



Phase 2: Extension To Dulles Airport/Route 772

# **STATEMENT OF WORK**

**Design Build Package G**

**CONTRACT NO. 8-18-C001**

**Dulles Airport Windscreens**

February 6, 2017

Rev. 0

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**REVISION HISTORY**

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# 1 GENERAL

## 1.1 PROJECT OVERVIEW

The Metropolitan Washington Airports Authority (Owner), in cooperation with the Washington Metropolitan Area Transit Authority, (WMATA), the Commonwealth of Virginia, Fairfax County, and Loudoun County (collectively, the Project Partners), is designing and constructing a 23.1-mile extension of WMATA's Metrorail System in the rapidly growing Dulles Corridor in Northern Virginia within the greater Washington, D.C., metropolitan area (Figure 1). The Dulles Corridor Metrorail Project (Project) is being implemented in two phases – Phase 1 (the Extension to Wiehle Avenue) and Phase 2 (the Extension to Dulles Airport/Route 772).

Phase 1 includes 11.7 miles of new track and extends from the East Falls Church station through Tysons Corner to Wiehle Avenue in Reston. It includes four new stations in Tysons Corner and an interim terminus station at Wiehle-Reston East.

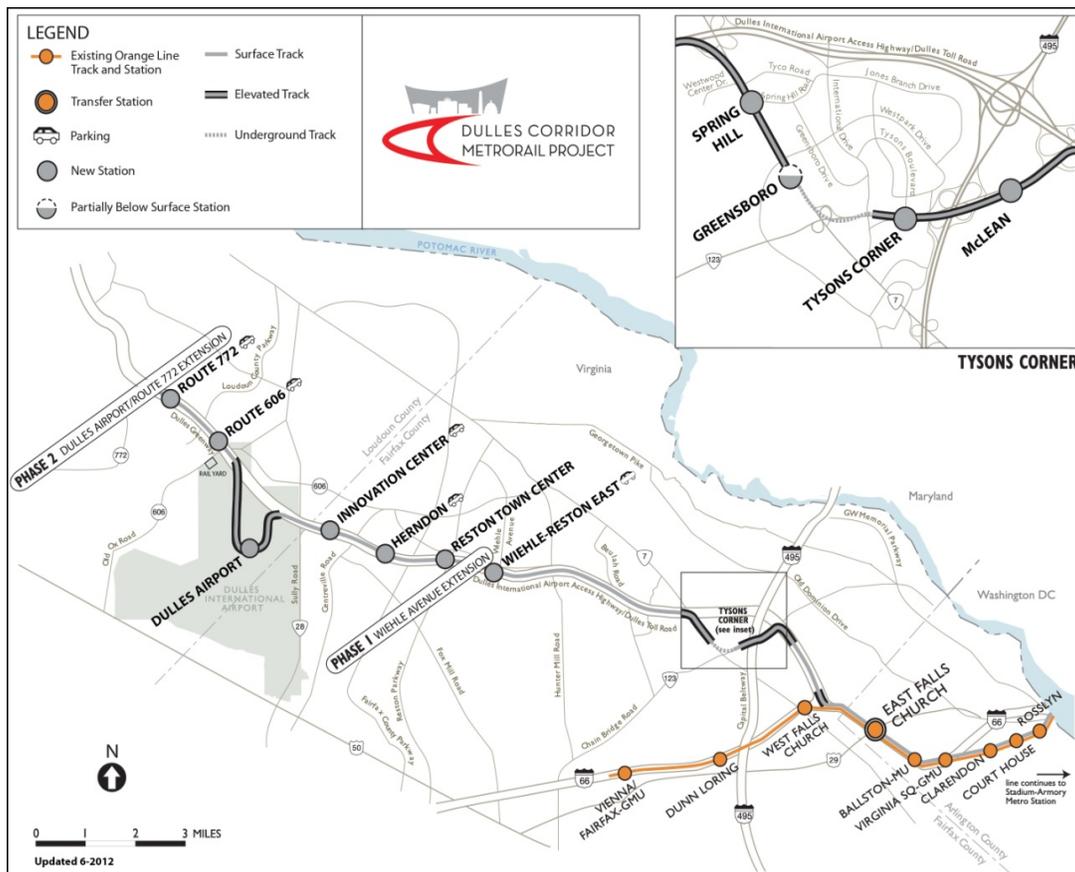
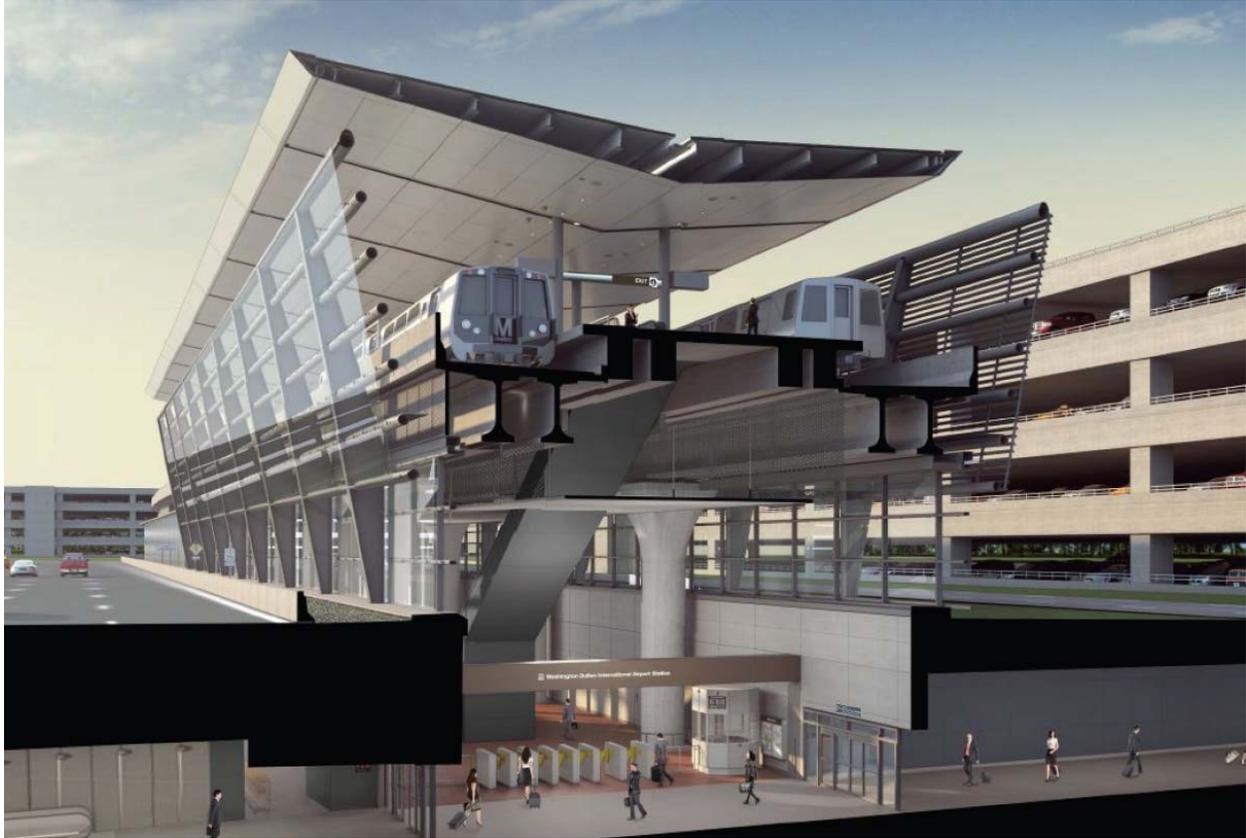


