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November 9, 2018 Letting

Notice to Bidders, Specifications and Proposal



**Contract No. 68E11
MARSHALL County
Section (105BR)BRR
Route FAP 653
District 4 Construction Funds**

Prepared by	S
Checked by	

(Printed by authority of the State of Illinois)



NOTICE TO BIDDERS

- 1. TIME AND PLACE OF OPENING BIDS.** Electronic bids are to be submitted to the electronic bidding system (iCX-Integrated Contractors Exchange). All bids must be submitted to the iCX system prior to 10:00 a.m. November 9, 2018 prevailing time at which time the bids will be publicly opened from the iCX SecureVault.
- 2. DESCRIPTION OF WORK.** The proposed improvement is identified and advertised for bids in the Invitation for Bids as:

**Contract No. 68E11
MARSHALL County
Section (105BR)BRR
Route FAP 653
District 4 Construction Funds**

Repair Bridge SN 062-0037 carrying IL 18 over Sandy Creek, 0.1 mile west of IL 26.

- 3. INSTRUCTIONS TO BIDDERS.** (a) This Notice, the invitation for bids, proposal and letter of award shall, together with all other documents in accordance with Article 101.09 of the Standard Specifications for Road and Bridge Construction, become part of the contract. Bidders are cautioned to read and examine carefully all documents, to make all required inspections, and to inquire or seek explanation of the same prior to submission of a bid.

(b) State law, and, if the work is to be paid wholly or in part with Federal-aid funds, Federal law requires the bidder to make various certifications as a part of the proposal and contract. By execution and submission of the proposal, the bidder makes the certification contained therein. A false or fraudulent certification shall, in addition to all other remedies provided by law, be a breach of contract and may result in termination of the contract.
- 4. AWARD CRITERIA AND REJECTION OF BIDS.** This contract will be awarded to the lowest responsive and responsible bidder considering conformity with the terms and conditions established by the Department in the rules, Invitation for Bids and contract documents. The issuance of plans and proposal forms for bidding based upon a prequalification rating shall not be the sole determinant of responsibility. The Department reserves the right to determine responsibility at the time of award, to reject any or all proposals, to readvertise the proposed improvement, and to waive technicalities.

By Order of the
Illinois Department of Transportation

Randall S. Blankenhorn,
Secretary

INDEX
FOR
SUPPLEMENTAL SPECIFICATIONS
AND RECURRING SPECIAL PROVISIONS

Adopted January 1, 2018

This index contains a listing of SUPPLEMENTAL SPECIFICATIONS and frequently used RECURRING SPECIAL PROVISIONS.

ERRATA Standard Specifications for Road and Bridge Construction (Adopted 4-1-16) (Revised 1-1-18)

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STATE OF ILLINOIS

SPECIAL PROVISIONS

The following Special Provisions supplement the "Standard Specifications for Road and Bridge Construction," adopted April 1, 2016, the latest edition of the "Manual on Uniform Traffic Control Devices for Streets and Highways," and the "Manual of Test Procedures for Materials" in effect on the date of invitation for bids, and the Supplemental Specifications and Recurring Special Provisions indicated on the Check Sheet included herein which apply to and govern the construction of FAP Route 653 (IL 18), Section (105BR)BRR, Marshall County, Contract No. 68E11 and in case of conflict with any part or parts of said Specifications, the said Special Provisions shall take precedence and shall govern.

LOCATION OF PROJECT

This project is located on Illinois Route 18 over Sandy Creek, 0.1 mile west of Illinois Route 26 in Marshall County.

DESCRIPTION OF PROJECT

This project consists of bridge rehabilitation including bridge deck surface removal and replacement, expansion joint replacements, approach butt joints, removal and replacement of bearings, cleaning and painting beam ends, slopewall repair, and other related collateral work necessary to complete the project.

LOCATION OF UNDERGROUND STATE MAINTAINED FACILITIES

Effective: August 3, 2007

Revised: July 31, 2009

The Contractor shall be responsible for locating existing and proposed IDOT electrical facilities (traffic signal, overhead lighting, Intelligent Transportation System, etc.) prior to performing any work at his/her own expense if required. The Contractor shall also be liable for any damage to IDOT facilities resulting from inaccurate locating.

The Contractor may obtain, on request, plans for existing electrical facilities from the Department.

The Contractor shall also be responsible for locating and providing protection for IDOT facilities during all phases of construction. If at any time the facilities are damaged, the Contractor shall immediately notify the Department and make all necessary arrangements for repair to the satisfaction of the Engineer. This work will not be paid for separately, but shall be included in the contract bid price.

HOT-MIX ASPHALT SURFACE REMOVAL, 1¾" (44 MM)

Effective: February 5, 1993

Revised: November 17, 2017

Description: This work shall consist of removing a portion of the existing hot-mix asphalt concrete surface course in accordance with the applicable portions of Section 440 and 1101 of the Standard Specifications, this special provision, details in the plans and as directed by the Engineer. The cold milled salvaged aggregate resulting from this operation shall become the property of the Contractor.

When the teeth become worn so that they do not produce a uniform surface texture, they shall all be changed at the same time (as a unit). Occasionally, individual teeth may be changed if they lock up or break, but this method shall not be used to avoid changing the set of teeth as a unit.

The moldboard is critical in obtaining the desired surface texture. It shall be straight, true, and free of excessive nicks or wear, and it shall be replaced as necessary to uniformly produce the required surface texture. Gouging of the pavement by more than 1/4 inch (6 mm) shall be sufficient cause to require replacement of all teeth. Occasional gouges, due to deteriorated pavement condition, or separation of lifts will not be cause to replace all teeth. The Engineer will be the sole judge of the cause of the pavement gouging and the corrective work required. Corrective work due to negligence or poor workmanship will be at the Contractor's expense.

Construction Requirements

General: Weather conditions, when milling work is performed, must be such that short term or temporary pavement markings can be placed the day the surface is milled in accordance with Section 703 "Work Zone Pavement Markings."

An automatic grade control device shall be used when milling mainline pavement and shall be capable of controlling the elevation of the drum relative to either a preset grade control stringline or a grade reference device traveling on the adjacent pavement surface. The automatic grade control device may be utilized on only one side of the machine with an automatic slope control device controlling the opposite side. The traveling grade reference device shall not be less than 30 feet (9 m) in length for rural areas. For urban areas, a device not less than 20 feet (6 m) in length will be required. When milling cross roads, turn lanes, intersections, crossovers, or other miscellaneous areas, the Engineer may permit the use of a matching shoe.

The Contractor shall mill 1¾" inches (44 mm) at the centerline and project the proposed cross slope to the edge of pavement. In the event the milling at the outer edge of the lane would exceed 1¾" inches (44 mm); then the Contractor shall reduce the cut at the centerline to provide the maximum cut of 1¾" inches (44 mm) at the edge of pavement. If deemed necessary, the Contractor may reduce the cross slope from normal to 1.5% to 1%.

Surface tests will be performed according to Article 406.11 of the Standard Specifications. The profile will be taken 3 ft. (0.9 m) from and parallel to each edge of pavement and 3 ft. (0.9 m) from and parallel to the centerline on each side. If a shadow area is found at the 3 ft. (0.9 m) points, the pavement smoothness tester will be moved sufficient distance either side to measure the Contractor's milling efforts. If any (milled) surface variations found to be outside the tolerance of Article 406.11, then the roadway shall be reprofiled at no additional cost. In addition, the Contractor shall be responsible for refilling, with approved hot-mix asphalt mixtures, any area that lowered the pavement profile as a result of his faulty milling operations if directed by the Engineer. The Contractor shall be responsible for providing the pavement smoothness tester described elsewhere to retest the pavement profile obtained.

If the milling depth is intended to expose the original concrete pavement, then additional hand or machine work may be necessary to remove any remaining veneer of bituminous pavement which may be left in place behind the milling machine. Such work will be at the direction of the Engineer and at no extra cost to the State.

The Contractor shall provide a 10' (3 m) straightedge equipped with a carpenter's level or a 7' (2.1 m) electronic straightedge to check the cross slope of the roadway at regular intervals as directed by the Engineer.

Surface Texture: Each tooth on the cutting drum shall produce a series of discontinuous longitudinal striations. There shall be 16 to 20 striations (tooth marks) for each tooth for each 6' (1.8 m) in the longitudinal direction, and each striation shall be 1.7 inches \pm 0.2 inch (43 \pm 5 mm) in length after the area is planed by the moldboard. Thus, the planed length between each pair of striations shall be 2.3 inches \pm 0.2 inch (58 \pm 5 mm). There shall be 80 to 96 rows of discontinuous longitudinal striations for each 5' (1.5 m) in the transverse dimension. The areas between the striations in both the longitudinal and transverse directions shall be flat topped and coplaner. The moldboard shall be used to cut this plane; and any time the operation fails to produce this flat plane interspersed with a uniform pattern of discontinuous longitudinal striations, the operation shall be stopped and the cause determined and corrected before recommencing. Other similar patterns of uniform discontinuous longitudinal striations interspersed on a flat plane may be approved by the Engineer.

The startup milling speed shall be limited to a maximum of 50' (15 m) per minute. The Contractor shall limit his operations to this speed to demonstrate his ability to obtain the striations and rideability as described above. If the Contractor is able to demonstrate that he can consistently obtain the desired striations and rideability at a greater speed he will be permitted to run at the increased speed.

Cleanup: After cold milling a traffic lane and before opening the lane to traffic, the pavement shall be swept by a mechanical broom to prevent compaction of the cuttings onto the pavement. All loose material shall be removed from the roadway. Before the prime coat is placed, the pavement shall be cleaned of all foreign material to the satisfaction of the Engineer.

This cleanup work shall be considered included in the contract unit price per Square Yard (Square Meter) for HOT-MIX ASPHALT SURFACE REMOVAL of the depth specified, and no additional compensation will be allowed.

Method of Measurement:

- (a) Contract Quantities. The requirements for the use of Contract Quantities shall be Article 202.07(a) of the Standard Specifications.
- (b) Measured Quantities. Cold milling and planing will be measured and the area computed in square yards (square meters) of surface.

Areas not milled (shadow areas) due to rutting in the existing pavement surface will be included in the area measured for payment.

Basis of Payment: The cold milling and planing will be paid for at the contract unit price per Square Yard (Square Meter) for HOT-MIX ASPHALT SURFACE REMOVAL of the depth specified. Payment as specified will include variations in depth of cuts due to rutting, superelevations, and pavement crown and no additional compensation will be allowed.

TRAFFIC CONTROL PLAN

Effective: August 10, 2018

Traffic control shall be in accordance with the applicable sections of the "Standard Specifications for Road and Bridge Construction," the applicable guidelines contained in the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways," these Special Provisions, and any special details and Highway Standards contained herein and in the plans.

Special attention is called to Section 701 and Articles 107.09 and 107.14 of the "Standard Specifications for Road and Bridge Construction" and the following Highway Standards relating to traffic control:

701001	701006	701201	701311
701321	704001	780001	

SLOPE WALL SLURRY PUMPING

Effective: October 22, 2000

Revised: February 19, 2010

General: This work shall consist of the placement of a Controlled Low-Strength Material (CLSM) in a void under a section of slope wall at locations as directed by the Engineer.

Materials: The material shall be controlled low-strength material according to Article 593 of the standard specifications.

Construction: The Contractor shall place forms to confine the CLSM under the slope wall. Sandbags or other means shall be used to restrict seepage of the CLSM out of the void.

The placement of the CLSM may be by pumping or by chute if accessible by the mixer.

Method of Measurement: This work will be measured for payment at the contract unit price per cubic yard (cubic meter). Measured volume shall be the actual volume of the void computed from field measurements.

Basis of Payment: This work will be paid for at the unit cost per cubic yard (cubic meter) for SLOPE WALL SLURRY PUMPING.

JACK AND REMOVE EXISTING BEARINGS

Effective: April 20, 1994

Revised: April 13, 2018

Description: This work consists of furnishing all labor, tools and equipment for jacking and supporting the existing beams/slab while removing the bearing assembly. The Contractor is responsible for the complete design of the bridge lifting procedures and the materials used. The Contractor shall furnish and place all bracing, shoring, blocking, cribbing, temporary structural steel, timber, shims, wedges, hydraulic jacks, and any other materials and equipment necessary for safe and proper execution of the work. The Contractor shall remove and dispose of the bearings according to Article 501.05 of the Standard Specifications.

Construction Requirements: The Contractor shall submit details and calculations of his/her proposed jacking systems and temporary support procedures for approval by the Engineer before commencing work. If unforeseen field conditions preclude the execution of the approved jacking plan, the Engineer may require the Contractor to provide additional supports or measures. All changes to the jacking plan shall be approved by the Structural Engineer that sealed the jacking plan. Neither added precautions nor the failure of the Engineer to order additional protection will in any way relieve the Contractor of sole responsibility for the safety of lives, equipment and structure.

- (a) Jack and Remove Existing Bearings with bridge deck in place. Jacking and cribbing under and against the existing diaphragms, if applicable, will not be allowed. The Contractor's jacking plans and procedures shall be designed and sealed by an Illinois Licensed Structural Engineer.

In all cases, traffic shall be removed from the portion of the structure to be jacked prior to and during the entire time the load is being supported by the hydraulic pressure of the jack(s). The minimum jack capacity per beam shall be as noted in the plans. Whenever possible, traffic shall be kept off that portion of the structure during the entire bearing replacement operation. The shoring or cribbing supporting the beam(s) during bearing replacement shall be designed to support the dead load plus one half of the live load and impact shown in the plans. If traffic cannot be kept off that portion of the structure during the bearing replacement then the shoring or cribbing supporting the beam(s) shall be designed to support the dead load and full live load and impact shown in the plans.

No jacking shall be allowed during the period of placement and cure time required for any concrete placed in the span(s) contributing loads to the bearings to be jacked and removed.

Jacking shall be limited to 1/8 in. (4 mm) maximum when jacking one bearing at a time. Simultaneous jacking of all beams at one support may be performed provided the maximum lift is 1/4 in. (7 mm) and the maximum differential displacement between adjacent beams is 1/8 in. (4 mm). Suitable gauges for the measurement of superstructure movement shall be furnished and installed by the Contractor.

- (b) Jack and Remove Existing Bearings when entire bridge deck is removed. Jacking and bearing removal shall be done after the removal of the existing bridge deck is complete. The Contractor's plans and procedures for the proposed jacking and cribbing system shall be designed and sealed by an Illinois Licensed Structural Engineer, unless jacking can be accomplished directly from the bearing seat under the beams or girders.

Jacking shall be limited to 1/4 in. (7 mm) maximum when jacking one beam at a time. Simultaneous jacking of all beams at one support may be performed provided the maximum lift is 3/4 in. (19 mm) and the maximum differential displacement between adjacent beams is 1/4 in. (7 mm). When staged construction is utilized, simultaneous jacking of all beams shall be limited to 1/4 in. (7 mm) unless the diaphragms at the stage line are disconnected, in which case the maximum lift is 3/4 in. (19 mm). Suitable gauges for the measurement of superstructure movement shall be furnished and installed by the Contractor.

The Contractor shall be responsible for restoring to their original condition, prior to jacking, the drainage ditches, pavement, or slopewall disturbed by the cribbing footings.

Basis of Payment: This work will be paid for at the contract unit price each for JACK AND REMOVE EXISTING BEARINGS.

Additional supports or measures resulting from unforeseen field conditions will be paid for according to Article 109.04.

CLEANING AND PAINTING CONTACT SURFACE AREAS OF EXISTING STEEL STRUCTURES

Effective: June 30, 2003

Revised: April 13, 2018

Description. This work shall consist of the surface preparation and painting of existing steel structures in areas that will be in contact with new steel.

The existing steel at primary connections (faying surfaces) shall be prepared, and primed as specified herein prior to connecting new structural steel to the existing structure.

The existing steel at secondary connections shall be prepared, and if bare metal is exposed, primed as specified herein prior to connecting new structural steel to the existing structure.

General. The existing coatings shall be assumed to contain lead and may also contain other toxic metals. Any plans that may be furnished for the work, and any dimensions or other information given regarding a structure, are only for the purpose of assisting bidders in determining the type and location of steel to be cleaned and painted. It is the responsibility of the Contractor to verify this information and the accuracy of the information provided shall in no way affect the price bid for structural steel.

Materials. The Bureau of Materials and Physical Research has established a list of all products that have met preliminary requirements. Each batch of material must be tested and approved before use.

The paint materials shall meet the requirements of the following articles of the Standard Specification:

<u>Item</u>	<u>Article</u>
a) Organic Zinc Rich Primer	1008.05
b) Aluminum Epoxy Mastic	1008.03

Submittals:

- a) Manufacturer's application instructions and product data sheets. Copies of the paint manufacturer's application instructions and product data sheets shall be furnished to the Engineer at the field site before steel cleaning begins.
- b) Waste Management Plan. The Waste Management Plan shall address all aspects of waste handling, storage, testing, hauling and disposal. Include the names, addresses, and a contact person for the proposed licensed waste haulers and disposal facilities. Submit the name and qualifications of the laboratory proposed for Toxicity Characteristic Leaching Procedure (TCLP) analysis.

- c) Quality Control (QC) Program. The QC Program shall identify the following; the instrumentation that will be used, a schedule of required measurements and observations, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings.

Construction Requirements. The Contractor shall perform first line, in process QC inspections. The Contractor shall implement the submitted and accepted QC Program to insure that the work accomplished complies with these specifications. The designated Quality Control inspector shall be onsite full time during any operations that affect the quality of the coating system (e.g., surface preparation, coating mixing and application, and evaluations between coats and upon completion of the work). The Contractor shall provide artificial lighting in areas where natural light is inadequate, as determined by the Engineer, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 30 foot candles (325 LUX). Illumination for cleaning and priming, including the working platforms, access, and entryways shall be at least 20 foot candles (215 LUX).

The Contractor shall be responsible for any damage caused to persons, vehicles, or property, except as indemnified by the Response Action Contractor Indemnification Act. 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. Painted surfaces damaged by any Contractor's operation shall be removed and repainted, as directed by the Engineer, at the Contractor's expense.

Weather Conditions. Surfaces to be primed after cleaning shall remain free of moisture and other contaminants. The Contractor shall control his/her operations to insure that dust, dirt, or moisture does not come in contact with surfaces cleaned prior to painting. Surfaces painted shall be protected until the coating is sufficiently cured to protect itself from damage.

Restrictions on ambient conditions shall be as per the coating manufacturer's written specifications.

Surface Preparation: Prior to making connections or painting, all loose abrasives, paint, and residue shall be contained, collected, removed from the surface area and properly disposed of as specified later in this specification.

Soluble Salt Remediation. The Contractor shall implement surface preparation procedures and processes that will remove chloride from the surfaces. Surfaces that may be contaminated with chloride include, but are not limited to, expansion joints and all areas that are subject to roadway splash or runoff such as fascia beams and stringers.

Methods of chloride removal may include, but are not limited to, steam cleaning or pressure washing with or without the addition of a chemical soluble salt remover as approved by the coating manufacturer, and scrubbing before or after initial paint removal. The Contractor may also elect to clean the steel and allow it to rust overnight followed by recleaning, or by utilizing blends of fine and coarse abrasives during blast cleaning, wet abrasive/water jetting methods of preparation, or combinations of the above. If steam or water cleaning methods of chloride removal are utilized over surfaces where the coating has been completely removed, and the water does not contact any lead containing coatings, the water does not have to be collected. The Contractor shall provide the proposed procedures for chloride remediation in the Surface Preparation/Painting Plan.

Upon completion of the chloride remediation steps, the Contractor shall use cell methods of field chloride extraction and test procedures (e.g., silver dichromate) accepted by the Engineer, to test representative surfaces that were previously rusted (e.g., pitted steel) for the presence of remaining chlorides. Remaining chloride levels shall be no greater than $7\mu\text{g}/\text{sq cm}$ as read directly from the surface without any multiplier applied to the results. The testing must be performed, and the results must be acceptable, prior to painting each day.

A minimum of 5 tests per 1000 sq. ft. (93 sq. m) or fraction thereof completed in a given day, shall be conducted at project start up. If results greater than $7\mu\text{g}/\text{sq cm}$ are detected, the surfaces shall be recleaned and retested at the same frequency. If acceptable results are achieved on three consecutive days in which testing is conducted, the test frequency may be reduced to 1 test per 1000 sq. ft. (93 sq. m) prepared each day provided the chloride remediation process remains unchanged. If unacceptable results are encountered, or the methods of chloride remediation are changed, the Contractor shall resume testing at a frequency of 5 tests per 1000 sq. ft. (93 sq. m).

Following successful chloride testing the chloride test areas shall be cleaned as specified below.

Painted surfaces of new steel damaged by abrasive blasting or by the Contractor's operations shall be repainted, as directed by the Engineer, at the Contractor's expense.

- a) Primary Connections. Primary connections shall be defined as faying (contact) surfaces of high-strength bolted connections specifically noted in plans.

The surfaces of existing steel in all areas that will be in direct contact with new steel shall be prepared according to SSPC-SP15, Commercial Grade Power Tool Cleaning using vacuum-shrouded power tools equipped with HEPA filtration. The surface preparation shall remove all rust, mill scale, and existing paint from the contact surface. At the Contractor's option, vacuum blast cleaning according to SSPC-SP6, Commercial Blast Cleaning may be substituted for SSPC-SP15 at no additional cost to the Department. The surface profile for primary connection surfaces shall be 1.5 to 3.5 mils (38 to 90 microns).

- b) Secondary Connections. Secondary connections shall be defined as all surface areas of existing members that will be in contact with new steel except as previously defined as primary connections.

These surfaces of existing steel in all areas that will be in direct contact with new steel shall be prepared according to SSPC-SP3, Power Tool Cleaning using vacuum-shrouded power tools equipped with HEPA filtration. The surface preparation shall remove all loose rust, loose mill scale, and loose, checked, alligatored and peeling paint from the contact surface. At the Contractors option, vacuum blast cleaning according to SSPC-SP6, Commercial Blast Cleaning or SSPC-SP15, Commercial Grade Power Tool Cleaning may be substituted for SSPC-SP3 at no additional cost to the Department. The surface profile for abrasive blast cleaning and Commercial Grade Power Tool Cleaning shall be 1.5 to 3.5 mils (38 to 90 microns).

Painting. The manufacturer's written instructions shall be followed for paint storage, mixing, thinning, application, ambient conditions, and drying times between coats. The surface shall be free of dirt, dust, and debris prior to the application of any coat. The coatings shall be applied as a continuous film of uniform thickness free of defects including, but not limited to, runs, sags, overspray, dryspray, pinholes, voids, skips, misses, and shadow-through. Defects such as runs and sags shall be brushed out immediately during application.

The Engineer will approve surface preparation prior to priming.

- a) For Primary connections the surface of the prepared steel cleaned to bare metal shall be primed with an organic zinc rich primer between 3.5 and 5.0 mils (90 and 125 microns) dry film thickness.
- b) For Secondary Connections the surface of the prepared steel cleaned to bare metal shall be painted with one coat of epoxy mastic between 5 and 7 mils (125 microns to 180 microns) in thickness. Areas not cleaned to bare metal need not be painted.

The primer shall cure according to the manufacturers instructions prior to connecting new structural steel to the existing structure.

The surrounding coating at each prepared location shall be feathered for a minimum distance of 1 1/2 in. (40 mm) to achieve a smooth transition between the prepared areas and the existing coating.

Collection, Temporary Storage, Transportation and Disposal of Waste. The Contractor and the Department are considered to be co-generators of the waste.

The Contractor is responsible for all aspects of waste collection, testing and identification, handling, storage, transportation, and disposal according to these specifications and all applicable Federal, State, and Local regulations. The Contractor shall provide for Engineer review and acceptance a Waste Management Plan that addresses all aspects of waste handling, storage, and testing, and provides the names, addresses, and a contact person for the proposed licensed waste haulers and disposal facilities. The Department will not perform any functions relating to the waste other than provide EPA identification numbers, provide the Contractor with the emergency response information, the emergency response telephone number required to be provided on the manifest, and to sign the waste manifest. The Engineer will obtain the identification numbers from the state and federal environmental protection agencies for the bridge(s) to be painted and furnish those to the Contractor.

All surface preparation/paint residues shall be collected daily and deposited in all-weather containers supplied by the Contractor as temporary storage. The storage area shall be secure to prevent unauthorized entry or tampering with the containers. Acceptable measures include storage within a fully enclosed (e.g., fenced in) and locked area, within a temporary building, or implementing other reasonable means to reduce the possibility of vandalism or exposure of the waste to the public or the environment (e.g., securing the lids or covers of waste containers and roll-off boxes). Waste shall not be stored outside of the containers. Waste shall be collected and transferred to bulk containers taking extra precautions as necessary to prevent the suspension of residues in air or contamination of surrounding surfaces. Precautions may include the transfer of the material within a tarpaulin enclosure. Transfer into roll-off boxes shall be planned to minimize the need for workers to enter the roll-off box.

No residues shall remain on uncontained surfaces overnight. Waste materials shall not be removed through floor drains or by throwing them over the side of the bridge. Flammable materials shall not be stored around or under any bridge structures.

The all-weather containers shall meet the requirements for the transportation of hazardous materials and as approved by the Department. Acceptable containers include covered roll-off boxes and 55-gallon drums (17H). The Contractor shall insure that no breaks and no deterioration of these containers occurs and shall maintain a written log of weekly inspections of the condition of the containers. A copy of the log shall be furnished to the Engineer upon request. The containers shall be kept closed and sealed from moisture except during the addition of waste. Each container shall be permanently identified with the date that waste was placed into the container, contract number, hazardous waste name and ID number, and other information required by the IEPA.

The Contractor shall have each waste stream sampled for each project and tested by TCLP and according to EPA and disposal company requirements. The Engineer shall be notified in advance when the samples will be collected. The samples shall be collected and shipped for testing within the first week of the project, with the results due back to the Engineer within 10 days. The costs of testing shall be considered included in this work. Copies of the test results shall be provided to the Engineer prior to shipping the waste.

The existing paint removed, together with the surface preparation media (e.g. abrasive) shall be handled as a hazardous waste, regardless of the TCLP results. The waste shall be transported by a licensed hazardous waste transporter, treated by an IEPA permitted treatment facility to a non-hazardous special waste and disposed of at an IEPA permitted disposal facility in Illinois.

The treatment/disposal facilities shall be approved by the Engineer, and shall hold an IEPA permit for waste disposal and waste stream authorization for this cleaning residue. The IEPA permit and waste stream authorization must be obtained prior to beginning cleaning, except that if necessary, limited paint removal will be permitted in order to obtain samples of the waste for the disposal facilities. The waste shall be shipped to the facility within 90 days of the first accumulation of the waste in the containers. When permitted by the Engineer, waste from multiple bridges in the same contract may be transported by the Contractor to a central waste storage location(s) approved by the Engineer in order to consolidate the material for pick up, and to minimize the storage of waste containers at multiple remote sites after demobilization. Arrangements for the final waste pickup shall be made with the waste hauler by the time blast cleaning operations are completed or as required to meet the 90 day limit stated above.

The Contractor shall submit a waste accumulation inventory table to the Engineer no later than the 5th day of the month. The table shall show the number and size of waste containers filled each day in the preceding month and the amount of waste shipped that month, including the dates of shipments.

The Contractor shall prepare a manifest supplied by the IEPA for off-site treatment and disposal before transporting the hazardous waste off-site. The Contractor shall prepare a land ban notification for the waste to be furnished to the disposal facility. The Contractor shall obtain the handwritten signature of the initial transporter and date of the acceptance of the manifest. The Contractor shall send one copy of the manifest to the IEPA within two working days of transporting the waste off-site. The Contractor shall furnish the generator copy of the manifest and a copy of the land ban notification to the Engineer. The Contractor shall give the transporter the remaining copies of the manifest.

All other project waste shall be removed from the site according to Federal, State and Local regulations, with all waste removed from the site prior to final Contractor demobilization.

The Contractor shall make arrangements to have other hazardous waste, which he/she generates, such as used paint solvent, transported to the Contractor's facility at the end of each day that this waste is generated. These hazardous wastes shall be manifested using the Contractor's own generator number to a treatment or disposal facility from the Contractor's facility. The Contractor shall not combine solvents or other wastes with cleaning residue wastes. All waste streams shall be stored in separate containers.

The Contractor is responsible for the payment of any fines and undertaking any clean up activities mandated by State or federal environmental agencies for improper waste handling, storage, transportation, or disposal.

Contractor personnel shall be trained in the proper handling of hazardous waste, and the necessary notification and clean up requirements in the event of a spill. The Contractor shall maintain a copy of the personnel training records at each bridge site.

It is understood and agreed that the cost of all work outlined above, unless otherwise specified, has been included in the bid, and no extra compensation will be allowed.

Basis of Payment: This work will be considered included in the cost of "Furnishing and Erecting Structural Steel", "Erecting Structural Steel", or "Structural Steel Repair", as applicable, according to the Standard Specifications, unless otherwise specified on the plans.

CLEANING AND PAINTING EXISTING STEEL STRUCTURES

Effective: October 2, 2001

Revised: April 22, 2016

Description. This work shall consist of the preparation of all designated metal surfaces by the method(s) specified on the plans. This work also includes the painting of those designated surfaces with the paint system(s) specified on the plans. The Contractor shall furnish all materials, equipment, labor, and other essentials necessary to accomplish this work and all other work described herein and as directed by the Engineer.

Materials. All materials to be used on an individual structure shall be produced by the same manufacturer.

The Bureau of Materials and Physical Research has established a list of all products that have met preliminary requirements. Each batch of material, except for the penetrating sealer, shall be tested and assigned a MISTIC approval number before use. The specified colors shall be produced in the coating manufacturer's facility. Tinting of the coating after it leaves the manufacturer's facility is not allowed.

The paint materials shall meet the following requirements of the Standard Specification and as noted below:

<u>Item</u>	<u>Article</u>
(a) Waterborne Acrylic	1008.04
(b) Aluminum Epoxy Mastic	1008.03
(c) Organic Zinc Rich Primer	1008.05
(d) Epoxy/ Aliphatic Urethane	1008.05
(e) Penetrating Sealer (Note 1)	
(f) Moisture Cured Zinc Rich Urethane Primer (Note 2)	
(g) Moisture Cured Aromatic/Aliphatic Urethane (Note 2)	
(h) Moisture Cured Penetrating Sealer (Note 3)	

Note 1: The Epoxy Penetrating Sealer shall be a cross-linked multi component sealer. The sealer shall have the following properties:

- (a) The volume solids shall be 98 percent (plus or minus 2 percent).
- (b) Shall be clear or slightly tinted color.

