

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

OFFICE ENGINEER

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*Serious Drought.  
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May 2, 2014

03-Nev-80-21.2/28.1

03-4M8404

Project ID 0313000074

ACIM-0804(199)

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN NEVADA COUNTY NEAR TRUCKEE FROM TRUCKEE RIVER BRIDGE 17-0012 TO TRUCKEE RIVER BRIDGE 17-0063.

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, May 7, 2014.

This addendum is being issued to revise the project plans and the *Notice to Bidders and Special Provisions*.

Project plan sheet 6 is replaced and attached for substitution for the like-numbered sheet.

Project plan sheet 21 is deleted.

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In the Special Provisions, DIVISION I "GENERAL," Section 1,"GENERAL," is replaced as follows:

**Add to section 1-1.01:**

**Bid Items and Applicable Sections**

Item code	Item description	Applicable section
027266	REPLACE CONCRETE PAVEMENT (RAPID STRENGTH CONCRETE)	41
027267	ABRASIVE BLASTING CONCRETE SURFACE	41
027268	CONCRETE SURFACE HARDENER	41
027269	GRIND CONCRETE PAVEMENT (WEIGH STATION BYPASS)	42
027270	4" TWO-COMPONENT PAINT TRAFFIC STRIPE (RECESSED)	84
027271	4" TWO-COMPONENT PAINT TRAFFIC STRIPE (RECESSED, BROKEN 36-12)	84
027272	8" TWO-COMPONENT PAINT TRAFFIC STRIPE (RECESSED)	84
027273	4" TWO-COMPONENT PAINT TRAFFIC STRIPE (RECESSED) (BROKEN 17-7)	84
027274	MODIFY ROADSIDE WEATHER INFORMATION SYSTEM	86
027275	MODIFY WEIGH STATION BYPASS SYSTEM	86

In the Special Provisions, DIVISION I "GENERAL PROVISIONS," Section 2,"BIDDING," is deleted.

In the Special Provisions, Section 5-1.02A, the table in the first paragraph is replaced as follows:

**Coincident or Adjacent Contracts**

Contract no.	County-Route-Post Mile	Location	Type of work
034m6104	Nev-80-R9.0, 28.1	Donner Lake Undercrossing and Truckee River Bridge	Bridge Deck Polyester Overlay
03-4M7104	Nev,Pla-80,267	Nevada and Placer Counties at various locations	Replace joint seals and apply Methacrylate on 9 bridge decks

In the Special Provisions, Section 10-1.03, the following paragraph is added as follows:

**Replace "Reserved" in section 10-1.03 of the RSS for section 10-1 with:**

Once concrete pavement grinding and/or grooving operations start on any roadway section, complete surface abrasive blasting and concrete surface hardener work prior to October 15 of that year. A roadway section is defined as any area, eastbound, westbound, between existing bridge structures or project limits."

In the Special Provisions, Section 12-2.01, "GENERAL," the second paragraph is deleted.

In the Special Provisions, Section 41-12, "CONCRETE SURFACE HARDENING," is replaced as attached.

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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](http://www.dot.ca.gov/hq/esc/oe/electronic_bidding/electronic_bidding.html)**

Inform subcontractors and suppliers as necessary.

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

**[http://www.dot.ca.gov/hq/esc/oe/project\\_ads\\_addenda/03/03-4M8404](http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/03/03-4M8404)**

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,



JODY JONES  
District Director

Attachments

**Replace section 41-12 with:  
41-12 CONCRETE SURFACE HARDENING**

**41-12.01 GENERAL**

**41-12.01A Summary**

Section 41-12 includes specifications for treating concrete pavement with concrete surface hardener.

**41-12.01B Definitions**

Reserved

**41-12.01C Submittals**

At least 20 days before starting concrete surface hardening work, submit for concrete surface hardener:

1. Manufacturer's instructions
2. Technical datasheet
3. Certificate of compliance
4. Certified test results and chemical analysis
5. MSDS
6. 2-gal material samples of each hardener type in a sealed plastic container. Label each sample with the product and manufacturer names.

Submit core samples within 24 hours of sampling. Label each core sample with the:

1. Project EA
2. District-County-Route-Direction
3. Post mile
4. Lane number
5. Location description (left wheel path, right wheel path, or center of lane)
6. Core number
7. Hardener type
8. Sampling date

**41-12.01D Quality Control and Assurance**

**41-12.01D(1) General**

Before applying concrete surface hardener, arrange for a representative from the manufacturer to provide training on placement. Do not apply concrete surface hardener until your personnel and the Department's personnel have been trained.

**41-12.01D(2) Cores**

All core samples must have a 4-inch diameter and be the full-depth of the concrete pavement. All coring locations must be authorized by the Engineer before sampling.

Before applying each type of concrete surface hardener, extract 3 cores from the untreated pavement surface where the hardener will be applied.

After applying and curing each type of concrete surface hardener, extract 6 cores from the treated concrete pavement.

Extract at least 1 untreated and 1 treated core from the test strip.

