NY ROUTE 347
(TERRY RD. TO GIBBS POND RD.)

PIN 0054.18, Contract D900033

DB CONTRACT DOCUMENTS

PART 3
PROJECT REQUIREMENTS

Draft November 17, 2015
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SECTION 1  GENERAL

1.1 PURPOSE

This Part 3 establishes the basic Requirements of the Project. The Contract Documents, NYSDOT standard drawings, manuals and specifications, and the referenced Design Codes and Manuals shall be followed for the preparation of design and construction documents and the execution of the Work. Any proposed deviation from the Contract requirements or NYSDOT standards shall be submitted to the Department’s Design Quality Assurance Engineer for review, and shall require the submission of a Non-conformance Report.

All designs shall be prepared in U.S. Customary units. The Design-Builder shall be responsible for converting any mapping, plans, etc. into U.S. Customary units as necessary for the completion of the Project.

The Design shall be in conformance with the latest edition of the New York State Department of Transportation, Standard Specifications, with addenda, issued by the Office of Engineering, current as of the date of Proposal submission, excluding Section 100, which is superseded by Part 2, Section DB 100 of the Contract Documents, and except as otherwise noted in these Contract Documents.

The Design-Builder shall prepare Project Specifications for the Project, for Work Items not covered by the NYSDOT Standard Specifications or applicable Special Specifications, and shall prepare Design Plans for the Project in accordance with NYSDOT standards for general content and format, and in accordance with the Contract.

Deviations may be proposed within the framework of these Design Requirements to meet the requirements of a particular situation. However, any deviation, discrepancy, or unusual solution requires review by the Department's Design Quality Assurance Engineer before it can be included in the design. It is the responsibility of the Design-Builder to identify, explain, and justify any deviation from the established criteria to the Department’s Design Quality Assurance Engineer via a Non-conformance Report (NCR).

The Design-Builder shall prepare and submit a Non-conformance Report (in accordance with the provisions of DB §105-16) for any Work proposed to be or actually performed that does not conform to the Contract requirements and for any deviations from NYSDOT standards.

1.2 SCOPE

The Design-Builder shall be responsible for complying with all terms of the Contract Documents. The Design-Builder shall review and understand all terms and conditions of the Contract Documents prior to the commencement of the Project and shall be responsible for determining the full Scope of the Project by undertaking a thorough examination of the Contract Documents, the Reference Documents and the Project Site.

1.3 SCOPE OF WORK – MAJOR ITEMS

The scope of work for the Project includes but is not limited to the following items:

A) Widening of NY Route 347 with additional travel lanes and shared use pedestrian and bike paths;
B) Landscape design integrating adjacent properties to create a seamless Greenway or Boulevard;
C) Sound wall design and installation;
D) Installation and integration of the Intelligent Traffic-Management System (ITS);
E) Relocation and/or preservation of existing Utilities;
F) Pavement reconstruction including; paving, pavement markings and traffic signalization;
G) Installation of street lighting;
H) Installation of roadway signs; and
I) Installation of new utilities to support services for the new VMS, pedestrian lighting, and traffic signal.

1.4 COORDINATION WITH OTHER PROJECTS

PIN/Description: 0054.22 / Reconstruction of NY Route 347 – Mt. Pleasant Rd. to Terry Rd.

WZTC: Long term lane closures

Anticipated Completion Date: Fall 2016

Contractor: Grace Industries

Contact Information: Serge Nepo (tel. 631-656-5920)

Brief Project Description: Widening, rehabilitation, and creation of a Boulevard / Greenway corridor along NY Route 347.

1.5 THIRD PARTY AGREEMENTS (NON-UTILITY)

No Third Party Agreements have been developed in connection with this Project. For information regarding Preliminary DB Utility Work Agreements, refer to Section 8 of this Part 3.

1.6 DESIGN CODES AND MANUALS

In addition to this Part 3, Project Requirements, the Design-Builder must comply with all applicable engineering codes and standards, including those of the various Federal, State, and local jurisdictions.

If codes, standards and/or manuals are specified herein for the design of an element of the Project, then the edition(s) in effect on the Proposal due date shall be applicable to the Project. Responsibility for design remains with the Design-Builder in accordance with the terms and conditions of the Contract. If a code, manual or standard is subsequently modified by the issuer, the Design-Builder shall notify the Department of such modification(s) and request the Department’s decision regarding application of the modification(s).
All Work shall conform to the following documents. In the event of a conflict between the codes and the referenced documents listed below, the more stringent requirements, as determined by the Department, shall apply.

For Work not specifically covered by the individual sections of the Project Requirements, the Design-Builder shall, at a minimum, apply the Standards normally applied by NYSDOT for such Work, to the extent they do not conflict with express requirements in the Contract Documents. The Design-Builder shall be solely responsible for ensuring that it identifies and applies all correct Standards.

AASHTO:
- A Guide for Accommodating Utilities within Highway Right-of-Way
- A Policy on Design Standards - Interstate System
- A Policy on Geometric Design of Highways and Streets
- Construction Handbook for Bridge Temporary Works
- Guide Design Specifications for Bridge Temporary Works
- Guide for the Design of Pavement Structures (with Supplement)
- Guide Specifications for LRFD Seismic Bridge Design
- LFRD Bridge Construction Specifications
- LFRD Bridge Design Specifications
- Manual for Assessing Safety Hardware (MASH)
- Manual for Bridge Evaluation
- Manual on Subsurface Investigations
- Mechanistic-Empirical Pavement Design Guide (MEPDG),
- Roadside Design Guide
- Roadway Lighting Design Guide
- Standard Specifications for Highway Bridges

AISC:
- Steel Construction Manual

ANSI
- ANSI/AASHTO/AWS D1.5-95 Bridge Welding Code
- ANSI/IES Approved Recommended Practice for Roadway Lighting, RP-8-00

Asphalt Institute:
- Drainage of Asphalt Pavement Structures
New York State Department of Transportation

ASTM:
- E2213-03 Standard Specification for Telecommunications and Information Exchange Between Roadside and Vehicle Systems
- E2259-03 Standard Guide for Archiving and Retrieving ITS-Generated Data
- E2468-05 Standard Practice for Metadata to Support Archived Data Management Systems
- E2655-08 Standard Guide for Reporting Uncertainty of Test Results and Use of the Term Measurement Uncertainty in ASTM Test Methods

Federal Geographic Data Committee:
- GIS Standards

FHWA:
- FHWA NHI-00-043 Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines
- FHWA Ground Improvement Methods
- FHWA NHI-01-004 River Engineering for Highway Encroachments
- FHWA NHI-05-123 Soil Slope and Embankment Designs
- FHWA NHI-11-032 GEC No. 3 LRFD Seismic Analysis and Design of Transportation Geotechnical Features and Structural Foundations
- HEC 18 Evaluating Scour at Bridges
- HEC 23 Bridge Scour and Stream Instability Countermeasure
- Manual of Uniform Traffic Control Devices (MUTCD)
- Pavement Publications
- Standard Highway Signs and Markings (SHSM) Book
- Steel Bridge Design Handbook
- Technical Advisory T6640.8A, 10/30/87 (environmental analyses)
- Traffic Monitoring Guide

NFPA:
- NFPA 70 – National Electrical Code (NEC)
- 502: Standard for Road Tunnels, Bridges, and Other Limited Access Highways

NYSDEC:
- Standards and Specifications for Erosion and Sediment Control (SESC)
- Stormwater Management Design Manual (SMDM)

NYSDOT:
- Annual Report titled "Axle Factor Update"
New York State Department of Transportation

- Approved Materials List
- Bridge Detail (BD) Sheets US Customary (NYSDOT BD Sheets)
- Bridge Inspection Manual
- Bridge Inventory Manual
- Bridge Manual
- Bridge Safety Assurance Seismic Vulnerability Manual
- Comprehensive Pavement Design Manual
- Consultant Instructions (CIs)
- Design Consultant Manual
- Engineering Bulletins (EBs)
- Engineering Instructions and Directives (EIs and EDs)
- Environmental Procedures Manual (EPM) / The Environmental Manual (TEM)
- GCP-17, Procedure for the Control of Granular Materials
- Geotechnical Design Manual, including all appendices
- Highway Design Manual (HDM)
- Land Surveying Standards and Procedures Manual
- LRFD Blue Pages / LRFD Bridge Design Specifications
- Manual for Uniform Record Keeping
- New York State Supplement to the Manual on Uniform Traffic Control Devices
- Overhead Sign Structure Design Manual
- Policy and Standards for the Design of Entrances to State Highways
- Policy on Highway Lighting
- Prestressed Concrete Construction Manual (PCCM)
- Project Development Manual
- Reference Marker Manual
- Rules and Regulations Governing the Accommodation of Utilities within the State Highway Right of Way
- Special Specifications as indicated in the Contract Documents
- Standard Specifications for Construction and Materials
- Steel Construction Manual (SCM)
- Structures Design Advisories
- Structures Technical Advisories
• U.S. Customary Standard Sheets
• Work Zone Traffic Control Manual

The above is a partial listing of applicable NYSDOT Engineering Manuals and Guidelines. The Design-Builder shall perform the Work in conformance with all NYSDOT Engineering Manuals and Guidelines in effect on the Proposal due date.

OSHA:
• PART 1926 - Safety And Health Regulations For Construction

SPC:
• Society of Protective Coatings Standards

USDOJ:
• ADA Accessibility Guidelines for Buildings and Facilities

USDOT:
• ADA Standards for Transportation Facilities

1.7 REQUIREMENTS
The “Requirements” subsection of the individual sections of Part 3 – Project Requirements establishes the Department’s expectations with respect to specific Project elements. These include administrative, managerial and technical considerations as deemed appropriate to the subject, and encompass performance specifications, design criteria, and directive instructions as the Department deems best suited to the subject. The Design-Builder shall develop its Definitive Design, Design Plans and Project Specifications in conformance with this Part 3 – Project Requirements.

The Design-Builder shall be responsible for meeting all requirements and terms contained in this Part 3 – Project Requirements unless explicitly stated otherwise.

The specific requirements in this Part 3 – Project Requirements may be more stringent and shall govern over the criteria given in the Standards. Where a specific requirement in this Part 3 – Project Requirements is more stringent than the criteria specified in a Standard, said specific requirement shall become the basis for determining compliance. Non-standard features needing justification and FHWA and/or NYSDOT approval are defined as those not meeting the criteria cited in the Standards listed in this Part 3 – Project Requirements.

1.8 DELIVERABLES
The subsection entitled “Deliverables” in most sections of this Part 3 – Project Requirements establishes the Department’s expectations. These shall supplement the review plan and consultation and written comment cycles cited in DB §111-8 through DB §111-14. The Design-Builder may submit deliverables for the Department’s consideration or consultation and written comment in addition to those requested. The Design-Builder shall include such additional submittals in its review plan and revise the review plan as necessary to incorporate sufficient advance notice to the Department.
Unless otherwise indicated in a specific section of this Part 3 – Project Requirements, all deliverables shall be submitted in both electronic format and hardcopy format. Acceptable electronic formats include Bentley Microstation .dgn format and Bentley InRoads.alg and dtm format, Microsoft Word®, Microsoft Excel®, ArcMAP, or searchable portable document format (PDF) files, with no copy or password protection on the file content, unless otherwise indicated in a specific section of this Part 3 - Project Requirements or a Standard cited in a specific section of this Part 3 - Project Requirements.

1.9 INDICATIVE PLANS

The Indicative Plans, if provided to the Design-Builder in Part 6 – RFP Plans, convey an overall potential solution to the Project's needs that the Design-Builder may choose to consider in developing its design. The designs presented herein have been developed to a point sufficient to present the general concepts of the Project and specifically to determine the extent of property acquisitions required by the Department. The Indicative Plans are not mandatory, with the exception of elements specifically mentioned elsewhere in this Part 3.

1.10 DIRECTIVE PLANS

The Directive Plans, if provided to the Design-Builder in Part 6 – RFP Plans, depict required elements and components of the Project within specifically defined parameters. The Design-Builder has no latitude to adjust components or details shown on Directive Plans, unless specifically noted or through an approved Alternative Technical Concept (ATC).

1.11 CADD

CADD formatting for Design and As-Built Plans shall conform to the Department’s CADD Drafting Standards and CADD Design Standards in effect on the Proposal due date.

1.12 SCHEDULE OF PROJECT COMPLETION

All work on the design and on the construction shall be completed in accordance with Part 1, DB Agreement, Article 2, Contract Time, but in no case shall the Project Completion Date be later than May 31, 2018.

1.13 WORK PAYMENT SCHEDULE

Progress Payments will be made as each Work Item is completed to the satisfaction of the Department’s Construction Quality Assurance Engineer. Progress payments shall be subject to the requirements of DB §109-2. Payments for Design, Construction Inspection and Laboratory activities will be made in conformance with DB § 109-2.2.

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<td>Placement of Top Asphalt Course</td>
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<td>Punch list work, Site Cleanup and Restoration</td>
<td>2% (fixed)</td>
</tr>
<tr>
<td>Final Acceptance (Per DB §109-12.1)</td>
<td>1% (fixed)</td>
</tr>
<tr>
<td>Final Agreement (Per DB §109-12.2)</td>
<td>2% (fixed)</td>
</tr>
</tbody>
</table>

Notes: (1) See Work Payment Schedule included in ITP, Appendix E.
(2) Subsequent to Selection of Best Value, the Design-Builder may submit to the Department a more detailed Work Payment Schedule, which breaks individual work items into multiple stages, for the Department’s review and acceptance. However, the sum of the percentages proposed for each stage shall equal the percentage for that work item submitted by the Design-Builder included on Form WPS, and in no case shall the payment for any individual stage be more than 50% nor less than 10% of the total percentage bid for that work item.

1.14 INTERIM COMPLETION MILESTONE

This Project's Interim Completion Milestones, if applicable, are defined as shown in Part 5 – Special Provisions.

The Interim Completion Milestone Dates may not be changed without written approval by the Department's Project Manager.
SECTION 2  PROJECT MANAGEMENT

2.1 DESIGN-BUILDER’S ROLE

The Design-Builder shall have responsibility for controlling and managing the Work, including the responsibility for quality management as defined in the Contract Documents, Part 2 - DB §§ 111, 112 and 113. This section identifies the Design-Builder’s Key personnel and summarizes the Management Plans to be produced by the Design-Builder in accordance with the Contract Documents.

2.2 DESIGN-BUILDER’S KEY PERSONNEL

The positions listed below shall be the Design-Builder’s key personnel for the Project. Key Personnel are preferred to have experience on projects of a similar size, type of work, and complexity as this Project, and should meet the qualifications described below. Proposed staff with qualifications less than those described below will receive a reduced score compared to staff that meet or exceed the described qualifications. Any requirements described as “shall have...” or “shall be...” are determined to be minimum response requirements. The Design-Builder shall provide personnel that meet these minimum requirements.

The Design-Builder’s Project Manager shall be the Design-Builder’s representative and single point of contact with the Department.

The Department’s Project Manager may designate other Key Personnel positions as needed at any time during the Contract.

A) Project Manager: Shall have a minimum of 10 years, but preferably 15 years of demonstrated experience in construction and construction management of transportation and/or infrastructure projects, with preferably similar size and type of work as this Project, and preferably including projects with compressed timelines, and community information requirements. Such experience in construction and management-of-construction should include at least one infrastructure construction projects having a construction value in excess of $25,000,000. The Project Manager, who should have Design-Build experience and have extensive project management experience, can hold only this one Key Personnel position. It is preferred, but not required, that this individual be licensed and currently registered as a Professional Engineer in the State of New York. The Project Manager shall dedicate no less than 50% of their work time to this Project.

B) Design Manager: Shall be licensed and currently registered as a Professional Engineer in the State of New York, shall be an owner or employee of the Designer and shall have a minimum of 10 years demonstrated experience in managing design for infrastructure projects preferably of similar scope as this Project. The Design Manager should have Design-Build experience, and should have specific experience on projects of similar size and type. The Design Manager can hold only this one Key Personnel position. The Design Manager shall dedicate no less than 75% of their work time to this Project.