Note 2: These material requirements shall be according to the Special Provision for the Moisture Cured Urethane Paint System.

Note 3: The Moisture Cured Penetrating Sealer manufacturer's certification will be required.

Submittals. The Contractor shall submit for Engineer review and acceptance, the following plans and information for completing the work. The submittals shall be provided within 30 days of execution of the contract unless given written permission by the Engineer to submit them at a later date. Work cannot proceed until the submittals are accepted by the Engineer. Details for each of the plans are presented within the body of this specification.

- a) Contractor/Personnel Qualifications. Evidence of Contractor qualifications and the names and qualifications/experience/training of the personnel managing and implementing the Quality Control program and conducting the quality control tests, and certifications for the CAS (Coating Application Specialists) on SSPC-QP1 and QP2 projects.
- b) Quality Control (QC) Program. The QC Program shall identify the following; the instrumentation that will be used, a schedule of required measurements and observations, procedures for correcting unacceptable work, and procedures for improving surface preparation and painting quality as a result of quality control findings. The program shall incorporate at a minimum, the IDOT Quality Control Daily Report form, or a Contractor form (paper or electronic) that provides equivalent information.
- c) Inspection Access Plan. The inspection access plan for use by Contractor QC personnel for ongoing inspections and by the Engineer during Quality Assurance (QA) observations.
- d) Surface Preparation/Painting Plan. The surface preparation/painting plan shall include the methods of surface preparation and type of equipment to be utilized for washing, hand/power tool cleaning, removal of rust, mill scale, paint or foreign matter, abrasive blast or water jetting, and remediation of chloride. If detergents, additives, or inhibitors are incorporated into the water, the Contractor shall include the names of the materials and Safety Data Sheets (SDS). The Contractor shall identify the solvents proposed for solvent cleaning together with SDS.

If cleaning and painting over existing galvanized surfaces are specified, the plan shall address surface preparation, painting, and touch up/repair of the galvanized surfaces.

The plan shall also include the methods of coating application and equipment to be utilized.

If the Contractor proposes to heat or dehumidify the containment, the methods and equipment proposed for use shall be included in the Plan for the Engineer's consideration.

- e) Paint Manufacturer Certifications and Letters. When a sealer is used, the Contractor shall provide the manufacturer's certification of compliance with IDOT testing requirements listed under "Materials" above. A certification regarding the compatibility of the sealer with the specified paint system shall also be included.

When rust inhibitors are used, the Contractor shall provide a letter from the coating manufacturer indicating that the inhibitor is compatible with, and will not adversely affect the performance of the coating system.

If the use of a chemical soluble salt remover is proposed by the Contractor, provide a letter from the coating manufacturer indicating that the material will not adversely effect the performance of the coating system.

The paint manufacturer's most recent application and thinning instructions, SDS and product data sheets shall be provided, with specific attention drawn to storage temperatures, and the temperatures of the material, surface and ambient air at the time of application.

A letter or written instructions from the coating manufacturer shall be provided indicating the length of time that each coat must be protected from cold or inclement weather (e.g., exposure to rain) during its drying period, the maximum recoat time for each coat, and the steps necessary to prepare each coat for overcoating if the maximum recoat time is exceeded.

- f) Abrasives. Abrasives to be used for abrasive blast cleaning, including SDS. For expendable abrasives, the Contractor shall provide certification from the abrasive supplier that the abrasive meets the requirements of SSPC-AB1. For steel grit abrasives, the certification shall indicate that the abrasive meets the requirements of SSPC-AB3.
- g) Protective Coverings. Plan for containing or controlling paint debris (droplets, spills, overspray, etc.). Any tarpaulins or protective coverings proposed for use shall be fire retardant. For submittal requirements involving the containment used to remove lead paint, the Contractor shall refer to Special Provision for Containment and Disposal of Lead Paint Cleaning Residues.
- h) Progress Schedule. Progress schedule shall be submitted per Article 108.02 and shall identify all major work items (e.g., installation of rigging/containment, surface preparation, and coating application).

When the Engineer accepts the submittals, the Contractor will receive written notification. The Contractor shall not begin any paint removal work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns. Acceptance of the programs does not relieve the Contractor from the responsibility to conduct the work according to the requirements of Federal, State, or Local regulations and this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

Contractor Qualifications. Unless indicated otherwise on the contract plans, for non lead abatement projects, the painting Contractor shall possess current SSPC-QP1 certification. Unless indicated otherwise on the plans, for lead abatement projects the Contractor shall also possess current SSPC-QP2 certification. The Contractor shall maintain certified status throughout the duration of the painting work under the contract. The Department reserves the right to accept Contractors documented to be currently enrolled in the SSPC-QP7, Painting Contractor Introductory Program, Category 2, in lieu of the QP certifications noted above.

Quality Control (QC) Inspections. The Contractor shall perform first line, in process QC inspections. The Contractor shall implement the submitted and accepted QC Program to insure that the work accomplished complies with these specifications. The designated Quality Control inspector shall be onsite full time during any operations that affect the quality of the coating system (e.g., surface preparation and chloride remediation, coating mixing and application, and evaluations between coats and upon project completion). The Contractor shall use the IDOT Quality Control Daily Report form to record the results of quality control tests. Alternative forms (paper or electronic) will be allowed provided they furnish equivalent documentation as the IDOT form, and they are accepted as part of the QC Program submittal. The completed reports shall be turned into the Engineer before work resumes the following day. The Engineer or designated representative will sign the report. The signature is an acknowledgment that the report has been received, but should not be construed as an agreement that any of the information documented therein is accurate.

Contractor QC inspections shall include, but not be limited to the following:

- Suitability of protective coverings and the means employed to control project debris and paint spills, overspray, etc.
- Ambient conditions
- Surface preparation (solvent cleaning, pressure washing including chalk tests, hand/power tool or abrasive blast cleaning, etc.)
- Chloride remediation
- Coating application (specified materials, mixing, thinning, and wet/dry film thickness)
- Recoat times and cleanliness between coats
- Coating continuity and coverage (freedom from runs, sags, overspray, dryspray, pinholes, shadow-through, skips, misses, etc.)

The personnel managing the Contractor's QC Program shall possess a minimum classification of Society of Protective Coatings (SSPC) BCI certified, National Association of Corrosion Engineers (NACE) Coating Inspector Level 2 - Certified, and shall provide evidence of successful inspection of 3 bridge projects of similar or greater complexity and scope that have been completed in the last 2 years. Copies of the certification and experience shall be provided. References for experience shall be provided and shall include the name, address, and telephone number of a contact person employed by the bridge owner.

The personnel performing the QC tests shall be trained in coatings inspection and the use of the testing instruments. Documentation of training shall be provided. The QC personnel shall not perform hands on surface preparation or painting activities. Painters shall perform wet film thickness measurements, with QC personnel conducting random spot checks of the wet film. The Contractor shall not replace the QC personnel assigned to the project without advance notice to the Engineer, and acceptance of the replacement(s), by the Engineer.

The Contractor shall supply all necessary equipment with current calibration certifications to perform the QC inspections. Equipment shall include the following at a minimum:

- Sling psychrometer or digital psychrometer for the measurement of dew point and relative humidity, together with all necessary weather bureau tables or psychrometric charts. In the event of a conflict between readings with the sling psychrometer and the digital psychrometer, the readings with the sling psychrometer shall prevail.
- Surface temperature thermometer
- SSPC Visual Standards VIS 1, Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning; SSPC-VIS 3, Visual Standard for Power and Hand-Tool Cleaned Steel; SSPC-VIS 4, Guide and Reference Photographs for Steel Prepared by Water Jetting, and/or SSPC-VIS 5, Guide and Reference Photographs for Steel Prepared by Wet Abrasive Blast Cleaning, as applicable.
- Test equipment for determining abrasive cleanliness (oil content and water-soluble contaminants) according to SSPC abrasive specifications AB1, AB2, and AB3.
- Commercially available putty knife of a minimum thickness of 40 mils (1mm) and a width between 1 and 3 in. (25 and 75 mm). Note that the putty knife is only required for projects in which the existing coating is being feathered and tested with a dull putty knife.
- Testex Press-O-Film Replica Tape and Micrometer compliant with Method C of ASTM D4417, Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel, or digital profile depth micrometer compliant with ASTM D4417, Method B. In the event of a conflict between measurements with the two instruments on abrasive blast cleaned steel, the results with the Testex Tape shall prevail. Note that for measuring the profile of steel power tool cleaned to SSPC-SP15, Commercial Grade Power Tool Cleaning, the digital profile depth micrometer shall be used.
- Bresle Cell Kits or CHLOR*TEST kits for chloride determinations, or equivalent
- Wet Film Thickness Gage
- Blotter paper for compressed air cleanliness checks
- Type 2 Electronic Dry Film Thickness Gage per SSPC - PA2, Procedure for Determining Conformance to Dry Coating Thickness Requirements
- Standards for verifying the accuracy of the dry film thickness gage
- Light meter for measuring light intensity during paint removal, painting, and inspection activities
- All applicable ASTM and SSPC Standards used for the work (reference list attached)

The accuracy of the instruments shall be verified by the Contractor's personnel according to the equipment manufacturer's recommendations and the Contractor's QC Program. All inspection equipment shall be made available to the Engineer for QA observations on an as needed basis.

Hold Point Notification. Specific inspection items throughout this specification are designated as Hold Points. Unless other arrangements are made at the project site, the Contractor shall provide the Engineer with a minimum 4-hour notification before a Hold Point inspection will be reached. If the 4-hour notification is provided and the Work is ready for inspection at that time, the Engineer will conduct the necessary observations. If the Work is not ready at the appointed time, unless other arrangements are made, an additional 4-hour notification is required. Permission to proceed beyond a Hold Point without a QA inspection will be granted solely at the discretion of the Engineer, and only on a case by case basis.

Quality Assurance (QA) Observations. The Engineer will conduct QA observations of any or all phases of the work. The presence or activity of Engineer observations in no way relieves the Contractor of the responsibility to provide all necessary daily QC inspections of his/her own and to comply with all requirements of this Specification.

The Engineer has the right to reject any work that was performed without adequate provision for QA observations.

Inspection Access and Lighting. The Contractor shall facilitate the Engineer's observations as required, including allowing ample time to view the work. The Contractor shall furnish, erect and move scaffolding or other mechanical equipment to permit close observation of all surfaces to be cleaned and painted. This equipment shall be provided during all phases of the work. Examples of acceptable access structures include:

- Mechanical lifting equipment, such as, scissor trucks, hydraulic booms, etc.
- Platforms suspended from the structure comprised of trusses or other stiff supporting members and including rails and kick boards.
- Simple catenary supports are permitted only if independent life lines for attaching a fall arrest system according to Occupational Safety and Health Administration (OSHA) regulations are provided.

When the surface to be inspected is more than 6 ft. (1.8 m) above the ground or water surface, and fall prevention is not provided (e.g., guardrails are not provided), the Contractor shall provide the Engineer with a safety harness and a lifeline according to OSHA regulations. The lifeline and attachment shall not direct the fall into oncoming traffic. The Contractor shall provide a method of attaching the lifeline to the structure independent of the inspection facility or any support of the platform. When the inspection facility (e.g., platform) is more than 2 1/2 ft. (800 mm) above the ground, the Contractor shall provide an approved means of access onto the platform.

The Contractor shall provide artificial lighting in areas both inside and outside the containment where natural light is inadequate, as determined by the Engineer, to allow proper cleaning, inspection, and painting. Illumination for inspection shall be at least 30 foot candles (325 LUX). Illumination for cleaning and painting, including the working platforms, access and entryways shall be at least 20 foot candles (215 LUX). General work area illumination outside the containment shall be employed at the discretion of the Engineer and shall be at least 5 foot candles. The exterior lighting system shall be designed and operated so as to avoid glare that interferes with traffic, workers, and inspection personnel.

Surface Preparation and Painting Equipment. All cleaning and painting equipment shall include gages 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.

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.

Hand tools, power tools, pressure washing, water jetting, abrasive blast cleaning equipment, brushes, rollers, and spray equipment shall be of suitable size and capacity to perform the work required by this specification. All power tools shall be equipped with vacuums and High Efficiency Particulate Air (HEPA) filtration. Appropriate filters, traps and dryers shall be provided for the compressed air used for abrasive blast cleaning and conventional spray application. Paint pots shall be equipped with air operated continuous mixing devices unless prohibited by the coating manufacturer.

Test Sections. Prior to surface preparation, the Contractor shall prepare a test section(s) on each structure to be painted in a location(s) which the Engineer considers to be representative of the existing surface condition and steel type for the structure as a whole. More than one test section may be needed to represent the various design configurations of the structure. The purpose of the test section(s) is to demonstrate the use of the tools and degree of cleaning required (cleanliness and profile) for each method of surface preparation that will be used on the project. Each test section shall be approximately 10 sq. ft. (0.93 sq m). The test section(s) shall be prepared using the same equipment, materials and procedures as the production operations. The Contractor shall prepare the test section(s) to the specified level of cleaning according to the appropriate SSPC visual standards, modified as necessary to comply with the requirements of this specification. The written requirements of the specification prevail in the event of a conflict with the SSPC visual standards. Only after the test section(s) have been approved shall the Contractor proceed with surface preparation operations. Additional compensation will not be allowed the Contractor for preparation of the test section(s).

For the production cleaning operations, the specifications and written definitions, the test section(s), and the SSPC visual standards shall be used in that order for determining compliance with the contractual requirements.

Protective Coverings and Damage. All portions of the structure that could be damaged by the surface preparation and painting operations (e.g., utilities), including any sound paint that is allowed to remain according to the contract documents, shall be protected by covering or shielding. Tarpaulins drop cloths, or other approved materials shall be employed. The Contractor shall comply with the provisions of the Illinois Environmental Protection Act. Paint drips, spills, and overspray are not permitted to escape into the air or onto any other surfaces or surrounding property not intended to be painted. Containment shall be used to control paint drips, spills, and overspray, and shall be dropped and all equipment secured when sustained wind speeds of 40 mph (64 kph) or greater occur, unless the containment design necessitates action at lower wind speeds. The contractor shall evaluate project-specific conditions to determine the specific type and extent of containment needed to control the paint emissions and shall submit a plan for containing or controlling paint debris (droplets, spills, overspray, etc.) to the Engineer for acceptance prior to starting the work. Acceptance by the Engineer shall not relieve the Contractor of their ultimate responsibility for controlling paint debris from escaping the work zone.

When the protective coverings need to be attached to the structure, they shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing. When removing coatings containing lead the containment and disposal of the residues shall be as specified in the Special Provision for Containment and Disposal of Lead Paint Cleaning Residues contained elsewhere in this Contract. When removing coatings not containing lead the containment and disposal of the residues shall be as specified in the Special Provision for Containment and Disposal of Non-Lead Paint Cleaning Residues contained elsewhere in this Contract.

The Contractor shall be responsible for any damage caused to persons, vehicles, or property, except as indemnified by the Response Action Contractor Indemnification Act. Whenever the intended purposes of the controls or protective devices used by the Contractor are not being accomplished, work shall be immediately suspended until corrections are made. Damage to vehicles or property shall be repaired by the Contractor at the Contractor's expense. Painted surfaces damaged by any Contractor's operation shall be repaired, removed and/or repainted, as directed by the Engineer, at the Contractor's expense.

Weather Conditions. Surfaces to be painted after cleaning shall 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.

- a) The surface temperature shall be at least 5°F (3°C) above the dew point during final surface preparation operations. The manufacturers' published literature shall be followed for specific temperature, dew point, and humidity restrictions during the application of each coat.
- b) If the Contractor proposes to control the weather conditions inside containment, proposed methods and equipment for heating and/or dehumidification shall be included in the work plans for the Engineer's consideration. Only indirect fired heating equipment shall be used to prevent the introduction of moisture and carbon monoxide into the containment. The heating unit(s) shall be ventilated to the outside of the containment. Any heating/dehumidification proposals accepted by the Engineer shall be implemented at no additional cost to the department.
- c) Cleaning and painting shall be done between April 15 and October 31 unless authorized otherwise by the Engineer in writing.

The Contractor shall monitor temperature, dew point, and relative humidity every 4 hours during surface preparation and coating application in the specific areas where the work is being performed. The frequency of monitoring shall increase if weather conditions are changing. If the weather conditions after application and during drying are forecast to be outside the acceptable limits established by the coating manufacturer, coating application shall not proceed. If the weather conditions are forecast to be borderline relative to the limits established by the manufacturer, monitoring shall continue at a minimum of 4-hour intervals throughout the drying period. The Engineer has the right to reject any work that was performed, or drying that took place, under unfavorable weather conditions. Rejected work shall be removed, recleaned, and repainted at the Contractor's expense.

Compressed Air Cleanliness. Prior to using compressed air for abrasive blast cleaning, blowing down the surfaces, and painting with conventional spray, the Contractor shall verify that the compressed air is free of moisture and oil contamination according to the requirements of ASTM D 4285. The tests shall be conducted at least one time each shift for each compressor system in operation. If air contamination is evident, the Contractor shall change filters, clean traps, add moisture separators or filters, or make other adjustments as necessary to achieve clean, dry air. The Contractor shall also examine the work performed since the last acceptable test for evidence of defects or contamination caused by the compressed air. Effected work shall be repaired at the Contractor's expense.

Low Pressure Water Cleaning and Solvent Cleaning (HOLD POINT). The Contractor shall notify the Engineer 24 hours in advance of beginning surface preparation operations.

- a) Water Cleaning of Lead Containing Coatings Prior to Overcoating. Prior to initiating any mechanical cleaning such as hand/power tool cleaning on surfaces that are painted with lead, all surfaces to be prepared and painted, and the tops of pier and abutment caps shall be washed. Washing is not required if the surfaces will be prepared by water jetting.

Washing shall involve the use of potable water at a minimum of 1000 psi (7 MPa) and less than 5000 psi (34 MPa) according to "Low Pressure Water Cleaning" of SSPC-SP WJ-4. There are no restrictions on the presence of flash rusting of bare steel after cleaning. Paint spray equipment shall not be used to perform the water cleaning. The cleaning shall be performed in such a manner as to remove dust, dirt, chalk, insect and animal nests, bird droppings, loose coating, loose mill scale, loose rust and other corrosion products, and other foreign matter. Water cleaning shall be supplemented with scrubbing as necessary to remove the surface contaminants. . The water, debris, and any loose paint removed by water cleaning shall be collected for proper disposal. The washing shall be completed no more than 2 weeks prior to surface preparation.

If detergents or other additives are added to the water, the detergents/additives shall be included in the submittals and not used until accepted by the Engineer. When detergents or additives are used, the surface shall be rinsed with potable water before the detergent water dries.

After washing has been accepted by the Engineer, all traces of asphaltic cement, oil, grease, diesel fuel deposits, and other soluble contaminants which remain on the steel surfaces to be painted shall be removed by solvent cleaning according to SSPC – SP1, supplemented with scraping (e.g., to remove large deposits of asphaltic cement) as required. The solvent(s) used for cleaning shall be compatible with the existing coating system. The Contractor shall identify the proposed solvent(s) in the submittals. If the existing coating is softened, wrinkled, or shows other signs of attack from the solvents, the Contractor shall immediately discontinue their use. The name and composition of replacement solvents, together with MSDS, shall be submitted for Engineer acceptance prior to use.

Under no circumstances shall subsequent hand/power tool cleaning or abrasive blast cleaning be performed in areas containing surface contaminants or in areas where the Engineer has not accepted the washing and solvent cleaning. Surfaces prepared by hand/power tool cleaning or abrasive blast cleaning without approval of the washing and solvent cleaning may be rejected by the Engineer. Rejected surfaces shall be recleaned with both solvent and the specified mechanical means at the Contractor's expense.

After all washing and mechanical cleaning are completed, representative areas of the existing coating shall be tested to verify that the surface is free of chalk and other loose surface debris or foreign matter. The testing shall be performed according to ASTM D4214. Cleaning shall continue until a chalk rating of 6 or better is achieved in every case.

- b) Water Cleaning of Non-Lead Coatings Prior to Overcoating. Thoroughly clean the surfaces according to the steps defined above for "Water Cleaning of Lead Containing Coatings Prior to Overcoating." The wash water does not need to be collected, but paint chips, insect and animal nests, bird droppings and other foreign matter shall be collected for proper disposal. If the shop primer is inorganic zinc, the chalk rating does not apply. All other provisions are applicable.
- c) Water Cleaning/Debris Removal Prior to Total Coating Removal. When total coating removal is specified, water cleaning of the surface prior to coating removal is not required by this specification and is at the option of the Contractor. If the Contractor chooses to use water cleaning, the above provisions for water cleaning of lead and non-lead coatings apply as applicable, including collection and disposal of the waste.

Whether or not the surfaces are pre-cleaned using water, the tops of the pier caps and abutments shall be cleaned free of dirt, paint chips, insect and animal nests, bird droppings and other foreign matter and the debris collected for proper disposal. Cleaning can be accomplished by wet or dry methods.

Prior to mechanical cleaning, oil, grease, and other soluble contaminants on bare steel or rusted surfaces shall be removed by solvent cleaning according to SSPC-SP1.

- d) Water Cleaning Between Coats. When foreign matter has accumulated on a newly applied coat, washing and scrubbing shall be performed prior to the application of subsequent coats. The water does not need to be collected unless it contacts existing lead containing coatings.

Laminar and Stratified Rust. All laminar and stratified rust that has formed on the existing steel surfaces shall be removed. Pack rust formed along the perimeter of mating surfaces of connected plates or shapes of structural steel shall be removed to the extent feasible without mechanically detaching the mating surface. Any pack rust remaining after cleaning the mating surfaces shall be tight and intact when examined using a dull putty knife. The tools used to remove these corrosion products shall be identified in the submittals and accepted by the Engineer. If the surface preparation or removal of rust results in nicks or gouges in the steel, the work shall be suspended, and the damaged areas repaired to the satisfaction of the Engineer, at the Contractor's expense. The Contractor shall also demonstrate that he/she has made the necessary adjustments to prevent a reoccurrence of the damage prior to resuming work. If surface preparation reveals holes or section loss, or creates holes in the steel, the Contractor shall notify the Engineer. Whenever possible, the Department will require that the primer be applied to preserve the area, and allow work to proceed, with repairs and touch up performed at a later date.

Surface Preparation (HOLD POINT). One or more of the following methods of surface preparation shall be used as specified on the plans. When a method of surface preparation is specified, it applies to the entire surface, including areas that may be concealed by the containment connection points. In each case, as part of the surface preparation process, soluble salts shall be remediated as specified under "Soluble Salt Remediation." The Contractor shall also note that the surface of the steel beneath the existing coating system may contain corrosion and/or mill scale. Removal of said corrosion and/or mill scale, when specified, shall be considered included in this work and no extra compensation will be allowed.

When a particular cleaning method is specified for use in distinct zones on the bridge, the cleaning shall extend into the existing surrounding paint until a sound border is achieved. The edge of the existing paint is considered to be sound and intact after cleaning if it cannot be lifted by probing the edge with a dull putty knife. The sound paint shall be feathered for a minimum of 1 1/2 in. (40 mm) to achieve a smooth transition between the prepared steel and the existing coatings. Sanders with vacuum attachments, which have been approved by the Engineer, shall be used as necessary to accomplish the feathering.

- a) Limited Access Areas: A best effort with the specified methods of cleaning shall be performed in limited access areas such as the backsides of rivets inside built up box members. The equipment being used for the majority of the cleaning may need to be supplemented with other commercially available equipment, such as angle nozzles, to properly clean the limited access areas. The acceptability of the best effort cleaning in these areas is at the sole discretion of the Engineer.
- b) Near-White Metal Blast Cleaning: This surface preparation shall be accomplished according to the requirements of Near-White Metal Blast Cleaning SSPC-SP 10. Unless otherwise specified in the contract, the designated surfaces shall be prepared by dry abrasive blast cleaning, wet abrasive blast cleaning, or water jetting with abrasive injection. A Near-White Metal 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.

Random staining shall be limited to no more than 5 percent of each 9 sq. in. (58 sq. cm) 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. With the exception of crevices as defined below, surface discoloration is considered to be a residue that must be removed, rather than a stain, if it possesses enough mass or thickness that it can be removed as a powder or in chips when scraped with a pocketknife.

A surface profile shall be created on the steel as defined later under "Surface Profile."

At the discretion of the Engineer, after a best effort cleaning, slight traces of existing coating may be permitted to remain within crevices such as those created between the steel and rivets or bolts/washers/nuts, and between plates. When traces of coating are permitted to remain, the coating shall be tightly bonded when examined by probing with a dull putty knife. The traces of coating shall be confined to the bottom portion of the crevices only, and shall not extend onto the surrounding steel or plate or onto the outer surface of the rivets or bolts. Pitted steel is excluded from exemption considerations and shall be cleaned according to SSPC-SP10.

If hackles or slivers are visible on the steel surface after cleaning, the Contractor shall remove them by grinding followed by reblast cleaning. At the discretion of the Engineer, the use of power tools to clean the localized areas after grinding, and to establish a surface profile acceptable to the coating manufacturer, can be used in lieu of blast cleaning.

If the surfaces are prepared using wet abrasive methods, attention shall be paid to tightly configured areas to assure that the preparation is thorough. After surface preparation is completed, the surfaces, surrounding steel, and containment materials/scaffolding shall be rinsed to remove abrasive dust and debris. Potable water shall be used for all operations. An inhibitor shall be added to the supply water and/or rinse water to prevent flash rusting. With the submittals, the Contractor shall provide a sample of the proposed inhibitor together with a letter from the coating manufacturer indicating that the inhibitor is suitable for use with their products and that the life of the coating system will not be reduced due to the use of the inhibitor. The surfaces shall be allowed to completely dry before the application of any coating.

- c) Commercial Grade Power Tool Cleaning: This surface preparation shall be accomplished according to the requirements of SSPC-SP15. The designated surfaces shall be completely cleaned with power tools. A Commercial Grade Power Tool Cleaned surface, when viewed without magnification, is free of all visible oil, grease, dirt, rust, coating, oxides, mill scale, corrosion products, and other foreign matter, except for staining. In previously pitted areas, slight residues of rust and paint may also be left in the bottoms of pits.

Random staining shall be limited to no more than 33 percent of each 9 sq. in. (58 sq. cm) of surface area. Allowable staining 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. Surface discoloration is considered to be a residue that must be removed, rather than a stain, if it possesses enough mass or thickness that it can be removed as a powder or in chips when scraped with a pocketknife.

A surface profile shall be created on the steel as defined later under "Surface Profile."

At the Contractor's option, Near-White Metal Blast Cleaning may be substituted for Power Tool Cleaning – Commercial Grade, as long as containment systems appropriate for abrasive blast cleaning are utilized and there is no additional cost to the Department.

- d) Power Tool Cleaning – Modified SP3: This surface preparation shall be accomplished according to the requirements of SSPC-SP3, Power Tool Cleaning except as modified as follows. The designated surfaces shall be cleaned with power tools. A power tool cleaned surface shall be free of all loose rust, loose mill scale, loose and peeling paint, and loose rust that is bleeding through and/or penetrating the coating. All locations of visible corrosion and rust bleed, exposed or lifting mill scale, and lifting or loose paint shall be prepared using the power tools, even if the material is tight.

Upon completion of the cleaning, rust, rust bleed, mill scale and surrounding paint are permitted to remain if they can not be lifted using a dull putty knife.

- e) Power Tool Cleaning of Shop Coated Steel. When shop-coated steel requires one or more coats to be applied in the field, the surface of the shop coating shall be cleaned as specified under "Water Cleaning of Non-Lead Coatings Prior to Overcoating." If the damage is to a fully applied shop system, water cleaning is not required unless stipulated in the contract. Damaged areas of shop coating shall be spot cleaned according to Power Tool Cleaning - Modified SSPC-SP3. If the damage extends to the substrate, spot cleaning shall be according to SSPC-SP15. The edges of the coating surrounding all spot repairs shall be feathered.
- f) Galvanized Surfaces: If galvanized surfaces are specified to be painted, they shall be prepared by brush-off blast cleaning in accordance with SSPC-SP 16 or by using proprietary solutions that are specifically designed to clean and etch (superficially roughen) the galvanized steel for painting. If cleaning and etching solutions are selected, the Contractor shall submit the manufacturer's technical product literature and SDS for Engineer's review and written acceptance prior to use.

Abrasives. Unless otherwise specified in the contract, when abrasive blast cleaning is specified, it shall be performed using either expendable abrasives (other than silica sand) or recyclable steel grit abrasives. Expendable abrasives shall be used one time and disposed of. Abrasive suppliers shall certify that the expendable abrasives meet the requirements of SSPC-AB1 and that recyclable steel grit abrasives meet SSPC-AB3. Tests to confirm the cleanliness of new abrasives (oil and water-soluble contamination) shall be performed by the Contractor according to the requirements and frequencies of SSPC-AB1 and SSPC-AB3, as applicable. On a daily basis, the Contractor shall verify that recycled abrasives are free of oil and water-soluble contamination by conducting the tests specified in SSPC-AB2.

All surfaces prepared with abrasives not meeting the SSPC-AB1, AB2, or AB3 requirements, as applicable, shall be solvent cleaned or low pressure water cleaned as directed by the Engineer, and reblast cleaned at the Contractor's expense.

Surface Profile (HOLD POINT). The abrasives used for blast cleaning shall have a gradation such that the abrasive will produce a uniform surface profile of 1.5 to 4.5 mils (38 to 114 microns). If the profile requirements of the coating manufacturer are more restrictive, advise the Engineer and comply with the more restrictive requirements. For recycled abrasives, an appropriate operating mix shall be maintained in order to control the profile within these limits.

The surface profile for SSPC-SP15 power tool cleaned surfaces shall be within the range specified by the coating manufacturer, but not less than 2.0 mils (50 microns).

The surface profile produced by abrasive blast cleaning shall be determined by replica tape or digital profile depth micrometer according to SSPC-PA 17 at the beginning of the work, and each day that surface preparation is performed. Areas having unacceptable profile measurements shall be further tested to determine the limits of the deficient area. When replica tape is used, it shall be attached to the daily report. In the event of a conflict between measurements taken with the replica tape and digital profile depth micrometer, the measurements with the replica tape shall prevail.

