BRUCKNER VIADUCT DECK REPLACEMENTS

DESIGN-BUILD PROJECT

PIN X731.45, Contract D900040

Request for Proposals

Addendum #3

October 17, 2017
Modification to the Request for Proposals
BRUCKNER VIADUCT DECK REPLACEMENTS
Design-Build Project
PIN X731.45, Contract D900040

Note to Proposers

Differences between the deleted pages and the revised pages have been identified as follows:

- Brackets have been inserted on the left-hand margin of the pages to indicate where changes have been made to the documents; and
- Text additions have been shown in underlined red font and text deletions have been shown in crossed out red font.

General Instructions

Delete Form SCD of the Instructions to Proposers, Appendix E, Forms, and substitute the attached revised Form SCD.

Delete Page ii of the DB Contract Documents, Part 1, DB Agreement, and substitute the attached revised Page ii.

Add Appendix D – Ensuring Pay Equity by State Contractor to the DB Contract Documents, Part 1, DB Agreement.

Delete Pages iv, 38, 39, 40, 42, 43, 49, 52, 53, 55, 56 and 62 of the DB Contract Documents, Part 3, Project Requirements, and substitute the attached revised Pages iv, 38, 39, 40, 42, 43, 49, 52, 53, 55, 56 and 62. Note, that there are no tracked changes on Pages 43 and 56; however, the pages are included due to the text which shifted as a result of the additions to the Pages 42 and 55, respectively.

Delete Page 41 of the DB Contract Documents, Part 5, Special Provisions and substitute the attached revised Page 41.


Delete the Draft OCMC Permit of the DB Contract Documents, Part 7, Engineering Data, and substitute the attached revised Draft OCMC Permit.

Delete Page ii and Items 557.11010003 and 557.64010103 of the DB Contract Documents, Part 8, Special Specifications and substitute the attached, revised Page ii and Items 557.1101003 and 557.64010103. Note, changes are not tracked in Items 557.1101003 or 557.64010103.

Add Items 634.20010111 and 634.20010211 to the DB Contract Documents, Part 8, Special Specifications.

No other provision of the solicitation is otherwise changed or modified.
### FORM SCD

**SCHEDULE OF CONTRACT DURATIONS**

**Table SCD - 1**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>DURATION (Calendar Days past NTP)</th>
<th>PROJECTED COMPLETION DATE (MM/DD/YYYY)</th>
<th>LIQUIDATED DAMAGES AMOUNT (PER DAY) (See Note 2)</th>
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<tbody>
<tr>
<td>PROJECT COMPLETION</td>
<td></td>
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<td>$7,000</td>
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</table>

Table SCD-2a relates to work performed on the mainline Bruckner Expressway and ramps within the limits of work including all associated superstructure work (except for steel superstructure repair work that does not conflict with the deck replacement) and substructure work limited to pedestal and bearing removal/replacement.

**Table SCD – 2a**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PROJECT COMPONENT BIN (Carried/Crossed)</th>
<th>TRAFFIC IMPACT DURATION (CALENDAR DAYS) (see Notes 3, 4, 9)</th>
<th>LIQUIDATED DAMAGES AMOUNT (PER DAY) (See Note 5)</th>
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<tbody>
<tr>
<td>1a</td>
<td>Mainline Median Modifications – Pre-Phase</td>
<td>Max Allowed 60</td>
<td>$3,000</td>
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<tr>
<td>1b</td>
<td>Mainline Median Modifications – Post-Phase</td>
<td>Max Allowed 45</td>
<td>$50,000</td>
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<tr>
<td>2</td>
<td>1066669/Mainline Bruckner Expwy Southbound &amp; 106666C/Ramp SB Sta 10+50 to Sta 36+46 (Pier 43)</td>
<td>Max Allowed 300</td>
<td>$90,000</td>
</tr>
<tr>
<td>3</td>
<td>1066669/Ramp RC</td>
<td>Max Allowed 180</td>
<td>$40,000</td>
</tr>
<tr>
<td>4</td>
<td>1066669/Mainline Bruckner Expwy Northbound &amp; Ramp NB Sta 7+00 to Sta 36+46 (Pier 43)</td>
<td>Max Allowed 270</td>
<td>$55,000</td>
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<tr>
<td>5</td>
<td>106666A/Ramp NX</td>
<td>Max Allowed 180</td>
<td>$10,000</td>
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<tr>
<td>6</td>
<td>1066730/Ramp ND</td>
<td>Max Allowed 120</td>
<td>$30,000</td>
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</table>

Table SCD-2b relates to work performed on ramp with complete ramp closure.
### Table SCD – 2b

**IMPACTS TO TRAFFIC (ROADWAYS CARRIED)**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PROJECT COMPONENT BIN (Carried/Crossed) (see Note 8)</th>
<th>TRAFFIC IMPACT DURATION (54-HOUR WEEKEND CLOSURES) (see Notes 3, 6)</th>
<th>LIQUIDATED DAMAGES AMOUNT (PER HOUR) (See Note 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>106666D/RAMP RD</td>
<td>Max Allowed 6</td>
<td>$3,000</td>
</tr>
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</table>

### Notes:

1.) Project Completion for the purposes of this Form SCD is defined as “All construction physical field activities completed, no additional impacts to traffic, and complete demobilization from the work site(s)”. The counting of calendar days shall commence after the 60th day from NTP issuance date and shall be counted continuously until all physical field work has been completed. Remaining paperwork (i.e. As-Built Drawings, close-out documentation, payments) may occur after the Project Completion date for the purposes of this Form SCD. The Project Completion Date, to be included in the DB Agreement, Article 2.3, shall be defined as 60 calendar days plus the number of consecutive calendar days bid by the Design-Builder as defined in SCD Table-1. In no event shall the Design-Builder’s proposed Completion Date, as computed above, exceed a date of June 30, 2020. In the event it does, the Proposal will be deemed Non-Responsive and disqualified from the evaluation.

2.) Liquidated Damages will be assessed, in the amount indicated, for failure to achieve Project Completion by the Project Completion Date in accordance with Articles 2.3 and 19 of the DB Agreement.

3.) Indicate the Traffic Impact Duration for each Project Component. Traffic Impact Duration is defined in ITP Appendix G.

   a. Lane closures to collect engineering data in accordance with the OCMC Permit and the RFP may be performed without counting toward the Traffic Impact Duration provided no physical work of any kind is performed.

   b. It is the Department’s understanding that WZTC devices, lane tapers, drops, etc. may extend into adjacent approach and departure deck and ramp areas that are not included in the Design-Builder’s intended active work area. These adjacent WZTC devices will not initiate counting of a Traffic Impact Day on adjacent non-active work areas unless the Design-Builder commences with some permanent work associated with these adjacent approach and departure locations.

   c. A lane shift will not count as a Traffic Impact Day as long as the number of width of travel or turning lanes on a given roadway or structure are not reduced from the existing number or width.

   d. All lane closures and work limited to Table SCD 2a Item 1, the removal of the concrete median barrier and any temporary work to facilitate future Construction phasing, will count as a Traffic Impact Day.
e. All lane closures and work limited to Table SCD 2a Item 1b, final concrete median barrier construction and any other median work to finalize Construction work, will count as a Traffic Impact Day.

4.) Counting of Traffic Impact Days – Start Counting: On any day whereby traffic cannot be physically restored to its original unobstructed configuration due to temporary or permanent work associated with the commencement of any concrete deck or barrier demolition shall trigger the start of counting of traffic impact days. Lane width reductions with no associated concrete deck or barrier work will not trigger the counting of traffic impact days on that structure (traffic shifts on the Mainline).

Stop Counting: The counting of Traffic Impact Days will end on the day when all permanent work on the roadway feature has been completed with no further disruption to traffic related to the completion of said work, including but not limited to permanent lighting, deck diamond grinding, grooving, application of penetrating sealer, and crack repair by epoxy injection.

5.) Liquidated Damages will be assessed, in the amount indicated, for each calendar day that Traffic is impacted, at each site, in excess of the Duration indicated in Table SCD-2a.

6.) A closure of any period of time regardless of duration will be considered a full 54 hr closure for the purpose of counting the actual number of weekend closures utilized.

7.) Liquidated Damages will be assessed, in the amount indicated, for each hour that Traffic is impacted in excess of the Duration indicated in Table SCD-2b.

8.) Superstructure Work-work on Ramp RD (Table SCD – 2b Item 7) is to extend and include all the Mainline right hand lane and parapet work to Bent 43 and be reflected in the number of Traffic Impact DaysDuration bid. Permanent concrete barrier and lighting work may be performed outside the 54 hour weekend closure period consistent with the minimum lane width during construction requirements in Section 15.3.6. Additionally, all Ramp RD work is to be completed no later than the completion of work on the Bruckner Expressway Mainline (Table SCD – 2a Item 4) or the Liquidated Damages associated with Ramp RD will continue to be assessed.

9.) 1066669/Mainline Bruckner Expwy Southbound & 106666C/Ramp SB Incentive – A $90,000/calendar day incentive will be paid for each day that the design builder completes work earlier than that bid (i.e., the stop counting of Traffic Impact Days), up to a maximum incentive of 15 calendar days ($1.35 M).

The Proposer commits to meet the Contract Durations specified above.
ARTICLE 27. DESIGN-BUILDER LIABILITY

APPENDIX A: STANDARD CLAUSES FOR NEW YORK STATE CONTRACTS

APPENDIX B: FEDERAL REQUIREMENTS

Attachment 1 - FHWA Form 1273
Attachment 2 – Federal Prevailing Wage Rate
Attachment 3 – Goals for Equal Employment Opportunity (EEO) Participation
Attachment 4 – Goals for Disadvantaged/Minority/Women’s Business Enterprise (D/M/WBE) Participation
Attachment 5 – Supplemental Title VI Provisions (Civil Rights Act)
Attachment 6 – Cargo Preference Act Requirements

APPENDIX C: STATE PREVAILING WAGE RATES

APPENDIX D: ENSURING PAY EQUITY BY STATE CONTRACTOR
APPENDIX D

ENSURING PAY EQUITY BY STATE CONTRACTORS
In accordance with Executive Order 162, issued on January 9, 2017, the Contractor shall provide to the Department – on a monthly basis – detailed workforce utilization reports of the Contractor and each subcontractor that include, in addition to equal employment opportunity information, the job title and salary of each employee directly performing work on a State contract.

If the Contractor cannot identify the individuals working directly on a State contract, then the Contractor shall provide such information of each employee in the Contractor’s and each subcontractor’s entire workforce.

The reporting period shall be defined as each calendar month, beginning and ending on the first and last day of each such month, respectively. The reporting requirement shall begin on the effective date of the contract and continue for the duration of the contract term. Reports shall be submitted within 15 calendar days from the end of each reporting period. This provision is in effect for the reporting period beginning December 1, 2017, or the effective date of the contract, whichever date is later.

This provision shall not relieve the Contractor’s responsibility to submit payroll certification as elsewhere required. If information within the Contractor’s payroll certification is sufficient to fulfill the requirements of Executive Order 162, additional information shall not be required.

Detailed workforce utilization reports, as required above, shall be submitted in such form, in such manner, and in such timeframe as shall be required by the Department.