C) Construction Manager: Should be licensed and currently registered as a Professional Engineer in the State of New York and should have a minimum of 15 years of demonstrated construction experience in civil works projects with experience in managing the site work of highway infrastructure construction projects. Experience
should include work of the nature anticipated in this Project, and should include Design-Build contracts. The Construction Manager shall dedicate no less than 50% of their work time to this Project.

D) **Quality Manager**: Shall have demonstrated experience in highway design and infrastructure construction with at least 10 years experience in quality assurance and quality control activities, including preparation and implementation of Quality Plans and procedures for design and construction. The Quality Manager can hold only this Key Personnel position. The Quality Manager shall have experience of quality systems based on ISO 9001, and should have experience with the quality systems of the Department. The Quality Manager shall dedicate no less than 40% of their work time to this Project.

E) **Resident Engineer**: Should be licensed and currently registered as a Professional Engineer in the State of New York and should have demonstrated at least 10 years experience in highway construction inspection, including at least 5 years as a Resident Engineer. The Resident Engineer shall have performed Resident Engineer duties on a project within the last 3 years.

F) **Lead Civil Engineer**: Shall be licensed and currently registered as a Professional Engineer in the State of New York and shall have at least 10 years experience in civil roadway design, including congestion management and the preparation of Work Zone Traffic Control Plans.

G) **Project Superintendent**: Should have at least 5, but preferably 10 years of demonstrated experience overseeing work on bridge and highway construction projects. Experience should include directing and coordinating the activities of a contractor’s workforce and all subcontractors, ensuring work progressed according to schedule, within budget and that material and equipment were delivered to the site on time. The Project Superintendent should have experience as Project Superintendent on a highway project valued at $15M or more.

J) **Landscape Architect**: Shall be licensed and currently registered as a Landscape Architect in the State of New York and shall have demonstrated experience in landscape design for transportation facilities; roadways, and other transportation corridors with at least 10 years of experience in civil works projects.

2.3 **MANAGEMENT PLANS AND SCHEDULES**

2.3.1 **Management Plans and Schedule Requirements**

The Design-Builder shall submit to the Department’s Project Manager, for review and comment or approval (as applicable), all the Management Plans listed in Table 2-1. Following receipt of the Department’s acceptance or approval of the individual Management Plans, as described in the Contract Documents, the Management Plans shall be resubmitted to the Department’s Project Manager as the Design-Builder’s consolidated Project Management Plan for the Project.

Table 2-1 – Project Management Plans

<table>
<thead>
<tr>
<th>Plan Title</th>
<th>Contract Document Reference</th>
<th>Initial Plan to be Submitted with the Proposal?</th>
<th>Submittal Deadline</th>
</tr>
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<tbody>
<tr>
<td>Plan</td>
<td>Requirement</td>
<td>Approval</td>
<td>Deadline</td>
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<td>Workforce Participation Plan</td>
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<td>No</td>
<td>60 Days after NTP</td>
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<tr>
<td>Safety Plan*</td>
<td>DB § 107-7.5</td>
<td>No</td>
<td>30 Days after NTP</td>
</tr>
<tr>
<td>Quality Control Plan*</td>
<td>DB § 113</td>
<td>Yes</td>
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</tr>
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<td>Overall Design-Build Team Organization Plan</td>
<td>Project Requirement Section 2.3.5</td>
<td>Yes</td>
<td>25 Days after NTP</td>
</tr>
<tr>
<td>Design Management Plan</td>
<td>Project Requirement Section 2.3.6</td>
<td>Yes</td>
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</tr>
<tr>
<td>Construction Management Plan</td>
<td>Project Requirements Section 2.3.7</td>
<td>Yes</td>
<td>45 Days after NTP</td>
</tr>
</tbody>
</table>

* Requires Department approval

### 2.3.2 Workforce Participation Plan

The Design-Builder shall develop a Workforce Participation Plan to meet the requirements of DB §102-9.4B and submit it to the Department’s Project Manager for review and comment.

### 2.3.3 Safety Plan

The Design-Builder shall develop a Safety Plan to meet the requirements of Part 2, DB §107-7.5 and submit it to the Department’s Project Manager for written approval in accordance with DB §107-7.7. No construction Work shall progress and no payment shall be made to the Design-Builder until the Safety Plan is approved by the Department.

### 2.3.4 Quality Control Plan

The Design-Builder shall use the Initial Quality Control Plan submitted with the Technical Proposal, modify and develop it, as necessary, to include the content required by Part 2, and submit it to the Department’s Project Manager for written approval in accordance with Part 2 DB §113. The Quality Control Plan shall be revised and resubmitted to the Department’s Project Manager within 14 calendar days of receipt of the Department’s written comments and resubmitted as required until Approved by the Department’s Project Manager. No offsite fabrication Work or Construction Work shall commence before the Quality Control Plan has been approved by the Department’s Project Manager. No payment will be made to the Design-Builder until the Quality Control Plan has been approved by the Department.

### 2.3.5 Overall Design-Build Team Organizational Plan

The Design-Builder shall update the Initial Overall Design-Build Team Organization Plan describing the design and construction organizational arrangements it intends to implement. The organizational arrangements described should clearly identify responsibilities and reporting lines of staff, particularly relating to Key Personnel.

The Design-Builder shall include an organization chart (on an 11” x 17” sheet of paper), illustrating the Proposer’s Key Personnel and their prospective roles and responsibilities, as well as other principal participants and any known Subcontractors having a material role in the Project’s design Work, design check Work, construction Work and construction inspection Work.

The Design-Builder shall describe the interrelationships and interfaces between each discipline within the Proposer’s organization (e.g., design, design check, shop drawing preparation and review, construction, and quality management).
The Overall Design-Build Team Organization Plan shall also describe the interrelationships and interfaces between the Design-Build’s organization, the Department and other governmental agencies, utility owners, stakeholders, businesses, the public and other contractors working in the vicinity and impacted by the construction of the Project. This description shall also, at a minimum, address the following activities:

A) Reviews of plans and permits;
B) Progress, workshop, partnering and utility coordination meetings; and
C) Construction, engineering and inspection activities.

2.3.6 Design Management Plan

The Design-Builder shall update the Initial Design Management Plan submitted with its Proposal and submit it to the Department’s Project Manager for Review and Comment.

2.3.7 Construction Management Plan

The Design-Builder shall update the Initial Construction Management Plan submitted with its Proposal and submit it to the Department’s Project Manager for Review and Comment.

2.4 BASELINE PROGRESS SCHEDULE

The Design-Builder shall expand and update the Initial Baseline Progress Schedule submitted with the Technical Proposal and modify and develop it in accordance with DB §108-1 and Part 5, Special Provision SP-3.

Design shall be considered complete when all Design related documents have been completed and accepted by the Department including: all calculations, specifications, records of design quality control reviews and procedures; descriptions of and justification for any non-standard features created or retained as a result of the design; resolution of any non-conformance reports; and submission of “As Built” drawings.

Construction shall be considered complete when: the entire Scope of Work has been completed; any damage to the area caused by the Design-Builder’s performance of the Work has been repaired to the satisfaction of the Department; all construction quality control documents, test and inspection reports and forms have been completed; As-Built drawings have been completed; and the work site(s) have been cleaned of any debris.

2.5 MEETINGS

The Design-Builder shall convene or participate in meetings as indicated in Part 2 DB §105-17.

It is the Department’s policy to use the principles of partnering to guide the management of Design-Build contracts and the Design-Build program within the parameters covered by the laws, regulations, and other policies that govern the work. The Design-Builder shall convene or participate in meetings designed to foster the principles of partnering in accordance with Part 2 DB §103-2.

The Design-Builder shall record the minutes for each meeting.
2.6 COMPUTER AND NETWORKING REQUIREMENTS

The Department will issue Citrix connection accounts to the Design-Builder and its Construction Inspection Professional Engineering Firm (CIPE).

Upon request, the Department will also supply the Design Builder with a CSMIN network connection at the CIPE Field Office with the following Computer and Networking equipment through a third party vendor:

- 1 Wireless connection with Router
- 3 fully configured laptops w/ accessories (for RE, OE, and Chief Inspector)
- 1 Multi Function Printer

The Design-Builder shall provide ALL additional Computer and Networking equipment to the CIPE as necessary. The Design-Builder will need to provide separate high-speed communication into the CIPE office for all non-CSMIN users. A separate printer will be needed for the non-CSMIN users, as their laptops/computers will not be networked to the CSMIN MFP. It is recommended that the Design-Builder test the network connection success prior to fully equipping its staff and the CIPE firm, to ensure both hardware and software compatibility.

The following computer related specifications reflect the current technology utilized by the Department when making Citrix Connections and are provided for informational purposes only:

- 2/HM65 Chipset, and Intel HD Graphics 3000 (or equivalent);
- 2nd Generation Intel Core i5 2620M Processor, 2.70GHz (Turbo up to 3.40GHz), 1333MHz, 4MB L3 Cache;
- Mobile Intel HM65 Chipset;
- 14” diagonal LED-backlit HD anti-glare (1366x768);
- Intel HD Graphics 3000;
- 4 GB 1333 MHz DDR3 SDRAM – Dual Channel Active;
- 250 GB 7200 RPM 2.5 inch hard drive – or 120 GB Intel SSD;
- DVD R/W SuperMulti DL Drive;
- Full Keyboard;
- Broadcom 4313 GN 802.11 g/b/n 1x1 WiFi Adapter;
- 65W Hardware Kit;
- 6 cell Li-ion Battery; and
- Integrated Gigabit Ethernet

Computers shall have Citrix Receiver installed, which can be accessed at:

http://receiver.citrix.com/

2.7 DEPARTMENT’S CONSULTATION AND WRITTEN COMMENTS

The Department’s review, oversight, audit, and inspection activities are referred to as “consultation and written comment” (see Part 2, DB §105-16). The Department’s consultation and written comment will be provided to the Design-Builder in writing. The Design-Builder shall be responsible for addressing the Department’s comments and shall indicate in writing whether it concurs with the comments. If the Design-Builder does not concur with the Department’s comments, then the Department and Design-Builder will work together to resolve the issue before proceeding.
If agreement cannot be reached, the issue must be resolved as provided in the Contract Documents for dispute resolution in accordance with Part 2 DB §109-10.

2.8 PROJECT WISE

ProjectWise is the preferred platform to be used to organize, manage, distribute/share and archive electronic Project design documents for NYSDOT. However, the Design-Builder may propose to utilize another internet-based platform for these purposes, subject to the Department’s acceptance. The documents to be posted to the selected platform typically include but are not limited to:

- Final design report and any modifications predicated by the Design-Builder’s actions;
- All studies and supporting reports;
- Permit Applications and Permits;
- Survey and ROW mapping;
- Photos taken prior to and during design;
- CADD and 3D/4D models files including current NYSDOT-supported Microstation and InRoads file formats;
- Engineering calculations to support designs;
- All drawing submissions (Definite, Interim, RFC, Final, As-Built, etc.);
- Engineer of Record’s estimate based on Work Payment Schedule; and
- Public Information.

All files posted to the selected platform shall be in accordance with the file naming convention and submission procedures as defined in Appendix 14 of the NYSDOT Project Development Manual.

The Design-Builder shall ensure that all electronic design documents are stored on the selected platform. Updates of engineering documents shall be provided on a monthly basis.

Regardless of the platform utilized during the progression of the Project, prior to Project completion all files shall be posted to ProjectWise in accordance with the criteria listed above.

The Design-Builder may obtain a ProjectWise account by contacting the Department’s Project Manager and providing the required account information per Appendix 14 of the Project Development Manual.
SECTION 3 ENVIRONMENTAL COMPLIANCE

3.1 SCOPe

Except as otherwise detailed herein, the Design-Builder shall be responsible for preparing its
design, obtaining environmental approvals, carrying out construction activities, performing
Quality Control, and undertaking other activities, including hazardous materials inspection and
testing, as needed to ensure compliance with the Project’s Environmental Requirements and all
applicable environmental laws and regulations.

This Project Requirement identifies certain required actions to be performed by the Design-
Builder to ensure that the Environmental Requirements are complied with throughout the
duration of the Project.

3.2 ENVIRONMENTAL APPROVALS

NEPA environmental approval for the subject project has been granted based on the May, 2007
Final Environmental Impact Statement (FEIS), the August 2007 Record of Decision (ROD) and
August 2009 FEIS Re-Evaluation document for the subject project.

The Department has not secured any environmental permits associated with this Project. It is
the Design-Builder’s responsibility to secure all environmental permits associated with and
required for construction of this Project. If during detailed design and/or construction the
Design-Builder introduces design elements, variations, or methodologies that potentially induce
environmental impacts not covered under the obtained approvals by the Department, then the
Design-Builder shall re-evaluate the NEPA process for this Project and obtain the necessary
Environmental Approvals for the Project prior to proceeding with construction. This requirement
also applies to proposed variations which may affect resources covered under Section 106,
Section 4(f), Executive Order 11990 (wetlands), and other applicable federal and state
environmental regulations.

3.3 REQUIREMENTS

3.3.1 General

A) The Design-Builder shall procure all Environmental Approvals as needed for all Design-
Builder-located areas, including staging, borrow and disposal sites, and any other areas
used by the Design-Builder, for its convenience, in the execution of the Project;

B) The Design-Builder shall be responsible for preparing all permit application materials and
obtaining all Environmental Approvals necessary for the Project and not already obtained
by the Department, including those that are precipitated by the Design-Builder’s design or
actions that deviate from the requirements of any acquired permit(s) (if any). For any such
approvals required to be obtained by the Design-Builder that must formally be issued in the
Department’s name, the Department will cooperate with the Design-Builder as reasonably
requested by the Design-Builder, including execution and delivery of appropriate
applications and other documentation as prepared by the Design-Builder;

C) The Design-Builder may request a review by the Department of any permit/approval
applications which must be submitted to third parties. For any such review requested, the
Design-Builder shall allot five (5) business days for the Department to review and comment
on the completeness and adequacy of the application materials. It shall then be the Design-
Builder’s discretion to address any Department comments or elect to move forward with the application materials as submitted;

D) The Design-Builder shall be solely responsible for compliance with and violations of any Environmental Requirements;

E) The Design-Builder is responsible for any fines, non-compliance, violations, or damages incurred by reason of failure of the Design-Builder to comply with Environmental Approvals. Resulting fines or damages shall be deducted from monies owed the Design-Builder; and

F) The white entrance gate at 58 GIBBS POND ROAD will be retained and reset proportionally from the new pavement edge to its current condition. The associated existing utility poles will remain in place and there will be no removal of the existing mature trees associated with this property.

3.3.2 Environmental Plans

The Design-Builder shall be responsible for preparing the following documents in conformity with all Environmental Requirements. The Design-Builder shall submit the following Environmental Documents:

A) State Pollutant Discharge Elimination System (SPDES) Permit Notice of Intent; see Soil Erosion and Water Pollution Control;

B) Stormwater Pollution Prevention Plan (SWPPP; see Section 19 – Drainage and Stormwater);

C) Erosion Control Plan.

3.3.3 Soil Erosion and Water Pollution Control

The Design-Builder shall prepare and maintain on file a SWPPP complying with the New York State SPDES General Permit for Stormwater Discharges from Construction Activities (GP-0-15-001 or current version). The SWPPP is to include but is not limited to construction entrance(s), construction phasing, drawings showing size and location of permanent (e.g., swales, check dams, etc.) and temporary (e.g., silt fence, temporary seed, mulch, etc.) erosion controls, and details. The SWPPP shall include plans and details for water quality volume, runoff reduction volume, stream channel protection, overbank flood, and extreme flood controls, as appropriate. The Design-Builder shall apply for coverage under the SPDES General Permit for Stormwater Discharges from Construction Activities after preparing a compliant Erosion Control Plan and SWPPP as noted. The Design-Builder shall prepare the final SWPPP and a conforming Notice of Intent (NOI), sign/complete the Contractor/Subcontractor SPDES Permit Certification form (CONR 5), and submit the NOI to NYSDEC for approval. Discharges covered under the SPDES general permit shall not commence until the date authorized on the SPDES Acknowledgement Letter from NYSDEC. The SWPPP will be reviewed and commented on by the Department and/or NYSDEC upon request of the Design-Builder. The Department will respond to the Design-Builder within 5 business days of submission of the SWPPP.

