

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

OFFICE ENGINEER

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*Flex your power!
Be energy efficient!*

May 16, 2011

01-Lak, Men-29, 175-VAR

01-3994U4

Project ID 0100020273

ACSTP-000C(339)E

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN LAKE AND MENDOCINO COUNTIES AT VARIOUS LOCATIONS.

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 Tuesday, May 24, 2011.

This addendum is being issued to revise the Project Plans, the Notice to Bidders and Special Provisions, and the Bid book.

Project Plan Sheets 15, 17, 18 and 58 are revised. Copies of the revised sheets are attached for substitution for the like-numbered sheets.

In the Special Provisions, Section 10-1.18, "TEMPORARY LIGHTING SYSTEM," is deleted.

In the Special Provisions, Section 10-1.21, "EXISTING HIGHWAY FACILITIES," subsection "REMOVE CONCRETE," the following paragraphs are added after the third paragraph.

"Where no joint exists between concrete to be removed and concrete to remain in place, the concrete shall be cut on a neat line to a minimum depth of 0.17-foot with a power driven saw before the concrete is removed.

Full compensation for removing and disposing of concrete is included in the contract price paid per linear foot for concrete barrier (transition anchor block), and no separate payment will be made therefor."

In the Special Provisions, Section 10-1.28, "RUBBERIZED HOT MIX ASPHALT (GAP GRADED)," is revised as attached.

In the Special Provisions, Section 10-1.39, "CONCRETE BARRIER," the fifth and sixth paragraphs are revised as follows:.

"Full compensation for dowels to be bonded into drilled holes shall be considered as included in the contract price paid per linear foot for concrete barrier (transition anchor block) and no separate payment will be made therefor

Full compensation for drilling holes, including coring through reinforcement, when approved by the Engineer, and bonding dowels, shall be considered as included in the contract price paid per linear foot for concrete barrier (transition anchor block) and no separate payment will be made therefor."

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In the Bid book, in the "Bid Item List," Item 24 is revised, Items 69 and 70 are added and Items 40 and 68 are deleted as attached.

To Bid book holders:

Replace pages 4 and 6 of the "Bid Item List" in the Bid book with the attached revised pages 4 and 6 of the Bid Item List. The revised Bid Item List 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 Bidders section of the Notice to Bidders 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 Bid book.

Submit bids in the Bid 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 addendum and attachments are available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/01/01-3994U4

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



CHARLIE FIELDER
District Director

Attachments

10-1.28 RUBBERIZED HOT MIX ASPHALT WITH WARM MIX ASPHALT

GENERAL

Summary

This work includes producing and placing rubberized hot mix asphalts (gap graded) (RHMA-G) with a warm mix asphalt additive (WMA) using the Quality Control / Quality Assurance process. Comply with Section 39, "Hot Mix Asphalt," of the Standard Specifications and these Standard Special Provisions.

For RHMA-G with WMA use one of the following warm mix asphalt additives:

Product name:	Evotherm
Producer name:	MeadWestvaco Corporation
Contact:	Scott Dmytrow
Phone number:	(916) 825 – 9415
Product name:	Advera
Producer name:	PQ Corporation
Contact:	Annette Smith
Phone number:	(610) 651 – 4469
Product name:	Sasobit
Producer name:	Sasol Wax Americas, Inc.
Contact:	Larry Michael or John Shaw
Phone number:	(301) 745 – 3334 or (203) 925-4316

Include the type of warm mix asphalt technology and the application rate chosen in your job mix formula (JMF) submittal. Do not utilize the WMA technology during the mix design.

Include WMA technology in material production for JMF verification.

Exact amount of warm mix additive to be added to RHMA-G shall be determined by the warm mix manufacturer and be approved by the Engineer.

Submittals

Submit information from the warm mix asphalt technology selected for use. Submit the method and location for addition of the additive during production.

Submit a list of names participating in the prepaving conference. Identify each participant's name, employer, title, and role in construction of RHMA-G with WMA.

