AUGUST 20, 2019
REHABILITATION OF THE APPROACH SPANS FOR ARRIGONI BRIDGE NO. 00524
FEDERAL AID PROJECT NOS. 0066(121) & 0009(117)
STATE PROJECT NOS. 0082-0312 & 0082-0320
TOWNS OF MIDDLETOWN AND PORTLAND

ADDENDUM NO. 1

SPECIAL PROVISIONS

NEW SPECIAL PROVISION

The following Special Provision is hereby added to the Contract:

- ITEM NO.0913605A – CLIMB RESISTANT STEEL MESH FENCE

REVISED SPECIAL PROVISIONS

The following Special Provisions are hereby deleted in their entirety and replaced with the attached like-named Special Provisions:

- SECTION 1.05 – CONTROL OF THE WORK
- SECTION 1.08 – PROSECUTION AND PROGRESS
- ITEM NO.0000099A – REMOVE OBSTRUCTION LIGHT
- ITEM NO. 0601054A – ULTRA HIGH PERFORMANCE CONCRETE
- ITEM NO. 0603729A – LOCALIZED PAINT REMOVAL AND FIELD PAINTING OF EXISTING STEEL
- ITEM NO. 0603801A – STRUCTURAL STEEL
- ITEM NO. 0913969A – PROTECTIVE FENCE
- ITEM NO. 1003906A – REMOVE LIGHT STANDARD
- ITEM NO. 1003925A – REMOVE EXISTING LUMINAIRE
- ITEM NO. 1018101A – REMOVE NAVIGATION LIGHTS

CONTRACT ITEMS

NEW CONTRACT ITEM

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
0913605A	CLIMB RESISTANT STEEL MESH FENCE	SF	63,000 SF

REVISED CONTRACT ITEMS

ITEM NO.	DESCRIPTION	ORIGINAL QUANTITY	REVISED QUANTITY
0603801A	STRUCTURAL STEEL	6,750 CWT	7,650 CWT
0913969A	PROTECTIVE FENCE	7,500 LF	420 LF

PLANS
NEW PLANS
The following Plan Sheets are hereby added to the Contract:

01.04.117-1.A1
01.04.117-2.A1

REVISED PLANS
The following Plan Sheets are hereby deleted and replaced with the like-numbered Plan Sheets:

01.02.01.A1
01.04.003.A1
01.04.008.A1
01.04.009.A1
01.04.010.A1
01.04.011.A1
01.04.077.A1
01.04.096.A1
01.04.110.A1
01.04.113.A1
01.04.114.A1
01.04.115.A1
01.04.116.A1
01.04.117.A1

The Bid Proposal Form has been revised to reflect these changes.

The Detailed Estimate Sheets do not reflect these changes.

There will be no change in the number of calendar days due to this Addendum.

The foregoing is hereby made a part of the contract.

ITEM #0913605A – CLIMB RESISTANT STEEL MESH FENCE

Description:

Work under this item shall consist of the design, fabrication and installation of climb resistant steel cable mesh system, complete, as shown on the plans and as directed by the Engineer.

All cable, mesh, ferrules, turnbuckles, eyelets, bracing and other pertinent fittings and components of the climb resistant cable mesh system with the exception of rail posts and other structural steel components such as permanent bracing elements shall be furnished by one manufacturer.

Work under this item will require coordination with other scheduled work on this project.

Materials:

Structural steel shall conform to the requirements of Article 6.03.02 of the Standard Specifications.

Cable mesh shall consist of ASTM A 492 Type 316 stainless steel 7 X 7, minimum, wire rope with 316 stainless steel ferrules.

Cable mesh perimeter finish shall consist of closed loops with loose ferrules for "sewn-on" installation method.

Cable diameter and mesh aperture dimensions shall be as shown on the plans.

Cable mesh direction (grain) shall be as shown on the plans.

Border cable shall be 8mm diameter or larger ASTM A 492 Type 316 stainless steel 7 X 7, minimum wire rope.

Grommet, bushings, washers, swaging ferrules, studs, receivers, fittings and other components as required for installation of the climb resistant steel cable mesh fence system shall be provided by the manufacturer.

All material used for the climb resistant steel mesh fence system in this project shall be diamond shaped X-TEND Type CXE manufactured by Carl Stahl DecorCable Innovations, Inc., 8080 South Madison Street, Burr Ridge, Ill 60527. Tel. (312) 474-1100

The cable mesh shall receive a black oxide finish.

Construction Methods:

The climb resistant steel cable mesh system and components complete in place shall be capable of withstanding the effects of gravity loads and the following live load**:**

1. Concentrated load of 200 lbs applied horizontally on an area of one square foot anywhere on the vertical plane of the protective fencing.

Components and hardware of the climb resistant steel cable mesh system shall be designed to withstand loads encountered without excessive deflection or distortion when cables are initially tensioned to required amounts.

Plans: Deign calculations and detailed fabrication working drawings for the climb resistant steel cable mesh system shall be sealed by a Professional Engineer, licensed in the State of Connecticut and submitted to the Engineer for review, in accordance with the requirements of Article 1.05.02. The drawings shall include, but not be limited to, the following:

1. Plan view, elevations and detail section elevations
2. All ASTM and other material designations, finishes and all accessory items.
3. Actual field measurements recorded and shown on working drawings.
4. Manufacturers printed installation instructions.

The design calculations shall be complete; verifying conformance of the climb resistant steel cable mesh system to provisions of this specification.

Provide two samples representing actual products and finishes as follows:

1. Wire rope with ferrules, minimum size 24 inches long.
2. Typical fittings.

Storage and Handling: Anti-climbing cable mesh manufacturers components shall be delivered to the site and stored in unopened packaging and under clean and dry storage conditions until ready for installation.

Exercise extreme care not to scratch, mark, dent or bend metal components during delivery, storage and installation.

The Contractor shall repair any damage to the climb resistant steel cable mesh finishes following installation at no cost to the State as directed by the Engineer.

Method of Measurement:

This work shall be measured for payment by the actual number of square feet of "Climb Resistant Steel Mesh Fence" fabricated, installed and accepted. Required bracing members shall not be measured for payment. The Climb Resistant Steel Mesh Fence system shall be measured once at the time of installation. No additional payment will be made for the reinstallation, repair

or replacement of the Climb Resistant Steel Mesh Fence system. Measurement shall be made along the centerline of the Climb Resistant Steel Mesh Fence system.

Basis of Payment:

Payment for this work will be made at the contract unit price per square foot for "Climb Resistant Steel Mesh Fence" complete in place, which price shall include all materials, equipment, tools, and labor incidental to the installation.

Steel fence posts will be paid for under the item “Structural Steel”.

Pay Item	Pay Unit
Climb Resistant Steel Mesh Fence	s.f.

SECTION 1.05 – CONTROL OF THE WORK

Replace Article 1.05.02 *with the following:*

1.05.02—Contractor Submittals, Working Drawings, Shop Drawings, Product Data, Submittal Preparation and Processing - Review Timeframes, Department's Action:

1. Contractor Submittals: The plans provided by the Department show the details necessary to give a comprehensive idea of the construction contemplated under the Contract. The plans will generally show the location, character, dimensions, and details necessary to complete the Project. If the plans do not show complete details, they will show the necessary dimensions and details, which when used along with the other Contract documents, will enable the Contractor to prepare working drawings, shop drawings or product data necessary to complete the Project.

The Contractor shall prepare submittals as Portable Document Format (PDF) files. The Contractor is also required to acquire, maintain access and use the Department's document management system for delivery of submittals. The format, digital signing requirements, delivery processes and document tracking procedures shall be performed in accordance with this specification and the Contractor's Digital Submission Manual (CDSM).

The submittals shall be sent to the Department's reviewer(s), sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods as specified herein (including any necessary revisions, resubmittal, and final review), and acquisition of materials, without causing a delay of the Project.

Working drawings for permanent construction, shop drawings and product data shall be submitted to the lead designer on record for that discipline. Each submittal shall be sent directly to the design contact (listed below) for the subject item. Refer to the detail estimate sheet to identify the appropriate discipline for each item.

Discipline	Submitted to:	Distribution List (CC)	
Highway (Lead Designer)	Mr. Stephen D. Hall P.E. Transportation Engineer Connecticut Department of Transportation Bureau of Engineering and Construction 2800 Berlin Turnpike P.O. Box 317546 Newington, Connecticut 06131-7546 Stephen.Hall@ct.gov	Joseph Jazwicz District Construction Project Engineer (CE) Inspector (CE)	Joseph.Jazwicz@ct.gov DOT.ConstrD1@ct.gov

Landscape	Mr. Matthew F. Verry Transportation Landscape Designer Connecticut Department of Transportation Bureau of Engineering and Construction 2800 Berlin Turnpike P.O. Box 317546 Newington, Connecticut 06131-7546 Matthew.Verry@ct.gov	Stephen Hall Joseph Jazwicz District Construction Project Engineer (CE) Inspector (CE)	Stephen.Hall@ct.gov Joseph.Jazwicz@ct.gov DOT.ConstrD1@ct.gov
Traffic	Mr. Brett M. Stoeffler Transportation Engineer Connecticut Department of Transportation Bureau of Engineering and Construction 2800 Berlin Turnpike P.O. Box 317546 Newington, Connecticut 06131-7546 Brett.Stoeffler@ct.gov	Kevin McKernan Stephen Hall Joseph Jazwicz District Construction Project Engineer (CE) Inspector (CE)	Kevin.McKernan@ct.gov Stephen.Hall@ct.gov Joseph.Jazwicz@ct.gov DOT.ConstrD1@ct.gov
Traffic Electrical	Mr. Jesus M. Rodriguez Transportation Engineer Connecticut Department of Transportation Bureau of Engineering and Construction 2800 Berlin Turnpike P.O. Box 317546 Newington, Connecticut 06131-7546 Jesus.Rodriguez@ct.gov	Stephen Hall Joseph Jazwicz District Construction Project Engineer (CE) Inspector (CE) Traffic Electrical	Stephen.Hall@ct.gov Joseph.Jazwicz@ct.gov DOT.ConstrD1@ct.gov DOT.TrafficElectrical@ct.gov

Discipline	Submitted to:	Distribution List (CC)	
Structures	Mr. Sowatei K. Lomotey, S.E., P.E. Transportation Supervising Engineer, Connecticut Department of Transportation Bureau of Engineering and Construction 2800 Berlin Turnpike P.O. Box 317546 Newington, Connecticut 06131-7546 Sowatei.Lomotey@ct.gov	Michael Lajoie Stephen Hall Barak Brako Frempong District Construction Project Engineer (CE) Inspector (CE)	Micheal.JP.Lajoie@ct.gov Stephen.Hall@ct.gov Barak.Brako.Frempong@ct.gov DOT.ConstrD1@ct.gov
Illumination	Mr. Jon Andrews Transportation Engineer Connecticut Department of Transportation Bureau of Engineering and Construction 2800 Berlin Turnpike P.O. Box 317546 Newington, Connecticut 06131-7546 Jon.Andrews@ct.gov	Mark Bear Stephen Hall Joseph Jazwicz District Construction Project Engineer (CE) Inspector (CE)	Mark.Bear@ct.gov Stephen.Hall@ct.gov Joseph.Jazwicz@ct.gov DOT.ConstrD1@ct.gov

2. Working Drawings: When required by the Contract or when ordered to do so by the Engineer, the Contractor shall prepare and submit the working drawings, signed, sealed and dated by a qualified Professional Engineer licensed to practice in the State of Connecticut, for review. The drawings shall be delivered sufficiently in advance of the work detailed, to allow for their review in accordance with the review periods specified herein (including any necessary revisions, resubmittal, and final review).

