope of improvements. Verify all information prior to use.

The Design-Builder shall have the flexibility to make Project changes without impairing the essential functions and characteristics of the Project, such as safety, traffic operations, durability, desired appearance, maintainability, environmental protection, drainage, and other permitted constraints.

This project meets the definition of Routine Maintenance under NPDES General Permit For Storm Water Discharges Associated with Construction 2009-0009-DWQ (CGP 2009-0009-DWQ effective July 1, 2010).

22.2.4 Software

The Design-Builder shall prepare all electronic drawings in MicroStation 8.0 or newer. All supporting electronic data shall be prepared in Civil 3D SP2.1 with conversion to .pdf available. All reports and documents shall be prepared in Microsoft office 2007 or later format (e.g. Microsoft Word (.docx), Microsoft Excel (.xlsx), etc.).

22.2.5 Stormwater Data Collection

The Design-Builder shall follow the PPDG in the preparation of a Short Form Storm Water data Report (SWDR). The SWDR will utilize information from the environmental document, drainage report, geotechnical report or other project information pertinent to the overall stormwater design and as described in the PPDG, and described in Section 12 of Book 2 to determine the stormwater design.

22.2.4 Coordination with Other Agencies and Disciplines

The Design-Builder shall coordinate all water resource issues with local agencies, affected interests, and regulatory agencies. The Design-Builder shall document the resolutions of issues for the correspondence file, including meeting minutes and memoranda for the record.

The Design-Builder shall comply with and document the permit requirements, modifications, and contacts with the permitting agencies. The stormwater design should be based on Department standards, plans, specifications, guidance, and permits. Local standards for stormwater design do not always meet the Department's threshold for feasibility or may not be appropriate for the highway environment due to many competing standards Department must meet including, but not limited to safety, aesthetics, and maintenance.

22.2.4 Training Qualifications and Certification

The Design-Builder shall provide staff with qualifications and certifications related to development of plans, specifications, reports, and construction related stormwater requirements in local, state, federal, and Department provisions. Those qualifications include but are not limited to the following:

- California Registered Civil Engineer in accordance with the California Engineering Act for all engineering calculations
- Registered Civil Engineer Stamp on each SWDR submittal.
- A Qualified SWPPP Developer (QSD) in accordance with Section VII of the CGP 2009-0009-DWQ. Must be certified prior to award of this contract.
- A Qualified SWPPP Practitioner in accordance with Section VII of the CGP 2009-0009-DWQ.

22.3 Design Requirements

The Design-Builder shall develop a SWDR using the existing drainage information and previous Storm Water Data Reports if available as provided. The design should follow the requirements contained in the PPDG, Environmental Document, Permits, and design guidance to develop a final SWDR report, plans and specifications.

This project meets the definition of Routine Maintenance under NPDES General Permit For Storm Water Discharges Associated with Construction 2009-0009-DWQ (CGP 2009-0009-DWQ effective July 1, 2010).

22.3.1 Surface Hydrology

22.3.1.1 Design Frequencies

The design frequencies for the drainage shall meet the requirements of Section 12 of Book 2. Stormwater treatment BMP design should use the frequencies recommended in the Department's BMP design guidance.

22.3.1.2 Hydrologic Methods

The Design-Builder shall perform hydrologic analyses and follow design methodology as prescribed by the *Caltrans Highway Design Manual*.

22.3.2 Permanent Stormwater Treatment System

This project is not required to consider post construction treatment BMPs.

22.3.3 BMP Structures

For all treatment BMP Structures that the Design-Builder chooses to modify, they shall provide a special design and structural analysis for the approval of the Headquarters Office of Storm Water Management - Design and HQ Office of Structure Design. This shall be submitted with a letter requesting the modification and stating the need for change. Additionally, all hydraulic calculations shall be provided for the modified BMP and shall be designed to meet the requirements in the *Caltrans Highway Design Manual* for bypass of flows above the water quality volume or flow or local regulations when applicable.

22.3.3.1 Conveyances

Many stormwater conveyances also function as design pollution prevention BMPs and shall be designed to standards of the *Caltrans Highway Design Manual* and *Project Planning Design Guide*. They should also be documented in the SWDR as they protect water quality, prevent erosion, and provide a water quality benefit. Appendix A of the PPDG describes many of the design pollution prevention BMPs that may be utilized in the project design.

22.3.3.2 Stormwater Mapping

The Design-Builder shall map the drainage area in accordance with Section 12 of Book 2.

22.4 Construction Requirements

The stormwater requirements shall be in accordance with the Caltrans NPDES permit 99-06-DWQ, the Construction General Permit 2009-0009-DWQ, the *Caltrans Construction Site BMP Manual*, *Caltrans Construction Site Storm Water Quality Sampling Manual*, Plans, Specifications, and *Caltrans Construction Manual*. There may be project specific permits with provisions related to the construction of the project that must be met.

