

1. DESCRIPTION:

- 1.01 **GENERAL.** This work shall consist of pressure washing, abrasive blast cleaning to remove all paint, rust, rust scale, mill scale, corrosion producing contaminants, and other foreign matter, and painting structural steel surfaces with a three-coat paint system.
- 1.02 **CONTRACTOR QUALIFICATIONS -** The Contractor shall have a minimum of five (5) years of previous experience in providing surface preparation and coating application services. The Contractor must have performed at least one (1) similar project within the past two (2) years. Also, due to the complexities associated with the application of zinc-rich primer, epoxy, and urethane materials, the Contractor must provide documentation of successful completion of projects that incorporated the use of zinc-rich and two component paints.

The Contractor or any subcontractor who will perform the actual blast cleaning and/or painting shall be, at the time bids are received and for the duration of the Contract, certified in accordance with SSPC-QP1 and QP2 full status.

2. MATERIALS:**2.01 PAINT/COATING MATERIALS**

- A. The paint system shall consist of a zinc-rich primer, epoxy intermediate coat, stripe coat, and a urethane finish coat. All coating materials shall have a maximum VOC (as applied) in compliance with applicable regulations.

The following coating materials, or approved equal, shall be used. No substitutions will be considered after the letting.

Sherwin-Williams, Cleveland, Ohio

First Coat - Zinc Clad III HS (3 – 5 mils DFT)

Intermediate Coat - Macropoxy 646 (4 – 6 mils DFT)

*Additional

Intermediate Coat - Macropoxy 646 (4 – 6 mils DFT)

Finish Coat - Acrolon 218HS (3 – 5 mils DFT)

Tnemec Company, Kansas City, Missouri

First Coat - 90-97 Tnemec-Zinc Urethane Zinc Rich Primer (2.5 – 3.5 mils DFT)

Intermediate Coat - Series N69 Hi-Build Epoxoline II Epoxy (4 – 6 mils DFT)

*Additional

Intermediate Coat - Series N69 Hi-Build Epoxoline II Epoxy (4 – 6 mils DFT)

Finish Coat - Series 1075 Endura-Shield II Aliphatic Acrylic Polyurethane (2 – 5 mils DFT)

2. MATERIALS: (cont'd)**2.01 PAINT/COATING MATERIALS** (cont'd)**Carboline Company, St. Louis, Missouri**

First Coat - Carbozinc 859 (3 – 5 mils DFT)

Intermediate Coat - Carboguard 825, 888 or 893 (4 – 6 mils DFT)

*Additional
Intermediate Coat - Carboguard 825, 888 or 893 (4 – 6 mils DFT)

Finish Coat - Carbothane 133 LH (3 – 5 mils DFT)

Devoe Coatings, Rahway, New Jersey

First Coat - Devoe Catha-Coat 303H Zinc-Rich Epoxy Primer
(3 – 4 mils DFT)

Intermediate Coat - Devoe Devran 224 HS (4 – 6 mils DFT)

*Additional
Intermediate Coat - Devoe Devran 224HS (4 – 6 mils DFT)

Finish Coat - Devoe Devthane 379 (2 – 4 mils DFT)

PPG Industries, Pittsburgh, PA

First Coat - Amercoat 68HS Zinc Primer (3 – 5 mils DFT)

Intermediate Coat - Amercoat 399 (4 – 6 mils DFT)

*Additional
Intermediate Coat - Amercoat 399 (4 – 6 mils DFT)

Finish Coat - Amercoat 450H (2 – 5 mils DFT)

Mercury Paint Corp., Brooklyn, NY

First Coat - Mermas 101 Polyaminde – Epoxy Zinc Rich
Primer (3 – 5 mils DFT)

Intermediate Coat - Mermas 100 CW Aluminum Epoxy (4 – 6 mils
DFT)

*Additional
Intermediate Coat - Mermas 100 CW Aluminum Epoxy (4 – 6 mils
DFT)

Finish Coat - Merthane 300 CW Urethane Topcoat (1.5 – 2.5
mils DFT)

