REQUEST FOR PROPOSAL

FOR

DESIGN/BUILD Services for I-295 Bridges Contract 3
Bridge Nos. 74001 & 74021
Project No. 2018-DB-007

Johnston, Rhode Island

Part B: Technical Requirements

Rhode Island Department of Transportation

November 2017

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PART B

PROJECT TECHNICAL REQUIREMENTS

1.0 DB-TEAM'S SCOPE OF WORK

The Project will consist of replacing the existing steel girder superstructures in their entirety. RIDOT is proposing to replace the superstructures with new steel girder superstructures using Accelerated Bridge Construction (ABC) Methods as shown in the Base Technical Concept (BTC) Plans. The Project includes demolition of the existing superstructure, beam seats, back walls, portions of the existing abutment stems, parapet and endposts on the return walls, and approach slabs, repairs to the faces of the existing abutments and return walls, construction of new beam seats and backwalls on the tops of the existing abutments, construction of new parapets and endposts on the tops of the return walls, construction of a new superstructure, construction of roadway approach work, repaving the bridge and the approaches on Interstate 295 and State Route 5 (Greenville Avenue), and related tasks as necessary to complete the Scope of Work. Except as required for traffic control, repaving on Interstate 295 shall be limited to 100 feet from the ends of the approach slabs or as specified by the Engineer. Milling and overlay is also required on segments of roadway where pavement markings are altered for lane shifts and other operations. The replacement structure shall minimize changes in roadway profile and approach work to the greatest extent possible. The horizontal profile and cross-section of the proposed structure will match the existing. The new superstructures shall provide a minimum vertical clearance of 14'-3" and a curb-to-curb width of 54'-0". Reducing the steel girder depth is preferred over raising the I-295 profile, and lowering the Route 5 profile will not be permitted. If a steel superstructure is used, the steel shall be painted in accordance with the Standard Specifications. Other highway work will include concrete slope paving, replacement of existing guardrail, placement of new pavement markings, and maintenance and protection of traffic. The BTC anticipates a temporary median roadway and bridge to carry traffic during demolition and construction activities.

The work also includes the construction of Stormwater Best Management Practice (BMP) water quality structures. BMPs designed for the I-295/Greenville Ave. (Rte. 5) Interchange Project interchange project shall be constructed in the I-295 median both north and south of the bridge as part of the Design/Build I-295 Bridges Contract 3 - Greenville Avenue Bridge Nos. 74001 & 74021 project. The work shall be in accordance with the relevant requirements of the I-295/Greenville Ave. (Rte. 5) Interchange Project Plans, permit documents, and Special Provision provided in Part D, except that measurement and payment provisions of this Special Provision shall not be considered applicable. The BMPs to be constructed by the DB-Team are Sand Filter 1, Sand Filter 7, and four stone check dams in the I-295 median.

The Design-Build Team (DB-Team) shall have full responsibility to complete the final design of all Project elements excluding the BMPs described above (Sand Filter 1, Sand Filter 7, and four stone check dams) regardless of the fact that RIDOT has supplied certain preliminary design work for certain portions of the project to the DB-Team. All plans, specifications, reports and other information provided by RIDOT are for reference only. The Base Technical Concept (BTC) was developed to represent RIDOT's minimum baseline requirements that shall be equaled or exceeded by the DB-Team. If the DB-Team, through its final design development, proposes changes to their Technical Proposal or the BTC requirements, the DB-Team shall include written justification for RIDOT's review and concurrence before incorporating such a change into a Design Submission. Any proposed changes to the BTC that are not demonstrated to be equal or better than the BTC, as determined by RIDOT, will be rejected by RIDOT. The DB-Team shall be required to provide a final, complete Project design that is stamped, sealed and certified by their own Professional Engineer of Record for review and approval by RIDOT and possibly third parties. The Professional Engineer shall be licensed to practice engineering in the State of Rhode Island.

The DB-Team is responsible for coordinating all work with the additional construction projects in the project vicinity as identified in Part A, Section 2.1.

The DB-Team is responsible for diligently reviewing and verifying the BTC design for errors, omissions, inconsistencies or other defects and has incorporated into their Cost Proposal all costs associated with correction of such errors, omissions, inconsistencies or other defects. RIDOT shall have no liability for errors, omissions or defects in the RIDOT supplied BTC design documentation.

The following requirements shall apply during construction:

- RIDOT reserves the right to require the Design/Build Team (DB-Team) to modify the traffic control setup in the field to improve traffic conditions.

- Restore all existing grass areas, land and vegetation in the construction site to pre-construction conditions and to the satisfaction of the Engineer.

- Vibrations shall be minimized to the greatest extent possible to protect existing adjacent structures. Any damage to existing structures shall be restored and/or repaired to the satisfaction of the Engineer at no additional cost to the State.

The DB-Team should note that the minimum pavement sections required by RIDOT are provided on the BTC Plans. The DB-Team shall be responsible for final design and construction of the pavements for this Project in accordance with the Standard Specifications.

Reference should be made to the Contract Documents, including the RIDOT Standard Specifications for Road and Bridge Construction, Amended May 2016, with all revisions (Standard Specifications), for provisions regarding required investigations and the identification, resolution, and responsibility for differing site conditions.

The DB-Team will be responsible for providing quality assurance and a quality control plan for design, inspection, sampling and testing for all materials manufactured off-site, excluding the items listed below:

- Structural Steel Elements (beams and girders)
- Piping (concrete, steel, aluminum and high-density polyethylene) for culverts, storm drains, and underdrains
- Pre-cast Concrete Drainage Structures
- Asphalt Concrete Mixtures
- Aggregate (dense and open graded mixes)

The Design Build Team will be responsible for providing Construction Quality Control at the Construction Contractor level and for providing a complete Quality Control and Quality Assurance program for all engineering and design. The Construction Quality Control function is to assess and adjust design, production and construction so as to control the level of quality being produced in the Project. The purpose of QC is to measure those quality characteristics and to inspect those activities that affect the production at a time when corrective action can be taken to substantially decrease the likelihood that appreciable non-conforming material will be incorporated in the Project.

RIDOT will not obtain any environmental permits prior to award. The DB-Team will be responsible for preparing all environmental permit applications required as part of their design and construction activities.

RIDOT will review and request revisions as appropriate, and as Owner, is required to officially submit all complete applications to the respective regulatory agencies. RIDOT has prepared and submitted a Categorical Exclusion (CE) Checklist to satisfy the NEPA requirements for this project. The CE will be issued for this project prior to the issuance of the Notice to Proceed for the DB Entity. Any changes in scope or footprint proposed by the DB-Team that are acceptable to RIDOT may require additional environmental technical studies and analysis. The NEPA documentation (CE checklist) provided for this project will be re-examined by RIDOT at each change in design phase (i.e. at the onset of final design, 75/90%, and PS&E) based on the D/B Team's design.

The DB-Team shall be responsible for submitting plans and obtaining all necessary environmental approvals and permits required to accomplish the work as noted in this RFP. The DB-Team shall be responsible for compliance with pre-construction and construction-related permit conditions. The DB-Team shall assume all obligations and costs incurred in the course of complying with the terms and conditions of the permits and certifications. Any fines associated with environmental permit or regulatory violations shall be the responsibility of the Design Build Team. The DB-Team will be responsible for any additional environmental studies or analysis and/or right-of-way to support the proposed changes in scope, and will be responsible for any resulting increase in costs or impacts to the schedule.

The DB-Team is responsible for coordinating all utility work required for construction of the project. The respective utility companies will perform the actual relocation of their lines (temporary and/or permanent relocations.) The Contractor shall coordinate with the utility companies as required throughout construction. The Contractor shall ensure that the existing and proposed utility lines are protected from damage throughout construction. Refer to Section 2.14 for additional information regarding the protection and relocation of utilities.

The DB-Team is responsible for protection of the existing soil-nail walls constructed as part of the I-295/Greenville Ave. (Rte. 5) Interchange. The DB-Team shall take any precautions necessary to prevent instability and damage. The DB-Team shall be responsible for all costs associated with repairing any such instability and damage caused by the DB-Team’s actions to the satisfaction of the Engineer.

The DB-Team is hereby advised that a Radar Vehicle Detector (RVD) system is located within the center median of I-295 approximately 1,500’ south of Greenville Avenue. In the event that the DB-Team’s temporary roadway design shifts I-295 traffic in the range of these sensors, the DB-Team shall coordinate with the RIDOT Transportation Management Center (TMC) to determine sensor relocation or adjustment requirements. The DB-Team shall be responsible for all costs associated with relocations and adjustments.

The DB-Team, in conjunction with RIDOT, shall coordinate all activities impacting traffic with local authorities. The following list of authorities is provided for convenience, and shall not be considered complete:

Mayor Joseph Polisena
1385 Hartford Avenue
Johnston, RI 02919
401-553-8800

Director of Public Works Arnold Vecchione
100 Irons Avenue
Johnston, RI 02919
401-231-4000

Chief of Police Richard S. Tamburini
1651 Atwood Avenue
Johnston, RI
401-231-8100

Fire Department Chief Timothy P. McLaughlin
1520 Atwood Avenue
Johnston, RI 02919
401-351-1600

2.0 PROJECT TECHNICAL REQUIREMENTS

2.1 Design Criteria, Standards and Reference Documents

The design and construction work for the Project shall be performed in accordance with the applicable federal and state laws and RIDOT Standard Specifications and Reference Documents to include, but not be limited to the documents listed herein. The DB-Team must verify and use the latest version of the documents listed herein, including all issued revisions and supplements to these documents. The Successful DB-Team must meet or exceed the minimum design standards and criteria.

If during the course of the design, the Successful DB-Team determines specific Standard Specifications or Reference Documents required are not listed herein, it is the responsibility of the DB-Team to identify the pertinent Standard Specifications or Reference Document and submit to the RIDOT for review and approval prior to inclusion in the Contract Documents.

