CHARLOTTE COUNTY AIRPORT AUTHORITY

APPENDICES A - E

FOR

SOUTH TERMINAL EXPANSION
AND
IN-LINE BAGGAGE SYSTEM
AT THE
PUNTA GORDA AIRPORT

FDOT FM No.: TBD
FAA AIP NO.: N/A

AECOM
PROJECT NO. 60665507

ISSUED FOR BID

FEBRUARY 2023

VOLUME 2 OF 2

APPENDIX A

HAZARDOUS MATERIALS

INVESTIGATION REPORT

AECOM

Punta Gorda Airport South Terminal Expansion & In-Line Baggage System Hazardous Materials Investigation Report

Project number: 60665507

October 28, 2021

Delivering a better world

Quality information

Prepared by	Checked by	Verified by	Approved by
Carlton Gordon		Luis Smith, CIH, FLAC	

Revision History

Revision	Revision date	Details	Authorized	Name	Position

Distribution List

# Hard Copies	PDF Required	Association / Company Name

Prepared for:

The Charlotte County Airport Authority
28000 A-1 Airport Road
Punta Gorda, Charlotte County, Florida

Prepared by:

AECOM
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1. Introduction

AECOM is pleased to submit this report for a hazardous material building assessment conducted for south terminal expansion at the Punta Gorda airport located at 28000 A-1 Airport Road in Punta Gorda, Florida (Site). The objective of this survey was to identify and quantify hazardous materials that may be impacted by planned renovation activities in the Snack Shack café which was located to the south of the Punta Gorda (PGD) airport terminal. The limits of the hazardous materials survey are identified on **Figure 1.**

Hazardous materials assessed included asbestos-containing materials (ACM), lead containing paint, and other hazardous material/universal wastes (e.g., fluorescent light bulbs, light ballasts, thermostats, etc.) that may require special handling and disposal if disturbed during renovation. The term HazMat encompasses a large body of regulated hazardous, non-hazardous, and universal wastes. HazMats that AECOM anticipated would be present within the site included the following:

- Mercury and other toxic metals in fluorescent, halogen, sodium-vapor, and high-intensity discharge lights; gauges and pressure meters; and thermostats and thermometers.
- Ozone-depleting substances (ODS) in heating, cooling, and refrigeration equipment.
- Polychlorinated biphenyl (PCB) or PCB-replacement chemical containing electrical, components (starters, capacitors, light ballasts).
- Stored chemicals, pesticides, solvents, paints, oils, lubricants, and compressed gasses

Sampling of ACMs and painted surfaces was also performed by AECOM; the findings of these evaluations are presented in this report. AECOM's HazMat building assessment was conducted on September 14, 2021 by Mr. Carlton Gordon, an AHERA-accredited Asbestos Building Inspectors with AECOM. Mr. Gordon's certificate number is #220085-1509, with expiration date of July 9, 2022. A copy of Mr. Gordon's accreditation certificates is provided in **Appendix A**.

1.1 Objective and Scope of Services

The objective of this investigation was to assess the presence of asbestos, lead, and other hazardous materials that may be impacted by the future renovation of the Snack Check café and adjacent storage rooms. AECOM accomplished this objective by conducting a visual evaluation and collecting bulk samples of suspected asbestos-containing building material, paint chips from painted surfaces, and gather an inventory of building contents which may contain other hazardous materials.

1.2 Site Description

The Site was Snack Shack café building and two adjacent storage rooms located south of the main terminal at the Punta Gorda Airport. The Site had an approximate area of 1,500 square feet (SF). Exterior and interior walls consisted of concrete masonry blocks and metal panels with a gypsum-type material behind. Some interior walls in administrative areas were finished with gypsum wallboard. Flooring consisted of vinyl floor tiles, carpet, and finished concrete. Ceiling consisted of various sizes of acoustic ceiling tiles.

1.3 Inaccessible Areas

The survey was limited to accessible areas only. There were doors identified at the Site that may have insulation suspected to be asbestos containing that could not be inspected due to the security of the Site. Door insulation should be assumed to contain ACM insulation until verified.

1.4 Limitations

AECOM's services were provided in accordance with generally accepted environmental science, industrial hygiene, and engineering practices at the time the work was performed. No expressed or intended representation of warranty is included or intended in our reports, except that our services were performed with the customary thoroughness and competence of our profession.

AECOM's asbestos survey was limited to readily accessible building materials that were potentially asbestos-containing, including floor tiles, acoustic ceiling tiles, gypsum wallboard, grouts, caulks, mastics, roofing materials and other materials deemed suspected asbestos-containing by the inspector. Lead testing results are applicable for the time that testing was conducted and for the condition of surfaces at the time they were tested. If questions arise regarding lead content in or on surfaces that were not tested by AECOM, then additional testing should be performed on those surfaces.

This report is based on data, site conditions and other information that is applicable as of the date of this report, and the conclusions and recommendations herein are therefore applicable only to that timeframe. The scope of services performed by AECOM may not be appropriate to satisfy the needs of other users, and any use or re-use of this document, or of the findings, conclusions or recommendations herein is at the sole risk of the user. Applicable Federal, State, and local regulations should be verified prior to work that will disturb ACMs.

This report is based on data, Site conditions and other information that is applicable as of the date of this report, and the conclusions and recommendations herein are therefore applicable only to that timeframe. The scope of services performed by AECOM may not be appropriate to satisfy the needs of other users, and any use or re-use of this document, or of the findings, conclusions or recommendations herein is at the sole risk of the user.

2. METHODOLOGY

2.1 Sampling and Assessment - Asbestos

To identify suspect ACM and presumed ACM (PACM), AECOM conducted a walk-through survey of accessible portions of the Site. AECOM performed destructive sampling where applicable to investigate concealed areas and suspect materials. AECOM's asbestos survey was performed in general accordance with the sampling protocol as outlined under AHERA (40 CFR 763). Approximate quantities of suspect materials were estimated by field measurements and/or drawing scale. These estimates are not intended to be used for bidding purposes and should be verified in the field by prospective contractors.

The condition of each suspect material was noted based on the following definitions for distributed and localized damage:

- Good condition = 1% or less damage for both distributed and localized damage
- Fair condition = >1% to 10% damage if distributed or >1% to 25% damage if localized
- Poor = >10% damage if distributed or >25% damage if localized.

The condition and friability (i.e., able to be readily crumbled, pulverized, or reduced to powder by hand pressure when dry) of suspect ACM were also noted. Friability of each sampled material was determined by hand-touch.

Those materials identified as ACMs were further classified for the purposes of the EPA NESHAP regulation Asbestos 40 CFR, Part 61 as either a Regulated Asbestos-Containing Material (RACM), Category I Non-Friable ACM (NF-I), or Category II Non-Friable ACM (NF-II).

Suspect ACMs were grouped into homogeneous sampling areas (HSA) and categorized, according to AHERA 40 CFR 763, as thermal system insulation (TSI), surfacing material, or miscellaneous material. Representative bulk samples were collected in a non-abrasive manner by carefully removing small portions of the suspect material with a sharp knife or other hand tool suitable to the material being sampled. Due care was exercised during sampling to minimize destruction of building materials, samples were collected from inconspicuous places if possible.

Each sample was placed in a re-sealable plastic bag immediately after collection for transportation to the laboratory. The sampling instrument was subsequently wiped with a clean moist cloth to decontaminate the tool, prevent the potential release of asbestos fibers, and prevent contamination of subsequent samples. Following the collection of each sample, the sample location was patched, where applicable. Samples were numbered in the order they were taken. Data pertinent to each sample (e.g., date, sample number, material description, material quantity, and material condition) was recorded on a field data sheet. AECOM developed a sampling plan, which, at a minimum, included the collection and analysis of samples as follows:

Thermal System Insulation (TSI): In a randomly distributive manner, a minimum of three (3) samples of each suspect material in each HSA (not presumed to contain asbestos) were collected. At least one (1) bulk sample from each HSA of patched TSI was collected if the patch was less than six (6) square feet (SF).

Surfacing Material (SM): In a randomly distributive manner, a minimum of three (3) samples were collected from each HSA that was 1,000 SF or less. A minimum of five (5) samples were collected from each HSA that was greater than 1,000 SF, but less than or equal to 5,000 SF. A minimum of seven (7) samples were collected from each HSA that was greater than 5,000 SF.

Miscellaneous Material (MM): Samples were collected in a randomly distributive manner as deemed sufficient by AECOM's AHERA-accredited building inspector. At least two (2) samples were collected of each suspect miscellaneous material not presumed to contain asbestos.

Non-Suspect Materials: According to 40 CFR 763-86(4), sampling is not required where an AHERA-accredited building inspector has deemed TSI or miscellaneous materials to be fiberglass, foam glass, rubber, or other non-ACM.

The asbestos bulk samples and completed chain-of-custody sheets were delivered to EMSL Analytical Inc. for analysis. This laboratory is accredited for asbestos fiber analysis through successful participation in the National Voluntary Laboratory Accreditation Program (NVLAP) for quality control procedures and meets the requirements of section 206(d) of Title II of the USC Chapter 15, TSCA as stated in 40 CFR 763 dated April 30, 1987. Each sample was analyzed using polarized light microscopy (PLM)/dispersion staining techniques, in accordance with EPA Method 600/R-93/116. The results of the analyses were reported on a percentage basis. The detection limit for this type of analysis is approximately one percent (by volume).

2.2 Sampling and Assessment – Lead - Containing Paint

A lead-containing paint inspection was conducted. Paint samples were collected from painted surfaces of various substrates and accessible areas by carefully removing portions of the suspect paint with a metal blade. Samples were collected of paint layers down to the substrate. When possible, samples were collected of loose materials or from materials with pre-existing damage. Each sample was placed in a pre-labeled plastic bag immediately after collection. Data pertinent to each sample such as date, sample number, paint description and material condition was recorded on a field data sheet. Sample bags were then placed in a large re-sealable plastic bag for transportation to the laboratory.

Samples, copies of the field data sheet, and chain-of-custody submittal sheets were delivered to EMSL Analytical, Inc., an American Industrial Hygiene Association accredited laboratory using appropriate chain of custody procedures. Each sample was analyzed for the eight metals by Inductively Coupled Plasma (ICP) and Mercury by Cold Vapor Atomic Absorption (CVAA).

2.4 HazMat Survey Methods and Protocol

A visual screening survey was performed to identify HazMats that may require removal or segregation prior to or during construction activities. The survey was performed in accessible areas of the site to develop an inventory of observed HazMats. The buildings were operational and generally un-occupied at the time of the assessment.

3. Findings

The findings of the survey are provided below.

3.1 Asbestos Sampling & Analysis

During the survey, AECOM collected 41 bulk samples from 19 homogeneous areas for asbestos analysis. Those building materials identified as ACMs are shown below. Refer to **Table 1** for the asbestos sample data. **Figures 2 and 3** illustrate homogenous areas and asbestos-containing material location. Refer to **Appendix B** for the Laboratory Analytical report. Refer to **Appendix C** for photographs of the Site.

HSA	HA E – Gray Caulk
Asbestos Content:	4% Chrysotile
Approximate Quantity	10 LF
HSA Location(s)	Exterior – Roof Access
NESHAPS Category	Non-Friable Category I
Physical Assessment	Good

HSA	HA S – Window Caulk
Asbestos Content:	4 - 5% Chrysotile
Approximate Quantity	120 LF
HSA Location(s)	Exterior – Store Front Window
NESHAPS Category	Non-Friable Category I
Physical Assessment	Good

HSA	HA T – Door Insulation
Asbestos Content:	Assumed ACM
Approximate Quantity	5 Doors
HSA Location(s)	Storage Rooms A & B, Interior doors inside Snack Shack
NESHAPS Category	Assumed ACM
Physical Assessment	Good

3.2 Lead Paint Sampling and Analysis

A total of eight paint chip samples were collected and analyzed for lead content. Lead was not identified in any of the paint chip samples collected. Refer to **Table 2** at the end of this report for the sample data. Refer to **Figure 4 for** paint chip sample location. Refer to **Appendix B** for the Laboratory Analytical report. Refer to **Appendix C** for photograph of various painted surfaces at the Site.

3.3 HazMat Survey

AECOM observed multiple potential hazardous materials that may contain mercury, PCBs, lead, and other toxic metals throughout the Site. Refer to **Table 3** for a list of potential hazardous materials. Light ballasts in fluorescent light fixtures were contained within the housing and were not readily or safely accessible without disassembly of the fixtures, which were energized during the inspection. Due to the age of the buildings, AECOM assumes the ballasts may contain PCBs. Photographs of representative hazardous materials are provided in **Appendix C**.

4. Conclusion

- The pre-renovation asbestos survey revealed the presence of the following ACMs:
    - HA E – Roof Access Caulk; good condition
    - HA S – Window Caulk at Store Front Window; good condition
    - HA T – Door insulation at storage rooms A & B and inside the Snack Shack; Assumed ACM; good condition.
- Lead-containing paint was not detected in the eight samples collected at the Site.
- Various HazMats were observed throughout the Site as described in Table 3.

5. RECOMMENDATIONS

Based on the conclusions of this survey, AECOM recommends the following:

- ACM identified in this report that will be impacted by renovation activities should be removed by a Florida licensed asbestos abatement contractor prior to being disturbed. See Section 5.1 for additional asbestos recommendations.
- Materials assumed to contain asbestos must be treated as asbestos-containing material or additional investigation should be performed to inspect and sample to confirm asbestos content.
- Universal wastes and hazardous materials and equipment having the potential to contain hazardous materials must be handled properly during construction activities or removed from the Site.

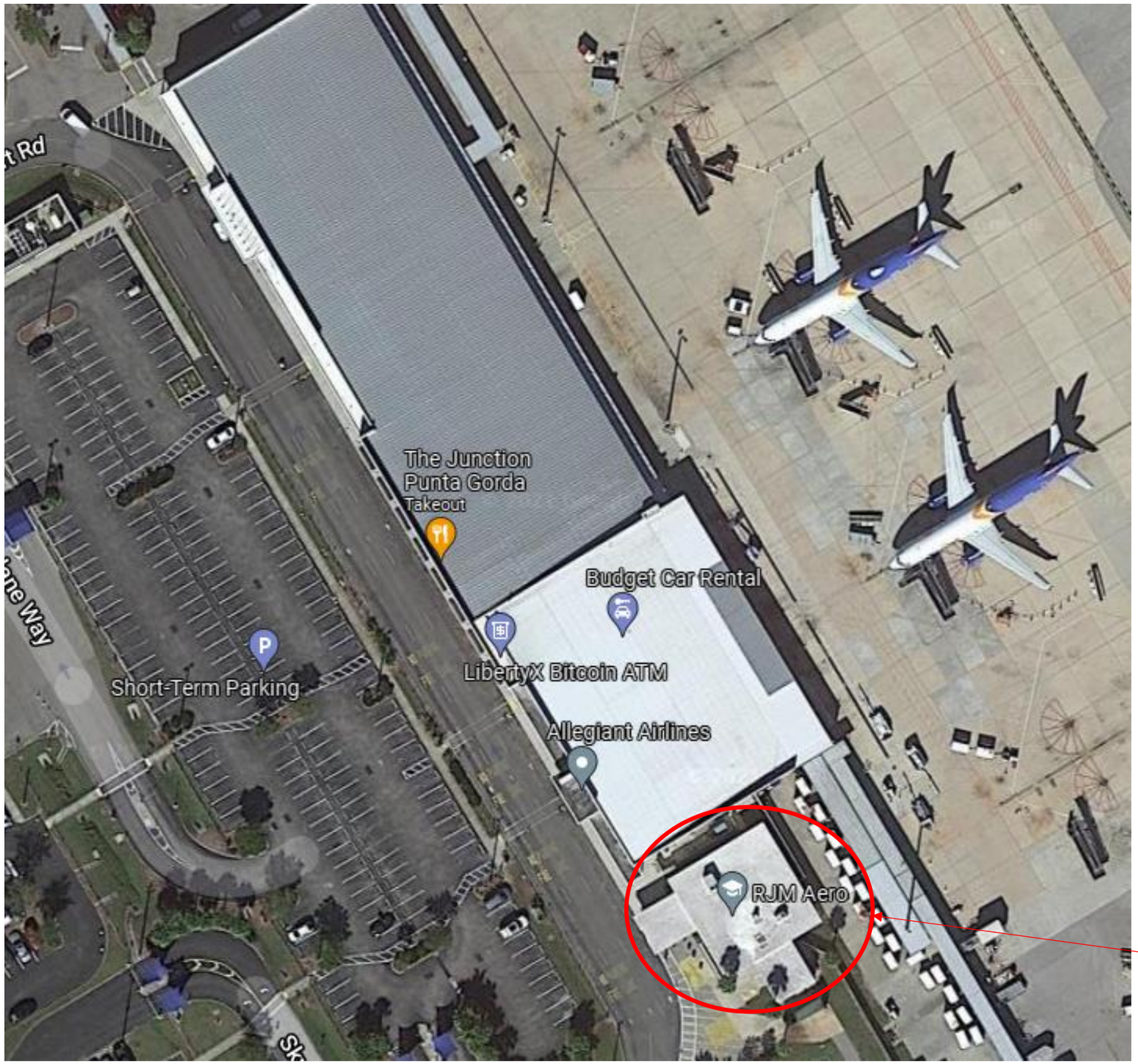
5.1 General Asbestos Recommendations

- An EPA NESHAP notification shall be submitted to the Southeast District of the Florida Department of Environmental Protection and local agency at least 10 working days prior to commencement of abatement and demolition.
- A copy of this survey report should be maintained on-site during demolition activities.
- Additional suspect ACMs may be present in inaccessible or concealed spaces that were unable to be identified during this survey. These spaces include, but are not limited to pipe chases, spaces between wall/ceiling/door cavities, interior of mechanical components such as boiler cavities, interior ducts, areas beneath the foundation, etc. If future maintenance/demolition activities make these areas accessible, AECOM recommends that a thorough assessment of these spaces be conducted at that time to identify and confirm the presence or absence of additional ACMs. Until then, any such untested suspect ACM should be treated as presumed ACM (PACM).
- Subcontractors and employees working within the structures at the site should be made aware of the locations of the ACMs and the possibility of concealed suspect ACMs that could be found during demolition activities. They should be advised not to disturb the ACMs.

6. References

1. U.S. Environmental Protection Agency (EPA): Asbestos Hazard Emergency Response Act (AHERA), 40 CFR, Part 763.
2. U.S. EPA: Asbestos School Hazard Abatement Reauthorization Act (ASHARA), U.S. Code Title 15, Chapter 53, Subchapter II-2641 through 2656.
3. U.S. Environmental Protection Agency (EPA): National Emission Standards for Hazardous Air Pollutants (NESHAP). Asbestos, 40 CFR, Part 61, November 20, 1990.
4. OSHA 29 CFR 1926.62 Lead in Construction Standard

FIGURES



LEGEND:

Survey Date: September 14, 2021

PUNTA GORDA AIRPORT

SOUTH TERMINAL EXPANSION & IN-LINE BAGGAGE SYSTEM

SITE PLAN

NORTH

FIGURE 1

FLYPGD.COM
Charlotte County Airport Authority

AECOM

NORTH

LEGEND:

NAD = NO ASBESTOS DETECTED

Survey Date: September 14, 2021

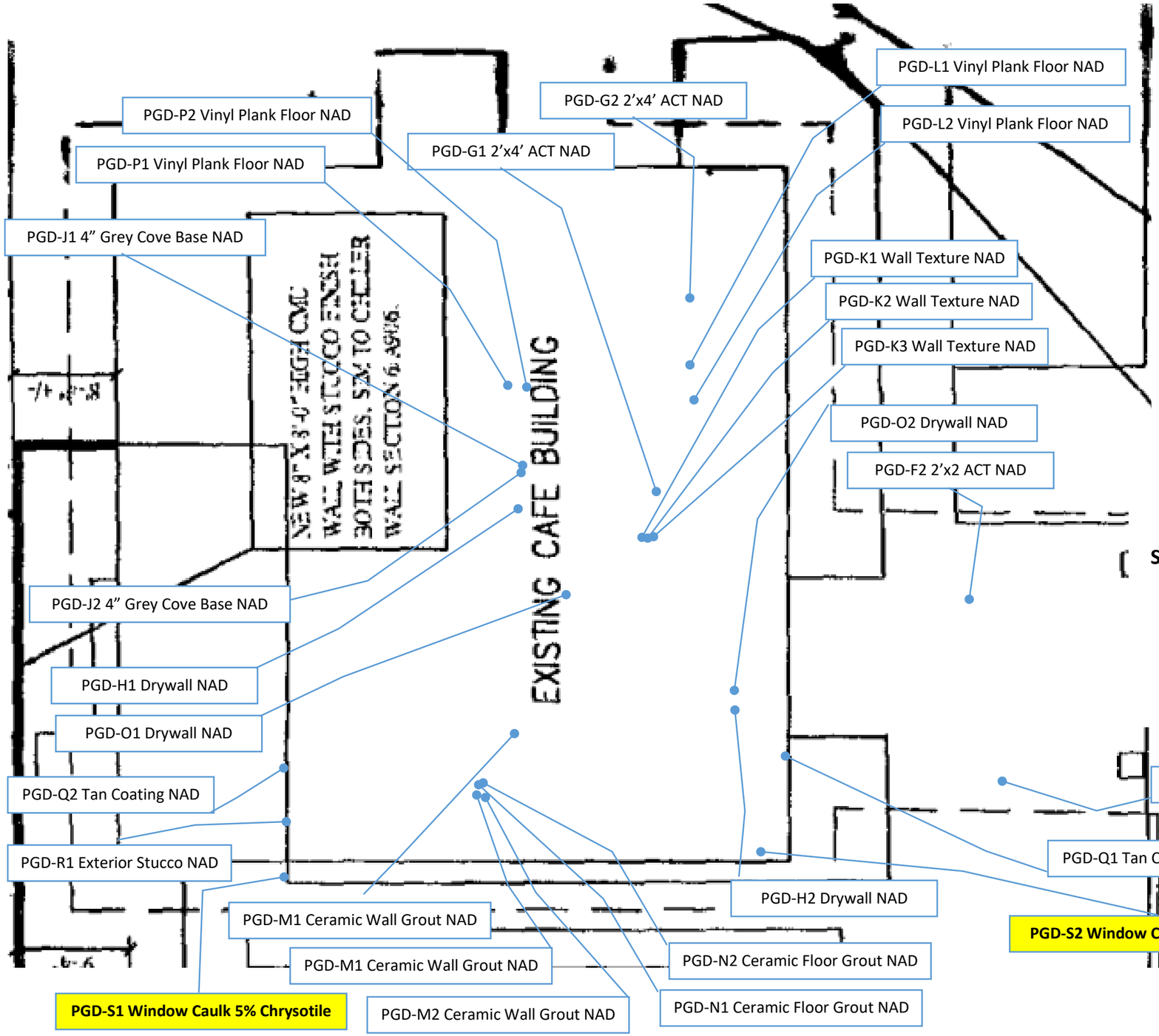
EMSL Order No.: 342115603

PUNTA GORDA AIRPORT

SOUTH TERMINAL EXPANSION & IN-LINE BAGGAGE SYSTEM

ASBESTOS SAMPLE LOCATION PLAN - ROOF

FIGURE 2



LEGEND:

NAD = NO ASBESTOS DETECTED

Survey Date: September 14, 2021

EMSL Order No.: 342115603

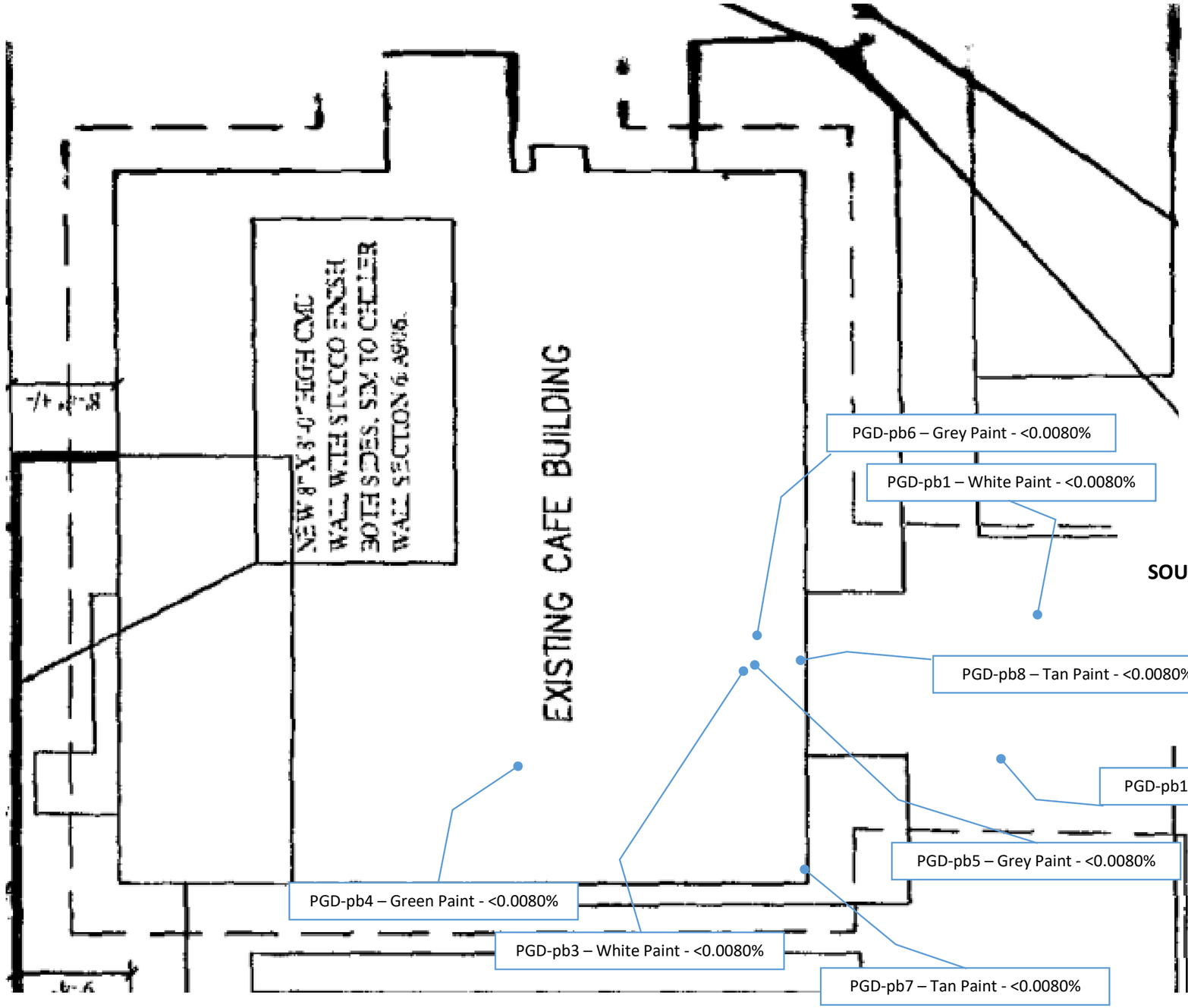
Confirmed ACM is identified in bold and highlighted

PUNTA GORDA AIRPORT

SOUTH TERMINAL EXPANSION & IN-LINE BAGGAGE SYSTEM

ASBESTOS SAMPLE LOCATION PLAN

FIGURE 3



LEGEND:

Laboratory detection limit = 0.0080%

Survey Date: September 14, 2021

EMSL Order No.: 342115555

PUNTA GORDA AIRPORT

SOUTH TERMINAL EXPANSION & IN-LINE BAGGAGE SYSTEM

LEAD PAINT CHIP SAMPLE LOCATION PLAN

FIGURE 4

TABLES

Table 1
Asbestos - Analytical Data Summary
Snack Shack and Storage Buildings A & B – Punta Gorda Airport, Punta Gorda, FL
September 14, 2021

Bulk Sample ID No.	Homogeneous Area	Type	Suspect Material Description	Location	Result
1	HA A	MM	Roofing Material (EPDM over built-up)	Storage Rooms A/B Roof	NAD
2	HA A	MM		Snack Shack Roof	
3	HA A	MM		Snack Shack Awning	
1	HA B	MM	Caulk (Grey)	Storage Rooms A/B Roof	NAD
2	HA B	MM		Snack Shack Roof	NAD
1	HA C	MM	Caulk (White)	Snack Shack Roof at North RTU	NAD
2	HA C	MM			NAD
1	HA D	MM	Caulk (White)	Snack Shack Roof at South RTU	NAD
2	HA D	MM			NAD
1	**HA E**	**MM**	**Caulk (Grey)**	**Snack Shack Roof at Roof Access**	**NAD**
2	**HA E**	**MM**			**4% Chrysotile**
1	HA F	MM	2'x2' Dot/Groove Ceiling Tiles	Storage Room B	NAD
2	HA F	MM		Storage Room A	NAD
1	HA G	MM	2'x4' Pigeon-Toed Ceiling Tiles	Snack Shack Corridor	NAD
2	HA G	MM		Snack Shack Break Room	NAD
1	HA H	MM	Drywall System	Snack Shack North Wall in Corridor	NAD
2	HA H	MM		Snack Shack South Storage Area in Kitchen	NAD
1	HA J	MM	4" Grey Cove Base with Mastic	Snack Shack Corridor	NAD
2	HA J	MM			NAD
1	HA K	SM	Wall Texture on Concrete Wall	Snack Shack Corridor	NAD
2	HA K	SM			NAD
3	HA K	SM			NAD
1	HA L	MM			NAD

Table 1
Asbestos - Analytical Data Summary
Snack Shack and Storage Buildings A & B – Punta Gorda Airport, Punta Gorda, FL
September 14, 2021

Bulk Sample ID No.	Homogeneous Area	Type	Suspect Material Description	Location	Result
2	HA L	MM	Light Beige Vinyl Plank Floor with Yellow Glue	Snack Shack Break Room	NAD
1	HA M	MM	Ceramic Wall Tile Grout	Men's Room	NAD
2	HA M	MM	Ceramic Wall Tile Grout	Ladies' Room	NAD
1	HA N	MM	Ceramic Floor Tile Grout	Men's room	NAD
2	HA N	MM		Ladies' room	NAD
1	HA O	MM	Drywall System	North Wall at Rest Room	NAD
2	HA O	MM		South at Kitchen	NAD
1	HA P	MM	Tan Vinyl Plank Floor	Snack Shack Corridor	NAD
2	HA P	MM			NAD
1	HA Q	MM	Tan Coating on Concrete	Snack Shack Exterior West	NAD
2	HA Q	MM			NAD
1	HA R	MM	Exterior Stucco	Snack Shack Exterior West	NAD
2	HA R	MM			NAD
1	**HA S**	**MM**	**Window Caulk**	**Snack Shack store front window**	**5% Chrysotile**
2	**HA S**	**MM**			**4% Chrysotile**
Assumed	**HA T**	**MM**	**Door Insulation**	**Snack Shack and Storage Room A & B**	**Assumed**

Legend:
NAD = No Asbestos Detected
MM = Miscellaneous Material
TSI = Thermal System Insulation
SM = Surfacing Material
Confirmed ACM and Assumed ACM shown in bold and yellow highlight
EMSL Lab ID: 342115603

Table 2
Lead - Analytical Data Summary
Snack Shack and Storage Buildings A & B – Punta Gorda Airport, Punta Gorda, FL
September 14, 2021

Sample ID	Sample Description & Location	Condition	Substrate	Quantity	Result (% weight)
PGD-pb1	White Paint on wall in Storage Room A/B	Good	Concrete	800 SF	<0.0080
PGD-pb2	Grey Paint on floor in Storage Room A/B	Fair	Concrete	240 SF	<0.0080
PGD-pb3	White Paint on wall in Snack Shack Kitchen	Good	Concrete	280 SF	<0.0080
PGD-pb4	Green Paint on Wall in Bathroom	Good	Drywall	720 SF	<0.0080
PGD-pb5	Grey Paint on Wall in kitchen	Good	Drywall	420 SF	<0.0080
PGD-pb6	Grey Paint on Kitchen Wall	Good	Concrete	320 SF	<0.0080
PGD-pb7	Tan Paint on Exterior Concrete Wall	Good	Concrete	2,200 SF	<0.0080
PGD-pb8	Tan Paint on Door Frame	Good	Metal	50 SF	<0.0080

Notes
EMSL Order Number: 342115555

Table 3 Other Hazardous Materials Snack Shack and Storage Buildings A & B – Punta Gorda Airport, Punta Gorda, FL September 14, 2021			
Location	**Material Description**	**Potential Hazard or Regulated Substance**	**Estimated Quantity**
Snack Shack	Fire Extinguisher	OMO	1
			1
			5
	Fire Suppression System	OMO	1
	Fluorescent Light Bulbs & Ballasts	Mercury, PCB/DEHP	1
			1
			60
	Electrical Boxes	OMO	5
	High-intensity Discharge Lamp	Mercury, lead	1
	Exit Sign	OMO, Lead battery	6
	Temperature Control Devices	Mercury	1
	Trash Compactor	Hydraulic Oil	1
	Electrical Transformer	PCBs	2

LLR = Low-Level Radiation
PCB/DEHP = Polychlorinated biphenyl or di (2-ethylhexyl) phthalate)
ODS= Ozone Depleting Substance
OMO=Other Material Observed

APPENDIX A- LICENSES, ACCREDITATION, & CERTIFICATES

Ron DeSantis, Governor

Halsey Beshears, Secretary

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT

THE ASBESTOS CONSULTANT HEREIN IS LICENSED UNDER THE
PROVISIONS OF CHAPTER 469, FLORIDA STATUTES

SMITH, LUIS EDUARDO

URS CORPORATION
5751-F COACH HOUSE CIRCLE
BOCA RATON FL 33486

LICENSE NUMBER: AX53

EXPIRATION DATE: NOVEMBER 30, 2022

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Ron DeSantis, Governor

Halsey Beshears, Secretary

STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

ASBESTOS LICENSING UNIT

THE ASBESTOS BUSINESS ORGANIZATION HEREIN IS LICENSED UNDER THE PROVISIONS OF CHAPTER 469, FLORIDA STATUTES

URS CORPORATION

LUIS SMITH
7800 CONGRESS AVENUE SUITE 200
BOCA RATON FL 33487

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EXPIRATION DATE: NOVEMBER 30, 2021

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UF | TREEO Center
UNIVERSITY of FLORIDA

Center for Training, Research and Education for Environmental Occupations

certifies

Carlton L. Gordon

URS - AECOM, 2090 Palm Beach Lakes Blvd. Ste. 600 West Palm Beach, FL 33409

Having passed a 25-question exam with a score of 70% or higher has successfully met training requirements for

Asbestos Refresher: Inspector Online

FDBPR Asbestos Licensing Unit: Provider #0000995; Course #FL49-0006389 (½ Day; 3.40 Contact Hours)

(Reaccreditation for Inspector under TSCA Title II/AHERA)

Conducted

07/09/2021

Certificate #: 220085-1509
***Exam Date:* 07/09/2021**
***EPA accreditation expires:* 07/09/2022**
Principal Instructor: Brian Duchene, PE, LAC
CEUs: 0.4
FBPR LAC: #0000995; Course ## 0006389
FBPE CEHs: #0004021; Course #0009083/Educational Institutions: 4 CEHs

Andrew Campbell, Director

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101151-0

EMSL Analytical, Inc.

Orlando, FL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2021-08-23 through 2022-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

3303 Parkway Center Ct Orlando, FL 32808-1040

Laboratory ID: LAP-163563

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

☑	**INDUSTRIAL HYGIENE**	Accreditation Expires: February 01, 2022
☑	**ENVIRONMENTAL LEAD**	Accreditation Expires: February 01, 2022
☑	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: February 01, 2022
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Beth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 17: 09/11/2018

Date Issued: 01/31/2020

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EMSL Analytical, Inc.
3303 Parkway Center Court
Orlando, FL 32808
Jessicka Lopez
Phone: 407-599-5887 X3464
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http://www.emsl.com

ASBESTOS FIBER ANALYSIS — NVLAP LAB CODE 101151-0

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

APPENDIX B - LABORATORY ANALYTICAL REPORTS

EMSL Analytical, Inc.

3303 PARKWAY CENTER COURT Orlando, FL 32808

Tel/Fax: (407) 599-5887 / (407) 599-9063

http://www.EMSL.com / orlandolab@emsl.com

EMSL Order:	342115603
Customer ID:	DAME69
Customer PO:	60665507
Project ID:	

Attention:	Carlton Gordon AECOM 110 East Broward Boulevard, Suite 700 Fort Lauderdale, FL 33301	**Phone:**	(561) 212-3734
		Fax:	(561) 994-6524
		Received Date:	09/16/2021 10:15 AM
		Analysis Date:	09/17/2021 - 09/18/2021
		Collected Date:	
Project:	60665507 - Snack Shack		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
PGD-A-1-Shingle *342115603-0001*	Storage Rm A/B - Roof - Roofing Material (EPDM Over Built-Up)	Gray/Black Fibrous Homogeneous	10% Synthetic 5% Glass	85% Non-fibrous (Other)	None Detected
PGD-A-1-Cap Sheet *342115603-0001A*	Storage Rm A/B - Roof - Roofing Material (EPDM Over Built-Up)	White Fibrous Homogeneous	20% Synthetic	80% Non-fibrous (Other)	None Detected
PGD-A-1-Foam *342115603-0001B*	Storage Rm A/B - Roof - Roofing Material (EPDM Over Built-Up)	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-A-1-Tar *342115603-0001C*	Storage Rm A/B - Roof - Roofing Material (EPDM Over Built-Up)	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-A-1-Sheetrock *342115603-0001D*	Storage Rm A/B - Roof - Roofing Material (EPDM Over Built-Up)	Tan Non-Fibrous Homogeneous		30% Mica 70% Non-fibrous (Other)	None Detected
PGD-A-2-Shingle *342115603-0002*	Snack Shack - Roof - Roofing Material (EPDM Over Built-Up)	Black Fibrous Homogeneous	12% Synthetic 10% Glass	78% Non-fibrous (Other)	None Detected
PGD-A-2-Cap Sheet *342115603-0002A*	Snack Shack - Roof - Roofing Material (EPDM Over Built-Up)	White/Green Fibrous Homogeneous	20% Synthetic	80% Non-fibrous (Other)	None Detected
PGD-A-2-Foam *342115603-0002B*	Snack Shack - Roof - Roofing Material (EPDM Over Built-Up)	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-A-2-Sheetrock *342115603-0002C*	Snack Shack - Roof - Roofing Material (EPDM Over Built-Up)	Tan Non-Fibrous Homogeneous		30% Mica 70% Non-fibrous (Other)	None Detected
PGD-A-3-Shingle *342115603-0003*	Snack Shack Awning Roof - Roofing Material (EPDM Over Built-Up)	Black Fibrous Homogeneous	15% Synthetic	85% Non-fibrous (Other)	None Detected
PGD-A-3-Cap Sheet *342115603-0003A*	Snack Shack Awning Roof - Roofing Material (EPDM Over Built-Up)	White Non-Fibrous Homogeneous	15% Synthetic	85% Non-fibrous (Other)	None Detected
PGD-A-3-Foam *342115603-0003B*	Snack Shack Awning Roof - Roofing Material (EPDM Over Built-Up)	Blue Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-A-3-Sheetrock *342115603-0003C*	Snack Shack Awning Roof - Roofing Material (EPDM Over Built-Up)	Tan/White Non-Fibrous Homogeneous		30% Mica 70% Non-fibrous (Other)	None Detected

Initial report from: 09/20/2021 09:50:16

EMSL Analytical, Inc.
3303 PARKWAY CENTER COURT Orlando, FL 32808
Tel/Fax: (407) 599-5887 / (407) 599-9063
http://www.EMSL.com / orlandolab@emsl.com

EMSL Order:	342115603
Customer ID:	DAME69
Customer PO:	60665507
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
PGD-B-1 *342115603-0004*	Storage Rm A/B - Roof - Grey Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-B-2 *342115603-0005*	Snack Shack Roof - Grey Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-C-1 *342115603-0006*	Snack Shack Roof - N RTU - White Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-C-2 *342115603-0007*	Snack Shack Roof - N RTU - White Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-D-1 *342115603-0008*	Snack Shack Roof - S RTU - White Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-D-2 *342115603-0009*	Snack Shack Roof - S RTU - White Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-E-1 *342115603-0010*	Snack Shack Roof Access - Grey Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-E-2-Caulk *342115603-0011*	Snack Shack Roof Access - Grey Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-E-2-Mastic *342115603-0011A*	Snack Shack Roof Access - Grey Caulk	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
PGD-F-1 *342115603-0012*	Storage Room B - 2'x2' Dot/Groove Clg. Tiles	Tan/White Fibrous Heterogeneous	40% Cellulose 30% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
PGD-F-2 *342115603-0013*	Storage Room A - 2'x2' Dot/Groove Clg. Tiles	Tan/White Fibrous Heterogeneous	40% Cellulose 30% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
PGD-G-1 *342115603-0014*	Snack Shack - Corridor - 2'x4' Pigeon-Toed Clg Tiles	Tan/White Fibrous Heterogeneous	40% Cellulose 30% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
PGD-G-2 *342115603-0015*	Snack Shack - Break Area - 2'x4' Pigeon-Toed Clg Tiles	Tan/White Fibrous Heterogeneous	40% Cellulose 30% Min. Wool	20% Perlite 10% Non-fibrous (Other)	None Detected
PGD-H-1-Drywall *342115603-0016*	Snack Shack - N. Wall @ Corridor - Drywall System	Gray Fibrous Heterogeneous	10% Cellulose	65% Gypsum 25% Non-fibrous (Other)	None Detected
PGD-H-1-Joint Compound *342115603-0016A*	Snack Shack - N. Wall @ Corridor - Drywall System	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
PGD-H-2-Drywall *342115603-0017*	Snack Shack - S. Storage @ Kitchen - Drywall System	Gray Fibrous Heterogeneous	10% Cellulose	65% Gypsum 25% Non-fibrous (Other)	None Detected
PGD-H-2-Joint Compound *342115603-0017A*	Snack Shack - S. Storage @ Kitchen - Drywall System	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-I-1 *342115603-0018*	Snack Shack - Kitchen Storage - Ceiling Texture	Tan/White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected

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http://www.EMSL.com / orlandolab@emsl.com

EMSL Order: 342115603
Customer ID: DAME69
Customer PO: 60665507
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
PGD-I-2 *342115603-0019*	Snack Shack - Kitchen Storage - Ceiling Texture	Tan/White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
PGD-I-3 *342115603-0020*	Snack Shack - Kitchen Storage - Ceiling Texture	Tan/White Non-Fibrous Homogeneous		10% Ca Carbonate 90% Non-fibrous (Other)	None Detected
PGD-J-1-Cove Base *342115603-0021*	Snack Shack - Corridor - Grey 4" Cove Base w/Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-J-1-Mastic *342115603-0021A*	Snack Shack - Corridor - Grey 4" Cove Base w/Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-J-2-Cove Base *342115603-0022*	Snack Shack - Corridor - Grey 4" Cove Base w/Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-J-2-Mastic *342115603-0022A*	Snack Shack - Corridor - Grey 4" Cove Base w/Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-K-1 *342115603-0023*	Snack Shack - Corridor - Conc. Wall Texture	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
PGD-K-2 *342115603-0024*	Snack Shack - Corridor - Conc. Wall Texture	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
PGD-K-3 *342115603-0025*	Snack Shack - Corridor - Conc. Wall Texture	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
PGD-L-1-Floor Tile *342115603-0026*	Snack Shack Break Area - Light Beige Vinyl Plank Floor	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-L-1-Mastic *342115603-0026A*	Snack Shack Break Area - Light Beige Vinyl Plank Floor	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-L-2-Floor Tile *342115603-0027*	Snack Shack Break Area - Light Beige Vinyl Plank Floor	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-L-2-Mastic *342115603-0027A*	Snack Shack Break Area - Light Beige Vinyl Plank Floor	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-M-1 *342115603-0028*	Snack Shack - Men's Rm - Ceramic Wall Grout	White Non-Fibrous Homogeneous	5% Wollastonite	15% Ca Carbonate 80% Non-fibrous (Other)	None Detected
PGD-M-2 *342115603-0029*	Snack Shack - Ladies' Rm - Ceramic Wall Grout	White Non-Fibrous Homogeneous	3% Wollastonite	15% Ca Carbonate 82% Non-fibrous (Other)	None Detected
PGD-N-1 *342115603-0030*	Snack Shack - Men's Rm - Ceramic Floor Grout	Tan Non-Fibrous Homogeneous		30% Quartz 15% Ca Carbonate 55% Non-fibrous (Other)	None Detected
PGD-N-2 *342115603-0031*	Snack Shack - Ladies' Rm - Ceramic Floor Grout	Tan Non-Fibrous Homogeneous		30% Quartz 15% Ca Carbonate 55% Non-fibrous (Other)	None Detected
PGD-O-1-Drywall *342115603-0032*	Snack Shack - North Wall @ Restroom - Drywall System	Gray Fibrous Heterogeneous	10% Cellulose	65% Gypsum 25% Non-fibrous (Other)	None Detected
PGD-O-1-Joint Compound *342115603-0032A*	Snack Shack - North Wall @ Restroom - Drywall System	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected

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EMSL Order:	342115603
Customer ID:	DAME69
Customer PO:	60665507
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
PGD-O-2-Drywall *342115603-0033*	Snack Shack - South @ Kitchen Storage - Drywall System	Brown/White Fibrous Heterogeneous	10% Cellulose <1% Glass	65% Gypsum 25% Non-fibrous (Other)	None Detected
PGD-O-2-Joint Compound *342115603-0033A*	Snack Shack - South @ Kitchen Storage - Drywall System	White Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
PGD-P-1-Floor Tile *342115603-0034*	Snack Shack - Corridor - Tan Vinyl Plank Floor	Gray/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-P-1-Mastic *342115603-0034A*	Snack Shack - Corridor - Tan Vinyl Plank Floor	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-P-2-Floor Tile *342115603-0035*	Snack Shack - Corridor - Tan Vinyl Plank Floor	Gray/Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-P-2-Mastic *342115603-0035A*	Snack Shack - Corridor - Tan Vinyl Plank Floor	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
PGD-Q-1 *342115603-0036*	Snack Shack - Exterior - W - Tan Coating On Concrete	Tan Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
PGD-Q-2 *342115603-0037*	Snack Shack - Exterior - W - Tan Coating On Concrete	Tan Non-Fibrous Homogeneous		15% Ca Carbonate 85% Non-fibrous (Other)	None Detected
PGD-R-1-Skim Coat *342115603-0038*	Snack Shack - West Ext. - Exterior Stucco	White Non-Fibrous Homogeneous		30% Quartz 15% Ca Carbonate 55% Non-fibrous (Other)	None Detected
PGD-R-1-Base Coat *342115603-0038A*	Snack Shack - West Ext. - Exterior Stucco	Gray Non-Fibrous Homogeneous		30% Quartz 15% Ca Carbonate 55% Non-fibrous (Other)	None Detected
PGD-R-2-Skim Coat *342115603-0039*	Snack Shack - West Ext. - Exterior Stucco	White Non-Fibrous Homogeneous		30% Quartz 15% Ca Carbonate 55% Non-fibrous (Other)	None Detected
PGD-R-2-Base Coat *342115603-0039A*	Snack Shack - West Ext. - Exterior Stucco	Gray Non-Fibrous Homogeneous		30% Quartz 15% Ca Carbonate 55% Non-fibrous (Other)	None Detected
PGD-S-1 *342115603-0040*	Snack Shack - North Store Front - Window Caulk	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
PGD-S-2 *342115603-0041*	Snack Shack - North Store Front - Window Caulk	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile

Initial report from: 09/20/2021 09:50:16

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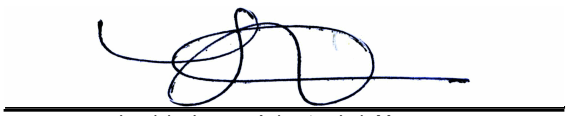
EMSL Order:	342115603
Customer ID:	DAME69
Customer PO:	60665507
Project ID:	

Analyst(s)

Jhon Rosario (35)
Jason Stuhr (29)



Jessicka Lopez, Asbestos Lab Manager
or Other Approved Signatory

Initial report from: 09/20/2021 09:50:16

OrderID: 342115603

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Asbestos Bulk Building Materials - Chain of Custody

EMSL Order Number / Lab Use Only: 342115603

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: (800) 220-3675
EMAIL: CinnAsblab@EMSL.com

Customer Information		Billing Information	
Customer ID:	DAME69	Billing ID:	
Company Name:	AECOM	Company Name:	
Contact Name:	Carlton Gordon	Billing Contact:	AECOM
Street Address:	110 E. Broward Blvd	Street Address:	
City, State, Zip:	Ft. Lauderdale FL	Country:	City, State, Zip: / Country:
Phone:	561-212-3734		Phone:
Email(s) for Report:	Carlton.Gordon@AECOM.com		Email(s) for Invoice:

Project Information

Project Name/No:	60665507 - Snack Shack	Purchase Order:	60665507
EMSL LIMS Project ID: (If applicable, EMSL will provide)		US State where samples collected:	FL
State of Connecticut (CT) must select project location.	☐ Commercial (Taxable) ☐ Residential (Non-Taxable)		
Sampled By Name:	C Gordon	Sampled By Signature:	
Date Sampled:		No. of Samples in Shipment	4/1

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☒ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. *32 Hour TAT available for select tests only; samples must be submitted by 11.30am.

Test Selection

PLM - Bulk (reporting limit)

- ☒ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☐ POINT COUNT
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NYS 198.1 (Friable - NY)
- ☐ NYS 198.6 NOB (Non-Friable - NY)
- ☐ NYS 198.8 (Vermiculite SM-V)

TEM - Bulk

- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (Non-Friable - NY)
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Tests (please specify)

☐ Positive Stop - Clearly Identified Homogeneous Areas (HA)

Sample Number	HA Number	Sample Location	Material Description
PGD-A-1	A	Storage Rm A/B - Roof	Roofing Material
- A-2	A	Snack Shack - Roof	(EPDM over built-up)
- A-3	A	Snack Shack Awning Roof	" "
- B-1	B	Storage Rm A/B - Roof	Grey Caulk
- B-2	B	Snack Shack Roof	" "
- C-1	C	Snack Shack Roof - N RTU	White Caulk
- C-2	C	" " "	" "
- D-1	D	Snack Shack Roof - S RTU	White Caulk
- D-2	D	" " "	" "
- E-1	E	Snack Shack Roof Access	Grey Caulk

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time: SEP 16 2021 10:15
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - Asbestos Bulk R7 9/14/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

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Asbestos Bulk Building Materials - Chain of Custody

EMSL Order Number / Lab Use Only

342115603

EMSL Analytical, Inc.
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Cinnaminson, NJ 08077

PHONE. (800) 220-3675
EMAIL: CinnAsblab@EMSL.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	HA Number	Sample Location	Material Description
PGD-E-2	E	Snack Shack Roof Access	Grey Caulk
F-1	F	Storage Room B	2'x2' dot/groove
F-2	F	Storage Room A	" Clg. Tiles
G-1	G	Snack Shack - Corridor	2'x4' pigeon-toed Clg
G-2	G	" " - Break Area	" " Tiles
H-1	H	Snack Shack - N. Wall @ Corridor	Drywall System
H-2	H	" " - S. Storage @ Kitchen	" "
I-1	I	Snack Shack - Kitchen Storage	Ceiling Texture
I-2	I	↓ ↓ " "	" "
I-3	I	↓ ↓ " "	" "
J-1	J	Snack Shack - Corridor	Grey 4" Cove Base w/Mastic
J-2	J	" "	" "
K-1	K	Snack Shack Corridor	Conc. Wall Texture
K-2	K	↓ ↓	" "
K-3	K	↓ ↓	" "
L-1	L	Snack Shack Break Area	Light Beige Vinyl Plank
L-2	L	" "	" Floor
M-1	M	Snack Shack - Men's Rm	Ceramic Wall Grout
M-2	M	" " - Ladies' Rm	" "
N-1	N	Snack Shack - Men's Rm	Ceramic Floor Grout
N-2	N	" " Ladies' Rm	" "
O-1	O	Snack Shack - North Wall @ Restroom	Drywall System
O-2	O	" " - South @ Kitchen Storage	" "
P-1	P	Snack Shack - Corridor	Tan Vinyl Plank Floor
P-2	P	" "	" "

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - Asbestos Bulk R7 09/14/2021

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Asbestos Bulk Building Materials - Chain of Custody

EMSL Order Number / Lab Use Only

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PHONE: (800) 220-3675
EMAIL: CinnAslab@EMSL.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	HA Number	Sample Location	Material Description
PGD-Q-1	Q	Snack Shack - Exterior - W	Tan Coating on
-Q-2	Q	" "	" Concrete
-R-1	R	Snack Shack - West Ext.	Exterior Stucco
-R-2	R	" "	" "
-S-1	S	Snack Shack - North Store Front	Store Front Window
-S-2	S	" "	caulk

CG

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time: 9/5/21	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - Asbestos Bulk R7 09/14/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

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3303 PARKWAY CENTER COURT, Orlando, FL 32808
Phone/Fax: (407) 599-5887 / (407) 599-9063
http://www.EMSL.com orlandolab@emsl.com

EMSL Order:	342115555
CustomerID:	DAME69
CustomerPO:	60665507
ProjectID:	

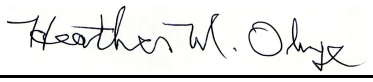
Attn: **Carlton Gordon**
AECOM
110 East Broward Boulevard, Suite 700
Fort Lauderdale, FL 33301

Phone:	(561) 862-1046
Fax:	(561) 994-6524
Received:	9/16/2021 10:15 AM
Collected:	9/14/2021

Project: **60665507**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client Sample Description	*Lab ID*	*Collected*	*Analyzed*	*Weight*	*Lead* ***Concentration***
PGD-pb1	*342115555-0001*	9/14/2021	9/17/2021	0.2749 g	<0.0080 % wt
	Site: Storage Rm A/B-White On Conrete Wall				
PGD-pb2	*342115555-0002*	9/14/2021	9/17/2021	0.2812 g	<0.0080 % wt
	Site: Storage Rm A/B-Gray On Conc. Floor				
PGD-pb3	*342115555-0003*	9/14/2021	9/17/2021	0.2511 g	<0.0080 % wt
	Site: Snack Shack-While On Kitchen Wall				
PGD-pb4	*342115555-0004*	9/14/2021	9/17/2021	0.2585 g	<0.0080 % wt
	Site: Snack Shack-Green On Drywall Bathroom				
PGD-pb5	*342115555-0005*	9/14/2021	9/17/2021	0.2793 g	<0.0080 % wt
	Site: Snack Shack-Grey On Drywall Kitchen				
PGD-pb6	*342115555-0006*	9/14/2021	9/17/2021	0.2739 g	<0.0080 % wt
	Site: Snack Shack-Grey On Kitchen Conc Wall				
PGD-pb7	*342115555-0007*	9/14/2021	9/17/2021	0.2553 g	<0.0080 % wt
	Site: Snack Shack-Tan On Ext Conc. Wall				
PGD-pb8	*342115555-0008*	9/14/2021	9/17/2021	0.2761 g	<0.0080 % wt
	Site: Snack Shack-Tan On Door/Frame				



Heather Ohye, Metals Manager
or other approved signatory

Initial report from 09/17/2021 17:13:03

OrderID: 342115555

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Lead Chain of Custody

EMSL Order Number / Lab Use Only: 342115555

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: (800) 220-3675
EMAIL: CinnaminsonLeadLab@emsl.com

V

Customer Information		Billing Information	
Customer ID:	DAME 69	Billing ID:	
Company Name:	AECOM	Company Name:	
Contact Name:	Carlton Gordon	Billing Contact:	AECOM
Street Address:	110 E Broward Blvd	Street Address:	
City, State, Zip:	Ft. Lauderdale FL	City, State, Zip:	
Country:		Country:	
Phone:	561-212-3734	Phone:	
Email(s) for Report:	Carlton.Gordon@AECOM.com	Email(s) for Invoice:	

Project Information

Project Name/No:	60665507 60665507	Purchase Order:	60665507
EMSL LIMS Project ID. (If applicable, EMSL will provide)		US State where samples collected:	FL
State of Connecticut (CT) must select project location:	☐ Commercial (Taxable) ☐ Residential (Non-Taxable)		
Sampled By Name:	CARLTON GORDON	Sampled By Signature:	
No. of Samples in Shipment	8		

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☒ 48 Hour ☐ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. *32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

MATRIX	METHOD	INSTRUMENT	REPORTING LIMIT	SELECTION
CHIPS ☒ % by wt. ☐ ppm (mg/kg) ☐ mg/cm²	SW 846-7000B	Flame Atomic Absorption	0.008% (80ppm)	☑
*Reporting Limit based on a minimum 0.25g sample weight	SW 846-6010D*	ICP-OES	0.0004% (4ppm)	☐
AIR	NIOSH 7082	Flame Atomic Absorption	4µg/filter	☐
	NIOSH 7300M / NIOSH 7303M	ICP-OES	0.5µg/filter	☐
	NIOSH 7300M / NIOSH 7303M	ICP-MS	0.05µg/filter	☐
WIPE ☐ ASTM ☐ NON-ASTM	SW 846-7000B	Flame Atomic Absorption	10µg/wipe	☐
*If no box is checked, non-ASTM Wipe is assumed	SW 846-6010D*	ICP-OES	1.0µg/wipe	☐
TCLP	SW 846-1311 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW 846-1311 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	☐
SPLP	SW 846-1312 / 7000B / SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW 846-1312 / SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	☐
TTLC	22 CCR App. II, 7000B	Flame Atomic Absorption	40mg/kg (ppm)	☐
	22 CCR App. II, SW 846-6010D*	ICP-OES	2mg/kg (ppm)	☐
STLC	22 CCR App. II, 7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	22 CCR App. II, SW 846-6010D*	ICP-OES	0.1 mg/L (ppm)	☐
Soil	SW 846-7000B	Flame Atomic Absorption	40mg/kg (ppm)	☐
	SW 846-6010D*	ICP-OES	2mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO3 ☐ PH<2	SM 3111B / SW 846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO3 ☐ PH<2	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	☐
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	☐
Other:				☐

Sample Number	Sample Location	Volume / Area	Date / Time Sampled
PGD-pb1	Storage Rm A/B - White on Concrete wall	2 in²	9-15-21
pb2	↓ - Gray on Conc. Floor	2 in²	
pb3	Snack Shack - White on Kitchen Wall	2 in²	
pb4	" " - Green on Drywall Bathroom	2 in²	
pb5	" " - Gray on Drywall Kitchen	2 in²	

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time: 9/15/21	Received by: 10:15	Date/Time: SEP 16 2021
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-25 Lead R16 4/19/2021

*6010C Available Upon Request

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

Page 1 of 2

OrderID: 342115555

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Lead Chain of Custody

EMSL Order Number / Lab Use Only

342115555

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077

PHONE: (800) 220-3675
EMAIL: CinnaminsonLeadLab@emsl.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Sample Number	Sample Location	Volume / Area	Date / Time Sampled
PGD-pb6	Snack Shack - Greg on Kitchen Conc Wall	2 in²	9-14-21
↓ pb7	" " - Tan on Ext Conc. Wall	2 in²	↓
↓ pb8	" " - Tan on Door/Frame	2 in²	

CG

Method of Shipment: Fed Ex		Sample Condition Upon Receipt:	
Relinquished by: @	Date/Time: 9-15-21	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - COC-25 Lead R16 4/19/2021

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APPENDIX C - PHOTOGRAPHS

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY	Location:	Punta Gorda Airport, Punta Gorda, Florida

Photo: 1	Date: 9/14/2021

Description:

Snack Shack and Storage Rooms A & B

Photo: 2	Date: 9/14/2021

Description:

Snack Shack

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY		Location:	Punta Gorda Airport, Punta Gorda, Florida
Photo: 3	Date: 9/14/2021		
Description: Snack Shack roof.			
Photo: 4	Date: 9/14/2021		
Description: Roof sample collected. Roof composition is EPDM over rolled-on roof on top of metal deck			

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY	Location:	Punta Gorda Airport, Punta Gorda, Florida

Photo: 5	Date: 9/14/2021

Description:

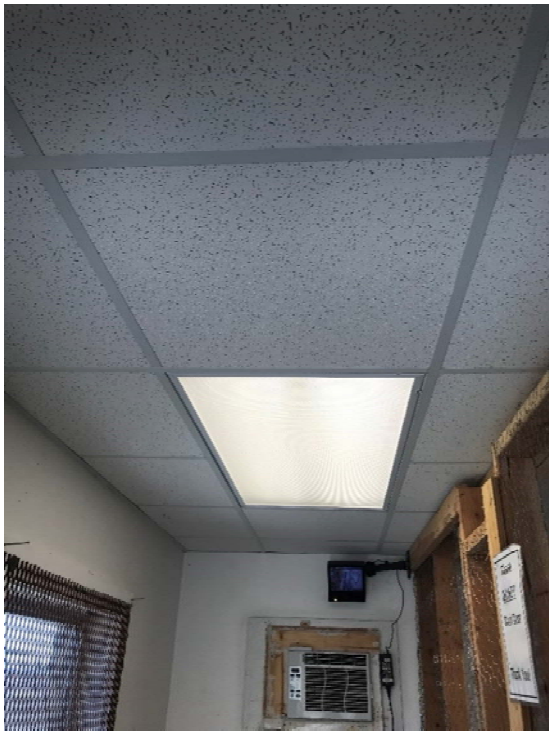
Caulking on electrical conduit on roof.

Photo: 5	Date: 9/14/2021

Description:

Caulk around roof-top unit.

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY		Location:	Punta Gorda Airport, Punta Gorda, Florida
Photo: 7	Date: 9/14/2021		
Description: Fire extinguisher inside Storage Room A			
Photo: 8	Date: 9/14/2021		
Description: Acoustic ceiling tile with fluorescent light fixture inside Storage Room B			

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY	Location:	Punta Gorda Airport, Punta Gorda, Florida

Photo: 9	Date: 9/14/2021

Description:

Electrical transformer located south of storage rooms

Photo: 10	Date: 9/14/2021

Description:

Electrical transformer located south of storage rooms

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY	Location:	Punta Gorda Airport, Punta Gorda, Florida

Photo: 11	Date: 9/14/2021

Description:

Garbage compactor located south of storage rooms

Photo: 12	Date: 9/14/2021

Description:

Fire extinguisher located inside Snack Shack.

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY	Location:	Punta Gorda Airport, Punta Gorda, Florida

Photo: 13	Date: 9/14/2021

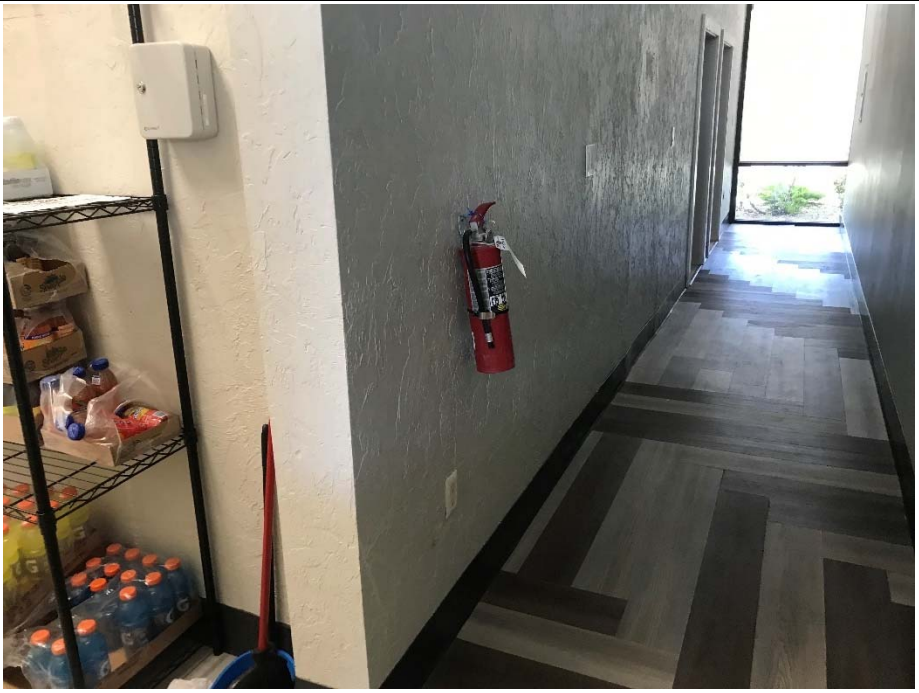
Description:

Snack Shack dining area with 2'x4' ACTs, fluorescent light fixtures, and battery-operated exit signs.

Photo: 14	Date: 9/14/2021

Description:

Snack Shack break room with fire extinguisher



AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY	Location:	Punta Gorda Airport, Punta Gorda, Florida

Photo: 15	Date: 9/14/2021

Description:

Snack Shack back of house – ceiling with fluorescent light fixture and battery-operated exit sign.

Photo: 16	Date: 9/14/2021

Description:

Snack Shack back of house with temperature control device.

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY		Location:	Punta Gorda Airport, Punta Gorda, Florida
Photo: 17	Date: 9/14/2021		
Description: Restroom with ACT and fluorescent light fixtures and green paint on drywall			
Photo: 18	Date: 9/14/2021		
Description: Snack Shack exterior store front windows.			

