

**OCTOBER 1, 2019**  
**REHABILITATION OF THE APPROACH SPANS FOR ARRIGONI BRIDGE NO. 00524**  
**AND SAINT JOHN'S SQUARE AND MAIN STREET INTERSECTION IMPROVEMENTS**  
**FEDERAL AID PROJECT NOS. 0066(121) & 0009(117)**  
**STATE PROJECT NOS. 0082-0312 & 0082-0320**  
**TOWNS OF MIDDLETOWN AND PORTLAND**

**ADDENDUM NO. 2**

This Addendum addresses the following questions and answers contained on the “CT DOT QUESTIONS AND ANSWERS WEBSITE FOR ADVERTISED CONSTRUCTION PROJECTS”:

Question and Answer Nos. 7, 9, 11, 12, 13, 15, 16, 17, 18, 20, 24, 26, 27, 39, 54, 64, 67, 68, 69, 70, 71, 72 & 82

**SPECIAL PROVISIONS**  
**NEW SPECIAL PROVISIONS**

The following Special Provisions are hereby added to the Contract:

- MILESTONE LIQUIDATED DAMAGES PROVISIONS
- ITEM# 0406277A – REMOVAL OF EXISTING WEARING SURFACE

**REVISED SPECIAL PROVISIONS**

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

- SECTION 1.08 – PROSECUTION AND PROGRESS
- ITEM# 0511301A – REMOVAL OF EXISTING BRIDGE DRAINAGE SYSTEM
- ITEM# 0601242A – PRECAST CONCRETE DECK PANELS
- ITEM# 0603801A – STRUCTURAL STEEL
- ITEM# 0913969A – PROTECTIVE FENCE

**CONTRACT ITEMS**  
**NEW CONTRACT ITEMS**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QUANTITY</u>
0406277A	REMOVAL OF EXISTING WEARING SURFACE	S.Y.	570
0586005.10	TYPE 'C' CATCH BASIN DOUBLE GRATE TYPE 2 – 0'-10' DEEP	EACH	1

**REVISED CONTRACT ITEMS**

<u>ITEM NO.</u>	<u>DESCRIPTION</u>	<u>ORIGINAL QUANTITY</u>	<u>REVISED QUANTITY</u>
0601054A	ULTRA HIGH PERFORMANCE CONCRETE	600 C.Y.	500 C.Y.
0601242A	PRECAST CONCRETE DECK PANELS	64,300 S.F.	87,575 S.F.

**PLANS**

**REVISED PLANS:**

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

01.02.01.A2

01.04.004.A2, 01.04.006.A2, 01.04.007.A2, 01.04.012.A2, 01.04.017.A2,  
01.04.026.A2, 01.04.027.A2, 01.04.028.A2, 01.04.051.A2, 01.04.054.A2,  
01.04.062.A2, 01.04.063.A2, 01.04.071.A2, 01.04.072.A2, 01.04.073.A2,  
01.04.074.A2, 01.04.075.A2, 01.04.076.A2, 01.04.077.A2, 01.04.078.A2,  
01.04.079.A2, 01.04.080.A2, 01.04.081.A2, 01.04.082.A2, 01.04.083.A2,  
01.04.084.A2, 01.04.085.A2, 01.04.086.A2, 01.04.087.A2, 01.04.088.A2,  
01.04.089.A2, 01.04.090.A2, 01.04.091.A2, 01.04.092.A2, 01.04.093.A2,  
01.04.094.A2, 01.04.095.A2, 01.04.097.A2, 01.04.098.A2, 01.04.100.A2,  
01.04.101.A2, 01.04.102.A2, 01.04.103.A2, 01.04.108.A2, 01.04.118.A2,  
01.04.122.A2

02.03.38.A2, 02.03.44.A2

02.06.15.A2

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.

## **MILESTONE LIQUIDATED DAMAGES PROVISIONS**

In order to minimize the hazard, obstruction, inconvenience, cost to the public, and detriment to area businesses, it is necessary to limit the time of construction work which interferes with traffic as specified in Article 1.08.04 of the Special Provisions.