The Contractor shall include this provision in every subcontract so that such provision shall be binding upon each subcontractor.
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.3.6</td>
<td>Electrical Work</td>
<td>53</td>
</tr>
<tr>
<td>14.3.7</td>
<td>Existing Cameras and Call Boxes</td>
<td>53</td>
</tr>
<tr>
<td>14.4</td>
<td>System Test Procedures</td>
<td>53</td>
</tr>
<tr>
<td>14.5</td>
<td>Documentation Requirements</td>
<td>53</td>
</tr>
<tr>
<td>15</td>
<td>Work Zone Traffic Control and Access</td>
<td>54</td>
</tr>
<tr>
<td>16</td>
<td>Pavement Design and Construction</td>
<td>58</td>
</tr>
<tr>
<td>17</td>
<td>Drainage and Stormwater</td>
<td>60</td>
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<tr>
<td>18</td>
<td>Highway Design</td>
<td>62</td>
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<td>Standards</td>
<td>64</td>
</tr>
<tr>
<td>20</td>
<td>Security</td>
<td>65</td>
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</tbody>
</table>
SECTION 10 STRUCTURES

10.1 SCOPE

The Design-Builder shall be responsible for all work necessary to complete the design and construction of all permanent and temporary structures required to complete the Project. The design and construction of all structural systems and components shall provide functionality, durability, ease of maintenance and inspection, and safety.

The Design-Builder shall be responsible for the review and approval of all shop drawings needed for the scope of work. The review and approval process shall be in conformance with the Design-Builder’s Quality Control Plan.

10.2 STANDARDS

The Design-Builder shall perform structural design and construction activities in accordance with the Contract Requirements and the applicable Standards, Design Codes, and Manuals cited in Section 1.6, unless otherwise stipulated in this Project Requirement or otherwise applicable to the Project.

10.3 DESIGN REQUIREMENTS

The Design-Builder shall design new bridge components, including but not limited to the following: reinforced concrete deck, approach slabs, deck joints, link slabs, concrete bridge barriers, bearings and drainage systems.

The existing roadway alignment, profile and overall bridge width shall remain unchanged and the new bridge components shall be designed per the NYSDOT LRFD Bridge Design Specifications with Blue Pages.

The following work shall be performed:

- Replace the existing concrete deck slab and wearing surface with 9.5 inch (minimum final thickness after diamond grinding) concrete deck with integral wearing surface – Type 1 Friction. The new/replacement deck shall be made composite with the steel superstructure. **All existing shear studs shall be replaced as required to comply with current standards.**
- Eliminate joints by utilizing a link slab at the locations noted in the Directive Plans.
- For joints at locations noted in the Directive Plans, design and install armorless joint systems.
- Deck Joints at abutments shall be eliminated if permitted by the NYSDOT Bridge Manual.
- Replace existing bearings with elastomeric bearings. Fixed bearings shall be designed to meet the design criteria provided in the Directive Plans.
- Repair deficient steel structural elements as shown on the directive plans; payment for all BINs will be made under item 800.06010015 Steel Superstructure Repair Work – Directive Repairs and the bid should be based upon the repair types and locations shown. Steel repairs that may be required beyond that shown in Part 6 – RFP Plans will be paid for by drawing down from item 800.06020015 Steel Structure Repair Work – Unanticipated Repairs. All repairs shall bring members back to full capacity.
- Replace all pedestals with new pedestals.
- Existing steel bolsters connected to the bottom flange of the girders shall be either (1) removed or (2) retained at the contactors option providing the bolster has no section loss. **Existing steel bolsters are to be removed if necessary to obtain the standard 6” minimum pedestal.**
- Replace approach slabs with new approach slabs (except Ramp RC).
- Replace all pressure relief joints.
- Repair deficient structural concrete substructure elements as shown on the directive plans in Part 6 – RFP Plans; payment will for all BINs will be made under item 800.06060015 Concrete Substructure Repair Work – Directive Repairs and the quantity bid should be based upon the total including contingency shown. Concrete repairs that may be required beyond the square footage shown in Part 6 – RFP Plans will be paid for by drawing down from the Force Account under item 800.06070015 Concrete Substructure Repair Work – unanticipated repairs. Reinforcement damaged by concrete removal operations are the responsibility of the Design-Builder.
- Paint all structural steel repairs and structural steel within 5 feet on both sides of existing joints and as shown on the Directive Plans. Paint color shall match the existing paint color. Class A containment shall be provided for painting operations.
- Relocate existing electrical conduit under the existing deck and embedded in the concrete bridge parapets. The new conduit shall be located inside the concrete barriers.
- Replace the existing single rail and concrete barrier with 3’-6” single slope concrete barrier (TL-5).
- Retrofit existing structure to accommodate new sign structures.

Components

A) Barriers, Railings and Pedestrian Fencing: Temporary traffic barriers shall meet, as a minimum, the testing requirements of TL 2 and permanent traffic barriers shall meet, as a minimum, the testing requirements of TL 5.

Refer to Section 10.3.1 for aesthetic requirements related to bridge parapet walls, bridge railing, and fencing, if any.

B) Decks: Full depth precast panel and/or cast in place decks are required; stainless steel rebar (Grade 75) shall be used. Cast in place decks shall use internally curing concrete as per NYSDOT Special Specifications 557.51010018 and 557.54010018. Two-course decks with asphalt overlays as defined in the NYSDOT Bridge Manual are not permitted. Unfilled steel grating decks and orthotropic steel decks are not permitted. Bridge decks shall be made fully composite with the underlying primary member system. All decks shall be protectively sealed.

If a combination of cast-in-place and precast deck solution is utilized, the Design-Builder must diamond grind the entire deck surface between expansion joints. An additional ½” slab thickness over the top mat reinforcement will be added to accommodate diamond grinding.

If a precast deck is set, followed by placement of an adjacent cast-in-place deck, a closure pour is required between the deck systems if the precast deck is under live load during the placement. Additionally, a Cast-in-Place (CIP) slab poured adjacent to previously placed CIP slabs with active live loads require a closure pour.

All closure pours shall be UHPC in conformance with NYSDOT Special Specifications Item 557.64010103. Closure pours shall not be placed adjacent to cast in place deck pours for a minimum of 72 hrs.
The use of prestressed concrete panels for forms is not allowed.

Link Slabs: Link slabs shall be as shown in the Directive Plans. The link slab used shall be one of the following two types:

1. Ultra-High Performance Concrete (UHPC): The design shall follow the design method developed by the NYSDOT Office of Structures titled “Link Slab Design Example” located in the reference documents. UHPC shall confirm to NYSDOT Special Specifications Item 557.64010103.

2. Link slab using the same concrete as for the deck (can only be used when the entire deck is cast in place): The design shall follow the method described in the PCI Journal paper titled “Behavior and Design of Link Slabs for Jointless Bridge Decks” by authors Alp Caner and Paul Zia, May-June 1988, Volume 43, issue 3.

All joint headers shall be constructed using stainless steel reinforcement.

For precast decks: (1) lifting hardware shall not be permitted on the top of the slab (2) shall be per NYSDOT Special Specifications ITEM 557.64010103 and the “Precast Deck Panel Connection Details” per the Directive Plans (3) wearing surface shall be diamond ground and (4) Integral Precast Concrete Barrier per NYSDOT Special Specification ITEM 557.11010003 is optional.

Top surfaces of all newly placed decks and concrete overlays, including approach slabs and sidewalks shall be inspected by the Design-Builder’s Construction Quality Control Engineer after completion of curing and prior to diamond grinding and sawcut grooving. A report shall be generated and submitted to the Department’s CQAE identifying all cracks wider than 0.02 inches after 180 days of full live load exposure and after August 1st of the following summer. All cracks wider than 0.02 inches shall be epoxy injected as per ITEM 555.80020001 - CRACK REPAIR BY EPOXY INJECTION (RESTORATION). Inspected surfaces exhibiting cracks that are less than 0.02 inches in width shall be treated with one additional application of penetrating type sealer. The work shall be completed prior to grinding and grooving. Stated above may require an uncompleted work agreement. All stated work above shall be performed with no additional cost to the department. Penetrating sealer shall then be applied in accordance with the NYSDOT Bridge Manual.

C) Bearings: Existing bearings shall be replaced with elastomeric bearings designed using the provisions of the NYSDOT LRFD Bridge Design Specifications with Blue pages. Extreme Event I Load Combination does not apply for this design. For all other applicable load combinations, the loads shall be distributed among all supports in proportion to their stiffness (combined stiffness of substructure and bearings).

Bearing supporting the steel box beams are not to be replaced.

The yield strength calculation for the pins at the fixed bearings will be such that the pin will yield at between 80% and 100% of the applied horizontal load given in the tables provided in Directive No. LSL-01. Overstrength factors need not be included in this design.

The Design Builder has the option of using a, elastomeric Base Isolation Bearing System per NYSDOT Special Specifications Item 565.64nnn16 in lieu of using the design criteria noted above. The following applies: (1) The reduced effective area as specified in Section 5.7.4.2 shall not be used for the computation of pier capacity (2) Extreme Event I Load Combination does not apply for this design (3) loads shall be distributed among all supports in proportion to their stiffness (combined stiffness of substructure and bearings).

The Design Builder is permitted to design and execute a lifting operation to facilitate the construction of the new pedestals and bearing installation under active live loads prior to placement of the new
background and numbers shall be coated and/or edge sealed in accordance with the recommendations of the sheeting manufacturer.

The BIN plate shall be attached to the beginning abutment, right side of the bridge using expansion anchors. The plate shall be placed high on the abutment, near the fascia of the bridge so that it cannot be painted over via a spray paint can or easily removed or damaged.

10.3.1 Aesthetics

Any superstructure steel that utilizes a protective coating of paint shall be painted with a coating matching the paint color on the existing structures.

10.4 DEMOLITION REQUIREMENTS

10.4.1 Scope

The Design-Builder shall demolish and remove the existing bridge deck and other elements (e.g., lighting, drainage system) noted elsewhere in the RFP within the Project Limits in a safe and environmentally acceptable manner.

The Design-Builder shall test for the presence of Hazardous Materials in all structures to be disturbed to ensure the handling, removal and disposal is done in accordance with all applicable laws and standards.

The abatement of all Hazardous Materials shall be completed to the greatest extent possible prior to any demolition taking place unless a legal variation from related laws, rules and regulations can be obtained. If the Hazardous Material has been identified through the Hazardous or Asbestos Screening document and/or the record plans, the Design-Builder is responsible for all costs. Should Hazardous Material or Asbestos be found and information related to its presence not previously available to the Design-Builder, all costs associated with abatement, containment, removal, and disposal shall be covered under the Fixed Force Account item.

The Design-Builder shall perform all Work with care so that any materials that are to remain in place, or that are to remain the property of the Department shall not be damaged. If the Design-Builder damages any materials that are to remain in place or which are to become or to remain the property of the Department, the damaged materials shall be repaired or replaced in a manner satisfactory to the Department at no cost to the Department.