2. MATERIALS: (cont'd)**2.01 PAINT/COATING MATERIALS** (cont'd)**M.A.B. Paints, Philadelphia, PA**

First Coat - Ply-Tile Epoxy Zinc Rich Primer (3 – 5 mils DFT)

Intermediate Coat - Ply-Mastic 650 Epoxy (4 – 6 mils DFT)

*Additional

Intermediate Coat - Ply-Mastic 650 Epoxy (4 – 6 mils DFT)

Finish Coat - Ply-Thane 890HS (3 – 5 mils DFT)

PPG Industries, Pittsburgh, PA

First Coat - Aquapon 97-670 Zinc Rich Epoxy (3 – 4 mils DFT)

Intermediate Coat - Aquapon 97-946 All Weather DTR Epoxy (4 – 6 mils DFT)

*Additional

Intermediate Coat - Aquapon 97-946 All Weather DTR Epoxy (4 – 6 mils DFT)

Finish Coat - PittThane 95-8800 Acrylic Urethane (2 – 5 mils DFT)

International Protective Coatings, Houston, TX

First Coat - Interzinc 52 (3 – 5 mils DFT)

Intermediate Coat - Intergard 475HS (4 – 6 mils DFT)

*Additional

Intermediate Coat - Intergard 475HS (4 – 6 mils DFT)

Finish Coat - Interthane 870HS (3 – 5 mils DFT)

* **NOTE:** The additional intermediate coat shall be applied to the following surfaces:

- The exposed face and bottom flange of the entire length of the fascia beams on all spans.
- The bottom flanges and lower webs (lower 3”) of interior beams on spans over traffic.
- As a stripe coat to all of the following surfaces, wherever they are located on the remainder of the structure: welds, rivets, bolts, nuts, edges of plates, angles, lattice pieces or other shapes and corners and crevices.
- The aggregate dry film thickness of the paint system shall not exceed the sum of the upper limits of the allowable dry film thicknesses of the individual coats. In cases where the paint is applied at excessive thickness, the Engineer may, at his sole discretion, require that the coating system be completely removed and reapplied.

2. MATERIALS: (cont'd)**2.01 PAINT/COATING MATERIALS** (cont'd)

1. **Shelf Life.** The shelf life of all paint shall be a maximum of 12 months from the date of manufacture. Paint and thinner shall arrive at the work site in new, unopened containers. The label shall include the manufacturer's name, batch number, color, paint name, and date of manufacture.
2. **Paint Storage.** Paint in storage shall be protected from damage and maintained in accordance with manufacturer's recommendations. Paint will be considered in storage if it is onsite for more than 8 hours prior to application.
3. **Color.** Each single coat of paint shall be a different color and provide substantial contrast with the underlying substrate and previous coats. The colors of the primer, intermediate coat, and additional intermediate coat will be the Contractor's option. The color of the finish coat shall be as specified in contract documents.
4. **Technical Data.** The Contractor shall supply the Engineer with the paint manufacturer's technical data and material safety data sheets for each paint to be applied. The data sheets shall be delivered to the Engineer a minimum of five work days prior to beginning of work. Data sheets shall included all information required by §708-01 *Structural Steel Paints – Class 1*.

B Thinner shall be those recommended by the paint manufacturer.

C. No additives to accelerate the cure of the paint will be allowed.

D Coatings from different coating manufacturers shall not be mixed together for application under any circumstances.

2.02 **Water for Washing.** Water for pressure washing shall be potable water. Any soluble salt remover used must receive approval by the paint manufacturer. Water shall not be recycled.

2.03 **Abrasive for Blast Cleaning.** Abrasive blast media for blast cleaning shall be recyclable, ferrous metallic, abrasive grit. All new metallic abrasive shall be in compliance with the specifications of SSPC-AB 3 Ferrous Metallic Abrasive. All ferrous metallic abrasive used shall be recycled and cleaned in accordance with SSPC-AB 2. The Contractor shall select the size, blend, and hardness of the abrasive to produce an angular anchor profile of a recommended depth as indicated on the manufacturer's data sheets.

