August 20, 2018
TASK ORDER NO 2018-2

CPH PROJECT NO. S12015
CLIENT P.O. NO.:

PROJECT DESCRIPTION: FIS Design Services

CLIENT: SANFORD AIRPORT AUTHORITY
1200 Red Cleveland Blvd., Suite 1200
Sanford, FL 32773

The vendor, CPH, Inc. is a Corporation authorized to do business in the state of Florida with offices located at the address listed above. As part of this Task Order CPH, Inc will furnish the following:

Professional Design services including architectural, mechanical, electrical, plumbing, low voltage, access control, security, fire protection, wayfinding, and interior design for the renovation of approximately 51,000sf of the FIS with an estimated construction cost of $11,500,000.

- Pre-Design and Programming
- Schematic Design
- Construction Plans
- Bidding/Award phase services

The LUMP SUM COST of this Task Order No. 2018-2 is Nine Hundred Ninety Eight Thousand Dollars and No Cents ($998,000). The Client agrees to pay CPH for its services based on approved monthly invoices.

This task order shall be governed by the Continuing Consulting Contract for General Engineering Service's agreement dated August 12, 2014.

Attachment "A" Fee Summary
Attachment "B" Scope of Services
Attachment "C" Scope Item Breakdown

Client Signature:

SANFORD AIRPORT AUTHORITY

By: Diane Crews
Authorized Signature

Diane Crews
Printed Name

President and CEO
Title

05-09-2019
Date

Vendor Signature:

CPH, INC.

By: _____
Authorized Signature

Jeremiah Owens, P.E.
Vice President/ Associate

OSIA FIS Renovation
Sanford Airport Authority
Cost Breakdown

Estimated Construction Cost	$	11,500,000	
Planning/Design Phase	**Fee**		**Type**
Pre-Design and Programming	$	75,000.00	Lump Sum
15% Schematic Design	$	110,000.00	Lump Sum
30% Design Development	$	135,000.00	Lump Sum
60% Construction Plans	$	204,000.00	Lump Sum
90% Construction Plans	$	220,000.00	Lump Sum
100% Construction Plans	$	77,000.00	Lump Sum
Bidding and Award	$	29,000.00	Lump Sum
Permitting	$	25,000.00	Lump Sum
Subtotal	$	875,000.00	
Subcontractor/Reimbursables	**Fee**		**Type**
Surveying/Field Verification	$	15,000	Lump Sump
Environmental Investigation	$	10,000	Allowance
Cost Estimating Firm	$	40,000	Allowance
Interior Design	$	10,000	Allowance
Expenses	$	48,000	Lump Sump
Total	**$**	**998,000.00**	

ATTACHMENT 1

SCOPE OF SERVICES
PROFESSIONAL ARCHITECTURAL AND ENGINEERING SERVICES
FIS RENOVATION
ORLANDO SANFORD INTERNATIONAL AIRPORT
SANFORD, FLORIDA

August 20, 2018

I. PROJECT DESCRIPTION

For this scope of services, the following acronyms are used: SFB – Orlando Sanford International Airport & SAA - Sanford Airport Authority (Sponsor); FAA – Federal Aviation Administration; FDOT – Florida Department of Transportation.

The Federal Inspection Services (FIS) area of the terminal was constructed in the 1990's and does not meet the current standards. It is our understanding that Customs and Border Patrol (CBP) has requested that the FIS be brought up to the current standard. The FIS consists of approximately 62,000 sf of space and includes the recently renovated baggage claims at 11,000 sf. The renovation will consist of approximately 51,000 sf and will require phasing of the construction to maintain passenger flow.

II. OVERVIEW OF PROFESSIONAL SERVICES

In general, professional services to be performed under this assignment include:

A. Pre-Design and Programming
B. Schematic Design
C. Construction Plans
D. Opinion of probable construction cost and Engineer's Report
E. Assist SFB with coordination with the FAA, FDOT, CBP
F. Bidding/Award phase services

III. GENERAL PROJECT UNDERSTANDING

A. Renovation

The existing FIS will need to be updated to the "Airport Technical Design Standard" by US Custom and Border Patrol, 2017. This renovation will required updating to all aspects of the facility including architectural finishes, room layout, IT, HVAC, Fire Suppression, MEP, etc.

B. Phasing

Special phasing plans will be generated with SAA/CBP input for construction sequencing concurrent with the terminal building project and in order to minimize impact CBP operations. The final plan shall be developed in close collaboration with Airport/TBI staff.

IV. General Requirements and Project Administration

Project Administration and Coordination
This task includes coordination with the Sanford Airport Authority (SAA), the Federal Aviation

Administration (FAA), The Florida Department of Transportation (FDOT), tenants, regulatory and approval agencies, and other interested stakeholders. The Consultant will endeavor to ensure a seamless project team effort, maintaining continuous communication with SAA, FAA, and FDOT and facilitate review processes.

This task includes the involvement of the Project Manager in milestone review meetings and presentations with SAA. The Project Manager will also be readily available to SAA; and to keep FAA, FDOT, and CBP apprised of the work progress, schedule, and anticipated review dates.

This task includes coordination with adjacent projects and tenants as appropriate to complete the Scope of Work.

Deliverables: The Consultant will provide meeting minutes, invoices, copies of correspondence, copies of electronic and voice communication records. The Consultant will maintain project records and make available to SAA.

