



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

November 18, 2024

SUBJECT: FAI Route 80 (I-80)  
Project NHPP-L5ND(674)  
Section (37-1)RS, (37-1HB,1VBY)BDR, (81-37-2BR)BDR  
Henry County  
Contract No. 64N05  
Item No. 4, December 13, 2024 Letting  
Addendum A

## NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised page iii of the Table of Contents to the Special Provisions.
2. Added pages 252-258 to the Special Provisions.

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Jack A. Elston'.

Jack A. Elston, P.E.  
Bureau Chief, Design and Environment

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## **CLEANING AND PAINTING EXPOSED REBAR**

Effective: March 20, 1997

Revised: January 1, 2007

Description. This work shall consist of cleaning and painting all exposed reinforcement bar by the methods specified on the plans; furnishing application and protection of the paint coatings and all other work described herein.

General Requirements. All exposed rebar and adjacent concrete surfaces on the substructure and superstructure shall be cleaned and painted. All surfaces to be painted shall be power washed at 2500 psi (17,240 kPa) prior to abrasive blasting. After washing, the exposed rebar shall be abrasive blasted per SSPC-SP6 Commercial Blast Cleaning followed by the Aluminum Epoxy Mastic Paint System.

Weather Conditions. The surfaces to be painted after cleaning must remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt or moisture do not come in contact with surfaces cleaned or painted that day. In addition to the paint system's manufacturer's written instructions for cleaning and painting, the following conditions shall apply. (When in conflict, the most restrictive conditions shall govern).

- (1) Cleaning and painting shall be done between April 15 and November 15.
- (2) The minimum temperature of the air and steel shall be 50 °F (10 °C) unless otherwise specified. Coatings shall not be applied to surfaces hotter than 130 °F (54 °C) or when the air temperature exceeds 100 °F (38 °C).
- (3) The surface temperature shall be at least 5 °F (3 °C) above the dewpoint of the air surrounding the surface. In addition, the relative humidity of this air shall be less than 85%.
- (4) Spray painting will not be permitted when wind velocities are greater than 15 MPH (24 kph).

These conditions will be determined by the Engineer at locations representative of the surfaces to be cleaned and painted. Work accomplished under unfavorable weather conditions will be considered unacceptable and complete recleaning and repainting of these areas will be required at the Contractor's expense.

Equipment. All cleaning and painting equipment shall include gauges capable of accurately measuring fluid and air pressures and shall have valves capable of regulating the flow of air, water or paint as recommended by the equipment manufacturer. The equipment shall be maintained in proper working order.

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Spray painting and cleaning equipment shall utilize filters, traps or separators recommended by the manufacturer of the equipment and shall be kept clean to prevent oil, water, dried paint and other foreign materials from being deposited on the surface. The filters, traps and separators shall be cleaned or drained by means, and at intervals, recommended by the manufacturer of the equipment. Paint pots shall be equipped with air operated continuous mixing devices.

Pressure type abrasive air blasting equipment shall be capable of supplying a minimum of 100 psi (690 kPa) pressure and 250 CFM (120 L/S) capacity with all air blast nozzles being used. If blast nozzle orifice sizes larger than 3/8" (9.5 mm) are being used, the minimum capacity of the equipment shall be increased according to the recommendations of SSPC Good Painting Practice, Volume 1, Chapter 2.4, Table 1. The pressure will be measured at the blast nozzle. The equipment shall be capable of providing the minimum required pressure and volume, free of oil, water and other contaminants.

Diesel or gasoline powered equipment shall be positioned or vented in a manner to prevent deposition of combustion contaminants on any part of the structure.

Prior to beginning all painting operations, air equipment shall pass the requirements of ASTM D 4285. This test will be repeated as determined by the Engineer.

Cleaning. The Contractor shall notify the Engineer 24 hours in advance of beginning surface preparation operations. The washing shall be completed no more than 2 weeks prior to surface preparation. As directed by the Engineer, washing shall be completed on surfaces to receive second or third coats when foreign matter has accumulated on previously painted surfaces. Power washing shall be accomplished by using potable water meeting the requirements of Section 702 of the Standard Specifications with a flow rate of at least 4 gallons/minute (0.25 L/S), a nozzle fan angle between 15 and 30 degrees and a minimum pressure of 2500 psi (17,240 kPa).