The surface profile produced by power tools to SSPC-SP15, shall be measured using the digital profile depth micrometer only. Replica tape shall not be used.

When unacceptable profiles are produced, work shall be suspended. The Contractor shall submit a plan for the necessary adjustments to insure that the correct surface profile is achieved on all surfaces. The Contractor shall not resume work until the new profile is verified by the QA observations, and the Engineer confirms, in writing, that the profile is acceptable.

Soluble Salt Remediation (HOLD POINT). The Contractor shall implement surface preparation procedures and processes that will remove chloride from the surfaces. Surfaces that may be contaminated with chloride include, but are not limited to, expansion joints and all areas that are subject to roadway splash or run off such as fascia beams and stringers.

Methods of chloride removal may include, but are not limited to, steam cleaning or pressure washing with or without the addition of a chemical soluble salt remover as approved by the coating manufacturer, and scrubbing before or after initial paint removal. The Contractor may also elect to clean the steel and allow it to rust overnight followed by recleaning, or by utilizing blends of fine and coarse abrasives during blast cleaning, wet abrasive/water jetting methods of preparation, or combinations of the above. If steam or water cleaning methods of chloride removal are utilized over surfaces where the coating has been completely removed, and the water does not contact any lead containing coatings, the water does not have to be collected. The Contractor shall provide the proposed procedures for chloride remediation in the Surface Preparation/Painting Plan.

Upon completion of the chloride remediation steps, the Contractor shall use cell methods of field chloride extraction and test procedures (e.g., silver dichromate) accepted by the Engineer, to test representative surfaces that were previously rusted (e.g., pitted steel) for the presence of remaining chlorides. Remaining chloride levels shall be no greater than 7µg/sq cm as read directly from the surface without any multiplier applied to the results. The testing must be performed, and the results must be acceptable, prior to painting each day.

A minimum of 5 tests per 1000 sq. ft. (93 sq m) or fraction thereof completed in a given day, shall be conducted at project start up. If results greater than 7 µg/sq cm are detected, the surfaces shall be recleaned and retested at the same frequency. If acceptable results are achieved on three consecutive days in which testing is conducted, the test frequency may be reduced to 1 test per 1000 sq. ft. (93 sq. m) prepared each day provided the chloride remediation process remains unchanged. If unacceptable results are encountered, or the methods of chloride remediation are changed, the Contractor shall resume testing at a frequency of 5 tests per 1000 sq. ft. (93 sq. m).

Following successful chloride testing the chloride test areas shall be cleaned. SSPC-SP15, Commercial Grade Power Tool Cleaning can be used to clean the test locations when the specified degree of cleaning is SSPC-SP10.

Surface Condition Prior to Painting (HOLD POINT). Prepared surfaces, shall meet the requirements of the respective degrees of cleaning immediately prior to painting, and shall be painted before rusting appears on the surface. If rust appears or bare steel remains unpainted for more than 12 hours, the affected area shall be prepared again at the expense of the Contractor.

All loose paint and surface preparation cleaning residue on bridge steel surfaces, scaffolding and platforms, containment materials, and tops of abutments and pier caps shall be removed prior to painting. When lead paint is being disturbed, cleaning shall be accomplished by HEPA vacuuming unless it is conducted within a containment that is designed with a ventilation system capable of collecting the airborne dust and debris created by sweeping and blowing with compressed air.

The quality of surface preparation and cleaning of surface dust and debris must be accepted by the Engineer prior to painting. The Engineer has the right to reject any work that was performed without adequate provision for QA observations to accept the degree of cleaning. Rejected coating work shall be removed and replaced at the Contractor's expense.

General Paint Requirements. Paint storage, mixing, and application 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. In the event of a conflict between these specifications and the coating manufacturers' instructions and data sheets, the Contractor shall advise the Engineer and comply with the Engineer's written resolution. Until a resolution is provided, the most restrictive conditions shall apply.

Unless noted otherwise, If a new concrete deck or repair to an existing deck is required, painting shall be done after the deck is placed and the forms have been removed.

- a) Paint Storage and Mixing. All Paint shall be stored according to the manufacturer's published instructions, including handling, temperatures, and warming as required prior to mixing. All coatings shall be supplied in sealed containers bearing the manufacturers name, product designation, batch number and mixing/thinning instructions. Leaking containers shall not be used.

The Contractor shall only use batches of material that have an IDOT MISTIC approval number. For multi-component materials, the batch number from one component is tested with specific batch numbers from the other component(s). Only the same batch number combinations that were tested and approved shall be mixed together for use.

Mixing shall be according to the manufacturer's instructions. Thinning shall be performed using thinner provided by the manufacturer, and only to the extent allowed by the manufacturer's written instructions. In no case shall thinning be permitted that would cause the coating to exceed the local Volatile Organic Compound (VOC) emission restrictions. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed.

The ingredients in the containers of paint shall be thoroughly mixed by mechanical power mixers according to the manufacturer's instructions, in the original containers before use or mixing with other containers of paint. The paint shall be mixed in a manner that 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.

Multiple component coatings shall be discarded after the expiration of the pot life. Single component paint shall not remain in spray pots, paint buckets, etc. overnight. It shall be stored in a covered container and remixed before use.

The Engineer reserves the right to sample field paint (individual components and/or the mixed material) and have it analyzed. If the paint does not meet the product requirements due to excessive thinning or because of other field problems, the coating shall be removed from that section of the structure and replaced as directed by the Engineer.

- b) Application Methods. Unless prohibited by the coating manufacturer's written instructions, paint may be applied by spray methods, rollers, or brushes. If applied with conventional or airless spray methods, paint shall be applied in a uniform layer with overlapping at the edges of the spray pattern.

The painters shall monitor the wet film thickness of each coat during application. The wet film thickness shall be calculated based on the solids by volume of the material and the amount of thinner added. When the new coating is applied over an existing system, routine QC inspections of the wet film thickness shall be performed in addition to the painter's checks in order to establish that a proper film build is being applied.

When brushes or rollers are used to apply the coating, additional applications may be required to achieve the specified thickness per layer.

- c) Field Touch Up of Shop-Coated Steel. After cleaning, rusted and damaged areas of shop-primed inorganic zinc shall be touched up using epoxy mastic. Damaged areas of shop-applied intermediate shall be touched-up using the same intermediate specified for painting the existing structure. Following touch up, the remaining coats (intermediate and finish, or finish only, depending on the number of coats applied in the shop) shall be the same materials specified for painting the existing structure. When inorganic zinc has been used as the shop primer, a mist coat of the intermediate coat shall be applied before the application of the full intermediate coat in order to prevent pinholing and bubbling.
- d) Recoating and Film Continuity (HOLD POINT for each coat). Paint shall be considered dry for recoating according to the time/temperature/humidity criteria provided in the manufacturer's instructions and when an additional coat can be applied without the development of film irregularities; such as lifting, wrinkling, or loss of adhesion of the under coat. The coating shall be considered to be too cured for recoating based on the maximum recoat times stipulated by the coating manufacturer. If the maximum recoat times are exceeded, written instructions from the manufacturer for preparing the surface to receive the next coat shall be provided to the Engineer. Surface preparation and application shall not proceed until the recommendations are accepted by the Engineer in writing. If surfaces are contaminated, washing shall be accomplished prior to intermediate and final coats. Wash water does not have to be collected unless the water contacts existing lead containing coatings.

Painting shall be done in a neat and workmanlike manner. Each coat of paint shall be applied as a continuous film of uniform thickness free of defects including, but not limited to, runs, sags, overspray, dryspray, pinholes, voids, skips, misses, and shadow-through. Defects such as runs and sags shall be brushed out immediately during application. Dry spray on the surface of previous coats shall be removed prior to the application of the next coat.

Paint Systems. The paint system(s) from the list below shall be applied as specified.

The paint manufacturer's relative humidity, dew point, and material, surface, and ambient temperature restrictions shall be provided with the submittals and shall be strictly followed. Written recommendations from the paint manufacturer for the length of time each coat must be protected from cold or inclement weather (e.g., exposure to rain), during the drying period shall be included in the submittals. Upon acceptance by the Engineer, these times shall be used to govern the duration that protection must be maintained during drying.

Where stripe coats are indicated, the Contractor shall apply an additional coat to edges, rivets, bolts, crevices, welds, and similar surface irregularities. The stripe coat shall be applied by brush or spray, but if applied by spray, it shall be followed immediately by brushing to thoroughly work the coating into or on the irregular surfaces, and shall extend onto the surrounding steel a minimum of 1 in. (25 mm) in all directions. The purpose of the stripe coat is to assure complete coverage of crevices and to build additional thickness on edges and surface irregularities. If the use of the brush on edges pulls the coating away, brushing of edges can be eliminated, provided the additional coverage is achieved by spray. Measurement of stripe coat thickness is not required, but the Contractor shall visually confirm that the stripe coats are providing the required coverage.

The stripe coat may be applied as part of the application of the full coat unless prohibited by the coating manufacturer. If applied as part of the application process of the full coat, the stripe coat shall be allowed to dry for a minimum of 10 minutes in order to allow Contractor QC personnel to verify that the coat was applied. If a wet-on-wet stripe coat is prohibited by the coating manufacturer or brush or roller application of the full coat pulls the underlying stripe coat, the stripe coat shall dry according to the manufacturers' recommended drying times prior to the application of the full coat. In the case of the prime coat, the full coat can also be applied first to protect the steel, followed by the stripe coat after the full coat has dried.

The thicknesses of each coat as specified below shall be measured according to SSPC-PA2, using Coating Thickness Restriction Level 3 (spot measurements 80% of the minimum and 120% of the maximum, provided the entire area complies with the specified ranges).

a) System 1 – OZ/E/U – for Bare Steel: System 1 shall consist of the application of a full coat of organic (epoxy) zinc-rich primer, a full intermediate coat of epoxy, and a full finish coat of aliphatic urethane. Stripe coats of the prime and finish coats shall be applied. The film thicknesses of the full coats shall be as follows:

- One full coat of organic zinc-rich primer between 3.5 and 5.0 mils (90 and 125 microns) dry film thickness. The prime coat shall be tinted to a color that contrasts with the steel surface.
- One full intermediate coat of epoxy between 3.0 and 6.0 mils (75 and 150 microns) dry film thickness. The intermediate coat shall be a contrasting color to both the first coat and finish coat.
- One full finish coat of aliphatic urethane between 2.5 and 4.0 mils (65 and 100 microns) dry film thickness. Finish coat color shall be according to contract plans.

The total dry film thickness for this system, exclusive of areas receiving the stripe coats, shall be between 9.0 and 15.0 mils (225 and 375 microns).

- b) System 2 – PS/EM/U – for Overcoating an Existing System: System 2 shall consist of the application of a full coat of epoxy penetrating sealer, a spot intermediate coat of aluminum epoxy mastic and a stripe and full finish coat of aliphatic urethane.

A full coat of epoxy penetrating sealer shall be applied to all surfaces following surface preparation. A spot intermediate coat shall consist of the application of one coat of the aluminum epoxy mastic on all areas where rust is evident and areas where the old paint has been removed, feathered and/or damaged prior to, during or after the cleaning and surface preparation operations. After the spot intermediate, a stripe coat and full finish coat of aliphatic urethane shall be applied. The film thicknesses shall be as follows:

- One full coat of epoxy penetrating sealer between 1.0 and 2.0 mils (25 and 50 microns) dry film thickness.
- One spot coat of aluminum epoxy mastic between 5.0 and 7.0 mils (125 and 175 microns) dry film thickness. The color shall contrast with the finish coat.
- One full finish coat of aliphatic urethane between 2.5 and 4.0 mils (65 and 100 microns) dry film thickness. Finish coat color shall be according to contract plans.

The total dry film thickness for this system, exclusive of the stripe coat, shall be between 8.5 and 13.0 mils (215 and 325 microns). The existing coating thickness to remain under the overcoat must be verified in order to obtain accurate total dry film thickness measurements.

- c) System 3 – EM/EM/AC – for Bare Steel: System 3 shall consist of the application of two full coats of aluminum epoxy mastic and a full finish coat of waterborne acrylic. Stripe coats for first coat of epoxy mastic and the finish coat shall be applied. The film thicknesses of the full coats shall be as follows:

- One full coat of aluminum epoxy mastic between 5.0 and 7.0 mils (125 and 175 microns) dry film thickness. The first coat of aluminum epoxy mastic shall be tinted a contrasting color with the blast cleaned surface and the second coat.
- One full intermediate coat of aluminum epoxy mastic between 5.0 and 7.0 mils (125 and 175 microns) dry film thickness. The intermediate coat shall be a contrasting color to the first coat and the finish coat.
- A full finish coat of waterborne acrylic between 2.0 and 4.0 mils (50 and 100 microns) dry film thickness. Finish coat color shall be according to contract plans.

The total dry film thickness for this system, exclusive of areas receiving the stripe coats, shall be between 12.0 and 18.0 mils (360 and 450 microns).

- d) System 4 – PS/EM/AC – for Overcoating an Existing System: System 4 shall consist of the application of a full coat of epoxy penetrating sealer, a spot intermediate coat of aluminum epoxy mastic and a stripe and full finish coat of waterborne acrylic.

A full coat of epoxy penetrating sealer shall be applied to all surfaces following surface preparation. A spot intermediate coat shall consist of the application of one coat of the aluminum epoxy mastic on all areas where rust is evident and areas where the old paint has been removed, feathered and/or damaged prior to, during or after the cleaning and surface preparation operations. After the spot intermediate, a stripe coat and full finish coat of waterborne acrylic shall be applied. The film thicknesses shall be as follows:

- One full coat of epoxy penetrating sealer between 1.0 and 2.0 mils (25 and 50 microns) dry film thickness.
- One spot coat of aluminum epoxy mastic between 5.0 and 7.0 mils (125 and 175 microns) dry film thickness. The color shall contrast with the finish coat.
- One full finish coat of waterborne acrylic between 2.0 and 4.0 mils (50 and 100 microns) dry film thickness. Finish coat color shall be according to contract plans.

The total dry film thickness for this system, exclusive of the stripe coat, shall be between 8.0 and 13.0 mils (200 and 325 microns). The existing coating thickness to remain under the overcoat must be verified in order to obtain accurate total dry film thickness measurements.

- e) System 5 – MCU – for Bare Steel: System 5 shall consist of the application of a full coat of moisture cure urethane (MCU) zinc primer, a full coat of MCU intermediate, and a full coat of MCU finish. Stripe coats of the prime and finish coats shall be applied. The Contractor shall comply with the manufacturer's requirements for drying times between the application of the stripe coats and the full coats. The film thicknesses of the full coats shall be as follows:

- One full coat of MCU zinc primer between 3.0 and 5.0 mils (75 and 125 microns) dry film thickness. The prime coat shall be tinted to a color that contrasts with the steel surface.
- One full MCU intermediate coat between 3.0 and 4.0 mils (75 and 100 microns) dry film thickness. The intermediate coat shall be a contrasting color to both the first coat and finish coat.
- One full MCU finish coat between 2.0 and 4.0 mils (50 and 100 microns) dry film thickness. Finish coat color shall be according to contract plans.

The total dry film thickness for this system, exclusive of areas receiving the stripe coats, shall be between 8.0 and 13.0 mils (200 and 325 microns).

- f) System 6 – MCU – for Overcoating an Existing System: System 6 shall consist of the application of a full coat of moisture cure urethane (MCU) penetrating sealer, a spot coat of MCU intermediate, and a stripe and full coat of MCU finish.

A full coat of MCU penetrating sealer shall be applied to all surfaces following surface preparation. A spot intermediate coat shall consist of the application of one coat of MCU intermediate on all areas where rust is evident and areas where the old paint has been removed, feathered and/or damaged prior to, during or after the cleaning and surface preparation operations. After the spot intermediate, a stripe coat and full coat of MCU finish shall be applied. The Contractor shall comply with the manufacturer's requirements for drying time between the application of the stripe coat and the full finish coat. The film thicknesses shall be as follows:

- One full coat of MCU sealer between 1.0 and 2.0 mils (25 and 50 microns) dry film thickness.
- One full MCU intermediate coat between 3.0 and 4.0 mils (75 and 100 microns) dry film thickness. The color shall contrast with the finish coat.
- One full MCU finish coat 2.0 and 4.0 mils (50 and 100 microns) dry film thickness. Finish coat color shall be according to contract plans.

The total dry film thickness for this system, exclusive of areas receiving the stripe coats, shall be between 6.0 and 10.0 mils (150 and 250 microns). The existing coating thickness to remain under the overcoat must be verified in order to obtain accurate total dry film thickness measurements.

Application of Paint System over Galvanizing: If galvanized surfaces are present and specified to be painted, the Contractor shall apply one of the following as designated on the plans:

- A 2-coat system consisting of a full aluminum epoxy mastic coat and a full waterborne acrylic finish coat from System 3. If red rust is visible, rusted areas shall be spot primed with aluminum epoxy mastic prior to the application of the full coat of aluminum epoxy mastic.
- A 2-coat system consisting of a full epoxy coat and a full urethane coat from System 1. If red rust is visible, rusted areas shall be spot primed with organic zinc prior to the application of the full coat of epoxy.

Surface Preparation and Painting of Galvanized Fasteners: The Contractor shall prepare all fasteners (i.e., galvanized nuts, bolts, etc.) by power tool cleaning in accordance with SSPC-SP 2 or SSPC-SP3 to remove loose material. Following hand/power tool cleaning and prior to painting, the surfaces shall be solvent cleaned according to SSPC-SP 1. Slight stains of torqueing compound dye may remain after cleaning provided the dye is not transferred to a cloth after vigorous rubbing is acceptable. If any dye is transferred to a cloth after vigorous rubbing, additional cleaning is required.

The fasteners shall be coated with one coat of an aluminum epoxy mastic meeting the requirements of Article 1008.03 and the same acrylic or urethane topcoat specified above for use on galvanized members.

Repair of Damage to New Coating System and Areas Concealed by Containment. The Contractor shall repair all damage to the newly installed coating system and areas concealed by the containment/protective covering attachment points, at no cost to the Department. The process for completing the repairs shall be included in the submittals. If the damage extends to the substrate and the original preparation involved abrasive blast cleaning, the damaged areas shall be prepared to SSPC-SP15 Power Tool Cleaning - Commercial Grade. If the original preparation was other than blast cleaning or the damage does not extend to the substrate, the loose, fractured paint shall be cleaned to Power Tool Cleaning – Modified SP3.

The surrounding coating at each repair location shall be feathered for a minimum distance of 1 1/2 in. (40 mm) to achieve a smooth transition between the prepared areas and the existing coating.

If the bare steel is exposed, all coats shall be applied to the prepared area. For damaged galvanizing, the first coat shall be aluminum epoxy mastic. If only the intermediate and finish coats are damaged, the intermediate and finish shall be applied. If only the finish coat is damaged, the finish shall be applied.

Special Instructions.

- a) At the completion of the work, the Contractor shall stencil the painting date and the paint code on the bridge. The letters shall be capitals, not less than 2 in. (50 mm) and not more than 3 in. (75 mm) in height.

The stencil shall contain the following wording "PAINTED BY (insert the name of the Contractor)" and shall show the month and year in which the painting was completed, followed by the appropriate code for the coating material applied, all stenciled on successive lines:

CODE U (for field applied System 3 or System 4).

CODE Z (for field applied System 1 or System 2).

CODE AA (for field applied System 5 or System 6).

This information shall be stenciled on the cover plate of a truss end post near the top of the railing, or on the outside face of an outside stringer near one end of the bridge, or at some equally visible surface near the end of the bridge, as designated by the Engineer.

- b) All surfaces painted inadvertently shall be cleaned immediately.

It is understood and agreed that the cost of all work outlined above, unless otherwise specified, has been included in the bid, and no extra compensation will be allowed.

Basis of Payment. This work shall be paid for at the contract Lump Sum price for CLEANING AND PAINTING STEEL BRIDGE, at the designated location, or for CLEANING AND PAINTING the structure or portions thereof described. Payment will not be authorized until all requirements for surface preparation and painting have been fulfilled as described in this specification, including the preparation and submittal of all QC documentation. Payment will also not be authorized for non-conforming work until the discrepancy is resolved in writing.

Appendix 1 – Reference List

The Contractor shall maintain the following regulations and references on site for the duration of the project:

- Illinois Environmental Protection Act
- ASTM D 4214, Standard Test Method for Evaluating Degree of Chalking of Exterior Paint Films
- ASTM D 4285, Standard Test Method for Indicating Oil or Water in Compressed Air
- ASTM D4417, Standard Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel
- SSPC-AB 1, Mineral and Slag Abrasives
- SSPC-AB 2, Cleanliness of Recycled Ferrous Metallic Abrasives
- SSPC-AB 3, Ferrous Metallic Abrasive
- SSPC-PA 2, Procedure for Determining Conformance to Dry Coating Thickness Requirements
- SSPC-PA 17, Procedure for Determining Conformance to Steel Profile/Surface Roughness/Peak Count Requirements
- SSPC-QP 1, Standard Procedure for Evaluating Painting Contractors (Field Application to Complex Structures)
- SSPC-QP 2, Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint
- SSPC-SP 1, Solvent Cleaning
- SSPC-SP 2, Hand Tool Cleaning
- SSPC-SP 3, Power Tool Cleaning
- SSPC-SP 10/NACE No. 2, Near White Metal Blast Cleaning
- SSPC-SP WJ-4, Waterjet Cleaning of Metals – Light Cleaning
- SSPC-SP 15, Commercial Grade Power Tool Cleaning
- SSPC-SP 16, Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals
- SSPC-VIS 1, Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning
- SSPC-VIS 3, Visual Standard for Power- and Hand-Tool Cleaned Steel
- SSPC-VIS 4, Guide and Reference Photographs for Steel Cleaned by Water Jetting
- SSPC-VIS 5, Guide and Reference Photographs for Steel Prepared by Wet Abrasive Blast Cleaning
- The paint manufacturer's application instructions, MSDS and product data sheets

CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES

Effective: October 2, 2001

Revised: April 22, 2016

Description. This work shall consist of the containment, collection, temporary storage, transportation and disposal of waste from lead paint removal projects. Waste requiring containment and control includes, but is not limited to, old paint, spent abrasives, corrosion products, mill scale, dirt, dust, grease, oil, salts, and water used for cleaning the surface of existing lead coatings prior to overcoating.

General. The existing coatings contain lead and may also contain other toxic metals. This specification provides the requirements for containment and for the protection of the public, and the environment from exposure to harmful levels of toxic metals that may be present in the paint being removed or repaired. The Contractor shall take reasonable and appropriate precautions to protect the public from the inhalation or ingestion of dust or debris from the operations, and is responsible for the clean-up of all spills of waste at no additional cost to the Department.

The Contractor shall comply with the requirements of this Specification and all applicable Federal, State, and Local laws, codes, and regulations, including, but not limited to the regulations of the United States Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), and Illinois Environmental Protection Agency (IEPA). The Contractor shall comply with all applicable regulations even if the regulation is not specifically referenced herein. If a Federal, State, or Local regulation is more restrictive than the requirements of this Specification, the more restrictive requirements shall prevail.

Submittals. The Contractor shall submit for Engineer review and acceptance, the following drawings and plans for accomplishing the work. The submittals shall be provided within 30 days of execution of the contract unless given written permission by the Engineer to submit them at a later date. Work cannot proceed until the submittals are accepted by the Engineer. Details for each of the plans are presented within the body of this specification. The Contractor shall also maintain on site, copies of the standards and regulations referenced herein (list provided in appendix 1).

- a) Containment Plans. The containment plans shall include drawings, equipment specifications, and calculations (wind load, air flow and ventilation when negative pressure is specified. The plans shall include copies of the manufacturer's specifications for the containment materials and equipment that will be used to accomplish containment and ventilation.

When required by the contract plans, the submittal shall provide calculations that assure the structural integrity of the bridge when it supports the containment and the calculations and drawings shall be signed and sealed by a Structural Engineer licensed in the state of Illinois.

When working over the railroad or navigable waterways, the Department will notify the respective agencies that work is being planned. Unless otherwise noted in the plans, the Contractor is responsible for follow up contact with the agencies, and shall provide evidence that the railroad, Coast Guard, Corps of Engineers, and other applicable agencies are satisfied with the clearance provided and other safety measures that are proposed.

- b) Environmental Monitoring Plan. The Environmental Monitoring Plan shall address the visual inspections and clean up of the soil and water that the Contractor will perform, including final project inspection and cleanup. The plan shall address the daily visible emissions observations that will be performed and the corrective action that will be implemented in the event emissions or releases occur. When high volume ambient air monitoring is required, an Ambient Air Monitoring Plan shall be developed. The plan shall include:
- Proposed monitor locations and power sources in writing. A site sketch shall be included, indicating sensitive receptors, monitor locations, and distances and directions from work area.
 - Equipment specification sheet for monitors to be used, and a written commitment to calibrate and maintain the monitors.
 - Include a procedure for operation of monitors per 40 CFR 50, Appendix B, including use of field data chain-of-custody form. Include a sample chain of custody form.
 - Describe qualifications/training of monitor operator.
 - The name, contact information (person's name and number), and certification of the laboratory performing the filter analysis. Laboratory shall be accredited by one of the following: 1) the American Industrial Hygiene Association (AIHA) for lead (metals) analysis, 2) Environmental Lead Laboratory Accreditation Program (ELLAP) for metals analysis, 3) State or federal accreditation program for ambient air analysis or, 4) the EPA National Lead Laboratory Accreditation Program (NLLAP) for lead analysis. The laboratory shall provide evidence of certification, a sample laboratory chain-of-custody form, and sample laboratory report that provides the information required by this specification. The laboratory shall also provide a letter committing to do the analysis per 40 CFR 50, Appendix G. If the analysis will not be performed per 40 CFR Appendix G, a proposed alternate method shall be described, together with the rationale for using it. The alternate method can not be used unless specifically accepted by the Engineer in writing.
- c) Waste Management Plan. The Waste Management Plan shall address all aspects of handling, storage, testing, hauling and disposal of all project waste, including waste water. Include the names, addresses, and a contact person for the proposed licensed waste haulers and disposal facilities. Submit the name and qualifications of the laboratory proposed for Toxicity Characteristic Leaching Procedure (TCLP) analysis. If the use of abrasive additives is proposed, provide the name of the additive, the premixed ratio of additive to abrasive being provided by the supplier, and a letter from the supplier of the additive indicating IEPA acceptance of the material. Note that the use of any steel or iron based material, such as but not limited to grit, shot, fines, or filings as an abrasive additive is prohibited. The plan shall address weekly inspections of waste storage, maintaining an inspection log, and preparing a monthly waste accumulation inventory table.
- d) Contingency Plan. The Contractor shall prepare a contingency plan for emergencies including fire, accident, failure of power, failure of dust collection system, failure of supplied air system or any other event that may require modification of standard operating procedures during lead removal. The plan shall include specific procedures to ensure safe egress and proper medical attention in the event of an emergency.

When the Engineer accepts the submittals, the Contractor will receive written notification. The Contractor shall not begin any work until the Engineer has accepted the submittals. The Contractor shall not construe Engineer acceptance of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns. Acceptance of the plans does not relieve the Contractor from the responsibility to conduct the work according to the requirements of Federal, State, or Local regulations, this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor remains solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

Quality Control (QC) Inspections. The Contractor shall perform first line, in process QC inspections of all environmental control and waste handling aspects of the project to verify compliance with these specification requirements and the accepted drawings and plans. The Contractor shall use the IDOT Environmental Daily Report form to record the results of the inspections. Alternative forms (paper or electronic) will be allowed provided they furnish equivalent documentation as the IDOT form, and they are accepted as part of the QC Program submittal. The completed reports shall be turned into the Engineer before work resumes the following day. Contractor QC inspections shall include, but not be limited to the following:

- Proper installation and continued performance of the containment system(s) in accordance with the approved drawings.
- Visual inspections of emissions into the air and verification that the cause(s) for any unacceptable emissions is corrected.
- Set up, calibration, operation, and maintenance of the regulated area and high volume ambient air monitoring equipment, including proper shipment of cassettes/filters to the laboratory for analysis. Included is verification that the Engineer receives the results within the time frames specified and that appropriate steps are taken to correct work practices or containment in the event of unacceptable results.
- Visual inspections of spills or deposits of contaminated materials into the water or onto the ground, pavement, soil, or slope protection. Included is verification that proper cleanup is undertaken and that the cause(s) of unacceptable releases is corrected.
- Proper implementation of the waste management plan including laboratory analysis and providing the results to the Engineer within the time frames specified herein.
- Proper implementation of the contingency plans for emergencies.

The personnel providing the QC inspections shall pose current SSPC-C3 certification or equal, including the annual training necessary to maintain that certification (SSPC-C5 or equal), and shall provide evidence of successful completion of 2 bridge lead paint removal projects of similar or greater complexity and scope that have been completed in the last 2 years. References shall include the name, address, and telephone number of a contact person employed by the bridge owner. Proof of initial certification and the current annual training shall also be provided.

Quality Assurance (QA) Observations. The Engineer will conduct QA observations of any or all of the QC monitoring inspections that are undertaken. The presence or activity of Engineer observations in no way relieves the Contractor of the responsibility to provide all necessary daily QC inspections of its own and to comply with all requirements of this Specification.

Containment Requirements. The Contractor shall install and maintain containment systems surrounding the work for the purpose of controlling emissions of dust and debris according to the requirements of this specification. Working platforms and containment materials that are used shall be firm and stable and platforms shall be designed to support the workers, inspectors, spent surface preparation media (e.g., abrasives), and equipment during all phases of surface preparation and painting. Platforms, cables, and other supporting structures shall be designed according to OSHA regulations. If the containment needs to be attached to the structure, the containment shall be attached by bolting, clamping, or similar means. Welding or drilling into the structure is prohibited unless approved by the Engineer in writing.

The containment shall be dropped in the event of sustained winds of 40 mph (64 kph) or greater and all materials and equipment secured.

The Contractor shall provide drawings showing the containment system and indicating the method(s) of supporting the working platforms and containment materials to each other and to the bridge. When the use of negative pressure and airflow inside containment is specified, the Contractor shall provide all ventilation calculations and details on the equipment that will be used for achieving the specified airflow and dust collection.

When directed in the contract plans, the Contractor shall submit calculations and drawings, signed and sealed by a Structural Engineer licensed in the state of Illinois, that assure the structural integrity of the bridge under the live and dead loads imposed, including the design wind loading.