Submit the log of production data on electronic and printed media at the end of each production shift, or when requested by the Engineer. Each set of production data on electronic media must be in line feed carriage return, on one line, on a separate record, and with sufficient fields to satisfy the amount of data specified. The daily log must include:

1. Date of production
2. Time of day the data is captured
3. Data titles at least once per report
4. Aggregate size being treated
5. Flow rate of wet aggregate collected directly from the aggregate weigh belt
6. Aggregate moisture content at the time of treatment expressed as a percent of the dry aggregate
7. Total AC Binder
8. Total WMA weight
9. Calculated difference between the agreed warm mix asphalt additive ratio and the actual warm mix asphalt additive ratio

Quality Control / Quality Assurance Projects

With the job mix formula (JMF) submittal, submit:

1. California Test 371 tensile strength ratio results for untreated RHMA-G using warm mix asphalt additive
2. California Test 204 plasticity index results on the aggregate blend if untreated RHMA-G using warm mix asphalt additive tensile strength ratio is below 70
3. California Test 371 tensile strength ratio results for treated RHMA-G using warm mix asphalt additive if untreated RHMA-G using warm mix asphalt technologies tensile strength ratio is below 70

At project start-up and once during production, submit samples split from your RHMA-G production sample for California Test 371 to the Engineer and the Transportation Laboratory, Attention: Moisture Test.

The Department does not use your California Test 371 test results to determine specification compliance.

With JMF submittal, at project start-up, and each 5,000 tons, submit California Test 371 test results for mix design and production to the Engineer and electronically to:

Moisture_Tests@dot.ca.gov

For the mix design:

1. Determine tensile strength ratio under California Test 371 on untreated RHMA-G with warm mix asphalt additive. Comply with the following:
 - 1.1. If the test result is greater than or equal to 70, the Engineer does not require further tensile strength ratio testing or plasticity index testing for mix design.
 - 1.2. If the tensile strength ratio for untreated RHMA-G using warm mix asphalt technologies is less than 70:
 - 1.2.1. Determine the plasticity index of the aggregate blend under California Test 204.
 - 1.2.2. Choose an antistrip treatment based on the "Antistrip Treatment and Lab Procedures for Mix Design" table and treat RHMA-G.
 - 1.2.3. Determine tensile strength ratio under California Test 371 on treated RHMA-G using warm mix asphalt technologies.
2. If the tensile strength ratio testing for treated RHMA-G is greater than or equal to 70, use that antistrip treatment in the mix design.
3. If the tensile strength ratio testing for treated RHMA-G is less than 70, the minimum tensile strength specification is waived, but you must use any of the following:
 - 3.1. HMA aggregate lime treatment – slurry method
 - 3.2. HMA aggregate lime treatment – dry lime method
 - 3.3. Liquid antistrip treatment using 0.5 percent liquid antistrip

Choose an antistrip treatment and use the corresponding laboratory procedure for the mix design in compliance with:

Antistrip Treatment and Lab Procedures for Mix Design

Antistrip Treatment	Lab Procedure
Plasticity index from 4 to 10 ^a	
Dry hydrated lime with marination	LP-6
Lime slurry with marination	LP-7
Plasticity index less than 4	
Liquid	LP-5
Dry hydrated lime without marination	LP-6
Dry hydrated lime with marination	LP-6
Lime slurry with marination	LP-7

Notes:

^a If the plasticity index greater than 10, do not use that aggregate blend

Antistrip Treatment

Treat asphalt binder with liquid antistrip under "Liquid Antistrip Treatment of Asphalt Binder." Submit test results proving your chosen dosage rate will result in a TSR of greater than 70. For the mix design, use Lab Procedure LP-5.

Sample Preparation

Condition HMA field mix samples (JMF verification, QC and QA) at a temperature of $140 \pm 5^\circ\text{F}$ in an oven equipped with air circulation for 15 to 18 hours or at a temperature of $295 \pm 5^\circ\text{F}$ in an oven equipped with air circulation for 4 to 6 hours.