A. Quality Control

This task involves scheduling and project quality control which, for this Project, will involve the following activities:

Designation of QC reviewers
Review of submittals
Tracking and reporting progress

Submittals received by SAA will indicate that the particular work product has under gone the QC process, or if submitted as a draft, indicate that the QC process has not been completed.

Deliverables: None. Consultant will retain red lined drawings.

V. BASIC SERVICES & PHASES

In accordance with FAA AC 150/5100-14D, work under this Task Order is divided into Basic Services and Special Services and in accordance with CBP ATDS 2017.

- Pre-Design and Programming
- Schematic Design Phase (15%)
- Development Design Phase (30%)
- Construction Document Phase (60%, 90%, 100%)
- Bidding Phase

A. BASIC SERVICES

1. **Pre-Design and Programming** –See Attached Scope Item Breakdown

2. **15%, 30%, 60%, 90%, 100% Design Phase Services**–See Attached Scope Item Breakdown

3. **Bidding Phase Services**

    a. Bidding Assistance

Assist SAA in advertising and obtaining bids for the prime contract for construction, materials, equipment and services.

b. Attend Prebid Conference

Prepare for, attend one prebid conference in conjunction with SAA staff to outline the project and answer questions from interested contractors.

c. Respond to Bidder's Inquiries

Prepare addenda as appropriate to interpret, clarify or expand the Bidding Documents within the bid period and upon approval by SAA, issue addenda.

d. Evaluate Bids and Recommend Award

Assist SAA in evaluating bids or proposals.

VI. SPECIAL SERVICES

A. Pre-design Project Survey

The CONSULTANT shall self-perform or retain the services of a qualified sub-consultant to perform a survey which defines the horizontal and vertical limits of all physical features of the existing site that will be altered for the construction of the new facilities included in the PROJECT.

B. Pre-design Hazardous Materials Investigation

The CONSULTANT will retain a qualified professional testing services firm to perform investigations of the existing building construction area which will enable the design of the PROJECT. For this scope item we have included an allowance for a subcontractor for these services. If the allowance is not sufficient to cover these services a contract amendment will be prepared.

C. Cost Estimating

The CONSULTANT will retain a qualified construction cost estimating firm to perform cost estimates at each of the milestone phases (15%, 30%, 60%, 90%, 100%). For this scope item we have included an allowance for a subcontractor for these services. If the allowance is not sufficient to cover these services a contract amendment will be prepared.

VII. ADDITIONAL SERVICES

When required by the Airport, CPH shall furnish or obtain from others, as circumstances may require, additional services of the types listed. These services are not included as part of Basic or Special Services. CONSULTANT shall advise the Airport promptly prior to starting any such Additional Services which will be paid for in accordance with the Task Order or Supplement thereto.

A. Services in connection with work directive changes and change orders requested by the Airport not covered by the Basic or Special Services.

B. Changes in the program by CBP or SAA after the approved 15% schematic design which require significant redesign (greater than 20 manhours) to implement.

C. Services in making revisions to Drawings and Specifications occasioned by the acceptance of substitutions proposed by contractor(s); and services after the award of the construction contract(s) in evaluating and determining the acceptability of an

unreasonable or excessive number of substitutions proposed by contractor.

D. Services resulting from revisions and re-bidding, should the Airport reject bids

E. Threatened or Endangered Species (T&E) permitting/investigations, Environmental Assessments (EA), Development of Regional Impacts (DRI), or Environmental Impact Statements (EIS).

F. Construction Administration, Shop drawing reviews, Requests for Information, Designer's Supplemental Instructions, pay applications

G. Resident Project Representation, Observation, or Inspection

H. As-builts, Record Drawings, or Project Close-Out Reports

VIII. BASIC ASSUMPTIONS

The following is a list of assumptions, which forms the basis of this cost proposal for providing the services for the PROJECT.

A. In the absence of other known standards identified herein, all contract documents (front end, technical specifications and construction drawings) will be developed utilizing SAA's selected format.

B. All construction drawings will be 11" x 17" or 24" x 36" and will be created in AutoCAD.

C. Specifications, reports and other word processing letters/memorandums/reports, etc. shall be created in Microsoft Word.

D. All data collection efforts (survey, geotechnical, etc.) requiring CPH or its subconsultant's personnel to be within the safety area of airfield will be performed during daylight hours with the appropriate pavement closed unless otherwise directed by the Airport.

E. Historic data, record drawings, master plans, etc. necessary for the development of the Preliminary Design and Final Design Phases for the PROJECT, if available, will be compiled and provided by the Airport.

F. The work shall be completed in accordance with the schedule developed and agreed upon during Project Initiation (Preliminary Design Phase). Failure of the reviewing agencies (Airport, FAA and/or FDOT) to meet the deliverable dates for provision of review comments may justify obtaining a schedule extension.

G. At this time, it is understood that an EA, DRI, or EIS is not required for the PROJECT.

END OF ATTACHMENT

SCOPE ITEM BREAKDOWN -
CBP Submittal Requirements Summary 2017 Version

Pre-Design and Programming Phase:

C.8.1 Blocking/Stacking Diagrams

This submittal uses the developed space program and demonstrates compliance with CBP-approved requirements, including all adjacencies and functional spaces. Building systems and building envelope shall be evaluated early for effectiveness and efficiency related to throughput, operation, safety, security, and maintenance.