All ferrous metallic abrasive arriving on the job site shall be new, and invoices shall be submitted for acceptance. All recycling equipment shall arrive empty and clean.

2.04 **Paint Inspection Equipment.** Prior to the start of work the Contractor shall supply the Engineer with the following specifications and equipment in good working order:

1. One (1) bound copy of the Society for Protective Coatings (SSPC) surface preparation specification SSPC SP5 "*White Metal Blast Cleaning*".
2. One (1) bound copy of the SSPC Specification - SP-1 – "*Solvent Cleaning*".

2. MATERIALS: (cont'd)**2.04 Paint Inspection Equipment:** (cont'd)

3. One (1) bound copy of the SSPC Specification - SP3 "*Power Tool Cleaning*".
4. One (1) bound copy of the SSPC surface preparation specification, SSPC-SP 10 – "*Near White Metal Blast Cleaning*".
5. One (1) bound copy of the SSPC-SP-11 "*Power Tool Cleaning to Bare Metal*".
6. One (1) bound copy of the most current SSPC Pictorial Standards, SSPC-VIS 1, "*Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning*".
7. One (1) bound copy of the SSPC Paint Application Specification No. 1 "*Shop, Field, and Maintenance Painting of Steel*" (SSPC-PA1)
8. One (1) bound copy of the SSPC specification SSPC-PA2, "*Paint Application Specification No. 2 – Measurement of Dry Film Thickness with Magnetic Gages*".
9. One (1) bound copy of SSPC specification SSPC AB-2 *Specification for Cleanliness of Recycled Ferrous Metallic Abrasives*.
10. One (1) bound copy of SSPC specification SSPC AB-3 "*Specification for Newly Manufactured or Re-Manufactured Steel Abrasive*".
11. One (1) copy of ASTM D 4417 Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.
12. One (1) copy of ASTM D 4285 Test Method for Indicating Oil or Water in Compressed Air.
13. One (1) copy of ASTM D4940-89 "*Standard Test Method for Conductimetric Analysis of Water Soluble Ionic Contamination of Blasting Abrasives*".
14. One (1) copy of ASTM C136 "*Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates*".
15. One (1) Air Thermometer, pocket type, 10°F to 110°F.
16. One (1) non-contact Infrared Thermometer, 10°F to 110°F.
17. One (1) Contact Thermometer, 10°F to 110°F.
18. One (1) magnetic Dry-Film thickness Gage, Type 2 (as defined per SSPC PA-2), with a display capable of measuring 0 to 60 mils in 0.1 mil increments, with calibration shims.
19. Two (2) Wet-Film Thickness Gages, Prong-Type, capable of measuring 1 to 10 mils in 1 mil increments.
20. Psychrometer and U.S. Weather Bureau Psychrometric Tables.
21. Profile micrometer with extra coarse and extra coarse plus replica tape.

All equipment will be returned to the Contractor upon completion of the work.

All inspection instruments supplied and used for this project shall have been calibrated by the original equipment manufacturer or their authorized agent. Calibration certificates must be provided for each instrument. Instrument calibration must be conducted annually and be in force for the duration of this project.

3. CONSTRUCTION DETAILS:

The Contractor shall clean and paint all structural steel members and other miscellaneous steel items as indicated in the contract documents.

The Contractor shall provide adequate access, suitable lighting, and time for inspections to be made. Any work done while the Engineer has been restricted from access, shall be recleaned and repainted at no additional cost to the Authority.