Thoroughly mix and split the mixture using a riffle splitter, quarter master splitter, bituminous rotating pan splitter or by the hand quartering method into amounts needed for the desired test procedure.

MATERIALS

Asphalt Binder

Asphalt binder mixed with asphalt modifier and crumb rubber modifier (CRM) for asphalt rubber binder must be PG 64-16.

Aggregate

The aggregate for RHMA-G must comply with the 1/2-inch grading.

Asphalt Rubber Binder Content

Determine the amount of asphalt rubber binder to be mixed with the aggregate for RHMA-G using warm mix asphalt technologies under California Test 367 except:

1. Determine the specific gravity used in California Test 367, Section B, "Void Content of Specimen," using California Test 308, Method A.
2. California Test 367, Section C, "Optimum Bitumen Content," is revised as follows:
 - 2.1. Base the calculations on the average of 3 briquettes produced at each asphalt rubber binder content.
 - 2.2. Use California Test 309 to determine theoretical maximum specific gravity and density of the RHMA-G using warm mix asphalt technologies.
 - 2.3. Plot asphalt rubber binder content versus average air voids content based on California Test 309 for each set of three specimens on Form TL-306 (Figure 3), and connect adjacent points with a best-fit curve.
 - 2.4. Plot asphalt rubber binder content versus average Hveem stability for each set of three specimens and connect adjacent points with a best-fit curve.
 - 2.5. Calculate voids in mineral aggregate (VMA) and voids filled with asphalt (VFA) for each specimen, average each set, and plot the average versus asphalt rubber binder content.

- 2.6. Calculate the dust proportion and plot versus asphalt rubber binder content.
 - 2.7. From the curve plotted in Step 2.3, select the theoretical asphalt rubber binder content that has 4 percent air voids.
 - 2.8. At the selected asphalt rubber binder content, evaluate corresponding voids in mineral aggregate, voids filled with asphalt, and dust proportion to verify compliance with requirements. If necessary, develop an alternate composite aggregate gradation to conform to the RHMA-G requirements.
 - 2.9. Record the asphalt rubber binder content in Step 2.7 as the Optimum Bitumen Content (OBC).
 - 2.10. To establish a recommended range, use the OBC as the high value and 0.3 percent less as the low value. Notwithstanding, the recommended range must not extend below 7.0 percent. If the OBC is 7.0 percent, then there is no recommended range, and 7.0 percent is the recommended value.
3. Laboratory mixing and compaction must comply with California Test 304, except the mixing temperature of the aggregate must be between 300 °F and 325 °F. The mixing temperature of the asphalt-rubber binder must be between 375 °F and 425 °F. The compaction temperature of the combined mixture must be between 290 °F and 300 °F.

Tack Coat

For tack coat, use CRS2, CSS-1, or asphalt binder based on atmospheric temperature:

Tack Coat Atmospheric Temperature Requirements	
Atmospheric Temperature	Tack Coat
Less than 60 °F	Asphalt Binder
60 °F to 75 °F	CRS2
Greater than 75 °F	CRS2, CSS-1

For tack coat applied over open graded surfaces, use application rates for planed pavement.

General

During production, make loose RHMA-G with warm mix asphalt additives available at the plant for sampling. The Engineer determines the quantity and time for sampling.

Prepaving conference

Discuss RHMA-G with WMA at the prepaving conference. Discuss the methods for production and placement including contingency planning and standards or workmanship.

Provide the facility for the prepaving conference. Attendees must include:

1. Project Manager
2. Paving Superintendent
3. Technical representative for WMA technology
4. Paving subcontractors
4. Plant manager

Technical Representatives

A technical representative from the warm mix asphalt technology must be present during production and placement of the RHMA-G with WMA. The technical representative must advise you, and the Engineer. The technical representatives must direct the warm mix operation as it relates to their warm mix asphalt additive.

