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Flex your power!
Be energy efficient!

May 6, 2007

04-Ala-580,880-46.5/46.9, 35.2/35.4
 04-4A4104
 ACSTP-43Z1(001)

Addendum No. 3

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in ALAMEDA COUNTY IN OAKLAND AT THE ROUTE 580/880 SEPARATION.

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 May 7, 2007.

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

Project Plan Sheet 13, in the "QUANTITIES" table, the following items are added:

"CLEAN BRIDGE DECK	6320	SQFT
TREAT BRIDGE DECK	6320	SQFT
FURNISH BRIDGE DECK TREATMENT MATERIAL	70	GAL
BARRIER RAILING	320	LF"

Project Plan Sheet 13, in the "QUANTITIES" table, the quantity for "COLUMN CASING," is revised from "4325 LF" to "5320 LF".

Project Plan Sheet 13, in the "QUANTITIES" table, the following item description of "CLEAN AND PAINT STRUCTURAL STEEL (EXISTING STEEL GIRDERS AND STEEL BENT CAPS) is revised to read "PAINT STRUCTURAL STEEL (EXISTING STEEL GIRDERS AND STEEL BENT CAPS)".

Project Plan Sheet 13, in the "QUANTITIES" table, the item "CONCRETE BARRIER 320 LF" is deleted.

Project Plan Sheet 13, "TYPICAL SECTION @ MB-19" view replace "Concrete Barrier with Tubular steel rail" with "Barrier Railing with State-furnished metal rail and posts."

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Project Plan Sheet 13, the following note is added:

NOTE:

Clean and treat entire bridge deck surfaces with high molecular weight methacrylate between bents noted below:

- Bents MB 17 and MB 18, and
- Bents MB 20 and MB 21."

Project Plan Sheet 15, "BENT MB18 AND BENT MB20 ELEVATION" view, the right hand note revised in Addendum No. 2 is revised as follows:

"At MB20 only, remove portion of column casing and install new 3/8" plate column casing see Detail "C" on "Bent MB-19 Bearing Details" sheet. Remove 4" minimum and all unsound grout and replace with new grout."

Project Plan Sheet 20, "BARRIER DETAIL" view, "Concrete Barrier Type 2" is revised to read "Barrier Railing Type 2".

In the Special Provisions, Section 5-1.12, "FORCE ACCOUNT PAYMENT," is deleted.

In the Special Provisions, Section 8-1.02, "STATE-FURNISHED MATERIALS," is revised as attached.

In the Special Provisions, Section 9, "DESCRIPTION OF BRIDGE WORK," is revised as attached.

In the Special Provisions, Section 10-1.09, "HEALTH, SAFETY AND WORK PLAN," the fifth paragraph is revised as follows:

"Prior to beginning any work at the site, the HSWP must be accepted by the Engineer. Three copies of the draft HSWP shall be submitted to the Engineer for review and acceptance. The Contractor shall allow 24 hours for the Department to review the HSWP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the HSWP within 24 hours. The Contractor shall allow 24 hours for the Department to review subsequent drafts of the HSWP."

In the Special Provisions, Section 10-1.10, "HAZARDOUS MATERIAL MANAGEMENT PLAN," the fourth paragraph is revised as follows:

"Prior to beginning any work at the site, the HMMP must be approved by the Engineer. Three copies of the draft HMMP shall be submitted to the Engineer for review and approval. The Contractor shall allow 24 hours for the Department to review the HMMP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the HMMP within 24 hours. The Contractor shall allow 24 hours for the Department to review subsequent drafts of the HMMP."

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In the Special Provisions, Section 10-1.12, "AIR QUALITY PROGRAM," in subsection "AIR MONITORING PLAN," the second paragraph is revised as follows:

"Prior to beginning any work at the site, the AMP must be approved by the Engineer. Three copies of the draft AMP shall be submitted to the Engineer for review and approval. The Contractor shall allow 24 hours for the Department to review the AMP. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the AMP within 24 hours. The Contractor shall allow 24 hours for the Department to review subsequent drafts of the AMP."

In the Special Provisions, Section 10-1.14, "PROGRESS SCHEDULE (CRITICAL PATH METHOD)," is revised as attached.