3. CONSTRUCTION DETAILS: (cont'd)

- 3.01 **QUALITY CONTROL PLAN.** The Contractor shall provide the Engineer with a copy of the Contractor's Quality Control (QC) procedures and/or Quality Control Plan (QCP). The QCP describes the minimum QC activities that will be performed by Contractor's QC personnel to ensure compliance. The QCP shall minimally include operating procedures and maintenance records for equipment on site, proof of formal QC training for the Contractor's QC personnel on site, and daily reports including the following information:

- Compressed Air Cleanliness
- Dry Film Thickness
- Air Temperature
- Humidity and Dew Point
- Surface Temperature
- Abrasive Cleanliness Checks
- Degree of Cleanliness Achieved
- Surface Profile
- Batch Numbers of Paint Used
- Batch Numbers of Thinner Used
- Mixing According to Specification

The Contractor must provide daily reports to the Engineer at the conclusion of cleaning work and painting work and prior to inspection of such work by the Engineer. Reports at the conclusion of cleaning work and painting work shall include all pertinent information listed above that relate to such work and shall be in a format previously agreed to under the QCP.

Protective coverings, shields, or masking shall be used to protect name plates, identification plates and other items designated by the Engineer from impact or damage from surface preparation or the painting work.

- 3.02 **DETERIORATED STEEL:** The Contractor shall immediately make the Engineer aware of any steel encountered which is cracked or deteriorated due to extensive loss of section and/or holes through the members. The Engineer shall keep an inventory of the areas for future repairs, marking the areas on a set of shop drawings provided by the Owner.

- 3.03 **SURFACE PREPARATION:** Steel surfaces shall be prepared for painting by a combination of pressure washing, solvent cleaning, and abrasive blast cleaning.

The Contractor shall propose surface preparation procedures and processes which will remove salt from the surfaces in addition to removing the paint, rust, and mill scale.

Methods of salt removal may include, but are not limited to, steam cleaning or pressure washing, scrubbing after initial paint removal, abrasive blast cleaning the steel and allowing it to rust overnight followed by reblasting, or blast cleaning with blends of fine and coarse abrasives (e.g., 50/50 blend of G25 and G80 grit).

The proposed procedures for salt remediation shall be submitted for review and approved prior to cleaning operations.

When remediation methods include water and a salt reducing additive, the Contractor will be required to show that the additive will not be detrimental to the coating system that will be applied.

3. CONSTRUCTION DETAILS: (cont'd)**3.03 SURFACE PREPARATION:** (cont'd)

Pressure washing shall be performed first, followed by abrasive blast cleaning to remove all paint, rust, rust scale, and mill scale, as per SSPC, SP-10, "*Near-White Metal*" (smooth surfaces) or SSPC SP-5 "*White Metal*" (corroded, pitted surfaces). If heavy deposits of rust and scale are present, they shall be removed by hand or power tool prior to pressure washing. Deposits of bird droppings taller than ½ inch shall be removed prior to pressure washing.

- A. **Pressure Washing and Solvent Cleaning.** All steel surfaces to be painted shall be pressure washed, using an operating pressure range of 1,800 P.S.I. to 2,000 P.S.I., a minimum flow of 3.5 G.P.M., and a water temperature of 185°F to 200°F. The nozzle shall be held at a distance of six (6) inches to twelve (12) inches from the steel surface. Pressure washing shall only be allowed when ambient air temperatures are greater than 40°F and rising. In no case will pressure washing be conducted when spent wastewater could freeze on roadway or bridge surfaces or in any other way create a hazardous situation. The washing is intended to remove contaminants from the surface, not to remove tightly adhered paint. Oil and grease shall be removed by solvent cleaning as described in SSPC SP1, *Solvent Cleaning*. The areas shall be pressure washed again following this cleaning.

When the washing is completed the cleaned surfaces shall be free of dust, dirt, oil, grease, animal waste, salts, and other debris.

A containment shall be suspended around and beneath the work area during pressure washing. The containment for pressure washing is intended to capture solid paint chips and other solid debris that may become dislodged from washing operations. Unless otherwise noted, spent wash water will not require collection and will be allowed to fall to the underlying ground or waterway, provided that the other requirements of this specification are met.

If steel surfaces become contaminated or 30 calendar days elapse between washing and abrasive blasting cleaning, they shall be rewashed at no additional cost to the State.

The surface shall be allowed to dry before subsequent abrasive blast cleaning begins.

