Downtown Island Airport

Airport Supplemental Design Guidelines

Administered By

MKAA/Airport

Department of Engineering

Revision 0 – 17 July 2002

Table of Contents

Sections

Section 1.0
Airport "Supplemental" Design Guidelines

Downtown Island Airport
Department of Engineering

1.0 Airport "Supplemental" Design Guidelines

1.1 Purpose

The purpose of the Airport "Supplemental" Design Guidelines is to provide Developers, Tenants, and Architects and Engineers (A/E's) detail information on specific requirements. The format for this information is in two parts. The first part addresses "Submittals and Drawing Requirements" as established by the Airport. The second part addresses "Submittals and Specifications Requirement" which follows the Construction Specifications Institute's sixteen divisions and master list of section titles and numbers. Detail information on design submittal drawings and specifications is therefore provided in this supplemental guidelines document.

Fast-track construction projects requiring multiple design/bid packages such as mass grading, foundations, steel, etc., shall not relieve the Developer, Tenant or A/E from meeting all design submittal requirements.

Developers, Tenants and A/E's are hereby advised that this document is in continuous development and it is their responsibility to request and obtain from the Airport the latest supplemental requirements pertaining to their projects at date of design commencement.

Requests for the latest Airport "Supplemental" Design Guidelines should be made in writing to:

McGhee Tyson Airport
Vice President of Engineering, Third Floor
2055 Alcoa Highway
Alcoa, Tennessee 37701

Section 2.0
Submittals and Drawing Requirements

Downtown Island Airport
Department of Engineering

2.0 Submittals and Drawing Requirements

2.1 Programming and Advanced-Level Schematic Design (20%) Submission
Submittal documents shall include those as outlined under the "Design Evaluation Matrix" in the latest revision of the Airport Design Guidelines, including a cost estimate, schedule for design and construction phases and a code check summary. The cost estimates for the schematic submittal shall be conceptual in nature, based on system and unit costs of the work developed. Allowances may be applied to work that is known but not yet detailed. The estimate submitted at this stage of the work need not be in CSI format. Construction cost contingency at this level should not exceed 20%.

The estimate will be used to verify the validity of project budget. For general requirements of estimates, please refer to 4.0 Cost Estimating. As part of this submittal, the A/E shall update the design schedule and provide a broad-scope construction schedule defining overall construction times and phasing requirements. The A/E shall illustrate in the Schematic Design submittal how the design complies with FAA Part 77 guidelines.

2.2 Design Development (40%) Submission
Submittal documents shall include the following drawings, specifications (Refer to 3.2), cost estimate, design schedule and updated code summary regardless of conventional building or pre-engineered metal building construction and A/E annotated responses to MKAA design review comments from the Schematic Design submittal. The cost estimate for the design development submittal shall include actual quantities and the unit costs for the major portions of the work developed. Approximate quantities and unit costs shall be developed for work not clearly defined. Allowances may be applied for work that is known but not yet detailed. The construction cost contingency at this level should not exceed 15%. A section of the estimate shall include a budget reconciliation detailing major variances between the total amount of the current construction estimate and that of the schematic submittal. For general requirements of estimates, please refer to 4.0 Cost Estimating.

In addition to an updated design schedule, the A/E shall finalize the construction document production schedule and also formulate and outline the anticipated construction schedule, including phasing of work.

The Architect and Structural Engineer of Record shall furnish pre-engineered metal building performance specifications, design criteria, checking of the building, shop and/or fabrication drawings and construction administration oversight.

A. General Drawings
Refer to 2.9 Cover Sheet/Typical Plan Formats and 2.12 Numbering and Arrangement of Drawings.

B. Site Design Development Set

1. Site survey boring location plan
2. Building location plan – building tied down dimensionally with pertinent adjacencies, street lines and grades, lease or property lines, required setbacks, easements, rights of way, manholes, sewers, hydrants, light standards, fire protection features, etc., interfaced with survey
3. Main entry level datum elevation with key exterior grades at building perimeter
4. Overall storm water management plan indication surface and subsurface drainage patterns
5. Site development grading and landscaping plans
6. Overall preliminary site grading and defined design of external elements, properly coordinated and interfaced with mechanical/electrical for utility entry points
7. Indicate areaways, vaults, access to subgrade spaces
8. Preliminary site and exterior building lighting scheme with identification of fixture types
9. Parking area defined with layout
10. AOA paving areas defined with preliminary plotting
11. Indication of path, stairs, ramps, beams, terraces, etc.
12. Plant materials (indication and preliminary schedule)
13. Irrigation plan
14. Design development details
    a. AOA fencing and gates
    b. Landside fencing and gates
    c. Railings
    d. Stairs
    e. Ramps
    f. Paving types and patterns
    g. Kiosks
    h. Benches
    i. Light standards
    j. Others
15. Design development specifications. Refer to 3.2 Specifications Requirements.
16. Any necessary adjustments to the preliminary estimate of construction cost

C. Architectural Design Development Set

General: Depiction of all principal design features upon which construction documents preparation shall be based.

