

*EXECUTION VERSION*

**I-395 Project**

**Exhibit C-3**

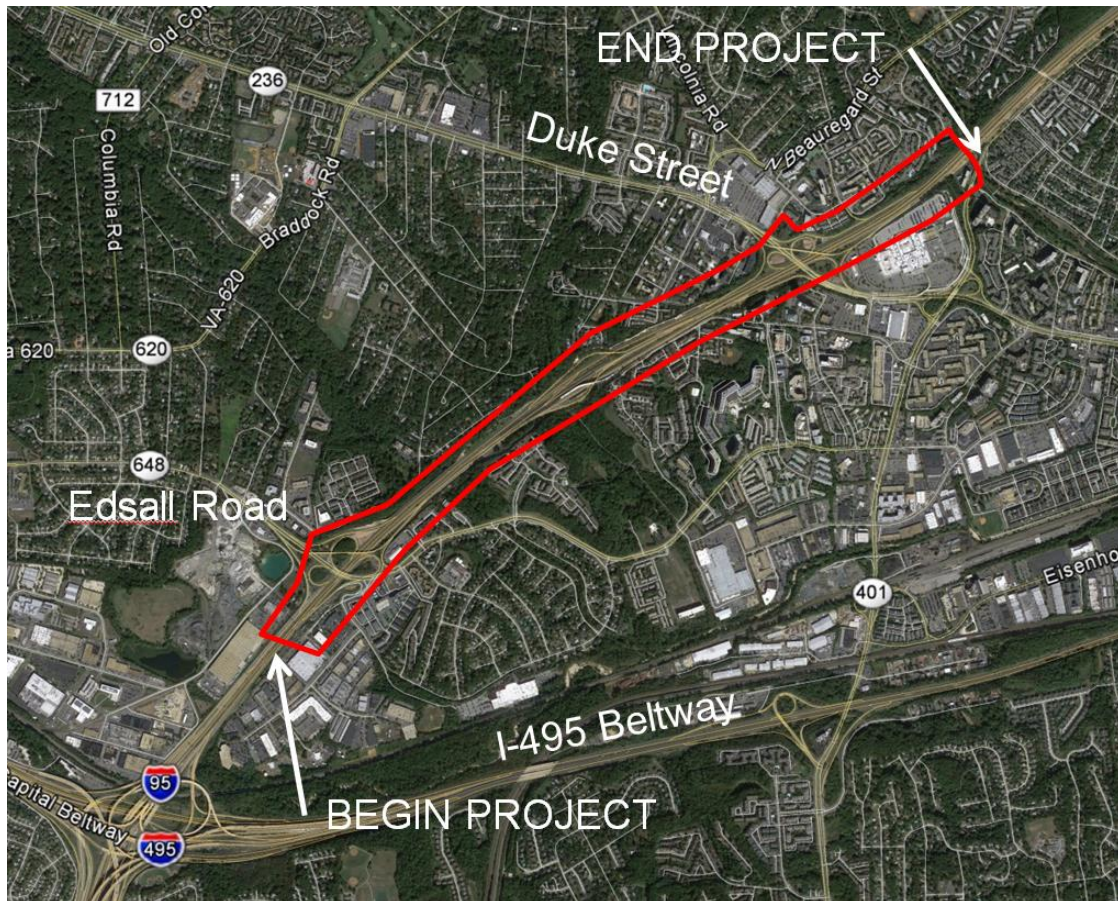
**Technical Requirements**

**Attachment 1.0b**

**Duke-Edsall Widening Scope of Work**

## DUKE-EDSALL WIDENING SCOPE OF WORK

The Duke-Edsall Widening is a two and a half (2.5) mile widening of the I-395 Southbound General Purpose Lanes in Fairfax County and the City of Alexandria, Virginia. As shown below, the project extends from approximately 0.28 miles south of Edsall Road (Route 648) to 0.63 miles north of Duke Street (Route 236). Portions of the Duke Street and Edsall Road interchanges with I-395, and the Quantrell Avenue off-ramp from I-395, will also be improved.

