

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

OFFICE ENGINEER

1727 30th Street MS-43

P.O. BOX 168041

SACRAMENTO, CA 95816-8041

FAX (916) 227-6214

www.dot.ca.gov/hq/esc/oe



*Serious Drought.
Help save water!*

July 22, 2016

11-SD-94-59.6/60.2
11-295204
Project ID 1100000392
ACHSSTBG-P094(062)E

Addendum No. 3

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN SAN DIEGO COUNTY NEAR MANZANITA FROM CHURCH ROAD TO 0.1 MILE WEST OF KUMEYAAY ROAD to revise the project plans, the *Notice to Bidders and Special Provisions* and the Federal Minimum Wages with Modification Number 8 dated 07/22/2016.

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 Wednesday, August 3, 2016.

Project plan sheet 25 is replaced and attached for substitution for the like-numbered sheet.

In the *Notice to Bidders*, the following paragraph is added after the tenth paragraph:

"For the Federal training program, the number of trainees or apprentices is 1."

In the *Special Provisions*, Section 5-1.20G, is added as attached.

In the *Special Provisions*, Section 12-4.05G, Chart G1 is replaced as attached.

In the *Special Provisions*, Section 37-6, is replaced as attached.

Addendum No. 3
Page 2
July 22, 2016

11-SD-94-59.6/60.2
11-295204
Project ID 1100000392
ACHSSTBG-P094(062)E

To *Bid* book holders:

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 Bidders* section of the *Notice to Bidders and Special Provisions*.

Submit the *Bid* book as described in the *Electronic Bidding Guide* at the Bidders' Exchange website.

http://www.dot.ca.gov/hq/esc/oe/electronic_bidding/electronic_bidding.html

Inform subcontractors and suppliers as necessary.

This addendum, EBS addendum file, attachments and the modified wage rates are available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/11/11-295204

If you are not a *Bid* 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,



LAURIE BERMAN
District Director

Attachments

Replace "Reserved" in section 5-1.20G with:

5-1.20G TRIBAL EMPLOYMENT RIGHTS ORDINANCE (TERO) REQUIREMENTS

Complete the Campo Band of Mission Indians TERO Highway Construction Permit (THCP) Application included in the *Information Handout*. Within 5 days after the contract approval, submit the completed application to the Tribe and a copy to the Engineer.

Submit the executed THCP to the Engineer within 10 days after you receive it from the Tribe.

Replace "Reserved" in section 12-4.05G with:

Chart no. G1 Complete Conventional Highway Closure Hours																									
County: SD							Route/Direction: 94 / EB							PM: 59.70 / 60.20											
							94 / WB							PM: 60.20 / 59.70											
Closure limits: 0.1 E. of Church Rd. to 0.1 W. of Kumeyaay Rd.																									
0.1 W. Kumeyaay Rd. to 0.1 E. of Church Rd.																									
Hour	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mon-Thu									C	C	C	C	C	C	C	C									
Fri									C	C	C	C	C	C	C	C									
Sat									C	C	C	C	C	C	C	C									
Sun									C	C	C	C	C	C	C	C									

Legend:

C Conventional highway may be closed completely

No complete conventional highway closure is allowed

REMARKS:

No other closure that conflicts with or shares any elements of the following detour will be permitted.

This chart to be used for the following activities

- 1- Performing mass excavation in stage (1).
- 2- Placement and removal of K-rail.

This Complete Conventional Closure must be used a maximum of (20) working days only.

Caltrans Engineer to coordinate this closure with the Bureau of Indian Affairs.

Detour EB 94 to EB Old HWY 80
 Detour EB 94 to EB Old HWY 80 traffic via easterly on Rte. 94 to NB BIA Rd. 10, thence northerly on BIA Rd. 10 to EB Old HWY 80 from BIA Rd. 10, thence easterly on Old HWY 80 to EB 94.

NOTE: Place a PCMS (Portable Changeable Message Sign) on EB 94 west of Jct. BIA Rd. 10 – warning the public of the ramp closure / detour ahead.

Detour WB 94 to WB Old HWY 80
 Detour WB 94 to EB Old HWY 80 traffic via westerly on Rte. 94 to NB Tierra del Sol Rd., thence northerly on Tierra del Sol Rd. to WB Old HWY 80 from Tierra del Sol Rd., thence westerly on Old HWY 80 to SB BIA Rd. 10, thence southerly on BIA Rd. 10 to WB 94.

NOTE: Place a PCMS (Portable Changeable Message Sign) on WB 94 east of Tierra del Sol Rd. – warning the public of the ramp closure / detour ahead.

Add to section 37:

37-6 HIGH FRICTION SURFACE TREATMENT

37-6.01 GENERAL

37-6.01A Summary

Section 37-6 includes specifications for applying high friction surface treatment (HFST).

