STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
ESC/OE MS #43
1737 30TH. Street 2ND. Floor
SACRAMENTO, CA 945816

July 16, 1999

11-SD-75-R20.5/R22.0
11-021924

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN DIEGO COUNTY IN
SAN DIEGO AND CORONADO FROM THE CORONADO ABUTMENT TO 1.5 MILES NORTH OF THE CORONADO ABUTMENT.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on July 29, 1999.

This addendum is being issued to revise the Project Plans and the Notice to Contractors and Special Provisions.

Project Plan Sheets 25, 29, 31, 40, 42, 47, 57, 115, 118, 168, 169, 173, 175, 177 and 183 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

In the Special Provisions, the "Notice to Contractors," is revised as attached.

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," is revised as attached.

In the Special Provisions, Section 5-1.17, "PARTNERING," is revised as attached.

In the Special Provisions, Section 10-1.09, "ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY," is revised as attached.

In the Special Provisions, Section 10-1.24, "STEEL PIPE PILING,' the subsection "Jetting And Drilling," is revised as follows:

"**Jetting And Drilling.**--Jetting to obtain the specified penetration in conformance with the provisions in Section 49-1.05, "Driving Equipment," of the Standard Specifications shall not be used for driven type piles.

It is anticipated that drilling through the center of open ended steel shells to obtain the specified penetration may be necessary. The diameter of the drilled hole shall be less than the inside diameter of the piling. Equipment or methods used for drilling holes shall not cause quick soil conditions or cause scouring or caving of the hole."

Materials resulting from drilling holes shall be contained and disposed of as provided in Section 19-2.06, “Surplus Material” of the Standard Specifications.

In the Special Provisions, Section 10-1.25, "PRESTRESSING CONCRETE,' the second paragraph is revised as follows:

"The first paragraph in Section 50-1.01, "Description," of the Standard Specifications is amended to read:

This work shall consist of prestressing precast, cast-in-place, and existing concrete by furnishing, placing, and tensioning of prestressing steel in accordance with the details shown on the plans, and as specified in these specifications and these special provisions."

In the Special Provisions, Section 10-1.25, "PRESTRESSING CONCRETE,' the following paragraph is added after the second paragraph:

"When acceptable prestressing steel for post-tensioning is installed in the ducts after completion of concrete curing, and if stressing and grouting are completed within 5 days after the installation of the prestressing steel, rust which may form during said 5 days will not be cause for rejection of the steel. Prestressing steel installed, tensioned and grouted in this manner, all within 5 days, will not require the use of a corrosion inhibitor in the duct following installation of the prestressing steel. Prestressing steel installed as above but not grouted within 5 days shall be subject to all the requirements in this section pertaining to corrosion protection and rejection because of rust."

In the Special Provisions, Section 10-1.36, "SEISMIC ISOLATION BEARINGS," is revised as attached.

In the Proposal and Contract, the Engineer’s Estimate Items 60 and 67 are revised as attached.

To Proposal and Contract book holders:

- REPLACE THE ENTIRE PAGES 5 and 6 OF THE ENGINEER'S ESTIMATE IN THE PROPOSAL WITH THE ATTACHED REVISED PAGES 5 and 6 OF THE ENGINEER'S ESTIMATE. THE REVISED ENGINEER'S ESTIMATE IS TO BE USED IN THE BID.

- INDICATE RECEIPT OF THIS ADDENDUM BY FILLING IN THE NUMBER OF THIS ADDENDUM IN THE SPACE PROVIDED ON THE SIGNATURE PAGE OF THE PROPOSAL.

- Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

- Inform subcontractors and suppliers as necessary.

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Plans, Specifications &
Estimates Branch
Office of Office Engineer

Attachments

DEPARTMENT OF TRANSPORTATION

NOTICE TO CONTRACTORS

THIS IS AN INFORMAL BIDS CONTRACT

CONTRACT NO. 11-021924

11-SD-75-R20.5/R22.0

Sealed proposals for the work shown on the plans entitled:

STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SAN DIEGO COUNTY IN SAN DIEGO AND CORONADO FROM THE CORONADO ABUTMENT TO 1.5 MILES NORTH OF THE CORONADO ABUTMENT

will be received at the Department of Transportation, 3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692, until 2 o'clock p.m. on July 29, 1999, at which time they will be publicly opened and read in Room C - 1116 at the same address.

Proposal forms for this work are included in a separate book entitled:

STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROPOSAL AND CONTRACT FOR CONSTRUCTION ON STATE HIGHWAY IN SAN DIEGO COUNTY IN SAN DIEGO AND CORONADO FROM THE CORONADO ABUTMENT TO 1.5 MILES NORTH OF THE CORONADO ABUTMENT

General work description: SEISMIC RETROFIT - TOLL BRIDGE (TOWERS & FOUNDATIONS)

Prebid Meeting:

A pre-bid meeting is scheduled for 10:00 a.m., June 30, 1999, at 1770 Glorietta Plaza, Coronado, CA 92118, Telephone No. (619) 688-6635. This meeting is intended to allow all bidders to examine the site of work before bidding to promote full knowledge of all facilities and difficulties affecting the work.

A pre-bid meeting also is scheduled for 1:00 p.m. to 4:00 p.m., July 1, 1999, at 2829 Juan Street, San Diego, CA 92110, Telephone (619) 688-6635.

This meeting is to discuss the following issues:

1. Overview of the project.
2. Environmental Concerns:

   a) Eel grass (Environmental Sensitive Area – (ESA).
   b) Peregrine Falcon nesting areas on the bridge.
   c) Water Quality – Prevention of sedimentation as well as pollution.

3. Installation of isolator bearings: The need for the bridge to be raised while in use involves some very specialized technology.
4. CPM schedule.
5. Coordination with Caltrans Maintenance.
6. Working in the on the water:

   a) Dealing with Coast Guard issues – i.e. Placement of buoys near the main shipping channel.
   b) The large amount of ship and barge activity to deal with during the life of the project (Contractor as well as the sea going public). Including notification to mariners.

c) Relations with the San Diego Port District (i.e., Contacting the Harbormaster).

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7. Partnering.
8. Electronic Mobile Daily Diary System Data Delivery.
9. Dealing with adjacent private property owners and their business.

This project has a goal of 3 percent disabled veteran business enterprise (DVBE) participation.

The time limit specified for the completion of the work contemplated herein is considered insufficient to permit completion of the work by the Contractor working a normal number of hours per day or week on a single shift basis. Should the Contractor fail to maintain the progress of the work in accordance with the “Progress Schedule” required in these special provisions, additional shifts will be required to the extent necessary to ensure that the progress conforms to the abovementioned schedule and that the work will be completed within the time limit specified.

Bids are required for the entire work described herein.

At the time this contract is awarded, the Contractor shall possess either a Class A license or a combination of any of the following Class C licenses which constitutes a majority of the work: C-50, C-51.

The Contractor must also be properly licensed at the time the bid is submitted, except that on a joint venture bid a joint venture license may be obtained by a combination of licenses after bid opening but before award in accordance with Business and Professions Code, Section 7029.1.