Floor Plans

This consists of general (template) plans, overall coordinating plans and plan enlargements for important and special areas.

1. *Template Plans*

   Data required:

   a. Building perimeter (footprint) and exterior wall type, thickness and composition fixed
   b. Structural grid or system fixed (with "hard" column sizes)
   c. Major mechanical/electrical systems determined and their requirements reflected and indicated on plans
   d. Indicate building core – elevators, stairs, etc.
   e. All internal partitions of appropriate thickness indicated
   f. Door swings indicated

   Reproduce floor plan templates. Make transparencies or CAD layers for further development work (with originals placed aside) and distribute transparencies or layers to consultants for their use as background drawings.

   Plan information:

   a. Adequate internal and external dimensions for "hard fix"
   b. All floor elevations
   c. Typical door types
   d. Typical partition types
   e. Building core element – well worked out with dimensions
      - Stairs
      - Elevators
      - Major shafts
   f. Built-in furniture items – indication only and keyed to design requirements
      - Reception desk
      - Counters
      - Cabinets
      - Work tops
      - Beds and bunks
      - Lockers
      - Special furniture and equipment (early clarification of what is "NIC" and "by owner")
   g. Electrical receptacle, switch locations, main switch and panel locations

2. *Coordinating Floor Plans*

   If necessary, small scale (e.g., 1/16" or 1:200). Scale down and reproduce the template plans with indication of exterior overall building dimensions, breaks, tie-in, etc. As an additional use, this plan can be considered a large key plan, valuable to identify, cross-reference and key in information pertinent to the entire set.

3. *Detail Plans*

   Larger scale (e.g., 1/4" or 1:100). Key areas, lobby, entries, public plaza, major corridors, restrooms and locker rooms, kitchens, special spaces, etc.

Required: All surfaces (floor, wall and ceiling treatments) furniture indication and layout.

Elevations

Drawn at the same scales as construction documents.

1. *General Elevations*
   Data Required:
   a. Total full-height facades including wall penetrations, doors, windows, louvers, utility service, entrances and roof structures
   b. All fenestration fixed and related to interior walls and internal slab heights
   c. Overall vertical building and floor heights indicated and related to established building datum
   d. Indicate column centers and column line designations
   e. Indicate cross-reference points with sections
   f. Indicate setbacks, building profiles, expansion joints, etc.
   g. Indicate treatment of visible mechanical equipment (as worked out with consultants)
   h. Exterior walls (pre-cast concrete, stone, panel systems, metal/glass curtain wall, etc.) properly selected by adequate technical investigation
   i. Gutters and downspouts
   j. Wall mounted light fixtures
   k. Wall mounted signage
   l. Wildlife and bird nesting deterrent systems if required

2. *Detail Elevations*
   Key elevations that indicate unique or theme elements, as required to augment the normal building elevations:
   a. Building entries
   b. Public spaces
   c. Typical bay
   d. Canopy recesses
   e. Indicate fenestration pattern, venting arrangements, divisions
   f. Metal and panel work – divisions and profile indication
   g. Exterior treatments
   h. Masonry details – coursings, special patterns, etc.
   i. Exterior louver placements
   j. Abutting topography and grade relationship

Sections

Objective: To achieve the "look" of the overall building solution. Technique: Limit details, avoid repetition, and show principal building design features only.

1. *Overall Sections*
   Overall building longitudinal and transverse "building explanation" type (at 1/16" or 1/8", 1:200 or 1:100 scale)

2. *Supplementary Sections*
   Larger scale (e.g., 1/4“ or 1:50) vertical and plan sections design profiled for the building “work out” purposes.

3. *Detail Wall Sections*
   Largest scale (e.g., 3/4“ or 1:20). Dominant full-height sections conveying basic building configuration to indicate:
   a. Foundation and perimeter treatment
   b. Typical wall construction
   c. Backup structure, abutting floor system
   d. Window location and insulation methods
   e. Flashing, masonry coursings
   f. Mechanical penetrations (furrings, etc.)
   g. Parapet design

   Usually one full height (no cut) section. Additional detail sections should be minimally detailed; provide an adequate number to provide a comprehensive building perimeter profile. All section keyed to building elevations.

Details

Large scale (1½” and 3”, or 1:10 and 1:5) as required. Indicate key conditions. Technique: non-repetitive pre-final design developed, encompassing good technical practice.

a. Window types: divisions, pattern, mullion profiles, vent detail, glazing type, jamb/head, plan sections
b. Hollow metal (typical only; keyed to plans and schedules)
c. Frame types (typical only; for compatibility and profile)
d. Stair types – egress, public, exterior (including railing design)
e. Metal and glass walls, borrowed lights, etc., for division, profile and glazing
f. Non-typical design-related heavy-gauge metal work requiring special fabrication, joining, fastening to other building elements
g. Interior partition types (typical only; keyed to plans and schedules)
h. Built-in furniture items, reception desks, work tops, counters, cabinet types, display cases, recesses, wardrobes, millwork, etc.
i. Rolling or overhead coiling hangar doors.

