SP-230359
(New)

SPECIAL PROVISIONS
FOR
HIGH MOLECULAR WEIGHT METHACRYLATE RESIN BRIDGE DECK TREATMENT

Appanoose County
MB-005-5(503)18--77-04

Cerro Gordo County
MB-065-2(502)185--77-17
MB-065-2(503)186--77-17
MB-065-2(504)186--77-17

Ida County
MB-020-3(501)50--77-47

Muscatine county
MB-006-5(502)281--77-70

Polk County
MBIN-035-1(507)68--0M-77

Scott County
MB-061-6(510)123--77-82

Woodbury County
MBIN-029-3(509)148--0M-97
MBIN-029-3(510)149--0M-97

Wright County
MB-069-2(501)176--77-99
MB-069-2(502)173--77-99
MB-069-2(503)175--77-99

Effective Date
January 21, 2026

THE STANDARD SPECIFICATIONS, SERIES 2023, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

230359.01 DESCRIPTION.
This work shall consist of preparing the existing concrete deck surface and furnishing and applying high-molecular-weight methacrylate resin (HMWM).

230359.02 MATERIALS.

A. Provide HMWM resin in accordance with Materials I.M. 491.10 Appendix A.

B. HMWM resin consists of resin, promoter and initiator. The promoter and the initiator, if supplied separate from the resin, shall not come into direct contact with each other. Direct contact of the promoter and initiator can cause a violent chemical reaction/flash fire. Containers of promoter and initiator shall not be stored together in a manner that will allow leakage or spillage from one to contact the containers or material of the other.

C. Provide HMWM manufacturer's accelerator, if required due to field condition temperatures. Accelerator dosage shall be provided by the HMWM manufacturer.

D. Sand for the abrasive sand finish shall meet the following properties:

1. Shall be a commercial quality blast sand.

2. Shall not have less than 95% pass the No. 8 sieve and not less than 95% retained on the No. 20 sieve when tested under AASHTO T27.

3. Shall be dry at the time of application.

E. Absorbent material shall be diatomaceous earth, abrasive blast dust, or an authorized substitute recommended by the HMWM resin manufacturer.

F. Material for sealing underside deck cracks shall be as recommended by the HMWM resin manufacturer.

G. All materials shall be stored in a cool (50º F to 80º F), dry location and in their original sealed containers in accordance with the HMWM manufacturer's recommendations to ensure their preservation until used in the work. Sand must be completely protected from any moisture.

H. Submittals.

1. Submit a work plan for applying the HMWM resin. The plan shall include:
- Schedule of work for the test area and for the bridge.
- Procedure for storing and handling resin components and absorbent material.
- Description of equipment for applying resin.
- Range of gel time and final cure time for resin.
- Description of absorbent material to be used.
- Description of equipment for applying and removing excess sand and absorbent material.
- Procedure for removing resin from the deck and equipment to be used.
- Procedure for avoiding spills or discharges of resin, including materials and equipment.
- Procedure for cleaning up spills or discharges of resin, including materials and equipment.
- Procedure for plugging deck drains.
- Procedure for protecting expansion joints.
- Procedure for sealing the underside of full depth cracks to prevent resin bleed through.
- Procedure for disposing of excess resin and containers.

2. Submit safety data sheets (SDS) for all materials used on the project.

230359.03 CONSTRUCTION.

A. Surface Preparation.

1. Remove all unsound concrete and repair with a rapid setting repair mortar in accordance with Materials I.M. 491.08 – Appendix A. Resin manufacturer shall provide written verification that Contractor selected repair mortar is compatible with the HMWM resin. Allow repair materials to fully cure.

2. Abrasive blast the deck surface with steel shot, including all repair areas. Steel shot shall comply with SSPC-AB 3. Recycled steel shot shall comply with SSPC-AB 2. The deck surface shall be dry when abrasive blasting is performed. In the event the steel shot cannot reach all areas of the deck, cleaning may be done with abrasive sandblasting with the Engineer's approval.

3. Clean the deck surface by vacuuming.

4. Blow the deck surface and existing cracks clean using high-pressure oil-free compressed air.

5. The deck shall be free of all laitance, surface contaminants, paint and foreign material after surface preparation is complete.

6. Dust shall not be created during the surface preparation activities that will obstruct the view of motorists.

7. If the deck surface becomes contaminated or traffic is allowed on the clean deck before placing the HMWM, abrasive blast clean the contaminated area, clean the deck by vacuuming, and blow the deck surface and existing cracks clean using high-pressure oil-free compressed air.