Project Design, Construction, and Administration

- AASHTO A Policy on Geometric Design of Highways and Streets, 2011, 6th Edition
- Highway Capacity Manual, 2010 Edition, with all supplements
- Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition, with all revisions.
- Rhode Island Department of Transportation (RIDOT) Standard Specifications for Road and Bridge Construction Amended May 2016, with all revisions
- Rhode Island Standard Details, 1998, with all revisions
- RIDOT Bridge Design Standard Details, 2015 Edition with all revisions
- The Division of Purchases Procurement Regulations Adopted December 2010
- RIDOT Design Policy Memos (RI DPM), with latest revisions from the following website: **http://www.pmp.dot.ri.gov**
- RIDOT "To All Consultants Memos (RI TAC), with latest revisions from the following website: **http://www.pmp.dot.ri.gov**
- Rhode Island LRFD Bridge Design Manual, 2007 Edition, with all revisions.
- AASHTO LRFD Bridge Design Specifications, 2014, 7th Edition, with all interim revisions.
- RIDOT Bridge Load Rating Guidelines – August 2017
- Federal-Aid Policy Guide (FAPG) 625, Design Standards for Highways, 10/14/97
- Federal-Aid Policy Guide (FAPG) 626, Pavement Policy, 4/8/99
- Rhode Island Department of Transportation Design Procedures for Pavement Design

- ANSI/AASHTO/AWS-D1.5m/D1.5 Bridge Welding Code, 2015
- ANSI/AASHTO/AWS D1.1 Welding Code
- AASHTO Manual for Bridge Evaluation 2010, 2nd Edition, with all interim revisions.
- AASHTO Roadside Design Guide, 2011, 4th Edition
- AASHTO Guide Design & Construction Specifications For Bridge Temporary Works, 2017, 2nd Edition
- FHWA Hydraulic Engineering Circular No. 23, Latest Edition
- AASHTO Guide Specifications for Seismic Isolation Design, 2014, 4th Edition
- NCHRP Report 350 Recommended Procedures for Safety Performance Evaluation of Highway Features, 1993
- RIDOT Traffic Design Manual
- RIDOT Highway Design Manual
- RIDOT CAD Standards Manual updated for AutoCAD Civil 3D 2015.
- RIDOT Approved Materials List and approved products and plants from the following website: http://www.dot.ri.gov/about/who/materials.php#productsplants
- Rhode Island Stormwater Design and Installation Standards Manual, March 2015
- AASHTO Guide Specifications for Distribution of Loads for Highway Bridges
- AASHTO Guide Specifications for Strength Evaluation of Existing Steel and Concrete Bridges
- AASHTO Guide Specifications for Thermal Effects on Concrete Bridge Superstructures
- AASHTO Guide Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals
- AASHTO Maintenance Manual for Roadways and Bridges, 2007, 4th Edition
- "Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges," FHWA-PD-96-001, 1995
- Bridge Inspector's Reference Manual, FHWA NHI 12-049, December 2012
- AASHTO/FHWA Research Report RD-87-014, Bridge Deck Drainage Guidelines
- NSBA/AASHTO Collaboration Standard Steel Details/Guidelines from the following website: https://www.aisc.org/nsba/nsba-publications/aashto-nsba-collaboration/
- USDA, NRCS, Title 210, National Engineering Handbook, Section 6
- USDA, NRCS, Title 210, National Engineering Handbook, Section 11

Geotechnical Work:

- AASHTO Manual on Subsurface Investigations
- "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure) ASTM D2488-00
- "Design and Construction of Driven Pile Foundations," Vols. 1 and 2, FHWA-HI-97-013 and -014, 1998
- "Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines," FHWA-NHI-00-043, 2001
- "Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes," FHWA NHI-00-044, March 2001
- "Earth Retaining Structures," FHWA-NHI-99-025, 1999
- "Soil Nail Walls," FHWA-IF-03-017 (GEC 7), 2003
- "Shallow Foundations," FHWA-IF-02-054 (GEC 6), 2006
- "Soil Slope & Embankment Designs," FHWA-NHI-01-026, 2002

- "Geosynthetic Design and Construction Guidelines," FHWA-HI-95-038 (April, 1998)
- FHWA, Bridge Technology, Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Plans and Specifications, found at: http://www.fhwa.dot.gov/bridge/checklist.htm
- "Geotechnical Instrumentation," FHWA-HI-98-034, 1998
- ACOE Structural Design and Evaluation of Outlet Works Engineer Manual

Construction Work in accordance with the following standards:

- AASHTO LRFD Bridge Construction Specifications, 2010, 3rd Edition, with all revisions.
- AASHTO Construction Handbook for Bridge Temporary Works, 2017, 2nd Edition
- Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition with current revisions
- Rhode Island Department of Transportation (RIDOT) Standard Specifications for Road and Bridge Construction, Amended 2016, with all revisions
- Rhode Island Standard Details, 1998, with all revisions
- Rhode Island Bridge Design Standard Details, 2015, with all revisions
- PCI MNL-116 Manual for Quality Control for Plant and Production of Precast and Prestressed Concrete Products
- Rhode Island Soil Erosion and Sediment Control Handbook, 1989, Revised 2014

In the event of a discrepancy between the RIDOT and non-RIDOT Standards and References listed herein, the RIDOT specifications, design standards and manuals shall take precedence. Requirements approved by the RIDOT and specified within the text of this RFP shall govern over the RIDOT specifications, design standards and manuals.

2.1.1 Plan Set Development

The development of the construction drawings for the Project shall follow RIDOT's standard format for construction plans. The Released for Construction drawings each shall be prepared so that the Released for Construction drawings will form a portion of the overall Project set of drawings. The Released for Construction drawings shall be signed and sealed by a Professional Engineer registered in the State of Rhode Island. The construction drawings shall be developed in AutoCAD Civil 3D 2015 or as agreed to by RIDOT.

2.1.2 Design Review

The DB-Team shall submit to RIDOT the number of copies shown in Table 2.1-1 for all design submissions. Each submittal by the DB-Team shall also contain a PDF file of all drawings, PDF copies of all Reports and other submittal items. PDF drawings shall be full size (22" x 36") black and white and at least 300 dpi.

Table 2.1-1
Required Construction Plan Sets

Description	Number of Plan Sets
Full Size (22" x 36") Plans	10
½ Scale (11"x18") Plans	10
Project Special Provisions (Specifications)	10
Reports	3
Backup Calculations	3
CD (containing all of the above, in PDF format)	5

The DB-Team is to submit the following submissions:

1. 75% Highway/90% Bridge
2. PS&E
3. Issued for Construction (IFC)

RIDOT will require twenty-one (21) calendar days to perform the review of each submission. Written responses to RIDOT comments shall be returned within 14 calendar days after the comments have been provided to the DB-Team.

2.2 Order of Precedence

In the event of a conflict among the Contract Documents, the order of precedence shall be as set forth below:

1. Contract amendments and approved Change Orders.
2. The Plans and specifications prepared by the Design-Build firm, approved by RIDOT.
3. The design criteria, standards and reference documents referenced through the entire RFP.
4. The entire RFP.

2.3 Roadway Improvements

The Scope of the Project includes all Project components identified in accordance with the Contract requirements. DB-Team shall determine the full scope of the Project through thorough examination of the entire RFP and the Project site.

The DB-Team shall design the project in accordance with the RIDOT, the MUTCD, and AASHTO design standards and in accordance with, guidelines specified in this RFP. The DB-Team shall prepare any documentation required to apply for and obtain any design exceptions if required.

2.3.1 Alignment and Profile Criteria

The existing profile of I-295 is depicted on the BTC Plans. The intent is to match the existing profile to the extent practicable. Changes to the horizontal alignment and lane configuration of I-295 are not anticipated and will not be allowed.

No alignment or profile modifications to Route 5 below the structure will be allowed. No modifications to the Route 5 roadway cross section constructed as part of the Greenville Avenue (Rte. 5) Improvements project will be permitted.

2.3.2 Roadway Clear Zone

The project shall include clear zones that are clear of obstructions. The clear zones shall be in conformance with the RIDOT Highway Design Guide, AASHTO's Roadside Design Guide, and AAHSTO's A Policy on Geometric Design of Highways and Streets. The DB-Team shall construct roadside barriers that meet the requirements of MASH where clear zone requirements cannot be met.

All roadway pavement sections shall incorporate rumble strips along the inside and outside shoulders.

The existing guardrail along I-295 shall be removed, disposed of, and replaced as indicated on the BTC plans. Replacement guardrail shall meet the latest requirements of the MUTCD and RIDOT.

2.3.3 Interstate 295 Work

Existing curb-to-curb and pavement widths shall be maintained. The existing roadway surface shall be milled and overlaid within the segments of I-295 where pavement markings are altered for lane shifts and other operations outlined in the Maintenance and Protection of Traffic plans. The anticipated limits of the mill and overlay based on the BTC are as shown on the BTC Plans. Regardless of the actual extent of removal and altering of pavement markings, I-295 shall be milled and overlaid a minimum of 100 feet north and south of the ends of the bridge approach slabs, and approach guardrail work shall be performed to the limits shown on the BTC Plans.

2.3.4 Route 5 Work

With the minimum limits of intrusion possible, the DB-Team shall perform work on Route 5 as necessary to complete the Project. Prior to the completion of the Project the DB-Team shall mill and overlay any length of Route 5 damaged, cut and patched, or otherwise impacted by the DB-Teams operations. Milling and overlay shall be for the full curb-to-curb width of the roadway. Concrete slope paving in front of the abutments and portions of the wingwalls shall be constructed as shown in the I-295/Greenville Ave. (Rte. 5) Interchange project plans and shall include the concrete slab and gravel borrow base. The minimum vertical clearance under the bridge shall be increased to 14'-3". Reducing the steel girder depth is preferred over raising the I-295 profile, and lowering the Route 5 profile will not be permitted. In addition, the DB-Team shall perform any other work necessary to restore Route 5 and the adjacent embankment areas to their pre-construction condition.

2.4 Structures Improvements

The scope of work for the bridge structure consists of replacing the existing bridge superstructures in their entireties and rehabilitating the existing substructures in order to provide structures that provide at least a 75-year design life. The new structures shall be designed and detailed in accordance with the RIDOT LRFD Design Manual, the latest RIDOT Bridge Standard Details, the RIDOT Standard Specifications for Road and Bridge Construction and the latest AASHTO LRFD Bridge Design Specifications.

2.4.1 Requirements

a. Corrosion Protection - All reinforcing steel except for that in footings below grade shall be galvanized in accordance with Section M.05.05 “Galvanizing for Bar Reinforcement” of the Standard Specifications. Existing exposed reinforcing to remain shall be field coated with an epoxy material in accordance with the Standard Specifications prior to placing any new reinforcing.

Structural Steel shall be painted in accordance with the Standard Specifications. Paint color shall be Bright Blue Federal Standard 595B Color #25183.

b. Aesthetics – The parapet details and endposts shall generally match those shown in the BTC plans. Alternate proposed aesthetics for these elements will be reviewed by RIDOT, and incorporated into the project if approved.

c. Concrete Protective Sealer – The entire exposed surface area of the completed abutments, wingwalls, and piers shall receive a protective coating conforming to Section 820 of the RIDOT Standard Specifications. The coating shall be placed at the same time after all substructure work is complete so that there is a uniform appearance of the completed structure.

d. Bridge Deck Membrane – A cold spray applied membrane waterproofing is required for all bridge decks conforming to Section 813 of the RIDOT Standard Specifications for Road and Bridge Construction.

e. Materials – Any RIDOT required materials shall conform to RIDOT Standards and any specific requirements outlined in this RFP.

f. Buy America Provision – The DB-Team agrees to comply with 23 CFR 635.410 which provides that Federal funds may not be obligated unless all steel, iron and manufactured products used in FHW A funded projects are produced in the United States, unless a waiver has been granted by FHWA or the product is subject to a general waiver.

2.4.2 Scope of Work and Guidelines

The Scope of the Project includes all Project components identified in accordance with the Contract requirements. DB-Team shall determine the full scope of the Project through thorough examination of the entire RFP and the Project site.

The DB-Team shall furnish all Design and Construction Services, Quality Management, Quality Assurance/Quality Control (QA/QC) program, Materials, Equipment, Labor, Transportation, and Incidentals required to complete the design and construction Work according the terms of the Contract. The DB-Team shall be responsible for designing, furnishing, fabricating, constructing, installing, and erecting all components of the Project, as stipulated herein. All bridge components shall be designed in accordance with AASHTO's Load and Resistance Factor Design (LRFD) method. All work performed on this Project shall be completed using English units.

The DB-Team is solely responsible for assessing existing conditions; presenting design or engineering solutions, and defining means and methods for complying with the requirements of this project.

Preliminary geotechnical information is available on the existing bridge plans and is provided to the DB-Team as a conceptual guideline based on limited investigation. The reports are for informational purposes only, and the RIDOT assumes no responsibility for its accuracy. The logs are preliminary in nature and are not being provided as part of the contract documents. No claim will be considered if the DB-Team relies on the Report for bidding or construction operations.