Interior Elevations

Typical and special spaces interfaced with and cross-referenced to floor and reflected ceiling plans. Indicate:

a. Suspended ceiling lines reflecting structural and mechanical conditions above
b. Breaks
c. Level changes
d. Finish floor elevations
e. Pertinent vertical dimensions

f. Interior wall treatments, materials

These should be of pre-final quality adequate to convey design intent.

Reflected Ceiling Plans
Typical and special spaces. Integrated plans reflecting structural, mechanical and electrical features. Plans to indicate:

a. Lighting layouts
b. Soffits, coves, furrings
c. Skylight locations
d. Ceiling materials
e. Acoustic treatments
f. Relationship with partitions
g. Interface with window details
h. Perimeter conditions – details, notches
i. Heating and ventilating register, diffuser locations
j. Sprinklers
k. Access panels
l. Exposed structure
m. Exposed HVAC equipment and duct work

Give elevations above finished floor of exposed structure, lighting, HVAC equipment, etc.

Schedules
Schedules to be non-repetitive and comprehensive, with specific keying to floor plans and elevations.

a. Pre-final interior finishes
b. Frames and doors
c. Preliminary hardware
d. Windows and glazing

Specifications
Design development specifications. Refer to 3.2 Specifications Requirements.

Cost Estimate
Any necessary recommended adjustments to the preliminary estimate of construction cost.

D. Structural Design Development Set

1. *Floor plans at the same scale as the architectural drawings*

2. *Typical floor framing plans, including:*
   a. Sizing of beam drops
   b. Slab openings

c. Thicknesses
d. Depressions

3. *Framing indication and governing sizing at:*
   a. Roof structures
   b. Penthouse
   c. Bulkheads
   d. Other

4. *Nontypical framing scheme where required:*
   a. Lobby
   b. Floors at grade
   c. Other

5. *All column points established*

6. *Final column schedule*

7. *Preliminary details and sections to adequately indicate structural system*

8. *Preliminary details of major unique conditions that affect scheme (as determined by the architect)*

9. *Details indicating coordination of mechanical/structural/electrical features at areas of major interface*

10. *Design development specifications. Refer to 3.0 Specifications Requirements.*

11. *Any necessary recommended adjustments to the preliminary estimate of construction cost*

E. Mechanical/Electrical/Plumbing Design Development Set

1. *Typical floor plans. Systems representation in diagrammatic (non-detailed) style, major items of equipment indicated, their space requirements and interface requirements with other systems. Indicate:*
   a. Major shafts (sizes)
   b. Chases
   c. Mechanical rooms and electric closets
   d. Convector/fan coil locations, etc.
2. *Required penetrations:*
   a. Wall
   b. Slab
   c. Beam

3. *Utilities distribution/equipment plans (lobby, basement, roof) with items of heavy equipment shown in diagrammatic style, with their space requirements indicated:*
   a. Boiler/heater spaces (include clear height requirements)
   b. Transformer vaults (approval obtained from local utility company)
   c. Switchgear, emergency generator, water storage tanks, fire pumps, etc.
   d. Roof coiling towers, major air conditioning and air handling equipment, packaged units, etc.
   e. Fire detection, alarm, notification and suppression system

4. *Locations of major roof air-handling equipment, cooling towers, exhaust fans,* etc.

5. *Site utilities layout*

6. *Preliminary details of major and unique conditions that affect scheme (as determined by the architect)*

7. *Data to be developed in conjunction and in coordination with the project team:*
   a. Integrated diagrammatic lighting plans indicating all overhead mechanical and electrical equipment for typical floor and special spaces
   b. Preliminary electrical fixture type, schedule and product cut-sheets
   c. Cuts and explanatory information for interior visual items such as:
      - Louvers
      - Registers
      - Heating/cooling units
      - Cabinets

   d. Exterior louver requirements and proposed locations
   e. Preliminary plumbing fixtures type schedule and cuts

8. *Design development specifications. Refer to 3.2 Specifications Requirements.*

9. *Any necessary adjustments to the preliminary estimate of construction cost*

F. Other Consultants Design Development Sets

1. *Kitchen*
2. *Elevator*
3. *Laundry*
4. *Refuse*
5. *Security*
6. *Other*

Include all preliminary information that allows proper interfaces with major design disciplines.

2.3 Construction Documents (60%) Submission

Refinement of previous submittal and A/E annotated responses to MKAA comments from the Design Development Submittal and updated code summary. Specifications Submittal (Refer to 3.3). The cost estimate for construction documents at the 60% Submittal shall include accurate quantities and material and labor unit costs for the major portions of the work developed to date. A limited number of items may require approximate quantities and the unit costs or allowances. The construction cost contingency at this level should not exceed 10%.

A section of the estimate shall include a budget reconciliation detailing major variances between the total amount of the current construction estimate and that of the design development submittal. For general requirements of estimates, please refer to 4.0 Cost Estimates.

The A/E shall furnish a revised design schedule and updated probable construction schedule, including consideration of all major systems and long-lead items.