This project meets the definition of Routine Maintenance under NPDES General Permit For Storm Water Discharges Associated with Construction 2009-0009-DWQ (CGP 2009-0009-DWQ effective July 1, 2010).

The construction site water pollution control plan shall include BMPs in the plans, specifications, SWDR, and WPCP as instructed in the Department guidance.

Drainage shall be designed and constructed to accommodate construction staging and shall be provided during all stages of construction. The Design-Builder shall provide drainage design details for each stage of construction. The design shall include temporary erosion control for exposed erodible surfaces and other Best Management Practices needed to satisfy the NPDES and other regulatory requirements. The water resources notes in the plans shall include a description of the drainage design for each stage of construction.

22.5 Deliverables

22.5.1 Project Drainage Overview Map

The Design-Builder shall submit a Project Drainage Overview Map to the Department for Acceptance prior to initiating detailed design, and shall submit a copy of the Project Drainage Overview Map in MicroStation format

22.5.2 Released for Construction Documents (RFC)

The Design-Builder shall produce plans and specifications in a format that facilitates design review by Department. The Released for Construction Documents shall include the following items:

- Storm Water Data Report (follow Department's PPDG for equivalent of PS&E level SWDR and must be stamped)
- WPCP in accordance with Department SWPPP/WPCP Preparation Manual
- Temporary and permanent erosion control plans shall be prepared in accordance with Section 14 of Book 2
- Specifications, Special Provisions, and Non-Standard Special Provisions

22.5.2.1 Drainage Plans

As part of the drainage plans, show the locations of all structural stormwater treatment BMPs including bio-filtration strips and swales if deployed.

22.5.2.2 Temporary and Permanent Erosion Control Plans

Temporary BMPs shall be included in the plans and included in the WPCP, using the Caltrans *Standard Plans* and *construction site BMP manual*. If there are non-standard BMPs or non-standard application of temporary BMPs, they shall be identified in the specifications or in the construction details.

All Permanent BMPs shall be shown on the plans. The Design-Builder shall label alignments, stationing, walls, bridges, paths/walks, lakes, rivers, environmentally sensitive areas, R/W and easements, existing drainage structures and pipes, proposed drainage structures and pipes, surface flow arrows, riprap locations, check dams, silt fences, rolled erosion control products, seeding, mulch areas, and other erosion control items. Plans shall also include high and low point station and elevation, ponds, normal water line, high water line, coordinate grid ticks and labels (minimum of three per sheet), land feature changes, erosion control features, and notes.

22.5.2.3 Specifications and Special Provisions

If the Design-Builder requests Department's Approval to use methods or materials that are not Department standards, such request should include comprehensive specifications and provisions associated with the proposed non-standard methods or materials. The Design-Builder shall provide the Department a minimum of 15 Days review period.

The HQ Office of Storm Water Management - Design approves non-standard specifications related to stormwater and has an application form for approval on its internet page. Many of the treatment BMPs in the PPDG require NSSPs, as the designs are new and standard special provisions have not been formally approved yet.

22.5.3 Reports/Project Documentation

The Design-Builder shall provide Department with a Storm Water Data Report signed by a California-licensed Professional Engineer or other licensed individual in accordance with the PPDG, which shall be a record of all drainage computations, both hydrologic and hydraulic, and all support data as appropriate. The SWDR shall include all the pertinent stormwater information required in the PPDG, including the spreadsheets in the correct format for Department to track the permanent treatment BMPs.

22.5.4 As-Built Plans

Upon completion of the Project, the Design-Builder shall deliver to Department a complete set of As-Built Documents and design files that incorporate all design changes and details of Accepted Work that occurred throughout the Project including all permanent stormwater BMPs. The As-Built plans shall be signed by a licensed California Professional Civil Engineer.

23 RAMP METERING

23.1 General

The Design-Builder shall perform all Work necessary to meet the requirements for ramp metering for the Project.

While the Project does not specifically call for Work to be done for ramp metering, the Design-Builder is reminded that at the L Street (L-21) and the I Street (I-26) on ramps of the West End Viaduct there are currently ramp metering systems in place. If Design-Builder intends to perform any Work which will affect the existing ramp metering systems in any way, shape, or form, the Design-Builder will immediately notify the Department of this intent in writing. Department will then have ten (10) Working Days in which to review Design-Builder's proposed Work affecting said systems. If, in the Department's sole opinion, the Work is appropriate and justified, the Department will respond in writing to that effect and supply Design-Builder with appropriate Specifications as well as an updated Book 2, Section 23 dealing specifically with Ramp Metering requirements.

24 [NOT USED]