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the sixth paragraph is deleted.

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the eighth paragraph is revised as follows:

"C43 (CA) (FRESH CONCRETE) sign shall be used at the beginning of the pavement slab replacement work area. The sign shall be in place during the entire curing period. The sign shall be placed where designated by the Engineer."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the eleventh paragraph is revised as follows:

"The SC6-3(CA) or SC6-4(CA) signs shall be installed at least 1 day before closing the connector or ramp, but not more than 14 days before the connector or ramp closure. The Contractor shall notify the Engineer at least 1 business day before installing the SC6-3 (CA) or SC6-4(CA) signs. The SC6-3(CA) or SC6-4(CA) signs shall be stationary mounted and shall be placed within the gore area, at the split between westbound Route 80 and southbound Route 880, or as directed by the Engineer. The SC6-3(CA) or SC6-4(CA) signs shall be supplemented with a Route 880 shield to positively identify the ramp to be closed."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," subsection chart "LANE CLOSURE RESTRICTION FOR DESIGNATED LEGAL HOLIDAYS AND SPECIAL DAYS," the closure restrictions specified for designated legal holidays that fall on a Monday shall not apply.

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," subsection "Lane Closure Charts No. 5 and No. 6," the closure start time for the last Monday in May is revised to 23 hr.

In the Special Provisions, Section 10-1.29, "CONCRETE STRUCTURES," subsection "GENERAL," the following paragraph is added after the third paragraph:

"Attention is directed to "Clean Bridge Deck," and "Bridge Deck Methacrylate Resin Treatment," of these special provisions to clean and treat bridge deck surfaces located at the adjoining spans."

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In the Special Provisions, Section 10-1.26, "EXISTING HIGHWAY FACILITIES," the subsection "CLEAN BRIDGE DECK," is added after "BRIDGE REMOVAL (PORTION)" as follows:

"CLEAN BRIDGE DECK

This work shall consist of cleaning the portland cement concrete bridge deck surface as shown on the plans and as specified in these special provisions.

The deck surface shall be cleaned by abrasive blasting and shall be dry when blast cleaning is performed.

Traffic stripes, pavement markings, and pavement markers shall be removed as specified in these special provisions during the process of cleaning the deck.

After abrasive cleaning, loose material shall be blown from visible cracks using high pressure air, and the entire deck surface shall be cleaned by manual or power sweeping.

Equipment shall be fitted with suitable traps, filters, drip pans, or other devices as necessary to prevent oil or other deleterious material from being deposited on the deck.

If the surface becomes contaminated at any time prior to placing the penetrating sealer, the affected surface shall be cleaned by abrasive blasting followed by manual or power sweeping.

Except as otherwise provided, removed materials shall become the property of the Contractor and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

Cleaning bridge deck surface will be measured by the square foot of surface that is cleaned, based on field measurement of the completed work.

The contract price paid per square foot for clean bridge deck shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in cleaning the bridge deck, including removing contrast treatment except slurry or chip seal contrast treatment, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer."

In the Special Provisions, Section 10-1.325, "BRIDGE DECK METHACRYLATE RESIN TREATMENT," is added as attached.

In the Special Provisions, Section 10-1.38, "CLEAN AND PAINT EXISTING STRUCTURAL STEEL," subsection "PAYMENT," the last two paragraphs are revised as follows:

"Finish coat painting of exposed surfaces of existing structural steel will be measured by the square foot of painted structural steel and will be paid for as paint structural steel (existing steel girders and steel bent caps).

The contract price paid per square foot for paint structural steel (existing steel girders and steel bent caps) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in finish coat painting the exposed surfaces of existing structural steel, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

In the Special Provisions, Section 10-1.40, "BARRIER RAILING," is revised as attached.

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In the Proposal and Contract, the Engineer's Estimate Items 23 and 28 are revised, Items 38, 39, 40, 41, and 42 are added and Items 32 and 37 are deleted as attached.

To Proposal and Contract book holders:

Replace page 4 of the Engineer's Estimate in the Proposal with the attached revised pages 4 and 4A of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

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 confirmed facsimile to Proposal and Contract book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/04/04-4A4104/

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

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Division of Engineering Services - Office Engineer

Attachments

8-1.02 STATE-FURNISHED MATERIALS

Attention is directed to Section 6-1.02, "State-Furnished Materials," of the Standard Specifications and these special provisions.