2.4 Construction Documents (90%) Submission

Refinement of previous submittal and A/E annotated responses to MKAA review comments from the 60% Submittal. Specifications Submittal (Refer to 3.4). The construction cost estimate accompanying the 90% Submittal shall consist of a detailed line item estimate, which shall include accurate unit costs and final quantities. Contingency and minimal allowances shall be required. This estimate shall be of sufficient detail to adequately analyze the contractor's Proposal Documents prior to contract award.

A section of the cost estimate shall include a budget reconciliation detailing major variances between the total amount of the final proposal document estimate and that of the last estimate submittal. For general requirements of estimates, please refer to 4.0 Cost Estimating.

The A/E shall furnish a finalized probable construction schedule for the overall times of procurement, fabrication, delivery and installation of various systems of the projects, including consideration for phasing the construction work.

As part of the 90% Submittal, the A/E shall include a draft of the schedule of construction submittals, which lists all items, by specification section, that the construction contractor will have to submit for review and approval during the execution of the work.

The A/E shall also provide a record "as executed" design schedule, indicating all significant changes from the original design schedule agreed upon at the NTP.

2.5 Construction Drawings (100%) Submission

The final construction drawings shall be comprehensive, clear and suitable for the purpose of procurement, contracting and construction and shall include A/E annotated responses to MKAA design review comments from the 90% Submittal and updated code summary.

Final construction documents, including drawings, specifications (Refer to 3.5) and calculations shall be sealed and signed by the appropriate Tennessee Professional Registered Architect or Engineer-of-Record. The final cost estimate shall represent the cost of all work as represented by the final construction documents. The detail construction schedule shall be complete with phasing considerations.

2.6 Drawing Sizes

The size of the sheets and the scales used are dependent of the nature of the project but are subject to approval by the Authority. Drawings within a project set shall be of one standard size. Drawings shall normally be 24" x 36", with the exception that drawings for buildings may be 30" x 42".

2.7 Characteristics of Drawings

- All work shall be neat and legible and line work shall be in ink, plastic lead or an acceptable substitute approved by the Authority.

- Drawing work, except as noted below, shall use symbols and designations found in Architectural Graphics Standards, by Ramsey & Sleeper, 10th Edition (New York City: AIA and John Wiley & Sons; 2000). Fire alarm and other specialty symbols used on electrical drawings shall be as approved by the Authority.

- All drawings shall contain appropriate graphic scale indications for each scale utilized.

- For all sections and detail plans, provide identification in the detail circle call-out for both the forward and backward references. This need not be done for details for which there are numerous forward references.

2.8 Cover Sheet/Typical Plan Formats

- The A/E shall request from the VP of Engineering an electronic copy of the Cover Sheet Format and a Title Block Sheet Format during pre-design.

- The Cover Sheet of each set of documents shall indicate the level of completion (20%, 40%, 60%, 90% or 100%) and the date of the submittal.

2.9 Numbering System

- Each drawing will be assigned a specific "Drawing Number" during the Schematic Design and Design Development Phase. Also, a seven-letter project identification code shall be obtained from the Authority for including on all drawings.

- The A/E shall provide "Drawing Numbers" for all drawings. Drawing Numbers shall be provided by discipline/subject. The type of project will dictate the exact system to be used, since a specific drawing series may be required for special elements such as fire protection systems, fueling systems security system and people mover components. Requirement 2.12

(following) is a typical index of drawing series using a discipline/subject numbering system. This system uses a key letter, followed by a decimal organized series, e.g., A0.1, A0.2, A0.3, …A0.n, etc.

- The 100% design drawings shall also be numbered as to the total number of sheets. For example, if the 100% design drawings contain 300 sheets, the sheets shall also be numbered as Sheet 1 of 300, 2 of 300, …..and 300 of 300.

2.10 Indexing Requirements for Design Documents

When a set of project drawings is to be bound in more than one volume, each volume in the set shall have the entire index of the project drawings. Each volume shall also be clearly numbered on its cover. This requirement also applies to multi-volume project specifications, calculations and reports. Page numbers are not strictly required in the calculations index but the titles of the items or equipment/systems for which calculations are provided must be listed.

2.11 Required Number of Sets

The number of sets for each submittal is two. Generally, full-size sets of drawings will be required for submissions. Additional change or correction drawings, as needed, may be issued on other appropriately sized standard sheets.

2.12 Numbering and Arrangement of Drawings

The drawings shall be numbered and arranged in the sequence indicated below.