3.3.4 Threatened And Endangered Species Coordination

The Design-Builder shall be aware that the northern long-eared bat (NLEB) is listed as a threatened species under the Endangered Species Act of 1973. Under consultation procedures, the Department contacted the US Fish and Wildlife Service regarding any potential
measures to minimize harm to NLEB’s due to the proposed tree removals. To avoid adverse effects on the NLEB, removal of 100 potential habitat trees is authorized, and may only occur during the NLEB hibernation period between November 1st and March 31st. In addition, a determined number of replacement trees shall be planted upon completion of the work. See Section 11 for replacement conditions. In addition, should the Design-Builder require the removal of more than 100 trees (3” or greater diameter at breast height (DBH)), or should any removals be required after March 31st and before November 1st, the Design-Builder shall be responsible for coordinating with and obtaining necessary approvals from the US Fish and Wildlife Service and FHWA.

3.3.5 Rodent Control

The Design-Builder shall conduct an initial rodent control survey 4 weeks prior to any construction efforts. This survey is designed to learn the extent and nature of the current rodent problem and shall take into account the highway areas to be worked on and adjacent areas within the highway right-of-way which are found to harbor rodent infestations. The survey shall be completed in one week. The Design-Builder shall submit a written report of the initial rodent control survey.

The Design-Builder shall treat all areas found to contain rodent infestations with an initial treatment of rodenticide once a week for four weeks. The material chosen for rodenticide shall have very low secondary toxicity. The bait shall be placed in such a manner that it is not accessible to children, pets or nontarget animals. The personnel engaged in the work must satisfy licensing requirements as prescribed by the NYSDEC, Bureau of Pesticides.

After completion of initial treatment, maintenance treating shall be continued and regular check of bait boxes shall be done until all construction is completed. Monthly records shall be kept on the bait activity, inspections of the rodent activity, sanitation deficiencies and complaint calls.

3.3.6 Asbestos Containing Materials

An Asbestos Screening and Assessment of the impacted right-of-way and structures was performed by a NYS Department of Labor licensed firm using certified inspection staff. Asbestos-containing materials were not identified within the Project limits. The complete Asbestos Containing Material Report (Volume II, Appendix C of the FDR / Final EIS / Final Section 4F Evaluation), dated May 2007, is located as a Reference Document on the Project Web Site.

The Design-Builder shall be responsible for the abatement design, asbestos abatement, waste disposal and any required Project monitoring/compliance air sampling during abatement of all confirmed and assumed asbestos containing materials if such materials will be disturbed during the performance of the Work. All asbestos abatement and waste disposal shall be performed in accordance with applicable safety and health codes and all applicable State and Federal regulations. See also DB Section 112-5.5, Asbestos.

The Design-Builder (in particular, the lead constructor on the Design-Build team) is also made aware that 12 NYCRR 56 specifically prohibits the abatement contractor from directly contracting project monitoring and/or compliance air monitoring services. In order to comply with this regulatory requirement, no Principal Participant may perform any asbestos abatement work. The Design-Builder will need to subcontract asbestos abatement and project monitoring/compliance air sampling services to separate and independent firms.
If during the course of the work, any asbestos-containing materials not already documented in the asbestos screening/assessment report are encountered and require disturbance, the Design builder shall be responsible for any needed additional asbestos assessment, abatement design, asbestos abatement, waste disposal, and project monitoring/compliance air sampling. All additional work shall be paid for under the Force Account pay item.

New York State Department of Labor (NYSDOL) asbestos licensure and applicable staff certification(s) are required for Work where confirmed or presumed asbestos-containing materials are impacted. All necessary asbestos assessment and Project design Work shall be performed in conformance with policy and guidance provided in NYSDOT’s The Environmental Manual (TEM).

Any ACMs associated with private utilities located within the Project limits shall be the responsibility of the private utility owner. The Design-Builder shall coordinate with the private utility owners for the remediation of any ACMs which may be identified.

3.3.7 Deliverables

Deliverables shall be as stated elsewhere in the RFP documents.
SECTION 4  GENERAL PROJECT SCOPE OF WORK

4.1  SCOPE

The Design-Builder shall perform all Work necessary to prepare the Project site for construction, maintain the site in suitable condition during all stages of construction and provide cleanup and restoration of the construction site and all disturbed areas.

4.2  STANDARDS

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

4.3  REQUIREMENTS

The Design-Builder shall prepare site work plans showing the extent of site works, disposal and storage locations; facility removal details; and approximate volumes; and shall provide for uninterrupted Department maintenance and operations. All regulated waste shall be handled according to Section 3 – Environmental Compliance.

The site work may include but not be limited to: clearing and grubbing; excavation and embankment; removal of pavement and pavement markings, road barriers, soil, drainage facilities, fencing, signs, and miscellaneous structures; subgrade preparation and stabilization; dust control; removal of abandoned above-ground and shallow piping and wiring, valves, meters, and other waste materials; and aggregate surfacing.

Unless specified otherwise in the Contract Documents, the Design-Builder shall remove all obstructions down to a minimum of 2 feet below the existing or proposed surrounding ground elevation or to the elevation necessary to properly construct the Work, whichever is lower.

The Design-Builder shall grade and restore all disturbed areas to match the existing surrounding ground elevation unless otherwise specified elsewhere in the Contract Documents. The Design-Builder shall cut pavement or sidewalk to full depth with straight lines at removal terminations.

The Design-Builder shall over-excavate as necessary to remove unsuitable material from under the footprint of pavements and structures and backfill with properly compacted suitable material. Topsoil may be stripped, stockpiled, and reused within the Project Limits.

The Design-Builder may only reuse materials on the Project that meet the requirements for grading and backfill materials. Disposal of obsolete, unsuitable, and surplus material is not allowed within the Right-of-Way and shall be removed. All material to be removed shall become the property of the Design-Builder and shall be disposed of off-site.

4.3.1  Field Office

The Design-Builder shall provide, furnish and maintain a Field Office for use by the Department in accordance with the NYSDOT Standard Specifications. The Field Office shall be a Type 1 Office as described in the NYSDOT Standard Specifications.
4.3.2 Construction Vehicles on Bridge
Section Not Used.

4.3.3 Salvage
The existing pedestrian poles, controller, cabinet and all of its contents, LED traffic signal modules, LED pedestrian signal modules, ADA pedestrian buttons, video detectors, countdown timers, and radio antennas shall be returned to the Department. All other equipment shall be disposed of by the Design-Builder.

All materials removed from the Project site shall become the property of the Design-Builder.

4.3.4 Surplus Quantity
At the conclusion of the Project, the Design-Builder shall provide to the Department a surplus quantity of the following items, to the locations identified:

- Four (4) – 20 foot transition precast sections of vertical face to single slope patterned concrete median barriers (2 for each direction of travel) and four (4) - 20 foot single slope patterned concrete median barriers, to be delivered to the Central Islip maintenance yard.

4.3.5 Sidewalk Plowing Coordination During Winter Shutdown
Prior to the end of the construction season, the Design-Builder shall provide the State a list of new sidewalks that are open to the public that will need to be plowed by the municipality during the winter months. Before winter shutdown, the Design-Builder shall ensure that all sidewalks are free and clear of obstructions, barricades, fixed objects, etc. that would interfere with the snow plowing effort.
SECTION 5 SURVEYING AND GIS

5.1 SCOPE

The Design-Builder shall perform all surveying tasks necessary to undertake and complete the Project including but not limited to: acquisition of terrain data (topography); mapping of roadways and appurtenances, features, bridges, and utilities as needed; locating boundaries; waterway surveys; contract control plan; construction and stakeout surveys; As-Built surveys; surveys that arise from other Project Requirements; asset inventory; and all other surveying services as necessary.

5.2 STANDARDS

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

5.3 REQUIREMENTS

5.3.1 Project Survey Control

Survey control, if available, will be provided as Reference Documents. The Design-Builder may supplement that information or conduct complete new survey as necessary to perform all the necessary surveys required to complete the Project, as the Design-Builder deems appropriate.

5.3.2 Department-supplied Data

The Department will provide the Design-Builder with the following Survey-Related Data as Reference Documents:

- ROW / Highway Boundary Geometry;
- Survey / Photogrammetric Base Mapping Planimetrics;
- Survey / Photogrammetric Digital Terrain Model; and
- Record Plans.

The Design-Builder shall be responsible for verifying any data used for the Project.

5.3.3 Survey Reports, Records and Maps

The Design-Builder shall submit to the Construction Inspection Professional Engineering Firm, all information listed under the ‘Documentation’ sub-section of each chapter of the NYSDOT Land Surveying Standards and Procedures Manual that is applicable to its survey work. The Design-Builder shall index and submit all calculations, notes, computer files, raw data, Project reports, meeting notes, correspondence, digital images, maps, corner records, records of survey, aerial photogrammetric products, centerline alignment maps, and other maps and related items.

The Design-Builder shall be responsible for ensuring that information submitted is compatible with the applicable NYSDOT CADD standards, software and operating systems and formats.

All survey reports and maps, including bathymetric survey plans, shall be signed-and-sealed by a licensed professional land surveyor.
5.3.4 Permanent Survey Markers

This section not used.

5.4 SURVEYING AND GIS DELIVERABLES

Deliverables shall be as stated elsewhere in the RFP documents. Electronic measurement raw data shall be provided in electronic format only.

Where applicable, electronic copies of shall be supplied as per the specifications given in Chapter 20 of NYSDOT HDM. All relevant Bentley MicroStation® files (including .DGN files) and Bentley InRoads® files (including DTM, ALG files) shall be compatible with the MicroStation XM and InRoads XM software versions.
SECTION 6   RIGHT-OF-WAY

6.1   SCOPE

Plans showing the existing State owned Right-of-Way (ROW) are included in the Reference Documents. The Design-Builders shall perform all the permanent Project Work within the State owned ROW.

Maps for any Right-of-Way that is in the process of being obtained or has been obtained specifically for this Project are included in Part 7 – Engineering Data of these Contract Documents and listed in Table 6-1 below.

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Property releases for driveway reconnections or other work that is required are the responsibility of the Design-Builder, in close coordination with the Construction Quality Assurance Engineer.

Right of ownership of all ROW and the improvements made thereon by the Design-Builder shall remain at all times with the Department. The Design-Builder’s right to entry and use of the ROW arises solely from permission granted by the Department under the Contract.

### 6.2 REQUIREMENTS

#### 6.2.1 Right-of-Way Fencing

Any ROW fencing that has been damaged due to construction of the Project or removed by the Design-Builder shall be replaced by the Design-Builder with new ROW fencing meeting current NYSDOT standards.

#### 6.2.2 Property Interests Identified by the Design-Builder for its Convenience

The Design-Builder shall be responsible for the acquisition and all costs associated therewith for any temporary land or other property required for the Design-Builder’s convenience outside the ROW Limits, such as for staging, lay-down, access, office space, temporary works, or other purposes. The Design-Builder shall assume responsibility for satisfying all Federal and State

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regulations, identifying, analyzing, and documenting the environmental impacts associated with the additional space and securing all necessary consent, including that of the Department, prior to initiating use of the space, in accordance with DB §107-22.
SECTION 7  PUBLIC INVOLVEMENT

7.1  SCOPE

The goal of the public involvement activities is to inform the public and agency participants by providing timely information throughout the design and construction process. The Design-Builder shall be responsible for supporting and cooperating with the Department for all public involvement activities.

7.2  STANDARDS

The Design-Builder, in close coordination with the Department, shall perform the Public Involvement activities in accordance with the NYSDOT Project Development Manual: Appendix 2, Public Involvement Manual.

7.3  REQUIREMENTS

7.3.1  Public Outreach

The Design-Builder shall have the primary responsibility for performing public outreach activities for the Project, but the lead in all public outreach activities shall be the Department. All public outreach activities shall be coordinated through the Department’s Construction Quality Assurance Engineer (CQAE). All public communication activities must be reviewed and approved by the Department. This includes communication and notifications of key stakeholders (motorists, general public, area residents, educational institutions, emergency services, businesses, etc.) of road closure information, Project milestones or Project construction related activities that have the potential to affect the general public and/or residents in proximity to the Project area. Project milestones include, but are not limited to: the visible start of construction activities; travel pattern changes; significant Project accomplishments, and construction completion.

The Design-Builder shall coordinate with and provide a minimum of two weeks advance notice to the CQAE prior to all changes to traffic patterns and the following Project milestones: start of construction; Project completion; and any other interim completion milestone(s) as determined by the Department.

The Design-Builder shall provide the Department with a minimum of two weeks advance notification for each public information activity (press announcements, travel advisories, PVMS postings, etc.) to allow for proper review and comment by the Department.

The Design-Builder shall provide the Department’s CQAE with a written work Schedule (including anticipated traffic changes) two weeks in advance of work that will change traffic patterns.

7.3.2  Media Relations

Media Inquiries: All media inquiries, requests for interviews from local print or broadcast news media, trade magazines or other media outlets must be referred to the CQAE for direction. The Department will coordinate and respond to all media requests. The Design-Builder shall alert all project personnel about this policy.
Travel Advisories: To allow for timely notice to the public, two weeks advance notice of the start of work, any lane closures, road closures, or changes to traffic patterns is required to be given to the CQAE and the Department’s Project Manager.

Notifications referenced above are in addition to the written work schedule discussed in Section 7.3.1. The Department will develop a draft travel advisory for content and quality review by the Design-Builder and other Department staff as deemed appropriate. The travel advisories will be finalized and distributed to the press and appropriate state elected officials, and posted on the Project website by the Department. However, the Design-Builder is responsible for the notification of local public officials, emergency service providers, schools, residents, businesses, and other affected parties, of any major travel pattern change.

The strategies described above are consistent with the requirements of Part 3 Section 15 – Work Zone Traffic Control and Access, and shall include Construction Bulletins published by the Department, based on information provided by the Design-Builder, especially focused on traffic changes, night time work, higher-noise construction periods or locations, or other construction activities of potential concern to the public. The Design-Builder shall be responsible for interaction with the affected homeowners, tenants and businesses with regards to issues including but not limited to, security of and access to their property or properties, utility services, night time operation, etc.

7.3.3 Public Information Meeting

The Design-Builder shall be prepared to partner with the Department on a Public Information Meeting(s) to discuss the Project with the community in an open forum format. It is anticipated that a Public Information meeting will be necessary after Notice to Proceed and prior to implementing the detour and/or staged construction. The Design-Builder shall prepare design and construction related information about the Project and the Design-Build process, schedule or construction methods being used, etc., that will help inform Project stakeholders. The Design-Builder shall work in cooperation with the CQAE in determining the necessary presentation materials.

Project update meetings including public informational meetings may be required during the course of construction, depending on how smoothly the Project is progressing and the community(s) reaction and receptiveness to the construction of the Project.
SECTION 8 UTILITIES

8.1 SCOPE

The utility requirements set forth in Part 4 – Utility Requirements and DB §102-5 present the Design-Builder’s responsibilities as they relate to existing and/or new utilities, the manner in which utilities shall be protected, relocated, upgraded, constructed or incorporated into the construction, and responsibilities for the Work.

8.2 STANDARDS

The Design-Builder shall perform all utility activities in accordance with the Contract Requirements, the applicable Standards, Codes and Manuals listed in Section 1.6 or otherwise applicable to the Project, and the standards required by the various utility companies affected by the Work.

