



VOLUME I OF III



MIAMI-DADE AVIATION DEPARTMENT

MIAMI-DADE COUNTY

Daniella Levine Cava
Mayor

Board of County Commissioners

Anthony Rodriguez *Chairman*

Kionne L. McGhee
Vice-Chairman

Oliver G. Gilbert, III
DISTRICT 1
Marleine Bastien
DISTRICT 2
Keon Hardemon
DISTRICT 3
Micky Steinberg
DISTRICT 4
Eileen Higgins
DISTRICT 5

Kevin M. Cabrera
DISTRICT 6
Raquel A. Regalado
DISTRICT 7
Danielle Cohen Higgins
DISTRICT 8
Kionne L. McGhee
DISTRICT 9

Anthony Rodriguez
DISTRICT 10
Roberto J. Gonzalez
DISTRICT 11
Juan Carlos Bermudez
DISTRICT 12
René Garcia
DISTRICT 13

Geri Bonzon-Keenan
County Attorney

Ralph Cutié
Aviation Director

**DIVISION 1 AND COMMISSIONING STANDARD
TECHNICAL SPECIFICATIONS**

BID No. W125A

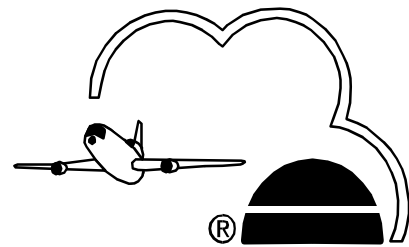
Bid Title: TMB Taxiway C East Extension

CONTACT FOR THIS SOLICITATION:

Rose Sanon
Aviation Senior Procurement Contracting Officer
4200 NW 36 Street, Miami, Florida 33166
Telephone: (305) 869-1596
E-mail: rsanon@flyMIA.com

VOLUME 1 DIVISION 1 AND COMMISSIONING STANDARD TECHNICAL SPECIFICATIONS

MIAMI - DADE AVIATION DEPARTMENT



MIAMI INTERNATIONAL AIRPORT

**MDAD STANDARD TECHNICAL SPECIFICATIONS
DIVISION 1**

**SECTION 010020
TABLE OF CONTENTS**

Section Number	Section Name	Current Issue Date
010010	Cover Page	07/21
010020	Table of Contents	07/21
010040	List of Drawings	07/21
011000	Summary of Work	07/21
011200	Multiple Contract Summary	07/21
011210	Hot Work Operations	07/21
011210-01	Hot Work	07/21
011210-02	Hot Work Permit Form	07/21
012100	Allowances	07/21
012200	Unit Prices	07/21
012500	Substitution Procedures	07/21
012600	Contract Modification Procedures	07/21
012900	Payment Procedures	07/21
012973	Schedule of Values	07/21
013100	Project Management and Coordination	07/21
013113	Coordination	07/21
013119	Project Meetings	07/21
013216	Construction Schedules	07/21
013216-02	Time Impact Analysis Summary Sheet (TIA)	07/21
013216-04	Construction Schedules (Computerized CPM Format) Unit Price Contracts	07/21
013216-05	Time Impact Analysis Summary Sheet (TIA)	07/21
013216-06	Construction Scheduling Management System	07/21
013233	Photographic Documentation	07/21
013300	Submittals	07/21
013323	Shop Drawings, Product Data and Samples	07/21
013516	Alteration Project Procedures	07/21
014000	Contract Quality Control	07/21
014101	Posting of Notices	07/21
014103	Existing Utilities	07/21
014103-01	Underground Utilities Clearance	07/21
014200	Reference Standards	07/21
014529	Project Testing Laboratory Services	07/21
015000	Temporary Facilities and Controls	07/21
015060	Contractor Overhead	07/21
015113	Temporary Electricity	07/21
015126	Temporary Lighting	07/21
015219	Temporary Sanitary Facilities	07/21
015500	Contractor's Access and Employees' Parking	07/21
015600	Barriers and Enclosures	07/21

Section Number	Section Name	Current Issue Date
015610	Dewatering Permits	07/21
015640	Soil Excavation Procedures	07/21
015700	Maintenance of Aircraft Operating Area Traffic	07/21
015710	Maintenance of Airport Landside Traffic	07/21
015719	Handling of Incidental Fuel Spillage During Construction	07/21
015800	Construction Identification Signs	07/21
016000	Material and Equipment	07/21
017123	Surveying and Field Engineering	07/21
017133	Protection of Work and Property	07/21
017300	Execution	07/21
017329	Cutting and Patching	07/21
017413	Construction Cleaning	07/21
017419	Construction Waste Management	07/21
017423	Final Cleaning	07/21
017500	Measurement of Quantities	07/21
017700	Contract Closeout Procedures	07/21
017823	Operation and Maintenance Data	07/21
017836	Warranties and Guarantees	07/21
017839	Project Record Documents	07/21
017839-13	Communication Equipment and Devices Data Sheets	07/21
019113	Commissioning Requirements	07/21

NEW COMMISSIONING TECHNICAL SPECIFICATIONS SECTIONS

02996	Sitework Commissioning	03/02
13996	Special Construction Commissioning	03/02
13997	Special Construction Prefunctional Checklists	03/02
16996	Electrical Systems Commissioning	03/02
16997-02	Prefunctional Test Checklist – Switchgear, Switchboards, etc.	03/02

END OF SECTION

SECTION 010040
LIST OF DRAWINGS

<u>Drawing Number</u>	<u>Description</u>
G-001	COVER SHEET
G-002	DRAWING INDEX
G-003	SIGNATURE SHEET
G-004	SIGNATURE SHEET
G-005	SUMMARY OF QUANTITIES
G-006	GENERAL NOTES, LEGEND, AND ABBREVIATIONS
G-101	PROJECT AREA PLAN
G-102	HEIGHT RESTRICTION PLAN
G-201	STAGING AND ACCESS PLAN
G-202	STAGING AND ACCESS PLAN
G-301	SAFETY AREA PLAN
G-400A	PHASING SCHEDULE
G-400B	PHASING SCHEUDLE
G-401	OVERALL CONSTRUCTION PHASING PLAN
G-402	OVERALL CONSTRUCTION PHASING NOTES
G-403	CONSTRUCTION PHASE 1 PLAN
G-403A	CONSTRUCTION PHASE 1 PLAN ENHANCED
G-403B	PHASE 1 TEMPORARY LIGHTING PLAN
G-404	CONSTRUCTION PHASE 2A PLAN
G-405	CONSTRUCTION PHASE 2 PLAN
G-405B	PHASE 2 TEMPORARY LIGHTING PLAN
G-406	CONSTRUCTION PHASE 2B PLAN
G-407	CONSTRUCTION PHASE 3 PLAN
G-407A	CONSTRUCTION PHASE 3 PLAN ENHANCED
G-407B	PHASE 3 TEMPORARY LIGHTING PLAN - 1
G-407C	PHASE 3 TEMPORARY LIGHTING PLAN - 2
G-408	CONSTRUCTION PHASE 4 PLAN
G-408B	PHASE 4 TEMPORARY LIGHTING PLAN
G-409	CONSTRUCTION PHASE 5 PLAN
G-409B	PHASE 5 TEMPORARY LIGHTING PLAN
G-410	CONSTRUCTION SUB-PHASE 5A PLAN
G-410B	PHASE 5A TEMPORARY LIGHTING PLAN
G-411	CONSTRUCTION SUB-PHASE 5B PLAN
G-412	CONSTRUCTION SUB-PHASE 5C PLAN
G-413	CONSTRUCTION SUB-PHASE 5D PLAN
G-414	CONSTRUCTION PHASE 6 PLAN
G-415	LANDSIDE MOT PLAN
G-501	SAFETY AND SECURITY NOTES

G-502	SAFETY AND SECURITY DETAILS
G-503	SAFETY AND SECURITY DETAILS
C-101	GEOMETRIC CONTROL PLAN
C-110	OVERALL STORMWATER POLLUTION PREVENTION PLAN
C-111	STORMWATER POLLUTION PREVENTION PLAN
C-112	STORMWATER POLLUTION PREVENTION PLAN
C-113	STORMWATER POLLUTION PREVENTION PLAN
C-114	STORMWATER POLLUTION PREVENTION PLAN
C-115	STORMWATER POLLUTION PREVENTION PLAN
C-116	STORMWATER POLLUTION PREVENTION NOTES AND DETAILS
C-121	OVERALL DRAINAGE DEMOLITION PLAN
C-122	DRAINAGE DEMOLITION PLAN
C-123	DRAINAGE DEMOLITION PLAN
C-124	DRAINAGE DEMOLITION PLAN
C-125	DRAINAGE DEMOLITION PLAN
C-200	PAVEMENT DEMOLITION PLAN
C-201	PAVEMENT DEMOLITION PLAN
C-202	PAVEMENT DEMOLITION PLAN
C-203	PAVEMENT DEMOLITION PLAN
C-204	PAVEMENT DEMOLITION PLAN
C-205	PAVEMENT DEMOLITION PLAN
C-206	PAVEMENT DEMOLITION GEOMETRIC POINT TABLES
C-301	GEOMETRY PLAN
C-302	GEOMETRY PLAN
C-303	GEOMETRY PLAN
C-304	GEOMETRY PLAN
C-305	GEOMETRY GEOMETRIC POINT TABLES
C-310	TYPICAL SECTION AND PAVING DETAILS
C-311	TYPICAL SECTION AND PAVING DETAILS
C-312	TYPICAL SECTION AND PAVING DETAILS
C-313	TYPICAL SECTION AND PAVING DETAILS
C-400	OVERALL DRAINAGE PLAN
C-401	DRAINAGE PLAN
C-402	DRAINAGE PLAN
C-403	DRAINAGE PLAN
C-404	DRAINAGE PLAN
C-405	SUMMARY OF DRAINAGE STRUCTURES
C-411	DRAINAGE PROFILES
C-412	DRAINAGE PROFILES
C-413	DRAINAGE PROFILES
C-414	DRAINAGE PROFILES
C-415	DRAINAGE PROFILES
C-416	DRAINAGE PROFILES

C-417	DRAINAGE PROFILES
C-418	DRAINAGE PROFILES
C-421	DRAINAGE DETAILS
C-422	DRAINAGE DETAILS
C-501	GRADING PLAN & PROFILE TWY C
C-502	GRADING PLAN & PROFILE TWY C
C-503	GRADING PLAN & PROFILE TWY C
C-504	GRADING PLAN & PROFILE TWY C
C-505	GRADING PLAN & PROFILE TWY D
C-506	GRADING PLAN & PROFILE TWY D
C-507	GRADING PLAN & PROFILE TWY D
C-508	GRADING PLAN & PROFILE TWY D
C-509	GRADING PLAN & PROFILE ACCESS ROAD
C-510	GRADING PROFILES- TAXIWAY CONNECTORS
C-511	GRADING PROFILES- TAXIWAY CONNECTORS
C-512	GRADING PROFILES- TRENCH DRAIN
C-601	PAVEMENT ELEVATION PLAN
C-602	PAVEMENT ELEVATION PLAN
C-603	PAVEMENT ELEVATION PLAN
C-604	PAVEMENT ELEVATION PLAN
C-605	PAVEMENT ELEVATION PLAN
C-606	PAVEMENT ELEVATION PLAN
C-607	PAVEMENT ELEVATION PLAN
C-608	PAVEMENT ELEVATION PLAN
C-609	PAVEMENT ELEVATION PLAN
C-701	CROSS SECTION PLAN VIEW
C-702	CROSS SECTION PLAN VIEW
C-703	CROSS SECTION PLAN VIEW
C-704	CROSS SECTION PLAN VIEW
C-800	PAVEMENT MARKING PLAN
C-801	PAVEMENT MARKING PLAN
C-802	PAVEMENT MARKING PLAN
C-803	PAVEMENT MARKING PLAN
C-804	PAVEMENT MARKING PLAN
C-805	PAVEMENT MARKING GEOMETRIC POINT TABLES
C-806	PAVEMENT MARKING GEOMETRIC POINT TABLES
C-811	PAVEMENT MARKING DETAILS
C-812	PAVEMENT MARKING DETAILS
C-813	PAVEMENT MARKING DETAILS
S-101	TRENCH DRAIN DETAILS
S-102	OIL WATER SEPERATOR DETAIL
S-103	DRAINAGE STRUCTURE DETAILS
E-001	ELECTRICAL NOTES AND ABBREVIATIONS

E-002	EXISTING VAULT PLAN
E-100	PARTIAL DUCTBANK AIRFIELD LIGHTING POWER PLAN
E-101	ELECTRICAL DEMOLITION PLAN
E-102	ELECTRICAL DEMOLITION PLAN
E-103	ELECTRICAL DEMOLITION PLAN
E-104	ELECTRICAL DEMOLITION PLAN
E-201	LIGHTING LAYOUT PLAN
E-202	LIGHTING LAYOUT PLAN
E-203	LIGHTING LAYOUT PLAN
E-204	LIGHTING LAYOUT PLAN
E-240	GUIDANCE SIGN PLANS
E-241	GUIDANCE SIGN PLANS
E-242	GUIDANCE SIGN PLANS
E-243	GUIDANCE SIGN PLANS
E-244	SIGN SCHEDULE
E-301	LIGHTING CIRCUITRY LAYOUT
E-302	LIGHTING CIRCUITRY LAYOUT
E-303	LIGHTING CIRCUITRY LAYOUT
E-304	LIGHTING CIRCUITRY LAYOUT
E-401	ELECTRICAL DETAILS - 1
E-402	ELECTRICAL DETAILS - 2
E-403	ELECTRICAL DETAILS - 3
E-404	ELECTRICAL DETAILS - 4
E-405	ELECTRICAL DETAILS - 5
E-406	ELECTRICAL DETAILS - 6
E-500	ALCMS TOUCHSCREEN GRAPHIC
T-100	CCTV CAMERA PLANS
T-101	OIL WATER SEPARATOR POWER PLANS
T-102	OIL WATER SEPERATOR POWER ENHANCED
T-400	FIBER ONE LINE DIAGRAMS
T-401	MDFR AIR RESCUE 24 WIRING DIAGRAMS
T-402	MDAD ADMINISTRATION BUILDING WIRING DIAGRAMS
T-403	FAA TOWER WIRING DIAGRAMS
T-404	CABINET WIRING DIAGRAMS
T-405	CABINET WIRING DIAGRAMS
T-406	CABINET WIRING DIAGRAMS
T-407	PROPOSED GROUND MOUNTED CCTV CABINET DETAIL
T-408	CCTV MOUNTING DETAILS
T-409	TRENCHING DETAILS
T-410	PULL BOX DETAILS
T-411	OIL WATER SEPARATOR DETAILS
X-101	CROSS SECTIONS - TAXIWAY C
X-102	CROSS SECTIONS - TAXIWAY C

X-103	CROSS SECTIONS - TAXIWAY C
X-104	CROSS SECTIONS - TAXIWAY C
X-105	CROSS SECTIONS - TAXIWAY C
X-106	CROSS SECTIONS - TAXIWAY C
X-107	CROSS SECTIONS - TAXIWAY C
X-108	CROSS SECTIONS - TAXIWAY C
X-109	CROSS SECTIONS - TAXIWAY C
X-110	CROSS SECTIONS - TAXIWAY C
X-111	CROSS SECTIONS - TAXIWAY C
X-112	CROSS SECTIONS - TAXIWAY C
X-113	CROSS SECTIONS - TAXIWAY C
X-114	CROSS SECTIONS - TAXIWAY C
X-115	CROSS SECTIONS - TAXIWAY C
X-116	CROSS SECTIONS - TAXIWAY C
X-117	CROSS SECTIONS - TAXIWAY C
X-118	CROSS SECTIONS - TAXIWAY C
X-119	CROSS SECTIONS - TAXIWAY C
X-120	CROSS SECTIONS - TAXIWAY C
X-121	CROSS SECTIONS - TAXIWAY C
X-122	CROSS SECTIONS - TAXIWAY C
X-123	CROSS SECTIONS - TAXIWAY C
X-124	CROSS SECTIONS - TAXIWAY C
X-125	CROSS SECTIONS - TAXIWAY C
X-126	CROSS SECTIONS - TAXIWAY C
X-127	CROSS SECTIONS - TAXIWAY C
X-128	CROSS SECTIONS - TAXIWAY C
X-129	CROSS SECTIONS - TAXIWAY C
X-130	CROSS SECTIONS - TAXIWAY C
X-131	CROSS SECTIONS - TAXIWAY C
X-132	CROSS SECTIONS - TAXIWAY C
X-133	CROSS SECTIONS - TAXIWAY C
X-134	CROSS SECTIONS - TAXIWAY C
X-135	CROSS SECTIONS - TAXIWAY C
X-136	CROSS SECTIONS - TAXIWAY C
X-137	CROSS SECTIONS - TAXIWAY C
X-138	CROSS SECTIONS - TAXIWAY C
X-139	CROSS SECTIONS - TAXIWAY C
X-140	CROSS SECTIONS - TAXIWAY C
X-141	CROSS SECTIONS - TAXIWAY C
X-142	CROSS SECTIONS - TAXIWAY C
X-143	CROSS SECTIONS - TAXIWAY C
X-144	CROSS SECTIONS - TAXIWAY C
X-145	CROSS SECTIONS - TAXIWAY C

X-146	CROSS SECTIONS - TAXIWAY C9
X-147	CROSS SECTIONS- TAXIWAY D7
X-148	CROSS SECTIONS- TAXIWAY D7
X-149	CROSS SECTIONS- ACCESS ROAD
X-150	CROSS SECTIONS- ACCESS ROAD
V-100	TOPOGRAPHIC SURVEY COVER SHEET
V-101	TOPOGRAPHIC SURVEY
V-102	TOPOGRAPHIC SURVEY
V-103	TOPOGRAPHIC SURVEY
V-104	TOPOGRAPHIC SURVEY

END OF SECTION

SECTION 011000
SUMMARY OF WORK

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

Title of Work, and type of Contract.

Project information.

Work covered by Contract Documents.

Phased construction.

Work by MDAD.

Work under separate contracts.

Future work.

Purchase contracts.

MDAD-furnished products.

Contractor-furnished, MDAD-installed products.

Access to site.

Coordination with occupants/tenants.

Work restrictions.

Specification and Drawing conventions.

Miscellaneous provisions.

1.02 RELATED REQUIREMENTS

- A. Advertisement for Bids
- B. Instructions to Bidders.
- C. Bid Forms
- D. General Conditions
- E. Special Provisions
- F. Technical Specifications

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. Work of this Contract comprises **general construction** of Taxiway C extension to the east located at Miami Executive Airport (TMB) for Miami Dade Aviation Department, MDAD.

1.04 CONTRACT METHOD

A. Construct the Work under **unit and lump sum prices** contract.

1.05 WORK BY OTHERS

A. Work of the Project which will be executed by others is designated N.I.C. on the Plans.

1.06 FUTURE WORK

Ensure that Work avoids encroachment into area required for future work.

1.07 WORK SEQUENCE

C. Construct Work in phases to provide for continuous public usage. Do not close off public usage of facilities until one stage of Work will provide alternate usage.

D. Required phases:

1. Phase 1
2. Phase 2A: Prior phase must be complete and open to air traffic prior to mobilizing into this phase. Phase 2: Phase 2A must be complete and open to air traffic prior to mobilizing into this phase.
3. Phase 2B: Contractor must complete the Phase 2A and open to air traffic prior to mobilizing into this phase. This phase shall be done wholly within Phase 2.
4. Phase 3: Prior phase must be complete and open to air traffic prior to mobilizing into this phase.
5. Phase 4: Prior phase must be complete and open to air traffic prior to mobilizing into this phase.
6. Phase 5: Prior phase must be complete and open to air traffic prior to mobilizing into this phase.
7. Phase 5A: Contractor shall mobilize to this phase wholly within Phase 5. Phases 5A through 5D take place within the overall duration of this phase.
8. Phase 5B: Contractor must complete the previous sub-phase and open to air traffic prior to mobilizing into this phase. This phase shall be done wholly within Phase 5. This phase is night work only and Contractor is expected to open the area to air traffic at the end of each work shift.
9. Phase 5C: Contractor must complete the previous sub-phase and open to air traffic prior to mobilizing into this phase. This phase shall be done wholly within Phase 5. This phase is night work only and Contractor is expected to open the area to air traffic at the end of each work shift.
10. Phase 5D: Contractor must complete the previous sub-phase and open to air traffic prior to mobilizing into this phase. This phase shall be done wholly within Phase 5. This phase is night work only and Contractor is expected to open the area to air traffic at the end of each work shift.
11. Phase 6: Prior phase must be complete and open to air traffic prior to mobilizing into this phase.

1.08 CONTRACTOR USE OF PREMISES

A. The MDAD shall have the right of unlimited access to the premises.

B. Contractor shall limit use of premises for Work, or storage, and for access, to allow:

1. MDAD/tenant occupancy
2. Work by other contractors.
3. Public usage.
4. Stockpiling

- C. Coordinate use of premises under direction of MDAD.
- D. Assume full responsibility for protection and safekeeping of project under this Contract.
- E. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.09 MDAD OCCUPANCY

- A. MDAD/tenant will occupy premises during entire construction period for conduct of its normal operations. Cooperate with MDAD in scheduling operations to minimize conflict and to facilitate MDAD usage.
 - 1. Aircrafts will not have access to areas closed to air traffic. Critical phases do require Contractor to provide flaggers to clear men and equipment for the safety area for large aircrafts to taxi along adjacent taxiways.

1.10 PARTIAL MDAD OCCUPANCY

- A. Schedule and substantially complete designated portions of Work for MDAD occupancy prior to Substantial Completion of entire Work:

Each phase shall have its own substantial completion walkthrough prior to opening the area to air traffic. This should be coordinate with MDAD Construction Project Manager.

- B. Execute Certificate of Substantial Completion for each designated portion of Work prior to MDAD occupancy. Contractor shall allow:
 - 1. Access for MDAD personnel.
 - 2. Use of parking facilities.
 - 3. Operation of HVAC and electrical systems.
 - 4. Access of pavement constructed within the phase limits to air traffic.

1.11 MDAD FURNISHED DOCUMENTS

- A. MDAD Responsibilities:
 - 1. Furnish Contractor with three copies of the black line Plans, and three copies of the Project Manual. Additional copies will be made available to the Contractor at the cost of reproduction.

1.12 MDAD FURNISHED PRODUCTS

- A. MDAD Responsibilities:
 - 1. Arrange for delivery of shop drawings, product data, samples, manufacturer's instructions, and certificates to Contractor.
 - 2. Deliver supplier's bill of materials to Contractor.
 - 3. Arrange and pay for delivery to site in accordance with Progress Schedule.
 - 4. Inspect deliveries jointly with Contractor.
 - 5. Submit claims for transportation damage.
 - 6. Arrange for replacement of damaged, defective or missing items.
 - 7. Arrange manufacturer's field services; arrange for and deliver manufacturer's warranties and bonds to Contractor.
- B. Contractor Responsibilities:
 - 1. Designate submittals and delivery date for each product in Progress Schedule.

2. Review shop drawings, project data, samples, and other submittals. Submit to Consultant with notification of any observed discrepancies or problems anticipated due to non-conformance with Contract Documents.
3. Pick-up MDAD furnished products at a location to be coordinated during construction kick-off meeting located within Dade County.
4. Receive and unload products at site.
5. Inspect deliveries jointly with MDAD, record shortages and damaged or defective items.
6. Provide a detailed signed receipt, signed by a MDAD authorized representative, for received items.
7. Handle products at site, including uncrating and storage.
8. Protect products from damage and from exposure to elements.
9. Assemble, install, connect, adjust, and finish project.
10. Provide installation inspections required by public authorities.
11. Repair or replace items damaged by Contractor.

C. Schedule of MDAD-furnished items:

1. Section _____ - _____.
2. Section _____ - _____.

1.13 REQUIRED PERMITS

Listed below are the permits required under this Contract:

- A. Miami-Dade County Department of Regulatory and Economic Resources (R.E.R.)
- B. Miami-Dade County Department of Public Works
- C. Miami-Dade County WASA
- D. U.S. EPA
- E. U.S. COE
- F. SFWMD
- G. Florida DEP
- H. Miami-Dade County DERM
- I. MDAD Hot Work Permit

1.14 AUTHORIZATION TO PULL A PERMIT

- A. The MDAD, at its option, may authorize the Contractor to pull the Building Permit from the Planning, Development, and Regulation Department, prior to the Notice to Proceed.
- B. A copy of the Authorization to Pull a Permit form is appended to this Section.

1.15 MODIFICATIONS TO INSTRUCTIONS TO BIDDERS AND GENERAL CONDITIONS

- A. Delete Article 14.04 of the Instructions to Bidders (Re: Preference for local business competing for County Contracts).

1.16 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work in the existing building to hours and days shown in the contract documents.

1. Weekend Hours: As allowed by TMB Airport Operations.

2. Hours for Utility Shutdowns: As shown in the contract documents.

C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to MDAD occupancy with MDAD.

1. Notify **Construction Manager** not less than **two** days in advance of proposed disruptive operations.

2. Obtain **Construction Manager's** written permission before proceeding with disruptive operations.

D. Restricted Substances: Use of tobacco products and other controlled substances **on Project site** is not permitted.

1.17 MISCELLANEOUS PROVISIONS

A. Not used.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 - PAYMENT

Unless otherwise specified, the cost of work specified in the various sections of Division 1, will not be paid for separately but the cost therefor shall be considered incidental to and included in the bid prices of the various Contract items.

APPENDIX: Authorization to Pull a Permit Form

END OF SECTION

MIAMI-DADE AVIATION DEPARTMENT

AUTHORIZATION TO PULL A PERMIT

Date: _____

Contract: _____ (Title)

Contract No.: _____

To: _____
(Contractor Name)

(Address)

You are hereby authorized to pull the required Building Permit from the Miami-Dade County Planning, Development, and Regulation Department. Enclosed is a check issued to the Miami-Dade County Planning, Development, and Regulation Department in the amount of \$ _____ representing the required permit fee.

NOTE: This Authorization to Pull a Permit IS NOT a Notice-to-Proceed.

Authorized by: _____
(Assistant Director for Facilities)

SECTION 011200
MULTIPLE CONTRACT SUMMARY

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Section includes a summary of each contract, including responsibilities for coordination and temporary facilities and controls.
- B. Specific requirements for Work of each contract are also indicated in individual Specification Sections and on Drawings.

1.2 RELATED REQUIREMENTS

Section 011000 - Summary for the Work covered by the Contract Documents, restrictions on use of Project site, **phased construction**, coordination with occupants, and work restrictions.
Section 013100 - Coordination for general coordination requirements.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, the condition at which roofing is insulated and weathertight; exterior walls are insulated and weathertight; and openings are closed with permanent construction or substantial temporary closures equivalent in weather protection to permanent construction.

~~1.4 PROJECT COORDINATOR~~

- ~~A. Project coordinator shall be responsible for coordination between the **General Construction Contract**] [**Plumbing Contract**] [**HVAC Contract**] [**Electrical Contract**] [**and**] ~~Insert name of contract~~.~~

- ~~B. [**Mechanical/electrical**] ~~Insert name~~ coordinator, who shall be under the direction of Project coordinator, shall be responsible for coordination between the [**Plumbing Contract**] [**HVAC Contract**] [**Electrical Contract**] [**and**] ~~Insert name of contract~~.~~

- ~~1. [**HVAC Contractor**] [**Electrical Contractor**] [**Plumbing Contractor**] [**Construction Manager**] ~~Insert entity~~ shall act as mechanical/electrical coordinator. [**Mechanical/electrical coordinator shall be licensed to practice as a professional engineer in location of Project.**]~~

- ~~C. Scheduling Consultant: Owner has retained the following scheduling consultant to coordinate the scheduling activities of the multiple contracts, to prepare overall Project schedule, and to monitor and update Project schedule periodically; each Contractor shall cooperate with and coordinate its scheduling activities with Owner's scheduling consultant:~~

- ~~1. ~~Insert name and contact information for consultant~~.~~

1.5 PROJECT COORDINATOR RESPONSIBILITIES

A. Project coordinator shall perform Project coordination activities for the multiple contracts, including, but not limited to, the following:

1. Provide typical overall coordination of the Work.
2. Coordinate shared access to workspaces.
3. Coordinate product selections for compatibility.
4. Provide overall coordination of temporary facilities and controls.
5. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
6. Coordinate construction and operations of the Work with work performed by each Contract **[and Owner's construction forces]**.
7. Prepare coordination drawings in collaboration with each contractor to coordinate work by more than one contract.
8. Coordinate sequencing and scheduling of the Work. Include the following:
 - a. Initial Coordination Meeting: At earliest possible date, arrange and conduct a meeting with contractors for sequencing and coordinating the Work; negotiate reasonable adjustments to schedules.
 - b. Prepare combined Contractors' Construction Schedule for entire Project **[in coordination with Owner's scheduling consultant]**. Base schedule on preliminary construction schedule. Secure time commitments for performing critical construction activities from contractors. Show activities of each contract on a separate sheet. Prepare a simplified summary sheet indicating combined construction activities of contracts.
 - 1) Submit schedules for approval.
 - 2) Distribute copies of approved schedules to contractors.
9. Provide photographic documentation.
10. Provide quality assurance and quality control services specified in Section 014000 Contract Quality Control.
11. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
12. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
13. Locate existing permanent benchmarks, control points, and similar reference points, and establish permanent benchmarks on Project site.
14. Provide field surveys of in-progress construction and site work **[and final property survey]**.
15. Provide progress cleaning of common areas and coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
16. Coordinate cutting and patching.
17. Coordinate protection of the Work.
18. Coordinate firestopping.
19. Coordinate completion of interrelated punch list items.
20. Coordinate preparation of Project Record Documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
21. Print and submit Record Documents if installations by more than one contractor are indicated on the same Contract Drawing or Shop Drawing.

~~22. — Collect record Specification Sections from contractors, collate Sections into numeric order, and submit complete set.~~

~~23. — Coordinate preparation of operation and maintenance manuals if information from more than one contractor is to be integrated with information from other contractors to form one combined record.~~

~~24. — <Insert coordination activities>.~~

~~B. — Responsibilities of Project coordinator for temporary facilities and controls include, but are not limited to, the following:~~

~~1. — Provide common use field office for use by all personnel engaged in construction activities.~~

~~2. — Provide telephone service for common use facilities.~~

~~3. — <Insert temporary facilities and controls>.~~

~~C. — Mechanical/Electrical Coordinator: Coordination activities of mechanical/electrical coordinator include, but are not limited to, the following:~~

~~1. — Schedule and sequence mechanical and electrical activities.~~

~~2. — Coordinate sharing access to workspaces by mechanical and electrical contractors.~~

~~3. — Coordinate integration of mechanical and electrical work into limited spaces.~~

~~4. — Coordinate protection of mechanical and electrical contractors' work.~~

~~5. — Coordinate cutting and patching for mechanical and electrical work.~~

~~6. — Prepare mechanical and electrical coordination drawings.~~

~~7. — Coordinate tests and inspections for mechanical and electrical work.~~

~~8. — Coordinate mechanical and electrical temporary services and facilities.~~

1.6 GENERAL REQUIREMENTS OF CONTRACTS

A. Extent of Contract: Unless the Agreement contains a more specific description of the Work of each Contract, requirements indicated on Drawings and in Specification Sections determine which contract includes a specific element of Project.

1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.

2. Trenches and other excavation for the work of each contract shall be the work of **the General Construction Contract**.

3. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of **the General Construction Contract**.

4. Furnishing of access panels for the work of each contract shall be the work of each contract for its own work. Installation of access panels shall be the work of **the General Construction Contract**.

5. Equipment pads for the work of each contract shall be the work of **the General Construction Contract**.

6. Roof-mounted equipment curbs for the work of each contract shall be the work of **the General Construction Contract**.

7. Painting for the work of each contract shall be the work of **the General Construction Contract**.

8. Cutting and Patching: **Provided by the General Construction Contract.**

9. Through-penetration firestopping for the work of each contract shall be provided by **the General Construction Contract**.

10. Contractors' Startup Construction Schedule: Within **five** working days after startup horizontal bar-chart-type construction schedule **and preliminary network diagram** submittal has been received from Project coordinator, submit a matching startup horizontal bar-chart schedule **and startup network diagram** showing construction operations sequenced and coordinated with overall construction.

B. Substitutions: Each contractor shall cooperate with other contractors involved to coordinate approved substitutions with remainder of the work.

1. **The General Construction Contract** shall coordinate substitutions.

C. Temporary Facilities and Controls: In addition to specific responsibilities for temporary facilities and controls indicated in this Section and in Section 015400 – Field Representative's Office and Testing Laboratories, each contractor is responsible for the following:

1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Its own field office, complete with necessary furniture, utilities, and telephone service.
4. Its own storage and fabrication sheds.
5. Temporary enclosures for its own construction activities.
6. Staging and scaffolding for its own construction activities.
7. General hoisting facilities for its own construction activities, up to 2 tons (2000 kg).
8. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
9. Progress cleaning of work areas affected by its operations on a daily basis.
10. Secure lockup of its own tools, materials, and equipment.
11. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.

D. Temporary Heating, Cooling, and Ventilation: **The General Construction Contract** is responsible for temporary heating, cooling, and ventilation, including utility-use charges, temporary meters, and temporary connections.

E. Temporary Heating, Cooling, and Ventilation: **The General Construction Contract** is responsible for temporary heating, cooling, and ventilation before weathertight enclosure of building is complete. **The General Construction Contract** is responsible for temporary heating, cooling, and ventilation after permanent enclosure of building is complete **and Owner will pay utility-use charges**.

F. Use Charges: Comply with the following:

1. Sewer Service: Include the cost for temporary sewer service use by all parties engaged in construction activities at Project site in the **General Construction Contract**.

2. Water Service: Include the cost for water service, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site in the **General Construction** Contract unless MDAD's existing water service is to be used.

3. Electric Power Service: Include the cost for electric power service, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site in the **General Construction** Contract unless MDAD's existing electric service is to be used.

1.7 GENERAL CONSTRUCTION CONTRACT

A. Work of the General Construction Contract includes, but is not limited to, the following:

1. Remaining work not identified as work under other contracts.
2. Site preparation, including clearing, building demolition and relocations, and earthwork.
3. Site improvements, including roadways, parking lots, pedestrian paving, site development furnishings and equipment, and landscaping.
4. Tunnels for site utilities.
5. Selective demolition.
6. Foundations, including footings, foundation walls.
7. Slabs-on-grade, including earthwork, subdrainage systems, and insulation.
8. Below-grade building construction, including excavation, backfill, and insulation and waterproofing/dampproofing.
9. Superstructure, including floor and roof construction.
10. Exterior closure, including walls, doors, windows.
11. Roofing, including roof insulation, coverings, flashings.
12. Interior construction, including partitions, doors, and fittings.
13. Fire-protection specialties.
14. Stairs, including railings and finishes.
15. Interior finishes and floor and ceiling finishes.
16. Miscellaneous items, including **concrete equipment bases**.
17. Conveying systems
18. Equipment, including the following:
 - a. Projection screens.
 - b. Loading dock equipment.
 - d. Waste compactors.
 - d. Foodservice equipment.
 - e. Residential appliances.
19. ~~Furnishings, including [casework] [window treatments] [floor grilles and mats] [and] [seating]~~
~~<Insert type of furnishing>.~~
20. Special construction, including the following:
 - a. Pre-engineered structures.
 - b. Special-purpose rooms.
21. ~~<Insert descriptions of the Work>.~~

B. Temporary facilities and controls in the General Construction Contract include, but are not limited to, the following:

1. ~~Temporary facilities and controls that are not otherwise specifically assigned to the [Plumbing Contract] [HVAC Contract] [Electrical Contract] [and] <Insert name of contract>.~~
2. Sediment and erosion control.
3. Unpiped sewers and drainage, including drainage ditches, dry wells, stabilization ponds, and containers.
4. Stormwater control.
5. Unpiped temporary toilet fixtures, wash facilities, and drinking water facilities, including disposable supplies.
6. Temporary enclosure for building exterior, except as indicated.
7. Temporary roads and paved areas.
8. Dewatering facilities and drains.
9. Excavation support and protection, unless required solely for the Work of another contract.
10. Special or unusual hoisting requirements for construction activities, including hoisting loads in excess of 2 tons (2000 kg), hoisting material or equipment into spaces below grade, and hoisting requirements outside building enclosure.
11. Project identification and temporary signs.
12. General waste disposal facilities.
13. Pest control.
14. Temporary stairs.
15. Temporary fire-protection facilities.
16. Barricades, warning signs, and lights.
17. Site enclosure fence.
18. Covered walkways.
19. Security enclosure and lockup.
20. Environmental protection.
21. Maintenance and restoration of Owner's existing facilities used as temporary facilities.

1.8 PLUMBING CONTRACT

A. Work of the Plumbing Contract includes, but is not limited to, the following:

1. Site water supply and distribution.
2. Site sanitary sewerage.
3. Site storm drainage.
4. Site fuel distribution.
5. Site special plumbing systems.
6. Plumbing fixtures.
7. Domestic water distribution.
8. Sanitary waste.
9. Stormwater drainage.
10. Special plumbing systems, including the following:
 - a. Compressed air.

- b. Natural gas.
- 11. Fire-suppression systems.
- 12. Special fire-suppression systems, including the following:
 - a. Foam fire-extinguishing systems.
 - b. Clean-agent extinguishing systems.
- ~~13. Plumbing connections to equipment furnished by the [General Construction Contract] [Plumbing Contract] [HVAC Contract] [Electrical Contract] [and] <Insert name of contract>.~~

B. Temporary facilities and controls in the Plumbing Contract include, but are not limited to, the following:

- 1. Piped sewerage and drainage.
- 2. Piped gas service.
- 3. Piped water service.
- 4. Piped temporary toilet fixtures, wash facilities, and drinking water facilities.
- ~~5. Plumbing connections to existing systems and temporary facilities and controls furnished by the [General Construction Contract] [Plumbing Contract] [HVAC Contract] [Electrical Contract] [and] <Insert name of contract>.~~

1.9 HVAC CONTRACT

A. Work of the HVAC Contract includes, but is not limited to, the following:

- 1. Site hydronic distribution.
- ~~2. Energy supply, including [gas] [chilled water] supply systems.~~
- 3. HVAC systems and equipment.
- 4. HVAC instrumentation and controls.
- 5. HVAC testing, adjusting, and balancing.
- 6. Building automation system.
- ~~7. Mechanical connections to equipment furnished by the [General Construction Contract] [Plumbing Contract] [HVAC Contract] [Electrical Contract] [and] <Insert name of contract>.~~

B. Temporary facilities and controls in the HVAC Contract include, but are not limited to, the following:

1.10 ELECTRICAL CONTRACT

A. Work of the Electrical Contract includes, but is not limited to, the following:

- 1. Site electrical distribution.
- 2. Site lighting.

3. Site communications and security.
4. Electrical service and distribution.
5. Exterior and interior lighting **and light pole bases**.
6. Communication and security.
7. Special electrical systems, including the following:
 - a. Uninterruptible power supply systems.
 - b. Packaged engine generator systems.
 - c. Battery power systems.
 - d. Cathodic protection.
 - e. Lightning protection systems.
 - f. Unit power conditioners.
 - g. Power generation systems.
8. Electrical connections to equipment furnished by the **General Construction Contract**.

B. Temporary facilities and controls in the Electrical Contract include, but are not limited to, the following:

1. Electric power service and distribution.
2. Lighting, including site lighting.
3. ~~Electrical connections to existing systems and temporary facilities and controls furnished by the [General Construction Contract] [Plumbing Contract] [HVAC Contract] [Electrical Contract] [and] <Insert name of contract>.~~

~~1.11 <INSERT NAME OF CONTRACT>~~

~~A. Work of the <Insert name> Contract includes, but is not limited to, the following:~~

~~1. <Insert descriptions of the Work>.~~

~~B. Temporary facilities and controls in the <Insert name> Contract include, but are not limited to, the following:~~

~~1. <Insert requirements for temporary facilities and controls>.~~

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

MULTIPLE CONTRACT SUMMARY

SECTION 011210
HOT WORK OPERATIONS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Before initiating hot work, the Contractor shall submit the Hot Work permit application. Hot Work includes, but is not limited to, work above and below ground, involving open flames or work producing heat and/or sparks (including, but not limited to, brazing, cutting, grinding, soldering or thawing materials, torch applied products, installation and welding).