Discipline/Subject Numbering Breakdown and Set Organization

- **General Drawings**

G0.0	Cover Sheet
G1.series	Drawing Index
G2.series	Plot/Vicinity Locations, Haul Routes, Contractor Staging Area
G3.series	Construction Phasing Plans
G4.series	Building Code and Egress Analysis

- **Civil Drawings**

C0.series	General Notes, Abbreviations and Symbols, Survey Controls
C1.series	Sitework/Grading Plans/Stormwater Pollution Control Plans
C2.series	Demolition Plans
C3.series	Pavement Sections

C4.series	Typical Details Drainage Details
C5.series	Utility Plans
C6.series	Profiles/Sections
C7.series	Utility Details
C8.series	Boring Plans/Logs

- **Landscape Drawings**

L0.series	Gereral Notes, Abbreviations and Symbols
L1.series	Landscape/Planting Plans
L2.series	Plant Removal Plans
L3.series	Landscape Sections
L4.series	Typical Details, Drainage Details
L5.series	Plant Schedules
L6.series	Irrigation Plans
L7.series	Irrigation Details

- **Structural Drawings**

S0.series	Abbreviations, General Notes and Symbols
S1.series	Foundation Plans
S2.series	Framing Plans
S3.series	Typical Details-Sections
S4.series	Foundation, Wall Details
S5.series	Schedules
S6.series	Sections-Details
S7.series	Stairs-Misc. Details
S8.series	Special Items (Pedestrian Bridge, Tunnel, etc.)

- **Architectural Drawings**

A0.series	Index, Symbols, Abbreviations, Notes, Location Map
A1.series	Demolition, Site Plan, Temporary Work
A2.series	Floor Plans, Room Material Schedule, Door Schedule, Key Drawings
A3.series	Sections, Exterior Elevations
A4.series	Detailed Floor Plans
A5.series	Interior Elevations
A6.series	Reflected Ceiling Plans
A7.series	Vertical Circulation, Stairs, Elevators, Escalators
A8.series	Exterior Details
A9.series	Interior Details

- **Fixtures, Furnishings and Equipment**

FF&E0.series	General Notes, Abbreviations and Symbols
FF&E1.series	Plans, Work Outside of Building
FF&E2.series	Floor Plans
FF&E3.series	Detail Plans
FF&E4.series	Details
FF&E5.series	FF&E Schedules
FF&E6.series	User Defined
FF&E7.series	User Defined
FF&E8.series	User Defined
FF&E9.series	User Defined

- **Mechanical Drawings**
  - M0.series General Notes, Abbreviations and Symbols
  - M1.series Site/Roof Plan
  - M2.series Floor Plans
  - M3.series Sections
  - M4.series Flow/Riser Diagrams
  - M5.series Details
  - M9.series Equipment Schedules
  - M10.series Building Automation and Controls
  - M11.series Instrument Loop Diagrams
  - M12.series Process Drawings

- **Plumbing Drawings**
  - P0.series General Notes, Abbreviations and Symbols
  - P1.series Site Plan
  - P2.series Floor Plans
  - P3.series Riser Diagrams
  - P4.series User Defined
  - P5.series Details

- **Fire Protection Drawings**
  - FP0.series General Notes, Abbreviations and Symbols
  - FP1.series Site Plan
  - FP2.series Floor Plans
  - FP3.series Riser Diagrams
  - FP4.series Piping Flow Diagrams
  - FP5.series Details
  - FP6.series Fire Protection Coverage Zones

- **Electrical Drawings**
  - E0.series General Notes, Abbreviations and Symbols
  - E1.series Site Plan
  - E2.series Lighting Plan
  - E3.series Power Plans
  - E4.series Grounding Plans
  - E5.series Single-Line Diagrams
  - E6.series Fixture/Panel Schedules
  - E7.series Details
  - E8.series Electrical System Controls

- **Fire Alarm System Drawing**
  - FA0.series General Notes, Abbreviations and Symbols
  - FA1.series Site Plan, Work Outside of Building
  - FA2.series Floor Plans
  - FA3.series Riser and Single-Line Diagrams
  - FA4.series Details
  - FA5.series Device Schedules
  - FA6.series Alarm Panel Schedules
  - FA7.series Fire Alarm Zone Diagrams
  - FA8.series User Defined
  - FA9.series User Defined

- **Telecommunications/Cable TV Drawings**

T0.series	Drawing Index
T1.series	General Notes, Abbreviations and Symbols
T2.series	Site/Systems Floor Plans
T3.series	Conduit Riser Diagrams
T4.series	Single Line Diagrams
T5.series	Cable and Equipment Installation Schedules
T6.series	Special Systems
T7.series	Power Requirements

- **Special Systems Drawings**
  - **Security and Access Control System**

SS0.series	General Notes, Abbreviations and Symbols
SS1.series	Site Plan, Work Outside of Building
SS2.series	Floor Plans
SS3.series	Riser and Single-line Diagrams
SS4.series	Details
SS5.series	Device Schedules
SS6.series	Panel Schedules
SS6.series	Wiring Identification Schedules
SS7.series	Wiring Identification Schedules
SS8.series	User Defined
SS9.series	User Defined

  - **MUFIDS and BIDS System**

MU0.series	General Notes, Abbreviations and Symbols
MU1.series	Site Plan, Work Outside of Building
MU2.series	Floor Plans
MU3.series	Riser and Single-line Diagrams
MU4.series	Details
MU5.series	Device Schedules
MU6.series	Panel Schedules
MU7.series	Wiring Identification Schedules
MU8.series	User Defined
MU9.series	User Defined

