




# DULLES CORRIDOR METRORAIL PROJECT

## Phase 2: Extension To Dulles Airport/Route 772 DIVISION 01 SPECIFICATIONS

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SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The following list is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
1. Statement of Work.
  2. Section 01 14 00 "Work Restrictions."
  3. Section 01 31 00 "Project Management and Coordination".
  4. Section 01 35 23 "Safety and Health Requirements".
  5. Section 01 50 00 "Temporary Facilities and Controls".

1.2 SUMMARY

- A. Section Includes:
1. Project information.
  2. Work covered by Contract Documents.
  3. Design-Build Contract phased construction.
  4. Work by MWAA (Owner).
  5. Work under separate contracts.
  6. Access to site.
  7. Coordination with occupants
  8. Specification and drawing conventions.

1.3 PROJECT INFORMATION

- A. Project Description Dulles Corridor Metrorail Project – Phase 2, Package G:
1. Owner in cooperation with WMATA, the Commonwealth of Virginia, Fairfax County and Loudoun County, is constructing a 23.1-mile extension of WMATA's Metrorail System in the Dulles Corridor in Northern Virginia within the greater Washington, D.C., metropolitan area. The Dulles Corridor Metrorail Project is being implemented in two phases – Phase 1 (the Extension to Wiehle Avenue) is complete and Phase 2 (the Extension to Dulles Airport/Route 772) is under construction.
  2. Phase 2 extends the Silver Line another 11.4 miles farther northwest, from Wiehle Avenue through Dulles International Airport to a terminus near Route 772 in eastern Loudoun County.
- B. Phase 2 is being constructed by Owner using the design-build project delivery method, and has been divided into several design-build packages. Package A consists of the rail line, stations and systems, to include the Dulles Airport Station. Package G is a design-build package to

furnish and install glass wind and louver walls on the exterior of the Dulles Airport Station. This contract includes 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. Owner: The Metropolitan Washington Airports Authority (Airports Authority, or MWAA) as the sponsoring entity, is designated as the Owner of the Project.

- C. COTR: The Owner's Contracting Officer's Technical Representative or designated representative will be specified in the Contract Award Letter or the Notice to Proceed (NTP).
- D. Design-Builder: Entity engaged for this Project shall provide architectural and engineering, permitting, procurement and subcontracting services and serve as Project's constructor. The terms "Design-Builder" and "Contractor" are synonymous.

#### 1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work is described in the Statement of Work, to include the Technical Specifications and the Engineering Drawings.
- B. The Work includes, but is not limited to the following:
  - 1. Architectural and engineering design necessary to complete Package G - the windscreens at the Dulles Airport Station - as part of the second phase of the Dulles Metrorail extension of the WMATA Metrorail System, in compliance with local, state and federal laws and codes, MWAA and WMATA Design Standards and Criteria, and applicable agency regulations.
  - 2. All site investigations, inspections, tests and surveys necessary to complete the design and construction.
  - 3. Coordination with MWAA, WMATA, the Package A Contractor, local utilities, government agencies, including FAA, VDOT and Virginia DEQ, which may have jurisdiction over portions of the Project to ensure the orderly progress of design and construction.
  - 4. Coordination and scheduling all items of Work to accomplish design, construction, and commissioning within the specified schedule.
  - 5. Obtaining all approvals and permits required from governmental agencies, Authorities Having Jurisdiction and others to complete design and construction of the Project.
  - 6. Construction and construction support services for the Project.
- C. The location of the Work is indicated in the Engineering Drawings.
  - 1. The Statement of Work, Technical Specifications and Engineering Drawings represent a permitted design-build package as prepared by the Package A Contractor. They serve to establish the minimum standard for detailed design and construction; however they are not to be construed as a completed design. The exclusion of details and accessory items from the Engineering Drawings, Technical Specifications and Statement of Work does not relieve the Contractor from providing design and construction of those elements, to provide complete and functioning facilities.

D. Miscellaneous and Incidental Work

1. In addition to the design and construction of the Project, Contractor shall provide various miscellaneous and incidental work which is generally referred to in the Contract Documents.
  - a. Provide Construction Hot Line input ensuring complete and accurate information for Contractor and Owner.
  - b. Provide support to the Public Outreach Program.
  - c. Coordinate with Package A Contractor and Airports Authority Operations.
  - d. Provide temporary facilities as necessary to support the work.
  - e. Relocate any impacted utilities.

1.5 SUBMITTAL REQUIREMENTS

Provide Design and Material Submittal Packages as specified in Section 01 33 00 “Submittals”.

1.6 COORDINATION

- A. Contractor shall work with Owner to coordinate with the work of Package A, contracts sponsored by others And Dulles Airport operations.

1.7 DESIGN AND CONSTRUCTION PHASING

- A. Design-Build Work shall be separated into Work activities for the purpose of organizing and sequencing Work locations and scheduling. Contractor shall develop and submit to Owner detailed design and construction schedules for the Work and for each Work activity. Submit schedule(s) to Owner for approval. Contractor’s project scheduling requirements are specified in Section 01 32 00 “Design and Construction Schedule and Progress Payment.”
- B. In conjunction with the final design submittal and before commencing the Work, submit an updated copy of Contractor's construction schedule and plans, showing the sequence, commencement and completion dates for each activity.
- C. In accordance with completion dates for all activities, submit an updated copy of Contractor’s Construction Schedule showing sequence, commencement and completion dates for final testing, acceptance and turnover of the Work.

1.8 WORK BY OWNER

- A. General: Cooperate fully with Owner and the COTR so that Work may be carried out smoothly, without interfering with or delaying Work under this Contract or work done by Owner or by other authorized contractors. Coordinate the Work of this Contract with work

performed by Owner or by other authorized contractors. Other authorized contractors may include, but not be limited to, Package A Contractor, Airports Authority contractors, utilities and entities with prevailing easements. Coordinate Work with VDOT, Fairfax or Loudoun County DOT, the Airports Authority (managing Dulles International Airport Access Highway, the Dulles Toll Road, and Airport access roads), and/or Toll Road Investors Partnership II (operators of the Dulles Greenway) as necessary for transport and delivery of materials.

- B. Preceding Work (Package A): Owner will have performed the majority of construction at Dulles Airport Station at the Project site including installation of the steel baseplates and W44 girt for the Package G columns, and all exterior façade elements to the station adjacent to the Package G work. The Package A work described above is scheduled to be substantially complete before work under this Contract begins. The Contractor is required to coordinate work with the Package A Contractor, and protect installed Package A work that is in place at the time of construction of Package G.

#### 1.9 WORK BY SEPARATE CONTRACTORS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

#### 1.10 OWNER-FURNISHED PRODUCTS

- A. Owner, with input from the Package A contractor, will provide access to physical interfaces between Package A and Package G within the Dulles Airport Station.

#### 1.11 ACCESS TO SITE

- A. General: Contractor shall manage the use of Project site for construction operations during construction period. Contractor's use of Project site shall provide reasonable accommodation for the right of the Owner and others to perform work in accordance with the Contractor's proscribed and approved schedule.
  - 1. Limits: Confine construction operations to the areas and times indicated for Work. Extensions of Work time and area, when requested and approved, will be issued in writing by the COTR.
  - 2. Manage the phased availability of the site and any temporary facilities no matter how diverse or small in size, location and time period. Phased availability is necessary where continuous access to the site or restrictions placed on a site would cause an undue burden on the convenience of others and the resources of the Contractual parties.
  - 3. Provide for the following to maintain a properly functioning Project environment:
    - a. Temporary Construction Easement Areas (TCE),
    - b. Updated:
      - 1) Schedules.
      - 2) Notices.
      - 3) Construction controls.
      - 4) Other procedures as required.

- B. Condition and Usage of Existing Structures and Easements: Maintain portions of existing structures and easements affected by construction operations. Provide pre-construction survey, including photographs, to document conditions of existing structures, pavement and easements prior to start of construction. Repair damage caused by construction operations. Existing structures include but are not limited to:
1. Pedestrian tunnels.
  2. Vehicular over and under passes.
  3. Adjacent facilities and rights of way.
  4. Canopies.
  5. Sidewalks.
  6. Garages.
  7. Traffic Signals.
  8. Buildings.
  9. Bus Lanes and Bus Stops
  10. Dulles Airport Terminal Facilities
  11. Offices.
  12. Cargo Warehouses.
  13. Loading docks.
  14. Parking Facilities.
  15. Vehicle Entrances.
  16. Utilities.
- C. Conditions and Usage of Existing Utilities: Coordinate location of existing utilities with Miss Utility, the Owner, and other agencies having jurisdiction prior to starting Work. Utility interruptions are not allowed. Permits are required for extensions, changes, capping or abandonment of utilities.

#### 1.12 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy portions of the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Maintain existing exits unless otherwise indicated. Perform the Work so as not to interfere with Owner's operations. Comply with Owner's restrictions and requirements for use of site. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations. Owner operations that may affect Project Work include:
1. Dulles International Airport operations.
  2. Virginia Department of Transportation (VDOT) operations including public traffic.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such limited occupancy shall not constitute acceptance of the total Work.

### 1.13 SPECIFICATION CONVENTIONS

- A. Specification requirements are addressed to the Contractor, unless specifically stated otherwise.
- B. Specification Format: Provide Design Specifications that are organized into Divisions and Sections using 50-Division format as indicated in CSI/CSC's "MasterFormat 2004" numbering system. Prior to beginning specification work, Contractor shall in coordination with the Airports Authority, develop a list of specification sections and titles/descriptions for use in the Work that incorporates the 50-Division CSI format.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Section Identification: The Specifications use Section titles to help with cross-referencing in the Contract Documents. Sections are in numeric sequence; however, the sequence is incomplete as all available Sections and Section numbers are not used and the CSI numbering system is not sequentially complete. The Contractor may consolidate, reissue or submit new specifications as required in the execution of the Work. .
- E. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
  - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Interpret words and meanings as appropriate. Infer words implied, but not stated, as the sense requires. Interpret singular words as plural, and plural words as singular where applicable as the context of the Contract Documents indicates.
  - 2. Imperative mood and streamlined language are used in these Specifications. This imperative language is directed to the Contractor, unless specifically noted otherwise. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
- F. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

### 1.14 DRAWING CONVENTIONS

- A. The Contractor may either adopt the CAD Standards provided in Appendix D2 of the Statement of Work or develop Project CAD Standards. In either case, the Contractor shall ensure that CAD files submitted to the Owner are compatible with the WMATA CAD Standards.
- B. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
  - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.



2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 11 01 - SITE SURVEY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
  - 1. Statement of Work.
  - 5. Section 01 31 00 “Project Management and Coordination,” and Section 01 40 00 “Quality Requirements” for quality control.

1.2 SUMMARY

- A. This Section addresses surveying, mapping, and survey control requirements to design, construct, equip and control survey on Project.
  - 1. Provide engineering services as necessary to execute the Work in accordance with Contract requirements.
  - 2. Verify dimensions prior to undertaking construction work.
  - 3. Contractor shall be responsible for accuracy of finished work.
- B. Contractor shall conduct additional surveys deemed necessary to complete design and control construction.
  - 1. Establish other points and Monuments as required.

1.3 SUBMITTALS

- A. Qualification Data:

1. Certification of current license for lead surveyor.
2. Project Survey Plan.
3. Sealed document of maintenance of control monuments.

#### 1.4 QUALITY ASSURANCE

- A. Verify and maintain records to document the following:
  1. Personnel certification;
  2. Equipment maintenance calibration and adjustment;
  3. Use of required procedures for field work and office computations.
- B. Records shall be maintained by surveyor and shall be available for Owner review on a quarterly basis or upon request.
- C. Surveys are part of Work and may be checked by Owner at any time. Contractor shall be responsible for any lines, grades or measurements which do not comply with specified or proper tolerances, which do not meet quality standards for survey, and for any defects in the Work. Contractor shall be required to conduct re-surveys or check surveys to correct errors indicated by review of Work. Corrective Work shall be completed without any additional cost to the Owner.
- D. Verification of compliance shall be included in Quality Management Plan described in Section 01 31 00 "Project Management and Coordination".

#### 1.5 TECHNICAL REQUIREMENTS

- A. Follow standards and criteria, defined in this Section and in Technical Specifications. Supplement information to meet requirements of the Contract.
- B. Project Survey Plan: Prepare Project Survey Plan (PSP) describing standard survey procedures to be used for design and construction of Project. Survey procedures shall be appropriate for equipment being used and for specific survey function being performed. Plan shall include the following:
  1. Description of any planned additions or revisions to horizontal and vertical control established during Package A Work.
  2. Procedures for performing surveys.
  3. Plans to maintain existing survey project control.
  4. Additional design survey that are planned to be performed and procedures proposed for use.
  5. Procedures and methods for conducting surveys and construction staking.
  6. Allowable tolerance for surveys and construction staking.
  7. Methods and procedures to assure that surveys will be accurate and procedures for checking surveys, mapping, and control.
  8. Procedures for survey record keeping, reports to be developed or used, data formats to be used and preservation of records and transfer of data.
  9. Safety procedures and equipment.
  10. Right of entry form to be used.

- C. Pre-Survey Conference: Contractor shall hold a conference with his subcontractor's personnel, to include survey crew leaders prior to commencement of survey work. Purpose of this meeting will be discussion of methods and practices for accomplishing and controlling survey work.
1. Items to be discussed:
    - a. Project Survey Plan.
    - b. Survey safety procedures and safety equipment.
    - c. Survey personnel.
    - d. Survey equipment.
    - e. Method of exchange of electronic data.
    - f. Data formats.
    - g. Survey tolerances for special circumstances.
  2. Survey procedures and issues as needed.
  3. Contractor shall ensure that surveyor crew leaders participate in design and preconstruction conferences.
- D. Discrepancies between Drawings and Specifications and existing conditions shall be referred to Owner before work affected has been performed.
1. Compare Drawings and verify dimensions before laying out Work and be responsible for errors which might have been avoided.
  2. Dimensions and descriptions given on Drawings for adjacent Work are based on design Drawings. Contractor shall verify as-constructed conditions and interface information by actual field measurement.
- E. Additional Survey: Conduct additional surveys required by Work to complete design. Conduct additional surveys and establish other points and monuments necessary to control design and construction. At end of construction, Contractor shall remove any temporary construction control monuments set.
- G. Data Recording—Survey Records
1. Maintain hard copy and electronic record of survey information. Electronic coordinate and elevation records shall be in ASCII format.

2. Format for quality of record keeping shall be consistent with procedures in Project Survey Plan.
3. Contractor shall have surveyor maintain a daily record of work performed by survey crew. Daily record shall include date, crew names, type and location of work, and work accomplished.
4. Upon completion of construction of Project, Contractor shall provide certification that survey project control has been maintained and any disturbed or destroyed monument has been replaced in original position. If survey project control monuments have been reestablished at revised location, indicate information on revised survey project control plan, and provide a sealed document to Owner.

H. Maintain Survey Project Control Monuments

1. Network of horizontal and vertical control monuments shall be maintained at all times. Monuments that are displaced or lost for any reason shall be reestablished as soon as practical. Monuments shall be re-established in the general vicinity of the original position in order to maintain sight lines of adjacent monuments unless impractical to do so.
2. Monuments that are displaced or lost that are within 100 feet of construction activities related to Project shall be reestablished in the general vicinity of original location, at no additional cost to Owner.
3. Contractor shall identify location of new monument in markup of drawing sheet. New coordinates shall be shown on drawing.
4. New or reestablished monuments shall be brass survey markers installed in concrete, marked in manner consistent with existing survey project control monumentation.
5. Ground electronic traverse precision for establishment of Project vertical control monuments shall meet Second Order Class 1 accuracy (linear precision of one part in 50,000 parts).
6. Precision for establishment and re-establishment of Project horizontal control monuments shall meet Second Order Class 1.
7. Upon completion of construction of Project, provide a certification that survey project control has been maintained and that any disturbed or destroyed monument has been replaced. If any survey project control monuments have been reestablished at revised locations, certification should so indicate. A copy of revised survey project control, sealed by surveyor, shall be provided. Provide listing of coordinate values, original computations, survey notes, and other records made to Owner's Representative to be reviewed as condition of Final Acceptance.

I. Mandatory Structural Record Documents

1. General Requirements: Mandatory structural record documents are required to check for out-of-tolerance construction which may impact other structures or compromise train clearances along the trackway.
  - a. Survey data shall be analyzed by Contractor for compliance with construction tolerances.
  - b. Survey data shall be analyzed by Contractor to determine what remedial action may be required to address out-of-tolerance construction and impact of structural misalignment on final placement of other structures.

2. Verify existing primary horizontal and vertical controls and re-establish, if destroyed or disturbed, and provide adjustment computations.
  - a. Provide Monument Record Sheets in a format similar to Figure A and acceptable to Owner's Representative.
3. Routinely verify horizontal and vertical alignments of structures during construction and provide results to Owner's Representative when requested.
7. Verify layout and subsequent placement of baseplates, columns and walls to check for compliance with plans and specifications.
  - a. Data shall be analyzed by Contractor for compliance with construction tolerances.
  - b. Data shall be analyzed by Contractor to determine what remedial action may be required to address out-of-tolerance construction and impact of structural misalignment on final placement of other structures.
  - c. Survey field data and record documentation reports shall be provided to Owner upon request in format acceptable to Owner's Representative.

M. Lead Surveyor:

1. Provide experienced, qualified, Virginia-licensed, professional surveyor. Surveyor shall be responsible for organizing and managing all survey work.
2. Project survey work shall be performed under direction and review of Lead Surveyor.

N. Survey Crews:

1. Provide a minimum two-man survey crew. Robotic equipment will not be permitted in count of crew size. Minimum required crew shall be onsite at all times to perform survey related tasks as necessary to properly execute Work in accordance with Contract Documents. Determine size of survey crews to provide for safety concerns and complexity concerns.
2. Use of craft personnel as substitute for survey staff is not acceptable.

O. Survey Equipment:

1. Survey equipment shall be calibrated by certified laboratory at manufacturer's suggested intervals. Validation of calibration in form of dated and signed tag shall be affixed to each instrument case. Contractor shall provide a copy of tag upon request by Owner.
2. Equipment shall be kept in proper operating condition, kept in proper adjustment throughout the duration of Project, and shall be maintained to meet manufacturer's specification.

P. Survey Tolerances:

1. Tolerances generally applicable in setting survey stakes or marks shall be as indicated in table below. Tolerances shall not supersede stricter tolerances required by Drawings or Specifications and shall not relieve the Contractor of responsibility for measurements in compliance with this Specification section. Tolerances listed below are not to be used for setting or re-establishing primary and secondary control markers and final alignment monumentation. Tolerance in setting survey stakes or mark shall not exceed the following:

Horizontal Survey Stakes or Marks	Distance	Tangent
Structures – Building construction.	1:35,000	0.02 ft.

Vertical grade stakes or marks:	Elevation Plus/Minus
Structures – Building construction	0.01 ft



Vertical grade stakes or marks:	Elevation Plus/Minus
Equipment Installation.	As Reqd by manufacturer

Q. Survey Standards: Contractor shall maintain accuracy standards for all control surveys in accordance with following table:

Primary horizontal control surveys	First order
Primary vertical control surveys	Second order, Class I
Secondary horizontal control surveys	Second order, Class I
Secondary vertical control surveys	Second order, Class II

1. Primary control is defined as original control provided at beginning of Contract. Control is defined as control established and used by Contractor during construction. Secondary control traverse stations shall be set with permanent markers.
2. Control surveys and computations including surveys of main control lines to determine alignment of major structure components shall be performed in accordance with Second Order Class I requirements.
3. Unless specified, Contractor will not be required to perform First Order survey work unless Contractor destroys primary control points included in Contract documents. GPS shall not be used by Contractor to reestablish destroyed primary control unless approved by Owner.
4. Primary and secondary horizontal control traverses performed shall meet a 1:50,000 distance accuracy closure. Vertical control traverses shall have a closure accuracy that does not fall below that specified for Second order, Class II surveys.
5. Survey procedures and accuracy are a function of types of survey that shall be performed. Contractor is responsible for ensuring use of proper procedures to maintain accuracy requirements contained in Contract.
6. Contractor shall use closed traverse method in setting controls by starting at and ending at known or previously established traverse stations and benchmarks.
7. Distances over 100 feet shall be measured by use of electronic distance measuring instrument (EDMI). Critical distances under 100 feet shall be checked with distance meter.

R. Accuracy Requirements:

1. First Order control surveys:

- a. Horizontal and vertical angle circle reading observation accuracy (standard deviation) of .5 of a second (DIN 18723) and read to 0.1 of a second.
  - b. Occupied station centering (eccentricity) accuracy of 1 mm.
  - c. Electronic distances measuring accuracy (standard deviation) of 1 mm plus or minus 1 ppm and read to 0.001 feet.
2. Second Order control surveys:
- a. Horizontal and vertical angle circle reading observation accuracy (standard deviation) of 1.0 seconds (DIN 18723) and read to 1.0 second or less where possible.
  - b. Occupied station centering (eccentricity) accuracy of 1 mm.
  - c. Electronic distances measuring accuracy (standard deviation) of 2 mm plus or minus 2 ppm and read to 0.001 feet.

S. Horizontal Traverse

1. Conventional traverse work shall be performed in accordance with the requirements defined in “Standards and Specifications for Geodetic control Networks, Federal Geodetic Control Committee (FGCC), September 1984 or latest version.
2. Horizontal traverse adjustments shall be performed using a minimally constrained Least Squares adjustment method.

T. Vertical Traverse

1. Differential leveling shall be performed in accordance with requirements for Second Order, Class I geodetic leveling surveys as defined in:
  - a. Standards and Specifications for Geodetic Control Networks
  - b. Federal Geodetic Control Committee (FGCC), 1984 or current edition.
  - c. NOAA Manual NOS NGs 2 Geodetic Leveling
  - d. National Geodetic Survey (NGS) August 1981 or latest version.
2. Vertical traverse adjustments shall be performed using a minimally constrained Least Square adjustment method after a vertical traverse meets minimum closure requirements referenced in this Specification.
3. Differential leveling observation accuracy (standard deviation) of 0.4 mm and read to 0.0001 feet.
4. Horizontal and vertical traverse adjustments results shall be provided to Owner upon request.

1.6 PROTECTION OF PROPERTY AND MONUMENTS

A. Private Property:

1. When performing surveys, Contractor shall not enter property not owned or without permitted ROW or expressed permission of property owner.
2. Obtain Right-of-entry for all survey activities to be performed on private properties. Contractor’s permission shall be shown on right of entry form signed by property owner and submitted to Contractor. Contractor shall develop right of entry form and include it

in Project Survey Plan. Contractor may request help from Owner in obtaining rights-of entry.

3. The rights of individual property owners shall be highly respected in all instances. Contractor shall notify Owner immediately and follow up in writing any potential negative incident with regard to adjacent property owners, tenants and other occupants.

#### 1.7 FIGURES AND REPORT FORMATS

A. See attached at end of this Section.

1. Figure A Monument Record Sheet
2. Figure B Invert As-Built
3. Figure C Invert As-Built
4. Figure D As-Built
5. Figure E As-Built

PART 2 - PRODUCTS (NOT

USED) PART 3 - EXECUTION (NOT

USED) END OF SECTION 01 11 01

SECTION 01 14 00 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections apply to this Section. This list is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents. Contractor shall comply with Federal, State, County and Local codes. Where conflicts and overlapping criteria exists, the more stringent shall apply unless noted otherwise.
1. Statement of Work.
  2. WMATA Operational Administrative Procedure (OAP) 100-9, Access to Revenue or Start-Up Railroad Facilities.
  3. WMATA Operational Administrative Procedure (OAP) 200-33, Site-Specific Work Plan (SSWP): See Exhibit 01 14 00-B, located at end of Specifications.
  4. WMATA Policy/Instruction No. 6.10/1, July 29, 1993. (Latest Revision)
  5. Dulles Greenway Land Use Permit: See Exhibit 01 14 00-A at end of Specification.
  6. Metropolitan Washington Airports Authority Construction Safety Manual latest edition.
  7. MWAA Dulles International Airport Design Manual
  8. Commonwealth of Virginia: Virginia Work Area Protection Manual, Standards and Guidelines for Temporary Traffic Control (Chapter 6, 2011.)
  9. Fairfax County: Construction Safety Resolution, December 8, 2003, as amended.
  10. U.S. Code of Federal Regulations (23 CFR 772-19): Guiding document for analysis and abatement of highway traffic noise on all proposed highway projects.
  11. VDOT and MWAA Cooperative Agreement.
  12. WMATA and MWAA Cooperative Agreement.

1.2 SUMMARY

- A. Restrictions: Comply with restrictions on construction operations.
1. Comply with limitations on use of public streets and with other requirements of Authorities Having Jurisdiction.
- B. This Section includes the following:
1. Restrictions that may affect construction operations on Washington Metropolitan Area Transit Authority (WMATA) controlled access property including site access, hours of work, access to adjacent properties, and use of the site.
  2. Restrictions to closures of VDOT-owned roadways. Restrictions to closures on the Dulles International Airport Access Highway (DIAAH) and Dulles Toll Road.
  3. Restrictions within the Airport Operations Area at Dulles International Airport.
  4. Restrictions related to Work at selected Project areas that are particularly sensitive or have special requirements.

5. Additional work restrictions may be imposed by the applicable Facility Jurisdiction Agencies. In addition to the above, other environmental requirements and approvals may be imposed. In case of conflicts, the most stringent restriction will apply.

### 1.3 EMERGENCY SERVICES

- A. The Fire Department access/egress on Rudder Road shall be maintained at all times and cannot be restricted by working area or construction vehicles.
- B. Contractor shall maintain emergency vehicle access from Copilot Way to Saarinen Circle.
- C. Contractor shall maintain a fire lane not less than 12' wide on the south side of the North Parking Garage.

### 1.4 ACTION SUBMITTALS

- A. Lighting Plan: Contractor shall submit a Lighting Plan acceptable to Owner at least twenty-one days prior to commencing night work showing the type and location of lights to be used for night work. This lighting plan shall provide for and show the location of all lights necessary for every aspect of work to be done at night. Contractor's lighting plan must be approved by Owner prior to the beginning of any night work; however, Owner may require modifications to be made to the lighting setup in order to fit field conditions. Lighting providing insufficient illumination shall be rearranged or replaced with a different system when requested by Owner.

### 1.5 PERSONNEL IDENTIFICATION CARDS AND ACCESS REQUIREMENTS

- A. Contractor, its subcontractors and its support personnel working at the Project Work sites, while on duty at any location, on controlled access property owned or managed by WMATA, MWAA (including Dulles International Airport) shall provide their personnel with standardized, distinctive badges showing the employer's name and the employee's name, picture and identification number. These badges shall be displayed in a prominent manner on each person while engaged on the Work. Access to the Work shall be granted only to properly accredited representatives of Contractor and its Subcontractors and to properly accredited individuals with approved business with the Project.
  1. Identification badges will be approved for all locations to which Project personnel would have access.
  2. Contractor and personnel shall comply with regulations or access restrictions particular to and established by Facility Jurisdictional Agencies, including but not limited to personnel background checks, safety orientations, and special access regulations and waivers.

### 1.6 WORK SHIFTS, ACCESS TO SITE

- A. Contractor shall work such hours per shift, with or without overtime, as many shifts per day and as many days per week as necessary to complete the various parts of the work and the entire work within the dates specified.

- B. Contractor shall coordinate and schedule all Work affecting the Dulles Station trackways with Owner, and Package A Contractor to ensure that Contractor's activities do not interfere with the operation of or access to the Package A facilities.
- C. Supervisory and red-tag outages are the only times during which access to the trackbed is permitted. Supervisory outages and access will be granted in accordance with the procedures outlined in Metrorail Safety Rules and Procedures.
- D. Access points to and from the project work zones onto roadways or those facilities temporarily replacing roadways, shall be approved by AHJ and Owner prior to Contractor creating said access points. AHJ and Owner reserve the right to require modification or closure of an approved access point based upon it creating unforeseen hazardous conditions or traffic congestion.
- E. All deliveries of materials or movement of vehicles and machinery used in the Project's construction shall be permitted only during the hours referenced in this Section, excluding the holiday periods and additional restricted periods in which no deliveries or movement of vehicles and machinery are allowed.
- F. These additional restrictions apply to access locations:
  - 1. Construction access through adjacent property shall not be allowed.
  - 2.
    - a. The construction activities, and any subsequent activity that affects parking or access, shall be coordinated with the owner and property manager prior to and during those activities that affect parking and access to ensure that necessary access to the parking garage is maintained and parking space impacts are minimized to the extent possible.
    - b. Access to/from the parking garage shall be maintained, at a minimum, during normal business hours. Contractor shall assume that access cannot be restricted between the hours of 6:00 AM and 9:00 PM each business day. The specific hours for restriction shall be coordinated with the property owner, property manager and Owner. Emergency access shall be provided at all times.
- G. All construction entrances shall be properly maintained by Contractor throughout the life of the project. Owner reserves the right to require modification or closure of an approved construction entrance(s) based upon the entrance(s) creating unforeseen hazardous conditions or traffic congestion unacceptable to Owner.
- H. Contractor parking is restricted to designated laydown/staging areas only.

#### 1.7 ACCESS TO ADJACENT PROPERTY

- A. Contractor shall conduct Project activities in such a manner as to cause as little inconvenience as possible to owners of property affected by such operations. Convenient access to all property from roads and highways along line of work shall be maintained.

1.8 CONSTRUCTION ADJACENT TO MWAA FACILITIES

- A. All construction adjacent to Saarinen Circle and Bus Lanes shall be performed in accordance with VDOT and MWAA Standards, Rules and Regulations. All required submissions shall be submitted to Owner.

1.9 CONSTRUCTION AT DULLES INTERNATIONAL AIRPORT

- A. Contractor shall perform construction at Dulles International Airport in accordance with all applicable Federal Aviation Administration requirements. All required submissions shall be submitted to the Authority. Crane heights must comply with CFR Title 14, Part 77 of the regulations.
- B. Contractor shall not impede access to all Rental Car areas at any time.

1.10 WORK HOUR RESTRICTIONS

- A. Specific working restrictions around holidays shall be coordinated with the Airports Authority.

1.11 WORK RESTRICTIONS FOR NORTH PARKING GARAGE AT DULLES AIRPORT

- A. All existing facilities and systems, including life safety exits, shall be maintained during construction and restored upon completion.
- B. Contractor shall not impede North and West Garage access from Saarinen Circle.
- C. Bus access to the North Garage shall be maintained during construction.

1.12 CONSTRUCTION NOISE CONTROL

- A. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruptions to Owner occupancy and to surround public environment with Owner and with the various Authorities Having Jurisdiction (AHJ).
  - 1. Identify events on Construction Progress Schedules and notify COTR not less than ten calendar days in advance of proposed disruptive operations.
  - 2. Obtain COTR written permission before proceeding with disruptive operations.
  - 3. Obtain proper approvals, licenses, permits, and variances with applicable Authorities Having Jurisdiction, including Fairfax and Loudoun Counties and the Town of Herndon. Follow procedures and limits established by Authorities Having Jurisdiction (AHJ). Pay appropriate fees and schedule Work periods as required.
- B. Contractor shall take every reasonable action possible to minimize the noise caused by Contractor's operation, complying with noise control criteria and scheduling as specified. Contractor shall comply with WMATA, Federal Highway Administration (FHWA) regulations, the Virginia Department of Transportation and the noise criteria of the applicable

local jurisdictions. If there is a conflict between these criteria, the more restrictive requirements shall apply. When required by Authorities Having Jurisdiction, noise producing activities shall be performed in less sensitive hours of the day or week as directed. Noise produced by the work shall be maintained at or below the decibel levels specified and within the time periods specified.

C. The Final Environmental Impact Statement (FEIS) for the Project and the Amended Record of Decision, with supporting technical reports on noise and vibration, describes the impacts the Project is expected to have on the environment and indicates measures Owner has agreed to implement. Requirements are listed in the following paragraphs.

D. Protection of Public and Employees:

Noise abatement measures and precautions shall be taken in order to reduce exposure to noise. Permissible noise exposure shall be calculated in accordance with the procedures established under the Walsh-Healy Public Contracts Act. Sound levels for public noise exposure due to construction will be measured by Contractor at the closest point adjacent to the site in normal use by the public while construction work is in progress. Employee noise exposure levels will be measured at the employee's normal work station. In either case sound levels shall not exceed the following:

Exposure Per Day In Hours	Sound Level in dBA
8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
1/2	110
1/4 or less	115

1. Contractor and Subcontractors shall comply with 29 CFR 1910.95, etc. Seq., "Occupational Noise Exposure" for all work on WMATA property, including Construction.
2. Sound levels shall be measured on the A weighted network of a general purpose sound level meter, conforming to ANSI S1.4 at slow response. Instruments used for measurement shall have a plus range of at least 60 dB and be capable of measuring impulses of duration down to 20 milliseconds. Sound level for impulsive or impact noise, i.e., noise of duration less than one second, shall not exceed a peak sound pressure level of 140 dB when measured on an accepted impact noise analyzer. In lieu of the above measuring procedure, 125 dB measured on the C weighted network of a general purpose sound level meter at fast response will be accepted as an equivalent measure of the peak sound pressure level.

E. Noise restrictions at affected structures - In addition to the provisions of paragraph A, sound levels for noise due to construction activities will be monitored by Contractor at the building line of structures affected acoustically by Contractor's operations and plant. Sound levels for



noise from equipment shall be measured at the building line on the A weighted network of a general purpose sound level meter, conforming to ANSI S1.4, at slow response. To minimize the effect of reflective sound waves at buildings, measurements may be taken three to six feet in front of the building face.

1. Mobile Equipment: Sound levels for nonscheduled, intermittent, short-term noise from mobile equipment shall not exceed the following dBA levels:
    - a. Business-Commercial Structures:
      - 1) All Hours, Maximum: 85.
  2. Stationary Equipment: Sound level limits for repetitively scheduled and relatively long-term noise from stationary equipment shall not exceed the following dBA levels for the category specified:
    - a. Business-Commercial Structures:
      - 1) All Hours, Maximum: 75.
  3. Noise Abatement Measures: Contractor shall provide such equipment and sound-deadening devices and take such temporary noise abatement measures that are necessary to comply with the requirements of the Contract Documents, consisting of, but not limited to, the following:
    - a. Shields or other physical barriers to restrict the transmission of noise.
    - b. Soundproof housings or enclosures for noise-producing machinery.
    - c. Efficient silencers on air intakes of equipment.
    - d. Efficient intake and exhaust mufflers on internal combustion engines.
    - e. Line hoppers and storage bins with sound-deadening material.
    - f. Conducting truck loading, unloading and hauling operations so that noise is kept to a minimum.
    - g. Routing of construction equipment and vehicles carrying spoil or materials over streets that will cause the least disturbance to residents in the vicinity of the work. The Owner shall be informed in writing of the proposed haul routes prior to Contractor's securing a permit from the local Authority Having Jurisdiction.
    - h. Sitting of stationary equipment shall be subject to acceptance of Owner in accordance with Division 1, Section 01 50 00 "Temporary Facilities and Controls."
    - i. Wherever practicable, electricity shall be used for power to reduce noise, unless otherwise stipulated in these specifications.
- F. Construction Equipment Noise: Powered equipment, trucks or power hand tools that produce a maximum sound level exceeding the following limits shall not be used during construction operations. The sound level limits specified are referenced to a distance of 50 feet from the equipment. Sound levels shall be measured in substantial conformity with Standards and Recommended Practices established by the Society of Automotive Engineers, Inc., including

the latest revisions to SAE J366a and SAE J952b. Powered equipment exceeding emission standards for construction equipment of the United States Environmental Protection Agency (EPA) shall not be used during construction operations.

1. Type of Equipment: Construction and industrial machinery, such as crawler-tractors, dozers, rotary drills and augers, loaders, power shovels, cranes, derricks, motor graders, paving machines, off-highway trucks, ditchers, trenchers, compactors, scrapers, wagons, pavement breakers, compressors and pneumatic power equipment: 90 dBA.
2. Highway Trucks: 88 dBA.

G. Contractor shall comply with local noise ordinances.

#### 1.13 \* DULLES INTERNATIONAL AIRPORT ROADWAY CLOSURES

- A. Shoulder Closures and Width Restrictions: Full shoulder width shall be maintained at all times except when implemented with approved MOT plans. Design and implantation of MOT plans shall comply with all applicable federal and state requirements including, but not limited to, the Manual of Uniform Traffic Control Devices (MUTCD) and the Virginia supplement thereof.
- B. Contractor shall maintain traffic lanes i at all times unless otherwise approved by Owner. Contractor shall not occupy any portion of Saarinen Circle or Bus Lanes without Owner's prior approval. Contractor shall not occupy any portion of travel lane with slow moving or stopped vehicles without Owner's prior approval. Single lane closures shall be permitted only upon approval of a specific request to Owner or as part of Owner approved MOT plan. Such request shall identify the location of the proposed closure, the length of roadway affected, and duration of the closure.
- C. Complete Roadway Closures: Complete roadway closures to facilitate the lifting of beams, and erection of structures shall only be permitted for a maximum period of 20 minutes between 12:00 midnight and 5:00 a.m. each Monday through Friday and between 12:00 midnight and 6:00 AM Saturday and Sunday. Traffic back-ups must dissipate prior to implementing successive closings. Complete closures lasting longer than 20 minutes will be considered by Owner if a detour plan acceptable to Owner is implemented by Contractor.
- D. Holiday Restrictions: Lane closures or work that restricts traffic flow shall not be permitted on Holidays from noon the day before a holiday until noon the day after a holiday. When a holiday falls on a Friday, lane closures are not permitted from noon on Thursday to noon on Monday. When a holiday falls on Monday, lane closures are not permitted from noon on Friday to noon on Tuesday. For the Thanksgiving Day holiday, lane closures will not be permitted from noon on Wednesday until noon the following Monday.
- E. For the purposes herein the term "holiday" shall apply to New Year's Day, Martin Luther King, Jr. Day, President's Day, Easter, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day and Christmas Day.

- F. Additional Restrictions: Owner reserves the right to monitor traffic conditions impacted by the work and to make additional restrictions as may be necessary; i.e., terminate a lane closure early. Additional restrictions may be required for other holidays, special local events and emergency evacuations. In addition, transportation construction projects, including, but not limited to Owner maintenance projects and other infrastructure projects may require additional restrictions.

#### 1.14 ROADWAY CLOSURE REQUIREMENTS

- A. General Provisions for All Lane, Road and Shoulder Closures: Lane, road and shoulder closures and the maintenance of traffic plans shall conform to all applicable federal and state requirements including, but not limited to, the Manual of Uniform Traffic Control Devices (MUTCD) and the Virginia supplement thereof.
- B. Contractor shall submit lane and shoulder closure requests to the Owner for approval 10 days in advance of the closure date. Each request shall state the location, purpose, date, time and duration of the closure. Confirmation of the closure date shall be made by Contractor twenty-four hours before any scheduled lane closure and shall include a written recital of the proposed tasks and a listing of the materials, labor and equipment to be utilized. Complete road closures shall require a seventy-two hour advance confirmation. Contractor is responsible for providing a seven day advance notification to the traveling public via variable message and required static signing for lane closures in accordance with the latest version of the Virginia Work Area Protection Manual. Once a closing is in place, work shall commence immediately and shall progress on a continuous basis to completion or to a designated time.
- C. Turn Lanes: The number, length and width of all turn lanes as shown on the approved construction and/or maintenance of traffic plans shall be maintained throughout construction unless otherwise approved by Owner.

#### 1.15 MAINTENANCE OF TRAFFIC

- A. Contractor shall be required to evaluate proposed changes in traffic patterns caused by the project and provide Owner with information deemed necessary to gain approval from Owner . Information may include, but is not limited to, drawings, computations, analyses, studies, traffic signal modifications, signing and striping plans and traffic modeling. These documents shall be required to have been prepared by and stamped by a licensed Professional Engineer in the Commonwealth of Virginia. All information used to evaluate the proposed changes shall be submitted to Owner twenty one days in advance of the planned implementation of the changes.

#### 1.16 MAINTENANCE OF EXISTING FACILITIES

- A. Contractor shall be required to maintain all existing facilities with-in the limits of the permitted work in substantially the same condition as before construction began for the duration of permit.

1.17 NIGHT WORK

- A. In areas where work is to be performed during the hours of dusk or darkness, Contractor shall furnish, place and maintain lighting facilities capable of providing light of sufficient intensity (five foot-candles minimum) to facilitate good workmanship and proper inspection at all times. The lights shall be arranged so as not to interfere with or impede traffic approaching the work site(s) from either direction, or produce undue glare to property owners.
- B. Lighting integral to or attached to working mobile equipment such as rollers, pavers or the like shall not be considered sufficient for the purpose of this specification.
- C. Contractor shall provide sufficient fuel, spare lamps, generator, etc. to maintain the lighting of the Work Site. Contractor shall utilize padding, shielding or locate mechanical and electrical equipment to minimize noise generated by lighting operations as directed by Owner. Noise generated by portable generators shall comply with all applicable Federal, State and local environmental regulations.
- D. Contractor shall be required to provide a uniformed, off-duty law enforcement officer(s) with a marked law enforcement vehicle equipped with a blue flashing light for all night work that is performed within the travel lanes.
- E. Contractor shall have a superintendent present during night operations who will control all operations involved. The superintendent shall maintain contact with Owner project personnel and shall ensure that all required actions are taken promptly to correct any problem noted by Owner personnel.
- F. All private vehicles shall be parked outside the clear zone.
- G. Contractor shall continually review traffic control devices and lights to ensure proper installation and working order. The individual responsible for this review shall be an American Traffic Safety Services Association Certified Worksite Supervisor.
- H. Noise and light levels during night work carry greater restrictions. Contractor shall comply with authorities having jurisdiction requirements and follow guidelines for communication established by these authorities.

1.18 SNOW REMOVAL AND DEBRIS CLEANUP

- A. Owner shall remove snow and ice from any existing Owner maintained roadways or those temporarily replacing roadways that Owner maintains. Contractor shall not impede Owner's snow removal operations.
- B. Owner shall remove snow and ice from the Owner roadways in those areas beyond the limits of any construction area. Contractor shall not impede Owner's snow removal operations. Contractor shall not dispose of or discharge any storm water, snow, ice, etc. onto the roadways. Contractor shall maintain the all roadways free of any debris caused by construction operations.

- C. Contractor shall promptly clear any debris (excavated material, etc.) from construction operations along all roadways and parking lots.

#### 1.19 HAULING REQUIREMENTS

- A. Contractor is responsible for acquiring all necessary federal and state permits for the hauling of regulated and oversized materials and vehicles.
- B. Contractor shall conduct preconstruction video survey of all roads and airport property that will be used for hauling operations and construction staging areas. Contractor shall maintain roads and areas to preconstruction condition. Contractor shall also make any necessary repairs to such facilities, including full depth pavement reconstruction as required.
- C. Haul Routes shall be as shown on drawings unless otherwise approved by the Airports Authority.

#### 1.20 UTILITY INTERRUPTIONS

- A. Contractor shall not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
  - 1. Have event indicated on Construction Progress Schedules and notify Owner not less than ten calendar days in advance of proposed utility interruptions.
  - 2. Obtain Owner's written permission before proceeding with utility interruptions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 14 00

SECTION 01 15 01 - PRE-CONSTRUCTION SURVEY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Specifications and General Provisions of the Contract, including General and Supplementary Conditions and other Division 01 and Technical Specification Sections, apply to this Section.
  - 1. Statement of Work.
  - 2. Final Project Environment Impact Statement.

1.2 SUMMARY

- A. Contractor shall investigate and fully document existing conditions of adjacent facilities, including adjacent structures, buildings, roadways and utilities, prior to commencement of actual construction work. Contractor shall determine which facilities may be impacted during construction. Identified facilities shall be surveyed, photographed, and video-taped. Contractor shall notify Owner of time and place of Pre-Construction Surveys. Owner may choose to witness surveys.
- B. Contractor shall photographically document the existing condition of all pavements within and adjacent to the Project limits prior to the Contractor's submission of final design plans for approval and provide all photos to the Owner. The Contractor shall be responsible for full-depth replacement of all pavement damage resulting from Project construction activities, regardless of the method or location of the pavement damage. Prior to Substantial Completion, the Owner shall determine if the existing pavement within and adjacent to the Project limits is acceptable or has been damaged by construction activities.
- C. Existing cracks, damage, and evidence of settlement shall be documented, measured, and photographed. Results of survey shall be documented in an organized bound Pre-construction Survey Report. Report shall include, but not be limited to the following:
  - 1. Identification of adjacent structures that may be impacted by Project construction.
  - 2. Assessment of existing conditions of potentially impacted adjacent facilities and a plan for avoiding impacts.

1.3 SUBMITTALS

- A. Qualifications of Contractor's personnel performing the work.
  - 1. Provide credentials recognized by industry standards to Owner for approval.
  - 2.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 15 01

SECTION 01 18 13 - UTILITY DESIGN AND SERVICE CONNECTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Requirements: The following list is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents.
  - 1. Statement of Work.
  - 2. Section 01 35 23 “Construction Safety and Security.”

1.2 SUMMARY

- A. Section includes:
  - 1. Requirements for verification of locations of existing utilities that are subject to impacts due to construction of Package G. There is no direct utility work anticipated as part of this scope of work.
  - 2. Requirements for provision of utility work for the Project including connections to and protection of existing utilities at Laydown Area #2, if required by the Contractor.
  - 3. Further development of design drawings, permitting packages, utility company coordination and program management.
- B. Utility Relocation Work Interfaces:
  - 1. Interface with utilities in Package A contract.
  - 2. Interface with utilities related to Airport future road improvements.

1.3 GENERAL REQUIREMENTS

- A. Contractor shall provide the following for services regarding utilities required for the Project.
  - 1. Coordinate with utility owners to participate in Contractor’s design reviews.
  - 2. Keep utility owners well informed of changes that may affect their provision of new utility facilities and/or relocation of existing utilities.
  - 3. Coordinate utility relocation work for the Project.
  - 4. Coordinate with those utility owners who perform their own work by scheduling adequate time to accomplish their work, resolving interferences, and obtain accurate records of locations of their facilities with respect to the Project.
  - 5. Support Virginia Department of Environmental Quality (VDEQ) permit application where any utility work involves ground disturbance..



6. .
7. Conduct utility coordination meetings with the Owner and utility companies for design and resolve utility conflict and other related issues. Incorporate utility relocation designs where required.
8. \

#### 1.4 COORDINATION MEETINGS

- A. Should utility work be required, conduct utility coordination meetings, scheduled jointly with Owner and prepare minutes for distribution to meeting participants.
  1. Coordination Conference: Conduct conference at Project site in accordance with Section 01 31 00 “Project Management and Coordination.
- B. Owner Participation:
  1. Owner’s Representative shall be informed of utility coordination meetings involving Contractor and affected utility owners to discuss design progress issues. Contractor shall plan the Work and develop the agenda for meetings and shall record, prepare and distribute meeting minutes.
  2. Inform Owner’s Representative minimum of two weeks in advance of these meetings.
  3. Provide adequate information, drawings, sketches, recommendations to Owner’s Representative prior to meetings.
  4. Owner’s written or verbal comments shall be addressed in the design and construction phases. Any objections to Owner’s recommendations need to be in writing.