Figure 1. Dulles Corridor Metrorail Project Map

Phase 2 is currently under construction. Phase 2 will extend the line another 11.4 miles farther northwest, from Wiehle-Reston East through Dulles International Airport to a terminus near Route 772 in eastern Loudoun County. Six additional stations will be constructed in Phase 2 -- three in Fairfax County, one at Dulles International Airport, and two in Loudoun County. Phase 2 includes at-grade guideway, stations, and rail systems in the median of the Dulles International Airport Access Highway (DIAAH) and Dulles Greenway as well as an aerial (elevated) guideway, station, and a yard and shop facility on Dulles Airport property. New parking garages at stations will provide a total of 8,900 parking spaces for Metrorail users. Wayside facilities, including traction power substations, tie-breaker stations, and stormwater management ponds will also be constructed along the alignment.

The design and construction of Phase 2 has been broken into several contract packages including the following:

- **Package A** includes the rail line, stations, and systems elements for all of Phase 2, including:
  - Rail tracks at-grade and supporting infrastructure in the DIAAH and Dulles Toll Road (DTR) rights-of-way, roadway improvements, bridge structures, relocation of existing utilities and installation of new utilities, stormwater management facilities, power distribution system, traction power substations (TPSS), tie breaker stations (TBS), communications equipment and train control equipment.
  - Rail tracks on elevated (aerial) structures and supporting infrastructure within the boundaries of Dulles International Airport, including tracks for regular revenue service and tracks for access to the yard and shop, roadway improvements, bridge structures, relocation of existing utilities and installation of new utilities, stormwater management facilities, power distribution system, traction power substations, tie breaker stations, communications equipment and train control equipment.
  - Five new at-grade stations located at Reston Parkway (Reston Town Center), Monroe Street (Herndon), Route 28 (Innovation Center), Route 606 and Route 772 in the median of the DIAAH or the Dulles Greenway. Each station shall include pedestrian bridges crossing the DIAAH/DTR or the Dulles Greenway, entry pavilions, access roadways, surface parking and bus facilities on new right-of-way adjacent to the DTR.
  - One new elevated (aerial) station in the vicinity of the North Daily Parking Garage at Dulles International Airport, with direct connection to the existing pedestrian tunnel providing access to the Main Terminal.
- **Package G** consists of windscreens at the Dulles Airport Station. These windscreens were removed from the scope of Package A and consist of structural steel framing, coping at the support sills, glazing (on the south side), architectural louvers (on the north side), and integral screenwall-mounted light fixtures. The windscreens are depicted in Figure 2.



**Figure 2. Dulles Airport Station Cross Section**

## **1.2 GENERAL REQUIREMENTS**

This Statement of Work generally defines the scope, configuration, and performance requirements necessary to ensure that the delivery of Package G by the Package G Contractor (Contractor) meets the requirements of the Owner and WMATA and is fully integrated with the Dulles Airport Station and the Phase 2 portion of the Project. The full scope and specific requirements for Package G are provided in the Project Technical Requirements, which include this Statement of Work, the Technical Specifications, Contract Drawings, Change Documents and Safety and Quality requirements.

In addition to the Project Technical Requirements, various reports and design calculations were prepared during the final design development for the Dulles Airport Station. Collectively these Reference Documents are provided to the Contractor for reference only and shall not be used as the basis for any design and construction activities without prior verification by the Contractor.