  - **MUSE and Airline Information Systems**

MS0.series	General Notes, Abbreviations and Symbols
MS1.series	Site Plan, Work Outside of Building
MS2.series	Floor Plans
MS3.series	Riser and Single-line Diagrams
MS4.series	Details
MS5.series	Device Schedules
MS6.series	Panel Schedules
MS7.series	Wiring Identification Schedules
MS8.series	User Defined
MS9.series	User Defined

- **Public Address System**

PA0.series	General Notes, Abbreviations and Symbols
PA1.series	Site Plan, Work Outside of Building
PA2.series	Floor Plans
PA3.series	Riser and Single-line Diagrams
PA4.series	Details
PA5.series	Device Schedules
PA6.series	Panel Schedules
PA7.series	Wiring Identification Schedules
PA8.series	User Defined
PA9.series	User Defined

- **Wireless System**

W0.series	General Notes, Abbreviations and Symbols
W1.series	Site Plan, Work Outside of Building
W2.series	Floor Plans
W3.series	Riser and Single-line Diagrams
W4.series	Details
W5.series	Device Schedules
W6.series	Panel Schedules
W7.series	Wiring Identification Schedules
W8.series	User Defined
W9.series	User Defined

- **Master Clock System**

MC0.series	General Notes, Abbreviations and Symbols
MC1.series	Site Plan, Work Outside of Building
MC2.series	Floor Plans
MC3.series	Riser and Single-line Diagrams
MC4.series	Details
MC5.series	Device Schedules
MC6.series	Panel Schedules
MC7.series	Wiring Identification Schedules
MC8.series	User Defined
MC9.series	User Defined

- **Baggage Handling System**

B0.series	General Notes, Abbreviations and Symbols
B1.series	Site Plan, Work Outside of Building
B2.series	Floor/Conveyor Plans
B3.series	Sections
B4.series	Detail Plans and Sections and Details
B5.series	Device Subsystem Layouts
B6.series	Device Schedules
B7.series	Controls Details
B8.series	Control Panel Schedules
B9.series	User Defined

- **Specialty Casework and Equipment**

CW0.series	General Notes, Abbreviations and Symbols
CW1.series	Site Plan, Work Outside of Building
CW2.series	Floor Plans
CW3.series	Details Casework Plans and Elevations
CW4.series	Details
CW5.series	Finish Schedules
CW6.series	Device Schedules
CW7.series	Electrical Device Schedules
CW8.series	Riser and Single-line Diagrams for Stub-Ups
CW9.series	User Defined

- **Graphics and Signage Systems**

G0.series	General Notes, Abbreviations and Symbols
G1.series	Site Plan, Work Outside of Building
G2.series	Floor Plans
G3.series	Detailed Sign Face Message Layouts
G4.series	Details
G5.series	Sign Message Schedules
G6.series	Sign Type Details/Substrate Schedules
G7.series	Sign Type/Substrate Schedules
G8.series	Wiring/Lighting Diagrams and Schedules
G9.series	User Defined

- **Visual Paging System**

VP0.series	General Notes, Abbreviations and Symbols
VP1.series	Site Plan, Work Outside of Building
VP2.series	Floor Plans
VP3.series	Riser and Single-line Diagrams
VP4.series	Details
VP5.series	Device Schedules
VP6.series	Panel Schedules
VP7.series	Wiring Identification Schedules
VP8.series	User Defined
VP9.series	User Defined

- **Environmental Drawings**

V0.series	General Notes, Abbreviations and Symbols
V1.series	Petroleum Contaminated Soil, Gravel & Water from Demolition Activities
V2.series	Petroleum Contaminated Soil, Gravel & Water from Utility Construction Activities
V3.series	Asbestos Containing Material (ACM)
V4.series	PCB Hazardous Materials
V5.series	Soil Stockpile Details/Details
V6.series	Other Hazardous Materials