This contract is subject to state contract nondiscrimination and compliance requirements pursuant to Government Code, Section 12990.

Preference will be granted to bidders properly certified as a "Small Business" as determined by the Department of General Services, Office of Small Business Certification and Resources at the time of bid opening in accordance with the provisions in Section 2-1.04, "Small Business Preference," of the special provisions, and Section 1896 et seq, Title 2, California Code of Regulations. A form for requesting a "Small Business" preference is included with the bid documents. Applications for status as a "Small Business" must be submitted to the Department of General Services, Office of Small Business Certification and Resources, 1531 "I" Street, Second Floor, Sacramento, CA 95814, Telephone No. (916) 322-5060.

A reciprocal preference will be granted to "California company" bidders in accordance with Section 6107 of the Public Contract Code. (See Sections 2 and 3 of the special provisions.) A form for indicating whether bidders are or are not a "California company" is included in the bid documents and is to be filled in and signed by all bidders.

Project plans, special provisions, and proposal forms for bidding this project can only be obtained at the Department of Transportation, Plans and Bid Documents, Room 0200, Transportation Building, 1120 N Street, MS #26, Sacramento, California 95814, FAX No. (916) 654-7028, Telephone No. (916) 654-4490. Use FAX orders to expedite orders for project plans, special provisions and proposal forms. FAX orders must include credit card charge number, card expiration date and authorizing signature. Project plans, special provisions, and proposal forms may be seen at the above Department of Transportation office and at the offices of the District Directors of Transportation at Irvine, Oakland, and the district in which the work is situated. Standard Specifications and Standard Plans are available through the State of California, Department of Transportation, Publications Unit, 1900 Royal Oaks Drive, Sacramento, CA 95815, Telephone No. (916) 445-3520.

Cross sections for this project are not available.

The successful bidder shall furnish a payment bond and a performance bond.

Pursuant to Section 1773 of the Labor Code, the general prevailing wage rates in the county, or counties, in which the work is to be done have been determined by the Director of the California Department of Industrial Relations. These wages are set forth in the General Prevailing Wage Rates for this project, available at the Labor Compliance Office at the offices of the District Director of Transportation for the district in which the work is situated, and available from the California

Department of Industrial Relations' Internet Web Site at: http://www.dir.ca.gov. Future effective general prevailing wage rates which have been predetermined and are on file with the Department of Industrial Relations are referenced but not printed in the general prevailing wage rates.

DEPARTMENT OF TRANSPORTATION

Deputy Director Transportation Engineering

Dated May 10, 1999

AFL

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"SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

Attention is directed to the provisions in Section 8-1.03, "Beginning of Work," 8-1.06, "Time of Completion," 8-1.07, "Liquidated Damages," and 20-4.08, "Plant Establishment Work," of the Standard Specifications and these special provisions.

The Contractor shall begin work within 5 calendar days after the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation.

The work (except plant establishment work) shall be diligently prosecuted to completion before the expiration of

560 working days

beginning at 12:01 a.m. on the first working day after contract award.

The Contractor shall pay the State of California the sum of $2600 per day, for each and every calendar day's delay in completing the work (except plant establishment work) in excess of the number of working days prescribed above.

The Contractor shall diligently prosecute all work (including plant establishment) to completion before the expiration of

780 WORKING DAYS

beginning at 12:01 a.m. on the first working day after approval of the contract.

The Contractor shall pay to the State of California the sum of $250 per day, for each and every calendar day's delay in completing the work in excess of the number of working days prescribed above.

In no case will liquidated damages of more than $2600 per day be assessed.

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5-1.17 PARTNERING

The State will promote the formation of a "Partnering" relationship with the Contractor in order to effectively complete the contract to the benefit of both parties. The purpose of this relationship will be to maintain cooperative communication and mutually resolve conflicts at the lowest possible management level.

A one-day "Training in Partnering Concepts" forum will be conducted regardless of whether the Contractor requests the formation of a "Partnering" relationship. The forum will be conducted locally for the Contractor and the Engineer’s project representatives. The Contractor shall be represented by a minimum of two representatives, one being the Contractor’s authorized representative pursuant to Section 5-1.06, "Superintendence," of the Standard Specifications. If, upon the Contractor’s request, "Partnering" is approved by the Engineer, "Training in Partnering Concepts" shall be conducted prior to the "Partnering" workshop. Scheduling of "Training in Partnering Concepts," selection of the Engineer’s representatives to participate in "Training of Partnering Concepts," and selection of the partnering concepts trainer and site shall be as determined by the Engineer.

The Contractor may request the formation of a "Partnering" relationship by submitting a request in writing to the Engineer after approval of the contract. If the Contractor's request for "Partnering" is approved by the Engineer, scheduling of a "Partnering" workshop, selecting the "Partnering" facilitator and workshop site, and other administrative details shall be as agreed to by both parties.

The costs involved in providing a trainer and site for the "Training in Partnering Concepts" forum will be borne by the State. The Contractor shall pay all compensation for the wages and expenses of the facilitator and of the expenses for obtaining the workshop site. The State will reimburse the Contractor for these costs as extra work in conformance with the provisions in Section 4-1.03D of the Standard Specifications. Full compensation for the wages and expenses of the Contractor's representatives, including travel costs, shall be considered as included in the contract prices paid for the various items of work and no additional compensation will be allowed therefor.

The costs involved in providing a "Partnering" facilitator and a workshop site will be borne equally by the State and the Contractor. The Contractor shall pay all compensation for the wages and expenses of the facilitator and of the expenses for obtaining the workshop site. The State's share of such costs will be reimbursed to the Contractor in a change order written by the Engineer.

Markups will not be added to the costs of "Training in Partnering Concepts" or the costs of providing a "Partnering" facilitator and workshop site. All other costs associated with the "Partnering" relationship will be borne separately by the party incurring the costs.

The establishment of a "Partnering" relationship will not change or modify the terms and conditions of the contract and will not relieve either party of the legal requirements of the contract."

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10-1.09 ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY

Attention is directed to Sections 5-1.10, "Equipment and Plants," and 7-1.01A(3), "Payroll Records," of the Standard Specifications, and these special provisions.

The Contractor shall submit to the Engineer a list of each piece of equipment and its identifying number, type, make, model and rate code in accordance with the Department of Transportation publication entitled “Labor Surcharge and Equipment Rental Rate” which is in effect on the date the work is performed, and the names, labor rates and work classifications for all field personnel employed by the Contractor and all subcontractors in connection with the public work, together with such additional information as is identified below. This information shall be updated and submitted to the Engineer weekly through the life of the project.

This personnel information will only be used for this mobile daily diary computer system and it will not relieve the Contractor and subcontractors from all the payroll records requirements as required by Section 7-1.01A(3), "Payroll Records," of the Standard Specifications.

The Contractor shall provide the personnel and equipment information not later than 11 days after the contract award for its own personnel and equipment, and not later than 5 days before start of work by any subcontractor for the labor and equipment data of that subcontractor.