### PART 2 - PRODUCTS

#### 2.1 DESIGN REQUIREMENTS

- A. Design of any utility work is limited to that required for any temporary facilities or for relocations necessary due to Contractor’s work plan.
- B. Utility designs furnished by Contractor, and reviews and approvals of designs furnished by utility owners, shall be in full compliance with requirements of the Airports Authority and the utility owner. Contractor shall verify that designs, whether furnished by Contractor or by the utility owner, are consistent and compatible with the Contract Document requirements. In the event of a conflict among any of the participants, the more stringent standards or requirements shall govern.
- C. Utility Design
  1. Contractor shall prepare design documents for review and comment by the Owner and utility owner, defining the provision of temporary utility services.
  2. Utility design documents shall identify locations of existing utilities, proposed new utility locations for new services, as well for relocations, and proposed approaches for the protection in place of certain utilities. Contractor shall hold joint or individual meetings with Owner and affected utility owners. Contractor shall revise and

redistribute the new utility design documents, as necessary, to develop documents that shall satisfy requirements of the Authority Having Jurisdiction and comply with requirements of utility owners.

- D. Detailed Design Provided by Contractor
  - 1. Where required, develop site specific maintenance of traffic plans and early submittals for utility work by subcontractor. Develop site specific Sediment and Erosion Control Plan and early submittals for utility work.
- E. Detailed Design Provided by Utility Owner
  - 1.
  - 2. Contractor shall transmit to Owner promptly upon receipt, interim and final detailed designs that it receives from utility owners, and shall promptly transmit to the utility owner any comments provided by Owner. Contractor shall hold additional joint or individual meetings with Owner, the utility owner, and other affected utility owners and shall cause the utility owner to revise and redistribute the proposed detailed design, as necessary to obtain a coordinated detailed design that conforms to the requirements of the Project.
- F. Final Plans, New Utility
  - 1. Based upon the final detailed designs, Contractor shall prepare final consolidated plans that show the location of any relocated utility lines.
- G. Utility Permit Submittal
  - 1. After completing the process above, Contractor shall prepare applications to the appropriate authority having jurisdiction, for review, approval, and issuance of permits for utility construction. Such applications shall cover all utility service construction. Submittal shall include final plans for new and relocated, and as required, traffic control plans, paving (temporary and final restoration) plans, individual detailed designs for utilities and any other appropriate elements of the Project Documents that the authority having jurisdiction may require as part of the submittal. Contractor shall transmit the application to Owner for review, concurrently with submittal of application to the authority having jurisdiction.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION AND VERIFICATION

- A. Contractor shall consult with each utility owner as necessary to coordinate and schedule the utility service construction work in accordance with the requirements of the Contract Documents and applicable Utility Agreements. Contractor is responsible for monitoring the progress of construction work by utility owners and for resolving scheduling difficulties with the utility owners.
- B. Construction performed by Contractor and inspections and approvals by utility owners/representatives shall be in full compliance with requirements of the Project and of the

utility owner. Contractor shall be responsible for verifying that construction, whether performed by the Contractor or by the utility owner, complies with the requirements for the Project, any applicable utility agreements and Owner accepted detailed design documents. In case of conflict, the most stringent criteria shall govern.

- C. Construction by Contractor: Construction by Contractor shall comply with construction requirements defined by final design documents accepted by Owner. Owner shall have the right to monitor and inspect such construction. Each utility owner shall have the right to inspect the construction performed on its utilities by Contractor. Contractor shall not unreasonably refuse utility owner inspection requests and shall coordinate the schedule and scope of inspections with the utility owner. In order to evidence the utility owner's approval of construction performed by Contractor, Contractor shall obtain a written acceptance of such work from utility owner and provide a copy to Owner before the utility company installs their conductors or takes occupancy of the facility.
- D. Construction by Utility Owner: Contractor shall inspect construction performed by utility owners and their contractors in order to verify compliance with accepted final design documents. Contractor shall immediately notify the Owner in writing, regarding any noncompliance, including inconsistency with approved detailed designs, defects in construction, or incompatibility with Project. All noted noncompliances shall be addressed and brought to the required standards at no additional cost to the Owner. Contractor shall also arrange with utility owner for Owner to monitor and inspect such construction.
- E. Contractor shall perform the following tasks in managing the relocation of utilities:
  - 1. Perform utility locating services (test holes) to support utility relocation design.
  - 2. Develop site specific traffic plans and early submittals to utility construction subcontractor.

### 3.2 UTILITY CONSTRUCTION AT DULLES AIRPORT

- A. In addition to the work described in the Statement of Work, the Contractor shall maintain the existing fire hydrants to meet the Airport's Authority Fire Marshall requirements during construction.
- B. Owner will provide as-built drawings for Contractor's reference.

### 3.3 UTILITY RELOCATION WORK

- A. Work by Contractor:
  - 1. Provide Design and Design Coordination Services as described in this Section.
  - 2. Identify any utilities requiring relocation due to Contractor's work plan based on provided Engineering Drawings and as supplemented by field verification. Identify any temporary utilities required for temporary facilities required by the Contractor. Prepare the DEQ Erosion and Sediment Control permit applications for construction work to be performed by Contractor and provide assistance to utilities in preparing applications and obtaining DEQ Erosion and Sediment Control Permits.
  - 3. Coordinate and support all work by utilities.

4. Prepare and issue design and shop drawing submittals. Required submittals shall be designated in Submittals Register.
  5. Assemble, monitor, and manage the integrated schedule for the Utility Relocation Work showing activities for Owner, Contractor, and Utilities including:
    - a. Design.
    - b. Construction, testing work activities.
    - c. Required preceding activities.
  6. Ensure that the schedule is integrated with:
    - a. Initial Baseline Schedule.
    - b. Schedule updates.
  7. Coordinate designs by utilities to support utility relocation work design milestones.
  8. Resolve field conflicts and issues by investigating alternative solutions, obtaining input from affected parties and stakeholders, and carrying out a solution that is optimum for the Project.
  9. Provide day to day coordination of utility relocation work with the Owner, adjacent landowners and tenants, and other stakeholders as required and adjacent to construction work.
  10. Manage and coordinate test hole information.
  11. Provide and implement a Safety Management Plan for Contractor utility relocation work, including construction and testing activities.
  12. Manage and require utilities and contractors performing utility work to comply with regulatory approvals and applicable laws, regulations and ordinances.
  13. Implement a Quality Management Plan for utility relocation work.
  14. Provide input to community and public outreach programs in coordination with Owner for utility relocation work related to construction activities.
  15. Manage and oversee completion of punchlist work.
  16. Document utility relocation work as required by this Section.
  17. Close out all applicable permits with AHJ's.
- B. Construction Tasks
1. Furnish professional and technical services, labor, equipment and materials, and other functions and operations including but not limited to, temporary construction facilities, equipment, materials, supplies, and related services, and surveying as necessary and required to accomplish utilities relocation work.
  2. Perform additional test holes required to resolve conflicts and locate existing utilities.
  3. Prepare, develop and manage subcontract formation, negotiation of terms, conditions, pricing award, administration, management, and closeout of support subcontracts including but not limited to survey support subcontract, archaeology subcontract, cathodic protection subcontract, and other support subcontracts associated with utility relocation work as required.
  4. Obtain and submit to Owner and utility partly responsible for maintenance, as-built information identifying relocated utilities.
  5. Coordinate as-built information obtained from relocated utilities with design performed under the Package A Contract.
- C. Design and Design Coordination Tasks

1. Coordinate utility relocation work with work to be performed under this Contract, and resolve conflicts or impact that utilities may have with work to be performed under this Contract.
2. Conduct design coordination meeting with utility owners relating to utility conflict resolution and other design related issues, including adjacent projects or work.
3. Review design submittals from utilities and coordinate with designs for other utility relocation work.
4. Coordinate utility relocation designs with designs performed under this Contract.
5. Prepare a composite utility plan showing design of relocated utilities, whether such design has been performed by Contractor or individual utility.
6. Coordination, review, resolution and incorporation of comments on, Issued for Permit (IFP) utility relocation drawings, for utility relocations performed under Contract Documents.
- 7.
8. Review and approve subcontractors' submittals for permanent construction elements.
9. Review and disposition of subcontractors' requests for Information (RFI's) for permanent construction elements.
10. Identification of additional survey needs relating to design considerations, and review and incorporation of as-built survey results of installed relocated utilities under the Contract.
11. Design support for resolution of those items set forth in this Section.

#### 3.4 TRAINING

- A. Provide required training to prepare for field work including safety and quality control training and environmental compliance training.

#### 3.5 FINAL DOCUMENTATION

- A. Contractor shall maintain and provide a set of Record Drawing Utility maps to the Owner and to the utility owner in accordance with applicable Utility Agreements.
- B. Obtain final design details/100 percent drawings from utility companies to include in Record Drawings.

END OF SECTION 01 18 13

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:

1. Statement of Work.
2. Engineering Drawings.
- 3.
4. Attachment A – Request for Information Form.
5. Dulles Corridor Metrorail Project Communications and Outreach Plan.
6. Dulles Corridor Metrorail Project Emergency Communications and Media Plan.
7. Commonwealth of Virginia “Construction and Professional Service Manual—2012” (CPSM).
8. MWAA Cooperative Agreement with WMATA.
9. Section 01 11 01 “Site Survey Control” for Project Survey Plan.
10. Section 01 32 00 “Design and Construction Schedule and Progress Payment”.Section 01 41 00 “Regulatory Requirements and Permitting Process” for Environmental Management Plan.
11. Section 01 74 19 “Construction Waste Management and Disposal” for Waste Management Plan.
12. Section 01 74 19 “Construction Waste Management and Disposal” for Affirmative Procurement Program.
13. Section 01 78 39 “Project Record Documents” for Updated Record Drawings (as-builts) and Record Specifications.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating design and construction operations on Project including, but not limited to, the following:

1. Subcontractors List.
2. Project Execution Plan.
3. Management and Organization Plan.
4. Quality Management Plan.
5. Construction Safety and Security Plan.
6. Design Management.
7. Construction Management.
8. Configuration Management.
9. Project Survey Plan.
10. Updated Record Drawings (as-builts) and Specifications.
11. Design/Build Coordination Procedures.

12. Coordination Drawings.
13. Requests for Information (RFIs).
14. Project Meetings.

B. Permits are the responsibility of Contractor.

### 1.3 DEFINITIONS

A. Stakeholder: Partners in Project to include: MWAA, WMATA, Commonwealth of Virginia, TRIP II, Fairfax County and Loudoun County.

### 1.4 CONTRACTOR'S PLANS, PROGRAMS AND PROCEDURES

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Project Execution Plan: Contractor shall prepare and submit for Owner review and acceptance a Project Execution Plan: for the development and implementation of the Project per requirements in this Section and established throughout the Contract Documents.

1. Contractor's Project Execution Plan shall address all components of the Project, including but not limited to, the following:
  - a. Management and Organization.
  - b. Quality Management Plan.
  - c. Construction Safety and Security Plan
  - d. Public Relations and Outreach.
  - e. Design Management.
  - f. Construction Management.
  - g. Configuration Management.
  - h. Project Survey Plan
2. Chapters in these plans shall cover organizational structure and management processes and procedures.
3. Contractor shall submit a preliminary Project Execution Plan to the Owner for review no later than 31 days after issuance of Notice to Proceed (NTP) for Final Design. The Owner will provide comments no later than 21 days after receiving the plan. Contractor shall respond to the Owner's comments within 7 days and continue this process until the plan is accepted. The Project Execution Plan shall be reissued annually, or as major elements of the Plan are revised, whichever occurs sooner.

- C. Management and Organization: As part of the Project Execution Plan, Contractor shall address its approach to Management and Organization. This shall include, as a minimum, the following items:
1. Contractor team organizational charts and operating procedures explaining Contractor's organization (including Major Subcontractors' organization). The procedures shall detail the role of each entity, including its general and Project specific responsibilities, and shall include the process for how the individual entities will coordinate their work.
  2. Key personnel shall be identified in organization charts and a description of their roles, responsibilities, and reporting relationships. Additionally, procedures shall be provided that describe the key team member interfaces and the processes necessary to accomplish their respective responsibilities and involvement in the Project. Key personnel would include but not be limited to: Project Manager, Design Manager, Construction Manager, Chief Scheduler, Chief Safety Officer, Quality Control Manager, , , , various superintendents and principal subcontractors. Key Personnel shall be subject to review and approval by Owner.
  3. A description of Contractor's plan for prosecuting the Work.
  4. The procedures and processes for Project reporting per the requirements of Section 01 32 00 "Design and Construction Schedule and Progress Payment, " which includes scheduling provisions.
  5. The procedures and processes that will be used to control all documentation.
  6. A Work Breakdown Structure (WBS).
- D. Quality Management Plan: As part of the Project Execution Plan, Contractor shall prepare and submit for Owner review and acceptance Quality Management Plan shall detail all control and assurance activities that will be instituted on the Project to achieve the required quality standards and criteria. Specific requirements of the Quality Management Plan are provided in Section 01 40 00 "Quality Requirements."
- E. Construction Safety and Security Plan: As part of the Project Execution Plan, Contractor shall prepare and submit these plans for Owner review and acceptance.
1. Provide plans detailing the proposed processes and procedures for assuring the highest practical environmental, health, and safety conditions on the Project. Contractor shall develop specific programs for construction safety and security, system safety and security, and environmental safety and control, and shall develop associated plans for these programs.
  2. Specific requirements for the Construction Safety and Security Plan are provided in other Sections including Section 01 35 23 "Construction Safety and Security," Section 01 41 00 "Regulatory Requirements and Permitting Process."
- F. The Public Relations and Outreach:
- a. Contractor shall be responsible for following the processes and procedures described in the Public Relations and Outreach Plan. Communications and Outreach Plan.
  2. Throughout the duration of Phase 2, Contractor shall provide adequate staffing to ensure implementation support of the processes and procedures defined in Public Relations and Outreach Plan and other processes, procedures and duties as required by Owner except



for duties specially assigned to Owner as outlined in Public Relations and Outreach Plan. This shall include but not be limited to the following:

- a. Develop Emergency Communications and Media Plan with Owner.
  - b. Provide information for website ([www.dullesmetro.com](http://www.dullesmetro.com)) as requested.
  - c. Provide weekly update showing three-week look ahead at construction activity to Project Communications staff.
  - d. Provide draft traffic advisory and notifications, daily as required and weekly.
  - e. Provide minimum two week notifications of significant traffic impacts.
  - f. Provide updated construction fact sheet information.
  - g. Support monthly email blast information and content as requested.
  - h. Provide press support when requested.
3. Websites requiring Contractor support:
- a. Project Public Communications Website [www.dullesmetro.com](http://www.dullesmetro.com): Provide necessary, current, accurate information, graphics, photos and other information requested by Owner.
- G. Design Management: The management and features of the design package, processes and procedures shall be included in the Project Execution Plan, including, but not limited to, the following: .
1. Contractor shall develop effective engineering and design packaging plan to ensure timely achievement of project milestones.
  2. Include a matrix of design packages broken down by discipline and/or logical work area or element that supports a logical progression of the Work from design through permit packaging and release for construction.
  3. Address required permits and approvals and their linkage to design packages. Environmental-related permits shall also be included, with their linkage to design packages.
  4. Design Management Processes shall be clearly defined to include internal coordination, quality assurance and packaging activities necessary to issue any particular package. The complete process shall include Owner reviews, Contractor responses and verification submittals, leading to Record of Design Review and Acceptance prior to submitting any particular package for permit. Design Management process shall acknowledge the required time periods associated with each activity, to be reflected in the Project Schedule.
  5. Describe an effective and time sensitive Design Change Management Process and its inclusion in the Contractor’s quality procedures. The process shall ensure that any and all previously issued design packages affected by the change are updated, and that all affected permits are amended as required by the respective Authority Having Jurisdiction. Contractor shall review any and all changes for code and permit-related impacts, and include statements that attest to this review, related conclusions, and all necessary supporting documents (such as drawings, calculations or specification revisions) in the change submittal. Contractor is advised that code and/or permit-related changes, or the introduction of previously unreviewed design elements, may be subject to a complete submittal review process, at the sole discretion of the Owner. Design changes should be clearly categorized, quantified and communicated along with their associated potential cost, schedule and risk impacts. For additional submittal-related requirements, see Sections 01 33 00 “Submittals”.

- H. Construction Management: As part of the Project Execution Plan, Contractor shall include the process and procedures that will be used to manage Contractor's resources and actions during the construction of the Project, per the requirements of the Contract Documents. The procedures will address the following:
1. A staffing plan and resource strategies for the Project.
  2. An execution plan for the Project.
  3. The methods and actions planned to address waste management, pollution prevention, spill responses and hazardous materials management.
  4. The plan for laydown, staging, and construction parking for the Project.
  5. The methods and actions planned to minimize the impact of the construction activities on the public and Package A activities/areas.
  6. The methods and actions planned for the successful testing and start-up of the Electrical components
  7. Construction procedures during operations.
  8. Design changes which occur during construction.
- I. Configuration Management
1. As part of the Project Execution Plan, Contractor shall be responsible for preparation and submittal of Configuration Management Procedures in accordance with requirements listed in this Section and Division 1, Section 01 40 00 "Quality Requirements."
    - a. Implement configuration management and document change control procedures. Maintain document change control, including engineering plans, manuals and specifications.
    - b. Update documents as design and installation progresses. Configuration management shall provide an accurate historical record that can trace decisions and approvals made through life of Contract.
    - c. Owner has right to accept or deny a requested design change if it will require a change to one or more of Required Design Standards or other Contract Documents, or if the change will result in additional project costs or schedule delays. Changes in the Work shall be in accordance with Contract Documents.
    - d. Contractor shall issue engineering recalls, update installed materials, update support material, or take other appropriate actions to construct, install and commission approved configuration.
    - e. Contractor shall establish procedures to control in-process tested items during manufacturing, construction, and installation. The procedures shall establish controls such that the integrity of tested items remains uncompromised until final acceptance, and if modified, a means to document those modifications and incorporate the modifications into record documents.
- J. Project Survey Plan. As part of the Project Execution Plan, Contractor shall be responsible for preparation and submittal of Project Survey Plan in accordance with requirements listed in Section 01 11 01 "Site Survey Control".
- K. Updated Record Drawings (as-builts) and Record Specifications.

1. Working Drawings and design calculations. Provide for the following:
  - a. Proposed procedures and methods of constructing, installing and removing temporary structures including support system and necessary construction details.
  - b. Locate existing utility facilities by field investigations and make necessary revisions to working Drawings to reflect actual site Conditions and resubmit Drawings.
2. Specifications:
  - a. Provide changes to accompanying Specifications for changes made to Drawings.
3. Refer to Section 01 78 39 “Project Record Deliverables” for further requirements.

#### 1.5 PERMITS

- A. Provide permits for all phases of the Work for all jurisdictions requiring permits. Permit processing shall precede construction activity and clearly highlight all interim and final construction to be an integrated part of the design-build process. Permit activity shall be indicated on design and construction schedules, schedule of values, and included as a part of overall Design-Build process.
- B. Follow applicable standards, policies, terms, conditions and procedures of the AHJ.
- C. Refer to Section 01 41 00 “Regulatory Requirements and Permitting Process” for other permitting requirements.

#### 1.6 DESIGN / BUILD COORDINATION PROCEDURES

- A. Coordinate the Design-Build activities included in the Contract Documents to ensure efficient and orderly design and installation of each part of the Work. Coordinate planning, permitting, design and construction activities included in the Contract documents (Contract, Plans and Specifications) that depend on each other for proper installation, connection, control, fit and finish, function and operation. Coordination extends to and includes the interfaces between this and other contracts and existing facilities within the Owner and WMATA operating systems and environment.
  1. Schedule the permitting and the construction operations in the sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation. Construction will not be allowed prior to the issuance of permits required for the Work.
  2. Coordinate the installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
  3. Contractor, as designated under the Contract Documents shall have the full responsibility to ensure that the Work to be performed by its Subcontractors is coordinated in a manner to minimize any impact to the schedule, and any installation sequencing conflicts.
  4. Contractor shall conduct regular construction coordination meetings and prepare written memoranda regarding coordination activities, including such items as required notices, resolution of conflicting activities reports and attendance at meetings. Distribute such

memoranda, as appropriate, to each subcontractor or supplier performing Work at the Site. In addition to other responsibilities noted elsewhere in this Section, Contractor shall:

- a. Establish administrative procedures and distribute these procedures to each of its subcontractors.
  - b. Arrange and conduct pre-installation meetings affecting all subcontractors at Site, as may be required for quality control, access and sequencing.
  - c. Resolve schedule and installation conflicts among separate contractors.
  - d. Establish control for the use of Site, maintenance of traffic, and Quality Control (QC) monitoring during construction.
  - e. Monitor and enforce general discipline among contractors at Site concerning safety, Site protection and cleaning. Contractor is responsible for coordinating and monitoring activities among the separate contractors so as to securing, protecting and, if necessary, waterproofing unfinished and exposed work.
  - f. Inform Owner of the time and place of each construction coordination and pre-installation meeting. Owner may elect to have a representative present.
  - g. Advise Authorities Having Jurisdiction and others, of the time and place of each meeting, including WMATA, , and other agencies as necessary such as local fire, police and other agencies that will be responding to incidents at the facilities and adjacent roadways.
5. Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of its subcontractors and suppliers to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
- a. Preparation of Contractor's schedules and updates.
  - b. Distribution of written or electronic communications.
  - c. Installation and removal of temporary facilities and controls.
  - d. Delivery and processing of submittals.
  - e. Responses to Requests for Information (RFIs).
  - f. Distribution of updated Contract Drawings and Specifications.
  - g. Distribution of meeting minutes.
  - h. Project closeout activities.

## 1.7 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare Coordination Drawings according to requirements in individual Sections, and additionally where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
  1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base Coordination Drawings on standard printed data. Include the following information, as applicable:

- a. Use applicable Drawings as a basis for preparation of Coordination Drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
  - b. Coordinate the addition of trade-specific information to the Coordination Drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
  - c. Indicate functional and spatial relationships of components of architectural, structural, civil, and electrical systems.
  - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
  - e. Indicate required installation sequences.
  - f. Indicate dimensions shown on the Drawings.
- B. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Format: Same digital data software program, version, and operating system as original Drawings.

#### 1.8 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified. The primary purpose of an RFI is to interpret, or clarify, the intent of the Contract Documents for those issues of clarification surrounding the Required Design Standards and to provide additional information not included or not readily available within the Contract Documents.
1. Contracting Officer will return RFIs submitted to Contracting Officer by other entities controlled by Contractor with no response.
  2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
  3. Contractor shall submit RFIs to the Owner using the attached RFI form and shall provide specific reference to the section of the Contract Documents to which the RFI refers. RFIs submitted to the Owner for response that are incomplete, unsigned or otherwise not submitted in compliance with the Contract, will be returned to Contractor for proper resubmission.
  4. Contractor has the responsibility to be familiar with the Required Design Standards. RFIs submitted to the Owner for response that request clarification of items that are clearly evident in the Contract documents, shall be rejected by the Owner.
  5. Contractor shall not use RFIs for the following:
    - a. To initiate substitution in material or systems.
    - b. To transfer their responsibility for reviewing Contract Documents to the Owner.
    - c. To initiate value engineering proposals.
    - d. To initiate variances or deviations from the Required Design Standards.

6. RFIs submitted to the Owner for response which fail to reference the specific Contract technical requirements in question, and do not clearly define the issue, will be rejected. If Contractor uses an RFI for the purposes described above it will also be rejected.
  7. Contractor shall allow at least 14 calendar days for review and response by the Owner following their receipt of the RFI.
  8. This review time will be increased, but not exceed 21 calendar days, for RFIs that are sufficiently extensive or complex that the above turnaround period is unreasonable as determined by the Owner.
  9. Contractor shall be solely responsible for delays in the completion of the Contract that result from the submission of RFIs which clearly fail to meet the requirements of this Section.
  10. Owner is responsible to provide timely clarifications and/or interpretations to RFIs that are related to the Contract Documents, including design criteria and standards, or WMATA, MWAA, or VDOT operational, facility and service issues. A clarification does not constitute a change to the Contract cost.
  11. If Contractor considers any clarification issues as a result of an RFI to be a change; it shall so notify Owner in the manner provided for in the Contract Documents.
  12. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, Coordination Drawings, and other information necessary to fully describe items needing interpretation.
    - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- B. RFI Forms: Refer to Attachment to this Section for the required information needed to submit an RFI.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- C. Owner's Representative Action: Owner's Representative will review each RFI, determine action required, and respond. Allow 14 calendar days for Owner's Representative's response for each RFI. RFIs received by Owner's Representative after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
    - a. Requests for approval of submittals.
    - b. Requests for approval of substitutions.
    - c. Requests for approval of Contractor's means and methods.
    - d. Requests for coordination information already indicated in the Contract Documents.
    - e. Requests for adjustments in the Contract Time or the Contract Sum.
    - f. Requests for interpretation of Engineer of Record's or Architect of Record's actions on submittals.
    - g. Incomplete RFIs or inaccurately prepared RFIs.
  2. Owner's action may include a request for additional information, in which case Owner's time for response will date from time of receipt of additional information.
  3. Owner's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal.

- D. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Contractor shall consecutively number all RFIs. When an RFI must be resubmitted for any reason it shall be sent using a letter or numerical revision subset of the original RFI number with reference provided to the previous RFI. Resubmitted RFIs shall include the original RFI and other pertinent documentation, as appropriate.
- E. On receipt of Contracting Officer action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Contracting Officer within ten days if Contractor disagrees with response.
  - 1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
  - 2. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

#### 1.9 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
  - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner of scheduled meeting dates and times.
  - 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
  - 3. Minutes: Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner's Representative within three days of the meeting.
- B. Project Start-up Meeting: No later than thirty (30) days following issuance of NTP for Final Design, Contractor will schedule a start-up meeting to review its in-progress Project Execution Plan.
- C. Pre-Activity Meetings: Conduct at Project Site as required.
  - 1. Contractor will conduct pre-activity meetings at the Site prior to the start of construction activities that require special coordination or for those activities that are deemed to require a separate meeting because of the technical nature of the installation. As possible, the pre-activity meetings should be scheduled at least 72 hours prior to the planned start of the activity to allow for any revisions to the planned activity to be implemented as may result from the meeting. Contractor, subcontractors, representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with their materials and installations that have preceded or will follow and the Owner shall attend the meeting. The parties shall each be represented by persons thoroughly familiar with and authorized to conclude matters relating to the Work described in the Contract Documents if so requested by the Owner.
  - 2. Contractor shall inform Owner in advance of the date, time, location and topics for review and discussion at each pre-activity meeting. Contractor shall ensure that other attendees are properly notified.

3. Topics that may require pre-activity meetings include, but are not limited to the following:
  - a. Precast Concrete Installation.
  - b.
  - c. Finish architectural and protection systems including painting, waterproofing, , etc. activities.
  - d. Structural steel erection
  - e. Glazing and louver Installation
  - f. . Electrical component installation and connection to Package A panel.
  - g. .
  - h. Other pre-installation meetings as may be called by Contractor or Owner.
  
4. Agenda items for the meeting may include, but are not limited to, the following:
  - a. Contract Documents.
  - b. Options.
  - c. Purchases.
  - d. Deliveries.
  - e. Shop Drawings, Product Data and quality control Samples.
  - f. Possible conflicts.
  - g. Compatibility problems.
  - h. Time schedules.
  - i. Weather limitations.
  - j. Manufacturer's recommendations.
  - k. Compatibility of materials and substrate/surface preparation.
  - l. Temporary facilities.
  - m. Space and access limitations.
  - n. Governing regulations.
  - o. Safety.
  - p. Inspection and testing requirements.
  - q. Required performance results.
  - r. Recording requirements.
  - s. Protection.
  
5. Should the Pre-Activity Meeting disclose significant issues, Contractor shall initiate whatever actions are necessary to resolve impediments to performance of Work and schedule a follow-up meeting with the Owner at the earliest date.

D. Progress Meetings:

1. Contractor shall conduct progress meetings weekly at regularly scheduled times convenient for all parties involved. Progress meetings are in addition to specific meetings held for other purposes, such as coordination and special preinstallation meetings. Discussions will address administrative and technical issues of concern, identifying and determining resolutions, identify responsible parties for action, and development of deadlines for resolution within allowable time frames. Owner will attend all progress meetings.
2. Contractor shall determine who should attend the meeting in addition to representatives of Owner and Contractor (for example, those subcontractors, suppliers, or other entities critical to the current progress or involved in planning, coordination or performance of



future activities that are part of the Work, or the Package A contractor and subcontractors building the Dulles station). The parties shall each be represented by persons thoroughly familiar with and authorized to conclude matters relating to the Work described in the Contract Documents.

3. Agenda items shall include, but are not limited to, review of minutes of the previous progress meeting prepared by Contractor. Contractor will record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting. The meeting minutes will document issues of significance including submittals, schedules, quality control, safety, problems encountered, and the assignment of responsibilities for future action. Agenda items may include other items of significance that could affect progress such as:
  - a. Contractor's design and/or construction schedule. At each Progress Meeting Contractor shall provide a detailed schedule of project activities scheduled to be started or completed over the next 30 calendar days. The detailed schedule shall be prepared in a bar chart (Gant) format or other format approved by Owner and will be based on the most current revision to the Monthly Updated Schedule. Specific emphasis will be placed on informing Owner of any changes in the planned start or planned completion dates for submittals, construction activities, inspections, tests and/or other activities that require the Owner's direct participation that vary from the start or completion dates defined in the most recent version of the approved Monthly Updated Schedule.
  - b. Interface requirements.
  - c. Time.
  - d. Sequences.
  - e. Deliveries.
  - f. Off-site fabrication status.
  - g. Access.
  - h. Site utilization.
  - i. Submittals.
  - j. Requests for information.
  - k. Non-Compliance Notices.
  - l. Temporary facilities and services.
  - m. Hours of Work.
  - n. Resource allocation.
  - o. Hazards and risks.
  - p. Housekeeping.
  - q. Quality Control and Work standards.
  - r. Safety issues.
  - s. Change Orders.
  - t. Documentation of information for payment requests.
- E. Quarterly Meetings: Quarterly meetings will be attended by upper management representing Contractor and the Owner; meetings shall focus on partnering global Project issues rather than on Work-specific issues.
- F. Change Meetings: Separate meetings may be held, on an as-needed basis, to discuss and resolve change order issues as they arise during the course of design and construction.

1. This meeting shall be attended by Contractor, Owner’s Representative or designee, and those subcontractors, suppliers, or other entities critical to the resolution of open issues. The parties shall each be represented by persons thoroughly familiar with and authorized to conclude matters relating to the work described in the Contract Documents.
- G. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner but no later than 90 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
  2. Attendees: Authorized representatives of Owner; Owner's Commissioning Authority; Contractor and Contractor’s superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
  3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
    - a. Preparation of record documents.
    - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
    - c. Submittal of written warranties.
    - d. Requirements for preparing operations and maintenance data.
    - e. Requirements for delivery of material samples, attic stock, and spare parts.
    - f. Requirements for demonstration and training.
    - g. Preparation of Contractor's punch list.
    - h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
    - i. Submittal procedures.
    - j. Coordination of separate contracts.
    - k. Owner's partial occupancy requirements.
    - l. Installation of Owner's furniture, fixtures, and equipment.
    - m. Responsibility for removing temporary facilities and controls.
  4. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 – DESIGN AND CONSTRUCTION SCHEDULE AND PROGRESS PAYMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contract Documents, including the Project Technical Requirements (Statement of Work and Technical Specifications) and other Division 01 Specifications apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
  1. Requirements for the preparation, submittal and maintenance of a Critical Path Method (CPM) schedule that defines the Contractor's plan for the performance of the Work and provides a basis to monitor and report the monthly project physical progress in support of processing monthly invoices. CPM terminology, definitions, and conventions as required in this Section shall be consistent with generally accepted industry practices and the latest edition of the Associated General Contractors Manual titled "Construction Planning & Scheduling."
  2. Requirements for addressing recovery schedules and Time Impact Analyses.
  3. Administrative and procedural requirements governing methods of measurement and computation to be used to values for support of monthly invoices for Work performed under the Contract.
  4. Specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.3 DEFINITIONS

- A. NTP: Notice to Proceed.
- B. CPM: Critical Path Method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.
- C. Cost Breakdown Structure, CBS: A breakdown of the costs shall be developed that corresponds to activities in the schedule and allocates the Contract Price to those activities for support of the Contractor's Applications for Payment.

#### 1.4 SUBMITTALS

- A. Schedule: Within 30 days from NTP, the Contractor shall provide a detailed, time-scaled, schedule (computer generated) with activities representing identifiable tasks to be completed in association with performance of the Work. The schedule shall be subject to the review and approval of the Owner and will be referred to as the “Baseline Schedule”. The Contractor shall submit an update to the Baseline Schedule, on the first day of each month to reflect the progress of the Work since the previous month for the Owner’s review and approval.
- B. Cost Breakdown Structure (CBS): The Contractor shall prepare and submit a Cost Breakdown Structure, CBS that allocates the total Contract value to the schedule activities as defined to complete the Work. A blank CBS will be provided by the Owner for the Contractor’s use.
- C. Invoices: Monthly the Contractor shall submit an invoice that reflects the portion of the Contract Price that has been earned during the previous month. The invoice shall be substantiated with an updated Baseline Schedule and the approved Schedule of Values that reflects actual progress of the work.

#### 1.5 PROGRESS DELAY/CONTRACTOR SLIPPAGE

- A. Recovery Schedule: Should any of the following conditions exist, Owner may require the Contractor to prepare, at no extra cost to Owner, a plan of action and a Recovery Schedule as to how the Contractor plans to reorganize its work and resources to complete the Work by the Contract Time(s) and recover any lost time and/or delays that have been determined by the Owner to be caused by the Contractor:
  - 1. Contractor’s monthly progress report indicates delays that are, as determined by Owner, of sufficient magnitude that the Contractor’s ability to complete the Work by the Contract Time(s) is brought into question.
  - 2. CPM schedule shows the Contractor to be 30 or more days behind any of the Contract Time(s) at any time during term of the Contract up to 30 days prior to the applicable Contract Time.
  - 3. Contractor’s performance and resource utilization are not as planned resulting in unnecessary consumption of the float.
  - 4. Contractor desires to make changes in the logic (sequencing of Work) or the planned duration of future activities in the schedule to recover lost time.
- B. Contractor shall submit a Recovery Schedule according to the requirements described in this Section. A Recovery Schedule, when required, shall be submitted to Owner for review and approval within 14 calendar days of Contractor receiving Owner’s written request.
- C. The Recovery Schedule submission shall be comprised of the following:
  - 1. One electronic copy (on CD-ROM) of current approved monthly schedule update. Electronic copy shall be in Primavera compressed format .XER electronic filename shall have unique identifier and shall include a sequential number for each Schedule Revision.

2. Changes included in Recovery Schedule shall be documented. Contractor shall submit to Owner an audit trail report that has been prepared using schedule comparison software (i.e. Claim Digger, Project Investigator, or other software approved by Owner.)
3. Recovery Schedule submission shall be accompanied by the following:
  - a. Detailed narrative describing (with an explanation for the reason of) any revised sequences, durations, and resources.
  - b. Anticipated effect of revision on the current Project Schedule and the Contract Times.
- D. Contractor shall furnish sufficient labor, resources and equipment to ensure the prosecution of the Work meets the Contract Times. If in the opinion of Owner, Contractor falls behind in the prosecution of the Work as indicated in the current Schedule, Contractor shall take such steps as may be necessary to improve its progress. Owner may require Contractor to increase the number of shifts, days of work, and/or the amount of plant and equipment, all without additional cost to Owner.
- E. If Contractor fails or refuses to implement such measures to bring the Work back to conformity within the Contract Times, Owner shall have the right to declare such failure or refusal a Contractor Event of Default under the Contract.

#### 1.6 MODIFICATIONS – TIME IMPACT ANALYSIS

- A. Proposed modifications, including potential delays that are anticipated or experienced shall be submitted to Owner. Contractor has a duty to mitigate delays through modified sequences to minimize cost and time impact caused by the change or potential delay.
- B. Total float time shown on the current CPM Schedule is a shared reserve for Owner and/or the Contractor. This reserve is to decrease or eliminate the impacts of delay to completion of the contracted Work. Extensions to the Critical Path will be considered only if milestones or Completion dates are affected. For an extension past these points, delays cannot be Contractor fault and out of Contractor control. Subcontractors are considered under Contractor control; any Subcontractor delay shall be considered Contractor delay. In the event that Contractor created delays impact an already negative float path on the current Master Construction Schedule Update, the Contractor will not receive any time extension.
- C. The Contractor shall prepare a Time Impact Analysis for each modification, potential delay, delay event, or Contractor request that may affect the Contract Times. The Time Impact Analysis shall be developed and submitted in accordance with Contract Documents or as requested by Owner and shall conform to all scheduling principles described in this Section. Preparation of Time Impact Analyses is considered part of construction process and shall be performed at no additional cost to Owner.
- D. Time Impact Analysis methodology shall follow the guidelines contained in the Association for the Advancement of Cost Engineering International (AACE) Time Impact Analysis as Applied in Construction. Only delays caused by Owner will be considered for a time extension.
- E. Failure by Contractor to timely submit a Time Impact Analysis is described in Contract Documents.

- F. Approval or rejection of each Time Impact Analysis by Owner shall be made within ten work days after receipt of each Time Impact Analysis, unless subsequent negotiations are required, or multiple TIAs are submitted at one time. Upon Approval, a copy of Time Impact Analysis signed by Owner shall be returned to Contractor and incorporated into the Project Schedule at next monthly schedule update which will then become the current approved Project Schedule.
- G. Submit Time Impact Analysis as follows:
  - 1. Within ten work days after receipt of written change modification.
  - 2. Within ten work days after receipt of written notice by Owner.
  - 3. Within ten work days from beginning of delay caused by unforeseeable circumstances.
- H. Time Impact Analysis shall meet requirements for submittal of Schedule Revision including a Fragnet, with sufficient supporting documentation to enable Owner to make a determination of Contractor's request for a time extension.
- I. Upon execution of a Change Order adjusting the Contract Times, the agreed upon event and impact shall be included in the next monthly schedule update if the parties agree to the extent of the impact. Changes in the schedule should be clearly identifiable by specific Activity IDs and activity coding as agreed upon with Owner. Inclusion of changed conditions shall conform to all scheduling principles noted in this Section. Changes included as an adjustment to the existing schedule activity durations are not allowed.
- J. Once the Time Impact Analysis has been approved, the activities and costs associated with that Time Impact Analysis should be added to the next monthly schedule update.

## PART 2 - PRODUCTS

### 2.1 SCHEDULE REQUIREMENTS

- A. Overall schedule shall:
  - 1. Accurately depict the Contractor's planned tasks, sequence of performance and planned and actual duration necessary to complete the Work in accordance with Contract requirements. The schedule shall include all the Work required from design, procurement and fabrication, permit, coordination with other Contractors, staging, maintenance of traffic, interfaces, construction and installation as well as all required Owner and other agencies having jurisdictions review and approval periods, etc. per Contract requirements.
  - 2. Assist Contractor in preparation, evaluation and approval of Contractor's monthly progress payments. Pay items shall be easily and readily correspond to schedule activities.
  - 3. Schedule activities shall be provide accurate, adequate and detail information for the work being performed by Area, Location (South or North), Discipline and Trade and etc.
  - 4. Sufficiently describe what is to be accomplished by division of responsibility within applicable work areas.

5. Accurately represent Contractor’s progress for the update period and mitigation measures to recover Contractor caused delays and lack of performance.
  6. Group activities to assist in the understanding of the activity sequence.
- B. The schedule shall include, as a minimum, the following activities:
1. Design activities, including, but not limited to:
  2. Surveying.
  3. Owner or directed design changes.
  4. Design reviews and approval.
  5. Permitting.
  6. Construction activities, including, but not limited to:
    - a. Installation of temporary facilities.
    - b. Detail sequencing of all construction/installation/testing activities, they shall not exceed 20 days duration.
    - c. Preconstruction conferences.
    - d. Any access and interfaces with other Contractor/s. These activities shall be coordinated and vetted with other Contractor/s and then incorporated into the schedule for Owner review and approval
    - e. Detail description of work being performed by Area, Location, Trade, Etc.
    - f. Contractor’s changes and Owner approvals.
    - g. Owner directed changes.
    - h. Punch list activities.
    - i. Owner final approval.
  7. Other activities shall include, but not be limited to:
    - a. Mobilization.
    - b. Identification of existing utilities.
    - c. Preconstruction and Post Construction.
- C. Schedule Activities:
1. Shall have a unique activity name/description.
  2. Shall have individual schedule activity durations of 20 work days or less.
  3. Shall, with the exception of the Notice to Proceed and Project Complete milestone activities, not have activities that are open-ended; each activity shall have predecessor and successor relationships.
  4. Shall include Finish-to-Start relationships as the primary relationship unless valid reasons are demonstrated for other logic relationships. Start-to-Start with lags shall be permitted provided the lag is updated and no gaps exist between contiguous activities due to the lag. Activities linked to successors only with Start-to-Start relationships shall not be permitted, and must also include a Finish-to-Start or Finish-to-Finish relationship with one or more successors.
  5. Shall not use lags when the creation of an activity will perform the same function (e.g., concrete cure time). Negative lags shall not be permitted.

6. Shall not use date/time constraints, other than those required by the Contract Documents. Constrained milestones should be included only for NTP, “Dulles Airport Windscreens,” and “Project Complete.”

D. Schedule Calendars:

1. Shall be based on anticipated work and non-work periods for each activity.
2. Shall reflect agreed upon Holidays included as non-work days assigned to the appropriate non-work day as it occurs.
3. Shall reflect appropriate weather days from ten-year average weather statistics compiled by the United States National Oceanic and Atmospheric Administration (“NOAA”) at Dulles International Airport for the time of year to depict expected shutdown/non-work days due to adverse weather conditions.

## 2.2 SOFTWARE REQUIREMENTS

- A. The Contractor’s schedule shall be produced utilizing the latest version of Primavera (P6) software. Each month the schedule updates should be provided in native format, as well as a pdf.

## 2.3 COORDINATION WITH AIRPORT, OWNER, AND OTHER STAKEHOLDERS AS REQUIRED BY THE CONTRACT

- A. The Contractor shall include all activities in the schedule to demonstrate coordination with the Airport Operations, Owner and any other required entity. The schedule will be used by the Owner as a tool to schedule its required staff and to coordinate and oversee work activities.

## 2.4 MEASUREMENT OF QUANTITIES

- A. All volumes or quantities used to determine progress will be reviewed and approved by the Owner, using methods generally recognized as conforming to good engineering practice. Unless otherwise indicated, measurement shall be in U.S. Customary Units of Measurement.

## 2.5 APPLICATION FOR PROGRESS PAYMENT AND PAYMENTS

- A. Contractor shall submit to the Owner on or before the 30th of each month an invoice for the Work completed since the previous invoice. It may be mutually beneficial for Contractor and Owner to meet prior to the submittal of the Invoice to review the proposed submittal and thus expedite its processing upon submittal.
- B. Each Invoice shall be consistent in Work scope, procedure and payment amounts as the preceding Invoice and to indicate each month’s resultant payment certified and paid for by Owner.
- C. To be acceptable to Owner, each Invoice shall be in the proper format and shall be accompanied or preceded by the following:



1. Contractor's monthly schedule update.
  2. Updated CBS.
  3. Updated Submittal schedule.
  4. Updated status schedule of Permits and Restrictions.
  5. Include amounts for work completed following previous Invoice, whether or not payment has been received. Include only amounts for work completed at the time of Draw Request.
  6. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by Invoice.
  7. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
  8. Any required Disadvantaged Business Enterprise (DBEs) supporting documentation, see requirements for “Exhibit J”
- D. The approved Cost Breakdown Structure, CBS will be the basis for making progress payments. All CBS fields are required to be accurately populated and updated.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 32 10

SECTION 01 32 10 – DESIGN AND CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All general provisions of the Contract, including General and Supplementary Conditions, other Division 01 Specification Sections and all appendices and Drawings included or generated as a result of the Contract, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
1. Statement of Work.
  2. Commonwealth of Virginia “Construction and Professional Service Manual” (CPSM).

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of design and construction during performance of the Work, including the following:
1. Daily construction reports.
  2. Material location reports.
  3. Site condition reports.
  4. Special reports.
  5. Status of Permits.
  6. Accurate Drawings.
- B. Project documentation is the record demonstrating the actions of Contractor, Owner and other entities throughout design, construction, verification, testing and commissioning of the Project. This includes, but is not limited to, documents used in design development, systems integration drawings/documents, correspondence, transmittals, submittals, Requests for Information (RFIs) and responses thereto, certifications, insurance documents, training records, meeting minutes, test results, audit reports and associated documents, change documents, records of cost reimbursable work, permits and documents associated with monitoring conditions of those permits, documentation required for Hazardous Materials management, tracking logs, Project Record Documents, spare parts lists, operations and maintenance manuals and related documents, operator and technician training records, operations and maintenance records, and service bulletins, etc. This documentation shall be maintained in orderly retrievable fashion in accordance with Contractor’s accepted Configuration Management Plan, Document Control Plan and described through this Section.
- C. Related Requirements:
1. Refer to Section 01 32 00 "Design and Construction Schedule and Progress Payment", for the requirements for design and construction schedules and reports associated with design and construction schedules.
  2. Refer to CPMS for applicable standards, policies, terms, conditions and procedures for permits.

### 1.3 DOCUMENT CONTROL REQUIREMENTS

- A. All formal communication/documentation between Contractor and Owner shall be provided under cover of a letter or transmittal.
- B. Documentation Serialization: All correspondence and transmittals shall include the Project name and Contract number along with the specific subject of the letter. When replying to a specific letter, that letter or transmittal is to be referenced by serial number, date, and subject. Where a submittal is referenced, the applicable specification section number shall also be referenced. All correspondence to and from Owner and Contractor shall be serialized and separate incoming and outgoing correspondence logs maintained.
- C. Record Documents: All Contractor submittals shall be included in the Submittal Register (SR).