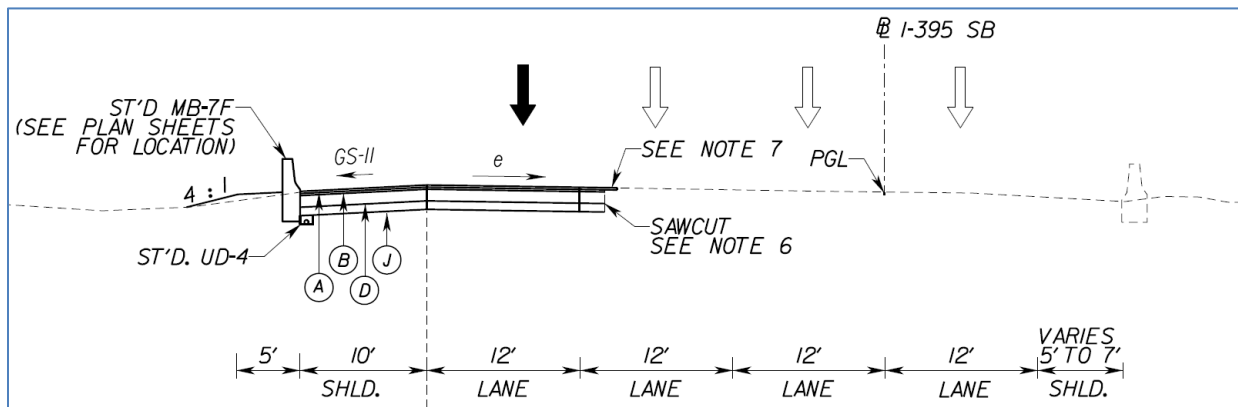


The primary objective of the Duke-Edsall Widening project is to widen I-395 southbound from three to four lanes within the project limits.

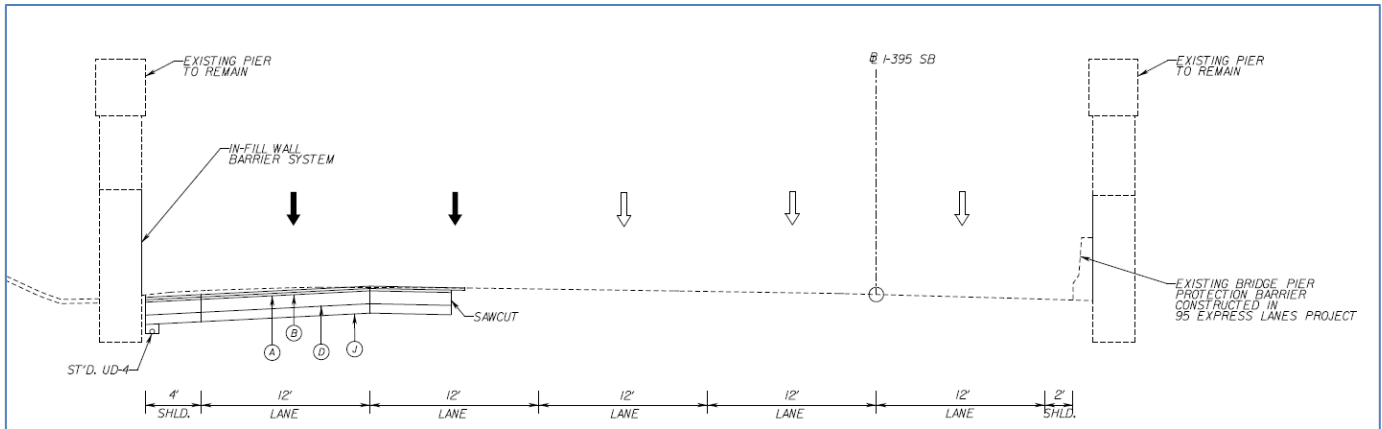
The general scope of the Duke-Edsall Widening, as shown in the roadway sections below and in the RFP Conceptual Plans (included in this scope of work as Appendix A), includes the following:

- Widen the I-395 Southbound General Purpose lanes to add a fourth through lane on right side of traffic
- In general, provide a 10-foot wide right shoulder