B. **Abrasive Blast Cleaning.**

1. **Atmospheric Conditions.** Blast cleaning operations shall not be conducted under the following conditions:
 - a. The relative humidity exceeds 85%.
 - b. When the substrate is damp or covered by frost.
 - c. The surface temperature is less than 5°F above the dew point.
2. **Steel Cleanliness and Profile.** All structural steel surfaces shall be blast cleaned to SSPC SP-10, *Near-White Metal*. Corroded/pitted surfaces shall be blast cleaned to SSPC-SP5, *White Metal*.

3. CONSTRUCTION DETAILS: (cont'd)**3.03 SURFACE PREPARATION:** (cont'd)**B. Abrasive Blast Cleaning:** (cont'd)

The anchor profile shall be measured in accordance with ASTM D4417, Method C. The Contractor shall ensure that the anchor profile is within the range indicated on the paint manufacturer's data sheets. The profile, at a minimum, shall be measured five (5) times in various locations every 2000 square feet prepared and once per work shift, unless otherwise ordered by the Engineer. The anchor profile shall be 2 to 4 mils unless approved by the Engineer. The Engineer may approve a profile greater than 4 mils if an area is severely corroded or pitted. If the Contractor exceeds the 4 mils profile in limited areas, the Contractor will be required to measure the profile using extra-coarse-plus replica tape and additional prime coat thickness will be required in accordance with manufacturer's recommendations to obtain a minimum 2 mil film build over the profile peaks, at no additional cost to the Authority. The blast profile shall not exceed 5 mils.

All fins, tears, slivers, flame-cut edges, burred and sharp edges, slag, or weld spatter that are present or occur during the blasting operation shall be removed by grinding, and then the area shall be reblasted to provide the required profile.

Special attention shall be given to the edges of beam flanges, angles and plates, bearings, rivets, the heads of nuts and bolts, structural steel surrounding bridge joints, and similar surfaces that are marginally accessible and difficult to clean.

Upon completion of blast cleaning and prior to inspection, the containment shall be vacuumed and the cleaned surfaces shall be free of all blasting products and paint debris.

Surfaces shall be free of all abrasive prior to inspection. Surfaces shall be cleared of all foreign matter by means of oil-free, moisture-free, compressed air or vacuum systems.

Upon completion of surface preparation, testing of representative surfaces which were previously rusted (i.e., pitted steel) will be conducted for the presence of residual chlorides. Prior to testing, the Engineer shall approve the test kit and test method utilized by the Contractor. A minimum of three (3) such tests shall be utilized in each representative area. Chloride levels shall be less than or equal to $5\Phi\text{g}/\text{cm}^2$.

If this level is exceeded, continue to clean the affected areas until acceptable results are achieved.

Following successful salt testing, reclean the surface to achieve the required surface preparation criteria.

All cleaned surfaces will be inspected by the Engineer prior to painting. Any areas that are painted before being inspected shall be cleaned and restored to the SP-10 or SP-5 standard and repainted at no additional cost to the Authority. If the cleaned surface begins to rust or becomes contaminated in any manner prior to applying primer, the surface shall be restored to SP-10 or SP-5 standard.

3. CONSTRUCTION DETAILS: (cont'd)**3.03 SURFACE PREPARATION:** (cont'd)**B. Abrasive Blast Cleaning:** (cont'd)

3. **Steel Grit.** The recyclable abrasive shall be cleaned of all paint, chips, rust, mill scale, and other foreign material after each use, prior to reuse. The cleanliness of the recycled abrasive during use shall be confirmed in accordance with SSPC-AB2. The Contractor shall execute, record, and provide the Engineer results of the nonabrasive residue test, water soluble test, and oil content test daily. The Engineer may be present during this testing. The Contractor shall also execute and provide lead content test results weekly. All equipment used for cleaning abrasive shall be specifically designed for this purpose and accepted by the Engineer.

The Contractor shall maintain a balance in the size distribution of the abrasive work mix for the duration of the abrasive blasting operations to maintain a uniform profile across the surfaces to be blasted. The work mix shall not be predominantly coarse or fine, and shall be maintained through proper removal of expended abrasive and its timely replenishment.