### **Milestone**

All work associated with State Project No. 0082-0320 (Federal Aid Project No. 0009(117) shall be completed by October 31, 2020. The Contractor may only have temporary barrier, cones or drums to protect the work areas for State Project No. 0082-0312 within the limits of State Project No. 0082-0320, but shall be in accordance with section 1.08.04.

### **Milestone Liquidated Damages Terms and Conditions**

If the Contractor fails to complete, as accepted by the Engineer, by the Milestone Completion Date indicated above, the Contractor will be assessed a liquidated damage charge of \$1,500 (One Thousand Five Hundred Dollars) per day thereafter until the tasks and corresponding milestone are complete and accepted by the Engineer. The maximum assessment of Milestone Liquidated Damages shall not be capped and shall be considered separate from any Liquidated Damages assessed to the Contractor for failure to complete the project on time per Section 1.08.09 of the Standard Specifications.

**The Contractor is responsible for determining the full scope of labor and equipment resources and anticipated accelerated operations needed to complete the milestone tasks by the Milestone Completion Date, and shall bid the on-time completion of the work accordingly.**

Any and all costs or detrimental effects incurred by the Contractor in accelerating his work in an attempt to meet the Milestone Completion Date, regardless of the effects of any delay, disruption, inefficiency or other detrimental effect including, but not limited to, the deletion of Contract work, the issuing of construction orders, the execution of supplemental agreements, the discovery of differing site conditions, the adding of extra work to the Contract, the emergence of right-of-way conflicts, problems with the obtaining or the terms of permits, action or inaction by persons or entities working on the project or by third parties, delays in the process of reviewing or approving shop drawings, expansion of the physical limits of the Project, the effects of weather conditions on Project activities, the occurrence of weekends or holidays, the suspension of any Project operation, or other events, forces or factors that affect highway construction work, shall be solely the Contractor's responsibility, and may not be used as the basis for any claim by the Contractor for additional compensation.

The Contractor is directed to follow the procedures of Section 1.08.08 of the Form 817 Standard Specifications for any request presented to the Engineer for an adjustment of the Milestone Completion Date for any unforeseeable causes noted in Section 1.08.08 that have resulted in the need for an adjusted date. There will be no adjustment to the Milestone Completion

Date for events, forces or factors, as noted above, that the Contractor was to have foreseen and included in the cost and schedule of his work.

## **ITEM #0406277A – REMOVAL OF EXISTING WEARING SURFACE**

**Description:** Work under this item shall consist of the complete removal and disposal of the existing bituminous concrete wearing surface, membrane waterproofing and bond breaker covering the reinforced concrete bridge deck as shown on the plans, as ordered by the Engineer and in accordance with these Specifications.

**Construction Methods:** The Contractor shall remove the bituminous concrete wearing surface, membrane waterproofing and bond breaker using means acceptable to the Engineer to completely expose the underlying concrete deck, without damaging the deck, roadway materials, and structures which are to remain intact.

Acceptable mechanical methods for removal of bituminous concrete surface on a structure can be one of the following:

**Micro-milling** - The rotary drum of the machine shall use carbide or diamond tipped tools spaced not more than  $\frac{3}{16}$  inches apart, capable of leaving a smooth, uniform pattern of striations with a maximum forward speed of 45 feet/minute.

**Fine Milling** – The rotary drum of the machine shall use carbide or diamond tipped tools spaced not more than  $\frac{5}{16}$  inches apart, capable of leaving a smooth, uniform pattern of striations with a maximum forward speed of 45 feet/minute.

Alternate methods may be submitted to the Engineer for review and acceptance. Demonstration of the alternate removal method shall be performed prior to consideration.

All particles and aggregate adhering to the exposed concrete that could, in the Engineer's opinion, cause failure of, or puncture the new membrane shall be removed. The existing bituminous concrete wearing surface, membrane waterproofing, and bond breaker that are removed shall be disposed of offsite by the Contractor unless otherwise noted in the Contract or as directed by the Engineer.