The Design-Builder shall ensure that no aspects of the Works have a detrimental effect on public safety or the environment. Primary protective shields shall be provided in accordance with Item 634.20010111 at all locations where the existing concrete deck is being removed and/or replaced or where new deck is being installed. Secondary Protective Shields shall be provided in accordance with Item 634.20010211 in addition to primary protective shields where live traffic or pedestrians are present. The protective shields shall be designed to support a minimum load as follows:

Primary Shields – 200#/ft². Additional loading shall be considered to take into account loads that may be imposed on it by drop induced impact and/or a person falling from the structure. In areas where only primary shields are provided, the design builder shall additionally install a plywood layer with all edges and seams sealed, to prevent any dust, particles or debris from falling to the area below the shields. When secondary shields are also required, see below, the primary protective shielding shall be designed to support a minimum load of 100#/ft².

Secondary Shields – 100#/ft². Additionally, the localized area where Secondary Shields are required shall not be less than 12’ x 12’. Shielding system’s cables, clips, hangers, decking, fittings and other components of the shielding shall be capable of supporting these loads.

Utility connections shall be discontinued and capped in accordance with the requirements of the utilities companies or the Department prior to demolition works.
10.4.2 Standards

The Design-Builder shall perform the demolition activities in accordance with the Contract Requirements and the applicable Standards, Codes and Manuals listed in Section 1.6 unless otherwise stipulated in this Project Requirement, or otherwise applicable to the Project.

10.5 CONSTRUCTION REQUIREMENTS

The Design-Builder shall develop erection procedures for the bridge that include complete detailed erection sequence drawings; erection stresses in permanent and temporary members; bent and falsework reactions determined for each construction stage.

10.5.1 Construction Vehicles on Bridge

The Design-Builder is prohibited from running equipment that does not operate on rubber tires (milling machines, rollers, etc) across bridge decks unless proper precautions (mats, etc) are provided to prevent damage to the deck. The methods used to move equipment across bridge decks shall be subject to approval by the Construction Inspection Professional Engineering Firm with comments from the CQAE.

10.6 LOAD RATING REQUIREMENTS

Prior to Release-for-Construction of any Bridge design, the Design-Builder shall submit draft Load Rating Summaries of all ratable elements of the Bridges to the Design Quality Assurance Engineer for review. The draft Load Rating Summary shall be accompanied by backup calculations (Level 1) and one (1) electronic copy of the input files.

Prior to any bridge in this Project being opened to traffic, including temporary bridges, the Design-Builder shall provide to the Department, the load rating computations, including AASHTOWare Bridge Rating, BrR (formerly known as Virtis) load rating files, as per NYSDOT standards and manuals for review and acceptance by the Design Quality Assurance Engineer. Load rating computation submission(s) in any format other than BrR shall be pre-approved by the Department. The final stamped and signed load rating package shall be submitted to the Design Quality Assurance Engineer no later than 30 calendar days prior to the scheduled opening to traffic of the structure. The submitted package shall have both LRFR and LFR packages.

Note: If Design-Builder elects to utilize a concrete barrier integral with the precast deck, the barrier shall be considered a DC1 load.

All Rehabilitated bridges shall have load ratings equal or greater than the rating prior to the proposed rehabilitation unless stated otherwise in the RFP. The Load Ratings of the existing structures are:

- BIN 1066669:
  - HS20 INV/OP= 37 T/61 T
- BIN.106666A
  - HS20 INV/OP= 43 T/71 T
- BIN.106666B
  - HS20 INV/OP= 42 T/70 T
- BIN.106666C
  - HS20 INV/OP= 44 T/74 T
- BIN.106666D
  - HS20 INV/OP= 39 T/65 T
- BIN.1066730
  - HS20 INV/OP= 39 T/66 T

10.7 DELIVERABLES

Deliverables shall be as stated elsewhere in the RFP documents.
SECTION 13 LIGHTING

13.1 SCOPE

The Design-Builder shall conduct all Work necessary to provide all required lighting and lighting components required for the Project. This includes design, fabrication and construction of all transportation related permanent and temporary roadway lighting of the bridge and roadway within the Project Limits.

The Design-Builder shall be responsible for the review and approval of all shop drawings needed for the scope of work. The review and approval process shall be in conformance with the Design-Builder’s Quality Control Plan.

13.2 STANDARDS

The Design-Builder shall perform the lighting activities in accordance with the Contract Requirements and the applicable Standards, Design Codes and Manuals listed in Section 1.6, or otherwise applicable to the Project, and the New York City Department of Transportation Standards, Specifications and Notes included in Part 7, Engineering Data.

13.3 REQUIREMENTS

13.3.1 General Requirements

The Design-Builder shall be responsible for designing, fabricating, furnishing and installing all new components (from the utility company’s power supply connection forward to the luminaries) required to provide a fully functioning, integrated lighting system for the Project including, but not limited to, new luminaires, controls, poles, mounting, switches, panels, cabinets, enclosures, wiring, conduits, and support hardware.

The Design-Builder shall prepare all lighting calculations for all temporary and permanent lighting for the Project, including IES files, and submit them to the Department and the New York City Department of Transportation Division of Street Lighting (NYCDOT-DSL) for review and approval. The Design-Builder shall assume that NYCDOT-DSL will require four (4) weeks for review of the lighting submittals. The contact person for NYCDOT-DSL is Mr. Akmal M. Mikhail, 34-02 Queens Blvd., Rm #218, Long Island City, NY 11101; 212-839-3368.

Submit Lighting Calculation that shall conform to Street Lighting requirements:

- Bruckner Expressway with Average of 0.6 fc – 0.8 fc and a max Ave./Min. ratio of 4:1.
- Ramps and gore area with average of 1.2 fc and max Ave./Min. ratio of 4:1.

Submit voltage drop calculations & wiring diagrams that is related to the same Control Cabinet. (Inside and/or Outside of contract limits)

Street Lighting plans package shall include:

- Street Lighting notes.
- Street Lighting legend of all used street lighting items on plans.
- List of all applicable Street Lighting Standard Drawings & Specifications.
- List of all applicable State pay item numbers.
SECTION 14 INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

14.1 SCOPE

The Design-Builder shall perform all work necessary to design, furnish, build, and install temporary and permanent replacement of all ITS communication system field devices for uninterrupted service of the INFORM traffic management and traffic signals.

The ITS System work in the Project shall consist of the following:

The Design-Builder shall maintain and protect the existing system in its present location and condition during the performance of the work and at the completion of the Project, except for the CCTV camera specified in 14.3.7, which shall be removed and disposed. The Design-Builder shall maintain and protect the existing Fiber Optic trunk cables located in the NYSDOT Right of Way. Should any disruptions of the existing Fiber Optic network be required due to the Design-Builder's operations, a temporary communication system or bypass communication linked to the NYSDOT TMC shall be provided. None of the current functionality of the existing system may be lost or negatively affected by construction activities related to this Project.

Any disruptions to the existing system caused by the Design-Builder's operations shall be repaired by the Design-Builder at no additional cost to the Department.

For the duration of this contract, the Design-Builder shall be responsible for all other work related to the ITS System within the Project limits.

14.2 STANDARDS

The Design-Builder shall perform ITS activities in accordance with the Contract Requirements, the applicable Standards, Design Codes and Manuals cited in Section 1.6, unless otherwise applicable to the Project.

14.3 REQUIREMENTS

14.3.1 Variable Message Sign (VMS)

Section Not Used.

14.3.2 Fiber Optic Backbone

Section Not Used.

14.3.3 Traffic Signal Interconnection

Section not used.

14.3.4 Temporary Wireless Radio and Antenna

Section not used.
14.3.5 Central Computer System at TMC
Section not used.

14.3.6 Electrical Work
Section not used.

14.3.7 Existing Cameras and Call Boxes
Existing CCTV camera and feed mounted on the poles as noted on the directive plans (conduits and wires) shall be removed and disposed.

Existing call boxes and solar panels noted on the directive plans shall be removed and reinstalled. The Design-Builder shall coordinate the removal and reinstallation of these devices with NYCDOT and John Ornas, 34-02 Queens Blvd. Long Island City, NY 11101, 212-839-3325.

14.4 SYSTEM TEST PROCEDURES
Section not used.

14.5 DOCUMENTATION REQUIREMENTS
Section not used.
A) Contingency plans for reasonable unforeseen interruptions;
B) Duration of each WZTC stage, including duration of lane closure(s), if any;
C) Provisions for maintaining pedestrian traffic through the Project area at all times at all locations where pedestrian access through the Project area currently exists.

The Design-Builder shall notify local officials, and affected police jurisdictions to facilitate safe and effective enforcement. The WZTC Plan shall recognize the need for approval of the use of local public roads, if applicable.

The Design-Builder shall be responsible for updating the WZTC Plan as necessary throughout the Contract, so that at all times the current traffic control on site is representative of the design drawings that have been accepted by NYSDOT.

15.3.3 General Restrictions

Temporary lane closures shall be in accordance with the NYCDOT Work Permit stipulations included in Part 7 – Engineering Data.

A maximum 15 MPH reduction in the existing regulatory speed limit will be allowed for work zones, but not below 35 MPH. Any 15 MPH speed reduction must be accomplished in two steps of 10 MPH, maximum, ie. 50 MPH to 40 MPH to 35 MPH.

Pinning of Temporary Concrete barrier to the new concrete deck is prohibited.

15.3.4 Access to Commercial Properties and Driveways

The Design-Builder shall provide uninterrupted access to all commercial properties and driveways within the Project Limits at all times.

15.3.5 Closure Restrictions

Closure Restrictions shall be as described in the NYCDOT Work Permit included in Part 7 – Engineering Data. For purposes of WZTC and Ramp Closures, Ramp SB and Ramp RC will be defined to begin at Bent 43. Additionally, a minimum lane drop taper may be installed North of bent 44.

Additional lane closure requirements for northbound ramps from the RFK Bridge, Ramps NX and ND reconstruction:

- For Ramp ND, maintain a minimum of one (1) lane open to traffic during months May 1 to November 1. Maintain a minimum of two (2) lanes open to traffic during other times of year.
- The Design-Builder will not be permitted to reduce traffic on both ramps simultaneously. Only one ramp superstructure may be worked on at a time and must be completed prior to commencing work on the 2nd ramp.

15.3.6 Minimum Lane Widths during Construction

The Design-Builder shall maintain a minimum travel lane width of 11 feet during construction and accommodate the Design Vehicle (WB-67) with a minimum 1’ offset from the vehicle to the concrete barrier on each side.

Minimum lane widths shall be in accordance with the NYCDOT Work Permit Stipulations included in Part 7 – Engineering Data.

15.3.7 Portable Variable Message Signs

The Design-Builder shall provide, Portable Variable Message Signs as required to satisfy the Design-Builder’s design, for the duration of the Contract. The Portable Variable Message Signs shall be deployed as necessary for the various WZTC schemes developed in coordination with, and with concurrence/acceptance from, the Department’s Project Manager. The portable variable message signs
provided shall meet the requirements of NYSDOT Item No. 619.110202 (Portable Variable Message Boards with Cellular Option).

The development of messages for the Variable Message Sign(s) shall be the responsibility of the Department’s CQAE and operations staff at the NYSDOT’s Transportation Management Center.