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The minimum data to be furnished shall comply with the following specifications:

Data Content Requirements.--

1. The Contractor shall provide the following basic information for itself and for each subcontractor that will be used on the contract:

Company name.	Alphanumeric; up to 30 characters.
Federal tax ID	Alphanumeric; up to 10 characters.
State contractor license	Alphanumeric; up to 20 characters.
Company type (prime or sub)	Alphanumeric; up to 10 characters.
Address (line 1).	Alphanumeric; up to 30 characters.
Address (line 2).	Alphanumeric; up to 30 characters.
Address (city).	Alphanumeric; up to 30 chars.
Address (2-letter state code).	Alphanumeric; up to 2 characters.
Address (zip code)	Alphanumeric; up to 14 characters.
Contact name.	Alphanumeric; up to 30 characters
Telephone number (with area code).	Alphanumeric; up to 20 characters.
Company code: short company name.	Alphanumeric; up to 10 characters.
Type of work (Department-supplied codes)	Alphanumeric; up to 30 characters
DBE status (Department-supplied codes)	Alphanumeric; up to 20 characters.
Ethnicity for DBE status (Department-supplied codes).	Alphanumeric; up to 20 characters.
List of laborers to be used on this contract (detail specified below).	
List of	

equipment to
be used on
this
contract
(detail
specified
below).

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For example, one such set of information for a company might be:

XYZ CONSTRUCTION, INC.
94-2991040
AL1649T
SUB
1240 9TH STREET
SUITE 600
OAKLAND
CA
94612
JOHN SMITH
(510) 834-9999
XYZ
PAVING
MBE
BLACK

2. The Contractor shall provide the following information for each laborer who will be used on the contract:

Company code (as defined above).	Alphanumeric; up to 10 characters.
Employee ID	Alphanumeric; up to 10 characters.
Last name.	Alphanumeric; up to 20 characters.
First name.	Alphanumeric; up to 15 characters.
Middle name.	Alphanumeric; up to 15 characters.
Suffix	Alphanumeric; up to 15 characters
Labor trade (Department-provided codes).	Alphanumeric; up to 10 characters.
Labor classification (Department-provided codes).	Alphanumeric; up to 10 characters.
Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Doubletime hourly rate	Alphanumeric; up to (6,2)
Standby hourly rate.	Alphanumeric; up to (6,2)
Ethnicity (Department-provided codes).	Alphanumeric; up to 20 characters.
Gender.	Alphanumeric; up to 1 characters.

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For example, one such set of information might be:
XYZ
1249
GONZALEZ
HECTOR
VINCENT
JR.
OPR
JNY
22.75
30.25
37.75
0.00
HISPANIC
M

3. The Contractor shall provide the following information for each piece of equipment that will be used on the contract:

Company code (as defined above).	Alphanumeric; up to 10 characters.
Company's equipment ID number.	Alphanumeric; up to 10 characters.
Company's equipment description.	Alphanumeric; up to 60 characters.
Equipment type (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment make (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment model (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment rate code (from Department ratebook).	Alphanumeric; up to 10 characters
Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Standby hourly rate	Alphanumeric; up to (6,2)
Idle hourly rate.	Alphanumeric; up to (6,2)
Rental flag.	Alphanumeric; up to 1 character.

For example, one such set of information might be:
XYZ
B043
CAT TRACTOR D-6C
TRACC
CAT
D-6C
3645
28.08
25.27
14.04

0.00
N

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Data Delivery Requirements.--

1. All data described in "Data Requirements" of this section shall be delivered to the Department electronically, on 3 1/2" floppy disks compatible with the Microsoft Windows operating system. The Contractor shall provide a weekly disk and hard copy of the required correct updated personnel and equipment information for the Contractor and all the subcontractors and verified correct by the Engineer.
2. Data of each type described in the previous section (contractor, labor, and equipment information) will be delivered separately, each type in one or more files on floppy disk. Any given file may contain information from one contractor or from multiple contractors, but only one type of data (contractor, labor, or equipment information).
3. The file format for all files delivered to Caltrans shall be standard comma-delimited, plain text files. This type of file (often called “CSV”) is the most standard type for interchange of formatted data; it can be created and read by all desktop spreadsheet and desktop database applications. Characteristics of this type of file are:

   - All data is in the form of plain ASCII characters.
   - Each row of data (company, person, equipment) is delimited by a carriage return character.
   - Within rows, each column (field) of data is delimited by a <u>comma</u> character.

4. The files shall have the following columns (i.e., each row shall have the following fields):

   - Contractor info: 15 columns (fields) as specified in "Data Requirements #1", above.
   - Labor info: 14 columns (fields) as specified in "Data Requirements #2", above.
   - Equipment info: 12 columns (fields) as specified in "Data Requirements #3", above.

For each type of file, columns (fields) must be in the order specified under "Data Requirements", above. All columns (fields) described under "Data Requirements" must be present for all rows, even if some column (field) values are empty. The first row of each file may contain column headers (in plain text) rather than data, if desired.

5. Column (field) contents must conform to the data type and length requirements described in the "Data Requirement" section, above. In addition, column (field) data must conform to the following restrictions:

   - All data shall be uppercase.
   - Company type shall be either “PRIME” or “SUB”.
   - Labor trade and classification codes must conform to a list of standard codes that will be supplied by Department.
   - Contractor type of work codes and DBE status codes must conform to a list of standard codes that will be supplied by Department.
   - Ethnicity codes must conform to standard codes that will be supplied by Department.
   - Data in the "gender" column must be either "M" or "F".
   - Data in the "rental equipment" column must be either "Y" or "N".
   - Equipment owner's description may not be omitted. (The description, together with the equipment number, is how the

equipment will be identified in the field.) Include manufacturer, rated capacity & trade description

- Equipment type, make, model, and ratebook code shall conform to the Department of Transportation Publication entitled “Labor Surcharge and Equipment Rental Rate”, which is in effect on the date upon the work is performed. If the equipment in question does not have an entry in the book then alternate, descriptive entries may be made in these fields as directed by the Engineer.

6. The name of each file must indicate its contents, e.g., "XYZlab.csv" for laborers from XYZ Company, Inc. Each floppy disk supplied to Caltrans must be accompanied by a printed list of the files it contains with a brief description of the contents of each file.

PAYMENT.-- Payment for providing electronic mobile daily diary computer system data delivery will be made on a lump sum basis. The lump sum bid price for electronic mobile daily diary computer system data delivery will be made according to the following schedule:

The Contractor will receive not more than 3.4000 per cent per month of the total bid price for electronic mobile daily diary computer system data delivery .

After the completion of the work, 100 per cent payment will be made for electronic mobile daily diary computer system data delivery less the permanent deduction, if any, for failure to deliver complete weekly electronic mobile daily diary computer system data in each month.