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 All tradesmen operating on airport property whose work entails open flame cutting, welding or similar hot work shall not proceed with such operations until the safety of the work area has been approved by the Airport Fire Division and a "Hot Work Permit" obtained. The provisions of this directive shall apply to any operation involving open flames or producing heat and/or sparks.

3.02 Follow the MDAD Facilities Procedure contained in Procedure FD5-047-P using the Hot Work Permit form FD5-047 current issues. Both are located in the MDAD Local Area Network (LAN), H drive/Facilities/Procedures and Forms. Form FD5-047 is also available in the next Section 011210-01 following this Section.

Appendix: Hot Work Procedure FD5-047-P
Hot Work Permit. FD5-047

END OF SECTION

HOT WORK

PURPOSE

To provide direction on obtaining authorization and performing precautionary tasks prior to performance of Hot Work on MDAD facilities.

DEFINITION

Hot Work Work, above and below ground, involving open flames or work producing heat and/or sparks (including, but not limited to, brazing, cutting, grinding, soldering or thawing materials, torch applied products, installation and welding).

INSTRUCTION

1. A Hot Work Permit (Facilities Division Form FD5-047):
 - Must be completed, submitted for approval, and fully executed whenever Hot Work is to be performed at an MDAD site.
 - Satisfies the requirements of the South Florida Fire Prevention Code which is referenced by and included in the General Conditions of the Contract.
 - Requires an individual to perform fire watch activities.
 - Is granted for a maximum period of twenty-four (24) hours. Hot Work in excess of this period shall be reauthorized by applying for a new permit.
 - Is good for one location only.
 - Must be logged and filed by the CIS Consultant as a Hot Work activity record.
2. Project Managers are responsible for advising and directing the A/E Consultant and Contractor on the issuance and use of Hot Work Permits.
3. The General Contractor is responsible for preparing the Hot Work Permit, which includes performing and checking off (or marking as non-applicable) all of the precautionary items on the form and signing it before requesting its authorization.
4. The Project Manager shall notify and coordinate with adjacent airport tenants and MDAD Operations if fumes or other effects of the operation will impact airport operations.
5. The CIS Consultant (or A/E performing work site services) shall be the management representative designated by MDAD to authorize the Hot Work Permit.
6. The CIS Consultant shall fax copies of the executed Hot Work Permit and provide telephone notification of the work to be performed as indicated on the form.
7. The Contractor or subcontractor shall exhibit a copy of the approved Hot Work Permit at the work site in a conspicuous place near to the actual hot work.
8. Where sprinklers and hose streams are not under the control and maintenance of the Contractor, the condition of operability shall be verified with MDAD Maintenance prior to performing the Hot Work.
9. The Contractor or subcontractor shall designate an individual to perform fire watch activities and brief and train him/her on the fire watch responsibility: guarding against fire while actual work is in

process and for a minimum of thirty (30) minutes after the completion of the work. Fire watch precautions must be taken on both sides of any penetration which is being worked on or through.

The individual performing fire watch activities may be the helper of the Hot Worker and may be responsible for additional non-conflicting duties as appropriate. Any such additional duties must be in the immediate vicinity and in view of the Hot Work.

10. The individual performing fire watch activities shall sign off on the Hot Work Permit when the period of observation is over.
11. The issuance of a Hot Work Permit does not relieve the Contractor or subcontractor of its responsibility under the Contract for the means, methods, or safety of operations authorized by the permit, nor does it assign any of these responsibilities to MDAD or its consultants.
12. Hot Work Permits may be revoked for any reason at the discretion of the CIS Consultant.
13. The CIS Consultant shall verify, collect, and file the Hot Work Permit after final sign-off by the individual performing fire watch activities.

ASSOCIATED FORM

1. Facilities Division Form FD5-047 Hot Work Permit

HOT WORK PERMIT

A Hot Work Permit is required for any operation that involves open flames or produces heat and/or sparks. This includes, but is not limited to, Brazing, Cutting, Grinding, Flame-Soldering, Pipe Thawing, Torch-Applied Roofing, and Welding.

PROJECT NAME: _____ PROJECT No: _____

MDAD WORK ORDER No: _____ CONTRACTOR JOB No: _____ DATE WORK TO BE DONE: _____

PERFORMING CONTRACTOR: _____ GC SUB PHONE No: _____

WORK TO BE DONE BY: EMPLOYEE: _____ SUPERVISOR: _____ FIRE WATCH: _____

HOT WORK is to be performed at one location per permit.

FACILITY, BUILDING, and FLOOR _____

NATURE OF JOB: _____

SPECIAL PRECAUTIONS: _____

REQUIRED PRECAUTIONS CHECKLIST

General Contractor or designee to verify that each precaution has been taken or to indicate that it is Not Applicable (NA).

- Available sprinklers, hose streams, and extinguishers are in service/operable.
- Hot Work equipment is in good repair.
- Entrances to work area have been posted with NO SMOKING signs.
- No welding or open flames within 100 feet of aircraft or a flammable spill.
- Work area enclosed to contain sparks and prevent vision flash burn.
- Ventilation is adequate to remove smoke/vapor from work area.

Requirements within fifty feet (fifteen meters) of work:

- Flammable liquids, dust, lint, and oily deposits have been removed.
- Explosive atmosphere in area has been eliminated.
- Floors have been cleaned of debris.
- Combustible floors have been wet down, covered with damp sand, or covered with fire-resistive sheets.
- Other combustibles have been removed, where possible, or protected with fire-resistive tarpaulins or metal shields.
- All wall and floor openings have been covered.
- Fire-resistive tarpaulins have been spread beneath work to collect sparks.

For work on walls or ceilings:

- Construction is noncombustible and without combustible covering or insulation.
- Combustible materials or items on other side of walls have been moved away.
- When welding, cutting, or heating is performed on walls, floors, or ceiling, since direct penetration of sparks or heat transfer may introduce a fire hazard to an adjacent area, the same precautions shall be taken on the opposite side as are taken on the side on which the work is being performed.

For work on enclosed equipment (tanks, ducts, etc.):

- Enclosed equipment has been cleaned of all combustibles.
- Containers have been purged of flammable liquids/vapors.

Fire Watch / Hot Work area monitoring:

- Fire Watch will be provided during and for thirty minutes after work, including any coffee or meal breaks.
- Fire Watch is supplied with suitable extinguishers/a charged small hose.
- Fire Watch is trained in use of this equipment and in sounding alarm.

I VERIFY that the above named location has been examined, that the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and I request authorization to perform this work.

SIGNED _____

Printed Name Date

General Contractor Firm Phone Number

AUTHORIZATION:

SIGNED _____

Printed Name Date

A/E Consultant/CIS Firm Name Phone Number

WORK PERFORMED:

START: _____ END: _____

PERMIT EXPIRES (Good for one day only):

DATE: _____ TIME: _____

FINAL CHECK:

The work area and all adjacent areas to which sparks and heat might be spread were inspected during the fire watch period and for at least thirty minutes after the work was completed and no fire conditions were found.

SIGNED _____

Fire Watch Date

Printed Name: _____

NOTIFICATION:

- Post a copy of approved Permit at the Hot Work site.
- Fax a copy of approved permit to:
 1. Airside Ops (General Aviation Center) at (305) 869-5858.
 2. Risk Management at (305) 876-7162.
 3. Life Safety Bureau at (305) 869-1589.
 4. Maintenance at (305) 869-1633.
On weekends and after hours use (305) 876-0193.
- A/E Field Rep to log and file copy signed by Fire Watch.

IN CASE OF FIRE - - - CALL (305) 876-7070

HOT WORK PERMIT

SECTION 012100

ALLOWANCES

PART 1 - GENERAL

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of Specific bid items and allowances include the following:
 - 1. General Contingency allowances Account 10%
- C. Related Requirements:
 - 1. Section 014000 - Contract Quality Control for procedures governing the use of allowances for field testing by an independent testing agency.

1.3 DEFINITIONS

- A. Allowance is a quantity of work or dollar amount established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery of each product or system described by an allowance must be completed by MDAD to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.5 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for MDAD's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by MDAD under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation [, **taxes**], insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to MDAD by Change Order.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
 - 3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. MDAD reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.
 - 1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.

2. No change to Contractor's indirect expense is permitted for selection of higher-priced or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Contingency Allowance: Include the sum of 10% of total bid price for use according to MDAD's written instructions.
 1. This allowance includes material cost; receiving, handling, and installation; and Contractor overhead and profit.

END OF SECTION 012100

SECTION 012200

UNIT PRICES

1.01 REQUIREMENTS INCLUDED

- A. Section includes administrative and procedural requirements for unit prices.
- B. Types of Specific bid items and allowances include the following:
 - 1. Lump sum for 1-7, 25, 80, and 116
 - 2. Unit-cost 8-24, 26-79, 81-115, and 117-122

1.02 RELATED REQUIREMENTS

- A. Section 012600 - Contract Modification Procedures for procedures for submitting and handling Change Orders.
- B. Section 014000 - Contract Quality Control for field testing by an independent testing agency.

1.03 DEFINITIONS

- A. Unit price is **an amount incorporated into the Agreement, applicable during the duration of the Work** as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.04 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, **applicable taxes**, overhead, and profit.
 - 1. Measurement and Payment: See individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
 - 2. MDAD reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at MDAD's expense, by an independent surveyor acceptable to Contractor.
 - 3. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SCHEDULE OF UNIT PRICES

A. ~~Unit Price No. <Insert unit price number> <Insert unit price item>:~~

1. ~~Description: <Insert unit price item description> according to Section <Insert Section number - Insert Section title>.~~
2. ~~Unit of Measurement: <Insert unit of measurement>.~~
3. ~~Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 Allowances.~~

B. ~~Unit Price No. <Insert unit price number> <Insert unit price item>:~~

1. ~~Description: <Insert unit price item description> according to Section <Insert Section number - Insert Section title>.~~
2. ~~Unit of Measurement: <Insert unit of measurement>.~~
3. ~~Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 Allowances.~~

C. ~~Unit Price No. <Insert unit price number> <Insert unit price item>:~~

1. ~~Description: <Insert unit price item description> according to Section <Insert Section number - Insert Section title>.~~
2. ~~Unit of Measurement: <Insert unit of measurement>.~~
3. ~~Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section~~

END OF SECTION

SECTION 012500

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 012100 - Allowances for products selected under an allowance.
 - 2. Section 016000 - Material and Equipment for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor that are not required in order to meet other Project requirements are not allowed.

1.3 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form provided by MDAD.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by MDAD and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific

features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from its applicable code organizations.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within **seven** days of receipt of a request for substitution. Architect will notify Contractor **through Construction Manager** of acceptance or rejection of proposed substitution within **15** days of receipt of request, or **seven** days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's/Engineer's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.5 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.6 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than **15** days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b.
 - c. Substitution request is fully documented and properly submitted.
 - d. Requested substitution will not adversely affect Contractor's construction schedule.
 - e. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - f. Requested substitution is compatible with other portions of the Work.
 - g. Requested substitution has been coordinated with other portions of the Work.
 - h. Requested substitution provides specified warranty.
 - i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 RELATED REQUIREMENTS

- A. Section 012500 - Substitution Procedures for administrative procedures and handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue **through Construction Manager** supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form provided by MDAD.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: **Architect** or **Construction Manager** will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 1. Work Change Proposal Requests issued by **Architect** or **Construction Manager** are not instructions either to stop work in progress or to execute the proposed change.
 2. Within **time specified in Proposal Request or 20 days, when not otherwise specified**, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.

- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms provided by MDAD.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to **Construction Manager**.
- 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Section 012500 - Substitution Procedures if the proposed change requires substitution of one product or system for product or system specified.
 - 7. Proposal Request Form: Use form provided by MDAD.

1.5 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 - Allowances for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.
- B. Unit-Price Adjustment: See Section 012200 - Unit Prices for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request, **Construction Manager** will issue a Change Order for signatures of Owner and Contractor on form provided by MDAD.

1.7 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: **Architect or Construction Manager** may issue a Construction Change Directive on form provided by MDAD. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.8 WORK CHANGE DIRECTIVE

- A. Work Change Directive: **Architect or Construction Manager]** may issue a Work Change Directive on form provided by MDAD. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900
PAYMENT PROCEDURES

PART 1 GENERAL

1.1 REQUIREMENTS INCLUDED

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 RELATED REQUIREMENTS

- A. Section 012100 - Allowances for procedural requirements governing the handling and processing of allowances.
- B. Section 012200 - Unit Prices for administrative requirements governing the use of unit prices.
- C. Section 013216 - Construction Progress Documentation for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
Submit the schedule of values to Architect **through Construction Manager** at earliest possible date, but no later than fifteen (15) days before the date scheduled for submittal of initial Applications for Payment.
Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

Identification: Include the following Project identification on the schedule of values:

- Project name and location.
- Name of Architect.
- Architect's Project number.
- Contractor's name and address.
- Date of submittal.

Arrange schedule of values consistent with format of form provided by MDAD.

- Related Specification Section or Division.
- Description of the Work.
- Name of subcontractor.
- Name of manufacturer or fabricator.
- Name of supplier.
- Change Orders (numbers) that affect value.
- Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.

Labor.

Materials.
Equipment.

Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of **five** percent of the Contract Sum.

Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

Differentiate between items stored on-site and items stored off-site.

Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.

Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

APPLICATIONS FOR PAYMENT

Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect **and Construction Manager** and paid for by MDAD.

Submit draft copy of Application for Payment **seven** days prior to due date for review by Architect.

Application for Payment Forms: Use form provided by MDAD for Applications for Payment.

Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. **Architect** or **Construction Manager** will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under MDAD-requested project acceleration.
5. Each pay application shall be submitted with signed and sealed as-builts of the work completed to date. As-builts should be recreated on the same sheet format as the contract documents.
6. Progress aerial photographs.

PAYMENT PROCEDURES

Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

Provide certificate of insurance, evidence of transfer of title to MDAD, and consent of surety to payment for stored materials.

Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.

Provide summary documentation for stored materials indicating the following:

Value of materials previously stored and remaining stored as of date of previous Applications for Payment.

Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.

Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

Transmittal: Submit **three** signed and notarized original copies of each Application for Payment to **Construction Manager** by a method ensuring receipt **within 24 hours**. One copy shall include waivers of lien and similar attachments if required.

Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from **entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment and subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.**

Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

When an application shows completion of an item, submit conditional final or full waivers.

MDAD reserves the right to designate which entities involved in the Work must submit waivers.

Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

Waiver Forms: Submit executed waivers of lien on forms acceptable to MDAD.

Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

List of subcontractors.

Schedule of values.

Contractor's construction schedule (preliminary if not final).

PAYMENT PROCEDURES

Products list (preliminary if not final).
Sustainable design action plans, including preliminary project materials cost data.
Schedule of unit prices.
Submittal schedule (preliminary if not final).
List of Contractor's staff assignments.
List of Contractor's principal consultants.
Copies of building permits.
Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
Initial progress report.
Report of preconstruction conference.
Certificates of insurance and insurance policies.
Performance and payment bonds.
Data needed to acquire MDAD's insurance.

Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

This application shall reflect Certificate(s) of Substantial Completion issued previously for MDAD occupancy of designated portions of the Work.

Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

Evidence of completion of Project closeout requirements.
Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
Updated final statement, accounting for final changes to the Contract Sum.
Close out forms required by MDAD.
Evidence that claims have been settled.
Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when MDAD took possession of and assumed responsibility for corresponding elements of the Work.
Final liquidated damages settlement statement.

PRODUCTS (Not Used)

EXECUTION (Not Used)

END OF SECTION 012900

SECTION 012973
SCHEDULE OF VALUES

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Procedures for preparation and submittal of Schedule of Values.

1.02 RELATED REQUIREMENTS

- A. General Conditions Article 10 - Partial Payments to Contractor
- B. Section 011000 - Summary of Work.
- C. Section 012900 - Applications for Payment.
- D. Section 013300 - Submittals.

1.03 FORMAT

- A. Type Schedule on County provided forms or in County approved format.
- B. Follow Table of Contents of Project Manual for listing component parts. Identify each line item by number and title of major Specifications section. Field Representative will provide minimum requirements.
- C. Follow procedures specified in Sections 013300, 013216 and **013216-04**.

1.04 CONTENT

- A. List installed value of each major item of work and each subcontracted item of work as a separate line item to serve as a basis for computing values for Progress Payments. Round off values to nearest dollar.
 - B. Coordinate listings with Progress Schedule.
 - C. For items on which payments will be requested for stored products, list sub-values for cost of stored products with taxes paid.
- D. Submit a sub-schedule for each separate stage of work specified in Section 011000.
- E. The sum of values listed shall equal total Contract or lump sum price items.

1.05 SUBMITTALS

- A. Submit Preliminary Schedule of Values within fifteen (15) days after the tentative award of the Contract.
- B. Submit finalized Schedule of Values within ten (10) days from the approval date of the Overall Construction Progress Schedule.

C. Submit three copies of Schedule as required by the General Conditions.

D. Transmit under the Field Representative accepted transmittal letter. Identify project by title, and project number.

1.06 SUBSTANTIATING DATA

A. When the Field Representative requires substantiating information, submit data justifying line item amounts in question.

1.07 ACTION

A. No payment will be made for work performed on a lump sum contract or a lump sum item until the appropriate Schedule of Values is approved by MDAD.

B. The equitable value of work deleted from a lump sum contract or lump sum item shall be determined from the approved Schedule of Values.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013100

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

1.2 RELATED REQUIREMENTS

- A. Section 011200 - Multiple Contract Summary for a description of the division of work among separate contracts and responsibility for coordination activities not in this Section.
- B. Section 013216 - Progress Schedules for preparing and submitting Contractor's construction schedule.
- C. Section 017300 - Execution for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
- D. Section 017700 - Closeout Procedures for coordinating closeout of the Contract.
- E. Section 019113 - General Commissioning Requirements for coordinating the Work with MDAD's Commissioning Authority.

1.3 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from MDAD, **Construction Manager**, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- 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, telephone number, and email address 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. Key Personnel Names: Within **15** days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities, list addresses and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
1. Post copies of list in project meeting room, in temporary field office, or **in web-based Project software directory**, and in prominent location in built facility. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in 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.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Coordination: Each contractor shall **cooperate with MDAD Project manager who shall** coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in 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.
 2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for MDAD and separate contractors if coordination of their Work is required.
- D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities **and scheduled activities of other contractors and direction of Project coordinator** to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated 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 coordination drawings 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, mechanical, and electrical systems.
 - d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.

- e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
- f. Indicate required installation sequences.
- g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches (32 mm) in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
8. Fire-Protection System: Show the following:

- a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
 9. Review: Architect will review coordination drawings to confirm that in general the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
 10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 - Submittals.
- C. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
 2. File Preparation Format: **DWG]** Version 2024, operating in **Microsoft Windows** operating system.
 3. File Submittal Format: Submit or post coordination drawing files using **PDF format**.
 4. BIM File Incorporation: **Construction Manager will incorporate Contractor's** coordination drawing files into BIM established for Project.
 - a. **Perform** three-dimensional component conflict analysis as part of preparation of coordination drawings. Resolve component conflicts prior to submittal. Indicate where conflict resolution requires modification of design requirements by Architect.
 5. Architect will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.
 - a. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
 - b. Digital Data Software Program: Drawings are available in AutoCAD 2022 format..
 - c. Contractor shall execute a data licensing agreement in the form of [**AIA Document C106**] [**Agreement included in this Project Manual**] [**Agreement form acceptable to MDAD and Architect**].

1.7 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect **and Construction Manager**.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. 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.
- C. RFI Forms: Form provided by MDAD.
1. Attachments shall be electronic files in PDF format.
- D. Architect's **and Construction Manager's** Action: Architect **and Construction Manager** will review each RFI, determine action required, and respond. Allow **seven** working days for Architect's response for each RFI. RFIs received by Architect[**or Construction Manager**] 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 Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
- 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect **or Construction Manager** of additional information.
 - 3. Architect'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 according to Section 012600 - Contract Modification Procedures.
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect **and Construction Manager** in writing within **10** days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log **weekly with status of RFIs and pending RFIs. Use software log that is part of web-based Project software.**
- 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect **and Construction Manager**.
 - 4. RFI number including RFIs that were returned without action or withdrawn.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's **and Construction Manager's** response was received.
 - 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 - 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
- F. On receipt of Architect's **and Construction Manager's** action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect **and Construction Manager** within **seven** days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

- B. Use of Architect's Digital Data Files: Digital data files of Architect's **CAD drawings** will be provided by Architect for Contractor's use during construction.
- 1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project record Drawings.

2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
3. Digital Drawing Software Program: Contract Drawings are available in AutoCAD 2022.
4. Contractor shall execute a data licensing agreement in the form of **Agreement form acceptable to MDAD and Architect**.
 - a. Subcontractors, and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of **Agreement acceptable to MDAD and Architect**.

6. The following digital data files will be furnished for each appropriate discipline:
 - a. Files requested by Contractor.

- C. Web-Based Project Software: **Use MDAD's]** web-based Project software site for purposes of hosting and managing Project communication and documentation until Final Completion.
 1. Web-based Project software site includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, architect's consultants, MDAD, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.
 - d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.

 2. Provide up to **seven** web-based Project software user licenses for use of MDAD, **Construction Manager**, Architect, and Architect's consultants. Provide **eight** hours of software training at Architect's office for web-based Project software users.

3. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
 4. Provide [one of] the following web-based Project software packages under their current published licensing agreements:
 - a. Autodesk; **[Buzzsaw]** **[Constructware]**.
 - b. Corecon Technologies, Inc.
 - c. Meridian Systems; Prolog.
 - d. Newforma, Inc.
 - e. Procore Technologies, Inc.
 - f. Viewpoint, Inc.; Viewpoint for Project Collaboration.
 - g. **<Insert name of hosting company and product>**.
- D. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:
1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.9 PROJECT MEETINGS

- A. General: **[Schedule and conduct]** **[Construction Manager will 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 MDAD and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including MDAD, **[Construction Manager,]** and Architect, within **[three]** **<Insert number>** days of the meeting.
- B. Preconstruction Conference: **[Architect will schedule and conduct]** **[Construction Manager will schedule and conduct]** **[Schedule and conduct]** a preconstruction conference before starting construction, at a time convenient to MDAD and Architect, but no later than **[15]** **<Insert number>** days after execution of the Agreement.
1. Attendees: Authorized representatives of MDAD, **[MDAD's Commissioning Authority,]** **[Construction Manager,]** Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties

shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:

- a. Responsibilities and personnel assignments.
- b. Tentative construction schedule.
- c. Phasing.
- d. Critical work sequencing and long lead items.
- e. Designation of key personnel and their duties.
- f. Lines of communications.
- g. Use of web-based Project software.
- h. Procedures for processing field decisions and Change Orders.
- i. Procedures for RFIs.
- j. Procedures for testing and inspecting.
- k. Procedures for processing Applications for Payment.
- l. Distribution of the Contract Documents.
- m. Submittal procedures.
- n. Sustainable design requirements.
- o. Preparation of Record Documents.
- p. Use of the premises **and existing building**.
- q. Work restrictions.
- r. Working hours.
- s. MDAD's occupancy requirements.
- t. Responsibility for temporary facilities and controls.
- u. Procedures for moisture and mold control.
- v. Procedures for disruptions and shutdowns.
- w. Construction waste management and recycling.
- x. Parking availability.
- y. Office, work, and storage areas.
- z. Equipment deliveries and priorities.
- aa. First aid.
- bb. Security.
- cc. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Sustainable Design Requirements Coordination Conference: **MDAD will schedule and conduct**] a sustainable design coordination conference before starting construction, at a time convenient to MDAD, **Construction Manager**, Architect, and Contractor.

1. Attendees: Authorized representatives of MDAD, **MDAD's Commissioning Authority, Construction Manager**, Architect, and their consultants; Contractor and its superintendent and sustainable design coordinator; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect meeting sustainable design requirements, including the following:
 - a. Sustainable design Project checklist.
 - b. General requirements for sustainable design-related procurement and documentation.
 - c. Project closeout requirements and sustainable design certification procedures.
 - d. Role of sustainable design coordinator.
 - e. Construction waste management.
 - f. Construction operations and sustainable design requirements and restrictions.
 3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- D. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, **Construction Manager, and MDAD's Commissioning Authority** of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Sustainable design requirements.
 - i. Review of mockups.
 - j. Possible conflicts.
 - k. Compatibility requirements.
 - l. Time schedules.
 - m. Weather limitations.
 - n. Manufacturer's written instructions.
 - o. Warranty requirements.
 - p. Compatibility of materials.
 - q. Acceptability of substrates.
 - r. Temporary facilities and controls.
 - s. Space and access limitations.
 - t. Regulations of authorities having jurisdiction.
 - u. Testing and inspecting requirements.
 - v. Installation procedures.

- w. Coordination with other work.
 - x. Required performance results.
 - y. Protection of adjacent work.
 - z. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- E. Project Closeout Conference: **Schedule and conduct** a project closeout conference, at a time convenient to MDAD and Architect, 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 MDAD, **MDAD's Commissioning Authority, Construction Manager**, Architect, and their consultants; Contractor and its 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. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for completing sustainable design documentation.
 - f. Requirements for preparing operations and maintenance data.
 - g. Requirements for delivery of material samples, attic stock, and spare parts.
 - h. Requirements for demonstration and training.
 - i. Preparation of Contractor's punch list.
 - j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - k. Submittal procedures.
 - l. Coordination of separate contracts.
 - m. MDAD's partial occupancy requirements.
 - n. Installation of MDAD's furniture, fixtures, and equipment.
 - o. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

- F. Progress Meetings: **Construction Manager will conduct** progress meetings at **weekly** intervals.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of MDAD, **MDAD's Commissioning Authority, Construction Manager**, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Status of sustainable design documentation.
 - 6) Deliveries.
 - 7) Off-site fabrication.
 - 8) Access.
 - 9) Site use.
 - 10) Temporary facilities and controls.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) Status of RFIs.
 - 16) Status of Proposal Requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
 4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- G. Coordination Meetings: **Construction Manager will conduct** Project coordination meetings at **weekly** intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of MDAD, **MDAD's Commissioning Authority, Construction Manager**, and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each contractor present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Resolution of BIM component conflicts.
 - 4) Status of submittals.
 - 5) Deliveries.
 - 6) Off-site fabrication.
 - 7) Access.
 - 8) Site use.
 - 9) Temporary facilities and controls.
 - 10) Work hours.
 - 11) Hazards and risks.
 - 12) Progress cleaning.
 - 13) Quality and work standards.
 - 14) Status of RFIs.
 - 15) Proposal Requests.
 - 16) Change Orders.

17) Pending changes.

3. 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 013100

SECTION 013113

COORDINATION

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Coordination of Work of Contract.
- B. Coordination of Building Systems and Integrated Building Equipment Commissioning
 - 1. This project will have selected building systems and integrated building equipment commissioned. The equipment and systems to be commissioned are specified in Section 019113. The commissioning process, which the Contractor is responsible to execute, is also defined in Section 019113. The commissioning process will be directed, through the Field Representative, by a Commissioning Agent who will be designated by the Owner.

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of Work.
- B. Section 017329 - Cutting and Patching.
- C. Section 013119 - Project Meetings.
- D. Section 016000 - Product Requirements: Product option and substitutions.
- E. Section 017700 - Contract Closeout Procedures: Closeout submittals.

1.03 DESCRIPTION

- A. Coordinate scheduling, submittals, and work of the various sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.
- B. Coordinate sequence of Work to accommodate Owner occupancy as specified in General Conditions and Section 011000.

1.04 MEETINGS

- A. In addition to progress meetings specified in Section 013119 hold coordination meetings and preinstallation conferences with personnel and subcontractors to assure coordination of Work.
- B. Attend all commissioning meetings with appropriate personnel and subcontractors.

1.05 COORDINATION OF SUBMITTALS

- A. Schedule and coordinate submittals.
- B. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to and placing in service, such equipment.
- C. Coordinate requests for substitutions to assure compatibility of space, of operating

COORDINATION

013113 - 1 of 2

D:\DOCS\DIV1\07.21\013113.DOCX

elements, and effect on work of other Sections.

1.06 COORDINATION OF SPACE

- A. Coordinate use of Project space and sequence of installation of mechanical and electrical work that is indicated diagrammatically on drawings. Follow routings shown for pipes, ducts and conduits as closely as practicable, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance and for repairs.
- B. In finished areas except as otherwise shown conceal pipes, ducts and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

1.07 COORDINATION OF CONTRACT CLOSEOUT

- A. Coordinate completion and cleanup of work of separate sections in preparation for Substantial Completion.
- B. After Owner occupancy of premises, coordinate access to site by various sections for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- C. Assemble and coordinate closeout submittals specified in Section 017700.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 013119
PROJECT MEETINGS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Contractor participation in pre-construction conferences.
- B. Contractor administration of progress meetings and pre-installation conferences.

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of Work.
- B. Section 013300 - Submittals
- C. Section 013216 - Progress Schedules
- D. Section 013323 - Shop Drawings, Product Data and Samples.
- E. Section 017700 - Contract Closeout Procedures
- F. Section 017839 - Project Record Documents.

1.03 PRE-CONSTRUCTION CONFERENCES

- A. Field Representative will hold a pre-construction conference. (See General Conditions.)

1.04 PROGRESS MEETINGS (See General Conditions)

- A. Schedule and administer Project meetings throughout progress of the work at weekly intervals as well as any called meeting **and pre-installation conferences.**
- B. Attendance: Job superintendents, major subcontractors and suppliers; MDAD, Architect/Engineer and Field Representative as appropriate to agenda topics for each meeting.
- C. Agenda will include review of Work progress, status of progress schedule and adjustments thereto, delivery schedules, submittals, maintenance of quality standards, pending changes and substitutions and other items affecting progress or work.

1.05 PRE-INSTALLATION CONFERENCES

- A. When required in individual specification Section, Contractor will convene a pre-installation conference prior to commencing work of the Section.
- B. Require attendance of entities directly affecting, or affected by, work of the Section.
- C. Review conditions of installation, preparation and installation procedures and coordination with related work.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013216
CONSTRUCTION SCHEDULES

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

Procedures for preparation and submittal of Construction Progress Schedules and periodic updating.

1.02 RELATED REQUIREMENTS

Section 011000 - Summary of work.

- B. Section 012900 - Applications for Payment.
- C. Section 013300 - Submittals.
- D. Section **013216-04** - Construction Schedules
- E. Section 013323 - Shop Drawings, Product Data and Samples
- F. Section 012973 - Schedule of Values

1.03 FORMAT

Prepare the progress schedule in the form of a network analysis system using **a computerized critical path method (CPM) format Section 013216-04.**

1.04 CONTENT

- A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.
- B. Identify each item by major Specification section number.
- C. Provide activity code identity for each stage of Work identified in Section 011000.
- D. Show accumulated percentage of completion of each item, and total percentage of work completed, as of the **first** day of each month.
- E. Provide schedule of Shop Drawings submittals within 30 days from the Notice to Proceed.
- F. Provide submittal dates for shop drawings, product data and samples, including **MDAD furnished products and products specified under Allowances**, and dates reviewed submittals will be required from Consultant. Show decision dates for selection of finishes.
- G. Show total monetary value for each work activity by trade. Amounts to be consistent with the unit bid price items and the approved Schedule of Values.

- H. Coordinate content with Section 012973 - Schedule of Values.
- I. Changes in scope requiring a Change Order or Work Order must be identified in the schedule by an activity code approved by the MDAD.

1.05 REVISIONS TO SCHEDULES

- A. Indicate schedule and quantity progress of each activity to date of submittal and projected completion date of each activity.
- B. Identify activities modified since previous submittal, major changes in scope and other identifiables.
- C. Provide narrative report to define problem areas, anticipated delays and impact on schedule. Report corrective action taken or proposed, and its effect including the effect of changes on schedules of separate contracts, if any.
- D. Free floats in the approved construction progress schedules are owned by MDAD.

1.06 PROCEDURES

- A. Follow procedures outlined in Section 013300.
- B. Prepare and submit progress schedules in accordance with the provisions of Section **013216-04**.
- C. Contractor is solely responsible for the preparation, revision and updating of the overall project schedule and the near term schedule in the form and content prescribed in Section **013216-04**.
- D. The timely execution or performance of all construction related activities and the duration and sequencing of those activities in accordance with the approved project schedule(s) is the Contractor's responsibility.
- E. Submit revised progress schedules with each partial payment certificate.
- F. Transmit on County approved forms.
- G. Submit the number of copies that Contractor requires, plus four (4) copies that will be retained by Architect/Engineer, Field Representative, and MDAD.
- I. Submit two (2) copies of electronic pdf files of the schedule with each schedule submission.

1.07 DISTRIBUTION

- A. Distribute copies of reviewed schedules to job site file, subcontractors, suppliers and other concerned entities.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in Schedules.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

TIME IMPACT ANALYSIS SUMMARY SHEET

(TIA)

Contract No: _____ Page ___ of _____

Contract Project Title: _____

Contractor Company Name: _____

Title of Event Delayed: _____

Event Reference Number: _____

Event References (drawings, transmittals, work orders, change orders, correspondence, etc.):

(continue on separate attachment if required)

Date of Approved Updated Schedule Used for Analysis:

Schedule File Name:

Detailed Description of Cause of Delay:

(continue on separate attachment if required)

Detailed Description of Work Delayed:

(continue on separate attachment if required)

Title of Event Delayed:
Event Reference Number:

<u>Activity No:</u>	<u>Description</u>	<u>Start</u>	<u>Finish</u>	<u>Duration</u>

SECTION 013216-04

CONSTRUCTION SCHEDULES (COMPUTERIZED CPM FORMAT)

UNIT PRICE CONTRACTS

PART 1 GENERAL

1.01 REQUIREMENT INCLUDED

- A. Procedures for preparation and submittal of construction progress schedules and periodic updating.

1.02 RELATED REQUIREMENT

- A. Section 011000 - Summary of Work.
- B. Section 012900 - Applications for Payment
- C. Section 013300 - Submittals.
- D. Section 013216 - Construction Schedules.
- E. Section 013216-06 - Construction Scheduling Management System
- F. Section 013323 - Shop Drawings
- G. Section 012973 - Schedule of Values

1.03 GENERAL

- A. The Contractor's and/or Subcontractor's timely execution or performance of all construction related activities shall be in strict compliance with the approved Overall Project Schedule. Means and methods of construction in accordance with the Contract Documents shall remain the sole responsibility of the Contractor.
- B. The construction of the project shall be planned and recorded utilizing Primavera Project Planner computer software (Version P6 EPPM or greater). It shall be used for coordination, monitoring, and payment of all work under the Contract including all activities of the Contractor, subcontractors, vendors, and suppliers.

1.04 OVERALL PROJECT SCHEDULE

The overall project schedule shall be in the form of a time scaled precedence diagram and associated computer analysis and shall consist of detailed activities and their restraining relationships as required to complete the project from Notice to Proceed through completion of the Work and shall indicate the following:

CONSTRUCTION SCHEDULES – COMPUTERIZED CPM FORMAT
UNIT PRICE CONTRACTS

- A. Beginning and end date duration in workdays for each activity. (Activities in occupied areas and activities requiring premium time shall be differentiated from each other and from the balance of project activities).
- B. Beginning and end date and total duration in workdays for each Area or portion thereof.
- C. Significant milestones, including, but not limited to those indicated in Section 011000 "Summary of Work".
- D. Identity of contractor, and subcontractor for each work activity.
- E. Specific location of each work activity per the Architect/Engineer's phasing drawings or alternative location drawings approved by the MDAD.
- F. Total monetary value, by bid item and associated quantity for each activity.
- G. Detailed schedule of all "utility shut-downs" which would impact on MDAD, F.I.S., airlines, tenants, and other building operations or functions including, but not limited to power, telephone telecommunication systems, FAA facilities, domestic and fire hydrant water systems, and sanitary sewer systems.
- H. Sequence and interdependence of all activities required for complete performance of all items of work under this contract.
- I. All network restraints (restraining ties between activities which restrict the start or finish or another activity).
- J. Shop drawing submittals by the Contractor, reviews by the Architect/Engineer.
- K. Fabrication and delivery activities for all equipment, including that furnished by the MDAD, and materials to be installed during the project.
- L. Dates for ordering long lead items (materials, equipment, or specialty shop fabricated work).
- M. Appropriate advance notice to tenant(s) is required prior to start of work in occupied or used tenant spaces.
- N. When all permits will be required and when they will be in hand.
- O. The value of stored materials shall be tracked by bid item and associated quantity for payment purposes.
- P. Establish cost categories to track stored material and bid item quantity adjustments.

CONSTRUCTION SCHEDULES – COMPUTERIZED CPM FORMAT
UNIT PRICE CONTRACTS

The Contractor shall also provide the following information: work days per week, holidays, number of shifts per day, number of hours per shift, number of prime time work hours, proposed schedule of "utility shut-downs", Special Equipment or Machinery to be used, and list of work activities which must be performed during restricted or special working hours.

The precedence diagram shall show the sequence and interdependence of all activities required for complete performance of all items of work under this contract, including shop drawing submittals and approvals and fabrication and delivery activities.

Long-term construction activities shall be broken down into recognizable smaller activities so that no activity will be longer than 15 workdays.

The MDAD reserves the right to selectively limit the number of activities in the schedule.

The schedule shall be sufficiently detailed to track the progress of each activity and the project, as a whole, on a daily basis. The activities shall be clearly described so that the work is readily identifiable. The progress of each activity is to be reasonable and based on the amount of bid item quantities involved. When added together, the dollar value of all activities shall equal the Contract.

The overall project schedule shall be prepared and submitted to the Field Representative within forty-five (45) calendar days from the effective date of the Notice to Proceed.

The precedence diagram submitted by the Contractor shall be drawn in the format approved by the MDAD and shall be accompanied by a computer generated and plotted schedule utilizing Primavera Project Planner scheduling software. The Contractor shall exercise sufficient care to produce clear, legible, and accurate diagrams. The Contractor shall group activities related to specific physical areas on the diagram for ease of understanding and simplification.

The MDAD will review the overall project schedule for compliance with the Contract requirements as to staging, phasing, and the time of completion. Such review and acceptance of these schedules does not imply either the Architect/Engineer's, the Field Representative's or the MDAD's endorsement and/or responsibility of each and every activity duration or sequence of activities.

The overall project schedule shall be updated monthly. This monthly update shall generate a report that will indicate the remaining duration along with schedule and percent complete for each activity. This report together with the monthly sorts, organized by bid items, will act as the basis for the Contractor's requests for partial payment and shall be submitted with it.

The duration of the overall project schedule shall agree with the duration of the Contract as stipulated in the Bid Form, or as modified by the Contract provisions described in these Contract Documents.

1.05

NEAR TERM SCHEDULE

CONSTRUCTION SCHEDULES – COMPUTERIZED CPM FORMAT UNIT PRICE CONTRACTS

The near term project schedule shall delineate, in the same detail as required for the overall project schedule, the work anticipated for the first ninety (90) calendar days after Notice to Proceed (NTP), with the balance of project duration, including all milestones, shown in summary form. The near term project schedule shall be prepared and submitted to the Field Representative prior to the Notice to Proceed.

1.06 CONSTRUCTION PROGRESS REPORT

As part of the monthly updating process, the Contractor shall prepare a construction progress report describing the physical progress during the report period, plans for the forthcoming report period, actions to correct any negative float predictions, and potential delays and problems and their estimated impact on performance, and the overall project completion date.

- A. Clearly describe all approved revisions to the accepted overall project schedule for that period.
- B. Report actual progress by updating the mathematical analysis for the accepted overall project schedule.
- C. Show tasks/activities, or portions of activities completed during the reporting period, and actual quantities installed.
- D. State the percentage of work actually completed as of the report date, and the progress along the critical path in terms of days ahead of or days behind the allowable dates.
- E. Report progress along other paths with negative float, if the work is behind schedule.
- F. Include a narrative report which describes, but is not necessarily limited to:
 - 1. Description of the problem areas, current and anticipated;
 - 2. List of delaying factors and their impact;
 - 3. Explanation of corrective actions taken or proposed.
- G. Describe plans/actions for the next report period.