The Design-Builder shall contact the Department’s CQAE at least two weeks prior to placement of any Variable Message Sign regarding their location and receive concurrence of the location.

15.3.8 Temporary and Interim Pavement Markings

The Design-Builder shall provide temporary and interim pavement markings during all construction phases conforming to the requirements of the NYSDOT Standard Specifications.

15.3.9 Coordination with Regional Traffic Management Center

The Design-Builder is advised that the NYSDOT’s Traffic Management Center will provide support for the Project’s WZTC activities. Therefore, coordination among the Department’s Construction Quality Assurance Engineer, Design-Builder, and NYSDOT’s Traffic Management Center, will be required for all WZTC activities, particularly with respect to the use of Variable Message Signs (VMS)) in the Project area.

The Design-Builder shall notify the Department’s Project Manager of all lane and/or shoulder closures prior to implementation.

15.3.10 Emergency Response and Transportation Management Plans

The Design-Builder shall notify the Department’s CQAE immediately following any impacts to motorists due to construction activities and/or unforeseen circumstances. The CQAE will be responsible for disseminating the information to the appropriate personnel/entities for appropriate response to mitigate impacts to motorists.

The Design-Builder shall prepare an Emergency Response Plan to be implemented in the event the roadway is shut down for unforeseen or unplanned circumstances. The Plan shall be implemented when the anticipated duration of closure exceeds twenty (20) minutes. The Plan shall be submitted to the Department’s Project Manager for review and comment a minimum of two weeks prior to the beginning of Work. Work on this Project shall not begin until the Design-Builder receives written notification from the Department’s Project Manager that the Emergency Response Plan has been reviewed by the Department and all Department comments have been resolved.

The Emergency Response Plan shall include a notification and communication plan that describes how the Design-Builder will promptly inform the appropriate personnel/entities of an unforeseen or unplanned circumstance. No later than 30 calendar days following NTP, the Department’s Project Manager will provide the Design-Builder with a list of personnel and entities that need to be contacted in this section of the Emergency Response Plan.

The Design-Builder shall also provide the Department’s Project Manager a Transportation Management Plan (TMP) per FHWA’s Final Rule on Work Zone Safety and Mobility, 23 CFR 630 Subpart J. The intent of the TMP is to minimize impacts to the travelling public and to provide continuity of reasonably safe and efficient road user flow and highway worker safety. The Emergency Response Plan shall be a component of the TMP and shall be located in the contingency section of the TMP.
SECTION 18  HIGHWAY DESIGN

18.1  SCOPE

The Design-Builder shall be responsible for the design, construction and reconstruction of the permanent roadway(s) to be constructed within the Project Limits, and any other roads damaged by construction operations, or necessary for permanent operations, all in accordance with the design requirements stated herein. Highway design, construction and reconstruction shall be understood to include the design, furnishing, and construction of all road appurtenances, protections, and safety devices not specifically cited in other Project Requirements.

In addition, the Design-Builder shall be responsible for the removal of non-standard systems that currently exist within the Project limits, whether they are affected by the proposed work or not, and replacement with systems meeting current Department Standards, unless specified differently in the Project Requirements Sections 1-17 and 19-20.

18.2  STANDARDS

The Design-Builder shall perform the Work in accordance with the Contract Documents and the Applicable Standards, Design Codes and Manuals listed in Section 1.6, unless otherwise stipulated in this Project Requirement or otherwise applicable to the Project.

18.3  REQUIREMENTS

18.3.1  General

The Design-Builder shall be responsible for performing the detailed highway design and construction within the Project Limits in accordance with the Project Requirements set forth herein.

18.3.2  Design Requirements

Design requirements for the reconstruction of the Bridges are provided in Part 7, Engineering Data. Design requirements for the lane widths and shoulder widths are provided in the Directive Plans in Part 6, RFP Plans. The superelevations for Ramp NB and Ramp SB shall be 6.25% and 6.43% respectively.

18.3.3  Barrier Systems and Impact Attenuators

The Design-Builder shall remove and dispose of all existing barrier systems and/or impact attenuators within the Project limits, and replace with new barrier systems and/or impact attenuators to current NYSDOT Standards.

The Design-Builder shall remove and dispose of all existing guide rails along the at-grade section as shown in the Directive Plans included in Part 6 – RFP Plans, and replace with new guide rails to current NYCDOT standards.

The limits of work for new roadside and new median barrier shall be the lesser of the following:

1) The point where barrier is no longer warranted; or

2) A point where the proposed barrier can be transitioned to an existing barrier system which conforms to current standards.

All existing barrier systems that are removed shall become property of the Design-Builder.
These guidelines shall be used to develop the Design-Builder’s Quality Control (QC) Plan. The intent of notes #1 and #2 below are to establish a minimum requirement for assigning the number of CI staff on the project. It is not intended to serve as a limit to the maximum number of CI staff that may be necessary or required based on the Design Builder’s schedule, number of concurrent activities, or level of experience of the individual Construction Inspector(s) or other factors not described herein.

**Construction Inspection QC Operations:**

1. **Primary Shift:** The DB is required to furnish **no less than 8** Full Time Construction Inspectors (not including the Resident Engineer or the Office Engineer), upon commencement of project construction activities and until such time as the substantial completion milestone is achieved at each site.

2. **Secondary or Multiple Shift:** In the event the DB elects to perform work in multiple shifts, then additional Construction Inspection staff must be added to the CI staffing requirement of note #1 above. However, at no time can there be less than 8 Full Time Construction Inspectors provided during any secondary or multiple shift time period.

4. **Additional Staffing Requirements:** The Design Builder is expected to balance the inspection needs with its schedule of simultaneous operations paying particular attention to the Continuous Inspection demands vs. the number of CI staff available. The accompanying table utilizes generic titles from the Standard Specification Table of Contents. Project specific situations may alter the requirements of an activity.

5. **Testing Requirements:** Material Testing Requirements are not incorporated into these guidelines. Refer to DB Section 112 of the Standard Specifications.

6. **Witness and Hold Point** requirements represent activities that require an inspector to determine conformance based on an evaluation performed after specific milestone is accomplished. These witness and hold thresholds may be determined based on the specific progression of each activity hold points must be agreed upon between the CQCE and the CQAE prior to commencing the work.

7. **Interval Definitions:**
   1. Intermittent (1) - Inspection required is based on the item(s) of work and Contractor’s means and methods
   2. Intermittent (2) - Inspection is required, at a minimum, on a daily basis
   3. Intermittent (3) - Inspection is required no less than twice per inspection shift.

8. **Temporary Work:**
   Prior to the commencement of temporary work, the CQCE and the CQAE in conjunction with the Resident Engineer and Department’s PM shall discuss and reach concurrence on the inspection QC and QA requirements for the project and features defined to be of a temporary nature.
DRAFT WORK PERMIT

Stipulations are hereby given to the New York State Dept. of Transportation and its duly authorized representatives, , to enter upon and restrict the flow of traffic according to the times and schedules as stipulated herein on the Bruckner Expressway (I-278) & Bruckner Blvd. and its ramps for the purpose of removal and replacement of existing roadway deck, installation of shielding, concrete, steel repairs, bridge bearing replacement and structural painting together with all work incidental thereto, subject to the following stipulations:

1. This permit shall be in effect as of

2. **BRUCKNER EXPRESWAY**

   (RFK Bridge to Sheridan Expwy)

   The Permittee may close one (1) lane (northbound) while maintaining two lanes open at all times on the Bruckner Expressway (I-278) from the RFK Bridge to Sheridan Expwy vehicular traffic on weekdays and weekends as follows:

   A. 9:00AM to 2:00PM, Monday to Friday
   B. 10:00PM to 5:00AM, Monday night to Friday morning
   C. 11:00PM to 3:00PM, Friday night to Saturday afternoon
   D. 11:00PM to 3:00PM, Saturday night to Sunday afternoon
   E. 10:00PM to 5:00AM, Sunday night to Monday morning

   The Permittee may close one (1) lane (southbound) while maintaining two lanes open at all times on the Bruckner Expressway (I-278) from the Sheridan Expwy to the RFK Bridge to vehicular traffic on weekdays and weekends as follows:

   F. 10:00AM to 3:00PM, Monday to Saturday
   G. 10:00PM to 5:00AM, Monday night to Friday morning
   H. 10:00PM to 6:30AM, Friday night to Saturday morning
   I. 10:00PM to 2:00PM, Saturday night to Sunday afternoon

   The Permittee may close two (2) lanes (northbound or southbound) while maintaining one lane open at all times on the Bruckner Expressway (I-278) between RFK Bridge to Sheridan Expwy to vehicular traffic on weekdays and weekends as follows:

   J. 1:00AM to 5:00AM, Tuesday morning to Friday morning
   K. 1:00AM to 6:30AM, Saturday morning
   L. 2:00AM to 9:00AM, Sunday morning
3. **FULL WEEKEND CLOSURE RAMP “RD” & PARTIAL MAINLINE BRUCKNER EXWY**

The Permittee may fully close entrance Ramp “RD” from East 138th street to northbound Bruckner Expressway and the right two (2) lanes northbound while maintaining two (2) lanes open at all times on the mainline Bruckner Expressway between East 140th Street to East 141st Street for a continuous fifty-four (54) hours for six (6) weekends, while maintaining the detour from 138th Street to the entrance ramps to Bruckner Expressway and Sheridan Expressway for vehicular traffic as follows:

A. Full closure from 11:00PM Friday night to 5:00AM Monday morning.

B. For the removal of existing roadway deck and replacement with cast-in-place accelerated concrete (weekend work only).

C. Coordinate with NYC DOT Signals to have signal progression on Bruckner Boulevard detour from 138th Street to Hunts Point Avenue.