Applying HFST consists of spreading resin binder and calcined bauxite aggregate on asphalt concrete surfaces.

HFST may be applied by either hand, mechanical or automated application process. The Department is aware of at least one automated continuous application method and equipment that is allegedly covered by United States Patents 9,109,332 and 9,115,473.

37-6.01B Definitions

Resin binder: a polymeric resin binder used to bond a surface applied aggregate to an asphalt concrete surface.

Prime coat: a polymeric resin that is used to fill cracks and voids in existing surface that is compatible with resin binder.

37-6.01C Submittals

37-6.01C(1) General

Submit the names of your proposed independent laboratories that will perform QC testing.

Submit a certificate of compliance and certified test results for the resin binder and calcined bauxite aggregate. Test results must be from tests performed within 90 days from the date of submittal and must have been performed by an independent laboratory.

Submit proof of recent Dynamic Friction Tester calibration meeting manufacturer's recommendations not to exceed 1 year.

Submit a SDS for the resin binder and its components.

37-6.01C(2) Quality Control Plan

Submit a QC plan that must be project specific and includes:

1. Surface preparation methods for areas where HFST is to be placed
2. Method of protecting areas and exposed facilities not to receive HFST
3. Type of resin binder to be used
4. Resin binder manufacturer's recommended mixing and placement instructions, including mixing ratios and temperatures
5. Resin binder manufacturer's estimated cure times for resin binder to be used
6. Method for safe storage and handling of HFST components
7. Disposal methods for excess HFST and containers for HFST components
8. Contingency plan that describes corrective actions you will take in the event of equipment failure or material issues during HFST placement

Submit QC test results for the quality characteristics within the reporting time allowance, after sampling, shown in the following table:

Quality Control Test Result Reporting

Quality characteristic	Test Method	Maximum reporting time allowance
Los Angeles rattler loss at 100 revolutions	California Test 211	2 business Days
Aggregate moisture content	California Test 226	2 business Days
Aggregate magnesium soundness	ASTM C88	7 Days
Aluminum oxide content	ASTM C25	7 Days
Gradation	California Test 202	1 business Day
Polish stone value	ASTM D3319	10 Days
Aggregate acid insolubility	ASTM D3042	7 Days
Resin binder spread rate	Calculated based on amount of materials used	1 business Day
Viscosity	ASTM D2196	2 business Days
Elongation at break point	ASTM D638	10 business Days
Ultimate tensile strength	ASTM D638	10 business Days
Cure rate	ASTM D1640	1 business Day
Gel time	ASTM C881	1 business Day
Adhesive strength at 24 hours	ASTM C1583	2 business Day
Coefficient of friction before opening to traffic	ASTM E1911	Same day of testing and before opening to traffic
Coefficient of friction 7-15 days after opening to traffic	ASTM E1911	1 business Day after testing

37-6.01D Quality Assurance

37-6.01D(1) General

Not Used

37-6.01D(2) Quality Control

37-6.01D(2)(a) General

Perform QC testing for Trial HFST and production work. QC testing, except coefficient of friction testing (ASTM E1911), must be performed by independent laboratories.

37-6.01D(2)(b) HFST

Perform sampling and testing at the specified frequency and sampling location for the following quality characteristics:

Calcined Bauxite Quality Control Requirements

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of Sampling
Los Angeles rattler loss at 100 revolutions	California Test 211	1st day of production	Point of application or stockpile
Aggregate moisture content	California Test 226	1 per shift	Point of application or stockpile
Aggregate magnesium soundness	ASTM C88	1st day of production	Point of application or stockpile
Aluminum oxide content	ASTM C25	1st day of production	Point of application or stockpile
Gradation	California Test 202	1st day of production	Point of application or stockpile

Resin Binder Quality Control Requirements

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of Sampling
Viscosity	ASTM D2196	1 per Day	Point of application
Elongation at break point	ASTM D638	1 per Day	Point of application
Ultimate tensile strength	ASTM D638	1 per Day	Point of application
Cure rate	ASTM D1640	1 per Day	Point of application
Gel time	ASTM C881	1 per Day	Point of application
Adhesive strength at 24 hours	ASTM C1583	1 per Day	Point of application

HFST Quality Control Requirements

Quality characteristic	Test method	Minimum sampling and testing frequency	Location of Sampling
Resin binder spread rate	Calculated based on amount of materials used	1 per Day	Point of application
Coefficient of friction before opening to traffic	ASTM E1911	Minimum of 1 every 500 ft ^a	Alternate between wheel paths
Coefficient of friction 7-15 days after opening to traffic	ASTM E1911	Minimum of 1 every 500 ft ^a	Alternate between wheel paths

^aFor application lengths <500 ft, test at every 200 ft interval

Before the initial testing of the coefficient of friction of HFST, perform a calibration check of the Dynamic Friction Tester in the presence of the Engineer.