When working over railroads, the Contractor shall provide evidence that the proposed clearance and the safety provisions that will be in place (e.g., flagman) are acceptable to the railroad. In the case of work over navigable waters, the Contractor shall provide evidence that the proposed clearance and provisions for installing or moving the containment out of navigation lanes is acceptable to authorities such as the Coast Guard and Army Corps of Engineers. The Contractor shall include plans for assuring that navigation lighting is not obscured, or if it is obscured, that temporary lighting is acceptable to the appropriate authorities (e.g., Coast Guard) and will be utilized.

Engineer review and acceptance of the drawings and calculations shall not relieve the Contractor from the responsibility for the safety of the working platforms and containment, and for providing ample ventilation to control worker and environmental exposures. After the work platforms and containment materials are erected additional measures may be needed to ensure worker safety according to OSHA regulations. The Contractor shall institute such measures at no additional cost to the Department.

Containment for the cleaning operation of this contract is defined as follows:

- The containment system shall maintain the work area free of visible emissions of dust and debris according to all provisions of this Specification, with no debris permitted outside of the regulated area at any time. All debris within the regulated area and within the containment shall be collected at the end of the last shift each day, and properly stored in sealed containers. Cleaning shall be accomplished by HEPA vacuuming unless it is conducted within a containment that is designed with a ventilation system capable of collecting the airborne dust and debris created by sweeping and blowing with compressed air. The ventilation system shall be in operation during the cleaning.
- The containment systems shall comply with the specified SSPC Guide 6 classifications as presented in Table 1 for the method of paint removal utilized.
- TSP-lead in the air at monitoring locations selected by the Contractor shall comply with the requirements specified herein.

The Contractor shall take appropriate action to avoid personnel injury or damage to the structure from the installation and use of the containment system. If the Engineer determines that there is the potential for structural damage caused by the installed containment system, the Contractor shall take appropriate action to correct the situation.

In addition to complying with the specific containment requirements in Table 1 for each method of removal, the Contractor shall provide and maintain coverage over the ground in the areas to be cleaned. This coverage shall be capable of catching and containing surface preparation media, paint chips, and paint dust in the event of an accidental escape from the primary containment. The containment materials shall be cleaned of loose material prior to relocation or dismantling. Acceptable methods of cleaning include blowing down the surfaces with compressed air while the ventilation system is in operation, HEPA vacuuming, and/or wet wiping. If paint chips or dust is observed escaping from the containment materials during moving, all associated operations shall be halted and the materials and components re-cleaned.

The containment systems shall also meet the following requirements:

a) Dry Abrasive Blast Cleaning - Full Containment with Negative Pressure (SSPC Class 1A)

The enclosure shall be designed, installed, and maintained to sustain maximum anticipated wind forces, including negative pressure. Flapping edges of containment materials are prohibited and the integrity of all containment materials, seams, and seals shall be maintained for the duration of the project. Airflow inside containment shall be designed to provide visibility and reduce worker exposures to toxic metals according to OSHA regulations and as specified in Table 1 and its accompanying text. When the location of the work on the bridge, or over lane closures permit, the blast enclosure shall extend a minimum of 3 ft. (1 m) beyond the limits of surface preparation to allow the workers to blast away from, rather than into the seam between the containment and the structure. The blast enclosure shall have an airlock or resealable door entryway to allow entrance and exit from the enclosure without allowing the escape of blasting residue.

If recyclable metallic abrasives are used, the Contractor shall operate the equipment in a manner that minimizes waste generation. Steps shall also be taken to minimize dust generation during the transfer of all abrasive/paint debris (expendable or recyclable abrasives) for recycling or disposal. Acceptable methods include, but are not limited to vacuuming, screw or belt conveyance systems, or manual conveyance. However manual conveyance is only permitted if the work is performed inside a containment that is equipped with an operating ventilation system capable of controlling the dust that is generated.

Appropriate filtration shall be used on the exhaust air of dust collection and abrasive recycling equipment as required to comply with IEPA regulations. The equipment shall be cleaned/maintained, enclosed, or replaced if visible dust and debris are being emitted and/or the regulated area or high volume monitor lead levels are not in compliance.

Areas beneath containment connection points that were shielded from abrasive blast cleaning shall be prepared by vacuum blast cleaning or vacuum-shrouded power tool cleaning after the containment is removed.

b) Vacuum Blast Cleaning within Containment (SSPC-Class 4A)

Vacuum blasting equipment shall be fully automatic and capable of cleaning and recycling the abrasive. The system shall be designed to deliver cleaned, recycled blasting abrasives and provide a closed system containment during blasting. The removed coating, mill scale, and corrosion shall be separated from the abrasive, and stored for disposal.

The Contractor shall attach containment materials around and under the work area to catch and contain abrasive and waste materials in the event of an accidental escape from the vacuum shroud. This containment is in addition to the ground covers specified earlier.

It is possible that the close proximity of some structural steel members, such as the end diaphragms or end cross-frames underneath transverse deck expansion joints, preclude the use of the vacuum blasting equipment for the removal of the old paint. For surfaces that are inaccessible for the nozzles of the vacuum blasting equipment, the Contractor shall remove the paint by means of full containment inside a complete enclosure as directed by the Engineer.

c) Vacuum-Shrouded Power Tool Cleaning within Containment (SSPC-Class 3P)

The Contractor shall utilize power tools equipped with vacuums and High Efficiency Particulate Air (HEPA) filters. The Contractor shall attach containment walls around the work area, and install containment materials beneath the work area to catch and contain waste materials in the event of an accidental escape from the vacuum shroud. This containment is in addition to the ground covers specified earlier and shall be installed within 10 ft. (3m) of the areas being cleaned.

d) Power Tool Cleaning without Vacuum, within Containment (SSPC-Class 2P)

When the use of power tools without vacuum attachments is authorized by the Engineer, the Contractor shall securely install containment walls and flooring around the work area to capture and collect all debris that is generated. The containment material requirements for this Class 2P are similar to Class 3P used for vacuum-shrouded tools, but the supporting structure will be more substantial in Class 2P to better secure the containment materials from excessive movement that could lead to the loss of waste paint chips and debris. Containment beneath the work shall be within 10 ft. (3m) of the areas being cleaned, and is in addition to the ground covers specified earlier.

e) Water Washing, Water Jetting or Wet Abrasive Blast Cleaning within Containment (SSPC Class 2W-3W)

Water washing of the bridge for the purpose of removing chalk, dirt, grease, oil, bird nests, and other surface debris, and water jetting or wet abrasive blast cleaning for the purpose of removing paint and surface debris shall be conducted within a containment designed, installed, and maintained in order to capture and contain all water and waste materials. The containment shall consist of impermeable floors and lower walls to prevent the water and debris from escaping. Permeable upper walls and ceilings are acceptable provided the paint chips, debris, and water, other than mists, are collected. A fine mist passing through the permeable upper walls is acceptable, provided the environmental controls specified below are met. If paint chips, debris, or water, other than mists, escape the containment system, impermeable walls and ceilings shall be installed.

When water is used for surface cleaning, the collected water shall be filtered to separate the particulate from the water. Recycling of the water is preferred in order to reduce the volume of waste that is generated. The water after filtration shall be collected and disposed of according to the waste handling portions of this specification.

When a slurry is created by injecting water into the abrasive blast stream, the slurry need not be filtered to separate water from the particulate.

Environmental Controls and Monitoring. The Contractor shall prepare and submit to the Engineer for review and acceptance, an Environmental Monitoring Plan. The purpose of the plan is to address the observations and equipment monitoring undertaken by the Contractor to confirm that project dust and debris are not escaping the containment into the surrounding air, soil, and water.

a) Soil and Water. Containment systems shall be maintained to prevent the escape of paint chips, abrasives, and other debris into the water, and onto the ground, soil, slope protection, and pavements. Releases or spills of, paint chips, abrasives, dust and debris that have become deposited on surrounding property, structures, equipment or vehicles, and bodies of water are unacceptable. If there are inadvertent spills or releases, the Contractor shall immediately shut down the emissions-producing operations, clean up the debris, and change work practices, modify the containment, or take other appropriate corrective action as needed to prevent similar releases from occurring in the future.

Water booms, boats with skimmers, or other means as necessary shall be used to capture and remove paint chips or project debris that falls or escapes into the water.

At the end of each workday at a minimum, the work area inside and outside of containment, including ground tarpaulins, shall be inspected to verify that paint debris is not present. If debris is observed, it shall be removed by hand and HEPA-vacuuming. If wet methods of preparation are used, the damp debris can remain overnight provided it is protected from accidental release by securely covering the waste, folding the waste into the ground tarps, or by other acceptable methods. Prior to commencing work the next day, the debris from the folded ground tarps shall be removed.

Upon project completion, the ground and water in and around the project site are considered to have been properly cleaned if paint chips, paint removal media (e.g., spent abrasives), fuel, materials of construction, litter, or other project debris have been removed.

NOTE: All project debris must be removed even if the debris (e.g., spent abrasive and paint chips) was a pre-existing condition.

- b) Visible Emissions. The Contractor shall conduct observations of visible emissions and releases on an ongoing daily basis when dust-producing activities are underway, such as paint removal, clean up, waste handling, and containment dismantling or relocation. Note that visible emissions observations do not apply to the fine mist that may escape through permeable containment materials when wet methods of preparation are used.

Visible emissions in excess of SSPC-TU7, Method A (Timing Method), Level 1 (1% of the workday) are unacceptable. In an 8-hour workday, this equates to emissions of a cumulative duration no greater than 5 minutes.. This criterion applies to scattered, random emissions of short duration. Sustained emissions from a given location (e.g., 1 minute or longer), regardless of the total length of emissions for the workday, are unacceptable and action shall be initiated to halt the emission.

If unacceptable visible emissions or releases are observed, the Contractor shall immediately shut down the emission-producing operations, clean up the debris, and change work practices, modify the containment, or take other appropriate corrective action as needed to prevent similar releases from occurring in the future.

- c) Ambient Air Monitoring. The Contractor shall perform ambient air monitoring according to the following:
- Monitor Siting. The Contractor shall collect and analyze air samples to evaluate levels of TSP-lead if there are sensitive receptors within 5 times the height of the structure or within 1000 ft. (305 m) of the structure, whichever is greater. If sensitive receptors are not located within these limits, monitoring is not required. Sensitive receptors are areas of public presence or access including, but not limited to, homes, schools, parks, playgrounds, shopping areas, livestock areas, and businesses. The motoring public is not considered to be a sensitive receptor for the purpose of ambient air monitoring.

The Contractor shall locate the monitors according to Section 7.3 of SSPC-TU-7, in areas of public exposure and in areas that will capture the maximum pollutant emissions resulting from the work. The Contractor shall identify the recommended monitoring sites in the Ambient Air Monitoring Plan, including a sketch identifying the above. The monitors shall not be sited until the Engineer accepts the proposed locations. When possible, monitors shall be placed at least 30 feet (9 m) away from highway traffic.

- **Equipment Provided by Contractor.** The Contractor shall provide up to 4 monitors per work site and all necessary calibration and support equipment, power to operate them, security (or arrangements to remove and replace the monitors daily), filters, flow chart recorders and overnight envelopes for shipping the filters to the laboratory. The number of monitors required will be indicated in the Plan Notes. Each monitor shall be tagged with the calibration date.
- **Duration of Monitoring.** Monitoring shall be performed for the duration of dust-producing operations (e.g., paint removal, waste handling, containment clean-up and movement, etc.) or a minimum of 8 hours each day (when work is performed).

The monitoring schedule shall be as follows:

1. For dry abrasive blast cleaning monitoring shall be conducted full time during all days of dust-producing operations (e.g., paint removal, waste handling, containment movement, etc.).
2. For wet abrasive blast cleaning, water jetting, or power tool cleaning, monitoring shall be conducted for the first 5 days of dust producing operations. If the results after 5 days are acceptable, monitoring may be discontinued. If the results are unacceptable, corrective action shall be initiated to correct the cause of the emissions, and monitoring shall continue for an additional 5 days. If the results are still unacceptable, the Engineer may direct that the monitoring continue full time.

When monitoring is discontinued, if visible emissions are observed and/or the Contractor's containment system changes during the course of the project, then air monitoring will again be required for a minimum of two consecutive days until compliance is shown.

- **Background Monitoring.** Background samples shall be collected for two days prior to the start of work while no dust producing operations are underway to provide a baseline. The background monitoring shall include one weekday and one weekend day. The background monitoring shall coincide with the anticipated working hours for the paint removal operations, but shall last for a minimum of 8 hours each day.
- **Monitor Operation and Laboratory Analysis.**

The Contractor shall calibrate the monitors according to the manufacturer's written instructions upon mobilization to the site and quarterly. Each monitor shall be tagged with the calibration date, and calibration information shall be provided to the Engineer upon request.

All ambient air monitoring shall be performed by the Contractor according to the accepted Ambient Air Monitoring Plan and according to EPA regulations 40 CFR Part 50 Appendix B, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method), and 40 CFR Part 50 Appendix G, Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air.

Filters shall be placed in monitors and monitors operated each day prior to start of dust-producing operations and the filters removed upon completion each day. The Contractor shall advise the Engineer in advance when the filters will be removed and replaced. The monitor operator shall record the following information, at a minimum, on field data and laboratory chain-of-custody forms (or equivalent):

1. Monitor location and serial number
2. Flow rate, supported by flow charts
3. Start, stop times and duration of monitoring
4. Work activities and location of work during the monitoring period
5. Wind direction/speed

For the first 5 days of monitoring, the Contractor shall submit the filters, field data and laboratory chain-of-custody forms together with the flow chart recorders (i.e. monitor flow rate and the duration of monitoring) on a daily basis in an overnight envelope to the laboratory for analysis. The laboratory must provide the Engineer with written results no later than 72 hours after the completion of each day's monitoring. At the discretion of the Engineer, if the initial 5 days of monitoring on full time monitoring projects is acceptable, the filters may be sent to the laboratory every 3 days rather than every day. Written results must be provided to the Engineer no later than 5 days after the completion of monitoring for the latest of the 3 days.

- Ambient Air Monitoring Results. The laboratory shall provide the report directly to the Engineer with a copy to the contractor. The report shall include:
 1. Monitor identification and location
 2. Work location and activities performed during monitoring period
 3. Monitor flow rate, duration, and volume of air sampled
 4. Laboratory methods used for filter digestion / analysis
 5. Sample results for the actual duration of monitoring
 6. Sample results expressed in terms of a 24 hour time weighted average. Assume zero for period not monitored.
 7. Comparison of the results with the acceptance criteria indicating whether the emissions are compliant.
 8. Field data and chain-of-custody records used to derive results.

Should revised reports or any information regarding the analysis be issued by the laboratory directly to the Contractor at any time, the contractor shall immediately provide a copy to the Engineer and advise the laboratory that the Engineer is to receive all information directly from the laboratory.

- Acceptance Criteria. TSP-lead results at each monitor location shall be less than 1.5 $\mu\text{g}/\text{cu m}$ per calendar quarter converted to a daily allowance using the formulas from SSPC- TU7 as follows, except that the maximum 24-hour daily allowance shall be no greater than 6 $\mu\text{g}/\text{cu m}$.

The formula for determining a 24-hour daily value based on the actual number of paint disturbance days expected to occur during the 90-day quarter is:

$$\text{DA} = (90 \div \text{PD}) \times 1.5 \mu\text{g}/\text{cu m}, \text{ where}$$

DA is the daily allowance, and

PD is the number of preparation days anticipated in the 90-day period

If the DA calculation is $> 6.0 \mu\text{g}/\text{cu m}$, use $6.0 \mu\text{g}/\text{cu m}$.

Regulated Areas. Physically demarcated regulated area(s) shall be established around exposure producing operations at the OSHA Action Level for the toxic metal(s) present in the coating. The Contractor shall provide all required protective clothing and personal protective equipment for personnel entering into a regulated area. Unprotected street clothing is not permitted within the regulated areas.

Hygiene Facilities/Protective Clothing/Blood Tests. The Contractor shall provide clean lavatory and hand washing facilities according to OSHA regulations and confirm that employees wash hands, forearms, and face before breaks. The facilities shall be located at the perimeter of the regulated area in close proximity to the paint removal operation. Shower facilities shall be provided when workers' exposures exceed the Permissible Exposure Limit. Showers shall be located at each bridge site, or if allowed by OSHA regulations, at a central location to service multiple bridges. The shower and wash facilities shall be cleaned at least daily during use.

All wash and shower water shall be filtered and containerized. The Contractor is responsible for filtration, testing, and disposal of the water.

The Contractor shall make available to all IDOT project personnel a base line and post project blood level screening for lead and zinc protoporphyrin (ZPP) (or the most current OSHA requirement) levels as determined by the whole blood lead method, utilizing the Vena-Puncture technique. This screening shall be made available every 2 months for the first 6 months, and every 6 months thereafter.

The Contractor shall provide IDOT project personnel with all required protective clothing and equipment, including disposal or cleaning. Clothing and equipment includes but is not limited to disposable coveralls with hood, booties, disposable surgical gloves, hearing protection, and safety glasses. The protective clothing and equipment shall be provided and maintained on the job site for the exclusive, continuous and simultaneous use by the IDOT personnel. This equipment shall be suitable to allow inspection access to any area in which work is being performed.

All handwash and shower facilities shall be fully available for use by IDOT project personnel.

Site Emergencies.

- a) Stop Work. The Contractor shall stop work at any time the conditions are not within specifications and take the appropriate corrective action. The stoppage will continue until conditions have been corrected. Standby time and cost required for corrective action is at the Contractor's expense. The occurrence of the following events shall be reported in writing to IDOT and shall require the Contractor to automatically stop lead paint removal and initiate clean up activities.
- Airborne lead levels at any of the high volume ambient air monitoring locations that exceed the limits in this specification, or airborne lead in excess of the OSHA Action Level at the boundary of the regulated area.
 - Break in containment barriers.
 - Visible emissions in excess of the specification tolerances.
 - Loss of negative air pressure when negative air pressure is specified (e.g., for dry abrasive blast cleaning).
 - Serious injury within the containment area.
 - Fire or safety emergency
 - Respiratory system failure
 - Power failure
- b) Contingency Plans and Arrangements. The Engineer will refer to the contingency plan for site specific instructions in the case of emergencies.

The Contractor shall prepare a contingency plan for emergencies including fire, accident, failure of power, failure of dust collection system, failure of supplied air system or any other event that may require modification of standard operating procedures during lead removal. The plan shall include specific procedures to ensure safe egress and proper medical attention in the event of an emergency. The Contractor shall post the telephone numbers and locations of emergency services including fire, ambulance, doctor, hospital, police, power company and telephone company on clean side of personnel decontamination area.

A two-way radio, or equal, as approved by the Engineer, capable of summoning emergency assistance shall be available at each bridge during the time the Contractor's personnel are at the bridge site under this contract. The following emergency response equipment described in the contingency plan (generic form attached) shall be available during this time as well: an appropriate portable fire extinguisher, a 55 gal (208 L) drum, a 5 gal (19 L) pail, a long handled shovel, absorbent material (one bag).

A copy of the contingency plan shall be maintained at each bridge during cleaning operations and during the time the Contractor's personnel are at the bridge site under this contract. The Contractor shall designate the emergency coordinator(s) required who shall be responsible for the activities described.

An example of a contingency plan is included at the end of this Special Provision.

Collection, Temporary Storage, Transportation and Disposal of Waste. The Contractor and the Department are considered to be co-generators of the waste.

The Contractor is responsible for all aspects of waste collection, testing and identification, handling, storage, transportation, and disposal according to these specifications and all applicable Federal, State, and Local regulations. The Contractor shall provide for Engineer review and acceptance a Waste Management Plan that addresses all aspects of waste handling, storage, and testing, and provides the names, addresses, and a contact person for the proposed licensed waste haulers and disposal facilities. The Department will not perform any functions relating to the waste other than provide EPA identification numbers, provide the Contractor with the emergency response information, the emergency response telephone number required to be provided on the manifest, and to sign the waste manifest. The Engineer will obtain the identification numbers from the state and federal environmental protection agencies for the bridge(s) to be painted and furnish those to the Contractor.

All surface preparation/paint residues shall be collected daily and deposited in all-weather containers supplied by the Contractor as temporary storage. The storage area shall be secure to prevent unauthorized entry or tampering with the containers. Acceptable measures include storage within a fully enclosed (e.g., fenced in) and locked area, within a temporary building, or implementing other reasonable means to reduce the possibility of vandalism or exposure of the waste to the public or the environment (e.g., securing the lids or covers of waste containers and roll-off boxes). Waste shall not be stored outside of the containers. Waste shall be collected and transferred to bulk containers taking extra precautions as necessary to prevent the suspension of residues in air or contamination of surrounding surfaces. Precautions may include the transfer of the material within a tarpaulin enclosure. Transfer into roll-off boxes shall be planned to minimize the need for workers to enter the roll-off box.

No residues shall remain on surfaces overnight, either inside or outside of containment. Waste materials shall not be removed through floor drains or by throwing them over the side of the bridge. Flammable materials shall not be stored around or under any bridge structures.

The all-weather containers shall meet the requirements for the transportation of hazardous materials and as approved by the Department. Acceptable containers include covered roll-off boxes and 55-gallon drums (17H). The Contractor shall insure that no breaks and no deterioration of these containers occurs and shall maintain a written log of weekly inspections of the condition of the containers. A copy of the log shall be furnished to the Engineer upon request. The containers shall be kept closed and sealed from moisture except during the addition of waste. Each container shall be permanently identified with the date that waste was placed into the container, contract number, hazardous waste name and ID number, and other information required by the IEPA.

The Contractor shall have each waste stream sampled for each project and tested by TCLP and according to EPA and disposal company requirements. The Engineer shall be notified in advance when the samples will be collected. The samples shall be collected and shipped for testing within the first week of the project, with the results due back to the Engineer within 10 days. Testing shall be considered included in the pay item for "Containment and Disposal of Lead Paint Cleaning Residues." Copies of the test results shall be provided to the Engineer prior to shipping the waste.

Waste water generated from bridge washing, hygiene purposes, and cleaning of equipment shall be filtered on site to remove particulate and disposed of at a Publicly Owned Treatment Works (POTW) according to State regulations. The Contractor shall provide the Engineer with a letter from the POTW indicating that they will accept the waste water. If the POTW allows the filtered water to be placed into the sanitary sewer system, the Contractor shall provide a letter from the POTW indicating that based on the test results of the water, disposal in the sanitary sewer is acceptable to them. Water shall not be disposed of until the above letter(s) are provided to, and accepted by, the Engineer.

If approved abrasive additives are used that render the waste non-hazardous as determined by TCLP testing, the waste shall be classified as a non-hazardous special waste, transported by a licensed waste transporter, and disposed of at an IEPA permitted disposal facility in Illinois.

When paint is removed from the bridge without the use of abrasive additives, the paint, together with the surface preparation media (e.g. abrasive) shall be handled as a hazardous waste, regardless of the TCLP results. The waste shall be transported by a licensed hazardous waste transporter, treated by an IEPA permitted treatment facility to a non-hazardous special waste and disposed of at an IEPA permitted disposal facility in Illinois.

The treatment/disposal facilities shall be approved by the Engineer, and shall hold an IEPA permit for waste disposal and waste stream authorization for this cleaning residue. The IEPA permit and waste stream authorization must be obtained prior to beginning cleaning, except that if necessary, limited paint removal will be permitted in order to obtain samples of the waste for the disposal facilities. The waste shall be shipped to the facility within 90 days of the first accumulation of the waste in the containers. When permitted by the Engineer, waste from multiple bridges in the same contract may be transported by the Contractor to a central waste storage location(s) approved by the Engineer in order to consolidate the material for pick up, and to minimize the storage of waste containers at multiple remote sites after demobilization. Arrangements for the final waste pickup shall be made with the waste hauler by the time blast cleaning operations are completed or as required to meet the 90 day limit stated above.

The Contractor shall submit a waste accumulation inventory table to the Engineer no later than the 5th day of the month. The table shall show the number and size of waste containers filled each day in the preceding month and the amount of waste shipped that month, including the dates of shipments.

The Contractor shall prepare a manifest supplied by the IEPA for off-site treatment and disposal before transporting the hazardous waste off-site. The Contractor shall prepare a land ban notification for the waste to be furnished to the disposal facility. The Contractor shall obtain the handwritten signature of the initial transporter and date of the acceptance of the manifest. The Contractor shall send one copy of the manifest to the IEPA within two working days of transporting the waste off-site. The Contractor shall furnish the generator copy of the manifest and a copy of the land ban notification to the Engineer. The Contractor shall give the transporter the remaining copies of the manifest.

All other project waste shall be removed from the site according to Federal, State and Local regulations, with all waste removed from the site prior to final Contractor demobilization.

The Contractor shall make arrangements to have other hazardous waste, which he/she generates, such as used paint solvent, transported to the Contractor's facility at the end of each day that this waste is generated. These hazardous wastes shall be manifested using the Contractor's own generator number to a treatment or disposal facility from the Contractor's facility. The Contractor shall not combine solvents or other wastes with cleaning residue wastes. All waste streams shall be stored in separate containers.

The Contractor is responsible for the payment of any fines and undertaking any clean up activities mandated by State or federal environmental agencies for improper waste handling, storage, transportation, or disposal.

Contractor personnel shall be trained in the proper handling of hazardous waste, and the necessary notification and clean up requirements in the event of a spill. The Contractor shall maintain a copy of the personnel training records at each bridge site.

Basis of Payment. The soil, water, and air monitoring, containment, collection, temporary storage, transportation, testing and disposal of all project waste, and all other work described herein will be paid for at the contract lump sum price for CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES at the designated location. Payment will not be authorized until all requirements have been fulfilled as described in this specification, including the preparation and submittal of all QC documentation, submittal of environmental monitoring and waste test results, and disposal of all waste.

Appendix 1 – Reference List

The Contractor shall maintain the following reference standards and regulations on site for the duration of the project:

- Illinois Environmental Protection Agency – Information Statement on the Removal of Lead-Based Paint from Exterior Surfaces, latest revision
- Illinois Environmental Protection Act
- SSPC Guide 6, Guide for Containing Debris Generated During Paint Removal Operations
- 29 CFR 1926.62, Lead in Construction
- 40 CFR Part 50, Appendix B, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-Volume Method)
- 40 CFR Part 50, Appendix G, Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air
- SSPC Guide 16, Guide to Specifying and Selecting Dust Collectors
- SSPC TU-7, Conducting Ambient Air, Soil, and Water Sampling Activities During Surface Preparation and Paint Disturbance Activities.

Table 1 Containment Criteria for Removal of Paint Containing Lead and Other Toxic Metals¹					
Removal Method	SSPC Class²	Containment Material Flexibility	Containment Material Permeability³	Containment Support Structure	Containment Material Joints⁴
Hand Tool Cleaning	3P ⁶	Rigid or Flexible	Permeable or Impermeable	Minimal	Partially Sealed
Power Tool Cleaning w/ Vacuum	3P ⁶	Rigid or Flexible	Permeable or Impermeable	Minimal	Partially Sealed
Power Tool Cleaning w/o Vacuum	2P	Rigid or Flexible	Permeable or Impermeable	Rigid or Flexible	Fully or Partially Sealed
Water Jetting Wet Ab Blast Water Cleaning ⁷	2W-3W	Rigid or Flexible	Permeable and Impermeable ⁷	Rigid, Flexible, or Minimal	Fully and Partially Sealed
Abrasive Blast Cleaning	1A	Rigid or Flexible	Impermeable	Rigid or Flexible	Fully Sealed
Vacuum Blast Cleaning	4A ⁶	Rigid or Flexible	Permeable	Minimal	Partially Sealed

Table 1 (Continued) Containment Criteria for Removal of Paint Containing Lead and Other Toxic Metals¹					
Removal Method	SSPC Class²	Containment Entryway	Ventilation System Required⁵	Negative Pressure Required	Exhaust Filtration Required
Hand Tool Cleaning	3P ⁶	Overlapping or Open Seam	Natural	No	No
Power Tool Cleaning w/ Vacuum	3P ⁶	Overlapping or Open Seam	Natural	No	No
Power Tool Cleaning w/o Vacuum	2P	Overlapping or Open Seam	Natural	No	No
Water Jetting Wet Ab Blast Water Cleaning ⁷	2W-3W	Overlapping or Open Seam	Natural	No	No
Abrasive Blast Cleaning	1A	Airlock or Resealable	Mechanical	Yes	Yes
Vacuum Blast Cleaning	4A ⁶	Open Seam	Natural	No	No

Notes:

¹This table provides general design criteria only. It does not guarantee that specific controls over emissions will occur because unique site conditions must be considered in the design. Other combinations of materials may provide controls over emissions equivalent to or greater than those combinations shown above.

²The SSPC Classification is based on SSPC Guide 6. Note that for work over water, water booms or boats with skimmers must be employed, where feasible, to contain spills or releases. Debris must be removed daily at a minimum.

³Permeability addresses both air and water as appropriate. In the case of water removal methods, the containment materials must be resistant to water. Ground covers should always be impermeable, and of sufficient strength to withstand the impact and weight of the debris and the equipment used for collection and clean-up. Ground covers must also extend beyond the containment boundary to capture escaping debris.

⁴ If debris escapes through the seams, then additional sealing of the seams and joints is required.

⁵When "Natural" is listed, ventilation is not required provided the emissions are controlled as specified in this Special Provision, and provided worker exposures are properly controlled. If unacceptable emissions or worker exposures to lead or other toxic metals occur, incorporate a ventilation system into the containment.

⁶Ground covers and wall tarpaulins may provide suitable controls over emissions without the need to completely enclose the work area.

⁷This method applies to water cleaning to remove surface contaminants, and water jetting (with and without abrasive) and wet abrasive blast cleaning where the goal is to remove paint. Although both permeable and impermeable containment materials are included, ground covers and the lower portions of the containment must be water impermeable with fully sealed joints, and of sufficient strength and integrity to facilitate the collection and holding of the water and debris for proper disposal. If water or debris, other than mist, escape through upper sidewalls or ceiling areas constructed of permeable materials, they shall be replaced with impermeable materials. Permeable materials for the purpose of this specification are defined as materials with openings measuring 25 mils (1 micron) or less in greatest dimension.