D. Provide NYPD Traffic Enforcement Agents (TEA’s) at East 138th street and Bruckner Blvd. intersection.

E. Provide minimum lane width of eleven feet (11’) per traffic lane on mainline.

4. **ONE LANE RAMP CLOSURES (NB, NX, ND, SB & RC)**

The Permittee may close one lane at a time for installation of Stages 1-5A of Ramps “NB”, “NX”, “ND”, “SB” & “RC” while maintaining at least one (1) eleven feet (11’) wide lane open to vehicular traffic at all times as follows:

A. Northbound ramps as follows:
   - Ramp NB from Major Deegan Expwy to Bruckner Expwy,
   - Ramp NX from RFK Bridge to Bruckner Expwy,
   - Ramp ND from RFK Bridge to Major Deegan Expwy, and

B. Southbound ramps as follows:
   - Ramp SB from Bruckner Expwy to Major Deegan Expwy, and
   - Ramp RC from Bruckner Expwy to RFK Bridge

C. The contractor shall maintain one (1) lane of traffic on each ramp at all times. A minimum width of 11 feet shall be maintained for traffic lanes.
5. **BRUCKNER BOULEVARD LOCAL STREET CLOSINGS FROM ST. ANN'S AVENUE TO EAST 141ST STREET**

**SOUTHBOUND BRUCKNER BOULEVARD (2 LANES BELOW VIADUCT PLUS 2 LANES OUTSIDE VIADUCT)**

The Permittee may **close one lane southbound on Bruckner Blvd** below the viaduct or outside the viaduct not simultaneously and while maintaining three lanes open at all times to vehicular traffic as follows:

A. 10:00AM to 4:00PM, Monday to Friday  
B. 9:00PM to 5:30AM, Monday night to Friday morning  
C. 9:00PM to 8:00AM, Friday night to Saturday morning  
D. 8:00AM to 4:00PM, Saturday  
E. 10:00PM to 10:00AM, Saturday night to Sunday afternoon

The Permittee may **close two lanes southbound on Bruckner Blvd** below the viaduct or outside the viaduct or one below and one outside the viaduct while maintaining two lanes open at all times to vehicular traffic as follows:

F. 11:00PM to 5:00AM, Sunday to Friday  
G. 11:30PM to 6:30AM, Friday night to Saturday morning  
H. 12:01AM to 9:00AM, Sunday morning

**NORTHBOUND BRUCKNER BOULEVARD (2 LANES BELOW VIADUCT PLUS 2 LANES OUTSIDE VIADUCT)**

The Permittee may **close one lane northbound on Bruckner Blvd** below the viaduct or outside the viaduct not simultaneously and while maintaining three lanes open at all times to vehicular traffic as follows:

I. 8:30AM to 2:30PM, Monday through Friday  
J. 10:00PM to 5:00AM, Monday night to Friday morning  
K. 11:00PM to 3:00PM, Friday night to Saturday afternoon  
L. 10:30PM to 3:30PM, Saturday night to Sunday afternoon  
M. 10:00PM to 5:00AM, Sunday night to Monday morning

The Permittee may **close two lanes northbound on Bruckner Blvd** below the viaduct or outside the viaduct or one below and one outside the viaduct while maintaining two lanes open at all times to vehicular traffic as follows:

N. 12:01AM to 5:00AM, Monday to Friday  
O. 12:01AM to 7:00AM Saturday morning  
P. 2:00AM to 9:00AM Sunday morning
The Permittee must adhere to the following options for two lane closures southbound or northbound on Bruckner Blvd while maintaining two lanes open at all times as noted above and below as follows:

Q. Close both lanes below the viaduct and divert the two lanes of traffic to the existing two lanes outside the viaduct.
R. Close both lanes outside the viaduct and divert the two lanes of traffic to the existing two lanes below the viaduct.
S. Close one lane below the viaduct and close one lane outside the viaduct.
T. During the hours stipulated above, parking lanes and/or shoulder may be closed, provided two lanes of traffic are maintained.
U. A minimum width of 11 feet shall be maintained for traffic lanes. All mainline ramps and entrance ramps shall be kept open at all times.

6. **BRUCKNER BOULEVARD INTERSECTIONS**

The Permittee must maintain turning lanes from Bruckner Boulevard to cross streets at all times, either maintaining existing turning lanes or providing temporary turning lanes to/from cross streets and as follows:

A. Critical locations require local street permits to be pulled.

B. **Provide Traffic Enforcement Agents (TEA's) at intersection location as needed.**

C. **138th Street intersection:** Lane closures are permitted during the hours in Stipulation 5 provided one lane of traffic is maintained in each direction.

D. **140th Street intersection:** One lane of traffic shall be maintained in each direction at all times.

E. **141st Street intersection:** One lane of traffic shall be maintained in each direction at all times.

F. Pedestrian access and pedestrian crosswalks shall be maintained open at all times.
7. This permit must be present on site when the approved work is being performed.

8. To reserve a lane or roadway closures on primary, secondary and local streets; the Permittee must obtain a separate permit from OCMC – Highways. OCMC – Highways will facilitate obtaining these “No Fee” permits. Permits for emergency and non-emergency work may be obtained by phone and facsimile to expedite the work. The Permittee or State representative must contact this office at least one business day prior to request and reserve a lane or street closure. This will reserve the street segment(s) for your activities and facilitate the issuance of the appropriate permits. The original permits may be picked up and signed within “seventy-two” hours.

9. Significant lane closures of Arterial Highways where at any time two thirds (2/3) of the number of roadway lanes are closed between 1:00 AM and 6:00 AM or fifty percent or more of the roadway lanes are closed at other times, notification shall be given to the public via the placement of Variable Message Signs (VMS) 7 days prior to the actual closure, when possible.

10. This permit is not valid unless it is signed by both the New York City Department of Transportation representative and the authorized representative of the Permittee.

11. Section 24 - 224, Administrative Code Variance is hereby granted for hours and days stipulated above.

12. A “Holiday Construction Embargo” will be in effect on Gridlock Alert Days from mid-November (the exact dates will be published each year in the New York City Department of Transportation’s OCMC yearly Holiday Embargo release, there are approximately ten (10)) to January 2nd. During this period, no lane or ramp closings will be permitted from 6:00 AM to Midnight except by written permission from the OCMC. This stipulation supersedes all others in this permit.

13. No staging and/or storage sites are authorized or will be permitted unless approved in writing (where owned by New York City) by the New York City Department of Transportation’s Division of Arterial Maintenance and/or the New York City Department of Parks and Recreation (if park land is involved) or (where State owned) by New York State Department of Transportation with New York City concurrence where applicable. Except for State owned sites where City concurrence is not necessary changes in the site or limits can only be made by an amendment to this permit as applicable. A detailed drawing must be submitted and will become an attachment to the amendment. A DPR Permit shall constitute written approval from the Parks Dept.

14. The Permittee agrees to assume all responsibility for injury or damages to private and/or City property caused through the operations of the permit and to save and hold harmless the City of New York and the New York City Department of Transportation from all claims and suits which may arise there from.

15. The Permittee shall be responsible to provide notification to the local Community Board and Borough President’s Office prior to the commencement of work. Additionally, notification shall be made to the local Councilman’s office. Proof of notification must be filed with the OCMC prior to the commencement of work.

16. The Permittee shall notify J TMC at 718-391-0253 or 718-391-0583 prior to his/her proposed traffic lane reductions or street closings for any purpose. The Permittee shall also immediately notify the J TMC upon reopening and in the event of an emergency condition.
17. When events occur at Yankee Stadium, no lane or ramp closures will be permitted as noted below:

A. FOR YANKEE STADIUM

a. From two hours before the event begins until one hour after the event begins, no lane or ramp closures permitted on:

- Major Deegan Expwy. - southbound.
- Major Deegan Expwy. - Northbound south of Fordham Road.
- Bruckner Expwy. - westbound

b. From one hour after the event begins until two hours after the event concludes, no lane or ramp closures permitted on:

- Major Deegan Expwy. - southbound south of 161st St.

18. The Permittee shall adhere to all pertinent rules and regulations of the New York City Department of Transportation relative to the use and occupancy of street space, the provisions of his agreement and the performance of his/her (or its) work.

19. The Permittee shall adhere to the NYCDOT Bureau of Bridges' Special Provisions for Landscape Protection, Maintenance and Restoration, items 1.18.15 through 1.18.19, whenever and wherever any of the Permittee's activities occur within a limited access arterial highway right-of-way. Copies of these provisions may be obtained from the New York City Department of Transportation's Director of Arterial Maintenance at 212.839.9875.

20. This Permit is limited to activity performed in conformance with this agreement with the New York City Department of Transportation and does not permit any other activities, which could be a hazard or distraction to the roadway user.

21. No deviation or departure from these stipulations will be permitted without the prior written approval of the New York City Department of Transportation. Requests for such modifications shall be submitted to the OCMC a minimum of ten (10) days in advance for consideration.

22. To ensure a traffic flow at all times storage of materials and equipment shall not be permitted within the traveled way of the highway. Storage areas shall be separated from the traveled way by a clear space of 30 feet minimum width, unless such storage is placed behind concrete barrier or permanently installed bridge railing.

23. Any excavations shall be adequately fenced and/or decked over by the Permittee to preclude entry by errant vehicles, pedestrians or animals.

24. The Permittee shall insure that construction materials and/or excavated soil and rocks temporarily stored on slopes are secured by straw bales or other effective means to prevent their movement into the travel way and clear zone (recovery zone) area.

25. When work is performed in or adjacent to sidewalk areas, a safe pedestrian walkway having a minimum width of five (5) feet shall be provided at all times by the Permittee.

26. Any commercial vehicles required by the Permittee's operations shall enter the Parkway at the nearest entrance to an individual work site and leave the Parkway at the nearest exit thereafter. This Permit shall constitute permission by the Commissioner of the Department of Transportation for the operation of a commercial vehicle "on a parkway" for construction purposes. The Permittee is advised that there may be HIGHT and/or WIGHT restrictions for structures on the Parkway/Drive. The Permittee shall assure that his/her vehicles do not exceed these restrictions.
27. Concurrent with construction work of this contract, if other projects on this and/or adjacent highways are under construction then the Permittee is to become familiar with the scheduling of those projects and schedule his activities accordingly. To facilitate the flow of traffic, the permissible work hours may be modified as deemed necessary by the New York City Department of Transportation with consultation with NYSDOT.

28. In order to provide an adequate transition for the safe flow of traffic, when the Permittee's (or another Permittee's) work sites are in two (2) different lanes in the same direction, those work sites shall be separated by a distance of at least two (2) miles.

29. Warning signs and traffic safety devices shall be provided, installed, maintained and removed by the Permittee in accordance with the New York State Department of Transportation's "Manual of Uniform Traffic Control Devices". The Permittee shall provide the appropriate channelization for traffic approaching and leaving his/her worksite. The Permittee shall provide flag persons, cones, barricades, etc. as required for public safety. The Permittee is responsible for the adequacy of the safety devices.

30. When water is being used at the work site for any purpose (i.e. concrete curing, saw cutting, etc.), the Permittee is required to insure, through any and all appropriate measures, that the water does not freeze on the roadway or sidewalks. The Permittee will be responsible to maintain a clear and safe travel path.

31. During the time a lane closure is permitted, the Permittee may intermittently stop traffic on the adjacent lane(s) of the same roadway for periods not to exceed five (5) minutes in duration for the purpose of transporting or securing equipment that may extend beyond the closed lane(s). A minimum of one (1) hour, or until the traffic queue is relieved, whichever period is shorter, is required between any two such closures.