There will be no direct payment for furnishing any working drawings, procedures or supporting calculations, but the cost thereof shall be considered as included in the general cost of the work.

a. Working Drawings for Permanent Construction: The Contractor shall supply to the Assistant District Engineer a certificate of insurance in accordance with 1.03.07 at the time that the working drawings for the Project are submitted.

The Contractor's designer, who prepares the working drawings, shall secure and maintain at no direct cost to the State a Professional Liability Insurance Policy for errors and omissions in the minimum amount of $2,000,000 per error or omission. The Contractor's designer may elect to obtain a policy containing a maximum $250,000 deductible clause, but if the Contractor's designer should obtain a policy containing such a clause, they shall be liable to the extent of at least the deductible amount. The Contractor's designer shall obtain the appropriate and proper

endorsement of its Professional Liability Policy to cover the indemnification clause in this Contract, as the same relates to negligent acts, errors or omissions in the Project work performed by them. The Contractor's designer shall continue this liability insurance coverage for a period of

(i) 3 years from the date of acceptance of the work by the Engineer, as evidenced by a State of Connecticut, Department of Transportation form entitled "Certificate of Acceptance of Work," issued to the Contractor; or

(ii) 3 years after the termination of the Contract, whichever is earlier, subject to the continued commercial availability of such insurance.

b. Working Drawings for Temporary Construction: The Contractor shall submit drawings, calculations, procedures and other supporting data to the Assistant District Engineer.

3. Shop Drawings: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver shop drawings to the Designer for review. Review timeframes and submission locations are as specified herein.

There will be no direct payment for furnishing any shop drawings, but the cost thereof shall be considered as included in the general cost of the work.

4. Product Data: When required by the Contract, or when ordered to do so by the Engineer, the Contractor shall prepare and deliver product data.

The Contractor shall submit the product data in a single submittal for each element or group of elements of construction.

The Contractor shall mark each copy of the product data submittal to show applicable choices and options. Where product data includes information on several products that are not required, copies shall be marked to indicate the applicable information. Product data shall include the following information and confirmation of conformance with the Contract to the extent applicable: manufacturer's printed recommendations, compliance with recognized trade association standards, compliance with recognized testing agency standards, application of testing agency labels and seals, notation of coordination requirements, Contract item number, and any other information required by the individual Contract provisions.

There will be no direct payment for furnishing any product data, but the cost thereof shall be considered as included in the general cost of the work.

5. Submittal Preparation and Processing – Review Timeframes: The Contractor shall allow 30 calendar days for submittal review by the Department, from the date receipt is acknowledged by the Department's reviewer. For any submittals marked with "Revise and Resubmit" or "Rejected," the Department is allowed an additional 20 calendar days for review of any resubmissions.

An extension of Contract time will not be authorized due to the Contractor's failure to transmit

submittals sufficiently in advance of the work to permit processing.

The furnishing of shop drawings, working drawings or product data, or any comments or suggestions by the Designer or Engineer concerning shop drawings, working drawings or product data, shall not relieve the Contractor of any of its responsibility for claims by the State or by third parties, as per 1.07.10.

The furnishing of the shop drawings, working drawings and product data shall not serve to relieve the Contractor of any part of its responsibility for the safety or the successful completion of the Project construction.

6. Department's Action: The Designer or Engineer will review each submittal, mark each with a self-explanatory action stamp, and return the stamped submittal promptly to the Contractor. The Contractor shall not proceed with the part of the Project covered by the submittal until the submittal is marked "No Exceptions Noted" or "Exceptions as Noted" by the Designer or Engineer. The Contractor shall retain sole responsibility for compliance with all Contract requirements. The stamp will be marked as follows to indicate the action taken:

a. If submittals are marked "No Exceptions Noted," the Designer or Engineer has not observed any statement or feature that appears to deviate from the Contract requirements. This disposition is contingent on being able to execute any manufacturer's written warranty in compliance with the Contract provisions.
b. If submittals are marked "Exceptions as Noted" the considerations or changes noted by the Department's Action are necessary for the submittal to comply with Contract requirements. The Contractor shall review the required changes and inform the Designer or Engineer if they feel the changes violate a provision of the Contract or would lessen the warranty coverage.
c. If submittals are marked "Revise and Resubmit," the Contractor shall revise the submittals to address the deficiencies or provide additional information as noted by the Designer or Engineer. The Contractor shall allow an additional review period as specified in 1.05.02-5.
d. If submittals are marked "Rejected," the Contractor shall prepare and submit a new submittal in accordance with the Designer's or Engineer's notations. The resubmissions require an additional review and determination by the Designer or Engineer. The Contractor shall allow an additional review period as specified in 1.05.02-5.

7. Painting Methods and Ornamental Features – Middletown: All painting methods and ornamental features of traffic signal equipment must be submitted to the following representative for the City of Middletown for approval.

Tom Nigosanti
Middletown Public Works – Engineering Division
245 deKovan Drive
Middltown, Connecticut 06457
(860) 638-4850
Tom.Nigosanti@MiddletownCT.Gov

Once all submittals have been approved and stamped by the City, the contractor shall upload a copy of the approved documents to the Department's document management system.

Article 1.05.08 – Schedules and Reports of the Standard Specifications is supplemented as follows:

Add the following after the last paragraph:

Project No. 82-312

PHASE	DEADLINE
Stage 1 Deck and Sidewalk Replacement	210 days from NTP
Stage 2 Deck Replacement	180 days from Stage 1 Milestone Stage
3 Deck and Sidewalk Replacement	180 days from Stage 2 Milestone

Project No. 82-320

Once any recommended sequence of work on Project 82-320 begins, all construction work for Project 82-320 must be substantially completed within 365 calendar days from that date, otherwise, liquidated damages as specified in the Contract shall be assessed against the Contractor per calendar day from that day until the date on which the project is substantially completed.

SECTION 1.08 – PROSECUTION AND PROGRESS

Article 1.08.03 - Prosecution of Work:

Add the following:

The Contractor shall stake the limits of the concrete sidewalks and ramps in conjunction with staking the locations of foundations to ensure that pedestrian push buttons will be located appropriately and will be accessible from a landing area.

The Contractor will not be allowed to install traffic signal or pedestrian heads until the controllers are on hand and ready for installation. Once installation of this equipment commences, the Contractor shall complete this work in a timely manner.

The Contractor shall notify the Engineer on construction projects, or the District Permit Agent on permit jobs, when all traffic signal work is completed. This shall include all work at signalized intersections including loop replacements, adjusting existing traffic signals or any relocation work including handholes. The Engineer or District Permit Agent will notify the Division of Traffic Engineering and City of Middletown to coordinate a field inspection of all work. Refer to Section 10.00 – General Clauses For Highway Illumination And Traffic Signal Projects, Article 10.00.10 and corresponding special provision.

Article 1.08.04 - Limitation of Operations

Add the following:

In order to provide for traffic operations as outlined in the Special Provision "Maintenance and Protection of Traffic," the Contractor **will not be permitted** to perform any work that will interfere with the described traffic operations on all project roadways as follows:

Route 66 (Main Street)

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 2:00 p.m. and 6:00 p.m.
Saturday and Sunday between 9:00 a.m. and 9:00 p.m.

Route 66 (Washington Street)

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 9:00 a.m. and 9:00 p.m.

Route 17 (Hartford Avenue)

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 9:00 a.m. and 9:00 p.m.

Route 17 & Route 66

Monday through Friday between 6:00 a.m. and 8:00 p.m.
Saturday and Sunday between 9:00 a.m. and 9:00 p.m.

Main Street (South of the intersection with Washington Street)

No Daily Restrictions.

SR 545 (Washington Street)

Monday through Friday between 6:00 a.m. and 9:00 a.m. & between 3:00 p.m. and 6:00 p.m.
Saturday and Sunday between 9:00 a.m. and 9:00 p.m.

All Other Roadways

No Daily Restrictions.

Night Work Restrictions (82-320)

The hours between 9:00 p.m. and 6:00 a.m. are considered "Night Work" for all roadways.

Night work will not be permitted on all roadways north of Washington Street. Excepted therefrom will be paving and milling operations, replacement of the bridge membrane, and bridge patching work on Bridge No. 05630 as approved by the Engineer, during which the Contractor will be allowed to work during this time. The Contractor shall notify the Engineer 14 days in advance of the anticipated start of night work.

Traffic Signals

Loop detectors disturbed by the Contractor's operation shall be made operational or temporary detection must be provided within 24 hours of the termination of the existing loop detectors.

STAGE CONSTRUCTION

Stage Construction Project No. 82-320 (Saint John's Square and Main Street Intersection Improvements)

The Contractor is required to follow the sequence of construction as shown in the Highway Design plans (SEQ-01 thru SEQ-11). The Contractor **will not be allowed** to perform any work on any subsequent sequence plan without first completing work on all prior sequence plan(s) or without approval from the Engineer to revise the sequence of construction.

Stage Construction Project No. 82-312 Arrigoni Bridge (Bridge No. 00524, Route 66 and Route 17 over Connecticut River)

During stage construction, the number of lanes and lane widths shall be as shown on the Maintenance and Protection of Traffic Plans and Cross-Sections contained in the plans.

LANE CLOSURE RESTRICTIONS

It is anticipated that work on adjacent projects may be ongoing simultaneously with this Project. The Contractor shall be aware of those projects so that coordination is maintained for proper traffic flow at all times on all Project roadways and that this coordination is acceptable to the Engineer.