Attention is directed to "Barrier Railing," of these special provisions and to the details shown on the plans.

The following metal railing and posts for the barrier railing will be furnished to the Contractor at the East Bay Bridge Maintenance Yard, 600 Lewelling Boulevard, San Leandro, CA 94579. The Contractor shall provide a forklift, transport vehicle and personnel to handle, load, transport, and unload State-furnished materials from the bridge maintenance yard to the jobsite.

The Contractor shall notify the Engineer and the yard at (510) 614-7992 not less than 24 hours before State-furnished metal railing and post material at the above location is to be picked up by the Contractor. A full description of the material and the time the material will be picked up shall be provided.

SECTION 9. DESCRIPTION OF BRIDGE WORK

The bridge work to be done consists, in general, of furnishing and replacing, in kind with modifications, the bridge superstructure while maintaining the original deck profile grade and cross slope, damaged when a tanker carrying gasoline exploded, including furnishing and placing column casing, structural steel bent caps and composite steel girders (6 per span), reinforced concrete deck (increase thickness by 1" thick), barrier railing, joint seals, and deck drains, and cleaning and treating adjacent span deck surfaces with high molecular weight methacrylate, as shown on the plans at the following location:

DISTRIBUTION STRUCTURE

(Bridge No. 33-0061L)

WB 80/EB 580 Connector

EB Route 580 to Castro Valley

"MB" Line

Spans 18 and 19

At the option of the Contractor, precast prestressed concrete bent caps, as shown on the plans, and conforming to the provisions in precast concrete members in Section 51, "Concrete Structures," of the Standard Specifications may be furnished and installed in lieu of structural steel bent caps.

10-1.14 PROGRESS SCHEDULE (CRITICAL PATH METHOD)

The Contractor shall submit to the Engineer practicable critical path method (CPM) progress schedules in conformance with these special provisions. Whenever the term "schedule" is used in this section it shall mean CPM progress schedule.

Attention is directed to Section 5-1.14, "Payments" of these special provisions.

The provisions in Section 8-1.04, "Progress Schedule," of the Standard Specifications shall not apply.

DEFINITIONS

The following definitions shall apply to this section:

- A. **ACTIVITY.**—A task, event or other project element on a schedule that contributes to completing the project. Activities have a description, start date, finish date, duration and one or more logic ties.
- B. **BASELINE SCHEDULE.**—The initial schedule representing the Contractor's work plan on the first working day of the project.
- C. **CONTRACT COMPLETION DATE.**—The current extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer in conformance with the provisions in Section 8-1.06, "Time of Completion," of the Standard Specifications.
- D. **CRITICAL PATH.**—The longest continuous chain of activities for the project that has the least amount of total float of all chains. In general, a delay on the critical path will extend the scheduled completion date.
- E. **CRITICAL PATH METHOD (CPM).**—A network based planning technique using activity durations and the relationships between activities to mathematically calculate a schedule for the entire project.
- F. **DATA DATE.**—The day after the date through which a schedule is current. Everything occurring earlier than the data date is "as-built" and everything on or after the data date is "planned."
- G. **FLOAT.**—The difference between the earliest and latest allowable start or finish times for an activity.
- H. **MILESTONE.**—An event activity that has zero duration and is typically used to represent the beginning or end of a certain stage of the project.
- I. **NEAR CRITICAL PATH.**—A chain of activities with total float exceeding that of the critical path but having no more than 10 working days of total float.
- J. **SCHEDULED COMPLETION DATE.**—The planned project finish date shown on the current accepted schedule.
- K. **TOTAL FLOAT.**—The amount of time that an activity or chain of activities can be delayed before extending the scheduled completion date.
- L. **UPDATE SCHEDULE.**—A current schedule developed from the baseline or subsequent schedule through regular monthly review to incorporate as-built progress and any planned changes.

GENERAL REQUIREMENTS

The Contractor shall submit to the Engineer baseline, weekly update, and final update schedules, each consistent in all respects with the time and order of work requirements of the contract. The project work shall be executed in the sequence indicated on the current accepted schedule.