8.3 GENERAL REQUIREMENTS

The Design-Builder shall examine the record plans of the work site, make a field survey of the work site and examine all other available documents to determine the type and location of all utilities that may be affected by the Design-Builder’s Work. Before any work begins the Design-Builder shall inform the Department’s Project Manager what utilities are present and how they may be affected by the Work.

The Design-Builder, in coordination with the Department’s Project Manager (or designee) and the Regional Utility Engineer, shall meet with all the affected Utility owners or operators for the purpose of discussing the effect on the utility facilities and to agree on a plan to maintain, protect, relocate, reinstall, or other action that may be necessary for the work to progress.

All utilities must be maintained, supported and protected during construction, unless otherwise directed by the utility owner.

Any utility conduit, conductor, splice box, pull box or other item that is part of a utility system or street light system that is embedded in a concrete deck, sidewalk or other concrete element that is being removed and replaced as part of this Project shall be replaced and its location coordinated with the utility owner unless the utility owner indicates that replacement is not required. The design and construction of the replaced utility shall be in conformance with the current standards of the Utility owner.

The Design-Builder shall be responsible for repair to any damage and consequential damages to those utilities caused by his operations at the Design-Builder’s expense. If the nature of the damage is such as to endanger the satisfactory operations of the utilities and the necessary repairs are not immediately made by the Design-Builder, the work may be done by the respective owning companies and the cost thereof charged against the Design-Builder.

The Design-Builder shall provide notice to the Construction Quality Assurance Engineer (CQAE) at least two weeks before construction begins on any portion of the Project. The CQAE will notify the Regional Utility Engineer of the pending construction and of any planned interruptions to service. It should be noted that utility companies set their own notification time frames and requirements. Preliminary time frames have been identified in Part 4 – Utility Requirements of these Contract Documents. The Design-Builder shall coordinate with respective Utility Owners.
8.3.1 Utility Relocation Agreements

It is anticipated that the required Final Utility Work Agreements will be executed between the Department, the Design-Builder and the owners of impacted utilities once the Design-Builder has determined the final locations of the impacted utilities. See Part 4 for details on utility inventory, coordination and relocations.

The Design Builder shall be responsible for the design and construction of these facilities as outlined in Part 4 - Utilities.

8.3.2 Other Utility Conflicts

Please see Part 4 – Utility Requirements for additional utilities in the project vicinity that may require relocation and modification.
SECTION 9   GEOTECHNICS

9.1  SCOPE

The Design-Builder shall be responsible for all Geotechnical Work necessary for the design and construction of all permanent and temporary structures, including assessing available information, planning and implementing subsurface investigations, geotechnical analysis and reporting, geotechnical instrumentation and monitoring, and protection of existing infrastructure, structures and utilities in accordance with the requirements of the Contract Documents.

These requirements are considered as a minimum and do not include all possible conditions that may be encountered in the Design-Builder's final design.

The Department has performed limited subsurface investigations in the vicinity of the Project Site. Information from these previous subsurface investigations has been provided as Reference Documents. Presentation of this information in no way implies that subsurface conditions are the same at other locations.

The Design-Builder shall be familiar with available geotechnical, geologic, seismic, hydrogeology, soils literature, and existing site conditions (both native and man-made), and shall interpret the existing geotechnical data pertaining to the Project Site. The Design-Builder shall form its own interpretation of the existing geotechnical data, and any additional geotechnical data the Design-Builder may obtain from its own investigations, and satisfy itself as to the nature and behavior of the ground and sub-soil, the form and nature of the Site, and nature of the Work that may affect its detailed design, construction method, and tools.

9.2  STANDARDS

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

9.3  DESIGN REQUIREMENTS

9.3.1  Geotechnical Work Plan

The Design-Builder shall prepare a Geotechnical Work Plan, which shall include:

A) Design-Builder's knowledge and understanding of the geotechnical, geologic, hydrogeologic and seismic settings of the Project Site and how the nature and behavior of the soil, rock, groundwater and subsurface conditions will affect the investigation, design and methods of construction;

B) Identification of key constraints and a description of how the geotechnical activities address these constraints; and

C) Types of subsurface investigations to be carried out for the Project, including locations and depths of borings and other field testing with a narrative of the in-situ tests (if applicable) and laboratory tests to be carried out.
9.3.2 Geotechnical Investigations

The Design-Builder shall plan and conduct geotechnical investigations in accordance with the Department’s and AASHTO Standards for subsurface exploration programs, and as deemed necessary by the Design-Builder’s Lead Geotechnical Engineer to establish the geotechnical conditions and to perform all geotechnical and foundation design and analysis.

The Design-Builder shall determine the State Plane coordinate location and ground surface elevation for each boring and field exploration position, and shall show the actual coordinates and the datum version, the station and offset, and the elevation for each individual boring log or exploration record in accordance with Department standards. Station and offsets for the borings shall be referenced to the NY Route 347 stationing. Elevations shall be referenced to the Project datum and horizontal control system.

9.3.3 Borings

Information from existing borings provided by the Department as Reference Documents may be combined by the Design-Builder with the Design-Builder’s subsurface investigation to comply with the requirements of the applicable standards. It is the sole responsibility of the Design-Builder to determine if the existing borings are suitable for use in the Project. It is the sole responsibility of the Design-Builder to determine the extent to which further borings by the Design-Builder are necessary for the Project.

9.3.4 Subsurface Investigation Records

For each subsurface exploration, the Design-Builder shall be responsible for keeping a continuous and accurate log.

9.3.5 Software Requirements

The Design-Builder shall use Bentley gINT® or similar commercial software to develop and maintain an electronic database of subsurface information including in-situ test and laboratory test results, and to produce all final subsurface exploration logs or records.

9.3.6 Geotechnical Data Report

The Design-Builder shall be responsible for preparing a geotechnical data report, signed and sealed by the Lead Geotechnical Engineer. The Geotechnical Data Report shall serve as a factual depiction of the subsurface conditions and at a minimum it shall include:

A) A detailed description of the investigation methods;
B) Complete records with summary tables of investigation;
C) Complete records with summary tables of laboratory test results; and
D) An exploratory hole location plan, showing locations of any existing (pre-award) exploratory holes for which data was used by the Design-Builder plus locations of post-award exploratory hole locations undertaken by the Design-Builder.

The Design-Builder shall provide the Department with a copy of the final log for each subsurface investigation exploratory hole progressed.

NY Rt. 347 - Terry Rd. to Gibbs Pond Rd.
PIN 0054.18, Contract D900033
Draft November 17, 2015
9.3.7 Retaining Walls
The Design-Builder shall design and construct retaining walls, if required, in accordance with Section 10 of this Part 3 - Project Requirements. The Design-Builder shall provide retaining wall designs to address internal, external, and global (overall) stability and settlements (total and differential) of the walls in accordance with the AASHTO LRFD Bridge Design Specifications.

All retaining walls shall be evaluated and designed for seismic stability internally and externally (i.e. sliding and overturning). With regard to overall seismic slope stability (global stability) involving a retaining wall, with or without liquefaction, the Lead Geotechnical Engineer shall evaluate the impacts of failure due to seismic loading, if failure is predicted to occur.

Gabion and crib walls (stretcher and header type) shall not be used.

Any proposed retaining walls shall be concrete form lined with a New England Drystack #1203 pattern. The retaining wall shall be integrally colored concrete matching the Westwood Brown, Federal Color Chart 595 – Color 30227. Form liners shall leave a crisp, sharp defined architectural pattern without interruption by liner seams.

9.3.8 Geotechnical Instrumentation & Construction Monitoring
The Design-Builder shall develop, implement, and maintain a geotechnical instrumentation and construction monitoring plan to monitor vibrations, accelerations, vertical settlement, and lateral movement of temporary support structures and adjacent ground, and existing structures and infrastructure during construction, including ancillary structures and infrastructure within the zone of influence of construction.

Wherever vibration-producing activities are located within 100 feet of a structure, building, or utility, the Design-Builder shall perform vibration monitoring in accordance with Special Specification 634.99020017 to address the potential impacts to nearby receptors due to construction or demolition activities associated with this Project. The term “receptor” includes buildings, utilities, newly constructed elements, and existing structures, for which construction impacts or Work above recommended limits may be detrimental.

The Design-Builder shall provide weekly construction instrumentation monitoring reports to the Department. Monitoring reports shall be interpretive in nature, and shall enumerate any corrections applied to the data including, but not limited to any notification measures taken regarding data. The weekly reports shall include clear and explicit statements of reading(s) exceeding any pre-determined threshold values. The Design-Builder shall maintain the instrumentation and monitor the measurements during and after construction up to Final Acceptance.

9.3.9 Slope Stability
The Design-Builder shall be responsible for assessing the stability and impacts of any new soil fill and cut slopes (permanent and temporary) required for the Project, and ensuring the long term stability of these slopes.

9.3.10 Temporary Works
The Design-Builder shall be responsible for the design and construction of all temporary works required for the Project.
9.4 CONSTRUCTION REQUIREMENTS

9.4.1 Dewatering and Groundwater Control
The Design-Builder shall be responsible for evaluating the potential need for dewatering and groundwater control, and for implementing such measures as appropriate, and shall evaluate the effects on existing facilities resulting from any dewatering and draw down.

9.4.2 Deep Foundations
The Design-Builder shall design and provide integrity and/or capacity testing of all deep foundations, in accordance with Department standards. If applicable, integrity testing requirements on drilled shafts and test shafts shall comprise of, as a minimum, crosshole sonic logging on all drilled shafts.

As part of the As-Built Plans, the Design-Builder shall provide installation records for all deep foundations installed, in accordance with Department standards.

The Design-Builder shall report the results of all foundation installation inspections and rock socket observations.

9.4.3 Soil and Rock Excavations and Embankments For Roadway Foundation
Excavations and embankments for roadway foundations shall be constructed so that post construction settlement is expected to remain within two inches of the profile grade line at any point along the entire alignment. Also, prior to the Project's final acceptance, differential settlement along travel lane and shoulder surfaces shall not exceed two inches over a 100-foot length along the alignment (longitudinal direction), or over one half inch along a ten foot length in the transverse direction or within ten feet of any approach slab or edge of structure.

9.4.4 Condition Surveys

9.4.4.1 Pre-Construction Condition Survey
The Design-Builder shall conduct a pre-construction inspection and survey of the existing condition of all structures and properties within 100 feet of vibration or settlement causing construction activities for the purposes of generating photographic and video documentation of existing damage, leaks and cracks, in accordance with the requirements of NYSDOT Special Specification 634.99010017. The pre-construction condition survey shall form the basis against which all new cracks, existing progressive cracks, or damage will be measured.

In its preparation for the pre-construction survey, the Design-Builder shall ensure that the pre-construction condition survey encompasses at a minimum all properties within areas that are identified by the Design-Builder to be potentially prone to: (i) ground vibration levels, expressed as resultant peak particle velocity, in excess of 2.0 inches per second; and (ii) predicted ground settlements of greater than ¼ inch.

The Design-Builder shall record the results of any pre-construction condition survey, which shall be signed and stamped by a Professional Engineer registered in the State of New York.
9.4.4.2 Post-Construction Condition Survey

The Design-Builder shall conduct a post-construction condition survey of the properties covered by the pre-construction conditions survey. The post-construction condition survey shall be performed by the Design-Builder within 20 days of Project Completion, and it shall compare the post-construction conditions with the conditions recorded in the pre-construction condition survey. A summary of the damages observed, if any, shall be provided at the end of the report. The location and scope of the post-construction condition survey shall match those of the pre-construction condition survey. The complete documentation of the post-construction survey, describing the comparison with the preconstruction conditions and signed by a Professional Engineer registered in the State of New York, shall be submitted to the Department.

9.5 DELIVERABLES

Deliverables shall be as stated elsewhere in the RFP documents.
SECTION 10  STRUCTURES

10.1  SCOPE

The Design-Builder shall be responsible for all work necessary to complete the design and construction of all permanent and temporary structures required to complete the Project, including, but not limited to, the permanent retaining walls, sound walls, and miscellaneous structures. The design and construction of all structural systems and components shall provide functionality, durability, ease of maintenance and inspection, and safety.

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

10.2  STANDARDS

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

10.3  DESIGN REQUIREMENTS

10.3.1  Sound walls

10.3.1.1  Design Parameters

There are five proposed sound walls located within the project limits as listed below. Note that epoxy coated reinforcement shall be used for all sound wall posts, panels and footings.

Locations of the proposed sound walls are:

1: Eastbound NY 347 offset, approximately, 40 feet east of Southern Boulevard’s eastern curblne running, approximately, 562 feet east as close as possible along the edge of the highway boundary and meeting a top of wall elevation of 138.00 feet established in relation to the North American Vertical Datum of 1988 (NAVD 88).

2: Westbound NY 347 offset, approximately, 40 feet west of Lake Avenue South’s western curbline running, approximately, 673 feet west as close as possible along the edge of the highway boundary and meeting a top of wall elevation of 136.50 feet established in relation to the NAVD 88.

3: Eastbound NY 347 offset, approximately, 50 feet west of Lake Avenue South’s eastern curbline running, approximately, 463 feet west, as close as possible, along the edge of the highway boundary and meeting a top of wall elevation of 136.50 feet established in relation to the NAVD 88.

4: Eastbound NY 347 offset, approximately, 20 feet east of Lake Avenue South’s eastern curbline running, approximately, 476 feet east, as close as possible, along the edge of the highway boundary and meeting a top of wall elevation of 135.50 feet established in relation to the NAVD 88.

5: Eastbound NY 347 offset, approximately, 15 feet east of Garfield Avenue’s eastern curbline running, approximately, 559 feet east, as close as possible, along the edge of the highway boundary and meeting a top of wall elevation of 135.50 feet established in relation to the NAVD 88.
10.3.1.2 General

10.3.1.3 Construction Method

The Design-Builder shall be aware that the schedule for construction of sound walls is highly sensitive to the relocations of utilities by others. Refer to Part 4 – Utility Requirements for additional information.

10.3.1.4 Aesthetic Surface Treatment

1. Panels

The sound wall surface texture shall match: Scott System, #161 - Exaggerated Grape Stake pattern. Form liners shall leave a crisp, sharp defined architectural pattern without interruption by liner seams.

The sound wall color shall be integral and shall match Westwood Brown Federal Color 30227. Minor color tone variations in the color may be acceptable; however, the general material color shall be uniform throughout.

The Design-Builder shall indicate how horizontal joints are integrated into the visible surface of the sound walls. The form liner pattern shall be continuous over horizontal panel joints. The maximum number of visible horizontal panel joints shall be two (2).

2. Posts

The Design-Builder shall conceal or integrate the sound wall posts with the surface texture and color of the sound walls. The Design-Builder shall also identify the proposed panel attachment method, and if visible, the post color and texture. Sound wall posts may have joints; however, all joints must be concealed.

3. Panel Identification Plates

The Design-Builder shall integrate sound wall identification plates into the sound walls. Identification plates shall be placed on every first, last, and tenth panel of the sound wall at a height of 9 feet from the existing ground elevation and 1 foot off the right post (as determined by looking at the sound wall from within the right-of-way).

The numbering system shall be made up of 3 sets of characters. The first represents the cross road preceding the wall. The second character on the eastbound side identifies the sound wall by letter, always beginning with the sound walls located farthest east and increasing in alphabetical order beginning with the letter ‘A’ until the next cross street is reached in the eastbound direction. The second character on the westbound side identifies the sound wall by letter, always beginning with the sound walls located farthest west and increasing in alphabetical order beginning with the letter ‘N’ until the next cross street is reached in the westbound direction. The third set of characters subdivides the sound wall into panels.

The materials used in this work shall conform to the following requirements:

1. Aluminum Panel with Reflective Background: The aluminum panel and reflective background shall conform to the material and fabrication requirements of
Specification Section 730-01, “Aluminum Sign Panels”. The background material shall be brown reflective sheeting, ASTM Type 1 (Class A), conforming to Specification Section 730-05. The thickness of the plates shall be 3/32 inch thick by 3 inches wide by 12 inches long.