Surface Preparation. The surface preparation Method is defined as outlined below:

The surface preparation shall be accomplished according to the requirements of SSPC Surface Preparation Specifications SP6, for Commercial Blast Cleaning. A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining.

Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Slight residues of rust and paint may also be left in the bottoms of pits if the original surface is pitted. Unless otherwise specified, the surface preparation in these areas shall result in 1.0 to 3.5 mil (25 to 90 microns) blast profile as determined by the Engineer. The Contractor shall be careful not to damage sound paint adjacent to paint removal areas by his/her abrasive blasting operations.

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Abrasive suppliers shall certify that abrasives shall not be oil contaminated and shall have a water extract pH value within the range of 6 to 8. All surfaces prepared with abrasives which are oil contaminated or have a pH outside the specified range shall be cleaned with solvent cleaner or low pressure water as directed by the Engineer and reblasted by the Contractor at his/her expense. Silica sand shall not be used as an abrasive.

All portions of the structure which could be damaged by the blast cleaning operations, shall be protected by covering or shielding. Tarpaulins, drop cloths, or other approved materials shall be employed. The Contractor shall be responsible for any damage caused to persons, vehicles, or property. Whenever the intended purposes of the protective devices are not being accomplished, as determined by the Engineer, work shall be immediately suspended until corrections are made.

Painting. All exposed rebar and surrounding concrete surfaces adjacent to the rebar shall be painted. The limits of the area to be painted shall be 3 inches (75 mm.) beyond the exposed reinforcement in all directions. Painting shall be accomplished according to these specifications and as specified in the paint manufacturer's written instructions and product data sheets for the paint system used. The prime and finish coat shall all be supplied by the same paint manufacturer.

All ingredients in any container of paint shall be thoroughly mixed by mechanical power mixers in original containers before use or mixing with other containers of paint. The paint shall be power mixed in a manner which will break up all lumps, completely disperse pigment and result in a uniform composition. Paint shall be carefully examined after mixing for uniformity and to verify that no unmixed pigment remains on the bottom of the container. Excessive skinning or partial hardening due to improper or prolonged storage will be cause for rejection of the paint, even though it may have been previously inspected and accepted. Paint shall not remain in spray pots, painters' buckets, etc. overnight. Paint components shall not be stored at temperatures below 40 °F (4 °C). The unit weight (mass) shall be the same as the manufactured unit weight (mass) in pounds per gallon (kg/L), plus or minus 1.0 percent. If the unit weight (mass) does not fall within this range, the Contractor must take corrective action. The Contractor may try additional mixing to correct the problem. If additional mixing cannot correct the paint, it shall be rejected. Any paint that has been applied that does not meet the weight (mass) per gallon (liter) requirements shall be removed and the area shall be inspected and repainted at the Contractor's expense.

Each coat of paint shall be applied as a continuous film of uniform thickness free of pores. Each coat of paint shall be in a proper state of cure before the application of the succeeding coat. Dry film thickness shall be measured according to SSPC PA2.

Aluminum Epoxy Mastic System. All exposed rebar and surrounding concrete surfaces shall be painted with two coats of Aluminum Epoxy Mastic Paint. The dry film thickness shall be between 5.0 and 10.0 mils (125 and 250 microns) per coat. The wet film thickness shall be between 6.0 and 12.0 mils (150 and 300 microns) per coat. The total dry film thickness of the two coats shall be between 10.0 and 20.0 mils (250 and 500 microns).

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Application. The aluminum epoxy mastic coating shall not be applied when the surface temperature is below 50 °F (10 °C) and shall not be applied when the ambient temperature is expected to drop below the manufacturer's minimum application temperature before the coating has cured. Curing times at various temperatures shall be provided by the paint manufacturer.

The aluminum epoxy mastic shall be applied by spray, brush or roller according to the paint manufacturer's printed instructions. Thinning of the aluminum epoxy mastic shall be according to the manufacturer's instructions. If brushes and/or rollers are used, two applications, applied at least 8 hours apart, may be required to obtain the required dry film thickness for each of the specified coats. The first application shall be tinted according to the manufacturer's guidance to produce a distinct contrast with the second application. When topcoat is applied, the recommendations of the coating manufacturer shall be followed as to surface preparation of the aluminum epoxy mastic. When the humidity exceeds 75% during the application of the epoxy mastic, the surface shall be washed off with potable water prior to application of the topcoat.