OTHER LIMITATIONS

The field installation of a signing pattern shall constitute interference with existing traffic operations and shall not be allowed except during the allowable periods.

No roadway, with the exception of transition areas, shall be open to traffic unless the appropriate pavement markings have been installed. The transition areas shall have pavement markings applied immediately upon opening to traffic.

Longitudinal dropdowns greater than 2 inches will not be allowed during those periods when the maximum number of lanes of through traffic is required. The Contractor shall temporarily provide a 1:4 traversable slope of suitable material in those areas where a longitudinal dropdown exists. The cost of furnishing, installing and removing this material shall be included in the contract lump sum for "Maintenance and Protection of Traffic."

The Contractor shall schedule operations so that pavement removal and roadway resurfacing shall be completed full width across a roadway (bridge) section by the end of a work shift. All transverse height differentials on all roadway surfaces shall be tapered to negate any "bump" to traffic as specified elsewhere in this Contract or as approved by the Engineer. Material for this taper shall be as approved by the Engineer.

The Contractor will not be permitted to laterally cross any expressway with construction vehicles. Construction vehicles shall merge with the mainline traffic flow and use existing interchanges.

All temporary concrete barriers, other protective systems and traffic control devices as called for in the Contract or ordered by the Engineer must be on hand and available in sufficient quantity for immediate installation prior to any stage change.

Article 1.08.07 - Determination of Contract Time:

Delete the second, third and fourth paragraphs and replace them with the following:

When the Contract time is on a calendar day basis, it shall be the number of consecutive calendar days stated in the Contract, INCLUDING the time period from December 1 through March 31 of each year. The Contract time will begin on the effective date of the Engineer's order to commence work, and it will be computed on a consecutive day basis, including all Saturdays, Sundays, Holidays, and non-work days.

The Contractor shall note that the deadline dates listed below have been developed due to the serious condition of the existing bridge deck and sidewalks, and the effect that prolonged stage construction has on the travelling public, emergency services, and adjacent residents and businesses. These deadline dates shall be identified as critical milestones on the Contractor's submitted calendar day chart. The Contractor shall schedule all Contract work to allow completion of the Project as a whole within the total Contract time, and shall complete the phases noted below by the deadline dates.

Project No. 82-312

PHASE	DEADLINE
Stage 1 Deck and Sidewalk Replacement	210 days from NTP
Stage 2 Deck Replacement	180 days from Stage 1 Milestone
Stage 3 Deck and Sidewalk Replacement	180 days from Stage 2 Milestone

Project No. 82-320

Once any recommended sequence of work on Project 82-320 begins, all construction work for Project 82-320 must be substantially completed within 365 calendar days from that date, otherwise, liquidated damages as specified in the Contract shall be assessed against the Contractor per calendar day from that day until the date on which the Project is substantially completed.

Extensions to the deadline dates are governed by Section 1.08.08 and shall only be granted to the extent that the Engineer deems to be fair and reasonable.

1.08.08 - Extension of Time:

Delete the last paragraph, "If an approved extension of time…. the following April 1."

Article 1.08.09 - Failure to Complete Work on Time:

Delete the second paragraph, "If the last day...the Project is substantially completed" *and replace it with:*
"Liquidated damages as specified in the Contract shall be assessed against the Contractor per calendar day from that day until the date on which the Project is substantially completed.".

ITEM #0000099A – REMOVE OBSTRUCTION LIGHT

DESCRIPTION: Under this item the Contractor shall remove a complete aviation obstruction lighting system consisting of aviation obstruction lights, brackets, surface conduit and junction boxes, mountings, and cables, where shown on the plans or as directed by the Engineer. The removed aviation obstruction lighting equipment shall be properly disposed of by the Contractor.

CONSTRUCTION METHODS: The Contractor shall remove a complete aviation obstruction lighting system consisting of aviation obstruction lights, brackets, surface conduit and junction boxes, mountings, and cables, where, shown on the plans or as directed by the Engineer. The removed aviation obstruction lighting equipment shall remain the property of the Contractor. The limits of surface conduit and junction box removal shall be from the aviation light down to just below the bridge sidewalk level. All conduit and junction boxes associated with this system located below the bridge sidewalk and extending to the lighting control cabinet shall be removed under Item No. 1008901A – Remove Conduit.

The removal of the existing aviation obstruction lighting equipment shall be coordinated with the installation of the new aviation obstruction lighting equipment (paid for under separate bid items) so that proper nighttime aviation obstruction lighting of the bridge is maintained at all times. The removal of aviation obstruction lights shall be carried out on a "one for one" basis during daylight hours with the new aviation obstruction light installed and powered immediately upon the removal of the existing light. The removal of an existing aviation obstruction light shall be postponed if the light is found to be operating during daylight hours due to the presence of fog. Nighttime aviation obstruction lighting of the bridge shall be maintained throughout all stages of construction.

All removed materials shall be properly disposed of by the Contractor. The removed aviation obstruction light contains regulated materials. All regulated materials shall be as described and disposed of under Item No. 0101143A – Handling and Disposal of Regulated Items.

METHOD OF MEASUREMENT: This work will be measured for payment as an each item for the removal of the complete existing aviation light system as described.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for "Remove Obstruction Light", which price shall include the removal of aviation obstruction lights, brackets, mounting hardware, surface conduit, junction boxes, cables, disconnection, disposal, hauling, and all work, labor and materials incidental thereto.

Pay Item	Pay Unit
Remove Obstruction Light	ea.

ITEM #0601054A – ULTRA HIGH PERFORMANCE CONCRETE

Description: Work under this item shall consist of all materials, tools, equipment and labor necessary for the performance of all work to transport, mix, form, place, cure, grind and test Ultra-High Performance Concrete (UHPC) where required per plans.

Materials: The materials for this work shall be as follows:
Ultra High Performance Concrete (UHPC): The UHPC shall be mixed on Site from pre-packaged components, pre-proportioned by the UHPC Supplier.

Components: The following materials shall be as recommended by the UHPC Supplier:
(a) Fine Aggregate
(b) Cementitious Material and any replacement materials, such as silica fume
(c) Steel Fibers (must be in accordance with Article 1.06.01 – Buy America)
(d) Liquid Admixtures (such as super plasticizers or accelerators)

Water: Water for mixing shall meet the requirements of M.03.01-4 and the temperature at mixing shall be per UHPC Supplier recommendations for use in the UHPC mix.

Mix Design: The Contractor shall submit a mix design that meets the following criteria:

Table 1: UHPC Material Properties (after 28 days or as noted)

Description	Test Method	Acceptance Criteria
Compressive Strength	ASTM C39 (as modified by ASTM C1856)	≥ 14 ksi at 4 days ≥ 20 ksi at 28 days
Shrinkage	ASTM C157 (initial reading after set)	≤ 800 micro-strain
Chloride Ion Penetrability	ASTM C1202	≤ 250 coulombs
Freeze-Thaw Resistance	ASTM C666 Procedure A (300 cycles)	Relative Dynamic Modulus of Elasticity, RDM > 95%
Flow	ASTM C1437 (as modified by ASTM C1856)	7 to 10 inches

Packaging: The fine aggregate and cementitious material must be premixed and proportioned in bags or supersacks, in accordance with the approved mix design, and shall be identified by batch or lot number.

Construction Methods:

1. **Contractor Submittals:**
   (a) Mix Design, including proportions of each component, water-to-cementitious materials ratio, mixing time, set time, compressive strength properties of the mix at ages of 2, 4, 7, 14, and 28 days, and Certified Test Reports addressing the material properties in Table 1, shall be submitted to the Engineer for approval at least 90 days in advance of the first UHPC placement.
   (b) UHPC Supplier and Technical Representatives: The Contractor shall obtain the

services of a Supplier experienced in designing, mixing, placing, curing and testing of UHPC. Technical representatives shall be certified or recognized by the UHPC Supplier in the mixing, and placing of UHPC in similar installations. The Supplier and Technical Representatives submittal shall be submitted to the Engineer for approval at least 90 days in advance of the first UHPC placement and shall include the following:

i. Name and location of Supplier.
ii. Name of UHPC product and a list of bridge projects it was utilized on. For each bridge listed, provide a location, description, date of completion of work, the project owner's name, and the name, title and current contact information of a project owner representative.
iii. Identification of the potential Technical Representatives (minimum three).
iv. UHPC Supplier documentation that the Technical Representatives are qualified to oversee the UHPC operations.
v. Work experience of the Technical Representatives: For each Technical Representative, submit a list of projects they attended that included UHPC mixing and placing operations. For each project, provide a location, description, date of completion of work, the project owner's name, and contact information of a project owner representative.

(c) Construction Work Plan: The Contractor shall submit a Construction Work Plan to the Engineer for review and comment at least 90 days in advance of the first UHPC placement, which shall include the following elements:

i. Formwork
   1. Proposed formwork materials
   2. Procedure for installing, sealing and maintaining watertight formwork
   3. Procedure and schedule for installing top forms, chimneys and head pails
   4. Planned bulkhead locations
   5. Removal of formwork including tools and access to underside of deck
ii. Surface preparation
   1. Procedure to confirm precast concrete surfaces to be in contact with the UHPC are roughened and have exposed aggregate finish with average amplitude of 1/4 inch (at the precast plant or upon delivery to the Site)
   2. Procedures, including source of water, for ensuring saturated surface dry (SSD) connection interfaces prior to UHPC placement
iii. Mixing
   1. Storage plan for UHPC components
   2. Mixers and mixing setup including the type and number of mixers, mixing location, water source, and contingency plan if a mixer malfunctions
   3. Description of equipment for weighing UHPC components
   4. Procedure for controlling UHPC mix temperatures including methods of storing ice
   5. Sample batch identification sheet to be used during UHPC production
iv. Placement
   1. Placement sequence and schedule including all planned bulkheads
   2. Equipment for transportation and placement of UHPC
   3. Contingency plan if placement operations are interrupted by weather, equipment malfunctions or other issues
v. Protection and Curing
   1. Procedure to protect joints from live loads during curing

2. Cold weather protection plan, if required

vi. Grinding
1. Proposed equipment
2. Method of collecting and disposing of debris

vii. Trial placement plan, outlining procedures to be followed and a dimensioned drawing showing the proposed UHPC placement of a representative joint

(d) Contractor Quality Control:

i. Quality Control Plan, including equipment list, testing setup, sampling methods, frequency and types of tests at least 90 days in advance of the first placement of UHPC.

ii. The proposed format for test reporting (or an example test report) shall be provided for the Engineer's review and comment at least 90 days in advance of the first placement of UHPC.

iii. The name and location of the Contractor's proposed AASHTO accredited testing laboratory shall be provided to the Engineer at least 90 days in advance of the first placement of UHPC. The laboratory must have equipment capable of preparing UHPC specimens for testing in accordance with ASTM C1856.

iv. Reports of test results shall be provided to the Engineer within 7 days of each test.