32. Operation of a crane, derrick, shovel or other similar equipment for any and all work within the streets shall be carried out by the Permittee in accordance with the Rules, Regulations and Requirements of the New York City Department of Transportation and the New York City Department of Buildings and shall comply with all provisions of the New York City Noise Control Code. In addition, if this equipment is to be placed so that any part of the load will be superimposed on the sidewalk or roadway, the Permittee must file, with the New York City Department of Transportation, Office of Construction Mitigation and Coordination, a statement by a Professional Engineer, licensed by the State of New York, certifying the following:

(a) That the sidewalk or roadway area and the supporting subgrade can safely bear the crane load. Should the condition of the sidewalk or roadway area require that the crane load be distributed over a larger area than afforded by the elements of the crane, the engineer shall furnish the full dimensioned details of the load distribution;

(b) That the Engineer has taken all necessary measures to ascertain that there is no vault or subway tunnel underneath the sidewalk area or that if a vault or subway tunnel does exist its roof is sufficiently strong to support the load to be superimposed thereof;

(c) That the sheeting or retaining walls supporting any excavations adjoining the sidewalk or roadway area required to carry a load have been examined by the Engineer and have been found to be sufficiently strong to support the area carrying the crane load. Should the crane be employed making any excavation adjacent to the crane, the Engineer shall specify the sheeting or retaining wall reinforcement required to support the crane.
33. A Holiday Embargo is in effect for the Holidays (as determined by the New York City Office of Payroll Administration) with the following provisions:

When a Holiday falls or is observed by the City of New York on a Monday or Friday no lane or ramp closures are permitted from noon on the previous business day to 6:01 AM on the following business day. For example, if the holiday falls or is observed on Friday then no lane closure would be permitted from 12:01 PM on Thursday to 6:01 AM on Monday. If the Holiday falls or is observed on Monday then no lane closure is permitted from 12:01 PM on Friday to 6:01 AM on Tuesday. In addition when a Holiday falls or is observed midweek (Tuesday, Wednesday or Thursday) no lane closures shall be permitted from noon on the previous business day to 6:01 AM on the following business day.

The Holiday Embargo as detailed above is in effect for the following Holidays: New Year’s Day, Mother’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. Note: for Thanksgiving Day the Embargo begins on Wednesday at 12 noon and extends to Monday 6 AM, at which time the original stipulations shall be in effect.

A special embargo is in effect for the following holidays: Eve of Rosh Hashanah, Eve of Yom Kippur, Eve of Passover. No lane or ramp closures permitted from 1:00 PM to sundown.

34. Work cannot be performed during the New York City 5 Boroughs Bike Tour and the New York City Marathon, unless granted special permission by the New York City Department of Transportation, Office of Construction Mitigation and Coordination.

35. The Permittee shall comply with the Industrial Code of the State of New York Part (Rule No.) 53 relating to Construction, Excavation and Demolition Operations at or near underground facilities. Additionally, the Permittee shall similarly notify the owners of overhead cables or other electrical or street lighting equipment in the area covered by the Permit.

36. The Permittee is reminded that the appropriate Rules and Regulations that apply to the cleaning and painting of structural steel must be rigidly followed, as specified by NYSDOT Specifications.

37. When a contractor performs work at night, the work site shall be illuminated to the satisfaction of the Engineer-In-Charge (EIC). The EIC shall be the sole judge of when illumination is required.

38. The contractor shall be responsible for identifying his/her construction signage. The identification shall include the contracting agency, the contractor’s name and the contract number. This identification shall be placed on the back of all signs.

39. The Permittee shall, at its own expense, be under absolute obligation to determine the location of and provide protection from damage or loss for all subsurface facilities and overhead structures in the permit area. In the event of any damage or loss to such subsurface facilities and overhead structures, the Permittee shall promptly replace or repair such facilities and structures, as directed by the New York City Department of Transportation or other City agency having jurisdiction thereof or by the owner thereof.

40. The City makes no representation as to the character of the fill in the streets, and voids therein, or the condition of the sidewalks. The Permittee accepts full responsibility and liability for any disturbance or damage, which may be caused to adjoining pavements, sidewalks or structures by or in connection with the permit activity. All damaged sidewalk or roadway pavements shall be restored (to the nearest full flag for sidewalks) in conformance with the Standard Specifications of the New York (City/State) Department of Transportation.

41. The Permittee shall furnish and install tarpaulins enclosing the immediate site of his cleaning and painting operations to insure complete protection of the general public and property, both on and below the roadway against possible damage from scraping, paint drippings, wind-blown paint, dust, concrete, etc. This permit does not constitute approval of either painting or paint removal methodology. All signs and signals shall be protected daily with clean and transparent coverings.
42. The washing of concrete truck drums within the Arterial Highway or city street right-of-way is strictly prohibited unless the contractor utilizes the New York State approved method.

43. ELECTRICAL INSPECTIONS UNIT (EUI)

Construction stipulations to prevent damage to NYC electrical equipment

(a.) The NYCDOT Office of Construction Mitigation and Coordination (OCMC) - Highways must be contacted at telephone number 212-839-9643 or fax number 212-839-8970 at least two weeks prior to the commencement of any work so that a pre-construction inspection may be performed. If any repairs are made by NYCDOT EIU after the pre-construction inspection is performed, EIU shall notify OCMC so that the item(s) may be deleted from the inspection list.

(b.) NYSDOT will provide the NYCDOT Electrical Inspections Unit with a weekly schedule prior to the commencement of any excavation work, i.e. trench excavations, landscaping excavations such as for tree or bush pits, all other excavations, guardrail installations or any other installations involving drilling or the use of Hilti-bolts, or any other event when the earth gets moved on all highway surfaces, including grade level and elevated roadways, ramps, overpasses, paved and non-paved shoulder portions, over or adjacent to electrical lines, on or adjacent to the roadway, including excavation on shoulders both paved and non-paved surfaces.

(c.) Accessibility to, plus a three-foot minimum clearance, must be made available at any street light, traffic signal or ITS pole, panel box, junction box, ITS system or camera, or any other NYC electrical systems equipment.

(d.) NYCDOT will provide routine maintenance to lights in construction areas.

(e.) The contractor shall perform all work with care so that any materials which are to remain in place, or which are to remain the property of NYC will not be damaged. If the contractor damages any materials which are to remain the property of NYC, the damaged materials shall be repaired or replaced in a timely manner, approved by the NYCDOT Electrical Inspections Unit, and at no cost to NYC.

(f.) In the event of damage to electrical lines, including but not limited to electrical conduit, street light poles, pull boxes, panel boxes, junction boxes, cameras, or any other NYC electrical systems equipment on or adjacent to all highway surfaces, including grade level and elevated roadways, ramps, overpasses, paved and non-paved shoulder areas, notice must be made to the Chief of the NYCDOT EIU at telephone number 718-786-2825, or 24-hour emergency number 718-433-3340, at the time of such occurrence. An EIU inspector will be dispatched to evaluate and document the condition and coordinate the necessary repairs. NYSDOT will conduct any trouble-shooting work. The Permittee shall be permitted to conduct the necessary repairs without delay following notification to NYCDOT. If an EIU inspector is not able to respond to the jobsite when the repairs are being performed, NYS will provide pictures and/or other documentation to confirm that the appropriate work has been completed.

44. The Permittee's vehicles shall not exceed the posted weight and/or height restrictions for any street, highway, bridge or viaduct section that he/she must travel upon.

45. During the snow season, the contractor shall be required to post "LIFT PLOW" signs at all locations (in both directions if necessary) where they have installed steel plates.

46. Roads used for the hauling of materials shall be kept free from debris and maintained by the Permittee and left in a condition satisfactory to the engineer-in-charge (BC).
47. On roadways/streets where rush hour parking and/or standing regulations are posted, the Permittee shall modify his schedule to conform to those (rush hour) restrictions.

48. The Permittee shall not park his equipment or store material overnight where it is deemed to be a safety hazard to the traveling public.

49. The Permittee shall not obstruct fire hydrants, crosswalks, pedestrian ramps, fire alarm boxes, bus stops or any public utility while performing his/her work. The Permittee may not move or remove “Bus Stop” signs without prior written approval from both the New York City Department of Transportation and the New York City Transit.

50. This is not a parking permit. The Permittee shall obey all traffic laws and regulations.

51. This Permit may be amended to cover new or unforeseen conditions at the discretion of the New York City Department of Transportation, after consultation with the Permittee. The New York City Department of Transportation reserves the right to cancel this permit at any time for any valid reason.

52. This Permit, unless terminated at the discretion of the New York City Department of Transportation, will expire on ____________.

APPROVED: ____________________________________________

JAY JABER, P.E.
Assistant Commissioner
Permit Management and Construction Control

Bruce Ogurek, P.E.
Director of Construction

TC:tc

5/8/17, 5/18/17, 6/13/17, 10/17/17

c: Dagher, Forgione, Campbell, Constantine, Situation Room, Police Dept. (Traffic Division), Fire Department, Litigation Support, HIQA – Highway Unit 55 Water St., 7th Fl. CC file, Project file
The following Special Specifications are attached herein:

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<th>NYSDOT ITEM #</th>
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<tr>
<td>555.80020001</td>
<td>CRACK SEALING BY EPOXY INJECTION (RESTORATION)</td>
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<tr>
<td>557.11010003</td>
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<tr>
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<td>INTERNAL CURING CONCRETE FOR SUPERSTRUCTURE SLABS WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK REQUIRED</td>
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<tr>
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<td>INTERNAL CURING CONCRETE FOR STRUCTURAL APPROACH SLAB WITH INTEGRAL WEARING SURFACE</td>
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<td>634.20010111</td>
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<tr>
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<td>SECONDARY PROTECTIVE SHIELDS</td>
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<tr>
<td>637.31XX0020</td>
<td>INSPECTION VEHICLES (MAXIMUM BID)</td>
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<td>800.01000015</td>
<td>DESIGN BUILD – DESIGN SERVICES</td>
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<tr>
<td>800.01000115</td>
<td>DESIGN BUILD – DESIGN SERVICES – RAMP RC (BIN 106666B)</td>
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<td>DESIGN BUILD – CONSTRUCTION INSPECTION SERVICES</td>
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<tr>
<td>800.02000115</td>
<td>DESIGN BUILD – CONSTRUCTION INSPECTION SERVICES – RAMP RC (BIN 106666B)</td>
</tr>
<tr>
<td>800.03000015</td>
<td>DESIGN BUILD – QUALITY CONTROL SERVICES</td>
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<tr>
<td>800.03000115</td>
<td>DESIGN BUILD – QUALITY CONTROL SERVICES – RAMP RC (BIN 106666B)</td>
</tr>
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<td>800.04000015</td>
<td>DESIGN BUILD – FORCE ACCOUNT WORK</td>
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<td>800.06060015</td>
<td>CONCRETE SUBSTRUCTURE REPAIR WORK – DIRECTIVE REPAIRS</td>
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<tr>
<td>800.06070015</td>
<td>CONCRETE SUBSTRUCTURE REPAIR WORK – UNANTICIPATED REPAIRS</td>
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</tbody>
</table>

In the event of a discrepancy between the version of any Special Specification attached herein and the version available from the NYSDOT web site listed above, the version included in these Contract Documents shall apply.
DESCRIPTION

Furnish and place precast concrete deck, precast concrete approach slab and integral precast concrete barrier with ultra high performance concrete (UHPC) joints and (UHPC) haunches. The maturity method shall be used to estimate the in-place UHPC strength. The time required before removal of the forms and loading of the structure will be determined based on the estimated in-place UHPC strength. “Panels” refers to both the concrete deck and to the approach slab.

Precast Concrete Deck and Approach Slab Shall be Type 01 Friction.