Perform coefficient of friction (ASTM E1911) testing in the presence of the Engineer. Notify the Engineer at least 48 hours before coefficient of friction testing.

37-6.01D(3) Department Acceptance

HFST acceptance is based on:

1. Visual inspection for the following:
 - 1.1. Uniform surface texture
 - 1.2. Raveling, which consists of the separation of the aggregate from the resin binder
 - 1.3. Streaking, which consists of alternating longitudinal bands of resin binder without uniform calcined bauxite aggregate retention, approximately parallel with the lane line
 - 1.4. Flushing, which consists of resin binder without or fully embedded calcined bauxite aggregate

Areas of raveling, streaking and flushing that are greater than 0.25 sq ft shall be considered defective and must be repaired at your own cost. These must be removed and replaced, and must confirm to the maximum lateral dimensions of the defective area.

Raveling and streaking must be repaired by removing and replacing. An additional layer of HFST must be placed over the defective area after removing the HFST in defective areas.

2. For calcined bauxite aggregate, acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Quality characteristic	Test method	Requirement	
Los Angeles rattler loss at 100 revolutions ^a (max, %)	California Test 211	10	
Aggregate moisture content (max, %)	California Test 226	0.2	
Sand equivalent (min)	California Test 217	95	
Gradation (% passing by weight) Sieve size:	California Test 202		
No. 4			100
No. 6			95
No. 16		5	

^aUse grading D from Table 1.

3. For resin binder, acceptance is based on the Department's sampling and testing for compliance with the requirements shown in the following table:

Quality characteristic	Test method	Requirement
Viscosity ^a (centipoises) Use ASTM D2556 Appendix X1.1 for spindle selection	ASTM D2196	1,000 - 3,000
Cure rate (max, hrs) Specimen, 0.2 inch thick	ASTM D1640	3
Gel time ^a (minutes)	ASTM C881	7-30
Elongation at break point ^a (min, %) Type I specimen, Cure the specimen for 7 days at 73°F ± 2°F and test without delay	ASTM D638	30
Ultimate tensile strength ^a (min, psi) Type I specimen, Cure the specimen for 7 days at 73°F ± 2°F and test without delay	ASTM D638	2,650

^aPerform the testing at a temperature of 73 ± 2 °F

4. For HFST, acceptance is based on your QC testing for compliance with the requirements shown in the following table:

Quality Characteristic	Test Method	Requirement
Coefficient of friction at 60 km/h before opening to traffic	ASTM E1911	0.75 ^a
Coefficient of friction at 60 km/h 7-15 days after opening to traffic	ASTM E1911	0.75 ^a

^aReport coefficient of friction values at 20 km/h, 40 km/h, 80 km/h.

37-6.01D(4) Preconstruction Meeting

Schedule a preconstruction meeting with the engineer at a mutually agreed time and place. Make the arrangements for the meeting facility.

You must be prepared to discuss the following:

1. QC plan
2. Trial HFST requirements
3. Application rates
4. Binder resin mixing methods and equipment
5. HFST application methods and equipment

37-6.01D(5) Trial HFST Application

Do not begin trial HFST until authorized.

Complete a trial of HFST application at an authorized location before starting production work.

Remove pavement markers and delineation within the area to receive HFST, for the lane and length involved, prior to placing the resin binder.

The trial HFST application must:

1. Be at least 12 feet wide and 20 feet long.
2. Be constructed using the same method and equipment as the production work. Construct an additional trial for each method proposed for the production work.
3. Replicate field conditions, including ambient and surface temperatures, anticipated for production work.
4. Demonstrate surface preparation requirements as outlined in the QC plan.
5. Document the area of application, initial quantities of resin binder and aggregate, and unused quantities of resin binder and aggregate after applying the HFST. Calculate and report HFST application rate.
6. Determine the initial set time for the resin binder.
7. Test the coefficient of friction using ASTM E1911 at 20 km/h, 40km/h, 60 km/h and 80 km/h on the HFST. If the coefficient of friction at 60 km/h speed is below 0.75, correct or replace the HFST until the coefficient of friction is greater than or equal to 0.75.

Do not begin HFST production work until authorized after successful completion of the trial HFST.