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY		Location:	Punta Gorda Airport, Punta Gorda, Florida
Photo: 19	Date: 9/14/2021		
Description: Wet chemical fire extinguisher in kitchen			
Photo: 20	Date: 9/14/2021		
Description: Fire suppression system in kitchen			

AECOM PHOTOGRAPHIC RECORD

Client: CHARLOTTE COUNTY AIRPORT AUTHORITY		Location:	Punta Gorda Airport, Punta Gorda, Florida

Photo: 21	Date: 9/14/2021

Description:

Electrical panels

Photo: 22	Date: 9/14/2021

Description:

HID located south at storage building

APPENDIX C - PHOTOGRAPHS

AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc.
3303 Parkway Center Ct Orlando, FL 32808-1040

Laboratory ID: LAP-163563
Issue Date: 01/31/2020

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 09/01/2007

Component, parameter or characteristic tested	Technology sub-type/Detector	Method	Method Description *(for internal methods only)*
Airborne Dust	AA	NIOSH 7082	N/A
Paint	AA	EPA SW-846 3050B	N/A
		EPA SW-846 3051A	N/A
		EPA SW-846 7000B	N/A
Settled Dust by Wipe	AA	EPA SW-846 3050B	N/A
		EPA SW-846 3051A	N/A
		EPA SW-846 7000B	N/A
Soil	AA	EPA SW-846 3050B	N/A
		EPA SW-846 3051A	N/A
		EPA SW-846 7000B	N/A

A complete listing of currently accredited ELLAP laboratories is available on the AIHA-LAP, LLC website at: *http://www.aihaaccreditedlabs.org*

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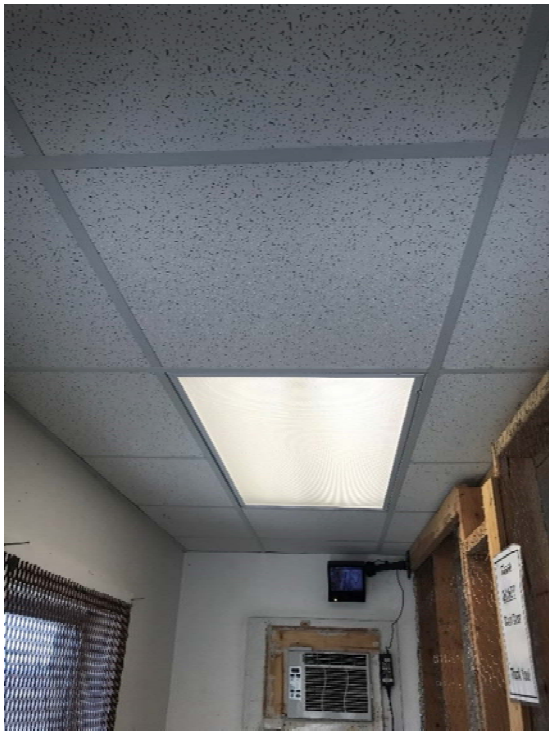
Photo: 8	Date: 9/14/2021		
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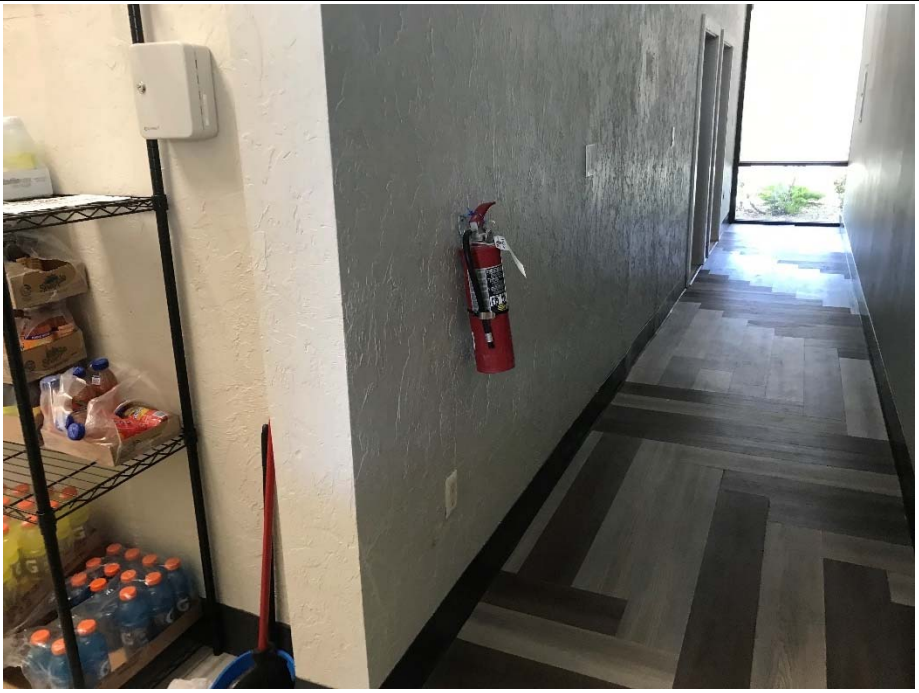

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Electrical panels

Photo: 22	Date: 9/14/2021

Description:

HID located south at storage building

aecom.com

APPENDIX B

GEOTECHNICAL REPORT

GEOTECHNICAL ENGINEERING REPORT

CCAA Terminal
South Expansion
Punta Gorda, Florida

Prepared for:

Mr. Gary Bayne, PE
Southwest Engineering & Design
25450 Airport Road, ST B
Punta Gorda, FL 33950

LET LOMSKI
Engineering & Testing

17210 Toledo Blade Boulevard
Port Charlotte, FL 33954
P: 941.979.5744 / F: 941.979.5748

LET LOMSKI
Engineering & Testing

February 25, 2022

Mr. Gary Bayne, P.E.
Southwest Engineering & Design
660 Charlotte Street, St 8
Punta Gorda, FL 33950

Reference: **Geotechnical Engineering Services**
Punta Gorda Airport
CCAA Terminal South Expansion
Punta Gorda, Charlotte County FL
LET Project No.: 32-2011

Dear Mr. Bayne:

Lomski Engineering & Testing, Inc. (LET) is pleased to submit our report for engineering services associated with the Punta Gorda Airport CCAA Terminal South Expansion project located in Punta Gorda, Charlotte County FL. The following report presents the project information made available to us, our observation of the existing site conditions and the subsurface soil conditions obtained during this exploration, and our recommendations for foundation design and site preparation. Also, included with this report is a boring location plan as well as the results of our field and laboratory testing. The assessment of the site environmental conditions for the presence of pollutants in the soil, rock, and groundwater at this site was not included as part of our services.

We appreciate the opportunity to provide these services to you. If you have any questions regarding this report of if we may be of further service to you, please do not hesitate to call.

Sincerely,

LOMSKI ENGINEERING & TESTING, INC.

EDWARD P. LOMSKI, JR. LICENSE No. 62507 STATE OF FLORIDA PROFESSIONAL ENGINEER

Edward P. Lomski, P.E.
Florida Registration #62507

EPL/ll
Enclosures

17210 Toledo Blade Boulevard, Port Charlotte, FL 33954
941.979.5744 f 941.979.5748 www.LET-fl.com

TABLE OF CONTENTS

PROJECT INFORMATION

Project Description

The Punta Gorda Airport (Airport) encompasses approximately 1,844-acres, is owned and maintained by the Charlotte County Airport Authority and is located at 28000 Airport Road just east of I-75 approximately three miles east of the City of Punta Gorda, Florida. The proposed project is within the property boundary of the Airport and is identified as CCA Terminal South Expansion.

The proposed project consists of the construction of a new terminal building located south of the existing Airline Terminal at the Punta Gorda Airport. The project site is currently developed and covered with existing buildings and pavement. The site topography is relatively level, no pronounced surface gradient can be determined visually. Other than an existing retainage pond, no standing water on the surface was observed during the time of our drilling.

If any of the noted information is incorrect or has changed, please inform LET so that we may amend the recommendations presented in this report if appropriate.

Purpose and Scope of Work

The purpose of this study was to obtain information on the general subsurface conditions at the proposed project site in order to obtain data to support the design and to base engineering estimates and recommendations in the following areas:

1. Existing pavement section identification and exploration of base and subgrade conditions.
2. General location and description of potentially deleterious materials discovered in the borings or pavement cores which may interfere with the proposed improvements, including existing fills or surficial organics.
3. Proposed building foundation design parameters and general site preparation recommendations.

The following services were provided in order to achieve the preceding objectives:

1. Reviewed readily available published geological and topographic information. This published information was obtained from the Soil Survey of Charlotte County, published by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS).
2. Executed a program of subsurface exploration consisting of subsurface sampling and field testing. LET performed the following:
    - One (1) Pavement Core, with a Hand Auger boring to a depth of 2-feet below the existing grade, at locations determined by Southwest Engineering & Design (SED).
    - Two (2) Standard Penetration Test (SPT) borings to a depth of 25-feet below the existing grade, at locations determined by SED.
    - Two (2) Hand Auger borings to a depth of 5-feet below the existing grade, at locations determined by SED.

3. Visually classified representative soil samples in the laboratory using the Unified Soil Classification System. Identified soil conditions at each boring and core location and performed laboratory testing on representative samples to confirm visual classification.

4. Collected groundwater levels at the boring locations.

5. Prepare an engineering report, which summarizes the course of study pursued, the field and laboratory data generated, subsurface conditions encountered, and our engineering evaluations and recommendations.

REVIEW OF PUBLISHED DATA

Charlotte County Soil Survey

The USDA Soil Conservation Services (SCS) Soil Survey noted a couple predominant soil types within the project limits. The following table identifies general soil characteristics for this type of soil.

Charlotte County SCS Soil Survey Review

Unit No.	Soil Name	Soil Description	Classification		Seasonal High Water (ft)	Clay (%)	Organic Matter (%)	Permeability (in/hr)
			Depth (in)	Unified				
14	Valkaria	Nearly level, poorly drained soil on sloughs. Slopes are smooth to concave and range from 0 to 1 percent. In most years, under natural conditions, the water table is at a depth of less than 10 inches for 1 to 3 months.	0-2	SP, SP-SM	0-1.0	1-5	1-4	6.0-20
			2-7	SP, SP-SM				
			7-80	SP, SP-SM				
28	Immokalee	Nearly level, poorly drained soil that occurs on slightly elevated landscapes on flatwoods. Slopes are smooth to convex and range from 0 to 2 percent. In most years, under natural conditions, the water table is at a depth of less than 10 inches for 1 to 3 months.	0-9	SP, SP-SM	0-1.0	1-7	1-2	0.6-20
			9-36	SP, SP-SM				
			36-55	SM, SP-SM				
			55-80	SP, SP-SM				

Information contained in the SCS Soil Survey is very general and may be outdated. It may not therefore be reflective of actual soil and groundwater conditions, particularly if recent development in the site vicinity has modified soil conditions or surface/subsurface drainage.

LABORATORY TESTING

Material Classification

LET personnel examined and classified all soils in the field in general accordance with ASTM D 2488 (Description and Identification of Soils). During exploration, representative bulk samples were placed in sealed glass jars and returned to our Port Charlotte, Florida laboratory for testing. Additional soil classification and verification of the field classifications were subsequently performed in accordance with ASTM D 2487 (Unified Soil Classification System [USCS]) upon completion of laboratory testing as described below in the **Laboratory Testing** section.

All soil testing performed in the LET, Inc. soils laboratory is conducted in accordance with ASTM, AASHTO, and FDOT standards.

Samples of significant soil types were analyzed to determine their grain size distribution and plasticity index. The results were used to classify the soils according to the USCS (ASTM D 2487) and to check the field logs, which were then updated as appropriate. Classification in this manner provides an indication of the soil mechanical properties, which can be correlated to standard penetration testing and published charts to evaluate bearing capacity.

FIELD TESTING AND EXPLORATION

Subsurface Exploration

The site was explored on February 15, 2022, by drilling two (2) test borings. The depth of the test borings 25 feet. The number, depths and locations were designated by SED. The SPT borings (B-1 through B-2) were drilled using a track mounted continuous-flight auger with a 2.0 inch outside diameter (OD), 1.4 inch inside diameter (ID) split-spoon sampler. The native soils were sampled in-place every 2 to a depth of 10 feet by use of a standard 2.0-inch OD split-spoon sampler driven by a standard 140-pound drive hammer with a 30-inch stroke (ASTM D-1586). After seating the sampler 6 inches, the number of successive blows required to drive the sampler 12 inches into the soils constitutes the test result commonly referred to as the N-value. The N-value has been empirically correlated with various soil properties and is considered to be indicative of the relative density of cohesionless soils and the consistency of cohesive soils. The recovered split-spoon samples were described in the field with representative portions of the samples placed in jars and transported to our office for routine laboratory testing. Following completion, the SPT borings were sealed with cement/bentonite grout.

The Hand Auger Borings (HA-1 and HA-2) were drilled using hand turned auger. Hand Auger Borings are used, if soil conditions are favorable, when the soil strata are to be determined within a shallow (approximately 5-foot) depth or when access is not available to power drilling equipment. A 3-inch diameter hand bucket auger with a cutting head is simultaneously turned and pressed into the ground. The bucket auger is retrieved at approximately 6-inch intervals and its contents emptied for inspection. Sometimes post-hole diggers are used, especially in the upper three feet or so. The soil sample obtained is classified and representative samples put in bags or jars and transported to the laboratory for further classification and testing. The borings were located in the field by LET personnel measuring distances from existing features identified on the plan provided and aerials.

The borings were drilled at the approximate locations shown on Sheet 1 in the Appendix. The boring locations and the boring depths were selected by LET based on structure information. The borings were located in the field by LET personnel measuring distances from existing features identified on the plan provided.

SUBSURFACE CONDITIONS

General Soil Conditions

The results of our borings are presented on the Soil Boring Profile sheets in Appendix 1. These test boring profiles represent our interpretation of the soil conditions encountered based on the driller's field logs and visual examination of the soil samples obtained in the laboratory by a soils technician.

The boring logs indicate subsurface conditions only at the specific boring locations at the time of our field exploration. Subsurface conditions, including groundwater levels, at other locations of the project site may differ from conditions we encountered at the boring locations. Moreover, conditions at the boring locations can change over time. Groundwater levels fluctuate seasonally, and soil conditions can be altered by earthmoving operations.

The depths and thicknesses of the subsurface strata indicated on the boring logs were interpolated between samples obtained at different depths in the borings. The actual transition between soil layers may be different that indicated. These stratification lines were used for our analytical purposes and actual earthwork quantities measured during construction should be expected to vary from quantities calculated based on the information in this report.

In general, our auger borings predominantly encountered fine sand with variable silt content. The soil description and stratum numbers used for the auger boring is summarized as follows:

Stratum No.	Soil Description	Compactness	Classification
1	Light Brown and Brown, Fine Sand	Loose to Medium Dense (7 to 17 bpf)	SP, SP-SM
2	Gray, Silty to Clayey sand, with shell and rock fragments	Very Loose to Medium Dense (2 to 21 bpf)	SM, SP-SM

The descriptions presented above are of a generalized nature to highlight the major subsurface stratification features and material characteristics. The soil profiles should be reviewed for specific information at individual boring locations. These profiles include soil description, stratifications, penetration resistances, and laboratory classification of soils. The stratifications shown on the boring profiles represent the conditions only at the actual boring locations. The stratifications represent the approximate boundary between subsurface materials and the actual transition may be gradual.

Groundwater Conditions

Encountered groundwater levels for the borings performed on February 15, 2022, were about 4.0 feet below the ground surface at the time of drilling. Fluctuations in the groundwater level may occur due to rainfall patterns, surficial drainage features, and construction processes. Alterations in surface and/or subsurface drainage brought about by site development can also affect groundwater levels. Therefore, groundwater depths measured at different times or at different locations along the project alignment can be expected to vary from those measured by LET during this investigation.

Seasonal High Water Table Estimates

For a typical year in Charlotte County, over 60% of the annual rainfall occurs during the months of June through November. During this period, water levels gradually rise to their annually highest levels, which typically occur in August to September. During the relatively dry portion of the year (from October to May), the water table recedes to lower levels, typically reaching the lowest level in May.

The seasonal high water table is the highest level that is achieved during the year. Of course, the seasonal high water table varies from year to year, primarily due to rainfall variations from year to year.

The U.S. Department of Agriculture, Natural Resources Conservation Service, (USDA-NRCS) defines the seasonal high water table as the highest level of a saturated zone in the soil in most years. In the USDA-NRCS soil surveys, a range of seasonal high water tables is listed for each of the defined surficial soil types. The water table is estimated to be at or above this level for at least one month during most years. These estimates are based mainly on evidence of a saturated zone (grayish colors or mottles) and are generally applicable to an undrained soil condition (i.e. no artificial drainage).

The Southwest Florida Water Management District (SWFWMD) defines the seasonal high water table as the elevation to which the water can be expected to rise during a normal wet season. This definition differs somewhat from the USDA-NRCS definition. The most significant difference is that the USDA-NRCS refers to the highest level of a saturated zone. Due to capillary rise, the saturated zone may extend a few to several inches above the water table. This is because the capillary zone is a saturated zone above the water table where the fluid (pore water) pressure is less than atmospheric pressure. Therefore, water from the capillary zone will not flow into a borehole which penetrates the aquifer. Only in the area below the water table, where the pore water pressure is greater than atmospheric pressure, will the water flow into an open borehole.

The height of the capillary rise is generally less than 6-inches above the water table in most of the surficial sandy soils typical of the area, but may be greater if the surficial soils are more silty or clayey. The seasonal high water table, as defined in the geotechnical engineering practice (and as accepted by SWFWMD) may, therefore, be somewhat lower than that reported in the USDA-NRCS soil surveys.

For the purpose of designing stromwater management systems, it is our objective to estimate the seasonal high water table as the elevation the water table is expected to be at or above for no more than a few (approximately 2 to 4) weeks during a year of average climatic conditions.

The USDA-NRCS Soil Survey of Charlotte County, Florida" (1983) indicates a number of soil types on the property. Selected properties of these soil types are included on page 4 of this report.

The predominant surficial soil types in the area of the subject site are Valkaria and Immokalee fine sands. The soil survey indicates the seasonal high water table to occur at a depth in the range of 0 to 1.0 below the ground surface for these soils types.

For the reasons stated above, our estimates of the seasonal high water tables will likely be in the lower portions of the Soil Survey ranges or somewhat lower than these ranges. The seasonal high water table is estimated to range from 1.5 to 2.5 feet below the existing ground elevation.

DISCUSSION AND RECOMMENDATIONS

General information

In general, the SPT borings identified subsurface conditions that are considered suitable for support of the existing development.

Any evaluation of the site for the presence of surface or subsurface hazardous substances is beyond the scope of this study. When suspected hazardous substances are encountered during routine geotechnical investigations, they are noted in the exploration logs and reported to the client. No such substances were identified during our exploration.

Pavement Cores

Based on the information obtained during this exploration, the existing pavement sections consist of a flexible pavement design. The pavement was underlain with a shell base. The generalized results of the pavement coring operations are listed below, for detailed results please refer to the table below.

Pavement Core No.	Asphalt Depth (in)	Base Description	Base Depth (in)	Sub-Grade Description
BC-1	3.50	Light Brown Sand, with shell	6.25	BrownFine Sand

Asphalt Pavement

In general, there was approximately 3.5 inches of asphalt pavement material detected within the existing terminal area. The asphalt consisted on numerous layers, indicating multiple lifts. Based on our experience, we assume that the existing pavement course is mainly comprised of a Type S-1 asphalt mix.

Base

There was approximately 6.25 inches of Base detected in beneath the asphalt pavement layers. The existing base was comprised of a shell base.

Sub-Grade

A distinct strata of sub-grade material was not detected beneath the existing pavement. The majority of the existing sub-grade within the pavement section was comprised of brown fine sands. Actual depth and materials used is indeterminate due to no defining difference between the sub-grade and pre-development in-situ soils.

Building Foundations

The evaluation of foundation options is generally governed by 2 primary considerations, bearing capacity and settlement. Bearing capacity is the soil's ability to support the foundation load without experiencing a plunging failure. The selected foundation must be able to provide adequate bearing capacity within an acceptable range of settlement.

Based upon the project description and subsurface conditions detailed herein, Lomski Engineering & Testing recommends supporting the proposed structure on a shallow foundation system in accordance with the Shallow Foundation Systems section of this report. These recommendations are contingent upon site preparation being performed in accordance with the specifications presented in Site Preparation section of this report.

Shallow Foundation Systems

An allowable soil bearing pressure of 2,000 psf may be used for shallow spread footing foundation design. Isolated column footings should have a minimum dimension of 24 inches and should bear at a depth of at least 18 inches below the lowest adjacent grade. Continuous wall footings should have a minimum width of 12 inches and should bear at a depth of at least 18 inches below the lowest adjacent grade. Settlement is projected to be less than 1 inch total and 1/2 inch differential.

Ground Floor Slab(s)

Traditionally reinforced concrete ground floor slabs may be designed as slabs-on-grade using a modulus of subgrade reaction ("K") of 150 pci. The ground floor slab should be structurally separated from all footings, walls, and columns unless a monolithic "thickened edge" slab foundation is utilized. If a monolithic "thickened edge" slab is utilized, it should be properly reinforced to resist the bending moments that will occur due to the loading differences between the thickened foundation elements and the remainder of the slab.

A moisture vapor barrier should be placed beneath the ground floor slab to minimize vapor intrusion in accordance with the Florida Building Code. This vapor barrier should consist of a minimum six (6) mil layer of non-deteriorating sheeting. Care should be taken to ensure that all seams, penetrations, and punctures in the barrier are properly sealed prior to the slab being poured.

Site Preparation

The building pad should be stripped and cleared of all organic material, roots, topsoil, and any other deleterious materials to a distance of at least 5 feet beyond the building limits. The stripped surface should be proof rolled and tested for compaction prior to any structural fill being placed. Structural fill, if needed, may then be placed in lifts of not more than 12 inches and each lift should be compacted and tested prior to placement of the next lift.

Lomski Engineering & Testing recommends the following compaction requirements for this project. The specified compaction percentages are based upon the maximum dry density as determined by a "modified proctor test" in accordance with ASTM D1557 "*Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))*".

- Proof Roll 95%
- Structural Fill 98%
- Bottom of Footings 98%

All density testing should be performed in accordance with ASTM D6938 "*Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)*". Tests should be performed to a depth of 12 inches below the surface being tested, or the thickness of the soil layer if thinner than 12 inches, unless specified otherwise. Any areas not in compliance with the compaction requirements should be reworked and retested prior to placement of the next lift of fill. The following testing frequencies are recommended:

- Building Pad Proof Roll & Fill ..... 1 test per 2,500 sq.ft. (minimum 4) per lift
- Isolated Column Footings ..... 1 test per footing
- Continuous Wall Footings ..... 1 test per each 50 lineal feet
- Paved Areas ..... 1 test per 5,000 sq.ft. (minimum 4) per lift

All structural fill material placed should be well graded and conform to the following requirements:

- Fines Content per ASTM D1140 ..... 12% maximum
- Organic Content per ASTM D2974 ..... 5% maximum
- Plasticity per ASTM D4318 ..... Non Plastic
- Maximum Particle Size ..... 2 inches

Using vibratory compaction equipment at the site may disturb nearby structures. We recommend that vibration levels reaching any nearby structures be monitored during any operations utilizing vibratory equipment.

During the proof-rolling operation, representative of Lomski Engineering & Testing, Inc. should observe the soils to verify that the exposed soils are suitable and that any unsuitable soils have been removed. Samples of the soil should be obtained to determine its maximum dry density and optimum moisture content in the laboratory in accordance with ASTM D-1557 (Modified Proctor Test).

Pavement Recommendations

Both flexible and rigid pavement sections are suitable for the site. We recommend using a flexible pavement system (asphaltic concrete) for the construction of the paved parking areas and access roadways. We recommend using rigid pavement in dumpster, storage, and service court areas or other areas where truck traffic will be accelerating, decelerating, and turning.

In general, following the completion of the recommended clearing and grading operations as discussed earlier, the compacted natural and new fill soils should be acceptable for construction and support either a flexible (limerock, crushed concrete or shell base) or rigid (portland cement concrete) type pavement section. Any fill utilized to elevate the cleared pavement areas to subgrade elevation should consist of reasonably clean (maximum 12% passing the No. 200 sieve) fine sands uniformly compacted to a minimum density of 98% of the material's modified Proctor maximum density.

Our pavement section recommendations are presented in this section. It should be realized that the pavement recommendations presented below are considered minimum for the site, soil and limited traffic conditions expected. The final pavement thickness design should be determined by the project Civil Engineer using information obtained from the subsurface exploration program and an analysis of anticipated traffic conditions.

Flexible Pavement:

The following pavement recommendations are considered minimum for the site soil and limited traffic conditions expected.