2. Characters: The characters shall be reflective sheeting conforming to Subsection 730-12, “Reflectorized Sheeting Sign Characters”, except that the adhesive shall be pressure-sensitive such that the characters can be applied to the background in the field. The characters shall be 2 inches high and silver-white in color conforming to FHWA series B dimensions.

3. Concrete Fasteners: ¼ inch diameter by 1½ inch long stainless steel nail drive expansion anchors meeting GSA Specifications FF-S-325, #3.2.5.2 shall be used to attach the identification plates to the concrete panel.

4. Wood Fasteners: ¼ inch diameter by 1 inch long stainless steel one-way tapping screws shall be used to attach the plates to the wood board. Length is measured from under head.

The Design-Builder shall be responsible for repair of any damage to the wall panels caused by installation of identification plates.

4. Planting

The Design-Builder shall use planting to buffer or screen the view to the sound wall visible to motorists, walkers, and bicyclists. Refer to the Section 11, Landscape Architecture, for additional information and requirements regarding planting.

10.3.1.5 Anti-graffiti Coating

The Design-Builder shall include non-sacrificial anti-graffiti coating on the full panel and post height on the highway side of the sound wall. The anti-graffiti coating shall not create a visible high gloss appearance or color change to the surface of the sound wall. For pre-cast wall panels, the coating may be applied at the pre-caster’s plant.

Graffiti removal procedures shall be described by the Design-Builder on the wall installation notes and be demonstrated on the sample wall. Removal of graffiti by pressure washing shall be an acceptable method subject to demonstration.

10.3.1.6 Sound Wall Test Section for Product Acceptance

The Design-Builder shall erect a demonstration section of barrier at the precast fabrication yard consisting of at least two columns and one pair of panels. The bay of panels shall be two panels stacked in standard height above ground. The demonstration barrier section shall have the same patterns, texture and color as the final product to be used in this contract, and shall serve as a standard for acceptance for all further work. A graffiti removal procedure shall be demonstrated on the sample wall. Panels used in the demonstration section may be incorporated into the project as the last product to be installed. The test section may be erected on site or off-site at the panel manufacturer’s location. On-site inspection will be reviewed by the Construction QA Engineer and inspected off-site as determined by the Department.

10.3.2 Sign Structures

There are no overhead sign structures within the project limits requiring replacement.
10.4 DELIVERABLES

SECTION NOT USED
SECTION 11 LANDSCAPE ARCHITECTURE

11.1 SCOPE

The aesthetic details and concepts described within this contract were developed to create visual unity and connectivity along the entire NY Route 347 corridor, to help calm traffic, and to narrow the visual perception of the roadway, to improve the aesthetics, environment, and multi-modal functionality.

The initial phases of the NY Route 347 improvements between the NY Route 454 and NY Route 347 split and NY Route 111 is a template for the operational and aesthetic improvements proposed along the entire roadway.

The Design-Builder shall perform the landscape architectural activities as described in this Section 11.

11.2 STANDARDS

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

11.3 GENERAL LANDSCAPE DEVELOPMENT

All design and planting shall be done in a manner that is consistent with and integrates with the landscape architectural design of the reconstructed section of NY Route 347 between the NY Route 347/454 Split to Terry Road. The intent of planting for various purposes is further defined in the Planting Type section to follow.

11.3.1 Existing Vegetation

Existing vegetation removal and disturbance should be minimized to the cut/fill limits and any removals beyond those areas shall be replaced in kind with native species appropriate for USDA NY Plant Hardiness Planting Zone 7a.

Vegetation outside the limits of disturbance shall be protected with temporary plastic barrier fence along the limit of disturbance line.

Disturbed areas shall receive topsoil and turf establishment. The type of topsoil and turf establishment, either roadside or lawn, will vary based on location.

11.3.2 Tree Replacement Factors

A) Every live, native deciduous tree greater than six inches diameter at breast height (“DBH”) which is removed must be replaced with a total quantity of deciduous trees a minimum of 2 inch caliper (size measured 6 inches above the base of the tree) equal to the total DBH size of the tree removed. For example, a 10 inch DBH tree removed could be replaced with (5) two inch caliper trees, or (2) three inch and (1) four inch caliper trees; however the replacement quantity will go down if larger caliper trees are used for replacement.

B) Every live, native coniferous tree removed must be replaced with a total quantity of coniferous trees equal to the height and width of the tree removed. For example, a 20 ft
high x 10 ft wide coniferous tree could be replaced by two (2) 10 ft high x 5 ft wide coniferous trees.

C) Each replacement tree should be the same genus and species of the tree removed, unless the tree being removed was identified by the Design-Builder as an invasive plant species.

D) The minimum replacement sizes shall be as follows: 2-inch caliper for major deciduous trees, 1.5-inch caliper for minor deciduous trees, 6-foot height for coniferous trees, 3-foot height for deciduous shrubs, and 2-foot height for evergreen shrubs.

11.3.3 Replacement Locations

Replacement planting may be located in the available right-of-way near the original locations of the trees that were removed.

The removal of any major deciduous trees over 6 inches in diameter at breast height shall be documented and the species noted in the existing tree inventory prepared by the Design-Builder. Note that all trees, living and dead, shall be included in the existing tree inventory and calculations for tree replacement.

11.3.4 Proposed Planting

Planting shall be located in a manner that does not interfere with the safe use of travel ways. Planting should be designed in a manner that provides a mix of plant material species to create seasonal interest for the traveling public. Planting and post planting replacements shall include: stakes, mycorrhizal fungi, moisture retention additive, watering, and tree stakes.

Minimum planting area within the median barriers shall be as follows:

- Terry Rd to Southern Blvd: 43,000 square feet
- Southern Blvd to Lake Ave South: 8,000 square feet
- Lake Ave South to Gibbs Pond Rd: 5,000 square feet
- Gibbs Pond Rd to Project limit east of Gibbs Pond Rd: 2,000 square feet

Planting composition in each median shall be as follows:

- 1% major deciduous trees (25-30 foot spacing, Minimum 2 ½ inch caliper size)
- 2% minor deciduous trees (15-20 foot spacing, Minimum 2 inch caliper size)
- 5% evergreen trees (10-15 foot spacing, Minimum 6 foot height)
- 15% evergreen shrubs (3-4 foot spacing, Minimum 3 foot height)
- 50% deciduous shrubs (3-4 foot spacing, Minimum 3 foot height)
- 10% groundcover/vines (10-12 inch spacing, Minimum 1 gallon size)
- 3% perennials (10-12 inch spacing, Minimum 1 gallon size)
- 14% surface area to remain open

Mulch shall be placed throughout the entire planting bed.
The Design-Builder shall not use invasive plant species for any of the proposed planting as required by the New York State 2012 Invasive Species Prevention Act, or a monoculture of plant species, to reduce the potential for disease or invasive insect species to eradicate the proposed plantings.

Planting shall consist of: a combination of a mix of deciduous and evergreen trees and shrubs as defined by the Planting Area Types; deciduous and evergreen shrub and groundcover planting as defined by the Planting Area Types; deciduous tree planting along sidewalk areas; native wildflower seeding, including appropriate signage, along the edge of shrub beds; and evergreen shrub planting to screen new ITS control cabinets.

Planting in the median shall use Planter Backfill Mix as per the requirements of Special Specification Item 610.0110XX10. Structural Soil Mix as per the requirements of Special Specification 610.14000011 shall be used where existing or new planting area is reduced and would be beneficial for root growth and to prevent heaving of pavement.

The Design-Builder shall be responsible for post planting care and replacement planting including watering. Post planting care and replacement plantings including stakes shall be as per the requirements of Special Specification 611.190X0024, Post Planting Care with Replacement.

11.4 PLANTING AREA TYPES

11.4.1 General
The planting areas shall include, but are not limited to: streetscape, raised median planting, shared-use path/sidewalk buffer areas, greenway stop, screening, bio-swale, and rain garden. In addition, in areas where trees may be proposed under utility lines, “wire friendly trees” should be considered. All planting shall be comprised of a mix low maintenance, native trees, shrubs, and/or ground covers that can adapt well and flourish in the proposed site conditions.

11.4.2 Streetscape
Streetscape planting shall be located in the raised center median, between the curb shelf and the shared use path, and between the shared use path and the sidewalk and the right-of-way line or sound walls, including planting at the Greenway Stop. Street trees proposed along the curb line shall be set beyond the 13 foot clear zone taking into account the future growth characteristics of the tree.

11.4.3 Screening
Screening type planting shall be located near to the right-of-line, around structures or other roadway related features to block transportation infrastructure views either as viewed from residential properties or transportation system users. Screening type planting shall be comprised of vegetation that maximizes visual screening throughout the year. A combination of evergreen plant material and a low fence may be used.

11.4.4 Bio-Swale
Bio-swale planting areas in the State right-of-way shall utilize plant material along and in designed open drainage swale features to naturally filter a portion of the stormwater runoff from the transportation system and or related features.
11.4.5 Rain Garden

Rain garden planting feature(s) shall be located at either greenway stop(s) or small depressed landforms, either created or natural, and shall utilize plant material to naturally filter a portion of the stormwater from the transportation system and/or related features.
SECTION 12 SIGNAGE, PAVEMENT MARKING AND SIGNALS

12.1 SCOPE

The Design-Builder shall provide all temporary and permanent fixed signing, pavement markings and signal work, if applicable, required for the Project.

The Design-Builder shall be responsible for identifying, designing, detailing, fabricating, delivering and installing all signing and pavement marking materials and shall install all components necessary for a complete and functional system which, in addition to meeting the design and construction criteria specified above, meets the following requirements:

A) Provides for the orderly and predictable movement of all traffic;
B) Provides such regulation, guidance, warnings and advisories as are needed to ensure safe and informed operation;
C) Is fully and seamlessly integrated into the existing signing elements beyond the Project limits; and
D) Is integrated into the existing intelligent transportation system (ITS) components, if applicable.

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

12.2 STANDARDS

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

12.3 REQUIREMENTS

12.3.1 Design Requirements

The Design-Builder shall develop a signing and pavement marking plan and a traffic signal plan for the Project that shall:

A) Provide for all components as called for in this Section 12;
B) Encompass the replacement of all existing signs within the Project limits;
C) Provide signing, traffic signals and pavement markings for bicycle and pedestrian facilities within the Project Limits;
D) Locate signs in accordance with the MUTCD and the NYS supplement; and
E) Provide signs with high reflectivity with Type IX sheeting such as to not warrant sign lighting.
12.3.2 Construction Requirements

12.3.2.1 Signs

The Design-Builder shall not reuse any existing NYSDOT sign materials as part of the permanent signing installation and shall be responsible for the disposal of all signing materials and structures that are removed from the Project. Standard signs owned by municipalities other than NYSDOT, and non-standard signs owned by private entities but placed within NYSDOT right-of-way, with the acceptance of the Department, shall be removed, stored and reinstalled as required.

The Design-Builder shall be responsible for the provision of all signs, posts, frames and other structural components required for the installation and support of the sign panels.

Sign panels shall meet the requirements of the Department’s Special Specifications 645.03010011, 645.03020011, 645.03030011 and 645.03040011.

12.3.2.2 Pavement Markings

All linear roadway and cross hatching pavement markings shall be installed in accordance with the Department’s Special Specifications 685.0815XX08 – Epoxy Reflectorized Pavement Markings (Crosshatching) 15 Mils Thick (Wet Night Visibility Spheres), and 685.0720XX18 – Epoxy Reflectorized Pavement Markings – 20 Mils (Wet Night Visibility Spheres). Crosswalks shall be consistent with the previous Route 347 corridor improvements.

12.3.2.3 Traffic Signals

There are signalized intersections within the limits of the Project that include traffic signals as well as pedestrian crossing signals, locations of which are listed below:

- NY Rte. 347 at Southern Boulevard
- NY Rte. 347 at Lake Avenue
- NY Rte. 347 at Gibbs Pond Road

The Design-Builder shall replace the existing traffic and pedestrian crossing signals with the latest current standard of traffic signal pole and cable supports, and also the latest standard for the push button control systems with count-down timers at the pedestrian safety walks.

At each intersection, the Design-Builder shall design and install new traffic signal infrastructure. The traffic signal infrastructure shall include installation of a new cabinet and controller, span poles and foundations, new electric service and electric disconnect, signal heads including backplates with retro-reflective tape in all directions, pedestrian signal poles, pedestrian signals and push buttons, cable and conduits, interconnect cable to adjacent signalized intersections, and loop detectors. Appropriate infrastructure (pullboxes, conduit, etc) shall be installed to accommodate the possible future installation of future traffic signal equipment. The work shall include all equipment, hardware mountings, cabling, software modifications and labor necessary to install and integrate a fully operational signalized intersection. All signal designs shall conform to current MUTCD, and Region 10 Traffic Details found in RFP Part 7.
New LED Audible Pedestrian signal and Countdown Timer displays along with ADA compliant latching pushbuttons shall be installed at the intersection. Unless otherwise directed by the Department, the Design-Builder shall maintain the existing signal phasing for the new system.

The Design-Builder will be responsible for maintaining the existing signal until the new signal is activated.

Finishes for all traffic signal infrastructure shall be colored Forest Green matching Federal Color Standard 595 B #34066. Two weeks prior to beginning any construction work on traffic signals associated with the project, the Design-Builder shall notify the regional traffic signal section to perform an inspection of the existing traffic signal equipment. After the inspection, the Design-Builder shall submit to the Department a written notification of the date they will assume responsibility for traffic signal maintenance. No construction work shall proceed until traffic signal maintenance is assumed by the Design-Builder. The existing traffic signal shall be maintained by the Design-Builder under the requirements of Section 619 of the Standard Specifications, except for the controller, programming, and timing which shall be maintained by the Department.

Traffic signal activation shall be done by NYS Traffic Signal Personnel only. The Design-Builder shall notify the NYS traffic Signal section two weeks prior to the requested date of activation.

The Design-Builder shall integrate the signals into the existing ITS system.

12.3.2.4 Loop Detectors

The Design-Builder shall replace all existing loops at each signalized intersection and provide detection zones on all approaches. All presence loops shall have a set of two 6 ft x 20 ft loops spaced 10 ft apart installed at the stop bar, centered in the respective lane, with three turns wired in parallel. All sidestreet lanes and all mainline turn lanes shall have presence actuation and all mainline through lanes shall have point detection. All point loops shall have a set of two 6 ft x 6 ft loops spaced 10 ft apart, centered in the respective lane, with four turns wired in parallel installed at an appropriate distance from the stopbar for mainline approaches. The Design-Builder shall splice each set of parallel loops to a twisted pair shielded lead-in cable, which shall in turn be wired to the cabinet. Only one pair of loops per lead-in cable. Each pair of loops shall be contained in one lane. These lead-in cables are to be terminated inside their respective controller cabinets. No more than six loop home runs can be cut to one pullbox and home runs should not be cut across more than two lanes from the loop. Shielded lead in cable shall be run only on the span wire, in poles or in underground conduit.

Existing vehicle and pedestrian detection shall be maintained at all times. The Design-Builder shall utilize video detection for temporary detection for all actuated phases. At the conclusion of the contract, all existing video detection equipment (cameras, arms, cables, cards, etc.) shall be returned to the State.

12.3.2.5 Conduit/Cabling Requirements

The following cables shall be utilized during the installation of new signal heads, pedestrian/countdown timers, interconnect and pushbutton signs:

A) Pedestrian/Countdown Timer and pushbutton sign: furnish and install 5C#14 awg cable for each set display;
B) One way signal heads: furnish and install a minimum of 5C#14 awg cable;

C) Two way signal heads: furnish and install a minimum of 10C#14 awg cable;

D) Three way signal heads: furnish and install a minimum of 15C#14 awg cable.

Signal cable shall be run only on the span wire, in poles or in underground conduit. No four way heads shall be used.