Schedules shall show the order in which the Contractor proposes to carry out the work with logical links between time-scaled work activities, and calculations made using the critical path method to determine the controlling operation or operations. The Contractor is responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the work.

The Contractor shall produce schedules using computer software and shall furnish compatible software for the Engineer's exclusive possession and use. The Contractor shall furnish network diagrams and schedule data as parts of each schedule submittal.

Schedules shall include, but not be limited to, applicable activities that show the following:

- A. Project characteristics, salient features, or interfaces, including those with outside entities, that could affect time of completion.
- B. Project start date, scheduled completion date and other milestones.
- C. Work performed by the Contractor, subcontractors and suppliers.
- D. Submittal development, delivery, review and approval, including those from the Contractor, subcontractors and suppliers.
- E. Procurement, delivery, installation and testing of materials, plants and equipment.
- F. Testing and settlement periods.
- G. Utility notification and relocation.
- H. Erection and removal of falsework and shoring.

- I. Major traffic stage switches.
- J. Finishing roadway and final cleanup.

Schedule activities shall include the following:

- A. A clear and legible description.
- B. Start and finish dates.
- C. A duration of not less than one working day, except for event activities, and not more than 20 working days, unless otherwise authorized by the Engineer.
- D. At least one predecessor and one successor activity, except for project start and finish milestones.
- E. Required constraints.

The Engineer's review and acceptance, or acceptance with exceptions noted, of schedules shall not waive any contract requirements and shall not relieve the Contractor of any obligation thereunder or responsibility for submitting complete and accurate information. Schedules that are rejected shall be corrected by the Contractor and resubmitted to the Engineer within 1 working day of notification by the Engineer, at which time a new review period of one day will begin.

Errors or omissions on schedules shall not relieve the Contractor from finishing all work within the time limit specified for completion of the contract. If, after a schedule has been accepted by the Engineer, either the Contractor or the Engineer discover that any aspect of the schedule has an error or omission, it shall be corrected by the Contractor on the next update schedule.

COMPUTER SOFTWARE

The Contractor shall submit to the Engineer for approval a description of proposed software before delivery. The software shall be the current version of Primavera SureTrak Project Manager for Windows, or equal, and shall be compatible with Windows NT (version 4.0) operating system. If software other than SureTrak is proposed, it shall be capable of generating files that can be imported into SureTrak.

The Contractor shall furnish schedule software and all original software instruction manuals to the Engineer with submittal of the baseline schedule. The schedule software will be returned to the Contractor within 4 weeks of submittal of the final update schedule. The State will compensate the Contractor in conformance with the provisions in Section 4-1.03D, "Extra Work," of the Standard Specifications for replacement of software which is damaged, lost or stolen after delivery to the Engineer.

NETWORK DIAGRAMS, REPORTS AND DATA

The Contractor shall include the following for each schedule submittal:

- A. Two sets of originally plotted, time-scaled network diagrams.
- B. One CD capable of containing the schedule data.

The time-scaled network diagrams shall conform to the following:

- A. Show a continuous flow of information from left to right.
- B. Be based on early start and early finish dates of activities.
- C. Clearly show the primary paths of criticality using graphical presentation.
- D. Be prepared on B-size sheets, 11" x 17", or larger size.
- E. Include a title block and a timeline on each page.

BASELINE SCHEDULE

The Contractor shall submit to the Engineer a baseline schedule within 2 working days of award of the contract. The Engineer will accept, reject, or accept the baseline schedule with exceptions noted within 1 day after the baseline schedule and all support data are submitted. Beginning the day the baseline schedule is first submitted, the Contractor shall meet with the Engineer daily to discuss and resolve schedule issues until the baseline schedule is accepted.

The baseline schedule shall include the entire scope of work and shall show how the Contractor plans to complete all work contemplated. The baseline schedule shall show the activities that define the critical path. Multiple critical paths and near-critical paths shall be kept to a minimum. A total of not more than 50 percent of the baseline schedule activities shall be critical or near critical, unless otherwise authorized by the Engineer.