#### 41-12.01D(2) Test Strip

Complete a test strip for each type of concrete surface hardener used before starting concrete surface hardening work for that hardener type.

The test strip must:

1. Be at least 100 feet long and 12 feet wide
2. Be placed within the project limits at an authorized location
3. Be constructed using the same equipment and materials as the production work
4. Replicate field conditions for the production work
5. Determine the effect of varying the concrete surface hardener application rate
6. Demonstrate that the proposed means and methods comply with the specifications
7. Demonstrate that the production work will be completed within the time allowed

The Engineer determines acceptability of the test area.

#### 41-12.01E Acceptance Criteria

The final treated pavement surface and texture must pass visual inspection and have a coefficient of friction of at least 0.35 determined under California Test 342.

Allow at least 25 days after concrete surface hardening treatment for the Department to schedule testing for coefficient of friction. The Engineer provides 15 days notice for you to provide traffic control for testing at each location. Notify the Engineer when the pavement is scheduled to be opened to traffic.

The abrasion loss under California Test 550 for each treated core must be less than the untreated core.

#### 41-12.02 MATERIALS

##### 41-12.02A General

Notify the Engineer at least 10 days before delivery of materials in containers over 55 gallons to the job site.

Store concrete surface hardener in a cool, dry place between 65 and 80 degrees F. Containers must be factory sealed and labeled with batch numbers and the product name.

Tint the concrete surface hardener with a fugitive dye that is distinguishable on treated surfaces for between two hours and seven days after application.

##### 41-12.02B Concrete Surface Hardener

Concrete surface hardener must be a reactive lithium silicate, water-based solution with the following properties:

Property	Requirement
Surface penetration depth (mm, min)	4
Shelf life (years, min)	1
Surface reaction gel time (minutes, min)	20

Concrete surface hardener must not:

1. Contain any sodium silicate added to the solution
2. Form a gel, buildup, or leave visible residue when applied to the concrete surface
3. Adversely affect concrete surface friction
4. Permanently stain, discolor, or darken the concrete surface

Concrete surface hardener must contain at most trace amounts of sodium.

If concrete surface hardener contains potassium silicate, the ratio of lithium silicate to potassium silicate must be at least 1:1 by weight.

Do not use multiple types of concrete surface hardener products within a designated section unless authorized by the Engineer. Concrete surface hardener must be one of the following products where shown:

1. Use Hardener A from Post Mile 21.2 to 23.6. Hardener A must have at least 23 percent active solids and be either of the following reactive lithium silicate solutions or equal:

LITHISIL 25  
PQ Corporation  
PO Box 840  
Valley Forge, PA 19482-0840  
Phone: 800-944-7411  
<http://www.pqcorp.com/>

ADVAN NANO-LITHIUM NL-25  
Advanced Concrete Technologies, LLC  
115 North 1380 West  
Orem, UT 84057  
801.226.1398  
[www.advanconcrete.com](http://www.advanconcrete.com)  
Email: [info@advanconcrete.com](mailto:info@advanconcrete.com)

2. Use Hardener B from Post Mile 23.6 to 26.0. Hardener B must have at least 16 percent active solids and be either of the following modified lithium silicate solutions or equal:

TRANSIL-(PLUS/\*C) Concrete Wear Protection Surface Hardener with Anti-Scale Protection  
CONVERGENT CONCRETE TECHNOLOGIES, LLC  
115 North 1380 West  
Orem, Utah 84057  
801.375.2280  
<http://www.convergentconcrete.com>

PAVEMEND ANTI-SCALE (Li) Concrete Surface Hardener with Anti-Scale Protection  
CERATECH, LLC  
1500 North Beauregard 51, Suite 320  
Alexandria, VA 22311  
800.581.8397  
Distributors: 800.581.8397

3. Use Hardener C from Post Mile 26.0 to 28.1. Hardener D must have at least 23 percent active solids and be either of the following modified lithium silicate solutions or equal:

NANOSSET DENSIFIER Li  
NewLook International, Inc  
1525 S. Gladiola Street, Suite #8  
Salt Lake City, UT 84104  
877.763.9566  
[www.getnewlook.com](http://www.getnewlook.com)  
Email: [info@getnewlook.com](mailto:info@getnewlook.com)

FORMULA ONE LITHIUM DENSIFIER MP  
L.M. Scofield Company  
6533 Bandini Blvd.  
Los Angeles, CA 90040  
800.800.9900  
<http://www.scofield.com>

Lithium silicate concrete surface hardeners may be subject to product licensing agreements and fees. Information is available from:

ADVAN  
Advanced Concrete Technologies, LLC  
115 North 1380 West  
Orem, UT 84057  
801.226.1398  
www.advanconcrete.com  
Email: info@advanconcrete.com

#### **41-12.02C Water**

Use clean, potable water for diluting concentrated concrete surface hardener. Comply with the manufacturer's instructions.