B. Trial Application.

1. Complete a test area before starting deck treatment activities. Notify the Engineer at least 15 days before treating the test area.

2. A representative of the HMWM manufacturer knowledgeable in supplying, mixing, transporting, placing and curing of the HMWM resin shall be present during trial application placement. Do not start mixing or placing the HMWM resin until the manufacturer's representative is on-site.

3. The test area shall:
   - **a.** Be at least 250 square feet.
   - **b.** Be located within the project limits outside the traveled way at a location approved by the Engineer.
   - **c.** Be constructed using the same materials, equipment, and construction methods to be used in the work and under conditions similar to those anticipated when the work will be performed.
   - **d.** Contain larger width full depth cracks to determine if deck underside sealing is effective in preventing resin bleed through.

4. The completed test area shall demonstrate compliance with the requirements in this document. The Engineer shall perform friction testing of the treated test area. After completion of the test area, allow 10 days for the Engineer to perform the friction testing.

5. Do not perform deck treatment activities until the test area is approved. The approved test area is the standard of comparison in determining the acceptability of treated deck surfaces.

C. Application.

1. A representative of the HMWM manufacturer knowledgeable in supplying, mixing,

transporting, placing and curing of the HMWM resin shall be present during placement. Do not start mixing or placing the HMWM resin until the manufacturer's representative is on-site.

2. The deck shall remain dry 24 hours prior to resin application. A moisture meter may be used to verify dryness at the discretion of the Engineer in cases when surface dryness is difficult to determine. The moisture content shall not exceed 4.5%.

3. The ambient and substrate surface temperature shall be between 50ºF and 100ºF. Night work may be required when temperatures cannot be met during the day. Relative humidity shall be not more than 85% during the work. Application of HMWM resin shall not commence if rain is forecast.

4. Care shall be exercised to prevent spillage of HMWM resin or solvents into waterways. Deck drains shall be plugged prior to application.

5. HMWM applied by machine shall be combined in volumetric streams of promoted resin to initiated resin by static in-line mixers. HMWM shall be applied without atomization.

6. HMWM may be applied manually by flooding. Mix at most 5 gallons of resin at a time.

7. Thoroughly mix all HMWM components per manufacturer's requirements. Apply HMWM resin to the deck within 5 minutes of mixing at an approximate rate of 100 square feet per gallon, or as otherwise recommended by the manufacturer's representative. The exact rate will vary based on the porosity of the deck surface and the size and quantity of cracks. HMWM that thickens during application shall be rejected.

8. Uniformly spread the resin. Completely cover surfaces to be treated and fill all cracks. Redistribute excess resin using squeegees or brooms within 10 minutes of application. For textured or grooved deck surfaces, remove excess resin from the texture or groove indentations.

9. Apply the abrasive sand finish no sooner than 15 minutes after initially applying the resin and before the resin begins to set. The sand application rate shall be 2 pounds per square yard or until saturation as determined by the Engineer.

10. Apply absorbent material before opening the deck to traffic. Remove excess sand and absorbent material by vacuuming or power sweeping.

11. Traffic or equipment shall not be allowed on the treated surface until the following requirements have been met.
- **a.** Treated deck surface is tack free and not oily.
- **b.** Sand cover adheres and resists brushing by hand.
- **c.** Excess sand and absorbent material have been removed.
- **d.** No material will be tracked beyond the limits of treatment by traffic.

230359.04 METHOD OF MEASUREMENT.

A. The quantity of HMWM Bridge Deck Treatment will be measured in square feet placed and accepted. The area will be computed using the dimensions shown on the plans.

B. The quantity of Furnish HMWM Bridge Deck Treatment Material will be measured by the gallon of mixed material actually placed. No payment will be made for material wasted or not used in the work.

230359.05 BASIS OF PAYMENT.

A. The quantity of HMWM Bridge Deck Treatment will be paid at the Contract unit price per square foot. Price and payment will constitute full compensation for surface preparation, supplying materials (except treatment resin), mixing, transporting, placing, finishing, and for furnishing all equipment, tools, labor, and incidentals required to complete the work.

B. The quantity of Furnish HMWM Bridge Deck Treatment Material will be paid at the Contract unit price per gallon. Price and payment will constitute full compensation for furnishing all resin materials to the site of the work, ready for application.