Prior to removal of bituminous concrete wearing surface the Contractor shall conduct a survey. A minimum of four (4) representative depth measurements shall be taken per span for a span up to 100 feet in length to predetermine the overlay thickness. An additional measurement shall be taken for each 25 feet in span length. If depth of overlay varies across the structure, it shall be clearly marked to aid in the removal operation. Survey locations shall be filled with bituminous material if the milling operation will not be completed within five (5) days or at the direction of the Engineer.

The existing bituminous concrete wearing surface and membrane waterproofing shall be removed in their entireties to the limits shown on the plans. The removal operations shall not begin until the Contractor is prepared to perform the permanent patching or repair to the underlying concrete within five (5) working days. If this is in conflict with "Prosecution and

ITEM #0406277A

Progress," "Maintenance and Protection of Traffic," or other Contract requirements, the more stringent specification shall apply.

Protection shall be provided around existing catch basin inlets, bridge scuppers, manholes, utility valve boxes, median barriers, parapets, and other roadway structures. Any damage to such structures as a result of removal operations is the Contractor's responsibility and shall be repaired at the Contractor's expense.

A uniform textured riding surface shall be provided and maintained. The surface shall be free from gouges, longitudinal grooves and ridges, oil film, and other imperfections that are a result of defective equipment, improper use of equipment, poor workmanship, or inadequate survey. Any unsatisfactory surfaces caused by the removal operations are the Contractor's responsibility and shall be corrected at the Contractor's expense and to the satisfaction of the Engineer prior to opening the surface to traffic.

Any raised structures shall be delineated with traffic control devices, as directed by the Engineer. Installation of traffic control devices will be included under the costs for "Maintenance and Protection of Traffic," payment for the devices will be under the applicable items.

No vertical face, transverse or longitudinal, shall be left exposed to traffic unless the requirements below are met. This shall include roadway structures (catch basins, manholes, utility valve boxes, etc.). If any vertical face is formed in an area exposed to traffic, a temporary paved transition shall be established according to the requirements shown on the plans. If the milling machine is used to form a temporary transition, the length of the temporary transition shall conform to Special Provision Section 4.06 –Bituminous Concrete, "Transitions for Roadway Surface," the requirements shown on the plans, or as directed by the Engineer. At all permanent limits of removal, a clean vertical face shall be established by saw cutting prior to paving.

Roadway structures shall not have a vertical face of greater than one (1) inch exposed to traffic as a result of milling. All structures within the roadway that are exposed to traffic and greater than one (1) inch above the milled surface shall receive a transition meeting the following requirements:

For roadways with a posted speed limit of 35 mph or less\*:

1. Round structures with a vertical face of greater than 1 inch to 2.5 inches shall be transitioned with a hard rubber tapered protection ring of the appropriate inside diameter designed specifically to protect roadway structures.
2. Round structures with a vertical face greater than 2.5 inches shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.
3. All rectangular structures shall receive a transition of bituminous concrete formed at a minimum 24 to 1 (24:1) taper in all directions.

\*Bituminous concrete tapers at a minimum 24 to 1 (24:1) taper in all directions may be substituted for the protection rings if approved by the Engineer.

For roadways with a posted speed limit of 40, 45 or 50 mph:

- All structures shall receive a transition of bituminous concrete formed at a minimum 36 to 1 (36:1) taper in all directions of travel. Direction of travel shall include both the leading and trailing sides of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

For roadways with a posted speed limit of greater than 50 mph:

- All structures shall receive a transition of bituminous concrete formed at a minimum 60 to 1 (60:1) taper in the direction of travel. Direction of travel shall include both the leading and trailing sides of a structure. The minimum taper shall be 24 to 1 (24:1) in all other directions.

All roadway structure edges and bituminous concrete tapers shall be clearly marked with fluorescent paint. The paint shall be maintained throughout the exposure to traffic.