2. Pre-Placement Meeting: The Contractor shall arrange a pre-placement meeting to be held on Site after the approval of all submittals in advance of the trial placement. The meeting shall be attended by the UHPC Supplier's Technical Representatives, the Contractor's staff, any subcontractors involved in the work operation, and representatives from the Department. The objective of the meeting will be to review the Project plans, Contractor's Construction Work Plan and to review the procedures for mixing, placing, curing and testing of the UHPC, as well as the specifics of the trial placement.

3. Trial Placement: The Contractor shall construct a cast-in-place joint trial placement at the Site (or a location approved by the Engineer), based on Pre-Placement meeting discussions, and as recommended by the UHPC Supplier.

The joint trial placement shall be a representation of the proposed joint and replicate the form pressure created by the plastic UHPC. Following placement and minimum 14 day cure of the UHPC, the Contractor shall cut the hardened trial placement transversely at two locations to allow for visual inspection of the joint interface and material bond. The Contractor shall make the completed joint trial placement cut sections available for review and approval by the Engineer a minimum of 28 days prior to placement of the UHPC.

The Contractor shall perform flow tests during joint trial placement casting to develop guidelines for the duration that the plastic UHPC will remain workable. The guidelines developed shall be used during production placement. The flow tests shall be in accordance with ASTM C1437 (using modifications described in ASTM C1856) and the mix temperature shall be maintained between 50°F and 85°F as determined using ASTM C1064.

The Contractor shall perform the following workability procedure during the casting of joint trial placement:

(a) Take initial samples prior to the start of the discharge of plastic UHPC and perform the flow tests. Record the time of sampling and initial flow value.
(b) Measure the UHPC and ambient temperatures.
(c) Continue sampling at 10-minute intervals and determine the flow of each sample, until flow measure is below 4 inches.
(d) Plot the flow versus time for the duration of the test. From the plot of flow-time curve, determine the flow time at 8 inches, which is considered the mixture cutoff time.

The Contractor shall perform a Time of Setting test of UHPC during joint trial placement in accordance with ASTM C191 (as modified by ASTM C1856).

The Contractor shall cast five sets of 3 cylinders, in accordance with ASTM C1856, during joint trial placement for determination of compressive strength and test them in accordance with ASTM C39 (as modified by ASTM C1856) at 2, 4, 14, and 28 days.

4. Safety: The Contractor shall make UHPC material safety data sheets (MSDS) available and shall provide a safety briefing to all on-site personnel prior to UHPC placement. Proper personal protective equipment shall be used (including but not limited to goggles, dust masks, and respirators) as recommended by the UHPC supplier and as required by the MSDS based on proximity to specific operations.

5. Storage: The Contractor shall assure the proper storage of dry premixed components, steel fibers and admixtures as recommended by the Supplier and the following:
(a) All dry premixed components shall be stored on raised pallets, with vapor barrier between the pallets and the ground surface to prevent moisture ingress, and shall be covered thoroughly.
(b) Steel fibers shall be stored with the same protection as the dry premixed components and rusted fibers shall not be used in mixing.
(c) Liquid admixtures shall be stored in sealed containers above freezing temperatures and shall be protected from direct sunlight.

6. Formwork: Formwork shall be non-absorbing, watertight and of sufficient rigidity and strength to safely support all loads imposed. The Contractor shall form the UHPC locations to be overfilled according to the Plans.

Top forms, chimneys, and head pails shall be used, according to UHPC Supplier recommendations, to achieve the desired profile and confirm that the joint is completely full. Formwork removal shall not begin until the compressive strength has reached 12 ksi.

7. Surface Preparation: The Contractor shall confirm that precast concrete surfaces to be in contact with the UHPC are roughened and have exposed aggregate with an average amplitude of 1/4 inch. The Contractor shall pre-wet the precast concrete surfaces for at least 4 hours prior to placement of UHPC to confirm that a saturated surface dry (SSD) condition has been reached. During the pre-wetting operation, the Contractor shall check the formwork for leaks and shall seal any formwork that is not watertight. Just prior to placement of the UHPC, the Contractor shall air blast the joints to remove dirt, debris and standing water.

8. Technical Representatives: The Contractor shall arrange for two Supplier's Technical Representatives, as approved by the Engineer, to be on Site for the duration of the UHPC

mixing and placement operations. One representative shall remain with the mixing operations and the other representative shall remain with the placement operations. Mixing or placement shall not begin until the Supplier's representative(s) are on-Site and have checked in with the Engineer.

9. Mixing: In accordance with the approved Mix Design, the UHPC components shall be pre-weighed using a calibrated scale prior to the commencement of mixing. The Contractor shall provide a sufficient number of portable mixing units to maintain the necessary output for mixing and placement of the UHPC. At least one spare mixer shall be provided in case of mechanical failure. Mixing equipment that is not provided by the Supplier must be reviewed by the Supplier for adequacy. The Contractor shall maintain the temperature of the UHPC below 85°F during mixing. Ice may be added to the mix as recommended by the Supplier's representative. Should the ambient temperature fall below 50°F, the batching water shall be heated to maintain the mix temperature between 50 and 85°F.

10. Placement: In accordance with the approved placement sequence, start at the low end of the joint to allow fluid mix to fill in up-hill. Confirm that the joint is overfilled according to the plans. Add top forms as flow progresses. If the formwork exhibits evidence of leakage at any location, the Contractor shall take remedial measures necessary to stop further leakage. The UHPC shall not be internally vibrated but where 2 successive batches meet, agitate the point of intersection with a rod. Cold weather placement procedures are required when the ambient temperature falls below 50°F.

11. Curing: Curing and cold weather protection shall be per Supplier recommendations and the following: Cover the UHPC and keep formwork in place until the Contractor's testing confirms that it has achieved a minimum compressive strength of 12 ksi. Prevent construction or traffic live loads from traveling over the UHPC until the Contractor's testing confirms that it has achieved a minimum compressive strength of 14 ksi.

12. Grinding: Immediately after removal of formwork, the UHPC overfill shall be removed using grinding equipment to level the joint material with the precast concrete surface. The grinding equipment shall be equipped with an on-board wet vacuum attachment capable of removing the debris and residue from the grinding process. The Contractor shall be responsible for proper disposal of the debris.

13. Contractor QC requirements:

(a) Batch identification: For each batch of UHPC, record the date, start time and end time, amounts of water and ice, and admixtures used.

(b) Flow tests: The Contractor shall conduct one flow test per batch of UHPC in accordance with ASTM C1437 (as modified by ASTM C1856) to verify workability and time of setting. The flow shall be 7 to 10 inches.

(c) Mix temperature checks: The Contractor shall conduct one temperature check per batch of UHPC in accordance with ASTM C1064. The temperature of the mix at discharge shall be between 50 and 85°F.

(d) Compressive strength cylinder specimens: A minimum of 12 cylinders, 3 inches x 6 inches shall be cast for each day's production. One set (3 cylinders) shall be cast at the beginning and one set at the end of the day's production. Two intermediate sets of cylinders shall be cast from the middle portion of the day's production.

All sets shall be cured initially in the field and shipped to the Contractor's AASHTO accredited testing lab for final curing, preparation of test specimens (note that cylinder ends must be ground flush prior to testing in accordance with ASTM C1856), and testing.

All cylinders shall be cured using the same method of curing used in the field. The temperature during curing shall be controlled to represent field conditions. The compressive strength of three cylinders shall be tested at 2, 4, 14, and 28 days after casting. The compressive strength shall be measured using ASTM C39 (as modified by ASTM C1856). The minimum compressive strength shall be 14 ksi at 4 days and 20 ksi at 28 days. Failure to meet the minimum at any point requires immediate notification to the Engineer and a written corrective action plan to be submitted to the Engineer for approval.

(e) Pull out tests: The Contractor shall cast 6 cylinders 12 inches diameter and 7 1/2 inches deep. Each cylinder shall have one 32-inch-long reinforcing bar cast in the center of the circular face. The axis of the bar shall be perpendicular to the formed surface. Three (3) of the castings shall have #6 bars embedded 6 inches deep, and three (3) of the castings shall have #4 bars embedded 4 inches deep. These cylinders shall be kept wet for four (4) days then delivered to the Contractor's AASHTO accredited testing lab for testing using a continuous rate of loading until failure in accordance with the tensile test requirements of ASTM E488. The test shall be performed as soon as practical after the corresponding compressive strength samples reach 14 ksi. The samples pass if the bars yield without the UHPC failing and without the bars pulling out of the UHPC. Failure to meet these requirements requires immediate notification to the Engineer and a written corrective action plan to be submitted to the Engineer for approval.

(f) As-built records: The Contractor shall track and show the placement locations of UHPC production by day. A PDF copy of the records shall be submitted to the Engineer on a weekly basis.

Results of all the laboratory tests, conducted by the Contractor's AASHTO accredited testing lab, shall be submitted to the Engineer for review. Testing frequency shall be as needed to maintain control of the operation.

Method of Measurement: The volume of UHPC will be calculated in cubic yards based on the nominal dimensions shown on the plans except the UHPC material used to overfill above top of deck elevation will not be measured for payment. No volume adjustments will be made for precast tolerances, or for embedded components such as reinforcing steel or shear studs.

Basis of Payment: This work will be paid for at the Contract unit price per cubic yard for "Ultra High Performance Concrete," complete and accepted in place, which price shall include all materials, equipment, tools and labor incidental thereto.

Preparation of the mix design, trial mixes and Work Plan; transporting and mixing UHPC; formwork, testing, placing, curing and grinding, as well as the services of the Supplier's Technical Representatives shall be included in the Contract unit price.

Pay Item	Pay Unit
Ultra High Performance Concrete	c.y.

ITEM #0601054A

ITEM #0603729A – LOCALIZED PAINT REMOVAL AND FIELD PAINTING OF EXISTING STEEL

Description:

Work under this item shall consist of paint removal and field painting of the existing steel at designated areas. The work shall include containments, paint removal, collection of paint and associated debris, surface preparation and field painting. Designated areas include: areas specifically designated on the plans and those areas where construction activities require the removal of the existing coatings to accomplish other Contract work (such as, but not limited to, arc gouging or welding). The paint removal is required because of the possible presence of hazardous paint containing lead or other hazardous metals. The paint removal is required to comply with OSHA and DEEP regulations.