During conceptual design, concepts shall be presented to CBP. Preliminary concepts are intended to be working level and not presentation documents. The number of concepts required **(3)** shall be defined in the statement of work (SOW) or otherwise determined by the A/E. They are to be developed only to the level that allows selection of a concept that will satisfy program operation. This selected concept is to be further refined and presented as the final concept by the A/E.

C.8.2 Facility Long-Term Master Plan

The parameters of the long-term master plan shall follow the requirements set forth in Chapter 2 of the ATDS 2017. In coordination with the agency stakeholders involved in the regional planning for an FIS, a formal master plan shall be developed and submitted for approval for each FIS project. For new construction projects where an existing master plan is active, an updated master plan shall be developed and submitted for approval.

C.8.3 Waiver/Deviation Identification and Approval

Any waiver/deviation from facility requirements during the planning/programming phase shall be documented and provided with the approved Program of Requirements (POR). At this stage, waivers and deviations are generally only submitted by CBP stakeholders.

Preliminary Concept Narrative

The preliminary concept narrative shall include the following information:

- Description of each architectural design scheme, explaining:
  - Organizational concept.
  - Expansion potential.
  - Advantages and disadvantages.
- Existing major site utilities.
- Fire protection design considerations.
- Security features and considerations.
- Code statement. A brief statement is needed from each design team discipline member regarding the applicable code requirements that relate to the site and occupancy use. For example, items such as, but not limited to, classification of construction and occupancy group(s), fire resistance requirements, and general egress requirements, would be prepared by the design team fire protection engineer.

Preliminary Concept Drawings

Preliminary concept drawings, as applicable, shall include, at a minimum:
Architectural Drawings:

- Site location plan [at least 1.25 miles around site], showing:
  - Site relative to location of international border, major landmarks, urban development, major roads, irregular topography, and bodies of water.
  - Location mass transit links.
  - Location of distinct land use types and districts in the vicinity of the site, e.g., historic districts, retail nodes, civic districts, etc.,
- Site plans for each design scheme showing:

  - Building location and massing.
  - Building expansion potential.
  - Inspection, parking and service areas.
  - Description of local plans for surrounding area, relation of each concept to those plans, and summary of relevant recommendations from local officials.
- Building sections, as necessary, showing:
  - Floor-to-floor heights and other critical dimensions.
  - Labeling of most important spaces.
  - Labeling of floor and roof elevations.
- Existing site plan [at least 500' around site], describing:
  - Site boundaries, approximate topography, existing buildings, setbacks, and easements.
  - Climatic conditions, including path of sun.
  - Description of flood plain issues.
  - Location of on-site and off-site utilities.
- Floor plans, showing at a minimum:
  - Entrances, lobbies, corridors, stairways, elevators, dock spaces, processing spaces, work areas, special spaces, and service spaces (with the principal spaces labeled).
  - Dimensions for critical clearances such as vehicle access. Minimum of six 8" x 10" photographs showing the site and elevations of existing buildings or landscape, as applicable,) surrounding the site.

C.9.1 Preliminary Concept Narrative

The preliminary concept narrative shall include the following information:

- Description of each architectural design scheme, explaining:
  - Organizational concept.
  - Expansion potential.
  - Advantages and disadvantages.
- ~~Possible issues with light emissions.~~
- ~~Local zoning restrictions.~~
- Existing major site utilities.
- Fire protection design considerations.
- Security features and considerations.
- Code statement. A brief statement is needed from each design team discipline member regarding the applicable code requirements that relate to the site and occupancy use. For example, items such as, but not limited to, classification of construction and occupancy group(s), fire resistance requirements, and general egress requirements, would be prepared by the design team fire protection engineer.

C.9.2 Preliminary Concept Drawings

Preliminary concept drawings, as applicable, shall include, at a minimum:

Architectural Drawings:

- Site location plan [at least 1.25 miles around site], showing:
  - Site relative to location of international border, major landmarks, urban development, major roads, irregular topography, and bodies of water.
  - Location mass transit links.
  - Location of distinct land use types and districts in the vicinity of the site, e.g., historic districts, retail nodes, civic districts, etc.,

- Site plans for each design scheme showing:
    - Building location and massing.
    - Building expansion potential.
    - Inspection, parking and service areas.
    - Description of local plans for surrounding area, relation of each concept to those plans, and summary of relevant recommendations from local officials.
- Building sections, as necessary, showing:
    - Floor-to-floor heights and other critical dimensions.
    - Labeling of most important spaces.
    - Labeling of floor and roof elevations.
- Existing site plan [at least 500' around site], describing:
    - Site boundaries, approximate topography, existing buildings, setbacks, and easements.
    - Climatic conditions, including path of sun.
    - Description of flood plain issues.
    - Location of on-site and off-site utilities.
- Floor plans, showing at a minimum:
    - Entrances, lobbies, corridors, stairways, elevators, dock spaces, processing spaces, work areas, special spaces, and service spaces (with the principal spaces labeled).
    - Dimensions for critical clearances such as vehicle access. Minimum of six 8" x 10" photographs showing the site and elevations of existing buildings or landscape, as applicable,) surrounding the site.

C.10.1 15% Schematic Narrative

At the 15% stage, the narrative shall include a preliminary description of the concept solution elected to achieve the design objective, design issues, and assumptions. The schematic design narrative shall include all discovered field conditions potentially affecting the work. The deliverable shall demonstrate how the schematic design fully complies with CBP requirements, the approved POR, and applicable codes and regulations. In schematic narrative, the A/E shall demonstrate applicable building code requirements and possible compliance issues and provide code analysis addressing all applicable disciplines.