- A. Containment Components - The basic components that make up containment systems are defined below. The components are combined in Table 1 to establish the minimum containment system requirements for the method(s) of paint removal specified for the Contract.
1. Rigidity of Containment Materials - Rigid containment materials consist of solid panels of plywood, aluminum, rigid metal, plastic, fiberglass, composites, or similar materials. Flexible materials consist of screens, tarps, drapes, plastic sheeting, or similar materials. When directed by the Engineer, do not use flexible materials for horizontal surfaces directly over traffic lanes or vertical surfaces in close proximity to traffic lanes. If the Engineer allows the use of flexible materials, The Contractor shall take special precautions to completely secure the materials to prevent any interference with traffic.
 2. Permeability of Containment Materials - The containment materials are identified as air impenetrable if they are impervious to dust or wind such as provided by rigid panels, coated solid tarps, or plastic sheeting. Air penetrable materials are those that are formed or woven to allow air flow. Water impermeable materials are those that are capable of containing and controlling water when wet methods of preparation are used. Water permeable materials allow the water to pass through. Chemical resistant materials are those resistant to chemical and solvent stripping solutions. Use fire retardant materials in all cases.
 3. Support Structure - Rigid support structures consist of scaffolding and framing to which the containment materials are affixed to minimize movement of the containment cocoon. Flexible support structures are comprised of cables, chains, or similar systems to which the containment materials are affixed. Use fire retardant materials in all cases.
 4. Containment Joints - Fully sealed joints require that mating surfaces between the containment materials and to the structure being prepared are completely sealed. Sealing measures include tape, caulk, Velcro, clamps, or other similar material capable of forming a continuous, impenetrable or impermeable seal. When materials are overlapped, a minimum overlap of 8 in. (200 mm) is required.
 5. Entryway - An airlock entryway involves a minimum of one stage that is fully sealed to the containment and which is maintained under negative pressure using the ventilation system of the containment. Resealable door entryways involve the use of flexible or rigid doors capable of being repeatedly opened and resealed. Sealing methods include the use of zippers, Velcro, clamps, or similar fasteners. Overlapping door tarpaulin entryways consist of two or three overlapping door tarpaulins.

6. Mechanical Ventilation - The requirement for mechanical ventilation is to ensure that adequate air movement is achieved to reduce worker exposure to toxic metals to as low as feasible according to OSHA regulations (e.g., 29 CFR 1926.62), and to enhance visibility. Design the system with proper exhaust ports or plenums, adequately sized ductwork, adequately sized discharge fans and air cleaning devices (dust collectors) and properly sized and distributed make-up air points to achieve a uniform air flow inside containment for visibility. The design target for airflow shall be a minimum of 100 ft. (30.5m) per minute cross-draft or 60 ft. (18.3 m) per minute downdraft. Increase these minimum airflow requirements if necessary to address worker lead exposures. Natural ventilation does not require the use of mechanical equipment for moving dust and debris through the work area.
7. Negative Pressure - When specified, achieve a minimum of 0.03 in. (7.5 mm) water column (W.C.) relative to ambient conditions, or confirm through visual assessments for the concave appearance of the containment enclosure.
8. Exhaust Ventilation - When mechanical ventilation systems are used, provide filtration of the exhaust air, to achieve a filtration efficiency of 99.9 percent at 0.02 mils (0.5 microns).

HAZARDOUS WASTE
CONTINGENCY PLAN
FOR
LEAD BASED PAINT REMOVAL PROJECTS

Bridge No.: _____
Location: _____
USEPA Generator No.: _____
IEPA Generator No.: _____

Note:

1. A copy of this plan must be kept at the bridge while the Contractor's employees are at the site.
2. A copy of the plan must be mailed to the police and fire departments and hospital identified herein.

Primary Emergency Coordinator

Name: _____
Address: _____
City: _____
Phone: (Work) _____
(Home) _____

Alternate Emergency Coordinator

Name: _____
Address: _____
City: _____
Phone: (Work) _____
(Home) _____

Emergency Response Agencies

POLICE:

1. State Police (if bridge not in city) Phone: _____
District No. _____
Address: _____
2. County Sheriff _____ Phone: _____
County: _____
Address: _____
3. City Police _____ Phone: _____
District No. _____
Address: _____

Arrangements made with police: (Describe arrangements or refusal by police to make arrangements):

FIRE:

1. City _____ Phone: _____

Name: _____

Address: _____

2. Fire District _____ Phone: _____

Name: _____

Address: _____

3. Other _____ Phone: _____

Name: _____

Address: _____

Arrangements made with fire departments: (Describe arrangements or refusal by fire departments to make arrangements):

HOSPITAL:

Name: _____ Phone: _____

Address: _____

Arrangements made with hospital: (Describe arrangements or refusal by hospital to make arrangements):

Properties of waste and hazard to health:

Places where employees working:

Location of Bridge:

Types of injuries or illness which could result:

Appropriate response to release of waste to the soil:

Appropriate response to release of waste to surface water:

Emergency Equipment at Bridge

Emergency Equipment List	Location of Equipment	Description of Equipment	Capability of Equipment
1. Two-way radio	Truck		Communication
2. Portable Fire Extinguisher	Truck		Extinguishes Fire
3. Absorbent Material	Truck		Absorbs Paint or Solvent Spills
4. Hand Shovel	Truck		Scooping Material
5. 55 Gallon (208 L) Drum	Truck		Storing Spilled Material
6. 5 Gallon (19 L) Pail	Truck		Storing Spilled Material

Emergency Procedure

1. Notify personnel at the bridge of the emergency and implement emergency procedure.
2. Identify the character, source, amount and extent of released materials.
3. Assess possible hazards to health or environment.
4. Contain the released waste or extinguish fire. Contact the fire department if appropriate.
5. If human health or the environment is threatened, contact appropriate police and fire department. In addition, the Emergency Services and Disaster Agency needs to be called using their 24-hour toll free number (800-782-7860) and the National Response Center using their 24-hour toll free number (800-824-8802).
6. Notify the Engineer that an emergency has occurred.
7. Store spilled material and soil contaminated by spill, if any, in a drum or pail. Mark and label the drum or pail for disposal.
8. Write a full account of the spill or fire incident including date, time, volume, material, and response taken.
9. Replenish stock of absorbent material or other equipment used in response.

BRIDGE DECK MICROSILICA CONCRETE OVERLAY

Effective: May 15, 1995

Revised: October 20, 2017

Description. This work shall consist of the preparation of the existing concrete bridge deck and the construction of a microsilica concrete overlay to the specified thickness.

Materials. Materials shall meet the requirements of the following Articles of Section 1000:

<u>Item</u>	<u>Article/Section</u>
(a) Microsilica	1010
(b) Portland Cement Concrete (Notes 1-6)	1020
(c) Packaged Rapid Hardening Mortar or Concrete	1018
(d) Concrete Curing Materials	1022.02
(e) Synthetic Fibers	(Note 7)

Note 1: Cement shall be Type I portland cement. Fine aggregate shall be natural sand and the coarse aggregate shall be crushed stone or crushed gravel. The gradation of the coarse aggregate shall be CA 11, CA 13, CA 14 or CA 16.

Note 2: Mix Design Criteria.

The microsilica concrete mix design shall meet the following requirements:

Cement Factor	565 lb./cu. yd. (335 kg/cu. m)
Microsilica Solids	33 lb./cu. yd. (20 kg/cu. m)
Water/Cement Ratio (including water in the slurry)	0.37 to 0.41
Mortar Factor	0.88 to 0.92
Slump	3 to 6 in. (75 to 150 mm)
Air Content	5.0 to 8.0 percent
Compressive Strength (14 days)	4000 psi (27,500 kPa) minimum
Flexural Strength (14 days)	675 psi (4,650 kPa) minimum

Note 3: Admixtures.

Article 1020.05(b)(1) shall apply except as follows:

A high-range water reducing admixture (superplasticizer) shall be used, and the Contractor has the option to use a water-reducing admixture with the superplasticizer..

Note 4: Fly Ash.

Only Class C fly ash may be used according to Article 1020.05(c)(1), and the maximum portland cement replacement shall be according to Article 1020.05(c)(1)c. The minimum portland cement shall be according to Article 1020.04.

Note 5: Ground Granulated Blast-Furnace Slag.

Ground granulated blast-furnace slag may be used according to Article 1020.05(c)(2). The minimum portland cement shall be according to Article 1020.04.

Note 6: Mixing.

The mixing requirements shall be according to Article 1020.11, except as follows:

(a) Water-based microsilica slurry:

(1) Truck Mixer:

- Combine simultaneously air entraining admixture, water-reducing admixture and/or retarding admixture, microsilica slurry and 80 percent of the water with cement, fly ash (if used) and aggregates.
- Add remaining water.
- Mix 30-40 revolutions at 12-15 RPM.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

(2) Stationary Mixer:

- The microsilica slurry shall be diluted into the water stream or weigh box prior to adding into mixer. Combine simultaneously air entraining admixture, water-reducing admixture and/or retarding admixture, microsilica slurry and 80 percent of the water with cement, fly ash (if used) and aggregates.
- Add remaining water.
- After mixing cycle is completed deposit into truck mixer.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

(b) Densified microsilica (bulk):

(1) Truck Mixer:

- Same as (a)1 above except the densified microsilica shall be added with the cement.

(2) Stationary Mixer:

- Same as (a)2 above except the densified microsilica shall be added with the cement.

(c) Densified microsilica (bag):

Bagged microsilica shall be kept dry. No bag or material containing moisture shall be introduced into the concrete mixer.

(1) Truck Mixer:

- Combine air entraining admixture, water-reducing admixture and/or retarding admixture and 80 percent of the water.
- Add cement, fly ash (if used), and aggregates.
- Add remaining water.
- Mix 30-40 revolutions at 12-15 RPM.
- Add microsilica.
- Mix 70-80 revolutions at 12-15 RPM.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

(2) Stationary Mixer:

- Combine air entraining admixture, water-reducing admixture and/or retarding admixture and 80% of the water.
- Add cement, fly ash (if used), and aggregates.
- Add remaining water.
- After mixing cycle is completed deposit into truck mixer.
- Add microsilica to truck.
- Mix 70-80 revolutions at 12-15 RPM.
- Add high range water-reducing admixture.
- Mix 60-70 revolutions at 12-15 RPM.

Note 7: The synthetic fibers shall be macro-size and shall be Type III according to ASTM C 1116.

The Department will maintain an "Approved/Qualified Product List of Synthetic Fibers".

The dosage rate of synthetic fibers shall be 3.0 lb/cu yd (1.8 kg/cu m). The concrete mixture shall be evaluated in a field demonstration for fiber clumping, ease of placement, and ease of finishing. The field demonstration shall consist of a minimum 2 cu yd (1.5 cu m) trial batch placed in a 12 ft. x 12 ft. (3.6 m x 3.6 m) slab or other configuration approved by the Engineer. The trial batch will be verified by the Engineer according to the "Portland Cement Concrete Level III Technician" course material. Based on the trial batch, the Department has the option to reduce the dosage rate of fibers, but in no case shall be reduced to less than 2.0 lb. / cu yd (1.2 kg/cu m).

Equipment: The equipment used shall be subject to the approval of the Engineer and shall meet the following requirements:

(a) Surface Preparation Equipment. Surface preparation equipment shall be according to the applicable portions of Section 1100 and the following:

- (1) Sawing Equipment. Sawing equipment shall be a concrete saw capable of sawing concrete to the specified depth.
- (2) Mechanical Blast Cleaning Equipment. Mechanical blast cleaning may be performed by high-pressure waterblasting or shotblasting. Mechanical blast cleaning equipment shall be capable of removing weak concrete at the surface, including the microfractured concrete surface layer remaining as a result of mechanical scarification, and shall have oil traps.

Mechanical high-pressure waterblasting equipment shall be mounted on a wheeled carriage and shall include multiple nozzles mounted on a rotating assembly, and shall be operated with a 7000 psi (48 MPa) minimum water pressure. The distance between the nozzles and the deck surface shall be kept constant and the wheels shall maintain contact with the deck surface during operation.

- (3) Hand-Held Blast Cleaning Equipment. Blast cleaning using hand-held equipment may be performed by high-pressure waterblasting or abrasive blasting. Hand-held blast cleaning equipment shall have oil traps.

Hand-held high-pressure waterblasting equipment that is used in areas inaccessible to mechanical blast cleaning equipment shall have a minimum water pressure of 7000 psi (48 MPa).

- (4) Mechanical Scarifying Equipment. Scarifying equipment shall be a power-operated, mechanical scarifier capable of uniformly scarifying or removing the old concrete surface and new patches to the depths required in a satisfactory manner. Other types of removal devices may be used if their operation is suitable and they can be demonstrated to the satisfaction of the Engineer.
- (5) Hydro-Scarification Equipment. The hydro-scarification equipment shall consist of filtering and pumping units operating with a computerized, self-propelled robotic machine with gauges and settings that can be easily verified. The equipment shall use water according to Section 1002. The equipment shall be capable of removing in a single pass, sound concrete to the specified depth, and operating at a 16,000 psi (110 MPa) minimum water pressure with a 55 gal/min (208 L/min) minimum water flow rate.
- (6) Vacuum Cleanup Equipment. The equipment shall be equipped with fugitive dust control devices capable of removing wet debris and water all in the same pass. Vacuum equipment shall also be capable of washing the deck with pressurized water prior to the vacuum operation to dislodge all debris and slurry from the deck surface.

(7) Power-Driven Hand Tools. Power-driven hand tools will be permitted including jackhammers lighter than the nominal 45 lb. (20 kg) class. Jackhammers or chipping hammers shall not be operated at an angle in excess of 45 degrees measured from the surface of the slab.

(b) Pull-off Test Equipment. Equipment used to perform pull-off testing shall be either approved by the Engineer, or obtained from one of the following approved sources:

James Equipment
007 Bond Tester
800-426-6500

Germann Instruments, Inc.
BOND-TEST Pull-off System
847-329-9999

SDS Company
DYNA Pull-off Tester
805-238-3229

Pull-off test equipment shall include all miscellaneous equipment and materials to perform the test and clean the equipment, as indicated in the Illinois Test procedure 304 and 305 "Pull-off Test (Surface or Overlay Method)". Prior to the start of testing, the Contractor shall submit to the Engineer a technical data sheet and material safety data sheet for the epoxy used to perform the testing. For solvents used to clean the equipment, a material safety data sheet shall be submitted.

(c) Concrete Equipment: Equipment for proportioning and mixing the concrete shall be according to Article 1020.03.

(d) Finishing Equipment. Finishing equipment shall be according to Article 503.03.

(e) Mechanical Fogging Equipment. Mechanical fogging equipment shall be according to 503.03.

Construction Requirements: Sidewalks, curbs, drains, reinforcement and/or existing transverse and longitudinal joints which are to remain in place shall be protected from damage during scarification and cleaning operations. All damage caused by the Contractor shall be corrected, at the Contractor's expense, to the satisfaction of the Engineer.

The Contractor shall control the runoff water generated by the various construction activities in such a manner as to minimize, to the maximum extent practicable, the discharge of untreated effluent into adjacent waters, and shall properly dispose of the solids generated according to Article 202.03. The Contractor shall submit a water management plan to the Engineer specifying the control measures to be used. The control measures shall be in place prior to the start of runoff water generating activities. Runoff water shall not be allowed to constitute a hazard to adjacent or underlying roadways, waterways, drainage areas or railroads nor be allowed to erode existing slopes.

(a) Deck Preparation:

- (1) Bridge Deck Scarification. The scarification work shall consist of removing the designated concrete deck surface using mechanical and hydro-scarifying equipment as specified. The areas designated shall be scarified to the depth specified on the plans. The depth specified shall be measured from the existing concrete deck surface to the top of peaks remaining after scarification. In areas of the deck not accessible to the scarifying equipment, power-driven hand tools will be permitted. Power driven hand tools shall be used for removal around areas to remain in place.

The Contractor shall use mechanical scarification equipment to remove an initial depth of concrete roughening the concrete deck surface to facilitate hydro-scarification. At a minimum, the last 1/2 in. (13 mm) of removal shall be accomplished with hydro-scarification equipment. If the Contractor's use of mechanical scarifying equipment results in exposing, snagging, or dislodging the top mat of reinforcing steel, the mechanical scarifying depth shall be reduced as necessary immediately. If the exposing, snagging, or dislodging the top mat of reinforcing steel cannot be avoided, the mechanical scarifying shall be stopped immediately and the remaining removal shall be accomplished using the hydro-scarification equipment. All damage to the existing reinforcement resulting from the Contractor's operation shall be repaired or replaced at the Contractor's expense as directed by the Engineer. Replacement shall include the removal of any additional concrete required to position or splice the new reinforcing steel. Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged reinforcement. Repairs to existing reinforcement shall be according to the Special Provision for "Deck Slab Repair".

Just prior to performing hydro-scarification, the deck shall be sounded, with unsound areas marked on the deck by the Engineer. A trial section, in an area of sound concrete, on the existing deck surface will be designated by the Engineer to calibrate the equipment settings to remove sound concrete to the required depth, in a single pass, and provide a highly roughened bondable surface. The trial section shall consist of approximately 30 sq. ft. (3 sq. m). After calibration in an area of sound concrete, the equipment shall be moved to a second trial section, as designated by the Engineer, in an area containing unsound concrete to verify the calibrated settings are sufficient to remove the unsound concrete. If the calibrated settings are insufficient to remove the unsound concrete, the equipment may be moved back to an area of sound concrete and the calibration settings verified. If the equipment cannot be calibrated to produce the required results in an area of sound concrete, it shall be removed and additional hydro-scarification equipment capable of producing the required results shall be supplied by the Contractor.

After the equipment settings are established, they shall be supplied to the Engineer. These settings include the following:

- a) Water pressure
- b) Water flow rate
- c) Nozzle type and size
- d) Nozzle travel speed
- e) Machine staging control (step/advance rate)

Hydro-scarification may begin after the calibration settings have been approved by the Engineer.

The removal depth shall be verified by the Engineer, as necessary. If sound concrete is being removed below the desired depth, the equipment shall be recalibrated.

After hydro-scarification the deck shall be thoroughly vacuum cleaned in a timely manner before the water and debris are allowed to dry and re-solidify to the deck. The uses of alternative cleaning and debris removal methods to minimize driving heavy vacuum equipment over exposed deck reinforcement may be used subject to the approval of the Engineer.

(2) Deck Patching. After bridge deck scarification and cleaning, the Engineer will sound the scarified deck and survey the existing reinforcement condition. All remaining unsound concrete and unacceptably corroded reinforcement bars will be marked for additional removal and/or repairs as applicable. All designated repairs and reinforcement treatment shall be completed according to the Special Provision for "Deck Slab Repair" except as noted below:

- a) Partial depth removal will not be measured for payment. Any deck survey information implying partial depth repairs is for information only. Partial depth removal shall be accomplished concurrent with the hydro-scarification operation. After the hydro scarification has been performed to the satisfaction of the Engineer, areas requiring additional partial depth removal of unsound concrete will be paid for according to Article 109.04.
- b) In areas where unsound concrete extends below the specified removal depth and hydro-scarification completely removes unsound concrete, a full-depth repair is only required when the bottom mat of reinforcement is exposed.
- c) All full-depth patches shall be struck off to the scarified deck surface and then roughened with a suitable stiff bristled broom or wire brush to provide a rough texture designed to promote bonding of the overlay. Hand finishing of the patch surface shall be kept to a minimum to prevent overworking of the surface.

- d) All full-depth repairs shall be completed prior to final surface preparation.
 - e) Any removal required or made below the specified depth for scarification of the bridge deck, which does not result in full-depth repair, shall be filled with the overlay material at the time of the overlay placement.
 - f) Epoxy coating, on existing reinforcement bars, damaged during hydro-scarification shall not be repaired.
 - g) Undercutting of exposed reinforcement bars shall only be as required to replace or repair damaged or corroded reinforcement.
- (3) Final Surface Preparation. Any areas determined by the Engineer to be inaccessible to scarifying equipment shall be thoroughly blast cleaned with hand-held equipment.

If spoils from the scarification operation are allowed to dry and re-solidify on the deck surface, the deck surface shall be cleaned with mechanical blast cleaning equipment.

Final surface preparation shall also include the cleaning of all dust, debris, concrete fines and other foreign substances from the deck surface including vertical faces of curbs, previously placed adjacent overlays, barrier walls up to a height of 1 in. (25 mm) above the overlay, depressions, and beneath reinforcement bars. Hand-held high-pressure waterblasting equipment shall be used for this operation.

The Department may require surface pull-off testing of areas inaccessible to scarifying equipment. Testing shall be in according to the Illinois Test Procedure 304 "Pull-off Test (Surface Method)". The Contractor shall provide the test equipment. The Engineer shall determine each test location, and each individual test shall have a minimum strength of 175 psi (1,207 kPa). In the case of a failing test, the Contractor shall adjust the blast cleaning method and re-clean the area. Testing will be repeated until satisfactory results are attained.

Exposed reinforcement bars shall be free of dirt, detrimental scale, paint, oil, and other foreign substances which may reduce bond with the concrete. A tight non-scaling coating of rust is not considered objectionable. Loose, scaling rust shall be removed by rubbing with burlap, wire brushing, blast cleaning or other methods approved by the Engineer. All loose reinforcement bars, as determined by the Engineer, shall be retied at the Contractor's expense.

All dust, concrete fines, debris, including water, resulting from the surface preparation shall be confined and shall be immediately and thoroughly removed from all areas of accumulation. If concrete placement does not follow immediately after the final cleaning, the area shall be carefully protected with well-anchored white polyethylene sheeting.

- (b) Pre-placement Procedure. Prior to placing the overlay, the Engineer will inspect the deck surface. All contaminated areas shall be blast cleaned again at the Contractor's expense.

Before placing the overlay, the finishing machine shall be operated over the full length of bridge segment to be overlaid to check support rails for deflection and confirm the minimum overlay thickness. All necessary adjustments shall be made and another check performed, unless otherwise directed by the Engineer.

- (c) Placement Procedure: Concrete placement shall be according to Article 503.07 and the following:

(1) Bonding Method. The deck shall be cleaned to the satisfaction of the Engineer and shall be thoroughly wetted and maintained in a dampened condition with water for at least 12 hours before placement of the overlay. Any excess water shall be removed by compressed air or by vacuuming prior to the beginning of overlay placement. Water shall not be applied to the deck surface within one hour before or at any time during placement of the overlay.

- (2) Overlay Placement. Placement of the concrete shall be according to Article 503.16.

Internal vibration shall be performed along edges, adjacent to bulkheads, and where the overlay thickness exceeds 3 in. (75 mm). Internal vibration along the longitudinal edges of a pour shall be performed with a minimum of 2 hand-held vibrators, one on each edge of the pour. Hand finishing shall be performed along the edges of the pour and shall be done from sidewalks, curbs or work bridges.

A construction dam or bulkhead shall be installed in case of a delay of 30 minutes or more in the concrete placement operation.

All construction joints shall be formed. When required by the Engineer the previously placed overlay shall be sawed full-depth to a straight and vertical edge before fresh concrete is placed. The Engineer will determine the extent of the removal. When longitudinal joints are not shown on the plans, the locations shall be subject to approval by the Engineer and shall not be located in the wheel paths.

The Contractor shall stencil the date of construction (month and year) and the appropriate letters MSF, for MicroSilica with Fibers, or MSFAF when fly ash is used in the mix design, into the overlay before it takes its final set. The stencil shall be located in a conspicuous location, as determined by the Engineer, for each stage of construction. This location shall be outside of the grooving where possible and within 3 ft. (1 m) of an abutment joint. The characters shall be 3 to 4 in. (75 mm to 100 mm) in height, 1/4 in. (5 mm) in depth and face the centerline of the roadway.

(3) Limitations of Operations:

- a. Weather limitations. Temperature control for concrete placement shall be according to 1020.14(b). The concrete protection from low air temperatures during the curing period shall be according to Article 1020.13(d). Concrete shall not be placed when rain is expected during the working period. If night placement is required, illumination and placement procedures will be subject to approval of the Engineer. No additional compensation will be allowed if night work is required.
- b. Other Limitations. Concrete delivery vehicles driven on the structure shall be limited to a maximum load of 6 cu. yd. (4.6 cu. m).

Truck mixers, concrete pumps, or other heavy equipment will not be permitted on any portion of the deck where the top reinforcing mat has been exposed. Conveyors, buggy ramps and pump piping shall be installed in a way that will not displace undercut reinforcement bars. Air compressors may be operated on the deck only if located directly over a pier and supported off undercut reinforcement bars. Compressors will not be allowed to travel over undercut reinforcement bars.

Concrete removal may proceed during final cleaning and concrete placement on adjacent portions of the deck, provided the removal does not interfere in any way with the cleaning or placement operations.

Water or contaminants from the hydro-scarification shall not be permitted in areas where the new overlay has been placed until the overlay has cured a minimum of 24 hours.

No concrete shall be removed within 6 ft. (1.8 m) of a newly-placed overlay until the concrete has obtained a minimum compressive strength of 3000 psi (20,700 kPa) or flexural strength of 600 psi (4,150 kPa).

- (4) Curing Procedure. The surface shall be continuously wet cured for at least 7 days according to Article 1020.13(a)(5) Wetted Cotton Mat Method. When the cotton mats have been pre-dampened, excess water shall not be allowed to drip from the cotton mats onto the overlay during placement of the mats.
- (5) Opening to Traffic. No traffic or construction equipment will be permitted on the overlay until after the specified cure period and the concrete has obtained a minimum compressive strength of 4000 psi (27,500 kPa) or flexural strength of 675 psi (4,650 kPa) unless permitted by the Engineer.

- (6) Overlay Testing. The Engineer reserves the right to conduct pull-off tests on the overlay to determine if any areas are not bonded to the underlying concrete, and at a time determined by the Engineer. The overlay will be tested according to the Illinois Test Procedure 305 "Pull-off Test (Overlay Method)", and the Contractor shall provide the test equipment. Each individual test shall have a minimum strength of 150 psi (1,034 kPa). Unacceptable test results will require removal and replacement of the overlay at the Contractor's expense, and the locations will be determined by the Engineer. When removing portions of an overlay, the saw cut shall be a minimum depth of 1 in. (25 mm).

If the overlay is to remain in place, all core holes due to testing shall be filled with a rapid set mortar or concrete. Only enough water to permit placement and consolidation by rodding shall be used, and the material shall be struck-off flush with the adjacent material.

For a rapid set mortar mixture, one part packaged rapid set cement shall be combined with two parts fine aggregate, by volume; or a packaged rapid set mortar shall be used. For a rapid set concrete mixture, a packaged rapid set mortar shall be combined with coarse aggregate according to the manufacturer's instructions; or a packaged rapid set concrete shall be used. Mixing of a rapid set mortar or concrete shall be according to the manufacturer's instructions.

Method of Measurement. The area of bridge deck scarification will be measured for payment in square yards (square meters). No additional payment will be made for multiple passes of the equipment.

The concrete overlay will be measured for payment in square yards (square meters).

Additional concrete placed with the overlay, required to fill all depressions below the specified thickness will be measured for payment in cubic yards (cubic meters). The volume will be determined by subtracting the theoretical volume of the overlay from the ticketed volume of overlay delivered minus the volume estimated by the Engineer left in the last truck at the end of the overlay placement. The theoretical cubic yard (cubic meter) quantity for the overlay will be determined by multiplying the plan surface area of the overlay times the specified thickness of the overlay.

Basis of Payment. Bridge deck scarification will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK SCARIFICATION of the depth specified.

Microsilica concrete overlay will be paid for at the contract unit price per square yard (square meter) for BRIDGE DECK MICROSILICA CONCRETE OVERLAY, of the thickness specified. The additional volume of overlay required to fill all depressions below the specified thickness and/or for grade adjustments will be paid for at the Contractor's actual material cost for the microsilica concrete per cubic yard (cubic meter) times an adjustment factor. For volumes 15 percent or less over the theoretical volume of the overlay the adjustment factor will be 1.15. For volumes greater than 15 percent the adjustment factor will be 1.25 for that volume over 15 percent of the theoretical volume of the overlay.

Areas requiring additional partial depth removal of unsound concrete after hydro-scarification will be paid for according to Article 109.04.

When the Engineer conducts pull-off tests on the existing surface or overlay and they are acceptable, Contractor expenses incurred due to testing and for filling core holes will be paid according to Article 109.04. Unacceptable pull-off tests will be at the Contractor's expense.

BRIDGE DECK CONSTRUCTION

Effective: October 22, 2013

Revised: December 21, 2016

When Diamond Grinding of Bridge Sections is specified, hand finishing of the deck surface shall be limited to areas not finished by the finishing machine and to address surface corrections according to Article 503.16(a)(2). Hand finishing shall be limited as previously stated solely for the purpose of facilitating a more timely application of the curing protection. In addition the requirements of 503.16(a)(3)a. and 503.16(a)(4) will be waived.

Revise the Second Paragraph of Article 503.06(b) to read as follows.

“When the Contractor uses cantilever forming brackets on exterior beams or girders, additional requirements shall be as follows.”

Revise Article 503.06(b)(1) to read as follows.

- “(1) Bracket Placement. The spacing of brackets shall be per the manufacturer's published design specifications for the size of the overhang and the construction loads anticipated. The resulting force of the leg brace of the cantilever bracket shall bear on the web within 6 inches (150 mm) of the bottom flange of the beam or girder.”

Revise Article 503.06(b)(2) to read as follows.

- “(2) Beam Ties. The top flange of exterior steel beams or girders supporting the cantilever forming brackets shall be tied to the bottom flange of the next interior beam. The top flange of exterior concrete beams supporting the cantilever forming brackets shall be tied to the top flange of the next interior beam. The ties shall be spaced at 4 ft (1.2 m) centers. Permanent cross frames on steel girders may be considered a tie. Ties shall be a minimum of 1/2 inch (13 mm) diameter threaded rod with an adjusting mechanism for drawing the tie taut. The ties shall utilize hanger brackets or clips which hook onto the flange of steel beams. No welding will be permitted to the structural steel or stud shear connectors, or to reinforcement bars of concrete beams, for the installation of the tie bar system. After installation of the ties and blocking, the tie shall be drawn taut until the tie does not vary from a straight line from beam to beam. The tie system shall be approved by the Engineer.”

Revise Article 503.06(b)(3) to read as follows.