4. **Protection of Newly Painted Surfaces.** Throughout abrasive blast cleaning work, care shall be taken to protect newly painted surfaces from the cleaning operations. Tarps, covers, or other devices shall be used to protect new paint from contamination or damage. Contaminated areas of new paint shall be cleaned as necessary prior to the next coat of paint. Damaged paint shall be blast cleaned to the required condition, and then repainted at no additional cost to the Authority.
5. **Vacuuming.** After cleaning operations are completed, all debris generated by the cleaning work shall be removed by vacuuming using HEPA-filtered vacuums. A HEPA filter shall be defined as a filter that is at least 99.97% efficient for particles that are 0.3 Φ m in diameter, or larger.
6. **Equipment.** All equipment and compressors used in the cleaning operation shall be equipped with filters and traps to prevent moisture, oil, and other contaminants from being deposited on clean surfaces. The air cleanliness shall be verified by the Contractor with the white blotter test in accordance with ASTM D4285 at least once per shift for each compressed air system.
7. **Cleaning Area.** The area cleaned shall be limited to that which can be cleaned, inspected and prime coated within a 10-hour period. Cleaned areas shall be inspected by the Engineer prior to priming. Areas that exhibit flash rusting or fail to meet the local standard prior to painting shall be re-cleaned to the approved standard at no additional cost to the Authority.

- C. **Visual and Project Standards.** The Contractor shall prepare at least one (1) project cleaning standard for each representative area on the structure that is being prepared for painting. Multiple standards may be required if the cleaned steel differs significantly from the photographic standards due to surface conditions, or other factors such as distance of the standard from the work area.

3. CONSTRUCTION DETAILS: (cont'd)**3.03 SURFACE PREPARATION:** (cont'd)**C. Visual and Project Standards:** (cont'd)

The prepared cleaning standard shall conform to SSPC VIS 1, "*Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning*" Pictorial Standard as applicable, and shall be approved by the Engineer before the start of general cleaning work. Each cleaning standard shall be at least 12 inches x 12 inches in size, and shall be located in an area of the structure that is easily accessible, and approved by the Engineer.

The Contractor shall protect the work standard from corrosion and contamination throughout the duration of work by applying a clear coat of polyurethane. At the completion of cleaning work, the cleaning standard shall be cleaned and painted. If the project standard becomes deteriorated, or otherwise ineffective, it shall be reestablished at no additional cost to the Authority. In case of a dispute over the visual standard, the written standard shall take precedence.

3.04 PAINTING: The Contractor shall apply three (3) full coats of new paint and one (1) stripe coat to all surfaces cleaned to SP-10 or SP-5. The paint shall be applied in the following order: primer, intermediate coat, stripe coat, and the finish coat.

A. Atmospheric Conditions. Paint shall be applied when the receiving surface and ambient temperatures are between 50°F and 110°F, or in accordance with the coating manufacturer's written recommendations. No paint shall be applied unless the receiving surface is absolutely dry.

Paint shall not be applied when the relative humidity is more than 85% unless the paint manufacturer's requirements are more restrictive. No paint shall be applied during rain or when rain is forecast to occur by the National Weather Service for the project location during painting operations. All painted surfaces shall be protected from direct exposure to rain for the time interval recommended by the paint manufacturer for proper cure. The Contractor shall observe the dew point and humidity restrictions listed on the manufacturer's data sheets.

If an epoxy coating is exposed to temperatures or humidity conditions outside of the manufacturer's recommended values prior to cure, all affected surfaces shall be visually examined for greased or oily surfaces which may have formed. The Engineer may require the Contractor to use a commercially available amine blush test kit at locations chosen by the Engineer. If testing indicates the presence of an amine blush or if there is any oily film on the surface, the surfaces shall be cleaned and prepared for top coating in accordance with paint manufacturer's recommendations at no additional cost to the Authority.

B. Paint Mixing. All paint shall be thoroughly mixed with mechanical mixers in accordance with the manufacturer's recommendations. After mixing, the bottom of the container shall be free of any unmixed pigment prior to use.