1.07 SCHEDULE REVISIONS

The overall project schedule may be revised from time to time as conditions may require, and as approved by the MDAD provided, however, that nothing in this Article shall be construed to authorize or approve any extension of time or increase in Contract price, it being expressly understood and agreed that time extensions or increase in contract price, if any, may only be granted in accordance with the applicable requirements of the Contract Documents. Any further revisions to the overall project schedule durations, restrictions, lags or any other logic or cost related components of the schedule must be accepted, in writing, by the MDAD.

CONSTRUCTION SCHEDULES – COMPUTERIZED CPM FORMAT
UNIT PRICE CONTRACTS

The Contractor may make only those revisions to the construction schedule as are accepted in advance by the MDAD. In the event of a revision, the Contractor shall make certain that not more than one activity shall have the same activity identification number. The activity numbers of deleted activities shall not be used again.

Changes to the Contract by Work Order or Change Order are to be included in the overall project schedule. The new activities and logic are to be reviewed and accepted by the MDAD prior to being incorporated into the accepted overall project schedule.

Once the changes are accepted, the Contractor's schedule revisions shall be incorporated into the previously accepted overall project schedule with the same force as the original schedule. It is understood that should the Contractor fall behind in the schedule and not be entitled to any time extension other than the extension already reflected, the Contractor shall submit his plan for bringing his work back up to schedule and shall implement the plan. If other measures are not sufficient to make up the lag, the Contractor's plan and implementation thereof shall include increasing the number of workers, shifts, days of work, and/or instituting or increasing overtime, all at no additional cost to the MDAD.

1.08 DUTIES

The Field Representative or the MDAD's scheduling representative will perform those duties assigned by the MDAD. They will be available to offer suggestions in regard to the interrelation of project activities, and schedule content and format, help identify predecessor activities which relate to other construction projects and other MDAD, airlines, tenant, building, and inter-project activities. The Contractor shall perform those respective duties set forth in this Provision and Section 013126-06 - Construction Scheduling Management System. The Contractor shall make decisions with regard to the interrelation of project activities, and schedule content and format, and shall identify predecessor activities which relate to each activity.

1.09 SCHEDULE SUBMITTALS

To facilitate and enhance the use of Contractor provided scheduling and cost related information required by the Contract Documents, the Contractor shall utilize Primavera Project Planner Software and provide the following:

A. Initial Baseline Schedule Submittals. The near term schedule submittal (activities for first 90 days) shall be submitted prior to the NTP. The overall project schedule submittal (all activities required for the entire contract) shall be submitted within 45 calendar days after NTP. Submit a hard copy of the near term and overall project schedules with detailed predecessor and successor analysis, and cost and resource tabular reports.

B. Monthly Update Submittals. Contractor may use the near term schedule to fulfill the scheduling requirements of the Contract for the initial monthly update. Starting at the second monthly update and continuing

CONSTRUCTION SCHEDULES – COMPUTERIZED CPM FORMAT
UNIT PRICE CONTRACTS

for the remainder of the Project, the Contractor shall use the overall project schedule to fulfill the scheduling requirements of the Contract.

- C. Submit computer flash drives with each of the above submittals, containing the files used to generate the above reports, the near term schedule and the current overall project schedule.

Contractor shall conform to the standard schedule, cost and resource report formats supplied by the MDAD.

1.10 REPORTS, SORTS AND ELECTRONIC PDF FILES

Unless indicated otherwise, all reports and computer sorts shall depict all activities and their durations required to complete the entire project.

Each budget report shall be accompanied by a separate detailed cost report, which shall break down each activity into total material and labor costs. Labor costs for each activity shall be further broken down into total regular time and total premium time amounts.

The initial, and monthly schedules, reports, and sorts shall be consistent with the accepted overall project schedule.

Each request for payment must be accompanied by the updated report of both time and costs, together with all required sorts and electronic pdf file copies, based on the monthly update of the approved Overall Project Schedule. Requests for payment will not be processed unless properly submitted as specified.

All costs and time associated with the preparation and distribution of schedules, reports, sorts, and other supportive information required by this Article for the entire Project shall be deemed incidental to and included in the Contract Bid Price Item(s).

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

PART 4 FORMS

Copies of the time impact analysis forms to be filed by the Contractor in submitting a claim involving a request for time extension follow in Section 013216-05 as:

APPENDICES

Section 013216-05-1, Time Impact Analysis Summary Sheet
Section 013216-05-2, Time Impact Detail Sheet

END OF SECTION

CONSTRUCTION SCHEDULES – COMPUTERIZED CPM FORMAT
UNIT PRICE CONTRACTS

TIME IMPACT ANALYSIS SUMMARY SHEET

(TIA)

Contract No: _____ Page ___ of ____

Contract Project Title: _____

Contractor Company Name: _____

Title of Event Delayed: _____

Event Reference Number: _____

Event References (drawings, transmittals, work orders, change orders, correspondence, etc.):

(continue on separate attachment if required)

Date of Approved Updated Schedule Used for Analysis:

Schedule File Name: _____

Detailed Description of Cause of Delay: _____

(continue on separate attachment if required)

Detailed Description of Work Delayed:

(continue on separate attachment if required)

SECTION 013216-06

CONSTRUCTION SCHEDULING MANAGEMENT SYSTEM

PART 1 GENERAL

1.01 REQUIREMENT INCLUDED

A. Procedures for the construction scheduling Management System.

1.02 RELATED REQUIREMENTS

A. Section 011000 - Summary of Work.

B. Section 013216 - Progress Schedules.

C. **Section 013216-04 - Progress Schedules (Computerized Project Planner Format) Unit Price Contracts**

1.03 The Contractor and all subcontractors shall participate in the Construction Scheduling Management System as provided for in these Specifications.

1.04 There shall be regular Scheduling Coordination meetings, which will generally be a part of the weekly construction coordination meetings. The first such Scheduling Coordination meeting shall be two weeks after the date of Notice to Proceed and each subsequent Scheduling Coordination meeting shall be every two weeks thereafter. The Field Representative may schedule additional Scheduling Coordination meetings. Unless otherwise directed by the Field Representative, the Scheduling Coordination meetings shall be held at the job site and shall be attended by the Contractor and all subcontractors. The Contractor and subcontractors shall be represented at each Scheduling Coordination meeting by a person or persons authorized to make decisions and commitments regarding schedules, crew sizes, sequence(s) of events and similar scheduling matters on behalf of said Contractor or subcontractor. The Field Representative may authorize specified subcontractors not to attend one or more of the Scheduling Coordination meeting.

1.05 The Scheduling Coordination meeting shall be a forum to establish the true state of completion of the project, to update the status of the delivery of material and equipment items and to prepare or revise the detailed Near Term Progress Schedule.

1.06 After each Scheduling Coordination meeting, the Field Representative or the MDAD's scheduling representative will prepare and distribute a report including the following: (A) a copy of the latest approved Near Term Progress Schedule; (B) a status review of the project; (C) a written analysis of problem areas and proposed solutions thereto; (D) the trend chart showing the trends of the completion dates of significant segments of the project; and (E) a listing of the more critical activities on which work should be accomplished before the next Scheduling Coordination meeting.

1.07 The Contractor shall provide all schedules required under this Article. The Field Representative or the MDAD's scheduling representative may, from time to time, propose revisions to the Overall Project Schedule and Near Term Schedules to reflect the current status of the project. Draft revisions shall be circulated to all parties for review and

comment. When approved the MDAD, the revised overall project schedule and the Near Term Schedules shall become effective.

1.08 In the event any activity is behind schedule and, unless a time extension is claimed and granted in accordance with the applicable requirements of the General Conditions, the Contractor shall reschedule each such activity so as not to delay the Contract completion. If such rescheduling is not accomplished within a reasonable time, the Contractor, the Field Representative, and the MDAD's scheduling representative (if other than the Field Representative) shall meet to develop a program to bring each such activity back on schedule. Said program may include any or all of the following:

- A. Carrying out the activity with the crew size shown on the Overall Project Schedule, using overtime/prime time work to complete or bring current the activity.
- B. Increasing the crew size(s) and/or number of shifts to a level sufficient to complete or bring current the activity.
- C. Any combination of activities which will complete or bring current the activity.

Unless a claim for time extension, additional compensation or for any other relief under the Contract is processed in accordance with the provisions of applicable requirements of the General Conditions, the Contractor shall perform the work under the aforesaid program at no additional cost to the MDAD.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 013233

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Periodic construction photographs.
3. Final completion construction photographs.
4. Preconstruction video recordings.
5. Periodic construction video recordings.
6. Construction webcam.

1.2 RELATED REQUIREMENTS

- A. Section 017700 - Contract Closeout Procedures for submitting photographic documentation as Project Record Documents at Project closeout.
- ~~B. Section 017900 - Demonstration and Training for submitting video recordings of demonstration of equipment and training of MDAD's personnel.~~

1.3 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each **photograph and video recording**. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within **three** days of taking photographs.
1. Submit photos **on thumb-drive** or by uploading to web-based project software site. Include copy of key plan indicating each photograph's location and direction.
 2. Identification: Provide the following information with each image description **in file metadata tag** and/or **in web-based project software site**:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect **and Construction Manager**.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of location, vantage point, and direction.
 - g. Unique sequential identifier keyed to accompanying key plan.

- C. Printed Photographs: Submit **two** sets of prints of each photographic view within **seven** days of taking photographs.
1. Format: 8" x 10" (203-mm x 254-mm) smooth-surface matte prints on single-weight, paper; enclosed back to back in clear plastic sleeves punched for three-ring binder. Include copy of key plan indicating each photograph's location and direction. Provide one binder for each set of prints.
 2. Identification: On back of each print, label with the following information:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect **and Construction Manager**.
 - d. Name of Contractor.
 - e. Date photograph was taken if not date stamped by camera.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- D. Video Recordings: Submit video recordings within [**seven**] **<Insert number>** days of recording.
1. Submit video recordings **on thumb drive or by uploading to web-based project software site**. Include copy of key plan indicating each video's location and direction.
 2. Identification: With each submittal, provide the following information **in file metadata tag** and/or **on web-based project software site**:
 - a. Name of Project.
 - b. Name and address of photographer.
 - c. Name of Architect **and Construction Manager**.
 - d. Name of Contractor.
 - e. Date video recording was recorded.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
 3. Transcript: Prepared on 8-1/2" x 11" (215-mm x 280-mm) paper, punched and bound in three-ring binders. Provide label on front and spine. Include a cover sheet with label information. Include name of Project and date of video recording on each page.
- E. Time-Lapse Video: Submit time-lapse sequence video recordings **simultaneously with recording within 7 days of recording**.
1. Submit time-lapse sequence video recordings **monthly on thumb drive or by uploading to web-based project software site**.
 2. Identification: For each recording, provide the following information **in file metadata tag** and/or **on web-based project software site**:
 - a. Name of Project.
 - b. Name and contact information for photographer.

- c. Name of Architect **and Construction Manager**.
- d. Name of Contractor.
- e. Date(s) and time(s) video recording was recorded.
- f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.

1.4 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.
- B. Construction Webcam Service Provider: A firm specializing in providing photographic equipment, web-based software, and related services for construction projects, with record of providing satisfactory services similar to those required for Project.

1.5 FORMATS AND MEDIA

- A. Digital Photographs: Provide color 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, and with vibration-reduction technology. Use flash in low light levels or backlit conditions.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of **12** megapixels and capable of recording in full high-definition mode **with vibration-reduction technology**. Provide supplemental lighting in low light levels or backlit conditions.
- C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
- D. Metadata: Record accurate date and time **and GPS location data** from camera.
- E. File Names: Name media files with **date, Project area** and sequential numbering suffix.

1.6 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. General: Take photographs with maximum depth of field and in focus.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before **starting construction**, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by **Architect** and/or **Construction Manager**.
 - 1. Flag **construction limits** before taking construction photographs.
 - 2. Take **20** photographs to show existing conditions adjacent to property before starting the Work.
 - 3. Take **20** photographs of existing buildings either on or adjoining property to accurately record physical conditions at start of construction.
 - 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- D. Periodic Construction Photographs: Take **20** photographs **monthly** coinciding with the cutoff date associated with each Application for Payment. Select vantage points to show status of construction and progress since last photographs were taken. Aerial photographs must be provided with each Application for Payment using a Patt 107-certified drone pilot.
- E. Time-Lapse Sequence Construction Photographs: Take **20** photographs as indicated, to show status of construction and progress since last photographs were taken. Aerial photographs must be provided with each Application for Payment using a Part 107-certified drone pilot.
 - 1. Frequency: Take photographs **monthly, on the same date each month**.
 - 2. Vantage Points: Following suggestions by **Architect** and/or **Construction Manager** and Contractor, photographer to select vantage points. During each of the following construction phases, take not less than **two** of the required shots from same vantage point each time to create a time-lapse sequence as follows:
 - a. Commencement of the Work, through completion of subgrade construction.
 - b. Above-grade structural framing.
 - c. Exterior building enclosure.
 - d. Interior Work, through date of Substantial Completion.
- F. Final Completion Construction Photographs: Take **50** photographs after date of Substantial Completion for submission as Project Record Documents. **Architect** and/or [**Construction Manager**] will inform photographer of desired vantage points. Aerial photographs must be provided with each Application for Payment using a Part 107-certified drone pilot.

G. Additional Photographs: Architect **or Construction Manager** may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum **or in the allowance for construction photographs.**

1. Three days' notice will be given, where feasible.
2. In emergency situations, take additional photographs within 24 hours of request.
3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Special events planned at Project site.
 - b. Immediate follow-up when on-site events result in construction damage or losses.
 - c. Photographs to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
 - d. Substantial Completion of a major phase or component of the Work.
 - e. Extra record photographs at time of final acceptance.
 - f. MDAD's request for special publicity photographs.

1.7 ~~CONSTRUCTION VIDEO RECORDINGS~~

~~A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings.~~

~~B. Narration: Describe scenes on video recording by **audio narration by microphone while** video recording is recorded. Include description of items being viewed, recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.~~

- ~~1. Confirm date and time at beginning and end of recording.~~
- ~~2. Begin each video recording with name of Project, Contractor's name, videographer's name, and Project location.~~

~~C. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from video recording opposite the corresponding narration segment.~~

~~D. Preconstruction Video Recording: Before starting **construction**, record video recording of Project site and surrounding properties from different vantage points, as directed by **Architect** and/or **Construction Manager**.~~

- ~~1. Flag **construction limits** before recording construction video recordings.~~
- ~~2. Show existing conditions adjacent to Project site before starting the Work.~~
- ~~3. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of **construction**.~~
- ~~4. Show protection efforts by Contractor.~~

~~E. Periodic Construction Video Recordings: Record video recording **monthly coinciding with the cutoff date associated with each Application for Payment**. Select vantage~~

~~points to show status of construction and progress since last video recordings were recorded. Minimum recording time shall be 30 minutes(s). Aerial videos must be provided with each Application for Payment using a Part 107-certified drone pilot.~~

~~F. Time Lapse Sequence Construction Video Recordings: Record video recording to show status of construction and progress.~~

~~1. Frequency: During each of the following construction phases, set up video recorder to automatically record one frame of video recording every five minutes, from same vantage point each time, to create a time-lapse sequence of 30 minutes in length as follows:~~

- ~~a. Commencement of the Work, through completion of subgrade construction.~~
- ~~b. Above-grade structural framing.~~
- ~~c. Exterior building enclosure.~~

~~2. Timer: Provide timer to automatically start and stop video recorder so recording occurs only during daylight hours.~~

~~3. Vantage Points: Following suggestions by Architect and/or Construction Manager and Contractor, photographer shall select vantage points.~~

1.8 CONSTRUCTION WEBCAM

~~A. Webcam: Provide [one] [two] <Insert number> fixed-location camera(s) with weatherproof housing, mounted to provide unobstructed view of construction site from location approved by Architect, with the following characteristics:~~

- ~~1. [Static view] [Remotely controllable view with mouse-click user navigation for horizontal pan, vertical tilt, and optical zoom of 500 percent minimum].~~
- ~~2. Capable of producing minimum [8] [12] <Insert number> megapixel images.~~
- ~~3. Provide power supply, active high speed data connection to service provider's network, and static public IP address for each camera.~~

~~B. Live Streaming Images: Provide web-accessible image of current site image, updated at [five] [15] <Insert number> minute intervals [during daytime operation] [when construction is underway].~~

~~C. Web-Based Interface: Provide online interface to allow viewing of each high-definition digital still image captured and stored during construction, from the Internet.~~

- ~~1. Access Control: Provide password-protected access for Project team administered by Contractor, providing current image access and archival image access by date and time, with images downloadable to viewer's device.~~
- ~~2. Storage: Maintain images on the website for reference during entire construction period, and for not less than 30 days after final completion. Provide sufficient memory on remote server to store all Project images.~~

- ~~3. Online Interface: Provide website interface with Project and client information and logos; calendar based navigation interface for selecting images; pan and zoom capability within high definition images.~~
- ~~4. Forward and Reverse: Provide capability to browse through images, moving forward and backward in time by individual image and by day.~~
- ~~5. Slideshow: Provide capability to automatically display current images from sites when there are three or more cameras used.~~
- ~~6. Time Lapse: Provide capability for online display of project time lapse.~~
- ~~7. Dashboard: Provide capability to view thumbnails of all cameras on one screen.~~
- ~~8. Weather: Provide corresponding weather data for each image captured.~~
- ~~9. Provide public viewer open access [**to most recent Project camera image**].~~

~~D. Maintain cameras and web based access in good working order according to web based construction photographic documentation service provider's written instructions until final completion. Provide for service of cameras and related networking devices and software.~~

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

SECTION 013300
SUBMITTALS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Procedures.
- B. Construction Progress Schedules.
- C. Schedule of Values.
- D. Shop Drawings.
- E. Product Data.
- F. Samples.
- G. Manufacturers' Instructions.
- H. Manufacturers' Certificates.
- I. Progress Photographs

1.02 RELATED REQUIREMENTS

- A. General Conditions - Definitions, basic responsibilities of entities, and Article 4.8 Substitution
- B. Section 011000 - Summary of Work.
- C. Section 012900 - Applications for Payment.
- D. Section 013113 - Coordination
- E. Section 013216 - Construction Schedules
- F. Section 013216-01 - Construction Schedules (Computerized Project Planner Format)
- G. ~~Section 013216-03 - Construction Schedules (Conventional CPM Format)~~
- H. Section 013216-04 - Construction Schedules (Computerized CPM Format) Unit Price Contracts
- I. Section 013323 - Shop Drawings, Product Data and Samples.

- J. Section 012973 - Schedule of Values.
- K. Section 014000 - Contract Quality Control.
- L. Section 016000 - Material and Equipment.
- M. Section 017700 - Contract Closeout Procedures.
- N. Section 017823 - Operation and Maintenance Data
- O. ~~Section 017900 - Demonstration and Training~~
- P. Section 019113 - Commissioning Requirements

1.03

PROCEDURES

- A. Deliver submittals to the Field Representative.
- B. Identify Project, Project Number, dates of previous submittals, Contractor, subcontractors, suppliers; identify pertinent drawings by sheet and detail number, and Specification Section number, as appropriate, Identify deviations from Contract Documents. Provide space for Contractor and Architect/Engineer review stamps.
- C. Before commencing any work, prepare and submit to the Field Representative the initial Progress Schedule and Schedule of Values in triplicate. After review by Architect/Engineer revise and resubmit as required for approval by the Architect/Engineer and MDAD. Submit revised Progress Schedule with each application for partial payment, reflecting changes since previous submittal.
- D. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.
- E. After Architect/Engineer review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
- F. Distribute copies of reviewed submittals to concerned parties. Instruct recipients to promptly report any inability to comply with provisions.
- G. No partial payment will be processed without a current approved Near Term and Overall Progress Schedule and an approved Schedule of Values.

1.04 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit progress schedule in the form and procedure specified in Sections 013216 and **013216-04**.
- B. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. This is to include the commissioning activities, such as, but not limited to, pre-functional testing, functional testing, and training. Show projected percentage of completion for each item of work as of time of each Application for Progress Payment.
- C. Show submittal dates required for shop drawings, product data and samples and product delivery dates, including those furnished by MDAD.

1.05 SCHEDULE OF VALUES

- A. Submit typed preliminary Schedule of Values on MDAD provided forms.
- B. Submit typed Schedule of Values on MDAD provided forms.
- C. Format: Identify each line item with number and title of the major Specification Sections or major components of this item.
- D. Include specified Allowances, if any, in each line item amount.
- E. Include in each line item a directly proportional amount of Contractor's overhead and profit.
- F. Provide a sub-schedule for each separate stage of work specified in Section 011000.
- G. Revise Schedule of Values to list Change Orders and Work Orders, for each Application of Partial Payment.

1.06 SHOP DRAWINGS

- A. Prior to the submission of any shop drawing, but not later than 30 days from the effective date of the Notice to Proceed, the Contractor shall prepare and submit to the Field Representative, a Schedule of Shop Drawing submittals stating when each shop drawing or sample will be provided ~~for~~ to the Field Representative for review.
- B. The Contractor shall be responsible for the preparation of detailed shop drawings necessary for the fabrication, erection, and construction of all parts of the work in conformity with the requirements of the Contract Documents.
- C. Submit shop drawings per the schedule of shop drawing submittals, inserted in one loose leaf binder, with tabs and index to the Field Representative. All individual submittal sheets inserted in said binder must be clearly marked and referenced to proper paragraph and subparagraph of specifications. Cross out any items on

sheets which constitute information not pertaining to equipment specified. Clearly mark all components that are provided as "optional" by manufacturer. Shop drawings shall be approved by Contractor prior to submittal to the Field Representative Shop drawings will be reviewed by the Architect/Engineer. After Architect-Engineer approval, reproduce and distribute in accordance with requirements in Section 013323.

- D. All submissions of shop drawings, brochures and catalog cuts shall be accompanied by a transmittal letter listing the drawings submitted by number and title.
- E. When professional calculations and/or certification of performance criteria of materials, systems, and/or equipment is required, the Architect/Engineer is entitled to rely upon the accuracy and completeness of such calculations and certifications submitted by Contractor. Calculations, when required, shall be submitted in a neat, clear and in an easy to follow format. Such calculations and/or certifications shall be signed and sealed by a Professional Engineer registered in the State of Florida.
- F. Failure to comply with any of the above may result in the rejection of shop drawings.

1.07 PRODUCT DATA

- A. Submit not less than six copies, as approved by the Field Representative and required in Section 013323. Mark each copy to identify applicable products, models, options and other data; supplement manufacturers' standard data to provide information unique to the work.

1.08 MANUFACTURER'S INSTRUCTIONS

- A. When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing, in quantities specified for product data.

1.09 SAMPLES

- A. Submit full range of manufacturers' standard colors, textures and patterns for Architect/Engineer's selection. Submit samples for selection of finishes within **thirty** days after Award of Contract. All color and finish selections must be submitted by the Contractor in a single submission, properly labeled and identified.
- B. Submit sample to illustrate functional characteristics of the product, with integral parts and attachment devices. Coordinate submittal of different categories for interfacing work.
- C. Include identification on each sample, giving full information.
- D. Submit the number specified in respective Specification section; one will be retained by Architect/Engineer. Reviewed samples which may be used in the work are indicated in the Specification Section.

1.10 FIELD SAMPLES

A. Provide field samples of finishes at project as required by individual Specifications section. Install sample complete and finished. Acceptable samples in place may be retained in completed work.

1.11 PROGRESS PHOTOGRAPHS

A. Contractor shall provide monthly progress aerial photographs of construction activities. Drone pilot for the photographs must be Part 107-certified drone pilot.

A. STILL PHOTOGRAPHS (Film or Digital)

1. Before construction operations have started at the site, the Contractor shall take and provide color photographs showing the existing conditions and thereafter an average of 10 views shall be taken each **month** until completion of the work. The actual number and location of views to be taken each time will be determined by the Field Representative.

Two color print copies and JPEG electronic files of photographs of each view shall be submitted to the Field Representative on a computer USB flash drive promptly after taking the views. Aerial photographs must be provided with each Application for Payment using a Part 107-certified drone pilot.

2. Photographs shall be of standard commercial quality, 8" x 10" in size of heavy-weight glossy paper; each photograph shall be enclosed in a double-face plastic sleeve. Each photograph shall show an information box in the lower right hand corner approximately 1-1/2" high box shall be incorporated into the print by a computerized process and shall not be pasted to the finished print.

The following information shall be typed, not handwritten, in the box:

MDAD Project Manager's Name Miami-Dade Aviation
 Department - CONTRACT No. W125A

 (Architect/Engineer's Name)

 (Field Representative's Name)

 (Contractor's Name)
 View No. _____ Date _____

(Information regarding view such as location, direction of sight and significant points of interest.)

The Contractor shall notify the Field Representative 24 hours in advance of taking any photographs.

B. VIDEO

1. Before construction begins at any site and at frequent intervals during the construction at any phase or site of the work, the Contractor shall take digital video recording of the existing condition and of the work as it progresses. Audio description, in the English language, describing the views (location, angle, date, time of day, type of construction, etc.) shall be incorporated into the video. Digital videos shall be submitted on computer USB flash drives.
 2. Location and frequency of taking these videos shall be as directed by the Field Representative.
 3. A copy of each video properly identified with a typewritten label properly affixed to the computer USB flash drive and accompanied by a typewritten sheet describing the views shall be submitted to the Field Representative, promptly after videoing. The Contractor shall notify the Field Representative 24 hours in advance of making any videos of the site or of the work.
- C. Any and all still photographs and videos taken of the construction area are MDAD's property and shall not be released to any source whatsoever without the prior written permission from MDAD. This provision shall prevail for the duration of the contract and indefinitely thereafter.

1.12 SUBMITTAL REQUIREMENTS FOR COMMISSIONING

- A. The Contractor shall submit, to the Field Representative, specific additional information needed about each piece of equipment or system to be commissioned that is requested in writing by the Project Manager. The data request(s) may be made prior to normal submittals.
- B. The Contractor shall notify the Field Representative of all new design intent or operating parameter changes, added control strategies and sequences of operation, or other changes that may affect commissioned systems.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 013323
SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Procedures for submittal.
- B. Schedule of submittals.

1.02 RELATED REQUIREMENTS

- A. General Conditions - Definitions, basic responsibilities of entities, and Article 4.8 Substitution
- B. Section 013113 - Coordination.
- C. Section 013300 - Submittals.
- D. Section 014000 - Contract Quality Control: Mockups and samples for testing.
- E. Section 016000 - Material and Equipment: Product options.
- F. Section 017839 - Project Record Documents.

1.03 SHOP DRAWINGS

- A. "Shop Drawings" are defined as drawings, diagrams, illustrations, schedules, catalog cuts, performance charts, brochures, and other data prepared by the Contractor or any subcontractor, manufacturer, supplier or distributor, which illustrates how specific portions of the work shall be fabricated and/or installed.
- B. Shop drawings provided by the Contractor with each submittal shall be original drawings, sharp, clear and distinct.
- C. Each shop drawing shall be clear, thoroughly detailed, and shall have listed on it all Contract references, drawing number(s), specification section number(s), plus shop drawing numbers of related work by subcontractors, if applicable.
- D. Identify field dimensions; show relation to adjacent or critical features or work or products.
- E. Minimum Sheet Size: 8 ½" x 11".
- F. The Contractor shall submit a minimum of six (6) copies of "catalog cuts", "brochures" or "photographs." Additional copies shall be supplied when required by the Field Representative.

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- G. Shop drawings shall be complete in every detail, including a location plan relating the work to space identification such as station, offset, and column numbers, floor level, etc. Materials, gauges, method of fastening, size and spacing of fastenings, connections with other work, cutting, fitting, drilling, and any and all other necessary information per usual trade practice or as required for any specific purpose must be clearly shown.
- H. Each shop drawing shall contain a title block with the following information provided:
 - 1. Number and title of drawing, including MDAD Contract title and Number
 - 2. Date of drawing and revisions
 - 3. Name of Contractor and Subcontractor (if any) submitting drawings
 - 4. Name of Project, Building or Facility
 - 5. Specification Section title and number
 - 6. Contractor's Stamp of approval, signed by the Contractor or his checker
 - 7. Space above the title block for Architect/Engineer's action stamp
 - 8. Submittal or resubmittal number (whether first, second, third, etc.)
 - 9. Date of submittal.

The Contractor, when requested by the Field Representative in writing, shall submit such additional shop drawings as may be required by the Architect/Engineer.

1.04 PRODUCT DATA

- A. Submit only pages that are pertinent; mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number. Show reference standards, performance characteristics and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
- B. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.
- C. All products requiring compliance with the Buy American Clause shall bear a stamp or marking attesting to their place of origin and the Contractor shall provide written certification of compliance with the Buy American Clause from the product manufacturer and/or supplier, submitted with the product shop drawings and as may also be required in other submittals by the Contract Documents.
 - 1. If at any time MDAD determines that a product is not in compliance with the Buy American Clause, MDAD shall be entitled to replace such product with a buy American compliant product. The Contractor shall be responsible for all labor, materials and consequential costs associated with such replacement.

1.05 SAMPLES

- A. Submit full range of manufacturer's standard finishes except when more restrictive requirements are specified, indicating colors, textures and patterns, for selection. All color

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

and finish schedules must be submitted by the Contractor in a single submission properly identified and labeled.

- B. Submit samples to illustrate functional characteristics of products, including parts and attachments.
- C. Approved samples which may be used in the work are indicated in the Specification section.
- D. Label each sample with identification required for transmittal letter.
- E. Provide field samples of finishes at Project, at location acceptable to the Field Representative, as required by individual Specifications section. Install each sample complete and finished. Acceptable finishes in place may be retained in completed work.

1.06 CONTRACTOR REVIEW

- A. The Contractor shall check and approve all shop drawings to make sure that they conform to the Plans, Technical Specifications, and other Contract requirements, and shall correct all shop drawings found to be inaccurate or otherwise in error, prior to submittal to the Field Representative. The Contractor shall verify all field dimensions and criteria and shall be responsible for the coordination of work by all Subcontractors. The Contractor, by approving and submitting shop drawings, represents that he has determined and verified the accuracy of all field measurements and quantities, field construction criteria, materials, catalog numbers, and similar data, and that he has reviewed and coordinated the information in the shop drawings with the requirements of the work and the Contract Documents.
- B. Review manufacturer's catalog numbers, and conformance of submittal with requirements of Contract Documents.
- C. Coordinate submittals with requirements of work and Contract Documents.
- D. The Contractor or the Contractor's checker shall sign, in the proper block, each sheet of shop drawings and data, and each sample label to certify compliance with requirements of Contract Documents. Shop drawings submitted without such stamp and signature of approval will be returned to the Contractor unchecked and will require a re-submission. In such event, it will be deemed that the Contractor has not complied with the requirements of this Section and shall bear the risks of delays as if no drawings or details had been submitted.
- E. Notify Architect/Engineer through the Field Representative in writing at time of submittal, of any deviation(s) from requirements of Contract Documents.
- F. Do not order material, fabricate products or begin work that requires submittals until return of submittal with Architect/Engineer acceptance.

1.07 SUBMITTAL REQUIREMENTS

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Transmit submittals in accordance with approved Progress Schedule and in such sequence so as to avoid delay in the work or work of other contracts. Submit copy of shop drawings transmittal letter and requests for substitutions, if any, to the Field Representative.
- B. Provide space on each submittal for Contractor and Architect/Engineer action stamps.
- C. Apply Contractor's approval stamp, signed or initialed, certifying to review, verification of products, field dimensions and field construction criteria and coordination of information with requirements of work and Contract Documents.
- D. Coordinate submittals into logical groupings to facilitate interrelation of the several items:
 - 1. Finishes that involve Architect/Engineer's selection of color, textures or patterns.
 - 2. Associated items that require correlation for efficient function or for installation.
- E. Submit number of copies the Contractor requires, plus six (6) copies of black line copies of shop drawings that will be retained by Architect/Engineer, Field Representative, and MDAD.
- F. Submit number of copies of product data and manufacturer's instructions Contractor requires, plus six (6) copies that will be retained by Architect/Engineer, Field Representative, and MDAD.
- G. Submit number of samples specified in individual Specification sections.
- H. Submit Contractor's approved transmittal letter. Identify project by MDAD contract title and number. Identify work and product by Specifications section and Article number.

1.08 RESUBMITTALS

- A. Make resubmittals under procedures specified for initial submittals; clearly identify changes made since previous submittal.

1.09 ARCHITECT/ENGINEER AND FIELD REPRESENTATIVE

- A. The Architect/Engineer will review shop drawings and samples and indicate whatever action he/she is taking, within 14 calendar days from the date of its receipt at the Architect/Engineer's office, so as to minimize delay. The Architect/Engineer's review will be only for conformance with the design concept of the Contract and with the information given in the Contract Documents. The Architect/Engineer's approval of a separate item shall not constitute approval of an assembly in which the item functions. The Field Representative will return the shop drawings to the Contractor for his use and distribution.
- B. The Architect/Engineer's approval of shop drawings or samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect/Engineer through the Field Representative in writing of such deviation at the time of submission and the Architect/Engineer has given written approval to the specific deviation, nor shall the Architect/Engineer's approval relieve the Contractor from responsibility for errors or omissions in the shop drawings, product data sheets or samples.

1.10 DISTRIBUTION

- A. Distribute shop drawings, copies of product data and samples, which bear Architect/Engineer stamp of approval, to job site file, Record Documents file, sub-contractors, suppliers, **other affected contractors** and other entities requiring information.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 013516
ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Section includes special procedures for alteration work.

1.2 DEFINITIONS

- A. Alteration Work: This term includes remodeling, renovation, repair, and maintenance work performed within existing spaces or on existing surfaces as part of the Project.
- B. Consolidate: To strengthen loose or deteriorated materials in place.
- C. Design Reference Sample: A sample that represents the Architect's prebid selection of work to be matched; it may be existing work or work specially produced for the Project.
- D. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- E. Match: To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by Architect.
- F. Refinish: To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.
- G. Repair: To correct damage and defects, retaining existing materials, features, and finishes. This includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials.
- H. Replace: To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- I. Replicate: To reproduce in exact detail, materials, and finish unless otherwise indicated.
- J. Reproduce: To fabricate a new item, accurate in detail to the original, and from either the same or a similar material as the original, unless otherwise indicated.
- K. Retain: To keep existing items that are not to be removed or dismantled.
- L. Strip: To remove existing finish down to base material unless otherwise indicated.

1.3 COORDINATION

- A. Alteration Work Subschedule: A construction schedule coordinating the sequencing and scheduling of alteration work for entire Project, including each activity to be performed, and based on Contractor's Construction Schedule. Secure time commitments for performing critical construction activities from separate entities responsible for alteration work.
1. Schedule construction operations in sequence required to obtain best Work results.
 2. Coordinate sequence of alteration work activities to accommodate the following:
 - a. MDAD's continuing occupancy of portions of existing building.
 - b. MDAD 's partial occupancy of completed Work.
 - c. Other known work in progress.
 - d. Tests and inspections.
 3. Detail sequence of alteration work, with start and end dates.
 4. Utility Services: Indicate how long utility services will be interrupted. Coordinate shutoff, capping, and continuation of utility services.
 5. Use of elevator and stairs.
 6. Equipment Data: List gross loaded weight, axle-load distribution, and wheel-base dimension data for mobile and heavy equipment proposed for use in existing structure. Do not use such equipment without certification from Contractor's professional engineer that the structure can support the imposed loadings without damage.
- B. Pedestrian and Vehicular Circulation: Coordinate alteration work with circulation patterns within Project building(s) and site. Some work is near circulation patterns **and adjacent to restricted areas**. Circulation patterns cannot be closed off entirely and in places can be only temporarily redirected around small areas of work. **Access to restricted areas may not be obstructed**. Plan and execute the Work accordingly.

1.4 PROJECT MEETINGS FOR ALTERATION WORK

- A. Preliminary Conference for Alteration Work: Before starting alteration work, **Construction Manager will conduct** conference at **Project site or TMB Administration Building**.
1. Attendees: In addition to representatives of MDAD, **Construction Manager**, Architect, and Contractor, **MDAD's insurer**, testing service representative, specialists, and chemical-cleaner manufacturer(s) shall be represented at the meeting.
 2. Agenda: Discuss items of significance that could affect progress of alteration work, including review of the following:
 - a. Alteration Work Subschedule: Discuss and finalize; verify availability of materials, specialists' personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Fire-prevention plan.
 - c. Governing regulations.

- d. Areas where existing construction is to remain and the required protection.
- e. Hauling routes.
- f. Sequence of alteration work operations.
- g. Storage, protection, and accounting for salvaged and specially fabricated items.
- h. Existing conditions, staging, and structural loading limitations of areas where materials are stored.
- i. Qualifications of personnel assigned to alteration work and assigned duties.
- j. Requirements for extent and quality of work, tolerances, and required clearances.
- k. Embedded work such as flashings and lintels, special details, collection of waste, protection of occupants and the public, and condition of other construction that affects the Work or will affect the work.

3. Reporting: **Construction Manager will record** conference results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from conference.

B. Coordination Meetings: Conduct coordination meetings specifically for alteration work at **weekly** intervals. Coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

- 1. Attendees: In addition to representatives of MDAD, **Construction Manager**, Architect, and Contractor, each specialist, supplier, installer, and other entity concerned with progress or involved in planning, coordination, or performance of alteration work activities shall be represented at these meetings. All participants at conference shall be familiar with Project and authorized to conclude matters relating to alteration work.
- 2. Agenda: Review and correct or approve minutes of previous coordination meeting. Review other items of significance that could affect progress of alteration work. Include topics for discussion as appropriate to status of Project.
 - a. Alteration Work Subschedule: Review progress since last coordination meeting. Determine whether each schedule item is on time, ahead of schedule, or behind schedule. Determine how construction behind schedule will be expedited with retention of quality; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities are completed within the Contract Time.
 - b. Schedule Updating: Revise Contractor's Alteration Work Subschedule after each coordination meeting where revisions to schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
 - c. Review present and future needs of each entity present, including review items listed in the "Preliminary Conference for Alteration Work" Paragraph in this article and the following:
 - 1) Interface requirements of alteration work with other Project Work.
 - 2) Status of submittals for alteration work.
 - 3) Access to alteration work locations.
 - 4) Effectiveness of fire-prevention plan.
 - 5) Quality and work standards of alteration work.

6) Change Orders for alteration work.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.5 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to MDAD that may be encountered or uncovered during the Work, regardless of whether they were previously documented, remain MDAD 's property.
 1. Carefully dismantle and salvage each item or object in a manner to prevent damage and protect it from damage, then promptly deliver it to MDAD where directed **at Project site or TMB Admin Building.**

1.6 INFORMATIONAL SUBMITTALS

- A. Alteration Work Subschedule:
 1. Submit alteration work subschedule within **30** days of date established for **commencement of alteration work.**
- B. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements that are to remain, including finish surfaces, that might be misconstrued as damage caused by Contractor's alteration work operations.
- C. Alteration Work Program: Submit **30 days** before work begins.
- D. Fire-Prevention Plan: Submit **30 days** before work begins.

1.7 QUALITY ASSURANCE

- A. Specialist Qualifications: An experienced firm regularly engaged in specialty work similar in nature, materials, design, and extent to alteration work as specified in each Section and that has completed a minimum of **five** recent projects with a record of successful in-service performance that demonstrates the firm's qualifications to perform this work.
 1. Field Supervisor Qualifications: Full-time supervisors experienced in specialty work similar in nature, material, design, and extent to that indicated for this Project. Supervisors shall be on-site when specialty work begins and during its progress. Supervisors shall not be changed during Project except for causes beyond the control of the specialist firm.
 - a. Construct new mockups of required work whenever a supervisor is replaced.
- B. Title X Requirement: Each firm conducting activities that disturb painted surfaces shall be a "Lead-Safe Certified Firm" according to 40 CFR 745, Subpart E, and use only workers that are trained in lead-safe work practices.