The DB-Team will be responsible for identifying and performing any supplemental geotechnical and subsurface investigation, borings, testing, analysis, and design dictated by the project needs. All geotechnical work shall be performed in accordance with the RIDOT standards and governing regulations. Existing subsurface information and geotechnical report may be used as reference material to ensure all aspects of the project are covered. The DB-Team shall contact the RIDOT for any necessary clarification or interpretation of the Contract.

The latest NBIS bridge inspection reports and load rating report are being provided to the DB-Team. The reports are for informational purposes and bidding only.

DB-Team's obligations shall include without limitation the following:

1. **Replacement/Rehabilitation**

   a. General – Superstructure replacement and substructure rehabilitation as described above and in Part A of this RFP.

   The bridge shall be designed and constructed for a minimum 75-year service life.

   Prestressed butted box beams will not be considered an acceptable option.

   b. Geometry – Overall bridge geometry, including horizontal alignment, vertical profile, and cross slope, shall match the previous bridge as much as practical. The vertical clearance beneath the bridge shall be increased to 14'-3". Reducing the steel girder depth is preferred over raising the I-295 profile, and lowering the Route 5 profile will not be permitted. DB-Team shall provide final bridge geometry including all elevations, plan dimensions, girder framing, top of deck elevations, bottom of slab elevations, beam cambers, etc. Additional survey shall be provided by DB-Team as necessary for construction and operation of the completed Project and shall be provided to RIDOT.

   c. Live Load – The Design–Builder's attention is directed to the following minimum live load design requirements of the Bridge Design Manual:

Bridge Design Loading:	AASHTO HL 93 (In accordance with TAC 0298) Rhode Island Legal Load
Live Load deflection criteria:	ℓ / 800

   The minimum Inventory Rating Factor for the AASHTO HL 93 loading shall be 1.10.

   d. Wind Loads Exposure Criteria – The wind pressures at various heights shall be determined in accordance with criteria as specified for the AASHTO LRFD "Suburban" category.

   e. Seismic Loading – The DB-Team shall be aware that this structure is classified as a **Critical Bridge** per Section 3.6.4 of the RIDOT LRFD Bridge Design Manual. Seismic analysis shall conform to Section 3.6 of the RIDOT LRFD Bridge Design Manual and the latest edition of the AASHTO LRFD Bridge Design Specifications, including all interims.

   In general, seismic retrofit work is limited to bearing design, superstructure to substructure connections, providing adequate longitudinal and lateral restraint for seismic forces at bearings and correcting deficiencies in support length. The intent is to <u>not</u> retrofit abutment foundations for seismic forces.

   f. Load Rating – The DB-Team will be responsible for producing a load rating report for the new as-built bridge. The load rating reports shall be in accordance with the 2017 RIDOT Bridge Load Rating Guidelines, including all revisions. The minimum Inventory Rating Factor for the AASHTO HL 93 loading shall be 1.10.

g. Clearance – The clearance under the new structures shall be no less than 14'-3".

h. Accelerated Bridge Construction (ABC) – Upon RIDOT's approval, DB-Team has the option of using ABC methods such as prefabricated components, Self-Propelled Modular Transport (SPMT) method, etc. The DB-Team is responsible for designing and detailing the ABC system in the contract plans. Any precast manufacturing plant furnishing precast prestressed bridge members or components shall be certified by the Precast Prestressed Concrete Institute plant certification program. The certification shall be as a minimum in the B3 category, except for draped strand bridge members in which case a category B4 certification will be required. The Manufacturer shall submit proof of certification prior to the start of production. The DB-Team will be permitted to use field-cast concrete components provided the requirements of the Prefabricated Bridge Units Job Specific Specification are met.

i. Support of Excavation – Any temporary or permanent support of excavation that is necessary to maintain the safety of the traveling public, the structural integrity of nearby structures, and utilities, shall be considered critical and shall be designed and detailed on the plans. The DB-Team is responsible for designing and detailing the support of excavation in the set of Contract Plans. Excavation support systems may require approval from but not limited to RIDEM Wetlands Program, Water Quality Program, and/or ACOE. Consideration should be given to the excavation support systems with regards to the above regulations.

j. Bridge Inspection

Notification for Inspection – Before any bridge may be opened for public use, DB-Team shall notify the RIDOT that the bridge is complete and ready for RIDOT inspection. As part of such inspection notice, DB-Team must submit As-built Plans and Specifications for the bridge(s) to be inspected.

RIDOT Inspection – Just prior to the completion of each phase of construction the DB-Team shall notify RIDOT of the pending phase completion. After notification by the DB-Team and prior to the opening of any phase of construction to vehicular traffic, the RIDOT will perform a safety inspection of the section of construction slated to open to traffic. Only upon RIDOT approval of the inspection findings shall the phase be open to vehicular traffic.

Notification and Inspection for ABC Construction – The Design-Builder shall notify the Engineer at least 7 days in advance for any unit or portion of the work that will be installed utilizing ABC methods with the intent of immediately opening for public use. The Engineer must be present on site during the ABC installation to immediately inspect the bridge upon completion of the portion of the work and to provide partial acceptance for the portion of the work prior to opening the bridge for public use. As-Constructed plans and As-Constructed Design Builder Specifications shall be submitted within 60 days after final acceptance of the bridge by the Engineer.

RIDOT Punchlist Inspection – After notification by the DB-Team and prior to acceptance of the project as Complete, the RIDOT will perform an inspection of the bridge. A “punchlist” will be developed based on the findings of the inspection and submitted to the DB-Team for completion.

k. Damage to Existing Utilities and Utility Structures

The locations of all utilities as shown on the attached plans are approximate. The DB-Team shall check and verify the location of all existing utilities and service connections both underground and overhead in accordance with the "Dig Safe Program Law" enacted by Rhode Island Legislation Bill No. 79S-291, which became effective July 1, 1979. The DB-Team should be aware that not all utility companies subscribe to the Dig Safe Program. It is the DB-Team's responsibility to ensure that all utility companies have been notified and all utilities have been marked prior to commencing their work. Any damages to the utilities which are shown on the plans or detailed by Dig Safe shall be the DB-Team's responsibility.

The DB-Team will be responsible for:

- Damage to any existing structures or equipment in the roadway.
- Damage to existing walls, fences, etc.

The DB-Team shall make every effort to prevent debris from falling into catch basins. Inlet Sediment Control Devices shall be installed in all catch basins within the project limits and all catch basins immediately affected by runoff from within the project limits. Should any debris fall inside a structure, it shall be removed immediately.

l. Storage of Construction Material and/or Equipment

The DB-Team shall place all equipment and material in his yard or on site in a location approved by the Engineer.

Storage of materials on State or Town property will require the approval of the Resident Engineer.

Stockpiles shall be covered and must be located outside any areas of RIDEM jurisdiction including but not limited to wetlands and their associated buffers. Stockpile locations as shown on the approved RIDEM permit will be allowed. Any storage or stockpile of construction material and/or equipment on private property will be the DB-Team's responsibility.

m. Adjustment, Cleaning, and Repair of Drainage Pipes and Structures

The DB-Team shall be responsible for the adjustment of all drainage structures (catch basins, manholes, curb inlets, scuppers, etc.), within the limits of work, as necessary based upon the repaving of I-295 and Route 5. All structures shall be adjusted to temporary grades as required during construction and adjusted to final grade prior to the completion of each phase of construction and opening to traffic.

The DB Team shall flush, clean, inspect, repair, and reconstruct (as needed) any catch basins, manholes, pipes, and outfalls (a) where called out on the BTC Plans and (b) within the limits of all repaving work, and shall properly dispose of all debris associated with the cleaning and flushing. Cleaning and flushing of pipes and drainage structures shall be in accordance with RIDOT Standard Specification Section 708, the RIDOT Consent Decree, and the RIDEM Stormwater Design and Installation Standards Manual. Respondents shall assume that 40% of the drainage structures to be cleaned will require reconstruction.

n. Work Hours

Work hours shall be in accordance with the Standard Specifications. Deviation from the standard work hours may be requested in writing at least 2 weeks in advance of the start date required.

2. Geotechnical Investigation Plan

All geotechnical work shall be prepared in accordance with the criteria set forth in this Subsection by a Design Professional with a minimum of ten (10) years of geotechnical engineering experience including (5) years in the State of Rhode Island. All design calculations and plans shall be prepared, checked, signed and stamped by a Professional Engineer registered in the State of Rhode Island. DB-Team shall prepare a Geotechnical Investigation Plan and submit it to the RIDOT within 15 Calendar Days of NTP. The plan shall include the criteria or rationale used in developing the plan, and shall identify the locations of all field investigation sites, in-situ testing sites, and borings, together with their depths, sampling intervals, and a description of both the field and laboratory testing programs utilized. The plan shall also include a traffic control plan, a safety/hazard analysis plans, and a list of all permits required to perform the geotechnical investigation.

3. Subsurface Investigation and Data Analysis

a. General – DB-Team shall be familiar with available geotechnical, geologic, seismic, hydrogeology, and soils literature, shall be familiar with the existing site conditions, both native and man-made, shall interpret the existing geotechnical data pertaining to the Project Site, and shall perform all additional subsurface investigations and field and laboratory testing as may be necessary to satisfy itself as to (a) the nature of the soil, rock, groundwater, and subsurface conditions across the Project Site and all variations in groundwater and subsurface conditions; (b) the geological formations within, and attributes of, the Project Site; (c) the nature of the Work to be performed; (d) appropriate methods of construction; (e) critical combinations of loading; (f) seismic liquefaction potential of site, and (g) all other factors impacting evaluation.

Laboratories shall be certified and shall have documentation of calibration within the last year for all Equipment used for testing.

Information obtained using a pocket penetrometer or field torvane shall not be the primary means for development of geotechnical parameters.

b. Requirements – DB-Team must comply with the following in performing field and laboratory investigations:

1) Supervision – All boring and in-situ testing and inspection, and all laboratory classification and testing, shall be performed by geologists or geotechnical engineers under the direct supervision of a Design Professional with a minimum of 10 years of experience in the performance and supervision of geotechnical investigations.

2) Location and Ground Surface Elevation – DB-Team shall determine the coordinate location and ground surface elevation for each boring and field investigation site, and shall show the coordinates, station and offset, and elevation for each individual boring log or investigation record. Coordinates, station and offset shall be referenced to the Project survey control. Elevations shall be referenced to the Project datum and horizontal control system.

3) Logs – Final boring and Rock core logs shall be prepared using geotechnical software by gINT software.

DB-Team shall classify Soil in accordance with the "Standard Classification of Soils for Engineering Properties" (Unified Soil Classification System) ASTM D2487-00, and "Standard Practice for Description and Identification of Soils" (Visual-Manual Procedure) ASTM D2488-00.

4. Geotechnical Design Report

a. Geotechnical Findings and Recommendations Report – The DB-Team shall document all geotechnical data and findings, including without limitation a summary of existing information, results of the field subsurface investigations and mapping, results from the laboratory tests, and geotechnical and foundation analyses and design. The documentation shall be consolidated in the form of a Geotechnical Findings and Recommendations Report (GFRR) signed and stamped by a Design Professional Engineer registered in the State of Rhode Island. DB-Team shall prepare the GFRR in accordance with the RIDOT standards and RIDOT Bridge Design Manual, and shall ensure that the recommendations shown in the GFRR meet all Contract requirements.

b. Geotechnical Recommendations – DB-Team shall use the findings and recommendations shown in the GFRR to develop the foundation design for the Structures.