### 1.4 CATEGORIES OF DOCUMENTATION

- A. In addition to correspondence, invoices, and normal business records, particular Project documentation requirements are outlined in this Article.
- B. Administrative Documentation: During the term of the Contract, Contractor shall maintain the following administrative documentation as a minimum:
  - 1. Requisite insurance certificates and evidence of coverage.
  - 2. Baseline schedules and updates.
  - 3. Change process documentation from inception to executed change order.
  - 4. Labor Agreements or Contracts.
  - 5. Certified payrolls for all project employees.
  - 6. Subcontracts and administration records.
  - 7. Relevant third-party documentation information.
  - 8. Disadvantaged Business Enterprises outreach and enlistment efforts.
  - 9. Emergency services, including contacts, phone numbers.
- C. Site Documentation: Contractor shall maintain the following minimum documentation for the Project, to the extent required for performance of the Work. The format and other characteristics of Contractor generated documents shall conform to the applicable Required Design Standards and the Contract Documents.
  - 1. Pre-construction Surveys.
  - 2. Survey data and verification, including utility locations. Existing environmental conditions, including air quality and noise, cross references to National Pollutant Discharge Elimination System (NPDES) and construction permits, drainage conditions, potential and/or actual Hazardous Materials and their location(s) and type(s), wildlife counts, and water quality measurements. Include wetlands, streams, and RPA mapping.
  - 3. Third party agreements.
  - 4. Roadway inventory, including signage, lighting, applicable State and local standards.
- D. Design Records: During design, Contractor shall maintain the following as a minimum:
  - 1. Requests for Information and responses thereto, with the associated tracking log. See Document 01 31 00-A, Sample Requests for Information (RFI) form.

2. Submittals and all supporting documentation, including calculations, standards, references, and other elements required as quality records. (Submittals may be not accepted if the accompanying back-up documentation is not included.)
  3. Contractor shall develop “Systems Integration Drawings/Documents” to be included with design submittals (such as with foundation packages, superstructure packages, etc.) that identify requirements of follow-on packages prior to construction (example: embeds in concrete for attachment of secondary structures and architectural features, sleeves and blockout for conduits, utilities, etc.
  4. Review comments on submittals, disposition, re-submittals, and meeting minutes of design review and interface coordination meetings that bear on the submittals (with associated tracking logs and reports).
  5. Transmittals and the associated logs.
  6. Design audit reports, responses to any findings or observations, nonconformance reports, and evidence of corrective actions.
  7. Manufacturers’ certifications and information as required by the relevant specification(s).
  8. All revisions to Drawings, calculations and Permits.
- E. Construction Records: During construction, Contractor shall maintain the following as a minimum:
1. Drawings and Specifications:
    - a. Contractor shall maintain the latest set of all drawings and specifications on the Site at all times, and shall allow Owner access for review of such field set at all reasonable times. Contractor shall promptly incorporate all changes or corrections to the drawings and specifications made by field change, design engineer change, contract/subcontract addenda and/or Change Order as they are issued.
    - b. Contractor shall maintain at the Site all permit drawings and permits in a manner that makes them accessible to all project representatives.
    - c. Accepted copies of all design documents and other submittals are to be kept on the Site at all times, and Owner shall be provided access for review on request.
    - d. All Drawings and Specifications shall be accessible at Contractor’s field offices.
  2. Design/Construction Interface: Contractor Design Documents and Drawings shall provide clear definition of the design/construction interfaces that include the interfaces of the Project with the right-of-way and any infrastructure contained therein; any adjoining facilities; electric utilities (except to the extent prohibited by the utility company); water and sewer systems; fire and police departments; and any facility not provided by Contractor but which is used by Contractor for the Project. Interfaces shall be managed and controlled in accordance with Contractor’s accepted Configuration Management Plan.
  3. Daily Construction Reports, Testing and Calibration Reports.
  4. Photography: Accompanying Contractor’s Monthly Progress Report, Contractor shall provide digital color photographs in accordance with the requirements of Section 01 32 33 “Photographic Documentation.”
- F. Fabrication: As the Work progresses Contractor shall keep up-to-date, complete, and accurate field and manufacturing plant records to document consistency with the Standard Specifications, Contractor’s subsystem and equipment procurement specifications, all design review documentation, Contractor’s accepted construction and equipment assembly drawings, and similar documents, indicating the Work as actually constructed, fabricated, and installed.

- G. Contract and Record Drawings: The most current design drawings shall be used at the Project site and maintained with changes and additions as necessary. These shall be known as the "Contract Drawings." For final Record Drawings, refer to Section 01 78 39 "Project Record Documents."
1. Contractor shall maintain a complete set of electronic Contract Drawings using approved CAD software, technical reports, , and specifications reproduced at Contractor expense. The drawings shall be marked (redlined) to show actual construction, except to the extent otherwise limited or prohibited. The Drawings shall show, but not be limited to the following information:
    - a. The locations and description of any utility lines and other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.
    - b. All Project buildings or structures, and the accurate location and dimension of all underground and overhead Project utilities and facilities.
    - c. Correct grade or alignment of roads, structures, and utilities if any changes were made from contract plans.
    - d.
    - e. Changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by Contractor All changes or modifications from the original design and from the final inspection.
  2. Redlining of the prints of the Contract Drawings shall be pursued continuously during construction. This information shall be maintained in a reasonably current condition at all times until Substantial Completion. The resulting redlined data shall be referred to and marked as "Record Drawing" and shall be used for no other purpose during construction. Where Contract Drawings or Specifications allow options, only the option actually used in the construction shall be shown on the Record Drawing. The option not used shall be deleted. These deviations shall be shown in the same general detail as in the issued-for-construction drawings.
  3. Contractor shall redline all documents that show the relevant area to reflect the actual condition, fully and accurately. Where design documents are marked up, Contractor shall mark cross-references on Contract Drawings at the corresponding locations. Mark-up shall include important additional information which was either shown schematically or omitted from original drawings. Particular attention shall be given to information on Work canceled, which would be difficult to identify or measure and record at a later date. Alternative numbers, change order numbers, and similar identification shall be noted. All such changes shall be neatly and correctly shown on the blackline prints of the Drawings affected, or in the Specifications and other documents with appropriate supplemental notes. This set of electronic Record Drawings shall be available at Contractor's offices, manufacturing plant(s), and Site, as applicable during fabrication and construction. Owner shall be provided access to the Project Record Documents at all reasonable times, and Owner's authorized representative will regularly review the status of Contractor's Project Record Documents, including the Record Drawings.
  4. The Record Drawings shall be signed by Contractor to certify that they show complete and accurate as-built conditions. They shall state dimensions, sizes, kinds of materials, and similar matters (including, but not limited to, piping and conduit locations). The red-lined drawings shall be electronically archived and delivered to the Owner at the end of

the Project. The Drawings shall be made available for inspection by Owner whenever reasonably requested. The information captured on the red lined “Record Drawings shall be transferred to Electronic format and incorporated into the electronic “Contract Drawings”.

5. Contractor shall submit Record Drawings and annotated Contract Drawings in accordance with the Contract Documents.

H. Project Software Documentation: Special attention shall be given to documentation procedures for all computer software programs results, designs, and electronic data supplied as part of, and for the development of the Project. The Contractor shall submit to Owner for review and acceptance a Software Documentation Plan, indicating its proposed methods and procedures for such software documentation. At a minimum, the Software Documentation Plan shall address the following:

1. Assure that the software utilized for the Project is fully documented, including any changes to it made during the Project.
2. Provide an executable program for all software necessary to view Project Record Documents, Record Drawings, and Record Deliverables, excluding Microsoft Office and Primavera.

I. Project Compliance Documentation: Compliance Documents including but not limited to the following shall be provided no less than quarterly or as required by procedure or the Owner to monitor the performance of the work:

1. Material Test Reports and Certifications.
2. Special Inspection Reports.
3. Permits and Permit Close-out documentation.
4. All property agreements relative to the Project and certified close-out documents.
5. Any similar reports or documentation relative to the performance or influence of the Project on Owner or WMATA.

#### 1.5 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following formats unless waived by the Owner:

1. Working electronic copy.
2. Revision protected PDF electronic file.
3. One paper copy, unless specifically requested by Contracting Officer.

B. Daily Construction Reports: Submit at weekly intervals.

C. Material Location Reports: Submit at weekly intervals.

D. Site Condition Reports: Submit at time of discovery of differing conditions.

E. Special Reports: Submit at time of unusual event.

## PART 2 - PRODUCTS

### 2.1 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
  2. List of separate contractors at Project site.
  3. Approximate count of personnel at Project site.
  4. Work performed.
  5. Equipment at Project site.
  6. Material deliveries.
  7. High and low temperatures and general weather conditions, including presence of rain or snow.
  8. Accidents.
  9. Meetings and significant decisions.
  10. Unusual events (see special reports).
  11. Stoppages, delays, shortages, and losses.
  12. Meter readings and similar recordings.
  13. Emergency procedures.
  14. Orders and requests of authorities having jurisdiction.
  15. Change Orders received and implemented.
  16. Services connected and disconnected.
  17. Equipment or system tests and startups.
  18. Partial completions and occupancies.
  19. Substantial Completions authorized.
- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
  2. Material stored prior to previous report and since removed from storage and installed.
  3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for addressing the conditions and if necessary modifying the Contract Documents.

### 2.2 SPECIAL REPORTS

- A. Submit special reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence. Report all unusual events or significant events which occur relative to the Project, whether or not related directly to the Work. List chain of

events, persons participating, and response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 32 10



SECTION 01 32 33 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The following list is provided for Contractor's convenience and is not intended to exclude or supersede any portion of the Contract Documents:
  - 1. Statement of Work.

1.2 SUMMARY

- A. Section includes the requirements for digital photographing and video taping of Project sites, adjacent areas, roadways, private surface parking adjoining construction site, and other related sites in accordance with a Photography and Video Program Plan approved by Owner to document existing conditions, conditions of concern and periodic records of construction for the following:
  - 1. Preconstruction photographs and videos
  - 2. Periodic construction photographs and videos.
  - 3. Final completion construction photographs and videos.
- B. Photographs shall be taken of the work site one week prior to initiation of Construction. After construction operations have started at the site, Contractor shall have color photographs taken each month until Substantial Completion. The actual number and location of views to be taken each month shall be as directed by Owner's Representative. Printed photographs shall be submitted as part of the Monthly Report.
- C. Provide digital photographs and videos of Project Work and areas of concern in locations and at frequencies stated on the Photography and Video Program Plan.

1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For photographer.
- B. Photography and Video Program Plan: Submit Photography and Video Program Plan to document the Project site. Program Plan will state the uses, locations and times for documenting the Project Work. Submit a key plan of Project site and adjacent areas with notations of vantage points marked for location and direction of photographs and videos. . Label photographs and video with same information as corresponding photographic key plan.
  - 1. Indicate baseline quantity of photographs and videos that will be required to fulfill Photography and Video Program Plan. Digital Photographs: Submit image files to Owner with each Monthly Report.

2. Handheld Digital Cameras: Minimum sensor resolution of 12 megapixels.
  3. Format: Minimum 4000 by 3000 pixels, in unaltered original files, with same aspect ratio as the sensor, uncropped, date and time stamped, in folder named by date of photograph, accompanied by key plan file.
  4. See Section 01 50 00 “Temporary Facilities and Controls,” for available cameras on site.
  5. Provide licensed computer software as required to manipulate and handle images.
  6. Identification: Provide the following information with each image description in file metadata tag: Label the photograph indicating:
    - a. Name of Project: Dulles Corridor Metrorail Project – Phase 2.
    - b. Project Number.
    - c. Date photo taken.
    - d. Description/Key Plan Identifier.
    - e. Name of Contractor.
    - f. Description of Vantage Point, indicating location, direction (by compass point) and elevation or story of construction.
- C. Construction Photographs: Digital photographs shall be submitted to a designated website via the Internet. CD or USB hardcopies shall be provided monthly to the Owner.

#### 1.4 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic and video documentation.
- B. Contractor shall provide Owner with the photographs and videos taken. Contractor’s use of photographs and videos shall only be for the purpose of fulfilling the requirements of this Section. Other use without written permission from Owner is prohibited.
- C. Prints, Digital Images, and Image Data Files shall be provided to Owner at Contractor's expense and shall become the property of Owner.
- D. Contractor shall take all precautions to preserve privacy and other rights of individuals and firms within the viewing field of photographs and videos, by obtaining necessary permissions and following applicable restrictions for all photographs and videos.

### PART 2 - PRODUCTS

#### 2.1 PHOTOGRAPHIC MEDIA

- A. Digital Images: Provide images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels.
- B. Digital Video Recordings: Provide high-resolution, digital video disc in format acceptable to Owner’s Representative.

## 2.2 KEY PLAN

- A. Identify photographs and videos using the approved Key Plan and schedule, including but not limited to the following:
  - 1. Orientations of View.
  - 2. Time of Exposure.
  - 3. Subject of view, significant objects and important details of images.
  - 4. Any significant reasons for taking images.
  - 5. Identifying numbers for reference purposes on recording disks and printouts corresponding to schedule in Plan.

## 2.3 VIEWS AND QUANTITIES

- A. At a minimum, Contractor shall before, during and after construction, take photographs and videos as scheduled in the Plan at each unique element or construction Operations Area (OP area) until Substantial Completion. In addition, take series of photographs or videos at the following locations:
  - 1. The entire surface of the roadways around the area of construction, staging areas and access points.
  - 2. Adjacent property next to the area of construction, staging areas and access points.
- B. Photos shall clearly depict preconstruction conditions and the current stage of manufacturing and/or construction. Owner may prescribe specific locations for photographs. Digital photographs shall be taken monthly over the duration of construction and at critical events. Digital photographs shall be numbered and dated in a sequence, beginning with the number one, and located on a key map, including an arrow to show the camera's line of sight. Digital photographs shall be taken with digital photographic equipment acceptable to Owner.
- C. Technique: Photographs shall be factual presentation; correct exposure and focus, high resolution and sharpness, maximum depth-of-field, and minimum distortion.
- D. Contractor shall take views as directed and if requested, in the presence of Owner.

## PART 3 - EXECUTION

### 3.1 CONSTRUCTION PHOTOGRAPHS

- A. The actual number and location of views to be taken each month shall be as directed by Owner or designee and may be influenced by particular events, safety concerns, differing site condition or interference.
- B. Photographer: Engage a qualified photographer, approved by Owner's Representative, to take construction photographs.
- C. General: Take photographs using the maximum range of depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- D. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
1. Date and Time: Include date and time in file name for each image.
  2. Field Office Images: Maintain one set of images accessible in the field office at Project site, available at all times for reference. Identify images in the same manner as those submitted to Owner.
- E. Preconstruction Photographs: Before starting construction, take photographs of Project site, Laydown Area #2, and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Owner.
1. Flag construction limits before taking construction photographs.
  2. Take minimum 20 photographs to show existing conditions adjacent to property before starting the Work.
  3. Take additional photographs as required to record impacts to adjacent structures, and improvements.
- F. Periodic Construction Photographs: Take minimum 20 photographs monthly, coinciding with the cutoff date associated with each Monthly Report. Select vantage points to show status of construction and progress since last photographs were taken.

END OF SECTION 01 32 33

SECTION 01 33 00 - SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Specifications and General Provisions of the Contract, including General and Supplementary Conditions and other Division 01 and Technical Specification Sections, apply to this Section.
1. Statement of Work.
  2. Section 01 32 10 – “Design and Construction Schedule and Progress Payments.”
  3. Commonwealth of Virginia “Construction and Professional Services Manual – 2012” (CPSM).
  4. Metropolitan Washington Airports Authority “Design Manual – 2016” (Design Manual)
  5. Metropolitan Washington Airports Authority “Building Codes Manual – 2015)
  6. Washington Metropolitan Area Transit Authority “Manual of Design Criteria – Release 9” (WMDC).

1.2 SUMMARY

- A. Section includes:
1. Requirements for Submittal Register (aka Contract Data Requirements List (CDRL).
  2. Submittal schedule indicating the following:
    - a. Administrative and procedural requirements for submitting Design Submittals, Shop Drawings, Product Data, Samples, Warranties and other submittals.
  3. Requirements for Submittals of Permits including CECP, ECM.
  4. Submittal Review Process.
- B. Related Requirements:
1. .
  2. Section 01 32 10 "Design Construction Progress Documentation" for submitting schedules and reports.
  3. Section 01 41 00 “Regulatory Requirements and Permitting Process” for permit requirements.
  4. Section 01 60 00 “Product Requirements”
  5. Section 01 78 23 "Operational and Maintenance Data" for submitting operation and maintenance manuals.
  6. Section 01 78 39 "Project Record Deliverables" for submitting record Drawings, record Specifications, and record Product Data.

### 1.3 DEFINITIONS

- A. Action Submittals: Submittals indicated in individual technical specification sections are considered as “Action Submittals” by default and are subject to the review process.
- B. Informational Submittals: Subject to Owner’s approval, specific submittals may be indicated in individual technical specification sections as “Informational Submittals.” These Submittals are submitted to the Owner by the Contractor but do not require response. The Owner reserves the right to request any informational submittal for review. Informational submittals may be rejected for not complying with Contract requirements, initiating a resubmittal or other action by Contractor.
- C. Design Submittals: Design submittals are the work products prepared by a Registered Design Professional and submitted by the Contractor to support verification of contract requirements, development of Supplier Submittals, procurement, permitting and construction of the Work.
- D. Supplier Submittals: Supplier submittals include shop drawings, samples, product data, certifications and other supporting documentation as specified in the Project Technical Specifications and Design Submittals.
- E. Registered Design Professional (RDP): Person who is qualified and licensed to practice engineering, architecture, or surveying in Virginia as a professional by Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA) Board of Department of Professional and Occupational Regulation. Delegated Design Submittals prepared by an RDP to be incorporated into the Work are to be reviewed and approved by the Engineer of Record.
- F. Engineer of Record: Person who is qualified and licensed to practice engineering, architecture, landscape architecture, or surveying in Virginia as a professional by Architects, Professional Engineers, Land Surveyors, Certified Interior Designers and Landscape Architects (APELSCIDLA) Board of Department of Professional and Occupational Regulation, and has overall design responsibility for the Work

### 1.4 CONTRACT DATA REQUIREMENTS LIST (CDRL)

- A. Contractor shall develop a Contract Data Requirements List (CDRL) or Submittal Register (SR). A Sample CDRL/SR is provided as Attachment 01 33 00-A located at end of this Section. Contractor shall develop proposed format for Project use and submit to Owner for review and approval. As a minimum, the SR shall include all contract, design, permit and construction submittals and their associated status. The SR shall also include the schedule activity number, transmittal number, specification reference, description, and type of submittal.
- B. The initial CDRL/SR shall be submitted to the Owner for review and approval within 30 days of NTP. In this submittal the Contractor may propose certain submittals to be informational, and not subject to the formal review process. Acceptance of any such submittal as informational is at the sole discretion of the Owner.. Informational submittals are to be made in a timely manner to allow confirmation that submittal content is in compliance with Contract requirements.
- C. Updates to the affected entries of the CDRL/SR are to be provided with each submittal, when new entries are identified to be necessary or when revisions to entries are proposed. If partial

submittals for a specific technical section are proposed, this should be indicated in the CDRL/SR for approval. The entire CDRL/SR shall be submitted at least quarterly and/or at the request of the Owner.

- D. At project completion, a final version of the CDRL/SR shall be submitted.

## 1.5 SUBMITTALS

- A. Coordination: Coordinate preparation and processing of submittals with performance of design and construction activities.

1. Submit proposed equipment, material and finish selections with associated design submittals to avoid delays during review of supplier submittals.
2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities.
3. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved CDRL/SR.
4. .
5. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for verification of coordination.
  - a. Owner reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
6. Contractor shall submit completed design content and submittal checklists, similar to those used by the Airports Authority with each design submittal. The content of these checklists will be established in coordination with the Owner. Samples which may be used are provided as Attachment 01 33 00-B at the end of this Section. The checklists are to be based on industry standards, the CPSM, IBC, and the Airports Authority Design and Building Codes Manuals. Checklists shall include appropriate detail for the level of design completion presented in the submittal.
7. Submittals shall include drawings, specifications and calculations necessary to support the presented level of completion and demonstrate compliance with contractual requirements.
8. Contractor shall submit completed Design Conformance Checklists with each design submittal.
9. Contractor shall include a design narrative or report per the requirements of the CPSM and/or the Design Manual with each submittal.
10. Contractor shall include associated construction coordination and planning documents with each submittal, such as Maintenance of Traffic plans, construction sequencing narratives or graphics, and anticipated work schedule. These elements are not required to be included in submittals to the Building Codes Department.
11. Contractor shall identify any deferred or delegated design activities or future/related design necessary to be prepared by an RDP other than the EOR with each design submittal.
12. Each submittal shall include a table of contents in electronic format, identifying the package contents, drawing and specification number and title/revision.
13. Design submittals shall be both paper and electronic format, and shall include associated CAD files.

14. Failure to meet any of the administrative requirements of this section is grounds for non-acceptance of the submittal.

B. Design Reviews:

1. Contractor shall conduct scheduled design reviews during the Project's design phases for Owner's review. Design reviews shall be planned, scheduled, and conducted at the following stages of design completion:

- a. Construction Documents (60% Submittal):

- 1) Design document submittals shall be completed to a level of design that sufficiently illustrates entire Scope of Work.
- 2) Design submittal shall include the design of all disciplines and reflect a coordinated submittal.
- 3) Design submittal shall include all drawings required for 100 percent design, completed to at least a 60 percent level of detail.
- 4) Design submittal shall include coordination drawings, checked calculations (requirements as described in Section 2.5.5 of the Design Manual), specifications and related submittals for equipment, materials and finishes as specified in Table 2-2 of the Design Manual.
- 5) Shall be fully checked in accordance with Contractor's quality control procedures prior to submission for Owner's Review.
- 6) Shall incorporate unresolved comments listed in the Statement of Work and a list of unresolved issues and any Deferred/Delegated Design.
- 7) Submittal shall include and address the entire project scope requiring AHJ approval for building permits.
- 8) Design submittal shall meet or exceed the applicable requirements of the CPSM Section 807.
- 9) Include a key plan type graphic and description identifying how the design and permit packaging will be submitted.

- b. Construction Documents (90% Submittal):

- 1) Submittal shall be substantially complete and reflect the design of all disciplines, including all Drawings, Calculations, and Specifications for the Project construction package.
- 2) Submittal shall meet or exceed all applicable requirements of a Working Drawing Submittal as specified in Section 808 of the CPSM, and Section 2.5.6 and Table 2-2 of the Design Manual.
- 3) Design elements or details introduced for the first time at the 90 percent Submittal level may prevent submittal acceptance and may be subject to a complete review cycle, at the sole discretion of the Owner.
- 4) Documents shall be fully checked in accordance with established quality control procedures. Documents shall include the following:



- a) Verification that previously received comments have been resolved and incorporated.
  - b) List of unresolved issues.
  - c) Documents shall be a comprehensive and complete pre-final construction submittal, suitable for public procurement and construction.
  - d) Description of revisions to previously submitted documents due to design evolution.
  - e) Listing of Delegated Design elements and EOR certification that Delegated Design included in the submittal has been reviewed and approved by the EOR.
- c. Construction Documents (100% Submittal)
- 1) The Construction Documents 100 percent Design Submittal is described in Section 2.5.7 of the Design Manual as the Final Submittal, and shall include all of the elements described therein.
2. Owner will collect internal review and WMATA comments and provide to Contractor those comments which identify non-compliance with Contract Documents. Contractor shall comply with Owner requests for additional design review data. Data shall be provided within two weeks of receipt of written requests. Time allowed to Owner shall be extended if additional data is required to complete a review.
  3. Design Review Meetings. Contractor shall conduct formal design review meetings to highlight changes from previous submittals, variations or deviations from requirements of Contract Documents and to resolve review comments.
    - a. Contractor shall address received comments and deliver schedule submitted in tabular format indicating comment's disposition to Owner.
    - b. Resolution of comments received on any in-progress review or previous submittal is a pre-requisite of acceptance for the next submittal.
    - c. Resolution of comments received on 100% design is a pre-requisite of submitting for permit.
    - d. Contractor shall follow procedures defined in the Contract, Article 19, if Owner's comments require change in Work affecting cost and time of performance.
  4. Record of Design Review (RDR). Contractor shall prepare and Submit a Record of Design Review (RDR) documenting the minutes of each Submittal Comment Resolution Meeting, final comment responses and agreed resolutions.
  5. Acceptance. Owner retains the rights of acceptance stated in Contract Documents. In addition, Owner retains an overall right to review and comment on each design review. No review comments provided by Owner shall be interpreted as directive to Contractor to carry out Work that is not required by Contract Documents as amended by Change Orders.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows:

1. Time for review shall commence on Owner's receipt of administratively acceptable submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
  2. Initial Review: Allow 21 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Owner will advise Contractor when a submittal being processed must be delayed for coordination. Review of complex or large submittals will be extended to 31 days with the agreement of the Owner.
    - a. Owner will coordinate third party reviews consistent within Owner's 21 calendar day review.
    - b. Federal holidays: If two or more federal holidays fall within review period, parties shall extend this review period equal to number of federal holidays in review period.
    - c. Owner will use reasonable efforts to facilitate shorter review durations of specific design review submittals when achievable.
    - d.
  3. Intermediate Review: If an intermediate submittal is necessary, process it in same manner as initial submittal.
  4. Resubmittal Review: Allow 21 days for review of each resubmittal.
  5. Sequential Review: Contractor shall prepare a list of Specification Sections requiring sequential review.
  6. Delegated Design Review: Delegated design shall be submitted concurrently with design submittals to the extent possible. When submitted after the Project's 100% submittal, the Delegated Design itself will be considered a 90% submittal if all requirements for a 90% submittal are met. Any delegated design submittal is to include a statement by the EOR that the submittal has been reviewed for conformance with design and contract requirements and approved. The EOR shall include any requirements for Special Inspections or temporary bracing of the delegated design in the Project permit documents.
- D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.
1. For Request for Information, Submittals, Non Conforming Reports, and other construction phase submittals, provide a minimum of three paper copies, at full size, and submit via the selected Package identified Project Website based Construction Administration software. Final approved documents shall additionally be submitted on 3 CDs with pdf or as directed Owner.
  2. For Design Review submittals, provide a minimum of three paper copies, at full size, and submit via the selected Package identified web based Construction Administration software. Provide an additional three CDs with pdf versions of the submittal or as directed by Owner.
  - 3.
  4. Indicate name of firm or entity that prepared each submittal on label or title block.
  5. Include the following information for processing and recording action taken:
    - a. Project name.

- b. Contract name and number.
  - c. Date.
  - d. Name and address of Engineer or Architect of Record.
  - e. Name and address of Contractor.
  - f. Name and address of subcontractor, if applicable.
  - g. Name and address of supplier, if applicable.
  - h. Name of manufacturer, if applicable.
  - i. Submittal number or other unique identifier, including revision identifier.
    - 1) Submittal number shall use Specification Section number followed by a dash and then a sequential number (e.g., 061000-01). Resubmittals shall include an alphabetic suffix after another dash (e.g., 061000-01-A).
    - 2) Contractor may choose another system of identifying submittals if approved by Owner.
  - j. Number and title of appropriate Specification Section.
  - k. Drawing number and detail references, as appropriate.
  - l. Location(s) where product is to be installed, as appropriate.
  - m. Transmittal number.
  - n. Other necessary identification.
- E. Digital Submittals Format: All submittals shall be transmitted electronically in pdf format. Requirements in first subparagraph below can be performed automatically using PDF publishing software.
- 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section with links enabling navigation to each item.
  - 2. Name file with submittal number or other unique identifier, including revision identifier.
    - a. File name shall use project identifier and Specification Section number followed by a dash and then a sequential number (e.g., XXXX-061000-01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., XXXX-061000-01-A).
  - 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Owner's Representative.
  - 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
    - a. Project name.
    - b. Date.
    - c. Name and address of Engineer or Architect of Record.
    - d. Name of Construction Manager.
    - e. Name of Contractor.
    - f. Name of firm or entity that prepared submittal.
    - g. Names of subcontractor, manufacturer, and supplier.
    - h. Category and type of submittal.
    - i. Submittal purpose and description.
    - j. Specification Section number and title.

- k. Specification paragraph number or drawing designation and generic name for each of multiple items.
  - l. Drawing number and detail references, as appropriate.
  - m. Location(s) where product is to be installed, as appropriate.
  - n. Related physical samples submitted directly.
  - o. Indication of full or partial submittal.
  - p. Submittal and transmittal distribution record.
  - q. Other necessary identification.
  - r. Remarks.
- F. Options: Identify options requiring selection by Owner's Representative.
- G. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Owner's Representative on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 1. Note date and content of previous submittal.
  - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
  - 3. Resubmit submittals until they are marked with approval notation from Owner's Representative action stamp.
- I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, Authorities Having Jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- J. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Owner's Representative action stamp.

## PART 2 - PRODUCTS

### 2.1 CDRL/SUBMITTAL REGISTER

- A. Submit a schedule of submittals, arranged by Contract and Specification Section and in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Owner's Representative and additional time for handling and reviewing submittals required by those corrections.
- B. Coordinate submittal schedule with Contract and Specification requirements, list of subcontracts, the schedule of values, and Contractor's construction schedule.

- C. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
- D. Interim Submittal: Submit at completion of milestones for design and construction. Milestones will be jointly identified by Contractor and Owner and included in Baseline schedule. See Section 01 32 00 “Design and Construction Schedule and Progress Payment.”

## 2.2 SUBMITTALS RELATED TO PERMITS, ENVIRONMENTAL MANAGEMENT PLAN (EMP), AND ENVIRONMENTAL COMPLIANCE MATRIX (ECM)

- A. Submit “Design and Permit Packaging Plan” as follows:
  - 1. Submit draft within 30 days after NTP for review and Acceptance. Submit final addressing all Owner comments within 90 days of NTP. Updates shall be reflected in the Baseline Schedule and included in the monthly report detailing changes to the schedule with a reference back to Plan.
- B. Submit draft Permit Plan for review and acceptance within 30 days after NTP. Final Permit Plan shall be submitted within 90 days after NTP and shall address all Owner comments. Permit Plan shall be updated at the completion of Preliminary Design phase.
- C. Submit initial EMP, including the ECM, for review and acceptance within 60 days after NTP followed by final EMP addressing all Owner comments within 30 days of receipt of comments. Submit updates of EMP as conditions change but not less than annually for review and acceptance.
  - 1. Submit update of ECM on quarterly basis.
- D. Submit copies of permits obtained quarterly. Submit copies of final permits and closeout correspondence .

## 2.3 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections and as described in this Section. Types of submittals are to be indicated in individual Specification Sections and the approved CDRL/SR.
  - 1. Post electronic submittals as PDF electronic files directly to Project Web site specifically established for Project.
  - 2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

- a. Provide a notarized statement on original paper copy of certificates and certifications where indicated.
- B. Product Data: Collect information into a single submittal for each element of construction, type of product and equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, or if there is design content in the submittal, submit as Shop Drawings, not as Product Data.
  2. Mark each copy of each submittal to show which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's catalog cuts.
    - b. Manufacturer's product specifications.
    - c. Standard color charts.
    - d. Statement of compliance with specified referenced standards.
    - e. Testing by recognized testing agency.
    - f. Application of testing agency labels and seals.
    - g. Notation of coordination requirements.
    - h. Availability and delivery time information.
  4. For equipment, include the following in addition to the above, as applicable:
    - a. Wiring diagrams showing factory-installed wiring.
    - b. Printed performance curves.
    - c. Operational range diagrams.
    - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
    - e. Outline drawings
    - f. Weight and mounting details
    - g. Interface data.
  5. Submit Product Data before or concurrent with Samples.
  6. Submit Product Data in the following format:
    - a. PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
    - a. Identification of products.
    - b. Schedules.
    - c. Compliance with specified standards.
    - d. Notation of coordination requirements.
    - e. Notation of dimensions established by field measurement.
    - f. Relationship and attachment to adjoining construction clearly indicated.
    - g. Seal and signature of professional engineer if specified.
    - h. Calculations as appropriate.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
  3. Submit Shop Drawings in the following format:
    - a. PDF electronic file.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
  2. Identification: Attach label on unexposed side of Samples that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of manufacturer.
    - c. Sample source.
    - d. Number and title of applicable Specification Section.
    - e. Specification paragraph number and generic name of each item.
  3. Provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
  4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
  5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
    - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Owner's Representative will return submittal with options selected.
  6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

- a. Number of Samples: Submit a minimum of three sets of Samples. Owner's Representative will retain two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record sample.
  - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
  - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
  
- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
  - 1. Type of product: Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
  - 2. Manufacturer and product name, and model number if applicable.
  - 3. Number and name of room or space.
  - 4. Location within room or space.
  - 5. Submit product schedule in the following format:
    - a. PDF electronic file.
    - b. Three paper copies of product schedule or list unless otherwise indicated. Owner's Representative will return two copies.
  
- F. Application for Payment and Schedule of Values: Comply with requirements specified in Section 01 32 00 "Design and Construction Schedule and Progress Payment."
  
- G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 01 40 00 "Quality Requirements."
  
- H. Maintenance Data: Comply with requirements specified in Section 01 78 23 "Operation and Maintenance Data."
  
- I. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
  
- J. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
  
- K. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
  
- L. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.



- M. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- N. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- O. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- P. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- Q. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- R. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- S. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- T. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

#### 2.4 DELEGATED-DESIGN SERVICES

- A. Certification: In addition to Shop Drawings, which are required to be signed and sealed by the responsible RDP, the EOR shall indicate that all delegated design products and systems comply with performance and design criteria in the design and Contract Documents. Where applicable for delegated design, Product Data, and other required submittals, submit three paper copies of certificate, signed and sealed by the EOR, for each product and system designed or certified by an RDP.

1. .

## PART 3 - EXECUTION

### 3.1 OWNER'S REVIEW

- A. Submittals will be reviewed by Owner, within the time periods defined. Owner may withhold final acceptance of submittals which depend on other submittals not yet submitted or not yet accepted. Owner acceptance of submittals will not be unreasonably withheld. Owner will review submittals for general conformance with Contract Documents Owner's designations shall have following meanings.
1. Accepted shall mean Owner is in agreement with specific approach, proposal, plan, schedule, analysis or design submitted by Contractor and the submittal itself and its contents appear to conform to respective requirements of Contract Documents for that submittal. Owner acceptance shall not relieve Contractor of any Contract requirement. Submittals marked "Accepted" need not be resubmitted, unless requested by Owner.
  2. Accepted as Noted shall mean that submittal and its contents appear to conform to respective requirements of Contract Documents for that submittal after revisions are made to areas not in recognition of review comments. Owner will specifically identify those comments that are to be incorporated by Contractor. Submittals marked "Accepted as Noted" need not be resubmitted Unless specified by Owner.
  3. Not Accepted shall mean that submittal does not meet requirements and a new or revised submittal in accordance with Contract Documents shall be made. If submittal is "Not Accepted," Owner will specifically identify where submittal does not comply with requirements of Contract.
  4. Changes affecting form, fit, function, code basis, and safety require submittal to Owner for review and acceptance.
  5. Changes to Accepted or Accepted as Noted design submittals are subject to review and approval by the Owner. If the change is determined to affect the form, fit, function, code basis, or safety related aspects of the subject submittal, at the Owner's sole discretion, a resubmittal may be required. For any change the Contractor may be required to prepare revised design documents as requested by the Owner. The Contractor will be responsible for obtaining any associated approvals from the Authority Having Jurisdiction prior to performing the work.

### 3.2 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Owner.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 01 77 00 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.3 OWNER'S ACTION

- A. Owner's Responsibilities: Review of shop drawings and other submittals will be for general conformance with Contract and for consistency with approved design drawings. Review shall not be interpreted as a checking of detailed dimensions, quantities or approval of deviations from Contract Documents. Owner's review shall not relieve Contractor of responsibility for accuracy of Drawings nor for furnishing and installation of materials or equipment according to Contract requirements.
  - 1. Approval of Shop Drawings or other submittals shall not be interpreted as approval of substitute material. Approval of substitutions will be accomplished according to requirements set forth in Section 01 40 00 "Quality Requirements."
- B. General Submittals: Owner's Representative will review each submittal and will not return it, or will return it if it does not comply with requirements. Owner's Representative will forward each submittal to third-party stakeholder.
- C. Partial submittals are not acceptable will be considered non-responsive, and will be returned without review.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents may be returned by Owner's Representative without action.

END OF SECTION 01 33 00

Exhibit-A: Sample Submittal Register

SECTION 01 35 23 – SAFETY AND HEALTH REQUIREMENTS

GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections, apply to this Section.
- B. Requirements included in this Section are the minimum acceptable and are in addition to the Airports Authority’s Construction Safety Manual, as well as all Local, State, and Federal requirements. Where conflicts or discrepancies exist between requirements, the more stringent requirement shall govern.
- C. Drawings and general provisions of Contract and Division 1 Specification Sections, apply to this Section. The following list is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents.
  - 1. Statement of Work.
  - 2. Division 1 Section 01 31 00 “Project Management and Coordination.”
  - 3. Division 1 Section 01 50 00 “Temporary Facilities and Controls.”
  - 4. Metropolitan Washington Airports Authority’s (MWAA) Construction Safety Manual.
  - 5. OSHA 29 CFR 1926 “Construction Industry Regulations.”

1.2 SUMMARY

- A. Provide safe and healthful working conditions on each operation at all times. Conduct the various operations connected with the Work so that they will not be injurious to safety or health. Comply with all provisions, regulations and recommendations issued pursuant to the Occupational Safety and Health Act of 1970, and the Construction Safety Act of 1969, as amended, and with laws, rules and regulations of other authorities having jurisdiction, with regard to all matters relating to the safety and health of workers and the general public. Comply with all provisions, regulations and recommendations issued pursuant to Virginia Department of Labor and Industry Occupational Safety & Health (VOSH) Unique Safety Standards for Construction. Compliance with government requirements is mandated by law and considered only a minimum level of safety performance. Perform all work in accordance with best safe work practices recognized by the construction industry.
- B. Noncompliance with Airports Authority Construction Safety Policies, FAA Requirements, OSHA 1926 Safety Regulations, VOSH Safety & Health Safety Regulations can result in an issuance of Notice of Non Compliance (NCN).
- C. Stop work whenever a work procedure or a condition at a work site is deemed unsafe by the Contracting Officer’s Technical Representative (COTR), the Program Safety Manager (PSM), the Contractor’s Safety Manager, the Contractor’s Safety Engineer(s), the Contractor’s Industrial Hygienist (IH), or by the Program Management Support Services (PMSS).

- D. Prior to the start of construction activities in the Airport Operations Area (AOA), the Contractor’s Safety Manager, Safety Engineers and Industrial Hygienist, Program Management Support Service (PMSS) Consultant shall tour the site with the Program Safety Manager.
- E. Implement and conduct safety meetings, as indicated in the Airports Authority’s Construction Safety Manual, with all subcontractors on the job site and all subcontractors anticipated to be on the job site from the previous safety meeting to the next safety meeting. The purpose of the safety meeting shall be safety coordination, review of safety procedures, and promoting safety awareness.
- F. Construction Safety and Security Plan (CSSP): Prepare, obtain acceptance of, implement and monitor a CSSP for Project. The CSSP and its associated plans, shall address aspects of Project development and implementation including, but not limited to design, construction, installation, test and startup of Project. CSSP shall be consistent with following:
  - 1. MWAA: “Construction Safety Manual.”
  - 2. Requirements of permits and Government approvals for Project.
  - 3. Requirements of Federal, State and local laws, ordinances, codes and industry standards.
- G. All work shall be pre-planned prior to starting any construction activity. Pre-task planning shall be required by all work crews and reviewed by management personnel. Work crews will review the Pre-Task Plan (PTP) with management personnel so they are aware of the hazards of the work their performing. Work crews and management will plan how to abate the hazards identified in their plan. Management and work crews will sign the PTP form acknowledging that they have read and understand the hazards of the work being performed and have planned how to mitigate the safety hazards that they have identified. (Refer to Pre-Task Planning Policy in the Airports Authority Construction Safety Manual).
- H. Fire Safety: Conform to the following requirements:
  - 1. Ensure adequate access to all construction areas for emergency response.
  - 2. Complete application and obtain a permit from the Office of the Airports Authority Fire Marshal to store, handle, or use any hazardous material, including but not limited to fuels for equipment.
  - 3. Perform all utility outages in accordance with the requirements of Division 01 Section 01 10 00 “Summary.”
  - 4. Be responsible for developing a site specific Hearing Conservation and Respiratory Protection Programs for all employees who may be exposed to health hazard. The Program Safety Manager must approve these programs prior to beginning work that may expose employees to health hazards associated with construction activities. All employees exposed to airborne contaminants and/or noise must, at a minimum, have an audiogram and pulmonary function test.

### 1.3 DEFINITIONS

- A. Public: includes persons not employed by Contractor and Subcontractors at all tiers and persons not employed by Owner or WMATA that are directly participating on the Project.

1.4 SAFETY AND HEALTH MANAGEMENT

A. Proposed Safety and Health Personnel

1. The Contractor shall provide a full-time on-site Contractor's Safety Manager for the duration of this Contract, who shall be responsible for all safety and health requirements as included herein and as required by the Airports Authority's Construction Safety Manual. The Contractor shall also provide the services of at least one full-time on-site Contractor's Safety Engineer per construction work shift, one full-time on-site certified Industrial Hygienist (IH) (shall be required if hazardous or contaminated materials are encountered) and at least one full-time first aid attendant, who shall work under the direction of the Contractor's Safety Manager. The Contractor's Safety Manager, Safety Engineer(s) and First Aid Attendant(s) shall all have current Red Cross First Aid/AHA Certificate and CPR Certification or equivalent.
2. The Contractor shall submit the résumés of all proposed safety and health professionals who shall serve in the role of Contractor's Safety Manager (CSM), Contractor's Safety Engineers (CSE), Contractor's Industrial Hygienist (IH) and all other Contractor's Site Supervision to the COTR and MWAA Program Safety Manager (PSM) for approval. The resumes shall include but not limited to such items as: work experience, dates, experience attained, education, safety and health training completed, memberships in professional associations, professional certifications, professional registrations, and professional references confirming the qualifications shall also be required. Documentation confirming the qualifications and personal references or contacts for verification shall also be required. The COTR or PSM may reject the persons proposed for failure to have adequate qualifications, past performance or other reasonable and lawful causes.
3. Approval of the COTR is required, if at any time the Contractor seeks to remove or discharge the Contractor's Safety Manager, Safety Engineer(s) and Industrial Hygienist.

B. Contractor's Safety Manager

1. The Contractor's Safety Manager shall be a full time on-site safety professional with a minimum of 10 years of experience managing safety programs on construction projects comparable to this Contract in size, scope and complexity (a CSP or CSM preferred). The Construction Safety Manager shall perform the duties and responsibilities as stated in the Airports Authority's Construction Safety Manual. The Construction Safety Manager shall be at a minimum an OSHA authorized Outreach Trainer having passed the OSHA 500 Training Course in Occupational Safety and Health Standards for Construction Industry including any and all update training required to maintain a current active certification.
2. The Contractor's Safety Manager shall be knowledgeable of all applicable safety and health codes, statutes and ordinances as well as best safety practices recognized by the construction industry. The Contractor's Safety Manager shall be able to demonstrate knowledge and ability to ensure compliance with same. The Contractor's Safety Manager shall not be the project manager, project engineer, superintendent or anyone else working on the Project and shall perform no other duties except those related to safety and health as directed by the COTR. The primary duties of the Safety Manager are to set up and administer the safety and health programs, run safety training courses, and to

verify compliance by all of the Contractor's employees and those of all subcontractors. When necessary the Safety Manager will be responsible for implementing any and all safety and health changes required by new legislation or as required by the COTR.

C. Contractor's Safety Engineer

1. The Contractor's Safety Engineer(s) (CSE) shall be full-time on-site safety professional with a minimum 5 years safety experience (dual roles will not be accepted) in construction, hired by the Contractor to manage only the safety efforts of construction (Refer to Airports Authority Construction Safety Manual for job description requirements). The Contractor's Safety Engineers shall be familiar with the type of work to be performed under this contract. The CSE shall perform the duties and responsibilities as stated in the Airports Authority's Construction Safety Manual.
2. The Contractor's Safety Engineer(s) shall have, at a minimum, a certificate of completion of a 30-hour OSHA Training Course in the following areas: Hazardous Materials, Respiratory Protection and Permit-Required Confined Space Entry. Training shall be conducted by an instructor accredited to perform such instruction by the Occupational Safety and Health Administration.
3. The CSEs shall not be the project manager, engineer, superintendent or anyone else working on the project and shall have no other duties except those related to safety.
4. Any contractor that has over 30 employees working shall have an assigned safety engineer to manage safety on the project.

D. Contractor's Industrial Hygienist (if IH is needed)

1. The Contractor's Industrial Hygienist (IH) shall have a minimum of 10 years experience in managing construction related environmental conditions, including but not limited to contaminated or hazardous materials as defined in Section "Supplementary Conditions." The Industrial Hygienist shall be certified by the American Board of Industrial Hygienist (ABIH) and shall have received certification for taking and passing a 30-hour OSHA Training Course 521 - OSHA Guide to Voluntary Compliance in the Industrial Hygiene Area within the last two years. The Industrial Hygienist shall develop, implement and oversee the Contractors Environmental Response Plan and shall be responsible for ensuring compliance with the environmental requirements of the Airports Authority and all local, state and Federal agencies. The Industrial Hygienist shall assist the Contractor's Safety Manager and Safety Engineers in training the Contractor and Subcontractor's personnel in recognizing and handling environmental problems.

E. Contractor's Site Supervision (Superintendents and Foremen)

1. Superintendents and Foremen shall have a minimum of 5 years experience in the supervision in construction operations similar to the type of construction anticipated on this contract within the last 7 years.
2. In addition to the above, the Superintendents and Foremen employed by the Contractor on the Project shall have, at a minimum:

- a. A certificate of completion from a 30-Hour OSHA Hazard Recognition Training Course for the Notice-to-Proceed. An instructor accredited by the Occupational Safety and Health Administration to perform such instruction shall have conducted the course for which the certificate is offered.

F. Reference Codes, Standards and other Documents

1. OSHA - US Department of Labor, Occupational Safety and Health Administration, Construction Standards and Interpretations, 29 CFR Parts 1910 and 1926.
2. US Department of Labor, Occupational Safety and Health Act of 1970, as amended.
3. US Department of Labor, Construction Safety Act of 1969, as amended.
4. Virginia OSHA Rules and Regulations (Virginia Occupational Safety & Health Unique Standards).
5. All other Federal, State and Local requirements and regulations in effect at the time of construction.

1.5 SUBMITTALS

- A. Submit Safety and Health Program to COTR within 15 calendar days of Notice to Proceed and prior to the start of any construction activities. COTR and PSM must approve the Contractor's Safety and Health Program prior to the start of any work.
- B. Submit Fire Risk Assessment to COTR prior to any construction.
- C. Submit résumés of the proposed Industrial Hygienist to COTR within 10 calendar days of Notice to Proceed.
- D. Submit qualifications of Contractor's Site Supervision to COTR within 15 calendar days of employment at the project.
- E. Submit Airports Authority provided Inspection reports by Contractor's Safety Manager to COTR weekly.
- F. Submit to COTR Weekly the following:
  1. Meeting Minutes and attendance sheets of Safety Training
  2. Weekly Safety Meetings and related communications by Contractors and Subcontractors.
- G. Submit disciplinary action notices to COTR weekly.
- H. Submit notices from public authorities to COTR as soon as possible but no later than 24 hours of receipt by Contractor.
- I. Submit Safety Data Sheets (SDS) for all substances to COTR for PSM review as received by Contractor along with written Hazard Communication Program.
- J. Submit copy of Contractor's chemical inventory list to COTR and the Airports Authority Fire Marshal as developed and updated.