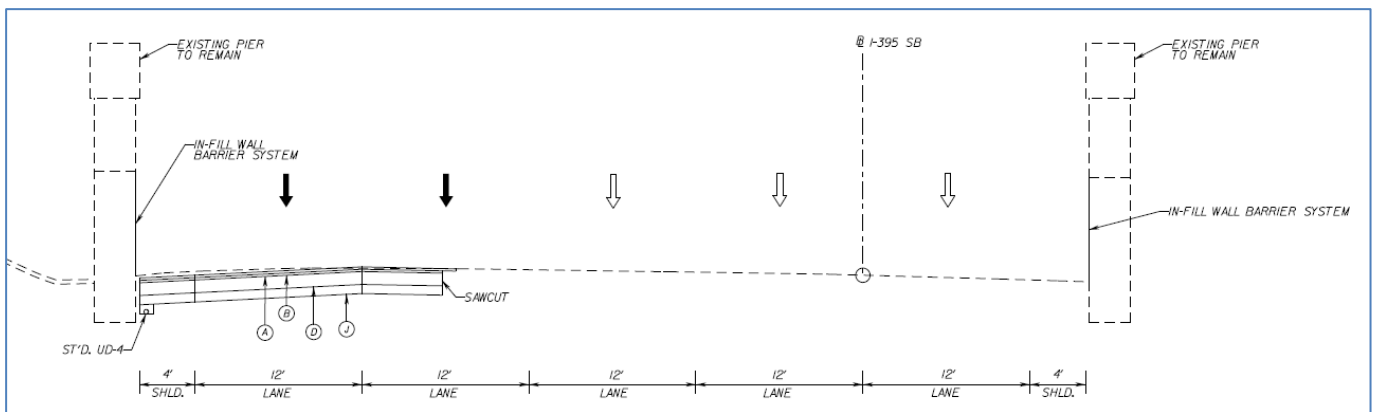
- Modify the interchanges at Duke Street and Edsall Road to improve the operations of the ramp connections and the I-395 southbound General Purpose Lanes.
- Provide In-fill type pier protection barriers for the existing piers of the Turkeycock flyover (HOV exit ramp) over southbound I-395 per the currently approved Design Exception related to this work.
- Provide In-fill type pier protection barriers for the existing piers at both the Duke Street and Edsall Road interchanges for the existing piers located between the southbound General Purpose Lanes and the abutments. The Department will be responsible for preparation and securing approval of the Design Exception related to this work.
- Reconfigure the Duke Street eastbound to southbound I-395 on-ramp to merge into the I-395 General Purpose Lanes south of the Turkeycock flyover (Ramp B). The ramp typical section will have a 4' inside shoulder, 12' lane, and 6' outside shoulder. The Department will be responsible for preparation and securing approval of Design Waivers related to this work.
- Modify a portion of Duke Street on the east side of I-395 to accommodate U-turns to allow for traffic from points west on Route 236 to access the existing southbound Express Lane entrance at Turkeycock Run. All associated Express Lanes signing related to this movement shall also be provided.



**Proposed Condition - Widen I-395 Southbound General Purpose Lanes**



**Proposed Condition - Edsall Road Off-Ramp Modifications**



**Proposed Condition - Duke Street On-Ramp Modifications**

**Duke-Edsall Widening Management, Quality and Safety**

The Design-Builder shall be responsible for the overall management and administration of the Duke-Edsall Widening, including but not limited to:

- Developing and maintaining a project schedule and managing the adherence to the schedule, including an on-time Service Commencement and Final Completion.
- Overall performance and management of the project quality and ensuring construction meets the Quality Plans and project requirements.
- Overall project safety, including worker safety and the safety of the traveling public,
- Effective communication and coordination with the Design-Builder's staff and subcontractors, the Concessionaire, the Department, other Contractors working in the area, and third party organizations.

### **Roadway Alignment**

The addition of the fourth southbound through lane will be accomplished by adding a lane on the outside (northwest side) of the existing southbound lanes, reconstructing the existing outside shoulder and portions of the existing outside lane to full-strength pavement. In general, the Duke-Edsall Widening follows the existing southbound alignment. The widening concept is summarized as follows:

- Add fourth 12-foot wide travel lane on the outside of the existing I-395 southbound lanes
- In general, maintain the existing horizontal and vertical alignment of the I-395 southbound lanes
- In general, add a 10-foot wide right (outside) shoulder on I-395 southbound except in some locations constricted by the existing bridge piers or other site constraints. Refer to the proposed Design Exceptions and Design Waivers for additional information.
- Eliminate an existing loop ramp and provide a reconfigured ramp connection from eastbound Edsall Road to southbound I-395.
- Reconfigure existing ramp from westbound Edsall Road to southbound I-395
- Extend the auxiliary lane from the Turkeycock Flyover to off-ramps from I-395 southbound to eastbound and westbound Edsall Road to accommodate the widening. This lane will be extended under the Edsall Road and Flyover bridges adjacent to the General Purpose lanes and will require reduced shoulders. The Department will be responsible for preparation and securing approval of the Design Exception related to this work.
- Eliminate an existing loop ramp and provide a reconfigured ramp connection from southbound I-395 to westbound Duke Street.
- Maintain the existing one lane ramp from I-395 southbound to westbound Duke Street to just south of the existing Quantrell Avenue exit ramp. South of the Quantrell Avenue exit, widen the ramp to accommodate the eastbound and westbound movements on Duke Street.
- Modify the Duke Street eastbound to I-395 southbound on-ramp connection to merge with the I-395 southbound general purpose lanes south of the existing Turkeycock southbound HOV exit. The ramp typical section will have a 4' inside shoulder, 12' lane, and 6' outside shoulder. The Department will be responsible for preparation and securing approval of the Design Exceptions related to this work.
- Modify the Duke Street westbound to southbound ramp to merge with I-395 General Purpose lanes north of the Duke Street Flyover. This will require a reduction in shoulder widths. The Department will be responsible for preparation and securing approval of Design Exceptions related to this work.
- Modify Duke Street on the east side of I-395 to accommodate a U-Turn movement between I-395 and South Walker Street.

- The posted speed limit for the I-395 southbound general purpose lanes in the Duke-Edsall Widening project limits is 55 MPH.
- The Department will be responsible for preparing and securing approval of the Interchange Modification report related to the improvements described herein.

### **Pavement and Geotechnical**

The Design-Builder shall collect appropriate data for geotechnical evaluation and prepare a Geotechnical Report for the Concessionaire's and the Department's approval. The Design-Builder shall be responsible for obtaining any Regulatory Approvals required for any borings needed in performance of the Design-Builder's geotechnical investigation.

The Design-Builder shall perform pavement related work, including but not limited to the following:

- Demolition and removal of existing pavement and subgrade, including undercut as required,
- Installation of temporary pavement as needed for Maintenance of Traffic,
- Providing full-depth asphalt pavement
- Reconstruction of portions of the existing shoulder pavement,
- Providing pavement build-up to accommodate new profiles and roadway cross-slopes,
- Providing limited milling and overlay as shown in the RFP Conceptual Plans,
- While the Department will provide final milling and overlay for the southbound General Purpose Lanes following Project Completion, the Design-Builder is responsible for any milling and overlay associated with implementation of the selected MOT approach.
- Providing surface treatment of existing pavement with thin hot mix asphalt concrete overlay (THMACO),
- Providing pavement and pavement joint repairs, and
- Providing any required ground improvements and slope stabilization measures.

### **Traffic Management System (TMS) Roadside Equipment**

The Design-Builder's scope includes, but is not limited to, the following ITS and TMS roadside equipment elements:

- Dynamic Message Signs (DMS) to provide Driver Information,
- ITS and TMS roadside equipment cabinets

### **Systems Integration and Design-Builder Interface**

The Design-Builder shall coordinate with 395 Express Lanes Operations Center and the McConnell Public Safety and Transportation Operations Center (PSTOC) related to any systems integration within the limits of the Duke-Edsall Widening project.

### **Structure and Bridge Rehabilitation**

The Design-Builder shall be responsible for the design and construction of the following structural and bridge elements, including but not limited to:

- Modification of bridges and/or bridge approach features for the following bridges:
  1. Edsall Road over I-395 and I-395 HOV/Express Lanes
  2. Duke Street over I-395 and I-395 HOV/Express Lanes
  3. Ramp B over I-395 Southbound General Purpose Lanes (Turkeycock Flyover)
  4. Ramp C over I-395 and Ramp E (Edsall Road Flyover)
- Removal and replacement of existing substandard guardrails with proposed concrete barriers,
- Design and construction of proposed retaining walls including retaining walls and combined retaining wall / sound barriers with wall/foundation systems suitable for use in marine clay soils;
- Repair and/or modification of existing retaining walls,
- Design and construction of proposed overhead sign structures,
- Repair, rehabilitation, and/or modification of existing overhead sign structures,
- Design and construction of proposed light poles and miscellaneous lighting structures,
- Repair and/or replacement of existing lighting structures,
- Design and construction of sound walls at approved locations,
- Design and construction of ITS roadside equipment structures, and
- Removal and disposal of existing structures as required.