ASPHALTIC CONCRETE PAVEMENT RECOMMENDATIONS		
MATERIAL	MINIMUM THICKNESS (INCHES)	
	LIGHT TRAFFIC	MEDIUM TRAFFIC
Type SP Asphaltic Concrete	2.0	2.5
Base (Minimum LBR = 100)	8.0	10.0
Stabilized Subgrade (Minimum LBR = 40)	12.0	12.0

The preceding flexible pavement section recommendations are based on an assumed Limerock Bearing Ratio (LBR) value for the compacted subgrade of 20. LBR test was not performed in the current study. Based on our experience with similar materials in the general area of the site, the on-site sandy soils should have a LBR value of at least 20% after compaction/densification. This LBR value should be confirmed through testing during the construction stage of the project.

Base

The choice of pavement base type basically will depend on final pavement grades. If a minimum separation of 18 inches between the bottom of the base and the normal seasonal high groundwater level is maintained, then limerock, or bank-run shell can be utilized; otherwise crushed concrete, cement treated base or an asphalt base course would be required.

Limerock, bank-run shell and crushed concrete base materials should meet Florida Department of Transportation (FDOT) requirements including compaction to 98% of its maximum dry density as determined by the modified Proctor test (AASHTO T-180) and a minimum Limerock Bearing Ratio (LBR) of 100%. Crushed concrete should be graded in accordance with FDOT standard specification section 204. Cement treated base should be produced and placed in accordance to Charlotte County standards.

Based on expected traffic conditions, we recommend that the base course be a minimum of eight (8) inches thick in light duty areas and ten (10) inches thick in medium to heavy duty areas. The subgrade should consist of a minimum of 12-inches of LBR 40 material and be firm and unyielding prior to base placement.

Asphaltic Concrete Pavement

Based on the results of our evaluation, it is recommended that the total asphaltic concrete thickness consist of Type SP with a minimum of 2 inches for light duty and 2 ½ inches for medium to heavy duty pavement areas. The asphaltic concrete should meet the standard FDOT material requirements and placement procedures as outlined in the FDOT Standard Specifications for Road and Bridge Construction.

The following recommendations are provided for pavement construction:

1. Proofroll the exposed stripped natural subgrade and compact to at least 95% of the Modified Proctor maximum dry density (ASTM D1557).

2. Provide the recommended Type "B" stabilized subgrade section. The stabilized soils should be compacted to at least 98% density (ASTM D1557), and should possess a Limerock Bearing Ratio of at least 40 percent.

3. Provide the recommended thickness base section. Compact in-place to a minimum 98% density (ASTM D1557). Install per Florida Department of Transportation specifications.

4. Provide the recommended thickness of asphalt pavement.

Rigid Portland Cement Concrete Pavement

Based on assumed low volume, traffic loading and the assumed estimated subgrade modulus (k) of 125 pci for traffic, we recommend a 6-inch for standard duty and a 8-inch concrete slab for heavy duty concrete pavement sections.

All concrete joints should conform to applicable FDOT specifications. We recommend that a non-woven geo-textile (about 3 feet wide) be placed beneath the construction joints to prevent upward "pumping" movement of soil fines through the joints.

RIGID CONCRETE PAVEMENT RECOMMENDATIONS		
MATERIAL	MINIMUM THICKNESS (INCHES)	
	LIGHT TRAFFIC	MEDIUM TRAFFIC
Portland Cement Concrete	6.0	8.0
Base (Minimum LBR = 100)	N/A	N/A
Stabilized Subgrade (Minimum LBR = 40)	12.0	12.0

Rigid Pavement Subgrade: For a rigid (concrete) pavement subgrade, the following stipulations should apply:

- The surface of the subgrade soils must be smooth, and any disturbances or wheel rutting corrected prior to placement of concrete.
- The subgrade soils must be moistened prior to placement of concrete.
- Concrete pavement thickness should be uniform throughout, with exception to thickened edges (curb or footing).
- The bottom of the pavement should be separated from the estimated typical wet season groundwater level by at least 18 inches.

We recommend using concrete with a minimum compressive strength of 3,000 psi and a minimum 28-day flexural strength (modulus of rupture) of at least 600 pounds per square inch, based on 3rd point loading of concrete beam test samples. Layout of the saw-cut control joints should form square panels, and the depth of saw-cut joint should be ¼ of the concrete slab thickness. The joints should be sawed within six hours of concrete placement or as soon as the concrete has developed sufficient strength to support workers and equipment.

CONSTRUCTION OBSERVATION AND TESTING SERVICES

The information presented in this report assumes that the owner/project manager will provide sufficient field-testing and construction review during all phases of construction. Prior to construction, the owner/project manager should schedule a pre-job conference to include, but not be limited to, the owner, architect, civil engineer, the general contractor, earthwork and materials subcontractors, building official and geotechnical engineer. It is the owner's/project manager responsibility to set-up this meeting and contact all responsible parties. The conference will allow parties to review the project plans, specifications, and data presented in this report. All quality control reports should be submitted to the owner/ project manager for review and distributed to the appropriate parties.

During construction, LET, Inc. should have the opportunity to provide sufficient on-site observation of site preparation and grading, over-excavation, fill placement, foundation installation, and paving. These observations would allow us to document that the geotechnical conditions are as anticipated and that the contractor's work meets with the criteria in the approved plans and specifications.

STANDARD LIMITATION CLAUSE

This report has been prepared in accordance with generally accepted local geotechnical practices. The test result and analyses submitted are based upon field exploration performed at the locations noted in Appendix 1 of this report. This report does not reflect soils variations that may become evident during the construction period, at which time re-evaluation of the recommendations may be necessary. We recommend our firm be retained to perform construction observation in all phases of the project related to geotechnical factors to document compliance with our recommendations. The owner/project manager is responsible for distribution of this geotechnical report to all designers and contractors whose work is related to geotechnical factors.

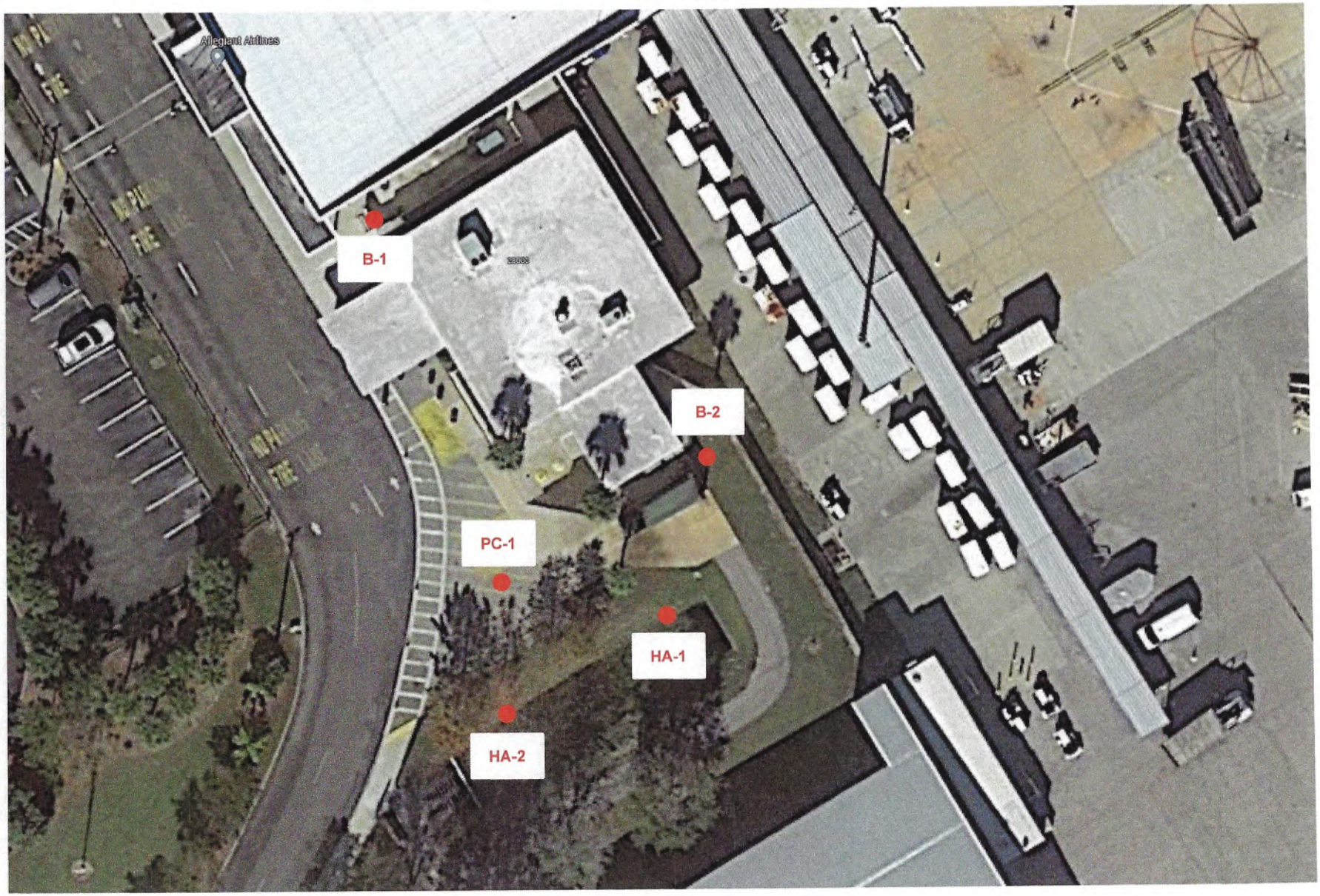
All plans and specifications should be reviewed by the design engineer responsible for this geotechnical report, to determine if they have been completed in accordance with the recommendations contained in this report, prior to submitting to the building department for review. It is the owner's/project manager responsibility to provide the plans and specifications to the engineer.

Water level readings were made on the date shown of the test borings. Fluctuations in the water table may occur due to rainfall, temperature, seasonal runoff of adjacent irrigation practices. Construction planning should be based on assumptions of possible variations.

This report has been prepared to provide information allowing the engineer to design the project. The owner/project manager is responsible for distribution of this report to all designers and contractors whose work is affected by geotechnical aspects. In the event of changes in the design, location, or ownership of the project after presentation of this report, the information contained herein should be reviewed and possible modified by LET. If LET is not accorded the privilege of making this recommended review, we can assume no responsibility for misinterpretation or misapplication of this data or its validity in the event changes have been made in the original design concept without our prior review. LET makes no other warranties, either expressed or implied, as to our information provided under the terms of this agreement and included in this report.

This report was prepared by Lomski Engineering and Testing, Inc. for the account of Southwest Engineering & Design. The material in it reflects LET's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. LET accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

APPENDIX



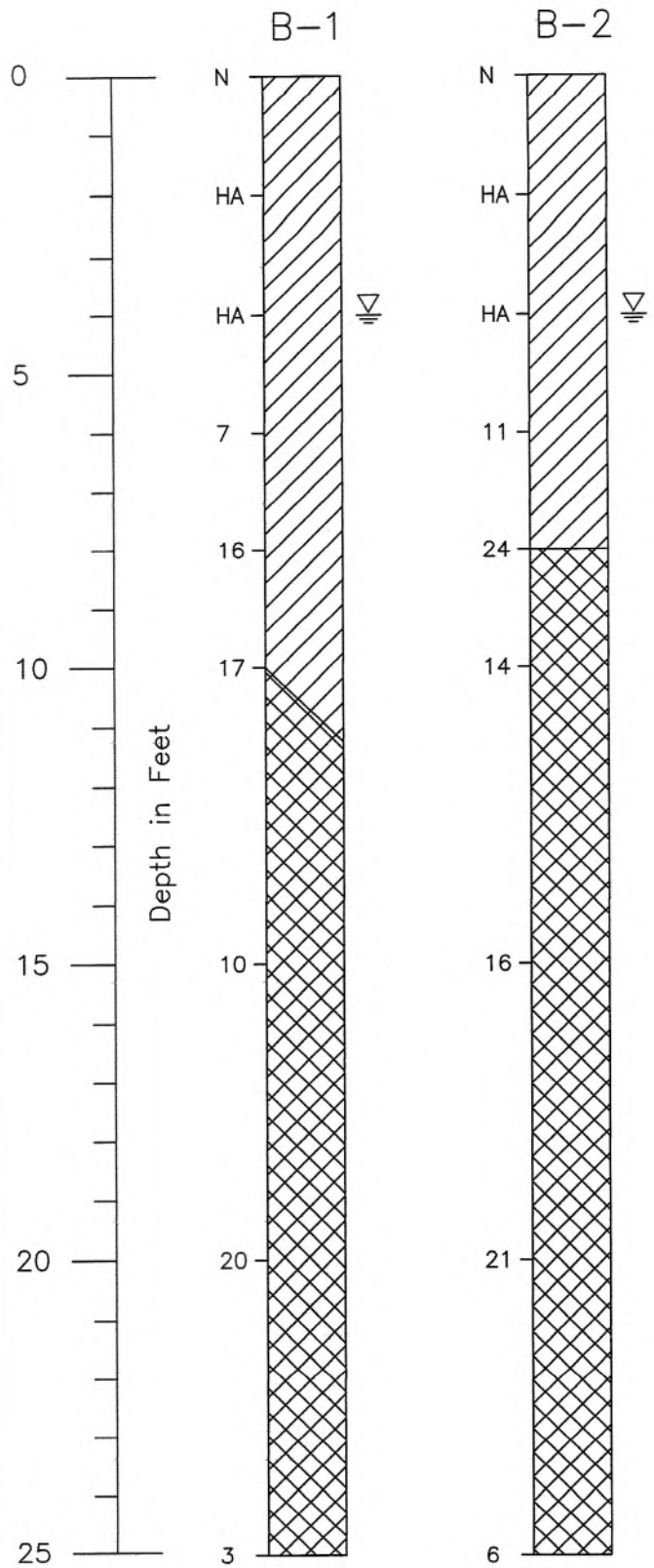
LET LOMSKI Engineering & Testing 17210 Toledo Blade Blvd Port Charlotte, FL. 33954 Tel. (941) 979-5744 Fax. (941)979.5748 www.let-fl.com	**PUNTA GORDA AIRPORT** **CCAA TERMINAL SOUTH EXPANSION,** **CHARLOTTE COUNTY. FL**	**BORING LOCATION MAP**	Sheet No. 1-1

Hand Auger No. HA-1

Depth (Inches)	Soil Description
0-22	Brown Fine to Silty Sand
22-43	Pale Brown Fine to Silty Sand
43-60	Gray Fine to Silty Sand
Existing Water Table:	8 inches below existing grade
Location:	See Boring Location Map

Hand Auger No. HA-2

Depth (Inches)	Soil Description
0-19	Brown Fine to Silty Sand
19-40	Pale Brown Fine to Silty Sand
40-60	Gray Fine to Silty Sand
Existing Water Table:	6 inches below existing grade
Location:	See Boring Location Map



SOILS LEGEND

1 — Light Brown and Brown, Fine Sand, Loose to Medium Dense

2 — Gray, Silty to Clayey Sand, with shell and rock fragments. Very Loose to Medium Dense

SOILS PROFILE LEGEND

B-X BORING NUMBER

GROUND WATER LEVEL

WOH WEIGHT OF HAMMER

HA HAND AUGER BORING

SOILS CLASSIFICATION

CORRELATION OF N- VALUES WITH RELATIVE DENSITY AND CONSISTENCY

COHESIONLESS SOIL		SILTS AND CLAYS	
N - VALUE	RELATIVE DENSITY	N - VALUE	CONSISTENCY
0 - 4	VERY LOOSE	0 - 2	VERY SOFT
5 - 10	LOOSE	3 - 4	SOFT
11 - 30	MEDIUM DENSE	5 - 8	FIRM
31 - 50	DENSE	9 - 15	STIFF
OVER 50	VERY DENSE	16 - 30	VERY STIFF
		31 - 50	HARD
		OVER 50	VERY HARD

APPROXIMATE FINES CONTENT	MODIFERS
5% TO 12%	SLIGHTLY SILTY OR SLIGHTY CLAY
12% TO 30%	SILTY OR CLAYEY
30% TO 50%	VERY SILTY OR VERY CLAYEY

CORRELATION OF N- VALUES WITH HARDNESS DESCRIPTION

LIMEROCK

N - VALUE	RELATIVE DENSITY
0 - 19	VERY SOFT
20 - 49	SOFT
50 - 100	MEDIUM HARD
50 FOR 2 - 5"	MODERATELY HARD
50 FOR 0 - 2"	VERY HARD

APPROXIMATE ROCK/SHELL/. ROOT CONTENT	MODIFERS
5% TO 10%	TRACE
10% TO 20%	TRACE TO SOME
20% TO 40%	SOME
40% TO 60%	AND

CLIENT: SOUTHWEST ENGINEERING & DESIGN
PROJECT: CCAA TERMINAL SOUTH EXPANSION
PROJECT#: 32-2011
COUNTY: PUNTA GORDA, CHARLOTTE

SOILS PROFILES

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APPENDIX C

PROJECT COSTS

Transportation Security Administration

Electronic Baggage Screening Program TSA Funding of Checked Baggage Inspection System Projects Costs Version 5.0

Submitted by: James Stephens, Planning & Procurement Branch Manager
Electronic Baggage Screening Program
Acquisition Program Management
Transportation Security Administration

Approved by: _____ Date: _____

Brad Anderson, Program Manager
Electronic Baggage Screening Program
Acquisition Program Management
Transportation Security Administration

Approved by: _____ Date: _____

Kerry Toscano, Division Director
Security Technology Acquisition Division
Contracting & Procurement
Transportation Security Administration

Table of Contents

Section A. Introduction

49 U.S.C. §44923 authorizes the Transportation Security Administration (TSA) to make other transaction agreements with Project Sponsors for:

1. Projects to replace baggage conveyer systems related to aviation security;

2. Projects to reconfigure terminal baggage areas as needed to install explosive detection systems;

3. Projects to enable the Under Secretary to deploy explosive detection systems behind the ticket counter, in the baggage sorting area, or in line with the baggage handling system; and

4. Other airport security capital improvement projects.

TSA utilizes Other Transaction Agreements (OTAs) as funding instruments to reimburse Project Sponsors for eligible aviation security projects. Project Sponsors may obtain any additional information, guidance, and applications for funding at: http://www.tsa.gov/for-industry/electronic-baggage-screening.

Acquisition Program Management (APM) within TSA is responsible for managing the Electronic Baggage Screening Program (EBSP). EBSP's mission is to satisfy the requirements of the Aviation and Transportation Security Act (ATSA, Pub.L. 107–71 November 19, 2001). ATSA requires that all checked baggage be screened using explosive detection technology. EBSP's mission is to deploy and maintain screening technology in support of ATSA requirements.

EBSP develops an annual spend plan by prioritizing and then selecting aviation security improvement projects that meet the Program's mission. EBSP selects projects that will achieve the maximum increase in security capability within the funding appropriations set by Congress.

The Planning Guidelines and Design Standards (PGDS) for Checked Baggage Inspection Systems (CBIS) details TSA's requirements and documented best practices for implementing a high performance and cost-effective CBIS. The PGDS is available at https://sam.gov/opp/5223ca7b095942749bde423905f507d7/view.

TSA is not a party to the contracts a Project Sponsor executes with third parties in support of a TSA CBIS project. The Project Sponsor (including its appropriate procurement authority) is the responsible contractual authority for establishing and administering the contract agreements. The Project Sponsor is responsible for all contractual matters, including evaluation and award of contract, resolution of claims and disputes, and settlement of litigation issues regarding the satisfaction of all contractual and administrative issues arising from procurements entered into in support of a TSA CBIS project, without recourse to TSA. This includes, but is not limited to, disputes, claims, protests of award, source evaluation, or other matters of a contractual nature.

Section B. Funding Application and CBIS Project Types Eligibility

Design and Facility Modification OTA Applications are the primary vehicles through which TSA invites communication from a Project Sponsor regarding project needs and funding requests, thereby providing a controlled manner for a Project Sponsor to submit funding requests. This process allows

for proper tracking and handling of funding requests and subsequent communications between TSA and the Project Sponsor.

The Project Sponsor should be aware while making an OTA application submission that TSA will accept all OTA applications on a continuous basis at CBTPlanning@tsa.dhs.gov.

The Project Sponsor is strongly encouraged to coordinate with local and headquarters TSA entities via TSA Project Coordinators as early as possible when CBIS projects are being considered and conceptually planned. Early notification assists TSA in justifying and budgeting federal funding for the EBSP. Similarly, TSA Project Coordinators will also notify airports as early as possible when a TSA-initiated project is being forecasted or considered at their location.

The different types of projects are typically categorized as shown in the following table:

Table 1: Project Types and Funding Eligibility

Project Type	**Definition**	**Initiated By**	**TSA Funding Eligibility**
New In-Line	Full In-line system replacing non-in-line equipment	Airport	Eligible
Recapitalization	Targeted replacement of existing EDS	TSA	Eligible
Optimization	Improvement/replacement of existing in-line system by airport	Airport	Eligible (for the equivalent recapitalization amount)
PGDS Upgrades	Targeted improvements to existing system by TSA	TSA	Eligible
Growth	Increase to screening capacity of existing in-line system	Airport	Ineligible

1. **New In-line** – A new in-line project creates a fully integrated baggage screening system that is built to replace non-in-line screening equipment (previous screening for the airport must have been via stand-alone EDS, semi-integrated EDS, mini-inline EDS, or primary ETD equipment). New fully integrated In-line projects with sufficient baggage demand are eligible for TSA funding.

   The following two metrics shall be used to determine if an airport/zone should be converted to a full in-line system. When at least one of the two criteria below is met, a project is considered eligible for EBSP funding:
   - Surged 85% bag per hour rate of 400 bags per hour after growth to DBU
   - Peak month average daily bag count of 1,600 bags/day after growth to DBU

   In the case of a new in-line system replacing a combination of existing in-line and non-in-line screening equipment, TSA funding will be prorated based on the non-in-line portion of overall baggage being screened by the new system. E.g., an airport building a new in-line system that replaces an existing in-line system that currently screens 70% of overall bags and a stand-alone zone that screens 30% of bags would be funded at 30% of the allowable project amount.

   New mini-inline projects are not eligible for TSA funding. Mini in-line systems will continue to be

included and updated in the Planning Guidelines & Design Standards (PGDS) document and airports can continue to pursue this solution without TSA funding.

2. **Recapitalization –** Recapitalization projects are TSA-initiated projects that replace existing screening equipment due to technical obsolescence. The scope of a recapitalization project is limited to only those actions necessary to replace existing screening equipment while maintaining existing capabilities and is defined by TSA in advance.

   TSA currently reimburses airports 100% of the total project costs (design and construction) for the limited scope of straight recapitalization. Any additional work that an airport would like to conduct beyond the recapitalization scope is considered optimization activity. Recapitalization projects are eligible for TSA funding.