Privately-owned utilities, bridge rails, stay-in-place forms, fences, elastomeric bearing pads and bronze components shall be protected from damage by surface preparation and painting operations and are not to be painted.

Submittals: A minimum of 20 calendar days before starting any paint removal, surface preparation and coating application work, the painting Contractor shall submit the following to the Engineer for acceptance:

1. A copy of the firm's written Quality Control Program used to control the quality of surface preparation and coating application including, but not limited to, ambient conditions, surface cleanliness and profile, coating mixing, dry film thickness and final film continuity.
2. A copy of the firm's written surface preparation and application procedures. This written program must contain a description of the equipment that will be used for surface preparation, including the remediation of soluble salts, and for paint mixing and application. Coating repair procedures shall be included.
3. A detailed description of the Contractor's enforcement procedures and the authority of personnel.
4. Containment plans (paint removal/collection of debris, surface preparation, coating applications, coating applications with heat, etc.).
5. If the application of heat is proposed for coating application purposes, provide information on the heat containment and procedures that will be used, with data sheets for the equipment. **Note**: If heat is used for coating operations, the heat and containment must be maintained to provide the required temperatures for the duration of the **cure** period.
6. Proof of SSPC-QP1 qualifications, CAS-certification(s) and QP2 qualifications, as applicable.
7. Proof that the finish coat complies with the color and gloss retention performance criteria of SSPC Paint 36, Level 3, for accelerated weathering.
8. Coating product information, including coating manufacturer, product name, application instructions, technical data, MSDS and color chips.

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 in strict accordance with 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.

Materials:

The paint shall be one of the following **2-coat systems**:

Carbomastic 15	
Carbothane 133 LV, manufactured by:	Carboline 2150 Schuetz Road St. Louis, MO 63146 (800) 848-4645
Epoxy Mastic Aluminum II	
HS Poly 250, manufactured by:	Sherwin Williams 425 Benton Street Stratford, CT 06615 (203) 377-1711 (800) 474-3794
Carbomastic 90	
Carbothane 133 LV, manufactured by:	Carboline 2150 Schuetz Road St. Louis, MO 63146 (800) 848-4645

All materials for the complete coating system shall be furnished by the same coating material manufacturer with no subcontracted manufacturing allowed. Intermixing of materials within and between coating systems will not be permitted. Thinning of paint shall conform to the manufacturer's written recommendations. The coating thickness shall be in accordance with the Manufacturer's printed instructions. All components of the coating system and the mixed paint shall comply with the Volatile Organic Compounds (VOC) Content Limits and Emission Standards stated in the Connecticut Department of Energy and Environmental Protection's Administration Regulation for the Abatement of Air Pollution, Sections 22a-174-41 through 41a and 22a-174-20(s), respectively.

Control of Materials: A Materials Certificate will be required for the selected paint system in accordance with Article 1.06.07, confirming the conformance of the paint to the requirements set forth in these specifications. The selected Topcoat shall conform (as close as possible) in color to the existing topcoat.

Note: If any of the above and/or following stipulated Contract specifications differ from those of the manufacturer's recommended procedures or ranges, the more restrictive of the requirements shall be adhered to unless directed by the Engineer in writing.

Construction Methods:

Contractor - Subcontractor Qualifications: Contractors and subcontractors doing this work are required to be certified by the SSPC Painting Contractor Certification Program (PCCP) to QP 1 entitled "Standard Procedure for Evaluating Qualifications of Painting Contractors ("Field Application to Complex Structures"). When the work involves the disturbance of lead-containing paint, the Contractor and subcontractor are also required to be certified to SSPC-QP 2 "Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint." The certification(s) must be kept current for the duration of the work. If a Contractor's or subcontractor's certification expires, the firm will not be allowed to do any work related to this item until the certification is reissued. Requests for extension of time for delay to the completion of the Project due to an inactive certification will not be considered and liquidated damages will apply. In addition, if any recoat times are exceeded, the affected areas shall be cleaned to SSPC-SP 15 and coatings reapplied in accordance with these specifications at no additional cost to the State.

Contractors and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)-**certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each surface preparation/painting crew during surface preparation cleaning/removal and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand/power tool cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

All Contractor activities associated with the work described and specified herein shall be conducted in accordance with all applicable Federal, State of Connecticut and local safety regulations and guidelines.

Quality Control Inspections: The Contractor shall perform first line, in process Quality Control (QC) inspections. The Contractor shall implement a Quality Control Program accepted by the Engineer, including written daily reports, that ensures that the work accomplished complies with these specifications. All Quality Control Reports must be reviewed and signed by either a

NACE Coating Inspector Level 2 - Certified (must have completed sessions I, II and III) or SSPC – BCI Level I Inspector (Minimum qualifications). Copies of these reports shall be provided daily to the Engineer. Contractor QC inspections shall include, but not be limited to the following:

- Suitability of protective coverings and containments
- Ambient conditions
- Surface preparation (solvent cleaning or hand/power tool cleaning)
- Coating application (mixing, thinning, and wet/dry film thickness)
- Recoat times and cleanliness between coats
- Coating continuity (freedom from runs, sags, pinholes, shadow-through, skips, misses, etc.)
- Final film acceptance

Limits of Paint Removal and Field Painting: Prior to applying the heat of welding equipment to localized areas of existing steel superstructures, the existing paint shall be removed to a width of 6 inches from wherever the heat will be applied, or as directed by the Engineer. The locations of the paint removal and field painting shall be reviewed and accepted by the Engineer prior to commencement of the work. Such acceptance by the Engineer does not relieve the Contractor of his responsibility for complying with applicable OSHA and DEEP regulations.

Containment for Paint Removal and Collection of Debris: The containment(s) shall be designed and erected to contain, as well as facilitate the collection of debris from the paint removal operations. Drawings and details of the containment(s) shall be submitted to the Engineer for review and comments prior to any paint removal. Review of the containment by the Engineer shall in no way relieve the Contractor of his responsibility for the containment. The containment shall conform to the requirements found within the SSPC Guide 6. The class of the containment shall be a minimum of Class 3P, modified to include the following:

A. The containment materials shall be air and water impenetrable and fire resistant.
B. With the exception of the entryways, all seams in the containment enclosure shall be lapped a minimum of 24 inches and shall be tied off at intervals not to exceed 18 inches.
C. All attachments to bridge parapets or the underside of the bridge deck shall be sealed to prevent the escape of dust and debris.

The above specified containment must be used for **all** paint removal and collection of debris operations. The containment must remain in place until all associated debris has been collected.

Storage and Disposal of Collected Debris: All of the debris resulting from the paint removal operations shall be contained and collected. Debris within containment enclosures shall be removed by HEPA vacuum collection prior to disassembly of the enclosures. All the debris, rust and paint chips shall be stored in leak-proof storage containers at the Project site. Debris storage shall be in accordance with Connecticut Hazardous Waste Management Regulations. The storage containers and storage locations shall be reviewed by the Engineer and shall be located in areas not subject to ponding. Storage containers shall be placed on pallets and closed and covered with tarps at all times except during placement, sampling, and disposal of the debris.

Prior to generation of any hazardous waste, the Contractor shall notify the Engineer of its selected hazardous waste transporter and disposal facility. The Contractor must submit to the Engineer: (1) the transporter's current U.S DOT Certificate of Registration and (2) the transporter's current Hazardous Waste Transporter Permits for the State of Connecticut, the hazardous waste destination state and any other applicable states. The Engineer will then obtain an EPA ID number that will be forwarded to the Contractor. Any changes in transporter or facility shall be immediately forwarded to the Engineer for review.

The Contractor shall conform to the latest requirements of the Hazardous Waste Management Regulations prepared by the DEEP's Hazardous Waste Management Section, subject to regulations of Section 22a-449(c) of the Connecticut General Statutes.

Disposal of the debris shall be in strict conformance with all Federal E.P.A. and DEEP regulations for hazardous materials.

All necessary forms, including the "Uniform Hazardous Waste Manifest" obtained from the Hazardous Waste Management Section of DEEP, must be filled out, approved and signed by the Department's Project Engineer (Construction), and appropriate copies returned to the Department's Division of Environmental Compliance.

A licensed hazardous waste transporter and a licensed hazardous waste treatment/disposal facility must be secured from lists available from the DEEP and approved by the Department's Division of Environmental Compliance.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of their failure to be in compliance with this special provision and all Federal, State and Local laws.

Paint Removal/Surface Preparation: The existing structural steel shall be power tool cleaned according to SSPC-SP 15 "Commercial Grade Power Tool Cleaning." The power tools (needle guns, grinders, etc.) shall be equipped with HEPA vacuum attachments. Before the power tool cleaning, all dissolvable foreign matter, such as oil, grease, and dust shall be removed by wiping or scrubbing the surface with rags or brushes wetted with solvent in accordance with the provisions of SSPC-SP 1 "Solvent Cleaning." Clean solvent and clean rags or brushes shall be used for the final wiping. The cleaned surface shall be accepted by the Engineer. If the surface is determined to meet the requirements of SSPC-SP 15, painting operations can commence.

Note: Chemical stripping and abrasive blast cleaning will not be permitted.

Existing Steel Surfaces to be Painted: After the designated areas have been inspected and accepted according to the surface preparation specification, SSPC SP 15, the steel surfaces which are to receive the field touch-up paint shall be cleaned immediately prior to coating operations by wiping or scrubbing the surface with rags or brushes wetted with solvent. Use clean solvent and clean rags for the final wiping.

- Solvent must be compatible with the specified coatings. Solvent cleaned surfaces shall be primed before any detrimental recontamination or corrosion occurs. Follow manufacturer's safety recommendations when using any solvent.
- All foreign materials such as dirt, dust, loose rust scale, sand, bird droppings, and all materials loosened or deposited on the steel surface by cleaning operations shall also be completely removed by vacuuming before any painting operations commence.
- Failure by the Contractor to properly prepare and clean surfaces to be painted in accordance with the specifications shall be cause for rejection by the Engineer. All surfaces that are rejected shall be cleaned and painted to the satisfaction of the Engineer in accordance with the specifications, at no additional cost to the State.

Application of Field Paint: The method for coating application shall be by brush and roller equipment. The containment for paint application shall consist of drop cloths and a solid platform bottom.