The contract lump sum price paid for electronic mobile daily diary computer system data delivery shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in electronic mobile daily diary computer system data delivery as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit electronic mobile daily diary computer system data delivery conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per estimate period in which acceptable electronic mobile daily diary computer system data have not been submitted to the Engineer. Retentions for failure to submit acceptable electronic mobile daily diary computer system data shall be additional to all other retentions provided for in the contract. The retention for failure to submit acceptable electronic mobile daily diary computer system data will be released for payment on the next monthly estimate for partial payment following the date that acceptable electronic mobile daily diary computer system data is submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of electronic mobile daily diary computer system data delivery. Adjustments in compensation for electronic mobile daily diary computer system data delivery will not be made for any increased or decreased work ordered by the Engineer in furnishing electronic mobile daily diary computer system data."

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10-1.36 SEISMIC ISOLATION BEARINGS

Seismic isolation bearings shall consist of a lead core/rubber or high damping rubber bearing system, which shall include top and bottom mounting plates, other plates and appurtenances, and anchorage components, and shall be designed, fabricated, prototype tested, proof tested and constructed as shown on the approved working drawings, as shown on the plans and as specified in these special provisions. Anchorage components shall include all bolts and plates required for installation of isolation bearings.

Seismic isolation bearings shall also include masonry and connecting plates, beveled filler plates, and shear pins, as shown on the plans and as provided in these special provisions.

The Contractor shall design, furnish, ship to and from the test facility, and install the number of seismic isolation bearings of each type shown on the plans. All the seismic isolation bearings used in the work shall be of the same bearing system style, from the same manufacturer.

For each type of production seismic isolator bearing listed in the Engineer’s Estimate, the Contractor shall furnish two extra seismic isolator bearings which shall be delivered and stockpiled at a location at or near the site as directed by the Engineer. The extra isolation bearing shall be of the same type, in all respects, as the production seismic isolation bearings. Extra seismic isolator bearings will not be used for construction.

For each type of production seismic isolator bearing listed in the Engineer’s Estimate, the Contractor shall furnish two prototype test seismic isolator bearings which shall be used by the Contractor for prototype testing as provided in these special provisions. Prototype test seismic isolator bearings will not be used for construction.

The seismic isolation bearings shall be compatible with the dimensional clearances and tolerances shown on the plans. Installation of the isolation bearings shall be compatible with the work space shown on the plans. The Contractor shall determine the required steel plate thickness, subject to the dimensional constraints shown on the plans, concrete bearing pedestal height, bearing pedestal reinforcement and non-shrink grout pad thickness at each isolation bearing, and shall verify all dimensions required for installation of the seismic isolation bearings. The connecting plate and bolts shown on the plans shall be considered a minimum requirement. The Contractor shall check the connecting plate and bolts based on the isolator bearing system proposed for use and redesign the connecting plate and bolts, if necessary. In addition to varying plate, pedestal, and non-shrink grout pad shown on the plans, the bearing height (h) may be varied as shown on the plans to accommodate installation. The existing superstructure elevation shall be raised no more than 1/2 inch.

Installation of seismic isolator bearings shall not alter the final bridge profile grade.

The isolation bearings shall comply with all applicable provisions of the American Association of State Highway and Transportation Officials (AASHTO).

A qualified representative of the manufacturer shall be present during installation of the first 2 bearings, and be available for consultation for the rest of the seismic isolation bearings.

Attention is directed to "Order of Work" and “Raise Bridge” elsewhere in these special provisions.

The proposed seismic isolation bearing shall be selected from the following list:

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SEISMIC ISOLATOR BEARING MANUFACTURER NAME ADDRESS AND PHONE NUMBER	
ISOLATOR BEARING CLASSIFICATION	
HIGH DAMPING RUBBER	LEAD CORE / RUBBER
BRIDGESTONE ENGINEERING PRODUCTS COMPANY. 18377 BEACH BLVD, SUITE 216 HUNTINGTON BEACH, CA 92648-1349 Ph: (714) 377-7346 Fax: (714) 377-2485	DYNAMIC ISOLATION SYSTEMS, INC. 3470 MT. DIABLO BLVD, SUITE A200 LAFAYETTE, CA 94549 Ph: (510) 283-1166 Fax: (510) 283-4307 SKELLERUP OILES SEISMIC PROTECTION, L.L.C. 13350 GREGG STREET, SUITE 107 POWAY, CA 92064 Ph: (619) 513-6490 Fax: (619) 513-6495

Lead Core/Rubber System: Elastomeric bearing system with one or more lead cores consisting of alternate layers of rubber and steel plates vulcanized together with preformed hole(s) filled tight with a lead plug.

High-Damping Rubber System: Elastomeric bearing system consisting of alternate layers of high-damping rubber and steel plates vulcanized together.

Use of a seismic isolation bearing system is contingent on approval of working drawing submittal and successful performance of the seismic isolation bearings under testing. Development and approval of working drawings will be at the Contractor's expense.

ALTERNATIVE SEISMIC ISOLATOR BEARING.--At the Contractor's option, an alternative seismic isolation bearing consisting of a lead core/rubber or high-damping rubber system may be furnished and installed provided (1) that the quality of the alternative and its suitability for the intended application are at least equal to the manufacturers listed in these special provisions, (2) that acceptable working drawings and supplemental calculations are furnished as specified herein, (3) that successful performance of the alternative seismic isolation bearings under testing is achieved, and (4) that the alternative conforms to the following requirements:

The determination as to the quality and suitability of a seismic isolation bearing will be made in the same manner as provided in Section 6-1.05, "Trade Names and Alternatives," of the Standard Specifications.

The manufacturer of the seismic isolation bearing shall submit verification that they have met the following qualifications prior to the advertising date on the alternative seismic isolation bearing system submitted for consideration:

1. Successfully completed a seismic isolation bearing testing program approved by the California Department of Transportation for that seismic isolation bearing system. The testing program shall be performed in accordance with "A Test Plan for the Characterization and Qualification of Highway Bridge Seismic Isolator and Damping Devices" dated February 23, 1995.

2. Delivered all five test articles and satisfactorily completed, as determined by the Engineer, Test Article 1, having a minimum design displacement of 6 inches, and Test Article 3, having a minimum design displacement of 9 inches, and Test Article 5, having a minimum design displacement of 12 inches, and have Test Articles 2 and 4 in progress, as defined in "A Test Plan for the Characterization and Qualification of Highway Bridge Seismic Isolator and Damping Devices" for that seismic isolation bearing system, prior to advertisement of this contract.

3. Provide proof that the alternative seismic isolation bearing system has had at least one year of satisfactory in-situ service for three major structures.

A copy of "A Test Plan for the Characterization and Qualification of Highway Bridge Seismic Isolator and Damping Devices" is included in the "Materials Information" available to the Contractor as provided in Section 2-1.03, “Examination of plans, Specifications, Contract, and Site of Work,” of the Standard Specifications.

Use of an alternative seismic isolation bearing system is contingent on an approval of the written request for substitution of an alternative isolation bearing system, approval of Parts 1 and 2 of the working drawings and supplements for each bearing type required on this contract, and the successful completion of the prototype and proof testing of the bearings. The complete written request for substitution shall include the type of seismic isolation bearing system, the name of the seismic isolation bearing manufacturer, verification that the qualifications specified above have been met by the manufacturer for the alternative seismic isolation bearing system, proposed changes to the "Time Limits" under Parts 1 and 2 of the "Working Drawings" below in order to conform to the required working day schedule, and a copy of the manufacturer's list of materials and standards used to manufacture the alternative seismic isolation bearings.