The baseline schedule shall not extend beyond the number of working days originally provided in these special provisions. The baseline schedule shall have a data date of the first working day of the contract and not include any completed work to date. The baseline schedule shall not attribute negative float or negative lag to any activity.

UPDATE SCHEDULE

The Contractor shall submit an update schedule and meet with the Engineer to review contract progress, weekly on a day set by the Engineer. The Engineer will accept, reject, or accept the update schedule with exceptions noted within 1 day after the update schedule and all support data are submitted. Update schedules that are not accepted, accepted with exceptions noted, or rejected within the review period will be considered accepted by the Engineer.

The update schedule data date shall be the same date the update is submitted or other date established by the Engineer. The update schedule shall show the status of work actually completed to date and the work yet to be performed as planned. In addition, the update schedule shall show any proposed schedule modifications including adding or deleting activities or changing activity constraints, durations or logic. The Contractor shall state in writing the reasons for any changes to activities and the critical path that result in a delay to the scheduled completion date compared to the previous accepted schedule.

FINAL UPDATE SCHEDULE

The Contractor shall submit a final update, as-built schedule with actual start and finish dates for the activities, within 30 days after completion of contract work. The Contractor shall provide a written certificate with this submittal signed by the Contractor's project manager and an officer of the company stating, "To my knowledge and belief, the enclosed final update schedule reflects the actual start and finish dates of the actual activities for the project contained herein." An officer of the company may delegate in writing the authority to sign the certificate to a responsible manager.

RETENTION

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during each estimate period in which the Contractor fails to submit an acceptable schedule, or schedule acceptable with exceptions noted, conforming to the requirements of these special provisions as determined by the Engineer. Schedule retentions will be released for payment on the next monthly estimate for partial payment following the date that acceptable schedules are submitted to the Engineer or as otherwise specified herein. Upon completion of all contract work and submittal of the final update schedule and certification, any remaining retained funds associated with this section, "Progress Schedule (Critical Path Method)", will be released for payment. Retentions held in conformance with this section shall be in addition to other retentions provided for in the contract. No interest will be due the Contractor on retention amounts.

PAYMENT

Progress schedule (critical path method) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path method) shall include full compensation for furnishing all labor, material, tools, equipment, and incidentals, including computer software, and for doing all the work involved in preparing, furnishing, and updating schedules, and instructing and assisting the Engineer in the use of computer software, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for the progress schedule (critical path method) contract item will be made progressively as follows:

- A. A total of 25 percent of the item amount or a total of 25 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon achieving all of the following:
 1. Completion of 5 percent of all contract item work.
 2. Acceptance of all schedules and TIAs required to the time when 5 percent of all contract item work is complete.
 3. Delivery of schedule software to the Engineer.
 4. Completion of required schedule software training.
- B. A total of 50 percent of the item amount or a total of 50 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon completion of 25 percent of all contract item work and acceptance of all schedules and TIAs required to the time when 25 percent of all contract item work is complete.

- C. A total of 75 percent of the item amount or a total of 75 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon completion of 50 percent of all contract item work and acceptance of all schedules and TIAs required to the time when 50 percent of all contract item work is complete.
- D. A total of 100 percent of the item amount or a total of 100 percent of the amount listed for progress schedule (critical path method) in "Payments" of Section 5 of these special provisions, whichever is less, will be paid upon completion of all contract item work, acceptance of all schedules and TIAs required to the time when all contract item work is complete, and submittal of the certified final update schedule.

If the Contractor fails to complete any of the work or provide any of the schedules required by this section, the Engineer shall make an adjustment in compensation in conformance with the provisions in Section 4-1.03C, "Changes in Character of Work," of the Standard Specifications for the work not performed. Adjustments in compensation for schedules will not be made for any increased or decreased work ordered by the Engineer in furnishing schedules.

10-1.325 BRIDGE DECK METHACRYLATE RESIN TREATMENT

This work includes furnishing, testing, and application of methacrylate resin and sand on bridge decks as shown on the plans and as specified in these special provisions.

Before starting deck treatment, the Contractor shall submit plans in conformance with Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications and these special provisions for the following:

- A. Public safety plan for the use of methacrylate resin
- B. Placement plan for the construction operation

The plans shall identify materials, equipment, and methods to be used.