Storage, opening, mixing, thinning and application of the paint shall be accomplished in strict accordance with the specified Contract requirements and procedures published by the paint manufacturer and supplier. The Contractor shall have at the Project site, at all times, the current copies of all technical data, recommendations and procedures published by the paint manufacturer. 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. Paint shall be furnished in the manufacturer's original sealed and undamaged containers. For multiple component paints, only complete kits shall be mixed and used. Partial mixing is not allowed. The paint shall be applied to produce a uniform smooth coat without runs, streaks sags, wrinkles, or other defects.

The Contractor shall provide a suitable facility for the storage of paint, which is in accordance with the latest Federal and State regulations. This facility must provide protection from the elements and insure that the paint is not subjected to temperatures outside the manufacturer's recommended extremes. Storage for paint must be located in reasonable proximity to the painting locations. The Engineer shall be provided access to the stored paint at any time, for inspection and to witness removal of the materials. The Contractor's facility for the storage of paint is subject to the approval of the Engineer.

Ambient Conditions: Solvent cleaning just prior to coating application or coating application work shall be performed when the conditions are as follows:

- The relative humidity is at or below 80% and when there is no falling rain or dew present, or anticipated, before a prepared surface can be coated.
- The substrate is not damp or covered by frost or ice.
- The surface temperature and air temperature are between 50°F and 100°F.
- The surface temperatures of the steel and air are more than 5°F above the dew point temperature, as determined by a surface temperature thermometer and electric or sling psychrometer.

If the requirements of the coating manufacturer differ from the ranges provided above, comply

with the most restrictive requirements unless directed otherwise by the Engineer in writing.

The Contractor is liable for any fines, costs, or remediation costs incurred as a result of his failure to be in compliance with this special provision and all federal, state, and local laws.

Method of Measurement:

This work will be measured by the actual square foot of existing steel at designated areas where paint was removed, surfaces cleaned, re-painted and accepted. **Note:** In some instances when **new steel** is being added to the designated areas where the paint was removed, the removal area may not equal the area to be re-painted. Measurement in these cases will be by the actual square foot of existing steel where the paint was removed and accepted.

Basis of Payment:

This work will be paid for at the Contract unit price per square foot for "Localized Paint Removal and Field Painting of Existing Steel," complete in place, which price shall include all materials, containments, containers, equipment, tools, labor, heating devices, services of the technical advisor and for any incidental work. No direct payment will be made for the cost of storage or hauling the paint and other materials, including paint chips and associated debris, to and/or from the bridge site, but the cost thereof shall be included in the Contract unit price.

Pay Item	Pay Unit
Localized Paint Removal and Field Painting of Existing Steel	s.f.

ITEM #0603801A - STRUCTURAL STEEL

Work under this item shall conform to the requirements of section 6.03 - Structural Steel of the Standard Specifications as amended and supplemented herein:

6.03.01 - Description:

After the third paragraph, add the following:

This special provision provides additional requirements for the surface preparation, shop painting, and field touch-up painting of new structural steel.

Also add the following:

Under this item, new structural steel plates and shapes shall be furnished and installed to repair and/or replace existing structural steel members as indicated in the Contract documents and described herein:

The work shall include the following primary elements:

- Repair plates, fill plates, and stiffener angles at girder and floor beam web repairs. (Uncoated)
- Repair plates and fill plates at girder and floor beam flange repair areas. (Uncoated)
- Repair plates and fill plates at steel column repairs. (Uncoated)
- Spans 1 to 9 and 12 to 30 sidewalk strut angles and plates. (Galvanized)
- Spans 1 to 9 and 12 to 30 sidewalk bracket angles and plates. (Galvanized)
- Spans 1 to 9 and 12 to 30 sidewalk fascia channels. (Galvanized)
- Spans 1 to 9 and 12 to 30 pedestrian rail posts and connection angles. (Painted)
- Spans 10 and 11 pedestrian rail post extensions and plates. (Painted)
- Jacking stiffeners. (Painted)

In addition to furnishing and installing the new structural steel, the work item shall involve cutting and removal of existing structural steel elements, field drilling, grinding, and all necessary work to complete the structural steel work. The results of a limited survey identified no detectable levels of lead in paint on the structural steel components. Disposal of demolished and removed structural members is included.

The steel load plate, vulcanized to the elastomeric bearings and the steel shims required between the bearings and beveled sole plates are not included in this item. These items are included in the item “Bearing Replacement with Elastomeric Bearing Pads”.

Unless furnished galvanized, the new steel shall be shop painted. Stainless steel shall not be galvanized or painted.

Work under this item will require coordination with other scheduled work on this Project.

Table 1 – LOCATION, WEGHTS, AND COATING

LOCATION	SPANS	EST. WEIGHT OF STRUCTURAL STEEL – CWT	COATING
Sidewalk Struts	1-9, 12-30	574	Galvanized
Sidewalk Brackets	1-9, 12-30	844	Galvanized
Fascia Stringers	1-9, 12-30	1,856	Galvanized
Pedestrian Rail Posts	1-9, 12-30	2,0003	Shop Paint
Pedestrian Rail Post Extensions	10 and 11	359	Shop Paint
Repair Steel (Shapes and Plates)	1-9, 12-30	268	Uncoated

NOTES:
1. Estimated structural steel weights do not include the weight of high strength bolts, nuts, and washers.
2. Uncoated structural steel shall receive a field applied two coat paint system paid for under the item "Localized Paint Removal and Field Painting of Structural Steel."

6.03.02 - Materials:

Unless otherwise noted on the plans, the materials for this work shall conform to the requirements of Section M.06.

After the second paragraph, add the following:

" Painting materials for this work shall conform to the following:

- The Contractor shall select a three-coat system from the qualified product List A or B, issued by the Northeast Protective Coating Committee (NEPCOAT). The approved NEPCOAT listings may be found at the NEPCOAT website at http://www.nepcoat.org/
- The system chosen shall have a prime coat that has achieved a Class 'B' slip coefficient for faying surfaces. Top coat paint color shall be as noted on the plans.
- Both the shop painted and field touchup applied coating systems shall be of the same three-coat system. A compatible organic zinc rich primer shall be used for any necessary field touch up.
- The same coating material manufacturer shall furnish all materials for the complete coating system. Intermixing of materials within and between coating systems will not be permitted.
- Thinning of paint shall conform to the manufacturer's written instructions.

All components of the coating system and the mixed paint shall comply with the Emission Standards for Volatile Organic Compounds (VOC) Content Limits and Emission Standards stated in the Connecticut Department of Energy and Environmental Protection's Administration Regulation for the Abatement of Air Pollution, Sections 22a-174-41 through 41a and 22a-174-20(s), respectively."

Also add the following:

Epoxy-Based Filler shall conform to ASTM C881, Grade 3. The epoxy based filler material shall be Flexolith Gel as manufactured by Tamms, Kop-Coat A-788 as manufactured by Carboline, Steel- Seam FT910 as manufactured by Sherwin - Williams, or Engineer approved equivalent product.

6.03.03 - Construction Methods:

Add the following:

The work required shall be performed and scheduled to conform within the requirements of Article 1.08 and as described herein.

General Requirements:

2. Submittals: *Add the following*:

(a)Shop Drawings: Prior to the submittal of shop drawings field measurements shall be performed to verify all necessary dimensions, including existing fastener spacing to complete the work. Where shop drawing dimensions are based on existing fastener spacing, the Contractor shall submit supporting documentation, including field measurements, as part of the shop drawing submittal. No repair work shall be performed prior to the approval of shop drawings.

4. Field Erection: *Add the following:*

(d) Field Assembly: The Contractor shall be responsible for coordinating the erection of structural steel.

The Contractor shall complete all bolting work that has been started prior to the end of the work shift.

(f) High Strength Bolted Connections: *Add the following:*

Connections between new and previously painted structural steel members shall have painted faying surfaces cleaned in accordance with the Special Provision for "Localized Paint Removal and Field Painting of Existing Steel". Any paint damaged as a result of steel repairs shall be cleaned and coated with field touch up paint in accordance with the item "Localized Paint Removal and Field Painting of Structural Steel".

Qualifications of Shop Painting Firm: All shop painting of structural steel must be performed by and in an enclosed shop that is certified by the SSPC Painting Contractor Certification Program QP-3, entitled "Standard Procedure for Evaluating Qualifications of Shop Painting Contractors" in the enclosed shop category or by a shop that holds an AISC Quality Certificate with a "Sophisticated Paint Endorsement" in the enclosed shop category. The firm shall be fully certified, including endorsements, for the duration of the surface preparation and coating

application. A copy of the subject certification shall be provided to the Engineer prior to commencing any surface preparation or coating application.

The shop painting firm is required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew-member is a person who is on the job performing hand-held nozzle blast cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be kept current for the duration of the Project work.

The complete coating system shall be applied in an enclosed shop except for field touch-up painting which shall be applied after all bolts are fully tensioned and deck formwork removed. The enclosed shop shall be a permanent facility with outside walls to grade and a roof where surface preparation and coating activities are normally conducted in an environment not subject to outdoor weather conditions or blowing dust.

Quality Control Inspection of Shop Painting: The firm performing shop painting of the structural steel shall have a written quality control (QC) program. A copy of the QC program and record keeping procedures shall be provided to the Engineer prior to commencing any surface preparation or coating application. The program shall contain, but not be limited to, the following:

1. Qualifications of QC staff.
2. Authority of QC staff. QC staff must have the authority to stop non-conforming work.
3. Procedure for QC staff to advise operation supervisor, in writing, of non-conforming work.
4. Sample copy of QC inspection reports that will document compliance with specifications.
5. Procedure for calibrating inspection equipment and recording calibration.
6. Procedure for repairing defective coating applications.

The Contractor or Shop shall provide at least one Quality Control Inspector for the duration of the shop application to provide Quality Control. The QC Inspector must be a National Association of Corrosion Engineers (NACE) Certified Coating Inspector Level 3 with Peer Review. The QC Inspector shall verbally inform the Engineer on a daily basis, of the progress and any corrective actions performed on the coating work. The QC Inspector shall be present during all cleaning and coating operations.

The Contractor or Shop shall be responsible for purchasing and providing the latest version of the NACE Coating Inspector Log Book(s) and all necessary inspection tools. The Contractor's QC Inspector shall stamp the front page of each inspector's log book used during painting operations. The stamped book(s) shall indicate the inspector's NACE certification number, certification expiration date and shall also be signed. All daily coating activity shall be recorded in the Log Book. Copies of the log entries shall be provided on a daily basis to the Department's Quality

Assurance (QA) shop representative. Upon completion of the coating, the log book(s) shall then be furnished to the Department's QA shop representative.