The Contractor shall submit the complete written request for the substitution of an alternative isolator bearing to the Engineer within 4 weeks after the contract approval date. The Contractor shall allow 2 weeks after the complete written request for substitution and all complete data are submitted for the review of the request.

There will be no compensation and no extension of contract time allowed for the approval process to permit use of any proposed alternative.

No alternative shall be installed until the Engineer has determined that no aspect of the design will be compromised by the use of such alternative and has approved, in writing, the working drawing submittal for such alternative.

WORKING DRAWINGS.--The Contractor shall submit complete working drawings for the seismic isolation bearings to the Office of Structure Design, Documents Unit, P.O. Box 942874, MS #9, Sacramento, CA 94274-0001 (1801 30th Street, Sacramento, CA 95816), Phone (916) 227-8230 in accordance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. For initial review, 6 sets of drawings shall be submitted. After review, between 6 and 12 sets, as requested by the Engineer, shall be submitted to said Office for final approval and use during construction.

Working drawings shall be either 11" x 17" or 22" x 34" in size and each drawing and calculation sheet shall include the State assigned designations for the contract number, bridge number, full name of the structure as shown on the contract plans, and District-County-Route-Post mile. The design firm's name, address, and phone number shall be shown on the working drawings. Each sheet shall be numbered in the lower right hand corner and shall contain a blank space in the upper right hand corner for future contract sheet numbers. All drawings, written documentation and supplemental calculations shall be provided in English including units of measure.

The working drawings shall contain all information required for the proper manufacture and installation of the seismic isolation bearings, including details of masonry and connecting plates, beveled filler plates, adapter plates to be used for testing, shear pins, concrete pedestals, grout pad thickness, and any required revisions or additions to new and existing structural steel, concrete, reinforcement or other facilities. The working drawings shall be supplemented with a quality control program and inspection manual. The working drawings shall be supplemented with a fully defined performance hysteresis loop and calculations for the particular bearing type installation for the bearing

design. Each working drawing or calculation sheet shall be signed by an Engineer who is registered as a Civil Engineer in the State of California.

Approval by the Engineer of the seismic isolation bearing working drawings or seismic isolation bearing inspection manual will in no way relieve the Contractor of full responsibility for the seismic isolation bearings.

The working drawings and supplements for each type of isolator bearing shall be submitted in 2 parts. The working drawings and supplements shall be submitted within the following time limits:

ITEMS	TIME LIMIT
PART 1: Working drawings, proposed fully defined hysteresis loop, supplemental calculations for each bearing type, lateral stiffness under non-seismic lateral loads, initial vertical displacement under service loads, long-term vertical displacement under service loads and quality control program.	Within 6 weeks after contract approval.
PART 2: Fabrication and testing of two full-size prototype bearings for each bearing type, based on the approved working drawings. Following successful prototype testing, a certified copy of the results of all prototype tests. Installation and inspection manuals.	Within 12 weeks following approval of the seismic isolation bearing design and working drawings, and sufficiently in advance of the start of the work to allow time for review by the Engineer and correction by the Contractor of the working drawings and supplements without delaying the work.

The Contractor shall allow 6 weeks following the complete submittal of Part 1 for the Engineer's review and approval of the working drawings and supplements. The Contractor shall not start fabrication of prototype test specimens until the Engineer has reviewed and approved the submittal of Part 1. The Contractor

shall allow 3 weeks following the complete submittal of Part 2 for the Engineer's review and approval of the prototype test results. The Contractor shall not start proof testing until the Engineer has reviewed and approved the submittal of Part 2.

Working drawings and supplemental calculations for the seismic isolation bearing system shall contain all information required for the quality control and manufacture and installation of the seismic isolation bearings.

Working drawings shall include, but are not limited to, the following:

1. Information on space requirements for installation equipment.
2. Step-by-step procedure describing all aspects of seismic isolation bearing installation including materials, personnel, testing, and equipment. Installation procedure and materials specified for use in the seismic isolation bearing systems shall conform to the requirements in Section 55-3.19, "Bearings and Anchorages," of the Standard Specifications and these special provisions. When the Standard Specifications are not fully applicable, the section(s) shall be cited and the exceptions noted on the working drawings. If no applicable Standard Specification is available, ASTM or other industry standard specifications shall be referenced.
3. Full details of the seismic isolation bearing system, including material properties and dimensions of all bearing components.
4. Details for attaching the bearing system to the substructure, including masonry plate, anchor bolts, leveling nuts, reinforced concrete pedestal heights and leveling procedure.
5. Details for attaching the bearing system to the superstructure. Including beveled filler plates and connecting plates.
6. Welding procedures and weldability analysis for all welded materials.

7. Non-shrink grout mix designs.
8. Details of adapter plates needed for prototype and proof testing.
9. Information on the initial vertical displacement and long-term vertical displacement under anticipated service loading, and design lateral displacement due to seismic loading.
10. If applicable, a complete list of the components that will be permanently deformed during prototype or proof testing with calculations showing the anticipated stress and displacement in the components at each increment of the maximum seismic design lateral displacement.
11. If applicable, a complete list of energy dissipaters or other components damaged as a result of prototype or proof tests to be replaced prior to final installation.

Supplemental calculations to the working drawings shall include, but not limited to, the following:

1. A proposed fully defined performance hysteresis loop for each bearing type.
2. Analysis using seismic isolation bearing design criteria shown on the plans, for the design of the seismic isolation bearings. The analysis results shall include, but are not limited to, the anticipated energy dissipated per cycle (EDC) for each bearing, fully defined hysteresis loop for each bearing, initial bearing stiffness, bearing yield point, secondary bearing stiffness after yield, break-away and dynamic friction coefficients (if applicable), maximum design lateral displacement, maximum design lateral force transmitted through each bearing, period of vibration, and anticipated maximum and minimum downward seismic bearing loads.
3. Complete calculations related to the design of seismic isolation bearing attachment to the substructure, including steel plate thickness, reinforced concrete pedestals, and non-shrink grout pad. In addition, if modifications to the substructure are required to accommodate the seismic isolation bearing, the calculations shall verify the adequacy of existing or retrofit concrete adjacent to new anchor bolts.
4. Complete calculations related to the design of seismic isolation bearing attachment to the superstructure, including steel plate thickness.

The Quality Control Program for the seismic isolation bearings shall be submitted as Part 1 of the "Working Drawings” and shall include description, details and procedures for the following:

1. Certificates of Compliance in accordance with Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for all materials used in the seismic isolation bearings.
2. Schedule identifying the dates for submittal of working drawings and supplements (Part 1 and Part 2), delivery of prototype test bearings, prototype testing, delivery of production bearings for proof testing, delivery of production bearings to the Contractor's on-site storage facility, and installation of each bearing.
3. Methods and equipment for handling, storage, and delivery of each bearing.
4. Installation instructions and precautions, including methods for protection of bearings from heat and debris during installation, or other conditions that may affect the bearing performance.
5. Tolerances on bearing component dimensions, alignment, and allowable working stresses.
6. Tolerances on material properties including, but not limited to, break-away friction and dynamic friction coefficients (if applicable), yield point, modulus of elasticity and other properties related to bearing performance.