MATERIALS

PRECAST CONCRETE PANELS: Materials used in this work shall conform to the NYSDOT Prestressed Concrete Construction Manual (PCCM)-Current Edition and the following:

STEEL EMBEDMENTS. Steel embedments for the panel leveling devices and hold down devices shall be installed in the shop based upon the locations shown on the shop drawings.
Leveling Bolts ASTM F568M, Class 4.6

CONCRETE
28 Day Compressive Strength 5000 psi (Minimum)
Lifting Strength 3000 psi (Minimum)
Stainless Steel Reinforcing Bars $F_Y = 75 \text{ ksi (709-13)}$
Mechanical Connectors 709-10
Water §712-01
Aggregates (Friction Type) 501-202.B

PRECAST CONCRETE APPROACH SLAB
The supplier must demonstrate a system to place the approach slab using a grout bed such that the approach slab is fully supported at the proper line and grade.

INTEGRAL PRECAST CONCRETE BARRIER: The requirements of the PCCM and the following shall apply.

Tolerances:
1) Bar Reinforcement Cover -0, +½ inch
2) Width of Unit at the top -0, +¼ inch
3) Width of Unit at the bottom -0, +½ inch
4) Surface deviation from theoretical centerline ½ inch in 20 feet
5) Vertical Alignment (deviation from a line parallel to theoretical grade) ½ inch in 20 feet
6) Horizontal and Vertical Alignment (between adjacent units) 3/16 inch
JOINT, LINK SLAB, CLOSURE POUR AND HAUNCH MATERIAL UHPC: The material shall be Ultra High Performance Concrete, all components supplied by one manufacturer. Materials commonly used in UHPC are:

- Fine aggregate
- Cementitious material
- Super plasticizer
- Accelerator
- Steel Fibers

UHPC material shall meet the following, 28 days unless otherwise noted:

Minimum Compressive Strength (ASTM C39)

<table>
<thead>
<tr>
<th>Heat Treatment</th>
<th>Minimum Strength (ksi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Heat-Treated*</td>
<td>≥ 25</td>
</tr>
<tr>
<td>Medium Heat-Treated 12 hours**</td>
<td>≥ 12</td>
</tr>
<tr>
<td>Not Heat-Treated 14 days***</td>
<td>≥ 21</td>
</tr>
</tbody>
</table>

Prism Flexural Tensile toughness (ASTM C1018; 12 in. span) \( I_0 \geq 48 \)
Long-Term Shrinkage (ASTM C157; initial reading after set) \( \leq 766 \) microstrain
Chloride Ion Penetrability (ASTM C1202) \( \leq 250 \) coulombs
Chloride Ion Penetrability (AASHTO T259; ½ in. depth) \( < 0.07 \) oz/ft³
Scaling Resistance (ASTM C672) \( y < 3 \)
Abrasion Resistance (ASTM C944 2x weight; ground surface) \( < 0.025 \) oz. lost
Freeze-Thaw Resistance (ASTM C666A; 600 cycles) RDM > 96%
Alkali-Silica Reaction (ASTM C1260; tested for 28 days) Innocuous

* High Heat-Treated - According to manufacturer’s recommendation, temperature not to exceed 250°F.
** Medium Heat Treated temperatures not to exceed 120°F
*** Not Heat Treated temperature not to exceed 70°F

Results of all the tests above, conducted by an AASHTO accredited testing lab shall be submitted to the DCES along with the installation drawings. Provide to the DCES a list of bridge projects in which the proposed UHPC material has been used as joint fill between precast concrete elements (within or outside the USA). The DCES reserves the right to reject a proposed UHPC material which lacks a proven track record in precast concrete joint filling in bridge applications.

Storage: The contractor shall assure the proper storage of premix, fibers and additives as required by the supplier's specifications in order to protect materials against loss of physical and mechanical properties.

Acceptance Testing: Note: acceptance testing will be waived if the same material from the same supplier has already been tested according to this standard. The Contractor shall complete the testing of the UHPC a minimum of one month before placement of the joint. The testing sequence will include the submission of a plan for casting and testing procedures to the DCES for review and approval followed by casting and testing according to the approved plan.

Casting and testing must include the following:

A minimum of 12 cylinders 3in. x 6 in. shall be cast.

The temperature during curing shall be as per heat treatment temperature limits established in this specification. 2 cylinders shall be tested each testing interval. Testing intervals are at 10 hours, 12 hours, 14 hours, and 24 hours. The compressive strength shall be measured by ASTM C39. Only a concrete mix design that passes these tests may be used to form the joint.
Pullout Test: Cast 6 additional cylinders 12 in. diameter and 7.5 in. deep. Each cylinder shall have one 32 in. long epoxy-coated reinforcing bar cast in the center of the circular face. The axis of the bar shall be perpendicular to the formed surface. 3 of the bars shall be #6 bars embedded 5 in. deep and 3 of the bars shall be #4 bars embedded 3 in. deep. These cylinders will be kept wet for four days then delivered to the Materials Bureau for testing according to Test Method No. NY 701-14 E. Contact the Materials Bureau prior to casting for specific instructions on preparing the test specimens. The test will be performed as soon as practical after the corresponding compressive strength samples reach 12 ksi. Acceptance criteria for pullout testing shall be when there is complete tensile failure of the reinforcing bar, prior to pullout from the concrete or failure of the concrete.

EQUIPMENT FOR MATURITY TESTING:

Use a Maturity Meter and thermocouples that can:
- Provide a maturity value based on the Equivalent Age or Temperature Time Method as detailed in ASTM C 1074-11.
- Continuously log and store maturity data.
- Accurate to within +/- 1° F when the meter is calibrated as per the manufacturers instructions.
- Take readings every half hour for the first 48 hours and every hour after that at a minimum.
- Print data and/or download it into a spreadsheet.

METHODOLOGY FOR MATURITY TESTING:

The procedure for utilizing the maturity method to determine in-place UHPC strengths includes three steps: development of the strength-maturity relationship, monitoring the maturity of the placement, and regular validation of the strength maturity relationship. Any changes in the mix design, its components, or proportions will require that a new strength-maturity relationship be developed.

The strength-maturity relationship shall be developed one month prior to construction. Continue data collection for the strength-maturity relationship after acceptance of the maturity value until the strength reaches 21 ksi.

A procedure to develop the strength-maturity relationship shall be submitted to the DCES for review and approval along with the shop drawings. The submitted procedure shall include all necessary information for the development of the strength maturity relationship. All necessary testing included in the procedure shall be conducted by an AAHSTO accredited testing lab.

CONSTRUCTION

DRAWINGS FOR PRECAST CONCRETE PANELS AND BARRIER

Shop drawings and installation drawings shall be prepared and submitted as per the requirements of the Prestressed Concrete Construction Manual, (PCCM), and the following:

The submitted drawings shall include details of lifting and handling of panels in the production facility and their storage, transportation, handling and storage at the construction site. Lifting holes will not be permitted. The proposed handling and lifting shall be such that the maximum tensile stress in concrete due to handling and erection loads shall not exceed 0.40 \( \left( f'c_i \right)^{1/2} \), where \( f'c_i \) is the concrete compressive strength at the time being considered. Calculations showing actual concrete stresses based upon the...
proposed support locations and expected dynamic loading of the panels during handling, storage and transportation of the panels shall be prepared by a Professional Engineer and shall be submitted along with the drawings. These drawings and calculations shall be stamped and signed by a Professional Engineer.

Integral precast concrete barrier shall be cast integrally with the precast concrete deck prior to shipping. Proposed procedures for the casting, handling, and shipping shall be included in the drawings for the precast concrete panels.

The proposed method of mixing, placing, and curing the UHPC joints shall be shown on the installation drawings. The Contractor shall perform qualification testing using maturity method and the results shall be shown on the installation drawing to demonstrate that the proposed method of curing will achieve the required strength at the required time.

**FABRICATION OF PRECAST CONCRETE PANELS**

Fabrication shall meet the requirements of the PCCM and the following:

**Fabrication Tolerances**

1. Width (transverse direction of the bridge): +1/8, -1/8 in.
2. Length (longitudinal direction of the bridge): +1/8, -1/8 in.
3. Depth (overall): +1/8, -0 in.
4. Bulkhead alignment (deviation from square or designated skew)
   - Vertical: ¼ in.
   - Horizontal: ¼ in.
5. Horizontal alignment (deviation from straight line parallel to centerline of unit):
   - ¼ in. for 40 ft length
   - 3/8 in. for 40 ft to 60 ft length
   - 1/2 in. for greater than 60 ft length

Welding of steel shall comply with the requirements of the New York State Steel Construction Manual.

**Placing Concrete, Curing and Finishing**

All requirements stipulated in PCCM shall apply except for the following:

After curing, all form release material and all other forming material adhering to the shear keyway and block out concrete shall be removed. Shear key faces shall be roughened and blast cleaned.

**Shipping and Handling of Precast Panels and Precast Concrete Barrier.** Shall be as per approved drawings.

**Loading of Panels.** Equipment weighing more than 2500 pounds shall not be permitted on the precast units between the initial set of the UHPC and the time the UHPC has reached a minimum strength of 10 ksi.

**Mixing and Placing UHPC Joints, Link Slab & UHPC Haunches.** Specifications in the PCCM and the following: Thoroughly and continuously wet the concrete contact area for 24 hours prior the placing of UHPC, keep wet and remove all surface water just prior to UHPC placement.
INSTALLATION REQUIREMENTS FOR DECK SLABS

Installation shall meet the requirements of the PCCM and the following:

1. Prior to installing panels, the supporting steel surfaces in contact with the panels or field placed concrete shall be cleaned, including removal of free water, to the satisfaction of the engineer.

2. Installation tolerances shall be as per the approved installation drawings. It is the responsibility of the contractor to develop appropriate controls during the fabrication and installation of the panels so that proper cross slopes and grades are achieved after the diamond grinding operation. Installation drawing shall show the details of the proposed controls.

WEARING SURFACE PREPARATION

The wearing surface shall be diamond ground.

DIAMOND GRINDING

Use equipment having gang-mounted diamond saw blades on a multi-blade arbor specifically designed for PCC pavement production grinding. Using equipment capable of producing a 3 foot (minimum) grinding pass width that is equipped with a vacuum system capable of removing slurry from the bridge deck surface, such as the Target 3800, Boart- Longyear (Kushion Kut) PC 5000 or PC600, or equal as approved by the Director, Materials Bureau. Contractor shall submit requests to use other equipment at 7 days prior to the start of grinding operations.

INSTALLATION REQUIREMENTS FOR APPROACH SLABS

Bed and level slabs in accordance with the system designer’s instructions such that the vertical differential across any joint is ¼ in. or less. Slabs shall be placed on grade and have grout pumped underneath to ensure that they are completely supported.

INSTALLATION REQUIREMENTS FOR UHPC

The contractor shall arrange for a representative of the UHPC supplier to be on site during the placement of the joints until the Contractor’s own staff has become well-trained in the use of the material. The representative shall be knowledgeable in the supply, mixing, delivery, placement, and curing of the UHPC material.

UHPC HAUNCHES

Shall meet the requirements of the PCCM, except that the requirement related to post-tensioning shall not apply. Details of the ports, vents, method of pumping the UHPC, equipment with necessary back up shall be shown on the installation drawing. Required QC shall be listed on the drawings.

PRE-INSTALLATION MEETING:

Convene a preplacement meeting 7 to 14 calendar days before the planned start of slab installation. The contractor shall arrange for an on site meeting with representatives from the UHPC and the precast system suppliers. The contractor's staff and the NYSDOT Engineer and Inspectors shall attend the site meeting. The objective of the meeting will be to clearly outline the procedures for placing and leveling the precast concrete panels and for mixing, transporting, finishing and curing of the UHPC material.