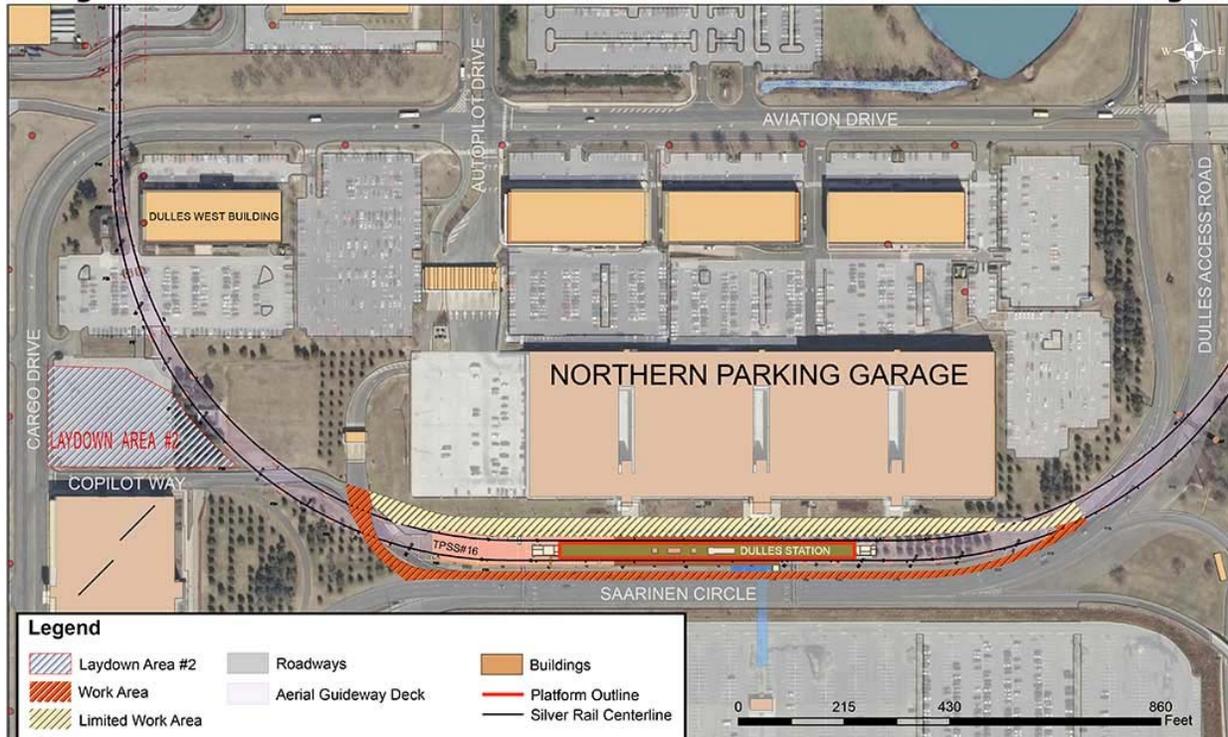
### 1.3 RESPONSIBILITY OF THE CONTRACTOR

The Contractor is responsible for the successful and timely delivery of Package G, including the design, construction, supply, installation, testing and acceptance of all elements, to the Owner and WMATA upon substantial completion. The Contractor is also responsible for the definition and management of all interfaces with the Dulles Airport Station and coordination with the Package A Design/build contractor, Capital Rail Constructors (CRC). Package G is to be developed and delivered in accordance with the contract and its Project Technical Requirements and all other applicable requirements.

- The Contractor is responsible for providing a complete solution for Package G that addresses all design, functional, and maintenance issues. The Contractor is responsible for coordinating the requirements and activities among the various entities necessary to design and construct a fully integrated Package G.
- The Contractor shall use the Project Technical Requirements as the basis for developing its designs and shall be responsible for ensuring compliance with applicable codes, standards, and other conditions required by regulatory or approving entities, accepted industry and professional design practices, and other applicable requirements. The Contractor shall confirm actual dimensions and precise locations of all relevant Package A elements, facilities, and equipment based on approved final design documents and as-built information where available, and shall independently obtain any necessary as-built information required to perform the Work.
- The Contractor shall be responsible for confirming the accuracy and completeness of all data utilized in the design and construction of Package G.
- The Contractor shall be responsible for the definition and management of all interfaces with existing station infrastructure elements and systems, Owner facilities and systems, and utilities.
- The Contractor shall be responsible for preparing all necessary design, permitting, construction, and acceptance documents in accordance with the Contract and the requirements defined in Project Technical Requirements.
- The Contractor must obtain approval from the Owner for any changes to, or deviations from, the Project Technical Requirements and applicable criteria, codes and standards.
- The Contractor shall be responsible for obtaining all approvals of design, construction, and testing activities in accordance with the Contract and the requirements defined in the Project Technical Requirements. The Contractor shall obtain, on behalf of the Owner where applicable, all permits necessary for the temporary and permanent construction of Package G.

- The Contractor shall be responsible for identifying and obtaining all necessary approvals to occupy all areas for materials storage, laydown, staging, equipment, temporary facilities and other similar aspects of the work. The Owner has identified Laydown Area #2 adjacent to the worksite and within the boundaries of Dulles International Airport property that can be used for storage, staging and laydown areas subject to any required Airports Authority permits or approvals.

## Laydown Area 2 and Dulles Station Work Area Vicinity



- The Contractor shall be responsible for mitigation of all hazardous environmental conditions encountered during the design and construction of Package G.
- The Contractor shall be responsible for identifying any areas necessary for the construction of Package G within the site and coordinating with the Owner and CRC on use of shared areas.
- The Contractor shall be responsible for defining and acquiring any necessary temporary or permanent utility relocation and utility service easements such as may be required for temporary facilities and/or relocations based on the Contractor's work plan.
- The Contractor shall be responsible for developing and obtaining approval of necessary Maintenance of Traffic (MOT) plans and coordinating with the Owner and CRC's MOT plans and installations.
- The Contractor shall be responsible for maintenance to existing roadways and pavement as necessary to accommodate construction traffic and associated loading.

The Contractor shall repair roads and pavement damaged during construction and hauling operations.

- MOT for the roadway north of Dulles Airport Station shall be the responsibility of the Contractor. Construction activities shall be coordinated with Airport Bus operations such that there is no impact to bus schedules and access to the station is provided to CRC as necessary.
- The roadway south of Dulles Station will be cleared and returned to service for the Contractor to have access to this area to execute the contract. Coordinate MOT, work and safety plans with Owner and CRC.
- The Contractor should assume that no access will be available from the trainway and that the third rail will be energized. Access on the north side will be restricted to the lane nearest the station and will be shared with CRC. The contractor is to submit an erection plan for review and approval.
- The Contractor shall complete and document the successful performance of all inspections, testing, and functional demonstrations necessary to verify compliance with Package G requirements to the satisfaction of the Owner.
- The Contractor shall be responsible for supporting public and community outreach activities in accordance with the Contract requirements.
- The Contractor shall prepare and deliver as-built and record documents in accordance with the Contract requirements.
- The Contractor shall be responsible for repair to Package A work when the damage is caused by Contractor, including in the erection of Work, storage of materials, rigging & craning, and general construction activities.
- The Contractor will submit a project execution plan for approval by the owner and will coordinate activities with CRC.