C. Solvents and Thinners. Paint may be thinned if recommended by the manufacturer and approved by the Engineer. The primer shall not be thinned such that the resulting VOC exceeds 4.1 lbs/gal. The intermediate and finish paints shall not be thinned such that the resulting VOC level exceeds 2.8 lbs/gal. The manufacturer's data sheets shall advise the Contractor and Engineer of the maximum amount of thinner allowed.

3. CONSTRUCTION DETAILS: (cont'd)**3.04 PAINTING:** (cont'd)**C. Solvents and Thinners.** (cont'd)

Use of unauthorized thinners or using excess amounts of thinners is prohibited. Any area where unauthorized or improper amounts of solvents or thinners are used shall be recleaned and repainted at no additional cost to the Authority. All thinning shall be performed in the presence of the Engineer.

D. Paint Application. Painting shall not begin until cleaned surfaces have been inspected and approved by the Engineer. Paint may be applied using spray or brush and roller, unless otherwise indicated by the Contract Documents. All paint shall be applied so as to produce a uniform, even coating free of runs, sags, drips, ridges, or other defects. Roller nap shall be limited in accordance with the paint manufacturer's recommendation. Brushes and rollers used to apply the paint must be of a quality to produce a smooth uniform coating without leaving fibers in the coating.

Protection against paint spatter, spillage, wind blown paint, or similar releases of paint shall be provided. Covers, tarps, mesh, and similar materials shall be placed around the work area to protect public and private property, pedestrian, vehicular or marine traffic, all portions of the bridge, highway appurtenances, waterways, and similar surrounding areas and property, upon, beneath, or adjacent to the structure. The use of spray equipment for paint application shall be allowed within containments provided that the aforementioned protection against paint release is provided, all equipment used (including tarps, mesh and similar materials) meets all safety requirements for such enclosed use with paint spraying, and all OSHA requirements for safety and ventilation are met.

1. Material Testing: The Authority reserves the right to conduct tests of the materials at any time, and any number of times during the period of field painting.

- (a) The Engineer will sample the paint(s) being used. A representative size sample of each component of paint(s) at the construction site will be transferred to metal containers, identified, sealed and certified in the presence of the Contractor.
- (b) Tests on paint samples may be performed by the Authority in order to confirm the manufacturer's test results submitted with each batch of material.
- (c) If the laboratory test results show that the material being used does not comply with the requirements specified in this Section, the Contractor may be directed to stop painting work and remove non-complying paint; pay for testing; repaint surfaces coated with rejected paint; or remove rejected paint from previously painted surfaces if, upon repainting with specified paint, the two coatings are not compatible.

3. CONSTRUCTION DETAILS: (cont'd)**3.04 PAINTING:** (cont'd)

E. **Stripe Coat:** A stripe coat shall extend a minimum of 1 inch away from the following surfaces: all welds, rivets, bolts, nuts, edges of plates and structural members, angles, bearings, lattice pieces or other shapes, corners, and crevices. This work shall be included as part of the additional intermediate coat (Section 2.01A of this Specification). The stripe coat shall be brush applied without being thinned. The stripe coat will be applied in accordance with the manufacturer's recommendations, with particular attention to the film thickness, recoat window and cure schedule.

F. **Paint Film Thickness.** Paint shall be applied to produce the specified dry-film thickness as directed by the range listed on the paint manufacturer's data sheets. The dry-film thickness shall be determined in accordance with SSPC-PA2, Paint Application Specification No. 2 – *Measurement of Dry Film thickness with Magnetic Gages*, using a Type 2 fixed probe magnetic gages. Dry-film thickness gauges shall be calibrated over a blasted, approved surface.

DFT's of the intermediate and finish coats shall be determined by subtracting the average DFT readings of the previous coat(s) from the actual DFT reading.

Areas failing to meet the specified minimum dry-film thickness shall be top coated with the same paint to produce the total dry film thickness required. The top coating must be preformed within the paint manufacturer's specified recoat window.

The Engineer may require any area exceeding the manufacturers recommended dry-film thickness to be blast cleaned to the SP-10 condition.