2.4.3 Description of Structural and Geotechnical Elements

This Section covers the specific design and construction elements of new bridges, bridge replacements, and geotechnical components. The goal of the design and construction of all structural systems and components is to provide functionality, durability, constructability, ease of maintenance, safety, and aesthetics consistent with the context of the Project Site.

1. Bridge Elements

a. Decks

- Minimum bridge deck thickness shall be 7½ inches, and the preferred depth is 8 inches or greater. The deck shall be high-performance concrete (HP) with a cold sprayed-applied waterproofing system and a 3-inch Modified Class 9.5 HMA wearing surface. Open or filled grating decks and orthotropic decks will not be allowed
- For deck construction, stay-in-place (SIP) forms shall be permitted in utility bays. All other bays require removable formwork. Proposed SIP form systems shall be approved by RIDOT.
- A 7-day wet cure for the bridge deck closure pours will be acceptable for this project.

b. Deck Joints

- The joints at each abutment shall be placed behind the new backwalls per the RIDOT Bridge Design Standard Details.
- The DB-Team shall account for differential settlement across longitudinal deck joints caused by live traffic on adjacent sections of the superstructure while closure pours are curing.

b. Backwalls & Beam Seats

- The backwalls shall be rebuilt and shall accommodate the RIDOT "deck-over-backwall" detail shown in the RIDOT Bridge Design Standard Details.

c. Deck Drainage

- Deck drains on the bridge will not be allowed.
- Any changes to the existing drainage patterns, system or existing impervious areas shall require analysis and approval through application to RIDEM. Stormwater design shall be in accordance with the March 2015 Rhode Island Stormwater Design and Installation Standards Manual and shall meet the requirements set forth in the Stormwater Consent Decree included in Part D.

d. Utilities

- The existing structure does not carry any utilities. Relocation of any utilities in the area shall be coordinated with the Owner of the utilities and local authorities.

e. Bridge Removal

The existing superstructure, back wall, beam seats, and return wall parapets and endposts shall be demolished. The exterior faces of the abutment stems and wingwall stems including the front reinforcing mat shall be removed to 6" depth (abutments) and 4" depth (wingwalls) from the existing front face. The demolition of these structures shall be in accordance with current RIDOT Standards and the following guidelines:

1) The DB-Team shall prepare a Bridge Demolition Plan which shall include the proposed methods of demolition for each stage of construction including equipment, tools, devices, etc. The demolition procedure and any necessary calculations and drawings shall bear the stamp of a Professional Engineer Registered in the State of Rhode Island certifying that all existing structural members are suitably braced and supported throughout the demolition process. The Demolition Plan shall be submitted to RIDOT for Review and Comment at least 21 calendar days prior to commencement of bridge demolition activities. Work shall not commence until RIDOT has given written approval of the Bridge Demolition Plan.

2) Disposal of rubble from demolition of the existing bridge in any Wetlands is prohibited. Demolition activities shall be performed in accordance with, but not limited to, the RIDEM Freshwater Wetlands Regulations, ACOE, RIDEM Hazardous Waste and/or Solid Waste Regulations and or approvals.

3) Submit a Demolition Plan to the RIDOT for Review and Comment at least 21 Calendar Days prior to commencement of bridge removal activities.

4) It is presumed that the existing steel beams may be coated with lead paint. The Contractor shall follow all federal and state regulations for the removal and disposal of the steel beams coated with lead paint.

5) The existing roadways below the bridges shall be protected with the use of temporary shielding and/or with temporary traffic detours. No debris shall be allowed to fall onto the roadways below.

f. Bridge Parapets & Median Barrier

- The existing bridge parapets shall be removed, disposed of and replaced with new reinforced concrete barriers meeting TL-5 requirements, per the RIDOT Bridge Design Standard Details.

- The existing bridge end posts shall be removed, disposed of and replaced with new endposts meeting the requirements of the RIDOT Bridge Design Standard Details for High Volume – High Speed roadways.

g. Staged Construction

Should the DB-Team elect to construct any portions of the bridges using phased construction, the requirements of this section shall apply.

- Longitudinal phased construction joints and joints between PBUs will be permitted in the concrete deck slab. The construction joints shall contain shear keys and the reinforcement shall be continuous across the construction joints. The DB-Team shall account for differential settlement across longitudinal deck joints caused by live traffic on adjacent sections of the superstructure while closure pours are curing

- Three 12-foot wide travel lanes in each travel direction are required to be maintained throughout the duration of construction. Two-foot minimum from the edge of the temporary travel lane to the edge of the temporary or permanent barrier or curb is required during construction operations.

- During the winter shutdown period, 12-foot wide travel lanes, a 4-foot wide left shoulder, and a 10-foot wide right shoulder are required in both directions of I-295 to allow for proper snow removal operations.

- There are brief periods where a reduced number of lanes of traffic in each direction will be allowed for lane and barrier shifts and other short-duration construction activities. See Section 2.11 for additional details.

h. Concrete Repair

There are areas of deteriorated concrete throughout the structure in need of repair including spalled, hollow sounding, and/or cracked concrete. These areas include but are not limited to:

- The abutment stems
- The return wall stems

It is proposed to remove the entire front faces of these components to a depth of 6" (abutments) and 4" (wingwalls), including the front reinforcing mat, and recast these faces to the original geometry. Proposed anchored reinforcing mats that match the existing sizes and spacings shall also be included. Concrete substructure repairs shall be coordinated with the beam seat and

backwall replacements. The areas of the substructure to be replaced shall be clearly defined from the areas to be repaired so as to have no overlap.

All exposed concrete surfaces shall be cleaned in accordance with RIDOT Standard Specification Sections 820.0200 & 820.0300. Cleaning shall occur prior to any concrete repairs.

Should additional areas of concrete to remain and requiring repair be uncovered during construction, the following procedure shall be followed:

- The DB-Team is to fully inspect and document the extent of all deteriorated concrete areas.
- The DB-Team is to develop details for repair of all deteriorated areas.
- The DB-Team is to fully sound and mark out all deteriorated areas that are to be repaired.
- Prior to beginning the concrete repairs, the RIDOT Engineer shall approve all marked out areas to be repaired.
- The DB-Team shall repair the approved areas to the satisfaction of RIDOT.

Payment for additional concrete repairs will be made on a "Force Account" basis in accordance with Section 109.04a of the Standard Specifications.

The DB-Team shall include additional reinforcing and drilled-and-grouted dowels in proposed sections of concrete and replace any heavily deteriorated and unsuitable existing reinforcing proposed to remain.

2. Foundation Design

It is anticipated that the existing foundations will be retained. The information in this section is provided should the DB-Team elect to provide a design with foundation modifications.

Foundation and geotechnical design for Structures shall follow RIDOT Standards and the RIDOT Bridge Manual and shall provide a seismic liquefaction potential design for all foundations. Differential settlement shall not exceed 0.5" within a pier or abutment, or between adjacent piers or abutments. Downdrag shall be investigated and included in the design.

3. Seismic Analysis

Keeper blocks and/or curtain walls shall be used to provide longitudinal and transverse seismic restraint of the superstructure. The design of these seismic restraints shall be in accordance with the 2011 edition of the AASHTO Guide Specifications for LRFD Seismic Bridge Design.

4. Plans and Calculations

DB-Team shall provide Plans and design calculations meeting AASHTO LRFD *Bridge Design Specifications*, including a global stability and seismic analysis. The DB-Team shall provide Plans in accordance with RIDOT Standards including DPM 450.02. Design calculations for the steel girders, concrete deck and bridge bearings shall be prepared using the AASHTO LRFD Bridge Design Specifications and the RIDOT LRFD Bridge Design Manual and submitted for review and acceptance. All calculations must be checked by a Registered Professional Engineer in the State of Rhode Island. The calculations shall be stamped, signed and dated.

5. Miscellaneous Construction Considerations

a. Temporary Excavation Support - Temporary excavation support required during construction shall be designed to withstand short-term loading due to earth pressures, groundwater pressures, surcharge pressures, and construction equipment loading. Working plans for temporary decking, soldier piles and lagging, and bracing shall be signed and stamped by a Professional Engineer registered in the State of Rhode Island.

Surcharge pressures due to construction materials and equipment, structures, and point, line and area loads, shall be included in lateral earth pressure diagrams. Construction materials and equipment loads shall be estimated using a minimum 400 psf distributed area load.

DB-Team shall indicate on the Working Plans special requirements for the installation and removal of temporary bracing systems that relate to the designs of underpinning and protection walls, such as levels of bracing tiers, the maximum distances of excavation below an installed brace, and the amount of preloading.

RIDOT must review and approve any earth support designs that may impact the motoring public or that affects public safety before it is implemented.

b. Dewatering and Groundwater Control - Excavations that are left open to precipitation, that extend below groundwater levels, that encounter water seepage, or that are made in existing bodies of water, will require some form of dewatering or groundwater control. DB-Team shall evaluate the potential need for dewatering and groundwater control when designing a structure. Dewatering of un-contaminated or contaminated surface/groundwater shall be performed in accordance with, but not limited to the RIDEM Water Quality Regulations, RIDEM Wetland Regulations, RIDEM RIPDES Remedial Permit, and RIDEM Office of Waste Management.

6. Pre- and post-construction Survey

DB-Team shall conduct a pre- and post-construction survey of the Project Site for purposes of generating photographic and video documentation of existing conditions and damage to structures within 200 feet of the Project Site. This survey shall form the basis against which all new damage will be measured. DB-Team shall submit to RIDOT at the beginning of construction the records and photo/video documentation of the pre-construction survey, which have been signed and stamped by a Design Professional Engineer registered in the State of Rhode Island, and the same at the end of construction of the post-construction survey.

7. Roadway Approach/Backfill Compaction

The DB-Team shall achieve the density of backfills and approach roadways per the RI Standard Specifications for Road and Bridge Construction, and shall choose construction techniques and lift depths accordingly to achieve the specified densities.

2.4.4 Submittal Requirements

All submittals are subject to review and acceptance by RIDOT or its designated agent. RIDOT maintains the right to refuse and reject any submittal that does not comply with RIDOT requirements related to the

preparation and submittal of Contract Documents and the requirements of this RFP. Rejection of submittals will not constitute grounds for delays in schedule.

For all design plan review submissions, the DB-Team shall coordinate with the Engineer regarding the number of copies required for review at least one day prior to submission. All design plan review submissions, shop drawing review submissions, and all permit application review submissions, shall be made simultaneously to the Resident Engineer's field office, and to RIDOT headquarters at the following address:

Attention: Mr. James McGinn, P.E.
Project Manager II
Two Capitol Hill
Providence, RI 02903

Design reviews by RIDOT will consist of an oversight review to ensure that the design plans, calculations, specifications or other data have been developed in accordance with the requirements and design criteria presented in the RFP. The reviews will also consist of checking that the Quality Control procedures established in the Quality Control Plan are being followed. "Over the Shoulder" reviews may be used to facilitate the resolution of comments on the design submission. This type of review is a joint examination of the design documents by RIDOT and the DB-Team.

For shop drawing review submissions, four (4) copies shall be delivered to the Resident Engineer's field office, and three (3) copies to RIDOT headquarters as specified above. In addition to the above number of hard copies, one (1) electronic PDF copy of all design plan review submissions and all shop drawing review submissions shall be delivered to the Resident Engineer's office on CD.

The RIDOT review time for design plan reviews, shop drawing reviews, and permit application reviews shall be twenty-one (21) days from date of receipt. See Section 2.20.5 Shop Drawings for additional information.