Technical Advisor: The Contractor or Shop shall obtain the services of a technical advisor who is employed by the coating manufacturer to assist the Engineer and shop painting firm during this work. The technical advisor shall be a qualified representative and shall be made available at the Shop upon request by the QC Inspector or the Engineer.

Surface Preparation: The following steps shall be performed prior to abrasive blast cleaning of steel members:

1. All corners and edges shall be rounded to a 1/16-inch radius or chamfered to a 1/16-inch chamfer.
2. All fins, slivers and tears shall be removed and ground smooth.
3. All rough surfaces shall be ground smooth.
4. Flame cut edges shall be ground over their entire surface such that any hardened surface layer is removed, and subsequent abrasive blast cleaning produces the specified surface profile depth.

Immediately before abrasive blast cleaning all steel members shall be solvent cleaned in accordance with SSPC-SP1 - "Solvent Cleaning."

Abrasive blast cleaning shall be performed in accordance with SSPC-SP 10 - "Near White Blast Cleaning" using a production line shot and grit blast machine or by air blast. The abrasive working mix shall be maintained such that the final **surface profile** is within the range described herein.

The QC Inspector shall test the abrasive for oil, grease or dirt contamination in accordance with the requirements of ASTM D7393 and document the test results. Contaminated abrasive shall not be used to blast clean steel surfaces. The blast machine shall be cleared of all contaminated abrasive and then solvent cleaned thoroughly in accordance with SSPC-SP 1 "Solvent Cleaning." New uncontaminated abrasive shall be added. Abrasive shall be tested for contaminants in accordance with the requirements of ASTM D7393 prior to the start of blast cleaning operations and at least every four hours during the blast cleaning operations.

All compressed air sources shall have properly sized and designed oil and moisture separators, attached and functional, to allow air at the nozzle, either for blast cleaning, blow-off, painting or breathing, to be oil-free, and moisture-free. The equipment shall have sufficient pressure to accomplish the associated work efficiently and effectively.

The QC Inspector shall perform the blotter test and document the results at the start of each blasting shift and at least every four hours during the blasting operation to ensure that the compressed air is free of oil and moisture. The blotter test shall be performed in accordance with the procedure outlined in ASTM D4285. For contaminated air sources, the oil and moisture separators shall be drained and the air retested.

No surface preparation or coating shall be done when the relative humidity is at or above 80 percent or when the surface temperature of the steel is less than five (5) degrees Fahrenheit above the dewpoint temperature as determined by a surface thermometer and an electric or sling psychrometer.

Surface Profile: The steel surface profile shall be 1 to 3 mils. Each girder or beam shall have the surface profile measured at a minimum of three locations in accordance with the test requirements of ASTM D4417, Method C. Smaller pieces such as diaphragms shall have the surface profile measured at a minimum of three locations on one piece at the beginning of abrasive blast operations and at least every four hours and at the end of abrasive blast cleaning operations. This measurement shall be performed with both coarse (0.8-2.0 mils) and extra coarse (1.5-4.5 mils) replica tape. During this measurement, special attention shall be given to areas that may have been shielded from the blast wheels, such as the corners of stiffeners and connection plates. The impressed tapes shall be filed in the NACE Coating Inspector's Log Book.

Application Methods: The coating system shall be applied by spray equipment of a type and size capable of applying each coat within the required thickness range. The applicator shall strictly adhere to the manufacturer's written recommendations for application methods, cure times, temperature and humidity restrictions and recoat times for each individual coat of the specified system. However, in no case shall coatings be applied in ambient conditions that exceed the relative humidity and dewpoint temperature control limits specified herein. Brushes shall be used in areas where spray application will not achieve acceptable results. Brushing technique shall be performed in a manner that will provide a uniform, blended finish.

Conventional spray equipment with mechanical agitators shall be used for prime coat application.

All storage, mixing, thinning, application and curing techniques and methods shall be accomplished in strict accordance with the printed material data sheets and application instructions published by the respective coating material manufacturer.

Surfaces shall be painted with the specified prime coat material before the end of the same work shift that they were blast cleaned and before any visible rust back occurs. Applied coatings shall not have runs, sags, holidays, pinholes or discontinuities.

The dry film thickness shall be within the range specified in the manufacturer's printed literature for the specified coating system. Dry film thickness shall be measured in accordance with SSPC-PA 2. The prime, intermediate and top coats shall be of contrasting colors as determined by the Engineer. There shall be no color variation in the topcoat as determined by comparison with Federal Standard 595.

Areas Requiring Special Treatment: All steel surfaces shall receive the three-coat shop applied system as specified except the following particular area types which shall be treated as follows:

1. Faying surfaces of connections shall receive a single application of primer. The dry film thickness shall be no greater than the thickness tested on the coating manufacturer's Certified Test Report for slip coefficient.
2. All steel surfaces within four (4) inches of field welds shall receive a single mist coating of primer at 0.5 - 1.5 mils dry film thickness.
3. Top surfaces of top flanges that will be in contact with concrete shall receive a single mist coating of primer at 0.5 - 1.5 mils dry film thickness.
4. Edges and shop welds shall be locally hand-striped with a brush in the longitudinal direction with an additional coat of an appropriate zinc-rich primer prior to application of the full intermediate coat. The application of the striping materials shall be in accordance with the coatings manufacturer's written instructions. The striping material shall be a contrasting color to distinguish it from the primer and intermediate coats.
5. The interior surfaces of box girders, including bracing, shall be prepared in accordance with these specifications then coated with the first two coats of the three-coat system. The intermediate coat in these areas shall be white and match Federal Standard 595 Color Number 27925.

Adhesion: Adhesion strength of the fully coated assemblies shall be the more restrictive of the manufacturer's specified adhesion strength or at least 600 psi for systems with organic zinc primers and at least 250 psi for systems with inorganic zinc rich primers measured as per ASTM D4541 using apparatus under Annex A4. All adhesion test locations shall be recoated in accordance with this specification at no additional cost. The QC Inspector shall perform adhesion strength tests every 500 sf and shall document the adhesion strength test results.

If adhesion test results are less than the specified value, but equal to or greater than 80% of the specified value, four (4) additional adhesion tests shall be taken within the 500 sf area of the failed test. If any of the additional adhesion tests are less than the specified value, the coating shall be removed from the entire piece and re-applied at the Contractor's expense. If any adhesion tests are less than 80% of the specified value, the entire coating system shall be removed from the piece and re-applied at the Contractor's expense.

Smaller pieces such as diaphragms shall be analyzed in lots that have an overall coated surface area of approximately 500 sf.

Protection of Coated Structural Steel: All fully coated and cured assemblies shall be protected from handling and shipping damage with the prudent use of padded slings, dunnage, separators and tie downs. Loading procedures and sequences shall be designed to protect all coated surfaces. Erection marks for field identification of members and weight marks shall be affixed in such a manner as to facilitate removal upon final assembly without damage to the coating system.

Field Touch-Up Painting of Shop Applied Coating: Field touch-up painting shall be undertaken by the Contractor for the purpose of completing coating applications of masked-off areas at splices, connections, and for the repair of coated surfaces damaged during shipment or construction, as directed by the Engineer. The Aesthetics of any field painting is very important. Every effort must be made to perform any field painting in a professional manner that does not

affect the appearance or aesthetic value of the structural steel in any way. Significant color variations or texture changes between the shop painting and field painting will not be allowed. The Contractor will be required to perform any additional field painting work required to provide consistent color and texture throughout the structural steel. This is especially true for all Fascia surfaces and areas exposed to public view. The Engineer will be the sole judge on color variations and textures variations of the field painting.

The Painting Contractor shall submit for approval by the Engineer a complete coating application procedure for all touch-up painting and corrective work. .

The field applied coating for touch-up painting shall be the same system used in the shop applied application. The intermediate and topcoat material for field touch-up painting shall be from the same lot and batch used in the shop provided its shelf life has not expired. If the shelf life has expired, the same material of the same color from a different lot and batch shall be used.

Field application of coatings shall be in accordance with the manufacturer's written application guidelines and these specifications. All areas cleaned to bare metal must be coated with zinc-rich primer before any visible rusting occurs.

After all concrete is placed and the forms are removed, all rust, scale, dirt, grease, concrete splatter and other foreign material shall be completely removed from all painted surfaces. All surfaces to be field painted shall also be cleaned by solvent cleaning in accordance with SSPC-SP 1, hand tool cleaning SSPC-SP 2, and power tool cleaning SSPC-SP 3 and SSPC-SP 11. Areas cleaned to SSPC-SP 11 must have a 1-3 mil profile and must be primed prior to rusting. All debris generated from cleaning operations must be contained and properly disposed of by the Contractor.

Bolts, nuts, washers and surrounding areas shall receive brush applications of intermediate and topcoat after final tensioning. Careful attention shall be given to bolted connections to insure that all bolts, nuts and washers are fully coated and that no gaps are left unfilled and uncoated.

Damage to the coating system that extends to the steel surface (such as scratches, gouges or nicks), shall have the entire three-coat system locally reapplied after power tool cleaning to bare metal in **accordance with SSPC-SP 11. The coating system adjacent to the damage shall be feathered back to increase** the surface area for touch up painting. The area cleaned to SSPC-SP 11 shall be primed with a zinc-rich primer before rusting occurs.

Damage to the coating system that extends back only to the prime or intermediate coat, shall only have the topcoat applied. Application of the touch-up materials in these damaged areas shall be performed by brush only.

During any field painting the Contractor shall protect property, pedestrians, vehicular and other traffic upon, underneath, or in the vicinity of the bridge, and also all portions of the bridge superstructure and substructure against damage or disfigurement from errant coating materials.

Tarps shall be used to collect all surface preparation debris. The Contractor shall be responsible for disposing of all removed materials, including tarps.

Contractor – Subcontractor Qualifications: Contractors and subcontractors doing field touchup painting work are required to be certified by the SSPC Painting Contractor Certification Program (PCCP) to QP-1, entitled "Standard Procedure for Evaluating Qualifications of Painting Contractors (Field Application to Complex Structures)" at the time of field touchup coating application.

Contractors and subcontractors are required to have at least one (1) **Coating Application Specialist (CAS) (SSPC ACS/NACE No. 13)**-certified (Level II-Interim Status-Minimal) craft-worker. CAS-certified (Level II-Interim Status-Minimal) craft-worker(s) are required for all crews/craft-workers up to four (4) crew members. For each crew larger than four (4), an additional CAS-certified (Level II-Interim Status-Minimal) craft-worker shall be present on each painting/blasting crew during blast cleaning and spray application (Atmospheric and Immersion Service) operations. A crew member is a person who is on the job performing hand-held nozzle blast cleaning and/or spray application of protective coatings on a steel structure. The certification(s) must be full, not interim, and must be kept current for the duration of the Project work. If a Contractor's, subcontractor's or any craft-worker's certification expires, the firm will not be allowed to do any work on this item until the certification is reissued.