The Design-Builder shall furnish and install fiber optic cable for any underground interconnect installation. A drop cable meeting the requirements of the Department’s Special Specification 683.07250010 shall be connected to the cabinet. The inter-connect shall be coordinated with ITS plans.

The Design-Builder shall furnish and install the following conduit as a minimum:

E) Detection loop conduits shall be 1” Flex between the first junction box and loop.

F) Conduits under roadway shall be a minimum of 3” RGS.

G) Conduits between Span or Mast Arm poles and nearest junction box shall include a minimum of 1” RGS and a minimum of 4” RGS.

H) Conduits between Pedestrian poles and nearest junction box shall use a minimum of 2” RGS.

I) All other underground conduit installations shall be 2” RGS.

12.3.3 Signal Heads/ Signal Poles
All signal faces to be installed as part of this Project shall be 12” LED. Mainline approaches require one through head for every through lane for multilane approaches. All traffic signal heads shall have 5” back plates with 3” yellow reflective tape. All signal and pedestrian heads shall be aluminum and have open tunnel visors.

All pedestrian signals shall be 16” LED and shall consist of combination “Walking Man”/“Hand” symbols with countdown timers. Pedestrian signal installations shall also include audible signals, countdown timers and ADA compliant pedestrian pushbuttons for all marked, signalized crosswalks. Pedestrian countdown timers shall meet the requirements of Special Specification 680.81500010.

Span Pole Analysis shall be carried out using the latest version of the Department’s Span Wire Analysis Program to determine the signal pole sizes and foundation moment needed. Span pole loadings identified by the Span Wire Analysis Program shall be increased by a minimum of 15% loading rounded up to the nearest 1000 lb increment. Footing size shall be designed to accommodate the maximum loading of the pole.

12.3.4 Cabinet/Disconnect Switch
The Design-Builder shall install one state supplied microcomputer cabinet at each of the signalized intersections. The Design-Builder shall also install a disconnect generator transfer switch on the span pole to which the cabinet has been mounted, at a minimum of 7 ft. and a
maximum of 9 ft. above ground level. The cabinet and disconnect switch shall meet the requirements of Special Specifications 680.80324515 and 680.94997008, respectively.

12.3.5 Pullover
Where a fiber optic interconnect exists, a minimum size of 30 inch square fiber optic pullbox shall be installed adjacent to the cabinet. All other pullboxes required shall be standard 26 inch x 18 inch pullboxes. Pullboxes may be either reinforced concrete or reinforced concrete/bituminous fiber.

12.3.6 Power Supply
Power shall be supplied to the microcomputer cabinet from the nearest available utility pole. The power supply cable shall be a 2 conductor, 6awg cable conforming to the requirements of Special Specification 680.95020615.

12.3.7 Signal Pre-emption
Existing traffic signals at 347 and Southern Boulevard, Lake Avenue and Gibbs Pond Road are currently instrumented to provide signal pre-emption. The existing pre-emption equipment shall be relocated to the new spans, using new cable meeting the requirements of Special Specification 680.82540009. Pre-emption capabilities must be maintained during all phases of construction.

12.4 DELIVERABLES
Section not used.
SECTION 13 LIGHTING

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

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

13.2 STANDARDS
The Design-Builder shall perform the lighting activities in accordance with the Contract Requirements and the applicable Standards, Design Codes and Manuals listed in Section 1.6, or otherwise applicable to the Project, and the following additional Standards:

13.2.1 Standards
A) ANSI/IES ANSI Approved Recommended Practice for Roadway Lighting, RP-8-00
B) ANSI/IES ANSI Approved Recommended Practice for Roadway Sign Lighting, RP-19-01
C) FAA Advisory Circular 70/7460-1K, Obstruction Marking and Lighting
D) IES Recommended Lighting for Walkways and Class 1 Bikeways, DG-5-94
E) NFPA NFPA 70 – National Electrical Code (NEC)
F) NYSDOT Policy on Highway Lighting

13.2.2 References
A) IES Guideline for the Application of General Illumination (“White”) Light-Emitting Diode (LED) Technologies G-2-10
B) NFPA NFPA 70E Standard for Electrical Safety in the Workplace
C) NFPA NFPA 780 Standard for the Installation of Lightning Protection Systems

13.3 REQUIREMENTS

13.3.1 General Requirements
The Design-Builder shall be responsible for designing, furnishing and installing all components required for the implementation of the lighting system for the Project including new luminaires, controls, poles, mounting, wiring, conduits, and support hardware, as necessary for delivering a complete and functional lighting system.

The Lighting System within the Project limits shall be fully maintained by the Design-Builder for the duration of the Project.
13.3.1.1 Power Supply Requirements

For reference, the lighting installation shall comply with the following:

A) Meet all requirements of NFPA 70 – National Electrical Code (NEC);

B) All outdoor electrical enclosures shall be type 316 stainless steel, rated NEMA 4X or a higher degree of protection; and

C) Meet all requirements of applicable IEEE and ANSI power engineering standards.

13.3.1.2 Removal of Existing Equipment

All existing lighting luminaries and associated equipment(s) on utility poles may be relocated to the proposed utility poles or new luminaires and/or equipment may be provided. Any existing equipments damaged by the Design-Builder during the progress of the work shall be replaced at no additional cost to the Department.

13.3.2 Permanent Lighting System

13.3.2.1 General

The Design-Builder shall be responsible for ensuring that the permanent lighting system meets the following requirements:

A) Provides illumination such that the road surface illumination meets or exceeds the uniformity and the illuminance and/or luminance criteria during darkness;

B) Utilizes energy efficient and long-life, low maintenance lighting technologies that are found on the Department’s approved lists;

C) Can be fully and seamlessly integrated into the existing permanent lighting elements adjacent to the Project limits;

D) Utilizes a photo-control switch system that automatically activates lighting before dusk and deactivates the system past dawn; In addition, the use of independent light switching shall be used, in order to reduce power consumption and control wiring;

E) Contains surge suppression devices for protection against damage by lightning strikes and complying with NFPA-780 and UL 96;

F) Provides fixtures that are water tight and intended for a marine/industrial environment;

G) Utilizes lighting components that are readily available and not proprietary equipment; and

H) Provides improvement to or minimizes adverse impact on wildlife through lighting during darkness.

The Design-Builder shall design, furnish and install the following lighting as part of this Project:

- One solar powered 30W LED twin mast arm cobra head light meeting the requirements of Special Specification 670.94050010 within the median of NY 347 on either side of each intersection or mid-block crossing.
- Two solar powered decorative 50W LED light poles meeting the requirements of Special Specification 670.95020010 at each bus stop (one on each side of the bus stop).

- One solar powered 25W LED bus shelter luminaire meeting the requirements of Special Specification 670.98000010 at each bus shelter.

All solar LED mast arm lighting shall be match Lumec Roadstar style fixtures mounted on a round, tapered pole and all components shall be colored Forest Green matching Federal Color Standard 595 #34066. All solar LED pedestrian lighting shall be match Lumec Domus style fixtures mounted on a goose neck style bracket attached to a 19 ft, tapered pole and all components shall be colored Forest Green matching Federal Color Standard 595 #34066.

The Design-Builder shall be aware that there is existing roadway lighting on some utility poles within the project area. The utility poles will be relocated by others, as discussed in Part 4 – Utility Requirements of these Contract Documents; however, the Design-Builder shall be responsible for removing, storing, and reinstalling this lighting or new luminaires and/or equipment may be provided together with all appurtenances on these poles, with all activities related to the existing lighting coordinated with the Town of Smithtown.

13.3.2.2 Construction Requirements

The Design-Builder shall use materials listed on the NYSDOT approved list of materials and consistent with the details shown on the Department’s Standard Sheets.

The Design-Builder shall provide permanent lighting materials that satisfy the Project Requirements and applicable codes. In addition, the Design-Builder shall:

A) Ensure that all exposed raceways/conduits are made of PVC coated rigid galvanized steel (RGS). Short runs (no longer than 5 feet) of liquid-tight flexible metal conduit may only be used to make a final connection between the main power feeder and a light pole or fixture;

B) Ensure that all outdoor electrical enclosures and attached parts (e.g. breather drain) shall be type 316 stainless steel, rated NEMA 4X or a higher degree of protection;

C) Ensure that any new electrical enclosures shall have a key lock; and

D) Ensure all lighting shall include breakaway devices, unless protected by concrete barrier. Light poles shall feature a breakaway base, except where located behind bridge rails.

13.3.3 Temporary Lighting System

The Design-Builder shall ensure that the existing lighting levels within the Project limits are maintained at all times. A temporary lighting system shall be installed as necessary to meet this requirement. The temporary system shall be energized either separately or though connection to the existing lighting system.

13.4 VISUAL QUALITY

Decorative pedestrian level lighting shall be installed at bus stop(s), greenway stop(s), and in the center median at intersections and pedestrian crossings.
Lighting spacing, alignment, and quantity shall be similar to existing lighting located at the bus stop(s), greenway stop(s), and in the center median constructed in the initial project phase. Modifications in the placement of lighting will be allowed to accommodate appropriate pedestrian lighting.

The Design-Builders shall coordinate with LIPA for secondary solar LED lighting electrical connections.

13.5 DELIVERABLES

Deliverables shall be as stated elsewhere in the RFP documents.
SECTION 14 INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

14.1 SCOPE

The Design-Builder shall perform all work necessary to design, furnish, build, and install, an ITS System Extension along NY Route 347.

The ITS System Extension along NY Route 347 shall consist of the following:

A) Extension of the existing INFORM ITS System fiber optic backbone on NY Route 347 from Terry Road to Gibbs Pond Road.

B) Provide interconnect between the INFORM ITS System and the traffic signals located at Southern Boulevard, Lake Avenue, and Gibbs Pond Road.

C) Establishment of a temporary wireless communications link between Terry Road and Browns Road to provide interconnection between the signalized intersections INFORM ITS System during the reconstruction of NY Route 347.

D) Installation of a new CCTV camera and ITS cabinet at the intersection of NY Route 347 and Southern Boulevard, which shall be fully integrated with the INFORM ITS System.

The Design-Builder shall design, furnish and install a complete, operational and tested ITS system including all required electronic devices for the System, all associated mounting hardware, and all associated cabling and integrate those devices into the NYSDOT INFORM Transportation Management Center. The Design-Builder shall be responsible for all other work related to the INFORM system within the project limits.

The Design-Builder shall prepare As-Built plans which detail all ITS work completed as part of this ITS System Extension including but not limited to the fiber optic backbone, pullboxes, splicing, ITS cabinets, CCTV installation, wireless communication and integration with the existing INFORM ITS System.

The Design-Builder shall be responsible for continuity of operations of the existing INFORM ITS system. None of the current functionality of the existing system may be lost or negatively affected by this ITS System Extension. Any disruptions to the existing system caused by the Design-Builder’s operation shall be repaired at the Design-Builder’s expense at no additional cost to the Department.

The Design-Builder shall meet with the INFORM group during the design phase to confirm proposed design and regional policies. Secondary Power Connection Details, Inform Clearing and Grubbing Details and CCTV Clearing and Grubbing Details are included in Part 7 of the RFP.

14.2 STANDARDS AND REFERENCES

The Design-Builder shall perform ITS activities in accordance with the Contract Requirements, the applicable Standards, Codes and Manuals cited in Section 1.6, and the following additional Standards:
14.2.1 Standards

**NFPA:**
- NFPA 502  Recommended Practice on Fire Protection for Limited Access Highways, Tunnels, Bridges, Elevated Roadways and Air Right Structures

**NYCRR:**
- Part 56 of Title 12 of the Official Compilation of Codes, Rules; and Regulations of the State (12NYCRR, Part 56)

14.3 REQUIREMENTS

14.3.1 Fiber Optic Backbone Extension

The existing INFORM System fiber optic backbone along NY Route 347 shall be extended from just east Terry Road to Gibbs Pond Road. The extension of the INFORM System fiber optic backbone shall begin at the fiber optic pullbox to be installed under PIN 005422 just east of Terry Road. From there the 72 fiber trunk shall be extended east and installed underground from its current terminus to the traffic signal at the intersection of Gibbs Pond Road.

The extension of the fiber optic system shall be installed in a minimum size of 4” NPS Galvanized Steel Conduit for the entire length of the backbone. Inside the conduit, 2 runs of two channel innerduct shall be installed for the entire length of the backbone conduit system. A concrete fiber optic pullbox shall be installed near the base of the traffic signal pole where the traffic signal control cabinet is located at Southern Boulevard, Lake Avenue, and Gibbs Pond Road. At these locations the Design-Builder shall furnish and install splice enclosures and leave sufficient slack to allow fiber optic cables to be spliced from a vehicle parked in a safe location. A minimum length of 50 feet of slack shall be provided for each cable and shall be coiled neatly in the pullbox.

Along the entire length of the backbone conduit run and in between the concrete fiber optic pullboxes standard traffic signal pullboxes shall be installed at an interval of no greater than 225 feet. When the backbone crosses roadways, standard traffic signal pullbox(s) shall be placed on both sides of the roadway.

14.3.1.1 Fiber Optic Cable

The Fiber Optic cable installed for the extension of the NY Route 347 fiber optic backbone shall meet or exceed the requirements of NYSDOT Special Specification 683.07207210 – SINGLE MODE FIBER OPTIC TRUNK CABLE, 72 FIBERS.

The Fiber Optic cable drop cable installed from the ITS equipment to the fiber optic backbone extension shall meet or exceed the requirements of NYSDOT Special Specification 683.07250010 – FIBER OPTIC DROP CABLE. Minimum 12 fiber drop cable

The Design-Builder shall also provide fiber optic cable connectors, splices, splice trays, splice cases, and breakout kits.
14.3.1.2 Fiber Optic Pullboxes

Concrete Fiber Optic Pullboxes installed at the base of the traffic signal poles where the traffic signal control cabinets are located shall meet or exceed the requirements of NYSDOT Special Specification 680.51400010 – CONCRETE FIBER OPTIC PULLBOX.

Standard Traffic Signal Pullboxes to be installed between the concrete fiber optic pullboxes shall meet or exceed the requirements of NYSDOT Special Specification 680.51050010 – RECTANGULAR REINFORCED CONCRETE PULLBOX.

14.3.1.3 Two Channel Fiber Optic Innerduct

Two Channel Fiber Optic Innerduct, to be installed in 4 inch NPS steel conduit, shall meet or exceed the requirements of NYSDOT Special Specification 683.07010010 – FIBER OPTIC INNERDUCT, 2 CHANNEL. Two (2) runs of the two channel fiber optic innerduct shall be installed in 4 inch NPS steel conduit for the entire length of the fiber optic backbone extension.

14.3.2 Closed Circuit Television (CCTV) System Upgrade

The CCTV deployment will consist of furnishing and installing a CCTV camera assembly at NY Route 347 and Southern Boulevard. The camera assembly location shall be designed and installed such that the line of sight of the camera is in the center line of the desired field of view when the camera is in the mid-point of the desired motion between the limit stops. The desired field of view is the east and west-bound NY Route 347 traffic approaches to the intersection, ½ mile in either direction; secondary desired views are of the north and south-bound traffic approaches of Southern Boulevard. The camera mounting arm shall be positioned towards the road and shall provide the desired views. The camera assembly shall be mounted on the traffic signal span pole or a standalone CCTV pole so the required views are obtained. The minimum mounting height for the camera assembly on the traffic signal pole shall be 30 ft and on a CCTV pole, 40 ft. The equipment shall deliver high quality full-motion video during day or night operation with the video transmitted over the INFORM ITS System. The camera shall be integrated with INFORM ITS System so that it operate seamlessly at traffic management center.

The proposed CCTV deployment shall include all equipment, camera assembly, Ethernet switch, hardware, mounting arm, pole and foundation, mountings, cabling, power, software modifications and labor necessary to install, and integrate a fully operational System. Connections between the equipment shall be through weather proof connectors to provide easy replacement.