In addition, the schematic design narrative typically includes the following information, as applicable to the project:

- Description of site and landscape schematic design.
- Current conditions.
- Demolition, if required.
- Inspection, staging, and parking areas.
- Utility distribution and collection systems.
- ~~Method for storm water detention or retention.~~
- Fire protection, water supplies, fire hydrants, and fire apparatus access roads.
    - Accessibility path for the physically disabled.
    - Summary of consultation with local officials.
    - Building expansion potential.
    - Elevators.
    - Processing booths.
    - Operations and maintenance strategies.

- Identification of unusual local code requirements and strategies for compliance.
- Name of model building code followed.
- Building classifications.
- Identification of region of seismicity, wind speed, etc.
- Identification of special systems and their integration.
- Statement certifying that the structural engineer has reviewed the building configuration for blast, seismic, and hurricane adequacy. The structural engineer and the architect shall sign this statement.
- A written narrative describing the selected mechanical systems and equipment, including:
  - Indoor and outdoor design conditions.
  - Ventilation rates, dehumidification, and pressurization criteria.
  - Equipment capacities, weights, sizes, and power requirements.
  - Fuel and utility requirements.
  - Code compliance statement.

- A description of proposed plumbing systems, including:

- Domestic cold and hot water, sanitary and storm drainage, and irrigation.
- Evaluation of alternate sources for preheating of domestic water (solar or heat recovery).
- Description of the building's proposed fire protection systems including the egress system.
- Classification of construction and occupancy group(s), rating of structural components, fire resistance requirements, interior finish, occupant load calculations, exit calculations, identification of areas to receive automatic sprinkler systems and/or automatic detection systems, smoke control systems, etc. as necessary to provide a complete fire protection and life safety analysis for the final concept.
- Description of electrical systems, including as a minimum, the lighting and lighting control system and a code compliance statement.

C.10.2 15% Schematic Design Drawings

The 15% schematic design drawing package shall at minimum have a cover sheet, drawing index, and existing conditions (if applicable); as well as:

Architectural drawings:

- Site plan, describing:

  - Site boundaries, approximate topography, existing buildings, setbacks, and easements (at least 500' feet around site).
  - Building orientation with respect to path of sun.
  - Building massing and relationship to massing of surrounding buildings.
  - Future building expansion potential.
  - Location of on-site and off-site utilities.
  - ~~Grading and drainage.~~
  - ~~General landscape design, showing location of major features.~~
  - Pedestrian and vehicular circulation (include direction of traffic on adjoining streets).
  - Inspection, parking and service areas.
  - Fire protection, water supplies, fire hydrants, and fire apparatus access roads.
  - ~~Certified vehicle turn-radius study, if applicable.~~
  - ~~Soil analysis, if available.~~

- Demolition plans, if required.
- Floor plans, denoting all spaces and critical dimensions.
- Access plans, indicating how major mechanical and electrical equipment can be removed/maintained/replaced.

- Elevations of major building facades, showing fenestration and materials.
- Elevations of major interior spaces.
- Building sections, as necessary, confirming:
    - Adequate space for structural, mechanical and electrical, telecommunications, and fire protection systems.
    - ~~Mechanical penthouses.~~
    - Floor-to-floor and other critical dimensions.
    - Labeling of most important spaces.
    - Labeling of floor and roof elevations.
- Color rendering. Minimum size shall be 24 in. by 36 in.
- ~~Model of the approved concept with sufficient detail to convey the architectural intent of the design.~~

~~Structural drawings:~~

- ~~Framing plans of the proposed structural system showing column locations, bay sizes, and location of expansion and seismic joints.~~

Mechanical drawings:

- Demolition plans, if required.
- Heating, ventilation, and air conditioning (HVAC) equipment locations.
- Airflow riser diagrams representing supply, return, outside air, and exhaust systems.
- Water flow riser diagrams of the main mechanical systems in the mechanical room(s) and throughout the building.

Plumbing drawings:

- Proposed building zoning and major piping runs.
- Locations of proposed plumbing fixtures and equipment.
- Systems schematics and flow diagrams.

Fire protection drawings:

- Plans showing fire protection system equipment.
- Fire protection water supplies, fire hydrant locations, fire apparatus access roads and fire lanes.

Electrical drawings:

- Plans showing electrical system equipment locations, including panels, generators, and building uninterruptable power supply.

Special systems drawings:

- Floor plans with end device locations.
- Single line system diagrams.
- Riser diagrams.

C.10.3 15% Specifications

The A/E shall submit a table of contents of specifications anticipated for the final design with the schematic design submittal formatted and numbered in accordance with the most current CSI MasterFormat.

C.10.4 15% Calculations/Code Analysis

The A/E shall perform schematic design calculations for structures and systems for each applicable discipline and determine total load and capacity requirements. All calculations shall use approved and, where applicable, code-required methods.

C.11.1 30% Design Development Narrative

The design development narrative shall include the proposed project approach and intent and indicate how the schematic design review comments received from CBP have been addressed and how the design has been advanced since the previous submission. Contractors shall include a description of the products selected as a basis of design and indicate how this selection meets the overall design criteria. Any possible deviations from the design objective and design issues shall be disclosed.