FORM WORK, BATCHING AND CURING

The design and fabrication of forms shall follow approved installation drawings and shall follow the recommendations of the manufacturer. All the forms for UHPC shall be constructed from plywood or approved equal. The forms shall be coated to prevent absorption of water using a form release agent from the Department’s Approved List of Materials.
The contractor shall follow the batching sequence as specified by the supplier and approved by the DCES.

The surface of the UHPC joints shall be filled to plus 1/4 inch above the adjoined surfaces.

The surface of the UHPC field joints shall be filled as shown on the approved drawings.

The UHPC in the form shall be cured according to Manufacturer’s recommendations to attain the required strength shown on the contract documents.

**Quality Control**

The contractor shall measure the slump flow on each batch of UHPC. The slump flow will be conducted using a mini-slump cone. The flow for each batch shall be between 7 in. and 10 in. The slump flow for each batch shall be recorded in the QA/QC log. A copy of the log shall be given to the Engineer.

**Estimation of In-Place Strength:**

1. Two thermocouples per each UHPC joints, one at each end, shall be installed. The locations of these installations shall be shown on the installation drawings. These locations shall be revised if directed by the DCES. The thermocouple wiring may be connected to reinforcing steel, but probe endings may not be in direct contact with the steel. Consider structural or exposure conditions when placing thermocouples.

2. Listed actions are allowed when the maturity value of all the thermocouples reaches the corresponding strength values listed below.

<table>
<thead>
<tr>
<th>Action</th>
<th>Strength Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of top forms</td>
<td>10 ksi</td>
</tr>
<tr>
<td>Open Bridge deck to Traffic</td>
<td>12 ksi</td>
</tr>
</tbody>
</table>

3. Record and save the maturity data from the meter until the strength reaches 21 ksi. Disconnect the meter and clip all wires flush with the concrete surface.

A continuous read thermocouple or thermistor with a data logger can be used to estimate in place strength. The methodology outlined in ASTM C 1074-11 will be used. The maturity function used to estimate strength will be calculated with the same formula that is used by the maturity meter that established the initial strength maturity relationship. Copies of the calculations will be provided to the engineer.

**Validation of the Strength-Maturity Relationship:**

For each day of placement, perform validation tests by casting 7 cylinders. Equip one of the cylinders with a thermocouple. Test the cylinders as close as possible to the maturity value corresponding to 21 ksi. Record the maturity value immediately prior to testing. All testing shall be conducted by an AASHTO accredited testing lab. Report the results to the DCES.

If the average value of compressive strength of each pair of cylinders is within 10% of the estimated value, the strength-maturity relationship will be validated. If the average cylinder value is more than 10% below the estimated value, the strength maturity relationship will need to be re-established. If the first four cylinders produce acceptable results, the remainder need not be tested.

The Department may perform additional testing for research purposes. Casting and testing in addition to
ITEM 557.64010103 - PRECAST CONCRETE DECK
ITEM 557.64030103 - PRECAST CONCRETE APPROACH SLAB
ITEM 557.11010003 - INTEGRAL PRECAST CONCRETE BARRIER

that required in this spec will be performed by NYSDOT personnel.

In case of loss of required data, or non verification of the strength-maturity relationship, use the cylinders cast above, one pair at a time, to verify the strength.

**METHOD OF MEASUREMENT.** For precast concrete bridge decks and precast concrete approach slabs apply all the provisions of §557-4. For precast concrete bridge barrier apply all the provisions of §569-4.

**BASIS OF PAYMENT.** For precast concrete bridge decks and precast concrete approach slabs apply all the provisions of §557-5. For precast concrete bridge barrier apply all the provisions of §569-5.
ITEM 634.20010111 - PRIMARY PROTECTIVE SHIELDS

DESCRIPTION
This work shall consist of furnishing, installing, maintaining, and removing PRIMARY PROTECTIVE SHIELDS in accordance with the contract documents and as directed by the Engineer.

MATERIALS
Lumber shall meet the requirements of Material Specification 712-14. Fasteners such as screws, bolts, nuts, and washers shall meet or exceed the standard industrial fastener specification for the intended application.

Used materials will be allowed, except materials that are permanently attached to the structure, which shall be in conformance with the current New York State Department of Transportation Standard Specifications.

Contractor shall be allowed to use materials other than lumber after obtaining prior approval the Engineer-in-Charge (EIC). Dimensions and stresses shall be as specified in the design of the shield.

CONSTRUCTION DETAILS
Contract plans show no-drop areas to be protected by the Protective Shield. Components of the shielding system, such as support members, may extend beyond the limits shown, but no component may extend into the secondary protective shielding.

The shielding system shall be suspended from the existing steel on the outbound side of the stringers. This shielding system shall be designed for a loading capacity shown on the contract plans.

The Contractor shall engage the services of a New York State Licensed Professional Engineer to design and detail the primary protective shield to be used at each location shown on the plans. He shall be available for consultation in interpreting his plans and in the resolution of problems, which may arise during the performance of the work.

All design and details shall be in conformance with the current New York State Department of Transportation Standard Specifications for Highway Bridges and the current New York State Steel Construction Manual, and AASHTO requirements.

The shielding used shall have no seam or void. The adjoining sheetings, if needed, shall have enough lap length and shall be secured by welds, screws or bolts to sustain the design loadings.

The Contractor shall furnish working drawings prepared, stamped and signed by a New York State License Professional Engineer for the protective shield to be used at each location shown on the plans. The drawings shall include, but not be limited to, the following:

1. Anticipated dead and live loads based on the work to be performed above the shield.
2. Details of all components and connections.
3. Type and grade of all materials.
Six legible, standard size (22 x 36 inches nominal, 21 x 33½ inches working area) prints of each drawing, together with three copies of all design computations shall be submitted to the Deputy Chief Engineer (Structures) for approval. Failure to submit drawings of the required size will be cause for their return without examination.

The Deputy Chief Engineer (Structures) shall be allowed the longest of the following time durations to examine design computations and working drawings:

1. Ten working days.
2. Two working days for each drawing of a set of working drawings.
3. One working day for every four (4) design computation sheets.
   Any design computation sheet written on both sides will be considered as two design computation sheets.

All items for examination shall begin upon receipt of all pertinent information by the Deputy Chief Engineer (Structures).

The Deputy Chief Engineer’s (Structures) comments shall be indicated on the returned copies. Should the proposed system not be approved, the reasons shall be indicated with the return of the material. The Contractor shall then submit revised drawings for approval, subject to the same terms as the first submission. Resubmission shall not be considered a legitimate reason to request an extension of time under subsection 108-04, Extension of Time.

All work shall be done in accordance with the approved working drawings. The Contractor must have approved working drawings prior to the start of shield installation.

The Contractor shall bear all costs and/or damages which may result from the ordering of any material, or equipment; or the use of any preparatory labor prior to the approval of the working drawings.

All materials required for the primary protective shield shall remain the property of the Contractor and shall be removed from the site after the work is completed, unless otherwise agree to.

METHOD OF MEASUREMENT
This work will be measured as the number of square feet (plan area) of PRIMARY PROTECTIVE SHIELDS satisfactorily furnished, installed, maintained, and removed.

BASIS OF PAYMENT
The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.
DESCRIPTION
This work shall consist of furnishing, installing, maintaining, and removing SECONDARY PROTECTIVE SHIELDS in accordance with the contract documents and as directed by the Engineer. This shielding shall be set as a secondary protection, installed underneath the primary shielding system. This secondary shielding shall have a suspended support system independent of the primary protective shield supports.

MATERIALS
This shielding, which is a secondary debris shield, shall be of flexible corrugated structural steel. The material for shielding shall meet the requirements of AASHTO M167, and Material Specification 707. The Contractor shall determine the thickness and shape of the plate upon the design and field conditions.

Fasteners such as screws, bolts, nuts, and washers shall meet or exceed the standard industrial fastener specification for the intended application.

Used materials will be allowed, except materials that are permanently attached to the structure, which shall be in conformance with the current New York State Department of Transportation Standard Specifications.

Dimensions and stresses shall be as specified in the design of the shield.

CONSTRUCTION DETAILS
The plans show no-drop areas to be protected by the Protective Shield. Components of the shielding system, such as support members, may extend beyond the limits shown, but no component may extend into the theoretical passageway required by vehicles below the bridge.

The shielding system shall be suspended from the existing steel on the outbound side of the stringers. This shielding system shall be designed for a loading capacity shown on the contract plans.

The Contractor shall engage the services of a New York State Licensed Professional Engineer to design and detail the protective shield to be used at each location shown on the plans. He shall be available for consultation in interpreting his plans and in the resolution of problems, which may arise during the performance of the work.

All design and details shall be in conformance with the current New York State Department of Transportation Standard Specifications for Highway Bridges and the current New York State Steel Construction Manual, and AASHTO requirements.

The shielding used shall have no seam or void. The adjoining sheetings, if needed, shall have enough lap length and shall be secured by welds, screws or bolts to sustain the design loadings.

The Contractor shall furnish working drawings prepared, stamped and signed by a New York State License Professional Engineer for the protective shield to be used at each location shown on the plans. The drawings shall include, but not be limited to, the following:
1. Anticipated dead and live loads based on the work to be performed above the shield.
2. Details of all components and connections.
3. Type and grade of all materials.

Six legible, standard size (22 x 36 inches nominal, 21 x 33½ inches working area) prints of each drawing, together with three copies of all design computations shall be submitted to the Deputy Chief Engineer (Structures) for approval. Failure to submit drawings of the required size will be cause for their return without examination.

The Deputy Chief Engineer (Structures) shall be allowed the longest of the following time durations to examine design computations and working drawings:

1. Ten working days.
2. Two working days for each drawing of a set of working drawings.
3. One working day for every four (4) design computation sheets.
   Any design computation sheet written on both sides will be considered as two design computation sheets.

All items for examination shall begin upon receipt of all pertinent information by the Deputy Chief Engineer (Structures).

The Deputy Chief Engineer’s (Structures) comments shall be indicated on the returned copies. Should the proposed system not be approved, the reasons shall be indicated with the return of the material. The Contractor shall then submit revised drawings for approval, subject to the same terms as the first submission. Resubmission shall not be considered a legitimate reason to request an extension of time under subsection 108-04, Extension of Time.

All work shall be done in accordance with the approved working drawings. The Contractor must have approved working drawings prior to the start of shield installation.

The Contractor shall bear all costs and/or damages which may result from the ordering of any material, or equipment; or the use of any preparatory labor prior to the approval of the working drawings.

All materials required for the protective shield shall remain the property of the Contractor and shall be removed from the site after the work is completed, unless otherwise agree to.

**METHOD OF MEASUREMENT**
This work will be measured as the number of square feet (plan area) of SECONDARY PROTECTIVE SHIELDS satisfactorily furnished, installed, maintained, and removed.

**BASIS OF PAYMENT**
The unit price bid shall include the cost of furnishing all labor, materials, and equipment necessary to satisfactorily complete the work.