- C. Alteration Work Program: Prepare a written plan for alteration work for whole Project, including each phase or process and protection of surrounding materials during operations. Show compliance with indicated methods and procedures specified in this and other Sections. Coordinate this whole-Project alteration work program with specific requirements of programs required in other alteration work Sections.
 - 1. Dust and Noise Control: Include locations of proposed temporary dust- and noise-control partitions and means of egress from occupied areas coordinated with continuing on-site operations and other known work in progress.
 - 2. Debris Hauling: Include plans clearly marked to show debris hauling routes, turning radii, and locations and details of temporary protective barriers.
- D. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-control devices during each phase or process. Coordinate plan with MDAD 's fire-protection equipment and requirements. Include fire-watch personnel's training, duties, and authority to enforce fire safety.
- E. Safety and Health Standard: Comply with ANSI/ASSE A10.6.

1.8 STORAGE AND HANDLING OF SALVAGED MATERIALS

- A. Salvaged Materials:
 - 1. Clean loose dirt and debris from salvaged items unless more extensive cleaning is indicated.
 - 2. Pack or crate items after cleaning; cushion against damage during handling. Label contents of containers.
 - 3. Store items in a secure area until delivery to MDAD.
 - 4. Transport items to MDAD 's storage area **off-site**.
 - 5. Protect items from damage during transport and storage.
- B. Salvaged Materials for Reinstallation:
 - 1. Repair and clean items for reuse as indicated.
 - 2. Pack or crate items after cleaning and repairing; cushion against damage during handling. Label contents of containers.
 - 3. Protect items from damage during transport and storage.
 - 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment unless otherwise indicated. Provide connections, supports, and miscellaneous materials to make items functional for use indicated.
- C. Existing Materials to Remain: Protect construction indicated to remain against damage and soiling from construction work. Where permitted by Architect, items may be dismantled and taken to a suitable, protected storage location during construction work and reinstalled in their original locations after alteration and other construction work in the vicinity is complete.

- D. Storage: Catalog and store items within a weathertight enclosure where they are protected from moisture, weather, condensation, and freezing temperatures.
 - 1. Identify each item for reinstallation with a nonpermanent mark to document its original location. Indicate original locations on plans, elevations, sections, or photographs by annotating the identifying marks.
 - 2. Secure stored materials to protect from theft.
 - 3. Control humidity so that it does not exceed 85 percent. Maintain temperatures 5 deg F (3 deg C) or more above the dew point.

- E. Storage Space:
 - 1. MDAD will arrange for limited on-site location(s) for free storage of salvaged material. This storage space [**includes**] [**does not include**] security [**and climate control**] for stored material.
 - 2. Arrange for off-site locations for storage and protection of salvaged material that cannot be stored and protected on-site.

1.9 FIELD CONDITIONS

- A. Survey of Existing Conditions: Record existing conditions that affect the Work by use of **measured drawings, preconstruction photographs, and preconstruction video recordings**.
 - 1. Comply with requirements specified in Section 013233 - Photographic Documentation.

- B. Discrepancies: Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.

- C. MDAD's Removals: Before beginning alteration work, verify in correspondence with MDAD that the following items have been removed:

- D. Size Limitations in Existing Spaces: Materials, products, and equipment used for performing the Work and for transporting debris, materials, and products shall be of sizes that clear surfaces within existing spaces, areas, rooms, and openings, including temporary protection, by **12 inches** or more.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PROTECTION

- A. Protect persons, motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm resulting from alteration work.

1. Use only proven protection methods, appropriate to each area and surface being protected.
 2. Provide temporary barricades, barriers, and directional signage to exclude the public from areas where alteration work is being performed.
 3. Erect temporary barriers to form and maintain fire-egress routes.
 4. Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that must remain in service during alteration work.
 5. Contain dust and debris generated by alteration work and prevent it from reaching the public or adjacent surfaces.
 6. Provide shoring, bracing, and supports as necessary. Do not overload structural elements.
 7. Protect floors and other surfaces along hauling routes from damage, wear, and staining.
 8. Provide supplemental sound-control treatment to isolate demolition work from other areas of the building.
- B. Temporary Protection of Materials to Remain:
1. Protect existing materials with temporary protections and construction. Do not remove existing materials unless otherwise indicated.
 2. Do not attach temporary protection to existing surfaces except as indicated as part of the alteration work program.
- C. Comply with each product manufacturer's written instructions for protections and precautions. Protect against adverse effects of products and procedures on people and adjacent materials, components, and vegetation.
- D. Utility and Communications Services:
1. Notify MDAD, Architect, authorities having jurisdiction, and entities owning or controlling wires, conduits, pipes, and other services affected by alteration work before commencing operations.
 2. Disconnect and cap pipes and services as required by authorities having jurisdiction, as required for alteration work.
 3. Maintain existing services unless otherwise indicated; keep in service and protect against damage during operations. Provide temporary services during interruptions to existing utilities.
- E. Existing Drains: Prior to the start of work in an area, test drainage system to ensure that it is functioning properly. Notify Architect immediately of inadequate drainage or blockage. Do not begin work in an area until the drainage system is functioning properly.
1. Prevent solids such as adhesive or mortar residue or other debris from entering the drainage system. Clean out drains and drain lines that become sluggish or blocked by sand or other materials resulting from alteration work.
 2. Protect drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

- F. Existing Roofing: Prior to the start of work in an area, install roofing protection **as indicated on Drawings**.

3.2 PROTECTION FROM FIRE

- A. General: Follow fire-prevention plan and the following:

1. Comply with NFPA 241 requirements unless otherwise indicated.
2. Remove and keep area free of combustibles, including rubbish, paper, waste, and chemicals, unless necessary for the immediate work.
 - a. If combustible material cannot be removed, provide fire blankets to cover such materials.

- B. Heat-Generating Equipment and Combustible Materials: Comply with the following procedures while performing work with heat-generating equipment or combustible materials, including welding, torch-cutting, soldering, brazing, removing paint with heat, or other operations where open flames or implements using high heat or combustible solvents and chemicals are anticipated:

1. Obtain MDAD's approval for operations involving use of **open-flame or** welding or other high-heat equipment. Notify MDAD **at least 72 hours** before each occurrence, indicating location of such work.
2. As far as practicable, restrict heat-generating equipment to shop areas or outside the building.
3. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.
4. Use fireproof baffles to prevent flames, sparks, hot gases, or other high-temperature material from reaching surrounding combustible material.
5. Prevent the spread of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.
6. Fire Watch: Before working with heat-generating equipment or combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire-watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows:
 - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
 - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire-watch personnel perform final fire-safety inspection each day beginning no sooner than **30 minutes** after conclusion of work[**in each area** to detect hidden or smoldering fires and to ensure that proper fire prevention is maintained.

- e. Maintain fire-watch personnel at **each area of Project site until 60 minutes** after conclusion of daily work.
- C. Fire-Control Devices: Provide and maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and the fire-watch personnel are trained in fire-extinguisher and blanket use.
- D. Sprinklers: Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to sprinklers, shield them temporarily with guards.
 - 1. Remove temporary guards at the end of work shifts, whenever operations are paused, and when nearby work is complete.

3.3 PROTECTION DURING APPLICATION OF CHEMICALS

- A. Protect motor vehicles, surrounding surfaces of building, building site, plants, and surrounding buildings from harm or spillage resulting from applications of chemicals and adhesives.
- B. Cover adjacent surfaces with protective materials that are proven to resist chemicals selected for Project unless chemicals being used will not damage adjacent surfaces as indicated in alteration work program. Use covering materials and masking agents that are waterproof and UV resistant and that will not stain or leave residue on surfaces to which they are applied. Apply protective materials according to manufacturer's written instructions. Do not apply liquid masking agents or adhesives to painted or porous surfaces. When no longer needed, promptly remove protective materials.
- C. Do not apply chemicals during winds of sufficient force to spread them to unprotected surfaces.
- D. Neutralize alkaline and acid wastes and legally dispose of off MDAD's property.
- E. Collect and dispose of runoff from chemical operations by legal means and in a manner that prevents soil contamination, soil erosion, undermining of paving and foundations, damage to landscaping, or water penetration into building interior.

3.4 GENERAL ALTERATION WORK

- A. Have specialty work performed only by qualified specialists.
- B. Ensure that supervisory personnel are present when work begins and during its progress.
- C. Record existing work before each procedure (preconstruction), and record progress during the work. Use digital preconstruction documentation **photographs or video recordings**. Comply with requirements in Section 013233 - Photographic Documentation.

- D. Perform surveys of Project site as the Work progresses to detect hazards resulting from alterations.
- E. Notify Architect of visible changes in the integrity of material or components whether from environmental causes including biological attack, UV degradation, freezing, or thawing or from structural defects including cracks, movement, or distortion.
 - 1. Do not proceed with the work in question until directed by Architect.

END OF SECTION 013516

SECTION 014000
CONTRACT QUALITY CONTROL

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Quality control of products and workmanship.
- B. Mix design.
- C. Manufacturer's instructions.
- D. Manufacturer's certificates **and field services**.
- E. Equipment operations.
- F. Mockups.

1.02 RELATED REQUIREMENTS

- A. Section 014200 - Reference Standards.
- B. Section 013300 - Submittals.
- C. Section 013323 - Shop Drawings, Product Data and Samples.
- D. Section C-100 - Contractor Quality Control Program.
- E. Section 014529 - Project Testing Laboratory Services.
- F. Individual Technical Specification Sections: Field samples and mockups.

1.03 DESCRIPTION

- A. Maintain quality control over supervision, subcontractors, suppliers, manufacturers, products, services, workmanship and site conditions, to produce work in accordance with Contract Documents.
- B. Section includes administrative and procedural requirements for quality assurance and quality control.
- C. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, MDAD, **Commissioning Authority, Construction Manager**, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.04 FIELD QUALITY CONTROL TESTS

- A. Quality Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.

1.05 DELEGATED DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.06 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.
- 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 Architect for a decision before proceeding.

1.07 WORKMANSHIP

- A. Comply with industry standards of the region except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

- B. Provide suitably qualified personnel to produce work of specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration and racking.
- D. Provide finishes to match approved samples.

1.07 MANUFACTURER'S INSTRUCTIONS

- A. Require compliance with instructions in full detail, including each step in sequence.
- B. Should instructions conflict with Contract Documents, request written clarification from Architect/Engineer through the Field Representative before proceeding.

1.08 MANUFACTURER'S CERTIFICATES

- A. When required in individual Specifications section, submit manufacturer's certificate, in duplicate, certifying that products meet or exceed specified requirements, executed by responsible officer.

1.09 MANUFACTURER'S FIELD SERVICES

- A. When required in individual Specification section, have **manufacturer** or **supplier** provide qualified representative to observe field conditions, conditions of surfaces and installation, quality of workmanship, **start-up of equipment, test, adjust, and balance of equipment** and applications, and to make written report of observations and recommendations to Field Representative.

~~1.11~~ ~~MOCKUPS~~

- ~~A. [Tests will be performed under provisions of Section _____.]~~
- ~~B. Assemble and erect complete, with specified attachment and anchorages devices, flashing, seals, and finishes.~~
- ~~C. [Acceptable mockups in place may be retained in completed work.]~~
- ~~D. [Remove mockup and clear area when work of that section is complete, when approved by the Field Representative.]~~

1.12 ACTION SUBMITTALS

- A. Shop Drawings: For mockups of manufactured components:

CONTRACT QUALITY CONTROL

014000-3 of 11

D:\DOCS\DIV1\07.21\014000.DOCX

1. Include plans, sections, and elevations, indicating materials and size of mockup construction.
 2. Indicate manufacturer and model number of individual components.
 3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.
- B. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.13 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 2. Main wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
1. Specification Section number and title.
 2. Entity responsible for performing tests and inspections.
 3. Description of test and inspection.
 4. Identification of applicable standards.
 5. Identification of test and inspection methods.
 6. Number of tests and inspections required.
 7. Time schedule or time span for tests and inspections.
 8. Requirements for obtaining samples.
 9. Unique characteristics of each quality-control service.
- F. Reports: Prepare and submit certified written reports and documents as specified.
- G. Permits, Licenses, and Certificates: For MDAD's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.14 CONTRACTOR'S QUALITY CONTROL PLAN

- A. Quality Control Plan, General: Submit quality-control plan within **ten** days of **Notice to Proceed**, and not less than **five** days prior to preconstruction conference. Submit in format acceptable to MDAD. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's Construction Schedule.
- B. Quality Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:
 - 1. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
 - 2. MDAD performed tests and inspections indicated in the Contract Documents, **including tests and inspections indicated to be performed by Commissioning Authority**.
- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.15 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, telephone number, and email address of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.

7. Identification of product and Specification Section.
 8. Complete test or inspection data.
 9. Test and inspection results and an interpretation of test results.
 10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 12. Name and signature of laboratory inspector.
 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of technical representative making report.
 2. Statement on condition of substrates and their acceptability for installation of product.
 3. Statement that products at Project site comply with requirements.
 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 6. Statement whether conditions, products, and installation will affect warranty.
 7. Other required items indicated in individual Specification Sections.
- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.

1.16 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements,

warranty requirements, and technical or factory-authorized service representative requirements.

- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.

- e. When testing is complete, remove test specimens and test assemblies, **and laboratory mockups**; do not reuse products on Project.

- K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
 - 1. Build mockups of size indicated.
 - 2. Build mockups in location indicated or, if not indicated, as directed by Architect **or Construction Manager**.
 - 3. Notify Architect **and Construction Manager seven** days in advance of dates and times when mockups will be constructed.
 - 4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
 - 5. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 6. Obtain Architect's **and Construction Manager's** approval of mockups before starting corresponding work, fabrication, or construction.
 - a. Allow **seven** days for initial review and each re-review of each mockup.
 - 7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - 8. Demolish and remove mockups when directed unless otherwise indicated.

- L. Integrated Exterior Mockups: Construct integrated exterior mockup **according to approved Shop Drawings** and/or **as indicated on Drawings**. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.

1.17 QUALITY CONTROL

- A. MDAD Responsibilities: Where quality-control services are indicated as MDAD's responsibility, MDAD will engage a qualified testing agency to perform these services.
 - 1. MDAD will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor **and the Contract Sum will be adjusted by Change Order**.

- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to MDAD are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by MDAD, unless agreed to in writing by MDAD.
 3. Notify testing agencies at least **24** hours in advance of time when Work that requires testing or inspection will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect, **Commissioning Authority**, **Construction Manager** and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect, **Commissioning Authority**, **Construction Manager** and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 – Submittals.
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable

auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents **as a component of Contractor's quality-control plan**. Coordinate and submit concurrently with Contractor's Construction Schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to MDAD, Architect, **Commissioning Authority, Construction Manager**, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.18 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: MDAD will engage a qualified testing agency **and special inspector (if required)** to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of MDAD, **as indicated in the Statement of Special Inspections attached to this Section**, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect, **Commissioning Authority, Construction Manager** and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect **and Commissioning Authority through Construction Manager**, with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.

5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.
- B. Special Tests and Inspections: Conducted by a qualified **testing agency** as required by authorities having jurisdiction, as indicated in individual Specification Sections **and in the Statement of Special Inspections attached to this Section**, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect, **Commissioning Authority, Construction Manager** and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect **and Commissioning Authority through Construction Manager** with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 014101
POSTING OF NOTICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Schedule of Wage Rates and Benefits **Miami-Dade County** or **U.S. Department of Labor**.
- B. Non-Discrimination Clause and Contractor's Commitments under Section 202 of Executive Order No. 11246.

1.02 SCHEDULE OF WAGE RATES AND BENEFITS

The Contractor, and each subcontractor under him, shall post in a conspicuous place on the site (1) the schedule of the specified overall hourly rate for each applicable classification; (2) the amount of liquidated damages for any failure to pay such rates; and (3) the name and address of the responsible official in Miami-Dade County or the U.S. Department of Labor (whichever is applicable) to whom complaints should be given.

Copy of this Notice will be provided to the Contractor by MDAD.

1.03 NON-DISCRIMINATION CLAUSE

The Contractor shall post the non-discrimination clause as required by Executive Order 11246. The following is a copy of the required notice:

"Equal Employment Opportunity is the Law--Discrimination is Prohibited by the Civil Rights Act of 1964 and by Executive Order No. 11246

Title VII of the Civil Rights Act of 1964--Administered by:

The Equal Employment Opportunity Commission

Prohibits discrimination because of Race, Color, Religion, Sex, or National Origin by Employers with 25 or more employees, by Labor Organizations with a hiring hall of 25 or more members, by Employment Agencies, and by Joint Labor-Management Committees for Apprenticeship or Training.

ANY PERSON - Who believes he or she has been discriminated against SHOULD CONTACT the:

The Equal Employment Opportunity Commission
131 M Street, NE
Washington, DC 20507

1.04 Executive Order No. 11246--Administered by:

The Office of Federal Contract Compliance Programs

Prohibits discrimination because of Race, Color, Religion, Sex, or National Origin, and requires affirmative action to ensure equality of opportunity in all aspects of employment.

By all Federal Government Contractors and Subcontractors, and by Contractors Performing Work Under a Federal Assisted Construction Contract, regardless of the number of employees in either case.

ANY PERSON - Who believes he or she has been discriminated against **SHOULD CONTACT:**

The Office of Federal Contract Compliance Programs
U.S. Department of Labor
Frances Perkins Building
200 Constitution Ave., NW
Washington, DC 20210

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 014103
EXISTING UTILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Before performing any utility modifications, utility shutdowns, or any hot work on an existing utility within a building, or performing any excavation, drilling holes, performing any vibroflotation (vibrocompaction) work, hot work on any underground utility, or driving piles, the Contractor shall contact MDAD and all concerned utilities.
- B. Contractor shall complete the Underground Utilities Clearance Sign-Off Sheet appended to this Section and submit it to the Architect/Engineer.
- C. Before any shut down of an existing active utility, the Contractor shall complete the Shut Down Request form appended to this Section and submit it to MDAD Maintenance Engineering in accordance with the form's instructions.
- D. Before initiating hot work, the Contractor shall submit the Hot Work permit application. Hot Work includes, but is not limited to, brazing, cutting, grinding, soldering, or thawing of utility pipes, torch applied roofing, and welding.

1.02 RELATED REQUIREMENTS

- A. Section 011210 - Hot Work Operations
- B. Section 011210-01 - Hot Work

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

- 3.01 The Contractor shall comply with the Provisions of the Underground Facility Damage Prevention and Safety Act - Chapter 556, Florida Statutes.
- 3.02 Prior to performing any excavation or digging, the Contractor shall give 48 hours notice to each owner of the underground utility facilities. Notifying SUNSHINE STATE ONE CALL OF FLORIDA, INC. does not satisfy this requirement.
- 3.03 There is a rebuttable presumption of negligence under the above referenced Statutes on the part of the Contractor, if the Contractor fails to call the underground utility owner and receive authorization before digging, or if the Contractor calls but fails to wait the required 48 hours.
- 3.04 During the 48 hour period, the underground utility owner shall go to the site and flag its facility.
- 3.05 Violation of the above referenced statute can be cause for civil fines and criminal offenses as delineated in the above referenced statutes.

Appendices: FD5-048-P Underground Utilities Clearance
Underground Utilities Clearance Sign Off Sheet.
Underground Utilities Clearance Sign Off Sheet, requirements and procedures
Shut-Down Request Form.

END OF SECTION

MDAD UNDERGROUND UTILITIES CLEARANCE

Requirements for filling out sign-off sheet and procedures.

CONTRACTOR/REQUESTOR IS TO:

Contact MDAD Utilities Coordinator to obtain direction and the MDAD Sign-off Sheet.

CALL/CONTACT:

a) Sunshine State one call of Florida, Inc. (Former U.N.C.L.E.) b) All companies/organizations (persons) which are on the MDAD Sign-off Sheet. c) Obtain Sign-off/Names of contract personnel for all utilities. Copies to be submitted to MDAD for their records.

Be prepared to submit to these companies drawings/maps of the work area.

Mark in field the location of the proposed work site.

Prepare a set of copies of all papers/maps regarding the project (for MDAD records).

Call the MDAD Utilities Coordinator for final appointment and last signature.

NOTICE TO CONTRACTORS

MDAD's **utilities clearance coordination is not an underground utilities locating** service for **contractors working for Miami-Dade County Airports. MDAD's Utilities clearance coordination** is a free service provided to contractors working for MDAD, for the purpose of protecting our utilities including damage prevention.

If utilities shown on contractors' drawings cannot be located by the contractor, then the contractor is responsible for finding the utility by other means, like hiring. A locator with high tech equipment like GPR (ground penetrating radar).

Contractors are responsible for making all the necessary phone calls to obtain the clearance associated with their projects. The accuracy of clearances and signatures from other agencies or groups is the contractor's responsibility.

MDAD is not responsible for any and all claims, disputes, or other matters arising between contractors related to the execution or progress of their work, or their interpretation of the available plans and information. MDAD is not responsible for the verification or reliability of existing utilities information nor from information furnished by other agencies.

MDAD Utilities Clearance coordination service is limited to sites within Miami-Dade County Airports only. Utilities clearance requests inside buildings are NOT PERMITTED due to interference. All clearance and associated coordination are good for a two (2) week period only.

SHUT-DOWN REQUEST FORM

MDAD PROJECT MANAGER: _____

TODAY'S DATE: _____

TELEPHONE NO.: _____

SHUT-DOWN DATE: _____

NOTE: RETURN COMPLETED FORM TO MDAD MAINTENANCE ENGINEERING AT BLDG. 3020.

REQUESTED BY: _____

(SUBMIT NO LESS THAN 5 WORKING DAYS PRIOR TO REQUESTED SHUT-DOWN DATE)

MAINTENANCE FAX NO. 876-0347

- 1) PROJECT NAME: _____
- 2) LOCATION OF WORK/FLOOR: _____
- 3) A/E NAME & TELEPHONE NUMBER: _____
- 4) A/E PROJECT MANAGER: _____
- 5) ENGINEERING CONSULT NAME & TEL #: _____
- 6) G.C. NAME & TELEPHONE NUMBER: _____
- 7) G.C. PROJECT MANAGER: _____
- 8) SUB-CONTRACTOR'S NAME & TEL #: _____
- 9) SUB-CONTRACTOR'S PROJ. MGR.: _____
- 10) SYSTEM TO BE SHUT-DOWN: _____
- 11) REASON FOR SHUT-DOWN: _____
- 12) AREAS AFFECTED BY SHUT-DOWN: _____
- 13) OTHER SYSTEMS AFFECTED: _____
- 14) DURATION OF SHUT-DOWN REQUESTED: _____

NOTE: ATTACH PLAN OR IF REQUESTED BY MAINTENANCE ENGINEERING, SUPPLY PLANS FOR REVIEW MEETING AT FIELD OFFICE.

CIP SHUT-DOWN COORDINATION CONCURRENCE

REQUESTED SHUT-DOWN DATE	
SYSTEM TO BE SHUT-DOWN	
REASON FOR SHUT-DOWN	
LOCATION	

COMPANIES COORDINATING SHUT-DOWN	REPRESENTATIVE	DATE	COMMENTS
HONEYWELL 305.876.8134			
	Dean Roberts		
DASH DOOR 305.477.1164			
	Jeff Steiner		
MATRIX 305.869.3692			
	Lee Levenson		

MDAD CIP SHUTDOWN REQUEST

Requestor/Contractor:

1. The project manager/contractor of a particular project shall contact the shop supervisor and/or leadworker of each discipline for a kick-off meeting regarding shutting down any equipment or system that may impact the airport.
2. Once the affected areas have been identified with the assistance of MDAD, the project manager/contractor must complete the request form correctly with all pertinent information.
3. All contractors/requestors shall follow the procedures that are attached to the CIP Shutdown Request Form.

Requirements for filling out the form and procedures:

1. Complete the form properly by making sure to attach all necessary documents showing the affected areas, devices, permits, certification of licenses from contractor, and environmental plans (if required), etc.

The following are the requirements for each discipline to be attached with the C.I.P. Shutdown Request Form:

1. Electrical/Mechanical - site plans or as-builts showing affected areas, scope of work, etc.
2. Water/Sewer – (water) site plans or as built showing affected areas, scope of work, (sewer) – site plans or as-built showing affected area, scope of work, environmental action plan (if required).
3. Fire Sprinkler & Alarm – site plans or as-built showing affected areas, scope of work, copies of permits, copies of license, copies of Honeywell plans. (Copies of Honeywell Shutdown Notice).
4. Security & Life Safety – site plans or as as-built showing affected areas, scope of work, copies of permits, license and copies of Honeywell Security Plan, Matrix and Honeywell concurrent letters of walk thru involvement.

The following is to ensure all shutdowns are approved in a timely manner.

1. Deliver or fax the completed shutdown request form to the CIP shutdown coordinator, where it shall be stamped “Received.” Incomplete paperwork will not be processed and the requestor shall be contacted.

2. The MDAD shutdown coordinator shall contact the project manager, e.g., MDAD/DAC/Turner Austin, when all areas have been cleared and affected MDAD Division & tenants have been notified to approve the shutdown.
3. An e-mail will confirm notifying everyone affected by the shutdown of the date. Unless an emergency arises, all shutdowns will be scheduled within 7 working days after completed paperwork is submitted.

NOTICE TO REQUESTOR/CONTRACTOR

MDAD CIP Shutdown Coordination group is not a service company for contractors working for Miami Dade County airports. The Coordination group is a free service provided to contractors working for MDAD, for the purpose of protecting all utilities including damage prevention, as well as protecting our business partners from operational interruptions.

The coordinator is not responsible for delays due to the forms not being properly completed. Contractors are responsible for providing all necessary information before requesting a shutdown. The Coordination group is available to assist the contractor, provided they advise in a timely manner. MDAD is not responsible for any and all claims, disputes or other matters arising between contractor related to the execution or progress of their work or their interpretation of the available plans and information.

C.I.P. SHUT-DOWN REQUEST FORM

PROJECT NAME: _____ PROJECT NO. _____

PROJECT MANAGER: _____ TODAY'S DATE: _____

TELEPHONE NUMBER: _____ SHUTDOWN DATE
REQUESTED: _____

NOTE: *Return completed form to MDAD CIP Coordination Group at Building 3030, 3rd floor. Submit no less than 7 working days before requested shutdown date to FAX Number 876-0601. Please see attached requirements.*

LOCATION OF WORK/FLOOR: _____

A/E NAME/TELEPHONE & FAX NO: _____

A/E PROJECT MANAGER: _____

ENG. CONSULT.NAME/TEL. & FAX NO: _____

G.C. NAME/TELEPHONE & FAX NO: _____

G.C. PROJECT MANAGER: _____

SUB-CONTRACTOR NAME/TEL.FAX NO: _____

SYSTEM TO BE SHUTDOWN: _____

REASON FOR SHUTDOWN: _____

AREAS AFFECTED BY SHUTDOWN: _____

OTHER SYSTEMS AFFECTED (E,A/C,P,ETC.) _____

DURATION OF SHUTDOWN REQUEST: _____

UNDERGROUND UTILITIES CLEARANCE

PURPOSE

To provide direction on obtaining clearance to perform excavations/underground work on MDAD facilities.

INSTRUCTION

1. When there is a need to excavate, trench, drill, or perform any underground job six inches or more below the ground surface, the Contractor must obtain clearance from local utilities and authorization from the MDAD Utilities Coordinator. To document this process, an Underground Utilities Clearance Sign-Off Sheet (available from the MDAD Utilities Coordinator) must be completed.
2. The Contractor must clearly mark the proposed excavation site prior to initiating the notification process.
3. At least forty-eight hours prior to the excavation, the Contractor must contact Sunshine State One Call of Florida at 800-432-4770 (or 800-638-4097). The Contractor must provide the following information:
 - Location of excavation
 - Type of excavation
 - Dimensions of excavation (including depth)
 - Start date and duration of excavation
 - Contractor data
4. Sunshine State One Call will:
 - Assign a Location Request Ticket Number to the work.
 - Issue a Location Request Ticket which the Contractor must retain and post at the excavation site. The ticket is good for fourteen (14) calendar days.
 - Notify member agencies/utilities of the scheduled excavation.
5. Agencies/utilities notified by Sunshine State One Call that have underground lines, tanks, or other equipment in the affected area shall meet with the Contractor to discuss the excavation or simply mark the location of their underground equipment.
6. The Contractor shall complete the top part of a Utilities Clearance Sign-Off Sheet, providing the Project Name and Number, and the work site/location. The Contractor shall attach drawings and maps indicating the proposed work.
7. The Contractor must obtain signatures on the sign-off sheet from the following agencies:
 - Florida Power and Light Locator Service (MIA only)
 - Federal Aviation Administration
 - MDAD Telecommunications (MIA only)
 - Blackbox-Communication (MIA only)
 - MDAD Irrigation
8. The completed form must be faxed to the MDAD Utilities Coordinator (fax number on form). Drawings and maps of the proposed excavation area must be submitted to the Utilities Coordinator with the hard copy of the form.

9. The MDAD Utilities Coordinator shall:
- Review the clearance sheet and attachments.
 - Meet with the Contractor, as necessary, to discuss the excavation
 - Perform a site inspection, if required, no more than two days before the excavation is to commence.
 - Sign and date the clearance sheet, providing additional direction in the comments section as needed.
 - Fax the signed clearance sheet to the Contractor.
 - Meet the Contractor and person who will be doing/superintending the excavation at the site for a site review. Utilities Coordinator will indicate areas where excavation must be performed with a hand shovel.
10. Clearances are good for fourteen (14) calendar days.

ASSOCIATED FORM

1. Appendix to Technical Specification 014103, Existing Utilities Underground Utilities Clearance Sign-Off Sheet

SECTION 014200
REFERENCE STANDARDS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Applicability of Reference Standards.
- B. Provision of Reference Standards at site.
- C. Acronyms used in Contract Documents for Reference Standards. Source of Reference Standards.

1.02 QUALITY ASSURANCE

- A. For products or workmanship specified by association, trade, or Federal Standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. The date of the standard is that in effect as of the Advertisement date, except when a specific date is specified.
- C. When required by individual Specifications section, obtain copy of standard. Maintain copy at jobsite during submittals, planning and progress of the specific work, until Substantial Completion.

1.03 SCHEDULE OF REFERENCES

- 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. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
 - 1. AABC - Associated Air Balance Council; www.aabc.com.
 - 2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
 - 3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
 - 4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
 - 5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
 - 6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
 - 7. ABMA - American Boiler Manufacturers Association; www.abma.com.

8. ACI - American Concrete Institute; (Formerly: ACI International); www.abma.com.
9. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
10. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
11. AGA - American Gas Association; www.aga.org.
12. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
13. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
14. AI - Asphalt Institute; www.asphaltinstitute.org.
15. AIA - American Institute of Architects (The); www.aia.org.
16. AISC - American Institute of Steel Construction; www.aisc.org.
17. AISI - American Iron and Steel Institute; www.steel.org.
18. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
19. ANSI - American National Standards Institute; www.ansi.org.
20. APA - Architectural Precast Association; www.archprecast.org.
21. API - American Petroleum Institute; www.api.org.
22. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
23. ARI - American Refrigeration Institute; (See AHRI).
24. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
25. ASCE - American Society of Civil Engineers; www.asce.org.
26. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
27. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
28. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
29. ASSE - American Society of Safety Engineers (The); www.asse.org.
30. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
31. ASTM - ASTM International; www.astm.org.
32. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
33. AWEA - American Wind Energy Association; www.awea.org.
34. AWI - Architectural Woodwork Institute; www.awinet.org.
35. AWS - American Welding Society; www.aws.org.
36. AWWA - American Water Works Association; www.awwa.org.
37. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
38. BICSI - BICSI, Inc.; www.bicsi.org.
39. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
40. CDA - Copper Development Association; www.copper.org.
41. CEA - Consumer Electronics Association; www.ce.org.
42. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
43. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
44. CGA - Compressed Gas Association; www.cganet.com.
45. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
46. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
47. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
48. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.

REFERENCE STANDARDS

49. CPA - Composite Panel Association; www.pbmdf.com.
50. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
51. CRRC - Cool Roof Rating Council; www.coolroofs.org.
52. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
53. CSA - CSA International; (Formerly: IAS - International Approval Services); www.csa-international.org.
54. CSI - Construction Specifications Institute (The); www.csinet.org.
55. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
56. CWC - Composite Wood Council; (See CPA).
57. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
58. DHI - Door and Hardware Institute; www.dhi.org.
59. ECA - Electronic Components Association; (See ECIA).
60. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
61. ECIA - Electronic Components Industry Association; www.eciaonline.org.
62. EIA - Electronic Industries Alliance; (See TIA).
63. EIMA - EIFS Industry Members Association; www.eima.com.
64. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
65. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
66. EVO - Efficiency Valuation Organization; www.evo-world.org.
67. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
68. FM Approvals - FM Approvals LLC; www.fmglobal.com.
69. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
70. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridarroof.com.
71. FSA - Fluid Sealing Association; www.fluidsealing.com.
72. GA - Gypsum Association; www.gypsum.org.
73. GANA - Glass Association of North America; www.glasswebsite.com.
74. GS - Green Seal; www.greenseal.org.
75. HI - Hydraulic Institute; www.pumps.org.
76. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).
77. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
78. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
79. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
80. ICBO - International Conference of Building Officials; (See ICC).
81. ICC - International Code Council; www.iccsafe.org.
82. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
83. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
84. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
85. IEC - International Electrotechnical Commission; <http://www.iec.ch>.
86. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
87. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
88. IESNA - Illuminating Engineering Society of North America; (See IES).
89. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
90. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.

REFERENCE STANDARDS

91. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
92. ILI - Indiana Limestone Institute of America, Inc.; www.ili.ai.com.
93. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
94. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
95. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
96. ISO - International Organization for Standardization; www.iso.org.
97. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
98. ITU - International Telecommunication Union; www.itu.int/home.
99. LMA - Laminating Materials Association; (See CPA).
100. LPI - Lightning Protection Institute; www.lightning.org.
101. MBMA - Metal Building Manufacturers Association; www.mbma.com.
102. MCA - Metal Construction Association; www.metalconstruction.org.
103. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
104. MHIA - Material Handling Industry of America; www.mhia.org.
105. MIA - Marble Institute of America; www.marble-institute.com.
106. MMPA - Molding & Millwork Producers Association; www.wmmpa.com.
107. MPI - Master Painters Institute; www.paintinfo.com.
108. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
109. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
110. NADCA - National Air Duct Cleaners Association; www.nadca.com.
111. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
112. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
113. NBI - New Buildings Institute; www.newbuildings.org.
114. NCMA - National Concrete Masonry Association; www.ncma.org.
115. NEBB - National Environmental Balancing Bureau; www.nebb.org.
116. NECA - National Electrical Contractors Association; www.necanet.org.
117. NEMA - National Electrical Manufacturers Association; www.nema.org.
118. NETA - InterNational Electrical Testing Association; www.netaworld.org.
119. NFPA - National Fire Protection Association; www.nfpa.org.
120. NFPA - NFPA International; (See NFPA).
121. NFRC - National Fenestration Rating Council; www.nfrc.org.
122. NHLA - National Hardwood Lumber Association; www.nhla.com.
123. NLGA - National Lumber Grades Authority; www.nlga.org.
124. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
125. NRCA - National Roofing Contractors Association; www.nrca.net.
126. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
127. NSF - NSF International; www.nsf.org.
128. NSPE - National Society of Professional Engineers; www.nspe.org.
129. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
130. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
131. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
132. PDI - Plumbing & Drainage Institute; www.pdionline.org.

REFERENCE STANDARDS

- 133. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
- 134. RFCI - Resilient Floor Covering Institute; www.rfci.com.
- 135. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
- 136. SDI - Steel Deck Institute; www.sdi.org.
- 137. SDI - Steel Door Institute; www.steeldoor.org.
- 138. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
- 139. SIA - Security Industry Association; www.siaonline.org.
- 140. SJI - Steel Joist Institute; www.steeljoist.org.
- 141. SMA - Screen Manufacturers Association; www.smainfo.org.
- 142. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
- 143. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
- 144. SPIB - Southern Pine Inspection Bureau; www.spib.org.
- 145. SPRI - Single Ply Roofing Industry; www.spri.org.
- 146. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
- 147. SSINA - Specialty Steel Industry of North America; www.ssina.com.
- 148. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
- 149. STI - Steel Tank Institute; www.steeltank.com.
- 150. SWI - Steel Window Institute; www.steelwindows.com.
- 151. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
- 152. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
- 153. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
- 154. TIA - Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
- 155. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
- 156. TMS - The Masonry Society; www.masonrysociety.org.
- 157. UL - Underwriters Laboratories Inc.; www.ul.com.
- 158. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
- 159. USGBC - U.S. Green Building Council; www.usgbc.org.
- 160. WASTEC - Waste Equipment Technology Association; www.wastec.org.
- 161. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
- 162. WDMA - Window & Door Manufacturers Association; www.wdma.com.
- 163. WI - Woodwork Institute; www.wicnet.org.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

REFERENCE STANDARDS

SECTION 014529
PROJECT TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. MDAD provided Project Testing Laboratory Services.
- B. Contractor provided testing facilities for the Project Testing Laboratory's use.

1.02 RELATED REQUIREMENTS

- A. General Conditions: Inspections, testing and approvals.
- B. Section 017839 - Project Record Documents.
- C. Section P401 - Plant Mix Bituminous Pavements.
- D. ~~Section P501 - Portland Cement Concrete Pavement.~~
- E. Section P610 - Structural Portland Cement Concrete

1.03 REFERENCES

- A. ASTM C1077 Standard Practice for Laboratories Testing Concrete and Concrete Aggregates and Criteria for Laboratory Evaluation.
- B. ASTM D3666 - Practice for Evaluating and Qualifying Agencies Testing and Inspecting Bituminous Paving Materials.
- C. ASTM D3740 - Practice for Evaluation of Agencies Engaged in testing and/or Inspection on Soil and Rock as used in Engineering Design and Construction.
- D. ASTM E329 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as used in Construction.

1.04 SELECTION AND PAYMENT

- A. MDAD will employ and pay for services of an independent testing laboratory (Project Testing Laboratory) to perform specified Quality Assurance testing.

1.05 LABORATORY REPORTS

- A. After each inspection and test the Project Testing Laboratory will forward copies of all reports directly to MDAD.

1.06 LIMITS ON PROJECT TESTING LABORATORY AUTHORITY

- A. Project Testing Laboratory may not release, revoke, alter or enlarge on requirements of Contract Documents.
- B. Project Testing Laboratory may not approve or accept any portion of the work.
- C. Project Testing Laboratory may not assume any duties of the Architect/Engineer, the Field Representative or the Contractor.
- D. Project Testing Laboratory has no authority to stop work.

1.07 CONTRACTOR RESPONSIBILITIES

- A. Make available to Project Testing Laboratory at designated location adequate samples of materials proposed to be used that require testing, together with proposed mix designs.
- B. Cooperate with laboratory personnel and provide access to work **and to manufacturer's facilities.**
- C. Provide incidental labor and facilities to provide access to work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, and for storage and curing of test samples.
 - D. Notify the Field Representative, MDAD and laboratory 48 hours prior to expected time for operations requiring inspection and testing services.
- E. Costs of all testing except for retesting due to failure, will be paid by MDAD. Failed tests will be retested at Contractor's expense.
- F. Arrange with Project Testing Laboratory and pay for additional samples and tests required by Contractor beyond specified requirements.

1.08 RETESTING

MDAD retains the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. Either the Architect/Engineer or the Field Representative shall have the right to reject material which, when retested, does not meet the requirements of the Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 - Summary for work restrictions and limitations on utility interruptions.
 - 2. Section 011200 - Multiple Contract Summary for responsibilities for temporary facilities and controls for projects utilizing multiple contracts.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, **MDAD's construction forces**, Architect, **occupants of Project**, testing agencies, and authorities having jurisdiction.
- B. Sewer Service: MDAD will pay sewer-service use charges for sewer usage by all entities for construction operations.
- C. Water Service: Pay water-service use charges for water used by all entities for construction operations.
- D. Electric Power Service: Pay electric-power-service use charges for electricity used by all entities for construction operations.
- E. Water and Sewer Service from Existing System: Water from MDAD's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- F. Electric Power Service from Existing System: Electric power from MDAD's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- G. Sewer, Water, and Electric Power Service: Use charges are specified in Section 011200 - Multiple Contract Summary.

1.3 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Within **15** days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.
- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- E. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.
- F. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.
- G. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:
 - 1. Locations of dust-control partitions at each phase of work.
 - 2. HVAC system isolation schematic drawing.
 - 3. Location of proposed air-filtration system discharge.
 - 4. Waste-handling procedures.
 - 5. Other dust-control measures.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- C. Accessible Temporary Egress: Comply with applicable provisions in the Florida Building Code - Accessibility.