An inspection manual including the recommended frequency of inspection and a complete step-by-step inspection procedure shall be included in the working drawings. The inspection manual shall include a separate section detailing recommended post-earthquake inspection.

The seismic isolation bearing system shall be designed by the Contractor to satisfy the seismic isolation bearing performance criteria for the loading conditions, maximum allowable lateral forces, displacements and rotations, stiffnesses, shear strain, overlap area and minimum energy dissipated per cycle (EDC_{min}) shown on the plans. The seismic isolation bearing design shall be confirmed by the certified prototype test results for the bearings. In addition, if the plans or these special provisions indicate limiting parameters for a bearing system, the bearing shall conform to those parameters.

Each shipment of production seismic isolation bearings shall be accompanied by a Certificate of Compliance as provided in Section 6-1.07. "Certificates of Compliance," of the Standard Specifications. The certificate shall include a statement that the isolation bearings conform to the prequalified design and material requirements and were manufactured in accordance with the approved quality control program. The certificate shall include a copy of the results of all the proof tests performed on the isolation bearing and its materials.

Within 3 weeks after final working drawing approval of the Part 1 submittal, one set of good quality corrected prints on 60 pound (minimum) bond paper (22" x 34" in size) of all working drawings prepared by the Contractor for the seismic isolator bearing systems shall be furnished to the Office of Structure Design, Documents Unit.

The Contractor shall notify the Engineer, in writing, at least 14 days prior to start of seismic isolation bearing fabrication.

No seismic isolation bearing shall be installed until the Engineer has reviewed and approved, in writing, the working drawings, the prototype testing and the proof testing for the seismic isolation bearing system to be used.

Should the Engineer fail to review the complete working drawing submittal within the time specified and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the working drawing submittal, the delay will be considered a right of way delay as specified in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

MATERIALS AND FABRICATION.--

General: Metal parts shall conform to the provisions in "Miscellaneous Metal (Bridge)," elsewhere in these special provisions, except that galvanizing will not be required for top and bottom mounting plates, masonry plates, connecting plates and beveled filler plates. At the Contractor's option, steel may conform to the requirements of ASTM Designation: A 570 for steel laminates and ASTM Designation: A 572 for steel mounting plates, masonry plates, beveled filler plates, and connecting plates.

The flatness of the contact surfaces of the various plates shall be controlled such that upon completion of the assembly, all plate interfaces shall have full bearing.

Shear pins shall conform to the requirements of ASTM Designation: A 668, Class F. Shear pins shall not be galvanized. Fabrication of shear pins and the holes for said pins shall conform to the requirements in Section 55-3.15, "Pin Connections," of the Standard Specifications.

High strength mounting bolts shall conform to the requirements of ASTM Designation: A 325, and shall be mechanically galvanized.

Threaded bar anchor bolts shall conform to the provisions in "Miscellaneous Metal (Bridge)" elsewhere in these special provisions.

An approved thread locking system, consisting of a cleaner, primer and anaerobic adhesive, shall be applied where shown on the plans. Thread locking system shall be in accordance with the provisions in "Miscellaneous Metal (Bridge)," elsewhere in these special provisions.

Exposed plates shall be cleaned and painted prior to erection with waterborne inorganic zinc primer in accordance with the provisions in "Clean and Paint Structural Steel," elsewhere in these special provisions. Finish coats are not required. Aerosol cans shall not be used.

Lead Core/Rubber Systems: The minimum length, width or diameter of the part of the seismic isolation bearings that consists of alternate layers of rubber and steel plates vulcanized together shall conform with the dimensional constraints shown on the plans.

The elastomeric portion of the bearings shall conform to the following requirements:

The alternate layers of rubber and steel plates vulcanized together shall conform to the provisions for steel-laminated elastomeric bearings in ASTM Designation: D 4014, Grade 3, and the following:

ELASTOMER PROPERTIES		
TEST	ASTM TEST	REQUIRE-MENT
Tensile strength, psi, minimum	D 412	1250
Compression set, 22 hrs. at 158° F., percent, maximum	D 395 (Method B)	50
Tear strength, pounds per inch, minimum	D 624 (Die C)	180
Elongation at break, percent, minimum	D1149	500
Ozone resistance 20% strain, 100 hrs. at 104°±3.6°F (cover material)	D1149	No Crack

The elastomer in the elastomeric bearing shall be natural rubber, type NR.

The nominal thickness for steel laminates shall be a minimum of 0.12-inch. Galvanizing of steel laminates will not be permitted.

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The steel laminates shall be covered at the sides of the bearing with a minimum thickness of 0.5-inch of the same elastomer as specified for the elastomeric bearing. At the Contractor's option, ethylene propylene rubber (EPDM), with a minimum thickness of 5/16 inch and ozone resistance equal to that specified for the elastomer in the bearing, may be used as an elastomer cover.

Stacking of individually laminated pads or cold bonding of individual laminated pads will not be permitted.

The lead core shall consist of a minimum of 99 percent pure lead.

The ratio of bearing diameter (or its equivalent) to lead plug diameter should be equal to or greater than 3.

High-Damping Rubber Systems: High-damping rubber systems shall conform to the provisions for Lead Core/Rubber Systems, except that provisions for lead core shall not apply.

PROTOTYPE AND PROOF TESTING.--All seismic isolation bearings shall be prototype and proof tested in accordance with these special provisions. All testing shall be performed at the “Seismic Response Modification Device Test System (SRMD)” on the University of California, San Diego (UCSD) campus, telephone (619) 534-4640. Prototype and proof test specimens of seismic isolation bearing systems shall be conditioned for 12 hours at 65°±15° F. prior to testing, and the ambient temperature shall be maintained at 65°±15° F. during testing.

The Contractor shall notify the SRMD facility and the Engineer, in writhing, at least 21 days prior to shipment of seismic isolation bearings for prototype or proof testing. The Contractor shall coordinate with the SRMD facility for the design and manufacturing of the adapter plates to be used to attach the bearings to the test apparatus. After testing, all adapter plates will become the property of the State.

Prototype and proof tested seismic isolation bearings shall be permanently marked on 2 of 4 sides. The markings shall consist of production lot number, date of fabrication, design dead load and self weight of device, design displacement and contract number.

If applicable, components in any bearing system which are permanently deformed during prototype or proof testing shall be replaced with identical components prior to final installation, as approved by the Engineer.

The Contractor shall allow 4 weeks for the SRMD facility to perform the prototype testing and shall allow 2 working days per seismic isolation bearing for each proof test. The Contractor shall coordinate the testing with the SRMD facility specifying the quantity of seismic isolation bearings needed at pre-set times to meet the construction schedules.