The design development narrative shall include a statement confirming that the design fully complies with CBP requirements, the approved POR and engineering system design targets, adopted value engineering changes, and applicable codes and regulations. In addition, the design development narrative shall include the following information as applicable:

- Site circulation concept, explaining site entrances, parking spaces, restricted access areas, traffic calming design, inspection capacities, service vehicle access, and fire lanes.
- Site utilities distribution concept, including fire protection water supply, hydrants, and drainage.
- Site construction description, including hardscape and utility conduits.
- Code analysis for each discipline to include all building and local zoning codes.
- Building concept, explaining:
    - Building design and orientation, adjacencies, entrance locations, and service locations.
    - Building circulation and arrangement of major spaces.
    - Finishes selection, furnishings, and internal layout.
    - Analysis of refuse removal, recycled materials removal, and maintenance requirements.
- Building construction description, explaining:
    - Structural bay size.
    - Exterior wall system.
    - Roofing system(s.)
    - Exterior glazing system.
    - Interior finishes.
- Building maintenance plan, explaining:
    - Cleaning of glazing and special spaces, such as canine, detention, and public areas.
    - Maintenance of lighting and wall/floor/ceiling surfaces.
    - Consideration and prevention of bird nesting on exterior surfaces.
    - Servicing or replacement of major mechanical and electrical equipment if necessary, listing required dimension clearances.
- Building keying: Report shall fully define the keying hierarchy for the entire building incorporating various levels of access, security, and fire egress. A/E shall coordinate with the fire safety engineer for keying.
- Signage report, as required in the CBP Signage Standard.
- Two finish boards for both public and tenant interior areas and two finish boards of exterior finishes, composed of actual material samples and color coded plans, sections, and elevations of major space showing their use.
- Description of recommended structural concept, including:

  - Choice of framing system, including lateral load-resisting elements, and proposed foundation design.
  - Fire-resistance ratings required for f structural elements.
  - Summary of special requirements resulting from applicable local codes.
  - Methods proposed for corrosion protection, if applicable.
  - ~~Geotechnical engineering report, including boring logs, if part of scope of work.~~

- A written narrative describing the final mechanical system and equipment selection including:
  - Indoor and outdoor design conditions updated for all spaces under occupied, 24-hour, and unoccupied conditions.
  - Dew point analysis.
  - Ventilation rates, dehumidification, and pressurization criteria for all spaces under occupied, 24-hour, and unoccupied conditions.
  - Equipment capacities, weights, sizes, and power requirements.
  - Description of the air side and water side systems and the associated components, including operating characteristics, ranges, and capacities, spaces served, and special features.

- Descriptions of control strategy and sequence of operations for all spaces under occupied, 24-hour, and unoccupied conditions.
- Fuel and utility requirements with updates.
- Updated description of plumbing system, including:
  - Domestic cold and hot water, sanitary and storm drainage, and irrigation systems.
  - Evaluation of alternate sources for reheating of domestic water (solar or heat recovery), updated.

- Building egress description including egress calculations and stairway exit capacities, remoteness, exit discharge, etc.
- Building fire alarm and suppression systems, and interface with BAS and security systems.
- Smoke control system(s), where applicable.
- Special fire protection systems, for example, kitchen extinguishing system and LAN room system, where applicable.
- Fire resistance rating of building structural elements.
- Review of building for compliance with life safety requirements and building security requirements.
- Interior finish requirements as they pertain to the life safety requirements.
- Mass notification system.
- Description of alternative power distribution schemes, comparing the advantages and disadvantages of each approach. This shall include the source of power, potential for on-site generation, most economical voltage, and primary vs. secondary metering.
- Proposed power distribution scheme, including a detailed description and justification or the selected scheme. Address special power and reliability requirements, including emergency power and uninterruptible power supply (UPS) systems.
- Proposed lighting systems:
  - Typical lighting system features, including fixture type, layout, and type of controls.
  - Special spaces such as lobbies, work areas, inspection/processing areas, detention areas, and support spaces.
  - Exterior lighting scheme, including monitored areas and inspection areas.
  - Lighting control systems and daylighting.
  - Engineering analysis for demand limit controls.

- Description of each proposed alarm/signal system.

- Description of proposed security systems' features and intended mode of operation:
    - Intrusion detection system (IDS).
    - Access Control System.
    - Closed circuit television (CCTV).
    - Duress alarm system.
    - Intercom system.
- Proposed telecommunications infrastructure including proposed systems and cabling. These shall be designed and provided in compliance with CBP National Cabling Standards

C.11.2 30% Design Development Calculations/Code Analysis

Design development calculations shall include sufficient details to quantify construction and system elements including different sizes, grades, etc. The calculations for the design development phase shall be sufficiently detailed to quantify individual components and capacity of applicable design elements.

C.11.3 30% Design Development Drawings

Design development finalizes the selection of all systems with respect to type, size, and other material characteristics. Systems are not only structural, mechanical, fire protection, and electrical, but include all other building components such as the building envelope, interior construction, operational spaces, elevators, and support spaces.

The 30% design development drawing package shall at minimum have a cover sheet, drawing index, and existing conditions (if applicable), as well as the following.