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 MDAD's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete bases for supporting posts.
- C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.
- D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil (0.25-mm) 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 (914 by 1524 mm).
- 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.

2.2 TEMPORARY FACILITIES

- ~~A. Common Use Field Office: Of sufficient size to accommodate needs of MDAD, Architect, Construction Manager, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 1. Furniture required for Project site documents including file cabinets, plan tables, plan racks, and bookcases.
 2. Conference room of sufficient size to accommodate meetings of [10] <Insert number> individuals. Provide electrical power service and 120-V ac duplex~~

~~receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4 foot (1.2 m) square tack and marker boards.~~

~~3. Drinking water and private toilet.~~

~~4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F (20 to 22 deg C).~~

~~5. Lighting fixtures capable of maintaining average illumination of 20 fc (215 lx) at desk height.~~

~~D. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.~~

~~1. Store combustible materials apart from building.~~

2.3 EQUIPMENT

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

~~B. HVAC Equipment:~~

~~1. Use of gasoline burning space heaters, open flame heaters, or salamander type heating units is prohibited.~~

~~2. Permanent HVAC System: If MDAD authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of at each return air grille in system and remove at end of construction.~~

~~C. Air Filtration Units: Primary and secondary HEPA filter equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.~~

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as MDAD's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where directed by MDAD.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, MDAD, 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 **municipal system** as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to MDAD's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to MDAD. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. 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.
 - 1. Toilets: Use of MDAD's existing toilet facilities will be permitted, as long as facilities are cleaned and maintained in a condition acceptable to MDAD. At Substantial Completion, restore these facilities to condition existing before initial use.
- F. Temporary 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.
 - 1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.
- G. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
 - 1. Prior to commencing work, isolate the HVAC system in area where work is to be performed **according to coordination drawings**.
 - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
 - b. Maintain negative air pressure within work area using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- H. Electric Power Service: Connect to MDAD's existing electric power service. Maintain equipment in a condition acceptable to MDAD.
- I. 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.
 2. Connect temporary service to MDAD's existing power source, as directed by MDAD.
- J. 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.
- K. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install **WiFi cell phone access equipment**.
1. Provide additional telephone lines for the following:
 - a. Provide one telephone line(s) for MDAD's use.
 2. At each telephone, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Architect's office.
 - g. Engineers' offices.
 - h. MDAD's office.
 - i. Principal subcontractors' field and home offices.

3.4 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet (9 m) of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after

Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to MDAD.

- 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] [within construction limits indicated] on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- C. Temporary Use of Planned 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 Section 312000 - Earth Moving].
 - 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 Section 321216 - Asphalt Paving].
- D. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- E. Parking: Use designated areas of MDAD's existing parking areas for construction personnel.
- F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
- G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Maintain and touch up signs so they are legible at all times.
- H. Waste Disposal Facilities: Comply with requirements specified in Section 017419 - Construction Waste Management and Disposal.

- I. 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 017300 - Execution.
- J. 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.
- K. Temporary Elevator Use: Temporary use of new elevators is not permitted.
- L. Existing Elevator Use: Use of MDAD's existing elevators will be permitted, provided elevators are cleaned and maintained in a condition acceptable to MDAD. At Substantial Completion, restore elevators to condition existing before initial use, including replacing worn cables, guide shoes, and similar items of limited life.
 - 1. Do not load elevators beyond their rated weight capacity.
 - 2. Provide protective coverings, barriers, devices, signs, or other procedures to protect elevator car and entrance doors and frame. If, despite such protection, elevators become damaged, engage elevator Installer to restore damaged work so no evidence remains of correction work. Return items that cannot be refinished in field to the shop, make required repairs and refinish entire unit, or provide new units as required.
- M. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- N. Existing Stair Usage: Use of MDAD's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to MDAD. At Substantial Completion, restore stairs to condition existing before initial use.
 - 1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
- O. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.5 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 011000 - Summary.

- C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 - Site Clearing.
- D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- H. 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 materials approved by authorities having jurisdiction.
- I. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
 - 1. Extent of Fence: As indicated on Drawings.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to MDAD.
- J. 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 workday.
- K. Barricades, Warning Signs, and Lights: Comply with requirements of MDAD Landside Operations, MDAD Airside Operations and authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- L. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

- N. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

- O. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by MDAD and tenants from fumes and noise.
 - 1. Construct dustproof partitions following details indicated on the drawings.
 - 3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 - 6. Protect air-handling equipment.
 - 7. Provide walk-off mats at each entrance through temporary partition.

- P. 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. Comply with additional limits on smoking specified in other Sections.
 - 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 -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. Provide temporary standpipes and 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.

3.6 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
 - 1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
 - 2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
 - 3. Indicate methods to be used to avoid trapping water in finished work.

- B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
 2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard and replace stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
 2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
 3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including gypsum-based products, that become wet during the course of construction and remain wet for **48** hours are considered defective and require replacing.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for **48** hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within **48** hours.

3.7 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.

- c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within **48** hours.

3.7 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.
- 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. MDAD reserves right to take possession of Project identification signs.
 - 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. 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 017700 – Contract Closeout Procedures.

END OF SECTION 015000

SECTION 015060
CONTRACTOR OVERHEAD

PART 1 - GENERAL

1.01 DESCRIPTION

The work specified in this Section shall consist of all Overhead as defined in the General Conditions.

1.02 METHOD OF MEASUREMENT

Measurement of Overhead for payment shall be on a calendar day basis.

1.03 BASIS OF PAYMENT

Payment for Overhead shall be made at the contract unit price.

Payment will be made under:

Item No. 1 - Contractor Overhead - Per Calendar Day

1.04 PARTIAL PAYMENTS

Partial payments for Overhead will be made in accordance with the Contract Documents. The standard retainage, as specified in the General Conditions, will be applied.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

- B. **Obtain and pay for temporary easement across property other than that of County.**
- C. Pay for installation, operation, maintenance and removal of system **and restoration of existing and permanent equipment.**
- D. Contractor shall pay costs of energy consumed for operation of on or off site batch and mixing plants.

1.08 OWNER RESPONSIBILITIES

- A. MDAD will pay costs of energy consumed for normal construction operations, except as specified in 1.07 above. Take measures to conserve energy usage.
- B. Wastes or failure to conserve energy will be cause for revocation of permit of electrical use from the airport system.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. May be new or used, adequate to the purpose and meeting the Florida Building Code requirements.
- B. Devices and Equipment: Standard devices, meeting UL requirements.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install initial service at time of site mobilization.
- B. Comply with requirements of the Contract Documents.
- C. Modify and extend system as work progresses.
- D. Comply with Florida Building Code.

3.02 OPERATION AND MAINTENANCE

- A. Maintain system to provide continuous service **including prompt restoration of interruptions to Owner's system when temporary service is connected.**

3.03 REMOVAL

- A. Remove temporary material and equipment prior to final Completion.
- B. Restore existing and permanent facilities used for temporary purposes to original condition.

END OF SECTION

SECTION 015126
TEMPORARY LIGHTING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Temporary lighting.
- B. Operation and Maintenance.
- C. Removal.
- D. Cleaning.

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of work.
- B. Section 015113 - Temporary Electricity.
- C. ~~Section 015213 - Field Representative's Office and Testing Laboratories.~~
- D. Section 017423 - Final Cleaning.
- E. Individual Sections: Lighting required for work.

1.03 SERVICE REQUIREMENTS

- A. Temporary lighting for field offices, storage, shop, work and other construction areas.
- B. Lighting required for maintenance and protection of airside and landside traffic.

1.04 USE OF EXISTING SYSTEM

- A. Existing lighting system may be used for temporary purposes. **Maintain to prevent interference with MDAD's normal operations.**

1.05 COSTS

- A. Obtain permits and pay for inspections.
- B. Pay for installation, operation, maintenance and removal lighting.
- C. Costs of Electricity used for lighting: As specified in Section - 015113.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. May be new or used, adequate to the purpose.
- B. Receptacles, Fixtures, Controls: Standard products, meeting UL standards.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Locate fixtures in areas of work adequate to carry out all tasks in a safe and workmanlike manner and to adequately inspect work effort.
- B. Modify, supplement and extend lighting as work progresses.

3.02 OPERATION AND MAINTENANCE

- A. Maintain lighting. Promptly replace worn or defective parts.

3.03 REMOVAL

- A. Remove temporary material and equipment **when permanent system is operational at Substantial Completion.**
- B. Restore existing and permanent lighting used during construction to **original or specified** condition. Replace defective fixtures, bulbs and other component parts.

3.04 CLEANING

- A. Clean **existing and** permanent fixtures used during construction under provisions of Section 017423.

END OF SECTION

SECTION 015219
TEMPORARY SANITARY FACILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Temporary Sanitary Facilities.
- B. Maintenance, Service.
- C. Removal.
- D. Cleaning.

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of work.
- B. ~~Section 015136 — Temporary Water~~
- C. ~~Section 015213 — Field Representative's Offices and Testing Laboratories.~~
- D. Section 017423 - Final Cleaning.

1.03 TEMPORARY FACILITIES

- B. Do not use existing sanitary facilities.
- C. Temporary Sanitary Facilities shall comply with the requirements of the State and County health standards.
- D. Permanent sanitary facilities shall not be used for temporary purposes unless specific arrangements are made with the Owner.

1.04 COSTS

- A. Obtain permits and pay for inspections.
- B. **Obtain and pay for temporary easements across property other than that of County.**
- C. Pay service charges for connection and use of temporary sewerage utilities. Owner will pay charges for permanent utilities upon acceptance of Project.
- D. Pay costs of installation, maintenance and removal of service.
- E. Cost for Water: Specified in Section 015136.

TEMPORARY SANITARY FACILITIES

PART 2 - PRODUCTS

2.01 MATERIALS

- A. May be new or used as may be dictated by all governing codes, adequate to the purpose, which will not create unsanitary conditions.

2.02 TOILET FACILITIES

- A. Enclosed portable self-contained units or temporary water closets and urinals, secluded from public view. **Provide separate facilities for male and female personnel.**

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Provide facilities at time of site mobilization.
- B. Modify and extend service as work progresses.
- C. Do not require any worker to work in surroundings or under conditions which are unsanitary, hazardous, or dangerous to his/her health or safety.
- D. **When utility services are available, provide water, sewer service and temporary water closets; remove portable facilities.**

3.02 MAINTENANCE, SERVICE

- A. Clean areas of facilities **daily** maintain in sanitary condition.
- B. Provide toilet paper, paper towels and soap in suitable dispensers.

3.03 REMOVAL

- A. Remove portable units when other facilities are available.
- B. Remove temporary fixtures **when permanent facilities are operational.**

3.04 CLEANING

- A. Clean areas of use as specified in Section 017423, disinfect fixtures, repair or replace damaged fixtures, accessories and surfaces.
- B. Restore existing and permanent area and facilities used to **original** condition.

END OF SECTION

TEMPORARY SANITARY FACILITIES

SECTION 015500
CONTRACTOR'S ACCESS AND EMPLOYEES' PARKING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Contractor's Access
- B. Contractor's Employees Parking

1.02 CONTRACTOR'S ACCESS

- A. Access to and egress from the Site will be gained only via routes and through gates as shown on the Plans. Access shall be permitted only during periods of time specified in the Contract Documents. Equipment weight and height limits will be strictly enforced.

1.03 CONTRACTOR'S EMPLOYEES' PARKING

- A. Automobiles of all construction workers on the project shall be parked in an area designated for this purpose by the Miami-Dade Aviation Department in the location indicated on the Plans. No construction workers' vehicles will be allowed on the construction site. The Contractor shall furnish transportation for construction workers from the designated parking area to the construction site.
- B. Maintain areas free of debris and rubbish. Maintain site in a clean and orderly condition.
- C. If the Contractor fails to maintain levels of cleanliness satisfactory to the Field Representative, then the Owner shall have the right to cause such areas to be cleaned by others. The costs to the Owner for such cleaning, plus 25% for administration, shall be the obligation of the Contractor and shall be deducted from any money due the Contractor hereunder.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 015600
BARRIERS AND ENCLOSURES

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Barriers.
- B. Protected Walkways.
- C. Security Fencing
- D. Tree and Plant Protection.
- E. Weather Closures.
- F. Partition and Ceiling Enclosures.
- G. Maintenance.
- H. Removal.
- I. Site Restoration

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of work.
- B. Section 015700 - Maintenance of Air Operations Area Traffic.
- C. Section 015710 - Maintenance of Airport Landside Traffic.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

- A. May be new or used as may be dictated by all governing codes, adequate to the purpose, which will not create hazardous conditions.

2.02 FENCING MATERIALS

- A. **Commercial quality chain link.**

2.03 ENCLOSURE MATERIALS

- A. For Weather Protection: Optional.

- B. For partitions: Framing and rigid sheet materials.

PART 3 - EXECUTION

3.01 BARRIERS AND PROTECTED WALKWAYS

- A. Provide to prevent public entry, to protect public through construction site, **to protect existing trees and plants, to provide for Owner's use of site, and to protect existing facilities and adjacent properties from damage.**
- B. 8 foot high fence enclosing **Project site.**
- C. Pay costs of installation, maintenance and removal and restoration to **existing** condition.

3.02 TREE AND PLANT PROTECTION

- A. Preserve and protect existing trees and plants designated to remain.
- B. Consult with Field Representative, remove agreed-on roots and branches which interfere with construction. Employ qualified tree surgeon to remove and to treat cuts. If required by governing ordinances, consult with Owner prior to removing any trees.
- C. Protect areas with drip lines from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding and continuous running water.
- D. Provide 5 foot high barriers around drip lines, with access for maintenance.
- E. Replace trees and plants damaged by construction work with material of comparable or greater value.

~~3.04 PARTITIONS AND CEILING ENCLOSURES~~

- ~~A. Provide temporary enclosures to separate work areas from areas occupied by Owner, to prevent penetration of dust, moisture and noise into occupied areas.~~
- ~~B. Construct with closed joints; seal joints, edges and intersections with other surfaces to prevent penetrations of dust and moisture; [STC rating [_____]] in accordance with ASTM E90. [Flame Spread Rating [_____]] in accordance with ASTM E84. [R rating of _____.]~~
- ~~C. [Paint] [Stain] [_____] surfaces exposed to view in Owner occupied areas.~~

3.05 MAINTENANCE

- A. Maintain during progress of work. **Repaint painted surfaces annually or more often as directed by the Field Representative.**

B. Relocate and extend during successive stages of construction.

3.06 REMOVAL

A. Remove temporary materials, equipment and construction at Final Acceptance;

3.07 SITE RESTORATION

A. Restore site and existing facilities used during construction to **original** condition.

END OF SECTION

SECTION 015610
DEWATERING PERMITS

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Dewatering of excavations and disposal of water in accordance with Technical Specifications and applicable permits.

1.02 RELATED REQUIREMENTS

- A. General Conditions
- C. **Section P-152 - Excavation and Embankment**
- D. **Section P-160 - Contaminated Soils/Groundwater**
- E. **Section P-701 - Trenching, Backfilling and Jacking**
- F. **Section P-710 - Underwater Construction**
- G. **Section D-755 - Oil/Water Separator**
- H. **Section D-701 - Pipe for Storm Drains and Culverts**
- I. **Section D-702 - Slotted Drains**
- J. **Section D-751 - Manholes, Catch Basin, Inlets, Valve Pits and Inspection Holes**

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 PERMITTING PROCESS

- A. Every Contractor whose work extends to, or below the ground water table shall, as required by the approved Dewatering Master Plan Permit **also called Master Water Use Permit (MWUP)**, apply to and obtain from the permitting agencies (DERM and SFWMD) a Site Specific Dewatering Permit.
- B. The procedure to apply for the Site Specific Dewatering Permit shall be as directed by the Miami-Dade Aviation Department Environmental Engineering Division.

- C. The Bidders and the Contractor are advised that it might take up to 120 days from the date the application for the Site Specific Dewatering Permit submittal to the date of the permit's issuance (or the issuance of the letter(s) of exemption) by the permitting agencies; such time has been included in the Contract Time and the Bidders and the Contractor are required to take such time into consideration during the bid preparation and the execution of the work. No extension of contract time will be allowed for this permitting time; however, a non-compensable excusable delay will be granted for the amount of days in excess of the above prescribed 120 days whenever the permitting process takes longer, due to no fault of the Contractor, than the above assumed 120 days.
- D. A copy of the Site Specific Dewatering Permit, or the equivalent letter of Exemption, shall be delivered to the Field Representative prior to the start of any work necessitating dewatering.
- E. In addition to the above provisions, the following procedure, have been established by DERM that must be followed by all contractors in the processing and acquisition of dewatering permits:
 - 1. All proposals for dewatering at MIA, regardless of site location, pumping duration, or point of discharge, shall be submitted for review, to the Water Control Section, through the Airports Program, Pollution Prevention Division (which will coordinate the review process within DERM).
 - 2. Proposals shall include laboratory results of appropriate analyses performed on groundwater samples obtained from the location proposed for dewatering. Prior to any sampling, the Contractor shall contact DERM, Airports Program at (305) 372-6885 for further information regarding analytical parameters.
 - 3. Proposals shall include a site specific scaled drawing which depicts, as a minimum, the sampling location, the proposed dewatering location, the immediate and ultimate point of discharge of the effluent, and any structures or topography which may provide an acceptable frame-of-reference for the sampling and dewatering locations.
 - 4. In addition to the general permit conditions required for a Class II Permit for dewatering, and the requirements of Section P-160 of the Specifications, the expected flow rate and pumping duration shall be included in the proposal so that an overall groundwater volume may be determined.
 - 5. In general, discharge of the effluent from the dewatering activities directly to the aquifer or to land surface shall not be permitted. However, if discharge to surface waters is impractical due to the site location, and the area is proven to be free of soil and groundwater contamination, then discharge directly to the aquifer or to land surface may be considered.

3.02 Dewatering of excavation shall be performed in accordance with the applicable provisions of the MWUP, the Site Specific Dewatering Permit and the following:

- A. The Contractor shall commence filling the waterbodies at the terminus of the waterbody and proceed in a unidirectional manner. It is the intent to minimize any adverse impacts on fish, wildlife, natural environmental values, and water quality and allow an opportunity for mobile fauna to migrate to open unfilled waters.
 - B. The Contractor shall institute necessary measures during construction to reduce erosion, turbidity, nutrient loading and sedimentation in the receiving stormwater facilities. Turbidity shall not exceed 29 Nephelometric Turbidity Units above the natural background values.
 - C. The Contractor shall be responsible for the maintenance of existing stormwater facilities within the construction limits, including any stormwater discharge offsite that traverses the construction limits.
- 3.03 When construction begins, and until construction is completed, the Contractor shall file monthly report indicating the quantity of water pumped each day. If no pumping occurs in a particular day, show "O" or "none" on the report. A sample copy of this monthly report will be provided to the Contractor by the Field Representative or the Miami-Dade Aviation Department Environmental Engineering Department.
- A. Additional reports forms may be required to be filed in the event that a remedial action program (RAP) has to be implemented.
 - B. As required by the various permitting agencies, additional tests may have to be performed once the dewatering operations has begun.
 - C. Copies of reports filed with the permitting agencies, as indicated on items 3.03 A, B and C above are to be forwarded to the Miami-Dade Aviation Department and the Architect/Engineer of the MWUP. Originals shall be transmitted to the permitting agencies.

END OF SECTION

SECTION 015640
SOIL EXCAVATION PROCEDURES

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Soil excavation and the procedure for the handling and disposal of clean, contaminated or hazardous excavated material.

1.02 RELATED REQUIREMENTS

- A. Section P-152 - Excavation and Embankment.
- B. Section P-160 - Contaminated Soils/Groundwater.
- C. Section P-701 - Trenching, Backfilling and Jacking.
- D. ~~Division 31—Various sections involving excavation work.~~

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 MDAD Environmental and Civil Engineering Division has instituted the following procedures to be followed by the Contractor during the excavation, hauling, reuse or disposal of excavated materials.

- A. The Contractor shall prepare and submit a Soil Notification Form (SNF) to the Field Representative 96 hours prior to excavation; the Field Representative will in turn transmit this SNF within 24 hours from receiving it to the MDAD Civil and Environmental Engineering Division (MDAD CEED).
- B. The MDAD CEED will schedule an Environmental Oversight Manager (EOM) to observe the excavation and to classify the soils.
- C. The Contractor shall as directed **haul the excavated soil to the off-site**. MDAD EED will also appoint a Staging Area Manager (SAM). SAM is also responsible for surveillance of Miami International Airport Properties and notifies MDAD EED of any unreported excavation activities.
- D. The EOM will sample the stockpiled soils for final disposition.
- E. The EOM will forward the sampling results to the MDAD CEED; MDAD CEED will review these reports and provides the SAM with disposition data.
- F. The following disposition procedure shall be followed:
 - 1. Clean Soil Material:

The Contractor shall, as directed by the Field Representative, reuse the soil at the job site, transport and stockpile the material at MDAD stockpile areas located within 5 miles from the work site or becomes the Contractor's property for removal and disposal off the airport site.

2. Contaminated Soil Material:

The Contractor shall, as directed by the Field Representative, haul and dispose of the material off the airport site in accordance with the provisions of MDAD Specifications Section P-160 or to remain in place for later remediation by MDAD.

- G. SAM will prepare a monthly summary report for MDAD CEED; a copy of this report affecting the Contractor's work may be available for the Contractor's information and inspection at MDAD CEED.

3.02 FORMS

A copy of the forms to be filed by the Contractor and by the EOM and SAM are appended to this Section:

- A. Soil Excavation and Notification Form (to be filled and filed by the Contractor).
B. MDAD Soil Staging Area Delivery Application (to be filed by the Contractor, EOM and SAM).

Appendices: Forms listed in 3.02 A and 3.02 B above.

END OF SECTION

MIAMI-DADE AVIATION DEPARTMENT
SOIL EXCAVATION NOTIFICATION FORM

PROJECT NAME: _____

PROJECT LOCATION: _____

CONTRACTOR: _____

CONTACT PERSON: _____ PHONE: _____

MDAD/DAC PROJECT MGR.: _____ PHONE: _____

FIELD REPRESENTATIVE: _____

SCOPE OF WORK TO BE PERFORMED: _____

ESTIMATED DIMENSIONS OF EXCAVATION: _____

LENGTH: _____

WIDTH: _____

DEPTH: _____

PROJECT START DATE: _____

PERSON COMPLETING FORM: _____

SIGNATURE: _____

DATE: _____

This form shall be filled by the Contractor and filed with the Field Representative within 96 hours prior to excavation.

MDAD SOIL STAGING AREA DELIVERY APPLICATION

1. Contractor: _____ Contact Person: _____ Phone: _____

2. Origin of Soil: _____

3. Requesting Agency (i.e, Field Representative): _____ Contact Person: ___ Phone: __

4. Estimated Volume of Soil: _____ Proposed Delivery Date: _____

5. SOIL CHARACTERIZATION STATUS (Check all that apply)

- Laboratory analytical results indicated that soil is "non-hazardous" (attach copies of analytical results)
- Soil approved as non-hazardous" per MDAD Environmental Engineering Division.
- Authorizing MDAD Manager (print/type): _____
Signature: _____ Date: _____
- Soil not yet characterized.

Comments: _____

DO NOT WRITE BELOW THIS LINE

6. Approved Disapproved By: _____

Comments: _____ Date: _____

Delivery Date(s): _____ Amount Delivered: _____

Delivery Location:

Removed to:

Note: Contractor to fill lines 1, 2, 3 and 4. EOM to fill line 5. SAM to fill line 6.

SECTION 015700

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

1.01 DESCRIPTION

The work under this Section consists of furnishing all measures required to maintain the safe and orderly movement of Aircraft operating Area (AOA) traffic in and around the construction areas as shown on the Plans and as described in these Technical Specifications. The Section also includes conducting a burrowing owl and gopher tortoise burrows survey in accordance with the Florida Fish and Wildlife Conservation Commission's (FWC) guidelines, obtaining a federal permit from the U.S. Fish and Wildlife Service (USFWS) in compliance with the Migratory Bird Treaty Act (16 USC 703-712) to collapse active burrows if found, installing temporary wildlife burrow protection around any owl or tortoise nests, as directed by the Engineer or MDAD.

1.02 GENERAL

This Section covers the Contractor's responsibilities for maintaining the optimum level of safety and the operating efficiency of the airport during construction. These responsibilities are based on criteria contained in the latest edition of Federal Aviation Administration Advisory Circular AC 150/5370-2, Operation Safety on Airport with Emphasis on Safety During Construction, or AC 150/5370-2G, and in The Airport Height Zoning Ordinance (County Code Article XXXVII, Sections 33-330 to 33-350). The Contractor shall be responsible for all activities, under his control, as specified in the above referenced Advisory Circulars, the Zoning Ordinance and in other referenced documents. In certain cases where the obstacle clearance criteria utilized for this project may differ from that described herein, these variances will be depicted on the Plans.

1.03 RELATED SPECIFICATIONS AND PROVISIONS

The Contract Documents contain several other provisions relating to safety for which Contractor adherence is required. The requirements of Chapter 25 of the Miami-Dade County Code and the related Miami-Dade Aviation Department Operational Directive MIA 19 dated June 17, 1980 shall apply to the work under this Contract.

1.04 OBSTACLE CLEARANCE DURING CONSTRUCTION - RUNWAYS

- A. Two sets of criteria shall apply to construction activities within the proximity of active runways; one for use in daytime in visual approach conditions, and the other for use at all other times.
- B. VISUAL APPROACH CONDITIONS DURING DAYTIME
 - 1. During the period from 30 minutes after sunrise until 30 minutes before sunset, when the Airport's reported ceiling is at least 3,000 feet and visibility is at least 3 statute miles, the more restrictive dimensional and obstruction clearance criteria of The latest version of AC 10/5370-2 shall be utilized except as otherwise shown on the Plans and specified herein. The imaginary surfaces for runway approach/departure protection prescribed by the latest version of AC 150/5300-13 shall be relocated from the landing thresholds to

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

the ends of the full strength pavement (runway ends), unless the work requires threshold displacement or work is required in proximity of existing displaced thresholds.

3. No construction activity, personnel, equipment or materials shall be permitted within 250 feet of the centerline of any active runway or above the height restrictions described herein at any time. Contours describing allowable heights and distances when construction activities are in proximity to runways during visual approach conditions during daytime (visual approach contours) are shown on the Plans.
4. Construction may be permitted within the above specified 250 feet of the runway centerline on a case-by-case basis with the written approval of MDAD.

C. INSTRUMENT APPROACH CONDITIONS AT TIMES OTHER THAN DAYTIME

At all times other than daytime, described in Paragraph 1.04.B above, (i.e. when the reported ceiling is less than 3,000 feet and/or the visibility is less than 3 statute miles and in the period from 30 minutes before sunset until 30 minutes after sunrise), the dimensional and height restriction criteria of the **Miami Executive** Airport Height Zoning Ordinance shall apply. No construction activity, personnel, equipment or materials shall penetrate these imaginary surfaces. Contours describing allowable heights and distances when construction activities are in proximity to runways during instrument approach conditions and at nighttime (instrument approach contours) are shown on the Plans.

1.05 OBSTACLE CLEARANCES DURING CONSTRUCTION - TAXIWAYS, TAXILANES AND APRONS

Construction activity, personnel, equipment or materials shall not be permitted within 85.5 feet of the centerline of an active taxiway and within 79 feet of the centerline of an active taxilane, unless otherwise shown on the Plans.

1.06 TRENCHES, EXCAVATIONS AND STOCKPILED MATERIAL

- A. Open trenches or excavations exceeding 3 inches in depth and 3 inches in width shall not be permitted within 250 feet of the centerline of an active runway or within 85.5 feet of the center line of active taxiways and taxilanes unless otherwise shown on the Plans.
- B. Coverings for open trenches or excavations shall be utilized by the Contractor to restore operations in the areas prescribed in 1.06.A above. Covering shall be of sufficient strength to support the weight of the heaviest aircraft operating on the runway or taxiway and the safe passage of ARFF equipment. Each covering shall be installed only as approved by the Architect/Engineer
- C. Construction contractor must prominently identify the limits of open trenches or excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.
- D. Stockpiled material shall be secured against displacement by aircraft engine and propeller blast and ambient winds. Stockpiled materials, equipment and personnel shall not be

allowed within the runway, taxiway and taxilane obstacle clearance areas as described in this Article. Contractor to provide dust control for material stockpiles.

PART 2 - PRODUCTS

2.01 MARKING AND LIGHTING OF CONSTRUCTION AREAS

- A. The Contractor shall install lighting, marking, signs, the correct types of barricades in accordance with the design, and other measures to delineate closed and hazardous areas during construction. The guidance and procedures provided by the current version of FAA Advisory Circular AC 150/5370-2 shall be utilized as depicted on the Plans. Steady burning red obstruction lights may be required in certain instances to supplement lighted barricades or highlight hazardous or potentially dangerous objects. The location of these lights shall be as shown on Plans or as directed by the Field Representative. Obstruction lights, barricades, and signs shall not be located within runway, taxiway and taxilane obstacle clearance areas.
- B. TEMPORARY MARKER LIGHTS. The Contractor shall install, operate and maintain temporary marker lights in the locations shown on the Plans. The Contractor shall furnish portable base mounted light fixtures, red and blue lenses, battery and solar temporary marker lights mounted on frangible mounts supported by barricades; and any other materials necessary to install, operate and maintain the temporary marker lights.
- C. The Contractor shall also furnish and install the following if a hard wired temporary lighting system is required:
 - 1. Heat shrinkable sleeves, tape and incidentals,
 - 2. wattage as specified for the lamps in an A/C circuit,
 - 3. All necessary wiring, power, connections, etc. to operate lights on an A/C circuit,
 - 4. Required staples to keep cable and wire securely fastened to pavement.
 - 5. Pavement sealant to seal pavements, when wiring is installed recessed in saw kerfs
- D. Yellow flashing lights mounted on top of the various types of barricades are not considered marker lights.

2.02 BARREL BARRICADES.

- A. The Contractor shall install and maintain barrel barricades in the locations shown on the Plans, in accordance with the approved layout for each construction area, and as directed by the Field Representative. Barrel barricades shall be in accordance with the details shown on the Plans including barrels, lights, ropes, flags and incidentals. Barrels shall be weighted immediately upon installation, as necessary to prevent displacement by aircraft engine blast and by ambient wind. Barrel barricade lines shall be inspected each day and repaired or replaced as necessary to meet the requirements of the approved layout plan.

2.03 TEMPORARY CONCRETE BARRIERS

- A. Temporary concrete barriers for traffic control and protection shall be New Jersey type precast concrete barriers conforming to the requirements of ASTM C825.

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

- B. Temporary concrete barrier sections shall be capable of being interlocked and shall be provided with warning flags, steady burning lights and/or flashing lights as required and shall be provided with grooves to allow flow of surface drainage.
- C. The temporary concrete barriers need not be new, but shall be structurally sound, of a quality and type meeting the requirements of these specifications and shall be subject to the Architect/Engineer's approval.
- D. Temporary concrete barriers shall, at the conclusion of the construction or when no longer needed, be relocated or removed and disposed of as the case may be.

2.05 PLASTIC BARRICADES

Plastic barricades, meeting the following requirements, shall only be used when specifically shown on the Plans or ordered by the Field Representative.

- A. Plastic barricades shall consist of a molded plastic I-beam section suspended, by means of a toggle system, from a molded plastic cone.

The assembly shall be designed to remain usable following vehicular impact.

- (1) The plastic barricade (I-beam section and cones) shall be manufactured from high density Polyethylene compounded with Ultraviolet Stabilizer to protect it against ultraviolet exposure and outdoor weathering
- (2) The cone shall consist of a stem and a base. The base shall be hollow and so manufactured as to allow for external and internal ballasting (using water, sand or other suitable material), to provide a ballast weight of approximately 20 lbs.
- (3) The dimensions of the various elements of the plastic barricade system shall be as follows:

<u>Cones</u>	
Overall Height	45"
Base Dimension	18" x 18" x 4"
Weight (unballasted)	7 3/4 lbs.
<u>Outside diameter stem</u>	
Top	3 1/4"
Bottom	6 "
Wall Thickness	1/8" +/- 1/32"
<u>I-Beam Section</u>	
Depth (reflective areas)	8"
Lengths (as ordered by the Field Representative)	36" or 48"
Wall Thickness	1/8"
Weight	1.2 lbs. per foot

- B. The plastic barricade assembly shall be equal to MAXICADE System as manufactured by Glasdon - Traffic Services Incorporated (distributed locally by Saft T Store, West Palm Beach, Telephone: 1-407-793-5817) or approved equal.
- C. The I-beam section shall be capable of being mounted (using a flexible toggle system) on the plastic cones. The cones shall be designed to support the I-beam sections and also to support traffic lights.
- D. The plastic barricade assembly shall be impregnated with traffic orange color. White reflective sheeting shall be applied to the I-beam section to form a series of alternating 6 inch wide stripes, traffic orange and reflective white, at 45° angle.

2.06 PLASTIC PROTECTIVE BARRIERS (WATER FILLED)

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

42" high or low profile water filled plastic protective barriers shall be manufactured by "Yodock Barrier", "Guardian Safety Barrier" or approved equal.

The plastic protective barrier shall meet the following and shall be:

- A. Color impregnated with the colors shown on the plans or as approved by the Architect/Engineer.
- B. Resistant to damage caused by ultraviolet rays.
- C. Manufactured with internally molded baffles (to maintain its shape), be properly sealed, is leakproof, provided with drain plugs and underside grooves to allow flow of surface drainage.
- D. Barrier sections shall, when installed in a row, be interlocked in an approved manner; end-to-end length of each installed section shall be not less than 72 inches; each water filled section shall weigh not less than 1650 pounds unless otherwise shown.
- E. Provided with securely mounted warning flags, steady burning lights and/or flashing lights as required.

The plastic protective barrier shall, at the conclusion of the construction or when no longer needed, be relocated or removed and disposed of as the case may be.

2.07 WIDLIFE BURROW SURVEY, PERMITTING, SCOPING AND COLLAPSE

- A. The Contractor shall provide an Authorized Gopher Tortoise Agent certified by the Florida Fish and Wildlife Conservation Commission (FWC) and possess a Registered Agent Permit (with approval for burrowing owl activities) issued by the FWC to act as an authorized agent for submitting the required permits.
- B. In accordance with FWC guidelines, the Contractor shall perform a pre-construction Florida burrowing owl survey and gopher tortoise survey of the project site after the Notice to Proceed (NTP), within 90 days of the permit application submittal, and prior to mobilization. All burrows shall be geolocated using GPS, and their activity status shall be recorded. The survey results shall be summarized in a map or graphic depicting the burrows identified during the field survey. The Contractor shall prepare a memorandum summarizing its general observations and providing recommendations for mitigation of wildlife issues during construction.
- C. If potentially occupied burrowing owl burrows are identified within the project area and cannot be avoided or protected, the Contractor shall prepare and submit an FWC Migratory Bird Nest Removal Permit and Burrowing Owl Supplemental Application after the initial survey to initiate the permitting process prior to mobilization. Permit approval must be obtained before any construction activities begin.
- D. If potentially occupied gopher tortoise burrows are identified, the Contractor shall prepare and submit either an FWC 10 or Fewer Burrows Permit Application or a Conservation Permit Application to request authorization for relocation or collapse of burrows impacted by construction. The Contractor shall prepare the permit application and all required supporting documents and respond to any FWC Requests for Additional Information (RAI). Upon permit approval, an Authorized Gopher Tortoise Agent who is

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

certified in mechanical excavation shall excavate the permitted burrows with a backhoe. Gopher tortoise relocation activities must occur within 90 days of construction commencement. The Owner will be responsible for paying any permit fees associated with the permitting process.

- E. Upon permit approval, the Contractor shall perform a site visit within 48 hours prior to the commencement of construction for each phase and clear the limits of disturbance within the phase work area of any wildlife.
- F. If any burrowing owl nests or potentially occupied gopher tortoise burrows identified during the survey will be impacted by the proposed development, a permit from the FWC will be required, and burrow excavation and relocation must be conducted as part of the Contractor's scope. All permitting efforts and relocation activities shall be included in the bid price.
- G. Burrow scoping and collapsing procedures shall be conducted in accordance with FWC-established protocols. The purpose of video-scoping is to determine if eggs or flightless young are present prior to burrow collapse. If burrows are determined to contain eggs or flightless young, they shall not be collapsed and must remain undisturbed until the young have fledged.
- H. The intentional collapse of burrows for burrowing owls or gopher tortoises shall be conducted only in accordance with applicable regulations. Active burrows contain eggs or flightless young, while inactive burrows do not contain eggs or flightless young but still provide shelter for burrowing owls year-round. Active nest burrows cannot be collapsed without a federal permit from the U.S. Fish and Wildlife Service (USFWS) in compliance with the Migratory Bird Treaty Act (16 USC 703-712). No burrows shall be collapsed without obtaining all necessary permits and written direction from the Owner or the Resident Project Representative (RPR).

2.08 WIDLIFE BURROW PROTECTION

- A. Safety fencing shall be provided and installed at locations specified in the Contract Documents or as directed by the Resident Project Representative (RPR). The Contractor shall supply materials in accordance with the details shown in the plans and install fencing at burrow locations identified in the field by the Authorized Gopher Tortoise agent or by someone who possesses a Registered Agent Permit for burrowing owls. These protected areas shall be maintained throughout the construction period, and the fencing shall be removed during project demobilization. Installation and removal of the fencing shall be performed with minimal disturbance to the burrow areas.

2.09 SUBSURFACE UTILITY INVESTIGATION

- A. The Contractor shall perform a comprehensive subsurface utility investigation and conduct soft digs of utilities identified within the limits of disturbance upon mobilizing into each new phase of work. This utility investigation and verification shall be the first activity completed prior to any earth disturbance. The primary purpose is to accurately locate, identify, and document existing utilities, to identify conflicts that may arise during construction of that phase.

- B. The Contractor shall conduct utility locates according to Quality Level B standards, as specified in the American Society of Civil Engineers (ASCE) Standard 38-02 or its equivalent. Soft digs are required to verify the horizontal and vertical position of utilities that are to remain in place, collecting necessary elevation data for accurate depth information.

- C. The Contractor shall provide the Engineer/RPR/MDAD with a detailed map of all located utilities, prepared in AutoCAD .DWG format. This map must be overlaid on the project's base map and utilize the same coordinate system as the design documents. Each feature shall be described in a comprehensive legend for clarity. The completed map, along with elevation data, must be submitted to the Engineer/RPR/MDAD for review before any further construction activities proceed.

PART 3 - EXECUTION

3.01 LOOSE MATERIALS AND DEBRIS

- A. Loose materials shall be removed from the active portion of the AOA, placed in protected areas or otherwise secured to prevent dispersal into active portions of the AOA. The AOA is defined as all areas used or intended to be used for aircraft operations including active runways, aprons, taxiways, taxilanes, etc. Debris shall be promptly removed from the AOA. The Contractor shall exercise care in the transportation of materials within the AOA. Materials tracked or spilled in the AOA shall be removed immediately. When hauling, loading, grading, or when any of the Contractor's activities are likely to cause the deposit of loose materials in the AOA, it shall be immediately removed using powered vacuum sweepers which shall continuously patrol the affected areas. The sweepers shall be supplemented by hand sweepers, loaders, trucks, etc., as necessary.

3.02 VEHICLES AND MOBILE EQUIPMENT

- A. All Contractor vehicles and mobile equipment operating in the AOA shall be identified by three foot (3') square orange and white flags whenever such vehicle and equipment is operating on or about the AOA. In addition, such vehicles and equipment shall have the Contractor's name clearly affixed on each side of such vehicles and equipment, all in accordance with current MDAD requirements. During the hours between 30 minutes before sunset and 30 minutes after sunrise and at all times when visibility is impaired, vehicles and mobile equipment shall also be equipped with a revolving yellow beacon light mounted on the top of the vehicle or equipment. Beacon lights shall provide:
 - 1. Three hundred sixty degree azimuth coverage.
 - 2. Effective intensity in the horizontal plane not less than 40 or more than 400 candelas.
 - 3. Beam spread measured to 1/10 peak intensity extending from 10 degrees to 15 degrees above the horizontal.
 - 4. Sixty to ninety flashes per minute.