2.13 Computer-Aided Design and Drafting (CADD) Requirements

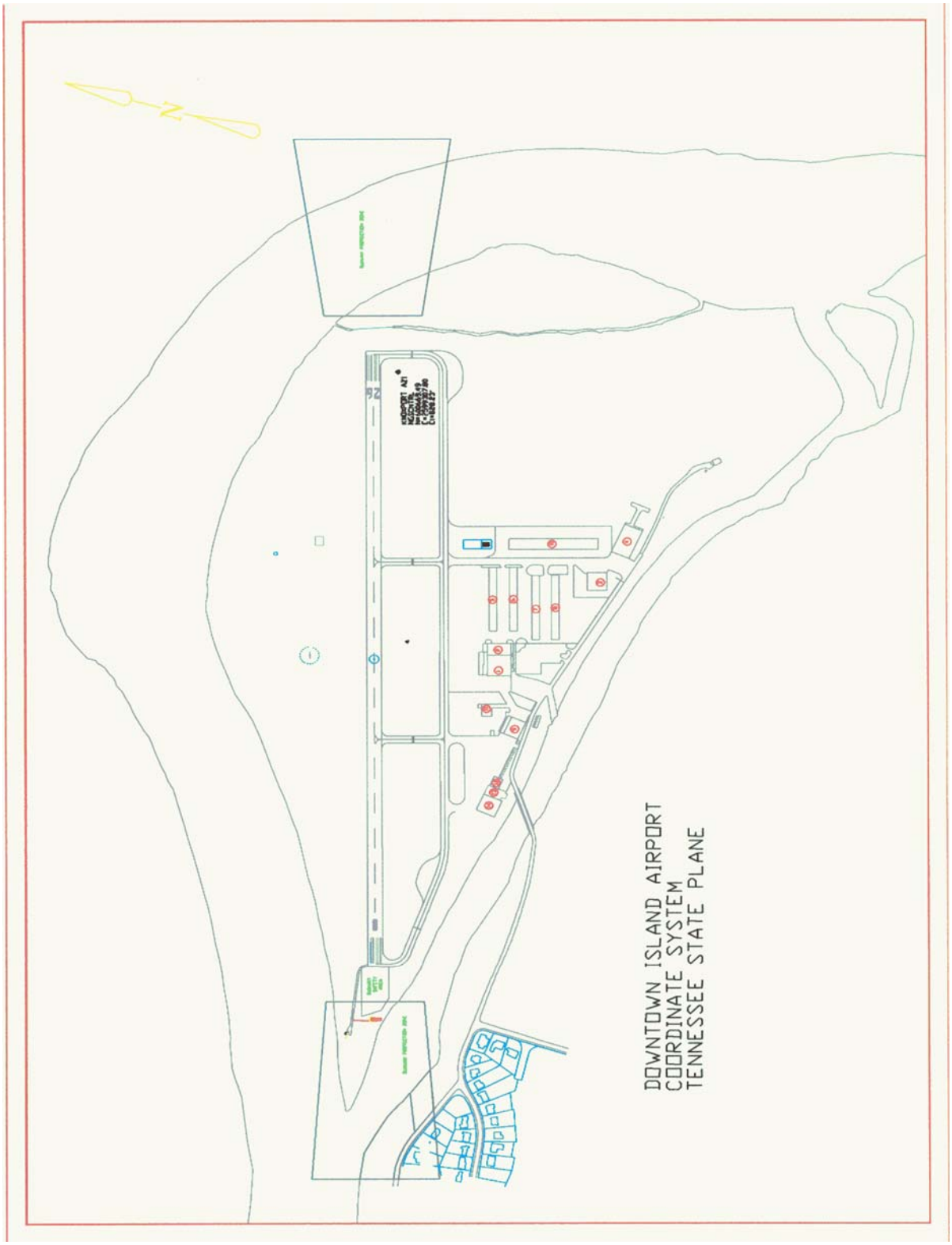
All project "as-built" submittals shall be provided in both electronic and hard copy format. The Authority permits submission in AutoCAD, Revision 14 or higher (acceptable for civil, sitework and building design for all disciplines).

For each format, the files must be "native" formats, fully functional, editable and completely useable within the respective software of creating noted above. It is not acceptable to create drawings in any other software other than noted above and files may not be translated from any other software into this format.

2.14 Survey Control System – Downtown Island Airport

A horizontal and vertical traverse control network, tied into the Tennessee State Plane Coordinate System has been established at Downtown Island Airport. The Airport Engineering Department is the Office-of-Record for the Downtown Island Airport. Information may be obtained from the Engineering Department. All design, construction and project survey work performed at Downtown Island Airport shall utilize the Tennessee State Plane Coordinate System. Refer to Section 6.0, Figure 6-1.

Figure 6-1


N
DOWNTOWN ISLAND AIRPORT
COORDINATE SYSTEM
TENNESSEE STATE PLANE

Section 3.0
Submittals and Specifications Requirements

Downtown Island Airport
Department of Engineering

3.0 Submittals and Specifications Requirements

3.1 Schematic Design Advanced -Level (20%) Submission
Submittal documents shall include those as outlined under the "Design Evaluation Matrix" in the latest revision of the Airport Design Guidelines. Refer to 3.7 Specifications Cover Color-Coding.

3.2 Design Development (40%) Submission
Submittal specifications shall include comprehensive, abbreviated methods, materials and systems descriptions coordinated with the drawings. Provide A/E annotated responses to the design review comments from the Schematic Design Submittal. Use CSI format with applicable section numbers. Include all consultant portions as well as those special and supplementary conditions specific to the project. Refer to 3.7 Specifications Cover Color-Coding.

3.3 Construction Documents (60%) Submission
Refinement of previous specifications submittal and A/E annotated responses to design review comments from the Design Development Submittal. Refer to 3.7 Specifications Cover Color-Coding.

3.4 Construction Documents (90%) Submission
Refinement of previous submittal and A/E annotated responses to design review comments from the 60% Submittal. Refer to 3.7 Specifications Cover Color-Coding.

3.5 Construction Documents (100%) Submission
Specifications shall be complete, comprehensive and fully coordinated with the working drawings, between disciplines and with the Contract and Special Provisions. All specifications must be in the Project Manual. Specifications on the working drawings are not allowed. Provide A/E annotated responses to design review comments from the 90% Submittal. Refer to 3.7 Specifications Cover Color-Coding.