CCTV video and pan tilt Zoom (PTZ) fiber optic data transceivers shall be supplied to transport the video and PTZ control data to INFORM. The equipment shall meet the requirements of NYSDOT Special Specifications 683.107X0010, CCTV VIDEO AND PTZ FIBER OPTIC TRANSCEIVER and 683.10800010, FIBER OPTIC VIDEO MULTIPLEXER PAIR - 8 CHANNEL.

The Camera Assembly shall meet or exceed the requirements of NYSDOT Special Specification 683.10120010 – CCTV DOME ASSEMBLY. The camera assembly shall include but not be limited to the dome camera assembly, the mounting arm, cabling, mounting hardware and miscellaneous fittings.
14.3.2.1 Equipment Mounts

The Design-Builder shall furnish and install all equipment mounts for all aspects of the CCTV system including the CCTV assemblies, enclosure, cabinets, stand alone equipment modules and rack mounted components. Shop drawings and cut sheets of all mounts for the cameras, wireless radio and antennas shall be submitted for review by the Department’s Design Quality Assurance Engineer.

All equipment mounts shall be installed with a positive mechanical means of preventing their slippage or other movement due to shock and vibration. The Design-Builder shall prepare drawings which call out and describe these positive mechanical means and shall submit the drawings for review by the Department’s Design Quality Assurance Engineer.

14.3.3 Traffic Signal Interconnection

As part of this ITS extension the Design-Builder shall furnish and install ITS cabinets at signalized intersections of NY Route 347 at Southern Boulevard.

Mounting, mounting hardware and all interconnecting cabling between the traffic signal cabinet and the ITS cabinet, patch cord, power, patch panels and splicing of the drop cable to the fiber optic trunk shall also be provided. Point to point fiber optic data transceivers shall be supplied to transport the controller data to INFORM, and shall be compatible with and meet or exceed the GarrettCom configuration (6KL-AC,6KL4-2SSC2JR and CONFORM05-CRM) currently used for fiber optic point to point communication between signalized intersections.

The interconnect cable from the controller cabinet to the ITS cabinet shall consist of a fiber optic drop cable as per Section 14.3.1.1 above.

The ITS Cabinet shall meet or exceed the requirements of NYSDOT Special Specification 680.80326410 – TYPE E CABINET. A minimum 30 ampere power service circuit shall be furnished to the ITS cabinet at each site.

14.3.4 Wireless Radio and Antenna

A Wireless communication link, Encom or approved equal, shall be established between Terry Road and Browns Road at the start of the project to provide IP based interconnection of the signalized intersections effected by the project with the INFORM ITS System.

Wireless Radio and Antenna shall meet or exceed NYSDOT Item 683.93530010, WIRELESS BROADBAND RADIO ASSEMBLY - INTEGRATED UNIT. The Wireless Broadband Assembly shall include but not limited to the radio assembly, antenna, antenna mount, cabling, power, mounting hardware and miscellaneous fittings.

14.3.5 Central Computer System at TMC

All field equipment will be integrated and controlled from the existing NYSDOT INFORM ITS System installed in the TMC. The camera video and pan tilt Zoom (PTZ) control shall operate seamlessly on the NYSDOT INFORM ITS System.

14.3.6 Electrical Work

The Design-Builder shall provide all 120/240VAC power necessary for the construction and System installation and shall include the furnishing and installation of all labor and equipment. Surge protection for all power, video and data circuits entering or exiting the cabinets shall be
furnished with surge lightning protection. The Design-Builder shall maintain the integrity of all circuits in service that may be affected by the work.

The Design-Builder shall furnish and install cabling and conduit between the controller cabinet and the ITS equipment cabinet, the ITS cabinet and the fiber optic pullbox, the camera and the ITS equipment cabinet, the fiber and communication manholes and the power source. It shall be the responsibility of the Design-Builder to verify that the cabling and its routing are sufficient for their needs.

14.3.6.1 Cabling Requirements

All cable used for power branch distribution shall be #6AWG minimum, or sized larger to suit the specific application. Voltage drop calculations shall be performed for each equipment cabinet serviced showing actual power used and the cable distance from the power distribution panel.

Power cabling and wires installed outdoors and underground shall be rated for 600V, rated for wet locations and gasoline and oil resistant.

All cables provided shall be provided with terminations, connectors and splices as needed and shall be installed within the existing or proposed conduits. All termination cables provided shall be provided with terminations, connectors and splices as needed.

Video cable furnished for connections shall be rated outdoor use.

All cables shall be clearly labeled with identifying label or tags clearly indicating the circuit number and/or camera number.

All electrical enclosures and boxes provided by the Design-Builder shall be stainless steel NEMA 4X.

All conduits shall be hot-dipped Rigid Galvanized Steel (RGS). All fittings and conduit bodies shall be hot-dipped galvanized.

14.4 SYSTEM TEST PROCEDURES

The Design-Builder’s ITS System Integrator shall be responsible for testing the installed equipment to verify that it has been installed correctly, is performing as specified, and supports overall system operations. This testing will be accomplished in a sequence of procedures that begin with basic components and culminate in exercising the total system in its operational configuration.

For all tests, the Integrator is responsible for providing detailed, step-by-step procedures for the testing. These procedures shall specifically identify:

- The equipment configuration;
- The sequence of operations for the test,
- The test setup including environmental conditioning;
- The required test equipment and its configuration;
- The expected results and pass/fail criteria;
- Compliance with the Special Notes (see Part 7 of the RFP).
A copy of the test procedures shall be furnished to the Department’s Construction Quality Assurance Engineer for review prior to the commencement of the tests.

14.4.1 Factory Testing

Factory testing verifies that the performance of equipment being supplied meets or exceeds the minimum performance established in the specifications. For off-the-shelf equipment and components, the Integrator can establish compliance through third party verification and a manufacturer’s quality assurance plan. The manufacturer shall supply documentation to verify that the performance of the equipment has been measured against the manufacturer’s equipment specification over the entire environmental range.

For equipment and components that are unique to and specifically manufactured for the project, the Integrator shall schedule an acceptance test at the factory to demonstrate compliance with the specifications. These tests shall demonstrate compliance with all aspects of the specifications over the entire range of environmental conditions. For tests that require environmental chambers of special conditions, the Manufacturer may substitute documented test results in lieu of actually performing the procedure.

14.4.2 Operational Stand Alone Testing

The operational standalone testing demonstrates that the equipment has been installed correctly and is operational. These tests involve only single items of equipment or equipment assemblies. Portable laptop computers and test equipment supplied by the Design-Builder can simulate control of the standalone equipment. Typical tests would include but are not limited to:

- Physical inspection of the installation;
- Continuity tests;
- Power-on tests;
- Voltage measurements;
- Cable performance tests (twisted-pair, video and fiber optic). For optical fibers, this would include OTDR and attenuation measurements. For video cable, this would include frequency attenuation measurements. For twisted-pair cable, this would include checks for grounds, splits, crosses, and opens.
- Cabinet assembly-performance tests (e.g. Cabinet to CCTV camera functionality or cabinet to radar detector);
- Verification of radar detector measurements;
- Functional performance of Camera and communications;
- Wireless radio measurements (output power, signal levels, etc.).

Operational standalone testing should also include equipment setup. This would include configuring the equipment’s options and setting the equipment’s system identification, including its network address.
14.4.3  **Group Site Verification Testing**

Group site verification testing that measures the performance of “linked” equipment and components shall be preferred. Typical tests include but are not limited to:

- Communications links with modems connect to optical fibers or microwave radios
- Multiplex connections and performance between nodes such as minihubs or shelters and operations centers such as the TMC.
- Modem circuits
- Data circuits

14.4.4  **Subsystem Integration Testing**

Subsystem integration testing shall be preferred that includes all components in the subsystem and demonstrates that the subsystem is totally functional and capable of supporting operations. Each subsystem shall be tested in its operational configuration, demonstrating complete compliance with all components between and including the operations center and the field elements.

14.4.5  **System Acceptance Testing**

A system acceptance test shall be preferred which demonstrates that the installed equipment will operate as specified and support operations for an extended period of time, not less than 30 days. The system acceptance test also provides a controlled burn-in period for the installed equipment. Procedures shall be provided to fully utilize all aspects of the equipment and associated functions throughout the course of the test.

If any equipment should fail during the 30-day period, those subsystems affected by the failed equipment shall be subject to an additional 30-day test period. The Department will determine which equipment has been affected by the failure and subject to an additional 30-day period of testing.

14.5  **DOCUMENTATION REQUIREMENTS**

The Design-Builder shall prepare all Documentation as required and submit to the Department for review. The Department’s review of system documentation does not waive the Design-Builder’s responsibility in furnishing and installing a fully operational and functional system meeting the specifications herein.

14.5.1  **Shop Drawings and Test plans**

Test plan submittals shall be furnished by the Design-Builder to the Department to demonstrate that the System and associated products he intends to supply for this Contract have the capability to meet the functional objectives required by the Technical Parameters. System documentation submittals required shall consist of:

- Factory Acceptance Test Plan and Report.
- Field Acceptance Test Plan and Report.
• Operational Acceptance Test Plan and Report.

• Operating Documentation.

The Design-Builder shall provide the Department with the following documentation at the conclusion of the project:

• A minimum of five copies of all manufacturers’ documentation for all equipment to be supplied as part of this project. This documentation shall include all operations, maintenance, software support, and protocol descriptions available from the manufacturer of each component.

• All documentation specifically requested in the individual item specifications.

• A minimum of three copies of written documentation which contains the correct hardware (dip switch settings) and software adjustable configurations for all equipment used in the project.

• A chart which details the pin-outs of all cable assemblies and actual interconnection of all system components.
SECTION 15 WORK ZONE TRAFFIC CONTROL AND ACCESS

15.1 SCOPE

The Design-Builder shall be responsible for the planning and provision of Work Zone Traffic Control (WZTC), required to perform the Project Work until Project Completion. This Project Requirement applies to any roads, ramps, cross roads, local streets, maintenance roads, driveways, and active paths within and/or affected by the Project.

The Design-Builder shall provide WZTC for the safe and efficient movement of people, goods, and services through the Project area(s) while maintaining access and minimizing negative impacts to residents, commuters, businesses, and NYSDOT maintenance operations.

Note that, as used in this section, “Work Zone Traffic Control plan” or “WZTC plan” is the equivalent of “Maintenance and Protection of Traffic plan” or “MPT plan” as described in Chapter 16 of the Highway Design Manual (HDM).

15.2 STANDARDS

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

15.3 REQUIREMENTS

15.3.1 Work Zone Traffic Control Plan

The Design-Builder shall prepare and submit a WZTC Plan for managing traffic operations and controlling access until Project Completion. The WZTC Plan shall be submitted to the Department’s Design Quality Assurance Engineer a minimum of two weeks prior to initiation of any Work requiring a lane closure or the implementation of any change in traffic patterns.

The WZTC Plan shall include:

A) Contingency plans for reasonable unforeseen interruptions;

B) Duration of each WZTC stage, including duration of lane closure(s), if any;

C) Provisions for maintaining pedestrian traffic through the Project area at all times.

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

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

15.3.2 General Restrictions

The Design-Builder shall be aware that no work shall be performed and no temporary lane closures and/or shoulder closures shall be permitted on the following State recognized holidays:
A) New Year’s Day;
B) Memorial Day;
C) Independence Day;
D) Labor Day;
E) Thanksgiving Day;
F) Christmas Day.

Construction activities using temporary lane closures shall be suspended to minimize travel delays associated with road work for major holidays as follows:

- Friday, Saturday, Sunday and Monday Holidays – Beginning 6:00 a.m. the business day before the holiday and ending 6:00 a.m. the business day following the holiday
- Tuesday Holidays – Beginning 6:00 AM the Friday before the holiday and ending 6:00 AM the next business day.
- Wednesday Holidays – Beginning 6:00 AM the Tuesday before the holiday and ending 6:00 AM the next business day.
- Thursday Holidays – Beginning 6:00 AM the Wednesday before the holiday and ending 6:00 AM the following Monday.

15.3.3 Access to Commercial Properties and Driveways
The Design-Builder shall provide uninterrupted access to all commercial properties and driveways within the Project Limits at all times. However, minimization of impeded access is important in this highly commercialized area. See Form SCD for additional conditions.

15.3.4 Closure Restrictions
The following lane time closure restrictions apply for Route 347:
A) NY 347, Four Lane Sections (2 EB and 2 WB lanes):
   a. Westbound: No lane closures permitted between the hours of 6 AM – 10 PM;
   b. Eastbound: No lane closures permitted between the hours of 11 AM – 10 PM.

15.3.5 Full Mainline Closure and Detour
No full closure with detour is permitted

15.3.6 Local Street Closure Restrictions
The following lane time closure restrictions apply to local streets within the Project:

No lane closures permitted between the hours of 6 AM - 10 AM and 3 PM - 7 PM. A minimum of one lane for two-way traffic shall be maintained at all times.

15.3.7 Opening of New Lanes or Shared Use Path
Any new travel lanes, turn lanes, shared use path or other feature shall not be open to traffic prior to installation of all associated permanent or temporary signs and striping.
15.3.8 Minimum Lane Widths during Construction
The Design-Builder shall maintain minimum travel lane width(s) of 10.0 feet during construction.

15.3.9 Portable Variable Message Signs
The Design-Builder shall provide, as a minimum, 8 Portable Variable Message Signs, but more should the Design-Builders design dictate, for the duration of this Contract. The Portable Variable Message Signs shall be deployed as necessary for the various WZTC schemes developed in coordination with, and with concurrence/acceptance from, the Department's Project Manager. The portable variable message signs provided shall meet the requirements of NYSDOT Item No. 619.110202 (Portable Variable Message Boards with Cellular Option).

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

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

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

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

15.3.12 Dedicated Police Services - Suffolk County
The Design-Builder is advised that an agreement exists between the New York State Department of Transportation and the Suffolk County Police Department for the providing of Dedicated Police Services as part of the Traffic Control plan for the Contract. A Copy of this agreement, can be found in Part 7 Engineering Data.

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

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

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

The Design-Builder shall also provide the Department’s Project Manager a Transportation Management Plan (TMP) per FHWA’s Final Rule on Work Zone Safety and Mobility, 23 CFR 630 Subpart J. The intent of the TMP is to minimize impacts to the travelling public and to provide continuity of reasonably safe and efficient road user flow and highway worker safety. The Emergency Response Plan shall be a component of the TMP and shall be located in the contingency section of the TMP.
SECTION 16 PAVEMENT DESIGN AND CONSTRUCTION

16.1 SCOPE

The Design-Builder shall perform all Work necessary to provide all pavement required for the Project. This includes design, furnishing of materials, fabrication and construction of all temporary and permanent pavement sections for roadways within the Project Limits.

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

16.2 STANDARDS

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

16.3 REQUIREMENTS

All pavement materials and construction methods shall be in accordance with the requirements of the NYSDOT Standard Specifications and the NYSDOT materials and pavement installation methods.

All colored and imprinted pavement materials and construction methods shall be in accordance with the requirements of the NYSDOT Special Specification for Item 608.0102_05 – Colored and Imprinted Sidewalk, which includes a sample submittal for Department review and comment, prior to construction.

Limestone and/or dolomite, regardless of the acid insoluble residue content, shall not be allowed for Type 1 or F1 friction aggregate requirements.

16.3.1 Full Depth Reconstruction

The Design-Builder shall develop and construct pavement section(s) for full depth reconstruction, including subbase, of the Project roadways in conformance with the Comprehensive Pavement Design Manual (CPDM), using the ESAL-based pavement design method.

No partial lane or shoulder full depth, reconstruction will be permitted. Any roadway requiring reconstruction shall be reconstructed full depth in full lane and/or shoulder width increments. If the pavement adjacent to the curb or edge of pavement is to be reconstructed, the adjacent curb and/or sidewalk shall be reconstructed as well.