Architectural drawings:

- Demolition plans, if required.
- Site layout plan, showing all buildings, roads, walks, parking, and other paved areas, routes from parking areas and from public streets to port entrance, fire apparatus, and fire lanes.
- ~~Grading and drainage plan showing storm water detention features.~~
- Site utilities plan, showing sizes and locations of domestic and fire protection water supply lines, sanitary sewer lines, steam/condensate lines, and chilled water supply and return lines, if applicable.
- ~~Landscape design plan, showing general areas of planting, paving, site furniture, water features, and irrigation plan, if applicable.~~
- ~~Color rendering, minimum size shall 24 in. by 36 in, is needed if design has changed from schematic design phase.~~
- Building floor plans, showing:
    - Labeling and dimensioning of all rooms/spaces.
    - Enlarged layouts of special spaces.
- Building reflected ceiling plans, showing:
    - Enlarged layouts of special space
    - Delineated spaces with ceiling heights.
    - Materials and lighting fixtures labeled and scheduled.
- Building roof plans, showing:
    - Drainage design, including min. roof slope.

  - Dimensions.
  - Membrane and insulation of roofing system.
  - Mechanical equipment and penetrations.

- Elevations, showing:
  - Entrances, window arrangements, doors.
  - Exterior materials with major vertical and horizontal joints.
  - Roof levels.
  - Raised flooring and suspended ceiling space.
- Interior elevations, showing all public, detention and secure spaces, work areas, inspection, and processing spaces.
- One longitudinal and one transverse section for each building, showing:
  - Floor-to-floor dimensions.
  - Stairs and elevators.
  - Typical ceiling heights.
  - General roof construction.
- Exterior wall sections, showing all materials and layers and accommodation of mechanical and electrical equipment/conduit.
- Proposed room finish schedule, showing floors, bases, walls, and ceilings.
- Proposed site furniture cut sheets and locations.
- Location of accessible pathways and services for the physically disabled.
- Signage plan and schedule for all building identification, statutory, notification, wayfinding and room identification signs per CBP Signage Standard.
- Furniture, fixture, and equipment layout and design.

~~Structural drawings:~~

- ~~Framing plans of the proposed structural system showing column locations, bay sizes, key details, and location of expansion and seismic joints.~~
- ~~Structural sections.~~
- ~~Structural details.~~
- ~~Structural schedules.~~

Plumbing Drawings:

- Demolition drawings, if required.
- Floor plan(s) showing:
  - Proposed building zoning and major piping runs.
  - Locations of proposed plumbing fixtures and equipment.
- Systems schematics and flow diagrams.
- Plumbing riser diagrams.
- Plumbing details.
- Plumbing Schedules.

Mechanical Drawings:

- Demolition plans, if required.
- Floor plan(s) showing single line piping and ductwork schematic layout, terminal air units, and perimeter terminal units.
- Quarter-inch scale drawings of mechanical equipment room(s) showing all mechanical

equipment, ductwork, and piping, including equipment access and service requirements in plan, elevations, and cross-sections.
- Roof plan showing all roof-mounted equipment and access to roof.
- Access from mechanical equipment room(s) to freight elevators.
- Single line schematic flow and riser diagram(s):

  - Airflow quantities and balancing devices for all heating/cooling equipment.
  - Water flow quantities and balancing devices for all heating/cooling equipment.
  - Flow/energy measuring devices for water and air systems for all cooling, heating, and terminal equipment.

- Automatic control diagram(s) showing:

  - Control flow diagrams showing all sensors, valves, and controllers (analog and digital).
  - Sequence of operations of all the systems that describe the control sequences during occupied, 24-hour operations, and unoccupied conditions.

- Mechanical equipment schedules, including chillers, boilers, pumps, air handling units, terminal units, cooling towers, and all equipment required for 24-hour operations.
  Air balance relationships between spaces.

Fire Protection Drawings:

- Floor plans showing:

  - Equipment spaces for fire protection systems.
  - Fire protection water supply lines, fire hydrant locations, fire apparatus access roads, and fire lanes.
  - Standpipes and sprinkler risers.
  - Remoteness of exit stairways.
  - Location of firewalls and smoke partitions.
  - Occupancy type and calculated load of every space and room in the buildings.
  - Location of special fire protection requirements, for example e.g., LAN rooms, storage).

- Riser diagrams for sprinkler system
- Riser diagram for fire alarm system

Electrical Drawings:

- Site plan showing proposed site distribution for power and communications, proposed service entrance, and location of transformers, generators, and vaults, etc.
- Floor plans showing:

  - Proposed major electrical distribution scheme and locations of electrical rooms and closets and communication closets.
  - Proposed major routing of major electrical feeder runs, bus duct, communication backbone systems, and security systems.
  - Layouts of electrical rooms, showing locations of major equipment, including size variations by different manufacturers.

- Single line diagram of the building power distribution system.
- Plan of typical office lighting layout, typical non-commercial and commercial inspection areas, and other special spaces.
- Lightning protection and building grounding.
- Electrical schedules.
- Electrical riser diagrams.
- Electrical details.

Special Systems Drawings:

- Master clock system.
- Single line diagram of other signal system including: telephones, security, public address, secure communication, and other.
- Security system site plan, indicating proposed locations for CCTV, access controlled portals and devices, including duress alarm buttons/sensors, intrusion detection system, access controls, and intrusion detection systems field panels.
- Flight information display locations.
- LAN/SLAN/IDF room layouts.
- Riser diagrams and schedules for each system.