Requests for extension of time for any delay to the completion of the Project due to an inactive certification will not be considered and liquidated damages will apply. At the option of the Engineer, if such a delay will adversely impact the successful and timely completion of the Project, the Department may require the Contractor to engage another SSPC certified contractor to do the painting work at the prime contractor's expense.

Quality Control Inspection of Field Touchup Painting: The Contractor performing field touchup painting of the structural steel shall have a written quality control (QC) program. A copy of the QC program and record keeping procedures shall be provided to the Engineer prior to commencing any surface preparation or coating application. The program shall contain, but not be limited to, the following:

1. Qualifications of QC staff.
2. Authority of QC staff. QC staff must have the authority to stop non-conforming work.
3. Procedure for QC staff to advise operation supervisor, in writing, of non-conforming work.
4. Sample copy of QC inspection reports that will document compliance with specifications.
5. Procedure for calibrating inspection equipment and recording calibration.
6. Procedure for repairing defective coating applications.

The Contractor shall provide at least one (1) Coating Inspector who is a National Association of Corrosion Engineers (NACE) Certified Coating Inspector Level 3 with Peer Review for the duration of the field application to provide Quality Control. The QC Inspector shall verbally inform the Engineer on a daily basis, of the progress and any corrective actions performed on the coating work. The QC Inspector shall be present during all cleaning and coating operations.

The Contractor shall be responsible for purchasing and providing the latest version of the NACE Coating Inspector Log Book(s) and all necessary inspection tools. The Contractor's QC Inspector shall stamp the front page of each inspector's log book used during painting operations. The stamped book(s) shall indicate the inspector's NACE certification number, certification expiration date and shall also be signed. All daily coating activity shall be recorded in the Log Book. Copies of the log entries shall be provided on a daily basis to the Department's Quality Assurance (QA) field representative. Upon completion of the coating, the log book(s) shall then be furnished to the Department's QA field representative.

General: The word "PAINTED" followed by the month and year the painting of the structure is completed along with the ConnDOT Project Number and the manufacturer's abbreviations for each of the three coats, shall be stenciled on the inside of a fascia girder at mid-depth of the girder in three (3) inch high block letters located near the abutment, so as to be clearly visible from the ground below. Paint for stenciling information shall be of a contrasting color and be compatible with the topcoat."

(4)(h) Existing Steel Repairs: *Add the following:*

An epoxy-based filler shall be provided at plate repair areas where deterioration has occurred on the steel surface. Uneven or perforated surfaces shall receive an epoxy-based filler to remove possible areas where moisture or water may be trapped after the repair plates have been installed.

6.03.04 - Method of Measurement:

The following will be included in this item:

This work will be measured for payment by the net weight basis determined by computation per hundredweight (cwt) in accordance with Article 06.03.04.

Removal of existing fasteners and selective removal of existing structural steel components to permit installation of structural steel under this item shall be considered incidental to the work and shall not be measured.

6.03.05 - Basis of Payment:

This work will be paid for at the contract unit price per hundredweight for "Structural Steel". The unit price per hundredweight of steel shall include the cost of all materials, equipment, labor, and incidental expenses required to satisfactory complete the work in accordance with the Contract Documents. The various structural steel work items shall also include the existing steel modification and removal; fastener removal with high strength bolt replacement; localized cleaning and all necessary work to complete the work.

Removal and replacement of fasteners required shall be included for the various steel work items and shall be included in the cost. No separate payments will be provided for this work.

This work shall also include field drilling existing steel, temporary support and all necessary efforts to complete the work.

The cost of any required access, OSHA compliant work platforms, scaffolding, debris shield, needed for performance of structural steel repair shall be included in the item "Construction Access".

The work to clean the existing and new structural steel, the painting of the structural steel and repair area shall only be measured for payment once under the item "Localized Paint Removal and Field Painting of Existing Steel".

Add the following at the end of the second paragraph:

"Payment for either method for new structural steel, complete in place, shall also include shop painting, all field touch-up painting and corrective or repair field painting, QC Inspector(s), QC Log Book(s) and testing equipment, technical advisor, "Painted" stencil, equipment, tools and labor incidental thereto."

ITEM #0913969A – PROTECTIVE FENCE

Description:

Work under this item shall conform to the requirements of Section 9.04 supplemented and amended as follows:

Article 9.04.01 Description: Add the following:

The work of this item shall include the fabrication and installation of posts, rails, and related materials fabricated of steel and other miscellaneous hardware and material. The work of providing and installing the anti-climbing mesh to the posts and rails of the protective fence are not included under this item.

Materials:

Article 9.04.02 Materials: Add the following:

Materials for posts, rails, plates, and angles shall be steel conforming to the requirements of ASTM A7096, Grade 36 and shall be painted in accordance with the painting requirements for structural steel.

Welding of steel components shall be accomplished in the shop; no field welding will be permitted.

Stainless steel bolts, nuts and washers shall be Type 410 stainless steel conforming to the requirements of ASTM A276. Stainless steel hardware shall not be painted.

Construction Methods:

Article 9.04.03 Construction Methods: Add the following:

The protective fence shall be accurately fabricated and erected in accordance with the plans and as directed by the Engineer. All posts and rails shall be erected to produce a smooth continuous appearance with posts vertical and the rail components paralleling the line of the top of the sidewalk.

Method of Measurement:

Article 9.04.04 Method of Measurement: Add the following:

This work shall be measured for payment by the number of linear feet of protective fence

completed and accepted. Measurement shall be along the centerline of pedestrian rail posts.

Basis of Payment:

Article 9.05.05 Basis of Payment: Add the following:

This work will be paid for at the contract unit price per linear foot for "Protective Fence" complete in place, which price shall include all material, equipment, tools and labor incidental thereto.

Climb resistant cable mesh installed along the protective fence will be paid for under the item "Climb Resistant Steel Mesh Fence".

Pay Item	Pay Unit
Protective Fence	l.f

ITEM #1003906A – REMOVE LIGHT STANDARD

DESCRIPTION: Under this item the Contractor shall remove an existing light standard with transformer base, bracket, and luminaire as indicated on the plans or as directed by the Engineer. The removed light standard, transformer base, bracket, and luminaire, shall be properly disposed of by the Contractor.

CONSTRUCTION METHODS: The Contractor shall remove a light standard, transformer base, bracket, and luminaire, where required. The removed materials shall remain the property of the Contractor.

All removed materials shall be properly disposed of by the Contractor. The removed luminaire contains regulated materials. All regulated materials shall be as described and disposed of under Item No. 0101143A – Handling and Disposal of Regulated Items.

METHOD OF MEASUREMENT: This work will be measured for payment by the number of light standards with associated equipment removed and disposed of complete and accepted.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for "Remove Light Standard" complete, which price shall include the removal of a light standard with associated transformer base, bracket, luminaire, lamp, cable and hardware, delivering, disposing, hauling, and including all materials, tools, equipment, labor and work incidental thereto.

Pay Item	Pay Unit
Remove Light Standard	ea.

ITEM #1003925A – REMOVE EXISTING LUMINAIRE

DESCRIPTION: Under this item the Contractor shall remove an existing luminaire, and associated equipment as indicated on the plans or as directed and in accordance with these specifications. The removed luminaire and lamp shall be properly disposed of by the Contractor.

CONSTRUCTION METHOD: The Contractor shall remove an existing luminaire, and associated equipment where required. The removed luminaire and lamp shall be properly disposed of by the Contractor.

All removed materials shall be properly disposed of by the Contractor. The removed luminaire contains regulated materials. All regulated materials shall be as described and disposed of under Item No. 0101143A – Handling and Disposal of Regulated Items.

METHOD OF MEASUREMENT: This work will be measured for payment by the number of luminaires with associated equipment, removed and disposed of complete and accepted.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for "Remove Existing Luminaire", which price shall include removal of luminaire and associated equipment, hauling and unloading, and all materials, tools, equipment and labor incidental thereto.

Pay Item	Pay Unit
Remove Existing Luminaire	ea.

ITEM #1018101A – REMOVE NAVIGATION LIGHTS

DESCRIPTION: Under this item the Contractor shall remove a complete navigation lighting system consisting of navigation lights, brackets, surface conduit and junction boxes, mountings, and cables, where, shown on the plans or as directed by the Engineer. The removed navigation lighting equipment shall be properly disposed of by the Contractor.

CONSTRUCTION METHODS: The Contractor shall remove a complete navigation lighting system consisting of navigation lights, brackets, surface conduit and junction boxes, mountings, and cables, where, shown on the plans or as directed by the Engineer. The removed navigation lights, pendant brackets and stanchion brackets shall remain the property of ConnDOT. Removed conduit, conductors and junction boxes shall remain the property of the contractor.

The removal of the existing navigation lighting equipment shall be coordinated with the installation of the new navigation lighting equipment (paid for under separate bid items) so that proper nighttime navigation lighting of the river channel is maintained at all times. The removal of navigation lights shall be carried out on a "one for one" basis during daylight hours.* with the new navigation light installed and powered immediately upon the removal of the existing light. *The removal of an existing navigation light shall be postponed if the light is found to be operating during daylight hours due to the presence of fog. Nighttime navigation lighting of the maritime channel shall be maintained throughout all stages of construction.

All removed materials shall be properly disposed of by the Contractor. The removed navigation light contains regulated materials. All regulated materials shall be as described and disposed of under Item No. 0101143A – Handling and Disposal of Regulated Items.

The Contractor shall contact the Maintenance Supervisor of ConnDOT District 2 Electrical Maintenance (tel: 860-537-8942) to coordinate transfer of the removed materials. The Contractor shall contact the Maintenance Supervisor at least 24 hours in advance to coordinate unloading and storage. The Contractor shall load, transport, and unload the material. The material shall be stacked and stored according to the directions of the Maintenance Supervisor.

METHOD OF MEASUREMENT: This work will be measured for payment as an each item for the removal of the complete existing navigation light system as described.

BASIS OF PAYMENT: This work will be paid for at the contract unit price each for "Remove Navigation Lights", which price shall include the removal of navigation lights, pendant brackets, mounting hardware, stanchions, surface conduit, junction boxes, cables, disconnection, transfer of materials, disposal, hauling, and all work, labor and materials incidental thereto.

Pay Item	Pay Unit
Remove Navigation Lights	ea.