G. **Painting Schedule:** Primer shall be applied to approved, abrasive-blasted surfaces according to §573-3.03, B. 7 of this specification.

The intermediate coat shall be applied within 72 hours of the final cleaning operation. To prevent intercoat adhesion failure, the topcoat shall be applied within the manufacturer's recommended recoat window, or 14 days, whichever is shorter. If the Contractor fails to topcoat within the specified time period, the surface to be painted shall be cleaned and abraded, in accordance with manufacturer's recommendations, to ensure adhesion of the following coat at no additional cost.

If the steel has become dirty between coats, the Contractor shall wash the bridge again at no additional cost to the Authority.

Manufacturer's recommendations shall be observed for cure to handle, and cure to top coat schedules.

H. **Repair of Damaged Paint Surfaces:**

1. **Preparation of Chipped or Damaged Coating** – All damaged coating shall be repaired prior to project completion.

3. CONSTRUCTION DETAILS: (cont'd)

3.04 PAINTING: (cont'd)

H. Repair of Damaged Paint Surfaces:

1. Preparation of Chipped or Damaged Coating (cont'd)

- (a) Localized damage to the coating that does not expose the substrate shall be repaired by hand or power tool cleaning the damaged area, and feathering the surrounding intact coating for a distance of 1 inch to 2 inches to provide a smooth tapered transition. When the substrate is exposed, the degree of cleaning shall be equivalent to SSPC-SP11 at a minimum.
- (b) Extensive damage to the coating shall be prepared to an SSPC-SP5 or SP10 degree of cleaning. Power tool cleaning to SSPC-SP11 may be used in lieu of abrasive blast cleaning upon approval of the project Engineer. If blast cleaning is used, extreme care shall be exercised to avoid damage to the surrounding coating due to over blast. Any such damage shall be repaired at no expense to the Authority.

2. Coating Application – Apply the following number of coats to damaged areas. Special care shall be exercised to maintain the specified thickness in overlap areas.

- (a) **Bare Substrate Exposed** – When the bare substrate is exposed in the damaged area, all coats of the coating system shall be applied.
- (b) **Bare Substrate Not Exposed** – When the damage does not extend through to the substrate, only the intermediate and finish coat shall be reapplied.

I. Stenciling: After the finish coat of paint has cured, the Contractor shall stencil the following information on the inside web of the fascia member, near the BIN plate, unless otherwise directed by the Engineer.

- 1. Month and year of completion
- 2. Contract number
- 3. SP10
- 4. Name of Paint Manufacturer
- 5. Name of Contractor
- 6. Primer, Intermediate, and Finish Coat names.

The stenciled lettering should be approximately 2 inches in height and be a contrasting paint color to the top coat.

4. METHOD OF MEASUREMENT:

- 4.01 The work under this item will be measured on a lump sum basis per structure.

5. BASIS OF PAYMENT:

- 5.01 The lump sum price bid shall include the cost of all labor, materials, and equipment necessary to satisfactorily complete the work, including the cost of providing protection against damage to public and private property during surface preparation and paint application. Payment for the containment, collection and disposal of dust and paint waste generated by surface preparation work shall be paid for separately.
- 5.02 For the purpose of progress payments, the lump sum price bid for the item shall be apportioned as noted below:
- A. Payments will be made for each stage satisfactorily completed in accordance with this Specification as follows:
1. **Stage 1** – Cleaning and Priming – Fifty (50) percent of the lump sum price bid will be paid for satisfactorily cleaning and priming the entire structure.
 2. **Stage 2** – Second Coat – Twenty Five (25) percent of the lump sum price bid will be paid for satisfactorily applying the epoxy to the entire structure.
 3. **Stage 3** – Third Coat – Twenty Five (25) percent of the lump sum price bid will be paid for satisfactorily applying the polysiloxane finish coat to the entire structure.
- 5.03 For progress payment purposes only, within each stage the lump sum price shall be distributed on a per span basis adjusted for the relative estimated square feet of each span.