37-6.02 MATERIALS

37-6.02A General

Not Used

37-6.02B Resin Binder

Resin binder must meet the requirements shown in the following table:

Resin Binder Requirements

Quality characteristic	Test method	Requirement
Viscosity ^a (centipoises) Use ASTM D2556 Appendix X1.1 for spindle selection	ASTM D2196	1,000 - 3,000
Cure rate (max, hrs) Specimen, 0.2 inch thick	ASTM D1640	3
Gel time ^a (minutes)	ASTM C881	7-30
Elongation at break point ^a (min, %) Type I specimen, Cure the specimen for 7 days at 73°F ± 2°F and test without delay	ASTM D638	30
Ultimate tensile strength ^a (min, psi) Type I specimen, Cure the specimen for 7 days at 73°F ± 2°F and test without delay	ASTM D638	2,650
Compressive strength (min, psi at 3 hours)	ASTM C695	1,600
Water absorption (max, %)	ASTM D570	1.0
Durometer hardness (Shore D) Cure the specimen for 7 days at 73°F ± 2°F and test without delay	ASTM D2240	65-75
Flexural yield strength	ASTM D790	2,000
Adhesive strength at 24 hours (min, psi)	ASTM C1583	250 or 100% substrate failure

^aPerform the testing at a temperature of 73 ± 2 °F

37-6.02C Calcined Bauxite Aggregate

Calcined bauxite aggregate must be clean, dry, and free from clay and any other deleterious matter and meet the requirements shown in the following table:

Calcined Bauxite Aggregate Requirements

Quality characteristic	Test method	Requirement
Los Angeles rattler loss at 100 revolutions ^a (max, %)	California Test 211	10
Aggregate moisture content (max, %)	California Test 226	0.2
Sand equivalent (min)	California Test 217	95
Polish stone value (min)	ASTM D3319	38
Aggregate acid insolubility (min, %)	ASTM D3042	90
Aggregate magnesium soundness (max, %)	ASTM C88	30
Aluminum oxide content (min, %)	ASTM C25	87
Gradation (% passing by weight) Sieve size:		
No. 4	California Test 202	100
No. 6		95
No. 16		5

^aUse grading D from Table 1.

37-6.03 CONSTRUCTION

37-6.03A General

Not Used

37-6.03B Surface Preparation

37-6.03B(1) General

Protect utilities, utility covers, drainage structures, curbs and other structures within or adjacent to treatment location from HFST materials using methods outlined in the QC plan.

Surfaces must be clean, dry, and free of any dust, oil, debris, organic matter, or any material that may interfere with the bond between resin binder and existing surfaces.

37-6.03B(2) Pavement Surfaces

For pavement surface preparation perform the following before applying resin binder:

1. Remove pavement markers and delineation to a maximum depth of 0.01 foot from the area receiving HFST
2. Sweep the pavement surface
3. Blow the surface clean with pressurized air
4. Clean cracks greater than 0.25 inch wide with pressurized air and pretreat with mixed resin binder

37-6.03C HFST Application

Apply mixed resin binder under resin binder manufacturer's recommendations.

Do not apply resin binder on wet or damp surfaces. Asphalt concrete pavement surface must be greater than 30 days old before applying HFST.

Do not apply HFST when the ambient temperature is below 50 degrees F for epoxy type resin binders and 45 degrees F for other resin binders. Do not apply HFST when the ambient temperature is above 100 degrees F.

Spread resin binder at a minimum rate of 0.32 gal/sq yd to one lane width at a time. Narrower application widths are allowed as determined by the engineer.

Do not allow the mixed resin binder to do any of the following that may impair retention and bonding of aggregate:

1. Separate
2. Cure
3. Dry
4. Be exposed
5. Harden

Do not contaminate the exposed uncured mixed resin binder.

Replace contaminated areas of resin binder.

Spread aggregate until refusal within 5 minutes of resin binder application.

Cure HFST for a minimum period recommended by the resin binder supplier. During curing period do not allow vehicles, construction equipment, or foot traffic on the HFST.

HFST that has not completely cured is considered non performing and must be removed and replaced before opening to traffic.

37-6.03D Excess Aggregate Removal and Reuse

Excess calcined bauxite aggregate must be recovered by a mechanical sweeper and may be reused for HFST. Before reuse of recovered calcined bauxite aggregate, meet the requirements under 37-6.01D(2) and blend with new calcined bauxite aggregate at a rate of 2 to 1 by volume. Provide a record of all recovered calcined bauxite aggregate used and test results. Super sacks or stockpile containing the blended recovered calcined bauxite aggregate must be clearly marked "Recovered Calcined Bauxite Aggregate" and the contract number.

Before opening to public traffic, remove excess and loose aggregate from the traveled way and shoulders by sweeping. HFST must be completely cured before sweeping and there must be no damage or dislodging of aggregate from HFST surface. Perform additional sweeping before placement of pavement markers and delineation.

37-6.04 PAYMENT

Not Used