### **Duke-Edsall Widening Signing and Pavement Markings**

The Design-Builder shall be responsible for the design and construction of roadway signing for all new signs necessary for the safe operations of the I-395 southbound lanes. The Design-Builder shall replace, relocate or modify all existing ground-mounted and overhead-mounted signs and sign structures that are affected by the Duke-Edsall Widening scope of work. Any signing on adjacent roadways beyond the project limits that require relocation, replacement, or modification due to the proposed design shall be the responsibility of Design-Builder.

The Design-Builder shall coordinate the Duke-Edsall Widening signing design with the 395 Express Lanes Extension project. The signing design shall include a Sign Sequencing Plan and a Sign Unveiling Plan.

The Design-Builder shall design and construct all pavement markings, markers, and delineators as required. All existing pavement markings and markers that do not conform to the final traffic patterns shall be eradicated and removed. E-Z Pass logos at the entry point into the 395 Express Lanes at the Turkeycock flyover shall be provided if the existing markings are damaged during the southbound widening construction.

### **Maintenance of Traffic**

The Design-Builder shall be responsible for developing and implementing a Transportation Management plan including Maintenance of Traffic Plan that has been approved by the Concessionaire and the Department. The Design-Builder shall integrate the 395 Express Lanes scope of work and schedule into one safe and effective Maintenance of Traffic Plan. The Design-Builder shall maintain traffic consistent with the agreed upon Transportation Management Plan and project requirements throughout the duration of the Duke-Edsall Widening.

### **Lighting**

The Design-Builder shall be responsible for the design and construction of continuous lighting of the southbound I-395 general purpose lanes, Edsall Road, Duke Street, and associated ramps within the project limits. Existing lighting can be reused and considered part of the continuous lighting of the SB I-395 lanes and ramps if demonstrated to be in good working order.

Service panels shall be designed for the new lighting power requirements. Existing service panels may be upgraded as needed to support lighting requirements as approved by the Department and the Concessionaire. The Design-Builder shall coordinate the Duke-Edsall Widening lighting requirements with the 395 Express Lane Project. Meters for the Duke-Edsall Widening lighting needs shall be separate from those provided for the 395 Express Lane Project.

### **Public Information and Communication Services**

The Design-Builder shall provide the services of a Public Information Manager and adequate staff to support the Concessionaire and the Department on community outreach and information activities. The Design-Builder will have primary responsibility for performing the project-specific day-to-day activities associated with the Design-Build activities.

The Design-Builder will be required to attend and participate in public meetings as needed to provide updated technical information to the public. The Design-Builder will also be asked to work in partnership with the Concessionaire in dealing with property owner issues to ensure a swift result and minimal impact.



### **Sound Barriers**

The Design-Builder shall be responsible for the design and construction of required sound barriers along the Duke-Edsall Widening (including connecting roadways, where applicable). The locations of potential sound barriers are based on prior noise studies for the corridor. Where sound barrier locations must be shifted from that shown in the previous studies to comply with the locations shown in the RFP Conceptual Plans, the Design-Builder shall design and construct the sound barriers to comply with the following:

- 1) Where sound barriers are shifted up-slope from that indicated in the previous studies, the Design-Builder shall maintain the sound barrier height as shown in the previous studies.
- 2) Where sound barriers are shifted down-slope from that indicated in the Studies, the Design-Builder shall hold the sound barrier attenuation elevation when setting the top of the sound barrier.

The Design-Builder shall provide permanent noise mitigation and final sound barriers in compliance with the Virginia State Noise Abatement Policy and the Highway Traffic Noise Impact Analysis Guidance Manual.

The Design-Builder shall coordinate the sound barrier continuation with adjacent projects.

### **Drainage and Storm Water Management**

The Design-Builder shall be responsible for the design and construction of the integrated stormwater conveyance system (including but not limited to culverts, junction boxes, storm sewers, erosion control, sediment control, outfall conveyance channels through the project area) to meet all applicable hydraulic requirements, including current Federal Emergency Management Administration (FEMA), Federal Highway Administration (FHWA), and VDOT guidelines and standards as described in the VDOT Drainage Manual, Hydraulic Design Advisories and applicable Informational and Instructional Memoranda. The Duke-Edsall Widening Project is considered grandfathered under 9VAC25-870-48 in Part II of the Virginia Stormwater Management Protection Regulations and Part II-C applies for water quality control.