The technical representatives must advise the plant manager and plant operator regarding plant and controller modifications necessary for product delivery and proper mixing.

Plant modifications must comply with Material Plant Quality Program (MPQP).

Materials Production Quality Program

Review the plant to assure compliance with the MPQP at least 15 days before production of RHMA-G using WMA.

CONSTRUCTION

Proportioning Warm Mix Asphalt Additives

General

Proportion warm mix asphalt additives by weight. Use either a continuous or batch type plant.

Continuous Mixing

If continuous proportioning for RHMA-G with WMA is used, determine the exact ratio of WMA to the total RHMA-G at the production rates to be used. Rate-of-flow indicators and totalizers for like materials must be accurate within 0.5 percent from each other. Comply with the following:

1. Weigh dry warm mix asphalt additives with a belt scale. If operating from 30 to 100 percent of production capacity, the average difference between the indicated weight of material delivered and the actual weight delivered must not exceed 1.0 percent of the actual weight for 3 individual runs. For any of the 3 individual runs, the indicated weight of material delivered must not vary from the actual weight delivered by more than 2.0 percent of the actual weight. The platform scale's maximum capacity must not exceed 250 lb, with a maximum graduation size of 0.10 pound. Each test run must be at least 100 pounds of warm mix asphalt additive.
2. Measure liquid warm mix asphalt additive with a meter. If operating from 50 to 100 percent of production capacity, the difference between the indicated weight of liquid delivered and the actual weight delivered must not exceed 0.5 percent of the average weight for 3 individual runs, with no single run over 1.0%. Weigh tests on a platform scale located at the proportioning plant. The platform scale's maximum capacity and graduation size must comply with the requirements found in Table A of the MPQP Manual appendix. Minimum draft size shall conform to the requirements found in table A of the MPQP Manual appendix.

Batch Mixing

If batch proportioning for RHMA-G with WMA is used, comply with the following:

1. Proportion dry warm mix asphalt additives by weight. Weigh the additive at the warm mix asphalt production site with a scale whose maximum capacity does not exceed 250 lb, with a maximum graduation size of 0.10 pound. If batches use dry warm mix additive weighing less than 1 ton, use an automatic batch controller. Each test run must be at least 100 pounds of warm mix asphalt additive.
2. Measure liquid warm mix asphalt additive with a meter. If operating from 50 to 100 percent of production capacity, the difference between the indicated weight of liquid delivered and the actual weight delivered must not exceed 0.5 percent of the average weight for 3 individual runs, with no single run over 1.0%. Weigh tests on a platform scale located at the proportioning plant. The platform scale's maximum capacity and graduation size must comply with the requirements found in Table A of the MPQP Manual appendix. Minimum draft size shall conform to the requirements found in table A of the MPQP Manual appendix.

HMA-G with WMA Production and Placement

Produce an asphalt mixture at a temperature not to exceed 315 °F.

Spread RHMA-G with warm mix asphalt additive only if atmospheric and surface temperatures are:

Minimum Atmospheric and Surface Temperatures

Compacted Layer Thickness, feet	Minimum Atmospheric and Surface Temperatures			
	Atmospheric, ° F		Surface, ° F	
	Unmodified Asphalt Binder	Modified Asphalt Binder ^a	Unmodified Asphalt Binder	Modified Asphalt Binder ^a
< 0.15	45	45	50	50
0.15 – 0.25	40	40	45	45

Note:

^a Except asphalt rubber binder.

1. RHMA-G with WMA temperature, behind the screed, will be a minimum of 265 °F.
2. Finish compaction before the surface temperature drops below 150 °F.
3. Do not allow traffic on new RHMA-G with WMA until the mid-depth temperature is below 125 °F.
4. Coring for density measurement will not occur until a minimum of 72 hours after placement.
5. All trucks will be tarped during transport of RHMA-G with WMA.