## 1.4 DOCUMENTS AVAILABLE TO CONTRACTOR

### 1.4.1 PROJECT TECHNICAL REQUIREMENTS

The following documents provided to the Contractor constitute the Project Technical Requirements and are listed in order of precedence. The scope for Package G specified in the Project Technical Requirements is mandatory, with the understanding that specific sections of this Statement of Work may modify these requirements by providing for additional flexibility, requirements, and/or restrictions:

#### **Package G Statement of Work and Appendices**

- **Appendix A1** includes the Technical Requirements for roadway design and construction;

- **Appendix A2** contains the Geotechnical Engineering Report;
- **Appendix A3** contains the Supplemental Utility Report
- **Appendix A4** contains the Environmental Compliance Matrix.

### **Technical Specifications**

The Contractor is responsible for issuing the Technical Specifications provided in **Appendix B1** that are unique to the Package G work. All Technical Specifications provided in **Appendix B2** have been previously approved for use in Phase 2 and may be adopted for use in Package G. However, the Contractor is responsible for preparing any revisions deemed necessary in the preparation of deliverables and for obtaining necessary approvals in accordance with the Contract requirements.

### **Contract Drawings:**

Contract drawings indicating the scope of the Work are included in **Appendix C1**. These plans and details clarify the Contract Scope, extracted from CRC's Approved Design, which was developed based on a basic wind speed of 105-mph.

**Appendix C2** contains Contract Interface drawings depicting the interface between Package A and Package G at the column base plates.

Any proposed change, whether minor or major, shall be subject to the Owner's approval and compatible with the design constraints and interfaces present in the Approved Design.

### **Other Requirements:**

- **Appendix D1:** Dulles Corridor Metrorail Project – Phase 2, Quality Program Plan, Rev. 1 (March 2013)
- **Appendix D2:** CAD Standards - Phase 2 (February 2014)
- **Appendix D3:** Airports Authority Building Codes Manual (July 2015)
- **Appendix D4:** Airports Authority Design Manual (2014)
- **Appendix D5:** Dulles Corridor Metrorail Project – Phase 2, System Safety Certification Management Plan
- **Appendix D6:** Airports Authority Safety Manual (2016)

## **1.4.2 REFERENCE DOCUMENTS**

Various reports and technical analyses (Reference Documents) were prepared during and subsequent to the completion of the Approved Design and are available to the Contractor as supplemental information. These Reference Documents are intended to provide additional background on the design approach or existing site conditions, but do not define Contract requirements other than the analysis methodologies contained in the design calculations.

Information provided in these Reference Documents may not accurately reflect previous or present conditions. The Contractor is responsible for verifying and validating all technical information required to complete its work. The Reference Documents include:

**1. Wind Studies:**

- **Appendix R1:** A Study of Wind Effects for Dulles Rail Station, (Final, March, 2015)
- **Appendix R2:** A Study of Wind Effects for Dulles Rail Station, (Draft, April 2014)

**2. Design Calculations:**

- **Appendix R3:** DP021.0 – Facilities – Airport – Dulles Airport Station, IFP Design Calculations Book 2 of 7, (March 2014)
- **Appendix R4:** DP021.0 – Facilities – Airport – Dulles Airport Station, IFP Design Calculations Book 2 of 7, (March 2014)

**3. Design Drawings:**

- **Appendix R5:** DP021 Dulles Airport Station IFP Approved Design Drawings (105 mph)
- **Appendix R6:** DP021 Dulles Airport Station Notice of Design Change NDC-0161
- **Appendix R7:** DP021 Dulles Airport Station 90% Design Drawings (90 mph)
- **Appendix R8:** Dulles Airport Station Area Civil/MOT Design Drawings

**4. Other Documents:**

- **Appendix R9:** WMATA Low Distortion Projection Survey Information and Supplemental Information (October 2012)
- **Appendix R10:** Traffic Volumes – Dulles Airport Terminal Roadways, Daily 1 (North) Parking Garage, and Parking Shuttle Buses (Various Dates)
- **Appendix R11:** Dulles Corridor Metrorail Project – Phase 2 Communications and Outreach Plan, Rev. 4 (November 2015)

## 1.5 CRITERIA, CODES AND STANDARDS

The Contractor shall comply with all applicable Federal and state laws and regulations, Virginia and jurisdictional building codes, environmental regulations, approving agency requirements, and the Owner requirements in completing the design, construction, installation, testing and acceptance, and turnover of Package G. The Contractor shall also comply with the policies and procedures of the Metropolitan Washington Airports Authority Building Codes Department for issuing any permit required for the Contractor to perform its work.

The Contractor is responsible for identifying any conflicts or overlapping requirements among applicable standards and criteria. In the event that a clear order of precedence cannot be established, or a difference in the interpretation of the criteria, codes, or standards, cannot be resolved, the Contractor shall present the matter to the Owner for a formal determination. Where conflicts or overlapping requirements exist, those of the agency or entity that will ultimately own and/or operate and maintain a given facility shall take precedence, unless otherwise approved by the Owner. The absence of specific references to applicable criteria, codes or standards in this Statement of Work document, or elsewhere in the Project Technical Requirements, does not absolve the Contractor of the obligation to comply with this requirement. Unless otherwise noted, the Contractor must verify and use the latest (most current) versions (or editions) of applicable design criteria, codes and standards.

The Contractor is also responsible for acquiring and utilizing any necessary criteria, codes, standards, manuals, instructions, or guidelines necessary to prepare the design, permitting, construction, and acceptance documents for Package G. If, during the course of design, the Contractor determines that a specific design criteria, code or standard not listed here is required, it is the responsibility of the Contractor to identify the pertinent document(s) and submit to the Owner for approval prior to their use.

Any required deviations or variances from applicable criteria, codes, or standards shall be identified and submitted for approval prior to the completion of design.

### 1.5.1 DESIGN CRITERIA

The Contractor shall be responsible for determining and/or confirming all applicable design criteria requirements for all aspects of the work and ensuring compliance with these requirements in completing the design, construction, and acceptance of Package G. These criteria represent the minimum requirements to be met.