Prior to opening an area which has been milled to traffic, the pavement shall be thoroughly swept with a sweeper truck. The sweeper truck shall be equipped with a water tank and be capable of removing the millings and loose debris from the surface. The sweeper truck shall operate at a speed that allows for the maximum pickup of millings from the roadway surface. Other sweeping equipment may be provided in lieu of the sweeper where acceptable by the Engineer.

**Method of Measurement:** This work will be measured for payment by the number of square yards of bituminous concrete wearing surface removed to expose the underlying concrete deck. No area deductions will be made for minor unmilled areas such as scuppers, joints, and any similar structures.

**Basis of Payment:** This work will be paid for at the contract unit price per square yard for "Removal of Existing Wearing Surface," complete and accepted, which price shall include the depth measurements, removal of wearing surface, removal of membrane waterproofing and bond breaker, saw cutting, and all equipment, tools and labor.

No additional payments will be made for multiple passes with the milling machine to remove the bituminous surface.

No separate payments will be made for cleaning the pavement prior to paving; providing protection and doing handwork removal of bituminous concrete around catch basin inlets, bridge scuppers, manholes, utility valve boxes, median barriers, parapets, joints and any similar structures; repairing surface defects as a result of Contractor negligence; providing protection to underground utilities from the vibration of the milling operation; removal of any temporary milled transition; removal and disposal of millings; furnishing a sweeper truck and sweeping after milling. The costs for these items shall be included in the Contract unit price.

**Pay Item**  
Removal of Existing Wearing Surface

**Pay Unit**  
S.Y.



## **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.

GENERAL

**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.

GENERAL

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**

<u>PHASE</u>	<u>DEADLINE</u>
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**

Project 82-320 must be completed as defined in “Milestone Liquidated Damages Provisions” by October 31, 2020, 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 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 #0511301A – REMOVAL OF EXISTING BRIDGE DRAINAGE SYSTEM**

**Description:**

This work shall consist of removing existing under bridge drain pipes, downspouts and supports at the locations shown on the contract plans and specified herein. Section 5.03 of the Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction applies to all removal work on this project with the following additions and exceptions.

**Materials:**

None specified.

**Construction Methods:**

Existing drain pipes, downspouts, and supports as identified on the plans shall be removed. Existing bridge scuppers and their structural steel supports are excluded from this work.

The Contractor shall take care not to damage any existing structural steel or concrete to remain.

Existing pipe supports shall be removed. Eliminate any stress concentrations on existing structural member where existing welded attachments were used to support drain pipe and have been removed as part of this item. Grind smooth all existing structural steel surfaces to remain upon removal of such details. Fill abandoned bolt holes with new high strength bolts.

**Method of Measurement:**

This work is to be paid for on a Lump Sum basis. No measurements will be taken on materials removed from the structure to perform the work governed by this specification.

**Basis of Payment:**

The pay item “Removal of Existing Bridge Drainage” shall include all labor, equipment, hardware, and materials needed to remove the existing drainage pipe, drainage supports, downspout pipes, pipe fittings, and support steel and hardware as shown on the contract plans, directed by the Engineer, and in accordance with the specifications. Elimination of stress concentrations as noted herein is incidental to the work and included for payment as part of this item.

Pay Item

Pay Unit

Removal of Existing Bridge Drainage System

l.s.

## **ITEM #0601242A – PRECAST CONCRETE DECK PANELS**

### **Description:**

The work under this item shall consist of furnishing and installing precast concrete deck panels at the locations and in accordance with the details shown on the plans, including concrete, reinforcing, lifting inserts, and all other necessary materials and equipment to complete the work.

### **Materials:**

Materials used in this work shall conform to the following:

The precast concrete shall meet the requirements of M.14.01-1. The concrete mix design shall be submitted to the Engineer and shall attain a minimum compressive strength ( $f'c$ ) of 5,000 psi and a minimum electrical resistivity of 29 k $\Omega$ -cm in accordance with AASHTO T 358 at 28 days.

Reinforcing Steel shall be epoxy coated meeting the requirements of Section M.06.

Threaded inserts shall be fabricated from stainless steel AISI Type 316.