“(3) Beam Blocks. Suitable beam blocks of 4 in x 4 in (100 x 100 mm) timbers or metal structural shapes of equivalent strength or better, acceptable to the Engineer, shall be wedged between the webs of the two beams tied together, within 6 inches (150 mm) of the bottom flange at each location where they are tied. When it is not feasible to have the resulting force from the leg brace of the cantilever brackets transmitted to the web within 6 inches (150 mm) of the bottom flange, then additional blocking shall be placed at each bracket to transmit the resulting force to within 6 inches (150 mm) of the bottom flange of the next interior beam or girder.”

Delete the last paragraph of Article 503.06(b).

BUTT JOINTS (BDE)

Effective: July 1, 2016

Add the following to Article 406.08 of the Standard Specifications.

“(c) Temporary Plastic Ramps. Temporary plastic ramps shall be made of high density polyethylene meeting the properties listed below. Temporary plastic ramps shall only be used on roadways with permanent posted speeds of 55 mph or less. The ramps shall have a minimum taper rate of 1:30 (V:H). The leading edge of the plastic ramp shall have a maximum thickness of 1/4 in. (6 mm) and the trailing edge shall match the height of the adjacent pavement ± 1/4 in. (± 6 mm).

The ramp will be accepted by certification. The Contractor shall furnish a certification from the manufacturer stating the temporary plastic ramp meets the following requirements.

Physical Property	Test Method	Requirement
Melt Index	ASTM D 1238	8.2 g/10 minutes
Density	ASTM D 1505	0.965 g/cc
Tensile Strength @ Break	ASTM D 638	2223 psi (15 MPa)
Tensile Strength @ Yield	ASTM D 638	4110 psi (28 MPa)
Elongation @ Yield ^{1/} , percent	ASTM D 638	7.3 min.
Durometer Hardness, Shore D	ASTM D 2240	65
Heat Deflection Temperature, 66 psi	ASTM D 648	176 °F (80 °C)
Low Temperature Brittleness, F ₅₀	ASTM D 746	<-105 °F (<-76 °C)

1/ Crosshead speed -2 in./minute

The temporary plastic ramps shall be installed according to the manufacturer’s specifications and fastened with anchors meeting the manufacturer’s recommendations. Temporary plastic ramps that fail to stay in place or create a traffic hazard shall be replaced immediately with temporary HMA ramps at the Contractor’s expense.”

COMPENSABLE DELAY COSTS (BDE)

Effective: June 2, 2017

Revise Article 107.40(b) of the Standard Specifications to read:

“(b) Compensation. Compensation will not be allowed for delays, inconveniences, or damages sustained by the Contractor from conflicts with facilities not meeting the above definition; or if a conflict with a utility in an unanticipated location does not cause a shutdown of the work or a documentable reduction in the rate of progress exceeding the limits set herein. The provisions of Article 104.03 notwithstanding, compensation for delays caused by a utility in an unanticipated location will be paid according to the provisions of this Article governing minor and major delays or reduced rate of production which are defined as follows.

- (1) Minor Delay. A minor delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two hours, but not to exceed two weeks.
- (2) Major Delay. A major delay occurs when the work in conflict with the utility in an unanticipated location is completely stopped for more than two weeks.
- (3) Reduced Rate of Production Delay. A reduced rate of production delay occurs when the rate of production on the work in conflict with the utility in an unanticipated location decreases by more than 25 percent and lasts longer than seven calendar days.”

Revise Article 107.40(c) of the Standard Specifications to read:

“(c) Payment. Payment for Minor, Major, and Reduced Rate of Production Delays will be made as follows.

- (1) Minor Delay. Labor idled which cannot be used on other work will be paid for according to Article 109.04(b)(1) and (2) for the time between start of the delay and the minimum remaining hours in the work shift required by the prevailing practice in the area.

Equipment idled which cannot be used on other work, and which is authorized to standby on the project site by the Engineer, will be paid for according to Article 109.04(b)(4).

- (2) Major Delay. Labor will be the same as for a minor delay.

Equipment will be the same as for a minor delay, except Contractor-owned equipment will be limited to two weeks plus the cost of move-out to either the Contractor’s yard or another job and the cost to re-mobilize, whichever is less. Rental equipment may be paid for longer than two weeks provided the Contractor presents adequate support to the Department (including lease agreement) to show retaining equipment on the job is the most economical course to follow and in the public interest.

- (3) Reduced Rate of Production Delay. The Contractor will be compensated for the reduced productivity for labor and equipment time in excess of the 25 percent threshold for that portion of the delay in excess of seven calendar days. Determination of compensation will be in accordance with Article 104.02, except labor and material additives will not be permitted.

Payment for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be determined according to Article 109.13.”

Revise Article 108.04(b) of the Standard Specifications to read:

“(b) No working day will be charged under the following conditions.

- (1) When adverse weather prevents work on the controlling item.
- (2) When job conditions due to recent weather prevent work on the controlling item.
- (3) When conduct or lack of conduct by the Department or its consultants, representatives, officers, agents, or employees; delay by the Department in making the site available; or delay in furnishing any items required to be furnished to the Contractor by the Department prevents work on the controlling item.
- (4) When delays caused by utility or railroad adjustments prevent work on the controlling item.
- (5) When strikes, lock-outs, extraordinary delays in transportation, or inability to procure critical materials prevent work on the controlling item, as long as these delays are not due to any fault of the Contractor.
- (6) When any condition over which the Contractor has no control prevents work on the controlling item.”

Revise Article 109.09(f) of the Standard Specifications to read:

“(f) Basis of Payment. After resolution of a claim in favor of the Contractor, any adjustment in time required for the work will be made according to Section 108. Any adjustment in the costs to be paid will be made for direct labor, direct materials, direct equipment, direct jobsite overhead, direct offsite overhead, and other direct costs allowed by the resolution. Adjustments in costs will not be made for interest charges, loss of anticipated profit, undocumented loss of efficiency, home office overhead and unabsorbed overhead other than as allowed by Article 109.13, lost opportunity, preparation of claim expenses and other consequential indirect costs regardless of method of calculation.

The above Basis of Payment is an essential element of the contract and the claim cost recovery of the Contractor shall be so limited.”

Add the following to Section 109 of the Standard Specifications.

“109.13 Payment for Contract Delay. Compensation for escalated material costs, escalated labor costs, extended project overhead, and extended traffic control will be allowed when such costs result from a delay meeting the criteria in the following table.

Contract Type	Cause of Delay	Length of Delay
Working Days	Article 108.04(b)(3) or Article 108.04(b)(4)	No working days have been charged for two consecutive weeks.
Completion Date	Article 108.08(b)(1) or Article 108.08(b)(7)	The Contractor has been granted a minimum two week extension of contract time, according to Article 108.08.

Payment for each of the various costs will be according to the following.

- (a) Escalated Material and/or Labor Costs. When the delay causes work, which would have otherwise been completed, to be done after material and/or labor costs have increased, such increases will be paid. Payment for escalated material costs will be limited to the increased costs substantiated by documentation furnished by the Contractor. Payment for escalated labor costs will be limited to those items in Article 109.04(b)(1) and (2), except the 35 percent and 10 percent additives will not be permitted.
- (b) Extended Project Overhead. For the duration of the delay, payment for extended project overhead will be paid as follows.
 - (1) Direct Jobsite and Offsite Overhead. Payment for documented direct jobsite overhead and documented direct offsite overhead, including onsite supervisory and administrative personnel, will be allowed according to the following table.

Original Contract Amount	Supervisory and Administrative Personnel
Up to \$5,000,000	One Project Superintendent
Over \$ 5,000,000 - up to \$25,000,000	One Project Manager, One Project Superintendent or Engineer, and One Clerk
Over \$25,000,000 - up to \$50,000,000	One Project Manager, One Project Superintendent, One Engineer, and One Clerk
Over \$50,000,000	One Project Manager, Two Project Superintendents, One Engineer, and One Clerk

- (2) Home Office and Unabsorbed Overhead. Payment for home office and unabsorbed overhead will be calculated as 8 percent of the total delay cost.

- (c) Extended Traffic Control. Traffic control required for an extended period of time due to the delay will be paid. For working day contracts the payment will be made according to Article 109.04. For completion date contracts, an adjustment will be determined as follows.

Extended Traffic Control occurs between April 1 and November 30:

$$\text{ETCP Adjustment (\$)} = \text{TE} \times (\% / 100 \times \text{CUP} / \text{OCT})$$

Extended Traffic Control occurs between December 1 and March 31:

$$\text{ETCP Adjustment (\$)} = \text{TE} \times 1.5 (\% / 100 \times \text{CUP} / \text{OCT})$$

Where: TE = Duration of approved time extension in calendar days.
 % = Percent maintenance for the traffic control, % (see table below).
 CUP = Contract unit price for the traffic control pay item in place during the delay.
 OCT = Original contract time in calendar days.

Original Contract Amount	Percent Maintenance
Up to \$2,000,000	65%
\$2,000,000 to \$10,000,000	75%
\$10,000,000 to \$20,000,000	85%
Over \$20,000,000	90%

When an ETCP adjustment is paid under this provision, an adjusted unit price as provided for in Article 701.20(a) for increase or decrease in the value of work by more than ten percent will not be paid.

Upon payment for a contract delay under this provision, the Contractor shall assign subrogation rights to the Department for the Department's efforts of recovery from any other party for monies paid by the Department as a result of any claim under this provision. The Contractor shall fully cooperate with the Department in its efforts to recover from another party any money paid to the Contractor for delay damages under this provision."

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION (BDE)

Effective: September 1, 2000

Revised: April 2, 2018

FEDERAL OBLIGATION. The Department of Transportation, as a recipient of federal financial assistance, is required to take all necessary and reasonable steps to ensure nondiscrimination in the award and administration of contracts. Consequently, the federal regulatory provisions of 49 CFR Part 26 apply to this contract concerning the utilization of disadvantaged business enterprises. For the purposes of this Special Provision, a disadvantaged business enterprise (DBE) means a business certified by the Department in accordance with the requirements of 49 CFR Part 26 and listed in the Illinois Unified Certification Program (IL UCP) DBE Directory.

STATE OBLIGATION. This Special Provision will also be used by the Department to satisfy the requirements of the Business Enterprise for Minorities, Females, and Persons with Disabilities Act, 30 ILCS 575. When this Special Provision is used to satisfy state law requirements on 100 percent state-funded contracts, the federal government has no involvement in such contracts (not a federal-aid contract) and no responsibility to oversee the implementation of this Special Provision by the Department on those contracts. DBE participation on 100 percent state-funded contracts will not be credited toward fulfilling the Department's annual overall DBE goal required by the US Department of Transportation to comply with the federal DBE program requirements.

CONTRACTOR ASSURANCE. The Contractor makes the following assurance and agrees to include the assurance in each subcontract that the Contractor signs with a subcontractor.

The Contractor, subrecipient, or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of contracts funded in whole or in part with federal or state funds. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- (a) Withholding progress payments;
- (b) Assessing sanctions;
- (c) Liquidated damages; and/or
- (d) Disqualifying the Contractor from future bidding as non-responsible.

OVERALL GOAL SET FOR THE DEPARTMENT. As a requirement of compliance with 49 CFR Part 26, the Department has set an overall goal for DBE participation in its federally assisted contracts. That goal applies to all federal-aid funds the Department will expend in its federally assisted contracts for the subject reporting fiscal year. The Department is required to make a good faith effort to achieve the overall goal. The dollar amount paid to all approved DBE companies performing work called for in this contract is eligible to be credited toward fulfillment of the Department's overall goal.

CONTRACT GOAL TO BE ACHIEVED BY THE CONTRACTOR. This contract includes a specific DBE utilization goal established by the Department. The goal has been included because the Department has determined that the work of this contract has subcontracting opportunities that may be suitable for performance by DBE companies. The determination is based on an assessment of the type of work, the location of the work, and the availability of DBE companies to do a part of the work. The assessment indicates that, in the absence of unlawful discrimination, and in an arena of fair and open competition, DBE companies can be expected to perform **2.00%** of the work. This percentage is set as the DBE participation goal for this contract. Consequently, in addition to the other award criteria established for this contract, the Department will only award this contract to a bidder who makes a good faith effort to meet this goal of DBE participation in the performance of the work. A bidder makes a good faith effort for award consideration if either of the following is done in accordance with the procedures set for in this Special Provision:

- (a) The bidder documents that enough DBE participation has been obtained to meet the goal or,
- (b) The bidder documents that a good faith effort has been made to meet the goal, even though the effort did not succeed in obtaining enough DBE participation to meet the goal.

DBE LOCATOR REFERENCES. Bidders shall consult the IL UCP DBE Directory as a reference source for DBE-certified companies. In addition, the Department maintains a letting and item specific DBE locator information system whereby DBE companies can register their interest in providing quotes on particular bid items advertised for letting. Information concerning DBE companies willing to quote work for particular contracts may be obtained by contacting the Department's Bureau of Small Business Enterprises at telephone number (217) 785-4611, or by visiting the Department's website at:

<http://www.idot.illinois.gov/doing-business/certifications/disadvantaged-business-enterprise-certification/il-ucp-directory/index>.

BIDDING PROCEDURES. Compliance with this Special Provision is required prior to the award of the contract and the failure of the low bidder to comply will render the bid not responsive.

In order to assure the timely award of the contract, the low bidder shall submit:

- (a) The bidder shall submit a DBE Utilization Plan on completed Department forms SBE 2025 and 2026.
 - (1) The final Utilization Plan must be submitted within five calendar days after the date of the letting in accordance with subsection (a)(2) of Bidding Procedures herein.
 - (2) To meet the five day requirement, the bidder may send the Utilization Plan electronically by scanning and sending to **DOT.DBE.UP@illinois.gov** or faxing to (217) 785-1524. The subject line must include the bid Item Number and the Letting date. The Utilization Plan should be sent as one .pdf file, rather than multiple files and emails for the same Item Number. It is the responsibility of the bidder to obtain confirmation of email or fax delivery.

Alternatively, the Utilization Plan may be sent by certified mail or delivery service within the five calendar day period. If a question arises concerning the mailing date of a Utilization Plan, the mailing date will be established by the U.S. Postal Service postmark on the certified mail receipt from the U.S. Postal Service or the receipt issued by a delivery service when the Utilization Plan is received by the Department. It is the responsibility of the bidder to ensure the postmark or receipt date is affixed within the five days if the bidder intends to rely upon mailing or delivery to satisfy the submission day requirement. The Utilization Plan is to be submitted to:

Illinois Department of Transportation
Bureau of Small Business Enterprises
Contract Compliance Section
2300 South Dirksen Parkway, Room 319
Springfield, Illinois 62764

The Department will not accept a Utilization Plan if it does not meet the five day submittal requirement and the bid will be declared not responsive. In the event the bid is declared not responsive due to a failure to submit a Utilization Plan or failure to comply with the bidding procedures set forth herein, the Department may elect to cause the forfeiture of the penal sum of the bidder's proposal guaranty, and may deny authorization to bid the project if re-advertised for bids. The Department reserves the right to invite any other bidder to submit a Utilization Plan at any time for award consideration.

- (b) The Utilization Plan shall indicate that the bidder either has obtained sufficient DBE participation commitments to meet the contract goal or has not obtained enough DBE participation commitments in spite of a good faith effort to meet the goal. The Utilization Plan shall further provide the name, telephone number, and telefax number of a responsible official of the bidder designated for purposes of notification of Utilization Plan approval or disapproval under the procedures of this Special Provision.
- (c) The Utilization Plan shall include a DBE Participation Commitment Statement, Department form SBE 2025, for each DBE proposed for the performance of work to achieve the contract goal. For bidding purposes, submission of the completed SBE 2025 forms, signed by the DBEs and scanned or faxed to the bidder will be acceptable as long as the original is available and provided upon request. All elements of information indicated on the said form shall be provided, including but not limited to the following:
 - (1) The names and addresses of DBE firms that will participate in the contract;
 - (2) A description, including pay item numbers, of the work each DBE will perform;
 - (3) The dollar amount of the participation of each DBE firm participating. The dollar amount of participation for identified work shall specifically state the quantity, unit price, and total subcontract price for the work to be completed by the DBE. If partial pay items are to be performed by the DBE, indicate the portion of each item, a unit price where appropriate and the subcontract price amount;

- (4) DBE Participation Commitment Statements, form SBE 2025, signed by the bidder and each participating DBE firm documenting the commitment to use the DBE subcontractors whose participation is submitted to meet the contract goal;
- (5) If the bidder is a joint venture comprised of DBE companies and non-DBE companies, the Utilization Plan must also include a clear identification of the portion of the work to be performed by the DBE partner(s); and,
- (6) If the contract goal is not met, evidence of good faith efforts; the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor is selected over a DBE for work on the contract.

GOOD FAITH EFFORT PROCEDURES. The contract will not be awarded until the Utilization Plan submitted by the apparent successful bidder is approved. All information submitted by the bidder must be complete, accurate and adequately document that enough DBE participation has been obtained or document that good faith efforts of the bidder, in the event enough DBE participation has not been obtained, before the Department will commit to the performance of the contract by the bidder. The Utilization Plan will be approved by the Department if the Utilization Plan documents sufficient commercially useful DBE work to meet the contract goal or the bidder submits sufficient documentation of a good faith effort to meet the contract goal pursuant to 49 CFR Part 26, Appendix A. The Utilization Plan will not be approved by the Department if the Utilization Plan does not document sufficient DBE participation to meet the contract goal unless the apparent successful bidder documented in the Utilization Plan that it made a good faith effort to meet the goal. This means that the bidder must show that all necessary and reasonable steps were taken to achieve the contract goal. Necessary and reasonable steps are those which, by their scope, intensity and appropriateness to the objective, could reasonably be expected to obtain sufficient DBE participation, even if they were not successful. The Department will consider the quality, quantity, and intensity of the kinds of efforts that the bidder has made. Mere *pro forma* efforts, in other words, efforts done as a matter of form, are not good faith efforts; rather, the bidder is expected to have taken genuine efforts that would be reasonably expected of a bidder actively and aggressively trying to obtain DBE participation sufficient to meet the contract goal.

- (a) The following is a list of types of action that the Department will consider as part of the evaluation of the bidder's good faith efforts to obtain participation. These listed factors are not intended to be a mandatory checklist and are not intended to be exhaustive. Other factors or efforts brought to the attention of the Department may be relevant in appropriate cases, and will be considered by the Department.
 - (1) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBE companies that have the capability to perform the work of the contract. The bidder must solicit this interest within sufficient time to allow the DBE companies to respond to the solicitation. The bidder must determine with certainty if the DBE companies are interested by taking appropriate steps to follow up initial solicitations.

- (2) Selecting portions of the work to be performed by DBE companies in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the prime Contractor might otherwise prefer to perform these work items with its own forces.
- (3) Providing interested DBE companies with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (4) a. Negotiating in good faith with interested DBE companies. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBE companies that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBE companies to perform the work.
 - b. A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBE companies is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also the ability or desire of a bidder to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidders are not, however, required to accept higher quotes from DBE companies if the price difference is excessive or unreasonable. In accordance with subsection (c)(6) of the above Bidding Procedures, the documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.
- (5) Not rejecting DBE companies as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (6) Making efforts to assist interested DBE companies in obtaining bonding, lines of credit, or insurance as required by the recipient or Contractor.
- (7) Making efforts to assist interested DBE companies in obtaining necessary equipment, supplies, materials, or related assistance or services.

- (8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBE companies.
- (b) If the Department determines that the apparent successful bidder has made a good faith effort to secure the work commitment of DBE companies to meet the contract goal, the Department will award the contract provided that it is otherwise eligible for award. If the Department determines that the bidder has failed to meet the requirements of this Special Provision or that a good faith effort has not been made, the Department will notify the responsible company official designated in the Utilization Plan that the bid is not responsive. The notification shall include a statement of reasons for the determination. If the Utilization Plan is not approved because it is deficient as a technical matter, unless waived by the Department, the bidder will be notified and will be allowed no more than a five calendar day period in order to cure the deficiency.
- (c) The bidder may request administrative reconsideration of a determination adverse to the bidder within the five working days after the receipt of the notification date of the determination by delivering the request to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764 (Telefax: (217) 785-1524). Deposit of the request in the United States mail on or before the fifth business day shall not be deemed delivery. The determination shall become final if a request is not made and delivered. A request may provide additional written documentation or argument concerning the issues raised in the determination statement of reasons, provided the documentation and arguments address efforts made prior to submitting the bid. The request will be forwarded to the Department's Reconsideration Officer. The Reconsideration Officer will extend an opportunity to the bidder to meet in person in order to consider all issues of documentation and whether the bidder made a good faith effort to meet the goal. After the review by the Reconsideration Officer, the bidder will be sent a written decision within ten working days after receipt of the request for reconsideration, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. A final decision by the Reconsideration Officer that a good faith effort was made shall approve the Utilization Plan submitted by the bidder and shall clear the contract for award. A final decision that a good faith effort was not made shall render the bid not responsive.

CALCULATING DBE PARTICIPATION. The Utilization Plan values represent work anticipated to be performed and paid for upon satisfactory completion. The Department is only able to count toward the achievement of the overall goal and the contract goal the value of payments made for the work actually performed by DBE companies. In addition, a DBE must perform a commercially useful function on the contract to be counted. A commercially useful function is generally performed when the DBE is responsible for the work and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. The Department and Contractor are governed by the provisions of 49 CFR Part 26.55(c) on questions of commercially useful functions as it affects the work. Specific counting guidelines are provided in 49 CFR Part 26.55, the provisions of which govern over the summary contained herein.

- (a) DBE as the Contractor: 100 percent goal credit for that portion of the work performed by the DBE's own forces, including the cost of materials and supplies. Work that a DBE subcontracts to a non-DBE does not count toward the DBE goals.
- (b) DBE as a joint venture Contractor: 100 percent goal credit for that portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work performed by the DBE's own forces.
- (c) DBE as a subcontractor: 100 percent goal credit for the work of the subcontract performed by the DBE's own forces, including the cost of materials and supplies, excluding the purchase of materials and supplies or the lease of equipment by the DBE subcontractor from the prime Contractor or its affiliates. Work that a DBE subcontractor in turn subcontracts to a non-DBE does not count toward the DBE goal.
- (d) DBE as a trucker: 100 percent goal credit for trucking participation provided the DBE is responsible for the management and supervision of the entire trucking operation for which it is responsible. At least one truck owned, operated, licensed, and insured by the DBE must be used on the contract. Credit will be given for the following:
 - (1) The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the contract.
 - (2) The DBE may also lease trucks from a non-DBE firm, including from an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission is receives as a result of the lease arrangement.
- (e) DBE as a material supplier:
 - (1) 60 percent goal credit for the cost of the materials or supplies purchased from a DBE regular dealer.
 - (2) 100 percent goal credit for the cost of materials of supplies obtained from a DBE manufacturer.
 - (3) 100 percent credit for the value of reasonable fees and commissions for the procurement of materials and supplies if not a DBE regular dealer or DBE manufacturer.

CONTRACT COMPLIANCE. Compliance with this Special Provision is an essential part of the contract. The Department is prohibited by federal regulations from crediting the participation of a DBE included in the Utilization Plan toward either the contract goal or the Department's overall goal until the amount to be applied toward the goals has been paid to the DBE. The following administrative procedures and remedies govern the compliance by the Contractor with the contractual obligations established by the Utilization Plan. After approval of the Utilization Plan and award of the contract, the Utilization Plan and individual DBE Participation Statements become part of the contract. If the Contractor did not succeed in obtaining enough DBE participation to achieve the advertised contract goal, and the Utilization Plan was approved and contract awarded based upon a determination of good faith, the total dollar value of DBE work calculated in the approved Utilization Plan as a percentage of the awarded contract value shall become the amended contract goal. All work indicated for performance by an approved DBE shall be performed, managed, and supervised by the DBE executing the DBE Participation Commitment Statement.

- (a) NO AMENDMENT. No amendment to the Utilization Plan may be made without prior written approval from the Department's Bureau of Small Business Enterprises. All requests for amendment to the Utilization Plan shall be submitted to the Department of Transportation, Bureau of Small Business Enterprises, Contract Compliance Section, 2300 South Dirksen Parkway, Room 319, Springfield, Illinois 62764. Telephone number (217) 785-4611. Telefax number (217) 785-1524.
- (b) CHANGES TO WORK. Any deviation from the DBE condition-of-award or contract plans, specifications, or special provisions must be approved, in writing, by the Department as provided elsewhere in the Contract. The Contractor shall notify affected DBEs in writing of any changes in the scope of work which result in a reduction in the dollar amount condition-of-award to the contract. Where the revision includes work committed to a new DBE subcontractor, not previously involved in the project, then a Request for Approval of Subcontractor, Department form BC 260A or AER 260A, must be signed and submitted. If the commitment of work is in the form of additional tasks assigned to an existing subcontract, than a new Request for Approval of Subcontractor shall not be required. However, the Contractor must document efforts to assure that the existing DBE subcontractor is capable of performing the additional work and has agreed in writing to the change.
- (c) SUBCONTRACT. The Contractor must provide DBE subcontracts to IDOT upon request. Subcontractors shall ensure that all lower tier subcontracts or agreements with DBEs to supply labor or materials be performed in accordance with this Special Provision.

- (d) ALTERNATIVE WORK METHODS. In addition to the above requirements for reductions in the condition of award, additional requirements apply to the two cases of Contractor-initiated work substitution proposals. Where the contract allows alternate work methods which serve to delete or create underruns in condition of award DBE work, and the Contractor selects that alternate method or, where the Contractor proposes a substitute work method or material that serves to diminish or delete work committed to a DBE and replace it with other work, then the Contractor must demonstrate one of the following:
- (1) That the replacement work will be performed by the same DBE (as long as the DBE is certified in the respective item of work) in a modification of the condition of award; or
 - (2) That the DBE is aware that its work will be deleted or will experience underruns and has agreed in writing to the change. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so; or
 - (3) That the DBE is not capable of performing the replacement work or has declined to perform the work at a reasonable competitive price. If this occurs, the Contractor shall substitute other work of equivalent value to a certified DBE or provide documentation of good faith efforts to do so.
- (e) TERMINATION AND REPLACEMENT PROCEDURES. The Contractor shall not terminate or replace a DBE listed on the approved Utilization Plan, or perform with other forces work designated for a listed DBE except as provided in this Special Provision. The Contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the Contractor obtains the Department's written consent as provided in subsection (a) of this part. Unless Department consent is provided for termination of a DBE subcontractor, the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the DBE in the Utilization Plan.

As stated above, the Contractor shall not terminate or replace a DBE subcontractor listed in the approved Utilization Plan without prior written consent. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm. Written consent will be granted only if the Bureau of Small Business Enterprises agrees, for reasons stated in its concurrence document, that the Contractor has good cause to terminate or replace the DBE firm. Before transmitting to the Bureau of Small Business Enterprises any request to terminate and/or substitute a DBE subcontractor, the Contractor shall give notice in writing to the DBE subcontractor, with a copy to the Bureau, of its intent to request to terminate and/or substitute, and the reason for the request. The Contractor shall give the DBE five days to respond to the Contractor's notice. The DBE so notified shall advise the Bureau and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Bureau should not approve the Contractor's action. If required in a particular case as a matter of public necessity, the Bureau may provide a response period shorter than five days.

For purposes of this paragraph, good cause includes the following circumstances:

- (1) The listed DBE subcontractor fails or refuses to execute a written contract;
- (2) The listed DBE subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the DBE subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the prime contractor;
- (3) The listed DBE subcontractor fails or refuses to meet the prime Contractor's reasonable, nondiscriminatory bond requirements;
- (4) The listed DBE subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;
- (5) The listed DBE subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1200 or applicable state law.
- (6) You have determined that the listed DBE subcontractor is not a responsible contractor;
- (7) The listed DBE subcontractor voluntarily withdraws from the projects and provides to you written notice of its withdrawal;
- (8) The listed DBE is ineligible to receive DBE credit for the type of work required;
- (9) A DBE owner dies or becomes disabled with the result that the listed DBE subcontractor is unable to complete its work on the contract;
- (10) Other documented good cause that compels the termination of the DBE subcontractor. Provided, that good cause does not exist if the prime Contractor seeks to terminate a DBE it relied upon to obtain the contract so that the prime Contractor can self-perform the work for which the DBE contractor was engaged or so that the prime Contractor can substitute another DBE or non-DBE contractor after contract award.

When a DBE is terminated, or fails to complete its work on the Contract for any reason the Contractor shall make a good faith effort to find another DBE to substitute for the original DBE to perform at least the same amount of work under the contract as the terminated DBE to the extent needed to meet the established Contract goal. The good faith efforts shall be documented by the Contractor. If the Department requests documentation under this provision, the Contractor shall submit the documentation within seven days, which may be extended for an additional seven days if necessary at the request of the Contractor. The Department shall provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

- (f) FINAL PAYMENT. After the performance of the final item of work or delivery of material by a DBE and final payment therefore to the DBE by the Contractor, but not later than thirty calendar days after payment has been made by the Department to the Contractor for such work or material, the Contractor shall submit a DBE Payment Agreement on Department form SBE 2115 to the Resident Engineer. If full and final payment has not been made to the DBE, the DBE Payment Agreement shall indicate whether a disagreement as to the payment required exists between the Contractor and the DBE or if the Contractor believes that the work has not been satisfactorily completed. If the Contractor does not have the full amount of work indicated in the Utilization Plan performed by the DBE companies indicated in the Utilization Plan and after good faith efforts are reviewed, the Department may deduct from contract payments to the Contractor the amount of the goal not achieved as liquidated and ascertained damages. The Contractor may request an administrative reconsideration of any amount deducted as damages pursuant to subsection (h) of this part.
- (g) ENFORCEMENT. The Department reserves the right to withhold payment to the Contractor to enforce the provisions of this Special Provision. Final payment shall not be made on the contract until such time as the Contractor submits sufficient documentation demonstrating achievement of the goal in accordance with this Special Provision or after liquidated damages have been determined and collected.
- (h) RECONSIDERATION. Notwithstanding any other provision of the contract, including but not limited to Article 109.09 of the Standard Specifications, the Contractor may request administrative reconsideration of a decision to deduct the amount of the goal not achieved as liquidated damages. A request to reconsider shall be delivered to the Contract Compliance Section and shall be handled and considered in the same manner as set forth in paragraph (c) of "Good Faith Effort Procedures" of this Special Provision, except a final decision that a good faith effort was not made during contract performance to achieve the goal agreed to in the Utilization Plan shall be the final administrative decision of the Department. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

DISPOSAL FEES (BDE)

Effective: November 1, 2018

Replace Articles 109.04(b)(5) – 109.04(b)(8) of the Standard Specifications with the following:

- "(5) Disposal Fees. When the extra work performed includes paying for disposal fees at a clean construction and demolition debris facility, an uncontaminated soil fill operation or a landfill, the Contractor shall receive, as administrative costs, an amount equal to five percent of the first \$10,000 and one percent of any amount over \$10,000 of the total approved costs of such fees.
- (6) Miscellaneous. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.