For scheduling purposes, the DB-Team shall assume a six (6) week review period for the Rhode Island Department of Environmental Management (RIDEM) to review all permit applications submitted by RIDOT.

For scheduling purposes, the DB-Team shall assume a six (6) week review period for the Rhode Island Historical Preservation & Heritage Commission to review all permit applications submitted by RIDOT.

Three (3) copies of all final approved plans shall be delivered to the Resident Engineer and five (5) copies shall be delivered to RIDOT headquarters (same attention as above).

In addition, the DB-Team shall provide PDF copies of all submissions and shall provide CADD and Word files of the final submission.

The following submittals are required:

a. 75% Highway/90% Bridge Design Submission - As part of the project requirements, the DB-Team must provide a complete submittal package for the new bridges to RIDOT for review and approval. This submission shall include the following:

- 75% Highway Plans/90% Bridge Plans
- Job Specific Construction Specifications

- Bridge Design Calculations
- Environmental Permit Applications

b. PS&E Submission: After receiving all comments made on the 75%/90% Submission, the D/B Team shall prepare responses to the comments, revise all plans, specifications and calculations as required and submit a final design submission of all Plans, Calculations and Specifications for final review and approval.

c. IFC (Issued for Construction) Submission: Upon resolution of all comments, the D/B Team shall submit a stamped and signed set of final construction plans to RIDOT labeled as "Issued for Construction." The final plans shall conform to the requirements for PS&E level plans for all elements in accordance with the RIDOT DPM requirements.

d. Shop Drawings and Working Drawings: The DB-Team's construction team shall generate shop and working drawings as necessary to clearly define, control, construct, and inspect the Work. These working drawings shall be sent back to the DB-Team's engineering team for review and internal approval. All such drawings shall be prepared by a Professional Engineer registered in the state of Rhode Island, and shall be stamped Approved For Construction and signed by the DB-Team's engineering team prior to them being considered approved.

The DB-Team shall consult with RIDOT as necessary, in the review of shop and working drawings, and shall coordinate the preparation, submittal and review of all such shop and working drawings. Where permits are required from Utilities, shop and working drawings shall be submitted to the Utilities for review and approval in accordance with their requirements.

Shop and working drawings for the permanent Work shall include those specifically required by the QA Manager, Contract Documents, or Utilities. The shop and working drawings shall be reviewed and approved by DB-Team's design engineers who prepared the Design Documents.

Shop, working drawings and calculations for falsework, temporary support systems, formwork and other temporary work that describe the methods of construction proposed to be used for the Work shall be prepared by the DB-Team and reviewed by DB-Team's design engineer in accordance with the QC/QAP. RIDOT will not review or regularly receive copies of these submittals unless it specifically requests such documents. Receipt of submittals for temporary work by RIDOT shall in no way constitute approval of the planned work or acceptance of any liability by RIDOT.

The DB-Team shall obtain all necessary approvals for shop and working drawings. Said approvals, along with copies of all approved drawings, shall be provided to RIDOT one (1) Business Day prior to the start of any Work detailed by those drawings. No changes shall be made by the DB-Team in any approved shop or working drawing after it has been approved.

e. As-Constructed Plans & Calculations Submission: At the completion of the Project the DB-Team shall submit As-Constructed/As-Built Plans and Specifications to RIDOT for the Project records. The Plans and Specifications shall include all field modifications and changes undertaken during construction.

Included in this submission package shall be the Final Bridge Calculation Book that incorporates As-Constructed/As-Built modifications. An electronic copy and a hard copy stamped by a Professional Engineer registered in the state of Rhode Island shall be submitted to RIDOT.

f. As-Constructed Load Rating Report: The DB-Team shall submit to the RIDOT a load-rating analysis and report incorporating the final rehabilitation repairs. The load-rating shall be completed in accordance with the RIDOT Bridge Load Rating Guidelines, August 2017.

Load Rating Reports shall constitute Project Records and shall be prepared by, signed by, and stamped with the seal of a Design Professional Engineer registered in the State of Rhode Island.

g. Geotechnical – As applicable, DB-Team shall prepare design calculations and Plans of all geotechnical elements associated with Soil slopes, fill / embankments, retaining walls, bridges, and hydraulic design as required by the design and as specified in this Section. The design calculations and Plans shall be signed and stamped by a Design Professional Engineer registered in the State of Rhode Island and submitted to RIDOT for Review and Comment.

2.5 Lump Sum Breakdown/Major Items List

Refer to Part C – Price Proposal for a listing of Major Items associated with the Lump Sum payment items.

2.6 Environmental

2.6.1 NEPA Compliance/Environmental Documentation

RIDOT has prepared and submitted a CE Checklist on behalf of FHWA for this project to satisfy NEPA requirements. The CE will be issued prior to the issuance of the Notice to Proceed for the D/B Team. (See Part A Section 2.3 for Schedule Milestones). Final design activities may commence upon the issuance of the Notice to Proceed.

The DB-Team shall be responsible for carrying out any environmental commitments required by the NEPA process during design and construction, as applicable.

Changes to the scope of the Project (as expressed in this RFP) proposed by the DB-Team shall require coordination with RIDOT to determine if additional documentation must be provided as part of the NEPA review process. Such changes may necessitate additional environmental studies or coordination with regulatory agencies to be carried out by the DB-Team. The DB-Team shall carry out any additional environmental commitments as a result of any re-evaluation and will be responsible for any schedule delays and associated costs.

2.6.2 Wetland and Water Quality Permits

The DB-Team will be responsible for identifying and preparing all environmental permit applications required as part of their design and construction activities, including but not limited to the following, where applicable: Freshwater Wetlands Permit from the Rhode Island Department of Environmental Management (RIDEM); authorization from the US Army Corps of Engineers (ACOE) under the Department of the Army General Permits for the State of Rhode Island and Lands Located Within the Boundaries of the Narragansett Land Claim Settlement Area issued March 3, 2017 (RIGPs)(see Part D – Appendices); RIDEM Dams Program, a Water Quality Certification (WQC) from the RIDEM, Authorization under the Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity from the RIDEM; inclusive of preparing and complying with the requirements of a Soil Erosion and Sediment Control Plan (SESC Plan). The DB-Team is responsible for reviewing and understanding the performance standards and commitments made in all permits and approvals for the Project, as well as the standards and prohibitions of the respective regulations of these programs. The DB-Team shall

be responsible for the preparation of all permit applications and supporting documentation, based on the DB-Teams final design. The RIDOT as Owner, will be the Permittee, upon RIDOT review and approval of the necessary permit applications, RIDOT will submit them to the regulatory agencies. Should the DB-Team propose design changes acceptable to the RIDOT, permitting requirements may also change. The DB-Team also remains responsible for obtaining any and all necessary amended permits required by the regulatory agencies.

The DB-Team shall utilize the December 2010 *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook*, 1989, revised 2014 in the design of this project. The DB-Team shall prepare and submit as soon as practicable prior to the 30% Design, a Preliminary Environmental Design Submission that consists of the following:

- 2015 Rhode Island Stormwater Design and Installation Standards Manual, Appendix A Checklist (as complete as possible at this design stage).

- Preliminary design strategy for environmental permitting (I.E. anticipated permit submissions based on the DB-Team's design concept).

The purpose of this preliminary submission is to assist in streamlining the environmental permitting process for this project. This preliminary submission will allow for early coordination between the DB-Team and the RIDOT Office of Environmental Review (OER). This submission will also allow for a preliminary meeting with the RIDEM's Permitting Staff. Early coordination between the DB-Team and the RIDOT OER is encouraged and meetings may be coordinated with the OER prior to this submission. A meeting between the DB-Team and the RIDOT OER is required upon the submission of the Preliminary Environmental Design submission.

The DB-Team shall be responsible for any wetland delineation and survey required to produce the necessary permit documents.

The DB-Team will be responsible for developing final design drawings for their preferred alternative and submitting such plans and all complete regulatory permit applications to RIDOT for submission to the regulatory agencies, including but not limited to the RIDEM RIPDES Program, RIDEM WQC Program, RIDEM Freshwater Wetlands Program, RIDEM Dams Program, RIDEM Office of Waste Management and ACOE for subsequent review and approval prior to any construction. The DB-Team shall be responsible for any delay to the project schedule resulting from incomplete materials, comment response and agency review of these applications.

The DB-Team shall be responsible for compliance with pre-construction, construction-related permit conditions, as well as post-construction monitoring if required by regulatory agencies.

All efforts and costs necessary for additional permit acquisition or modification, compensation or mitigation costs shall be included in the DB-Team's Price Proposal. Any fines associated with environmental permit or regulatory violations/enforcement actions shall be the responsibility of the DB-Team. The project will not be deemed complete or acceptable until all involved regulatory agencies have, in writing, determined that permit requirements, conditions and regulations are satisfactory.

2.6.3 Compliance with Environmental Commitments

The DB-Team shall comply with all environmental commitments and requirements in the NEPA Approval including, but not limited to, the following:

1. The provisions of all environmental permits applicable to the Project, including any Restrictions and agreements specifically agreed to or entered into by RIDOT in obtaining Permits for the Project.

2. Those stipulations and conditions under which the RIDOT received the NEPA Approval and any modifications resulting from the re-evaluation of the design documents.

3. Applicable Laws and regulations relating to potential or actual Hazardous Material that may be encountered in the course of carrying out the Contract.

4. Carrying out all necessary social, economic and environmental studies required by regulatory authorities in the course of the construction.

5. Updating or extending approved permits obtained by the DB-Team.

2.6.3.1 Design Phase

All plans and designs are to be prepared in accordance with all the environmental commitments/requirements outlined in the Special Provisions and Notice to Bidders of this Contract and all environmental commitments in the NEPA Approval. The DB-Team shall confirm with RIDOT that all plans and designs have been prepared in accordance with all the environmental commitments/requirements by the Issued for Construction (IFC) submittal.

2.6.3.2 Preconstruction Conference(s)

The DB -Contractor shall conduct one (or more, if appropriate) pre-construction conference(s) prior to any construction activity to discuss environmental and permitting issues, which conference shall include all subcontractors, and to the extent feasible, representatives from the U.S. Army Corp of Engineers, RIDEM, the DB-Team, RIDOT, and others as deemed necessary.

2.6.3.3 Construction Phase(s)

The DB-Team shall be responsible for compliance with all the environmental commitments/requirements outlined in the Special Provisions and Notice to Proposers as provided in environmental commitments contained within the NEPA Approval. The commitments/requirements shall be complied with during all phases of the construction activities. Upon completion of the Construction Work, the DB-Team shall certify that all construction activities have complied with all of the environmental commitments/requirements. RIDEM or RIDOT will have the authority to suspend all Work for noncompliance with the environmental commitments/requirements.

2.6.3.4 Wetlands and Water Quality Mitigation

The DB-Team shall fulfill the terms and conditions of the Clean Water Act Section 404 permit, Section 401 Water Quality Certification, RIDEM Freshwater Wetland permit, and any other applicable environmental permit conditions as required by the U.S. Army Corps of Engineers, RIDEM, and any other

applicable agency. The DB-Team shall be responsible for all river and/or wetland mitigation required to fulfill the permitting requirements.