- K. All equipment shall be inspected for possible safety problems and any safety problems found shall be corrected prior to piece of equipment being brought on to the project. All equipment shall be safety inspected monthly if not more often as directed by the COTR. Submit copies of these inspection reports to COTR within one week of the inspection.
- L. Submit copies of the latest annual inspections as required by OSHA 1926.550 (Subpart N) to the COTR immediately upon any crane being brought on to the job site and within one week of any annual inspections that occur while that crane is on the project.
- M. Submit a listing of all crane operators and their qualifications (Shall be a National Commission for Certified Crane Operator (NCCCO Certified) to the COTR for PSM approval. Obtain approval in writing. In addition, crane plan, rigging plan, annual inspection with deficiencies report, rigging personnel and signalman certifications, crane placement verification, and dunnage documentation shall be submitted to the COTR for the PSM review and approve (refer to Airports Authority “Crane Policy” in the Airports Authority Construction Safety Manual for additional crane requirements).
- N. Submit a safety mitigation plan for any subcontractors who have an Experience Modifier Rate (EMR) of over 1.0. The contractor shall provide documentation of the current year and last three years of safety related issues and address those issues in the safety mitigation plan.

#### 1.6 SAFETY PROGRAM ADMINISTRATION

- A. Roles and Responsibilities: The Contractor shall be directly responsible for establishing and implementing a project-specific Contractor Safety and Health Program for the protection of its workers, the workers of its Subcontractors, the COTR, Architect/Engineer, the Metropolitan Washington Airports Authority (Airports Authority) and the general public. The Contractor shall ensure that the necessary resources for an effective program, as set forth in the contract documents and specifications, are provided at all times during the course of the Work. The Contractor shall require that its Subcontractors comply with all requirements of the Work and of the Contractor Safety and Health Program. The Contractor shall include documentation of safety and health program implementation and accident experience as criteria for evaluating performance of its individual project managers and site supervisors.

##### 1. The Contractor’s Project Manager shall:

- a. Ensure the implementation and administration of the Contractor’s Safety and Health Program.
- b. Support the Contractor’s Safety Manager (CSM) with the resources and authority to enable him/her to effectively administer and manage his/her designated portion(s) of the project safety effort.
- c. Ensure that the Contractor’s Safety Manager is assigned only work bearing directly on the safety and health of workers and members of the general public not activities which prevent the CSM from performing his/her primary function: safety inspections, training and enforcement. Although it may be appropriate for the Contractor’s Safety Manager to participate in functions such as site security, insurance-related issues such as medical case management, general procurement,

and similar functions, they shall not be considered safety related activities for purposes of these Specifications and they shall not be part of the CSM's primary responsibilities.

- d. Attend scheduled safety and health meetings conducted by the Contractor pursuant to administration of the project safety effort.
  - e. Cooperate with the COTR and PSM in enforcement of the Safety and Health Program responsibilities as set forth in these Specifications.
2. The Contractor's Safety Manager shall:
- a. Administer and manage the Contractor's Safety and Health Program.
  - b. Cooperate with the COTR, PSM and Insurance Safety Consultant in their administration, management and oversight of the Contractor's Project Safety and Health Program.
  - c. Attend scheduled safety and health meetings conducted by the Program Safety Manager.
  - d. Prior to the start of work, conduct a physical survey of the job site(s) and make a survey of the work to be performed by reviewing the drawings and conducting discussions as applicable with the necessary parties toward identification of and planning for hazard controls. These activities shall be documented and submitted as a Project Safety and Health Survey to the COTR and PSM for review.
  - e. At the initiation of the work and throughout the course of the project, conduct and implement Job Hazard Analyses (JHAs) for operations deemed hazardous. The JHAs will identify potential hazards and actions required to control them. The JHAs will be submitted to the COTR and PSM for review. The CSM shall review PTP forms in the field with work crews and management personnel.
  - f. Be physically at the Project job site on a full-time basis for 8 hours per working day with minimal exceptions.
  - g. Conduct physical inspections of the job site, equipment, materials and operations to detect and promptly eliminate unsafe acts and unsafe conditions. The frequency of the inspections shall be determined on the basis of site activities. Hazardous activities will require continuous inspection. In no case shall the above-described inspections be conducted less than once per shift.
  - h. Document in a uniform, established format the findings of each inspection, including the nature of hazards identified, the corrective actions taken, and the person(s) exposed or potentially exposed to the hazard(s). Abatement photographs will be required for observed safety violations.
  - i. Schedule and conduct safety orientations, meetings and hazard recognition training for all workers and visitors on the project.

- j. Develop and implement a program to readily identify individuals (i.e. Hard Hat Decals) who have completed the required safety and hazard training.
  - k. Administer the disciplinary action policies and procedures set forth in the Contractor's Project Safety and Health Program.
  - l. Post and maintain the required safety information at appropriate locations on the project, including, but not limited to emergency action information (phone numbers, means of egress, etc), hazard warnings, hazard communication information, and injury and illness data.
  - m. Conduct investigations of all accident events and near misses and document the findings of such investigations within 24 hours in accordance with applicable rules and regulations and the Contractor's Project Safety and Health Program. Abatement photographs shall be required by the contractor for observed safety violations.
  - n. Maintain written materials, such as codes, standards, references, hazard communication information, medical and exposure monitoring records and other safety and health program-related documents in an orderly manner at the project, readily available for use by the Contractor's personnel and review by the COTR and PSM.
  - o. Perform all safety and health-related tasks necessary to achieve the highest degree of safety that the nature of the work permits.
  - p. Manage the trained Contractor's Safety Engineer(s) working on all shifts.
  - q. Implement and manage a hot work permit program, making sure that it complies with the Airports Authority's Fire Department rules and regulations.
  - r. Attend weekly walkthroughs with the COTR and PSM.
  - s. Attend project progress meetings as necessary or as required by the COTR.
3. The Contractor's Safety Engineer(s) shall:
- a. Be present on the project for all working periods particularly during tunnel operations.
  - b. Assist the Contractor's Safety Manager during the shift when both are present at the project and perform all the duties associated with safety normally performed by the Contractor's Safety Manager when the CSM is absent from the project.
4. The Contractor's Site Supervisors (Superintendents and Foremen) shall:
- a. Be directly responsible for ensuring the work is performed in a safe and healthful manner. They shall be knowledgeable of the hazards attendant to the work, aware of the necessary hazard controls and authorized to effect prompt action to control or eliminate them.

- b. Assist the Contractor’s project management and safety staff in the inspection of job sites, equipment and materials, attending and participating in the Contractor’s safety meetings and training efforts, and enforcing safe work rules set forth in the Contractor’s Project Safety and Health Program.
  - c. Ensure that each job has the necessary safety appliances and personal protective equipment.
  - d. Monitor and report to the Contractor’s Safety Manager the safety performance of Subcontractors on the project to determine their level of compliance with the Contractor’s Project Safety and Health Program.
  - e. Participate and cooperate fully with the COTR, PSM, Insurance Safety Consultant, PMSS Consultant and Contractor’s Safety Manager in the investigation of accidents and remediation of hazards.
  - f. Report all accidents immediately and near misses as promptly as conditions permit, with written follow up reports within 24 hours after the occurrence, to the COTR, PSM, Insurance Safety Consultant, PMSS Consultant and Contractor’s Safety Manager.
5. Contractor’s employees shall be required by the Contractor to:
- a. Fully support the Contractor’s Project Safety and Health Program by assisting the COTR, PSM, Insurance Consultant, PMSS Consultant and Contractor’s Safety Manager in the inspection of the job site, equipment and materials to detect hazards and reporting unsafe acts and unsafe conditions immediately.
  - b. Attend and actively participate in all orientation, safety and health training safety meetings and other functions for communication of safety and health prescribed by the Contractor’s Project Safety and Health Program.
  - c. Comply with the work rules set forth in the Contractor’s Project Safety and Health Program or as further established as a part of ongoing safety training and/or job hazard analysis.
  - d. Report to the Contractor’s Site Supervision any and all apparent unsafe acts or unsafe conditions.
  - e. Report any and all accidents, injuries, symptoms of illness and near miss events involving the worker to the Contractor’s Site Supervision immediately or as promptly as conditions permit.
  - f. Make recommendations for safety and health protection(s) that the worker has, from his or her own experience, observed to be successful on other projects.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Contractor shall develop, adopt, implement and report against Construction Safety and Security Plan. Plan shall define procedures for accident prevention, investigation, and ensuring a proper level of safety and security on Project Site from initiation of construction, through Substantial Completion. The Plan shall meet requirements of Contract Documents, and shall be consistent with the requirements set forth in MWAA Construction Safety Manual and WMATA's Construction Safety and Environmental Manual, policies and procedures for project work associated with the Adopted Regional System (ARS).
- B. Coordination between Owner and Contractor's forces is required.
1. Proper supervision, training and participation of personnel within Contractor's organization are required.
- C. Objectives:
1. Safety shall be an integral part of the Work of Project. Full participation, cooperation, and support of persons and property involved in Project. Contractor has responsibility to provide safe working conditions for its employees and subcontractors and protect the public and others who may come in contact with, or exposed to the Project.
  2. Provide good communication and work practices at project sites. Minimize potential for exposure to safety and security risks. Provide for the following:
    - a. Plan and execute Work to prevent personal injury, property damage, and loss of production time.
    - b. Comply with Federal, State, and local laws, ordinances, codes, industry standards and Owner's protocols and procedures.
    - c. Minimize and control hazards and risks associated with on-site construction activities of Project.
    - d. Minimize personal injuries and property damage.
    - e. Develop healthful and safe place to work.
    - f. Maintain a system of prompt detection and correction of unsafe practices and conditions. Provide, through Construction Management Plan, located in Section 01 31 00 "Project Management and Coordination."
      - 1) Hazard Identification.
      - 2) Correction Tracking System.
    - g. Establish and conduct training programs to stimulate and maintain interest and cooperation of employees.
      - 1) Provide weekly safety talks and safety training programs.
      - 2) Provide for Personal Requirements, but not limited to:
        - a) Protective equipment.
        - b) Lock-out/tag-out devices.
        - c) Fall protection equipment.

- h. Ensure prompt notification and investigation of accidents, incidents, or claims to determine causes and take necessary corrective action.
- i. Develop and coordinate Emergency Preparedness Procedures and train employees in protocol for communication in event of incident or injury.
- j. Develop Substance Abuse Policy.

## 2.2 PROTECTION OF EXISTING FACILITIES

- A. For Work within existing, Package A, and MWAA facilities, Contractor shall be cognizant of and bound by safety rules and regulations, and conduct its operations in strict accordance with same. The more restrictive of the applicable conditions shall apply.
- B. Package A facilities and structures shall not be utilized by Contractor for temporary scaffolding and support for the construction effort without prior approval. Contractor shall provide a detailed plan for such temporary facilities. Plans shall be submitted for Owner's review and approval prior to initiation of Work.

## 2.3 DOCUMENTATION

- A. Construction Safety and Security Plan shall include, but not be limited to the following:
  - 1. Procedures for compliance with applicable national, regional and local safety rules and regulations. Level of compliance shall include, but not be limited to the following:
    - a. Occupational Safety and Security Plan (OSHA).
    - b. Hazardous Waste Operations and Emergency Response (HAZWOPER).
    - c. American National Standards Institute (ANSI).
    - d. National Fire Protection Association (NFPA).
    - e. National Safety Council (NCA).
    - f. Virginia Work area Protection Manual (WAPM).
  - 2. Procedure for furnishing and enforcing use of individual protective equipment including hard hats, rain gear, protective footwear, protective clothing and gloves, eye protection, ear protection, respirators, safety belts, safety harnesses, safety lifelines and lanyards, and high visibility reflective safety vests.
  - 3. Procedures to be followed prior to initiating work in confined areas/spaces.
  - 4. Provisions for first aid facility, supplies, and trained personnel in compliance with industry-accepted standards.
  - 5. Procedure for employee safety to include employee safety orientation prior to any work, weekly work crew safety meetings, periodic safety meeting for supervisory personnel. Offer this training to Owner's personnel and its agents and representatives.
  - 6. Procedure for ensuring that personnel trained in OSHA HAZWOPER, and with current certification, are available to work with hazardous materials when encountered or with hazardous operations prior to initiation of operations.
  - 7. Emergency procedures for fire, earthquake, severe weather, flooding, seriously injured personnel, traffic accidents along the Project Site, encounters with hazardous materials, and injuries of members of the public.
  - 8. Pre-construction planning relative to safety and control of hazards including special tools, equipment, facilities and individual protective gear.

9. Procedure for periodic safety inspections, investigations of accidents and injuries and submission of timely reports.
  10. Procedure for submission of injury/accident/incident data so a statistical analysis can be made.
  11. Coordination and communication procedure for interface to applicable state and governmental agencies.
  12. Actions and plan required for safe movement of public through and around Project Site.
  13. Actions and procedures required to secure Site and provide security for Work of Project and public.
  14. Actions and plan required to manage Site in event of a crisis. Preliminary description of these actions and plan are contained in the Dulles Corridor Metrorail Project Emergency Communications and Media Plan.
  15. Incorporate policies, processes, and procedures from the Environmental Management Plan to ensure environmental safety and compliance with applicable regulations.
- B. Owner shall monitor Contractor's and subcontractors' compliance with applicable national, regional, and local safety rules and regulations and Construction Safety and Security Plan. Contractor is responsible for compliance with applicable rules and regulations.
- C. Environmental Safety: Contractor shall develop and submit for review and approval of the environmental permit applications needed for the Project.
1. Post copies of permits at Project work site and ensure that workers are familiar with permit conditions and requirements.
  2. Contractor shall require workers to be familiar with and follow the Environmental Management Plan (EMP). Contractor shall require Subcontractor to prepare a customized Subcontractor Environmental Management Plan, based on the principles of the EMP tailored to their specific work activities.

## PART 3 - EXECUTION

### 3.1 CONTRACTOR'S SAFETY AND HEALTH PROGRAM - GENERAL REQUIREMENTS

- A. This Section serves to outline the key elements for the Contractor's Safety and Health Program. This Section also includes a number of additional project specific requirements for the Contractor's Safety and Health Program. In addition, reference is made to the minimum requirements set forth in the Construction Safety Manual.
- B. The Contractor's Safety and Health Program shall include as a framework for safety and health programming the following minimum basic elements:
1. A statement of the Contractor's commitment to providing a safe and healthful project.
  2. A statement of the Contractor's responsibility for implementing its Safety and Health Program.
  3. Detailed procedures for:
    - a. Training of site supervision.

- b. Safety and Health Project Orientation for workers.
  - c. Ongoing Safety and Health training for workers.
  - d. Providing safety and health information to the general public.
4. Specific assignments of safety and health-related roles and responsibilities.
  5. Safety and health inspections on the project.
  6. Procedures for accident-related record keeping, investigation and surveillance.
  7. A disciplinary action procedure.
  8. Schedule of safety related meetings and training.
  9. A set of general work rules addressing hazards common to all types of construction and a site-specific set of work rules addressing the hazards of the work at hand.
  10. A list of required permits for specific construction operations.
  11. An emergency action plan addressing all types of emergencies with which the Contractor may reasonably and predictably be confronted.
  12. A procedure for identifying how and under what circumstances job hazard analysis shall be conducted.
  13. Reporting formats for required reports and submissions.
  14. Detailed site-specific procedures for conducting safe working conditions associated with:
    - a. Drilling.
    - b. Compressed air and gases.
    - c. Concrete work.
    - d. Confined spaces/permit-required confined spaces.
    - e. Crane operations and maintenance.
    - f. Rigging operations, equipment inspection and testing.
    - g. Electrical hazards.
    - h. Excavation and excavation support.
    - i. Fall protection.
    - j. Fire protection and prevention.
    - k. First aid, CPR and blood borne pathogens.
    - l. Hand and power tools.
    - m. Hazard communication.
    - n. Housekeeping.



- o. Scaffolding, ladders, and walking and working surfaces.
  - p. Lockout/Control of Energy Sources.
  - q. Materials handling and storage.
  - r. Mechanized equipment.
  - s. Construction health hazard monitoring.
  - t. Personal protective equipment and clothing.
  - u. Respiratory protection.
  - v. Sanitation.
  - w. Welding and cutting.
  - x. Existing utilities, including the requirement to provide, at no additional cost to the Airports Authority, 3<sup>rd</sup> party verification of utility locations each and every time Miss Utility is utilized.
15. Detailed site-specific procedures shall, as a minimum, comply with the guidelines identified in the Construction Safety Manual. All detailed site-specific procedures shall include requirements for mandatory eye and head protection and adherence to the 6-foot fall protection requirements. Site-specific procedures shall require all chainsaws used on-site to be equipped with kickback guards/breaks and require all other power tools to be equipped with all protective features as provided by the manufacturer.
16. Hazardous material handling.
17. A silica exposure plan to limit exposure of workers to silica dust. The plan shall include the applicable preventive measures recommended and contained in NIOSH ALERT: 1996 Publication 96-112 “Preventing Silicosis and Deaths in Construction Workers”.
18. All equipment, not just the underground tunneling equipment, shall be inspected on a regular basis (monthly if not more often as approved by the COTR) with copies of the inspection report being submitted to the COTR. The purpose of these inspections is to identify and document possible safety problems and repair these problems before someone is injured.

### 3.2 SPECIFIC CONTRACTOR’S PROJECT SAFETY AND HEALTH PROGRAM REQUIREMENTS

- A. The Contractor’s Project Safety and Health Program shall incorporate all basic elements of the construction project safety and health program set forth in Sub-Part 3.1 above, the Construction Safety Manual, and the following project-specific program elements:
- 1. A written, project-specific Safety and Health Plan (Plan), incorporating job hazard analysis for construction operations, encountering contaminated soil and water, detailed emergency action procedures and fire risk assessment shall be developed by the Contractor, for review by the COTR and PSM to point out deficiencies before the start of any construction. The Plan shall specifically address rescue operations, conditions affecting rescue operations, smoke venting procedures, back-up power supply and pumping systems, means of ingress and egress, communications, hot work permitting

procedures, and training, orientation and refresher training for workers, emergency responders and visitors.

2. A written fire risk assessment portion of the Plan shall detail potential fire hazards, means of dealing with those hazards, fire prevention, fire suppression and emergency evacuation measures that will be employed by the Contractor during the course of the Project. The fire risk assessment shall include documentation that the material selected for the ventilation system ducting is in compliance with the specifications. The fire risk assessment shall be prepared and stamped by a registered fire protection engineer in the Commonwealth of Virginia.
3. The Plan shall be updated as substantive changes in the underground work environment occur. The Airports Authority's and local fire departments shall be provided with a copy of the most current Plan and advised of changes in the Plan as they are implemented. The fire departments will be requested to review and comment on the Plan and any changes that occur to the Plan.
4. The Contractor is required to send all project supervisory personnel to an Authority provided Orientation prior to the start of any work.
5. The Contractor's Safety Manager shall train all workers and the COTR and his staff members in the details of the Plan.
6. In accordance with local and state regulations a permit system shall be used for all hot work performed on the project. The Contractor's Safety and Health Plan shall detail the permit system's procedures. The permit system shall be implemented and supervised by the Contractor's Safety Manager. The permits shall be made available for inspection by the Airports Authority, the COTR and the local fire department(s). Open flames and fire shall be prohibited in all construction operations, except as permitted for welding, cutting and other hot work operations pursuant to the Contractor's Hot work Permit System. Smoking shall be allowed only in areas free of fire and explosion hazards. Readily visible signs prohibiting smoking and open flames shall be posted in areas having fire or explosion hazards.
7. The Contractor in all cases shall request responses by the fire department(s) to Project-related emergencies involving members of the general public. The Contractor shall fully coordinate and cooperate with the Airports Authority Fire and Rescue in its response to such emergencies.
8. In addition, the Contractor shall fully coordinate and cooperate with the Airports Authority's Risk Management Department in its response to such emergencies.
9. The Contractor is required to obtain all permits required for the Contractor's use of chemicals, and is responsible to meet all Federal, State and Local requirements. The Contractor shall develop a written chemical safety plan to address all chemicals used during construction. This safety plan shall include detailed procedures to prevent chemical accidents to the maximum extent possible during chemical transport, transfer, storage, use and disposal. The chemical safety plan shall include emergency response procedures, which identify all potential chemical emergencies and the recommended emergency response action to be taken for each incident. These procedures shall consider

all potential chemical emergencies including chemical spills, incompatible reactions, fires and human exposures. Procedures shall describe methods to contain and isolate the accident, including the required protective clothing, equipment, first aid and response methods. Conduct, using Contractor's staff emergency response training and drills to the extent necessary to control the specific chemicals used by the Contractor. The Contractor's emergency response procedures shall be coordinated with support action from the Airports Authority's and local fire departments and hazardous material response teams, to provide for a comprehensive emergency response plan. This coordinated response shall be adequate to manage all chemical emergencies and provide for the health, safety and evacuation of all site personnel as well the community. The Airports Authority's and local fire departments shall be provided with a copy of the most current plan and be requested to review and comment on the plan. At all times when chemicals are on site, the Contractor shall maintain a trained emergency response staff, equipment, protective clothing and supplies as needed to implement the chemical safety plan.

10. The Contractor shall have at least one (1) employee on site at all times who is trained and qualified to administer first aid and cardiopulmonary resuscitation (CPR) for every 25 employees on site (See Paragraph 1.4.A.1).
11. The Contractor shall comply with all requirements identified in OSHA regulation § 1926.50 relating to medical services and first aid.
12. The Contractor shall provide the on-site safety staff an appropriate office on the job site(s) to maintain safety records, up-to-date copies of all pertinent safety rules, regulations and governing legislation, material safety data sheets, and the site safety and health plan including information concerning foreseeable emergency conditions, location of emergency and telephone contacts for supportive action and for all required notifications.
13. No visitors will be allowed on site without permission of the COTR.
14. Use of gloves is mandatory and shall be worn whenever handling or touching materials, work products or equipment.

### 3.3 ACCIDENT REPORTING, INVESTIGATION AND SURVEILLANCE

#### A. Accident Reporting

1. Accidents are defined for purposes of this Specification as: "Any unplanned event which results, or could have resulted, in an injury or illness to workers or the general public, property loss or damage to the environment." The Contractor shall, as promptly as conditions permit, notify the COTR, Airports Authority Program Safety Manager, the Airports Authority's Risk Management Department and the designated local Public Safety official of the nature and circumstances of the emergency. Provide such notice immediately and a written report no later than 24 hours after the event. Report all accident events in accordance with the following:
  - a. The COTR's Safety Manager will establish and disseminate to the Contractor all required accident reporting formats.

- b. Ensure that all accidents involving scope of work on the project, including Subcontractors are reported in the established format to the COTR's Safety Manager within twenty-four (24) hours of the event.
- c. Submit Airports Authority provided monthly safety report and submit to COTR's Safety Manager no later than the tenth calendar day of the following month.

B. Accident Investigation

1. Investigate all accident events, as defined above and that occur on those portions of the Project under the Contractor's control, in accordance with the contract documents and specifications.
  - a. Conduct a detailed investigation of any and all accidents. Addressing who, what, when where, and why questions. Personal information shall not be sent in any report or via email. Personal information (e.g. social security numbers, home address, etc.) shall be blackened out on all reports.
  - b. Provide the COTR, Airports Authority Program Safety Manager and the Airports Authority's Risk Management Department with a detailed investigative report for any and all accidents.
  - c. Fully cooperate with the Airports Authority's Risk Management Department, COTR, Airports Authority Program Safety Manager, Public Safety Department, Insurance Consultant and/or public authority having jurisdiction in the investigation of accidents.
  - d. Report accident investigations in a complete manner on the accident reporting format(s) designated by the Airports Authority Program Safety Manager.
  - e. Abatement photographs shall be required for corrective actions for observed safety violations and submitted to the COTR.

C. Accident Surveillance

1. The Airports Authority's Insurance Safety Consultant and Airports Authority Program Safety Manager seek to collect accident information for purposes of identifying patterns, trends, performance and establishing appropriate policies and procedures related to protection of safety and health. To that end prepare and submit reports of accidents as detailed above.

3.4 CONSTRUCTION SAFETY AND SECURITY PLAN IMPLEMENTATION

A. Preplanning of Work: Contractor shall perform the following functions:

1. Meet with Owner to discuss and review the Safety and Security Program in relation to Construction Safety and Security Plan.
2. Provide an employee on 24-hour call (and designate another person as back-up) with the authority to maintain construction barricades and signal flashers.
3. Establish and implement a respiratory protection program as required.

B. Locating Utilities

1. Prior to underground work being performed, utilities within the work area shall be located in accordance with jurisdictional agency requirements.
2. Contact an underground service alert company with respect to area and work.
3. Calls to utility agencies or affected governmental agencies shall be documented on a log showing who initiated the call, which agency was called, the agency's telephone number, name of person contacted, and date and time of call. Maintain log records file and make available to Owner upon request.
4. Take necessary steps to ensure the protection of utilities from damage.

C. Excavations: No excavations are expected for this scope of work without owner approval. However should excavation work be required the following safety measures are to be employed:

1. Carefully inspect site for existing conditions prior to excavation work. Soil conditions may require precautionary measures.
2. Locate and protect underground installations such as sewer, telephone, water, fuel and electrical lines prior to opening an excavation. Contact utility companies and other responsible authorities to locate and mark locations. Utility companies may direct or assist with protecting underground installations.
3. Provide competent inspector to be on site daily, throughout work-shifts and as needed to inspect excavations and protective systems after rain storm or other hazard-increasing occurrence.
4. Remove exposed workers from hazardous situations, where situation could result in possible cave-ins, slides, failure of protective systems, and hazardous atmospheres. Stop Excavation until all necessary safety precautions have been implemented in accordance with requirements of this Section and requirements of accepted Construction Management Plan.
5. Test air in locations where oxygen deficiency or gaseous conditions are known or suspected. Tests shall be conducted prior to start of each shift and more often if directed by designated authority. Maintain log of test results at Work Site.

D. Motor Vehicle Operations:

1. Contractor, subcontractor, or subcontractor employee driving a motor vehicle shall have a valid driver's license, and motor vehicles shall have a current inspection sticker if required by state of registration.
2. Windshields and windows of construction equipment shall be clean and unbroken. Safety equipment (head, tail, brake and clearance lights) shall be kept clean and in working order. Back-up alarms shall be working order on vehicles with limited or restricted driver vision.
3. Heavy equipment with rotating superstructure such as backhoes and power shovels shall be guarded in a manner that rotation of superstructure shall not present danger to pedestrians or infringing into any traffic lane.

E. Protection of Public and Property:

- a. Take necessary action to prevent injury to public or damage property.
- b. Work shall not be performed in areas occupied or in use by public unless specifically allowed by Contract and with adequate, approved protection measures.

- c. When necessary to maintain public use of work areas involving sidewalks, entrances to buildings, lobbies, corridors, aisles, stairways and vehicular roadways, Contractor shall protect public with appropriate guardrails, barricades, temporary fences, overhead protection. Temporary partitions, shields, and adequate visibility. Such protection shall guard against harmful particles, flying materials, falling or moving materials and equipment, hot or poisonous materials, flammable and explosive atmospheres, flammable or toxic liquids and gases, open flames, energized electric circuits, or other harmful exposures.
- d. Sidewalks, entrances to buildings, lobbies, corridors, aisles, door and exits that remain in use by public shall be kept clear by Contractor of obstructions to permit safe access and egress of the public.

F. Substance Abuse Policy and Procedures:

1. Possession or use of non-prescribed drugs, or alcohol on Site is strictly forbidden. Restriction of these items shall be enforced.
2. Provide drug and alcohol testing program that includes:
  - a. Pre-employment testing.
  - b. Post-incident accident testing.
  - c. Just-cause testing.
  - d. Random testing.
3. Contractor, Contractor's employees, and sub-contractors are subject to this policy, without exception.
4. Cost of drug testing will be borne by Contractor/employer.
5. Program shall meet mandatory guidelines established by Department of Health and Human Services. U.S. Department of Transportation (DOT); required drug and alcohol testing shall be required for employees whose job descriptions fall within the DOTs jurisdiction.

G. Noncompliance: If Owner notes noncompliance with Contractor's Construction Safety and Security Plan or with safety and health regulations, or is advised of such noncompliance by others or by governmental agency with authority to enforce safety regulations, the Owner may take actions allowed under Contract.

H. Accidents, Incidents, and Injuries:

1. Accidents that occur from operations or Work performed for Project or other facilities construction contracts on Site shall be verified, investigated, reported, and analyzed as prescribed by the Construction Safety and Security Plan.
2. Accident/Injury Response: Contractors, Subcontractors, and lower-tier subcontractors shall instruct their employees and other personnel to follow these procedures if someone is injured.
  - a. Seek medical assistance for anyone who is injured. Injured employee's supervisor shall see that first aid is administered on Site where possible.
  - b. Secure the area tightly and quickly except for rescue and emergency personnel. Accident scene shall not be disturbed until it has been released by investigating authority officials.

- c. Immediately report accidents and conditions resulting in a fatality, hospitalization of employee or property damage to Contractor's Safety Manager, Contractor's Construction Manager, or other person in charge at Site.
  - d. In the event an employee of Contractor, subcontractor, or lower tier subcontractor is exposed to toxic materials or harmful physical agents, notify Owner of incident and corrective action taken to eliminate further exposures.
  - e. Contractor's Safety Manager or other designated person, shall notify other parties, such as Contractor's management and Owner and report event as outlined in Construction Safety and Security Plan.
  - f. Notify Local OSHA office in accordance with OSHA requirements.
3. Accident/Injury Reporting: Within 24 hours, submit OSHA Form 301, "Injury and Illness Incident Report" to Owner if injury results in medical treatment, loss of consciousness, loss of work, restriction of work, or transfer to another job. Provide a copy of written report to affected employee. First aid cases shall be submitted as an injury and illness incident. Such incidents shall be categorized per OSHA requirements. Apply the following to cases of on-Site accident or injury:
- a. Employees shall be responsible for reporting all injuries or occupational illnesses immediately to their employer or immediate supervisor.
  - b. No supervisor shall decline or refuse to accept a report of injury from a subordinate.
  - c. Copies of written accident report shall be delivered to Owner within 24 hours of occurrence of accident or hazard.
  - d. Contractor shall report accidents and hazardous incidents as required by local, state and federal requirements. Records shall be maintained and available to Owner upon request and shall include the following:
    - 1) An in-depth investigation to identify causes and to recommend hazard control measures.
    - 2) List of first aid treatment.
  - e. Only authorized personnel, such as representatives of Owner, insurers, or governmental agencies administering OSHA shall be given information pertaining to event.
  - f. "Questions" for media and others shall be referred to Owner.
- I. Contractor's Emergency Provisions: Emergency procedures shall be continually reviewed and adjusted by Contractor to provide maximum effectiveness. Include procedures in Contractor's Safety and Security Program and coordinated with Owner. Emergency procedures shall include but be limited to the following;
1. Provision for first aid supplies which shall be approved by licensed nurse practitioner and accessible for immediate use. Suitable first aid kit shall be required for all workers on Project.
  2. Provide a minimum of one person who shall have valid certificates in first aid training from U.S. Bureau of Mines, The American Red Cross, or an equivalent training program and who can be verified to be available at Site to render first aid. Said persons shall be identifiable as a first aid provider to workers at Site.
  3. Actions to be taken during emergencies shall be discussed regularly with Contractor's supervisory personnel and safety meetings.

4. Contractor shall provide a telephone or other means of two-way communication at Site before construction begins. Post telephone numbers of pertinent Owner staff at Project Sites.

END OF SECTION 01 35 23



SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and Contract Provisions, Special Provisions, Supplementary Conditions, and other Division 01 Specification Sections apply to this Section.
- B. Related Sections:
  - 1. Statement of Work.
  - 2. Division 01 Section 01 33 00, Submittals, for process required to submit the Contractor's Quality Control Plan.
  - 3. Division 01 Section 01 32 10, Design and Construction Progress Documentation, for developing a schedule of required tests and inspections.
  - 4. Division 01 Section 01 31 00, Project Management and Coordination.
  - 5. Division 01 Section 01 78 23, Operation and Maintenance Data.
  - 6. Division 01 Section 01 77 00, Closeout Procedures.
  - 7. Division 01 Section 01 78 39, Project Record Deliverables.
  - 8. Division 01 Section 01 73 29, Cutting and Patching, for repair and restoration of construction disturbed by testing and inspecting activities.
  - 9. Divisions 02 through 33 Sections for specific test and inspection requirements.
  - 10. FTA Quality Assurance and Quality Control Guidelines.
  - 11. Dulles Corridor Metrorail Project Quality Program Plan.

1.2 SUMMARY

- A. This Section includes the following:
  - 1. Administrative and procedural requirements for Contractor to provide and maintain an effective Quality-Control Program that complies with this Section and with the requirements of the Contract.
  - 2. Establish a QC Program that consists of the following:
    - a. QC Organization.
    - b. QC Plan.
    - c. QC Plan Meeting.
    - d. Coordination and Mutual Understanding Meeting.
    - e. QC meetings.
    - f. 3 Phases of Control.
    - g. Submittal review and approval.
    - h. Operation & Maintenance data and Warranty receipt verification prior to product delivery as required by the contract.
    - i. Material identification, verification, and traceability at delivery.

- j. Testing, completion inspections, and QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of this Contract.
  - k. The Contractor(s) and its suppliers and subcontractors, who purchase equipment, perform manufacturing and/or construction, perform installation of equipment, and/or perform testing will develop quality plans, inspection and test procedures, and Inspection and Test Plans (ITPs) meeting the requirements of this QPP for inspection and testing.
  - l. Quality plans and inspection and test procedures will make provisions for the OWNER to identify important inspection and test activities that it or its representative may observe. The OWNER or its representative will classify each inspection or test activity identified for possible observation as either a hold point or a witness point on the Contractors' Inspection and Test Plan (ITP). Notification of these activities will be made to the OWNER or its representative in advance of the activity in an agreed upon time frame. Inspection and test activities identified as hold points shall not be conducted until the OWNER or its representative is present unless the OWNER or its representative has formally waived the hold point. Inspection and test activities identified as witness points may be performed as scheduled, with or without the presence of the OWNER or its representative, provided that notification of the witness point has been made in the agreed upon timeframe.
  - m. The Contractor shall submit ITPs as further defined in the Division 1 Specification to the OWNER or its representative for approval for all Project-related work. These plans shall include a matrix of all inspections and tests required by the Contract documents, the specifications, and the drawings that are to be performed by the Phase 2 Contractor(s) and their suppliers and subcontractors. ITPs shall specify provisions for coordinating onsite and offsite inspections and tests and for meeting the notification requirements. ITPs shall include the checklists to be used for conducting and documenting the inspections. Test plans shall include the identification of the test requirement, description of the test, type of test (i.e. factory, sub-system, and system), applicable standard(s), test frequencies, responsibility for test performance, means of recording and tracking test results, and means for recording and tracking test discrepancies and related corrective actions. ITPs shall clearly define the acceptance criteria.
3. Contractor is not responsible for Special Inspections according to requirements of the current Virginia Uniform Statewide Building Code (USBC). The OWNER's agent shall provide these Special Inspection services. Special Inspections coordination should be discussed at weekly progress meetings and scheduled dates for Special Inspections carried on the two-week look ahead. Contractor shall be responsible for coordination of and notification to the OWNER for the following Special Inspections.
    - a. Special inspections are required for, but are not necessarily limited to, the following:
      - 1) Steel construction.
      - 2) Concrete construction.
      - 3) Masonry construction.
      - 4) Foundation systems including concrete footings of buildings three stories or less in height which are fully supported on earth or rock.

- 5) Prepared fill requirements.
4. Specific quality-control requirements for individual construction activities are specified in the Sections that require those activities. Requirements in those Sections may also cover production of standard products.
5. Schedule of Values: Contractor shall include all test and inspection activities in its CPM and establish a Schedule of Values for all quality test and inspection activities; and all required reports, and procedures required in the Contract on a Section-by-Section basis. Additionally, Contractor shall include a pay line item specifically for CQC activities and QCM position(s) required by the General Conditions. CQC activities shall be reported per Division 01 Section "Progress Payment."
6. Testing and inspecting services by the contractor are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of its responsibilities for compliance with the Contract Document requirements.
7. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
8. The provisions of this Section shall not limit requirements for Contractor to provide quality-control services required by the OWNER or other agencies having jurisdiction.

### 1.3 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- a. ASTM C 1077 Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation latest edition.
- b. ASTM D 3666 Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials latest edition.
- c. ASTM D 3740 Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction latest edition.
- d. ASTM E 329 Agencies engaged in the Testing and/or Inspection of Materials Used in Construction latest edition. ASTM E 543 Agencies Performing Nondestructive Testing latest edition.
- e. ASTM E 543 Agencies performing Nondestructive Testing latest edition.

2. METROPOLITAN WASHINGTON AIRPORT AUTHORITY

- a. *Construction Safety Manual*, most current edition

### 1.4 DEFINITIONS

- A. Quality: Conformance to the requirements established by the contract specifications and drawings.
- B. Control: To guide and have influence over.

- C. Contractor Quality Control (CQC): The construction contractor's system to establish, manage, control, and document their own, their supplier's, and their subcontractor's activities to ensure Quality compliance with the contract requirements and the QC Plan.
- D. Mockups: If required by the contract, shall be full-size, physical example assemblies that are constructed on site to illustrate finishes, materials, assemblies, etc. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects or details and, where indicated, qualities of materials, execution, to review construction, coordination, testing, inspection, or operation; they are not Samples. Mockups establish the Initial Standard of Control by which the work shall be judged and accepted for that Definable Feature or Element of Work. Mockups supersede samples in the approval and acceptance of the Work. Construct mockups away from the work site or in a location designated by the COTR. Do not use mockups as part of the work unless specifically approved by the COTR.
- E. Definable Feature of Work or Element of Work: A definable feature of work (DFOW) or Element of Work is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task.
- F. Experienced: When used with an entity, "experienced" means having successfully completed a minimum of 10 projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction. Specific experience requirements enumerated in these specifications supersede this requirement.
- G. QC Management System: The management and implementation of processes, procedures, and requirements that establish quality as identified in the QC Plan and mandated in the contract specifications. The Three Phases of Control are the core of the contractor's Construction Quality Management System.

## 1.5 CONFLICTING REQUIREMENTS

- A. General: If compliance with two standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to the COTR for a decision before proceeding. This paragraph refers to industry and government standards. In case of a difference between drawings and the specifications, the specifications shall govern.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Owner for a decision before proceeding.

## 1.6 SUBMITTALS

- A. Submit the following in accordance with Division 01 Section, "Submittals."

1. Action Submittals.

- a. Quality Control (QC) Plan.
- b. Inspection and Test Plans (ITPs)
- c. Documentation as required in this Section – Quality Requirements

B. NOTE: Coordinate the submittal requirement dates with the submittal dates in Division 01 Section “Construction Progress Documentation”.

C. Submit a QC plan within 20 calendar days after receipt of Notice to Proceed. The QC Plan shall include a preliminary submittal of the list of definable features of work that shall cover the first 90 calendar days of construction.

1. Submit at this time résumés of key personnel to be assigned to this contract and the limits of their authority. Show how this project management structure fits into the Contractor’s corporate management structure.
2. Submit the remaining definable features list after the 90 calendar day period.

D. Any approval by the COTR of the QC Plan shall be treated as “accepted, predicated upon successful implementation.” Stop work if the QC Plan becomes disapproved, is not in compliance, or is not current. The exception to this requirement is the work authorized in the paragraph entitled "Preliminary Work Authorized Prior to Approval".

1.7 INFORMATION FOR THE CONTRACTING OFFICER

A. Provide a sample copy set, as listed below, of report forms to the Contracting Officer during the Pre-Construction Conference. The report forms shall consist of the Quality Control Daily Report, Preparatory Phase Report, Initial Phase Report, and Project Quality Control Monthly Summary. These forms may be edited with approval of the COTR to support the project. Other reports referenced below may be in formats customarily used by the Contractor, Testing Laboratories, etc. and shall contain the information required by this specification.

B. Deliver the following listed items to the COTR at the times specified:

1. Quality Control Daily Report: 1 original electronic copy, turned in by the next calendar day after work is performed.
2. Superintendent’s Daily Report: 1 original electronic copy, turned in by the next calendar day after work is performed, do not attach to the Quality Control Daily Report.
3. Material Receiving Inspection Report: 1 original electronic copy, turned in by the next calendar day after work is performed, do not attach to the Quality Control Daily Report.
4. Preparatory Phase Report: 1 original electronic copy, turned in by the next calendar day after work is performed, do not attach to the Quality Control Daily Report.
5. Initial Phase Report: 1 original electronic copy, turned in by the next calendar day after work is performed, do not attach to the Quality Control Daily Report.
6. Field Test Reports: 1 original electronic copy, within 2 working days after the test is performed, do not attach to the Quality Control Daily Report.
7. Monthly Summary Report of Tests: 1 original electronic copy, do not attach to a Quality Control Daily Report.

8. Project Quality Control Monthly Summary Report: 1 original electronic copy, do not attach to a Quality Control Daily Report.
9. Inspections, Checklists, and Signoff Sheets: one copy, submitted daily within 1 day of the inspection.
10. Inspection and Test Plans (ITP): Submit to the Owner, prior to the start of work, inspections and testing activities for each Definable Feature of Work or Element of Work.
11. Testing Log: 1 original electronic copy, submitted within 2 working days of the end of the month.
12. Nonconformance Reports: As Nonconformances occur, submit 1 original electronic copy.
13. Weekly/Monthly Nonconformance Report Log: 1 original electronic copy, submit log weekly and at the end of each month.
14. QC Meeting Minutes: 1 original electronic copy, within 2 working days after the meeting.
15. QC Certifications: As required by the contract documents and paragraph entitled "QC Certifications." Submit before start of any individual work element or definable feature of work.

## 1.8 QC PROGRAM REQUIREMENTS

- A. Establish and maintain a QC Program as described in this Section. The QC Program consists of but is not limited to the following:
  1. QC Organization (Org Chart).
  2. QC Plan.
  3. QC Plan Meeting.
  4. Coordination and Mutual Understanding Meeting
  5. QC meetings.
  6. 3 Phases of Control.
  7. Submittal review and approval.
  8. Operations and Maintenance data as (As applicable per contract specifications).
  9. Warranty receipt verification prior to product delivery.
  10. Material identification, verification, and traceability at time of delivery.
  11. QC, Inspection and Test Program (ITP).
  12. Completion inspections.
  13. QC certifications and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of this Contract.
  14. The QC Program shall cover on-site and off-site work and shall be keyed to the work sequence.
  15. No work or testing may be performed unless the Quality Control Manager or a pre-approved alternate is on the work site.
  16. The QCM shall report to an officer of the firm and shall not be subordinate to the Project Superintendent or the Project Manager.
  17. The Quality Control Manager is the primary individual responsible for the management and implementation of processes, procedures, and requirements that establish quality in construction as identified in the QC Plan and mandated in the contract specifications. The QCM shall identify, track, and notify The OWNER and Management of all weaknesses, deficiencies, and nonconformances in the contractor's QC Management System. The Project Manager shall be responsible for the overall quality in the contract. The Project Superintendent shall be held responsible for the quality of all work produced by the

Contractor, manages the correction of all noted deficiencies, and ensures Quality is established and preserved in the construction process through the Three Phases of Control.

B. Preliminary Work Authorized Prior to Approval

1. The only work that is authorized to proceed prior to the approval of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying.

C. Approval

1. Approval of the QC Plan is required prior to the start of any construction. The Contracting Officer reserves the right to require changes in the QC Plan and the contractor's operations as necessary, including but not limited to removal of personnel, to ensure the specified quality of work is established, maintained, or improved. The Contracting Officer reserves the right to interview any member of the QC organization at any time in order to verify the submitted qualifications and requirements of the contract. All QC organization personnel shall be subject to acceptance by the Contracting Officer. The Contracting Officer may require the removal of any individual for nonconformance with quality requirements specified in the contract.

D. Notification of Changes

1. Notify the COTR, in writing, of any proposed changes, including changes in the QC organization personnel, a minimum of seven calendar days prior to a proposed change. Proposed changes shall be subject to acceptance by the Contracting Officer.

1.9 QC ORGANIZATION PERSONNEL

A. Staffing Levels: Provide sufficient qualified quality-control personnel to monitor each work activity at all times. Scheduling and coordinating of all inspections and testing shall match the type and pace of work activity.

1. In cases where multiple trades, disciplines, or subcontractors are on site at same time, each activity shall be tested and inspected by personnel skilled and certified in that portion of the work.
2. In cases where multiple shifts are employed, the quality-control staff shall be increased as required to monitor the work on each shift.

B. The following positions are key personnel as defined by the OWNER in this and other Division 01 Specification Sections.

1. Project Manager

- a. Duties: Responsible for overall Quality in Construction, project management control, planning, scheduling, cost, project administration, submittal management, and compliance with local and national codes.
- b. Qualifications: Ten (10) years of construction experience, with six years of project management experience on major projects of similar size, type, and complexity to this Project in which the individual had overall project responsibility.

- c. Training Requirement: To enhance the effectiveness of the Quality Control Organization Project Manager shall be intimately involved in Quality Control. To this end, the Project manager shall have successfully completed the Army Corps of Engineers/NAVFAC Contractor Quality Control Course (details in Paragraph “Construction Quality Management Training” below).
  2. Project Superintendent
    - a. Duties: Serves as the Contractor’s on-site production manager to plan, organize, coordinate, supervise, and observe all on-site construction activities. The Superintendent ensures compliance with the contract specifications while maintaining total control and responsibility for the Quality of work produced. The Superintendent monitors and supervises all field personnel to assure compliance with the Contract Specifications. The Superintendent corrects all noted deficiencies and ensures Quality is established and preserved in the construction process through the Three Phases of Control.
    - b. Qualifications: Ten (10) years of construction experience, with five years experience in a supervisory role coordinating various trades at multiple work areas.
    - c. To enhance the effectiveness of the Quality Control Organization the Project Superintendent shall be intimately involved in Contractor Quality Control. To this end, the Project Manager shall have successfully completed the Army Corps of Engineers/NAVFAC Contractor Quality Control Course (details in Paragraph “Construction Quality Management Training”, below).
  3. Quality Control Manager (QCM)
    - a. Duties: Provide a QCM at the work site to implement and manage the QC Program. The only duties and responsibilities of the QCM are to manage and implement the QC Program on this contract. The QCM shall not be designated as the safety competent person as defined by Construction Safety manual. The QCM is required to attend the QC Plan Meeting, attend the Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the 3 Phases Control, perform submittal review and approval before submittal to the COTR, ensure testing is performed and provide QC certifications and documentation required in this contract. The QCM is responsible for managing and coordinating the 3 Phases Control and documentation performed by Testing Laboratory personnel and any other inspection and testing personnel required by this Contract.
    - b. Qualifications: An individual with a minimum of five (5) years’ experience as a superintendent, inspector, QCM, project manager, project engineer or construction manager on similar size and type construction contracts which included the major trades that are part of this Contract. The individual shall be familiar with the requirements of the Construction Safety Manual, and have experience in the areas of hazard identification and safety compliance. The QCM shall be interviewed and approved by the OWNER or their representative. The OWNER or their representative shall determine approval or acceptance of the proposed QC Manager.
    - c. To enhance the effectiveness of the Quality Control Organization the Quality Control Manager shall be intimately involved in Contractor Quality Control. To this end, the Project Manager shall have successfully completed the Army Corps of



Engineers/NAVFAC Contractor Quality Control Course (details in Paragraph “Construction Quality Management Training”, below).