#### **41-12.03 CONSTRUCTION**

##### **41-12.03A General**

Reserved

##### **41-12.03B Concrete Surface Preparation**

Prepare concrete surfaces by abrasive blasting under section 41-11 where shown before applying concrete surface hardener.

Clean surfaces receiving concrete surface hardener that were not abrasive blasted. Use a combination of flushing with water, power sweeping and vacuuming, or low pressure water blasting and any other methods that will not damage the concrete surface or leave residue. Water blasting equipment must be capable of producing a blast pressure of 3,000 to 6,000 psi. Do not use only mechanical kick broom methods. Remove:

1. Dust
2. Dirt
3. Debris
4. Loose material
5. Curing compound
6. Petroleum based sealers
7. Oil
8. Laitance
9. Existing and temporary traffic stripes, pavement markings, and markers

Prior to treating surfaces that were not abrasive blasted with concrete surface hardener, use high-pressure air free of moisture and oil to blow the concrete surface, joints, and cracks until clean and dry. Air compressors must deliver air at a minimum of 120 cfm and develop 90 psi of nozzle pressure.

Protect surfaces of other materials surrounding or near the surfaces to receive concrete surface hardener from overspray or spillage.

Do not allow traffic on prepared surfaces prior to application of concrete surface hardener.

If the pavement surface becomes contaminated before applying concrete surface hardener, prepare the area again by abrasive blasting under section 41-11 or other authorized method. Clean the contaminated area before applying concrete surface hardener.

#### **41-12.03C Diluting and Mixing Concrete Surface Hardener**

Before applying, dilute and thoroughly mix concentrated concrete surface hardener with water under the manufacturer's instructions and in the Engineer's presence.

Do not dilute Hardener A or Hardener B.

Dilute Hardener C at a ratio of 1 part concrete surface hardener to 1 or 2 parts water by volume as recommended by the manufacturer.

For each diluted batch of concentrated concrete surface hardener, submit within 24 hours of applying:

1. Weight ratio of active concrete surface hardener ingredients to water in the original concentration
2. Volume of concrete surface hardener before diluting
3. Volume of added water
4. Final dilution ratio of concrete surface hardener to water by volume

#### **41-12.03D Applying Concrete Surface Hardener**

Do not apply concrete surface hardener until the material is authorized by the Engineer. Allow 10 days for authorization.

Where authorized by the Engineer, do not apply concrete surface hardener to areas designated for control test sections.

Apply concrete surface hardener to a dry concrete surface with a temperature from 45 to 110 degrees F.

Do not apply concrete surface hardener when the wind speed is greater than 5 mph or the ambient air temperature is:

1. Less than 40 degrees F
2. Greater than 100 degrees F
3. Forecast by the National Weather Service to be 32 degrees F or less within 12 hours of application

Do not apply if rain is forecast by the National Weather Service within 8 hours of application.

Apply Hardener A and diluted concrete surface hardener at a rate between 15 and 20 sq yd/gal. The Engineer determines the exact application rate. Apply concrete surface hardener using a meter that measures gallons. Calibrate the meter under California Test 109.

Apply concrete surface hardener using a spray machine, squeegee, or brush according to the manufacturer's instructions. If a spray machine is used, the pump pressure at the spray bars must not cause atomization. Do not:

1. Use compressed air
2. Allow excess concrete surface hardener material to pool on the pavement surface
3. Allow concrete surface hardener to flow into traffic lanes

The treated concrete surface must remain wet and saturated for at least 20 minutes. Redistribute excess concrete surface hardener material using a squeegee or broom within 2 minutes of applying. Reapply concrete surface hardener if coverage is insufficient or any area of treated concrete surface does not appear wet for at least 20 minutes after applying.

If applying concrete surface hardener manually, limit the batch quantity to 5 gallons.

Remove concrete surface hardener from surfaces not intended for treatment and restore the surface.

Remove excess concrete surface hardener material before it dries and crystallizes.

Do not allow any traffic on treated pavement for at least 2 hours after applying concrete surface hardener.

#### **41-12.03E Curing**

Cure concrete surface hardener under the manufacturer's instructions.

#### **41-12.03F Noncompliant Pavement**

Correct pavement that is noncompliant for coefficient of friction by abrasive blasting under section 41-11, grooving, or grinding under section 42. Do not start corrective work until your corrective method is authorized.

Correct the entire lane width before installing any required joint seal or edge drains adjacent to the noncompliant area. Begin and end corrective work at lines perpendicular to the roadway centerline. The corrected area must have a uniform texture and appearance.

Prepare the area and reapply concrete surface hardener.

#### **41-12.04 PAYMENT**

Payment is calculated based on the undiluted volume of concrete surface hardener applied to the pavement surface, not including any added water. Concrete surface hardener not applied to the pavement surface is not paid for. Abrasive blasting and removing traffic stripes, pavement markings, and markers are not included in the payment for concrete surface hardener.

The unit price for concrete surface hardener is not adjusted for changes in quantity. Sections 9-1.06B and 9-1.06C do not apply.