2.6.3.5 Deliverables

The DB-Team shall provide the following list of deliverable items:

1. Wetland and stream mitigation engineering drawings to be submitted during final design
2. Copy of Permit Applications
3. Copy of Approved Permits

2.6.4 Historic Properties

RIDOT has performed a due diligence review to identify known historic architectural properties and archaeological sites and to assess the potential for unidentified archaeological sites for this Project. This review determined that the archaeological sensitivity at each location is low or none. The proposed bridge work as shown in the BTC will have no direct or indirect impact on above-ground historic properties as there are no aboveground resources within or immediately adjacent to the Area of Potential Effects.

RIDOT's Office of Historical and Cultural Review (OHCR) has determined that the Section 106 process can be completed with a PA Form 1 unless the proposed Scope of Work changes.

a. Unanticipated Discoveries - In the event that previously unidentified historic or archaeological resources are discovered which may be affected by the Project in accordance with the criteria of Adverse Effect under 36 CFR Part 800, the D/B Team shall cease work and promptly notify the RIDOT Project Manager. RIDOT, FHWA, RISHPO, and NITHPO (if appropriate) will consult promptly on the eligibility of the resources and the FHW A, will promptly determine whether such resources are historic properties under 36 CFR Part 800.

b. Human Remains - In the event that any human remains or unmarked human burials are identified during construction activities associated with the undertaking, work will cease immediately and the DB-Team will notify the RIDOT Resident Engineer. FHWA/RIDOT will follow procedures under Rhode Island General Law (R.I.G.L.) 23-18-11 et. seq.

2.6.5 Environmental Monitoring

The DB-Team is responsible for daily monitoring for compliance with all applicable state and federal environmental laws, regulations, and permits. Should any non-compliant item(s) be identified during construction, the DB-Team will take immediate and continuous corrective action to bring the item(s) back into compliance. The DB-Team's Environmental Monitor shall be appropriately qualified and must be approved by RIDOT. The Environmental Monitor shall be responsible for RIPDES SWPPP inspections and required reporting and coordination with the RIDOT Office of Environmental Review.

The Department will perform environmental monitoring during construction on a periodic basis. The DB-Team shall provide an Environmental Compliance Report ("ECR") to the RIDOT Project Manager on a weekly basis that will include a listing of items of non-compliance, deviations from approved work, and actions taken or recommendations for appropriate action. The DB-Team shall be responsible for any schedule delays and associated costs as a result of any delays and/or shut downs associated with non-compliance. Any monetary fines associated with violations shall be the responsibility of the DB-Team.

2.7 Survey

2.7.1 Project Survey Coordination

The DB-Team shall designate a Rhode Island Licensed Professional Land Surveyor as the responsible person in charge of all DB-Team related survey activities on the Project. The DB-Team shall comply with the most recent and applicable laws.

2.7.2 Contractor Supplied Survey

Following completion of the projects identified in Part A, Section 2.1, the DB-Team shall prepare a complete survey of the project area as needed to design, permit, and construct the project. Available base map information is provided with the RFP. However, the provided data is for information only, and the DB-Team will be responsible for verifying the validity of the supplied information and for obtaining any survey and right of entries needed to verify and monument right-of-way, to relocate utilities, to locate and/ or designate underground utilities, to support the design and engineering, and to construct the project. The DB-Team survey shall utilize the same survey baseline as the I-295/Greenville Ave. (Rte. 5) Interchange / Greenville Avenue (Rte. 5) Improvements project.

Right-of-way and boundaries affecting property ownership, horizontal and vertical controls for bridges, and horizontal and vertical controls for additional centerlines or baselines for roadways shall be performed by or under direct control and personal supervision of a surveyor who is licensed in the State of Rhode Island as a Land Surveyor and is experienced in highway and bridge construction. The RIDOT reserves the right to QC all surveying work completed by the DB-Team or the licensed professional. The DB-Team shall perform survey responsibilities and record data in field survey books. The Field Survey Books shall be in accordance with DPM 420.01; Field Survey Books Material Specification and Format.

Available LiDAR will be provided to the selected DB-Team upon award of the Contract at the DB-Team's request. The provided LiDAR data shall be used for general information only and shall not be relied upon for specific survey data.

2.7.3 Preservation of Survey Control Monuments

The DB-Team shall preserve all survey control monuments and any governmental defined land corners located on or within RIDOT right-of-way and shall be responsible for resetting, replacing and/or relocating any survey control monuments damaged, destroyed or within the footprint of the final design construction limits. The control will be reestablished by a Land Surveyor licensed in the State of Rhode Island.

2.8 Design of Pavement Structure

The minimum required pavement structure is depicted within the BTC Plans. The intent of the pavement design is to, at a minimum, provide equivalent structural thickness as the existing pavement structure. If the DB-Team finds that the existing pavement structure varies from that depicted, they shall notify the Engineer. The RIDOT Materials Section will then provide any adjustments, if necessary, to the proposed pavement structure.

Any utility excavations or excavations for storm drains within pavement areas must be backfilled with compacted structural fill in accordance with applicable sections of the Road and Bridge specifications and applicable special provisions.

2.9 Drainage

The DB-Team shall inventory the existing drainage structures within the project limits to confirm the type, size, condition, connections, inverts, etc. The BTC proposes no change to the existing drainage system other than adjusting frames and grates to the finished grade and, as needed, reconstruction as noted in Part B, Section 2.4.2, Paragraph 1-m. Finish grading shall be designed to direct surface runoff away from roadway and structures to the extent possible.

The existing drainage structures and pipes within the limits of paving shall be cleaned and flushed of all sediment. All sediment removed shall be disposed of in accordance with State and Federal regulations.

The DB-Team shall be responsible for the identification, design, and permitting of drainage and stormwater management associated with the temporary roadway. See Part B, Sections 2.6 and 2.9.1.

2.9.1 Stormwater Pollution Prevention Plan

The DB-Team shall prepare a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the Rhode Island Pollutant Discharge Elimination System General Permit for Storm Water Discharge Associated with Construction Activity, September 26, 2008(or latest revised and approved edition). RIDOT has developed a SWPPP template which is available on the RIDOT website at http://www.dot.ri.gov/business/contractorsandconsultants.php. The DB-Team will be required to develop and sign the SWPPP as the Operator. RIDOT is the Owner.

The DB-Team shall be responsible performing all inspections, amendments and all reporting requirements in compliance with the requirements of the SWPPP, General Permit and RIPDES Regulations. The DB-Team shall provide, to RIDOT, the name and contact information, as well the qualifications, of the individual responsible for completing the required SWPPP inspections and reporting requirements.

The DB-Team shall be responsible for compliance with construction-related permit conditions and shall assume all obligations and cost incurred by complying with the terms and conditions of the SWPPP. Any fines associated with permit or regulatory violations shall be the responsibility of the DB-Team.

2.10 Traffic Control Devices

The Project scope of work includes the installation of traffic control devices. The devices required include, but are not necessarily limited to, all signs (permanent and construction), pavement markings, and guardrail. A Signing and Striping Plan is required from the DB-Team for final approval by the RIDOT Traffic Section and shall be included as part of the final design plans. The DB-Team shall provide typical sections of I-295 and Route 5, including cross slope. The DB-Team shall ensure that the existing and proposed guardrail is located at the proper height above the final pavement elevation. Guardrail limits shall be as required by RIDOT Standards and the AASHTO Roadside Design Guide. All guardrail terminal ends shall conform to the latest RIDOT and FHWA Standards and shall satisfy the AASHTO Roadside Design Guide. All temporary and permanent roadside elements shall satisfy MASH criteria. The DB-Team shall provide a copy of the Manufacturer's recommendations for installation of all guardrail terminals and impact attenuators.

Temporary anchored barrier on bridge decks shall conform to Section 926 of the RIDOT Standard Specifications and the following: The barrier system used shall be crash tested and approved for use on the National Highway System by FHWA. The system shall meet the appropriate Test Level and satisfy the required dynamic deflection limits needed at the locations installed. Installation of the system shall be in accordance with the manufacturer's requirements. When anchoring barrier to the new bridge decks, the DB-Team shall position the barrier anchorage locations to avoid deck reinforcement.

2.10.1 Signs

The Project shall include all required modifications to existing signs and sign structures and all required new signs and structures. Any signs on adjacent roadways that require relocation/ replacement due to construction activities shall be the responsibility of the DB-Team. The DB-Team shall prepare an existing sign inventory that shall be completed prior to site demolition. This existing information shall be submitted at the same time as the first plan submittal for proposed signing. The DB-Team shall design all proposed sign panels in accordance with the MUTCD.

2.10.2 Pavement Markings

The DB-Team shall provide, install and remove all required pavement markings. All temporary and permanent edge lines, and centerlines shall be Epoxy Resin. The Design-Build Team shall furnish, apply, and maintain temporary pavement markings within the project limits and approaches to work zones. All pavement markings (temporary and permanent) are to be eradicated by the DB-Team when they conflict with other pavement markings or are no longer applicable.

2.10.3 Temporary Median Crossovers

The BTC Plans depict use of a temporary bridge in the median of I-295 to accommodate three 12-foot travel lanes. The temporary bridge is accessed by temporary northbound and southbound crossover roadways. The DB-Team shall be responsible for the design and construction of temporary median crossovers per AASHTO specifications and MUTCD guidelines. Additionally, the following guidelines are suggested for designing the crossover.

- The design speed for median crossovers should be based on the posted speed limit prior to the construction area unless there are design constraints.
- Temporary median crossovers should be located to provide the maximum advance warning to the driver based on the vertical and horizontal alignment of the site. The driver should have adequate sight distance in advance of the crossover.
- The crossover shall be designed to allow for proper run off, satisfy drainage requirements, and allow a smooth transition from the roadway to the median crossover.
- The crossover roadways shall be a minimum width of 50’ and provide three 12-foot travel lanes, a 4’ left shoulder and 10’ right shoulder.
- The alignment of the temporary roadways shall be positioned between the future gantry structure proposed under RhodeWorks Toll Facilities – Design, Build, Operate, and Maintain (Location 8). The temporary roadway alignment shall allow for the collection of tolls in both the northbound and southbound direction when the temporary crossover roadway is in use. Refer to Part B, Sections 2.15 and 2.16 of the RFP and the Plans for this project in Part D, Appendices for more information.

- Temporary concrete barrier shall be installed along the outside edge of pavement of the temporary crossover roadways.

- Advance signing, pavement markings and other traffic control devices shall be utilized to guide drivers to the crossovers.

- The temporary median crossovers shall not be used for transporting materials for the project.

- A Radar Vehicle Detector (RVD) system is located within the center median of I-295 approximately 1,500' south of Greenville Avenue. In the event that the DB-Team's temporary roadway design shifts I-295 traffic in the range of these sensors, the DB-Team shall coordinate with the RIDOT Transportation Management Center (TMC) to determine sensor relocation or adjustment requirements.

The DB-Team shall be responsible for the design, submission, construction, maintenance, removal and restoration work related to the crossovers. All traffic control devices shall be removed from the crossover when no longer required.

2.11 Transportation Management Plan

The DB-Team shall develop and incorporate a Transportation Management Plan ("TMP") in accordance with the RIDOT requirements. The TMP documents shall clearly show how traffic will be managed during the various phases of construction of the Project and will include Temporary Traffic Control (TTC) plans and TTC strategies. The DB-Team shall coordinate all work in accordance with the TMP. The TMP shall incorporate and address all of the requirements of DPM 450.05 – Work Zone Safety and Mobility.

2.11.1 Temporary Traffic Control Plans

It is anticipated that the work will be conducted in phases. Three lanes of traffic shall be maintained on I-295 Northbound and Southbound except for short term lane closures during off peak periods. All travel lanes in each direction shall be maintained along Route 5 except for short term closures with approval from RIDOT and the Town of Johnston.