4. Construction Quality Management Training Requirements:
  - a. In addition to the above experience and education requirements, the Project Manager, Superintendent, and QCM shall have completed the course entitled "Construction Quality Management for Contractors." If these individuals do not have a current certification, they shall obtain the CQM course certification within sixty (60) - calendar days of award. This short course is periodically offered in alternate months by: (1) the Maryland Chapter, Associated General Contractors (AGC), 410-321-7870; sue@marylandagc.org and by (2) the Virginia Chapter, Associated Builders and Contractors (ABC), 703-968-6205, jackie@abcva.org. The training uses Army Corps of Engineers course content. The course is facilitated by instructors from Army Corps of Engineers, North Atlantic Division, Baltimore District, and by instructors from the Naval Facilities Engineering Command, Engineering Field Activity Chesapeake.
5. Alternate QCM Duties and Qualifications
  - a. Designate an alternate for the QCM at the work site to serve in the event of the designated QCM's absence. The period of the QCM's absence may not exceed two (2) weeks at any one time, and not more than thirty (30) workdays during a calendar year. If this were to occur the contractor is required to submit and gain approval for a newly appointed QCM. The qualification requirements for the Alternate QCM shall be the same as for the QCM.
6. Erosion and Sediment Control Inspector (As applicable by Local and State Requirements)
  - a. The Erosion and Sediment Control Inspector shall be responsible for inspecting the erosion and sediment controls, reporting requirements, and for ensuring conformance with the approved Storm Water Pollution Prevention Plan (SPPP). The Erosion and Sediment Control Inspector may have other duties; however, the designated individual shall be familiar with the requirements set forth in the Virginia Erosion and Sediment Control Handbook.

#### 1.10 QC PLAN MEETING

- A. Within 10 calendar days of notice of award and prior to submission of the QC plan, meet with the COTR or the COTR's representative to discuss the QC plan requirements of this Contract. The purpose of this meeting is to communicate expectations and facilitate understanding of the QC plan requirements prior to plan development and submission.

1.11 QUALITY CONTROL (QC) PLAN

- A. Provide, for approval by the COTR, a QC plan submitted in a 3-ring binder with pages sequentially numbered that covers both on-site and off-site work and includes but may not necessarily be limited to the following:
- B. A table of contents listing the major sections identified with tabs in the following order:
1. QC ORGANIZATION
  2. PERSONNEL MATRIX
  3. NAMES AND QUALIFICATIONS
  4. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL
  5. APPOINTMENT LETTERS
  6. OUTSIDE ORGANIZATIONS INCLUDING BOCA INSPECTION COMPANIES
  7. TESTING LABORATORY INFORMATION AND CERTIFICATIONS
  8. QC, INSPECTION AND TEST PROGRAM (ITP)
  9. TESTING PLAN AND LOG
  10. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER
  11. LIST OF DEFINABLE FEATURES
  12. PROCEDURES FOR PERFORMING THE 3 PHASES OF CONTROL
  13. SPECIAL INSPECTIONS
  14. DOCUMENTATION PROCEDURES
  15. PROCEDURES TO COMPLETE REWORK ITEMS
  16. PROCEDURES FOR COMPLETION INSPECTION
  17. FORMS
  18. ATTACHMENTS
- C. Submit a chart showing the QC organizational structure.
- D. Submit a personnel matrix showing for each Section of the specification who shall review and approve submittals, who shall perform and document the 3 Phases Control, and who, by name, shall perform and document the testing and inspections
- E. Submit names and qualifications, in résumé format, for each person in the QC organization. Include the CQM course certifications for the QCM and Alternate QCM as required by the paragraphs entitled "Construction Quality Management Training" and "Alternate QCM Duties and Qualifications".
- F. Identify and submit duties, responsibilities, and authority of each person in the QC organization.
- G. Submit letters signed by an officer of the firm appointing the QCM and Alternate QCM, stating that they are responsible for implementing and managing the Contractor's QC Program and is the primary individual responsible for the management and implementation of processes, procedures, and requirements that establish quality in construction identified in the QC Plan as mandated in the contract specifications. The QCM shall notify The OWNER and Management of all failures and deficiencies in the QC management systems. Include in this letter the responsibility of the QCM and Alternate QCM to implement and manage the three phases of quality control and their authority to stop work that is not in compliance with the contract. The QCM shall issue letters of direction to all other QC staff and specialists under their control

outlining their duties, authorities, and responsibilities, as outlined in the QC Organization section of the contract specifications. Copies of the letters shall be included in the QC plan.

- H. Submit a listing of all sub-contractors employed by the General Contractor, a description of each subcontractor's provided services, each subcontractor's QC representative's name, and contact phone numbers.
- I. Submit Testing laboratory information required by the paragraphs entitled "Accreditation Requirements" or "Construction Materials Testing Laboratory Requirements", as applicable per contract specifications. Include all certification and accreditation requirements required in the contract for each laboratory and testing technician.
- J. Submit in this section all certifications, qualifications, and accreditations as required for each Section's; Definable Feature or Element of Work as listed in the Specifications
- K. QC, Inspection and Test Program. The contractor shall prepare and submit to the Owner, prior to the start of work, inspections, and testing activities, a QC and Inspection Test Program providing details of the Contractor's program for quality inspections and testing activities. This written plan shall include all tests and inspections required in the contract, referenced by the specification paragraph number requiring the test and inspection, the frequency, the desired results, and the person, by name, responsible for each test and inspection, and shall be identified as a scheduled (CPM) activity. This written plan shall cover in detail the following topics:
  - 1. Contractor's organization for site, workshop, fabrication yard, subcontractor inspections and tests including inspections and tests at the source.
  - 2. Duties of each person assigned to Contractor's organization for performing inspections and tests.
  - 3. ITP format including form completion instructions.
  - 4. Training, qualifications, and certifications of personnel performing inspections and tests including those classified as special processes.
  - 5. Contractors' procedures and controls for conducting required inspections and tests, including inspection and test records
  - 6. Provisions for use of independent inspection and testing organizations when required by Specification.
- L. Submit Procedures for Preparing, Reviewing, Approving, and Managing Submittals. Provide the name(s) of the person(s) in the QC organization authorized to prepare, review and certify submittals prior to approval. The QCM shall not prepare submittals. Provide the initial submittal register as specified in Section entitled "Submittals." Once the submittal registry is final (complete), accounting for all submittals, is approved by the COTR, insert registry into the QC Plan.
- M. Submit the list of Definable Features or Elements of Work. The list shall be cross-referenced to the contractor's Construction Schedule and all specification sections. For projects requiring a Progress Chart, the list of definable features or elements of work shall include but not be limited to all items of work on the schedule. For projects requiring a Network Analysis Schedule, the list of definable features or elements of work shall include but not be limited to all critical path activities. Include a chart of common deficiencies for all definable features or elements of work. Detail the control procedures that shall be employed to eliminate these common deficiencies. All elements of work and definable features of work in this contract shall be incorporated into the Three Phases of Control.

- N. Submit the Procedures for Performing the Three Phases of Control. The primary purpose of the Three Phases of Control is to require the contractor to plan and schedule each work activity to ensure quality is established, constructed, and maintained for each Definable Feature or Element of Work as required in the contract specifications. The contractor shall develop a plan for incorporating each of the Definable Features or Elements of Work into a Quality Production effort. The Three Phases of Control are the core of the contractor's Construction Quality Management System as outlined in the contractor's QC Plan and contract specifications. The plan shall detail who shall be responsible for scheduling the phases, conducting the phases, as well as documenting the phases of work. The use of project specific checklists forms may be helpful. However, the QC Plan and the contract specifications requirements establish the quality, not just the checklists. The Preparatory and Initial Phases and meetings shall be conducted with a view towards establishing, achieving, and maintaining quality construction by planning ahead and identifying potential problems early for each Definable Feature or Element of work.
- O. Submit an establish an Inspection Program utilizing an Inspection Log and Signoff Sheets: The Contractor's superintendent shall establish, coordinate, and maintain with all trades and personnel, for each Definable Feature or Element of Work, a system of inspections and signoff sheets to certify that all work under the superintendent's control has been coordinated, constructed, and installed according to the plans and specifications. All work shall be documented as being inspected and signed-off by the contractor before starting and performing construction on the next Definable Feature or Element of Work. These inspections and sign-off sheets shall be incorporated into the Phases of Control.
- P. Submit and identify all inspection requirements, duties, and responsibilities of Specialists, Specialty Personnel, and Manufacturer's Representatives. Also include, as outlined by the Engineer of Record, include a separate list of Special Inspections according to the requirements of the current Virginia Uniform Statewide Building Code (VUSBC).
- Q. Submit Documentation Procedures and Requirements, including proposed report formats, necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of this Contract.
- R. Submit Procedures to Identify, Record, Track, Correct and Eliminate Deficiencies, Nonconformances, and Rework (Repetitive) items.
- S. Submit Procedures for Identifying and Documenting the Completion Inspection process. Include in these procedures the responsible party for punch out inspection, pre-final inspection, and final acceptance inspection.
- T. Submit, for approval, a complete set of report forms to be utilized on this project.
- U. Submit all applicable subcontractors and suppliers Quality Control Plans complete with Contactor's Contractors Quality Control (CQC) Program as directed by the COTR.

#### 1.12 MEETING OF UNDERSTANDING

After submission and approval of the QC Plan, and prior to the start of any physical construction, the contractor shall meet with the COTR, the Owners Representatives and their

Partners, and the contractor's subcontractors to present the Contractor's QC Program required by this Contract. The purpose of the meeting is to develop a mutual understanding of the contractor's Quality Control Program, to include the contractor's QC details, processes, and procedures to assure and control quality, including the requirements of documentation, administration for on-site and off-site work, and the coordination of the Contractor's management, production, and QC personnel. At the meeting, the Project Manager and QC Manager shall be required to explain in detail how the QC Program works. Discuss the Phases of Control and how it shall be implemented for each definable feature or element of work. As a minimum, the Contractor's personnel required to attend shall include an officer of the firm, Project Manager, Project Superintendent, QCM, Alternate QCM, QC Specialist(s) and Subcontractor Representatives for each Definable Feature or Element of Work. Include all Testing and Inspection Agencies required for the contract. Each subcontractor assigned to the contract shall have QC duties and responsibilities and shall have a principal of the firm at the meeting. Minutes of the meeting shall be prepared by the QCM and signed by the Project Manager. The Contractor shall provide a copy of the signed minutes to all attendees.

### 1.13 QC MEETINGS

- A. After the start of construction, the QCM shall conduct bi-weekly QC meetings at the work site with the Project Manager, Superintendent, Subcontractor's Foremen, and Safety Representative(s). The QCM shall prepare the minutes of the meeting and provide a copy to the COTR within two (2) workdays after the meeting. The COTR may attend these meetings. The QCM shall notify the COTR at least two (2) workdays in advance of each meeting. To prepare, review, and address quality issues as outlined below and as addressed in the COTR's Progress Meeting, the QCM shall conduct these meetings in advance of the COTR's weekly progress meeting. As a minimum, the following shall be discussed and addressed at each QC meeting:
1. Review the minutes of the previous meeting.
  2. Review the schedule and the status of work:
    - a. Work, testing, or inspections accomplished since last meeting.
    - b. Special Inspections scheduled in the next two (2) weeks.
    - c. Inspection and Signoff schedules in the next two (2) weeks for each Definable Feature of Work.
    - d. Rework items and deficiencies identified since last meeting.
    - e. Rework items and deficiencies corrected since last meeting.
  3. Review the status of submittals, O & M data and Warranty Manuals (As applicable per contract specifications):
    - a. Submittals, O & M data and Warranties reviewed and approved since last meeting.
    - b. Submittals, O & M data and Warranties required in the near future.
  4. Review the work to be accomplished in the next two (2) weeks.
    - a. Establish completion dates for rework items and deficiencies.
    - b. Update the schedule showing planned and actual dates of the preparatory, initial, and follow-up phases, including testing and any other inspections required by this contract.
    - c. Discuss construction methods and the approach that shall be used to provide quality construction by planning ahead and identifying potential problems for each definable feature or element of work.
    - d. Discuss status of off-site and on-site work for inspections and testing.
    - e. Documentation required for each construction activity and definable feature or element of work.

- f. Discuss upcoming Job Hazard Analyses (JHAs).
5. Resolve QC and production problems and assist in resolving Request for Information issues.
6. Address items that may require revising the QC plan:
  - a. Changes in QC organization personnel.
  - b. Changes in processes, procedures, checklists, qualifications, accreditations, certifications, testing, inspections, etc.
7. Review health and safety plan.

#### 1.14 PHASES OF CONTROL

- A. The Phases of Control shall adequately cover both on-site and off-site work and shall include the following for each definable feature or element of work. Managed by the contractor, with COTR approval, The Three Phases of Control are the core of the Construction Quality Management System.
- B. Material Receiving Inspection: Contractor shall establish a formal material receiving inspection program to verify material compliance to approved Shop Drawings, approved submittals, and the contract plans and specifications. Once material is received and inspected, submit Material Receiving Inspection Reports by the next calendar day after work is performed. Do not attach to the Quality Control Daily Report.
- C. Material Location Reports: At weekly intervals, prepare a comprehensive list of materials delivered to and stored at the site. This report shall be cumulative in nature, showing all materials previously reported plus items recently delivered. Include with report a statement of progress on and delivery dates for all materials or items of equipment being fabricated or stored away from the building site. Submit copies of report to COTR at weekly intervals.
- D. Inspection Program utilizing an Inspection Log and Signoff Sheets: The Contractor's superintendent shall establish, coordinate, and maintain with all trades and personnel, for each Definable Feature or Element of Work, a system of inspections and signoff sheets to certify that all work under the superintendent's control has been coordinated, constructed, and installed according to the plans and specifications. All work shall be documented as being inspected and signed-off by the contractor before starting and performing construction on the next Definable Feature or Element of Work. These inspections and sign-off sheets shall be incorporated into the Phases of Control.
- E. Preparatory Phase: Notify the COTR at least two (2) full workdays in advance of each preparatory phase. This phase shall include a meeting conducted by the QC Manager and attended by the superintendent, QC Assistant, QC Specialist(s), all subcontractors' foremen responsible for the definable feature or element of work, the contractor's Independent 3<sup>rd</sup> Party Testing, and inspection Agencies, and the Contractor's Safety Representative. Preparatory meetings shall not be conducted without having these individuals present at the meeting, having approved submittals, and approved JHAs. If all personnel are not present, or if submittals and JHAs are not approved, cancel Preparatory Phase meeting. Reschedule meeting when these items are approved. Document the results of the preparatory phase actions in the daily Quality Control Daily Report and in the Preparatory Phase Checklist. As a minimum the following should be covered prior to beginning work on each definable feature or element of work:

1. Review each paragraph of the applicable specification sections.
  2. Review the project drawings.
  3. Verify that appropriate shop drawings, O & M data, Warranties, and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required. If submittals are not approved, cancel Preparatory Phase meeting.
  4. Establish control to be utilized to assure work complies with the contract plans and specifications.
  5. Review the testing and inspection plan and ensure that provisions have been made to provide the required QC testing and inspections.
  6. Examine the work area to ensure that the required preliminary work has been completed.
  7. Examine the required materials, equipment, and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data.
  8. Discuss construction methods, construction tolerances, workmanship standards, and the approach that shall be used to provide quality construction by planning ahead and identifying potential problems for each definable feature or element of work.
  9. Discuss control measures to ensure quality through a system of sign-off sheets and inspections. All work shall be inspected and signed-off by the contractor before starting construction on the next Definable Feature or Element of Work. These inspections shall be incorporated into the Phases of Control.
  10. Discuss Contractors' Work Plans. Work Plans are a comprehensive Quality Tool, listing step-by-step procedures for all elements of work or Definable Features of Work to ensure field operations are built safely and meet contract requirements.
  11. Review the safety plan and appropriate job hazard analysis (JHA) to ensure that applicable safety requirements are met, and that required Material Safety Data Sheets (MSDS) are submitted. If the JHA is not approved, cancel Preparatory Phase meeting.
- F. Initial Phase: Notify the COTR at least two (2) full workdays in advance of each initial phase. When the Standard of Quality for workmanship has been established for that definable feature or element of work, conduct the Initial Phase with the QC Manager, superintendent, QC Assistant, QC Specialist(s), all subcontractors' foremen responsible for the definable feature or element of work's quality standard, the contractor's Independent 3<sup>rd</sup> Party Testing and Inspection Agencies, and the Contractor's Safety Representative. Initial meetings shall not be conducted without having these individuals present at the meeting, having approved submittals, and approved JHAs. If all personnel are not present, cancel Initial Phase meeting. Observe the initial segment of the definable feature or element of work to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily Quality Control Daily Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site, or when acceptable levels of specified quality are not being met. As a minimum the following should be covered for each definable feature or element of work:
1. Ensure controls established during Preparatory Phase are adequate to allow work to proceed in compliance with the plans and specifications.
  2. Establish the Standard of Control for Quality required for workmanship as required in the specifications.
  3. Resolve conflicts.
  4. Ensure testing and inspections are performed by an approved Independent 3<sup>rd</sup> Party Testing and Inspection Agencies.
  5. Discuss control measures to ensure quality through a system of sign-off sheets and inspections. All work shall be inspected and signed-off by the contractor before starting

- construction on the next Definable Feature or Element of Work. These inspections shall be incorporated into the Phases of Control.
6. Check work procedures for compliance with the Safety Plan and the appropriate job hazard analysis to ensure that applicable safety requirements are met.
- G. Follow-Up Phase: Perform the following for on-going daily work, or more frequently as necessary until the completion of each definable feature or element of work and document in the daily Quality Control Daily Report:
1. Ensure the work is in compliance with Contract requirements.
  2. Maintain the Standard of Control for Quality of workmanship established at the Preparatory and Initial Phases.
  3. Ensure that testing and inspections are performed by an approved Independent 3<sup>rd</sup> Party Testing Agency.
  4. Ensure that rework items and deficiencies are being identified, tracked, and corrected.
  5. All work shall be inspected and signed-off by the contractor before starting construction on the next Definable Feature or Element of Work.
  6. Eliminate repetitive Deficiencies and Rework.
  7. Perform safety inspections.
- H. Code-Required Inspections
1. Comply with the current edition, approved by the Commonwealth of Virginia of the VUSBC, "Special Inspections" or other agencies having jurisdiction.
  2. Contractor is not responsible for Special Inspections according to requirements of the current Virginia Uniform Statewide Building Code (VUSBC). Special Inspections are to be performed by the OWNER's agent.
  3. Contractor shall maintain and submit monthly a Code and Special Inspection Control Log, chronologically recording each Code and Special Inspection notification to the COTR, testing and/or inspections performed under the VUSBC, or other agencies having jurisdiction on-site, including the nature of the tests or inspections, the date performed, the results, approval or causes for rejection, corrective action taken, and dates of subsequent tests, inspections and final acceptance.
  4. Notice to COTR: Notify COTR, in writing, at least two (2) workdays in advance of all code-required inspections. COTR should be apprised in advance of every preparatory and initial inspection. All preparatory, initial, and follow-up inspections shall be made a matter of record in Contractor's quality-control documentation.
- I. Additional Preparatory and Initial Phases
1. Additional Preparatory and Initial Phase meetings shall be repeated for all definable features or elements of work where the Initial Standard of Control has changed or is not maintained; examples where Preparatories or Initial Meetings may need to be repeated are:
    - a. Changes in the QC Organization, supervision, or changes to personnel performing the work.
    - b. When the quality standards established at the Preparatory and Initial Meetings have changed or are no longer acceptable.
    - c. Changes of materials.
    - d. Changes in equipment.
    - e. Changes in the Season.



- f. Changes in Weather.
- g. Changes to the Environment.
- h. If work is resumed after a substantial period of inactivity.
- i. When the standard of Quality is not recognized or understood by those producing the work as established in the specifications and the Three Phases of Control meetings.
- j. As required by the COTR in writing.

J. Notification of Phases of Control for Off-Site Work

1. On determination by COTR that an item shall require surveillance by the OWNER at the point of production, manufacture, or shipment, Contractor shall be notified of such determination. Contractor shall furnish to COTR three copies of all purchase orders or subcontracts, for all tiers of subcontractors or suppliers for each item. In addition, copies of documented quality-control operations, tests, and inspections shall be made available to the OWNER's representative at the point of production, manufacture, or shipment. The QCM shall notify the COTR at least three (3) weeks prior to the start of the preparatory and initial phases conducted at Off-Site Work Locations.

K. Notification of Off-Site Inspections and Tests:

1. If Factory Witness Tests and Inspections are required for this project, follow procedures outlined in the technical specifications for notification, scheduling, testing, and inspection requirements.
2. Identify Off-Site Inspections and Testing requirements in the contractor's QC Plan.

1.15 SUBMITTAL REVIEW AND APPROVAL

- A. Procedures for preparation, review, approval, and submission of submittals are described in Division 01 Section "Submittals".
- B. The QC Manager shall not prepare submittals, but shall review and approve submittals.

1.16 INSPECTION AND TEST PLAN (ITP)

- A. The Contractor, and its subcontractors engaged in design, supplying, manufacturing, construction, installation, commissioning and testing or any other service connected with the contract Work, shall maintain inspection and test plans (ITPs) appropriate for the services they provide, and that are acceptable to Owner. These accepted ITPs shall stipulate the necessary level and frequency of tests and inspections for each aspect of the Work by all parties and also stipulate:
  1. Item(s) being inspected and tested.
  2. The inspection and test activity and documentation of inspection and test results.
  3. Acceptance criteria.
  4. Method statements.
  5. Involvement of various parties including hold and witness points.
  6. Controlling specifications.
  7. Certifications/documentation/records required.

- B. Contractor shall determine the details to be stipulated in the ITPs including acceptance criteria. As a minimum, the acceptance criteria shall comply with the requirements of the contract. Where not specified, Contractor shall propose acceptance criteria for Owner’s review and acceptance such as mock-ups, workmanship standards, pictures, etc., including the method and frequency of inspection and testing. There shall be a number of ITPs covering every discipline and type of work e.g., civil, electrical, mechanical. Contractor shall submit a proposed listing of ITPs it intends to develop for Owner’s review and acceptance. Contractor shall ensure that each ITP is prepared and submitted to Owner for approval at least 15 days before any activity covered by the ITP commences.
- C. Contractor shall conduct inspections and tests in accordance with its detailed plans and ITPs. ITP scope shall cover supplier provided equipment, site receiving inspection, in-process and final inspections.
- D. Contractor shall ensure that each item of work is inspected and accepted by its own team prior to Owner attendance. Owner may perform the following types of inspections:
  - 1. Witness Point (W): A Work operation that the Owner may desire to watch, observe, or visually examine. Contractor and Owner must agree to witness points prior to the start of the Work. Contractor is obligated to advise Owner a reasonable time in advance of the operation to ensure Owner can attend the required witness point. At Owner’s discretion they may waive their participation in required witness points. Witness Points shall also be extended to project stakeholders and be identified on the ITP.
  - 2. Hold Point (H): A critical operation in which, by prior agreement, Contractor is obligated to advise Owner a reasonable time in advance of the operation so that the item may be visually examined, tested, or measured by Owner to verify conformance with the contract requirements. Contractor shall not proceed with Work beyond such hold points except by written agreement from Owner. Hold Points shall also be extended to project stakeholders and be identified on the ITP.
  - 3. Surveillance (S): Surveillance of specific project activities is used to determine compliance of ‘in process’ activities with contractual and quality program requirements. Surveillance may be scheduled or unscheduled and is commensurate with the scope and complexity of activities covered. Owner, and authorized third parties, may perform ‘in process’ monitoring of Contractor’s activities to the degree necessary for confidence that the Work process/method is in compliance with the established criteria and contractual requirements.
  - 4. 4. Review (R) Review by Owner of Contractor documentation including, but not limited to inspection and testing records for correctness and completeness.
- E. Contractor shall notify Owner of inspection and tests in line with the requirements set out in this Specification. However, provided that circumstances allow and at the sole discretion of Owner, the notification periods may be relaxed.
- F. Contractor shall provide Owner, at the weekly progress meeting, an advance look-ahead schedule of witness and hold inspections planned for the following four weeks.

#### 1.17 TESTING

- A. Comply with all testing and inspection requirements as outlined in the technical specification sections of this contract, to include compliance with all applicable provisions and requirements of Division 1.

- B. Independent Testing and Inspection Laboratory: When codes or requirements of the contract require tests or inspections by civil, mechanical, electrical, VUSBC, or other entities, a corporately and financially independent testing or inspection organization shall be contracted by the Contractor to perform these contractually required tests and inspections. These testing and inspection agencies shall function as an unbiased testing and inspection authority; professionally independent of the contractor, subcontractors, manufacturers, suppliers, and installers of equipment; or systems evaluated by the testing and inspection organizations for this contract. The various types of independent accrediting agencies and requirements are listed below.
- C. Accreditation Requirements: Construction materials testing and inspection laboratories performing work on this construction contract shall be accredited by one of the laboratory accreditation authorities. The laboratory's scope of accreditation shall include the ASTM standards listed in the paragraph titled "Construction Materials Testing Laboratory Requirements" as appropriate to the testing field. The policy applies to the specific laboratory performing the actual testing or inspection and the testing technicians performing the tests and inspections, not just the "Corporate Office".
- D. Electrical testing of components, equipment, and systems: The testing firm shall be regularly engaged in the testing of electrical equipment, devices, installations, and systems. The testing firm shall have at least five (5) years' experience in the testing of electrical equipment of the type, rating, and voltage used on this Project. The testing laboratories shall be a current full member company of the International Electrical Testing Association (<http://www.netaworld.org/>). This independent testing firm shall perform testing and inspections as required under the terms of this Contract.
- E. Structural and Pipe Welding: An independent testing and inspection firm shall perform all structural and pipe welding examinations as required by this Contract. The inspectors employed by the firm shall hold current certification as an AWS Certified Welding Inspector (CWI) for visual weld examinations and ASNT-TC-1A Certification for nondestructive examination of welds. ASNT-TC-1A certifications shall be by an ASNT-TC-1A ACCP Level III.
- F. Construction Materials Testing Laboratory Requirements: Provide an independent construction material testing laboratory accredited by an acceptable laboratory accreditation authority to perform sampling, inspections, and tests required by this Contract. Testing laboratories that have obtained accreditation by an acceptable laboratory accreditation authority listed in the paragraph entitled "Laboratory Accreditation Authorities" shall submit with the Quality Control Plan, a copy of the Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test or inspection methods and certifications required by the Contract. On and Off-site testing and inspection facilities shall submit a certified statement by the Supervising Professional Engineer, licensed in the Commonwealth of Virginia, as meeting the specification requirements and the following minimum ASTM standards listed below as appropriate to field and laboratory testing and inspection. Include all Testing Technician qualifications per accredited Laboratory and specification requirements.
1. Laboratories engaged in testing of construction materials shall meet the requirements of ASTM E 329.
  2. Laboratories engaged in testing of concrete and concrete aggregates shall meet the requirements of ASTM C 1077.

3. Laboratories engaged in testing of bituminous paving materials shall meet the requirements of ASTM D 3666.
  4. Laboratories engaged in testing of soil and rock, as used in engineering design and construction, shall meet the requirements of ASTM D 3740.
  5. Laboratories engaged in nondestructive testing (NDT) shall meet the requirements of ASTM E 543.
  6. Laboratories engaged in Hazardous Materials Testing shall meet the requirements of OSHA and EPA.
- G. **Laboratory Accreditation Authorities:** Laboratory Accreditation Authorities are the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology, the American Association of State Highway and Transportation Officials (AASHTO) program, ICBO Evaluation Service, Inc. (ICBO ES), and the American Association for Laboratory Accreditation (A2LA) program and the Washington Area Council of Engineering Laboratories (WACEL). Furnish to the COTR, a copy of the current Certificate of Accreditation and Scope of Accreditation. The scope of the laboratory's accreditation shall include the test and inspection methods required by the Contract.
- H. **Capability Check:** The COTR retains the right to examine the laboratory equipment in the proposed laboratory, the laboratory's managers and testing technicians' qualifications, procedures, techniques, and other items for compliance with the standards set forth in this Contract.
- I. **Capability Recheck:** If non-conformities are discovered during the capability check or any succeeding recheck, Contractor shall be assessed a charge of \$850.00 to reimburse the OWNER for each recheck of the laboratory or the checking of a subsequently selected laboratory. These charges shall be deducted from the total amount due Contractor.
- J. **Test and Inspection Report Results:** Cite applicable Contract requirements, tests, inspections, or analytical procedures used. Provide actual results and include a statement that the item tested, inspected, or analyzed conforms (PASSES) or fails to conform (FAILS) to specified requirements. **IF THE ITEM FAILS TO CONFORM, NOTIFY COTR IMMEDIATELY.** Conspicuously stamp the each Test Report in large red letters "CONFORMS" or "DOES NOT CONFORMS" to the specification requirements, whichever is applicable. The OWNER will accept a designation of "PASS" or "FAIL" in lieu of "CONFORMS" or "DOES NOT CONFORM". A certified testing laboratory manager performing all laboratory tests shall sign all test results. A certified technician performing all field tests and inspections shall sign all testing and inspection reports for those tests or inspections conducted in the field. All test and inspection reports shall be reviewed, certified, and signed by a professional engineer, licensed in the Commonwealth of Virginia, as complying with the contract specifications, before submission to COTR. Submit within two (2) workdays after the tests or inspections are performed.
- K. **Contract Required Tests:** Outlines those tests and inspections conducted by the Contractor that assist in maintaining the standard of quality for all operations and procedures, for each Definable Feature or Element of Work, as identified in the Quality Control Plan and the Specifications. As described above, the Contractor shall procure the services of an independent commercial laboratory to perform the required control tests and inspections. The contractor shall identify the testing and inspection requirements of the contract and shall:

1. Identify procedures, requirements, analytical procedures used, and criteria for all Testing and Inspections.
2. Identify Methods of construction.
3. Identify Number of control tests, inspections, and frequency of tests and inspections to be made for each Definable Feature or Element of Work.
4. Provide actual results and include a statement that the item tested, inspected, or analyzed conforms or fails to conform to specified requirements.
5. Identify testing or inspection agency performing testing and inspections.
6. Ensure proper certification and sign-off of all tests and inspections conducted and reviewed by Contractor Independent testing and inspecting Technicians, Managers, and Professional Engineers.
7. Ensure the QC Manager shall only utilize accredited laboratories and certified technicians for performing testing and inspections as outlined in the contract specifications.
8. Notify COTR a minimum of two (2) workdays in advance of contractor performing any testing and inspections.

- L. Staffing: All laboratory, inspection, and testing technician personnel shall work in an accredited laboratory under the supervision of a Professional Engineer licensed in the Commonwealth of Virginia.

#### 1.18 QC CERTIFICATIONS

##### A. Quality Control Daily Report Certification

1. Each Quality Control Daily Report shall contain the following statement:
  - a. “On behalf of (*Name of Contractor*), I certify that this report and the Inspector's Daily Reports are complete and correct, and that all materials and equipment used, as well as work performed during this reporting period are in compliance with Drawings, Specifications, and Contract provisions, except as noted in this report or attached reports.”

##### B. Application for Payment Certification:

1. Refer to Division 01 Section "Progress Payment" for address to which the Applications shall be sent.

##### C. Completion Certification:

1. Upon completion of work under this Contract, the QCM shall furnish a certification letter to the Contracting Officer attesting that " that all work required of the contract has been completed, inspected, tested and is in full compliance with the Contract Documents."

#### 1.19 COMPLETION INSPECTIONS

- A. Punch-Out Inspection: Near the completion of all work or any increment thereof established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QCM shall conduct an inspection of the work and develop a "punch-list" of items which do not conform to the approved drawings and specifications. Include in the punch-list any remaining items on the "Deficiency Log" which were not corrected prior to the Punch-Out Inspection. The punch-list

shall include the estimated date by which the deficiencies shall be corrected. A copy of the punch-list shall be provided to the COTR. The QCM and staff shall make follow-on inspections to ascertain that all deficiencies have been corrected before requesting a Pre-Final Inspection. Once all deficiencies are corrected the Contractor shall notify the COTR that the facility or item is ready for The OWNER's "Pre-Final Inspection."

- B. Pre-Final Inspection: The OWNER or OWNER's Representative may perform this inspection to verify that the facility or inspected item is complete and ready to be inspected. An OWNER "Pre-Final Punch- List" may be developed as a result of this inspection. Any items noted on the "Pre-Final" inspection shall be corrected in timely manner and shall be accomplished before the contract completion date for the work or any particular increment thereof if the project is divided into increments by separate completion dates. The QCM shall ensure that all items on the Punch-list are corrected prior to notifying the OWNER of a request for a "Final" Acceptance Inspection.
- C. Final Acceptance Inspection: The COTR, The Authorities Representatives, the QCM, the superintendent, and other personnel as deemed necessary by the COTR shall be in attendance for this inspection. The Contracting Officer based on corrections to the punch-lists on the "Pre-Final" inspection will formally schedule the Final Acceptance Inspection. The contractor shall give Written Notice to the COTR and CO, at least fourteen (14) calendar days prior to the Final Acceptance Inspection, stating that all contract work is completed and all items previously identified on the Punch-Out and Pre-Final Inspections have been corrected and are accepted by The OWNER's Representatives and COTR. The contractor shall also furnish a Certification Letter, from the QC Manager to the COTR and CO, stating and attesting "that all work required of the contract has been completed, inspected, tested and is in full compliance with the Contract Documents." Failure of the Contractor to give this Written Notice and Certification Letter to the COTR and CO shall be reason and grounds for the Contracting Officer to bill the Contractor for the OWNER's additional inspection costs in accordance with the clause in the Contract Provisions entitled "Inspection of Construction." When the Contracting Officer takes possession of partially completed work, it shall be in accordance with clause in the Contract Provisions entitled "Use and Possession Prior to Completion".

#### 1.20 DOCUMENTATION

- A. Contractor shall maintain current quality control records, on approved forms, of all control activities, production, tests, and inspections performed. These records shall include factual evidence that required tests and/or inspections have been performed, including type and number of tests and/or inspections involved; results of tests and/or inspections; nature of defects, causes for rejection, etc.; proposed remedial action; and corrective actions taken. These records shall cover both conforming and defective or deficient features (non-conforming work) and shall include a statement that all supplies and materials incorporated into the work are in full compliance with terms of the Contract as documented in the Contractor's materials receiving inspection program. Only Legible copies of these records shall be furnished, submitted, and delivered to COTR. The records shall cover all work placed subsequent to the previously furnished records and shall be verified by Contractor's QCM. Contractor shall document all tests and inspections as specified in the technical provisions of the Specifications. All specified records shall be readily available for review by COTR throughout the life of the Contract.
- B. Maintain current and complete records of on-site and off-site QC Program operations and activities. Establish and maintain the following in a series of 3 ring binders. Binders shall be

divided and tabbed as shown below. These binders shall be readily available to the OWNER's Quality Assurance Team upon request.

1. All completed Preparatory and Initial Phase Reports, arranged by specification Section, Definable Feature, or Element of Work.
  2. All milestone and required inspections, arranged by Activity/Event Number.
  3. Special Inspection Control Log, arranged by Definable Feature or Element of Work and Trade.
  4. A current up-to-date copy of the approved Testing and Inspection Plan, and supporting documentation that accounts for all testing and inspection requirements as listed in the specifications and the Monthly Summary Report of Tests and Inspections that documents all field tests, inspections, reports, and supporting documentation, arranged by date for each Definable Feature or Element of Work as identified in each specification section.
  5. A current up-to-date copy of the Superintendent's inspection logs and sign-off sheets for each Definable Feature or Element of Work.
  6. Copies of all contract RFIs, arranged in numerical order.
  7. Copies of all contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.
  8. A current up-to-date comprehensive copy of the Nonconformance Log.
- C. Report Forms - A copy of all approved forms shall be included with the Quality Control Plan. The forms shall be designed to assist in the control of the quality. The following minimum requirements are listed for specific reports:
1. Quality Control Daily Report: Reports are required for each day that work is performed and for every seven consecutive calendar days of no work and on the last day of a no-work period. Account for each calendar day throughout the life of the Contract. The reporting of work shall be identified by terminology consistent with the construction schedule. Quality Control Daily Reports are to be prepared, signed and dated by an approved QCM and shall contain the following information:
    - a. Identify Date of report, report number, Contract Number, and Contract Title.
    - b. Identify Schedule Activity No., Submittal # and list equipment/material received each day that is incorporated into the job.
    - c. Indicate if Preparatory Phase work was performed today (Yes/No checkboxes).
    - d. If Preparatory Phase work was performed today (including on-site and off-site work), identify its Schedule Activity Number and Definable Feature or Element of Work. The Index number is a cross reference to the Preparatory Phase Checklist. An example of the Index number is: 0025-P01, where "0025" is the Quality Control Daily Report Number, "P" indicates Preparatory Phase, and "01" is the Preparatory Phase Checklist number(s) for this date. Each entry in this Section shall be accompanied with a corresponding Preparatory Phase Checklist.
    - e. Indicate if Initial Phase work was performed today (Yes/No checkboxes).
    - f. If Initial Phase work was performed today (including on-site and off-site work), identify its Schedule Activity Number and Definable Feature or Element of Work. The Index Number is a cross reference to the Initial Phase Checklist. An example of the Index Number is: 0025-I01, where "0025" is the Quality Control Daily Report Number, "I" indicates Initial Phase, and "01" is the Initial Phase Checklist number(s) for this date. Each entry in this Section shall be accompanied with a corresponding Initial Phase Checklist.

- g. Results of the Follow-up Phase inspections held today (including on-site and offsite work), including Schedule Activity Number, location of definable feature or element of work, Specification Sections, etc. Indicate in the report for this definable feature or element of work that the work complies with the Contract as approved in the Initial Phase, work complies with safety requirements, and that required testing and inspections have been performed. Include a list of who performed the tests and inspections.
          - h. List the rework items and deficiencies identified, but not corrected by close of business, along with its associated Schedule Activity Number.
          - i. List the rework items and deficiencies corrected from the deficiency log along with the corrective action taken and its associated Schedule Activity Number.
          - j. Include a "remarks" section in this report that shall contain pertinent information including but not limited to:
            - 1) Directions received.
            - 2) Quality control problem areas.
            - 3) Deviations from the QC plan.
            - 4) Construction deficiencies encountered.
            - 5) QC meetings held that day.
            - 6) Acknowledgement that record drawings, specifications, O & M data, and Warranty Manuals, have been updated and/or submitted.
            - 7) Corrective direction given by the QC Organization and corrective action taken by the Contractor.
            - 8) For each remark given, identify the Schedule Activity Number that is associated with the remark.
          - k. Quality Control Daily Report certification, signature, and date.
2. Superintendent Daily Report: This report shall be prepared anytime work or production is conducted or performed on or off site throughout the life of the contract. This Contractor's Production Report is the primary document utilized by the Superintendent for documentation of all construction activities performed by the Contractor and/or their subcontractors. Sign-off sheets and Inspection logs shall supplement and support this Daily Report. The reporting of work shall be identified by terminology consistent with the construction schedule and standard construction practices. Do not attach this report to the Quality Control Daily Report. The Superintendent Daily Reports are prepared, signed, and dated by an approved Superintendent and shall contain the following information:
  - a. Identify Date of report, report number, Contract Number, Contract Title, and Location.
  - b. Identify Contractor's name and Superintendent's Name.
  - c. Identify whether work was performed A.M and/or P.M. Include Weather with Max Temperatures (F°) and Min. Temperatures (F°), precipitation, winds, humidity and dew point. Document any weather feature that may affect construction.
  - d. Enter Work Performed Today by Schedule Activity Number, Work Location and Description of Work Activity, Employer, Number of workers, the Trade of the workers and the hours of work conducted per each trade.
  - e. List Total of Work Hours on job site. Cumulative Total of Work Hours from Previous Report and Total of Work Hours from Start of Construction
  - f. Identify Job Safety: If Safety Meetings were Held. Was there any lost time Accidents? Was Crane/Man-lift/Trenching/Scaffold/HV Electric/High Work/or Hazmat Work accomplished? Was Hazardous Material or Waste Released into the



- Environment? List Safety Actions taken today. Safety Inspections Conducted. Have Safety Requirements been met?
- g. Identify by submittal number all Equipment and/or Material received that day to be incorporated into the contract. Ensure all Equipment, Materials, and required quantities received have been inspected and approved in comparison to approved submittals. Give Description of Equipment and Material received; utilizing the Material Verification at delivery checklist and Material Location Reports as outlined in the contractors formal Material Receiving Inspection Program. The Superintendent shall ensure all materials, products, quantities and equipment incorporated in this contract are approved and are accepted before installation.
  - h. Identify Construction or Plant Equipment on the work site each day. Identify who owns the equipment? Describe the Type, Make, quantity, and Model of the Equipment and the hours utilized for each piece of equipment.
  - i. Remarks: Document construction activities, establishment, and maintenance of quality processes and procedures, observations, correction to deficiencies, and coordination of trades to ensure Quality Production. Document superintendent's utilization of sign-off sheets, inspection sheets, checklists, submittals, etc. to instill and establish Quality. Identify production shortfalls and construction deficiencies and ways to correct these Deficiencies and short-falls on the Superintendent Daily Report. Document all deficiencies and corrections to Deficiencies on the Contractor's Deficiency Log maintained by the QC manager.
3. Preparatory Phase Report/Checklist: File this report for each Definable Feature or Element of Work that is in the Preparatory Phase. The report shall be identified by terminology consistent with the construction schedule. Do not attach this report to the Quality Control Daily Report of the same date.
- a. Specification Section, date of report, and Contract number shall be filled out. Duplicate this information in the header of the second page of the report.
  - b. Definable Feature or Element of Work, Schedule Activity Number and Index Number entry, and format shall match entry in the Preparatory Phase section of the Quality Control Daily Report. Duplicate this information in the header of the second page of the report.
  - c. Personnel Present: Indicate the number of hours of advance notice that was given to the COTR and indicate (Yes/No checkboxes) whether or not the COTR was notified. Indicate the Names of Preparatory Phase Meeting attendees, their position and their company affiliation. The meeting is conducted by the QCM and attended by the superintendent, all subcontractors' foremen responsible for the definable feature or element of work, the contractor's Independent 3<sup>rd</sup> Party Testing and Inspection Agencies, and the General Contractor's Safety Representative. If all personnel are not present, cancel Preparatory Phase meeting.
  - d. Submittals: Indicate if submittals have been approved (Yes/No checkboxes), if no indicate what has not been submitted. If submittals are not approved, cancel Preparatory Phase meeting. Are materials on hand (Yes/No checkboxes) and if not, what items are missing. Check delivered material/equipment against approved submittals and comment as required.
  - e. Material Storage: Indicate if materials/equipment is stored properly (Yes/No checkboxes) and if not, what action is/was taken.
  - f. Specifications: Review and comment on Specification Paragraphs that describe the material/equipment, procedure for accomplishing the work and clarify any differences.

- g. Preliminary Work & Permits: Ensure preliminary work is in accordance with the contract documents and necessary permits are on file, if not, describe the action taken.
  - h. Testing and Inspections: Identify who shall perform tests and/or inspections, the frequency, and where tests and/or inspections are to occur. Review the testing and inspection plan, report abnormalities, and if the test and inspection facilities have been approved.
  - i. Discuss Control Procedures that shall be employed to consistently obtain the required specified quality; for example Sign-off sheets and Inspection logs.
  - j. Safety: Indicate if the job hazard analysis (JHA) has been approved (Yes/No checkboxes) and comment on the review of the applicable portions of the Construction Safety Manual. If the JHA is not approved, cancel Preparatory Phase meeting.
  - k. Meeting Comments: Note comments and remarks during the Preparatory Phase Meeting that was not addressed in previous sections of this checklist.
  - l. Other Items or Remarks: Note any other remarks or items that were a result of the Preparatory Phase.
  - m. QCM shall sign and date the report.
4. Initial Phase Report/Checklist: Complete this report for each Definable Feature or Element of Work that is in the Initial Phase of Control. The report shall be identified by terminology consistent with the construction schedule. Do not attach this report to the Quality Control Daily Report of the same date.
- a. Specification Section, date of report, and Contract number shall be entered.
  - b. Definable Feature or Element of Work, Schedule Activity Number and Index Number entry, and format shall match entry in the Initial Phase section of the Quality Control Daily Report.
  - c. Personnel Present: Indicate the number of hours of advance notice that was given to the COTR and indicate (Yes/No checkboxes) whether or not the COTR was notified. Indicate the Names of Initial Phase Meeting attendees, their position and company/Authority they are with. This meeting is conducted by the QCM and attended by the superintendent, all subcontractors' foremen responsible for the definable feature or element of work, the contractor's Independent 3<sup>rd</sup> Party Testing and Inspection Agencies, and the General Contractor's Safety Representative. If all personnel are not present, cancel the Initial Phase meeting.
  - d. Control Procedures: Comment on control procedures identified at Preparatory Phase of Control and assurance that work is in accordance with plans, specifications, and submittals; for example Sign-off sheets and Inspection logs. Control procedures not producing the required compliance shall be adjusted until the procedures consistently obtain the required quality.
  - e. Preliminary Work: Ensure preliminary work being placed is in compliance and if not, what action is/was taken.
  - f. Workmanship: Identify whether the Standard of Control was established and accepted. Identify where the initial Standard of Control work is located; if a sample panel or Mock-up is required (Yes/No checkboxes); is the initial work the sample (Yes/No checkboxes); and if Yes, describe the panel location and precautions taken to preserve the sample.
  - g. Resolution: Comment on any differences and the resolutions reached.
  - h. Check Safety: Comment on the safety review of the job conditions.
  - i. Other: Note any other remarks or items that were a result of the Initial Phase.