Prototype Testing: A complete series of prototype tests shall be performed in the presence of the Engineer, unless otherwise directed, on at least two full-sized specimen for each bearing type designated in the Engineer's Estimate, for the performance criteria shown on the plans and as defined in the approved working drawings and supplements. A total of at least 2 full-sized prototype specimens shall be constructed for each bearing type designated in the Engineer's Estimate. Prototype tests shall be performed on individual specimens as selected by the Engineer. Any prototype test bearings that fail any of the required tests shall be rejected. For each cycle of tests, the load, displacement, rotation, and hysteretic behavior of the prototype specimen shall be continuously recorded.

For all seismic isolation bearings, a complete series of prototype tests shall be performed in each of 2 directions, which are at 0° and 90° for circular bearings or 0° and 45° for square bearings relative to the primary axis of the device.

The following prototype tests shall be performed in the sequence shown for the prescribed number of cycles, at 1.0 times the vertical dead load shown on the plans, unless otherwise specified:

Prototype Test 1. Three fully reversed cycles of load at lateral displacement corresponding to the maximum thermal lateral displacement (□o) shown on the plans.

Prototype Test 2. Twenty fully reversed cycles between the limits of plus and minus the non-seismic lateral force shown on the plans, at a duration of 40 seconds. After the cyclic testing, the maximum load shall be held for one minute.

Prototype Test 3. Three fully reversed cycles of loading at each of the following multiples of the maximum seismic lateral displacement (□m) shown on the plans: 1.0, 0.25, 0.50, 0.75, 1.0 and 1.2, in this sequence.

Prototype Test 4. Fifteen fully reversed cycles of loading at 1.0 times the maximum seismic lateral displacement (□m) shown on the plans.

Prototype Test 5. Five fully reversed cycles between the limits of plus and minus the non-seismic lateral force shown on the plans, at a duration of 10 seconds. After the cyclic testing, the maximum load shall be held for one minute.

Prototype Test 6. Three fully reversed cycles of loading at the maximum seismic lateral displacement (□m) shown on the plans, at 0.5 times the vertical dead load shown on the plans.

Prototype Test 7. One fully reversed cycle of loading at 1.3 times the maximum seismic lateral displacement (□m) shown on the plans, at 1.0 times the maximum vertical load combination shown on the plans.

A complete series of prototype tests shall satisfy the following conditions:

The load-displacement plots of all prototype tests shall have a positive incremental lateral stiffness (lateral load divided by displacement).

At each displacement increment specified in Prototype Test 3, there shall be less than ±15 percent change from the average value of effective stiffness (Keff) of the given test specimen. The energy dissipated per cycle (EDC), for each cycle, in Prototype Test 3 at 1.0 times the maximum seismic lateral displacement (m) shown on the plans, shall be a minimum of 85 percent of the value of EDCmin shown on the plans.

The energy dissipated per cycle (EDC), for each cycle, in Prototype Test 4 shall be a minimum of 85 percent of the value of EDC min shown on the plans.

Specimens for all prototype tests shall remain stable and without splits or fractures at all loading conditions.

The seismic isolation bearing shall meet the performance criteria shown on the plans.

The prototype tests, with the exception of Test 1, shall be performed at a period of 2 seconds, unless otherwise approved by the Engineer.

If a seismic isolation bearing that is prototype tested fails to meet any of the acceptance criteria for testing as determined by the Engineer, said bearing will be rejected. If rejected, the Contractor shall modify the bearing design or manufacturing procedures and submit revised working drawings which include the modifications, and shall repeat the prototype tests on another seismic isolation bearing from the same system. The Contractor may abandon the seismic isolation bearing system and test another prototype from another seismic isolation bearing system. If another seismic isolation bearing system is selected, it shall meet the requirements described in “Alternative Seismic Isolator Bearing” of these special provisions. Seismic isolation bearing prototype testing operations shall not begin until the Engineer has approved the revised working drawings in writing. No extension of time or compensation will be made for modifying working drawings or supplemental calculations, for resubmittal and review of working drawings and supplemental calculations, for any costs relating to rejection of a proposed seismic isolation bearing system, including furnishing and installing isolation bearings, designing and testing additional seismic isolation bearing systems, for replacement of any isolator bearings on hand or for any required modifications to connecting or anchorage details.

Following successful testing, prototype bearings shall be delivered and stockpiled at or near the site as directed by the Engineer. Rejected prototype bearings shall become the property of the Contractor.

Proof Testing: Prior to installation of any seismic isolation bearing, the seismic isolation bearing systems shall be proof tested at the SRMD facility and evaluated in the presence of the Engineer, unless otherwise directed.

Each production bearing shall be designed the same as the approved prototype bearing and for the seismic isolation bearing performance criteria shown on the plans.

All seismic isolation bearings shall be proof tested as follows:

Proof compression test: A one hour sustained proof load test on each production bearing shall be required. The compressive load for the test shall be 1.5 times the sum of the dead load plus live load (DL+LL) shown on the plans.

If bulging suggests poor laminate bond or the bearing demonstrates other signs of distress, the bearing will be rejected. Variations in the location of steel plates in excess of 1/8-inch shall be cause for rejection.

Proof combined compression and shear test: Three fully reversed cycles of loading at 1.0 times the maximum seismic lateral displacement (m) shown on the plans for each seismic isolation bearing. The compressive load for the test shall be 1.0 times the vertical dead load shown on the plans. The average effective stiffness (Keff) and average EDC for an individual bearing shall be within the tolerances shown on the plans for each seismic isolation bearing.

Proof test seismic isolation bearings shall remain stable and without splits, fractures or other unspecified distress at all loading conditions.

The seismic isolation bearing system shall satisfy all aspects of the prototype and proof tests.

Test Submittals.--After the completion of a prototype or proof test within 7 days, the Contractor shall submit to the Engineer eight copies of the complete test results for the seismic isolation bearings tested. Data for each test shall list location of test, key personnel, test loading equipment, type of seismic isolation bearing, complete record of load, displacement, rotation, hysteretic behavior and period of load application for each cycle of test.

INSTALLATION.--The seismic isolation bearings shall be installed as shown on the plans. Attention is Directed to “Raise Bridge,” of these special provisions.

Drilling and bonding threaded bar anchor bolts shall conform to the provisions in "Drill and Bond Dowel," elsewhere in these special provisions.

Grout to be placed below masonry plates shall be non-shrink grout in accordance with the provisions in "Non-Shrink Grout," of these special provisions. Grout shall be placed by pressure injection through a port or ports in the masonry plate. Pressure injection shall continue until all voids are completely filled as evidenced by grout being forced out between the concrete and the bottom of the masonry plate. The exterior surface of the grout shall be shaped in accordance with the details shown on the plans.

Removing portions of existing pier cap concrete to facilitate seismic isolation bearing installation shall conform to the provisions in “Bridge Removal,” elsewhere in these special provisions.

The sequence of installation of seismic isolation components shall result in zero rotation between the upper and lower mounting plates due to dead loads.