- B. All Contractor vehicles and mobile equipment not individually authorized by the MDAD for independent operation in the AOA shall be operated under escort while in the AOA. The escort vehicle and its driver must be authorized by the MDAD for escort duty and for operation within the AOA. If access to the construction, staging or storage sites requires the crossing of an active runway or taxiway, all vehicles shall be escorted across said runway or taxiway by either a MDAD escort vehicle or a vehicle equipped with a VHF-AM Transceiver specifically authorized by MDAD to cross these operational pavements. No crossing of active taxiways or runways by vehicles so equipped shall be made without first obtaining specific clearance from the FAA Air Traffic Control Tower.

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

- C. No crane shall be allowed on the work site until the equipment and its intended operation is approved by MDAD Airside Operations, or the Airport Manager, in accordance with the requirements of General Condition Article 4.14. The Contractor shall provide MDAD Airside Operations with not less than 24-hour advance written notice requesting crane access to the AOA. This request shall utilize the standardized MDAD "Request for Crane Clearance to [Insert Name of Airport] Airport".
- D. When access is approved by MDAD, the tip of the crane boom shall be identified by the orange and white flag mentioned above and, if appropriate, by red obstruction lights.

3.03 CLOSURES

- A. Prior to the commencement of any demolition or other work which will cause an interruption or modification to existing aircraft operations, the Contractor shall confer with, and obtain written authorization from the Field Representative.
- B. When the Contractor's operations require the closure of any runway, taxiway, apron, roadway, service gate, walkway, etc., the Contractor shall notify the Field Representative not less than 48 hours prior to the closure. No runway, taxiway, apron, roadway, service gate, walkway, etc., shall be closed without prior written authorization from the Field Representative.
- C. If the Contractor requires access to operational areas not delineated on the Construction Safety Plan Drawing(s), the Contractor shall participate in negotiations leading to the imposition of restrictions on airport operations in the affected areas; the Contractor shall strictly abide by all conditions imposed by MDAD relating to its entry and use of such areas and the Contractor shall not enter these areas until temporary, conditional entry clearance is granted by MDAD.
- D. Trenching, excavation and other work requiring temporary runway or taxiway closure shall be limited by the Contractor to that amount of work that can be completed within the hours of minimal operation. All ditches, excavations, etc., shall be restored prior to the end of the work period and affected pavements returned to service. This work shall be scheduled during hours of minimal operations. Unless otherwise noted in the Contract Documents, hours of minimal operation shall be defined as the hours between 11:00 P.M. and 7:00 A.M. daily. All other hours are considered hours of normal operation.
- E. The Contractor may be required to pursue affected portions of the work on a continuous 24 hour per day basis during construction of the various phases and subphases shown on the Plans and described in the Contract Documents (such as when runways or taxiways, aprons, service or access roadways, or service gates are closed for operation or when hazards of any kind arise).

3.04 LIGHTS, LIGHT LINES, SIGNS AND PAVEMENT MARKINGS

- A. Red and blue lens, ground-mounted, taxiway marker lights, pavement markings, signs, lighted barricades and other measures shall be installed and maintained (except as provided herein below) on a 24-hour basis by the Contractor to delineate construction areas available to the Contractor and limits of aircraft operational areas. At the conclusion of each working day, the Contractor shall verify that the temporary lighting systems are in proper operation condition. Any necessary maintenance repairs shall be performed by the Contractor prior to leaving the site. The detailed layout of marking, lights, signs and barricades and other measures for each construction area are shown on the Plans. The actual field installation of markings, lighting, barricades, signs, and other measures and attendant operational procedures shall be inspected by MDAD Airside Operations and any necessary changes or modifications will be promptly implemented by the Contractor as directed. The revised installation will be reinspected and approved by the Field Representative and MDAD Airside

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

Operations before the Contractor may commence any construction or any other work which revises operational procedures in each affected area.

- B. The Contractor shall provide all materials for installing pavement marking, marker lights, and lighted barricades. The MDAD Maintenance Division will provide, when so prescribed in the Contract Documents, certain materials to the Contractor for its use in establishing the temporary light lines designated on the Construction Safety Plan Drawings. The Contractor shall be responsible for the installation of these materials and the return to MDAD of all these equipment and materials in good repair and working order, in a condition satisfactory to and acceptable to MDAD.
- C. Connections to power supply for all temporary lighting systems shall be performed by the Contractor under the direction of the MDAD Maintenance Division.
- D. Maintenance of all temporary lighting systems shall be performed by the Contractor except that nighttime trouble shooting of temporary lighting connected to any airfield lighting system will be provided by the MDAD Maintenance Division.
- E. The Contractor shall install the temporary marker lights in the locations shown on the Plans or as directed by the Field Representative; provide cable connections to existing circuits and decommission or mask existing lights as shown on the Plans. If no existing taxiway circuits are available, the Contractor shall provide and install a constant current transformer including connections and cable runs as necessary to energize the temporary light units. All cable runs installed across pavement shall be made along existing pavement joints. Saw kerfs shall be sealed, using approved suitable sealant, after cable installation. The Contractor shall demonstrate the functional integrity of the temporary marker light system by field test before the system is approved by Field Representative for operational use.
- F. The Contractor shall maintain the temporary marker light system in full operational capability during the term of use. Each day at the close of the work shift, the Contractor shall test and repair the system as necessary to restore full operational capability. The Contractor shall provide 24-hour, 7 day per week maintenance service. Trained maintenance technicians shall be available and "On Call" at all times; the Contractor shall provide the Field Representative with address and telephone numbers of the technicians so that they may be contacted at any time.
- G. The Contractor shall relocate and modify the temporary lighting systems as required to accommodate the progress of the construction.
- H. Upon completion of the work within an AOA, and when the temporary marker lights are no longer needed, the Contractor shall remove all such temporary installation and restore the site prior to opening it to aircraft traffic.

3.05 OPERATIONS SAFETY INSPECTION

- A. The entire work site shall be inspected daily and more frequently if construction activities are of a nature that debris may be expected to accumulate on AOA pavements. Special inspections shall be conducted for each work area prior to return to service for aircraft operation. The purpose of these inspections is to ascertain that areas returned to aircraft service are in satisfactory condition and that the overall work site and its activities are within the safety criteria set forth in these Contract Documents. Inspections shall be conducted jointly by representatives of the Contractor, the MDAD [**Airside Operations Division**] [**Airport Manager**], the Field Representative and the affected airlines. These inspections shall cover the several safety items noted in and referred by this Article. The report of such inspections shall be filed utilizing the Pre-operation and Preconstruction checklist forms, a copy of which is appended to this Section.

- B. Any violations of the Safety Criteria found during these inspections shall be rectified immediately. If a violation cannot be corrected on an immediate basis by the Contractor, the Contractor shall immediately notify the Field Representative. No area shall be approved for aircraft operations while it is in violation unless specifically authorized by MDAD [Airside Operations] [Airport Manager], the Field Representative and the designated airline representative.

3.06 OPERATIONAL EMERGENCIES

- A. During periods of severe weather conditions or other operational emergencies, the Owner may direct the Contractor to relinquish areas under construction and to prepare the areas for aircraft operations. In this event the Field Representative will so direct the Contractor to evacuate the area and the Field Representative will specify the limits of the area to be evacuated, the term of evacuation and the conditions governing the restoration work necessary to prepare the area for aircraft operation. The Contractor shall promptly and fully comply with the Field Representative's directive. Should the directive entail extra work under the Contract, as determined by the Field Representative, the Contractor will be reimbursed for such extra work in accordance with the provisions of the applicable Allowance Account item. Should the directive entail a delay in the completion of the Contract or any defined subdivision of the contract, as determined by the Field Representative, such delay shall be considered a Non-Compensable Excusable Delay in accordance with the requirements-of the General Conditions.

3.07 FINAL CLEANUP

- A. After work in any work area has been completed and before opening it to traffic, the Contractor shall remove all temporary traffic control devices, temporary pavements, and other temporary work and devices installed for traffic control. The Contractor shall restore the site to its original condition or to the revised condition shown on the Plans.

4.01 METHOD OF MEASUREMENT

- A. Maintenance of Aircraft operating Area Traffic will be paid for on a lump sum basis wherein no measurement will be made.
- B. There will be no separate measurement and payment for striping nor for extra work associated with the evacuation of work areas for operational emergencies. Payment for this work will be made under other Sections of the Contract as applicable.
- C. Measurement of wildlife burrow survey, permitting, collapse, and protection will be paid for on a lump sum basis wherein no measurement will be made.
- D. Measurement of subsurface utility investigation shall be the work as specified under this Section completed and accepted in accordance with these Specifications. Payment shall be made as lump sum at the completion of the subsurface utility investigation and after the deliverable of the AutoCAD and PDF file of the exact utility locations and elevations and accepted by the Engineer.

5.01 BASIS OF PAYMENT

- A. Payment for the quantity determined as described in Article 4.01 above shall be made at the **lump sum price bid for the item Maintenance of Aircraft operating Area Traffic** which price and payment shall constitute full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work under this Section. Furnishing, installing and maintaining yellow flashing lights shall be considered incidental to and included in the unit prices bid for the various barriers and barricades items.

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

- B. No separate measurement or payment for the cost of removing and/or relocating the various maintenance of traffic devices, but the cost therefore shall be deemed included in the **lump sum price bid**.
- C. The prices bid for the item under this section shall include the cost of maintaining the various devices including replacing exhausted batteries, defective lamps, painting, etc. as required to maintain the various devices in good operational condition.
- D. Payment for the quantity determined as described in Article 4.01C above shall be made at the **lump sum price bid for the item Wildlife Burrow Survey, Permitting, Collapse, and Protection** which price and payment shall constitute full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work under this Section. Furnishing, installing and maintaining the protection fence shall be considered incidental to and included in the unit prices bid. Should additional owls or gopher tortoises occupy the limits of disturbance after the permit has been obtained, the scoping/collapsing of new burrows shall be considered ancillary under this bid item. No additional payment shall be made for new wildlife that has migrated into the projects limits of disturbance.
- E. Payment for the quantity determined as described in Article 4.01D above shall be made at the **lump sum price bid for the item Subsurface Utility Investigation** which price and payment shall constitute full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work under this Section.
- E. Payment shall be made under:
 - Item 015700-11.1 **Maintenance of Aircraft Operating Area Traffic - per lump sum**
 - Item 015700-11.2 **Wildlife Burrow Survey, Permitting, Collapse, and Protection - per lump sum**
 - Item 015700-11.3 **Subsurface Utility Investigation - per lump sum**

6.01 PARTIAL PAYMENTS

Item 015700-11.1 Maintenance of Aircraft Operating Area Traffic – per lump sum

The Maintenance of Aircraft Operating Area Traffic will be paid as a lump sum with the following schedule of partial payments:

- A. Upon completion and acceptance of the Safety Plan Compliance document, 20 percent of the overall lump sum value.
- B. The remaining lump sum amount shall be divided into 12 phases and payment for each phase can be billed at the completion of the work as specified in this Section.

Item 015700-11.2 Wildlife Burrow Survey, Permitting, Collapse, and Protection – per lump sum

The Wildlife Burrow Survey, Permitting, Collapse, and Protection will be paid as a lump sum with the following schedule of partial payments:

- A. Upon completion of the initial site survey and permit application submittal, 20 percent of the overall lump sum value.
- B. The remaining lump sum amount shall be divided into 12 phases and payment for each phase can be billed at the completion of the work as specified in this Section.

Item 015700-11.3 Subsurface Utility Investigation – per lump sum

MAINTENANCE OF AIRCRAFT OPERATING AREA TRAFFIC

The Subsurface Utility Investigation will be paid as a lump sum with the following schedule of partial payments:

A. The lump sum amount shall be divided into 12 phases and payment for each phase can be billed at the completion of the work as specified in this Section.

END OF SECTION

PREOPERATION CHECKLIST

Miami Executive Airport

NOTE: Inspection is to be made and all corrective work completed by Contractor at the completion of each work area. Perform special inspections for work areas to be released before the completion of the work area.

<u>ITEMS</u>	<u>OK (Check)</u>	<u>REMARKS/EXCEPTIONS</u>
Operational pavements sound, to grade & free of dust, dirt & debris.	_____	_____
Operational pavement shoulders graded, lips removed, surface bonded or paved (no potential for blast erosion).	_____	_____
Striping, marking, signs, barriers, and lighting on operational pavements operable and in correct location.	_____	_____
Water filled plastic protective barriers are actually full of water and are sealed and in leakproof condition.	_____	_____
Safety areas and obstacle-free zones cleared and graded. No open trenches or holes.	_____	_____
Construction barricades and barriers secured in correct location and associated warning flags and lighting systems operable and in correct location.	_____	_____
Aircraft parking area cleared.	_____	_____
All equipment, vehicles, materials, etc., removed from areas in service or being returned to service.	_____	_____
All proper Authorities notified of hazards, fire route changes, utilities left inoperable, pavements closed, etc. list.	_____	_____

Work Area Inspected: _____

Remarks: _____

The inspection covered by this report was made on _____ at _____ AM/PM

By _____ and by _____
 (Contractor) Signature (Operations) Signature

and by _____ and by _____
 (Airlines) Signature (Architect/Engineer) Signature

For work involved in the construction of Contract No. _____

at _____ Airport.
 [Name of Airport]

PRECONSTRUCTION CHECKLIST

Miami Executive Airport

NOTE: Inspection is to be made and all corrective work completed by Contractor before work can begin in any Work Area.

<u>ITEMS</u>	<u>OK (Check)</u>	<u>REMARKS/EXCEPTIONS</u>
Striping, lights, markings, barricades and all other required traffic control devices in proper place, secured against displacement, and operable.	_____	_____
Obstacle free areas and operational pavements ready for use.	_____	_____
All equipment, vehicles, materials, etc., in Marked work area	_____	_____
All equipment properly marked and, if necessary, lighted.	_____	_____
All proper authorities notified of hazards, fire route changes, utilities left inoperable, pavements closed, etc. list.	_____	_____
Work Area Inspected: Remarks:	_____	_____

The inspection covered by this report was made on Date _____ Time _____

By _____, and by _____
_____, (Contractor Signature) _____ (Operations Signature)

and by _____, and by _____
_____ (Airlines Signature) _____ (Field Representative Signature)

For work involved in the construction of Contract No. _____ at [Name of Airport]

SECTION 015710

MAINTENANCE OF AIRPORT LANDSIDE TRAFFIC

1.01 DESCRIPTION

- A. The work to be performed under this Section shall consist of all work and all measures to be employed to maintain the efficient and orderly movement of airport landside traffic in the area of construction as shown on the Plans and as described in this Section.

1.02 GENERAL

- A. The Contractor shall provide, install, and maintain the temporary traffic control devices, furnish flaggers, and perform all work required to conform to the provisions of this Section.
- B. The Contract Documents show the location of signs, lights, markings, delineators, special lighting, guardrails, barricades, temporary pavements, flagger stations, and other temporary devices and work required to control traffic at each work Sequence area.
- C. Before commencing work in any area, the Contractor shall install the temporary traffic control devices, stations, etc., at the work site, and he shall obtain the approval of the Field Representative before commencing any work that affects, in any way, the existing traffic flow. The on-site layout shall consist of a mockup of temporary pavements, covered signs and staked or marked locations of all proposed temporary traffic control devices. After obtaining Field Representative approval of the mockup, the Contractor shall implement the revised traffic movement by installation of the approved temporary traffic control devices, flaggers, etc.
- D. The revised traffic movement shall be observed, and the layout altered as necessary to achieve the efficient and orderly flow of traffic through the proposed construction area. Only after the layout has been so tested and approved will the Contractor be permitted to commence construction work in the area.

PART 2 - PRODUCTS

- 2.01 Traffic control devices, warning devices and barriers shall be as shown, and meeting the applicable requirements of the current edition of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction and the FHWA Manual or Uniform Traffic Control Devices (MUTCD); subject to the Field Representative's approval.

PART 3 - EXECUTION

3.01 MAINTENANCE OF TEMPORARY TRAFFIC CONTROL DEVICES, PAVEMENTS, AND FACILITIES

- A. The Contractor shall maintain all traffic control devices in proper repair and working order. The Contractor shall also maintain all pavements constructed or utilized for temporary traffic movement and shall maintain all other traffic service facilities such as guardrail, area lighting, etc., necessary for the efficient and orderly movement of traffic within the construction area.
- B. In the event of the Contractor's failure to properly maintain any of these devices, pavements or facilities, the County may cause such maintenance, as it deems necessary, to be performed by its own or another Contractor's forces and the costs of such maintenance shall be deducted from monies due the Contractor for work performed under this Contract.

MAINTENANCE OF AIRPORT LANDSIDE TRAFFIC

3.02 INTERFERENCE WITH AIRPORT LANDSIDE TRAFFIC

- A. The Contractor shall conduct his work so as to cause no unnecessary interference with airport landside traffic and it shall comply with all requirements governing its employee parking, areas prohibited to his operation, and access routes to authorized work areas.
- B. The Contractor shall not permit its workers and equipment to interfere with the movement of airport landside traffic in those areas adjacent to its work areas. The Contractor shall not obstruct sight lines, create obstructions to lighting nor create hazards or nuisance by allowing spills or wind transported materials to accumulate in traffic areas.
- C. The Contractor shall maintain at the work site an approved powered rotary broom sweeper. The Contractor shall promptly remove any spills or wind-transported debris occurring on traveled roadways.

3.03 FINAL CLEANUP

- A. After work in any work area has been completed and before moving to a new work construction area, the Contractor shall remove all temporary traffic control devices, temporary pavements and other temporary work and devices installed for traffic control. The Contractor shall restore the site to its original condition or to the revised condition shown on the Plans.

3.04 OPERATIONAL EMERGENCIES

During periods of unusually heavy traffic movement or other traffic emergencies, the County may direct the Contractor to relinquish areas under construction and to restore the construction area to serve airport landside traffic. In this event, the Field Representative will so direct the Contractor to evacuate the area; and the Field Representative will specify the limits of the area to be evacuated, the term of the evacuation and the construction governing the restoration work to be performed. The Contractor shall promptly and fully comply with the Field Representative directive. Should the directive entail extra work under the Contract, and the Field Representative shall so determine, the Contractor will be reimbursed for such extra work in accordance with the applicable provisions of the General Conditions "Allowance Accounts". Should the directive entail a delay in the completion of the Contract or any defined subdivision of the Contract, and the Field Representative shall so determine, the delay will be considered as Non-Compensable Excusable Delay in accordance with the applicable provisions of the General Conditions.

PART 4 - METHOD OF MEASUREMENT

- 4.01 Measurement of Maintenance of Airport Landside Traffic for Payment shall be all the work complete and accepted in accordance with the Plans and Specifications.

PART 5 - BASIS OF PAYMENT

- 5.01 Payment for the quantity determined as provided in Article 4.01 above shall be made at the Lump Sum Bid for Maintenance of Airport Landside Traffic. This price and payment shall constitute full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work under this Section.

Payment shall be made under:

Item No. 015710-5.1 Maintenance of Airport Landside Traffic – per Lump Sum.

6.01 PARTIAL PAYMENTS

Item 015710-5.1 Maintenance of Aircraft Landside Traffic – per lump sum

MAINTENANCE OF AIRPORT LANDSIDE TRAFFIC

The Maintenance of Aircraft Operating Area Traffic will be paid as a lump sum with the following schedule of partial payments:

A. Upon completion and acceptance of the Safety Plan Compliance document, 20 percent of the overall lump sum value.

B. The remaining lump sum amount shall be divided into 12 phases and payment for each phase can be billed at the completion of the work as specified in this Section.

END OF SECTION

SECTION 015719

HANDLING OF INCIDENTAL FUEL SPILLAGE DURING CONSTRUCTION

PART 1 - GENERAL

1.01 SCOPE

- A. This section consists of procedures to be followed in handling material contaminated with petroleum fuel products (hydrocarbons including petroleum, petroleum derivatives, hydraulics and like products) caused by incidental spillage (including leaks) from the Contractor's equipment.
1. Incidental spillage shall mean spillage of a quantity not greater than 25 gallons per incident, of vehicular or mechanical equipment fuel products, onto open ground and absorbed or not absorbed by the soils.
 2. Spillage or leakage of petroleum fuel products in quantities in excess of 25 gallons shall be immediately remediated by the Contractor using procedures as directed by MDAD Civil and Environmental Engineering. Whenever such spillage or leakage occur, the Contractor shall immediately notify the Field Representative and MDAD Civil and Environmental Engineering Division and shall employ the appropriate corrective actions as directed.
- B. The provisions of this Section are limited to incidental petroleum fuel spillage on ground surfaces and it excludes fuel spillage onto surface waters.
- C. Clean-ups are costly and delays progress. They can be avoided if leaks or spillages are eliminated and in case they occur, are managed efficiently and quickly.

1.02 APPLICABLE CODES

- A. Chapter 24 of the Metropolitan Miami-Dade County Code addresses the Environmental Protection Ordinance:
1. Section 24-11(3), of the Miami-Dade County Code stipulates in essence that "it is unlawful to discharge industrial or other wastes to the waters of Miami-Dade County as such discharge may cause water pollution, and constitute a nuisance and sanitary nuisance as defined in Sections 24-3(42), 24-3(58), 24-3(74) and/or 24-26 hereof."
 2. Section 24-14, of the Miami-Dade County Code, also stipulates that: "No person shall cause, or allow to be caused any nuisance or sanitary nuisance as defined in Sections 24-3(42), 24-3(58) and/or 24-26 hereof".
 3. The above rules apply to all discharges intentional or accidental.

- B. Leaks and spillages may occur when using mechanical equipment. Equipment generated or lubricated with petroleum products, are prone to leaks or spillages, therefore proper

management of "spillage incidents" is essential.

PART 2 - PRODUCTS

2.01 ABSORBENT MATERIALS

Equip crews or machinery with the most efficient type of petroleum absorbent materials. These materials are available at petroleum equipment suppliers and must be readily accessible so that spillages can be contained and prevented from becoming greater incidents.

Fiber material, sand or cat litter may be used as an absorbent material. Sufficient quantity of absorbent material capable of absorbing up to 25 gallons of petroleum fuel products shall be stocked at the job site at all times.

PART 3 - EXECUTION

3.01 PROCEDURES

- A. Personnel handling waste materials must have a minimum of 40 hours training as defined in 29 CFR 1910.120 and in accordance with certified OSHA course.
- B. The following steps must be adhered to when handling spillages. They also serve as a guide in preventing a minor incident from turning into a major event.
- C. Perform work as specified herein and in accordance with the applicable provisions of MDAD Standard Technical Specifications Section P-160 except that no payment will be made to the Contractor for the cost of handling and disposing of leaks, spillages and materials contaminated by such leaks or spillages.
- D. The steps outlined below are minimum requirements and are merely guidance. They do not constitute a complete compliance procedure.

1. STEP

If a fuel contamination to open ground has been discovered, check for the origin of that leak or spillage. Then stop the spillage or leak or positively contain it and then use absorbents to collect the discharged liquid.

Immediately notify the Miami-Dade Aviation Department Civil and Environmental Engineering at (305) 876-7934.

2. STEP 2

Sand may be used to absorb ground surface spills while absorbent materials may be used to absorb ground spills as well as surface water spills.

Once absorption of spilled fuels is complete, the impacted (contaminated) absorbent materials shall be stored in 55-gallon steel drums (100-150 lbs.).

HANDLING OF INCIDENTAL FUEL SPILLAGE DURING CONSTRUCTION

If leaked or spilled fuel has been absorbed into the soils, excavate and containerize the impacted (contaminated) soils. Soils may be stored in 55-gallon steel drums.

3. STEP 3

The contaminated materials must be collected, containerized and otherwise properly stored and labeled prior to transport to a pre-approved storage, disposal or treatment facility.

All drums used to store impacted (contaminated) absorbent material and/or contaminated soils shall be properly sealed and labeled with the following information:

Name of company (Contractor):

Contract or Project No.:

Location of origin:

Type of contents:

Type of contaminant:

Quantity: (e.g. 1 of 1)

Date:

Containerized by:

Labeled by:

The procedure for the proper handling and disposal of contaminated soils and absorbent materials is readily available through the Florida Department of Transportation (FDOT) and the Miami-Dade County Department of Environmental Resources Management (DERM).

END OF SECTION

SECTION 015800
CONSTRUCTION IDENTIFICATION SIGNS

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Furnish, erect and remove construction identification sign(s) in accordance with the contract documents and as directed by the Field Representative.

PART 2 - PRODUCTS

- 2.01 A. Sign Face: 7/8 Inch thick (min.); exterior plywood. All edge sealed.
- B. Supports: Pressure treated posts - min. size 4" x 4".
- C. Hardware: Galvanized steel.
- D. Paint: Background and lettering - Exterior grade, latex, gloss paint. Colors as directed.

PART 3 - EXECUTION

- 3.1 A. Install where shown; minimum post embedment 36".
- B. Thoroughly compact backfill in post holes.
- C. Legend as per appended sheet.
- D. Sign size, lettering types and sizes, colors, etc. as shown. Sign size shall be 8'x4'.
- E. At **final** completion, remove sign(s) and restore site to original or proposed condition.

AVIATION - THE ECONOMIC FOUNDATION OF MIAMI-DADE COUNTY

Taxiway C Extension
Miami Executive Airport (TMB)
MDAD Project No. W125A

Daniella Levine Cava
Mayor

Board of County Commissioners

Anthony Rodriguez
Chairman

Kionne L. McGhee
Vice Chairman

Oliver G. Gilbert, III
District 1
Marleine Bastien
District 2
Keon Hardemon
District 3
Micky Steinberg
District 4
Eileen Higgins
District 5
Kevin M. Cabrera
District 6
Raquel A. Regalado
District 7

Danielle Cohen Higgins
District 8
Kionne L. McGhee
District 9
Anthony Rodriguez
District 10
Robert J. Gonzalez
District 11
Juan Carlos Bermudez
District 12
René Garcia
District 13

Ricardo Solorzano
Project Manager
Geri Bonzon-Keenan
County Attorney
Ralph Cutié
Aviation Director



END OF SECTION

CONSTRUCTION IDENTIFICATION SIGNS

SECTION 016000
MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Products.
- B. Transportation and Handling.
- C. Storage and Protection.
- D. Product Options.
- E. Product List.
- F. Substitutions.

G. Product Demonstrations

1.02 RELATED REQUIREMENTS

- A. General Conditions.
- B. Section 011000 - Summary of Work.
- C. Section 014200 - Reference Standards.
- D. Section 014000 - Contract Quality Control. Submittal of manufacturer's certificates.
- E. Section 017836 - Warranties and Guarantees.
- F. Section 019113 - Commissioning Requirements

1.03 PRODUCTS

- A. Products include material, equipment and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification section shall be the same and shall be inter-changeable.
- D. Do not use materials and equipment removed from existing structure, except as specifically required, or allowed, by Contract Documents.

1.4 ACTION SUBMITTALS

- A. Comparable Product Request Submittal: Submit request for consideration of each

comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within **seven** days of receipt of a comparable product request. Architect will notify Contractor[through Construction Manager] of approval or rejection of proposed comparable product request within **15** days of receipt of request, or **seven**> days of receipt of additional information or documentation, whichever is later.
 - a. Form of Architect's Approval of Submittal: As specified in Section 013300 - Submittals.
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 013300 - Submittals. Show compliance with requirements.

1.5 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. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
 2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
 3. See individual identification sections in Divisions 21, 22, 23, and 26 for additional

identification requirements.

1.06 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 MDAD.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for MDAD.
- 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. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 - Contract Closeout Procedures.

1.07 TRANSPORTATION AND HANDLING

- A. Transport products by methods to avoid product damage. Deliver materials to job site in manufacturer's original unopened containers clearly labeled with manufacturer's name, brand designation and reference specification.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage. Handle products in such a manner as to prevent breakage of containers and damage of any kind.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged. Damage sustained by products in transit to job site shall be repaired to the satisfaction of the Field Representative. If damage sustained while transporting products to job site is non-repairable, the products shall be replaced with new ones at no cost to MDAD.

1.08 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Exposed metal surfaces, not provided with manufacturer specific storage instructions, shall be protected with a light oil or silicone coating to prevent rust while in storage. Store sensitive products in weather tight enclosures; maintain within temperature

and humidity ranges required by manufacturer's instructions.

- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and are maintained under required conditions.

1.09 ENCLOSED STORAGE

- A. Store products, subject to damage by the elements, in substantial weather tight enclosures.
- B. Maintain temperature and humidity within ranges stated in manufacturer's instructions.
- C. Provide humidity control and ventilation for sensitive products as required by manufacturer's instructions.
- D. Store unpacked and loose products on shelves, in bins, or in neat groups of like items.

1.10 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling, staining, and corrosion.
- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent erosion and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials or liquids.

1.11 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on a scheduled basis. Maintain a log of inspections, make available to Field Representative on request.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that stored products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

1.12 MAINTENANCE OF EQUIPMENT STORAGE

- A. For mechanical and electrical equipment in long-term storage, provide manufacturer's

service instructions to accompany each item, with notice of enclosed instructions shown on exterior of package.

- B. Service equipment on a regularly scheduled basis, maintaining a log of services; submit as a record document.

PART 2 – PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, 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. MDAD reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect 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.
 - a. Submit additional documentation required by Architect [through Construction Manager] in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect whose determination is final.

- B. Product Selection Procedures:

1. Sole Product: (Not used)
2. Sole Manufacturer/Source: (Not used)
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
 - a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: ..."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.
 - a. Non-limited list of products is indicated by the phrase: "Subject to compliance with

requirements, available products that may be incorporated in the Work include, but are not limited to, the following: ..."

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.
 - a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: ..."
 6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: ..."
 7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
 - a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 - Substitution Procedures for substitutions for convenience.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 - Substitution Procedures for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT OPTIONS/SUBSTITUTIONS

- A. Product Options/Substitutions shall be in accordance with the requirements of the General Conditions.

2.3 Computer Equipment, Monitor, and Software for CCTV Cameras

- A. Contractor shall provide one (1) HP Z2 G5 SFF Workstation PC Bundle brand or

MATERIAL AND EQUIPMENT

equivalent, equipped with an Intel Core i7 processor, 16GB RAM, 512GB SSD storage, Windows 10 operating system, and an NVIDIA Quadro P1000 4GB GDDR5 graphics card. Additionally, the workstation bundle shall include a wireless mouse and keyboard.

- B. Contractor shall provide one (1) HP brand or equivalent monitor, featuring a screen size of twenty-four inches (24") or larger with LCD or similar display technology. Monitor shall be installed on a desk mounted monitor arm

PART 3 – EXECUTION (Not Used)

PART 4 – METHOD OF MEASUREMENT

- A. Computer and monitor will be paid for on a an each basis wherein no measurement will be made.
- B. There will no separate measurement and payment will be made for all other items listed in this section and are considered ancillary to the contract Payment for items other than the computer and monitor is included as part of the overall contract compensation.

PART 5 – BASIS OF PAYMENT

- A. Payment for the quantity determined as described in Part 4 above shall be made at the **each price bid for the item Computer and Monitor** which price and payment shall constitute full compensation for furnishing all labor, materials, equipment and incidentals required to complete the work under this Section.
- B. Payment shall be made under:

Item 016000-11.1 Computer Equipment and Monitor - per each

END OF SECTION

SECTION 017123
SURVEYING AND FIELD ENGINEERING

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Surveying and Field Engineering services
- B. Surveys for Measurement and Payment
- C. MDAD will arrange for site survey which will identify control points (monuments and benchmarks noted on the Plans). Contractor must confirm and accept.
- D. Contractor to provide all other surveys.

1.02 RELATED REQUIREMENTS

- A. Bidding and Contract Requirements.
- B. General Conditions.
- C. Section 011000 - Summary of Work.
- D. Section 017700 - Contract Closeout Procedures.

1.03 QUALITY CONTROL

- A. Land Surveyor: Registered in the State of Florida, and acceptable to the MDAD.
- B. Professional Engineer: Registered Professional Engineer of the discipline required for specific service on Project, licensed in the State of Florida.

1.04 SUBMITTALS

- A. Submit name, address and telephone number of **Surveyor and Engineer** before starting survey work.
- B. On request, submit documentation verifying accuracy of survey work.
- C. Submit certificate signed by **Surveyor** certifying that all elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

1.05 PROJECT RECORD DOCUMENTS

- A. The survey data shall comprise verifiable coordinates and elevations measured by a licensed surveyor; not modeled or extrapolated data.
- B. Maintain complete, accurate log of control and survey work as it progresses.

- B. Maintain complete, accurate log of control and survey work as it progresses.
- C. On completion of foundation walls and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of construction **and site work**.
- D. All surveys of underground piping and utilities shall be performed prior to backfilling excavations.
- E. Submit Record Documents under provisions of Section 017700.
 - 1. Provide three (3) hard copies of surveys with each sheet signed and sealed by a Professional Land Surveyor licensed in the State of Florida.
 - 2. Provide AutoCAD and PDF electronic copies of surveys.
 - 3. Record drawings shall follow the same view as the contract documents. Progress record drawings must be submitted with each Application of Payment.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 SURVEY REFERENCE POINTS

- A. Establish, maintain and protect survey control points prior to starting work, using base reference points as shown on Plans. Promptly notify Field Representative and MDAD of any discrepancies discovered.
- B. Promptly report to Field Representative the loss or destruction of any reference point or relocation required because of changes in grades or other reasons. Replace dislocated survey control points based on original survey control.

3.02 PREPARATION

- A. Establish a minimum of two permanent benchmarks on site, referenced to established control points. Record locations, with horizontal and vertical data, on Project Record Documents.
- B. Verify the accuracy of all lines and grades given on the Plans with existing lines and grades and immediately call all discrepancies to the Field Representative's attention, in writing, requesting determination before proceeding with the work. Perform all work in accordance with the lines and grades thus established and make good any work performed not in accordance therewith at no cost to the MDAD.
- C. Establish lines and levels, locate and lay out by instrumentation and similar appropriate means:
 - 1. Site improvements, including pavements; stakes for grading, fill and topsoil placement; lighting and signage locations, and utility locations, slopes and invert elevations.
 - 2. Grid or axis for structures.

- D. Periodically verify layouts by same means.

3.03 SURVEYS FOR MEASUREMENT AND PAYMENT

- A. When required in the Technical Specifications, perform surveys to determine quantities of **unit cost** work, including control surveys to establish measurement reference lines. Notify Field Representative prior to starting work.
- B. Contractor's engineer shall sign surveyor's field notes or keep duplicate field notes and shall calculate and certify quantities for payment purposes.
- C. Contractor shall submit progress surveys in .dwg format and on the grid provided in the contract documents for subgrade, sub-base, base, pavement course prior to acceptance of payment per CADD requirements listed in section 3.05.
- D. Contractor shall submit progress surveys in .dwg format and on the same views as the contract documents for all drainage and electrical construction prior to acceptance of payment per CADD requirements listed in section 3.05.

3.04 AS-BUILT SURVEY

- A. Contractor shall provide an as-built survey of the project as part of the Contractor's as-built documentation for Project Closeout.
- B. Record drawings shall follow the same view as the contract documents. Progress record drawings must be submitted with each Application of Payment.

3.05 SURVEY DELIVERABLE REQUIREMENTS

DIGITAL SURVEY DELIVERABLE SPECIFICATIONS

Unless specifically directed by the engineer, the following specifications shall be applied for all digital survey deliverables to HDR that are to be utilized for design projects.

DRAWING COORDINATE SYSTEM

The drawing file is to be in model space utilizing the coordinate system and vertical datum specified by the client/HDR. A separate document should also be supplied with any combined site scale factor and origin needed to convert coordinates from ground to grid if applicable.

PROPERTIES AND DRAWING ENTITIES

Electronic survey to be delivered in AutoCAD Civil 3D release 2016 format or other approved format. The drawing shall be layered in accordance with National CAD Standards (NCS). See attached AutoCAD template file containing layers provided by MDAD.

Separate layer names should be used for all distinct objects surveyed. Do not group dis-similar items together on the same layer. For example, do not place line work and annotation on the same layer.

All properties of the AutoCAD entities in the drawing are to be BYLAYER (Absolutely No Exceptions Here). In other words, do not change the properties of individual entities. For example, do not place water items on the sanitary layer and just change the color, linetype, or lineweight of the entity. Any user defined

blocks used in the drawing shall have all entities created on layer 0, and all other properties shall be set to BYLAYER.

All blocks, dimensions, mtext, mleaders used in the drawing will use the Annotative property wherever possible. An exception to this will be blocks used as point symbols. These blocks cannot have an annotative property.

Points shall not be used to depict physical features. Features shall be depicted using blocks or linework. Points shall only be used for topographic information.

SURFACES

Creating an accurate existing surface model is critical to the overall design process. An accurate model extends past the requirements for the given contour interval stated by the Master Services Agreement. It is the intention of this model to be generated with breaklines. There must be breaklines at all breaks in grade along the site. This should include but not limited to ALL Tops, Toes, Swales, Crowns, Flow Lines, Face/Back of Curbs, Edge of Pavement and any other linear features. A surface given without breaklines will be a cause for immediate rejection and delay the project schedule.

Surfaces created with Civil 3D shall be created from Survey Points and 3D break lines (with preference to the use of Feature Lines) at a minimum. In the event the number of collected points exceeds 20,000, an external point file may be used for natural ground or spot shots. The external file shall be a separate comma delimited ASCII point file in PNEZD (Point Number, Northing, Easting, Elevation, and Description) format. The point file should then be linked to the existing ground surface and a note placed in the description of the surface giving the external file name.

Surfaces created from other software programs should include Survey Points and 3D Breaklines at a minimum. The drawing should include polylines representing contours, 3D Lines or 3D Faces representing the surface model.

SURVEY OBJECTS

Survey Figures should NOT be used in the drawing for 2D line work. Survey Figures do not allow for editing inside the design process. For example, proposed curb cuts cannot be placed because a figure cannot be edited without the survey database, so even changing a layer would be impossible. Therefore, any figure created should be converted to a 2D polyline at elevation (z-value) of '0'.

All points shall be inserted from a Survey Database thereby creating Survey Points and not Cogo Points. This will lock the point and prevent users from accidentally modifying survey data (location, elevation, and description.).

Parcels shall be made up of individual segments and not polyline segments. Parcel geometry should be clean with no overlapping segments, duplicate segments or vertical PI's. Parcels shall be of a single elevation of zero (0).

UNDERGROUND UTILITIES

At a minimum, the surveyor must supply both 2D and 3D linework. 3D polylines and/or Feature lines need to represent existing pipes from invert to invert. If the surveyor would prefer to use Civil 3D pipe and structure objects to represent existing utilities then they are free to do so. Rim or top elevations, measure

downs or dips and top of nut elevations of water valves shall also be labeled as required by the project manager.

DOCUMENTATION

A list of bench marks including the reference datum, reference bench mark, an accurate description of each mark and its elevation. At least two of the permanent bench marks shall be located on or near the project outside the area of proposed construction where possible.

A separate comma delimited ASCII point file is required as a QA/QC step to check the drawing in the event we should experience difficulties. This file is to be a comma delimited PNEZD (Point Number, Northing, Easting, Elevation, and Description) ascii format.

END OF SECTION

SECTION 017133
PROTECTION OF WORK AND PROPERTY

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Protection of products **including MDAD-provided products**, after installation.
- B. Protection of existing property and landscape.

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of work
- B. Section 015600 - Barriers and Enclosures
- C. Section 016000 - Material and Equipment: Protection of products in storage.
- D. Section 017423 - Final Cleaning
- E. Individual Sections: Specific protection for installed products.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

- A. Protect installed products and control traffic in immediate area to prevent damage from subsequent operations.
- B. Provide protective coverings at walls, projections, corners and jambs, sills and soffits of openings in and adjacent to traffic areas.
- C. Cover walls and floors of elevator cabs and jambs of cab doors with 3/4 inch plywood, when elevators are used by construction personnel.
- D. Protect finished floors and stairs from dirt, wear and damage:
 - 1. Secure heavy sheet goods or similar protective materials in place, in areas subject to foot traffic.
 - 2. Lay planking or similar rigid materials in place, in areas subject to movement of heavy objects.