C.11.4 30% Specifications

At the design development phase, the A/E shall submit an outline of specifications for all sections applicable to the project using the most current CSI format. Submitted outline specifications shall identify products selected for the project and include general coordination and execution requirements for each discipline.

C.12.1 60-100% Construction Document Narrative

The construction documents phase of the design typically includes submittals at 60, 90, and 100 (final) percent stages. The construction documents narrative shall indicate how the design review comments received from the previous submission have been addressed and how the subsequent design submittal addresses construction documents development. The narrative shall also indicate how the submitted construction documents meet or deviate from the program objective. The final design narrative shall be reflect the recorded version of design with all the outstanding issues resolved.

The construction documents narrative shall include a statement confirming that the design fully complies with CBP requirements, the approved POR, the engineering system design targets, adopted value engineering changes, and applicable codes and regulations. The narrative shall reflect the final design and shall be signed by the A/E. The construction documents narrative shall, at minimum include the following information:

- Executive summary.
- Current conditions.
- Description of the final mechanical system and equipment selection including:
    - Final indoor and outdoor design conditions for all spaces under occupied, 24-hour, and unoccupied conditions.
    - Final ventilation rates, dehumidification, and pressurization criteria for all spaces under occupied, 24-hour, and unoccupied conditions.
    - Final equipment capacities, weights, sizes, and power requirements.
    - Final psychometrics of the HVAC systems.
    - A final description of the air side and water side systems and the associated components including operating characteristics, ranges, and capacities, spaces served, and special features.
    - Final descriptions of the control strategy and sequence of operations for all spaces under occupied, 24-hour, and unoccupied conditions.
- A final code compliance statement.
- A final description of any deviation from the HVAC system as approved in the schematic design phase submittal.
- Description of special systems and how they are coordinated with relevant disciplines.
- Description of plumbing system, including domestic cold and hot water, sanitary and storm

drainage, and irrigation systems.

C.12.2 Construction Documents Calculations

Construction documents calculations shall be completed for each relevant discipline and include all components and elements required for the satisfactory execution and completion of construction work.

C.12.3 60—100% Construction Drawings

Final construction drawings shall address all design review comments received from CBP as well as any additional information received from previous submittals. This phase requires a detailed set of documents coordinated by all disciplines into one coherent document to become the basis for a construction contract. It is expected that all issues have been resolved and the deficiencies are addressed. The final drawing package shall be signed by professional engineers. Construction documents shall include, at a minimum:

Architectural Drawings:

- Demolition plans, if required.
- Site layout plan, including:
    - Location of all buildings, roads, walks, accessible routes from parking and public street to port entrance, parking and other paved areas, and planted areas.
    - Limits of construction.
    - Locations and sizes of fire protection water supply lines, fire hydrants, fire apparatus access roads, and fire lanes.
    - Location of floodplains and wetlands.
- ~~Grading and drainage plan, showing:~~
    - ~~Existing and new contours [use 600 mm (2 ft.) interval minimum in area around buildings].~~
    - ~~Spot elevations at all entrances and elsewhere as necessary.~~
    - ~~Elevations for walls, ramps, terraces, docks, plazas, and parking lots.~~
    - ~~All surface drainage structures.~~
    - ~~Water retention and conservation systems.~~
- Site utilities plan, showing all utilities, including inlets, manholes, clean-outs, and invert elevations.
- Floor plans, denoting all spaces and dimensions.
- Access plans showing proper clearances for repairing/maintaining/replacing equipment.
- Planning grids for
    - Raised access floors.
    - Reflected ceiling plans with all ceiling components.
- Roof plans showing slopes, low points, drains and scuppers, equipment pads, and accessories.
- Exterior elevations.
- Interior elevations.
- Building sections showing zones for mechanical and electrical, telecommunications, and fire protection systems.
- Wall sections.
- Details and large scale plans.
- Schedules.
- ~~Planting plan, showing:~~
    - ~~Building outline, circulation, parking, and major utility runs.~~

- ~~Size and location of existing vegetation to be preserved (include protection measures during construction).~~
- ~~Location of all new plant material and function, such as windbreak or visual screen, where appropriate.~~
- ~~Erosion control.~~

- ~~Planting schedule, showing quantity of plants, botanical names, planted size, and final size~~
- ~~Irrigation plan, if applicable, including schematic of irrigation control system~~
- ~~Planting and construction details, profiles, sections, and notes as necessary to fully describe design intent and construction phasing, if part of project.~~
- ~~Survey of surrounding buildings, structures, and improvements in both wet and dry season to document preconstruction elevations.~~

Plumbing Drawings:

- Demolition plans, if required
- Floor plans, including layout and fixtures, equipment and piping; large-scale plans shall be used where required for clarity.
- Riser diagrams for waste and vent lines.
- Riser diagrams for domestic cold and hot water lines.
- Plumbing fixture schedule.