3.6 Specification Requirements
The contract specifications shall be developed using the most recent edition of MasterSpec, as developed by the Professional Services Division of the American Institute of Architects (Reference Document CSI-MP-2-1). MasterSpec conforms to the section number system of MasterFormat, published by the Construction Specifications Institute (CSI). Additional specialized sections may be required for specialized equipment not found in the MasterSpec, depending upon the specific scope of the project.

Civil and utilities work within the Air Operating Area (AOA) shall utilize FAA Advisory Circulars for guidance in the development of specifications. Landside pavements, roadways and bridges shall utilize Tennessee Department of Transportation (TDOT) specifications and standards for guidance in the development of specifications.

3.7 Specifications Cover Color-Coding

Covers shall be properly titled, with project name and number and color-coded by phase as follows:

20% Submission – Green
40% Submission – Red
60% Submission – Blue
90% Submission – Yellow
100% Submission – White

Section 4.0
Cost Estimating Requirements

Downtown Island Airport
Department of Engineering

4.0 Cost Estimating Requirements

4.1 Preparation and Format

The A/E shall submit a construction cost estimate prepared by professionals experienced in construction cost estimating. The A/E shall not use the services of any company engaged in construction work for the preparation of estimates. These estimates shall be developed to the level of detail appropriate for the respective submittal. For construction document submittals, cost data shall be presented in a legible format, organized per CSI MasterFormat (most recent edition) and in correlation with section titles and numbers of the specification. The data should be in sufficient detail to allow effective control, management and progress assessment of the work. It shall include quantities, manhours, labor cost, material costs, equipment costs, service charge costs and all overhead costs and profit. All costs shall be estimated in current dollars at the assumed mid-point of construction, with no other escalation for time, and the basis of such Dollars shall be clearly stated. Color-code cover sheets same as specifications requirement 3.7.

The cost estimate shall contain at a minimum the following information:

- Estimate shall be presented in a computer spreadsheet or computer estimating system format provided with page numbers.
- Estimating methodology shall be consistent for all sections of the estimate.
- Basis for the Estimate – The estimate shall include the type of submittal, date and title of drawings and specifications.
- All assumptions and restrictions that affect the estimate shall be clearly presented.
- Detailed Estimates- Estimates shall be developed based on detailed line items of work organized by specific levels per CSI format.
- Each detailed line item shall represent a total unit direct cost/total line item direct cost and the total line item direct cost should be the sum of labor, equipment and materials. Total unit cost is the total direct cost divided by quantity.
- Prime contractor work shall include separate cost items for general conditions, mobilization, phasing, temporary construction and miscellaneous cost items.
- Exclusions – Exclusions are potential cost items not currently addressed by the submittal documents, and as such, cannot be assigned a cost or an allowance; these items may include utility relocation, contaminated soils, asbestos removal and work not yet shown or designed, etc.

- Man-hours – The estimate shall show man-hours required to perform each quantity of work estimated as applicable and the tabular listing of these hours shall be entered individually and totaled per CSI MasterFormat on the estimate summary sheets.

- CSI Level Summary – A summary shall be provided for each CSI level and each major project component with markups applied to subcontractor costs at this summary level.
- Project Summary – A Project Summary should be provided listing total costs for each level summarized, with prime contractor markups and contingency (if required) applied at the Project Summary level.

- Budget Reconciliation – The estimate shall include a comparison between the current and the previous construction cost estimate and the initial estimate shall be compared to the Authority Budget Estimate included in the SOW.

- The reconciliation shall document any major cost variations between estimates.

- Allowances and Contingencies – These factors shall be clearly identified and decline as design progresses.

For specific levels of completion and other requirements, please refer to the specific design phase submittal requirements.

Section 5.0
Design and Construction Schedule Requirements

Downtown Island Airport
Department of Engineering

5.0 Design and Construction Schedule Requirements

5.1 Preparation, Format and Updating

Normally, within 30 days of the Notice to Proceed, the A/E shall furnish the Airport with a preliminary design schedule for the execution of its services. The schedule shall include milestones for submission dates, review periods and when and what Airport-supplied data is to be furnished to the A/E. The final, agreed-upon design schedule is to be updated as part of each design review submission. Also, the A/E shall provide a projected construction schedule as required with each submission under Section 2.0.

When, during the execution of the design work, milestone dates of the design schedule appear in jeopardy, the A/E will be requested to explain the delay or potential delay and submit an alternative course of action to achieve schedule recovery. The A/E shall identify actions and/or decisions required by the Airport or others which may adversely affect the schedule. Color-code cover sheet same as specifications requirement 3.7.

Section 6.0
Detail Design Criteria

Downtown Island Airport
Department of Engineering

6.0 Detail Design Criteria

6.1 Specific Airport Design Criteria

Specific Airport design criteria has been expanded in detail where necessary to provide additional direction to Developers, Tenants and A/E's. This information has further been correlated for organization with the CSI Divisions for Specifications. All of the criteria has been touched upon in the base Airport Design Guidelines and is only expanded upon in this section of the Airport Supplemental Design Guidelines.