If the profile of any roadway is modified in connection with this Project, such roadway shall be reconstructed for its full depth until such point as the revised vertical alignment meets the existing, with the exception that profile adjustments, above the existing profile, of up to 8 inches may be made through asphalt overlays without the requirement of full depth reconstruction.

If any roadway is permanently widened for the purpose of providing additional travel and/or turning lanes, new full depth pavement need only be developed and constructed for the widened section, provided that no other portion of the roadway at the widened section requires full depth.
reconstruction for any other purpose. However, if any portion of the existing pavement is to remain at the widened section, the existing pavement within the widened section shall be milled and resurfaced, in accordance with Section 16.3.2, to provide a uniform pavement across the full roadway width.

16.3.2 Milled and Resurfaced Roadways
The Design-Builder shall mill and resurface pavement areas as necessary to provide for a smooth transition between the existing and fully reconstructed pavement surfaces in accordance with the applicable Standard Sheets. The Design-Builder shall mill a minimum of 50 feet beyond the limits of any full depth reconstructed pavement sections.

Within the horizontal limits of any widened pavement section, all existing pavement shall be milled and resurfaced in conjunction with the top course placement for the widened section in order to provide a uniform pavement within the widened section of roadway.

16.3.3 Resurfaced Local Roadways
In the absence of local Standards, resurfaced local roadways shall consist of a pavement course, comprising 2 inches of 12.5 F1 Top Course HMA, and shall be placed across the entire width of all lanes and shoulders.

16.3.4 Reconstructed Local Roadways
Reconstructed local roads and streets which are to be widened as part of this project, shall be constructed in accordance with the NYSDOT CPDM. The same pavement treatment shall be applied across the entire width of the roadway and shoulders. Asphalt and concrete pavement materials and construction methods for local roads and streets shall meet the requirements of NYSDOT Standard Specification, NYSDOT Design Standards.

Disturbed and damaged curbs, sidewalks, and driveways shall be replaced with corresponding elements having equal or better characteristics.

The Design-Builder shall provide all tie-in work to avoid differential problems, accounting for such factors as total surfacing thickness, minimum structural requirements, and unequal base/subbase thickness.

16.3.5 Temporary Pavement
The Design-Builder shall design and construct all temporary pavements within the Project limits in accordance with the NYSDOT CPDM.

16.3.6 Shared Use Path
The Design-Builder shall provide the Shared Use Path pavement on subgrade in accordance with the following requirements:

A) Top course shall be 9.5 F9 Top Course HMA, 80 series compaction, min. thickness 1.5 inches.
B) Binder course shall be 25 F9 Binder Course HMA, 80 series compaction, min. thickness 2.5 inches.
The Design-Builder shall use steel edging to create a non-degrading, well defined pavement edge in locations where the asphalt path pavement is placed adjacent to turf or other soft edge areas. The steel edge material may be dark green or other dark color that will blend with the natural area.

16.3.7 Utility Trench Restoration

Outside areas of full depth reconstruction, pavements in trench restoration areas shall match the adjacent pavement section.

16.3.8 Buffer Strip

The Design-Builder shall provide a minimum 4 foot wide colored and imprinted buffer strip along the back of the eastbound curbline. The buffer strip concrete surface pattern shall match a London Cobble texture in a running bond pattern. The buffer strip color shall be integral and have dark grey highlights. The integral color shall match Cool Grey matching Federal Color Standard 595 #26493 with a Dark Grey antiquing release matching Federal Color Standard 595 #26132.

16.3.9 Median Bullnose

The Design-Builder shall provide a colored and imprinted bullnose at median end sections. The bullnose concrete surface pattern shall match a London Cobble pattern. The bullnose color shall be integral and have dark grey highlights. The integral color shall match Cool Grey matching Federal Color Standard 595 #26493 with a Dark Grey antiquing release matching Federal Color Standard 595 #26132.

16.3.10 Bus Stop Pad

The Design-Builder shall provide a colored and imprinted concrete bus pad at all bus stops. The bus stop pad concrete surface pattern shall match a Random Ashlar Slate pattern with a single imprinted soldier course border. The bus stop pad concrete color shall be integral and Warm Grey matching Federal Color Standard 595 #36306. The single imprinted soldier course border color shall be integral and Charcoal Grey matching Federal Color Standard 595 #36176.

16.3.11 Greenway Stop Decorative Pavers

The Design-Builder shall provide a decorative soldier course of concrete brick pavers set in polymetric sand with a concrete row lock edge along the perimeter of path pavement edges within the proposed greenway stop and under the information kiosk at the proposed greenway stop. The concrete paver colors shall be Golden/Onyx matching Federal Color Standard 595 #33275/33303. The color of the polymetric sand shall match the pavers.
SECTION 17 DRAINAGE AND STORMWATER

17.1 SCOPE

The Design-Builder shall design and construct a drainage system as needed for the calculated storm runoff that provides functionality, durability, ease of maintenance, maintenance access, safety, and pleasant aesthetics.

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

Where drainage patterns will or must be changed from existing patterns, the Design-Builder shall be responsible for securing all necessary permits prior to construction of any drainage facilities.

Two months prior to Project Completion, the Design-Builder shall be responsible for cleaning all new and existing drainage facilities within the Project Limits.

17.2 STANDARDS

The Design-Builder shall perform the drainage and stormwater activities, including highway, bridge and site systems, in accordance with the Contract Requirements and the applicable Standards, Design Codes and Manuals listed in Section 1.6, unless otherwise stipulated in this Project Requirement or otherwise applicable to the Project.

Stormwater shall be conveyed from point to point through the use of a single pipe. Smaller pipes in parallel shall not be permitted.

17.3 REQUIREMENTS

The new proposed drainage system along the project limits shall be a positive drainage system. If DB chooses to tie into the existing system, the additional peak flow generated from the project that will discharge into the existing drainage system shall not exceed the maximum allowable peak flow capacity of the drainage pipe at the westerly project limit.

ROW has been acquired at the NE corner of NY 347 and Lake Avenue for potential recharge basin. The Recharge Basin shall be designed for a 50 year Design Flood Frequency.

The minimum round pipe size for highway drainage purposes shall be 15 inches (inside diameter).

17.3.1 Drainage Report

The Design-Builder shall provide a Drainage Report to the Department and any other entities whose facilities will be impacted by the Project in accordance with HDM Chapter 8. The Design-Builder shall be responsible for coordination in advance with any third party to determine the necessary document submission required by the third party. At least two weeks prior to providing documents to any third party, the Design-Builder shall submit a draft Drainage Report to the Department’s Design Quality Assurance Engineer for consultation and written comment.
The Drainage Report shall document the design criteria used, final design basis, and all supporting calculations and computer model output.

17.3.2 Connections to Existing Systems

The Design-Builder shall develop Design Plans and Project Specifications for any connections to existing storm systems. The Design-Builder shall be responsible for calculations performed to ensure there is sufficient capacity to accommodate any increase in flow due to changes in drainage catchment area and/or to land use. This paragraph shall not be construed to relieve the Design-Builder of the obligation to treat runoff water that requires treatment.

17.3.3 Spill Management

Spill prevention and response measures shall be described in the SWPPP.

17.4 DELIVERABLES

Deliverables shall be as stated elsewhere in the RFP documents.
SECTION 18 HIGHWAY DESIGN

18.1 SCOPE

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

The approximate limits of highway elements designed and constructed as part of NY 347 (DB Phase 2) (PIN 0054.22) is as follows:

- Roadway: 1,170 feet east of centerline of Terry Road;
- Westbound side Median Barrier: 580 feet east of centerline of Terry Road;
- Eastbound side Median Barrier: 920 feet east of centerline of Terry Road;
- Shared Use Path: 1,070 feet east of centerline of Terry Road;
- Sidewalk: 1,170 feet east of centerline of Terry Road.

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

For the purposes of this Section, the Project Limits shall be defined as the limits of milling and resurfacing as defined in Section 16.3.2.

18.2 STANDARDS

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

18.3 REQUIREMENTS

18.3.1 General

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

18.3.2 Design Requirements

Design requirements for the reconstruction of NY 347 and local streets shall be as specified below.

- Design speed 60 mph;
- Lane Widths: Three 11 foot wide Eastbound lanes; three 11 foot wide Westbound lanes;
• Turning Lane Width: 11 foot wide at all turning lane locations;
• Shoulder Widths: A 6 foot wide right shoulder and a 2 foot wide left shoulder in the Eastbound and Westbound directions, except at right turn lane locations. A 4 foot wide right shoulder and a 2 foot wide left shoulder at right turn lane locations;
• Shared Use Path Width: A minimum 12 foot wide shared use path on the Eastbound side;
• Sidewalk Width: A minimum 5 foot wide walkway on the Westbound side.

The Design-Builder shall determine turning bay lengths, taper and number of turn lanes required, for NY 347 and the side roads, to achieve a minimum Level of Service (LOS) ‘C’ at Southern Blvd, a minimum LOS ‘B’ at Lake Avenue, and a minimum LOS ‘B’ at Gibbs Pond Road. Level of Service shall be based on a 2035 design year. The Design-Builder shall add an appropriate factor of safety to the turning bay lengths by assuming non-uniform arrivals. Permissive lefts across three lanes of traffic are not permitted.

In addition to the above requirements for sidewalk and shared use paths along the Eastbound and Westbound sides of NY 347, the Design-Builder shall reconstruct any portions of the existing sidewalk and shared use path which are impacted by the Project Work.

18.3.3 Curbs
Curbs along NY 347 shall be M150 mountable concrete curb, with a 4.5 foot imprinted concrete shelf between the curb and shared use path or sidewalk. Curbs along cross streets shall be VF150 vertical faced concrete curb.

18.3.4 Posted Speed
The proposed posted speed on NY 347 shall be 45 mph; all other posted speeds shall remain.

18.3.5 Railings
If bicycle and pedestrian railing is needed based on the proposed design, the railing design materials and color should blend with the aesthetics of the overall roadway proposed elements. The color of fencing or railing shall be either black or dark brown.

18.3.6 Barrier Systems and Impact Attenuators
The Design-Builder shall remove and dispose of all existing barrier systems within the Project limits, and replace with new barrier systems to current NYSDOT Standards.

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

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

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

All existing barrier systems that are removed shall become property of the Design-Builder. The proposed concrete median barrier shall have a, non-repeating, New England Dry Stack texture with a maximum texture depth of 1.38 inches and shall have a simulated smooth top coping integrated into the top of the barrier, there shall be minimal visible vertical joints and have non-visible continuity plates. The median barrier shall be integrally colored concrete matching the Westwood Brown, Federal Color Chart 595 – Color 30227. Any visible joint filler material shall also match the color of the barrier. The median barrier shall have a clear, non-glossy, non-
sacrificial anti-graffiti coating applied to the surface. The median barrier end sections shall have a crash attenuator that uses an integrated attachment design that does not protrude beyond the barrier surface.

18.3.7 Greenway Stop
The Design-Builder is required to identify a location within the State’s proposed right-of-way to fit the baseline features of the Greenway Stop. The baseline features of the Greenway Stop are to include: a shared-use path connection to and from the Greenway Stop, decorative pavement specified in section 16, benches and seat wall, bicycle racks, an information kiosk, interpretive signs, decorative LED solar lighting (as described in Section 13), a shade structure, and planting.

18.3.8 Bus Stops and Shelters
Bus stops shall be constructed in the same location as existing bus stops. Bus shelters shall be located at each bus stop and shall look identical to the bus shelters constructed in Contract D261357, including style, material and color. The Design-Builder should be aware that solar LED lighting shall also be included in the bus shelter. The solar panel and related battery box alignment should maximize solar energy use and fit with the aesthetics of the shelter.

18.3.9 Bike Racks
Bike racks shall be installed at bus stop(s) accommodating 2 bikes minimum, and at greenway stop(s) accommodating 4 bikes minimum. The bike rack alignment shall be similar in style, material, and color to the existing bike racks located at the bus stop(s) and greenway stop constructed in Contract D261357. Any proposed bike racks shall include the custom NY Route 347 “Parks to Ports” powder coated graphic. Graphic cut-out file will be supplied by the Department.

18.3.10 Benches
At least two (2) 6 foot long metal frame and recycled lumber benches shall be securely installed at the greenway stop. The bench shall be a Victor Stanley, Model C-10. Benches shall be secured at the location to prevent theft and shall use tamper resistant hardware. Benches shall also be placed along the shared-use path in areas where pedestrians or bicyclists may wait or rest, i.e., near intersections, commercial areas, or recreational areas. Alternatively, decorative seat wall structures with similar seating accommodation may also be provided matching the concrete seat wall in contract D261357.

18.3.11 Information Kiosk
The Design-Builder shall fabricate and install one (1) information kiosk at the greenway stop location in a similar proximity to the proposed shared-use path as designed at greenway stops in previously constructed sections of NY Route 347 between the NY347/454 split and Terry Road.

The content of the information kiosk will be provided by the Department.

18.3.12 Shade Structure
The Design-Builder shall include one decorative shade structure at the proposed greenway stop location. The shade structure style, size, scale, materials, and color should be similar to the shade structure constructed at the greenway stops in previously constructed sections of NY Route 347 between the NY347/454 split and Terry Road.
18.3.13 Interpretive Panels
The Design-Builder shall fabricate and install two (2) interpretive panels for installation at the greenway stop location. The panel format, text styles, and display art layout should closely match the layout of the interpretive signs from the initial project phase and greenway stop.

The content of the panels will be provided by the Department. The themes of these plaques will be related to Long Island Regional Environment, Environmental Sustainability, and / or Transportation, i.e., Ecology, Ecosystems, Wildlife, Geology of Long Island, Retention and Detention Systems.

Panel materials shall conform to the requirement of Special Specification 645.92_11.

18.3.14 Clear zone
The Design–Builder shall document clear zone on the final record plans. The minimum clear zone shall be 13 feet.

18.4 DESIGN EXCEPTIONS AND NON-STANDARD FEATURES
It is the responsibility of the Design-Builder, in coordination with the Department, to obtain acceptance of any non-standard features included in the final design.
SECTION 19  STANDARDS

19.1  GENERAL REQUIREMENTS

The Design-Builder shall identify the specific version of each Standard it uses. It is the Design-Builder’s responsibility to obtain clarification of any apparent error, omission, ambiguity or conflict regarding any Standard in accordance with DB §102-2.

19.2  SPECIFIC REQUIREMENTS

The Design-Builder shall assume that all provisions of the Standards, including the figures and tables, are mandatory and guidelines contained therein shall be assumed to be requirements. All words such as “should,” “may,” “must,” “might,” “could,” and “can” shall mean “shall” unless the context requires otherwise, as determined in the sole discretion of the Department. It shall be in the Department’s sole discretion to determine when the context does not require a provision to be mandatory.

Except as expressly otherwise provided in the Contract Documents, any reference to NYSDOT under a Standard shall mean the Department.

When a Standard refers to an action being necessary, needed, or recommended, the Design-Builder shall construe the action as required unless the context requires otherwise, as determined in the sole discretion of the Department.

Where reference is made in the Standards to items that are indicated in the plans or special provisions or required in the plans or special provisions, the plans or special provisions shall mean the Design-Builder’s Plans or the Special Provisions.

References in the Standards to approved products or materials shall mean approved by the Department.

All references in the Standards to the inspector, the field inspector, the project engineer, the engineer, the materials engineer, the district materials engineer, the survey crew, the project supervisor, the agency certified technician, the certified plant technician, and the representative of the Office of Materials shall mean the Design-Builder, except as otherwise expressly provided in the Contract Documents or otherwise directed by the Department.

When a Standard refers to an approval of any correction or repair that deviates from the Contract requirements, the Acceptance must be by the Department.

When a Standard refers to items that will be performed or provided by NYSDOT or by a division or employee of NYSDOT, the Design-Builder shall construe the requirements as applying to the Design-Builder unless otherwise specified in the Contract Documents, or unless the context requires otherwise. It shall be in the Department’s sole discretion to determine when the context requires otherwise.
SECTION 20  SECURITY

Section not used.