The minimum design standards and criteria for Package G are established by the “WMATA Design Criteria and Requirements” which consist of the WMATA Manual of Design Criteria for Maintaining and Continued Operation of Facilities and Systems, Release 9 (May 2008). The minimum basic wind speed to be used in the design of the windscreen shall be 90-mph.

The Airports Authority Design Manual (2014) establishes minimum design standards and criteria for all construction projects at Dulles Airport as well as policies and procedures related to Airport operations, security, airside access, and other work restrictions. Although the Work should not consist of any modifications to the Owner’s permanent facilities, the Contractor shall note that the requirements of the Airports Authority Design Manual may be more restrictive or stringent than requirements of other jurisdictions should the need arise. Design and construction of those facilities that will be owned and maintained by the Owner (such as roadways, parking lots, drainage facilities, utilities, landscaping, signage, and fencing) shall be in accordance with the Airports Authority Design Manual. The Work will be owned by the Owner and operated/maintained by WMATA and shall be designed and constructed in accordance with the WMATA Design Criteria and Requirements.

### 1.5.2 CODES AND STANDARDS

The Contractor is responsible for determining and/or confirming the applicable codes and standards for all aspects of the work and ensuring compliance with these requirements in completing the design, permitting, construction, and acceptance of Package G. The Contractor shall refer to specific design requirements mandated by applicable Virginia and Federal law. Where specific documents or standards are incorporated by reference into a law or administrative code, the Contractor shall use the most recently adopted version of that document or standard. The Contractor shall be responsible for identifying the need for and preparing any code or standard modification requests to the appropriate agency, jurisdiction or governing body.

In addition to the codes and standards that are legally required, the Contractor shall design and construct the Project in accordance with the following:

#### **American Association of State Highway and Transportation Officials (AASHTO)**

- LRFD Bridge Design Specifications – Article 3.6.5 (Protection of Structures and Pedestrian Bridges)
- Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals

#### **American Concrete Institute (ACI)**

- Building Code Requirements for Reinforced Concrete, ACI 318-11
- Manual of Standard Practices for Detailing Reinforced Concrete Structures, ACI 315
- Building Code Requirements for Reinforced Concrete, ACI 318-99 (Appendix A – Alternate Design Method)
- Specifications for Structural Concrete for Buildings, ACI 301

#### **American Railway Engineering and Maintenance-of-Way Association (AREMA)**

- Manual for Railway Engineering

#### **Federal**

- 14 CFR Part 77, Objects Affecting Navigable Airspace
- 23 CFR 625, National Highway System Design Criteria and Standards
- Federal Aviation Administration Advisory Circulars:
  - AC 150/5200-33, Hazardous Wildlife Attractants on or near Airports
  - AC 150/5300-13, Airport Design
  - AC 150/5370-2, Operational Safety on Airports During Construction
- US Department of Transportation, Federal Highway Administration Directives and Policy Memorandums
- US Department of Transportation, Federal Transit Administration Directives and Policy Memorandums

#### **Metropolitan Washington Airports Authority**

- Construction Safety Manual
- Airports Authority Design Manual

#### **National Fire Protection Association (NFPA)**

- NFPA 101 Life Safety Code
- NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems

#### **National Oceanic and Atmospheric Administration**

- Technical Memorandum NOS NGS-58 (Guidelines for Establishing GPS-Derived Ellipsoid Height, 1997)
- Technical Memorandum NOS NGS-59 (Guidelines for Establishing GPS-Derived Orthometric Heights, 2008)

#### **Utility Owner Standards**

Utility design and relocation work performed by the Contractor, if required, shall be in compliance with the latest standards of the utility owners, including, but not limited to, the following:

- AT&T
- CenturyLink Communications Corporation
- Comcast
- Cox Communications, Inc.
- FiberLight
- Level 3 Communications
- Loudoun County Sanitation Authority
- Shenandoah Telecommunications Company (Shentel)
- Time Warner Telecommunications
- Verizon
- Washington Gas
- XO Communications
- Zayo Group

**Virginia Department of Environmental Quality**

- Virginia Erosion and Sediment Control Handbook
- Virginia Erosion and Sediment Control Technical Bulletins (1 through 4)
- Virginia Land-Disturbance Guidance for Telephone, Cable, Electric, Natural Gas Pipeline and Railroad Companies

**Virginia Department of Housing and Community Development**

- Virginia Uniform Statewide Building Code – VUSBC (2009)

**Virginia Department of Transportation (VDOT)**

- Standards, Specifications, Reference Manuals, Special Provisions and Supplemental Specifications Applicable to the Design and Construction of VDOT Facilities

**Washington Metropolitan Area Transit Authority**

- WMATA Manual of Design Criteria for Maintaining and Continued Operation of Facilities and Systems, Release 9

**Other Design Standards**

- American Institute of Steel Construction (AISC): Steel Construction Manual
- American National Standards Institute (ANSI)
- American Society of Civil Engineers (ASCE): Minimum design loads – Minimum Design Loads for Buildings and Other Structures, ASCE 7
- American Society of Testing and Materials (ASTM)
- American Welding Society (AWS) Welding Code D 1.1 and D 1.4
- Illuminating Engineering Society of North America (IESNA) Handbook
- Institute of Electrical and Electronics Engineers (IEEE) including C37, C51, C34
- International Energy Code IECC, Commercial Energy Code Compliance, Chapter 8, Section 802, Envelope Requirements.
- Manual of Uniform Traffic Control Devices (MUTCD)
- National Electrical Code (NEC)
- National Electrical Manufacturers Association (NEMA) standards
- National Electrical Safety Code (NESC)
- Underwriters Laboratory (UL)

**1.5.3 DESIGN DEVIATIONS OR EXCEPTIONS**

The Approved Design does not include any unapproved deviations. If warranted and determined to be necessary to successfully deliver Package G, the Contractor shall identify necessary deviations to the applicable design criteria, codes and standards and document and obtain approval for these deviations from the appropriate agency or jurisdiction prior to beginning the work. The Contractor shall not assume that approval will be granted and shall expect an iterative review process. Contractor will be responsible for delays connected to the approval of deviations.