The public safety plan for the use of methacrylate resin shall include details for the following:

- A. Shipping
- B. Storage
- C. Handling
- D. Disposal of residual methacrylate resin and the containers

When methacrylate resin work is to be conducted within 100 feet of a residence, business, or public space, including sidewalks under a structure, the Contractor shall notify the public at least 7 days before starting work and monitor airborne emissions during the work. Public notification and monitoring of airborne emissions shall conform to the following:

- A. The public safety plan shall include a copy of the notification letter and a list of addresses and locations where the letter will be delivered and posted. The letter shall state the methacrylate resin work locations, dates, times, and what to expect. The letter shall be delivered to each residence and each business within 100 feet of the methacrylate resin work. The letter shall be delivered to local fire and police responders, and it shall be posted at the job site.
- B. The public safety plan shall include an airborne emissions monitoring plan prepared by a certified industrial hygienist and a copy of the hygienist's certification. Airborne emissions shall be monitored at a minimum of 4 points including the point of mixing, the point of application, and the point of nearest public contact, as determined by the Engineer. At the completion of methacrylate resin work, a report by the certified industrial hygienist with results of the airborne emissions monitoring plan shall be submitted to the Engineer.

The placement plan for construction shall include the following:

- A. Schedule of deck treatment for each bridge. The schedule shall be consistent with "Maintaining Traffic" of these special provisions and shall include time for the Engineer to perform California Test 342.
- B. Methods and materials to be used, including the following:
 - 1. Description of equipment for applying the resin
 - 2. Description of equipment for applying the sand
 - 3. Gel time range and final cure time for the resin
 - 4. List of on-site staff and description of on-site equipment to be on standby for abrasive blasting

If the measures proposed in the safety plan are inadequate to provide for public safety associated with the use of methacrylate resin, the Engineer will reject the plan and direct the Contractor to revise the plan. Directions for revisions will be in writing and include detailed comments. The Engineer will notify the Contractor of the approval or rejection of a submitted or revised plan within 15 days of receipt of that plan.

In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, in the same manner as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Before treating bridge decks, the deck surface shall be cleaned, unsound concrete removed, and voids patched as shown on the plans and as specified in "Clean Bridge Deck" and "Remove Unsound Concrete" and "Rapid Setting Concrete Patches" of these special provisions.

MATERIALS

Before using methacrylate resin, a Material Safety Data Sheet shall be submitted for each shipment of resin.

Methacrylate resin shall be low odor and have a high molecular weight. Before adding initiator, the resin shall have a maximum volatile content of 30 percent when tested in conformance with the requirements in ASTM Designation: D 2369, and shall conform to the following:

PROPERTY	REQUIREMENT	TEST METHOD
* Viscosity	25 cP, maximum, (Brookfield RVT with UL adaptor, 50 RPM at 77°F	ASTM D 2196
* Specific Gravity	0.90 minimum, at 77°F	ASTM D 1475
* Flash Point	180°F, minimum	ASTM D 3278
* Vapor Pressure	1.0 mm Hg, maximum, at 77°F	ASTM D 323
Tack-free Time	400 minutes, maximum, at 25°C	Specimens prepared per California Test 551
PCC Saturated Surface-Dry Bond Strength	3.5 MPa, minimum at 24 hours and 21 ± 1°C	California Test 551
* Test shall be performed before adding initiator.		

TESTING

The Contractor shall allow 20 days for sampling and testing by the Engineer of the methacrylate resin before proposed use. If bulk resin is to be used, the Contractor shall notify the Engineer in writing at least 15 days before the delivery of the bulk resin to the job site. Bulk resin is any resin stored in containers in excess of 55 gallons.

Before starting production treatment, the Contractor shall treat a test area of approximately 500 square feet that is within the project limits and at a location approved by the Engineer. When available the test area shall be outside of the traveled way. Weather and pavement conditions during the test treatment shall be similar to those expected on the deck. Equipment used for testing shall be similar to those used for deck treating operations.

During test and production deck treatment, test tiles shall be used to evaluate the resin cure time. The Contractor shall coat at least one 4" x 4" commercial quality smooth glazed tile for each batch of methacrylate resin. The coated tile shall be placed adjacent to the corresponding treated area. Sand shall not be applied to the test tiles.