The Design-Builder shall investigate the use of existing pipes, culverts and drainage systems for the structural stability and capacity. If, the drainage facilities are inadequate and are in poor condition, which require frequent maintenance than the Design-Builder shall replace or rehabilitate the facilities.

### **Right of Way**

The Design-Builder shall be responsible for all Right of Way (ROW) acquisitions, including dedications and easements (permanent and/or temporary) necessary for the construction and

operation of the Duke-Edsall Widening Project, including but not limited to, roadway, soundwalls, lighting, TTMS, signing on arterial and local roadways, signals, private utilities, electric services, laydown and material storage sites, etc. All work must be completed in accordance with the latest VDOT ROW Manual.

The Design-Builder shall coordinate with 395 Express Lanes Project to avoid any redundancy in right-of-way and easement takes.

### **Utilities**

The Design-Builder shall be responsible for all utility work necessary for the construction and operation Duke-Edsall Widening, including the identification and avoidance or adjustment (if necessary) of conflicting utilities. Utility work includes all items necessary to provide new services, perform relocation(s) or adjustments and associated coordination with utility owners.

### **Traffic Control Devices**

The Design-Builder shall be responsible for designing, coordinating and constructing traffic signals at the following locations:

- One traffic signal at Duke Street and I-395
- One traffic signal at Edsall Road and I-395

### **Transportation Management Plan**

The Design-Builder shall be responsible for the preparation of the Transportation Management Plan (TMP) in accordance with the Department's guidance and standards for all proposed work associated with Duke-Edsall Widening. The TMP shall document how traffic shall be managed during the construction of the Project. The Design-Builder shall coordinate all work in accordance with the TMP. The phases in the Design-Builder's sequence of construction shall be followed unless the Design-Builder submits and secures Department and Concessionaire approval for an alternate sequence of construction.

### **Coordination with Third Parties**

The Design-Builder shall be responsible for coordination with the affected public and private entities (third parties) and local jurisdictions necessary for the design and construction of the Duke-Edsall Widening, including but not limited to: The Department, City of Alexandria, Fairfax County, Federal Highway Administration, and utility owners.

### **Anticipated Environmental Services**

The Design-Builder shall ensure that the environmental commitments and all conditions of regulatory approvals made in the approved NEPA Document(s) are implemented at the

appropriate phase of Duke-Edsall Widening development. The Design-Builder shall be responsible for compliance with pre-construction, construction-related, and post-construction permit conditions.

The Design-Builder shall develop and implement a comprehensive Environmental Management Plan (EMP). Additionally, the Design-Builder is responsible for, but not limited to, a Stormwater Pollution Prevention Plan (SWPPP), an Erosion and Sediment Control (ESC) Plan, a Stormwater Management (SWM) Plan; and performing the Work in accordance with these approved plans and related specifications and standards.

**APPENDIX A** – RFP CONCEPTUAL PLANS

- RFP Conceptual Plan Sheets (11”x17”) *dated July 18, 2016*
  - Plan Revision 1 *dated September 30, 2016 containing sheets:*
    - Bridge Plans 16 – 18
  - Plan Revision 2 *dated October 28, 2016 containing sheets:*
    - 1, 1B, 11, 11(1)
  - Plan Revision 3 *dated January 9, 2017 containing sheets:*
    - 4, 6, 8 – 14, 4R1, 6R1, 11R1, and 12R1
    - *Note that the following sheets listed below include details that will require some revision to comply with the changes depicted on the roadway plan sheets listed above; however, these revised sheets are not being provided as part of this Revision: 1,1(1), 1A, 1B, 1C, 1G(1) to 1G(6), 1J(1) to 1J(5), 2A(1) to 2A(7), 4A to 4E, 6A, 6B, 7A, 8A, 8B, 9A to 9C, 10A, 10B, 11A to 11C, 12A to 12C, 13A, 13B, 14A.*
    - *Sheet 2C(2) is deleted*

**APPENDIX B** – GEOTECHNICAL ENGINEERING DATA REPORT

- 395 Southbound Additional Through Lanes Geotechnical Data Report *dated July 6, 2016*