## 1.6 PERMITTING

### 1.6.1 PERMITTING TASKS AND RESPONSIBILITIES

The Contractor shall be responsible for determining and obtaining (on behalf of the Owner where applicable) all permits necessary for the temporary and permanent construction of Package G. The Contractor's general responsibilities are listed in Table 1; additional permitting responsibilities and requirements are identified in the Contract Documents.

**Table 1. Design-Build Phase: Permitting Tasks and Responsibilities**

<b>Task Description</b>	<b>Contractor Responsibility</b>
Confirm temporary and early (long-lead) permits and establish permit schedule	Lead
Initiate temporary and early (long-lead) permits	Lead
Prepare the finalized list of permits and approvals required, packaged as per the requirements of the Contract and incorporate into the Baseline Schedule	Lead
Conduct environmental awareness and permit training for all Contractor and subcontractor staff	Lead
Prepare drawings and calculations for permit applications; determine alternatives to minimize impacts and permit conditions	Lead
Prepare the Environmental Management Plan, training, and compliance documents/tools (e.g., training handouts, drawings, mitigation plans)	Lead
Confirm that designs and construction plans incorporate regulatory requirements and comply with existing permits	Lead
Submit and track permit applications according to construction schedules	Lead
Report permit tracking and look-ahead at Progress Meeting(s) with Owner throughout the design-build process	Lead
Coordinate working meetings to review project designs, plans, and status throughout the design-build process	Lead
Request modification to existing Owner permits based on Contractor's design or construction plans	Support Owner
Conduct field compliance inspections and monitoring; coordinate with regulatory inspectors	Lead
Document environmental commitments and compliance during construction, including periodic updating and maintaining of the Environmental Compliance Matrix	Lead
Conduct permit close-out for Owner permits	Support Owner
Conduct permit close-out for design-build permits sought by Contractor under Owner name	Lead
Conduct permit close-out for design-build permits issued directly to Contractor	Lead

### 1.6.2 ENVIRONMENTAL PERMITS

Environmental permits and/or approvals to be obtained by the Contractor shall include, but may not be limited to, those listed in Table 2. Omission of any required environmental permits from this Statement of Work shall not absolve the Contractor from the responsibility of obtaining the permits necessary to construct Package G.

**Table 2. Summary of Required Environmental Permits and Approvals**

VDEQ Minor New Source Review Permits/VDEQ Emergency Generator General Permits
Virginia Department of Environmental Quality (VDEQ) Erosion and Sediment Control Plans and Stormwater Management Plan)
VDEQ General Permit for Discharges of Stormwater from Construction including Stormwater Pollution Prevention Plan
Other permits, approvals, and notifications that may be needed for permanent and temporary construction activities performed by the Contractor and/or its subconsultants and suppliers

### 1.6.3 BUILDING AND CONSTRUCTION PERMITS

Construction permits and/or approvals to be obtained by the Contractor shall include, but may not be limited to, those listed in Table 3. Omission of a required building or construction permit from this table shall not absolve the Contractor from the responsibility of obtaining it.

**Table 3. Summary of Required Construction Permits and Approvals**

Federal Aviation Administration Work Approval(s)
Airports Authority Construction Permits
Airports Authority and Fire Prevention Reviews and Approvals
Airports Authority Maintenance of Traffic Approvals
All other permits, approvals, and notifications that may be needed for permanent and temporary construction activities performed by the Contractor and/or its subconsultants and suppliers.

## 1.7 JURISDICTIONAL BOUNDARIES

The Contractor must comply with the requirements of the Owner, WMATA, Virginia Department of Transportation (VDOT), and other federal and state agencies (e.g., the Federal Transit Administration (FTA), Federal Aviation Administration (FAA), Virginia Department of Environmental Quality (DEQ), and the Virginia Department of Historic Resources (VDHR). Any one or more of these agencies may review or oversee the Contractor's work, and permits may be required by more than one entity at the site depending on the Contractor's work plan.

### 1.7.1 SCREENWALLS AND ASSOCIATED WORK

For Package G, the Airports Authority Building Codes Department is the Authority Having Jurisdiction (AHJ) and has jurisdiction for design reviews, building permits, applicable inspections, certificates of occupancy, and enforcement of building codes.

### **1.7.2 ROADWAYS**

The Airports Authority Building Codes Department will review designs and issue permits and approvals for roadway construction and construction-related activities at Dulles Airport and on the DIAAH and DTR, including utilities, structures, drainage, signage, maintenance of traffic, and road closures. VDOT will provide similar services for any work impacting roadways within the VDOT ROW.

### **1.7.3 OTHER JURISDICTIONS**

The Virginia DEQ will permit any ground disturbances associated with construction of the Work related to erosion and sediment control.

FAA approval will be required for construction activities within and adjacent to the boundaries of Dulles Airport.

## **1.8 KEY PROJECT INTERFACES**

The Contractor shall be responsible for the definition, design, construction, and management of all interfaces with Dulles Airport Station facilities and systems, Owner facilities (including the DIAAH and Dulles Airport) and systems, required to successfully deliver Package G. These interfaces include, but are not limited to the following:

- Interfaces among the various systems, subsystems, equipment and facilities within the Package G work scope.
- Interfaces between the Contractor-provided systems, subsystems, equipment and facilities, and Package A (Dulles Airport Station), systems, subsystems, equipment, structures and facilities.
- Interfaces between the Contractor-provided systems, subsystems, equipment and facilities and existing Owner systems, subsystems, equipment, structures and facilities.

All necessary physical, electrical, mechanical and operational interfaces to complete Package G must meet specified standards and not interfere with the continued operation of existing systems, facilities, and equipment.

Additional details on interface requirements for Package A are provided in Appendix C2 and R6.

### **1.8.1 INTERFACE WITH PACKAGE A**

The Contractor shall perform all work and provide all equipment required for tie-in connections at Dulles Airport Station. This shall include any and all necessary additions, deletions and modifications to the Package A-provided circuitry and tagging. Package A as-built construction documents and testing documentation shall be made available to the Contractor upon the Owner's receipt from CRC.