The following travel lane restrictions, at a minimum, are allowed:

<u>I-295 Northbound and Southbound</u>

- Maintain a minimum of three travel lanes in each direction 6:00AM - 9:00AM & 3:00PM – 6:00PM, Monday through Friday;
- Maintain a minimum of two travel lanes in each direction 9:00AM - 3:00PM, Monday through Friday;
- Maintain a minimum of one travel lanes in each direction 9:00PM - 6:00AM, Sunday through Friday.

These restrictions allow short term closures of two lanes in each direction during the overnight hours Sunday through Thursday (one 11' minimum width lane maintained in each direction). No lane or shoulder closures will be permitted on I-295 during the winter shutdown period.

More extensive lane restrictions may be allowed in combination with alternate ABC methods that occur over a shorter duration. RIDOT approval will be required. Such restriction/schedule changes incorporated in Technical Proposals will be considered as part of the Technical Proposal Evaluation. The DB-Team shall be responsible for any additional traffic studies, coordination with and approvals from other impacted State and Local agencies and officials, and all other additional work introduced as a result of the proposed change.

Route 5 (Coordination and approvals required from the Town of Johnston)

- Maintain the existing lane configuration 6:00AM – 9:00PM; Monday through Friday;
- Maintain the existing lane configuration 9:00PM Friday though 9:00PM Sunday;
- Maintain one lane of traffic in each direction 9:00PM – 6:00AM Sunday through Thursday;
- Short-term closure of Route 5 and implementation of detour for bridge demolition and installation (upon approval by RIDOT and Town of Johnston).

The BTC Plans provide preliminary Maintenance and Protection of Traffic (M&PT) concepts for the proposed stage construction. The DB-Team shall design, develop and incorporate a final design M&PT in accordance with RIDOT requirements. The M&PT documents shall clearly show how traffic will be managed during the various phases of construction of the Project and will include Temporary Traffic Control (TTC) plans and TTC strategies. The DB-Team shall coordinate all work in accordance with the M&PT. The M&PT shall incorporate and address all the requirements of DPM 450.05 Work Zone Safety and Mobility including the following:

The DB-Team shall design the TTC Plans in accordance with RIDOT, the MUTCD, and AASHTO design standards and in accordance with guidelines specified in this RFP and shown on the BTC Plans. These plans shall be in accordance with current RIDOT policies including, but not limited to, DPM 450.05 -Work Zone Safety and Mobility and the RIDOT Traffic Design Manual. The Design Speed used for the TTC Plans shall be 65 mph for I-295 and 40 mph for Route 5. The DB-Team will be responsible for any changes to the M&PT resulting from any DB-Team changes to the sequence of construction or scope of work and shall coordinate with RIDOT to ensure that the changes are acceptable.

The DB-Team shall be responsible for coordinating, cooperating and scheduling the work and all segments thereof with the RIDOT, other contractors on adjacent construction projects, utility owners, the Rhode Island Public Transit Authority, and applicable local authorities so as to minimize impacts to the construction schedule.

Throughout construction, the RIDOT will review the traffic control setups in the field. The RIDOT reserves the right to require the DB-Team to modify the traffic control setups in the field and/or mandate additional traffic control devices or strategies (including, but not limited to additional signs, barriers, drums, and public outreach) to improve traffic conditions. The DB-Team will also be responsible for adjusting the TMP accordingly.

Construction signs shall be installed, maintained, adjusted, and removed by the DB-Team throughout the duration of the project. Existing signs that conflict with construction signs or permanent signs shall be covered and/or removed. Guardrail within the limits of the TTC plans shall also be maintained, adjusted, and/or removed and replaced by the DB-Team throughout the duration of the Project.

The DB-Team shall maintain a clear pedestrian way on all impacted streets, excluding I-295 and ramps, at all times. The DB-Team shall provide temporary access routes/ramps through construction areas to ensure this access. The DB-Team must provide for ADA compliant routes to the satisfaction of the RIDOT and the Town of Johnston for pedestrians to safely guide them away from broken and uneven pavement, open excavations, drop-offs, construction operations, and hazards at all times.

2.12 Right-of-Way

The proposed project limits lie within State Right-of-Ways or on State property. Due to this, permanent or temporary easements are not anticipated for this project.

DPM 320.11; Access to Private Property does not apply to this project. The DB-Team shall be responsible for assuming all risks associated with the acquisition of additional right-of-way to accommodate the proposed construction methods, including any public hearings that may be required, and no modifications to the Contract Price or Contract Time will be granted or considered.

2.13 Planting

All areas within and adjacent to the bridge disturbed by any activities necessitated by the Project shall be completely restored to pre-construction conditions, and shall be re-seeded for grass. All grass seeding shall be done in accordance with Part L of the RIDOT Standard Specifications.

2.14 Utilities

DPM 450.13; Utility Submissions and Coordination and DPM 450.14; Advanced Utility Work does not apply to this project.

RIDOT has performed utility research and preliminary coordination with the known utilities within the project areas. RIDOT correspondence with the utilities is provided in Part D. However, the DB-Team shall be aware that additional utility work has been performed at the project site following this coordination. The DB-Team is required to perform its own research and due diligence in an effort to identify all active utilities prior to commencement of construction activities. The DB-Team will be responsible for coordinating with the utility companies to develop temporary and/or permanent relocation schemes and to confirm the final required Scope of Work.

2.14.1 DB-Team Responsibilities

The anticipated services to be provided by the DB-Team include, but are not limited to: identification of utilities requiring relocation, notification to utility owners and coordination of design and construction efforts for the utility work. Final utility coordination shall be the responsibility of the DB-Team. The DB-Team shall expect to devote resources to utility investigation, coordination, monitoring, protection, and construction as required to complete the Project. The DB-Team bears full responsibility at its own expense for ascertaining the existence and exact location and size of any utility to be relocated or otherwise impacted on either a temporary or permanent basis.

The DB-Team shall be solely responsible for planning and coordination of the utility relocations required for the completion of the Project. The DB-Team shall be responsible for coordinating the work of the DB Team, its subcontractors and the various utilities. The resolution of any conflicts between utilities and the construction of the Project shall be the responsibility of the DB-Team. No additional compensation or time will be granted for any delays, inconveniences, or damage sustained by the DB-Team or its subcontractors due to interference from utilities or the operation of relocating utilities.

Unless otherwise directed by the Utility Owner, the DB-Team shall not move or remove any utility without the utility owner's written consent. The DB-Team shall give ample notice to any utility owner whose infrastructure will require relocation. It will be at the discretion of the utility owner if such work will be completed by the

DB-Team or by the utility owner's own forces. If utility assets are damaged by the DB-Team, it shall notify the affected utility owners, and assume any costs for the repair.

Special permits may be required to perform work in the vicinity of existing utilities. It will be the responsibility of the DB-Team to obtain any permits sufficiently in advance of the work. Any costs related to permits will be borne by the DB-Team.

The DB-Team shall make all reasonable efforts to design the Project to avoid conflicts with utilities, and minimize impacts where conflicts cannot be avoided.

The DB-Team shall initiate early coordination with all entities having utilities within the Project limits and with the Town of Johnston. The DB-Team shall identify and acquire any replacement utility easements needed for all utilities necessary for relocation due to conflicts with the Project.

The DB-Team shall provide all utilities with 75%/90% design plans at the time of submission to RIDOT so that the preliminary utility relocation schemes can be confirmed by the utility owners.

The DB-Team shall accurately show the final location of all utilities on the as-built drawings for the Project.

The DB-Team shall comply with all applicable Environmental Laws in the performance of the Utility Work.

The DB-Team shall not enter into any agreement with any utility owner that purports to bind RIDOT in any way, nor shall any agreement be deemed to modify the terms of the Contract Documents.

The DB-Team specifically assumes all cost risks and risk of schedule delays associated with the utility work.

The DB-Team shall permit utility owners to inspect the utility work.

2.14.2 Anticipated Utility Relocations and Payment

Utility reimbursement for this project for all work performed or contracted by the private utilities will be made through RIDOT utilizing conventional force account agreements.

Utility efforts paid through force accounts with RIDOT are anticipated to be limited to the temporary and/or permanent relocation of overhead telephone (Verizon & Cox Communications) and power (National Grid) wires. The overhead telephone wires are pole supported and pass under I-295 in front of the South Abutment. The overhead power wires are pole supported and pass over I-295 at the South Abutment.

The DB-Team shall be aware that Verizon requires a minimum of 30 days to order materials and schedule the work with their constriction forces. Some materials may require more time to be ordered depending on their current availability.

The DB-Team shall be responsible for the cost of:

- All relocation work (if any) required for the existing RIDOT owned conduit that contains traffic and lighting related wires.
- All costs associated with locating utilities, utility coordination, and other incidentals.

The DB-Team shall ensure that there are no conflicts with the proposed construction scope of work, and ensure that there are no conflicts between the utility's relocation plans. The DB-Team shall prepare and submit

to RIDOT all relocation plans. The DB-Team shall assemble the information included in the relocation plans in a final and complete form and in such a manner that RIDOT may approve the submittals with minimal review. The DB-Team shall meet with RIDOT's Utilities Engineer within 20 days of the Notice to Proceed to gain a full understanding of what is required with each submittal. The DB-Team shall receive written approvals from RIDOT prior to authorizing utilities to commence relocation construction. The utilities shall not begin their relocation work until authorized by RIDOT. Each relocation plan submitted shall be accompanied by a certification from the DIB Team stating that the proposed relocation will not conflict with the proposed roadway improvement and will not conflict with another utility's relocation plan.

2.14.3 Utility Owner Contact Information

Utility contacts for utilities that are known be impacted by the construction are as follows:

Peter DeCosta
Verizon outside Plant Engineer
Verizon Communications, Inc – RI
85 High Street
Pawtucket, RI 02860
Cell: 508-884-4950
Fax: 508-727-9532
peter.x.decosta@verizon.com

Thomas Capobianco
Lead Program Manager
City/State Construction, New England South
National Grid
280 Melrose Street
Providence, RI 02907
Cell: 401-784-7248
thomas.capobianco@nationalgrid.com

David Velilla
Capital Support & Utility Contractor
Cox Com, LLC
9 J.P. Murphy Highway
West Warwick, RI 02893
Office: 401-615-1284
Fax: 401-615-1421
dave.velilla@cox.com

Ms. Meg Goulet, P.E.
Interceptor Maintenance Manager
Narragansett Bay Commission
1 Service Road
Providence, RI 02905
Office: 401-461-8848 x302
mgoulet@narrabay.com

Mr. James Paulette, Principal Engineer
National Grid Gas
40 Sylvan Road
3rd Floor West
Waltham, MA 02451
Desk phone: 781-907-2841
Cell: 401-465-8580
jim.paulette@nationalgrid.com

Mr. Peter LePage, Sr., Manager of Engineering
Providence Water Supply Board
430 Scituate Avenue
Cranston, RI 02920
Office: 401-521-6300 x7242
petel@provwater.com

Refer to Part D, Appendix A for additional utility contact information.

Also note that RIDOT is the contact for existing drainage, lighting, cabinets, traffic cameras, and the associated conduit.

2.15 Cooperation with RIDOT's Toll Systems Contractor

The Contractor will be required from time to time to work with RIDOT's toll system Contractor to support the continuity of toll operations throughout the project. The Contractor shall cooperate with the toll system contractor or representatives of RIDOT in order to ensure that the toll system and other functional elements do not conflict or cause any deterrent in operation.