3. Lay planking or similar rigid materials in place, in areas where storage of products will occur.
- E. Protect waterproofed and roofed surfaces:
1. Restrict use of surfaces from traffic of any kind and from storage of products.
 2. When an activity is mandatory, obtain recommendations for protection of surfaces from **installer**. Install protection and remove on completion of activity. Restrict use of adjacent unprotected areas.
- F. Restrict traffic of any kind across planted lawn and landscape areas.

3.02 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

- A. The Contractor shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property markers until the Field Representative has witnessed or otherwise referenced their location and shall not move them until directed.
- B. The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in its manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the work is completed and accepted.
- C. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or it shall make good such damage or injury in an acceptable manner, at no additional cost to MDAD.

END OF SECTION

SECTION 017300
EXECUTION

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

- 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. Coordination of MDAD installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.

1.2 RELATED REQUIREMENTS

- A. Section 011000 - Summary for limits on use of Project site.
- B. Section 013300 – Submittals for submitting surveys.
- C. Section 017700 – Contract Closeout Procedures for submitting final property survey with Project Record Documents, recording of MDAD accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 PREINSTALLATION MEETINGS

- A. Cutting and Patching Conference: Conduct conference at TMB Administration Building.
1. Prior to **commencing work requiring cutting and patching**, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:
 - a. Contractor's superintendent.
 - b. Trade supervisor responsible for cutting operations.
 - c. Trade supervisor(s) responsible for patching of each type of substrate.
 - d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affecting by cutting and patching operations.
 2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For **land surveyor**.
- B. Certificates: Submit certificate signed by **land surveyor** certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least **10** days prior to the time cutting and patching will be performed. Include the following information:
1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 4. Dates: Indicate when cutting and patching will be performed.
 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

- a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit **two** copies signed by **land surveyor**.
- F. Final Property Survey: Submit **10** copies showing the Work performed and record survey data.

1.6 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.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 - 2. 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 results in increased maintenance or decreased operational life or safety. **Operational elements include the following:**
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Plumbing piping systems.
 - f. Mechanical systems piping and ducts.
 - g. Control systems.
 - h. Communication systems.
 - i. Fire-detection and -alarm systems.

- j. Conveying systems.
 - k. Electrical wiring systems.
 - l. Operating systems of special construction.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
- a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.
 - e. Equipment supports.
 - f. Piping, ductwork, vessels, and equipment.
 - g. Noise- and vibration-control elements and systems.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.
- 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 Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, **mechanical and electrical systems**, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services; and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. 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 for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 2. Examine walls, floors, and roofs 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.

- C. 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.
- D. 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 **local utility or MDAD** 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. 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.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. 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 Architect according to requirements in Section 013100 - 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 Architect **and Construction Manager** promptly.
- B. General: Engage a **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.

EXECUTION

5. Check the location, level and plumb, of every major element as the Work progresses.
 6. Notify Architect [and Construction Manager] 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. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. 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 Architect **and Construction Manager**.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect **or Construction Manager**. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect **and Construction Manager** before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of **two** permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

- D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.
- E. Final Property Survey: Engage a **land surveyor** to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by **land surveyor**, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.
 - 1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
 - 2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

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 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: Where possible, select tools or equipment that minimize production of excessive 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 portions of the 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 Architect.
 - 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. Repair or remove and replace damaged, defective, or nonconforming Work.
 - 1. Comply with Section 017700 - Closeout Procedures for repairing or removing and replacing defective Work.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 - Summary.

- F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to **prevent** interruption to occupied areas.
- G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. **Concrete and Masonry:** Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply

EXECUTION

final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 MDAD-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for MDAD's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by MDAD's construction personnel.
1. Construction Schedule: Inform MDAD of Contractor's preferred construction schedule for MDAD's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify MDAD if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include MDAD's construction personnel at preinstallation conferences covering portions of the Work that are to receive MDAD's work. Attend preinstallation conferences conducted by MDAD's construction personnel if portions of the Work depend on MDAD's construction.

3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
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 (27 deg C).
 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 requirements in **Section 015000 - Temporary Facilities and Controls**.
- 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 ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 - General Commissioning Requirements.
- 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.

EXECUTION

- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 - Quality Requirements.

3.10 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. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017329
CUTTING AND PATCHING

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Requirements and limitations for cutting and patching of Work.

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of Work.
- B. Section 016000 - Material and Equipment: Substitutions
- C. Individual Specifications Sections:
1. Cutting and patching incidental to work of the Section.
 2. Advance notification to other Sections of openings required in work of these sections.
 3. Limitations on cutting **structural** members.
 4. Do not cut or drill into any prestressed concrete member.

1.03 SUBMITTALS

- A. Submit written request in advance of cutting or alteration which affects:
1. Structural integrity of any element of Project.
 2. Integrity of weather-exposed or moisture-resistant element.
 3. Efficiency, maintenance, or safety of any operational element.
 4. Visual qualities of sight-exposed elements.
 5. Work of MDAD or separate contractor.
- B. Include in request:
1. Identification of Project.
 2. Location and description of affected work.
 3. Necessity for cutting or alteration
 4. Description of proposed work and products to be used.
 5. Alternatives to cutting and patching.
 6. Effect on work of MDAD or separate contractor.
 7. Written permission of affected separate contractor.
 8. Date and time work will be executed.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Those required for original installation.
- B. For any change in material, submit request for substitution under provisions of General Conditions.

PART 3 - EXECUTION

3.01 GENERAL

- A. Execute cutting, fitting and patching **including excavation and fill**, to complete Work, and to:
 - 1. Fit the several parts together, to integrate with other work.
 - 2. Uncover work to install ill-timed work.
 - 3. Remove and replace defective and non-conforming work.
 - 4. Remove samples of installed work for testing.
 - 5. Provide openings in elements of Work for penetrations of mechanical and electrical work.

3.02 INSPECTION

- A. Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- B. After uncovering, inspect conditions affecting performance of work.
- C. Beginning of cutting or patching means acceptance of existing conditions.

3.03 PREPARATION

- A. Provide supports to assure structural integrity of surroundings; devices and methods to protect other portions of Project from damage.
- B. Provide protection from elements for areas which may be exposed by uncovering work; maintain excavations free of water.

3.04 PERFORMANCE

- A. Execute work by methods to avoid damage to other work, and which will provide proper surfaces to receive patching and finishing.
- B. Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- C. Cut rigid materials using masonry saw or core drill. Pneumatic tools are not allowed without prior approval.
- D. Restore work with new products in accordance with requirements of Contract Documents.
- E. Fit work **watertight** to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

- F. At penetrations of fire-rated wall, ceiling, or floor construction, completely seal voids with **fire-rated** material, full thickness of the construction element.
- G. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

END OF SECTION

SECTION 017413
CONSTRUCTION CLEANING

PART 1 - GENERAL

1.01 REQUIREMENT INCLUDED

- A. Cleaning and disposal of waste materials, debris and rubbish during construction.

1.02 RELATED REQUIREMENTS

- A. General Conditions: Cleaning Up.
- B. Section 017423 - Final Cleaning.
- C. Individual Specifications Sections: Specific cleaning for Product or work.

PART 2 - PRODUCTS

2.01 EQUIPMENT

- A. Provide covered containers for deposit of waste materials, debris and rubbish.

PART 3 - EXECUTION

3.01 CLEANING

- A. Maintain areas under Contractor's control (including employee parking and Contractor staging areas) free of waste materials, scraps, surplus material, debris and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums attics, crawl spaces and other closed or remote spaces, prior to closing the space.
- C. Clean interior areas daily to provide suitable conditions for **work** and to prevent fire or accidents.
- D. Use power brooms to clean paved areas daily and immediately prior to opening any paved area to aircraft or vehicular traffic.
- E. All combustible waste materials shall be removed from buildings at the end of each working day.
- F. Broom clean interior areas prior to start of surface finishing and continue cleaning on a daily basis.

- G. Control cleaning operations so that dust and other particulates will not adhere to wet or newly-coated surfaces.
- H. Responsibility for construction cleaning shall not be delegated to subcontractors performing construction work under this Contract.

3.02 DISPOSAL

- A. Remove waste materials, debris and rubbish from site bi-weekly and legally dispose of off-site in an authorized disposal area.

3.03 CONTRACTOR'S FAILURE TO CLEAN

- A. If the Contractor fails to maintain levels of cleanliness in work areas, satisfactory to the Field Representative, then the MDAD shall have the right to cause such areas to be cleaned by others. The costs to the MDAD for such cleaning, plus 25% for administration, shall be the obligation of the Contractor and shall be deducted from any money due the Contractor hereunder.

END OF SECTION

SECTION 017419
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous **demolition and construction** waste.
 - 2. Recycling nonhazardous **demolition and construction** waste.
 - 3. Disposing of nonhazardous **demolition and construction** waste.
- B. Related Requirements:
 - 1. Section 011200 - Multiple Contract Summary for coordination of responsibilities for waste management.

1.2 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. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. 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.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of **50** 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 means to divert

construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

1. Demolition Waste:
 - a. Asphalt paving.
 - b. Concrete.
 - c. Concrete reinforcing steel.
 - d. Brick.
 - e. Concrete masonry units.
 - f. Wood studs.
 - g. Plywood and oriented strand board.
 - h. Wood paneling.
 - i. Wood trim.
 - j. Structural and miscellaneous steel.
 - k. Rough hardware.
 - l. Roofing.
 - m. Insulation.
 - n. Doors and frames.
 - o. Door hardware.
 - p. Windows.
 - q. Glazing.
 - r. Metal studs.
 - s. Gypsum board.
 - t. Acoustical tile and panels.
 - u. Carpet.
 - v. Carpet pad.
 - w. Demountable partitions.
 - x. Equipment.
 - y. Cabinets.
 - z. Plumbing fixtures.
 - aa. Piping.
 - bb. Supports and hangers.
 - cc. Valves.
 - dd. Sprinklers.
 - ee. Mechanical equipment.
 - ff. Refrigerants.
 - gg. Electrical conduit.
 - hh. Copper wiring.
 - ii. Lighting fixtures.
 - jj. Lamps.
 - kk. Ballasts.
 - ll. Electrical devices.
 - mm. Switchgear and panelboards.
 - nn. Transformers.
 - oo. <Insert materials required>.

2. Construction Waste:

- a. Masonry and CMU.
- b. Lumber.
- c. Wood sheet materials.
- d. Metals.
- e. Roofing.
- f. Insulation.
- g. Carpet and pad.
- h. Gypsum board.
- i. Piping.
- j. Electrical conduit.
- k. 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.

1.4 ACTION SUBMITTALS

- A. Waste Management Plan: Submit plan within 7 days of date established for **commencement of the Work**.

1.5 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use **Form CWM-7 for construction waste and [Form CWM-8 for demolition waste**. Include the following information:
1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste in tons (tonnes).
 4. Quantity of waste salvaged, both estimated and actual in tons (tonnes).
 5. Quantity of waste recycled, both estimated and actual in tons (tonnes).
 6. Total quantity of waste recovered (salvaged plus recycled) in tons (tonnes).
 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.
- H. Qualification Data: For **waste management coordinator**.
- I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 013100 - 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.

1.7 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. **Distinguish between demolition and construction waste.** 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 **site-clearing** waste generated by the Work. Use **Form CWM-1 for construction waste and Form CWM-2 for demolition waste.** Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use **Form CWM-3 for construction waste and Form CWM-4 for demolition 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. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 6. 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 **Form CWM-5 for construction waste and Form CWM-6 for demolition 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 salvaged materials.
 5. Revenue from recycled materials.
 6. Savings in hauling and tipping fees by donating materials.
 7. Savings in hauling and tipping fees that are avoided.
 8. Handling and transportation costs. Include cost of collection containers for each type of waste.
 9. 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 015000 - 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.
- 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 salvage, 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 015000 - Temporary Facilities and Controls for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work: Salvage items for reuse and handle as follows:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 - 3. Store items in a secure area until installation.
 - 4. Protect items from damage during transport and storage.
 - 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale or Donation: Not permitted on Project site.

- C. Salvaged Items for MDAD's Use: Salvage items for MDAD's use and handle as follows:
 1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
 3. Store items in a secure area until delivery to MDAD.
 4. Transport items to MDAD's storage area designated by MDAD.
 5. Protect items from damage during transport and storage.
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.
- E. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- F. Plumbing Fixtures: Separate by type and size.
- G. Lighting Fixtures: Separate lamps by type and protect from breakage.
- H. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:
- C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall **accrue to MDAD**.
- D. 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.
- E. 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 MDAD's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Grind asphalt to maximum **1-1/2-inch (38-mm)** size.
 1. Crush asphaltic concrete paving and screen to comply with requirements in Section 312000 - Earth Moving for use as general fill.
- B. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.
- C. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 1. Pulverize concrete to maximum **1-1/2-inch (38-mm)** size.
 2. Crush concrete and screen to comply with requirements in Section 312000 "Earth Moving" for use as satisfactory soil for fill or subbase.
- D. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
 1. Pulverize masonry to maximum **3/4-inch (19-mm)** size.
 - a. Crush masonry and screen to comply with requirements in Section 312000 - Earth Moving for use as **general fill**.
 - b. Crush masonry and screen to comply with requirements in Section 329300 - Plants for use as mineral mulch.
 2. Clean and stack undamaged, whole masonry units on wood pallets.
- E. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- F. Metals: Separate metals by type.
 1. Structural Steel: Stack members according to size, type of member, and length.
 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- G. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- H. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

- I. Metal Suspension System: Separate metal members including trim, and other metals from acoustical panels and tile and sort with other metals.
- J. Carpet: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
 - 1. Store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- K. Carpet Tile: Remove debris, trash, and adhesive.
 - 1. Stack tile on pallet and store clean, dry carpet in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.
- L. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- M. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 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. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.
 - 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, 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.
- B. Burning: Do not burn waste materials.
- C. Disposal: Remove waste materials from MDAD's property and legally dispose of them.

3.7 ATTACHMENTS

- A. Form CWM-1 for construction waste identification.
- B. Form CWM-2 for demolition waste identification.
- C. Form CWM-3 for construction waste reduction work plan.
- D. Form CWM-4 for demolition waste reduction work plan.
- E. Form CWM-5 cost/revenue analysis of construction waste reduction work plan.
- F. Form CWM-6 cost/revenue analysis of demolition waste reduction work plan.
- G. Form CWM-7 for construction waste
- H. Form CWM-8 for demolition waste.

END OF SECTION 017419

SECTION 017423
FINAL CLEANING

PART 1 – GENERAL

1.01 REQUIREMENT INCLUDED

- A. Final cleaning of project.

1.02 RELATED REQUIREMENTS

- A. Section 017413 - Construction Cleaning: Cleaning during construction.
- B. Section 017700 - Contract Closeout Procedures.
- C. Individual Specifications Sections: Specific cleaning for product or work.

1.03 DESCRIPTION

- A. Execute cleaning prior to inspection for Beneficial Occupancy or Substantial Completion of **each designated portion of the Work.**

PART 2 - PRODUCTS

2.01 CLEANING MATERIALS

- A. Use materials which will not create hazards to health or property, and which will not damage surfaces.
- B. Use only material and methods recommended by manufacturer of material being cleaned.

PART 3 - EXECUTION

3.01 CLEANING

- A. Upon completion of the work and before acceptance and final payment is made, remove from the Site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, etc. Repair or replace, in an acceptable manner, private or public property which may have been damaged or destroyed due to the Contractor's operations, except when such property is required to be altered or demolished under the Contract and leave the Site in a clean and orderly condition. Material cleared from the Site and deposited on adjacent property will not be considered as having been disposed of satisfactorily.
- B. All areas within and contiguous to the work under the Contract, including all exterior and interior surfaces and items where work has been performed, as well as all areas having been

used for ingress and egress of materials and personnel or storage of materials, shall be turned over to the Owner in a neat and "polished" home-clean condition. "Broom-clean", as used in the construction industry, will not suffice.

- C. All roof areas where work is performed shall be cleaned of all debris and excess materials. Particular attention shall be given to gutters, downspouts, leader heads, and scuppers to assure there is no blockage of any kind. Roof areas shall be inspected to ensure that no damage to roof membranes has occurred. Any damage so discovered caused by the Contractor's operations shall be repaired by a licensed roofer at no additional cost to the Owner.
- D. All wall areas shall be free from extraneous paint, splatter or spillage of roofing materials, adhesion of asphaltic paving materials or any other defacement. Walls so defaced shall be cleaned and/or painted in an approved manner at no additional cost to the Owner.
- E. All concrete walks, aprons, etc., including adjacent pavement shall be cleaned and free from building materials, containers, dust, dirt, sand, chips of roofing gravel, roofing materials, and all other incidental debris. Areas shall be well swept and, if directed by the Field Representative, shall be hosed down with clean water.
- F. All barricades, fences, Field Representative's office, construction offices, etc., field testing laboratories and all Contractor's tools, equipment, etc., shall be removed from the Airport Property.
- G. All glass shall be thoroughly cleaned and polished on both sides.
- H. The paint line for glass in painted surroundings, whether wood, metal, putty or other glazing compounds, shall be neat, clean and straight.
- I. Vacuum all carpets; and polish and wax all resilient flooring.
- J. Power-scrub and detergent clean all ceramic tile floors. Wash all ceramic tile walls with detergent and clean all wall surfaces. All plastic laminate and hardware surfaces shall be cleaned and polished.

END OF SECTION

SECTION 017500
MEASUREMENT OF QUANTITIES

PART 1 - GENERAL

- 1.01 All work completed under the Contract will be measured by the Field Representative, using United States Customary Units of Measurement. The Field Representative shall afford the Contractor an opportunity to witness or participate in the measurements and to review all calculations relating to final measurements.
- 1.02 The method of measurement and computations to be used in the determination of quantities of material furnished and of work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.
- A. Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of **4 square feet or less**. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the Plans or ordered in writing by the Field Representative.
 - B. Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
 - C. Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, curbs and similar items shall be measured parallel to the base or foundation upon which such items are placed.
 - D. In computing volumes of excavation, the average end area method or other acceptable methods will be used.
- 1.03 The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inches.
- 1.04 The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials which are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designated by the Field Representative. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material be paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the Field Representative directs, and each truck shall bear a plainly legible identification mark.
- 1.05 Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Field Representative, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level

MEASUREMENT OF QUANTITIES

capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

1.06 Bituminous materials is considered incidental to the items requiring it and a separate measurement will not be made.

1.07 Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

1.08 METHOD OF MEASUREMENT

A. When bituminous materials are shipped by truck or transport, net certified weight by volume, subject to correction for loss or foaming, may be used for computing quantities.

B. Cement will be measured by the ton or hundredweight.

C. Timber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

1.09 SCALES

A. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales.

B. Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of a Florida State certified scale technician before beginning work and at such other times as requested by the Field Representative. Scale weight unit intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of 1 percent of the nominal rated capacity of the scale, but not less than 1 pound. The use of spring balances will not be permitted.

C. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the inspector can safely and conveniently view them.

D. Scale installations shall have available ten standard 50-pound weights for testing the weighing equipment.

E. Scales must be tested for accuracy, adjusted, sealed and serviced by an approved Florida State certified scale technician, as often as the Field Representative deems necessary, before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

F. Scales shall be State certified and shall meet the requirements of Article 7-18 of the 2020 FDOT Standard Specifications for Road and Bridge Construction.

G. Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighing-accuracy test will

MEASUREMENT OF QUANTITIES

be reduced by the percentage of error in excess of one-half of 1 percent.

- H. In the event inspection reveals the scales have been "under weighing" (indicating less than correct weight), they shall be adjusted, and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.
 - I. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this Section, for the weighing of materials for proportioning or payment, shall be included in the contract unit prices for the various items of work in the Contract.
- 1.10 The term "lump sum" when used as an item of payment will mean complete payment for the work described for the item of work.
- When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.
- 1.11 When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe, conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 017700
CONTRACT CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 REQUIREMENT INCLUDED

- A. Administrative provisions for Substantial completion and for Final Acceptance.

1.02 RELATED REQUIREMENTS

- A. Section 011000 - Summary of work.
- B. Section 017423 - Final Cleaning.
- C. Section 017839 - Project Record Documents.
- D. Section 017836 - Warranties and Guarantees.
- E. Section 019113 - Commissioning Requirements.
- F. Respective Technical/Specification Sections of Project Manual.

1.03 SUBSTANTIAL COMPLETION

- A. See General Conditions
- B. Commissioning must be complete, prior to Substantial Completion, unless otherwise approved.

1.04 COMMISSIONING COMPLETION

- A. Commissioning Completion is when all testing, adjusting, balancing, and commissioning responsibilities of the Contractor (except for seasonal or approved deferred testing and controls training) are completed. This includes for all systems, but is not limited to:
 - 1. Start-up and pre-functional checklist documentation completed and signed.
 - 2. Final approved Testing Adjusting and Balancing report submitted to FR.
 - 3. Completion of all functional testing, except as noted above.
 - 4. Required training of MDAD personnel completed and approved, except as noted above.
 - 5. Approved O&M manuals submitted to FR.
 - 6. All identified deficiencies have been corrected or are approved by the Owner to be excepted from this milestone.
- B. The CA will determine when commissioning, as described above, is complete and so advise the PM.

CONTRACT CLOSEOUT PROCEDURES

1.05 FINAL COMPLETION - See General Conditions

1.06 REINSPECTION FEES

- A. Should status of completion of work require reinspection by the Architect/Engineer and/or the Project Testing Laboratory, due to failure of work to comply with Contractor's claims on initial inspection, the MDAD will deduct the amount of the Architect/Engineer and/or the Project Testing Laboratory compensation for reinspection services from final payment to Contractor.

1.07 CLOSEOUT SUBMITTALS

- A. Evidence of Compliance with Requirements of Governing Authorities:
 - 1. Temporary Certificate of Occupancy at Substantial Completion
 - 2. Certificate of Occupancy
 - 3. Certificates of Final Inspection required for mechanical and electrical systems required at Substantial Completion.
 - 4. Signed and sealed as-builts per the contract document sheets and views for all aspects of construction improvements including and change orders and changes to the contract documents.
- B. Project Record Documents: Under provisions of General Conditions - Article 8.D.
- C. Warranties and Guarantees: Under provisions of Section 017400 by Final Acceptance.
- D. The Contractor shall prepare and submit a final actual cost breakdown based on the following category descriptions:
 - 1. LANDSCAPING

The costs of landscape materials including the costs of installation of trees, plants, sod and irrigation systems.
 - 2. BUILDINGS

All costs incident to construction of new buildings and improvements to existing structures. Component items such as electrical wiring, plumbing and sewerage fixtures, central heating/ventilating/air conditioning system, fire sprinkler system, elevators and escalators, and any other improvements/additions that are a permanent part of the structure are also included in this category.
 - 3. (INTEGRATED) BUILDING EQUIPMENT

CONTRACT CLOSEOUT PROCEDURES

The costs of building systems or components which by their nature can not be classified as building or equipment. Some examples of items in this classification are loading bridges, chiller plant equipment, tram shuttle cars, baggage sortation equipment, conveyor equipment, preconditioned air systems, 400 hertz systems, and incinerator equipment.

4. (PORTABLE) FURNITURE, MACHINERY & EQUIPMENT

The following classes of items are included in this category: office furniture and equipment, radio equipment, computer equipment, revenue control equipment, individual (window type) air conditioner units, all shop equipment and machinery.

A detailed listing including a description, model number, manufacturer, serial number (if any), together with original invoice and must be submitted to the MDAD Accounting Division's Fixed Asset Section as part of the final cost breakdown. Manufacturer's warranty information and operating manuals must also be turned over to MDAD Facilities Division. The Finance Division's Fixed Asset Section will inventory these items upon turnover to the MDAD. Transfer of Title to office trailers must be made to the name of "Miami-Dade County, Florida" (2225 NW 72 Avenue, Miami, Florida 33122) and must be submitted to the MDAD Finance Division with the final cost breakdown.

5. PAVED ROADS AND PARKING AREAS

All costs incident to the preparation, construction, and improvement of roadways and parking areas on the Airport.

6. WATER AND SEWER SYSTEMS

The costs of constructing and equipping pumping stations, and sewer processing plants. Costs shall include cost of water meters and other fixed equipment.

7. FIELD IMPROVEMENTS

All costs related to the purchase and construction of field lighting and runway lighting equipment, fencing, railroad spur tracks and other improvements not classified as land, paved areas, water systems, or buildings.

8. RUNWAYS, APRONS AND TAXIWAYS

The costs of construction and improvements of runways, aprons and taxiways. The costs of aprons also include aircraft fueling system piping and related fittings located thereunder.

9. DEMOLITION/DECOMMISSIONING

CONTRACT CLOSEOUT PROCEDURES

Costs associated with partial or complete demolition of above listed items.

List demolition cost of each building, by building number.

List decommissioning costs by Building Equipment, and Integrated Building Equipment.

10. ENVIRONMENTAL CLEAN-UP

Costs associated with the removal, containment, and remuneration of contaminated soil, etc.

- E. Itemized List for Spare Parts and Extra Stock, Keys and Keying Schedule: Under provisions of Technical Specifications Section for finish hardware by Substantial Completion.
- F. Evidence of Payment and Release of Claims: In accordance with the General Conditions and Subcontractor's Affidavit(s) of Satisfaction and/or Consent of Surety to Final Payment.

1.08 STATEMENT OF ADJUSTMENT OF ACCOUNTS - CERTIFICATE OF FINAL ACCEPTANCE

- A. MDAD will prepare Final Payment Certificate reflecting adjustment to Contract Amount indicating:
 - 1. Original Contract Amount.
 - 2. Change Orders.
 - 3. Work Orders
 - 4. Deductions for uncorrected or deficient work.
 - 5. Deductions for liquidated damages.
 - 6. Additions for compensable excusable delays.
 - 7. Deductions for reinspection fees.
 - 8. Other adjustments to Contract Amount.
 - 9. Total Contract Amount as adjusted.
- B. The Architect/Engineer will issue a final Change Order, if required, reflecting approved adjustments to Contract Amount not previously made by Change Orders.

1.09 BACKFLOW PREVENTER INSTALLATION REPORT

- A. Certify that the backflow prevention devices were installed by certified technicians and they are properly working.
- B. Copy of the backflow prevention device installers certifications from the University of Florida Center for Training, Research and Education for Environmental Occupations (TREEO).

CONTRACT CLOSEOUT PROCEDURES

- C. Completed Backflow Preventer Installation Report (a copy of which is appended to this Section) shall be submitted prior to Substantial Completion. Originals are to be given to MDAD Civil and Environmental Department.

1.10 APPLICATION FOR FINAL PAYMENT CERTIFICATE

- A. Submit application for final Payment Certificate in accordance with provisions of General Conditions.
- B. Final Payment will not be made until the Contract Closeout Procedures have been completed and executed as specified above.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

APPENDIX: Backflow Preventer Installation Report

END OF SECTION

**MIAMI-DADE AVIATION DEPARTMENT
BACKFLOW PREVENTER INSTALLATION REPORT**

INSTALLED BY (FIRM NAME): _____

ADDRESS: _____

CONTACT PERSON: _____ **PHONE:** _____

DEVICE ADDRESS: _____

(1) index no.	size & (2) type of device	manufacturer	model no.	location of device	date installed
			serial no.		

NAME OF PERSON CERTIFYING WORK: _____

(attach a copy of certification statement indicating that each device is operating with required parameters and a copy of technician's certification from TREEO)

_____ **signature** _____ **date**

REMARKS: _____

- (1) TO BE ASSIGNED BY MDAD
- (2) REDUCE PRESSURE ZONE ASSEMBLY (RPZA); DOUBLE CHECK VALVE ASSEMBLY (DCVA); DOUBLE CHECK DETECTOR ASSEMBLY (DCDA); PRESSURE VACUUM BREAKER ASSEMBLY (PVSA)

SECTION 017823
OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.01 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.

1.02 SUMMARY

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

1.03 RELATED REQUIREMENTS

- A. Section 011200 - Multiple Contract Summary for coordinating operation and maintenance manuals covering the Work of multiple contracts.
- B. Section 013300 - Submittals for submitting copies of submittals for operation and maintenance manuals.
- C. Section 019113 - General Commissioning Requirements for verification and compilation of data into operation and maintenance manuals.

1.04 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.

1.05 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

- A. Format: Submit operation and maintenance manuals in the following format:

1. Submit **on digital media acceptable to Architect** or **by email to Architect**. Enable reviewer comments on draft submittals.
 - A. Initial Manual Submittal: Submit draft copy of each manual at least **30** days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
 - B. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least **15** days before commencing demonstration and training. Architect will return copy with comments.
 1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within **15** days of receipt of Architect's comments and prior to commencing demonstration and training.
 - A. Comply with Section 017700 Closeout Procedures for schedule for submitting operation and maintenance documentation.

1.06 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
 1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
 1. Binders: Heavy-duty, three-ring, vinyl-covered, **[loose-leaf]** **[post-type]** binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary, to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, **[and]** subject matter of contents

[, and indicate Specification Section number on bottom of spine]. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations. Consider other special requirements, such as using photographs instead of drawings to demonstrate unusual installations.

1.07 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
 1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of MDAD.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.

7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.08 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
 2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
 3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

A.09 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by MDAD's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.

- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 - 1. Fire.
 - 2. Flood.
 - 3. Gas leak.
 - 4. Water leak.
 - 5. Power failure.
 - 6. Water outage.
 - 7. System, subsystem, or equipment failure.
 - 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of MDAD's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
 - 1. Instructions on stopping.
 - 2. Shutdown instructions for each type of emergency.
 - 3. Operating instructions for conditions outside normal operating limits.
 - 4. Required sequences for electric or electronic systems.
 - 5. Special operating instructions and procedures.

A.10 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by MDAD's operating personnel.
- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 - 2. Performance and design criteria if Contractor has delegated design responsibility.

3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- C. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.

- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed and identify color coding where required for identification.

1.11 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by MDAD's operating personnel.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information: List each system, subsystem, and piece of equipment 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.
- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins; 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.
 - a. 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.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- 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. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- I. 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.
- J. 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 maintenance manuals.

1.12 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. 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.
- C. 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 tele

phone 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.

- D. 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.
- E. 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.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- G. 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 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823

SECTION 017836
WARRANTIES AND GUARANTEES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Preparation and submittal of warranties and guarantees.
- B. Schedule of submittals.

1.02 RELATED REQUIREMENTS

- A. Instruction to Bidders: Bid Bonds.
- B. Contractor's Performance and Payment Bonds.
- C. Section 017700 - Contract Closeout Procedures.
- D. Individual Technical Specifications Sections: Warranties and Guarantees required for specific products or work.

1.03 FORM OF SUBMITTALS

- A. Bind in commercial quality 8 ½ x 11 inch three-ring side binders, with hardback, cleanable, plastic covers. Binders are not to exceed 3" in width.
- B. Label cover of each binder with typed or printed title 'WARRANTIES AND GUARANTEES,' with Contract No. and Project Title; name, address and telephone number of Contractor. Identify volume number for multiple binders.
- C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified and the name of the product or work item.
- D. Separate each warranty or guaranty with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheet as necessary. List subcontractor, supplier and manufacturer, with name, address and telephone number of the responsible principal.
- E. Include a copy of the applicable warranty/guaranty in O & M manuals.

1.04 WARRANTY PERIOD AND PREPARATION OF SUBMITTALS

- A. Obtain warranties and guarantees, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten (10) days after completion of the applicable item of work. Date of beginning of time of warranty will be the date of Substantial Completion, or

date of Beneficial Occupancy if equipment is put to use by the Owner at date of Beneficial Occupancy. No warranty shall start prior to equipment being put into operation. It is not necessary that all warranties shall start at the same time.

- B. Equipment warranty period: Manufacturer's standard warranty, minimum one year from above date of beginning of warranty, except as stated elsewhere.
- C. Full service period: Installing contractor shall provide for full service and maintenance for a period of one year for the equipment/systems, except as stated elsewhere. If, within this period, any equipment proves defective, it shall be repaired or replaced at no additional cost to MDAD.
 - 1. The service and maintenance shall include monthly inspections and adjustments, based on an Owner approved monthly service schedule.
 - 2. Each service and maintenance trip to the project shall be coordinated and reported to MDAD Maintenance and have a separate written report so an accurate log can be kept on the operation and problems of the installation.
 - 3. Monthly service schedule, showing tasks and service timetable, shall be submitted to MDAD Maintenance (through the FR), for review and approval prior to substantial completion.
 - 4. Coordination with MDAD and distribution of monthly maintenance/service reports to PM, CA, and MDAD Maintenance shall be the responsibility of the General Contractor.
- D. Co-execute submittals when required.
- E. Retain warranties and guarantees until time specified for submittal.

1.05 TIME OF SUBMITTALS

- A. Make submittals per Section 017700 and General Conditions.
- B. For items of work when acceptance is delayed beyond date of Substantial Completion, as stated in Section 017700, submit within ten (10) days after acceptance, listing the date of acceptance as the beginning of the warranty or guaranty period.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

MIAMI-DADE AVIATION DEPARTMENT COMMUNICATION EQUIPMENT AND
DEVICES DATA SHEETS

Identification/References

Telephone Systems & SAS		Project Name	
Pay Telephone System		MDAD Project No.	
Flight Information Display Systems (FIDS)		Data Communication System	
Baggage Information Display System (BIDS)		Wiring (NEMA Class and Type)	
Tenant Telecommunications System		Point of Sale System (POS)	
Electronic Security System		CCTV System	
Manufacturer		Mfg. Rep. Name	
Model No.		Mfg. Phone No.	
Serial No.		Project/Permitting Phase Unit Installed	

Location

Communication Equipment Location:		Service Area:	
Building		Description/ System	
Term. /Conc.			
Floor		Building	
Room Name		Term. /Conc.	
Room No.		Floor	

Performance

Voltage Rating (KVA)	
No. of Connections	
Control Circuit	
Power Rating	

Starting Equipment

Type	
No. of Batteries	
Voltage	
Manufacturer	
Model Number	
Serial Number	

Energy Converters

Ratings		
Desired Temperature		
Capacity		
Manufacturer/Model Number		
Serial Number		

Additional Equipment/Requirements

Remote Control & Alarms (Y/N)	
Exciters & Voltage Regulators (Y/N)	
Manufacturer	
Model No.	
Serial No.	
Transfer Switches (Y/N)	
Switch Capacity	
Bypass- Isolation Switches (Y/N)	
Overcurrent Protective Device (Y/N)	
Time Delay System (Y/N)	

Warranty Information

Components Covered	Term (Yrs)	Date Started	Remarks

Maintenance Requirements

Component	Testing/Cleaning	Number of Places	Man-Hours	Frequency

Inspection Requirements

Item	Symptom	Action	Man-Hours	Frequency

Remarks/Notes:

SECTION 017839
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintenance of Record Documents and Samples.
- B. Submittal of Record Documents and Samples.

1.02 RELATED REQUIREMENTS

- A. Section 017123 - Field Engineering.
- B. Section 017829 - Final Site Survey
- C. Section 013323 - Shop Drawings, Product Data and Samples.
- D. Section 017700 - Contract Closeout Procedures.
- E. Individual Technical Specifications Sections: Manufacturer's certificates and certificates of inspection.

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Follow requirements of project General Conditions for Contract Documents at the Site.
- B. Store Record Documents and samples in Field Office apart from documents used for construction. Provide files, racks and secure storage for Record Documents and Samples.
- C. Label and file Record Documents and samples in accordance with Section number listings in Table of Contents of this Project Manual. Label each document 'PROJECT RECORD' in neat, large printed letters.
- D. Maintain Record Documents in clean, dry and legible conditions. Do not use Record Documents for construction purposes.
- E. Keep Record Documents and Samples available for inspection by MDAD and Consultant.

1.04 AS-BUILT INFORMATION

- A. Record information on a set of black line opaque drawings and in a copy of a Project Manual, provided by MDAD, as specified in the General Conditions.

- B. Provide felt tip marking pens, maintaining separate colors for each major system, for recording information.
- C. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- D. Contract Drawings and approved Shop Drawings: Legibly mark each item to record actual construction, including:
 - 1. Measured depths of elements of foundation in relation to finish grade or first floor datum.
 - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
 - 4. Field changes of dimensions and details.
 - 5. Changes made by Addenda, Change Order(s) (if any) and Work Order(s) (if any).
 - 6. Details not on original Contract Drawings.
 - 7. References to related Shop Drawings and Modifications.
- E. Specifications: Legibly mark each item to record actual construction, including changes made by Addenda and Change Order.
- F. Other Documents: Maintain **manufacturer's certification, inspection certifications, field test records**, required by individual Specification Sections.
- G. Record Product Data: Submit **annotated PDF electronic files and directories** of each submittal.
 - 1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- H. MDAD Maintenance Data Sheets: Complete the database sheets forms in the following sections and as otherwise available from MDAD, for the equipment installed under the Contract. Completed, typed forms shall be included in the appropriate O & M Manuals.

1.05 SUBMITTALS

- A. At Substantial Completion, deliver Record Documents and samples under provision of Section 017010, excluding as-built drawings/specifications as stated below.
- B. Transmit with cover letter in duplicate, listing: (1) Date; (2) Project Title and Number; (3) Contractor's name, address and telephone number; (4) Number and Title of each Record

PROJECT RECORD DOCUMENTS

017839 - 2 of 3

D:\DOCS\DIV1\07.21\017839.DOCX

Document; (5) One pdf electronic file and two black line copies of all approved shop drawings; (6) copy of approved shop drawing log; (7) Copy of the Field Representative review log attesting to its review of the As-Built Documents.

- C Submittal of as-built drawings/specifications shall be after resolution of the punch list items are complete. One original marked up set and one complete copy of each shall be provided.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 019113
COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Commissioning. Commissioning is a systematic process of to ensure that all building systems and equipment perform interactively according to the design intent and the MDAD's operational needs. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing, and training.

Commissioning shall:

1. Verify that applicable equipment and systems are installed according to the manufacturer's recommendations and industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
2. Verify and document proper performance of equipment and systems.
3. Verify that O&M documentation left on site is complete.
4. Verify that the MDAD's operating personnel are adequately trained.

- B. The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to provide a finished and fully functioning product.

C. DEFINITIONS

Acceptance Phase - Phase of construction after startup and initial checkout when functional performance tests, O&M documentation review, and training occur.

Approval - Acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes according to the Contract Documents.

Commissioning Agent (CA) – The MDAD assigned individual who coordinates the day-to-day commissioning activities, on behalf of the MDAD and the PM. The CA shall not take an oversight role on day-to-day construction activities.

Commissioning Plan - An overall plan, developed by the Contractor that provides the structure, schedule and coordination planning for the commissioning process.

Control system – A component of environmental, security, and fire systems for reporting/monitoring and issuing of commands to/from field devices.

Data logging - The monitoring and recording of flows, currents, status, pressures, etc., of equipment using stand-alone data recorders separate from the control system or the trending capabilities of control systems.

Deferred Functional Tests (DFTs) - Functional Tests that are performed, at the discretion of the CA, after Substantial Completion, due to partial occupancy, equipment, seasonal requirements, design, or other site conditions that disallow the test from being performed.

Deficiency - A condition in the installation or function of a component, piece of equipment, or system that is not in compliance with the Contract Documents.

Factory Testing - Testing of equipment on-site or at the factory, by factory personnel, with or without an MDAD's representative present.

Functional Test (FT) – Performance testing of the dynamic functions and operations of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state. FTs are performed after prefunctional checklists and startup are complete.

Manual Test - Using hand-held instruments, immediate control system readouts, or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").

Non-Compliance - See Deficiency.

Non-Conformance - See Deficiency.

Over-ridden Value - Riding over a sensor value in the equipment's controls to observe the response of the equipment's operation (e.g., changing the outside air temperature value from 50F to 75F to verify economizer operation). See also "Simulated Signal."

MDAD-Contracted Tests - Tests paid for by the MDAD. These tests will not be repeated during functional testing if successful and properly documented.

Phased Commissioning - Commissioning that is completed in phases (by floors, for example) due to the size of the structure or other scheduling issues.

Pre-functional Checklist - A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment. Prefunctional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels, labels affixed, gages in place, sensors calibrated, etc.). However, some prefunctional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three phase motor). The word prefunctional refers to before functional testing. Prefunctional checklists augment and are combined with the manufacturer's start-up checklist. All Pre-functional Checklist items must be satisfactory prior to the FT.