3. **Optimization** – Optimization projects are airport-initiated modifications to, or replacement of, an existing full in-line system for any reason other than screening equipment recapitalization. Optimization projects or activities are not eligible for TSA funding, with the exception of projects that are triggered by a TSA-initiated recapitalization project. In this situation, where the Airport chooses to execute scope above and beyond the pre-defined scope of Recapitalization, TSA would be responsible for the costs of the recapitalization scope and the Airport will take responsibility for the costs of any scope beyond straight recapitalization.

   To be eligible for recapitalization-triggered optimization funding, the following requirements must be met:
   - The project must be executed within the timeline TSA budgeted and planned to carry out the recapitalization project. Should the project be delayed, the funding for it will be canceled and TSA will move ahead with recapitalization.
   - The project must be used to replace equipment being recapitalized.
   - The TSA Project Coordinator will execute an independent government cost estimate to determine the costs of the recapitalization project. This amount will be presented to the Project Sponsor and should be agreed upon in advance of the project.

4. **PGDS Upgrades** – PGDS Upgrade projects are TSA-initiated efforts to close gaps between existing system capabilities and current PGDS requirements. PGDS Upgrade projects are eligible for TSA funding.

5. **Growth –** Growth projects upgrade and/or add screening equipment to an existing in-line system to account for demand beyond existing system capacity. These projects are not eligible for TSA funding.

A Project Sponsor may apply for design project funding prior to the start of any design engineering. Any project costs incurred by the Project Sponsor prior to receiving a fully executed OTA from TSA are ineligible for reimbursement. For projects in which the Project Sponsor has already completed a portion of the project design without funding from TSA, the Project Sponsor may apply for funding of the remaining design costs. As every project is unique, the Project Sponsor must be cognizant of the terms and conditions associated with their respective OTA in order to ensure that potential costs meet the requirements for reimbursement.

While not needed for the initial application, the Project Sponsor must submit a quote from their

designer, including all allowable costs for the design effort, in order for TSA to award a Design OTA. Similarly, for a facility modification OTA, the Project Sponsor must have obtained bids, determined the prospective winning bidder, and provided bid information in CWE format to TSA before TSA will award an OTA.

The Project Sponsor is strongly encouraged to submit their application for Facility Modification project funding early in design; TSA recommends that this be coordinated between the Project Sponsor and TSA as part of the design process. TSA will not proceed towards finalizing a Facility Modification OTA until the 100% Design Phase has been successfully completed, bids are obtained and provided, a winning bid is chosen, and TSA conducts its own internal cost analysis.

TSA will retain 10% of invoiced amounts until the OTA scope is completed. If a Project Sponsor's system is required to repeat integrated site acceptance testing (ISAT), this may impact retainage.

Section C. Allowable, Allocable and Reasonable Costs

Cost share is dependent on the project category and hub type, and it will be stipulated in the OTA. Project costs may be eligible for inclusion in a Design or Facility Modification OTA if they:

1. Are essential to the checked baggage inspection system solution and not otherwise excluded;

2. Are allowable, in that they conform to the terms and conditions of the OTA to include all legal references listed in this policy and the OTA;

3. Are allocable, in that they directly attributed to only the TSA CBIS project (unless identified as an unallowable cost in section C.4) – a project cost must be chargeable to a TSA project objective necessary for the operation of the CBIS;

4. Are reasonable in their nature and amount, and do not exceed that which would be incurred by a prudent person in the conduct of competitive business. (See generally: Federal Acquisition Regulations Subpart 31.2, Contracts with Commercial Organizations, for further guidance.);

5. Are also considered allowable, allocable, and reasonable according to OMB Circular A-87, or OMB Circular A-122 depending on the Project Sponsor's business structure.

The Project Sponsor must also review project costs to ensure conflicts do not exist with any additional federal grants that the Project Sponsor has or intends to accept. In some instances, Federal Aviation Administration grants may preclude the reimbursement of TSA project costs, and vice versa. The Project Sponsor should consult their legal counsel and the appropriate federal agencies for guidance.

Typical Costs for TSA Checked Baggage Inspection System Projects

C.1 Allowable Design Costs

1. TSA will only reimburse design fees that can be directly apportioned to the TSA "allocable" portion of the CBIS project.

2. TSA will reimburse for reasonable project management costs associated with the design portion of a CBIS project.

3. Contingency may be considered for Design OTAs. Contingencies for Design OTAs shall be applied to the sum total of design, project management, and bid support costs.

4. TSA will reimburse for reasonable bid support costs associated with the construction portion of a CBIS project.

C.2 Allowable Construction Costs

1. Basic interior construction and fit out is considered an allocable cost and must be limited to areas directly supporting the baggage screening operation to include CBIS areas, including the CBRA areas and OSR room(s). Costs in excess of basic finishes are not allowable.

   Interior construction is defined as:

   - Interior wall construction as a result of space reconfiguration(s) to accommodate and support TSA screening operations
   - Installation of electrical and communications systems, including:
     - Circuit panels
     - Telephone or communication junctions
     - Transformers and other electrical components required to support TSA
   - Installation of heating ventilation and air conditioning (HVAC) of spaces to support EDS machine operation, the OSR room, the CBRA, and other areas that will be staffed by TSA field personnel. The exact extent of the HVAC cost that will be considered eligible for TSA reimbursement is assessed on a case-by-case basis.
   - Installation of uninterruptable power supply (UPS) to support EDS machine operation.
   - Sprinkler systems and alarms as required by local fire and safety codes
   - Insulation, drywall, acoustical ceiling tiles, and sound baffles associated specifically with the CBRA and/or OSR room noise attenuation
   - Interior construction in support of Occupational Safety and Health Administration (OSHA) requirements for spaces inhabited by Transportation Security Officers
   - Floor reinforcement in the CBIS, including CBRA and OSR areas to meet structural load requirements if applicable

2. Demolition and site preparation of the existing conditions to support EDS installation, CBRA and OSR construction.

3. Basic lighting, fixtures, switching, and appurtenances in CBIS areas, including the CBRA, and the OSR room that meet current minimum National Electrical Code, International

Building Code, and OSHA requirements for lighting (lumen per square foot) for office space and to support allocable computers, conditioning units, printers, and other ancillary equipment. If allocable to the CBIS, OSR room, or CBRA, the costs for the following may be eligible for reimbursement:

- New power drops
- Associated transformers
- Electrical panels or subpanels
- Communication and network wiring
- Network and/or communications exchanges

4. Basic furnishings within the CBRA and OSR room only, such as adjustable height work stations, chairs, non-powered gravity rollers or other "no-lift" devices.

5. Conveyor within the Secure Tracking Zone (STZ), generally defined as the portion of the BHS beginning at the pre-EDS automated tag reader (ATR) and ending at the downstream clear line(s). This is limited to conveyor from the ATR to the EDS shunts (if there is an upstream ATR), the EDS shunts to and from the EDS, the OSR line, the CBRA line, the reinsert line, and all diverters/merges required for baggage screening.

6. The costs of design or construction of dual mainlines feeding the CBIS are allowable only if the rated throughput of the CBIS exceeds the capacity of a single mainline. The costs of dual mainlines for the purpose of redundancy, in systems where a single mainline has sufficient capacity to feed the CBIS at its rated throughput, are not allowable.

7. ATRs are allowable by TSA if they are installed pre-EDS and used to support bag tracking in a security zone.

8. Conveyor equipment allocability outside of the CBIS can be considered under the following conditions:

    - For an existing centralized system, in which the current configuration routes bags from multiple ticket counters into a single mainline and back out to multiple makeup units (see Figure 1), conveyor sections required to intercept bags on original delivery lines, deliver to CBIS, and return back to the original conveyance will be considered for reimbursement. The conveyance design shall align with the reasonableness expectations as identified in Section C. TSA will not reimburse for a host Baggage Sortation Message to a sort controller for the purpose of individual air carrier sort functions.

    - For an existing decentralized system, in which the current configuration routes bags from individual ticket counters to individual baggage makeup units (see Figure 2), conveyor sections required to intercept bags on original delivery lines and deliver to CBIS will be considered for reimbursement. TSA will reimburse the clear lines exiting CBIS up to and including the last clear conveyor merge conveyor (and receiving conveyor) within reasonable design expectations (to be reviewed and discussed during the design submissions). Baggage conveyance downstream of the

last clear conveyor merge back out to baggage makeup units is not an allocable cost.

- Existing systems that are not aligned with the above scenarios (existing systems that contain both centralized and decentralized BHS subsystems) will be evaluated on a case by case basis.

Figure 1: Diagram of Allowable BHS Equipment (Centralized Sortation)

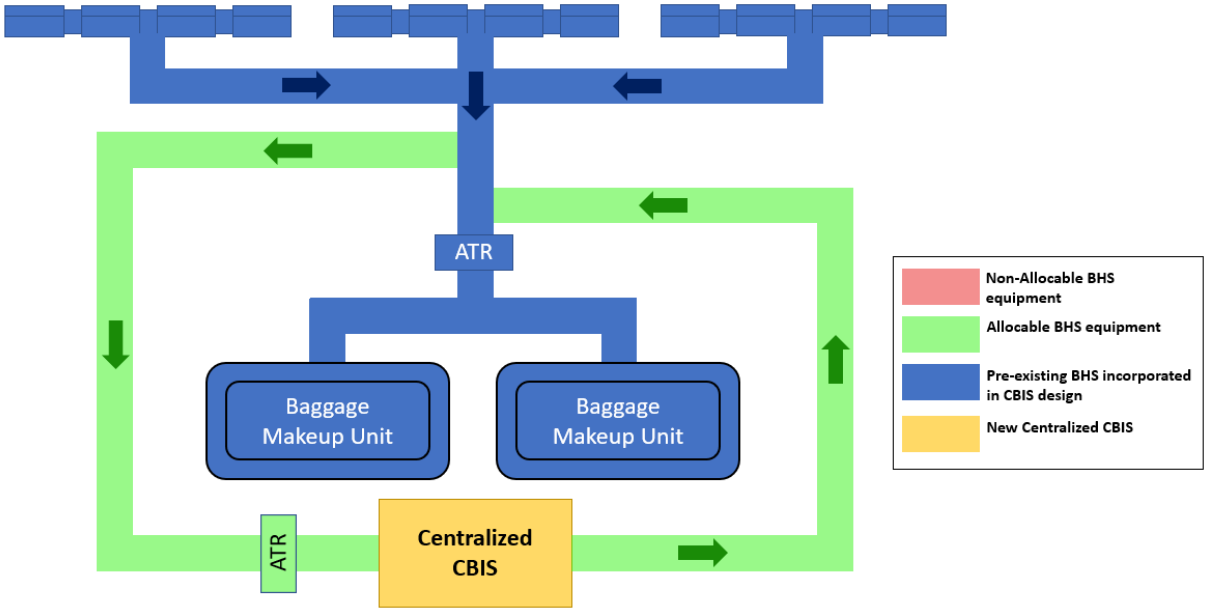
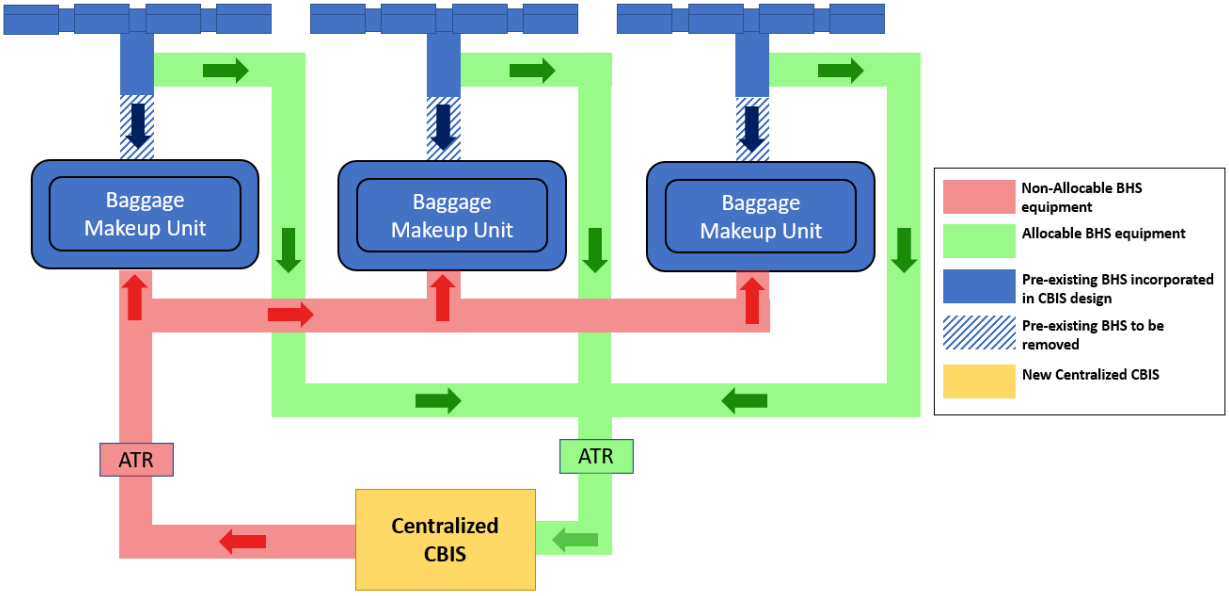


Figure 2: Diagram of Allowable BHS Equipment (Decentralized Sortation)



9. Telephone, radio, intercom, airport-only cellular phones, or other voice communications may be considered if essential for TSA CBIS, including CBRA and OSR operations.

10. Closed Circuit Television at the following locations:

    - The divert point going into the EDS shunt
    - The EDS entrance
    - The EDS exit
    - The machine clear bag divert point
    - The point where the OSR line merges into the mainline
    - Last chance divert point
    - OSR Room
    - CBRA Room

11. BHS monitors in the OSR room and/or in the CBRA.

12. Programmable logic controllers (PLC) if the addition of an in-line screening system requires a modification and/or addition to current systems. TSA will only consider allowing for the programming to integrate and control the in-line screening portion of the BHS, and will only consider the costs of that portion of the controls necessary to support CBIS, OSR, and CBRA operations.

13. Replacement or modification of the existing CBIS necessary to support recapitalization of the EDS machines on a case-by-case basis within the TSA-designated areas.

14. Phasing costs identified and agreed to by TSA in the design review process to support EDS installation, CBRA and OSR construction.

15. Security Technology Integration Program (STIP) requirements. STIP provides for connectivity of security technology such as EDS, Explosive Trace Detection, and primary and secondary EDS workstations to the TSA network (see PGDS for general connectivity requirements; TSA will also provide any current STIP requirements documents to a Project Sponsor upon request).

C.3 Allowable Project Management, Construction Management, and Contingency Costs

1. The following fees are considered to be allowable costs:
    - Insurance
    - Home office overhead
    - Profit
    - Sales tax
    - Design w/ Construction Administration
    - Project Management
    - Construction Management
    - Design Contingency
    - Construction Contingency (Facility Modification OTA Only)

TSA will only reimburse such costs that can be directly apportioned to the TSA "allocable" portion of the CBIS project. Specific justification for fees must be provided and approved at the time of negotiation prior to the OTA being signed.

2. The inclusion of construction contingency funds for allocable items is only allowable for projects with Facility Modification OTAs. Construction contingencies are not expected to exceed 5% of the total projected construction budget unless the total construction budget is low or there are other extenuating circumstances.

3. In order to invoice TSA for any of the contingency funds, a change request must be submitted to TSA outlining the change in condition that requires the additional funding and supplying the necessary supporting documentation, including modified plans and specifications for the change. Further, Project Sponsor should submit a cost estimate, meeting all requirements of this document, with the change request justifying the change in cost.

    - Change Requests are defined as requests for the utilization of contingency funds that do not add costs or changes to the scope of the OTA. Change requests shall not be considered authorization to exceed TSA's Reimbursement Limit. Any change requests shall be submitted by the Project Sponsor to the TSA COR prior to any work starting. Once the COR has been given advance notice of the impact the change request has on the Project, if agreed to by TSA, the TSA COR will provide written approval to the Project Sponsor to proceed with the work identified in the Change Request. TSA will not reimburse the Project Sponsor for any cost incurred for change request work that was not pre-approved by TSA.

    - If the change requires a modification of the OTA, this constitutes a change order. Change Orders are defined as work that is added to or removed post OTA award that consequentially adds cost or changes the scope of the OTA. Change orders shall not be considered authorization to exceed TSA's Reimbursement Limit. Any changes to the authorized amount shall be submitted by the Project Sponsor to the TSA Contracting Officer Representative (COR) and TSA Contracting Officer (CO) prior to any work starting. Once the COR and CO have been given advance notice of the impact the Change Order has on the total cost of the Project, if agreed to by TSA, the TSA CO will provide written approval to the Project Sponsor to proceed with the work identified in the Change Order. TSA will not reimburse the Project Sponsor for any cost incurred for change order work that was not pre-approved by TSA.

C.4 Unallowable Costs

The following list presents examples of items which costs are considered unallowable for reimbursement under an OTA agreement with TSA. This list does not represent a complete list of unallowable items. TSA's requirements for the design of CBIS are presented in the PGDS.

1. Design and construction costs for TSA-leased spaces.

2. Construction costs for centralized BHS control rooms.

3. Design or construction of "bricks and mortar", which is defined as new construction that is not fit-out of TSA specific rooms (such as any new physical structure built to house the CBIS, CBRA, and/or OSR areas).

4. Design or construction of new utility substations or distribution centers (examples including but not limited to electrical switchgears and building water main pumps).

5. Costs for extended warranties.

6. Costs for BHS operations and maintenance.

7. Costs incurred outside of the OTA period of performance.

8. BHS Spare parts and storage areas for BHS spare parts.

9. Replacement of PLC components and PLC programming. See Section C.2.12 above for more details on PLC eligibility.

10. Laptop computers used for maintenance of the BHS.

11. BHS components outside of the CBIS area (including, but not limited to):

    a. Baggage reconciliation systems (carousels or sortation systems).

    b. Baggage System Management (BSM) data providers and/or BSM systems.

    c. Manual encoding systems, with the exception of ICS systems where the manual encode is used.

    d. Replacements of ticket counter conveyors and sortation area conveyors.

    e. Input mainline conveyors upstream of the Secure Tracking Zone (STZ) unless identified otherwise in section C.2.

    f. Conveyors downstream of the STZ unless identified otherwise in section C.2.

    g. Replacement of inbound and outbound sortation conveyors.

12. Retrofit of an existing CBIS as a result of airline mergers or relocations within an airport unless such construction is proven to be cost-beneficial to TSA, as determined by TSA's cost analysis. TSA does not support allocation of BHS system costs borne by airlines or airports outside of the OTA process

13. Mainlines in excess of the capacity needed to feed the CBIS at its rated throughput.

14. Automatic recirculation loops (not including the automatic reinsertion lines in the CBRA), either pre-EDS screening or post-EDS screening.

15. Dynamic simulation modeling.

16. Additional ISAT beyond the initial test.

    a. The Project Sponsor's cost for additional ISAT will be borne by the Project Sponsor and will not be reimbursed by TSA.

    b. TSA's cost for additional ISAT will be deducted from the OTA retainage.

17. Re-design work the airport elects to do after TSA approves a design.

18. Costs incurred by the airport or its contractors or agents to perform work not in compliance with TSA requirements as stated in the OTA.

19. Airport profit or the general costs of government.

20. Repair or replacement of any equipment not identified as being "TSA Maintained" in Table 2 below.

Table 2: TSA Procurement and Maintenance Responsibility Matrix

Category	Equipment Type	TSA Procured	TSA Maintained
Screening Equipment	EDS, ETD	Yes	Yes
Ancillary Equipment	SVS, PVS, MCS, UPS, Network Servers	Yes	Yes
Furniture	OSR Chairs	Yes	Yes

Appendix. Revision Summary

Version 5.0

LOCATION	COMMENT (Bold font indicates notable changes)
Section A	• Updated URL link for PGDS
Section B	• Revised section title to "Funding Application and CBIS Project Types Eligibility" • Removed reference of the FSD acquiring a ReMAG prior to submitting the application form • Added Table 1 to provide an overview of project types and funding eligibility • **B.1 - Revised language to define a New In-line system and added metrics to identify expectations for a full in-line system.** • B.2 - Added language to Recapitalization that "TSA currently reimburses airports 100% of the total project costs (design and construction) for the limited scope of straight recapitalization. " • B.2 - Removed the word "generally" such that the language reads "Recapitalization projects are eligible for TSA funding" • B.3 - Revised language to Optimization to define that eligibility for TSA funding and added the list of requirements to be eligible for funding. • B.4 - Removed the word "generally" such that the language reads "PGDS Upgrade projects are eligible for TSA funding". • B.5 - Revised "Expansion" to "Growth" and added language "to account for demand beyond existing system capacity". • B.5 - Removed the word "generally" such that the language under Growth reads "These projects are not eligible for TSA funding" • Added language "Any project costs incurred by the Project Sponsor prior to receiving a fully executed OTA from TSA are ineligible for reimbursement". • Added language "As every project is unique, the Project Sponsor must be cognizant of the terms and conditions associated with their respective OTA in order to ensure that potential costs meet the requirements for reimbursement" • Revised the language "make a final determination regarding funding" to "award" • Added language that for a facility modification OTA, the bid information is to be provided "in CWE format" • Revised language from "a certain percentage" to "10%" with regards to retainage • Revised language from "certain project milestones are completed" to "the OTA scope is completed" • Removed language "The OTA will provide specific milestones and the percentages to be retained" related to retainage
Section C - Intro	• Added language to note project costs may be eligible for inclusion in both a Design or Facility Modification OTA • **C.3 - Added language "(unless identified as an unallowable cost in section C.4)" related to allocable costs**
Section C.1	• C12.3 – Moved language from section C.3 to C.1 regarding Design OTA Contingencies
Section C.2	• **C.2.7 - Removed language identifying ATRs as allowable if they are installed post CBIS** • **C.2.8 - Revised language describing allocable considerations for both an existing centralized system and an existing decentralized system, further defining the equipment that TSA will consider allocable for funding purposes.**

	• C.2.8 - Added language "systems that are not aligned with the above scenarios (existing systems that contain both centralized and decentralized BHS subsystems) will be evaluated on a case by case basis." • C.2.8 - Revised Figures 1 and 2 to reflect allowable BHS equipment instead of allowable ATRs. • C.2.13 - Revised language from "relocation, and/or upgrade" to "or modification" with regards to support recapitalization of EDS machines
Section C.3	• C.3.1 – Added language "(Facility Modification OTA Only)" with regards to construction contingency • C.3.3 – Added language directly from the OTA agreement to define a change order and change request
Section C.4	• C.4.3 – Revised language from "refers to" to "is defined as new construction that is not fit-out of TSA specific rooms (such as any new physical structure built to house the CBIS, CBRA, and/or OSR areas)" • **C.4.4 – Added new bullet point with language "Design or construction of new utility substations or distribution centers (examples including but not limited to electrical switchgears and building water main pumps)."** • C.4.6 – Revised "CBIS" to "BHS" • C.4.8 – Revised language to refer specifically to "BHS Spare Parts" • C.4.11.c – Removed the language "post ATR and pre-EDS only" • C.4.11.e – Revised "Inbound" to "Input" and added language "unless identified otherwise in Section C.2"

APPENDIX D

Construction Safety & Phasing Plan

(CSPP)

PUNTA GORDA AIRPORT
CHARLOTTE COUNTY AIRPORT AUTHORITY

CONSTRUCTION SAFETY AND PHASING PLAN

FOR

SOUTH TERMINAL EXPANSION
AND
IN-LINE BAGGAGE SYSTEM

AECOM

7650 West Courtney Campbell Causeway
Tampa, FL 33607
Project No. 60665507

DECEMBER 2022

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for
SOUTH TERMINAL EXPANSION AND IN-LINE BAGGAGE SYSTEM

A. Introduction

The Punta Gorda Airport (also referred to as PGD, its FAA Airport ID) is located in Charlotte County approximately 3 miles southeast of the Punta Gorda Central Business District. The airport is currently serviced by two airlines, Allegiant and Sun Country.