It is envisioned that the Dulles Airport Station will be under construction when the Work is performed. The Contractor shall perform all work in within the station accordance with CRC's

Safety program and coordinate access to the Work within the station and testing with CRC. The Contractor shall also provide temporary construction for the protection of Package A construction in place at the time of construction of Package G. Any work on the interior of the station will be in concert with the CRC safety plan.

### **1.8.2 INTERFACES AT DULLES AIRPORT**

The Contractor shall define, design, construct, and manage all necessary interfaces with existing Airport facilities at Dulles Airport.

The Airport interfaces that have been identified for Package G that shall be addressed by the Contractor include, but are not limited to:

- Site work relating to ground disturbances requiring erosion and sediment control, protection of existing utilities, storm water, water mains, sanitary sewer, and dust control
- Maintenance of vehicular and pedestrian traffic
- Safety and Security
- Influence of construction equipment on the pedestrian tunnel and other below-grade facilities

Any laydown or construction staging areas utilized by the Contractor that are visible from either Saarinen Circle or the Main Terminal building shall include fencing and/or panels that provide screening for Dulles airport. Such fencing and/or panels shall be visually consistent with the requirements of the Airports Authority Design Manual.

### **1.9 OPEN COMMENTS ON THE APPROVED DESIGN**

The Contractor shall incorporate approved bird control measures in the Approved Design or otherwise refine design details to provide effective bird control. Specific types and locations for the bird control measures shall be determined during the design review process.

## **2 PROJECT SCOPE**

### **2.1 SURVEY**

#### **2.1.1 SUMMARY OF CONTRACT REQUIREMENTS**

CRC has conducted all survey work necessary to perform the design, construction, and record documentation of all aspects and elements of Package A using WMATA's 2009 Low Distortion Projection (LDP) Coordinate System. The LDP coordinate system is based on the established WMATA Survey Control Monuments located along the Package A alignment.

Prior to the start of construction for Package G, the Contractor shall perform and submit to the Owner a pre-construction survey the Dulles Airport Station as required to verify as-built locations and condition of interfacing structural elements, and to confirm the basis of design. This survey may either use a local coordinate system or the LDP system, based on the Contractor's work plan.

The Contractor shall also perform and submit to the Owner a pre-construction pavement condition survey of the affected roadways, as well as a pre-construction survey of any laydown area that would be subjected to construction operations. Contractor shall include photographic documentation of interface areas between Package A and Package G including flashing at column bases, electrical termination points and structural interfaces.

#### **2.1.2 ADDITIONAL SURVEY REQUIREMENTS**

CRC will provide a designated circuit breaker and contactor panel for the lighting elements on the screenwalls and extend raceway to the station's exterior envelope, where it will be extended by the Contractor to the lights. The Contractor shall install the conductors between the electrical panel, to the contactor and to the screenwall lights. The Contractor shall confirm the presence and adequacy of the as-built raceway, electrical panel, contactors and interface junction boxes.

CRC is responsible for maintaining the network of horizontal and vertical control monuments. Monuments that are missing, displaced or lost for any reason are to be re-established as soon as practical. The Contractor may assume these control monuments will be present on site; however, if necessary, the Contractor shall re-establish control monuments on the site as necessary to perform all Package G survey operations. Monuments shall be re-established in the vicinity of the original position in order to maintain the sight lines of adjacent monuments, unless impractical to do so.

## **2.2 ARCHITECTURAL**

### **2.2.1 SUMMARY OF CONTRACT REQUIREMENTS**

Package G Architectural work consists of the adoption of, and/or revisions to the Approved Design of the screenwalls (both glazed screenwall and louvered screenwall) to meet aesthetic, performance and service life requirements set forth in the Project Technical Requirements.

Specifications are provided in the Project Technical Requirements that address materials and submittal requirements related to glazing, architectural louvers, coatings, bird control, and sealants among others.

The Contractor is responsible for issuing a design that meets these minimum requirements, to include definition of Architecturally Exposed Structural Steel (AESS) details and finishes, and is coordinated between structural and electrical disciplines.

Bolted connections visible to the public are not permitted.

The configuration of the screenwalls is mandatory with respect to the column heights, flange widths and web shape, purlin spacing, and louvers. All architectural work shall be signed and sealed by a registered architect licensed in the Commonwealth of Virginia.

## **2.3 STRUCTURAL**

### **2.3.1 SUMMARY OF CONTRACT REQUIREMENTS**

Package G Structural work consists of the adoption of, and/or revisions to the Approved Design of the screenwall structural elements, supporting the glazing and louvers and interfacing with supports provided by CRC.

The Contractor is responsible for issuing design that supports both serviceability and strength requirements, considering a minimum basic wind speed of 90-mph. Methodology followed in the provided design calculations is to be used in the analysis of the structural system.

Specifications are provided in the Project Technical Requirements that address materials and submittal requirements for items such as AESS, structural steel, welding, and concrete work. Reaction loads provided in Appendix R6 (extracted from the provided calculations) are the basis of the designs at the contract interfaces and are not to be exceeded. All structural work shall be signed and sealed by a registered engineer licensed in the Commonwealth of Virginia.

## **2.4 ELECTRICAL**

### **2.4.1 SUMMARY OF CONTRACT REQUIREMENTS**

Package G Electrical work consists of the adoption of, and/or revisions to the Approved Design of the lighting systems that are integral to the screenwalls and shown in the Project Technical Requirements.

Circuit breakers and contactor points reserved for these lighting systems are provided in electrical panelboards and contactor panels within the station and raceway has been extended to the station envelope for the Package G Contractor to extend to the lights. Conduit is to be routed inconspicuously along the structural elements, and concealed where possible. The Contractor shall design and install the electrical cables within this raceway to operate the lighting systems.

The Contractor is responsible for issuing design that is compliant with the Project Technical Requirements, to include the National Electrical Code and NFPA-130 2014. Specifications are provided in the Project Technical Requirements that address materials and submittal requirements for items such as electrical boxes, raceway, conductors and lighting. All electrical work shall be signed and sealed by a registered engineer licensed in the Commonwealth of Virginia.