If a paint coating is too thin or if portions of the steel are not coated completely, such portions of the work shall be corrected as directed by the Engineer. If the paint coat wrinkles or shows evidence of having been applied under unfavorable conditions, or if the workmanship is poor, the Engineer may order it removed and the steel cleaned and repainted at the Contractor's expense. All areas where the paint film exceeds the maximum thickness shall be corrected by the Contractor at his/her expense using approved methods.

#### Aluminum Epoxy Mastic Material Requirements

The aluminum epoxy mastic paint system shall be a two component epoxy containing aluminum pigment. The aluminum epoxy mastic shall be designed as a one coat high-build complete protective coating system with excellent adhesion to rusted steel, inorganic zinc and old paint after such surfaces have been properly cleaned. The aluminum epoxy mastic shall be compatible with a wide range of topcoats including waterborne acrylics, alkyds, and polyurethanes.

The material for aluminum epoxy mastic primer shall conform to the following requirements:

- (1) Pigment - The primary pigment shall be either a leafing or non-leafing aluminum pigment. Secondary pigmentation shall contain no toxic heavy metals.
- (2) Vehicle - The vehicle shall be a modified epoxy and curing agent which is suitably insensitive to moisture to allow trouble free application.
- (3) Packaged Components - The epoxy coating shall be supplied as a two-component material at a one-to-one volume mix ratio. It shall be well ground, free of caking, skins, gelation and excessive settling. The shelf life of each component shall be no less than twelve months.

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(4) Properties Of Aluminum Epoxy Mastic

- a. The mixed epoxy shall contain a minimum of 89 percent solids by weight, when tested according to ASTM D 1644, Method A, except that the sample shall be heated for 72 hours at  $100^{\circ} \pm 2^{\circ}\text{F}$  ( $38^{\circ} \pm 1^{\circ}\text{C}$ ).
- b. The weight per gallon (mass/liter) of the unmixed components shall not vary more than 0.2 pounds (0.1 kg) from the weight (mass) of the original qualification samples.
- c. The viscosity of the coating shall be a minimum of 90 KU at  $77^{\circ} \pm 2^{\circ}\text{F}$  ( $25^{\circ} \pm 1^{\circ}\text{C}$ ). Viscosity must be checked immediately after addition and mixing of components.
- d. The pot life of the epoxy coating shall be no shorter than 2 hours at  $75^{\circ}\text{F}$  ( $24^{\circ}\text{C}$ ) or one hour at  $90^{\circ}\text{F}$  ( $32^{\circ}\text{C}$ ).
- e. The epoxy coating shall air cure at a temperature of  $75^{\circ}\text{F}$  ( $24^{\circ}\text{C}$ ) or above to a hard tough film within 5 days by evaporation of solvent and chemical reaction. It shall be dry to the touch in 24 hours at  $75^{\circ}\text{F}$  ( $24^{\circ}\text{C}$ ), and be able to withstand foot traffic in 48 hours at  $75^{\circ}\text{F}$  ( $24^{\circ}\text{C}$ ).
- f. The mixture, when thinned per manufacturer's recommendations, shall exhibit no runs or sags when applied by conventional or airless spray to produce dry film thicknesses in the 5 to 10 mil (125 to 250 micron) range.

(5) Resistance Tests of Cured Aluminum Epoxy Mastic - Test panels of steel meeting the requirements of ASTM D 609, having dimensions of 2 X 5 X 1/8 inch (50 X 125 X 3 mm), shall be prepared by abrasive blasting all surfaces to a white metal finish according to SSPC-SP5. The cleaned panels shall then be exposed to outdoor weather for 30 days or until uniform rusting occurs. They shall then be hand cleaned with a wire brush according to SSPC-SP2. A 6 mil (150 micron) dry coating of the epoxy mastic shall then be applied in one coat according to the manufacturer's current printed instructions. The coating shall be cured as recommended by the manufacturer. Each of the following tests shall be performed on one or more test panels. Test panels to be scribed shall be prepared according to the requirements in ASTM D 1654. The material will not be accepted if any individual test panel fails any of the following tests:

- (a) Fresh Water Resistance. Panels shall be scribed down to base metal with an X of at least 2 inch (50 mm) legs and shall be immersed in fresh tap water at  $75^{\circ} \pm 5^{\circ}\text{F}$  ( $24^{\circ} \pm 3^{\circ}\text{C}$ ). The panels shall show no rusting, blistering, or softening beyond 1/16 inch (1.5 mm) from the scribe mark, when examined after 30 days. Discoloration of the coating will be allowed.

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- (b) Salt Water Resistance. Panels shall be scribed down to base metal with an X of at least 2 inch (50 mm) legs and immersed in 5 percent sodium chloride at  $75^{\circ} \pm 5^{\circ}\text{F}$  ( $24^{\circ} \pm 3^{\circ}\text{C}$ ). The panels shall show no rusting, blistering or softening beyond 1/16 inch (1.5 mm) from the scribe mark upon examination after 7, 14 and 30 days. Discoloration of the coating will be allowed. The sodium chloride solution shall be replaced with fresh solution after each examination.
- (c) Salt Fog Resistance. Panels shall be scribed down to base metal with an X of at least 2 inch (50 mm) legs. The panels shall then be tested according to ASTM B 117. After 1,000 hours of continuous exposure, the coating shall show no loss of bond, nor shall it show rusting or blistering beyond 1/16 inch (1.5 mm) from the center of the scribed mark.
- (d) Weathering Resistance. Panels shall be tested in accelerated weathering using either the light and water exposure apparatus (fluorescent UV-condensation type) as specified in ASTM G154 for 1000 hours with a cycle consisting of eight hours UV exposure at  $140^{\circ}\text{F}$  ( $60^{\circ}\text{C}$ ) followed by four hours of condensation at  $104^{\circ}\text{F}$  ( $40^{\circ}\text{C}$ ) or the weatherometer according to ASTM G154, Type D for 1000 hours beginning the test at the start of the wet cycle. After this period, the panels shall show no loss of bond, nor shall it show rusting, softening or blistering.
- (6) Packaging and Labeling - The aluminum epoxy mastic coating shall be packaged in two containers. The components shall be prepackaged such that mixing in a one-to-one ratio, by volume, utilizes a complete container of each component.

Each container shall have a label on which shall be clearly shown the manufacturer and brand name of paint, the lot number, the date of manufacturer and shelf life. The label on the vehicle container shall also include complete instructions for the use of this paint. The container shall be coated, if necessary, to prevent attack by the paint components.

(7) Qualification Samples and Tests

The manufacturer shall supply to an independent test laboratory, and to the Department, duplicate samples of the aluminum epoxy mastic paint for evaluation. Prior to approval and use, the manufacturer shall submit a notarized certification of the independent laboratory, together with the results of all tests, stating that the materials meet the requirements as set forth herein. The certified test report shall state lot tested, manufacturers name, product name, and date of manufacture. New certified test results and samples for testing by the department shall be submitted any time the manufacturing process or paint formulation changes. All costs of testing (other that tests conducted by the Department) shall be borne by the manufacturer.

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(8) Acceptance Samples and Certification

One quart (liter) component samples of each lot of paint produced for use on state or local agency projects shall be submitted to the Department for testing, together with a manufacturers certification. Their certification shall state that the formulation for the lot represented is essentially identical to that used for qualification testing. All acceptance samples shall be taken by a representative of the Illinois Department of Transportation. The aluminum epoxy mastic paint shall not be used until all tests are completed and they have met the requirements as set forth herein.

Method of Measurement: Limits of the area to be painted are determined by the exposed reinforcement after the loose concrete has been removed. The limits of the area to be painted and measured for payment shall be 3 inches (75 mm.) beyond the exposed reinforcement in all directions.

Basis of Payment: This work shall be paid for at the contract unit price per square foot (square meter) for CLEANING AND PAINTING EXPOSED REBAR. This shall include all equipment and labor necessary to remove loose concrete.

Added November 18, 2024