Material Transfer Vehicle

Use a material transfer vehicle (MTV). The MTV must:

1. Receive HMA directly from the truck without depositing the HMA on the roadway surface.
2. Transfer HMA directly into the paver's receiving hopper or feed system.
3. Remix the HMA, with augers, before loading the paver.
4. Have a minimum capacity of 20 tons.

The materials transfer vehicle must not be operated or transported over bridges unless it meets weight limitations.

Vertical Joints

Before opening the lane to public traffic, pave shoulders and median borders adjacent to a lane being paved.

Place RHMA-G with warm mix additive on adjacent traveled way lanes so that at the end of each work shift, the distance between the ends of RHMA-G layers on adjacent lanes is between 5 feet and 10 feet. Place additional RHMA-G with warm mix additive along the transverse edge at each lane's end and along the exposed longitudinal edges between adjacent lanes. Hand rake and compact the additional RHMA-G with warm mix additive to form temporary conforms. You may place Kraft paper, or another approved bond breaker, under the conform tapers to facilitate the taper removal when paving operations resume.

Conform Tapers

Place additional RHMA-G with warm mix additive along the pavement's edge to conform to road connections and private drives. Hand rake, if necessary, and compact the additional RHMA-G to form a smooth conform taper.

PAYMENT

The contract unit price paid per ton for rubberized hot mix asphalt (gap graded) with warm mix asphalt additive shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in producing and placing rubberized hot mix asphalt (gap graded) with warm mix asphalt additive, complete in place, including warm mix additives and technical representation, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

BID ITEM LIST

01-3994U4

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21	190110	LEAD COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
22	190113	ASBESTOS COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
23	190114	DUST CONTROL PLAN	LS	LUMP SUM	LUMP SUM	
24	198001	IMPORTED BORROW	CY	1,100		
25	198007	IMPORTED MATERIAL (SHOULDER BACKING)	TON	11,500		
26	020676	WEED CONTROL MAT (FIBER)	SQYD	2,250		
27	374207	CRACK TREATMENT	LNMI	90		
28	390095	REPLACE ASPHALT CONCRETE SURFACING	CY	780		
29	390131	HOT MIX ASPHALT	TON	36,300		
30	390135	HOT MIX ASPHALT (LEVELING)	TON	20,000		
31	390137	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	TON	70,100		
32	020677	CENTERLINE RUMBLE STRIP (HMA, GROUND-IN INDENTATIONS)	STA	400		
33	394053	SHOULDER RUMBLE STRIP (HMA, GROUND-IN INDENTATIONS)	STA	26		
34	394060	DATA CORE	LS	LUMP SUM	LUMP SUM	
35	394073	PLACE HOT MIX ASPHALT DIKE (TYPE A)	LF	8,740		
36	394074	PLACE HOT MIX ASPHALT DIKE (TYPE C)	LF	380		
37	394076	PLACE HOT MIX ASPHALT DIKE (TYPE E)	LF	14,500		
38	394077	PLACE HOT MIX ASPHALT DIKE (TYPE F)	LF	900		
39	397005	TACK COAT	TON	650		
40	BLANK					

BID ITEM LIST**01-3994U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	7,000		
62	850122	PAVEMENT MARKER (RETROREFLECTIVE-RECESSED)	EA	12,300		
63	860090	MAINTAINING EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS DURING CONSTRUCTION	LS	LUMP SUM	LUMP SUM	
64	020680	DETECTOR LOOP (TYPE A)	EA	48		
65	020681	PIEZO	EA	4		
66	020682	DETECTOR LOOP (TYPE D)	EA	14		
67	020683	REPLACE DETECTOR HANDHOLE	EA	14		
68	BLANK					
69 (F)	020910	CONCRETE BARRIER (TRANSITION ANCHOR BLOCK)	LF	60		
70	999990	MOBILIZATION	LS	LUMP SUM		

TOTAL BID:

\$ _____