SECTION 509

PAINT EXISTING STRUCTURE

Section 509 of the Standard Specifications is hereby revised for this project to include the following:

DESCRIPTION

Prepare steel surfaces for painting and apply paint.

MATERIALS

a) General:

Provide the paint system (surface preparation, primer, intermediate, and appearance coats as required) in accordance with CDOT Standard Specifications subsection 708.03. Use differing colors for each individual coat with enough contrast between colors to distinguish the various steps in the painting process, including differing the color of the stripe coat relative to the primer and intermediate coat.

b) Paint System:

Provide paint in accordance with CDOT Standard Specifications subsection 708.03, "**Structural Steel Bridge Paint.**"

EQUIPMENT

a) General:

Ensure spray equipment:

- Has adequate capacity and sufficient gauges, filters, agitators, regulators, and moisture separators to ensure delivery of clean dry air at the proper pressure and volume;
- is adequate for the type of paint being used;
- has spray heads that provide a smooth, uniform coat of paint;
- will remove moisture from air stream in contact with the paint; and
- has no dried coatings, solvents, or other foreign matter on surfaces that paint is likely to contact.

Maintain all equipment and accessories in good working order.

Keep paint pots no more than 20 ft. above or below the level of spray application of paint during painting operations. Do not allow fluid hoses to sag more than 10 ft. below the level of the bottom of the paint pot or actual spraying operations, whichever is the lowest point. Keep hoses serviceable with no cracks or deterioration. Equip paint pots (or other containers from which the paint is dispensed) with agitators that operate whenever paint is in the pot.

b) Airless Spray Equipment:

Use regulator and air or fluid pressure gauges. Use fluid hoses with at least 1/4-in. inside diameter (I.D.) and a maximum length of 75 ft.

c) Conventional Spray Equipment:

Use independent fluid pressure and atomization pressure regulators and gauges. Use fluid and air hoses with at least 1/2-in. I.D. and a maximum length of 75 ft.

CONSTRUCTION REQUIREMENTS

a) Qualification:

Certification of SSPC QP 1 is required for labor involving the removal or application of coatings. Additionally, submit to the Engineer documentation verifying SSPC QP 2 Cat A certification when work requires removal of coatings containing hazardous materials. Maintain certifications throughout the project. No work may be performed without current and active certifications unless otherwise shown on the plans.

The Engineer may waive certification requirements, when stated on the plans, for the purpose of qualification in the SSPC QP program if the SSPC has accepted the project as a qualification project as part of the process for obtaining SSPC QP1 or QP2 Cat A certification. Submit SSPC QP applications and proof of acceptance before beginning work or provide SSPC QP 7 certification when required on the plans.

Inform the Engineer within 1 business day of all scheduled or unannounced inspections or audits by SSPC, OSHA, EPA, or other agencies or organizations. Furnish the Engineer a complete copy of all inspection and audit reports and any SSPC DAC actions within 7 days of receipt.

b) Responsibility for Hazards:

Comply with CDOT Standard Specifications, Section 250, "**Environmental, Health and Safety Management**." Handle all paints and cleaning products in accordance with the information provided by the manufacturer and all applicable federal and state regulations.

c) Access

Provide safe access to all parts of the work for proper inspection. Do not place rigging, scaffolds, etc., in contact with previously painted surfaces until the previously applied coating has fully cured. Protect previously painted and cured surfaces with an approved padding to minimize damage when rigging, scaffolds, etc., will be placed on or hung from those surfaces. Avoid and minimize coating damage to the extent possible. Repair all coating damaged as a result of rigging or scaffolding as directed.

Remove tree limbs, bushes, grass, and other items that will interfere with the cleaning and painting operations as directed. Remove vertical clearance signs, and erect and maintain temporary ground-mounted

signs matching the content and letter size on the existing sign unless otherwise directed. Re-attach permanent clearance signs as directed.

d) Steel to be Painted:

Clean and paint all superstructure structural steel except weathering steel that is to remain unpainted, unless otherwise shown on the plans. Structural steel includes all main members, bearing apparatus, diaphragms, floor beams, rivets, bolts, lateral bracing, etc., where applicable. Paint the rolling faces of rockers and base plates, all surfaces of bearing plates, and all surfaces of iron or steel castings, whether or not the surfaces are milled unless otherwise shown on the plans or exempted in this Item. Perform the initial cleaning and application of required prime and intermediate coatings on new steel before shipment of the steel to the jobsite unless otherwise provided in the Contract or approved in writing.

e) Cleaning and Painting Existing Steel.

1. **Hold Points**: No work may proceed beyond the listed hold point until the Engineer has reviewed or inspected the existing steel and given provisional to move forward in the priming and painting process.
    - Following cleaning of the existing steel,
    - Following any surface preparation,
    - immediately before each coating application,
2. **Containment**: Provide containment during all cleaning and painting operations of existing steel structures. Obtain approval of the constructed containment system before beginning cleaning and painting.

    Unless otherwise shown on the plans, construct and maintain a structure meeting the following minimum requirements:
        - SSPC Guide 6, Class 1A, Level 1 Emissions;
        - ability to withstand winds up to 30 mph;
        - enclosure of all sides of area with air-impenetrable walls;
        - illumination meeting SSPC Guide 12;
        - rigid, watertight floor formed from minimum 20 gauge steel;
        - overlapping seams and entryways; and
        - exhaust air filtration system capable of creating negative pressure inside the enclosure causing the sides of the containment to have a concave appearance and demonstrating minimum 100 ft. per minute cross draft air flow and minimum 50 ft. per minute downdraft air flow in all areas within the containment.