- j. QCM shall sign and date the report.
- D. Weekly/Monthly Nonconformance Log: The QCM shall maintain a comprehensive list of all work that does not comply with the contract, identifying what items need to be reworked, the date the item was originally discovered, the date the item shall be corrected by, and the date the item was corrected. All failed or nonconforming work, tests, and inspections shall be documented in this Log. There is no requirement to report on the Nonconformance Log a rework or deficient item that is corrected the same day it was discovered. Provide a copy of the comprehensive Nonconformance log weekly to the COTR at the weekly progress meeting and at the end of the month. Identify all nonconforming work, substandard tests and inspections identified during the contract period including the nature of the test or inspection, location and nature of defects, causes for rejection, and remedial actions taken or proposed for any open items on prior nonconformance reports including the date scheduled for resolution of the item. Do not attach to the Quality Control Daily Report.
- E. Code and Special Inspection Control Log: The Contractor shall maintain and submit monthly a Code and Special Inspection Control Log, chronologically recording each Code and Special Inspection notification to the COTR, tests and/or inspections performed under the VUSBC, or other agencies having jurisdiction on-site, including the nature of the test or inspection, the date performed, the results, approval or causes for rejection, corrective action taken, and dates of subsequent tests, inspections, and final acceptance.
- F. Test and Inspection Reports: Contractor shall be responsible for establishing a system that shall record, on approved forms, all tests, and inspection results. Information on test and/or inspection designation, location, date of test and/or inspection, specification requirements, results and retest results, causes for rejection and recommended remedial actions shall be documented. A copy of the test and inspection results shall be sent directly from the Agency performing the testing services to the COTR. The COTR shall be notified “IMMEDIATELY” of any failing tests and/or inspections. A certified technician performing all field tests and inspections shall sign all inspection reports. A certified testing laboratory manager performing all laboratory tests shall sign all test results. All test and/or inspection reports shall be reviewed, certified, and signed by a professional engineer, licensed in the Commonwealth of Virginia, as complying with the contract specifications. Do not attach to the Quality Control Daily Report. Submit within two (2) workdays after the test and/or inspection is performed.
  1. Test and Inspection Reports shall be submitted twice per month for each Definable Feature or Element of Work:
    - a. Submitted two (2) days after the test and/or inspection is performed.
    - b. Submitted within two (2) days from the end of the month with the Monthly Summary Report of Tests and Inspections.
- G. Monthly Summary Report of Tests:
  1. The QCM shall submit at the end of each month a current and up-to-date Monthly Summary Report of Tests and Inspections, per each Definable Feature or Element of Work, that includes and accounts for all testing and inspections performed to date for that specific Definable Feature or Element of Work in that month. Submit with each Monthly Summary Report of Tests and Inspections, all testing reports, and documentation pertaining to that month’s testing and inspections.

2. The Monthly Summary Report of Tests and Inspections shall summarize, in detail, all information required of a Test and/or Inspection Report and contract specifications.
  3. A Professional Engineer, licensed in the Commonwealth of Virginia, shall review, certify, and sign all Monthly Summary Report of Tests and Inspections as complying with the contract specifications.
  4. The QCM shall record, as a tracking device, all tests on the "Testing Log", the dates that tests were performed, the dates the test results were forwarded to the COTR, remarks and acknowledgement that an accredited or Contracting Officer approved testing laboratory was used, the dates that all failing or nonconforming tests were corrected, accepted, or approved.
  5. The Testing Log shall be used as a management tool by the QCM to account and track all tests requirements of the QC Plan and contract specifications.
  6. Do not attach the Testing Log to the Quality Control Daily Report.
- H. Inspection Log and Signoff Sheets: The Contractor's superintendent shall establish, coordinate, and maintain with all trades and personnel, for each Definable Feature or Element of Work, a system of inspections and signoff sheets to certify that all work under the superintendent's control has been coordinated, constructed, and installed according to the plans and specifications. All work shall be documented as being inspected and signed-off by the contractor before starting and performing construction on the next Definable Feature or Element of Work. These inspections and sign-off sheets shall be incorporated into the Phases of Control.
- I. Record Drawings: The QCM is required to ensure the record drawings, required by Division 01 Section "Project Record Documents," are kept current on a weekly basis and marked to show deviations which have been made from the construction drawings. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. CN No., Modification No., Request for Information No., etc.). The QCM shall initial each deviation and each revision. Upon completion of work, the QCM shall furnish a certificate attesting to the accuracy of the record drawings prior to submission to the COTR.
- J. Operation, Maintenance, and Warranty Manuals (As applicable per contract specifications): The QCM shall ensure that the Operation and Maintenance data required by Division 01 Section "Operation and Maintenance Data" and the Warranties specified in Division 01 Section "Project Closeout" are inserted on a daily basis in the appropriate sections of the approved formatted manuals after they have been approved by the COTR.
- K. Materials Receiving Inspection Report: Contractor shall establish a formal materials receiving inspection program to verify material compliance to approved Shop Drawings, approved submittals, and the contract plans and specifications. Do not attach to the Quality Control Daily Report.
- L. Material Location Report: At weekly intervals, prepare a comprehensive list of materials delivered to and stored at the site. This report shall be cumulative, showing materials previously reported plus items recently delivered. Include with this report a statement of progress on and delivery dates for all materials or items of equipment being fabricated or stored away from the building site. Submit copies of report to COTR at weekly intervals.
- 1.21 NOTIFICATION OF NONCONFORMANCES to CONTRACT REQUIREMENTS

- A. The COTR will notify the contractor of any detected nonconformances with the foregoing requirements. The Contractor shall take immediate corrective action after the receipt of such notice. *Such notice, when delivered to the Contractor by official letter shall be deemed sufficient for the purpose of notification.* If the Contractor fails or refuses to comply promptly, the Contracting Officer may:
1. Issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost, due to such stop orders, the subject of a claim for extension of time for excess costs or damages.
  2. Repair, replace, or otherwise remedy the defective work at the Contractor's expense. Cost incurred by the OWNER to correct defective work shall be deducted from the total amount due the Contractor.
  3. Withhold an amount from the payment due the Contractor as may be deemed necessary at the discretion of the Contracting Officer.
  4. Terminate the Contractor's right to proceed for Default after providing required notice.
- B. In cases where implementation of the Quality Control Program does not comply with the Contractor's Quality Control Plan, the contract provisions, or the Contractor fails to properly operate, manage or maintain an effective Quality Control Program, the Contracting Officer may:
1. Order the Contractor to replace ineffective or unqualified Quality Control Personnel or subcontractors.
  2. Issue an order stopping all or part of the work until acceptable personnel are on site and a new Quality Control Plan is approved by the COTR. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time for excess costs or damages.
  3. Take a credit from the contract for Quality Control Activities not performed.
  4. Terminate the Contractors right to proceed for Default after providing required notice.
- C. The Contractor shall maintain a detailed record of every nonconformance and corrective action taken.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014000

SECTION 01 41 00 - REGULATORY REQUIREMENTS AND PERMITTING PROCESS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
  - 1. Statement of Work.
  - 2. Commonwealth of Virginia, “Construction and Professional Services Manual” (CPSM).
  - 3. National Environmental Policy Act (NEPA) documents and permits.
  - 4. Metropolitan Washington Airports Authority “Design Manual” (Design Manual).
  - 5. Metropolitan Washington Airports Authority “Building Codes Manual”.
  - 6. Virginia Department of Transportation Standards, Specifications, Manuals, Guides and Advisories.

1.2 SUMMARY

- A. Section includes: Regulatory requirements applicable to Contract Documents.
- B. Permitting: Contractor shall incorporate into the Design Management Plan provisions, that comply with requirements herein, for approaches, timing and linkages to design packages for obtaining necessary permits and approvals.
- C. Specific reference in the Specifications to codes and regulations or requirements of regulatory agencies shall mean the latest edition adopted by the regulatory agency in effect at the time of the opening of Proposals, except as may be otherwise specifically stated in the Contract Documents.
- D. See Exhibit 01 41 00-A “Authority Having Jurisdiction (AHJ) for Construction Permits and Approvals,” located at end of the Specification Section.
- E. No change order shall be considered for any change in any applicable federal, state or local code or regulation if similar language existed in an alternate applicable regulation in force at the time of opening of Proposals.
- F. Code year in effect for Authority Having Jurisdiction (AHJ) approval shall be established at the time of approval by the AHJ.
- G. Contractor shall not allow design or construction of any conditions wherein the finished Work will not comply with current codes. No change order shall be considered by Owner for the Work correction of any Work not complying with code.

- H. This Section covers the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.
- I. Contractor's responsibilities for permitting include the following:
1. Contractor has responsibilities related to Owner Regulatory Approvals since Contractor is preparing design and construction documents and is responsible for construction activities. Contractor shall support Owner with obtaining Owner Regulatory Approvals. Specific responsibilities include those listed in Exhibit 01 41 00-B.
  2. The Contractor shall comply with the waste management regulations codified within the Virginia Administrative Code or any other applicable Federal and local regulations.
    - a. No later than 31 days after issuance of Notice to Proceed (NTP), apply for and subsequently obtain EPA hazardous waste generator identification (EPA ID) number for management and disposal of hazardous waste generated for which Contractor is considered the generator as per Article 9 of the Contract. Submit EPA Form 8700-12 to the Owner for review and approval prior to submission to Department of Environmental Quality (DEQ). Provide copies of all related correspondence with DEQ to the Owner, including the EPA Form 8700-12 once it has been approved by DEQ.
    - b. Contractor shall sign any hazardous or non-hazardous waste manifests used for transportation and disposal of both construction waste and pre-existing soil or water, hazardous or non-hazardous. Prior authorization from the Owner is required for the Contractor to utilize the Owner's EPA ID number, before initiating the transportation of any waste materials from the construction site. The Owner must be notified of the nature, quantity, and disposal method of the waste, as soon as that information is available. The contractor will be responsible for the disposal of hazardous and non-hazardous waste generated for which Contractor is considered the generator using the Contractor's EPA ID Number..
  3. Ensure that environmental or Hazardous Environmental Condition (HEC) related permits at the Site will be submitted for review to the Owner prior to submission to regulatory authority. Copies of reports/analyses with regard to HECs at the Site shall be submitted to the Owner for interpretation prior to submission to regulatory authority. Owner shall be copied on correspondence to and from regulatory authority with regard to environmental permit/approvals and HECs at the Site including but not limited to permit close-out reports and no further action notices.
  4. Contractor shall be in compliance with commitments included in the Dulles Corridor Metrorail Extension Project's environmental-related documents including:
    - FTA Final Environmental Impact Statement for the Dulles Corridor Rapid Transit Project (December 2004)
    - FAA Record of Decision – Dulles Corridor Metrorail Project at Washington Dulles International Airport (July 2005)

- FTA Amended Record of Decision – Dulles Corridor Metrorail Project, Fairfax and Loudoun Counties, Virginia (November 2006)
- FTA Finding of No Significant Impact – Dulles Corridor Metrorail Project, Phase 2 Preliminary Engineering Design Refinements, Fairfax and Loudoun Counties, Virginia (December 2012)
- FAA Finding of No Significant Impact/Record of Decision – Dulles Corridor Metrorail Project, Phase 2 at Washington Dulles International Airport (January 2013)
- Section 106 Memorandum of Agreement (MOA) Concerning the Effects of the Dulles Corridor Metrorail Project on Historic and Archaeological Resources (October 2012)

The relevant commitments are summarized in a Package G Environmental Compliance Matrix, which is included as a contract document as an appendix to the Statement of Work.

5. Permitting Integration with Design and Construction:
  - a. Complete Preliminary Design (PD) set shall be submitted and approved prior to submittal of any package requiring AHJ approval for building permits. See CPSM and Specification Section 01 41 00 for requirements.
  - b. Continue permitting process and integration of environmental and code requirements throughout the detailed design effort and construction planning.
  - c. Contractor shall be responsible for obtaining and modifying permits as required. Contractor shall be responsible for determining any additional construction or building permits required for construction
  - d. Ensure that Issued for Construction documents contain applicable permit numbers on each drawing and match Issued for Permit documents as approved and amended by requirements, conditions, and comments of permitting agency.
  - e. As needed to match revisions to design and construction, obtain permit amendments when such changes are made from conditions used as basis for original federal and state permits acquired by Owner or building permits obtained by Contractor. Comply with change approval processes required by permit reviewing agencies.
  - f. Ensure Project engineering and construction personnel understand regulatory constraints associated with the design. .
  - g. Ensure engineering personnel uniformly document regulatory details on Drawings (such as limits-of-disturbance), so that permitted work areas and protected resources are clear to field and regulatory personnel.
  - h. Owner shall be copied on correspondence sent to regulatory agencies with regard to permits/approvals, and shall receive copies of actual permits, along with all correspondence from regulatory agencies with regard to permits issued for the Project.
  - i. Track permit activity status and progress. Include status in the Environmental Compliance Matrix (ECM), as per Section 01 41 00, paragraph 1.2.K below..
6. Permit Packaging: Integrate permit packaging with design packaging to facilitate review and approvals. The Preliminary Design package shall be prepared as a comprehensive document incorporating all aspects of the Project. Each design package must include all discipline



designs necessary to demonstrate coordination, facilitate review and obtain permits from the AHJ.

7. Staffing:
  - a. Provide sufficient permit and environmental staffing throughout the construction phase as permitting, design, planning, technical studies, agency interface, and compliance monitoring are part of “fast-track” delivery system running concurrent with construction.
  - b. Provide one part time Environmental Manager, for environmental compliance duties and permitting responsibilities. The Environmental Manager shall report to the Contractor’s Project Manager directly or through no more than one layer of Quality/Safety Management to ensure environmental compliance receives proper priority and is not subject to internal conflicts of interest.
  - c. Conduct environmental awareness and permit training for all staff levels and subcontractors.
  
8. Permit Applications:
  - a. Complete project designs and manage the permitting needed for construction (e.g., temporary environmental permits, all building permits, traffic management, occupancy permits.)
  - b. Prepare permit application packages that are technically and administratively complete in accordance with the procedures of the Authority Having Jurisdiction (AHJ) and as required in this Section.
  - c. All permit applications shall contain a complete drawing list identifying those drawings submitted for permit versus those submitted as reference, as allowed by the permitting agency.
  - d. Identify, schedule, and secure permits/approvals for any additional work/storage area locations beyond those provided by the Airports Authority.
  - e. All permit application packages for Regulatory Approvals in the Owner’s name are to be approved by Owner prior to transmittal to AHJ.
  - f. Permit application packages being submitted to Airports Authority’s Building Codes Division will be transmitted by the Owner. Permit application packages being submitted to all other agencies shall be transmitted directly to those agencies by the Contractor, with a simultaneous copy of the package being transmitted the Owner.
  - g. Owner permit applications shall contain a copy of the Owner’s acceptance of the 100 percent Design and Record of Design Review.
  - h. For Owner permit Contractor shall obtain 100 percent design approval prior to submitting a permit application package. Submittal and agency acceptance of the Record Design Review, including revised drawings/progress prints documenting incorporation of all comment responses is a pre-requisite of 100 percent design approval. Revised drawings/progress prints shall be included with Record of Design Review.
  - i. Owner permit applications shall contain a copy of the Owner’s acceptance of the 100 percent Design and Record of Design Review.
  - j. Contractor is responsible for directly submitting in Contractor or utility company’s name, as appropriate, to the approving agency, applications and approval requests related but not limited to temporary staging and laydown areas.

- k. For FAA approvals to be obtained by Contractor, application packages will be submitted to the Owner for review and acceptance. Packages will be transmitted to the FAA by the Owner.
  - l. Contractor shall comply with all applicable noise ordinances or obtain variances, waivers, and/or approvals.
  - m. Contractor shall obtain permits and approvals for construction staging (lay-down) yards, field offices and electrical tie-in, satellite parking, and truck routes. Such approvals will be the responsibility of Contractor.
  - n. Document and track status of permit applications and support documents as they are prepared and submitted to agencies for review. Prepare Permit Tracking Matrix and submit to the Owner for review on a quarterly basis. As permits are issued, information tracked by Contractor on the Permit Tracking Matrix shall include:
    - 1) Permit number.
    - 2) Permit basis (documents and revisions).
    - 3) Issuing agency.
    - 4) Date permit was issued.
    - 5) Work location.
    - 6) Permit status.
    - 7) Required notifications.
    - 8) Expiration and extension dates.
    - 9) Date permit closed.
  - o. Enter all permit applications, drawings prepared to accompany permit applications (i.e. issued for permit), and related correspondence into Project's document control system. Working copies (hard copies) associated with Contractor and Owner permitting will be maintained in centralized permit file, sorted by:
    - 1) Regulatory agency.
    - 2) Applications.
    - 3) Engineering support documents.
    - 4) Correspondence.
    - 5) Issued permits.
  - p. Maintain permit files in electronic and hard copy form. Make available for inspection by regulatory and oversight personnel.
  - q. Post issued permits at Work sites as required by regulatory agencies. Permits and compliance with regulatory requirements shall be incorporated or referenced in Contract Documents.
9. Compliance:
- a. Prepare an Environmental Management Plan (EMP) **as part of the Project Execution Plan** for Owner review and Acceptance. The Plan shall address all relevant requirements relating to maintaining environmental and regulatory approval compliance for anticipated and potential Package G work. Submit updates for Owner review and acceptance. Include the following:

- 1) Identify project-wide and site-specific permit conditions and regulatory requirements.
  - 2) Describe actions for, and track permit compliance, including preparation of construction work plans, mitigation methods, training, communication networks, emergency response measures, and other aspects of environmental management and permit compliance.
  - 3) Incorporate an environment management system (EMS) into the EMP to assure the integration of environmental requirements into project planning, design, and construction execution and to maintain a process for continuous improvement. Develop, implement, maintain, and effectively manage an EMS in accordance with the Contract documents and ISO 14001:2004 principles. Establish and implement an EMS as a mechanism to help ensure that construction activities are conducted and managed in compliance with all Federal, state, and local laws, regulations and Executive Orders.
  - 4) Establish procedure requiring project designs and specifications to be reviewed by Contractor's permitting and environmental personnel for compliance with permits and regulatory requirements, including minimizing impacts to regulated resource areas.
  - 5) Establish procedure requiring work plans to be reviewed by Contractor's permitting and environmental personnel for consistency with permit conditions and confirm environmental impacts are being minimized and regulations are followed.
  - 6) Establish procedure requiring review of Field Change Requests (FCRs) generated by construction personnel by Contractor's permitting and environmental personnel for permit compliance or need for permit modification.
  - 7) Use specific procedures and policies, training programs, teamwork, documentation, and accountability from the time of notice-to-proceed through project close-out.
  - 8) Include review of Drawings and Specifications for incorporation of environmental requirements during design.
  - 9) Include emphasis on construction planning, daily pre-task analysis in the field, readiness reviews, daily oversight by Construction Superintendents, as well as field inspections by project environmental and quality assurance personnel during construction.
  - 10) Use reviews and audits of design and construction to document compliance with regulatory requirements and approvals as well as to identify corrective actions and conduct "trend analyses" to evaluate repetitive problems.
  - 11) Maintain communication with regulatory personnel and stakeholders during construction, use mitigation measures in a proactive fashion and resolve issues in a timely manner to avoid regulatory and stakeholder conflicts.
  - 12) Ensure environmental compliance is integrated into quality assurance plans.
- b. Contractor shall design to avoid, and if not possible, minimize impacts to Known Pre-Existing Environmental Conditions In the event Contractor discovers previously Unknown Pre-existing Hazardous Environmental Conditions that would be impacted by the design being advanced from the Project Technical Requirements during the various phases of design up to and including the Construction Documents Phase, the Contractor shall prepare an evaluation of design concepts that attempt to avoid, or if not possible, minimize impacts to Hazardous Environmental Conditions. These

avoidance concepts shall be presented by the Contractor to the Owner with an evaluation of the benefits and order of magnitude costs of design, construction and property acquisition and relative impacts including any required remediation of each concept so the Owner can select if an alternate concept from what is in the Project Technical Requirements should be advanced to construction.

- c. Conduct field compliance inspections and monitoring in coordination with regulatory inspectors. Document compliance by field personnel through inspection reports written and filed per Contractor's procedures and provide copies not less than quarterly of the inspection reports to Owner.

- 1) Environmental Inspectors.
- 2) Field Engineers.
- 3) Quality Assurance and Quality Control Inspectors.

- J. Training: Provide training to construction personnel prior to their performance of Work so that they understand environmental details associated with work execution. .

K. Tracking and Reporting

- 1. Incorporate activities for the development, review, and approval of each permit package in the D-B schedule with necessary linkages to design packages.
- 2. Contractor shall track status of permits and regulatory approvals during design and construction. Track permit activity status and progress in three primary ways:
  - a. Activities incorporated in Contractor's schedule.
  - b. Quarterly reporting of ECM to Owner's Representative.
  - c. Tracking reports.
- 3. Incorporate design packages and associated permits/regulatory approval applications into Contractor's schedule.
- 4. Adopt and manage ECM. Using the draft ECM included in the Statement of Work as a starting point, Contractor shall add permit and regulatory approval conditions to the ECM. Track status of each item on the ECM and to ensure that compliance can be demonstrated with source document and permits. Update status and action information for each commitment and requirement in ECM and submit to Owner quarterly to assist in the completion of status updates to ROD Attachment A, "Summary of Mitigation Measures."
- 5. Track status of individual permits, any permit modifications, and authorized impacts associated with environmental permits to track actions (e.g. notifications) and update construction schedules. Reports tracking approved permits shall include permit numbers, permit basis (documents and revisions), expiration dates, special inspection need and close-out date. A separate report shall track the stipulations of each approved permit. Sample formats for tracking permits are included in Exhibit 01 41 00-C.
- 6. Report permit tracking status and look-ahead at Progress Meetings with Owner throughout the D-B process. Reporting shall identify relevant issues being encountered and next required action and actor.
- 7. Use Permit Tracking Reports to document the submittal of various permit applications, resubmittals necessitated by review comments from regulatory agencies, and permit modifications resulting from Field Change Requests (FCRs) generated by construction

personnel. These reports shall be used to track actions (e.g. notifications) and update construction schedules.

8. Progressively submit and track permit applications according to design package and construction schedule.
9. Support Owner in updating and maintaining FTA mitigation tracking table.

L. Permit Close-outs

1. Maintain a consistent interface with regulatory agencies, documentation, and compliance monitoring throughout construction to support efficient permit close-out.
2. Close out the ECM at Project end, confirming that requirements are met.
3. Close permits progressively as each element of Project is completed.
4. Close permits for which Contractor is permittee and those sought and obtained by Contractor with Owner as permittee.
5. If required, coordinate and support owner and Package A contractor in obtaining Certificates of Occupancy for the adjacent structure having building permit, per inspection and acceptance requirement of Owner and AHJ. Permits involved with closeout, as those with VDEQ, will include final inspection and acceptance by agency in accordance with requirements of each agency.
6. Maintain sufficient permit and environmental staffing throughout construction phase. Permitting, design, planning, technical studies, agency interface and compliance monitoring are all part of fast-track delivery system running concurrent with construction.

1.3 REFERENCES TO REGULATORY REQUIREMENTS

- A. Code, laws, ordinances, rules and regulations referred to shall have full force and effect as though printed in full in these Specifications. Code, laws, ordinances, rules and regulations are not furnished to Contractor because Contractor is assumed to be and shall be familiar with these requirements, including readily available access to these requirements. The listing of applicable codes, laws, and regulations for hazardous waste abatement Work in the Contract Documents is supplied to Contractor for the information and convenience of Contractor only and shall not limit Contractor's responsibility for complying with all applicable laws, regulations or ordinances having application to the Work. Where conflict among the requirements or with these Specifications occurs, the most stringent requirements shall be used with no change in Contract Sum or Contract Time.
- B. Contractor shall conform to all applicable federal, state, and local codes, laws, ordinances, rules and regulations, whether or not referenced in the Contract Documents.
- C. Precedence:
  1. Where specified requirements differ from the requirements of applicable codes, ordinances and standards, the more stringent requirements shall take precedence.
  2. Where Contract Documents require or describe products or execution of better quality, higher standard or greater size/capacity than required by applicable codes, ordinances and standards, Contract Documents shall take precedence so long as such increase is legal.
  3. Where no requirements are identified on Contract Documents, comply with all requirements of applicable codes, ordinances and standards of governing authorities having jurisdiction.

1.4 PERMITTING RELATED ELEMENTS TO BE ADDRESSED IN DESIGN MANAGEMENT PLAN

- A. Contractor shall have complete responsibility to fully investigate, document and execute permits required for Project as well as comply with applicable laws and regulations. Contractor shall incorporate plan elements in the Design Management Plan to identify and schedule Contractor's conformance to regulations and laws (both civil and statutory) and pay for permits required to accomplish the Work of the Project both during the design phase and the construction phase.
  - 1. Describes roles, responsibilities, integration with design and construction, packaging and processes to be followed to ensure compliance throughout design and construction.
  - 2. Contractor shall take ownership of Package A and Preliminary Engineering documents (which have been acknowledged as equivalent to Schematic Design Plans by AHJ) furnished by Owner and conduct detailed design. Contractor will proceed with development of working construction documents and make submittals at 60 percent and 100 percent levels of completion.
  - 3. Completion of Design shall be established by Owner's Acceptance of the 100 percent Design submittal and Record of Design Review.
  - 4. Upon approval of the 100 percent Design submittal and as permitted by the AHJ, the Contractor may issue the Final Plans and Specifications for construction.
  - 5.
- B. Fees and permits specifically stated in the Contract as being the responsibility of a party or entity other than Contractor will be paid by that party. If Contractor is obligated to pay for such fees and permits in order to maintain the Progress of Work, then the responsible party shall be back-charged to cover those incurred costs.

1.5 REQUIREMENTS OF REGULATORY AGENCIES

- A. All statutes, ordinances, laws, rules, codes, regulations, standards, and lawful orders of all public authorities have jurisdiction of the Work, are incorporated into these Contract Documents as if repeated in full and are intended to be included in any reference to Code or Building Code, unless otherwise specified, including, without limitation, the references in the lists below. Contractor shall make available at the Work Sites copies of all the listed documents applicable to the Work as Owner, COTR, AHJs, Inspectors or other authority may request, including, without limitation, applicable portions of the Virginia Administrative Code (VAC) and the United States Code (U.S.C.) and other applicable standards, regulations and guidelines. On-line documents available on demand through on-site printing at Contractor's cost from a current subscription service would be acceptable.
- B. This Project shall be governed by applicable regulations, including, without limitation, the laws and regulations of the Commonwealth of Virginia and the United States. Comply with the most current version of laws and regulations in accordance with the jurisdiction established by the enactment of the applicable law and regulation as it pertains to highway, rail and building construction. The date on which the bids are opened for any particular contract shall be the reference date of construction, without limitation, unless otherwise modified by the applicable jurisdiction or its appointed agents.

1.6 LAWS, ORDINANCES, RULES, AND REGULATIONS

- A. During prosecution of Work to be done under Contract Documents, comply with applicable laws, ordinances, rules and regulations, including, but not limited to, the following:
  - 1. Work shall be accomplished in conformance with all applicable laws, ordinances, rules and regulations of federal, state, and local governmental agencies and jurisdictions having authority over the Project.
  - 2. Work shall be accomplished in conformance with all rules and regulations of public utilities, utility districts and other entities granted jurisdiction, easements or legal rights over the specific portion of the Work.
  - 3. Where laws, ordinances, rules and regulations require more care or greater time to accomplish Work, or require better quality, higher standards or greater size of products, Work shall be accomplished in conformance to such requirements with no change to the Contract Time and Contract Sum, except where relief is specifically and publically granted by the governing body of the agency with jurisdiction.

1.7 CONFLICTS

- A. Between reference regulatory requirements: Comply with the one establishing the more stringent requirement. Interpretation of the requirements shall be judged by the authorized agent of the agency with jurisdiction.
- B. Between referenced regulatory requirements and Contract Documents: Comply with both to the greatest extent possible, then with the one establishing the more stringent requirement as judged by the authorized agents of the agencies with jurisdiction.
- C. When compliance with applicable codes, ordinances, and standards of the AHJ, or the interpretations of the AHJ, are in conflict with the requirements of WMATA Design Criteria and Standards, Contractor shall notify Owner and submit a Design Standard Change Proposal (DSCP) so that any safety, operational, or life-cycle impacts to transit facilities can be assessed and documented.

1.8 Exhibits and Sample documents:

- A. 01 41 00-A, “Proposed Authority Having Jurisdiction (AHJ) for Building & Construction Permits and Approvals.”
- B. 01 41 00-B, “Contractor Responsibilities Related to Owner Regulatory Approvals.”
- C. 01 41 00-C, “Sample Permit Tracking Matrices.”
- D.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 41 00



**DULLES CORRIDOR METRORAIL PROJECT – PHASE 2**

**Authority Having Jurisdiction (AHJ) for  
 Building & Construction Permits and Approvals <sup>1</sup>**

**EXHIBIT A**

<b>Facility/Project Element</b>	<b>Facility Location</b>	<b>Jurisdiction Location</b>	<b>Permit Type</b>	<b>Building &amp; Construction Permits by (AHJ)</b>
Stations located on property owned or controlled by the Airports Authority (DIAAH right-of-way and Dulles Airport): <ul style="list-style-type: none"> <li>• Dulles Airport Station</li> </ul> Includes platforms, pedestrian bridges, entrance pavilions, and vehicular access facilities (bus bays, kiss and ride, and roadways).	Airport Property	Airports Authority	Construction Permit	Airports Authority

**Notes:**

Airports Authority – Metropolitan Washington Airports Authority

DIAAH – Dulles International Airport Access Highway

DTR – Dulles Toll Road

TRIP II – Toll Road Investor Partnership II (Dulles Greenway)

Virginia DCR – Virginia Department of Conservation and Recreation

Virginia DGS – Virginia Department of General Services

<sup>1</sup> This table does not list the agency for all approvals and permits needed for individual Project locations/facilities. Multiple permits may be needed on or adjacent to a single work site due to the approval/permitting responsibility of the various agencies. Contractor is responsible for making the necessary determinations of the approval/permits required.

## Exhibit B – 01 41 00: Contractor Responsibilities Related to Owner Regulatory Approvals

Agency	Owner Approval/Permit	Contractor Responsibilities
<b>FEDERAL</b>		
<b>Federal Transit Administration</b>	NEPA Approval(s) <sup>1</sup>	For design refinements/changes that vary from the scope of the NEPA documents, provide supporting and justification materials (drawings, exhibits, explanatory text, calculations, etc.) to the Owner to use in preparing submittals to the FTA.
<b>Federal Aviation Administration</b>	NEPA Approval(s)	For design refinements/changes that vary from the scope of the NEPA documents, provide supporting and justification materials (drawings, exhibits, explanatory text, calculations, etc.) to the Owner to use in preparing submittals to the FAA for their administrative review.
<b>United States Army Corp of Engineers</b>	Department of the Army Permit (Section 404) NAO 2010-2277	Obtain permit/amendments if required for Contractor’s final design refinements or construction changes.
<b>STATE</b>		
<b>Virginia Department of Historic Resources</b>	Section 106 Memorandum of Agreement (October 2012)	If an amendment is required, support Owner’s preparation and submittal of application materials by providing supporting and justification materials (drawings, exhibits, explanatory text, calculations, etc.).
<b>Virginia Department of Environmental Quality</b>	Virginia Water Protection (VWP) Individual Permit 11-0912 dated June 10, 2011	Obtain permit/amendments if required for Contractor’s final design refinements or construction changes.

<sup>1</sup> Includes related approvals such as the VDEQ Air Act Conformity Determination and VDEQ approval related to Consistency with the Coastal Zone Management Act.

<b>Agency</b>	<b>Owner Approval/Permit</b>	<b>Contractor Responsibilities</b>
<b>LOCAL</b>		
<b>Washington Metropolitan Transit Authority (WMATA)</b>	Metrorail Adopted Regional System	Provide coordination, documentation, and records as required by Contract documents.



**Environmental Permits and Approvals - Current Updates as of x-xx-xx**

Agency	Subject (Permit Type)	Location/ Permit Application Name	Submittal Date	Approval Date	Rejection Date(s)	Resubmittal Date(s)	Expiration Date	Permit Number	Notice of Start Date	Notice of Close Out	Close-Out Date	Comments

- DCR = VA Department of Conservation and Recreation
- DEQ = VA Department of Environmental Quality
- FAA = Federal Aviation Administration
- FTA = Federal Transit Administration
- DGIF = VA Department of Game and Inland Fisheries
- MWAA = Metropolitan Washington Airports Authority
- SHPO = State Historic Preservation Office
- USACE = U.S. Army Corps of Engineers
- VMRC = VA Marine Resources Commission



SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Websites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
AA	Aluminum Association (The) <a href="http://www.aluminum.org">www.aluminum.org</a>	(703) 358-2960
AABC	Associated Air Balance Council <a href="http://www.aabc.com">www.aabc.com</a>	(202) 737-0202
AAMA	American Architectural Manufacturers Association <a href="http://www.aamanet.org">www.aamanet.org</a>	(847) 303-5664
AASHTO	American Association of State Highway and Transportation Officials <a href="http://www.transportation.org">www.transportation.org</a>	(202) 624-5800
AATCC	American Association of Textile Chemists and Colorists <a href="http://www.aatcc.org">www.aatcc.org</a>	(919) 549-8141
ABAA	Air Barrier Association of America <a href="http://www.airbarrier.org">www.airbarrier.org</a>	(866) 956-5888
ABMA	American Bearing Manufacturers Association <a href="http://www.americanbearings.org">www.americanbearings.org</a>	(202) 367-1155
ACI	American Concrete Institute <a href="http://www.concrete.org">www.concrete.org</a>	(248) 848-3700
ACPA	American Concrete Pipe Association <a href="http://www.concrete-pipe.org">www.concrete-pipe.org</a>	(972) 506-7216



Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
AEIC	Association of Edison Illuminating Companies, Inc. (The) <a href="http://www.aeic.org">www.aeic.org</a>	(205) 257-2530
AF&PA	American Forest & Paper Association <a href="http://www.afandpa.org">www.afandpa.org</a>	(800) 878-8878
AGA	American Gas Association <a href="http://www.aga.org">www.aga.org</a>	(202) 824-7000
AGA	American Galvanizers Association <a href="http://www.galvanizeit.org">www.galvanizeit.org</a>	(800) HOT-SPEC (800) 468-7732 (720) 554.0900
AHRI	Air-Conditioning, Heating, and Refrigeration Institute (The) <a href="http://www.ahrinet.org">www.ahrinet.org</a>	(703) 524-8800
AI	Asphalt Institute <a href="http://www.asphaltinstitute.org">www.asphaltinstitute.org</a>	(859) 288-4960
AIA	American Institute of Architects (The) <a href="http://www.aia.org">www.aia.org</a>	(800) 242-3837
AISC	American Institute of Steel Construction <a href="http://www.aisc.org">www.aisc.org</a>	(800) 644-2400 Bookstore (312) 670-2400 Main Office Steel Solutions Center: (866) ASK-AISC
AISI	American Iron and Steel Institute <a href="http://www.steel.org">www.steel.org</a>	(202) 452-7100 Washington, DC (248) 945-4777 Detroit, MI (412) 922-2772 Pittsburgh, PA
AITC	American Institute of Timber Construction <a href="http://www.aitc-glulam.org">www.aitc-glulam.org</a>	(303) 792-9559
ALSC	American Lumber Standard Committee, Incorporated <a href="http://www.alsc.org">www.alsc.org</a>	(301) 972-1700
AMCA	Air Movement and Control Association International, Inc. <a href="http://www.amca.org">www.amca.org</a>	(847) 394-0150

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
ANSI	American National Standards Institute <a href="http://www.ansi.org">www.ansi.org</a>	(202) 293-8020 Headquarters (212) 642-4900 Operations
AOSA	Association of Official Seed Analysts, Inc. <a href="http://www.aosaeed.com">www.aosaeed.com</a>	(607) 256-3313
APA	APA - The Engineered Wood Association <a href="http://www.apawood.org">www.apawood.org</a>	(253) 565-6600 (253) 620-7400 Product Support
APA	Architectural Precast Association <a href="http://www.archprecast.org">www.archprecast.org</a>	(239) 454-6989
API	American Petroleum Institute <a href="http://www.api.org">www.api.org</a>	(202) 682-8000
AREMA	American Railway Engineering and Maintenance-of-Way Association (The) <a href="http://www.arema.org">www.arema.org</a>	(301) 459-3200
ARI (refer to AHRI)	refer to: The Air-Conditioning, Heating, and Refrigeration Institute	
ARMA	Asphalt Roofing Manufacturers Association <a href="http://www.asphaltroofing.org">www.asphaltroofing.org</a>	(202) 591-2450 Public Information Department
ASCE	American Society of Civil Engineers <a href="http://www.asce.org">www.asce.org</a>	(800) 548-2723 (703) 295-6300
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute (See ASCE) <a href="http://www.seinstitute.org">www.seinstitute.org</a>	(800) 548-2723 (703) 295-6300
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers <a href="http://www.ashrae.org">www.ashrae.org</a>	(800) 527-4723 (404) 636-8400
ASME	ASME International	(800) 843-2763 U.S./Canada
	(American Society of Mechanical Engineers International) <a href="http://www.asme.org">www.asme.org</a>	(973) 882-1170 outside North America (202) 785-3756 Washington Center

<b>Abbreviation / Acronym</b>	<b>Industry Organization / Website Address</b>	<b>Primary Telephone No.</b>
ASNT	American Society for Nondestructive Testing (The) <a href="http://www.asnt.org">www.asnt.org</a>	(800) 222-2768 (614) 274-6003
ASSE	American Society of Sanitary Engineering <a href="http://www.asse-plumbing.org">www.asse-plumbing.org</a>	(440) 835-3040
ASTM	ASTM International (American Society for Testing and Materials International) <a href="http://www.astm.org">www.astm.org</a>	(610) 832-9500
ATIS	Alliance for Telecommunications Industry Solutions <a href="http://www.atis.org">www.atis.org</a>	(202) 628-6380
AT&T	American Telephone and Telegraph Company <a href="http://www.att.com">www.att.com</a>	
WCMA	Window Covering Manufacturers Association <a href="http://www.wcmanet.org">www.wcmanet.org</a>	(212) 297.2122
AWCI	Association of the Wall and Ceiling Industry <a href="http://www.awci.org">www.awci.org</a>	(703) 538-1600

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
AWI	Architectural Woodwork Institute <a href="http://www.awinet.org">www.awinet.org</a>	(571) 323-3636
AWPA	American Wood Protection Association Formerly: American Wood Preservers Association) <a href="http://www.awpa.com">www.awpa.com</a>	(205) 733-4077
AWS	American Welding Society <a href="http://www.aws.org">www.aws.org</a>	(800) 443-9353 (305) 443-9353
AWWA	American Water Works Association <a href="http://www.awwa.org">www.awwa.org</a>	(800) 926-7337 (303) 794-7711 (Outside the U.S. and Canada)
BHMA	Builders Hardware Manufacturers Association <a href="http://www.buildershardware.com">www.buildershardware.com</a>	(212) 297-2122
BIA	Brick Industry Association (The) <a href="http://www.bia.org">www.bia.org</a>	(703) 620-0010
BICSI	Building Industry Consulting Service International, Inc. (BICSI, Inc.) (formerly Building Industry Consultants) <a href="http://www.bicsi.org">www.bicsi.org</a>	(800) 242-7405 (813) 979-1991
BLA	Bureau of Labor Statistics (United States) <a href="http://www.bls.gov">www.bls.gov</a>	
BOCA (reference ICC)	Building Officials and Code Administrators International (reference International Code Council)	
CAGI	Compressed Air and Gas Institute <a href="http://www.cagi.org">www.cagi.org</a>	(216) 241-7333
CCC	Carpet Cushion Council <a href="http://www.carpetcushing.org">www.carpetcushing.org</a>	(610) 527-3880
CDA	Copper Development Association Inc. <a href="http://www.copper.org">www.copper.org</a>	(800) 232-3282 (800) CDA-DATA (212) 251-7200
CEA	Canadian Electricity Association <a href="http://www.electricity.ca">www.electricity.ca</a>	(613) 230-9263
CEA	Consumer Electronics Association	(866) 858-1555 Customer Service

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
	<a href="http://www.ce.org">www.ce.org</a>	(703) 907-7600 Customer Service (703) 907-7600 (International CES)
CFC	City of Falls Church Water City of Falls Church Public Utilities <a href="http://www.fallschurchva.gov">www.fallschurchva.gov</a>	703-248-5070 Public Utilities Engineering
CFCDPW	City of Falls Church Department of Public Works <a href="http://www.fallschurchva.gov">www.fallschurchva.gov</a>	(703) 248-5350 (703) 248-5081 Operations
CFFA	Chemical Fabrics and Film Association, Inc. <a href="http://www.chemicalfabricsandfilm.com">www.chemicalfabricsandfilm.com</a>	(216) 241-7333
CGA	Compressed Gas Association <a href="http://www.cganet.com">www.cganet.com</a>	(703) 788-2700
CIMA	Cellulose Insulation Manufacturers Association <a href="http://www.cellulose.org">www.cellulose.org</a>	(888) 881-2462 (937)222-2462
CISCA	Ceilings & Interior Systems Construction Association <a href="http://www.cisca.org">www.cisca.org</a>	(630) 584-1919
CISPI	Cast Iron Soil Pipe Institute <a href="http://www.cispi.org">www.cispi.org</a>	(404) 622-0073
CLFMI  C&P	Chain Link Fence Manufacturers Institute <a href="http://www.chainlinkinfo.org">www.chainlinkinfo.org</a>  Chesapeake and Potomac Telephone Company (C&P Telephone)  C& P Telephone for Maryland, Virginia and the District of Columbia is now owned by Verizon Communications <a href="http://www.verizon.com">www.verizon.com</a>  C&P Telephone for West Virginia is now owned by Frontier Communications <a href="http://www.frontier.com">www.frontier.com</a>	(301) 596-2583 (410) 290-6267
CRRC	Cool Roof Rating Council <a href="http://www.coolroofs.org">www.coolroofs.org</a>	(866) 465-2523 (510) 485-7175
CRSI	Concrete Reinforcing Steel Institute <a href="http://www.crsi.org">www.crsi.org</a>	(847) 517-1200

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
CSA	CSA Group <a href="http://www.csagroup.org">www.csagroup.org</a>  Canadian Standard Association <a href="http://www.csa.ca">www.csa.ca</a>  CSA International <a href="http://www.csa-international.org">www.csa-international.org</a>  OnSpeX <a href="http://www.onspex.com">www.onspex.com</a>	(800) 463-6727 (416) 747-4000  (866) 797-4272 (416) 747-2661  (800) 463-6727 (416) 747-4000  (888) 273-3335
CSI	Construction Specifications Institute (The) <a href="http://www.csinet.org">www.csinet.org</a>	(800) 689-2900
CTI	Cooling Technology Institute <a href="http://www.cti.org">www.cti.org</a>	(281) 583-4087
DCR	Virginia Department of Conservation & Recreation <a href="http://www.dcr.virginia.gov">www.dcr.virginia.gov</a>	(804) 786-1712
DHI	Door and Hardware Institute <a href="http://www.dhi.org">www.dhi.org</a>	(703) 222-2010
ECIA	Electronic Components Industry Association <a href="http://www.eciaonline.org">www.eciaonline.org</a>	(678) 393-9990 Main Office (571) 323-0294 DC Office
EIA (see ECIA)	Electronic Industries Alliance Standards	
EIMA	EIFS Industry Members Association <a href="http://www.eima.com">www.eima.com</a>	(800) 294-3462
EJCDC	Engineers Joint Contract Documents Committee <a href="http://www.ejcdc.org">www.ejcdc.org</a>	(703) 403-4812
EJMA	Expansion Joint Manufacturers Association, Inc. <a href="http://www.ejma.org">www.ejma.org</a>	(914) 332-0040
ESD	ESD Association (Electrostatic Discharge Association)	(315) 339-6937

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
	<a href="http://www.esda.org">www.esda.org</a>	
INTERTEK	Intertek Group plc <a href="http://www.intertek.com">www.intertek.com</a>	(800) 967-5352 North and South America
FCFRD	Fairfax County Fire and Rescue Department <a href="http://www.fairfaxcounty.gov/fr">www.fairfaxcounty.gov/fr</a>	(703) 246-2126 Headquarters
FCPA	Fairfax County Park Authority <a href="http://www.fairfaxcounty.gov/parks">www.fairfaxcounty.gov/parks</a>	(703) 324-8785 Administration Offices (703) 324-8741 Planning and Development
FCWA	Fairfax County Water Authority (aka Fairfax Water) <a href="http://www.fcwa.org">www.fcwa.org</a>	(703) 698-5600
FHWA	Federal Highway Administration (U.S. Department of Transportation) <a href="http://www.fhwa.dot.gov">www.fhwa.dot.gov</a>	(202) 366-4000
FM Approvals	FM Approvals LLC (ANSI: American National Standards Institute) <a href="http://www.standardsportal.org">www.standardsportal.org</a>	(781) 255.4813
FM Global	FM Global <a href="http://www.fmglobal.com">www.fmglobal.com</a>	(703) 860 4101 Wash., DC Office
FS	Federal Specifications	(215) 697-2664
DOD	The Department of Defense Single Stock Point for Military Specifications, Standards and Related Publications <a href="http://www.dodssp.daps.mil">www.dodssp.daps.mil</a>	
GSA	General Services Administration Index of Federal Specifications, Standards And Commercial Item Descriptions <a href="http://www.gsa.gov/portal/content/100847">www.gsa.gov/portal/content/100847</a>	(866) 606-8220
NIBS	National Institute of Building Sciences <a href="http://www.nibs.org">www.nibs.org</a>	(202) 289-7800
FSA	Fluid Sealing Association <a href="http://www.fluidsealing.com">www.fluidsealing.com</a>	(610) 971-4850

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
FSC-US	Forest Stewardship Council U.S. <a href="http://us.fsc.org/">http://us.fsc.org/</a>	(612) 353-4511
FTMS	Federal Test Method Standard (Also, see FS) <a href="http://standards.gov/standards.com">http://standards.gov/standards.com</a>  For background materials and useful links for locating information about the use of standards in government	(301) 975-4040
GA	Gypsum Association (The) <a href="http://www.gypsum.org">www.gypsum.org</a>	(301) 277-8686
GANA	Glass Association of North America <a href="http://www.glasswebsite.com">www.glasswebsite.com</a>	(785) 271-0208
GRI	(Part of GSI)	
GS	Green Seal <a href="http://www.greenseal.org">www.greenseal.org</a>	(202) 872-6400
GSI	Geosynthetic Institute <a href="http://www.geosynthetic-institute.org">www.geosynthetic-institute.org</a>	(610) 522-8440
HI (see AHRI)	Hydronics Institute Merged with Gas Appliance Manufacturers Association (GAMA)	
HI/GAMA (see AHRI)	Hydronics Institute/Gas Appliance Manufacturers Association Division of Air-Conditioning, heating and Refrigeration Institute (AHRI) <a href="http://www.ahrinet.org">www.ahrinet.org</a>	(703) 524-8800
HMMA (see NAAMM)	Hollow Metal Manufacturers Association (Part of NAAMM) <a href="http://www.naamm.org">www.naamm.org</a>	(630) 942-6591
HPVA	Hardwood Plywood & Veneer Association <a href="http://www.hpva.org">www.hpva.org</a>	(703) 435-2900
HPW	H. P. White Laboratory, Inc. <a href="http://www.hpwhite.com">www.hpwhite.com</a>	(410) 838-6550



Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
IAPSC	International Association of Professional Security Consultants <a href="http://www.iapsc.org">www.iapsc.org</a>	(415) 536-0288
ICBO (See ICC)	International Conference of Building Officials Part of the International Code Council (ICC) <a href="http://www.iccsafe.org">www.iccsafe.org</a>	(888) ICC-SAFE (888) 422-7233 International: (202) 370-1800
ICC-ES	ICC Evaluation Service <a href="http://www.icc-es.org">www.icc-es.org</a>	(800) 423-6587 ext. 66546
ICEA	Insulated Cable Engineers Association, Inc. <a href="http://www.icea.net">www.icea.net</a>	(770) 830-0369 <a href="mailto:tonyhall@icea.net">tonyhall@icea.net</a>
ICRI	International Concrete Repair Institute, Inc. <a href="http://www.icri.org">www.icri.org</a>	(847) 827-0830
ICPA	International Cast Polymer Alliance Merged with the American Composites Manufacturers Association (ACMA) <a href="http://www.icpa-hq.org">www.icpa-hq.org</a> <a href="http://www.acmanet.org">www.acmanet.org</a>	(703) 525-0511
IEC	International Electrotechnical Commission <a href="http://www.iec.ch">www.iec.ch</a>	+41 22 919 02 11 (Switzerland) (508) 755-5663 (North America)
IEEE	Institute of Electrical and Electronics Engineers, Inc. (The) <a href="http://www.ieee.org">www.ieee.org</a>	Headquarters: (212) 419-7900 Operations Center (800) 678-4333 (USA and Canada) (732) 981-0060 (Worldwide)
IES	Illuminating Engineering Society <a href="http://www.ies.org">www.ies.org</a>	(212) 248-5000
IEST	Institute of Environmental Sciences and Technology <a href="http://www.iest.org">www.iest.org</a>	(847) 981-0100
IGMA	Insulating Glass Manufacturers Alliance <a href="http://www.igmaonline.org">www.igmaonline.org</a>	(613) 233-1510
ILI	Indiana Limestone Institute of America, Inc. <a href="http://www.iliai.com">www.iliai.com</a>	(812) 275-4426

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
ISA	International Society of Automation (The) <a href="http://www.isa.org">www.isa.org</a>	(919) 549-8411
ISO	International Organization for Standardization <a href="http://www.iso.org">www.iso.org</a>	+41 22 749 01 11 (Switzerland)
ISFA	International Surface Fabricators Association <a href="http://www.isfanow.org/">www.isfanow.org/</a>	(877) 464-7732 (801) 341-7360
ITS (see Intertek)	Intertek Testing Service <a href="http://www.intertek.com/testing">www.intertek.com/testing</a>	(800) 967-5352 (North and South America)
ITU	International Telecommunication Union <a href="http://www.itu.int">www.itu.int</a>	+41 22 730 5111
LGSEA	Light Gauge Steel Engineers Association <a href="http://www.arcat.com">www.arcat.com</a>	(202) 263-4488
LMA	Laminating Materials Association (Now part of CPA)	
LPI	Lightning Protection Institute <a href="http://www.lightning.org">www.lightning.org</a>	(800) 488-6864
MBMA	Metal Building Manufacturers Association <a href="http://www.mbma.com">www.mbma.com</a>	(216) 241-7333
MCA	Metal Construction Association <a href="http://www.metalconstruction.org">www.metalconstruction.org</a>	(847) 375-4718
MFMA	Maple Flooring Manufacturers Association, Inc. <a href="http://www.maplefloor.org">www.maplefloor.org</a>	(888) 480-9138
MFMA	Metal Framing Manufacturers Association, Inc <a href="http://www.metalframingmfg.org">www.metalframingmfg.org</a>	(312) 644-6610
METRO (WMATA)	Logo for the Washington Metropolitan Area Transit Authority (WMATA) <a href="http://www.wmata.com">www.wmata.com</a>	(202) 962-1234 (202) 962-2768 (Marketing)
(MHIA)	Material Handling Industry of America (MHIA) <a href="http://www.mhia.org">www.mhia.org</a>	(704) 676-1190
MIA	Marble Institute of America	(440) 250-9222

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
	<a href="http://www.marble-institute.com">www.marble-institute.com</a>	
MIL	See MILSPEC	
MILSPEC	Military Specification and Standards Department of Defense Single Stock Point for Military Specifications, Standards, and Related Publications <a href="http://www.dodssp.daps.mil">www.dodssp.daps.mil</a>	(215) 697-2664
MPI	Master Painters Institute <a href="http://www.paintinfo.com">www.paintinfo.com</a>	(888) 674-8937
MS MIL	See MILSPEC	
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. <a href="http://www.mss-hq.com">www.mss-hq.com</a>	(703) 281-6613
MUTCD	Manual on Uniform Traffic Control Devices <a href="http://www.mutcd.fhwa.dot.gov">www.mutcd.fhwa.dot.gov</a>	(708) 283-4340 Resource Center
	U.S. Department of Transportation - Federal Highway Administration (FHWA)	
MWAA	Metropolitan Washington Airports Authority <a href="http://www.mwaa.com">www.mwaa.com</a>	(703) 417-8600
NAAMM	National Association of Architectural Metal Manufacturers <a href="http://www.naamm.org">www.naamm.org</a>	(630) 942-6591
NACE	NACE International National Association of Corrosion Engineers International <a href="http://www.nace.org">www.nace.org</a>	(800) 797-6223 (281) 228-6223
NADCA	National Air Duct Cleaners Association <a href="http://www.nadca.com">www.nadca.com</a>	(855) GO-NADCA (856) 380-6810
NAIMA	North American Insulation Manufacturers Association <a href="http://www.naima.org">www.naima.org</a>	(703) 684-0084

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
N BGQA	National Building Granite Quarries Association, Inc. <a href="http://www.nbgqa.com">www.nbgqa.com</a>	(800) 557-2848
NCMA	National Concrete Masonry Association <a href="http://www.ncma.org">www.ncma.org</a>	(703) 713-1900
NCTA	National Cable & Telecommunications Association <a href="http://www.ncta.com">www.ncta.com</a>	(202) 222-2300
NEBB	National Environmental Balancing Bureau <a href="http://www.nebb.org">www.nebb.org</a>	(866) 497.4447 (877) 800.5147 (301) 977-3698
NECA	National Electrical Contractors Association <a href="http://www.necanet.org">www.necanet.org</a>	(301) 657-3110
NE LMA	Northeastern Lumber Manufacturers Association <a href="http://www.nelma.org">www.nelma.org</a>	(207) 829-6901
NEMA	National Electrical Manufacturers Association <a href="http://www.nema.org">www.nema.org</a>	(703) 841-3200
NETA	InterNational Electrical Testing Association <a href="http://www.netaworld.org">www.netaworld.org</a>	(269) 488-6382
NFHS	National Federation of State High School Associations <a href="http://www.nfhs.org">www.nfhs.org</a>	(317) 972-6900
NFPA	National Fire Protection Association (NFPA) <a href="http://www.nfpa.org">www.nfpa.org</a>	(800) 344-3555 (617) 770-3000
NFRC	National Fenestration Rating Council <a href="http://www.nfrc.org">www.nfrc.org</a>	(301) 589-1776
NGA	National Glass Association <a href="http://www.glass.org">www.glass.org</a>	(866) DIAL-NGA (866) 342-5642 x127 (703) 442-4890 x127
NHLA	National Hardwood Lumber Association <a href="http://www.natlhardwood.org">www.natlhardwood.org</a>	(800) 933-0318 Member Hotline (901) 377-1818
NLGA	National Lumber Grades Authority	(604) 584-2393

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
	<a href="http://www.nlga.org">www.nlga.org</a>	
NOFMA (see NWFA)	Wood Flooring Manufacturers Association (The) (NOFMA) New: National Wood Flooring Association (NWFA) (Formerly: National Oak Flooring Manufacturers Association) <a href="http://www.woodfloors.org">www.woodfloors.org</a>	(636) 519-9663
NOMMA	National Ornamental & Miscellaneous Metals Association <a href="http://www.nomma.org">www.nomma.org</a>	(888) 516-8585
NRCA	National Roofing Contractors Association <a href="http://www.nrca.net">www.nrca.net</a>	(847) 299-9070
NRMCA	National Ready Mixed Concrete Association <a href="http://www.nrmca.org">www.nrmca.org</a>	(888) 846-7622 (888) 84NRMCA (301) 587-1400 Headquarters (301) 345-6532 Concrete Lab
NSF	National Sanitation Foundation International (NSF international) <a href="http://www.nsf.org">www.nsf.org</a>	(800) 673-6275 (800) NSF-MARK (734) 769-8010
NSSGA	National Stone, Sand & Gravel Association <a href="http://www.nssga.org">www.nssga.org</a>	(703) 525-8788
NTMA	National Terrazzo & Mosaic Association, Inc. (The) <a href="http://www.ntma.com">www.ntma.com</a>	(800) 323-9736  (540) 751-0930
NWFA	National Wood Flooring Association <a href="http://www.woodfloors.org">www.woodfloors.org</a>	(636) 519-9663
PCI	Precast/Prestressed Concrete Institute <a href="http://www.pci.org">www.pci.org</a>	(312) 786-0300
PDI	Plumbing & Drainage Institute <a href="http://www.pdionline.org">www.pdionline.org</a>	(800) 589-8956
PEI	Porcelain Enamel Institute, Inc. <a href="http://www.porcelainenamel.com">www.porcelainenamel.com</a>	(770) 676-9366

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
PGI (New: FGI)	PVC Geomembrane Institute New: Fabricated Geomembrane Institute (FGI) <a href="http://www.fabricatedgeomembrane.com">www.fabricatedgeomembrane.com</a>	(217) 333-7394
PFM	Public Facilities Manual for Fairfax County <a href="http://www.fairfaxcounty.gov/dpwes/publications/pfm">www.fairfaxcounty.gov/dpwes/publications/pfm</a>	(703) 324-1780
PTI	Post-Tensioning Institute <a href="http://www.post-tensioning.org">www.post-tensioning.org</a>	(248) 848-3180
RCSC	Research Council on Structural Connections (Bolt Council) <a href="http://www.boltcouncil.org">www.boltcouncil.org</a>	<a href="mailto:boltcouncil@gmail.com">boltcouncil@gmail.com</a>
RFCI	Resilient Floor Covering Institute <a href="http://www.rfci.com">www.rfci.com</a>	
RIS	Redwood Inspection Service <a href="http://www.redwoodinspection.com">www.redwoodinspection.com</a>	(925) 935-1499
SAE	Society of Automobile Engineers International SAE International <a href="http://www.sae.org">www.sae.org</a>	(877) 606-7323 Customer Service (724) 776-4841 Headquarters (202) 463-7318 DC Office
SCTE	Society of Cable Telecommunications Engineers <a href="http://www.scte.org">www.scte.org</a>	(800) 542-5040 (610) 363-6888
SDI	Steel Deck Institute <a href="http://www.sdi.org">www.sdi.org</a>	(847) 458-4647
SDI	Steel Door Institute <a href="http://www.steeldoor.org">www.steeldoor.org</a>	(440) 899-0010
SEFA	Scientific Equipment and Furniture Association (The) <a href="http://www.sefalabs.com">www.sefalabs.com</a>	(877) 294-5424 (516) 294-5424
SEI/ASCE	Structural Engineering Institute/American Society of Civil Engineers (See ASCE) <a href="http://www.seinstitute.org">www.seinstitute.org</a>	(800) 548-2723 (703) 295-6300
SIA	Security Industry Association <a href="http://www.siaonline.org">www.siaonline.org</a>	(301) 804-4700

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
SJI	Steel Joist Institute <a href="http://www.steeljoist.org">www.steeljoist.org</a>	(843) 407.4091
SMA	Screen Manufacturers Association <a href="http://www.smainfo.org">www.smainfo.org</a>	
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association <a href="http://www.smacna.org">www.smacna.org</a>	(703) 803-2980
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) <a href="http://www.sprayfoam.org">www.sprayfoam.org</a>	(800) 523-6154
SPIB	Southern Pine Inspection Bureau <a href="http://www.spib.org">www.spib.org</a>	(850) 434-2611
SPRI	Single Ply Roofing Industry <a href="http://www.spri.org">www.spri.org</a>	(781) 647-7026
SSINA	Specialty Steel Industry of North America <a href="http://www.ssina.com">www.ssina.com</a>	(800) 982-0355 (202) 342-8630
SSPC	The Society for Protective Coatings (SSPC) <a href="http://www.sspc.org">www.sspc.org</a>	(877) 281-7772 U.S. only (412) 281-2331
STI	Steel Tank Institute (Steel Plate Fabricators Association) <a href="http://www.steeltank.com">www.steeltank.com</a>	(847) 438-8265
SWI	Steel Window Institute <a href="http://www.steelwindows.com">www.steelwindows.com</a>	(216) 241-7333
SWPA	Submersible Wastewater Pump Association <a href="http://www.swpa.org">www.swpa.org</a>	(847) 681-1868
TCA	Tilt-Up Concrete Association <a href="http://www.tilt-up.org">www.tilt-up.org</a>	(319) 895-6911
TCNA	Tile Council of North America, Inc. (The) <a href="http://www.tcnatile.com">www.tcnatile.com</a>	(864) 646-8453

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
TEMA	Tubular Exchanger Manufacturers Association, Inc. <a href="http://www.tema.org">www.tema.org</a>	(914) 332-0040
TIA	Telecommunications Industry Association <a href="http://www.tiaonline.org">www.tiaonline.org</a>	(703) 907-7700
TMS	The Masonry Society <a href="http://www.masonrysociety.org">www.masonrysociety.org</a>	(303) 939-9700
TPI	Truss Plate Institute, Inc. <a href="http://www.tpinst.org">www.tpinst.org</a>	(703) 683-1010 (800) 405-8873
TPI	Turfgrass Producers International <a href="http://www.turfgrassod.org">www.turfgrassod.org</a>	(800) 405-8873 (847) 649-5555
TRI	Tile Roofing Institute <a href="http://www.tilerroofing.org">www.tilerroofing.org</a>	(312) 670-4177
UFAS	Uniform Federal Accessibility Standards Available from United States Access Board <a href="http://www.access-board.gov">www.access-board.gov</a> .	(800) 872-2253 202) 272-0080
UL	Underwriters Laboratories Inc. <a href="http://www.ul.com">www.ul.com</a>	(877) UL.HELPS (877) 854-3577 (847) 272-8800 (?)
UNI	Uni-Bell PVC Pipe Association <a href="http://www.uni-bell.org">www.uni-bell.org</a>	Headquarters (972) 243-3902 Regional Office (Virginia) (703) 243-2532
USBC	Virginia Statewide Building Code (USBC) Commonwealth of Virginia – Uniform Statewide Building Code Virginia Building and Code Officials Association (VBCOA) <a href="http://www.vbcoa.org">www.vbcoa.org</a>	703-746-4185 Region V
USGBC	U.S. Green Building Council <a href="http://www.new.usgbc.org">www.new.usgbc.org</a>	(800) 795-1747 Within the U.S. 202) 742-3792 Outside the U.S.
USITT	United States Institute for Theatre Technology, Inc. <a href="http://www.usitt.org">www.usitt.org</a>	(800) 938-7488 (315) 463-6463



Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
VAWE	Virginia American Water <a href="http://www.amwater.com">www.amwater.com</a>	(856) 346-8200 Headquarters
VDOT	Virginia Department of Transportation <a href="http://www.irciniadot.org">www.irciniadot.org</a>	(800) FOR-ROAD (800) 367-7623
VDHCD	Virginia Department of Housing and Community Development <a href="http://www.dhcd.virginia.gov">www.dhcd.virginia.gov</a>	(804) 371-7000
VDEQ	Virginia Department of Environmental Quality <a href="http://www.deq.state.va.us">www.deq.state.va.us</a>	(800) 592-5482 (804) 698-4000
VEPCO	Virginia Electric and Power Company Operates as Dominion Virginia Power and Dominion North Carolina Power <a href="http://www.dom.com">www.dom.com</a>	(888) 667-3000 (804) 819-2000
USBC	Virginia Unified Statewide Building Code (USBC) <a href="http://www.dhcd.virginia.gov">www.dhcd.virginia.gov</a>	804) 371-7000
WASTEC	Waste Equipment Technology Association <a href="http://www.wastec.org">www.wastec.org</a>	(800) 424-2869 (202) 244-4700
WCLIB	West Coast Lumber Inspection Bureau <a href="http://www.wclib.org">www.wclib.org</a>	(800) 283-1486 (503) 639-0651
WCMA	Window Covering Manufacturers Association <a href="http://www.wcmanet.org">www.wcmanet.org</a>	(212) 297-2122
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) <a href="http://www.wdma.com">www.wdma.com</a>	(800) 223-2301 (202) 367.1157 (312) 321-6802
WGL	Washington Gas Light Company (Washington Gas Company or Washington Gas) <a href="http://www.washgas.com">www.washgas.com</a>	(703) 750-1000
WI	Woodwork Institute	(916) 372-9943

Abbreviation / Acronym	Industry Organization / Website Address	Primary Telephone No.
	Formerly: Woodwork Institute of California (WIC) <a href="http://www.wicnet.org">www.wicnet.org</a>	
WMATA (aka METRO)	Washington Metropolitan Area Transit Authority <a href="http://www.wmata.com">www.wmata.com</a>	(202) 962-1234
WMMPA Prefers: MMPA	Moulding & Millwork Producers Association <a href="http://www.wmmpa.com">www.wmmpa.com</a>	(800) 550-7889 (530) 661-9591
WSRCA	Western States Roofing Contractors Association <a href="http://www.wsrea.com">www.wsrea.com</a>	(800) 725-0333
WWPA	Western Wood Products Association <a href="http://www2.wwpa.org">www2.wwpa.org</a>	(503) 224-3930

Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Websites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

<b>Abbreviation / Acronym</b>	<b>Code Agencies / Website Address</b>	<b>Primary Telephone No.</b>
DIN	Deutsches Institut für Normung e.V. <a href="http://www.din.de">www.din.de</a>	49 30 2601-0
IAPMO	International Association of Plumbing and Mechanical Officials (The IAPMO Group) <a href="http://www.iapmo.org">www.iapmo.org</a>	703-934-0115 World Headquarters 304-264-6628 Regional 7 Office
ICC	International Code Council <a href="http://www.iccsafe.org">www.iccsafe.org</a>	(888) 422-7233 (888) ICC-SAFE (202) 370-1800 (International)
ICC-ES	ICC Evaluation Service, Inc. <a href="http://www.icc-es.org">www.icc-es.org</a>	(800) 423-6587
DGS (Virginia)	Department of General Services (Commonwealth of Virginia) <a href="http://dgs.virginia.gov">dgs.virginia.gov</a>	(804) 225-4949
DHCP (Virginia)	Virginia Department of Housing and Community Development <a href="http://www.dhcd.virginia.gov">www.dhcd.virginia.gov</a>	(804) 371-7000

Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and websites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

Abbreviation / Acronym	Federal Government Agencies / Website Address	Primary Telephone No.
COE	Army Corps of Engineers <a href="http://www.usace.army.mil">www.usace.army.mil</a>	(202) 761-0011
CPSC	U.S. Consumer Product Safety Commission <a href="http://www.cpsc.gov">www.cpsc.gov</a>	(800) 638-2772 (301) 504-7923
DOC	United States Department of Commerce <a href="http://www.commerce.gov">www.commerce.gov</a>	(202) 482-2000
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-2664
DOE	United States Department of Energy <a href="http://www.energy.gov">www.energy.gov</a>	(202) 586-5000
DOT	United States Department of Transportation <a href="http://www.dot.gov/">www.dot.gov/</a>	(202) 366-4000
EPA	United States Environmental Protection Agency <a href="http://www.epa.gov">www.epa.gov</a>	(202) 272-0167
FAA	Federal Aviation Administration <a href="http://www.faa.gov">www.faa.gov</a>	(866) 835-5322
FCC	Federal Communications Commission <a href="http://www.fcc.gov">www.fcc.gov</a>	(888) 225-5322
FDA	U.S. Food and Drug Administration <a href="http://www.fda.gov">www.fda.gov</a>	(888) 463-6332
FTA	Federal Transit Administration U.S. Department of Transportation <a href="http://www.fta.dot.gov">www.fta.dot.gov</a>	(202) 366-4043
GSA	U.S. General Services Administration <a href="http://www.gsa.gov">www.gsa.gov</a>	(800) 488-3111

Abbreviation / Acronym	Federal Government Agencies / Website Address	Primary Telephone No.
HUD	U.S. Department of Housing and Urban Development <a href="http://www.hud.gov">www.hud.gov</a>	(202) 708-1112
LBL	Lawrence Berkeley National Laboratory (A U.S. Department of Energy National Laboratory Operated by the University of California) <a href="http://www.lbl.gov">www.lbl.gov</a>	(510) 486-4000 Main Lab (202) 488-2250 Washington DC Office
NCHRP	National Cooperative Highway Research Program See Transportation Research Board (TRB) <a href="http://www.trb.org">www.trb.org</a>	(202) 334-2934
NIST	National Institute of Standards and Technology <a href="http://www.nist.gov">www.nist.gov</a>	(301) 975-6478
NTSB	National Transportation Safety Board <a href="http://www.nts.gov">www.nts.gov</a>	(202) 314-6000
OSHA	Occupational Safety & Health Administration (United States Department of Labor) <a href="http://www.osha.gov">www.osha.gov</a>	(800) 321-6742 Region 3 Office (215) 861-4900
PBS	Public Buildings Service (See GSA)	
ASH	Office of the Assistant Secretary for Health U.S. Department of Health & Human Services <a href="http://www.hhs.gov/ash">www.hhs.gov/ash</a>	(877) 696-6775
RUS	Rural Utilities Service (Also USDC.gov) <a href="http://www.rurdev.usda.gov/Home.html">www.rurdev.usda.gov/Home.html</a>	(202) 720-4581  (800) 670-6553
SD	U.S. Department of State <a href="http://www.state.gov">www.state.gov</a>	(202) 647-4000
TRB	Transportation Research Board <a href="http://www.trb.org">www.trb.org</a>	(202) 334-2934
TOC	Tristate Oversight Committee <a href="http://www.tristateoversight.org">www.tristateoversight.org</a>	(202) 355-9467

Abbreviation / Acronym	Federal Government Agencies / Website Address	Primary Telephone No.
USDA	United States Department of Agriculture <a href="http://www.usda.gov">www.usda.gov</a>	(202) 720-2791
USP	U.S. Pharmacopeia Convention <a href="http://www.usp.org">www.usp.org</a>	(800) 227-8772
USPS	U.S. Postal Service <a href="http://www.usps.com">www.usps.com</a>	800-ASK-USPS (800) 275-8777

Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and websites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

Abbreviation / Acronym	Standards and Regulations / Website Address	Primary Telephone No.
ADAAG	Americans with Disabilities Act (ADA) Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities Available from United States Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>	(800) 872-2253 (202) 272-0080
CFR	Code of Federal Regulations Available from U.S. Government Printing Office <a href="http://www.gpo.gov/fdsys">www.gpo.gov/fdsys</a>  (select Code of Federal Regulations from <i>Featured Collections</i> menu)	(866) 512-1800 (202) 512-1800
DOD	Department of Defense Military Specifications and Standards Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-2664
DSCC	Defense Supply Center Columbus (See FS)	
FED-STD	Federal Standard (See FS)	

Abbreviation / Acronym	Standards and Regulations / Website Address	Primary Telephone No.
FS	Federal Specifications  Available from Department of Defense Single Stock Point <a href="http://didssp.daps.dla.mil/">http://didssp.daps.dla.mil/</a>  Defense Standardization Program is available from U.S. Department of Defense <a href="http://www.dsp.dla.mil">www.dsp.dla.mil</a>  Available from General Services Administration Index of Federal Specifications, Standards and Commercial Item Descriptions <a href="http://www.gsa.gov/portal/content/100847">www.gsa.gov/portal/content/100847</a>  Whole Building Design Guide (WBDG) is available from the National Institute of Building Sciences <a href="http://www.wbdg.org">www.wbdg.org</a>	(215) 697-2664   (703) 767-6879   (866) 606-8220   (202) 289-7800
FTMS	Federal Test Method Standard (See FS)	
MIL	(See MILSPEC)	
MIL-STD	(See MILSPEC)	
MILSPEC	Military Specification and Standards  Available from Department of Defense Single Stock Point <a href="http://dodssp.daps.dla.mil">http://dodssp.daps.dla.mil</a>	(215) 697-2664
UFAS	Uniform Federal Accessibility Standards Available from United States Access Board <a href="http://www.access-board.gov">www.access-board.gov</a>	(800) 872-2253 (202) 272-0080

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
1. Statement of Work.
  - 2.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities for primary and secondary areas of Project Work (construction site, on-site office, staging yards, storage facilities and access areas for the Work site that comprise the Project. .
1. There is one primary location for Project Work. Secondary locations will be as required to accomplish the Work.
  2. Contractor shall be responsible for temporary power at all locations where construction activities require power. This is in addition to requirements for Temporary Facilities.
    - a. Provide power generator until permanent power is available.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
1. Contractor shall prepare a layout of the proposed functional construction site(s) including fences, roads, buildings, trailers, storage areas and a plan detailing the size and configuration of the construction office (including parking) for both Contractor and the Owner's staff. These facilities shall be provided as per the accepted layout.
- B. Environmental Safety and Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
1. Contractor shall submit a program for pollution control (Environmental Safety and Control Plan) prior to beginning operations. This shall include, but is not limited to,



Erosion and Sediment Control Plans, Stormwater Management Plans, and evidence to the Owner that the governing air pollution criteria will be met.

- C. Construction Traffic Management Plan: Contractor shall prepare and provide to the Owner a Construction Traffic Management Plan for acceptance by the Owner. The Plan shall identify and address the required construction stages for each construction operations area.
  - 1. The Construction Traffic Management Plan shall be prepared and implemented to promote safe and efficient operation of adjacent public transportation facilities and State Highways at all times during the course of construction of the Project.
  - 2. The Construction Traffic Management Plan shall comply with all applicable requirements of the Contract Documents.
  
- D. Fire-Safety Program: Show compliance with requirements of NFPA 241, Virginia Construction Code-2009, NFPA 130-2010, and IBC 2009, as referenced by Virginia Construction Code-2009 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
  
- E. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage.
  - 1. Describe delivery, handling, and storage provisions for materials subject to water absorption or water damage.
  - 2. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
  
- F. Dust- -Control Plan: Submit coordination drawing and narrative that indicates the dust- control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
  - 1. Locations of dust-control partitions at each phase of work.
  - 2. Waste handling procedures.
  - 3. Other dust-control measures.
  
- G. Temporary Construction Drawings: Provide to the Owner, to include the specific requirements listed for each:
  - 1. Shop drawings and design calculations for all false work and temporary or interim supports and steel erection devices among others.

#### 1.4 QUALITY ASSURANCE

- A. Code Compliance: Contractor shall comply with industry standards and applicable laws and regulations of authorities and Utility owners having jurisdiction, including but not limited to:
  - 1. Building Code requirements.
  - 2. Health and safety regulations.
  - 3. Utility company regulations.

4. Police, Fire Department and Rescue Squad rules.
  5. Environmental protection regulations.
- B. Comply with NFPA Code 241, "Construction Alteration and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library, "Temporary Electrical Facilities". For Electrical Service, Contractor shall comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70). For temporary construction, AASHTO Standard Specifications for Highway Bridges; AWS D1.1, ASTM D 2555 and ASTM E 274.
- C. Design Criteria: Design temporary decking and support system for AASHTO HS20 loading and impact, earth pressures, utility loads and other applicable live impact and dead loads including Contractor's equipment.
1. When construction equipment is to be operated from decking, design decking using actual maximum loads in accordance with design criteria of referenced AASHTO specification, unless otherwise shown.
    - a. Design supporting members to allow clearance for existing and relocated utilities.
    - b. Provide suitable openings for access for servicing utilities and fire fighting.
    - c. Provide flush covers for openings.
    - d. When the deck beams or other members supporting such deck are required to carry the support of excavation loads, these members shall be in compliance with the requirements of Division 2.
    - e. Temporary support/excavation support Shop Drawings shall be prepared, signed, and sealed by a Professional Engineer licensed in the Commonwealth of Virginia.
- D. Inspections: Contractor shall arrange for the inspection and testing of each temporary utility before use, and shall coordinate all requirements for certifications and permits with the utility owners and the applicable local jurisdiction. The Owner shall be notified sufficiently in advance so as to be present at all planned inspections and onsite activities.

#### 1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts with 1-5/8-inch- OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized-steel bases for supporting posts.
- C. Wood Enclosure Fence: Plywood, 9 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.
- D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.
- E. Dust-Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.
- F. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.
- G. Timber, Steel, Concrete and Other Materials:
  - 1. Used materials are permitted in lieu of new materials provided they are sound and free from defects which might impair their strength.
  - 2. Timber: Structural lumber, visually graded in accordance with ASTM D 2555, minimum working stress 1,100 psi.
- H. Welding. Have welding performed by certified welders and in accordance with the requirements of the AWS D1.1.

2.2 FIELD OFFICES

- A. At the primary location consistent with Contractor's construction plan that is acceptable to the Owner and within 30 days after receipt of Full Notice to Proceed, Contractor shall provide, and maintain until approved time after Substantial Completion, a temporary field office for the occupancy and use of Contractor and staff based on contractor need.
  - 1.
  - 2. Field office shall have windows, lighting, heat, electricity, ventilation, air conditioning and any other amenities required by code for permanent buildings. Buildings shall be accessible to the handicapped.
  - 3. Maintain building in good condition. Provide security service and snow and ice removal service. Building shall be maintained as water and weather tight.

- B.
- C. Contractor shall pay cost of all utilities.
- D. On or about the time of Substantial Completion, Contractor shall provide for the removal of the temporary field office..
- E. Construction field office location shall be approved by the Owner.
- F. Owner shall have the right to reject field offices and support facilities which are unsafe, improper, or inadequate. Rejected construction plants and apparatus shall be brought to acceptable condition or will be removed from the Site by Contractor.

### 2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

### 2.4 TEMPORARY UTILITIES

- A. Temporary utilities required include but are not limited to:
  - 1. Temporary electric power and light.
  - 2. Temporary sanitary facilities

### 2.5 WORK, STORAGE AND PARKING AREA

- A. Parking facilities for Contractor's personnel and that of subcontractors shall be Contractor's responsibility. The provided parking facilities must not interfere with the work, the storage, staging and laydown areas, free movement of pedestrian and vehicular traffic, and work facilities provided for the Owner.

### 2.6 MAINTENANCE OF TRAFFIC RESPONSIBILITIES

- A. Contractor shall be responsible for maintaining traffic and for erecting and maintaining traffic control devices, as required by the local Jurisdictional Agency of the area where the work is to be performed, including, but not limited to, the following:
  - 1. Temporary directional and electrical warning and detour signs.
  - 2. Temporary barricades.
  - 3. Temporary lighting, overhead warning lights, flashing lights and lanterns.
  - 4. Temporary paving and striping.

2.7 BARRICADES

- A. Barricades shall be substantial in character, neat in appearance, constructed of approved materials, and of approved size and arrangement.

2.8 FENCES

- A. Contractor shall provide and construct wooden fencing within the construction area to fence off pedestrian sidewalks from operating areas. All other fencing within the construction work zone for areas such as streets and parking areas will be chain link fencing. The location of fencing for pedestrian sidewalks shall be as shown on the approved Contractor's drawings.
- B. Temporary wood fences erected by Contractor shall be substantially constructed of sound lumber, neat in appearance and shall be painted with two coats of approved exterior paint, color as directed. Unless otherwise shown, fences shall be six feet high and shall consist of a stud framework and a covering of tightly fitted plywood sheets.
- C. Prior to Substantial Completion, Contractor shall completely remove fencing and restore the area.

2.9 WORKING AREA WOODEN FENCING

- A. Contractor shall provide and construct working area wooden fencing as shown and as specified including hardware, locks, gates, doors, screening, painting, maintenance, fencing left in place, removal as required and all other incidentals. Working area wooden fencing shall serve two purposes: to fence off pedestrian sidewalks adjacent to the Work Site, and to enclose Contractor's work, access, storage and operating areas.
- B. Location of fence for pedestrian sidewalks adjacent to the work area shall be as specified and shall be shown on Contractor's working drawings. The locations of fence enclosing Contractor's work areas are to be shown.

2.10 CONSTRUCTION IDENTIFICATION SIGNAGE

- A. Sign Material: Cut sign from a standard 4 feet by 8 feet by 3/4 inch thick, waterproof exterior. A-B grade plywood with a smooth, finished surface. Joints will not be permitted.
- B. Mounting Material:
  - 1. General: Provide mounting frames and hardware of such quality to be able to support the sign under all weather conditions for the duration of the project.
    - a. Unless surface mounted, support signs with frames constructed with pressure treated dimension lumber, or other approved non-conductive material, of sufficient size to brace against weather conditions and provide necessary vertical clearance for pedestrians and/or adjacent vehicles.

- b. Secure surface mounted signs using anchoring devices approved by the Owner.
  2. Hardware:
    - a. Galvanized screws or bolts with nuts and washers.
    - b. Paint all hardware, visible in the finished assembly, to match the adjoining surface of the sign or mounting.
  3. Posts: Pressure treated dimensional lumber or other non-conductive material acceptable to the Owner.
- C. Paint:
1. Paint sign surfaces, posts and mounting frames with one coat of primer sealer and two coats of white semi-gloss enamel on all sides and edges.
  2. Paint sign text and/or graphics on Project Signs using colors as indicated on the Owner-provided Project Identification Sign graphic and accompanying instructions.
  3. Use paint manufactured for exterior use on the base material by a manufacturer acceptable to the Owner.
- D. Acceptable Fabricator: Company specializing in and having documented experience in the fabrication of graphic signs.

## 2.11 TEMPORARY SIGNS

- A. Temporary signs are considered to be any sign not included in paragraph above that is required to be erected during the construction phase of the project and removed at Substantial Completion. These signs include, but are not limited to, Field Office Signs, and safety and instructional signs for workers and visitors. This section does not include signs utilized and required for the purpose of identifying public street traffic closures and/or detours, and pedestrian and passenger control.
- B. Field Office Sign (if applicable):
1. Size: 4 feet by 5 feet wide.
  2. Letter with black enamel paint, using block letters at least 4 inches high, with the Contract name, Contract number and the words “CONTRACTOR’S FIELD OFFICE”.
  3. Where the field office to be identified is not readily visible from the Work Site entrance, paint a directional arrow on the sign and locate the sign near the entrance. In this case, provide additional signs of reduced size with the words “CONTRACTOR’S FIELD OFFICE” to direct traffic to, and identify the field office location.
- C. No Trespassing Signs:
1. Sign base will be white baked enamel aluminum, 12 inches wide, 18 inches high and 0.062-inch thick. Additional prints of two colors will be used; fire red and black. 1 inch border on the top and both sides and 1/2 inch border on the bottom.
  2. Sign Information:

- a. One inch down from the top is a 10 inch wide by 2.75 inch high fire red block with reversed out white copy at 1.5 inch Helvt. Med. Acct. A. K. Rev. M that reads: WARNING centered in caps.
  - b. Five inches down from the top is the baseline for 0.75 inch Helvt. Med. Acct. A. K. Rev. M, black copy to read: NO TRESPASSING centered in caps.
  - c. 8.75 inch down from top is the center of a 6” fire red outlined circle .5” thick with a diagonal 45 degree slash from the upper left to the lower right of the circle. Behind the circle and slash is a 4.5” pictograph of a walking pedestrian.
  - d. Thirteen inches down from the top is the baseline for 0.75 inch Helvt. Med. Acct. A. K. Rev. M, in black copy to read: AUTHORIZED centered in caps.
  - e. 14.125 inches down from the top is the baseline for 0.75 inch Helvt. Med. Acct. A. K. Rev. M, in black copy to read: PERSONNEL ONLY centered in caps.
  - f. 16.5 inches down from the top is the baseline for 0.375 inch Helvt. Med. Acct. A. K. Rev. M, broken down in 4 lines of black copy to read (centered with initial caps):
    - 1) All Others Will Be Prosecuted In Accordance With The Penalties Provided In Section 18.2-119 of the Virginia Code.
  - g. 17.5 inches down from the top, flush right, is the base line for 0.5 inch Contractor’s logo in black.
3. Fasteners are not incorporated in the sign. Contractor may drill holes in the signs to mount them on fencing, walls, and barricades in method not to obstruct the message of the sign.

## 2.12 POLLUTION CONTROL

- A. Contractor shall by every means practical conduct its operations in a manner to minimize pollution of the environment surrounding the area of work. Specific controls shall be applied as follows:
1. Material transport: Trucks leaving the Site and entering paved public streets shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle. Trucks arriving and leaving the Site with materials shall be loaded so as to prevent dropping materials and debris on the streets. Contractor shall maintain a suitable vehicle cleaning installation and inspection installation with permanent crew for this purpose. Spills of materials in public areas shall be removed immediately.
  2. Waste materials: No waste or erosion materials shall be allowed to enter natural or man-made water or sewage removal systems. Contractor shall develop methods to control waste and erosion including such means as filtration, settlement and manual removal.
- B. Contractor shall comply with the following:
1. Erosion and Sediment Control Guidelines for local, State and Federal Projects, and Stormwater Guidelines for local, State and Federal Projects. Contractor shall obtain

Erosion and Sediment Control and Stormwater Management Plan approval from Virginia Department of Conservation and Recreation (VDNR) as applicable.

2. Burning: No burning of waste shall be allowed without written permission. When permission is granted, burning shall be conducted in accordance with the regulations of the Jurisdictional Agency.
3. Dust control: Contractor shall, by water sprinkling or by other approved methods, continuously control dust generated by its operations.
4. Noise control: Contractor shall take every reasonable action possible to minimize the noise caused by its operation. When required by Jurisdictional Agencies, noise producing work shall be performed in less sensitive hours of the day or week as directed. Noise produced by the work shall be maintained at or below the decibel levels specified and within the time periods specified.
5. Contractor and Subcontractors must document to the Owner that the governing air pollution criteria will be met. These criteria and related documents will be retained by the Owner for on-site examination by FTA.

C. Clean air and water: Contractor agrees as follows:

1. Comply with all the requirements of Section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 91-604) and Section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), respectively, relating to inspection, monitoring, entry, reports and information, as well as other requirements specified in Section 114 and Section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued there under before the award of this Contract.
2. That no portion of the Work required by the Contract Documents will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date when this Contract was awarded unless and until the EPA eliminates the name of such facility or facilities from such listing.
3. To use its best efforts to comply with clean air standards and clean water standards at the facility in which the Contract is being performed.
4. Insert the substance of the provisions of this Section into any nonexempt subcontract.
5. The terms used in this section have the following meanings:
  - a. The term Air Act means the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604).
  - b. The term Water Act means Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500).
  - c. The term clean air standards means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions or other requirements which are contained in, issued under or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in Section 110(d) of the Clean Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under Section 111(c) or Section 111(d), respectively, of the Air Act (42 U.S.C. 1857c-6(c) or (d)), or an approved implementation procedure under Section 112(d) of the Air Act (42 U.S.C. 1857c-7(d)).



6. The term clean water standards means any enforceable limitation, control, condition, prohibition, standard or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the EPA or by a State under an approved program, as authorized by Section 402 of the Water Act (33 U.S.C. 1342), or by local government to ensure compliance with pretreatment regulations as required by Section 307 of the Water Act (33 U.S.C. 1317).
7. The term compliance means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the EPA or an air or water pollution control agency in accordance with the requirements of the Air Act or Water Act and regulations issued pursuant thereto.
8. The term facility means any building, plant, installation, structure, mine, vessel or other floating craft, location or site of operations, owned, leased or supervised by Contractor or subcontractor, to be utilized in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant installation or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, EPA determines that independent facilities are collocated in one geographical area.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Wherever necessary, whether or not shown or specified, Contractor shall erect and maintain signs, fences, barricades and provide watchmen for the protection of public travel, the Work Site, adjoining property and adjoining public places.
- C. Contractor shall take positive measures to prevent entry into the Site of the work and storage areas by children, animals and unauthorized adults and vehicles.
- D. Protective devices shall be in accordance with codes and regulations of jurisdictional agencies.

#### 3.2 PROJECT CONDITIONS

- A. Contractor shall incorporate into the construction schedule dates for the implementation and termination of each temporary utility..
- B. Contractor shall keep temporary services and facilities clean and neat in appearance. Temporary services and facilities shall operate in a safe and efficient manner. Contractor shall take all necessary fire prevention measures and shall ensure that facilities shall not be overloaded or permitted to interfere with progress. Contractor shall not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the Site.

- C. Contractor shall determine temporary utility services requirements and shall make arrangements with utility companies and governmental agencies to obtain such services.
- D. Contractor shall provide temporary electrical service of sufficient capacity to serve the temporary requirements prior to Substantial Completion. The source of temporary power for testing may be the temporary service, portable generator or other approved system which will deliver power with the voltage (and other) characteristics required to accomplish testing as specified. Circuits and construction for temporary systems shall suit the needs of the Work and comply with NEC and the codes and regulations of the jurisdictional authorities.
- E. Temporary services shall be furnished, installed, connected and maintained by Contractor in an approved manner. Prior to Substantial Completion, Contractor shall remove all temporary services and restore the affected areas to their previous condition or better as accepted.
- F. Design Drawings for temporary utility and electrical services shall be submitted, if required and requested by the Owner. Power supply shall be of such quantity and type required to perform the work of the Contract. Lighting equipment shall be of the type and quantity needed to provide illumination of all Project areas to permit safe construction activities and safe passage of pedestrians and vehicles around the areas where the construction abuts pedestrian and vehicular thoroughfares. Materials for and installation of temporary services shall comply with OSHA requirements and with the minimum requirements of the technical specifications.

### 3.3 PARKING

- A. Contractor shall provide two parking spaces at field office location for Owner's use.

### 3.4 ACCESS TO FIRE HYDRANTS AND FIRE LANES

- A. Whenever the Work is being performed, free access must be given to each fire hydrant, Fire lane, and standpipe when required. Hydrants shall be extended by suitable tubes or piping to an accessible point as approved and to the satisfaction of the jurisdictional Fire Prevention Office. Construction material debris, or other obstructions, shall not be piled at any time or placed within 20 feet of any fire hydrant or fire lane, or standpipe. Where materials are placed in the vicinity of a fire hydrant or standpipe to such height as to prevent the same from being readily seen, the position of such hydrants or standpipes shall be indicated by suitable signs and lights, both day and night. No obstruction of a fire lane is allowed.

### 3.5 TEMPORARY SIGNAGE

- A. Install Project Identification Signs within 45 days after the Notice to Proceed for Construction or as the progress of the Project demands.
- B. Install signs in accordance with accepted shop drawings, sketches, and details, and as directed by the Owner. Support all non-surface mounted signs on a minimum of two posts, anchored into the ground at a depth sufficient to provide rigid support of the sign during all weather conditions.

- C. No Trespassing signs shall be posted on every side at 40 feet spacing on all temporary fences and walls, barricades and compound fencing. Temporary Signs (if required):
  - 1. Field office sign: Provide one sign for Contractor's field office to indicate Contractor's location.
  - 2. Provide and install other temporary signs deemed necessary for the project by the Owner.
- D. Sign maintenance: Maintain all signs throughout the course of construction from installation until Substantial Completion, keeping them clean, free from graffiti, in good repair and free of obstruction. Provide and maintain adequate protection against weather so as to preserve all work, materials, equipment, apparatus, and fixtures free from injury or damage. Maintain all signs free of all unrelated signs, posters, painting, advertising and defacement of any kind. Within five days of notice, Contractor shall clean, repair or replace signs as necessary to maintain them in a "like-new" condition.
- E. Prior to Final Acceptance of the Project by the Owner, remove and dispose of all project identification and temporary signs. All costs for the removal and disposal of signs shall be borne by Contractor.

### 3.6 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
  - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
  - 1. Connect temporary sewers to private system indicated as directed by or acceptable to authorities having jurisdiction (AHJ).
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- F. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
  - 1. Install electric power service overhead unless otherwise indicated.

- G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
  - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

### 3.7 TEMPORARY BARRIERS AND ENCLOSURES

- A. Contractor shall, during the prosecution of the work, barricade or close excavations and openings in floors, walls and other parts of the structures and excavations while such openings are not in regular use.
- B. Barricades shall be anchored to the ground on all sides of excavations.

### 3.8 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
  - 1. Provide construction for temporary office, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
  - 2. Maintain support facilities until Owner schedules Substantial Completion inspection. Remove before Substantial Completion.
- B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Design Build Contractor's Drawings.
  - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
  - 1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
  - 2. Prepare subgrade and install subbase and base for temporary roads and paved areas according to VDOT Standards
  - 3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
  - 4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to VDOT Standards
  - 5. Contractor shall restore laydown/staging areas to condition prior to construction when no longer needed.

6. .

- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."
- E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
  - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

### 3.9 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
  - 1. Comply with work restrictions specified in Section 01 14 00 "Work Restrictions."
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- E. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.
- F. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
  - 1. Extent of Fence: As required and indicated to completely enclose Project construction sites and portions of satellite Work sites determined sufficient to accommodate construction operations.
  - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of grandmaster keys to Owner for use by the Owner's locksmith.

- G. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.
- H. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- I. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
  - 1. Prohibit smoking in construction areas.
  - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
  - 3. Develop and supervise an overall fire-prevention and fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
  - 4. Coordinate with Package A contractor for temporary standpipes. Provide hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

### 3.10 MAINTENANCE OF TRAFFIC

- A. Contractor shall provide or cause to be provided traffic management and operations services in compliance with and to the extent required of Contractor by the approved Construction Traffic Management Plan.
- B. Traffic Control Signs: Traffic control signs shall be standard signs of the controlling Jurisdictional Agency. Each change in location/movement of traffic shall be adequately posted with a minimum of two signs mounted on barricades or standard posts. All signing shall be done in accordance with the requirements of the latest published standard of the Jurisdictional Agency.
- C. Striping: Contractor shall provide all necessary temporary striping required in connection with all temporary street work. Contractor shall remove or obliterate existing or temporary pavement markings whenever vehicular traffic is moved to newly available pavement areas or to different traffic patterns.
- D. Redirecting traffic: Channeling and shifting of traffic lanes as well as barricading of traffic in connection with this work will be subject to approval of the Owner and Jurisdictional Agency.
- E. Temporary closing: Prior to the temporary closing to traffic of part of any street, sidewalk or other access or prior to changing traffic patterns from those shown, approval shall be obtained

from the Owner and appropriate Jurisdictional Agency by Contractor prior to the time such closures and changes are to be made in accordance with the requirements of the Jurisdictional Agency. Deviations from this will be for an emergency only and as approved by the Jurisdictional Agency.