MEASUREMENT AND PAYMENT.--

Seismic isolation bearings will be measured and paid for by the unit as seismic isolation bearings of the types listed in the Engineer's Estimate. The quantity of seismic isolation bearings will be determined from actual count of the bearings in place in the completed work.

The quantities for alternative seismic isolation bearings will be computed on the basis of the dimensions and details for the types of seismic isolation bearings listed in the Engineer’s Estimate and payment will be made based on the quantities shown in the Engineer’s Estimate for said seismic isolation bearings. No change in the quantities to be paid for will be made because of the use by the Contractor of alternative seismic isolation bearings.

The contract unit price paid for seismic isolation bearings of the types listed in the Engineer's Estimate shall include full compensation for furnishing all labor, materials (including sample bearings used for prototype testing and extra bearings), tools, equipment and incidentals, and for doing all the work involved in designing, and redesigning, if necessary, fabricating, furnishing, shipment to and from the test facility, coordinating with the SRMD facility, test apparatus adapter plate manufacturer and shipment, replacing rejected or damaged components, and installing the seismic isolation bearings with top and bottom mounting plates, masonry plates, connecting plates, beveled filler plates, and anchorage components, complete in place, including the inspection manual, raising the bridge, removing portions of existing pier cap concrete to facilitate seismic isolation bearing installation, checking and redesigning the connecting plate and bolts, if necessary, drilling and tapping for mounting bolts, and non-shrink grouting, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

No payment will be made for seismic isolation bearings or alternative seismic isolation bearings which fail to meet any of the acceptance criteria.

No change in the quantities, including but not limited to concrete, reinforcement and structural steel to be paid for will be made because of the use by the Contractor of alternative seismic isolation bearings.

Full compensation for revisions to the structure or other facilities, made necessary by the use of a particular seismic isolation bearing system shall be considered as included in the contract unit price paid for seismic isolation bearings of the types listed in the Engineer's Estimate and no additional compensation will be allowed therefor.

Full compensation for additional concrete, reinforcement, structural steel and any other costs incurred from seat enlargement resulting from replacing or rejected alternative seismic isolation bearings shall be considered as included in the contract unit price paid for seismic isolation bearings of the types listed in the Engineer's Estimate and no additional compensation will be allowed therefor.

Full compensation for cleaning and painting of the bearing, including top and bottom mounting plates, masonry plates, connecting plates, and beveled filler plates, as specified in these special provisions, shall be considered as included in the contract unit price paid for seismic isolation bearing of the

types listed in the Engineer's Estimate and no separate payment will be made therefore.

Threaded bar anchor bolts will be measured and paid for as structural steel (bridge).

Drilling and bonding threaded bar anchor bolts will be measured and paid for as drill and bond dowel.

If a portion or all of seismic isolation bearings are fabricated at a site more than 300 air line miles from both Sacramento and Los Angeles, additional shop inspection expenses will be sustained by the State. Payment to the Contractor for seismic isolation bearings will be reduced $5,000 for each fabrication site located more than 300 air lines miles from both Sacramento and Los Angeles, or in the case of each fabrication site located more than 1000 air line miles from both Sacramento and Los Angeles, payment will be reduced $8,000.

If retesting of the isolators are required, the contract price for seismic isolation bearing will be reduced a total of $5,400 for each proof prototype isolator retest and $1,800 for each isolator retest for use of the SRMD testing facility. Full compensation for retesting shall be considered as included in the contract price paid per unit for seismic isolation bearing of the types listed in the Engineer’s Estimate and no additional compensation will be allowed therefor."

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ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41 (S)	047673	CORE CONCRETE (5 3/4")	LF	23		
42 (S)	515065	CORE CONCRETE (6")	LF	432		
43 (S)	047674	CORE AND PRESSURE GROUT DOWEL	LF	5,300		
44 (S)	047675	SEISMIC ISOLATION BEARING	EA	52		
45 (S)	047676	EXPANSION HINGE BUMPER	EA	1,296		
46 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	LB	1,591,000		
47 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	LB	1,425,000		
48 (S-F)	550203	FURNISH STRUCTURAL STEEL (BRIDGE)	LB	1,266,000		
49 (S-F)	550204	ERECT STRUCTURAL STEEL (BRIDGE)	LB	1,266,000		
50 (F)	047677	FURNISH STRUCTURAL STEEL (SCAFFOLDS)	LB	285,000		
51 (S-F)	047678	ERECT STRUCTURAL STEEL (SCAFFOLDS)	LB	285,000		
52 (S-F)	047679	CENTER SCAFFOLD SUPPORT RAIL	LB	104,000		
53 (S-F)	047680	CENTER SCAFFOLDS	LB	304,000		
54 (S-F)	047681	SIDE SCAFFOLDS	LB	49,000		
55 (S)	047682	REFURBISH APPROACH SPAN CENTER SCAFFOLDS	LS	LUMP SUM	LUMP SUM	
56 (S)	047683	REFURBISH MAIN SPAN CENTER SCAFFOLDS	LS	LUMP SUM	LUMP SUM	
57 (S)	047684	REFURBISH MAIN SPAN SIDE SCAFFOLDS	LS	LUMP SUM	LUMP SUM	
58 (S)	047685	VISCOUS DAMPING DEVICE	EA	20		
59 (S)	047686	RRP AND CP LUMBER	MFBM	165		
60 (F)	047687	MARINE PLYWOOD	SQFT	14,000		

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ENGINEER'S ESTIMATE
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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61 (S)	590115	CLEAN AND PAINT STRUCTURAL STEEL	LS	LUMP SUM	LUMP SUM	
62 (S)	047688	CLEAN AND PAINT STRUCTURAL STEEL (SCAFFOLD)	LS	LUMP SUM	LUMP SUM	
63 (S)	590135	SPOT BLAST CLEAN AND PAINT UNDERCOAT	SQFT	14,000		
64 (S)	047689	SPOT BLAST CLEAN AND PAINT UNDERCOAT (SCAFFOLD)	SQFT	15,470		
65 (S)	590301	WORK AREA MONITORING	LS	LUMP SUM	LUMP SUM	
66 (S-F)	750498	MISCELLANEOUS METAL (RESTRAINER - CABLE TYPE)	LB	29,600		
67 (S-F)	750499	MISCELLANEOUS METAL (RESTRAINER - ROD TYPE)	LB	15,800		
68 (S)	015753	RESET CCTV CAMERA	LS	LUMP SUM	LUMP SUM	
69 (S)	047690	INSTALL SEISMIC MONITORING CASING	LF	1,035		
70 (S)	047691	MECHANICAL WORK (SCAFFOLD)	LS	LUMP SUM	LUMP SUM	
71 (S)	991065	MECHANICAL WORK	LS	LUMP SUM	LUMP SUM	
72 (S)	047692	SEISMIC MONITORING ELECTRICAL SYSTEM	LS	LUMP SUM	LUMP SUM	
73 (S)	047693	MODIFY ELECTRICAL AND NAVIGATION LIGHTING SYSTEMS	LS	LUMP SUM	LUMP SUM	
74	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____

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