## 2.5 ROADWAYS

### 2.5.1 SUMMARY OF CONTRACT REQUIREMENTS

Package G does not include roadway construction other than as needed for temporary maintenance of traffic and /or restoration of permanent pavement damaged during construction. The Contractor shall design and construct all roadway elements in accordance with VDOT and AASHTO requirements and other applicable criteria, and shall obtain all required reviews and approvals (through the Owner) per VDOT's standard procedures and VDOT/AASHTO requirements.

The Contractor shall complete the Work, providing maintenance of both vehicular and pedestrian traffic, as required to:

- Maintain functionality (i.e. number of travel lanes, width of travel lanes, design speed, etc.) of existing roadways that would be affected by Package G by realigning or reconstructing these roadways as necessary.

### 2.5.2 ADDITIONAL ROADWAY REQUIREMENTS

The Contractor shall also comply with the following requirements when designing and constructing any affected roadway elements in Package G:

- **Roadway Lighting.** Where existing roadway lighting facilities are temporarily affected by the Package G activities, the Contractor shall install new or temporary lighting and/or relocate the lighting required to provide illumination in those areas. New and temporary lighting, if required, shall be approved, as applicable, by the Owner. At the conclusion of temporary condition, lighting shall be restored to pre-construction conditions.

- **Saarinen Circle.** Within the Airport boundaries, the three lanes of the DIAAH approaching Saarinen Circle have been realigned to accommodate the elevated rail guideway and its piers from the Aviation Drive overpass to Saarinen Circle. Saarinen Circle presently consists of four travel lanes, an auxiliary lane for recirculation of terminal traffic, and a shoulder on the north side. This travel and auxiliary lane configuration is to be maintained.
- **Ancillary Work at Dulles Airport.** Any additional roadways, service drives, or parking areas utilized by the Contractor shall also be restored or reconstructed as required in accordance with the Owner criteria and standards.
- **Dulles Airport Signage Standards.** Any new signs, relocated signs, and sign lighting at Dulles Airport shall be designed in accordance with applicable standards.

## 2.6 DRAINAGE AND STORMWATER MANAGEMENT

### 2.6.1 SUMMARY OF CONTRACT REQUIREMENTS

The Package A stormwater management design provides all the necessary storm water management for Package G, other than temporary erosion and sediment control measures for localized ground disturbances.

The Contractor is responsible for protecting existing drainage elements and providing appropriate erosion and sediment control measures in compliance with the applicable Virginia DEQ requirements. The Contractor shall prepare all designs and erosion and sediment control plans depicting the construction entrances, disturbed areas, and laydown areas for materials and equipment necessary to obtain erosion and sediment control permits for construction of Package G.

## 2.7 UTILITIES

### 2.7.1 SUMMARY OF CONTRACT REQUIREMENTS

The Contractor shall be responsible for the design and construction of any utilities and utility relocations necessary to accommodate and deliver Package G in accordance with the Project Technical Requirements and applicable criteria, codes, and standards. The Package G scope does not explicitly require any such utility work to be performed. However, in the execution of the work, should such designs or relocations become necessary due to protection of utilities from construction loading or connection of temporary facilities, the Contractor is responsible for such utility work.

Existing utilities within the Package A limits have been identified using information obtained from utility owners and municipalities for type, size and approximate location. Relocated or new utilities associated with Package A are identified in the supporting documentation.

The Contractor is responsible for verifying the location of existing utilities that are subject to impacts due to construction of the Package G work prior to construction, in accordance with applicable laws, regulations, ordinances and utility company requirements and the Airports Authority's Design and Building Codes Manuals.

The Contractor shall determine any utility construction conflicts and compliance issues, which require the utility to be relocated or adjusted. All existing utilities that are affected by the construction of Package G either by direct physical conflict or by proximity such that they no longer meet criteria shall be relocated or protected in place by the Contractor. Utility relocation and protection shall be performed in such a manner that brings the impacted utilities in compliance with applicable criteria. Relevant criteria include, but are not limited to, horizontal and vertical clearance requirements, loading, and maintenance access. The Contractor shall support and protect existing utilities during construction in accordance with the Project Technical Requirements.

The Contractor shall communicate and coordinate with the utility owners, including holding coordination meetings, preparing sketches, and analyzing as-built design information to resolve any construction conflicts. The Contractor shall also resolve compliance issues such as applicable easements, maintenance access and agreements. The Contractor shall review relocation plans produced by the utility owners.

## **2.8 MAINTENANCE OF EXISTING NORTH GARAGE**

### **2.8.1 ACCESS REQUIREMENTS**

All existing facilities and systems for the Dulles Airport Station, North Garage, and Laydown Area #2, including life safety exits, shall be maintained during construction and restored upon completion. Bus and pedestrian access to the North Garage shall be maintained during construction.

### **2.8.2 CONSTRUCTION STAGING**

The staging and work area for construction of Package G at the Dulles Airport station shall maintain, during designated peak periods, three full travel lanes on Saarinen Circle, with the auxiliary lane used for re-circulation of traffic between the Hourly Parking Lot and the Main Terminal. During off-peak periods, two full travel lanes on Saarinen Circle and the auxiliary lane used for re-circulation of traffic between the Hourly Parking Lot and the Main Terminal must be maintained. In both instances, the Contractor shall maintain access to all Airport facilities.

Exceptions to this requirement may be provided on a case-by-case basis.

Contractor shall maintain access to the existing bus roadway and shuttle bus operation during screenwall construction. Shuttle buses may share the roadway with construction vehicles for short distances. The roadway and passenger platforms may be slightly realigned to accommodate the temporary operation as required, but are to be restored to their original configuration following construction. All interfaces with bus operations shall be coordinated with

and approved by the Owner. The shuttle buses will be provided, maintained and operated by the Owner.

## **2.9 LANDSCAPING**

### **2.9.1 SUMMARY OF CONTRACT REQUIREMENTS**

The Contractor shall restore any disturbed landscaping to meet pre-construction conditions or as required by approved erosion and sediment control plans.