2.16 Damages for Disruption of Service

In the event the Contractor causes any unscheduled disruption or adverse impact to the toll collection equipment resulting in the loss of revenue, the Contractor shall be subject to Liquidated Damages in the amount of $4,000 per day. An 'unscheduled disruption' shall mean any event which was not planned, scheduled or approved prior by RIDOT. In addition, the Contractor shall be responsible for any cost associated with the repair (to be performed by RIDOT's toll systems contractor) of the toll collection system and or associated equipment.

2.17 Quality Assurance (QA)

Quality Assurance (QA) is an umbrella term that includes all activities performed to ensure that the quality of a product is as it should be. QA is the responsibility of both the DB-Team and the Owner (RIDOT). To ensure that the goals for overall quality will be met, RIDOT has established the following QA requirements for this Project:

- Design QA: The design quality assurance will consist of an established Design Quality Control system established by the DB-Team and approved by RIDOT. RIDOT will also perform review of design submittals and will approve the Construction Plans prior to the start of any construction or materials fabrication.

- Construction QA: The components of the construction quality assurance system include: an approved Quality Control Plan by the DB-Team; Construction Acceptance and Independent Assurance Testing by RIDOT; Dispute Resolution System; Qualified/Accredited Laboratories and Inspection and Testing Personnel.

2.18 Quality Control (QC)

The DB-Team shall establish and implement a Quality Control (QC) Plan to ensure that the work performed fulfills the design and construction requirements of the Contract. The QC Plan shall outline the DB-Team's QC organization and roles, document design and construction management procedures, Design QC activities, Construction QC activities, qualified/accredited QC laboratories and qualified/certified QC inspection and testing personnel.

The DB-Team shall submit its QC Plan for both design and construction to the Department for review and approval within 30 days following Notice to Proceed. Along with the QC Plan submittal, the Design Manager and Construction Quality Control Manager shall provide a formal presentation of the QC Plan for both design and construction utilizing Project related scenarios. The formal presentation shall provide a detailed description of how the DB-Team's QC program will operate for the design and construction including development of necessary design and construction quality management documentation.

2.18.1 Design Management

The DB-Team shall be responsible for design quality. The Design Quality Control Manager, assigned by the DB-Team, shall be responsible for overall management of the QC programs for design. This individual, shall report directly to the DB-Team's Quality Control Administrator, and is responsible for all of the design QC activities. The Design QC Manager shall maintain close communication with the DB-Team's Design Manager and Project Manager to ensure that the Project is completed in accordance with the requirements of the Contract Documents.

The Design QC Manager shall be responsible for all of the design oversight reviews. Design personnel independent from those personnel that performed the actual design shall be used to perform QC reviews. RIDOT will perform reviews of all design submittals.

The Design QC Manager shall certify in writing to the Department, prior to submitting Design submissions, that the submittal has undergone the QC procedures outlined in the QC Plan. Use of Department design review checklists is encouraged. Failure to provide the certification, or if it is apparent that the QC is incomplete may cause the Department to reject the submittal.

RIDOT shall have the right to review and comment on all Plans and Specifications for compliance with the requirements of the Contract Documents and Reference Documents. The DB-Team shall be responsible to satisfy all such requirements and acknowledge that RIDOT will have the right to disapprove any design approach that is not in compliance with the requirements of the Contract Documents and Referenced Documents unless said approach was previously approved in writing by RIDOT.

The DB-Team shall revise and modify all design plans so as to fully reflect all comments and shall deliver the revised submittal to RIDOT, who will distribute plans to the appropriate RIDOT staff for review and comments.

2.18.2 Construction Management

The plan requires that the DB-Team shall have the overall responsibility for Quality Control ("QC") activities. The Contractor shall also be responsible for providing quality assurance and quality control testing for all materials manufactured off-site, excluding the items listed below:

- Pipe (concrete, steel, aluminum and high-density polyethylene), storm drains, and underdrains.
- Precast Concrete Structures.
- Asphalt Concrete Mixtures.
- Aggregate (dense and open graded mixes)

The RIDOT will provide plant quality assurance and plant testing of these items.

The DB-Team shall prepare a Construction Quality Control Plan, as part of the overall project QC Plan described in Section 2.18, detailing the type and frequency of inspection, sampling and testing deemed necessary to measure and control the various properties of materials and construction governed by the Specifications. At a minimum, the sampling and testing plan shall detail sampling locations, tests to be performed and techniques, and test frequency to be utilized. The Construction QC Plan shall also document the inspection attributes, standard QC forms and reporting, all proposed fabricators, all standard manufactured materials, all laboratories performing QC testing and a listing of all QC personnel. The Quality Control Plans shall use the NETTCP "Model Quality Control Plan" as a standard template and shall address all aspects of the work needed to complete the subject Work Item.

The minimum QC requirements for all materials, including Hot Mix Asphalt and Portland Cement Concrete, shall be those as stated in the latest RIDOT Specifications. Deviation from the RIDOT Standard Specifications will not be allowed.

The DB-Team shall prepare a Materials Test Book for all materials and items required within the construction scope of work. This Materials Test Book must be prepared in accordance with the latest RIDOT Master Schedule for Sampling, Testing, and Certification of Materials, the latest RIDOT Standard Specifications for Road and Bridge Construction, and the RIDOT Procedures for Uniform Record Keeping.

2.18.3 Non-Conforming Work

Completed work that does not conform to the contract requirements for the quality of materials or workmanship shall be documented through a Non-Conformance Report (NCR). When required, an NCR shall be prepared and submitted to the Engineer within 24 hours after identifying the non¬conformance.

The NCR shall clearly describe the element of D/B Work that is non-conforming and the nature of the non-conformance. The NCR shall further address the steps that are to be taken to ensure that the particular non-conformance will not be repeated.

The DB-Team's Engineer of Record for the Work shall evaluate the effect(s) of the non-conformance on the performance, safety and service life of the Project and its elements. The proposed resolution of the non-conformance, including remedial actions if necessary, shall be fully designed and documented and shall bear the stamp of a Professional Engineer registered in the State of Rhode Island. The DB-Team's Construction QC Manager and the Quality Control Administrator shall also sign the NCR that the resolution of the non-conformance has undergone the same level of QC as the design.

RIDOT shall review and accept the proposed resolution of the NCR prior to the DB-Team implementing any corrective action. RIDOT shall ultimately have the authority to call for removal of any non-conforming work should RIDOT not agree that the remedial actions set forth by the DB-Team are sufficient. RIDOT also reserves the right to make cost adjustments for any work that, although not in conformance with the specifications, is nevertheless satisfactory to remain in place.

The DB-Team shall maintain a log of all NCR's and submit this log to RIDOT on a bi-weekly basis. Each NCR shall be numbered sequentially with a brief description, the status and an expected date for resolution.

2.19 Field Office

The DB-Team shall provide office space, equipment, and services consistent with requirements of the Standard Specifications for the Engineer. This field office should be configured and equipped for joint operations by DB-Team and Department staff per the RI Standard Specifications. The configuration and equipping of the field office shall be coordinated between the DB-Team and the Engineer. The field office will be operational from one month prior to the estimated start of construction through three months following the time when all punch-list items have been addressed to the satisfaction of the Engineer.

2.20 Plan Preparation

2.20.1 Project Tracking System (PTS) Number

The RIDOT has assigned 0114V as the PTS Number for this project. The DB-Team shall include this PTS number in Plans and Contract Specific Documents in accordance with the RIDOT Design Policy and Procedures Manual (DPM).

2.20.2 Plans Content Requirements

The DB-Team shall prepare the Plans in accordance with DPM 450.02; Plans Content Requirements and the latest RIDOT CAD Standards Manual (updated to AutoCAD Civil 3D 2017). The Plans shall be named in accordance with DPM 450.06; Plan Sheet File Name.

The DB-Team shall furnish the Final Plans with the appropriate signature blocks and Professional Engineer seals on the title sheets for approval of RIDOT and FHWA.

2.20.3 Design Backup Finalization Submission

The DB-Team shall provide backup components in accordance with DPM 450.03; Design Backup Finalization. These components shall include at a minimum Field Survey, Highway Computations, Bridge Computations, Drainage Computations and Grade Sheets.

2.20.4 Construction Plans

Construction Plans shall be the Final Plans approved for construction by the RIDOT Administrator of Project Management, Chief Engineer of Infrastructure, Director, and Federal Highway Administration Division Administrator.

2.20.5 Shop Drawings

The DB-Team shall submit a record copy of shop drawings to RIDOT for all shop drawings that do not deviate from the approved design plans. For all shop drawings that deviate in any way from the approved design plans, seven copies of the shop drawing shall be submitted to RIDOT for review as specified above in Section 2.4.4 Submittal Requirements. At a minimum, the following shop drawings are required:

- Structural Steel (including painting procedures)
- Reinforcing Steel
- Prefabricated Bridge Units
- Precast Concrete Components
- Elastomeric Bridge Bearing Pads

At a minimum, the following list of Working Drawings (Construction Procedures) will be required:

- Bridge Demolition Plan
- Concrete Repair Procedures
- Prefabricated Bridge Unit Erection Plan
- Temporary Utility Support/Relocation Plan

All Working Drawings (Construction Procedures) shall be prepared, checked, signed and stamped by a Professional Engineer registered in the State of Rhode Island.

The DB-Team shall submit an electronic record copy (PDF Format) of Shop Drawings to RIDOT for all Shop Drawings that do not deviate from the approved design plans. For all Shop Drawings that deviate in any way from the approved design plans, an electronic copy (PDF Format) of the Shop Drawing shall be submitted to the RIDOT Project Manager for review. No work detailed by the Shop or Working Drawings shall begin until the approved Drawings have been submitted to RIDOT. No changes shall be made by the DB-Team to any Shop or Working Drawings after they have been approved.

RIDOT may request to review certain Shop Drawings and/or Working Drawings at their discretion. If requested, an electronic copy (PDF Format) of the Shop Drawing or Working Drawing shall be submitted to the RIDOT Project Manager for review, approval and distribution as needed.

2.20.6 Record (As-Built) Plans & Calculations

The DB-Team shall prepare Record (As-Built) Plans and calculations. The plans will show all adjustments and revisions to the Construction Plans made during construction and serve as a permanent record of the actual location of all constructed elements. The calculations will be modified to reflect any changes to the project during construction. The DB-Team shall submit the Record (As-Built) Plans and Calculations in both hard copy and electronic (PDF) formats to RIDOT upon completion of the Project. The calculations shall be stamped by a Professional Engineer registered in the state of Rhode Island.

2.21 Bi-Weekly Progress Meetings

DB-Team shall participate in bi-weekly progress meetings. During such meetings, progress during the prior two weeks shall be reviewed. The DB-Team shall collect information from any key subcontractors/sub-consultant responsible for work completed during the specified duration and work scheduled during the upcoming reporting duration. These meetings shall be attended by the design-build Project Manager,

construction manager, QAM and design manager, as well as other key personnel from the design and construction firms defined within the DB-Team's proposal and Department representative's designated by the RIDOT Project Manager. Meetings will occur bi-weekly beginning two weeks after the issuance of the Notice to Proceed. DB-Team shall be responsible for preparing, maintaining and distributing minutes of the meetings to all attendees for review. The meeting minutes shall be provided to the Department within two calendar days of the bi-weekly progress meeting.

END OF PART B

PROJECT TECHNICAL REQUIREMENTS