The acceptance criteria for a treated test area is as follows:

- A. The test tiles are dry to the touch.
- B. The treated deck surface is tack free (non-oily).
- C. The sand cover adheres and resists brushing by hand.
- D. Excess sand has been removed by vacuuming or sweeping.
- E. The coefficient of friction is at least 0.35 when tested in conformance with California Test 342.

Deck treatment on the test area shall demonstrate that the methods and materials meet the acceptance criteria and that the production work will be completed within the specified time for maintaining traffic.

If a test area fails to meet the acceptance criteria, as determined by the Engineer, the test will be rejected, and the treatment shall be removed and replaced until the test area complies with the acceptance criteria.

CONSTRUCTION

Equipment shall be fitted with suitable traps, filters, drip pans, or other devices as necessary to prevent oil or other deleterious material from being deposited on the deck.

A compatible promoter/initiator system shall be capable of providing the resin gel time range shown on the placement plan. Gel time shall be adjusted to compensate for the changes in temperature throughout treatment application.

Resin shall be applied by machine and by using a two-part resin system with a promoted resin for one part and an initiated resin for the other part. This two-part resin system shall be combined at equal volumes to the spray bars through separate positive displacement pumps. Combining of the 2 components shall be by either static in-line mixers or by external intersecting spray fans. The pump pressure at the spray bars shall not be great enough to cause appreciable atomization of the resin. Compressed air shall not be used to produce the spray. A shroud shall be used to enclose the spray bar apparatus.

At the Contractor's option, manual application may be used when necessary to prevent overspray of resin onto adjacent traffic. For manual application, the quantity of resin mixed with promoter and initiator shall be limited to 5 gallons at a time.

The Contractor shall apply methacrylate resin only to the specified area. Barriers, railing, joints, and drainage facilities shall be adequately protected to prevent contamination by the treatment material. Contaminated items shall be repaired at the Contractor's expense.

The relative humidity shall be less than 90 percent at the time of treatment. The prepared area shall be dry and the surface temperature shall be at least 50°F and not more than 100°F when the resin is applied. The rate of application of promoted/initiated resin shall be approximately 90 square feet per gallon; the exact rate shall be determined by the Engineer.

The deck surfaces to be treated shall be completely covered with resin so the resin penetrates and fills all cracks. The resin shall be applied within 5 minutes after complete mixing. A significant increase in viscosity shall be cause for rejection. Excess material shall be redistributed by squeegees or brooms within 10 minutes after application. For textured deck surfaces, including grooved surfaces, excess material shall be removed from the texture indentations.

After the resin has been applied, at least 20 minutes shall elapse before applying sand. The sand shall be commercial quality dry blast sand. At least 95 percent of the sand shall pass the No. 8 sieve and at least 95 percent shall be retained on the No. 20 sieve. The sand shall be applied at a rate of approximately 2 pounds per square yard or until refusal as determined by the Engineer.

Traffic will not be allowed on the treated area until the Engineer has determined that the following conditions have been met:

- A. The test tiles are dry to the touch.
- B. The treated surface is tack free (non-oily).
- C. The sand cover adheres and resists brushing by hand.
- D. Excess sand has been removed by vacuuming or sweeping.

If a treated area does not meet the listed conditions and the allowable lane closure time is about to expire, the treatment will be rejected. The Contractor shall immediately remove the rejected deck treatment by the blast method shown in the placement plan. The Contractor shall submit a plan and revised schedule for replacement of rejected deck treatment materials.

After the entire deck surface for a given bridge or a group of bridges has been completed, the Engineer will perform California Test 342. The Engineer will provide at least a 15-day notice for the Contractor to provide traffic control for each bridge location. The coefficient of friction of the treated deck shall be at least 0.35 when tested in conformance with California Test 342. If the coefficient of friction is less than 0.35, the deck treatment will be rejected. The Contractor shall submit a plan and revised schedule for modification or replacement of rejected deck treatment materials.