B. Project Description

This project involves the expansion of the terminal hold room space and new location of the in-line baggage handling systems. Work includes modifications of the existing TSA baggage screening makeup area to allocate additional hold room space. The new expansion structure will house BHS screening, CBRA space, ancillary spaces for the BHS/TSA controls and servers, and a new exterior covered carrousel bay. Other work includes demolition of existing support buildings, relocation of the trash compactor, security fencing, and constructing a new electrical services for the BHS.

C. Construction Phasing and Safety

Work on this contract will be carried out in multiple phases as defined on the phasing plans. All phases shall be carried out in accordance with the defined restrictions and shall be scheduled in advance with airport operations. The contractor shall prepare and submit to the engineer a detailed schedule of proposed activities for review and approval by the owner A minimum 2-weeks in advance of the contractor beginning any phase of work. The proposed phasing may be modified by the Charlotte County Airport Authority due to scheduled operations on the airfield. The following restrictions are applicable to this project:

A. Runway 9-27, Runway 15-33, Runway 4-22, and all taxiways unless noted will be open and fully operational during all phases of work.

B. Lighted standard DOT Type I or low-profile barricades may be utilized at all locations at the contractors' option, except in locations where temporary security fence is specifically required to be used in the drawings.

C. The contractor shall incorporate appropriate means and measures in his construction quality assurance plan to prevent the occurrence of wind-blown debris from the construction site.

D. Contractor's access gate shall be used by the contractor for all phases of work. The airport operations areas shall be secured at all times.

E. Reference the drawings for detailed information on required work in each construction phase.

Construction Phasing

Phase 1 – Mobilization – 30 Calendar Days

Mobilization shall consist of contractor mobilization, establishment of haul routes, submittal of asphalt and concrete mix design, building submittals and shop drawings, stock piling of materials, submitting the "Construction area lighting Plan", etc.

Building department review: Work during this time shall consist of submittal for all permits, including building permits, coordination with the building department, answering questions, re-submittal as may be required, and securing all permits required for the construction of the project.

Mobilization time may be extended by the Authority should there be building permit delays.

Phase 2 – 90 calendar days

Work included in Phase 2 includes:

- Building and site demolition
- Relocation of trash compactor
- Modification/relocation of passenger walkway canopy and fence
- Installation of temporary fence
- Completion of storm drainage improvements

Phase 3 – Building Expansion – 270 calendar days

Phase 3 work shall begin after satisfactory conclusion of Phase 2 work. Phase 3 work includes:

- Terminal building expansion
- Installation of new electrical service
- Installation of all mechanical, electrical, plumbing, fire protection and communication systems

Phase 3A – Installation of In-Line Baggage System and Carousel

Phase 3A work shall begin at the onset of Phase 3 and shall be concluded within 330 calendar days. All baggage systems shall be operational at the conclusion of Phase 3A.

Phase 3B – In-Line Baggage System Testing and TSA Relocation – 30 calendar days

Phase 3B work shall include completion of any deficiency items noted during the TSA testing of the baggage system.

Phase 4 – Holdroom Modification – 60 calendar days

Work in Phase 4 includes:

- reconfiguration of old TSA space into holdroom space
- relocation of the passenger walkway canopy and fence

Substantial completion – 14 calendar days

The contractor has 14 calendar days to complete deficient punch list items noted in the substantial completion inspection and to demobilize from the site.

Total contract time for the project is 554 calendar days.

D. Construction Safety and Phasing Plan

1. Coordination

A preconstruction conference will be scheduled prior to any construction activities. The Construction Safety and Phasing Plan as well as other safety and phasing issues will be discussed at this time. The contractor, engineer, inspection personnel, and airport staff will all participate in this meeting. All parties will be alerted of the potential safety concerns and operational impacts in particular related to taxiway and runway closures during construction.

Bi-weekly or monthly construction progress meetings will be held during the project. Any upcoming impacts to operations as well as any changes from what was discussed at the preconstruction conference will be addressed during these meetings.

A contact list of key project personnel will be provided, and conference calls will be used to discuss and resolve project issues as these may develop during construction.

2. Phasing

A full set of phasing notes have been included in Section C and a full set of the safety and phasing drawings have been included in Appendix D. Closed areas are noted during each phase and contractor haul routes and access have been noted and discussed.

3. **Areas and Operations Affected by the Construction Activity**
   The operational areas of the airport will be minimally impacted during construction. The covered passenger walkway and fence on the south side of the terminal will be relocated so outbound baggage can be picked up on the east side of the conveyor belt. Temporary fencing will be installed to secure the AOA and thereby allow most construction activity to be completed on the landside area of the AOA.

   Once the new system is operational and tested the old system will be removed, permanent AOA fence installed, and the passenger walkway restored to its original position.

4. **Protection of Navigation Aids (NAVAIDs)**
   No NAVAIDs will be modified or installed in the project.

5. **Contractor Access**
   Contractor staging areas and access routes have been identified on the Safety and Phasing Plans. All construction vehicles will stay off of active runways, taxiways, and aprons unless given clearance from the Airport. Hauling will be conducted along the terminal entrance road. Haul routes to be used have been shown on the phasing plans. These haul routes will be maintained by the contractor and will be replaced to its original conditions upon completion of the project.

6. **Wildlife Management**
   While no disturbances to existing wildlife are anticipated, the contractor shall contact the Airport immediately upon discovering any wildlife which may need attention or cause a disturbance to the project.

7. **Foreign Object Debris (FOD) Management**
   All construction vehicles shall be checked for FOD prior to entering the airfield. The contractor's staging area shall be properly protected to ensure that no loose debris or stored material can be blown onto the airfield. The contractor will be required to have a sweeper and/or vacuum on site at all times during construction of the project.

8. **Hazardous materials (HAZMAT) Management**
   No hazardous materials shall be used or anticipated to be encountered during construction. Fueling of all construction vehicles shall be restricted to a designated area within the contractor's staging area. This area shall be clear of any operating equipment and away from all airport equipment. Extreme caution shall be used whenever fueling construction vehicles to follow all standard fuel safety protocol and keep fuel off of airport ground.

9. Notification of Construction Activities

If conditions arise anytime during construction, that will adversely affect the operational safety of the airport, appropriate actions must be taken. All pavement closures will be discussed with all necessary parties and a list of airport and contractor contacts will be provided to all parties involved in the project. A preconstruction and bi-weekly or monthly construction progress meeting will take place with the contractor and appropriate airport staff. Airport staff will notify any tenants who may be affected by upcoming work. NOTAM's will be issued at each closure and as necessary so all stakeholders are aware of ongoing construction activities.

10. Inspection Requirements

Safety inspections shall be conducted on a daily basis. A sample checklist has been provided as part of the Advisory Circular in Appendix B.

11. Underground Utilities

The contractor shall be responsible for locating and/or verifying the location of all underground utilities in the project work areas. Sanitary and water connections will all need to be located during the course of the project and removed and capped per plan requirements.

12. Penalties

The contractor is subject to penalties for noncompliance with airport rules, regulations, and safety plans. Driving privileges may be revoked as well as the loss of work privileges.

13. Special Conditions

No special conditions have been identified at this time.

14. Runway and Taxiway Visual Aids

All runway and taxiway visual aids must remain operational and clearly visible during the duration of the project. Work will not affect airport lighting and signage.

15. Marking and Signs for Access Routes

Signs shall be placed by contractor identifying all delivery routes and the contractor staging area. These shall be clearly identified so that deliveries to the staging area are clear and direct. The staging area shall be clearly identified, and all contractor personnel shall be familiar with the best routes from the staging area to the various areas of work. These routes will be identified with proper construction signs outside of the TOFA.

16. Hazard Marking and Lighting

Lighted temporary security fence shall be used to separate construction areas from active taxilanes and aprons. Signs may be placed on the

fence as necessary where specific instructions are required. A detail of the temporary fence has been included in the construction phasing drawings. Solar powered LED lights will be provided on the fence at 15' intervals.

17. Protection of Runway and Taxiway Safety Areas

Work will not occur in any of the Runways or Taxiways. Areas that need to be opened to traffic in the taxilane areas will be shored up by the Contractor and inspected by Airside Operations before opening to aircraft traffic.

18. Other Limitation on Construction

No use of tall equipment (cranes, concrete pumps, etc.) unless a 7460-1 determination letter has been issued for the work. The contractor is limited to construction equipment that is not higher than 50 feet above the ground surface.

APPENDIX A

SPECIAL PROVISION 1

SPECIAL PROVISIONS NO. 1

CONSTRUCTION SAFETY PLAN AND SECURITY REQUIREMENTS

1. PURPOSE AND OBJECTIVE

The purpose of this plan is to set forth guidelines concerning construction and safety on the Punta Gorda Airport during the **SOUTH TERMINAL EXPANSION AND IN-LINE BAGGAGE SYSTEM** project. Described herein are methods, procedures, rules and authorities to be adhered to during said construction period.

Following are the general safety plan objectives that must be achieved in order to maximize safety and to minimize time and economic loss to the aviation community, construction contractors and others directly affected by the project.

A. Keep the airport operational for all users.

B. Minimize delays to airport operations.

C. Maintain safety of airport operations.

D. Minimize delays to construction operations.

E. Minimize airport-operation/construction-activity conflicts.

The Contractor should keep these objectives in mind when formulating his schedules and operational activities.

2. GENERAL SAFETY REQUIREMENTS

A. A construction/safety meeting will be conducted after the award of the contract and prior to commencing construction. Additional construction/safety meetings may be scheduled biweekly throughout the life of the contract. Representatives from the Contractor, Architect/Engineer, Owner, and any others deemed necessary by County, will attend. The Contractor is required to conduct a weekly Safety/Security meeting and three copies of the minutes will be provided to the Architect/Engineer within five calendar days of the meeting. All supervisors and the Architect/Engineer's representative are required to attend.

B. The Contractor shall inform his supervisors and workmen of the airport activity and operations that are inherent to this airport, the safety regulations of the airport, and the prohibition of driving or walking on any area of the Air Operations Area (AOA) without clearance. The Contractor shall conduct his construction activities to conform to both routine and emergency requirements.

C. All Contractor vehicles that are authorized to operate on the airport outside of the designated construction area limits or haul routes as defined herein shall display 3' x 3' flags or larger, orange and white checkerboard flag, each checkerboard color being 1' square. Any vehicle operating during hours of darkness should be equipped with a flashing amber dome-type light, mounted on top of the vehicle and of such intensity to conform to local codes for maintenance and emergency vehicles. Vehicles operating in the active Aircraft Operational Area (AOA) must do so under with utmost caution. Aircraft traffic has the way-of-way at all time. Vehicles shall be escorted and under the control of one contractor mobile (two-way) radio operator on the job at all times.

D. No loose material or waste capable of causing damage to aircraft or capable of being ingested into jet engines may be placed next to the runways, taxiways or apron during operational hours. Special

attention is directed to the Contractor that all pavement which is operational to aircraft during construction must be kept clean and clear of any materials or debris.

E. Open flame torch cutting or welding is prohibited unless adequate safety precautions have been taken and approved by the Engineer.

F. The existing airport pavements and facilities are designed for aircraft on single and dual gear configurations. The Contractor shall preserve and/or protect existing and new pavements plus other facilities from damage due to construction operations. Existing pavements and facilities which are damaged shall be replaced or reconstructed to original strength at the Contractor's expense. The Contractor shall take immediate action to reconstruct any damaged area which is to remain in service.

G. Construction Area Limits

The limits of construction, material storage area, equipment storage area, parking area and other areas defined as required for the Contractor's exclusive use during construction shall be marked by the Contractor. The Contractor shall erect and maintain around the perimeter of these areas suitable marking and warning devices visible for day/night use. Temporary fencing, barricades, flagging and/or flashing warning lights will be required at critical access points. Type of marking and warning devices shall be approved by the County, through the Engineer. Open trenches, excavations and stockpiled materials must be permanently marked with flags and lighted by approved light units during hours of reduced visibility and darkness. No separate pay item is included for this work and all costs must be included in other bid items.

Any construction activity with **250'** of an active runway centerline or **60'** from an active taxiway centerline or open excavations in excess of three inches deep within the above areas, will require closure of the affected runway or taxiway, unless otherwise approved by Airport Director, and issuance of appropriate NOTAMs. AC 150/5370-2 series, "Operational Safety on Airports during Construction", is included herein by reference.

H. Staging, Stockpile, and Spoil Areas

The staging area(s) depicted on the plans shall be used to house the Contractor's and resident inspector's offices, and to store all idle equipment, supplies, and construction materials (other than bulk materials such as aggregate, sand, and soil). The Contractor may erect and maintain throughout the life of this contract, at his expense, a 6-foot high fence of chain link fabric around the perimeter of each staging area used. He may also install vehicle and pedestrian gates, as necessary, to provide adequate ingress/egress. Additionally, the perimeter of any staging area which abuts an active operation pavement shall be marked with red flashing barricades no more than 50 feet apart. Upon completion of all work, remove all construction fencing and barricades from the project site.

Contractor's vehicles, equipment, and materials shall be stored in the area designated on the plans. Upon completion of the work, the storage area shall be cleaned up and returned to its original condition to the satisfaction of the Owner. No special payment will be made for cleanup and restoration of the storage area. Personal services will not be permitted beyond the Contractor's parking area. Drivers of vehicles being operated beyond this area shall be subject to loss of permission to enter the construction site.

Equipment not in use during construction, nights, and/or holidays will be parked in the Contractor's staging area. Exceptions will only be approved by the Engineer when absolutely necessary. Parking of construction workers' private vehicles shall also be within the staging area construction fence.

Stockpile areas shall be used to store all bulk materials needed for the project and may or may not be fenced at the Contractor's option. However, yellow flashing barricades shall be installed where potential conflicts with air or ground vehicular traffic might occur.
The spoil site depicted on the plans shall be used to stockpile all clean soil removed from the project site and not needed for the project construction. Separate stockpiles shall be created for the project construction. Separate stockpiles shall be created for structural soil and topsoil. Stockpiles shall not

penetrate the FAR Part 77 imaginary surfaces. All other waste material, including rubble and debris, shall be removed from the Airport at the Contractor's expense.
No stockpile areas to store all bulk materials for the project are provided. All material removed by excavation such as concrete, asphalt, or limerock will be transported off the airport limits when it is taken up. It will not be stockpiled on airport property.

If additional storage area is needed, the Contractor may request it from the Engineer. The request will be reviewed on the basis of what is to be stored and the area needed. The Contractor shall provide any necessary fencing and/or security.

All waste material, including rubble and debris, shall be promptly removed from the Airport at the Contractor's expense. No hazardous materials shall be stored within the Airport property. Burning on Airport property is prohibited.

I. Limitation of Operations

The Contractor shall be responsible for controlling his operations and those of his subcontractors so as to provide for the free movement of aircraft in the apron and taxiway areas of the airport (Air Operations Area).

J. Obstructions to Navigation

Penetrations of the imaginary surfaces defined in FAR Part 77 shall not be permitted without advance notification of and approval by the **Owner**. It may be necessary to file Form 7460-1 with the FAA to obtain approval prior to operation of exceptionally tall equipment. This includes any penetrations whatsoever by the Contractor, including but not limited to vehicles, cranes, other construction equipment, structures, stockpiled materials, excavated earth, etc.

When penetrations are unavoidable they shall be brought to the attention of the Owner and the FAA as far in advance as is practical to allow Notices to Airmen (NOTAMS) to be prepared and distributed to appropriate FAA divisions for publication and dissemination.

During times when the safety of flight operations could be impaired, particularly during weather when instrument approaches are required, or when the equipment is idle, all booms, towers and other movable appendages shall be lowered to the maximum extent.

K. Emergency Procedures

The Contractor shall familiarize himself with airport emergency procedures and shall endeavor to conduct his operation so as not to conflict with them. Clear routes for crash/fire/rescue equipment shall be maintained in operable condition at all times.

In case of an emergency caused by an accident, fire, or personal injury or illness, local police are to be immediately notified by calling them at **911**. The caller must accurately report the location and type of emergency. The Owner and Engineer shall also be notified of any emergency.

L. Access to the Construction Site

The Contractor's access to the site shall be as shown on the Project Plans or as directed by the Engineer. No other access routes shall be authorized without written approval of the Engineer and Owner.

The Contractor shall identify access routes with suitable signs, barricades and similar equipment.

All Contractor traffic authorized to enter the site shall be experienced in the route or guided by Contractor personnel. The Contractor shall be responsible for traffic control to and from the various construction areas on the site and for the operation of the access gate to the site.

The Contractor shall familiarize his employees with the route. Material and equipment delivery trucks shall be accompanied by an employee of the Contractor familiar with the route. The Contractor shall be responsible for access control through the access gate for the duration of his contract. This access control will be for all personnel using the gate for access. This gate will be manned, whenever unlocked.

The Contractor shall monitor and coordinate all Contractor traffic at the access gate with the Owner. The Contractor shall not permit any unauthorized construction personnel or traffic on the site, including food and beverage vendors or caterers.

If breaches of security occur, the Engineer may, at his option, close the gates until adequate actions have been taken to prevent further breaches of security. Any delay caused by this will be considered Contractor Caused and will not extend the contract time.

The Contractor is responsible for immediate cleanup of any debris deposited along the access route as a result of his construction traffic. The entire access route and construction site shall be kept free and clean of all debris at all times and maintained in good repair by the Contractor or his agents, and shall be immediately repaired to the satisfaction of the Owner. Directional signing along the delivery route to the storage area, plant site or work site shall be as directed by the Architect/Engineer.

M. Contractor's Security Requirements

1) General Intent: It is intended that the Contractor shall comply with all requirements of the airport security plan and with the security plan specified herein. The Contractor shall designate, to the Architect/Engineer, in writing, the name of his Contractor Security Officer (CSO). The CSO shall be the Contractor's representative on the "Construction Security Committee" and shall be accountable for these security requirements for the Contractor.

2) Contractor Security Personnel Orientation: The Contractor's Security Officer (CSO) will be responsible for all safety precautions. Prior to the commencement of the work, the CSO shall provide the Architect/Engineer an outline of a proposed accident and fire protection plan for all work contemplated under the contract.

3) Identification - Personnel: The Contractor's onsite supervisory personnel shall be badged with I.D. badges provided by the **Contractor**. The Contractor shall issue and maintain a master list of personnel issued badges and it shall be available for Owner's examination during construction hours. Personnel shall wear the badge on outermost garment at all times while on the AOA. All employees of Contractor or Subcontractor requiring access to the construction site are required to be supplied with identification badges to be worn at all times while within the area. Responsibility for supply, issuance, and control of identification badges shall be that of the Contractor, through the Contractor Security Officer and the Architect/Engineer.

4) Identification - Vehicles: The Contractor, through the Contractor Security Officer, shall establish and maintain a list of Contractor and Subcontractor vehicles authorized to operate on the site and shall issue a permit to each vehicle to be made available upon demand by the Architect/Engineer or any Airport Security Officer. Vehicle permits shall be assigned in a manner to assure positive identification of the unit at all times. In lieu of issuing individual vehicle permits, the CSO can require each vehicle to display a large company sign on both sides of vehicle and advise the County through the Architect/Engineer of a current list of companies authorized to enter and conduct work on the airport.
5) Employee Parking: Area for parking of the Contractor's employee's vehicles is to be designated by the Architect/Engineer. Parking shall be accomplished in straight equally spaced rows. Contractor shall organize traffic flow and parking patterns, supply traffic control signs and markings subject to approval of the Airport Operations. Maintain the parking surface and pick up trash daily. No storage will be allowed at parking site.

6) Materials Delivery to the Site: All Contractor's material orders for delivery to the work site will use as a delivery address, the street name and number assigned to the access point onto the airport. This will preclude delivery trucks from entering into the Terminal Complex or taking short cuts through perimeter gates and entering into aircraft operations areas inadvertently.

END OF SPECIAL PROVISION NO. 1

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APPENDIX B

ADVISORY CIRCULAR

150/5370-2G

OPERATIONAL SAFETY

ON AIRPORTS DURING

CONSTRUCTION

U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Operational Safety on Airports During Construction	**Date:** 12/13/2017 **Initiated By:** AAS-100	**AC No:** 150/5370-2G **Change:**

1 **Purpose.**

This AC sets forth guidelines for operational safety on airports during construction.

2 **Cancellation.**

This AC cancels AC 150/5370-2F, *Operational Safety on Airports during Construction*, dated September 29, 2011.

3 **Application.**

This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. For those certificated airports, this AC provides one way, but not the only way, of meeting those requirements. The use of this AC is mandatory for those airport construction projects receiving funds under the Airport Improvement Program (AIP). See Grant Assurance No. 34, *Policies, Standards, and Specifications*. While we do not require non-certificated airports without grant agreements or airports using Passenger Facility Charge (PFC) Program funds for construction projects to adhere to these guidelines, we recommend that they do so to help these airports maintain operational safety during construction.

4 **Related Documents.**

ACs and Orders referenced in the text of this AC do not include a revision letter, as they refer to the latest version. Appendix A contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

5 **Principal Changes.**

The AC incorporates the following principal changes:

1. Notification about impacts to both airport owned and FAA-owned NAVAIDs was added. See paragraph 2.13.5.3, NAVAIDs.

2. Guidance for the use of orange construction signs was added. See paragraph 2.18.4.2, Temporary Signs.
3. Open trenches or excavations may be permitted in the taxiway safety area while the taxiway is open to aircraft operations, subject to restrictions. See paragraph 2.22.3.4, Excavations.
4. Guidance for temporary shortened runways and displaced thresholds has been enhanced. See Figure 2-1 and Figure 2-2.
5. Figures have been improved and a new Appendix F on the placement of orange construction signs has been added.