- F. Contractor's surface operations: Contractor shall schedule its surface operations so as not to be working intermittently throughout the area. Construction activities shall be carefully scheduled and vigorously pursued to completion as required to permit opening of street areas to traffic as soon as possible without unnecessary delays.
- G. Temporary walkways: In areas where the removal of existing sidewalks is necessary, access to adjacent businesses, entrances and properties shall be maintained by temporary walkways having a width of not less than six feet.
- H. Temporary pavement and patching: Contractor shall construct, maintain and remove temporary pavement and patching required to safely and expeditiously handle vehicular and pedestrian traffic within or adjacent to the Work Site. The temporary pavement composition and patch shall conform to the requirements of the Jurisdictional Agency. Construction, maintenance or removal required by Contractor's operations off the Site shall be included under this article.
- I. Contractor shall maintain traffic and parking areas in a sound condition, free of excavated material, construction equipment, construction products, mud, and debris.
- J. Contractor shall maintain existing (and permanent) paved areas used for construction and promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original, or specified, condition.

### 3.11 CONSTRUCTION STAGING

- A. Contractor's particular attention is directed to the fact that both vehicular and pedestrian traffic must be maintained on the existing streets adjacent to the Project Site at all times during the duration of the Contract. Vehicular and pedestrian access to adjacent properties shall also be maintained.
- B. A method of staging and requirements pertaining to the number of traffic lanes to be provided during rush hours and non-rush hours, shifting of traffic lanes, the use of working and storage areas and other requirements pertaining to the maintenance of traffic shall be developed by Contractor as part of this Contract.
- C. The particular order in which the various stages are to be performed in accordance with the Construction Traffic Management Plan. Contractor shall prepare and submit to the Owner and Jurisdictional Agency of the area where the work is to be performed, for its approval, working drawings including comprehensive staging plans. No work shall be started prior to approval.

3.12 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
  - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion. Coordinate station security with Package A contractor.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
  - 1. Materials and facilities that constitute temporary facilities are property of Contractor.
  - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. . Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
  - 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 Closeout Procedures

3.13 SECURITY

- A. Contractor shall guard against unauthorized or illegal entry and protect the field office against vandalism, theft and mischief. Contractor shall be responsible for the replacement and/or compensation for any item owned by the Owner or its employees, which are related to the subject Work, removed or damaged as the result of vandalism, theft, mischief or illegal entry to the field office.

3.14 MAINTENANCE AND SERVICE

- A. Contractor shall provide all electrical and telephone tie-ins for the field office and provide continuous maintenance of utility tie-ins during the construction period.
- B. Contractor shall repair or refinish damaged areas as required.
- C. Contractor shall pay cost of all utilities.



3.15 DEMOBILIZATION

- A. Upon Substantial Completion, Contractor shall remove construction plant, equipment, materials, supplies, temporary building, facilities and other items that were necessary for mobilization. Contractor shall return the area allocated for the construction plant to its condition prior to the start of the Work.

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
  - 1. Statement of Work.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Procedural requirements for requests for substitutions made after award of Contract.
- C. Other requirements governing Contractor's selection of products and product options are included in the Technical Specifications, Engineering Drawings, and other requirements of the Contract Documents.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, and/or equipment, as required or specified by Contract Documents, Contract Drawings, and/or Contract Specifications after award of the Contract are considered Substitutions. Substitutions must meet all requirements of the Contract Documents. The following are not considered substitutions:
  - 1. Specified options of products and construction methods included in Contract Documents, Drawings and Specifications.
  - 2. Alternatives necessary shall comply with requirements of the Authority Having Jurisdiction.
- B. Comparable Products: Equipment and Materials identified in the Contract Documents with an "or equal," or "or approved equal," provision can be submitted for review as Comparable Products. Comparable Products are equipment and materials that are different from, but are the functional equivalent to, equipment and materials specified in the Contract Documents, and that otherwise meet all requirements of the contract documents. The burden of demonstrating the functional equivalence of such products lies with the Contractor. The Airports Authority retains the sole right of determining whether a proposed product is considered equivalent and acceptable.

#### 1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Ensure that each sub-contractor is responsible for providing products and construction methods compatible with products and construction methods of other sub-contractors.
  2. If a dispute arises between sub-contractors over concurrently selectable but incompatible products, Owner will determine which products shall be used.

#### 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
  2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
  3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
  4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
1. Store products to allow for inspection and measurement of quantity or counting of units.
  2. Store materials in a manner that will not endanger Project structure.
  3. Store products that are subject to damage by the elements, under cover in a weather-tight enclosure above ground, with ventilation adequate to prevent condensation.
  4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
  5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
  6. Protect stored products from damage and liquids from freezing.
  7. Provide a secure location and enclosure at Project site for storage of Owner furnished materials and equipment. Coordinate location with Owner.

#### 1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on

product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. **Manufacturer's Warranty:** Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
  2. **Special Warranty:** Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. **Special Warranties:** Prepare a written document that contains appropriate terms and identification, ready for execution.
1. **Manufacturer's Standard Form:** Modified to include Project-specific information and properly executed.
  2. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. **Submittal Time:** Comply with requirements in Section 01 77 00 "Closeout Procedures."
- D. **Warranty Requirements:** Provisions of Article 11 of the Contract define the warranty requirements for this Project. Several warranty provisions within the Technical Specifications have special warranties that provide extended warranty coverage. All warranties shall be listed on Submittal Register found as an attachment to Section 01 33 00 "Submittals."

#### 1.7 PRODUCT SELECTION PROCEDURES

- A. **General Product Requirements:** Provide products that comply with the Contract Requirements, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
  2. **Standard Products:** If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
  3. Authority reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
  4. Where products are accompanied by the term "as selected," Owner will make selection.
  5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
  6. **Or Equal:** For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. **Visual Matching Specification:** Where Specifications require "match Owner's sample", provide a product that complies with requirements and matches Owner's sample. Owner's decision will be final on whether a proposed product matches.
- C. **Selection Specification:** Where Specifications include the phrase "as selected by Owner from manufacturer's full range" or similar phrase, select a product that complies with requirements. Owner will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 1.8 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Owner will consider Contractor's request for comparable product when the following conditions are satisfied. Contractor is to submit documentation demonstrating comparable nature of product in each indicated area. If the following conditions are not satisfied, Owner may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents.
  2. Proposed product is consistent with the Contract Documents and will produce the indicated results.
  3. Product Data, including drawings, fabrication, and installation procedures
  4. Coordination information, including a list of changes or modifications made necessary to other parts of the Work and to construction performed by others.
  5. A detailed comparison of significant qualities/salient features of the proposed Equipment and Materials with those of the Equipment and Materials previously specified or approved to demonstrate functional equivalence. Significant qualities may include elements such as size, weight, durability, performance, visual effect, code compliance, maintenance requirements, life cycle costs, energy usage, and environmental considerations.
  6. For glass hardware items to match glass hardware in Package A façade, substitutions shall look identical.
  7. Evidence that proposed product provides specified warranty.
  8. List of similar installations for completed projects with project names and addresses and names and addresses of architects, engineers, and owners, if requested.
  9. Samples, if requested.
- B. Contractor shall submit to Owner for approval, any Equipment and Materials proposed by Contractor as being an “equal to” Equipment and Materials previously specified or approved. Owner will review and approve or reject Contractor’s submittal as per requirements outlined in Section 01 33 00 “Submittals.”

## 1.9 SUBSTITUTION REQUESTS

- A. Requests by Contractor for substitution will be considered by Owner. Contractor shall submit a request for substitution to Owner for consideration. In each substitution request, Contractor shall identify the product, system and fabrication or installation method to be replaced. The related Specification sections and/or Contract Drawing numbers shall be referenced in the submittal. Complete documentation showing compliance with the requirements for substitutions shall also be submitted including the following information as appropriate:
1. All requirements specified in Subsection 1.8.B (Comparable Products).
  2. Justification for substitution requested.
- B. Contractor shall submit to Owner for approval, any Equipment and Materials proposed by Contractor as being an equal to Equipment and Materials previously specified or approved. Owner will review and approve or reject Contractor’s submittal as per requirements outlined in Section 01 33 00 “Submittals.”

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

## SECTION 01 73 00 - EXECUTION

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. This list is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
  - 1. Statement of Work.
  
- B. Reference Documents:
  - 1. Section 01 73 29 “Cutting and Patching”
    - a. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.
    - b. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work

#### 1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
  - 1. Construction layout.
  - 2. Field engineering and surveying.
  - 3. Installation of the Work.
  - 4. Cutting and patching.
  - 5. Progress cleaning.
  - 6. Starting and adjusting.
  - 7. Protection of installed construction.
  - 8. Correction of the Work.

#### 1.3 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor licensed in the State of Virginia.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- C. Final Property Survey: Submit three printed copies and one electronic data set showing the Work performed and record survey data.

#### 1.4 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
  - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Owner for the visual and functional performance of in-place materials.

#### 2.2 CLEANING MATERIAL AND EQUIPMENT

- A. Contractor shall provide required personnel, equipment, and materials needed to achieve the specified standard of cleanliness.
- B. Contractor shall use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.
- C. Contractor shall replace surfaces damaged from improper use of material and/or cleaning methods.
- D. All maintenance of equipment shall be performed in accordance with the manufacturer's recommended practices and with approved renewal parts, supplies and materials.

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
  - 1. Examine roughing-in forelectrical systems to verify actual locations of connections before equipment and fixture installation.



2. Examine structural connections, baseplates, walls, and flashing for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- B. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work.
  2. List of detrimental conditions, including substrates.
  3. List of unacceptable installation tolerances.
  4. Recommended corrections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to the local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Verification of Utility Locations: Submit Drawings to Utility Companies showing new construction/demolition to determine exact location and vulnerability of underground utilities posed by new construction.
1. Obtain written agreement from Utility stating the following:
    - a. Depth of utility.
    - b. Planned utility work in area by others.
    - c. Acceptance of project plans by utility.
- C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Owner according to requirements in Section 01 31 00 "Project Management and Coordination."

### 3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Owner's Representative promptly.
- B. General: Engage a licensed land surveyor to lay out the Work using accepted surveying practices.
  - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
  - 2. Establish limits on use of Project site.
  - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
  - 4. Inform installers of lines and levels to which they must comply.
  - 5. Check the location, level and plumb, of every major element as the Work progresses.
  - 6. Notify Owner's Representative when deviations from required lines and levels exceed allowable tolerances.
  - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, including those required for electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by land surveyor.

### 3.4 ENVIRONMENTAL CONTROL

- A. Contractor shall maintain temperature and humidity to protect work, in progress and in place, as well as permanent equipment and materials, stored and installed, against damage from heat, cold and dampness and take such steps as necessary to protect such work from other adverse conditions.

### 3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
  - 1. Make vertical work plumb and make horizontal work level.
  - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in access areas of unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
  1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Owner's Representative.
  2. Allow for building movement, including thermal expansion and contraction.
  3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.6 PAVEMENT RESTORATION

- A. Contractor shall secure permits from the Jurisdictional Agency for all pavement restoration within the limits of said agency's jurisdiction. Contractor shall submit working drawings of such pavement restoration prepared in accordance with the requirements of the Contract Documents and the Jurisdictional Agency for approval by the agency.

- B. During Contract activities, certain areas currently grassed, landscaped or otherwise improved may be disturbed or damaged. Contractor shall restore such areas disturbed or damaged by its operations.
- C. Contractor G will restore all areas within the scope of work, including roadways and Laydown Area 2 to their final condition. This includes areas previously controlled by the Package A contractor which control was transferred to Package G Contractor in execution of the contract.
- D. Existing surfaces shall be carefully protected during placing of concrete and other operations under this Contract to avoid damaging existing surfaces.
- E. Existing surfaces marred or damaged by Contractor's performance of the work shall be repaired or replaced by Contractor.

### 3.7 EMBEDDED ITEMS

- A. In a drilling or coring operation, if applicable, when reinforcing steel or other items embedded in the concrete are encountered, the operation shall be stopped and the appropriate action determined by the responsible design engineer. Contractor shall document in accordance with project procedures and notify Owner. If it is not permissible to cut through the embedded item, the holes shall be drilled in another location and the original holes patched to Owner's satisfaction.

### 3.8 SALVAGE OF MATERIALS AND EQUIPMENT

- A. Contractor shall maintain adequate property control records for materials or equipment specified to be salvaged. Contractor shall be responsible for the adequate storage and protection of salvaged materials and equipment and shall replace salvage materials and equipment which are broken or damaged during salvage operations as the result of negligence or while in Contractor's care.
- B. Salvaged material not specified for reuse shall become the property of Contractor and shall be removed from the Site.

### 3.9 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully. Provide sufficient personnel, equipment, and materials to perform daily activities.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

- a. Use containers intended for holding waste materials of type to be stored.
- 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal in Construction Documents.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.10 STARTING AND ADJUSTING

- A. Coordinate validation, startup and adjusting of equipment and operating components with requirements found in other Specification Sections.
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 01 40 00 "Quality Requirements."

3.11 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

SECTION 01 73 01 - SUPPLEMENTARY CONDITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings, Contract Provisions, Special Provisions, and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. The articles and paragraphs of this Section represent supplements or additions to the Contract Provisions or the Special Provisions. The requirements of this section are the sole responsibility of the Contractor. No additional payment will be made to the Contractor to fulfill these requirements.

1.3 WORK UNDER OTHER CONTRACTS

During the period of this Project, the Authority anticipates that other construction contracts may be underway at or near the site of work of this Contract. A list of adjacent construction activities follows:

Package A – Dulles Corridor Metrorail Project Phase 2

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 PERMITTING

- A. Comply with all requirements set forth in the Authority's "Building Codes Manual". This manual describes Building Codes organization, Building Code inspection process, and Certificate of Occupancy requirements. The Contractor will file with the Authority for the construction permit as necessary.

3.2 MAINTENANCE OF PEDESTRIAN AND VEHICULAR TRAFFIC

- A. Maintain adequate pedestrian and vehicular traffic flow and safety along the service roads, sidewalks, parking lots and other roadways on Airport property. In addition, this requirement applies to crossroads, approaches, and entrances affected by or made necessary by the Work. Coordinate activities throughout the project in a manner that allows emergency access, without delays to emergency response vehicles, to all areas of the Project that are occupied by employees.
- B. Comply with requirements indicated in the Maintenance of Traffic Plans provided in the contract documents. Develop Contract-specific Maintenance of Traffic plans.
- C. Prior to starting construction operations affecting pedestrian, vehicular, or aircraft traffic movement, submit and obtain the COTR's written approval of a Traffic Maintenance Plan. Develop plan in accordance with the safety requirements of the FAA, Airport Operations, and

the Commonwealth of Virginia Department of Transportation's "*Manual of Uniform Traffic Control Devices*". Utilize the form indicated in the latest edition of the Virginia Department of Transportation's "*Virginia Work Area Protection Manual – Standards and Guidelines*".

- D. Provide and maintain temporary signage, "Jersey barriers," and such other traffic control devices or personnel as required complying with approved Maintenance of Traffic Plans.
- E. Maintain the construction operations affecting pedestrian or vehicular traffic movement from the beginning of construction operations until final acceptance of the project. The maintenance shall constitute continuous and effective work prosecuted day by day with adequate equipment and forces to the end of project to ensure that roadways and structures are maintained in satisfactory condition at all times, including barricades and warning signs as necessary for performance of the work.
- F. Keep the portions of the project being used by public, pedestrian, and vehicular traffic - whether it is through or local traffic - in such condition that traffic movement will be adequately accommodated. Remove snow and control all ice within the project boundaries. Removal of snow and ice for the benefit of the traveling public outside of the project boundaries will be performed by the Authority. Bear all cost of maintenance work during construction and before the project receives a Certificate of Occupancy for constructing and maintaining approaches, crossings, intersections and other features as may be necessary.
- G. Keep the portions of the road surfaces being used by the public free from irregularities, obstructions, mud, dirt, snow, ice, and any characteristic that might present a hazard or annoyance to traffic in such condition that traffic will be adequately accommodated.

### 3.3 TERMINAL BUILDING OPERATIONAL REQUIREMENTS

- A. The Work, or a portion thereof, will be performed nearby the public Terminal building. Normal airport operations and public activities will continue adjacent to the Work during all phases of the Project. These include:
  - 1. Passenger enplaning and deplaning.
  - 2. Passenger baggage deposit/retrieval.
  - 3. Passenger ticketing operations.
  - 4. Food/Concession services.
  - 5. Ground transportation arrivals/departures.
  - 6. Maintenance, custodial and support activities.
- B. Phase construction activities as necessary to accommodate all airport operations without disruption. Adhere to all current Airport Orders and Instructions (O & Is), Airport Bulletins, and Airport Advisories. The Authority will provide relevant Orders and Instructions to Offerors in the Solicitation Package. Bulletins and Advisories will be provided to the offeror by the Authority as they are issued.



### 3.4 TENANT OPERATIONAL REQUIREMENTS

The Work of this Project will be performed in close proximity to tenant-occupied areas. Coordinate and conduct work activities in such fashion that public circulation, tenant operations, and access to the tenant spaces will not be impaired in any manner except as detailed on Contractor's Work Plans. COTR will review and approve in writing all Work Plans.

### 3.5 ENVIRONMENTAL PROTECTION

- A. Comply with all Federal, state and local laws and regulations controlling pollution of the environment. Take necessary precautions to prevent pollution of streams, rivers, lakes, ponds, and reservoirs with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.
- B. Notify COTR immediately in the event that abnormalities, discolorations, odors, oil, or other signs of potential contamination by hazardous materials are encountered during excavation or other construction activities. Follow with written notice within 24 hours, indicating date, time, and location of potential contaminants encountered. The COTR will provide further direction to Contractor regarding disposition of materials encountered.
- C. All existing painted surfaces, other than those installed as part of Package A, are assumed to contain lead-based paint. The Contractor shall maintain the necessary health and safety requirements for all personnel in accordance with OSHA regulations to work in these conditions. The removal and disposal of lead-based paint is part of this contract.
- D. Aircraft deicing fluids will be encountered in the water (including utility manholes) and in the soils. Concentrations of aircraft deicing fluids in water and soils will range from non-detect to saturation. Aircraft deicing fluids are propylene based Type I and Type IV fluids. The fluids emit an unpleasant odor when the breakdown (biodegradation) is occurring. Follow OSHA requirements while working in aircraft deicing impacted areas. Coordinate with the COTR for obtaining Material Safety Data Sheet (MSDS) for aircraft deicing fluids.
- E. Petroleum contaminated soils and water may be encountered during the construction of this project. Petroleum impacted soils range from saturated to 1.0 ppm. Petroleum impacted water ranges from free product to "non - detect." Maintain the necessary health and safety requirements for all personnel in accordance with OSHA regulations.
- F. Do not use petroleum-contaminated soils as backfill around new piping or utilities. Transport petroleum contaminated soils to a location identified by the COTR. Place the contaminated soils on two layers of reinforced 6 mil plastic sheeting, install and maintain sediment and erosion controls, and adequately cover the stockpile to prevent water infiltration.

### 3.6 DAMAGES AND PRE-EXISTING CONDITIONS

- A. Be responsible for all damages caused by Contractor's construction activities. Provide all labor, materials, etc. to return any damaged areas, systems or equipment to their original condition at no additional cost to the Authority.
- B. Perform a survey of pre-existing conditions in the vicinity of Contractor's construction activities, utilizing photographs and other means as necessary to document existing damage or

conditions. Submit two copies of this survey to the Contracting Officer within 21 calendar days after Notice-to-Proceed. This survey will assist in resolving any damage claims against the Contractor during and after construction.

- C. Preserve all roadways, pedestrian and directional signage. Deliver all signs removed and not required for reinstallation to the Authority as directed by the COTR.
- D. Replace or repair lost or damaged signs at no cost to the Authority.
- E. Establish and maintain the security of Contractor's staging areas, equipment and materials.
- F. Do not park within 300 feet of a terminal building unless specifically authorized by Airport Operations.
- G. No firearms or weapons of any type are allowed on the airport property.
- H. No cartridge style nail guns, nor any tools that use a cartridge or any explosive charge, are allowed without prior written notification of COTR. Obtain written approval from the COTR before bringing such tools on the project.
- I. Conform to all Orders and Instructions pertaining to vehicle inspection.

### 3.7 MATERIAL HAULING

- A. Notify the COTR at least 72 hours in advance of all closure requirements for scheduled roadway closures. Obtain the written approval of Airport Operations prior to closing a roadway.
- B. Bear all costs associated with establishing, maintaining, signing, lighting and marking haul routes crossings.
- C. Use load covers on all dump trucks. Load dump trucks so that no spillage occurs during transit on the State, municipal, or Airport roadways, taxiways, and aprons. Clean wheels of trucks leaving the Project construction site of all soil and rocks. Provide a truck washing rack on the Project site to minimize the tracking of soil onto paved surfaces.
- D. Be responsible for the cost of the immediate cleaning of earth tracking and spills on paved surfaces resulting from the Contractor's operations. Cleaning shall be by mechanical sweeper/vacuum (wet/dry) equipment with nylon brushes complete with operators. Provide a water truck as necessary to effectively control dust rising from construction activities.

### 3.8 PORTABLE LIGHTING

Portable lighting: If used for Contractor operations, aim and shield portable lighting at all times to eliminate glare that could impair runway, taxiway, apron, ground operations, and Airport Traffic Control Tower operations. Equip portable lighting with reflectors and glare shields to prevent spillover of light into operational areas.

3.9 HEIGHT LIMITATION

- A. For all demolition and construction within the Airport, submit FAA Form 7460 to determine maximum allowable crane height.
- B. Prior to beginning any work coordinate with the COTR the height of all cranes, boom trucks, scaffolds or similar vehicles of construction. Properly mark all construction equipment with safety flags and warning lights in accordance with current FAA and Airport Operations requirements. Submit FAA Form 7460, provided by COTR, for all variations on approved crane heights.

3.10 NOISE CONTROL

- A. The Authority recognizes and can tolerate a normal level of noise created by a majority of construction activity. However, in the interest of the Authority's neighbors, the maximum acceptable noise level between the hours of 5:00 pm and 7:00 am the following morning is limited to 55 decibels. During daytime hours of 7:00 am through 5:00 pm, the maximum acceptable noise level for sustained or repetitive noises is 72 decibels. Measure the noise level using an "A" scale at a point 4'-0" above ground at property line nearest noise source.
- B. Secure advance written approval from the COTR prior to scheduling any activity that is anticipated to produce a sustained or repetitive noise level higher than the decibel limits indicated above.
- C. In and around terminal facilities and buildings whose normal occupancy is from 7 a.m. to 7 p.m., perform work that causes noise that is disruptive to the airport's tenants or the traveling public between the hours of 11:00 pm and 5:00 am. Measure noise for this situation using an "A" scale at a point 4'-0" above ground at the closest point to airport tenants or the traveling public.

3.11 EXAMINATION OF PLANS, SPECIFICATIONS AND SITE OF WORK

- A. The offeror is expected to examine carefully the site of the proposed work, the proposal, plans, specifications, solicitation provisions, contract provisions, special provisions and contract forms before submitting a proposal. The submission of a proposal will be considered conclusive evidence that the offeror has made such examination and is satisfied as to the conditions to be encountered in performing the work as to the requirements of the Contract.

3.12 CLEANING OF COMPLETED WORK

- A. The Contractor shall perform a complete system cleaning prior to final inspection by the Owner and closeout of the permit. Protection of work by others (including, but not limited to, station storefront glazing, supporting steel, adjacent concrete work, architectural louvers, or aerial guideway substructure and superstructure) shall be provided. Any peripheral impacts to work by others will be removed and that work shall be cleaned and restored to its condition prior to Package G cleaning.
- B. As an Option, the Contractor shall provide an additional cleaning upon request. This cleaning may occur at any time following the initial system cleaning and the end of Contract. . The Contractor will be required to provide all necessary maintenance of traffic for this cleaning.

The Contractor shall assume the trainway would be in an energized condition. The Contractor would not be provided access to/from the trainway to perform this cleaning.

PART 4- MEASUREMENT (Not Used)

PART 5 - PAYMENT (Not Used)

END OF SECTION 01 73 01

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
  - 1. Statement of Work.
  - 2.
  - 3. Specifications for Divisions 03 through 33 Specifications requirements and limitations applicable to cutting and patching individual parts of Work.

1.2 SUMMARY

- A. This section specifies provisions for accommodating remedial work where installations occur in existing facilities or improvements.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site where work is done. Refer to Section 01 31 00 “Project Management and Coordination” for list of participants relevant to work in this area.

1.4 ACTION SUBMITTALS

- A. Cutting and Patching Proposal, requesting approval of Owner’s Representative to proceed, describing procedures at least 10 days before time cutting and patching will be performed. Obtain Owner’s Representative approval in writing of cutting and patching proposal before cutting and patching. Approval does not waive Owner’s Representative right to later require removal and replacement of unsatisfactory work.
- B. Include following information:
  - 1. Extent: Describe cutting and patching, showing how it will be performed and indicate why process cannot be avoided.
  - 2. Changes to Existing Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in appearance of structural entities.
  - 3. List firms or entities that will perform the Work.
  - 4. Dates: Indicate when cutting and patching will be performed.
  - 5. Electrical Services.

6. Provide X-rays to Owner's Representative before cutting/core drilling into slabs, beams, walls, to determine whether embedded items will be affected by demolition. Notify Owner's Representative to relocate openings if required.
  7. Evaluation shall be by a registered professional engineer licensed in Commonwealth of Virginia.
  8. Structural Elements: If cutting and patching involve adding reinforcement to structures, provide details and engineering calculation showing integration of reinforcement with original structure. Obtain approval of Owner's Fire Marshall for work such as open flame cutting or welding.
- C. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.
1. Primary operational systems and equipment.
  2. Air or smoke barriers.
  3. Fire-suppression systems.
  4. Control systems.
  5. Communications systems.
  6. Conveying systems.
  7. Electrical wiring systems.
  8. Operating systems of special construction.
  9. Security systems including CCTV and duress alarm.
- D. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in manner that could change load-carrying capacity resulting in reducing their capacity to perform as intended or results in increased maintenance or decreased operational life or safety.
1. Water, moisture, or vapor barriers.
  2. Membranes and flashings.
  3. Exterior curtain-wall construction.
  4. Equipment supports.
  5. Piping, ductwork, vessels, and equipment.
  6. Noise and vibration control elements and systems.
  7. Insulating systems.

#### 1.5 EXISTING WARRANTIES

- A. Remove, replace, patch and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

#### 1.6 SALVAGE MATERIALS AND EQUIPMENT

- A. Maintain adequate property control records for materials or equipment specified to be salvaged. Contractor shall be responsible for adequate storage and protection of salvaged materials and equipment and shall replace salvage materials which are broken or damaged during salvage operations as result of negligence or while under Contractor's protection.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Comply with requirements specified in other Sections of Specifications.
- B. Use materials identical to existing materials. For exposed surfaces use materials that visually match existing, adjacent surfaces to fullest extent possible. If identical materials are unavailable or cannot be used, use materials that when installed will match visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Adjoining Areas
  - 1. Avoid interference with use of adjoining areas or interruption of free passage to areas.

3.2 INSTALLATION

- A. Maintain temperature and humidity to protect work, in progress and in place, as well as permanent equipment and materials, stored and installed, against damage from heat, cold and dampness. Take steps necessary to protect Work from adverse conditions.

END OF SECTION 01 73 29

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
1. Statement of Work.
  2. Attachments: The following forms are AIA documents and are proprietary to that organization and shall be used as a SAMPLE only. Obtain permission to use AIA documents or provide similar forms approved by Owner.
    - a. Attachment 01 74 19-A, "Sample Form CWM-1: Construction Waste Management and Disposal," for construction waste identification.
    - b. Attachment 01 74 19-C, "Sample Form CWM-3: Construction Waste Reduction Work Plan," for construction waste reduction work plan.
    - c. Attachment 01 74 19-E, "SAMPLE FORM CWM-5: Cost/Revenue Analysis of Construction Waste Reduction Work Plan," for cost/revenue analysis of construction waste reduction work plan.
    - d. Attachment 01 74 19-G, "SAMPLE FORM CWM-7: Construction Waste Reduction Progress Report," for construction waste.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
1. "Waste Management Plan" as described in this Section.
  2. Affirmative Procurement Program (APP): Requirements include complete compliance with EPA Comprehensive Procurement Guidelines indicated in Executive Order 13423 (Relative to RCRA Section: 6002 Procurement requirements) and Section 6002 of the Resource Conservation and Recovery Act as amended (42 USC and 6962).

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.



- C. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of not less than 30 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable and legal means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials, including, but not limited to, the following:

- 1. Demolition Waste:

- a. Asphalt paving.
- b. Concrete.

- 2. Construction Waste:

- a. Masonry and CMU.
- b. Lumber.
- c. Wood sheet materials.
- d. Wood trim.
- e. Metals.
- f. Roofing.
- g. Insulation.
- h. Piping.
- i. Electrical conduit.
- j. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:
  - 1) Paper.
  - 2) Cardboard.
  - 3) Boxes.
  - 4) Plastic sheet and film.
  - 5) Polystyrene packaging.
  - 6) Wood crates.
  - 7) Plastic pails.

#### 1.5 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 30 days of date established for the Notice to Proceed.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use attached forms (CWM-1 through CWM-8) or other standardized tabulator

formatted system to record and track extent of waste recycling and reduction from the landfill stream. Include the following information:

1. Material category.
  2. Generation point of waste.
  3. Total quantity of waste in tons.
  4. Quantity of waste salvaged, both estimated and actual in tons.
  5. Quantity of waste recycled, both estimated and actual in tons.
  6. Total quantity of waste recovered (salvaged plus recycled) in tons.
  7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Qualification Data:
1. For waste management coordinator.
  - 2.

## 1.7 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Individual with proper State Waste Management Agency permits for waste streams involved in Project Work, having a record of successful waste management coordination of projects with similar requirements and scope.
- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 01 31 00 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
1. Review and discuss waste management plan including responsibilities of waste management coordinator.

2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

## 1.8 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition and construction waste generated by the Work. Use attached forms (CWM-1 through CWM-8) or other standardized tabulator formatted system to identify extent of waste recycling and reduction from the landfill stream. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be, recycled, or disposed of in landfill or incinerator. Use attached forms (CWM-1 through CWM-8) or other standardized tabulator formatted system to record and track extent of waste. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
  1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
  2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
  3. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.
- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Use attached forms (CWM-1 through CWM-8) or other standardized tabulator formatted system to record and track extent of waste. Include the following:
  1. Total quantity of waste.
  2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
  3. Total cost of disposal (with no waste management).
  4. Revenue from recycled materials.
  5. Savings in hauling and tipping fees by donating materials.
  6. Savings in hauling and tipping fees that are avoided.
  7. Handling and transportation costs. Include cost of collection containers for each type of waste.
  8. Net additional cost or net savings from waste management plan.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved Waste Management Plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement Waste Management Plan during the entire duration of the Contract.
  - 1. Comply with operation, termination, and removal requirements in Section 01 50 00 "Temporary Facilities and Controls."
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of Waste Management Work Plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
  - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
  - 2. Distribute waste management plan to entities when they first begin Work on-site. Review plan procedures and locations established for recycling, and disposal.
- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
  - 2. Comply with Section 01 50 00 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.
- E. Waste Management in Historic Zones or Environmentally Sensitive Areas: Exercise special precautions, as covered in Waste Management Plan, for hauling equipment and other materials within historic or environmentally sensitive spaces, areas, rooms and locations.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
  - 1. Recycling Receivers and Processors: For recycling demolition and construction waste; contract with properly and legally operated recycling receivers and processors, as locally available as possible.
- B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor, unless otherwise stated in the Contract.

- C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
  - 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
    - a. Inspect containers and bins for contamination and remove contaminated materials if found.
  - 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
  - 4. Store components off the ground and protect from the weather.
  - 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

### 3.3 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
  - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
  - 2. Polystyrene Packaging: Separate and bag materials.
  - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
  - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

### 3.4 DISPOSAL OF WASTE

- A. General: Except for items or materials to be recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
  - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
  - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3. Dispose of suitable materials per technical specifications and unsuitable materials off of airport property.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

### 3.5 ATTACHMENTS

- A. ATTACHMENT 01 74 19-A, SAMPLE FORM CWM-1: CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. ATTACHMENT 01 74 19-C, SAMPLE FORM CWM-3: CONSTRUCTION WASTE REDUCTION WORK PLAN.
- C. ATTACHMENT 01 74 19-E, SAMPLE FORM CWM-5: COST/REVENUE ANALYSIS OF CONSTRUCTION WASTE REDUCTION WORK PLAN.
- D. ATTACHMENT 01 74 19-G, SAMPLE FORM CWM CWM-7: CONSTRUCTION WASTE REDUCTION PROGTRESS REPORT.

END OF SECTION 01 74 19

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
  - 1. Substantial Completion procedures.
  - 2. Final completion procedures.
  - 3. Warranties.
  - 4. Final cleaning.
  - 5. Repair of the Work.
- B. Related Requirements:
  - 1. Section 01 32 33 "Photographic Documentation" for submitting final completion construction photographic documentation.
  - 2. Section 01 73 00 "Execution" for progress cleaning of Project site.
  - 3. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.
  - 4. Section 01 78 39 "Project Record Deliverables" for submitting record Drawings, record Specifications, and record Product Data.

1.3 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Final Accessibility Compliance Report.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 14 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number where applicable.
  - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owner's signature for receipt of submittals.
5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 14 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
- 2.
3. Perform preventive maintenance on equipment used prior to Substantial Completion.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 14 days prior to date the work will be completed and ready for final inspection and



tests. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner, that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
  2. Results of completed inspection will form the basis of requirements for final completion.
- E. Prepare and submit a Final Accessibility Compliance Report with complete WMATA/FTA accessibility checklists included in the report.
- F. Cleaning and Maintenance of Package G scope and construction areas prior to Substantial Completion of Package G. Cleaning of any adjacent areas affected by the execution of Package G, including Package A façade elements prior to Substantial Completion of Package G.
- G. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

#### 1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Certified List of Incomplete Items: Submit certified copy of D-B Contractor's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by D-B Contractor. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
  2. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Owner will either proceed with inspection or notify Contractor of unfulfilled requirements.
1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

#### 1.8 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order.
  2. Organize items applying to each space by major element, including categories for structure, individual walls, and electrical.
  3. Include the following information at the top of each page:

- a. Project name.
  - b. Date.
  - c. Name of Contractor
  - d. Name of Contractor.
  - e. Page number.
4. Submit list of incomplete items in the following format:
- a. MS Excel electronic file. Owner will return annotated file.
  - b. PDF electronic file. Owner will return annotated file.

#### 1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence.
  1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
  2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
  3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
  4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

### PART 3 - EXECUTION

#### 3.1 TESTING

##### A. Testing Director as an employee of the Contractor:

1. Shall be responsible for:
  - a. Documentation associated with each test.
  - b. Approving test procedures available at the beginning of each test.
  - c. Collection of associated test results data sheet.
    - 1) Testing Director shall record results on test results data sheets as each step in test is completed.
2. Testing Director shall notify appropriate parties of unsuccessful tests. Contractor shall determine causes of failure and proceed accordingly to rectify causes. If required, Testing Director shall repeat test or portions of test, after Contractor has completed corrective actions approved by designer of record. Testing Director shall close discrepancy item upon completion of successful retesting.
3. Testing Director may modify Integrated Test procedures during the test in response to field conditions.
4. Testing Director shall prepare test report including test documentation and note discrepancies observed during test.
5. Testing Procedures:
  - a. At beginning of each subsystem test, Test Director shall gather test personnel and witnesses together and begin each test with a safety briefing.
  - b. Test Director shall then verbalize test description, test objectives, identity of persons conducting test and roles of those persons.
  - c. At conclusions of test periods, Testing Director shall debrief personnel on status of tests. Include in debriefing :
    - 1) Overall summary of accomplishments of testing.
    - 2) Note discrepancies and planned retesting.
    - 3) Present planned retests and further actions required.

#### 3.2 CLEANING AND MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION

- A. General: Contractor shall at all times keep the construction area, including storage and work areas used by Contractor, free from accumulations of waste material and rubbish whether created by Contractor, the community or wind-born. Prior to Substantial Completion, remove any rubbish from the premises and all tools, scaffolding, equipment and materials which are not property of Owner.

- B. Provide proposed Cleaning Materials and Chemical Schedule for review by Owner. Prior to turnover to Owner, remove from area all tools, surplus materials, equipment, scrap, debris and waste. If Work continues in the substantially completed area, continue cleaning specified in this Section.
  - 1. Use only cleaning materials and equipment which are compatible with surface being cleaned as recommended by manufacture of material.
  - 2. Replace surfaces damaged from improper use of material and/or cleaning methods.
  - 3. Maintenance of equipment shall be performed in accordance with manufacturer's recommended practices and with approved renewal parts, supplies and materials.

### 3.3 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
  - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
    - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    - b. Clean BMP/SWM facilities and storm sewers of rubbish, waste material, litter, silt deposited during construction and other foreign substances.
    - c. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    - d. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
    - e. Remove tools, construction equipment, machinery, and surplus material from Project site.
    - f. Remove snow and ice to provide safe access to building.
    - g. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    - h. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, and similar spaces.
    - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
    - j. Remove labels that are not permanent.
    - k. Clean all surfaces of louvers and structure.
    - l. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
    - m. Leave Project clean and ready for occupancy.

- C. Pest Control: Comply with pest control requirements in Section 01 50 00 "Temporary Facilities and Controls." Prepare written report.
- D. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 74 19.

### 3.4 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
  - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
  - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
    - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
  - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
  - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. This list is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
  - 1. Statement of Work.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
  - 1. Operation and maintenance documentation directory.
  - 2. Product maintenance manuals.
  - 3. Systems maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual Specification Sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
  - 1. Owner's Representative and WMATA will comment on whether content of operations and maintenance submittals are acceptable.
  - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:
  - 1. PDF electronic file. Assemble each manual into a composite electronically indexed file. Submit on digital media acceptable to Owner's Representative.

- a. Name each indexed document file in composite electronic index with applicable item name. Include a complete electronically linked operation and maintenance directory.
  - b. Enable inserted reviewer comments on draft submittals.
2. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages, and directories in clear plastic sleeves. Owner's Representative will return two copies.
- C. Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Owner's Representative and WMATA will return copy with comments.
1. Correct or revise each manual to comply with Owner's Representative and WMATA comments. Submit copies of each corrected manual within 15 days of receipt of Owner's Representative and WMATA comments and prior to commencing demonstration and training.

## PART 2 - PRODUCTS

### 2.1 OPERATION AND MAINTENANCE MANUALS – GENERAL

- A. In accordance with the Contract Documents, the Contractor shall prepare and submit for the Owner's acceptance a complete set of Operating and Maintenance Manuals covering the detailed operating procedures for all systems and components included in the Contractor's scope for the Project.
- B. Maintenance manuals shall be provided for all elements included in the Contractor's scope for the Project. These manuals shall provide detailed procedures and reference data for performing all of the required maintenance tasks. The manuals shall include expanded assembly pictorials and complete instructions for assembly and disassembly, as required.

### 2.2 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Product Information: Include the following, as applicable:
  1. Product name and model number.
  2. Manufacturer's name.

3. Color, pattern, and texture.
  4. Material and chemical composition.
  5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
  2. Types of cleaning agents to be used and methods of cleaning.
  3. List of cleaning agents and methods of cleaning detrimental to product.
  4. Schedule for routine cleaning and maintenance.
  5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.
- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

## PART 3 - EXECUTION

### 3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to product and maintenance manuals.
- B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
  1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.



- D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
1. Do not use original project record documents as part of operation and maintenance manuals.
  2. Comply with requirements of newly prepared record Drawings in Section 01 78 39 "Project Record Documents."

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DELIVERABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section. The list below is provided for convenience and is not intended to exclude or supersede any portion of the Contract Documents:
1. Statement of Work.
  2. Commonwealth of Virginia “Construction and Professional Services Manual—2012” (CPSM).
  3. Section 01 32 10 – “Design and Construction Progress Documentation.”
  4. Section 01 33 00 – “Submittals.”

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for retention and turnover of project record documents, including the following:
1. Record Drawings.
  2. Record Specifications.
  3. Miscellaneous Record Submittals.
- B. Contractor is responsible for maintaining records of all contract-related documents, in accordance with Construction and Professional Services Manual. Contractor shall prepare and submit a Records Retention Procedure for review and approval, to address the turnover of all contract-related records, to include those addressed in this Section.
- C. While this Section specifies "end of project" Record Documents, the Contractor is responsible for maintaining up-to-date Drawings, Specifications, calculations, quality and testing documentation, and other contract-related documents during the execution of the Work. These documents shall be available to the Airports Authority at all times during the life of this Contract. Refer to Section 01 32 10 "Design and Construction Progress Documentation."

1.3 SUBMITTALS

- A. Record Drawings. Comply with the following:
1. Submit hard copies of Record Drawings as follows:
    - a. Initial Submittal: Submit one hard copy of complete, full-sized, Record Drawings, reflecting the final, as-built configuration of the Project, which shall include all

delegated design work, permanent structures, approved field changes to original design, and construction details deemed necessary to operate and maintain the Project. Further changes to drawings are not to occur until after Owner has approved the Initial Submittal of Record Drawings. Owner will review Initial Submittal and indicate whether the Record Drawings are acceptable. Owner will return review comments indicating any corrections that need to be made to Drawings. Corrected Record Drawings shall then be reproduced, and organized into sets, printed, bound, and submitted as final submittal.

- b. Final Submittal: Submit six complete, full-sized, printed sets of Record Drawings. Include each sheet from Initial Submittal, whether or not changes and additional information were recorded. Revisions to Initial Submittal shall be clearly indicated.

2. Submit electronic set of Record Drawings as follows:

- a. Initial Submittal: Simultaneously with the hard copy Initial Submittals, submit one electronic set of Record Drawings. Include CADD and Adobe PDF format on media approved by Owner. Further changes to record drawing files are not to occur until after Owner has approved the Initial Submittal of Record Drawings. Owner will review the submittal for conformance to CADD standards and indicate whether the submittal is acceptable. Owner will return review comments indicating any corrections that need to be made. Corrected electronic files shall then be organized and submitted as final submittal.
- b. Final Submittal: After incorporation of Owner comments, submit the final version of electronic files (in CADD and Adobe PDF format) for Record Drawings on media approved by Owner. Include each file from the Initial Submittal whether or not changes and additional information were recorded.

B. Record Specifications: Submit two copies of final Project Record Specifications, reflecting as-built configuration of Project.

C. Record Samples: Submit Record Samples as specified.

## PART 2 - PRODUCTS

### 2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of hard copies of the relevant approved Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued. Approved changes shall be incorporated in a timely manner, in accordance with Contractor's approved design change procedure, and as requested by Owner. Hard copies of approved changes pending incorporation into Contract documents shall be maintained with each set of Record Prints.

1. Preparation: Prepare change documents for incorporation into record prints to document approved variation in the actual installation where installation varies from that shown originally, or where not included in design documents. Require individual or entity

performing the Work, whether installer, subcontractor, or similar entity, to provide relevant information for preparation of corresponding record prints.

- a. Obtain information on concealed elements prior to enclosure of the area that would prevent later data collection.
  - b. Accurately record information using industry accepted drawing standards.
2. Content: Types of items requiring incorporation into Record Drawings include, but are not limited to, the following:
- a. Approved dimensional or configuration changes to Drawings.
  - b. Approved field revisions to details shown on Drawings.
  - c. Locations and depths of underground utilities.
  - d. Details not on the approved Contract Drawings.
  - e. Record information on the Work that is shown only schematically.
  - f. Structural penetrations and conduit arrangements/assignments.
3. Indicate revisions to the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of change documents.
4. Mark important additional information that was either shown schematically or omitted from original Drawings.
5. Note Change Document numbers, alternate reference numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Record digital data files shall incorporate changes and additional information previously collected and pending incorporation into record prints. Delete, redraw, and add details and notations where applicable or necessary.
1. Format for Digital Data Files shall be in Adobe PDF and the same as the native digital software program, version, and operating system as the original Contract Drawings or data.
  2. Approved Contract Drawings and Shop Drawings (to include delegated design drawings) shall be converted where necessary to comply with WMATA CAD Standards Manual.
  3. Provide the list of Sheet Files, Cross Reference Files, CADD Layers, and other pertinent information necessary to recreate the Contract Drawings or data from the provided files.
- C. Newly Prepared Record Drawings: Prepare new Record Drawings instead of revising existing drawings where it is determined that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
- D. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared Record Drawings into logical and manageable sets as agreed with Owner. Bind each set with durable paper cover sheets. Include identification on cover sheets.
  2. Format: Electronic sets shall be in an annotated PDF electronic file with searchable index and bookmarks, and comment function enabled. Hard copy sets shall be full size prints with wet signature of Registered Design Professional.

3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file. Either bind the individual sheets or recreate the directory structure such that drawing references remain intact.
4. Identification: As follows:
  - a. Project name.
  - b. Date.
  - c. Designation "PROJECT RECORD DRAWINGS."
  - d. Name of Registered Design Professional.
  - e. Name of Contractor.

## 2.2 RECORD SPECIFICATIONS

- A. Preparation: Periodically update Specifications to indicate the actual product installations where approved and where installation varies from that indicated in Specifications. Updates shall occur in a timely manner in accordance with Contractor's approved design change procedure, and as requested by Owner.
  1. Update Specifications to reflect the proprietary name and model number of products, materials, and equipment furnished, including approved substitutions and product options selected.
  2. Include the name of manufacturer, supplier, installer, and other information necessary to provide a record of selections made.
- B. Format: Submit record Specifications in native file format and as PDF electronic file(s).

## 2.3 RECORD PRODUCT DATA

- A. Preparation: Record approved deviations to Product Data to indicate the actual product installation where installation varies substantially from that indicated in approved Product Data submittal.
  1. Obtain approval to product changes prior to installation. Include significant changes in the product and changes in manufacturer's written instructions for installation.
  2. Note related Change Orders, Record Specifications, and Record Drawings, where applicable.
  3. Ensure updated product data is reflected in operating and maintenance manuals, specifications, and Record Drawings.
- B. Format. Submit Record Product Data as a compiled PDF electronic file(s) of updated Product Data.
  1. Include a Record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Contract and Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as scanned PDF electronic file(s), and native format files.
  - 1. Include a miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals
  - 2. Prepare submittals in a logical and easily referenced manner that supports project closeout and turnover.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur.
- B. Maintenance of Record Documents: Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Owner's reference during normal working hours.

END OF SECTION 01 78 39