    In place of a full containment structure, a modified containment system may be proposed for the following situations:
        - when using abrasive blasting equipment equipped with negative pressure able to contain all blast refuse. Demonstrate, for approval, the equipment's ability to contain all blast refuse.
        - when using hand tools for spot cleaning only, provide a system that will contain all removed paint, rust, and other debris. Place an airtight membrane below the member being cleaned to collect all falling debris.
        - when using power hand tools for spot cleaning only that are equipped with high-efficiency particulate air (HEPA) filter vacuums that will capture all removed paint, rust, and other debris. Otherwise, provide an airtight membrane below the member being cleaned to collect all falling debris.

    Provide a system meeting SSPC Guide 6, Class 1W, when using water blasting.

    Use a skimmer when cleaning and painting over bodies of water. Remove any blast or paint material the skimmer collects the day the release occurs. Correct the containment problem that allowed the release before continuing work.

    Ensure air is clear of dust and remove all blast refuse from cleaned members before the inspector enters the containment to inspect the cleaned surfaces. Remove all blast refuse from the containment before ending work for the day.

3. **Preparation of Surfaces**:
    a. Prepare surfaces before applying paint.

        i. **General Preparation**: Clean far enough into any shop-applied paint to ensure removal of all contaminants. Feather edges of sound paint around cleaned areas.

        Ensure all surfaces to be painted are completely free of oil, grease, moisture, dirt, sand, overspray, welding contamination (slag or acid residue); loose or flaking mill scale, rust, or paint; weld spatter; and any other conditions that will prevent the paint from forming a continuous, uniform, tightly adhering film. Remove all hackles, splinters weld spatter, sharp edges, fins, slag, or other irregularities which may interfere with proper paint adhesion to the steel. Remove all steel splinters (hackles) raised or evident during cleaning. Reblast areas from which hackles are removed when abrasive blast cleaning is required.

        Before other cleaning operations, remove grease-like contaminants with clean petroleum solvents or other approved methods. Contain solvents and removed material as approved. Dispose of properly or reuse solvents as approved. This requirement applies to all coats.

        When abrasive blast cleaning is required, blast all flame-cut edges to produce a visible anchor pattern over the entire flame-cut surface.

        Completely remove, as directed, the protective coating on machined surfaces and pins.

        Do not damage adjacent materials such as concrete during surface preparation or painting.

        Feather all sound, tightly adhered coating edges surrounding cleaned or repaired areas a minimum of 1 in. and ensure a smooth, blended transition.

        Round all corners and edges to a 1/16-in. radius. Reblast as needed. Remove pack rust to depth of at least 0.5 in.

        ii. **Classes of Cleaning**: Use an approved abrasive for abrasive blasting. Do not use steel shot. Use an abrasive recycling system with an approved recyclable abrasive when abrasive blast cleaning is used to remove existing paint containing lead or chromium. Abrasive will be considered recyclable if it is separated from the dust and paint debris before being reused. All abrasives must meet SSPC-AB1, AB2, or AB3 as appropriate.

        All paint systems require water blasting to remove contaminants before any other surface preparation. All paint systems require abrasive blast cleaning unless otherwise shown on the plans.

            a) **Abrasive Blast Cleaning**: Meet the surface preparation requirements of SSPC-SP 10 unless otherwise shown on the plans. Ensure a minimum profile of 1.5 mils. Do not add depth to existing profile when the surface profile exceeds 4.0 mils. Measure surface profile in accordance with ASTM D4417, Method C, “Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.” Containment mounting points and other repair areas under 1 sq. ft. may be tool-cleaned to SSPC SP-11 with at least a minimum 2 mil profile when approved by the Engineer.

b) **Tool Cleaning:** Meet the requirements of SSPC-SP2 or SP3 unless otherwise shown on the plans. Probe the perimeter of peeled areas of paint with a putty knife to ensure remaining paint is tightly adhered.

c) **Water Blasting:** Meet the requirements of SSPC-SP WJ-4. Tight mill scale and tightly adhered rust and paint are permitted. Probe the perimeter of peeled area of paint with a putty knife to ensure remaining paint is tightly adhered.

d) **Tape Test**: Perform the tape test, as necessary to determine cleanliness, on any surface before painting as follows:

- Press a strip of filament tape onto the surface by rubbing with moderate thumb pressure 4 times, leaving approximately 2 in. of one end of the tape free from the surface.
- Grasp the free end and remove the tape from the surface with a sharp pull.

The surface will be considered to be contaminated and not adequately cleaned if visible particles cling to the tape.

4. **Paint Systems**: See CDOT Standard Specifications, Subsection 708.03 for Structural Steel Bridge Paint requirements.

5. **Application**: See CDOT Standard Specifications, Subsection 509.29 for requirements for paint application.

METHOD OF MEASUREMENT

This Item will be measured by the lump sum.

BASIS OF PAYMENT

Payment will be made under:

Pay Item	**Pay Unit**
Paint Existing Structure	LS

This price is full compensation for paint; cleaning, and painting; removal of vegetative obstructions; containment systems; traffic protection and scaffolding; disposal of waste; and materials, equipment, labor, tools, and incidentals.