Mechanical Drawings:

- Demolition plans, if required
- Floor plan(s) showing:
  - Double line piping and ductwork layout.
  - Terminal air units.
  - Perimeter terminal units.
  - Locations of automatic control sensors.
- Roof plan showing all roof-mounted equipment and access to roof.
- Mechanical details, including:
  - Quarter-inch scale drawings of mechanical equipment room(s), all mechanical equipment, ductwork, and piping, including access and service requirements in plan, elevations, and cross- sections.
  - All valves, indicating locations where temperature, pressure, flow, contaminant/combustion gases, or vibration gauges are required, and if remote sensing is required.
  - Fire dampers and volume control dampers; ductwork ahead of the distribution terminals shall be indicated in true size (double line).
- Single line schematic flow and riser diagram(s):
  - Airflow quantities and balancing devices for all heating/cooling equipment.
  - Water flow quantities and balancing devices for all heating/cooling equipment.
  - Flow/energy measuring devices for water and air systems for all cooling, heating, and terminal equipment, and their interface with the BAS.
- Automatic control diagrams, showing:
  - All sensors, valves, and controllers (analog and digital inputs for controllers,

front end equipment, and system design)
  - Control signal interfaces, including
  - sequence of operation of all heating,
  - ventilating, and cooling systems during occupied, 24-hour, and unoccupied conditions

- Schedules for equipment, including: chillers, boilers, pumps, air handling units, terminal units, cooling towers, and all equipment required for 24-hour operations.
- Air balance relationships between spaces.

~~Structural Drawings:~~

- ~~Demolition plans (when applicable),~~
- ~~Structural construction drawings, including:~~
  - ~~Full dimensions, notes and details~~
  - ~~Load criteria for all floor live loads, roof live load, roof snow load, wind load, earthquake design data, and special. Live load reduction of the uniformly distributed floor live loads, if used in the design, shall be indicated.~~
  - ~~Wind calculations, and building category, wind exposure, and internal pressure.~~
  - ~~Seismic design criteria as required by code.~~
  - ~~Soil bearing pressure and lateral earth pressure.~~
  - ~~Properties of all basic building materials.~~
  - ~~List of codes and standards used.~~
- ~~Schedules for foundations, columns, walls, beams, slabs, and decks, as applicable.~~
- ~~Structural details, including:~~
  - ~~Steel connections.~~
  - ~~Fire rated assemblies, indicating UL numbers, restrained or unrestrained assembly, in accordance with ASTM E119 (the classification shall be determined by a licensed structural engineer).~~
  - ~~Anchorage of building system equipment and nonstructural building elements.~~

Fire Protection Drawings:

- Demolition plans, if required,
- Fire protection construction drawings, including dimensions, notes and details.
- Fire protection details, including:
  - Building's construction type.
  - Firewalls and smoke partitions.
  - Panel and curtain walls.
  - Fire-stopping configurations.
  - Mass notification system equipment.
  - Stairs and horizontal exits.
  - Fire doors.
  - Stairway pressurization fans.
  - Security door hardware, including operation procedures.
  - Fire pump configuration and standpipe riser.
  - Anchorage of underground fire protection water supply lines.
  - Water flow switches and tamper switches.
  - Sprinkler floor control valves, sectional valves, and inspector text assembly.
  - Special fire extinguishing.
  - Fire alarm riser.
  - Typical firefighter telephone station and jack.

- Electrical closets for fire alarm system panels.
- Fire alarm telephone panel and amplifier rack.
- Visual indicating device control and power detail.
- Typical location of duct smoke detectors.
- Outdoor and indoor fire alarm speaker.
- Typical alarm terminal cabinet.
- Lay-in ceiling-mounted fire alarm speaker, and combination speaker/strobe.
- Wall-mounted strobe device.
- Typical manual fire alarm box installation.
- Fire alarm system input/output matrix.
- Graphic annunciator panel.
- Fire command center showing the locations of each panel to be installed.

Electrical Drawings:

- Demolition plans, if required.
- Floor plans including dimensions, notes, and details.
- Lighting, power distribution, and communications raceway distribution, and locations of fire alarm and annunciator panels.
- Single-line diagram of primary and secondary power distribution, including normal power, emergency power, and UPS.
- Single-line diagram of fire alarm system.
- Single-line diagram of telecommunications system.
- Circuit layout of lighting control system.
- Details of underfloor distribution system.
- Site plan, indicating service locations, manholes, duct banks, inspection technology, surveillance equipment, and site lighting
- Layout of electrical equipment spaces.
- Schedules for switchgear, switchboards, motor control centers, panelboards, and unit substations.
- Grounding diagram.
- Complete phasing plan (if required) for additions and alterations.
- Security systems site plan, with final locations of all security devices and conduit runs.
- Security system floor plans, including layout of all security systems.
- Storage areas for electrical equipment/spare parts.

Special Systems Drawings:

- Master clock system
- Single line diagram of other signal system including: telephones, security, public address, secure communication, and other systems.
- Security system site plan, indicating final locations for CCTV, access controlled portals and devices, including duress alarm buttons/sensors, intrusion detection system, access controls and intrusion detection systems field panels.
- Flight information display locations.
- LAN/SLAN/IDF room layouts.
- Riser and raceway diagrams and schedules for each system.

C.12.4 Construction Document Specifications

For each of the construction documents phase submissions, the A/E shall submit a full set of completed and coordinated specifications in latest CSI Master Spec format including:

- Division 01: General Requirements.

- Division 02 through Division 33: All other Technical Specification Sections as applicable.

Specifications shall be closely coordinated with drawings and address all work as applicable to the project and include relevant specification sections. If sole source products are used, appropriate justification must be provided. The final set of specifications shall be sealed and signed by the appropriate Professional of Record.

C.12.5 Construction Cost Estimate

As part of the value engineering effort, CBP may require the AO to share the construction cost estimate, so that CBP can benchmark against similar projects and make recommended waivers/deviations.