- (7) Statements. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with itemized statements of the cost of such force account work. Statements shall be accompanied and supported by invoices for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices, the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.

Itemized statements at the cost of force account work shall be detailed as follows.

- a. Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman. Payrolls shall be submitted to substantiate actual wages paid if so requested by the Engineer.
 - b. Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
 - c. Quantities of materials, prices and extensions.
 - d. Transportation of materials.
 - e. Cost of property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions, and social security tax.
- (8) Work Performed by an Approved Subcontractor. When extra work is performed by an approved subcontractor, the Contractor shall receive, as administrative costs, an amount equal to five percent of the total approved costs of such work with the minimum payment being \$100.
- (9) All statements of the cost of force account work shall be furnished to the Engineer not later than 60 days after receipt of the Central Bureau of Construction form "Extra Work Daily Report". If the statement is not received within the specified time frame, all demands for payment for the extra work are waived and the Department is released from any and all such demands. It is the responsibility of the Contractor to ensure that all statements are received within the specified time regardless of the manner or method of delivery."

EQUIPMENT PARKING AND STORAGE (BDE)

Effective: November 1, 2017

Replace the first paragraph of Article 701.11 of the Standard Specifications with the following.

“701.11 Equipment Parking and Storage. During working hours, all vehicles and/or nonoperating equipment which are parked, two hours or less, shall be parked at least 8 ft (2.5 m) from the open traffic lane. For other periods of time during working and for all nonworking hours, all vehicles, materials, and equipment shall be parked or stored as follows.

- (a) When the project has adequate right-of-way, vehicles, materials, and equipment shall be located a minimum of 30 ft (9 m) from the pavement.
- (b) When adequate right-of-way does not exist, vehicles, materials, and equipment shall be located a minimum of 15 ft (4.5 m) from the edge of any pavement open to traffic.
- (c) Behind temporary concrete barrier, vehicles, materials, and equipment shall be located a minimum of 24 in. (600 mm) behind free standing barrier or a minimum of 6 in. (150 mm) behind barrier that is either pinned or restrained according to Article 704.04. The 24 in. or 6 in. measurement shall be from the base of the non-traffic side of the barrier.
- (d) Behind other man-made or natural barriers meeting the approval of the Engineer.”

FUEL COST ADJUSTMENT (BDE)

Effective: April 1, 2009

Revised: August 1, 2017

Description. Fuel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in fuel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate "Yes" for any category of work will make that category of work exempt from fuel cost adjustment.

General. The fuel cost adjustment shall apply to contract pay items as grouped by category. The adjustment shall only apply to those categories of work checked "Yes", and only when the cumulative plan quantities for a category exceed the required threshold. Adjustments to work items in a category, either up or down, and extra work paid for by agreed unit price will be subject to fuel cost adjustment only when the category representing the added work was subject to the fuel cost adjustment. Extra work paid for at a lump sum price or by force account will not be subject to fuel cost adjustment. Category descriptions and thresholds for application and the fuel usage factors which are applicable to each are as follows:

(a) Categories of Work.

- (1) Category A: Earthwork. Contract pay items performed under Sections 202, 204, and 206 including any modified standard or nonstandard items where the character of the work to be performed is considered earthwork. The cumulative total of all applicable item plan quantities shall exceed 25,000 cu yd (20,000 cu m). Included in the fuel usage factor is a weighted average 0.10 gal/cu yd (0.50 liters/cu m) factor for trucking.
- (2) Category B: Subbases and Aggregate Base Courses. Contract pay items constructed under Sections 311, 312 and 351 including any modified standard or nonstandard items where the character of the work to be performed is considered construction of a subbase or aggregate, stabilized or modified base course. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is a 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (3) Category C: Hot-Mix Asphalt (HMA) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 355, 406, 407 and 482 including any modified standard or nonstandard items where the character of the work to be performed is considered HMA bases, pavements and shoulders. The cumulative total of all applicable item plan quantities shall exceed 5000 tons (4500 metric tons). Included in the fuel usage factor is 0.60 gal/ton (2.50 liters/metric ton) factor for trucking.
- (4) Category D: Portland Cement Concrete (PCC) Bases, Pavements and Shoulders. Contract pay items constructed under Sections 353, 420, 421 and 483 including any modified standard or nonstandard items where the character of the work to be performed is considered PCC base, pavement or shoulder. The cumulative total of all applicable item plan quantities shall exceed 7500 sq yd (6000 sq m). Included in the fuel usage factor is 1.20 gal/cu yd (5.94 liters/cu m) factor for trucking.

(5) Category E: Structures. Structure items having a cumulative bid price that exceeds \$250,000 for pay items constructed under Sections 502, 503, 504, 505, 512, 516 and 540 including any modified standard or nonstandard items where the character of the work to be performed is considered structure work when similar to that performed under these sections and not included in categories A through D.

(b) Fuel Usage Factors.

English Units		
Category	Factor	Units
A - Earthwork	0.34	gal / cu yd
B – Subbase and Aggregate Base courses	0.62	gal / ton
C – HMA Bases, Pavements and Shoulders	1.05	gal / ton
D – PCC Bases, Pavements and Shoulders	2.53	gal / cu yd
E – Structures	8.00	gal / \$1000

Metric Units		
Category	Factor	Units
A - Earthwork	1.68	liters / cu m
B – Subbase and Aggregate Base courses	2.58	liters / metric ton
C – HMA Bases, Pavements and Shoulders	4.37	liters / metric ton
D – PCC Bases, Pavements and Shoulders	12.52	liters / cu m
E – Structures	30.28	liters / \$1000

(c) Quantity Conversion Factors.

Category	Conversion	Factor
B	sq yd to ton	0.057 ton / sq yd / in depth
	sq m to metric ton	0.00243 metric ton / sq m / mm depth
C	sq yd to ton	0.056 ton / sq yd / in depth
	sq m to metric ton	0.00239 m ton / sq m / mm depth
D	sq yd to cu yd	0.028 cu yd / sq yd / in depth
	sq m to cu m	0.001 cu m / sq m / mm depth

Method of Adjustment. Fuel cost adjustments will be computed as follows.

$$CA = (FPI_P - FPI_L) \times FUF \times Q$$

Where: CA = Cost Adjustment, \$
FPI_P = Fuel Price Index, as published by the Department for the month the work is performed, \$/gal (\$/liter)
FPI_L = Fuel Price Index, as published by the Department for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price, \$/gal (\$/liter)
FUF = Fuel Usage Factor in the pay item(s) being adjusted
Q = Authorized construction Quantity, tons (metric tons) or cu yd (cu m)

The entire FUF indicated in paragraph (b) will be used regardless of use of trucking to perform the work.

Basis of Payment. Fuel cost adjustments may be positive or negative but will only be made when there is a difference between the FPI_L and FPI_P in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(FPI_L - FPI_P) \div FPI_L\} \times 100$$

Fuel cost adjustments will be calculated for each calendar month in which applicable work is performed; and will be paid or deducted when all other contract requirements for the items of work are satisfied. The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

HOT-MIX ASPHALT - DENSITY TESTING OF LONGITUDINAL JOINTS (BDE)

Effective: January 1, 2010

Revised: August 1, 2018

Description. This work shall consist of testing the density of longitudinal joints as part of the quality control/quality assurance (QC/QA) of hot-mix asphalt (HMA). Work shall be according to Section 1030 of the Standard Specifications except as follows.

Quality Control/Quality Assurance (QC/QA). Delete the second and third sentence of the third paragraph of Article 1030.05(d)(3) of the Standard Specifications.

Add the following paragraphs to the end of Article 1030.05(d)(3) of the Standard Specifications:

“Longitudinal joint density testing shall be performed at each random density test location. Longitudinal joint testing shall be located at a distance equal to the lift thickness or a minimum of 4 in. (100 mm), from each pavement edge. (i.e. for a 5 in. (125 mm) lift the near edge of the density gauge or core barrel shall be within 5 in. (125 mm) from the edge of pavement.) Longitudinal joint density testing shall be performed using either a correlated nuclear gauge or cores.

- a. Confined Edge. Each confined edge density shall be represented by a one-minute nuclear density reading or a core density and shall be included in the average of density readings or core densities taken across the mat which represents the Individual Test.
- b. Unconfined Edge. Each unconfined edge joint density shall be represented by an average of three one-minute density readings or a single core density at the given density test location and shall meet the density requirements specified herein. The three one-minute readings shall be spaced 10 ft (3 m) apart longitudinally along the unconfined pavement edge and centered at the random density test location.

When a longitudinal joint sealant (LJS) is applied, longitudinal joint density testing will not be required on the joint(s) sealed.”

Revise the Density Control Limits table in Article 1030.05(d)(4) of the Standard Specifications to read:

“Mixture Composition	Parameter	Individual Test (includes confined edges)	Unconfined Edge Joint Density Minimum
IL-4.75	Ndesign = 50	93.0 – 97.4% ^{1/}	91.0%
IL-9.5	Ndesign = 90	92.0 – 96.0%	90.0%
IL-9.5,IL-9.5L	Ndesign < 90	92.5 – 97.4%	90.0%
IL-19.0	Ndesign = 90	93.0 – 96.0%	90.0%
IL-19.0, IL-19.0L	Ndesign < 90	93.0 ^{2/} – 97.4%	90.0%
SMA	Ndesign = 50 & 80	93.5 – 97.4%	91.0%”

HOT-MIX ASPHALT – OSCILLATORY ROLLER (BDE)

Effective: August 1, 2018

Revised: November 1, 2018

Add the following to Article 406.03 of the Standard Specifications:

“(j) Oscillatory Roller 1101.01”

Revise Table 1 and Note 3/ of Table 1 in Article 406.07(a) of the Standard Specifications to read:

"TABLE 1 - MINIMUM ROLLER REQUIREMENTS FOR HMA				
	Breakdown Roller (one of the following)	Intermediate Roller	Final Roller (one or more of the following)	Density Requirement
Level Binder: (When the density requirements of Article 406.05(c) do not apply.)	P ^{3/}	--	V _S , P ^{3/} , T _B , T _F , 3W, O _T	To the satisfaction of the Engineer.
Binder and Surface ^{1/} Level Binder ^{1/} : (When the density requirements of Article 406.05(c) apply.)	V _D , P ^{3/} , T _B , 3W, O _T , O _B	P ^{3/} , O _T , O _B	V _S , T _B , T _F , O _T	As specified in Articles: 1030.05(d)(3), (d)(4), and (d)(7).
IL-4.75 and SMA ^{4/ 5/}	T _B , 3W, O _T	--	T _F , 3W, O _T	
Bridge Decks ^{2/}	T _B	--	T _F	As specified in Articles 582.05 and 582.06.

3/ A vibratory roller (V_D) or oscillatory roller (O_T or O_B) may be used in lieu of the pneumatic-tired roller on mixtures containing polymer modified asphalt binder.”

Add the following to EQUIPMENT DEFINITION in Article 406.07(a) contained in the Errata of the Supplemental Specifications:

“O_T - Oscillatory roller, tangential impact mode. Maximum speed is 3.0 mph (4.8 km/h) or 264 ft/min (80 m/min).

O_B - Oscillatory roller, tangential and vertical impact mode, operated at a speed to produce not less than 10 vertical impacts/ft (30 impacts/m).”

Add the following to Article 1101.01 of the Standard Specifications:

“(h) Oscillatory Roller. The oscillatory roller shall be self-propelled and provide a smooth operation when starting, stopping, or reversing directions. The oscillatory roller shall be able to operate in a mode that will provide tangential impact force with or without vertical impact force by using at least one drum. The oscillatory roller shall be equipped with water tanks and sprinkling devices, or other approved methods, which shall be used to wet the drums to prevent material pickup. The drum(s) amplitude and frequency of the tangential and vertical impact force shall be approximately the same in each direction and meet the following requirements:

- (1) The minimum diameter of the drum(s) shall be 42 in. (1070 mm);
- (2) The minimum length of the drum(s) shall be 57 in. (1480 mm);
- (3) The minimum unit static force on the drum(s) shall be 125 lb/in. (22 N/m); and
- (4) The minimum force on the oscillatory drum shall be 18,000 lb (80 kN).”

HOT-MIX ASPHALT – TACK COAT (BDE)

Effective: November 1, 2016

Revise Article 1032.06(a) of the Standard Specifications to read:

“(a) Anionic Emulsified Asphalt. Anionic emulsified asphalts shall be according to AASHTO M 140. SS-1h emulsions used as a tack coat shall have the cement mixing test waived.”

LIGHTS ON BARRICADES (BDE)

Effective: January 1, 2018

Revise Article 701.16 of the Standard Specifications to read:

“701.16 Lights. Lights shall be used on devices as required in the plans, the traffic control plan, and the following table.

Circumstance	Lights Required
Daylight operations	None
First two warning signs on each approach to the work involving a nighttime lane closure and “ROUGH GROOVED SURFACE” (W8-I107) signs	Flashing mono-directional lights
Devices delineating isolated obstacles, excavations, or hazards at night (Does not apply to patching)	Flashing bi-directional lights
Devices delineating obstacles, excavations, or hazards exceeding 100 ft (30 m) in length at night (Does not apply to widening)	Steady burn bi-directional lights
Channelizing devices for nighttime lane closures on two-lane roads	None
Channelizing devices for nighttime lane closures on multi-lane roads	None
Channelizing devices for nighttime lane closures on multi-lane roads separating opposing directions of traffic	None
Channelizing devices for nighttime along lane shifts on multilane roads	Steady burn mono-directional lights
Channelizing devices for night time along lane shifts on two lane roads	Steady burn bi-directional lights
Devices in nighttime lane closure tapers on Standards 701316 and 701321	Steady burn bi-directional lights
Devices in nighttime lane closure tapers	Steady burn mono-directional lights
Devices delineating a widening trench	None
Devices delineating patches at night on roadways with an ADT less than 25,000	None
Devices delineating patches at night on roadways with an ADT of 25,000 or more	None

Batteries for the lights shall be replaced on a group basis at such times as may be specified by the Engineer.”

Delete the fourth sentence of the first paragraph of Article 701.17(c)(2) of the Standard Specifications.

Revise the first paragraph of Article 603.07 of the Standard Specifications to read:

“603.07 Protection Under Traffic. After the casting has been adjusted and Class SI concrete has been placed, the work shall be protected by a barricade for at least 72 hours.”

PAVEMENT MARKING REMOVAL (BDE)

Effective: July 1, 2016

Revise Article 783.02 of the Standard Specifications to read:

“783.02 Equipment. Equipment shall be according to the following.

Item	Article/Section
(a) Grinders (Note 1)	
(b) Water Blaster with Vacuum Recovery	1101.12

Note 1. Grinding equipment shall be approved by the Engineer.”

Revise the first paragraph of Article 783.03 of the Standard Specifications to read:

“783.03 Removal of Conflicting Markings. Existing pavement markings that conflict with revised traffic patterns shall be removed. If darkness or inclement weather prohibits the removal operations, such operations shall be resumed the next morning or when weather permits. In the event of removal equipment failure, such equipment shall be repaired, replaced, or leased so removal operations can be resumed within 24 hours.”

Revise the first and second sentences of the first paragraph of Article 783.03(a) of the Standard Specifications to read:

“The existing pavement markings shall be removed by the method specified and in a manner that does not materially damage the surface or texture of the pavement or surfacing. Small particles of tightly adhering existing markings may remain in place, if in the opinion of the Engineer, complete removal of the small particles will result in pavement surface damage.”

Revise the first paragraph of Article 783.04 of the Standard Specifications to read:

“783.04 Cleaning. The roadway surface shall be cleaned of debris or any other deleterious material by the use of compressed air or water blast.”

Revise the first paragraph of Article 783.06 of the Standard Specifications to read:

“783.06 Basis of Payment. This work will be paid for at the contract unit price per each for RAISED REFLECTIVE PAVEMENT MARKER REMOVAL, or at the contract unit price per square foot (square meter) for PAVEMENT MARKING REMOVAL – GRINDING and/or PAVEMENT MARKING REMOVAL – WATER BLASTING.”

Delete Article 1101.13 from the Standard Specifications.

PAYMENTS TO SUBCONTRACTORS (BDE)

Effective: November 2, 2017

Add the following to the end of the fourth paragraph of Article 109.11 of the Standard Specifications:

“If reasonable cause is asserted, written notice shall be provided to the applicable subcontractor and/or material supplier and the Engineer within five days of the Contractor receiving payment. The written notice shall identify the contract number, the subcontract or material purchase agreement, a detailed reason for refusal, the value of payment being withheld, and the specific remedial actions required of the subcontractor and/or material supplier so that payment can be made.”

PORTLAND CEMENT CONCRETE (BDE)

Effective: November 1, 2017

Revise the Air Content % of Class PP Concrete in Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

"TABLE 1. CLASSES OF CONCRETE AND MIX DESIGN CRITERIA		
Class of Conc.	Use	Air Content %
PP	Pavement Patching	4.0 - 8.0"
	Bridge Deck Patching (10)	
	PP-1	
	PP-2	
	PP-3	
	PP-4	
PP-5		

Revise Note (4) at the end of Table 1 Classes of Concrete and Mix Design Criteria in Article 1020.04 of the Standard Specifications to read:

“(4) For all classes of concrete, the maximum slump may be increased to 7 in (175 mm) when a high range water-reducing admixture is used. For Class SC, the maximum slump may be increased to 8 in. (200 mm). For Class PS, the maximum slump may be increased to 8 1/2 in. (215 mm) if the high range water-reducing admixture is the polycarboxylate type.”

PORTLAND CEMENT CONCRETE BRIDGE DECK CURING (BDE)

Effective: April 1, 2015

Revised: November 1, 2017

Revise the following two entries in the table in Article 1020.13 of the Standard Specifications to read:

"INDEX TABLE OF CURING AND PROTECTION OF CONCRETE CONSTRUCTION			
TYPE OF CONSTRUCTION	CURING METHODS	CURING PERIOD DAYS	LOW AIR TEMPERATURE PROTECTION METHODS
Superstructure (Approach Slab)	1020.13(a)(5)(6) ^{19/}	3	1020.13(d)(1)(2) ^{17/}
Deck	1020.13(a)(5)(6) ^{19/}	7	1020.13(d)(1)(2) ^{17/}

Add the following footnote to the end of the Index Table of Curing and Protection of Concrete Construction in Article 1020.13 of the Standard Specifications:

"19/ The cellulose polyethylene or synthetic fiber with polymer polyethylene blanket method shall not be used on latex modified concrete."

Revise Article 1020.13(a)(5) of the Standard Specifications to read:

"(5) Wetted Cotton Mat Method. After the surface of concrete has been textured or finished, it shall be covered immediately with dry or damp cotton mats. Cotton mats in poor condition will not be allowed. The cotton mats shall be placed in a manner which will not create indentations greater than 1/4 in. (6 mm) in the concrete surface. Minor marring of the surface is tolerable and is secondary to the importance of timely curing. The cotton mats shall then be wetted immediately and thoroughly soaked with a gentle spray of water. Thereafter, the cotton mats shall be covered with white polyethylene sheeting or burlap-polyethylene blankets. The cotton mats shall be kept saturated with water.

- a. Bridge Decks. For bridge decks, a foot bridge shall be used to place and wet the cotton mats. The cotton mats shall be maintained in a wetted condition until the concrete has hardened sufficiently to place soaker hoses without indentations to the concrete surface. The soaker hoses shall be placed on top of the cotton mats at a maximum 4 ft (1.2 m) spacing. The cotton mats shall be kept wet with a continuous supply of water for the remainder of the curing period. Other continuous wetting systems may be used if approved by the Engineer.

For areas inaccessible to the cotton mats, curing shall be according to Article 1020.13(a)(3)."

Add the following to Article 1020.13(a) of the Standard Specifications.

“(6) Cellulose Polyethylene Blanket Method and Synthetic Fiber with Polymer Polyethylene Blanket Method. After the surface of concrete has been textured or finished, it shall be covered immediately with a cellulose polyethylene or synthetic fiber with polymer polyethylene blanket. Damaged blankets will not be allowed. The blankets shall be installed with the white perforated polyethylene side facing up. Adjoining blankets shall overlap a minimum of 8 in. (200 mm). Any air bubbles trapped during placement shall be removed. The blankets fiber side shall be wetted immediately prior to placement or as the blanket is being placed, and the polyethylene side shall be thoroughly soaked with a gentle spray of water immediately after placement. Thereafter, the blankets shall be kept saturated with water. For bridge decks, the blankets shall be placed and kept wet according to Article 1020.13(a)(5)a.”

Revise the first paragraph of Article 1022.03 of the Standard Specifications to read:

“1022.03 Waterproof Paper Blankets, White Polyethylene Sheeting, Burlap-Polyethylene Blankets, Cellulose Polyethylene Blankets, and Synthetic Fiber with Polymer Polyethylene Blankets. These materials shall be white and according to ASTM C 171.

The cellulose polyethylene blanket shall consist of a perforated white polyethylene sheeting with cellulose fiber backing and shall be limited to single use only. The cellulose polyethylene blankets shall be delivered to the jobsite unused and in the manufacturer's unopened packaging until ready for installation. Each roll shall be clearly labeled with product name, manufacturer, and manufacturer's certification of compliance with ASTM C 171.

The synthetic fiber with polymer polyethylene blanket shall consist of a perforated white polyethylene sheeting with absorbent synthetic fibers and super absorbent polymer backing, and shall be limited to single use only. The synthetic fiber with polymer polyethylene blankets shall be delivered to the jobsite unused and in the manufacturer's unopened packaging until ready for installation. Each roll shall be clearly labeled on the product with product name, manufacturer, and manufacturer's certification of compliance with ASTM C 171.”

PROGRESS PAYMENTS (BDE)

Effective: November 2, 2013

Revise Article 109.07(a) of the Standard Specifications to read:

- “(a) Progress Payments. At least once each month, the Engineer will make a written estimate of the quantity of work performed in accordance with the contract, and the value thereof at the contract unit prices. The amount of the estimate approved as due for payment will be vouchered by the Department and presented to the State Comptroller for payment. No amount less than \$1000.00 will be approved for payment other than the final payment.

Progress payments may be reduced by liens filed pursuant to Section 23(c) of the Mechanics' Lien Act, 770 ILCS 60/23(c).

If a Contractor or subcontractor has defaulted on a loan issued under the Department's Disadvantaged Business Revolving Loan Program (20 ILCS 2705/2705-610), progress payments may be reduced pursuant to the terms of that loan agreement. In such cases, the amount of the estimate related to the work performed by the Contractor or subcontractor, in default of the loan agreement, will be offset, in whole or in part, and vouchered by the Department to the Working Capital Revolving Fund or designated escrow account. Payment for the work shall be considered as issued and received by the Contractor or subcontractor on the date of the offset voucher. Further, the amount of the offset voucher shall be a credit against the Department's obligation to pay the Contractor, the Contractor's obligation to pay the subcontractor, and the Contractor's or subcontractor's total loan indebtedness to the Department. The offset shall continue until such time as the entire loan indebtedness is satisfied. The Department will notify the Contractor and Fund Control Agent in a timely manner of such offset. The Contractor or subcontractor shall not be entitled to additional payment in consideration of the offset.

The failure to perform any requirement, obligation, or term of the contract by the Contractor shall be reason for withholding any progress payments until the Department determines that compliance has been achieved.”

RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES (BDE)

Effective: November 1, 2012

Revise: January 1, 2018

Revise Section 1031 of the Standard Specifications to read:

“SECTION 1031. RECLAIMED ASPHALT PAVEMENT AND RECLAIMED ASPHALT SHINGLES

1031.01 Description. Reclaimed asphalt pavement and reclaimed asphalt shingles shall be according to the following.

- (a) Reclaimed Asphalt Pavement (RAP). RAP is the material produced by cold milling or crushing an existing hot-mix asphalt (HMA) pavement. The Contractor shall supply written documentation that the RAP originated from routes or airfields under federal, state, or local agency jurisdiction.
- (b) Reclaimed Asphalt Shingles (RAS). Reclaimed asphalt shingles (RAS). RAS is from the processing and grinding of preconsumer or post-consumer shingles. RAS shall be a clean and uniform material with a maximum of 0.5 percent unacceptable material, as defined in Central Bureau of Materials Policy Memorandum, “Reclaimed Asphalt Shingle (RAS) Sources”, by weight of RAS. All RAS used shall come from a Central Bureau of Materials approved processing facility where it shall be ground and processed to 100 percent passing the 3/8 in. (9.5 mm) sieve and 93 percent passing the #4 (4.75 mm) sieve based on a dry shake gradation. RAS shall be uniform in gradation and asphalt binder content and shall meet the testing requirements specified herein. In addition, RAS shall meet the following Type 1 or Type 2 requirements.
 - (1) Type 1. Type 1 RAS shall be processed, preconsumer asphalt shingles salvaged from the manufacture of residential asphalt roofing shingles.
 - (2) Type 2. Type 2 RAS shall be processed post-consumer shingles only, salvaged from residential, or four unit or less dwellings not subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP).

1031.02 Stockpiles. RAP and RAS stockpiles shall be according to the following.

- (a) RAP Stockpiles. The Contractor shall construct individual, sealed RAP stockpiles meeting one of the following definitions. No additional RAP shall be added to the pile after the pile has been sealed. Stockpiles shall be sufficiently separated to prevent intermingling at the base. Stockpiles shall be identified by signs indicating the type as listed below (i.e. “Homogeneous Surface”).

Prior to milling, the Contractor shall request the District provide documentation on the quality of the RAP to clarify the appropriate stockpile.

- (1) Fractionated RAP (FRAP). FRAP shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures. The coarse aggregate in FRAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. All FRAP shall be fractionated prior to testing by screening into a minimum of two size fractions with the separation occurring on or between the #4 (4.75 mm) and 1/2 in. (12.5 mm) sieves. Agglomerations shall be minimized such that 100 percent of the RAP shall pass the sieve size specified below for the mix into which the FRAP will be incorporated.

Mixture FRAP will be used in:	Sieve Size that 100 % of FRAP Shall Pass
IL-19.0	1 1/2 in. (40 mm)
IL-9.5	3/4 in. (20 mm)
IL-4.75	1/2 in. (13 mm)

- (2) Homogeneous. Homogeneous RAP stockpiles shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures and represent: 1) the same aggregate quality, but shall be at least C quality; 2) the same type of crushed aggregate (either crushed natural aggregate, ACBF slag, or steel slag); 3) similar gradation; and 4) similar asphalt binder content. If approved by the Engineer, combined single pass surface/binder millings may be considered "homogeneous" with a quality rating dictated by the lowest coarse aggregate quality present in the mixture.
- (3) Conglomerate. Conglomerate RAP stockpiles shall consist of RAP from Class I, HMA (High and Low ESAL) mixtures. The coarse aggregate in this RAP shall be crushed aggregate and may represent more than one aggregate type and/or quality, but shall be at least C quality. This RAP may have an inconsistent gradation and/or asphalt binder content prior to processing. All conglomerate RAP shall be processed prior to testing by crushing to where all RAP shall pass the 5/8 in. (16 mm) or smaller screen. Conglomerate RAP stockpiles shall not contain steel slag.
- (4) Non-Quality. RAP stockpiles that do not meet the requirements of the stockpile categories listed above shall be classified as "Non-Quality".

RAP/FRAP containing contaminants, such as earth, brick, sand, concrete, sheet asphalt, bituminous surface treatment (i.e. chip seal), pavement fabric, joint sealants, etc., will be unacceptable unless the contaminants are removed to the satisfaction of the Engineer. Sheet asphalt shall be stockpiled separately.

- (b) RAS Stockpiles. Type 1 and Type 2 RAS shall be stockpiled separately and shall not be intermingled. Each stockpile shall be signed indicating what type of RAS is present.

Unless otherwise specified by the Engineer, mechanically blending manufactured sand (FM 20 or FM 22) up to an equal weight of RAS with the processed RAS will be permitted to improve workability. The sand shall be "B Quality" or better from an approved Aggregate Gradation Control System source. The sand shall be accounted for in the mix design and during HMA production.

Records identifying the shingle processing facility supplying the RAS, RAS type, and lot number shall be maintained by project contract number and kept for a minimum of three years.

1031.03 Testing. RAP/FRAP and RAS testing shall be according to the following.

- (a) RAP/FRAP Testing. When used in HMA, the RAP/FRAP shall be sampled and tested either during or after stockpiling.

(1) During Stockpiling. For testing during stockpiling, washed extraction samples shall be run at the minimum frequency of one sample per 500 tons (450 metric tons) for the first 2000 tons (1800 metric tons) and one sample per 2000 tons (1800 metric tons) thereafter. A minimum of five tests shall be required for stockpiles less than 4000 tons (3600 metric tons).

(2) After Stockpiling. For testing after stockpiling, the Contractor shall submit a plan for approval to the District proposing a satisfactory method of sampling and testing the RAP/FRAP pile either in-situ or by restockpiling. The sampling plan shall meet the minimum frequency required above and detail the procedure used to obtain representative samples throughout the pile for testing.

Each sample shall be split to obtain two equal samples of test sample size. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall extract the other test sample according to Department procedure. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

- (b) RAS Testing. RAS or RAS blended with manufactured sand shall be sampled and tested during stockpiling according to Central Bureau of Materials Policy Memorandum, "Reclaimed Asphalt Shingle (RAS) Source".

Samples shall be collected during stockpiling at the minimum frequency of one sample per 200 tons (180 metric tons) for the first 1000 tons (900 metric tons) and one sample per 250 tons (225 metric tons) thereafter. A minimum of five samples are required for stockpiles less than 1000 tons (900 metric tons). Once a ≤ 1000 ton (900 metric ton), five-sample/test stockpile has been established it shall be sealed. Additional incoming RAS or RAS blended with manufactured sand shall be stockpiled in a separate working pile as designated in the Quality Control plan and only added to the sealed stockpile when the test results of the working pile are complete and are found to meet the tolerances specified herein for the original sealed RAS stockpile.

Before testing, each sample shall be split to obtain two test samples. One of the two test samples from the final split shall be labeled and stored for Department use. The Contractor shall perform a washed extraction and test for unacceptable materials on the other test sample according to Department procedures. The Engineer reserves the right to test any sample (split or Department-taken) to verify Contractor test results.