### **Construction Methods:**

The precast deck panels shall be manufactured in a concrete products plant with approved facilities with a minimum of 5 years documented experience.

The Contractor shall prepare and submit to the Engineer for review and acceptance fully detailed shop and working drawings in accordance with Article 1.05.02. Shop drawings shall show all materials, by the type and ASTM designations, and other pertinent information or as required by the Engineer.

Prior to ordering or fabricating any materials, the Contractor shall take complete and accurate field measurements. Field measurements shall be utilized to establish layout and geometry of the deck replacement.

Formwork for precast units shall use rigid molds, constructed to maintain precast uniformity in shape size and finish. Form inserts, if required, shall be utilized in accordance with manufacturers' instructions.

The work shall be performed in accordance with the details shown on the plans, the accepted shop drawings and the applicable requirements of Section 5.14 and 6.02.

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A minimum of 4 test cylinders shall be cast for each Lot. A lot is defined as every 15 cubic yards or one day production, whichever comes first. The Contractor shall make the test cylinders under supervision of a representative of the Department. The dimensions, type of cylinder mold and number of cylinders shall be specified by the Engineer. The cylinders shall be cured by the same methods employed for the curing of the deck panels and shall be used to determine when the required 28-day strength (f'c) has been achieved.

Failure of any of the 28-day test cylinders to meet 90% of the minimum compressive strength or failure of the average to meet the full minimum compressive strength requirement may be cause for rejection.

Deck panels shall be given a float finish on the top surface as specified in Subarticle 6.01.03-10.

No patching of the completed deck panels will be allowed unless permitted by the Engineer.

Details of lifting inserts or other hardware to be cast into the precast deck units shall be included in the detailed shop and working drawings submitted by the Contractor to the Engineer.

Ultra High Performance Concrete shall be placed in leveling device pockets and shear connector block outs. The material shall be in accordance with item number 0601054A.

The Contractor shall coordinate this work with other scheduled work on this project. Installation of all precast deck panels shall be according to the approved shop and working drawings. All panels after installation and prior to cast-in-place closure pours will be inspected for cracks and other visible defects. All defective elements shall either be replaced or repaired using procedures approved by the Engineer and at no additional cost to the State.

Construction equipment shall not travel or rest on any uncompleted portion of the precast deck units unless the designer of the units has evaluated the loading conditions, submitted calculations to the Engineer, and has received written approval of the proposed loading. The Contractor shall repair any damage resulting from equipment passage at no additional cost to the State.

**Method of Measurement:**

This work will be measured for payment by the number of square feet of precast concrete deck panels completed and accepted in place. Cast in place closure pours and joints between precast concrete deck panels will not be measured for payment under this item.

Ultra High Performance Concrete for leveling device pockets and shear connector block outs is included in the square foot deck area of deck panels and will not be measured separately for payment.

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**Basis of Payment:**

This work will be paid for at the Contract unit price per square foot for “Precast Concrete Deck Panels,” complete and accepted in place which price shall include the cost of all design, submittals, labor, materials, and equipment necessary to complete the work, including the furnishing, storing and protecting, transporting, unloading, and installation of all Precast Concrete Deck Panels.

Pay Item

Pay Unit

Precast Concrete Deck Panels

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

<u>LOCATION</u>	<u>SPANS</u>	<u>EST. WEIGHT OF STRUCTURAL STEEL – CWT</u>	<u>COATING</u>
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	2,003	Shop Paint
Pedestrian Rail Post Extensions	10 and 11	359	Shop Paint
Repair Steel (Shapes and Plates)	1-9, 12-30	268	Uncoated
Bearing Sole Plates	12-20	40	Shop Paint

**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 0603727A “Localized Paint Removal and Field Painting of Existing 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-stripped 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 satisfactorily 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:**

The protective fence for use under project 82-312 shall be the curved portion as identified on the plans.

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 climb resistant steel 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 and as shown on the plans.

**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 a separate item “Climb Resistant Steel Mesh Fence”.

<u>Pay Item</u>	<u>Pay Unit</u>
Protective Fence	l.f