Sampling - Functionally testing only a fraction of the total number of identical or near identical pieces of equipment. Refer to Paragraph 3.04 F for details.

Seasonal Functional Tests – Performance FTs that are deferred until the system(s) will

experience conditions closer to their design conditions.

Simulated Condition - Condition that is created for the purpose of testing the response of a system (e.g., raising/lowering the setpoint of a thermostat to see the response in a VAV box).

Simulated Signal - Disconnecting a sensor and using a signal generator to simulate a sensor value for the purpose of testing a full range of conditions.

Startup - The initial starting or activating of dynamic equipment, including executing prefunctional checklists.

Test Requirements - Requirements specifying what modes and functions, etc., shall be tested and the acceptable range of performance limits that must be met. The test requirements are specified in the Technical Specifications Sections of the Contract Documents.

Trending – Monitoring, using the building management system, whereby data gathered over a period of time is compiled for analysis.

Vendor - Supplier of equipment.

Warranty Period – Refer to Section 01740.

1.02 COORDINATION

- A. Project Commissioning Team. The members of the Project Commissioning Team will consist of the MDAD Commissioning Team (the assigned Commissioning Agent and any support personnel), the MDAD Project Manager (PM) or designee, the Field Representative, the General Contractor Subcontractors and/or Vendors as required, and the Architect/ Engineer (A/E).
- B. Management. The CA coordinates the commissioning activities through the FR. All members shall work together to fulfill their contracted responsibilities and meet the objectives of the Contract Documents. Refer to Paragraph 1.06 for additional management details.
- C. Scheduling. The CA, through the FR, will provide sufficient notice to the Contractor for scheduling commissioning activities with respect to the MDAD participation. The Contractor will integrate all commissioning activities into the Overall Project Schedule. All parties will address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.

1.03 COMMISSIONING PLAN

- A. The Contractor shall develop the Commissioning Plan which shall be included in the Project Schedule when approved by the MDAD. The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.
 - 1. Commissioning during construction begins with an initial commissioning meeting conducted by the CA where the commissioning process is reviewed with the project

- commissioning team members.
2. Additional meetings will be required throughout construction, scheduled by the CA, through the FR, with necessary parties attending, to plan, scope, coordinate, schedule future activities and resolve problems.
 3. Equipment documentation is submitted to the CA, through the FR, during normal submittals, including detailed start-up procedures.
 4. The Prefunctional Checklists are to be completed by the Contractor (or its subcontractors), during the startup process.
 5. In general, the checkout and performance verification proceeds from simple to complex; from component level to equipment to systems and intersystem levels with Prefunctional Checklists being completed before functional testing.
 6. Items of non-compliance in material, installation, or setup are corrected at no expense to the MDAD.
 7. The Contractor ensures that the Subcontractors' Prefunctional Checklists are executed and documented, and that startup and initial checkout are performed. The CA documents that the checklists and startup were completed according to the approved plans. This may include the CA witnessing start-up of selected equipment. Any testing failure is to be corrected at no additional cost to the MDAD, and a re-test performed, observed, and documented.
 8. The A/E, Field Representative, and Subcontractors review and finalize the specific equipment and system functional performance test procedures. The forms are approved by the CA.
 9. The procedures are executed by the Subcontractors, under the direction of the Field Representative, and documented by the CA.
 10. The CA reviews the O&M documentation for completeness.
 11. Commissioning is completed before Substantial Completion.
 12. The CA reviews, pre-approves, and coordinates the training provided by the Subcontractors/Contractor and verifies that it was completed.
 13. Deferred testing is conducted, as specified or required.

1.04 RELATED REQUIREMENTS

- | | | | |
|---------------|---|--|--|
| A. | Section 013113 | Coordination | |
| B. | Section 013300 | Submittals | |
| C. | Section 013126, 013126-01, 013216-03 or 013216-04 | Project Schedules | |
| D. | Section 017700 | Contract Closeout Procedures | |
| E. | Section 017839 | Project Record Documents | |
| F. | Section 017836 | Warranties and Guarantees | |
| G. | Section 110800 | Equipment Commissioning | |
| H. | Section 110800-01 | Equipment Pre-functional Checklists | |
| I. | Section 110800-02 | Equipment Functional Testing Requirements | |

- J. Section 13996 Special Construction Commissioning
- K. ~~Section 130800-01 Special Construction Pre-functional Checklists~~
- L. ~~Section 130800-02 Special Construction Functional Testing Requirements~~
- M. ~~Section 140800 Conveying Equipment Commissioning~~
- N. ~~Section 140800-01 Conveying Equipment Pre-functional Checklists~~
- O. ~~Section 140800-02 Conveying Equipment Functional Testing Requirements~~
- P. ~~Section 210800 Fire Suppression Commissioning~~
- Q. ~~Section 210800-01 Fire Suppression Pre-functional Checklists~~
- R. ~~Section 210800-02 Fire Suppression Functional Testing Requirements~~
- S. ~~Section 220800 Plumbing Commissioning~~
- T. ~~Section 220800-01 Plumbing Pre-functional Checklists~~
- U. ~~Section 220800-02 Plumbing Functional Testing Requirements~~
- V. ~~Section 230800 Mechanical Systems Commissioning~~
- W. ~~Section 230800-01 Mechanical Systems Pre-functional Checklists.~~
- X. ~~Section 230800-02 Mechanical Systems Functional Testing Requirements~~
- Y. ~~Section 230593 HVAC Commissioning, Testing Adjusting and Balancing~~
- Z. ~~Section 0250800 Building Management and Control Systems Commissioning~~
- AA. ~~Section 0250800-01 Building Management and Control Systems Pre-functional Checklists~~
- AB. ~~Section 0250800-02 Building Management and Control Systems Functional Testing Requirements~~
- AC. Section 16996 Electrical Systems Commissioning
- AD. ~~Section 260800-01 Electrical Systems Pre-functional Checklists~~
- AE. ~~Section 260800-02 Electrical Systems Functional Testing Requirements~~
- AF. ~~Section 280800 Electronic Safety and Security Systems Commissioning~~
- AG. ~~Section 280800-01 Electronic Safety and Security Systems Pre-functional Checklists~~

- AH. ~~Section 280800-02~~ ~~Electronic Safety and Security Systems Commissioning~~
- AI. ~~Section 320800~~ ~~Exterior Improvements Commissioning~~
- AJ. ~~Section 320800-01~~ ~~Exterior Improvements Pre-functional Checklists~~
- AK. ~~Section 320800-02~~ ~~Exterior Improvements Functional Testing Requirements~~
- AL. ~~Section 430800~~ ~~Process Gas and Liquid Handling, Purification and Storage Equipment Commissioning~~
- AM. ~~Process Gas and Liquid Handling, Purification and Storage Equipment Pre-functional Checklists~~
- AN. ~~Section 430800-02~~ ~~Process Gas and Liquid Handling, Purification and Storage Equipment Testing Requirements~~

1.05 RESPONSIBILITIES

- A. The general responsibilities of various parties in the commissioning process are provided in this sub-section. The specific responsibilities are in the Technical Specifications.
- B. All Parties
 - 1. Follow the commissioning plan.
 - 2. Attend initial commissioning meeting, and additional meetings as necessary.
- C. Contractor
 - 1. Construction and Acceptance Phase
 - a. Facilitate the coordination of the commissioning and incorporate commissioning activities (the Commissioning Plan) into the Overall Project Schedule (OPS).
 - b. Include the cost of commissioning in the total contract price.
 - c. Ensure that all Subcontractors and Vendors execute their commissioning responsibilities according to the Contract Documents and the OPS.
 - d. Provide copies of all submittals as required in Section 01300 including all changes thereto.
 - e. A representative shall attend an initial commissioning meeting and all other necessary meetings to facilitate the commissioning process and provide the initial and updated commissioning schedules.
 - f. No later than 60 days prior to startup of the first piece of major equipment, meet with the CA, Field Representative, A/E, and PM/MDAD to finalize the detailed commissioning procedures/ schedule.
 - g. Coordinate the training of MDAD personnel.
 - h. Prepare O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built/as-tested conditions.
 - 2. Warranty Period

- a. Ensure that Subcontractors execute seasonal or deferred functional performance testing, witnessed by the CA, according to the specifications.
- b. Ensure that Subcontractors correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.
- c. Perform all guarantee work for materials furnished under the contract for the time specified in the Contract, including all warranties and curing all latent defects within the time period provided in Section 95.11(3)(c), Florida Statutes.

D. Vendors/Subcontractors

1. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the MDAD to keep warranties in force.
2. Assist in equipment testing per agreements with Subcontractors and/or Contractor.
3. Include cost of all special tools and instruments (only available from vendor, specific to a piece of equipment) required for testing, operating, and maintaining equipment according to these Contract Documents in the base bid price to the Contractor.
4. Analyze specified products and verify that the A/E has specified the newest, most current equipment reasonable for this project's scope and budget.
5. Provide requested information regarding equipment sequence of operation and testing procedures.
6. Review test procedures for equipment installed by factory representatives.

1.06 EQUIPMENT/SYSTEMS TO BE COMMISSIONED

A. The following equipment/systems will be commissioned in this project, as indicated by "X."

1. Storm drainage system
2. Lighting systems (interior, exterior and/or airfield)
3. Switchgear, transformers, panelboards and/or motor control centers
4. Lightning protection and/or surge suppression system
5. Public address, closed circuit TV, flight information display and/or telephone systems
6. Oil Water Separator

PART 2 - PRODUCTS

2.01 TEST EQUIPMENT

- A. All standard testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the Contractor for the equipment being tested. This includes, but is not limited to, two-way radios, meters, and data recorders.
- B. Special equipment, tools, and instruments required for testing equipment according to these Contract Documents shall be included in the Contractor's base bid price and shall be turned over to the MDAD at Project close-out.
- C. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance within the tolerances specified in the Specifications. If not otherwise

COMMISSIONING REQUIREMENTS

noted, the following minimum requirements apply: Temperature sensors and digital thermometers shall have a certified calibration within the past year to an accuracy of 0.5 degree F and a resolution of + or - 0.1 degree F. Pressure sensors shall have an accuracy of + or - 2.0% of the value range being measured (not full range of meter) and have been calibrated within the last year. All equipment shall be calibrated according to the manufacturer's recommended intervals and when dropped or damaged. Calibration tags shall be affixed or certificates readily available.

PART 3 - EXECUTION

3.01 MEETINGS

- A. Initial Meeting. Within 10 days of the Notice to Proceed (NTP), the CA, through the FR, will schedule, plan and conduct an initial commissioning meeting. The Contractor and its responsible parties are required to attend.
- B. Miscellaneous Meetings. Other meetings will be planned and conducted by the CA as construction progresses. These meetings will cover coordination, deficiency resolution, and planning issues. These meetings will be held at least monthly, until the final 3 months of construction, when they may be held as frequently as one per week.

3.02 START-UP, PREFUNCTIONAL CHECKLISTS, AND INITIAL CHECKOUT

- A. The following procedures apply to all equipment/systems to be commissioned, according to Paragraph 1.06 Equipment/Systems to be commissioned.
- B. General. Prefunctional checklists are important to verify that the equipment and systems are fully connected and operational. It ensures that functional performance testing (in-depth system checkout) may proceed without unnecessary delays. Each piece of equipment shall receive full prefunctional checkout. No sampling strategies shall be used. The prefunctional testing for a given system must be successfully completed prior to formal functional performance testing of equipment or subsystems of the given system.
- C. Start-up and Prefunctional Checkout Plan. The CA shall assist the project commissioning team members responsible for startup of any equipment. The primary role of the CA in this process is to ensure that there is written documentation that each of the manufacturer-recommended procedures has been completed. Parties responsible for prefunctional checklists and startup shall be identified in the commissioning scoping meeting and on the checklist forms. Parties responsible for executing functional performance tests are identified in the testing requirements in the Technical Specifications.
 - 1. The prefunctional checklists are provided in the Technical Specifications. These checklists indicate required procedures to be executed as part of startup and initial checkout of the systems and the party responsible for their execution.
 - 2. The Contractor shall determine which trade is responsible for executing and documenting each of the line item tasks and transmit the checklists to the responsible Subcontractors. Each form may have more than one trade responsible for its execution.
 - 3. The subcontractor responsible for the purchase of the equipment shall develop the full start-up plan by combining the manufacturer's detailed start-up and checkout procedures and the prefunctional checklists.

4. The subcontractor shall submit the full startup plan to the Contractor for review and approval by the CA.
 5. The CA will review and approve the procedures and the documentation format for (noting any procedures that need to be added). The CA will return the procedures and the documentation format to the Contractor, through the FR.
 6. The Contractor will transmit the full start-up plan to the Subcontractors for their review and use.
- D. Sensor and Actuator Calibration. All field-installed temperature, relative humidity, CO, CO₂, refrigerant, O₂, and/or pressure sensors and gages, and all actuators (dampers and valves) on all equipment shall be calibrated. Verify that all locations are appropriate and away from causes of erratic operation. Submit to the FR calibration methods and results. All test instruments shall have had a certified calibration within the last 12 months, and comply with all local, state and/or federal requirements/certifications, as required. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated.

All procedures used shall be fully documented on the prefunctional checklists, as an attachment, or other suitable forms, clearly referencing the procedures followed, and stating the initial, intermediate, and final results.

E. Execution of Prefunctional Checklists and Startup.

1. Four weeks prior to the scheduled startup, the Subcontractors and Vendors shall coordinate startup and checkout with the Field Representative, A/E, Contractor, PM and CA. The execution of the prefunctional checklists, startup, and checkout shall be directed and performed by the Subcontractor or Vendor. Signatures are required of the applicable Subcontractors for verification of completion of their work.
2. The PM, CA, Field Representative, and A/E as necessary, shall observe, at minimum, the procedures for each piece of primary equipment, unless there are multiple units, in which case a sampling strategy may be used. In no case will the number of units witnessed be less than four on any one building, nor less than 20% of the total number of identical units.
3. For lower-level components of equipment, (e.g., sensors, controllers), the CA shall observe a sampling of the prefunctional and start-up procedures.
4. The Subcontractors and Vendors shall execute startup and provide the CA and A/E, through the FR, with a signed and dated copy of the completed start-up and prefunctional tests and checklists.
5. Only individuals of the Contractor (technicians, engineers, tradesmen, vendors, etc.) who have direct knowledge and witnessed that a line item task on the prefunctional checklist was actually performed shall check off that item. It is not acceptable for witnessing supervisors to fill out these forms.

F. Deficiencies, Non-Conformance, and Approval in Checklists and Startup.

1. The Contractor shall ensure that the Subcontractors clearly list any outstanding items of the initial start-up and prefunctional procedures that were not completed successfully, on an attached sheet. The form and any outstanding deficiencies shall be provided, through the FR, to the CA within two days of test completion.
2. The CA will review the report and issue either a non-compliance report or an approval form, through the FR, to the Contractor. The installing Subcontractors or vendors shall

correct all areas that are deficient or incomplete in the checklists and tests in a timely manner, shall notify the FR as soon as outstanding items have been corrected, and resubmit an updated start-up report with a Statement of Correction on the original non-compliance report. When satisfactorily completed, the CA will recommend approval of the execution of the checklists and startup of each system.

3. Items left incomplete, which later cause deficiencies or delays during functional testing may result in back charges to the Contractor. Refer to Paragraph 3.05, herein, for details.

3.03 PHASED COMMISSIONING

- A. The project may require startup and initial checkout to be executed in phases. Phasing shall be coordinated with the PM, CA, A/E, and Contractor and reflected in the Overall Project Schedule and commissioning schedule by the Contractor.

3.04 FUNCTIONAL TESTING

- A. The functional testing shall demonstrate that each system is operating according to the documented design intent and Contract Documents. Functional testing facilitates bringing the systems from a state of individual substantial completion to full dynamic operation. Additionally, during the testing process, areas of deficient performance are identified and corrected, improving the operation and functioning of the systems.
- B. Coordination and Scheduling. The Contractor shall provide sufficient notice, regarding their completion schedule for the prefunctional checklists and startup of all equipment and systems to allow the functional performance testing to be scheduled. The Commissioning Team shall oversee, witness, and document the functional testing of all equipment and systems. The Contractor/Subcontractors shall execute the tests. Functional testing shall be conducted after pre-functional testing and startup has been satisfactorily completed. The control system shall be sufficiently tested and approved by the CA before it is used, to verify performance of other components or systems. The air balancing and water balancing shall be completed before functional testing of air-related or water-related equipment or systems. Testing proceeds from components to sub-systems to systems. When the proper performance of all interacting individual systems has been achieved, the interface or coordinated responses between systems shall be checked.
- C. Development of Test Procedures. Before test procedures are finalized, the Contractor shall provide to the A/E and the CA all requested documentation and a current list of changes affecting equipment or systems, including an updated points list, program code, control sequences, and testing parameters. Using the testing parameters and requirements in the Technical Specifications, the A/E shall update/develop specific test procedures and forms to verify and document proper operation of each piece of equipment and system. Each Subcontractor or Vendor, as appropriate, shall provide assistance to the A/E in developing the final procedures (answering questions about equipment, operation, sequences, etc.). Prior to finalization, the A/E shall provide a copy of the test procedures to the Contractor who shall review the tests for feasibility, safety, equipment, and warranty protection. The final test forms shall be submitted to the CA for review and approval.
- D. Test Methods.

1. Functional testing and verification may be achieved by manual testing or by monitoring the performance and analyzing the results using the control system's trend log capabilities or by stand-alone data loggers. The CA may substitute specified methods or require an additional method to be executed, other than what was specified, with the approval of the Contractor, A/E, and PM. The CA will determine which method is most appropriate for tests that do not have a method specified.
2. Simulated Conditions. Simulating conditions (not by an overridden value) shall be allowed, though timing the testing to experience actual conditions is encouraged wherever practical.
3. Overridden Values. Overriding sensor values to simulate a condition, such as overriding the outside air temperature reading in a control system to be something other than it really is, is allowed, but shall be used with caution and avoided when possible. Sensors, transducers and devices shall have been calibrated before simulating conditions or overriding values.
4. Simulated Signals. Using a signal generator which creates a simulated signal to test and calibrate transducers and DDC constants is generally recommended over using the sensor to act as the signal generator via simulated conditions or overridden values.
5. Altering Setpoints. Rather than overriding sensor values, and when simulating conditions is difficult, altering setpoints to test a sequence is acceptable.
6. Indirect Indicators. Relying on indirect indicators for responses or performance shall be allowed only after visually and directly verifying and documenting, over the range of the test parameters, that the indirect readings through the control system represent actual conditions and responses.
7. Setup. Each function and test shall be performed under conditions that simulate actual conditions as closely as is practically possible. The Subcontractor(s) executing the test shall provide all necessary materials, system modifications, etc., to produce the necessary flows, pressures, temperatures, etc., necessary to execute the test according to the specified conditions. At completion of the test, the Subcontractor(s) shall return all affected equipment and systems to their approved operating settings.
8. Sampling. Multiple identical pieces of non-life-safety or otherwise non-critical equipment may be functionally tested using a sampling strategy, when requested by the Contractor and approved by the CA. Significant application differences and significant sequence of operation differences in otherwise identical equipment invalidates their common identity. A small size or capacity difference, alone, does not constitute a difference. No sampling by Subcontractors shall be allowed in pre-functional checklist execution.

A common sampling strategy is the xx% Sampling yy% Failure Rule. It is defined by the following example.

xx = the percent of the group of identical equipment to be included in each sample.
yy = the percent of the sample that if failing, will require another sample to be tested.

The example below describes a 20% Sampling, 10% Failure Rule.

- a. Randomly test at least 20% of each group of identical equipment. In no case test less than three units in each group. This 20%, or three, constitute the "first sample."
- b. If 10% of the units in the first sample fail the functional performance tests, test another 20% of the group (the second sample).

- c. If 10% of the units in the second sample fail, test all remaining units in the whole group.
- d. If at any point frequent failures are occurring and testing is becoming more time consuming than verification, the CA may stop the testing and require the responsible Subcontractor to perform and document a checkout of the remaining units, prior to continuing with functionally testing the remaining units.

E. Test Equipment. Refer to Part 2 for test equipment requirements.

F. Problem Solving. The burden of responsibility to solve, correct, and retest malfunctions/failures is with the Contractor, with A/E approval as required.

3.05 DOCUMENTATION, NON-CONFORMANCE, AND APPROVAL OF TESTS

A. Documentation. The CA shall witness and verify/approve the documentation of the results of all functional performance tests.

B. Non-Conformance.

- 1. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CA. In such cases the deficiency and resolution will be documented on the procedure form or on an attached sheet.
- 2. As tests progress and a deficiency is identified, the CA shall discuss the issue with the Commissioning Team, and the Contractor.

a. When there is no dispute on the deficiency and the Contractor accepts responsibility to correct it:

- 1) The CA will document the deficiency and the Contractor's response and intentions. After the day's work, the CA will submit the non-compliance reports to the PM. The Contractor corrects the deficiency, signs the statement of correction at the bottom of the non-compliance form certifying that the equipment is ready to be retested and sends it back to the CA.
- 2) The Contractor shall reschedule the test; and the test repeated.

b. If there is a dispute about a deficiency, regarding whether or not it is a deficiency:

- 1) The dispute shall be documented on the non-compliance form with the Contractor's response.
- 2) Resolutions are made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive authority is with the A/E. Final acceptance authority is with the Project Manager.
- 3) The CA documents the resolution process.
- 4) Once the interpretation and resolution have been decided, the Contractor corrects the deficiency, signs the statement of correction on the non-compliance form and provides it to the PM, through the Field Representative. The Contractor shall reschedule the test and the test repeated until satisfactory performance is achieved.

3. Cost of retesting a pre-functional or functional test shall be the Contractor's.
 4. The Contractor shall submit, in writing to the FR, at least as often as commissioning meetings are being scheduled, the status of each outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreement and proposals for their resolutions.
 - a. The CA retains the original non-conformance forms until the end of the project.
 - b. Retesting shall not be considered a justified reason for a claim of delay or for a time extension by the Contractor.
- C. Failure Due to Manufacturer Defect. If 10%, or three, whichever is greater, of identical pieces (size alone does not constitute a difference) of equipment fail to perform to the Contract Documents (mechanically or substantively) due to a manufacturing defect not allowing it to meet its submitted performance specification, all identical units may be considered unacceptable by the A/E or PM. In such case, the Contractor shall provide the MDAD with the following:
1. Within one week of notification from the Field Representative, the Contractor or manufacturer's representative shall examine all other identical units making a record of the findings. The findings shall be provided to the Field Representative within two weeks of the original notice.
 2. Within two weeks of the original notification, the Contractor or manufacturer shall provide a signed and dated, written explanation of the problem, cause of failures, etc., and all proposed solutions. The proposed solutions shall not significantly exceed the specification requirements of the original installation.
 3. The A/E will determine whether a replacement of all identical units or a repair is acceptable.
 4. Two examples, where applicable, of the proposed solution shall be installed by the Contractor and the A/E shall be allowed to test the installations for up to one week, upon which the A/E will decide whether to accept the solution.
 5. Upon acceptance, the Contractor and/or manufacturer shall replace or repair all identical items, at their expense. The replacement/repair work shall proceed with reasonable speed beginning within one week from when parts can be obtained.
- D. Approval. The CA notes each satisfactorily demonstrated function on the test form. Final approval of the functional test is made after review by the CA and PM, following recommendations by the A/E and Contractor.

3.06 DEFERRED TESTING

- A. Unforeseen Deferred Tests. If any check or test cannot be completed due to the project completion level, required occupancy condition or other deficiency, execution of checklists and functional testing may be delayed upon approval of the PM. These tests will be conducted in the same manner as the seasonal tests as soon as possible. Services of necessary parties will be negotiated.
- B. Seasonal Testing. During the warranty period, seasonal testing (tests delayed until weather conditions are closer to the system's design) specified in Section 230800 shall be completed as part of this contract. The CA shall coordinate this activity, through the PM. Tests will be

executed, documented and deficiencies corrected by the appropriate Subcontractors, with the CA witnessing. Any final adjustments to the O&M manuals and as-builts due to the testing shall be made by the Contractor.

3.07 TRAINING OF MDAD PERSONNEL

- A. The Contractor shall provide training coordination, scheduling of subcontractors, and ensure that training is completed. All training shall be coordinated, through the Field Representative, with the PM.
- B. The Contractor shall ensure that each Subcontractor and Vendor (mechanical, plumbing, fire, electrical, specialty, etc.) shall have the following responsibilities:
 - 1. Provide, through the Field Representative, the PM with a training plan sixty days before the planned training covering the following elements:
 - a. Equipment
 - b. Intended audience
 - c. Location of training
 - d. Objectives
 - e. Subjects covered (description, duration of discussion, special methods, etc.)
 - f. Duration of training on each subject
 - g. Instructor for each subject
 - h. Methods (classroom lecture, manufacturer's quality video, site walk-through, actual operational demonstrations, written handouts, etc.).
 - 2. Provide designated MDAD personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of equipment that makes up the system.
 - 3. Training shall normally start with classroom sessions followed by hands-on demonstration/training on each piece of equipment.
 - 4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system shall be repaired or adjusted as necessary and the demonstration repeated at another scheduled time, if necessary.
 - 5. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment are required. More than one party may be required to execute the training.
 - 6. The controls contractor shall attend sessions other than the controls training, as specified, to discuss the interaction of the controls system as it relates to the equipment being discussed.
 - 7. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
 - 8. Training shall include:
 - a. Use of the printed installation, operation and maintenance instruction material included in the O&M manuals.

- b. A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shutdown, seasonal changeover and any emergency procedures.
 - c. Discussion of relevant health and safety issues and concerns.
 - d. Discussion of warranties and guarantees.
 - e. Common troubleshooting problems and solutions.
 - f. Explanatory information included in the O&M manuals.
 - g. Discussion of any peculiarities of equipment installation or operation.
 - h. Classroom sessions shall include the use of overhead projections, slides, video/audiotaped material as might be appropriate.
 - i. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down, alarms, power failure and any emergency procedures, and preventative maintenance for all pieces of equipment.
9. The contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.
- D. Training shall occur after functional testing is complete, unless approved otherwise by the Project Manager.
- E. Videorecording of the training sessions will be provided by the Contractor and added to the O&M manuals. In addition, factory training videos identifying key troubleshooting, repair, service and/or replacement techniques shall be provided and reviewed with the MDAD.
- F. The responsible design or systems engineer shall at the beginning of each training session present the overall system design concept and the design concept of each equipment section.

3.08 OPERATIONS AND MAINTENANCE MANUALS/DATA

- A. The commissioning process requires detailed O&M documentation as identified in this section and Technical Specifications.
- B. Contractor shall submit two draft copies of the complete operating and maintenance manual to the Field Representative for review by the Architect/Engineer and CA within 60 calendar days after review of equipment shop drawings. One copy will be returned to the Contractor within 30 days after receipt by the A/E.
- C. Contractor shall submit corrected final approved manuals prior to Substantial Completion. Prior to final submittal, the CA shall review the O&M manuals (in addition to the initial draft O & M manual), and documentation, with redline as-builts, for systems that were commissioned to verify compliance with the Specifications. The CA will communicate, through the Field Representative, deficiencies in the manuals to the Contractor, PM or A/E, as requested. Upon a successful review of the corrections, the CA will recommend approval and acceptance of these sections of the O&M manuals to the PM. The CA will also review each equipment warranty and verify that all requirements to keep the warranty valid are clearly stated. This work does not supersede the A/E's review of the O&M manuals according to the A/E's contract.
- D. The Contractor shall compile O&M manuals for every piece of equipment and building operating or electrical system being commissioned with the following format.

1. Quantity: 6 (Unless more are required by the Technical Specifications)
2. Format: 8 ½" x 11" 3 ring loose-leaf binders, 3inch maximum, and electronic format that is compatible with MDAD's system. Each binder shall be clearly labeled on the spine. Use as many binders as required. Do not overload binders. Dividers with permanently marked tabs of card stock shall separate each section and sub section. Tab labels shall not be handwritten. A separate manual or chapter shall be provided for each applicable system as follows:
 - a. Plumbing and Drainage Systems/Equipment.
 - b. Lighting Systems and Controls (interior, exterior and airfield).
 - c. Switchgear, Transformers, Panel boards, Motor Control Centers and Motor Starters.
 - d. Lightning Protection and Surge Suppression Systems.
 - e. Public Address, Closed Circuit TV, Flight Information Display and Telephone Systems.
 - f. Oil Water Separator.
3. There shall be a title page and table of contents in the front of each binder for each binder's contents. In each binder, there shall be a main tab for each specification section. Behind the section number tab there shall be the equipment ID tag sub-tab for each piece of major equipment (or group, if small or numerous). These sub-tabs shall be similar to the specification number tabs but of a different color. Behind each equipment name tab shall be the following sections, in the given order, divided by a double weight colored sheet labeled with the title of the section.
 - a. Contractor. The first page behind the equipment tab shall contain the name, address and telephone number of the manufacturer and installing contractor and the 24-hour number for emergency service for all equipment in this section, identified by equipment.
 - b. Submittal and Product Data. This section shall include all approved submittal data, cut sheets, data base sheets and appropriate shop drawings. If submittal was not required for approval, descriptive product data shall be included.
 - c. Operation and Maintenance Instructions. These shall be the written manufacturer's data with the model and features of this installation clearly marked and edited to omit reference to products or data not applicable to this installation. This section shall include data on the following:
 - (1) Model number, serial number and nameplate data for each piece of equipment and any subcomponent.
 - (2) Installation, startup and break-in instructions.
 - (3) All starting, normal shutdown, emergency shutdown, manual operation and normal and emergency operating procedures and data, including any special limitations.
 - a) Step-by-step procedure for system start-up, including a pre-start checklist. Refer to controls and indicators by nomenclature consistent with that used on panels and in control diagrams.
 - b) Sequence of Operation, with detailed instruction in proper sequence, for each mode of operation (i.e., day-night; staging of equipment).

- c) Emergency Operation: If some functions of the equipment can be operated while other functions are disabled, give instructions for operations under these conditions. Include here only those alternate methods of operations (from normal) which the operator can follow when there is a partial failure or malfunctioning of components, or other unusual condition.
 - d) Shutdown Procedure: Include instructions for stopping and securing the equipment after operation. If a particular sequence is required, give step-by-step instructions in that order.
- (4) O&M and installation instructions that were shipped with the unit.
 - (5) Preventative and corrective maintenance, with service procedures and schedules:
 - a) Provide a schedule for preventive maintenance in a printed format and an electronic format compatible with MDAD's system. State, preferably in tabular form, the recommended frequency of performance for each preventive maintenance task, cleaning, inspection and scheduled overhauls.
 - b) Cleaning: Provide instructions and schedules for all routine cleaning and inspection with recommended lubricants.
 - c) Inspection: If periodic inspection of equipment is required for operation, cleaning or other reasons, indicate the items to be inspected and give the inspection criteria for: motors; controls; filters and any other maintenance items.
 - d) Provide instructions for minor repairs or adjustments required for preventive maintenance routines. Identify test points and give values for each. Include sensor calibration requirements and methods by sensor type.
 - e) Corrective maintenance instructions shall be predicated upon a logical effect-to-cause troubleshooting philosophy and a rapid replacement procedure to minimize equipment downtime.
 - f) Troubleshooting: Troubleshooting tables, charts, or diagrams shall be used to present specified procedures. A guide to this type shall be a three-column chart. The columns shall be titled: Malfunction, Probable Cause and Recommended Action.
 - g) Repair and Replacement: Indicate repair and replacement procedures most likely to be required in the maintenance of the equipment.
 - (6) Safety Precautions: This subsection shall comprise a listing of safety precautions and instructions to be followed before, during and after making repairs, adjustments or routine maintenance.
 - (7) Manufacturers' brochures (including controls): Manufacturers' descriptive literature covering devices and equipment used in the system, together with illustrations, exploded views and renewal parts lists. Manufacturers' standard brochures and parts list shall be corrected so that information applying to the actual installed equipment is clearly defined.
 - (8) Supply any special tools required to service or maintain the equipment.
 - (9) Performance data, ratings and curves.
 - (10) Warranty and Guarantee, which clearly lists conditions to be maintained to keep warranty in effect and conditions that would affect the validity of the

warranty.

(11) Any service contracts issued.

- a. Supplemental Data. Prepare written text and/or special drawings to provide necessary information, where manufacturer's standard printed data is not available and information is necessary for a proper understanding and operation and maintenance of equipment or systems, or where it is necessary to provide additional information to supplement data included in the manual or project documents.
- b. Control Diagrams/Drawings. Include the as-built control diagrams/drawings for the piece of equipment and its components, including full points list, full print out of all schedules and set points after testing and acceptance of the system, and copies of all checkout tests and calibrations performed by the Contractor (not commissioning tests).
- c. Specifications. This section is comprised of the component or system specification section copied and inserted complete with all addenda.
- d. System Description. This section shall include the individual equipment portion of the overall system Design Basis Narrative.

END OF SECTION

SECTION 02996
SITWORK COMMISSIONING

PART 1 GENERAL

1.01 DESCRIPTION

- A. The purpose of this section is to specify Division 2 Prefunctional Checklist and Functional Test commissioning requirements .

1.02 SYSTEMS TO BE COMMISSIONED

- A. The following equipment/systems will be commissioned in this project.

- 1. Storm drainage system
- 2. Oil/Water Separator(s)

PART 3 EXECUTION

3.01 PREFUNCTIONAL CHECKLISTS AND STARTUP

- A. Refer to Section 02997.

3.03 FUNCTIONAL TESTS

- A. Refer to Section 02998.

3.04 TRAINING OF OWNER PERSONNEL

- A. Refer to Section 01810 for details.

END OF SECTION

SECTION 13996
SPECIAL CONSTRUCTION COMMISSIONING

PART 1 GENERAL

1.01 DESCRIPTION

- A. The purpose of this section is to specify Division 13 Prefunctional Checklist and Functional Test commissioning requirements .

1.02 SYSTEMS TO BE COMMISSIONED

- A. The following equipment/systems to be commissioned in this project.
 - 1. _____ CCTV and Security Systems

PART 3 EXECUTION

3.01 PREFUNCTIONAL CHECKLISTS AND STARTUP

- A. Refer to Section 13997.

3.03 FUNCTIONAL TESTS

- A. Refer to Section 13998.

3.04 TRAINING OF OWNER PERSONNEL

- A. Refer to Section 01810 for details.

END OF SECTION

SECTION 16996
ELECTRICAL SYSTEMS COMMISSIONING

PART 1 GENERAL

1.01 DESCRIPTION

- A. The purpose of this section is to specify Division 16 Prefunctional Checklist and Functional Test commissioning requirements .

1.02 SYSTEMS TO BE COMMISSIONED

- A. The following equipment/systems to be commissioned in this project.
 - 1. Lighting systems (interior, exterior and/or airfield)
 - 2. Switchgear, transformers, panelboards and/or motor control centers
 - 3. Lightning protection and/or surge suppression system

PART 3 EXECUTION

3.01 PREFUNCTIONAL CHECKLISTS AND STARTUP

- A. Refer to Section 16997.

3.02 FUNCTIONAL TESTS

- A. Refer to Section 16998.

3.04 TRAINING OF OWNER PERSONNEL

- A. Refer to Section 01810 for details.

END OF SECTION

PREFUNCTIONAL TEST CHECKLIST

Switchgear, Switchboards, Panel Boards, Motor Control Centers, Transformers (Swchgr) -

Specification Section 16_____

Project: _____ **Project No:** _____

Components included:

___ disconnects, ___ fuses, ___ meters, ___ other _____

Associated Checklists:

1. Submittal / Approvals

Submittal. The above equipment and systems integral to them are complete and ready for functional testing. The checklist items are complete and have been checked off only by parties having direct knowledge of the event, as marked below, respective to each responsible contractor. This prefunctional checklist is submitted for approval, subject to an attached list of outstanding items yet to be completed. A Statement of Correction will be submitted upon completion of any outstanding areas. None of the outstanding items preclude safe and reliable operation of the system. ___ List attached.

Electrical Contractor Date Controls Contractor Date

General Contractor Date

This checklist is to be completed prior to activation by MDAD.

- X This checklist does not take the place of the manufacturer's recommended checkout and startup procedures or report.
- X Contractors assigned responsibility for sections of the checklist shall be responsible to see that checklist items by their subcontractors are completed and checked off.

Approvals. This filled-out checklist has been reviewed. Its completion is approved.

Commissioning Authority/Agent Date Owner's Representative Date

2. Requested documentation submitted

a) Manufacturer's cut sheets: Yes / No - date to be submitted _____

- b) Performance data: Yes / No - date to be submitted _____
- c) Sequences and control strategies: Yes / No - date to be submitted _____
- d) O & M Manuals: Yes / No - date to be submitted _____
- e) Data base sheets: Yes / No - date to be submitted _____

3. Model Verification

Item	Specified	Submitted	Installed
Manufacturer			
Model			
Serial Number			
Voltage/Phase			
Equipment Rating (amps)			
Fuse Rating (amps)			

4. Installation Checks

a) General Installation

- i) Permanent labels affixed: Yes / No
- ii) Cabinets in place, no visible damage: Yes / No
- iii) Properly mounted on equipment pad and anchored: Yes / No
- iv) Interior clean and dry: Yes / No
- v) Units/equipment accessible for maintenance/replacement: Yes / No
- vi) Meter(s) installed per drawings: Yes / No
- vii) Disconnects installed and labeled: Yes / No
- viii) Disconnects are pad lockable in open position: Yes / No
- ix) Circuit breakers installed and labeled: N/A / Yes / No
- x) Fuses installed: N/A / Yes / No
- xi) Conduits installed and connected: Yes / No
- xii) Cable/conduit routing does not obstruct access: Yes / No
- xiii) As-built drawings updated: Yes / No

b) Switchgear (service entrance 1500kva and above) and Switchboards (service entrance less than 1500kva)

- i) Free standing metal enclosure: N/A / Yes / No
- ii) Copper buses: N/A / Yes / No
- iii) Penetration to FPL vault per code: N/A / Yes / No

c) Distribution Panel Boards and other Panel Boards

- i) Tin plated copper buses: N/A / Yes / No
- ii) Each circuit identified and labeled: N/A / Yes / No
- iii) Space for additional circuits exist: N/A / Yes / No

PREFUNCTIONAL TEST CHECKLIST

d) Motor Control Centers

- i) Tin plated copper buses: N/A / Yes / No
- ii) Main breakers installed and labeled: N/A / Yes / No
- iii) Each circuit identified and labeled: N/A / Yes / No

e) Transformers

- i) Dry type installed: N/A / Yes / No

f) Electrical and Controls

- i) Panel devices labeled and wiring tagged per drawings: Yes / No
- ii) I/O devices labeled and wiring tagged per drawings: Yes / No
- iii) Digital inputs and outputs operational: Yes / No
- iv) All electrical connections tight: Yes / No
- v) Proper grounding installed for components and unit: Yes / No
- vi) Safeties in place and operable: Yes / No
- vii) Sensors, transmitters, gages, etc., installed: Yes / No
- viii) Sensors calibrated (see below) : Yes / No
- ix) Control system interlocks hooked up and functional: Yes / No
- x) All control devices and wiring complete: Yes / No
- xi) Surge protection installed: Yes / No
- xii) Lightning protection installed: Yes / No

g) Final

- i) Startup report(s) completed with this checklist attached: Yes / No
- ii) Safeties and safe operating ranges for this equipment have been reviewed and accepted: Yes / No
- iii) Rooms ventilated properly: Yes / No
- iv) System is ready for functional testing: Yes / No

5. Operational Checks

- a) Associated prefunctional checklists are completed and accepted: N/A / Yes / No
- b) Fuses are good: Yes / No
- c) Disconnect switch operates smoothly with full contact: Yes / No
- d) Resistance check(s) complete with results attached: Yes / No
- e) Specified point-to-point checks have been completed and documentation record submitted for this system: N/A / Yes / No

6. Sensor and/or Gage Calibration

All field-installed temperature sensors, [relative humidity sensors], meters and gages on this piece of equipment shall be calibrated. Sensors installed in the unit at the factory with calibration certification provided need not be field calibrated.

All test instruments have had a certified calibration within the last 12 months: Y/N_____.