If the sampling and testing was performed at the shingle processing facility in accordance with the QC Plan, the Contractor shall obtain and make available all of the test results from start of the initial stockpile.

1031.04 Evaluation of Tests. Evaluation of test results shall be according to the following.

- (a) Evaluation of RAP/FRAP Test Results. All of the extraction results shall be compiled and averaged for asphalt binder content and gradation, and when applicable G_{mm} . Individual extraction test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	FRAP/Homogeneous/ Conglomerate
1 in. (25 mm)	
1/2 in. (12.5 mm)	± 8 %
No. 4 (4.75 mm)	± 6 %
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	
No. 30 (600 μm)	± 5 %
No. 200 (75 μm)	± 2.0 %
Asphalt Binder	± 0.4 % ^{1/}
G_{mm}	± 0.03

1/ The tolerance for FRAP shall be ± 0.3 %.

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, the RAP/FRAP shall not be used in HMA unless the RAP/FRAP representing the failing tests is removed from the stockpile. All test data and acceptance ranges shall be sent to the District for evaluation.

With the approval of the Engineer, the ignition oven may be substituted for extractions according to the ITP, "Calibration of the Ignition Oven for the Purpose of Characterizing Reclaimed Asphalt Pavement (RAP)".

- (b) Evaluation of RAS and RAS Blended with Manufactured Sand Test Results. All of the test results, with the exception of percent unacceptable materials, shall be compiled and averaged for asphalt binder content and gradation. Individual test results, when compared to the averages, will be accepted if within the tolerances listed below.

Parameter	RAS
No. 8 (2.36 mm)	± 5 %
No. 16 (1.18 mm)	± 5 %
No. 30 (600 µm)	± 4 %
No. 200 (75 µm)	± 2.0 %
Asphalt Binder Content	± 1.5 %

If more than 20 percent of the individual sieves and/or asphalt binder content tests are out of the above tolerances, or if the percent unacceptable material exceeds 0.5 percent by weight of material retained on the # 4 (4.75 mm) sieve, the RAS or RAS blend shall not be used in Department projects. All test data and acceptance ranges shall be sent to the District for evaluation.

1031.05 Quality Designation of Aggregate in RAP/FRAP.

- (a) RAP. The aggregate quality of the RAP for homogeneous and conglomerate stockpiles shall be set by the lowest quality of coarse aggregate in the RAP stockpile and are designated as follows.
- (1) RAP from Class I, Superpave/HMA (High ESAL), or (Low ESAL) IL-9.5L surface mixtures are designated as containing Class B quality coarse aggregate.
 - (2) RAP from Class I binder, Superpave/HMA (High ESAL) binder, or (Low ESAL) IL-19.0L binder mixtures are designated as containing Class C quality coarse aggregate.
- (b) FRAP. If the Engineer has documentation of the quality of the FRAP aggregate, the Contractor shall use the assigned quality provided by the Engineer.

If the quality is not known, the quality shall be determined as follows. Coarse and fine FRAP stockpiles containing plus #4 (4.75 mm) sieve coarse aggregate shall have a maximum tonnage of 5000 tons (4500 metric tons). The Contractor shall obtain a representative sample witnessed by the Engineer. The sample shall be a minimum of 50 lb (25 kg). The sample shall be extracted according to Illinois Modified AASHTO T 164 by a consultant laboratory prequalified by the Department for the specified testing. The consultant laboratory shall submit the test results along with the recovered aggregate to the District Office. The cost for this testing shall be paid by the Contractor. The District will forward the sample to the Central Bureau of Materials Aggregate Lab for MicroDeval Testing, according to ITP 327. A maximum loss of 15.0 percent will be applied for all HMA applications.

1031.06 Use of RAP/FRAP and/or RAS in HMA. The use of RAP/FRAP and/or RAS shall be the Contractor's option when constructing HMA in all contracts.

(a) RAP/FRAP. The use of RAP/FRAP in HMA shall be as follows.

- (1) Coarse Aggregate Size. The coarse aggregate in all RAP shall be equal to or less than the nominal maximum size requirement for the HMA mixture to be produced.
- (2) Steel Slag Stockpiles. Homogeneous RAP stockpiles containing steel slag will be approved for use in all HMA (High ESAL and Low ESAL) Surface and Binder Mixture applications.
- (3) Use in HMA Surface Mixtures (High and Low ESAL). RAP/FRAP stockpiles for use in HMA surface mixtures (High and Low ESAL) shall be FRAP or homogeneous in which the coarse aggregate is Class B quality or better. FRAP from Conglomerate stockpiles shall be considered equivalent to limestone for frictional considerations. Known frictional contributions from plus #4 (4.75 mm) homogeneous FRAP stockpiles will be accounted for in meeting frictional requirements in the specified mixture.
- (4) Use in HMA Binder Mixtures (High and Low ESAL), HMA Base Course, and HMA Base Course Widening. RAP/FRAP stockpiles for use in HMA binder mixtures (High and Low ESAL), HMA base course, and HMA base course widening shall be FRAP, homogeneous, or conglomerate, in which the coarse aggregate is Class C quality or better.
- (5) Use in Shoulders and Subbase. RAP/FRAP stockpiles for use in HMA shoulders and stabilized subbase (HMA) shall be FRAP, homogeneous, or conglomerate.
- (6) When the Contractor chooses the RAP option, the percentage of RAP shall not exceed the amounts indicated in Article 1031.06(c)(1) below for a given Ndesign.

(b) RAS. RAS meeting Type 1 or Type 2 requirements will be permitted in all HMA applications as specified herein.

(c) RAP/FRAP and/or RAS Usage Limits. Type 1 or Type 2 RAS may be used alone or in conjunction with RAP or FRAP in HMA mixtures up to a maximum of 5.0 percent by weight of the total mix.

(1) RAP/RAS. When RAP is used alone or RAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the Max RAP/RAS ABR table listed below for the given Ndesign.

RAP/RAS Maximum Asphalt Binder Replacement (ABR) Percentage

HMA Mixtures <i>1/, 2/</i>	RAP/RAS Maximum ABR %		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified
30	30	30	10
50	25	15	10
70	15	10	10
90	10	10	10

1/ For Low ESAL HMA shoulder and stabilized subbase, the RAP/RAS ABR shall not exceed 50 percent of the mixture.

2/ When RAP/RAS ABR exceeds 20 percent, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28). If warm mix asphalt (WMA) technology is utilized and production temperatures do not exceed 275 °F (135 °C), the high and low virgin asphalt binder grades shall each be reduced by one grade when RAP/RAS ABR exceeds 25 percent (i.e. 26 percent RAP/RAS ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).

(2) FRAP/RAS. When FRAP is used alone or FRAP is used in conjunction with RAS, the percentage of virgin asphalt binder replacement shall not exceed the amounts listed in the FRAP/RAS table listed below for the given Ndesign.

FRAP/RAS Maximum Asphalt Binder Replacement (ABR) Percentage

HMA Mixtures <i>1/, 2/</i>	FRAP/RAS Maximum ABR %		
Ndesign	Binder/Leveling Binder	Surface	Polymer Modified <i>3/, 4/</i>
30	50	40	10
50	40	35	10
70	40	30	10
90	40	30	10

- 1/ For Low ESAL HMA shoulder and stabilized subbase, the FRAP/RAS ABR shall not exceed 50 percent of the mixture.
- 2/ When FRAP/RAS ABR exceeds 20 percent for all mixes, the high and low virgin asphalt binder grades shall each be reduced by one grade (i.e. 25 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28). If warm mix asphalt (WMA) technology is utilized and production temperatures do not exceed 275 °F (135 °C), the high and low virgin asphalt binder grades shall each be reduced by one grade when FRAP/RAS ABR exceeds 25 percent (i.e. 26 percent ABR would require a virgin asphalt binder grade of PG 64-22 to be reduced to a PG 58-28).
- 3/ For SMA the FRAP/RAS ABR shall not exceed 20 percent.
- 4/ For IL-4.75 mix the FRAP/RAS ABR shall not exceed 30 percent.

1031.07 HMA Mix Designs. At the Contractor's option, HMA mixtures may be constructed utilizing RAP/FRAP and/or RAS material meeting the detailed requirements specified herein.

- (a) RAP/FRAP and/or RAS. RAP/FRAP and/or RAS mix designs shall be submitted for verification. If additional RAP/FRAP and/or RAS stockpiles are tested and found that no more than 20 percent of the results, as defined under "Testing" herein, are outside of the control tolerances set for the original RAP/FRAP and/or RAS stockpile and HMA mix design, and meets all of the requirements herein, the additional RAP/FRAP and/or RAS stockpiles may be used in the original mix design at the percent previously verified.
- (b) RAS. Type 1 and Type 2 RAS are not interchangeable in a mix design.

The RAP, FRAP, and RAS stone bulk specific gravities (G_{sb}) shall be according to the "Determination of Aggregate Bulk (Dry) Specific Gravity (G_{sb}) of Reclaimed Asphalt Pavement (RAP) and Reclaimed Asphalt Shingles (RAS)" procedure in the Department's Manual of Test Procedures for Materials.

1031.08 HMA Production. HMA production utilizing RAP/FRAP and/or RAS shall be as follows.

- (a) RAP/FRAP. The coarse aggregate in all RAP/FRAP used shall be equal to or less than the nominal maximum size requirement for the HMA mixture being produced.

To remove or reduce agglomerated material, a scalping screen, gator, crushing unit, or comparable sizing device approved by the Engineer shall be used in the RAP feed system to remove or reduce oversized material.

If the RAP/FRAP control tolerances or QC/QA test results require corrective action, the Contractor shall cease production of the mixture containing RAP/FRAP and either switch to the virgin aggregate design or submit a new RAP/FRAP design.

- (b) RAS. RAS shall be incorporated into the HMA mixture either by a separate weight depletion system or by using the RAP weigh belt. Either feed system shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. The portion of RAS shall be controlled accurately to within ± 0.5 percent of the amount of RAS utilized. When using the weight depletion system, flow indicators or sensing devices shall be provided and interlocked with the plant controls such that the mixture production is halted when RAS flow is interrupted.
- (c) RAP/FRAP and/or RAS. HMA plants utilizing RAP/FRAP and/or RAS shall be capable of automatically recording and printing the following information.

(1) Dryer Drum Plants.

- a. Date, month, year, and time to the nearest minute for each print.
- b. HMA mix number assigned by the Department.
- c. Accumulated weight of dry aggregate (combined or individual) in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- d. Accumulated dry weight of RAP/FRAP/RAS in tons (metric tons) to the nearest 0.1 ton (0.1 metric ton).
- e. Accumulated mineral filler in revolutions, tons (metric tons), etc. to the nearest 0.1 unit.
- f. Accumulated asphalt binder in gallons (liters), tons (metric tons), etc. to the nearest 0.1 unit.
- g. Residual asphalt binder in the RAP/FRAP material as a percent of the total mix to the nearest 0.1 percent.
- h. Aggregate and RAP/FRAP moisture compensators in percent as set on the control panel. (Required when accumulated or individual aggregate and RAP/FRAP are printed in wet condition.)

(2) Batch Plants.

- a. Date, month, year, and time to the nearest minute for each print.
- b. HMA mix number assigned by the Department.
- c. Individual virgin aggregate hot bin batch weights to the nearest pound (kilogram).
- d. Mineral filler weight to the nearest pound (kilogram).
- e. RAP/FRAP/RAS weight to the nearest pound (kilogram).
- f. Virgin asphalt binder weight to the nearest pound (kilogram).
- g. Residual asphalt binder in the RAP/FRAP/RAS material as a percent of the total mix to the nearest 0.1 percent.

The printouts shall be maintained in a file at the plant for a minimum of one year or as directed by the Engineer and shall be made available upon request. The printing system will be inspected by the Engineer prior to production and verified at the beginning of each construction season thereafter.

1031.09 RAP in Aggregate Surface Course and Aggregate Wedge Shoulders, Type B.

The use of RAP in aggregate surface course (temporary access entrances only) and aggregate wedge shoulders, Type B shall be as follows.

- (a) Stockpiles and Testing. RAP stockpiles may be any of those listed in Article 1031.02, except "Non-Quality" and "FRAP". The testing requirements of Article 1031.03 shall not apply. RAP used shall be according to the current Central Bureau of Materials Policy Memorandum, "Reclaimed Asphalt Pavement (RAP) for Aggregate Applications".
- (b) Gradation. One hundred percent of the RAP material shall pass the 1 1/2 in. (37.5 mm) sieve. The RAP material shall be reasonably well graded from coarse to fine. RAP material that is gap-graded or single sized will not be accepted."

STEEL COST ADJUSTMENT (BDE)

Effective: April 2, 2004

Revised: August 1, 2017

Description. Steel cost adjustments will be made to provide additional compensation to the Contractor, or a credit to the Department, for fluctuations in steel prices when optioned by the Contractor. The bidder shall indicate with their bid whether or not this special provision will be part of the contract. Failure to indicate "Yes" for any item of work will make that item of steel exempt from steel cost adjustment.

Types of Steel Products. An adjustment will be made for fluctuations in the cost of steel used in the manufacture of the following items:

- Metal Piling (excluding temporary sheet piling)
- Structural Steel
- Reinforcing Steel

Other steel materials such as dowel bars, tie bars, mesh reinforcement, guardrail, steel traffic signal and light poles, towers and mast arms, metal railings (excluding wire fence), and frames and grates will be subject to a steel cost adjustment when the pay items they are used in have a contract value of \$10,000 or greater.

The adjustments shall apply to the above items when they are part of the original proposed construction, or added as extra work and paid for by agreed unit prices. The adjustments shall not apply when the item is added as extra work and paid for at a lump sum price or by force account.

Documentation. Sufficient documentation shall be furnished to the Engineer to verify the following:

- (a) The dates and quantity of steel, in lb (kg), shipped from the mill to the fabricator.
- (b) The quantity of steel, in lb (kg), incorporated into the various items of work covered by this special provision. The Department reserves the right to verify submitted quantities.

Method of Adjustment. Steel cost adjustments will be computed as follows:

$$SCA = Q \times D$$

Where: SCA = steel cost adjustment, in dollars
Q = quantity of steel incorporated into the work, in lb (kg)
D = price factor, in dollars per lb (kg)

$$D = MPI_M - MPI_L$$

Where: MPI_M = The Materials Cost Index for steel as published by the Engineering News-Record for the month the steel is shipped from the mill. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

MPI_L = The Materials Cost Index for steel as published by the Engineering News-Record for the month prior to the letting for work paid for at the contract price; or for the month the agreed unit price letter is submitted by the Contractor for extra work paid for by agreed unit price,. The indices will be converted from dollars per 100 lb to dollars per lb (kg).

The unit weights (masses) of steel that will be used to calculate the steel cost adjustment for the various items are shown in the attached table.

No steel cost adjustment will be made for any products manufactured from steel having a mill shipping date prior to the letting date.

If the Contractor fails to provide the required documentation, the method of adjustment will be calculated as described above; however, the MPI_M will be based on the date the steel arrives at the job site. In this case, an adjustment will only be made when there is a decrease in steel costs.

Basis of Payment. Steel cost adjustments may be positive or negative but will only be made when there is a difference between the MPI_L and MPI_M in excess of five percent, as calculated by:

$$\text{Percent Difference} = \{(MPI_L - MPI_M) \div MPI_L\} \times 100$$

Steel cost adjustments will be calculated by the Engineer and will be paid or deducted when all other contract requirements for the items of work are satisfied. Adjustments will only be made for fluctuations in the cost of the steel as described herein. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, storage, etc.

The adjustments shall not apply during contract time subject to liquidated damages for completion of the entire contract.

Attachment

Item	Unit Mass (Weight)
Metal Piling (excluding temporary sheet piling) Furnishing Metal Pile Shells 12 in. (305 mm), 0.179 in. (3.80 mm) wall thickness) Furnishing Metal Pile Shells 12 in. (305 mm), 0.250 in. (6.35 mm) wall thickness) Furnishing Metal Pile Shells 14 in. (356 mm), 0.250 in. (6.35 mm) wall thickness) Other piling	23 lb/ft (34 kg/m) 32 lb/ft (48 kg/m) 37 lb/ft (55 kg/m) See plans
Structural Steel	See plans for weights (masses)
Reinforcing Steel	See plans for weights (masses)
Dowel Bars and Tie Bars	6 lb (3 kg) each
Mesh Reinforcement	63 lb/100 sq ft (310 kg/sq m)
Guardrail Steel Plate Beam Guardrail, Type A w/steel posts Steel Plate Beam Guardrail, Type B w/steel posts Steel Plate Beam Guardrail, Types A and B w/wood posts Steel Plate Beam Guardrail, Type 2 Steel Plate Beam Guardrail, Type 6 Traffic Barrier Terminal, Type 1 Special (Tangent) Traffic Barrier Terminal, Type 1 Special (Flared)	20 lb/ft (30 kg/m) 30 lb/ft (45 kg/m) 8 lb/ft (12 kg/m) 305 lb (140 kg) each 1260 lb (570 kg) each 730 lb (330 kg) each 410 lb (185 kg) each
Steel Traffic Signal and Light Poles, Towers and Mast Arms Traffic Signal Post Light Pole, Tenon Mount and Twin Mount, 30 - 40 ft (9 – 12 m) Light Pole, Tenon Mount and Twin Mount, 45 - 55 ft (13.5 – 16.5 m) Light Pole w/Mast Arm, 30 - 50 ft (9 – 15.2 m) Light Pole w/Mast Arm, 55 - 60 ft (16.5 – 18 m) Light Tower w/Luminaire Mount, 80 - 110 ft (24 – 33.5 m) Light Tower w/Luminaire Mount, 120 - 140 ft (36.5 – 42.5 m) Light Tower w/Luminaire Mount, 150 - 160 ft (45.5 – 48.5 m)	11 lb/ft (16 kg/m) 14 lb/ft (21 kg/m) 21 lb/ft (31 kg/m) 13 lb/ft (19 kg/m) 19 lb/ft (28 kg/m) 31 lb/ft (46 kg/m) 65 lb/ft (97 kg/m) 80 lb/ft (119 kg/m)
Metal Railings (excluding wire fence) Steel Railing, Type SM Steel Railing, Type S-1 Steel Railing, Type T-1 Steel Bridge Rail	64 lb/ft (95 kg/m) 39 lb/ft (58 kg/m) 53 lb/ft (79 kg/m) 52 lb/ft (77 kg/m)
Frames and Grates Frame Lids and Grates	250 lb (115 kg) 150 lb (70 kg)

SUBCONTRACTOR AND DBE PAYMENT REPORTING (BDE)

Effective: April 2, 2018

Add the following to Section 109 of the Standard Specifications.

“109.14 Subcontractor and Disadvantaged Business Enterprise Payment Reporting.
The Contractor shall report all payments made to the following parties:

- (a) first tier subcontractors;
- (b) lower tier subcontractors affecting disadvantaged business enterprise (DBE) goal credit;
- (c) material suppliers or trucking firms that are part of the Contractor’s submitted DBE utilization plan.

The report shall be made through the Department’s on-line subcontractor payment reporting system within 21 days of making the payment.”

SUBCONTRACTOR MOBILIZATION PAYMENTS (BDE)

Effective: November 2, 2017

Replace the second paragraph of Article 109.12 of the Standard Specifications with the following:

“This mobilization payment shall be made at least 14 days prior to the subcontractor starting work. The amount paid shall be at the following percentage of the amount of the subcontract reported on form BC 260A submitted for the approval of the subcontractor’s work.

Value of Subcontract Reported on Form BC 260A	Mobilization Percentage
Less than \$10,000	25%
\$10,000 to less than \$20,000	20%
\$20,000 to less than \$40,000	18%
\$40,000 to less than \$60,000	16%
\$60,000 to less than \$80,000	14%
\$80,000 to less than \$100,000	12%
\$100,000 to less than \$250,000	10%
\$250,000 to less than \$500,000	9%
\$500,000 to \$750,000	8%
Over \$750,000	7%”

TEMPORARY PAVEMENT MARKING (BDE)

Effective: April 1, 2012

Revised: April 1, 2017

Revise Article 703.02 of the Standard Specifications to read:

“**703.02 Materials.** Materials shall be according to the following.

- (a) Pavement Marking Tape, Type I and Type III 1095.06
- (b) Paint Pavement Markings 1095.02
- (c) Pavement Marking Tape, Type IV 1095.11”

Revise the second paragraph of Article 703.05 of the Standard Specifications to read:

“Type I marking tape or paint shall be used at the option of the Contractor, except paint shall not be applied to the final wearing surface unless authorized by the Engineer for late season applications where tape adhesion would be a problem. Type III or Type IV marking tape shall be used on the final wearing surface when the temporary pavement marking will conflict with the permanent pavement marking such as on tapers, crossovers and lane shifts.”

Revise Article 703.07 of the Standard Specifications to read:

“703.07 Basis of Payment. This work will be paid for as follows.

- a) Short Term Pavement Marking. Short term pavement marking will be paid for at the contract unit price per foot (meter) for SHORT TERM PAVEMENT MARKING. Removal of short term pavement markings will be paid for at the contract unit price per square foot (square meter) for SHORT TERM PAVEMENT MARKING REMOVAL.
- b) Temporary Pavement Marking. Where the Contractor has the option of material type, temporary pavement marking will be paid for at the contract unit price per foot (meter) for TEMPORARY PAVEMENT MARKING of the line width specified, and at the contract unit price per square foot (square meter) for TEMPORARY PAVEMENT MARKING LETTERS AND SYMBOLS.

Where the Department specifies the use of pavement marking tape, the Type III or Type IV temporary pavement marking will be paid for at the contract unit price per foot (meter) for PAVEMENT MARKING TAPE, TYPE III or PAVEMENT MARKING TAPE, TYPE IV of the line width specified and at the contract unit price per square feet (square meter) for PAVEMENT MARKING TAPE, TYPE III - LETTERS AND SYMBOLS or PAVEMENT MARKING TAPE, TYPE IV – LETTERS AND SYMBOLS.

Removal of temporary pavement markings will be paid for at the contract unit price per square foot (square meter) for TEMPORARY PAVEMENT MARKING REMOVAL.

When temporary pavement marking is shown on the Standard, the cost of the temporary pavement marking and its removal will be included in the cost of the Standard.”

Add the following to Section 1095 of the Standard Specifications:

“1095.11 Pavement Marking Tape, Type IV. The temporary, preformed, patterned markings shall consist of a white or yellow tape with wet retroreflective media incorporated to provide immediate and continuing retroreflection during both wet and dry conditions. The tape shall be manufactured without the use of heavy metals including lead chromate pigments or other similar, lead-containing chemicals.

The white and yellow Type IV marking tape shall meet the Type III requirements of Article 1095.06 and the following.

- (a) Composition. The retroreflective pliant polymer pavement markings shall consist of a mixture of high-quality polymeric materials, pigments and glass beads distributed throughout its base cross-sectional area, with a layer of wet retroreflective media bonded to a durable polyurethane topcoat surface. The patterned surface shall have approximately 40% ± 10% of the surface area raised and presenting a near vertical face to traffic from any direction. The channels between the raised areas shall be substantially free of exposed beads or particles.

(b) Retroreflectance. The white and yellow markings shall meet the following for initial dry and wet retroreflectance.

- (1) Dry Retroreflectance. Dry retroreflectance shall be measured under dry conditions according to ASTM D 4061 and meet the values described in Article 1095.06 for Type III tape.
- (2) Wet Retroreflectance. Wet retroreflectance shall be measured under wet conditions according to ASTM E 2177 and meet the values shown in the following table.

Wet Retroreflectance, Initial R_L

Color	R _L 1.05/88.76
White	300
Yellow	200

(c) Color. The material shall meet the following requirements for daylight reflectance and color, when tested, using a color spectrophotometer with 45 degrees circumferential/zero degree geometry, illuminant D65, and a two degree observer angle. The color instrument shall measure the visible spectrum from 380 to 720 nm with a wavelength measurement interval and spectral bandpass of 10 nm.

Color	Daylight Reflectance %Y
White	65 minimum
*Yellow	36-59

*Shall match Federal 595 Color No. 33538 and the chromaticity limits as follows.

x	0.490	0.475	0.485	0.530
y	0.470	0.438	0.425	0.456

(d) Skid Resistance. The surface of the markings shall provide an average minimum skid resistance of 50 BPN when tested according to ASTM E 303.

(e) Sampling, Testing, Acceptance, and Certification. Prior to approval and use of the wet reflective, temporary, removable pavement marking tape, the manufacturer shall submit a notarized certification from an independent laboratory, together with the results of all tests, stating that the material meets the requirements as set forth herein. The certification test report shall state the lot tested, manufacturer's name, and date of manufacture.

After approval by the Department, samples and certification by the manufacturer shall be submitted for each batch used. The manufacturer shall submit a certification stating that the material meets the requirements as set forth herein and is essentially identical to the material sent for qualification. The certification shall state the lot tested, manufacturer's name, and date of manufacture.

All costs of testing (other than tests conducted by the Department) shall be borne by the manufacturer."

WARM MIX ASPHALT (BDE)

Effective: January 1, 2012

Revised: April 1, 2016

Description. This work shall consist of designing, producing and constructing Warm Mix Asphalt (WMA) in lieu of Hot Mix Asphalt (HMA) at the Contractor's option. Work shall be according to Sections 406, 407, 408, 1030, and 1102 of the Standard Specifications, except as modified herein. In addition, any references to HMA in the Standard Specifications, or the special provisions shall be construed to include WMA.

WMA is an asphalt mixture which can be produced at temperatures lower than allowed for HMA utilizing approved WMA technologies. WMA technologies are defined as the use of additives or processes which allow a reduction in the temperatures at which HMA mixes are produced and placed. WMA is produced by the use of additives, a water foaming process, or combination of both. Additives include minerals, chemicals or organics incorporated into the asphalt binder stream in a dedicated delivery system. The process of foaming injects water into the asphalt binder stream, just prior to incorporation of the asphalt binder with the aggregate.

Approved WMA technologies may also be used in HMA provided all the requirements specified herein, with the exception of temperature, are met. However, asphalt mixtures produced at temperatures in excess of 275 °F (135 °C) will not be considered WMA when determining the grade reduction of the virgin asphalt binder grade.

Equipment.

Revise the first paragraph of Article 1102.01 of the Standard Specifications to read:

“1102.01 Hot-Mix Asphalt Plant. The hot-mix asphalt (HMA) plant shall be the batch-type, continuous-type, or dryer drum plant. The plants shall be evaluated for prequalification rating and approval to produce HMA according to the current Bureau of Materials and Physical Research Policy Memorandum, “Approval of Hot-Mix Asphalt Plants and Equipment”. Once approved, the Contractor shall notify the Bureau of Materials and Physical Research to obtain approval of all plant modifications. The plants shall not be used to produce mixtures concurrently for more than one project or for private work unless permission is granted in writing by the Engineer. The plant units shall be so designed, coordinated and operated that they will function properly and produce HMA having uniform temperatures and compositions within the tolerances specified. The plant units shall meet the following requirements.”

Add the following to Article 1102.01(a) of the Standard Specifications.

“(11) Equipment for Warm Mix Technologies.

- a. Foaming. Metering equipment for foamed asphalt shall have an accuracy of ± 2 percent of the actual water metered. The foaming control system shall be electronically interfaced with the asphalt binder meter.
- b. Additives. Additives shall be introduced into the plant according to the supplier's recommendations and shall be approved by the Engineer. The system for introducing the WMA additive shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes.”

Mix Design Verification.

Add the following to Article 1030.04 of the Standard Specifications.

“(e) Warm Mix Technologies.

- (1) Foaming. WMA mix design verification will not be required when foaming technology is used alone (without WMA additives). However, the foaming technology shall only be used on HMA designs previously approved by the Department.
- (2) Additives. WMA mix designs utilizing additives shall be submitted to the Engineer for mix design verification.”

Construction Requirements.

Revise the second paragraph of Article 406.06(b)(1) of the Standard Specifications to read:

“The HMA shall be delivered at a temperature of 250 to 350 °F (120 to 175 °C). WMA shall be delivered at a minimum temperature of 215 °F (102 °C).”

Basis of Payment.

This work will be paid at the contract unit price bid for the HMA pay items involved. Anti-strip will not be paid for separately, but shall be considered as included in the cost of the work.

WEEKLY DBE TRUCKING REPORTS (BDE)

Effective: June 2, 2012

Revised: April 2, 2015

The Contractor shall submit a weekly report of Disadvantaged Business Enterprise (DBE) trucks hired by the Contractor or subcontractors (i.e. not owned by the Contractor or subcontractors) that are used for DBE goal credit.

The report shall be submitted to the Engineer on Department form "SBE 723" within ten business days following the reporting period. The reporting period shall be Monday through Sunday for each week reportable trucking activities occur.

Any costs associated with providing weekly DBE trucking reports shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

WORKING DAYS (BDE)

Effective: January 1, 2002

The Contractor shall complete the work within **50** working days.

REVISIONS TO THE ILLINOIS PREVAILING WAGE RATES

The Prevailing rates of wages are included in the Contract proposals which are subject to Check Sheet #5 of the Supplemental Specifications and Recurring Special Provisions. The rates have been ascertained and certified by the Illinois Department of Labor for the locality in which the work is to be performed and for each craft or type of work or mechanic needed to execute the work of the Contract. As required by Prevailing Wage Act (820 ILCS 130/0.01, et seq.) and Check Sheet #5 of the Contract, not less than the rates of wages ascertained by the Illinois Department of Labor and as revised during the performance of a Contract shall be paid to all laborers, workers and mechanics performing work under the Contract. Post the scale of wages in a prominent and easily accessible place at the site of work.

If the Illinois Department of Labor revises the prevailing rates of wages to be paid as listed in the specification of rates, the contractor shall post the revised rates of wages and shall pay not less than the revised rates of wages. Current wage rate information shall be obtained by visiting the Illinois Department of Labor web site at <http://www.state.il.us/agency/idol/> or by calling 312-793-2814. It is the responsibility of the contractor to review the rates applicable to the work of the contract at regular intervals in order to insure the timely payment of current rates. Provision of this information to the contractor by means of the Illinois Department of Labor web site satisfies the notification of revisions by the Department to the contractor pursuant to the Act, and the contractor agrees that no additional notice is required. The contractor shall notify each of its subcontractors of the revised rates of wages.