MEASUREMENT AND PAYMENT

Bridge deck methacrylate resin treatment will be measured by the square foot based on the dimensions shown on the plans and will be paid for as treat bridge deck. Furnish bridge deck treatment material will be measured by the gallon of mixed methacrylate resin actually placed and will be paid for as furnish bridge deck treatment material. No payment will be made for materials wasted or not incorporated in the work.

The contract price paid per square foot for treat bridge deck shall include full compensation for furnishing all labor, materials (including sand, but excluding treatment material), tools, equipment, and incidentals, and for doing all the work involved in test areas, test tiles, applying treatment material, removing excess sand, for furnishing standby blast crew, and for removing and replacing rejected materials as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per gallon for furnish bridge deck treatment material shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to furnish the bridge deck treatment material to the site of the work, ready for application, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for execution of the public safety plan, but excluding the airborne emissions monitoring work done by the certified industrial hygienist and notification of the public, shall be considered as included in the contract prices paid for the items of work involving bridge deck methacrylate resin treatment, and no additional compensation will be allowed therefor.

For bridge deck methacrylate resin treatment, airborne emissions monitoring with reporting done by the certified industrial hygienist and notification of the public will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

10-1.40 BARRIER RAILING

Barrier railing shall consist of State-furnished metal railing and posts mounted on a concrete parapet and curb as shown on the plans and shall conform to the provisions in Section 83-1, "Railings," of the Standard Specifications.

Attention is directed to "State-Furnished Materials," of these special provisions for State-furnished metal railing and post materials.

The reinforced concrete parapet, including a concrete curb as shown on the plans, shall conform to the provisions in Section 51, "Concrete Structures," and Section 52, "Reinforcement," of the Standard Specifications.

The rail post anchor bolts, hex nuts, washers, and associated hardware shall conform to the provisions in Section 75, "Miscellaneous Metal," of the Standard Specifications.

Grout pads shall be considered mortar pads and shall conform to the provisions in Section 83-1.02, "Materials and Construction," of the Standard Specifications.

The contract price paid per linear foot for barrier railing shall include full compensation for furnishing all labor, materials (excluding State-furnished metal railing and posts), tools, equipment, and incidentals, and for doing all the work involved in furnishing and placing the reinforced concrete parapet and placing the State-furnished metal railing and posts, complete in place, including new rail post anchor bolts, associated hardware and grout pads, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

**ENGINEER'S ESTIMATE
04-4A4104**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21 (S)	519088	JOINT SEAL (MR 1")	LF	84		
22 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	LB	49 000		
23 (S-F)	550110	COLUMN CASING	LB	5320		
24 (S-F)	550203	FURNISH STRUCTURAL STEEL (BRIDGE)	LB	240 000		
25 (S-F)	550204	ERECT STRUCTURAL STEEL (BRIDGE)	LB	240 000		
26 (S)	590106	CLEAN STRUCTURAL STEEL (EXISTING BRIDGE)	SQFT	6800		
27 (S)	590115	CLEAN AND PAINT STRUCTURAL STEEL	LS	LUMP SUM	LUMP SUM	
28 (S)	041045	PAINT STRUCTURAL STEEL (EXISTING STEEL GIRDERS AND STEEL BENT CAPS)	SQFT	5500		
29 (S)	041046	SPOT BLAST CLEAN AND PAINT UNDERCOAT (EXISTING STEEL GIRDERS AND STEEL BENT CAPS)	SQFT	5500		
30 (S)	041047	SPOT BLAST CLEAN AND PAINT UNDERCOAT (EXISTING COLUMN CASING)	SQFT	2370		
31 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	LB	1300		
32	BLANK					
33 (S)	840504	4" THERMOPLASTIC TRAFFIC STRIPE	LF	800		
34 (S)	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	70		
35 (S)	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	30		
36 (S)	861504	MODIFY LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM	LUMP SUM	
37	BLANK					
38	153235	CLEAN BRIDGE DECK	SQFT	6320		
39 (F)	540102	TREAT BRIDGE DECK	SQFT	6320		
40	540108	FURNISH BRIDGE DECK TREATMENT MATERIAL	GAL	70		

**ENGINEER'S ESTIMATE
04-4A4104**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41 (F)	041053	BARRIER RAILING	LF	320		
42	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____