Hyperlinks (allowing the reader to access documents located on the internet and to maneuver within this document) are provided throughout this document and are identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the "ALT" and " ←" keys simultaneously.

Figures in this document are schematic representations and are not to scale.

6 **Use of Metrics.**

Throughout this AC, U.S. customary units are used followed with "soft" (rounded) conversion to metric units. The U.S. customary units govern.

7 **Where to Find this AC.**

You can view a list of all ACs at http://www.faa.gov/regulations_policies/advisory_circulars/. You can view the Federal Aviation Regulations at http://www.faa.gov/regulations_policies/faa_regulations/.

8 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.

John R. Dermody
Director of Airport Safety and Standards

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CHAPTER 1. PLANNING AN AIRFIELD CONSTRUCTION PROJECT

1.1 Overview.

Airports are complex environments, and procedures and conditions associated with construction activities often affect aircraft operations and can jeopardize operational safety. Safety considerations are paramount and may make operational impacts unavoidable. However, careful planning, scheduling, and coordination of construction activities can minimize disruption of normal aircraft operations and avoid situations that compromise the airport's operational safety. The airport operator must understand how construction activities and aircraft operations affect one another to be able to develop an effective plan to complete the project. While the guidance in this AC is primarily used for construction operations, the concepts, methods and procedures described may also enhance the day-to-day airport maintenance operations, such as lighting maintenance and snow removal operations.

1.2 Plan for Safety.

Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the airport operator must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities, and associated costs will be identified and their impact to airport operations must be assessed. Adjustments are made to the proposed construction activities, often by phasing the project, and/or to airport operations to maintain operational safety. This planning effort will ultimately result in a project Construction Safety and Phasing Plan (CSPP). The development of the CSPP takes place through the following five steps:

1.2.1 Identify Affected Areas.

The airport operator must determine the geographic areas on the airport affected by the construction project. Some, such as a runway extension, will be defined by the project. Others may be variable, such as the location of haul routes and material stockpiles.

1.2.2 Describe Current Operations.

Identify the normal airport operations in each affected area for each phase of the project. This becomes the baseline from which the impact on operations by construction activities can be measured. This should include a narrative of the typical users and aircraft operating within the affected areas. It should also include information related to airport operations: the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of the airplanes that operate on each runway; the ADG and Taxiway Design Group (TDG)[1] for each affected taxiway; designated approach visibility minimums;

[1] Find Taxiway Design Group information in AC 150/5300-13, *Airport Design.*

available approach and departure procedures; most demanding aircraft; declared distances; available air traffic control services; airport Surface Movement Guidance and Control System (SMGCS) plan; and others. The applicable seasons, days and times for certain operations should also be identified as applicable.

1.2.3 Allow for Temporary Changes to Operations.

To the extent practical, current airport operations should be maintained during the construction. In consultation with airport users, Aircraft Rescue and Fire Fighting (ARFF) personnel, and FAA Air Traffic Organization (ATO) personnel, the airport operator should identify and prioritize the airport's most important operations. The construction activities should be planned, through project phasing if necessary, to safely accommodate these operations. When the construction activities cannot be adjusted to safely maintain current operations, regardless of their importance, then the operations must be revised accordingly. Allowable changes include temporary revisions to approach procedures, restricting certain aircraft to specific runways and taxiways, suspension of certain operations, decreased weights for some aircraft due to shortened runways, and other changes. An example of a table showing temporary operations versus current operations is shown in Appendix E.

1.2.4 Take Required Measures to Revise Operations.

Once the level and type of aircraft operations to be maintained are identified, the airport operator must determine the measures required to safely conduct the planned operations during the construction. These measures will result in associated costs, which can be broadly interpreted to include not only direct construction costs, but also loss of revenue from impacted operations. Analysis of costs may indicate a need to reevaluate allowable changes to operations. As aircraft operations and allowable changes will vary widely among airports, this AC presents general guidance on those subjects.

1.2.5 Manage Safety Risk.

The FAA is committed to incorporating proactive safety risk management (SRM) tools into its decision-making processes. FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*, requires the FAA to conduct a Safety Assessment for certain triggering actions. Certain airport projects may require the airport operator to provide a Project Proposal Summary to help the FAA determine whether a Safety Assessment is required prior to FAA approval of the CSPP. The airport operator must coordinate with the appropriate FAA Airports Regional or District Office early in the development of the CSPP to determine the need for a Safety Risk Assessment. If the FAA requires an assessment, the airport operator must at a minimum:

1. Notify the appropriate FAA Airports Regional or District Office during the project "scope development" phase of any project requiring a CSPP.
2. Provide documents identified by the FAA as necessary to conduct SRM.
3. Participate in the SRM process for airport projects.
4. Provide a representative to participate on the SRM panel.

5. Ensure that all applicable SRM identified risks elements are recorded and mitigated within the CSPP.

1.3 **Develop a Construction Safety and Phasing Plan (CSPP).**

Development of an effective CSPP will require familiarity with many other documents referenced throughout this AC. See Appendix A for a list of related reading material.

1.3.1 List Requirements.

A CSPP must be developed for each on-airfield construction project funded by the Airport Improvement Program (AIP) or located on an airport certificated under Part 139. For on-airfield construction projects at Part 139 airports funded without AIP funds, the preparation of a CSPP represents an acceptable method the certificate holder may use to meet Part 139 requirements during airfield construction activity. As per FAA Order 5200.11, projects that require Safety Assessments do not include construction, rehabilitation, or change of any facility that is entirely outside the air operations area, does not involve any expansion of the facility envelope and does not involve construction equipment, haul routes or placement of material in locations that require access to the air operations area, increase the facility envelope, or impact line-of-sight. Such facilities may include passenger terminals and parking or other structures. However, extraordinary circumstances may trigger the need for a Safety Assessment and a CSPP. The CSPP is subject to subsequent review and approval under the FAA's Safety Risk Management procedures (see paragraph 1.2.5).

1.3.2 Prepare a Safety Plan Compliance Document (SPCD).

The Safety Plan Compliance Document (SPCD) details how the contractor will comply with the CSPP. Also, it will not be possible to determine all safety plan details (for example specific hazard equipment and lighting, contractor's points of contact, construction equipment heights) during the development of the CSPP. The successful contractor must define such details by preparing an SPCD that the airport operator reviews for approval prior to issuance of a notice-to-proceed. The SPCD is a subset of the CSPP, similar to how a shop drawing review is a subset to the technical specifications.

1.3.3 Assume Responsibility for the CSPP.

The airport operator is responsible for establishing and enforcing the CSPP. The airport operator may use the services of an engineering consultant to help develop the CSPP. However, writing the CSPP cannot be delegated to the construction contractor. Only those details the airport operator determines cannot be addressed before contract award are developed by the contractor and submitted for approval as the SPCD. The SPCD does not restate nor propose differences to provisions already addressed in the CSPP.

1.4 Who Is Responsible for Safety During Construction?

1.4.1 Establish a Safety Culture.

Everyone has a role in operational safety on airports during construction: the airport operator, the airport's consultants, the construction contractor and subcontractors, airport users, airport tenants, ARFF personnel, Air Traffic personnel, including Technical Operations personnel, FAA Airports Division personnel, and others, such as military personnel at any airport supporting military operations (e.g. national guard or a joint use facility). Close communication and coordination between all affected parties is the key to maintaining safe operations. Such communication and coordination should start at the project scoping meeting and continue through the completion of the project. The airport operator and contractor should conduct onsite safety inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

1.4.2 Assess Airport Operator's Responsibilities.

An airport operator has overall responsibility for all activities on an airport, including construction. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on the responsibilities listed below can be found throughout this AC. The airport operator must:

1.4.2.1 Develop a CSPP that complies with the safety guidelines of Chapter 2, Construction Safety and Phasing Plans, and Chapter 3, Guidelines for Writing a CSPP. The airport operator may develop the CSPP internally or have a consultant develop the CSPP for approval by the airport operator. For tenant sponsored projects, approve a CSPP developed by the tenant or its consultant.

1.4.2.2 Require, review and approve the SPCD by the contractor that indicates how it will comply with the CSPP and provides details that cannot be determined before contract award.

1.4.2.3 Convene a preconstruction meeting with the construction contractor, consultant, airport employees and, if appropriate, tenant sponsor and other tenants to review and discuss project safety before beginning construction activity. The appropriate FAA representatives should be invited to attend the meeting. See AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects.* (Note "FAA" refers to the Airports Regional or District Office, the Air Traffic Organization, Flight Standards Service, and other offices that support airport operations, flight regulations, and construction/environmental policies.)

1.4.2.4 Ensure contact information is accurate for each representative/point of contact identified in the CSPP and SPCD.

1.4.2.5 Hold weekly or, if necessary, daily safety meetings with all affected parties to coordinate activities.

1.4.2.6 Notify users, ARFF personnel, and FAA ATO personnel of construction and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAM) and other methods, as appropriate. Convene a meeting for review and discussion if necessary.

1.4.2.7 Ensure construction personnel know applicable airport procedures and changes to those procedures that may affect their work.

1.4.2.8 Ensure that all temporary construction signs are located per the scheduled list for each phase of the project.

1.4.2.9 Ensure construction contractors and subcontractors undergo training required by the CSPP and SPCD.

1.4.2.10 Ensure vehicle and pedestrian operations addressed in the CSPP and SPCD are coordinated with airport tenants, the airport traffic control tower (ATCT), and construction contractors.

1.4.2.11 At certificated airports, ensure each CSPP and SPCD is consistent with Part 139.

1.4.2.12 Conduct inspections sufficiently frequently to ensure construction contractors and tenants comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.2.13 Take immediate action to resolve safety deficiencies.

1.4.2.14 At airports subject to 49 CFR Part 1542, *Airport Security*, ensure construction access complies with the security requirements of that regulation.

1.4.2.15 Notify appropriate parties when conditions exist that invoke provisions of the CSPP and SPCD (for example, implementation of low-visibility operations).

1.4.2.16 Ensure prompt submittal of a Notice of Proposed Construction or Alteration (Form 7460-1) for conducting an aeronautical study of potential obstructions such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. A separate form may be filed for each potential obstruction, or one form may be filed describing the entire construction area and maximum equipment height. In the latter case, a separate form must be filed for any object beyond or higher than the originally evaluated area/height. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp. The appropriate FAA Airports Regional or District Office can provide assistance in determining which objects require an aeronautical study.

1.4.2.17 Ensure prompt transmission of the Airport Sponsor Strategic Event Submission, FAA Form 6000-26, located at https://oeaaa.faa.gov/oeaaa/external/content/AIRPORT_SPONSOR_STRATEGIC_EVENT_SUBMISSION_FORM.pdf, to assure proper coordination for NAS Strategic Interruption per Service Level Agreement with ATO.

1.4.2.18 Promptly notify the FAA Airports Regional or District Office of any proposed changes to the CSPP prior to implementation of the change. Changes to the CSPP require review and approval by the airport operator and the FAA. The FAA Airports Regional or District office will determine if further coordination within the FAA is needed. Coordinate with appropriate local and other federal government agencies, such as Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Transportation Security Administration (TSA), and the state environmental agency.

1.4.3 Define Construction Contractor's Responsibilities.

The contractor is responsible for complying with the CSPP and SPCD. The contractor must:

1.4.3.1 Submit a Safety Plan Compliance Document (SPCD) to the airport operator describing how it will comply with the requirements of the CSPP and supply any details that could not be determined before contract award. The SPCD must include a certification statement by the contractor, indicating an understanding of the operational safety requirements of the CSPP and the assertion of compliance with the approved CSPP and SPCD unless written approval is granted by the airport operator. Any construction practice proposed by the contractor that does not conform to the CSPP and SPCD may impact the airport's operational safety and will require a revision to the CSPP and SPCD and re-coordination with the airport operator and the FAA in advance.

1.4.3.2 Have available at all times copies of the CSPP and SPCD for reference by the airport operator and its representatives, and by subcontractors and contractor employees.

1.4.3.3 Ensure that construction personnel are familiar with safety procedures and regulations on the airport. Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. Many projects will require 24-hour coverage.

1.4.3.4 Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.

1.4.3.5 Conduct sufficient inspections to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.

1.4.3.6 Restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate, and as specified in the CSPP and SPCD.

1.4.3.7 Ensure that no contractor employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations area (AOA) from the construction site unless authorized.

1.4.3.8 Ensure prompt submittal through the airport operator of Form 7460-1 for the purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, and other equipment), stock piles, and haul routes when different from cases previously filed by the airport operator. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

1.4.3.9 Ensure that all necessary safety mitigations are understood by all parties involved, and any special requirements of each construction phase will be fulfilled per the approved timeframe.

1.4.3.10 Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

1.4.4 Define Tenant's Responsibilities.

If planning construction activities on leased property, Airport tenants, such as airline operators, fixed base operators, and FAA ATO/Technical Operations sponsoring construction are strongly encouraged to:

1. Develop, or have a consultant develop, a project specific CSPP and submit it to the airport operator. The airport operator may forgo a complete CSPP submittal and instead incorporate appropriate operational safety principles and measures addressed in the advisory circular within their tenant lease agreements.
2. In coordination with its contractor, develop an SPCD and submit it to the airport operator for approval issued prior to issuance of a Notice to Proceed.
3. Ensure that construction personnel are familiar with safety procedures and regulations on the airport during all phases of the construction.
4. Provide a point of contact of who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
5. Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
6. Ensure that no tenant or contractor employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.
7. Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate, as specified in the CSPP and SPCD.
8. Ensure prompt submittal through the airport operator of Form 7460-1 for conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency at https://oeaaa.faa.gov/oeaaa/external/portal.jsp.
9. Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

CHAPTER 2. CONSTRUCTION SAFETY AND PHASING PLANS

2.1 Overview.

Aviation safety is the primary consideration at airports, especially during construction. The airport operator's CSPP and the contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard. They must provide information necessary for the Airport Operations department to conduct airfield inspections and expeditiously identify and correct unsafe conditions during construction. All aviation safety provisions included within the project drawings, contract specifications, and other related documents must also be reflected in the CSPP and SPCD.

2.2 Assume Responsibility.

Operational safety on the airport remains the airport operator's responsibility at all times. The airport operator must develop, certify, and submit for FAA approval each CSPP. It is the airport operator's responsibility to apply the requirements of the FAA approved CSPP. The airport operator must revise the CSPP when conditions warrant changes and must submit the revised CSPP to the FAA for approval. The airport operator must also require and approve a SPCD from the project contractor.

2.3 Submit the CSPP.

Construction Safety and Phasing Plans should be developed concurrently with the project design. Milestone versions of the CSPP should be submitted for review and approval as follows. While these milestones are not mandatory, early submission will help to avoid delays. Submittals are preferred in 8.5 × 11 inch or 11 × 17 inch format for compatibility with the FAA's Obstruction Evaluation / Airport Airspace Analysis (OE / AAA) process.

2.3.1 Submit an Outline/Draft.

By the time approximately 25% to 30% of the project design is completed, the principal elements of the CSPP should be established. Airport operators are encouraged to submit an outline or draft, detailing all CSPP provisions developed to date, to the FAA for review at this stage of the project design.

2.3.2 Submit a CSPP.

The CSPP should be formally submitted for FAA approval when the project design is 80 percent to 90 percent complete. Since provisions in the CSPP will influence contract costs, it is important to obtain FAA approval in time to include all such provisions in the procurement contract.

2.3.3 Submit an SPCD.

The contractor should submit the SPCD to the airport operator for approval to be issued prior to the Notice to Proceed.

2.3.4 Submit CSPP Revisions.

All revisions to a previously approved CSPP must be re-submitted to the FAA for review and approval/disapproval action.

2.4 Meet CSPP Requirements.

2.4.1 To the extent possible, the CSPP should address the following as outlined in Chapter 3, Guidelines for Writing a CSPP. Details that cannot be determined at this stage are to be included in the SPCD.

1. Coordination.
    a. Contractor progress meetings.
    b. Scope or schedule changes.
    c. FAA ATO coordination.
2. Phasing.
    a. Phase elements.
    b. Construction safety drawings.
3. Areas and operations affected by the construction activity.
    a. Identification of affected areas.
    b. Mitigation of effects.
4. Protection of navigation aids (NAVAIDs).
5. Contractor access.
    a. Location of stockpiled construction materials.
    b. Vehicle and pedestrian operations.
6. Wildlife management.
    a. Trash.
    b. Standing water.
    c. Tall grass and seeds.
    d. Poorly maintained fencing and gates.
    e. Disruption of existing wildlife habitat.
7. Foreign Object Debris (FOD) management.
8. Hazardous materials (HAZMAT) management.
9. Notification of construction activities.

a. Maintenance of a list of responsible representatives/ points of contact.

b. NOTAM.

c. Emergency notification procedures.

d. Coordination with ARFF Personnel.

e. Notification to the FAA.

10. Inspection requirements.

a. Daily (or more frequent) inspections.

b. Final inspections.

11. Underground utilities.

12. Penalties.

13. Special conditions.

14. Runway and taxiway visual aids. Marking, lighting, signs, and visual NAVAIDs.

a. General.

b. Markings.

c. Lighting and visual NAVAIDs.

d. Signs, temporary, including orange construction signs, and permanent signs.

15. Marking and signs for access routes.

16. Hazard marking and lighting.

a. Purpose.

b. Equipment.

17. Work zone lighting for nighttime construction (if applicable).

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces.

a. Runway Safety Area (RSA).

b. Runway Object Free Area (ROFA).

c. Taxiway Safety Area (TSA). Provide details for any adjustments to Taxiway Safety Area width to allow continued operation of smaller aircraft. See paragraph 2.22.3.

d. Taxiway Object Free Area (TOFA). Provide details for any continued aircraft operations while construction occurs within the TOFA. See paragraph 2.22.4.

e. Obstacle Free Zone (OFZ).

f. Runway approach/departure surfaces.

19. Other limitations on construction.

a. Prohibitions.

b. Restrictions.

2.4.2 The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, "I, (Name of Contractor), have read the (Title of Project) CSPP, approved on (Date), and will abide by it as written and with the following additions as noted:"). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, "No supplemental information," should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

1. Coordination. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
2. Phasing. Discuss proposed construction schedule elements, including:
   a. Duration of each phase.
   b. Daily start and finish of construction, including "night only" construction.
   c. Duration of construction activities during:
      i. Normal runway operations.
      ii. Closed runway operations.
      iii. Modified runway "Aircraft Reference Code" usage.
3. Areas and operations affected by the construction activity. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
4. Protection of NAVAIDs. Discuss specific methods proposed to protect operating NAVAIDs.
5. Contractor access. Provide the following:
   a. Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
   b. Listing of individuals requiring driver training (for certificated airports and as requested).
   c. Radio communications.
      i. Types of radios and backup capabilities.
      ii. Who will be monitoring radios.
      iii. Who to contact if the ATCT cannot reach the contractor's designated person by radio.

d. Details on how the contractor will escort material delivery vehicles.

6. Wildlife management. Discuss the following:
   a. Methods and procedures to prevent wildlife attraction.
   b. Wildlife reporting procedures.
7. Foreign Object Debris (FOD) management. Discuss equipment and methods for control of FOD, including construction debris and dust.
8. Hazardous Materials (HAZMAT) management. Discuss equipment and methods for responding to hazardous spills.
9. Notification of construction activities. Provide the following:
   a. Contractor points of contact.
   b. Contractor emergency contact.
   c. Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
   d. Batch plant details, including 7460-1 submittal.
10. Inspection requirements. Discuss daily (or more frequent) inspections and special inspection procedures.
11. Underground utilities. Discuss proposed methods of identifying and protecting underground utilities.
12. Penalties. Penalties should be identified in the CSPP and should not require an entry in the SPCD.
13. Special conditions. Discuss proposed actions for each special condition identified in the CSPP.
14. Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:
   a. Equipment and methods for covering signage and airfield lights.
   b. Equipment and methods for temporary closure markings (paint, fabric, other).
   c. Temporary orange construction signs.
   d. Types of temporary Visual Guidance Slope Indicators (VGSI).
15. Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.
16. Hazard marking and lighting. Discuss proposed equipment and methods for identifying excavation areas.
17. Work zone lighting for nighttime construction (if applicable). Discuss proposed equipment, locations, aiming, and shielding to prevent interference with air traffic control and aircraft operations.

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:
    a. Equipment and methods for maintaining Taxiway Safety Area standards.
    b. Equipment and methods to ensure the safe passage of aircraft where Taxiway Safety Area or Taxiway Object Free Area standards cannot be maintained.
    c. Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.
19. Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

2.5 **Coordination.**

Airport operators, or tenants responsible for design, bidding and conducting construction on their leased properties, should ensure at all project developmental stages, such as predesign, prebid, and preconstruction conferences, they capture the subject of airport operational safety during construction (see AC 150/5370-12, *Quality Management for Federally Funded Airport Construction Projects*). In addition, the following should be coordinated as required:

2.5.1 Progress Meetings.

Operational safety should be a standing agenda item for discussion during progress meetings throughout the project developmental stages.

2.5.2 Scope or Schedule Changes.

Changes in the scope or duration at any of the project stages may require revisions to the CSPP and review and approval by the airport operator and the FAA (see paragraph 1.4.2.17).

2.5.3 FAA ATO Coordination.

Early coordination with FAA ATO is highly recommended during the design phase and is required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. Formal agreements between the airport operator and appropriate FAA offices are recommended. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart. Flight inspections may require a reimbursable agreement between the airport operator and FAA ATO. Reimbursable agreements should be coordinated a minimum of 12 months prior to the start of construction. (See paragraph 2.13.5.3.2 for required FAA notification regarding FAA-owned NAVAIDs.)

2.6 **Phasing.**

Once it has been determined what types and levels of airport operations will be maintained, the most efficient sequence of construction may not be feasible. In this case, the sequence of construction may be phased to gain maximum efficiency while allowing for the required operations. The development of the resulting construction phases should be coordinated with local Air Traffic personnel and airport users. The sequenced construction phases established in the CSPP must be incorporated into the project design and must be reflected in the contract drawings and specifications.

2.6.1 Phase Elements.

For each phase the CSPP should detail:

- Areas closed to aircraft operations.
- Duration of closures.
- Taxi routes and/or areas of reduced TSA and TOFA to reflect reduced ADG use.
- ARFF access routes.
- Construction staging, disposal, and cleanout areas.
- Construction access and haul routes.
- Impacts to NAVAIDs.
- Lighting, marking, and signing changes.
- Available runway length and/or reduced RSA and ROFA to reflect reduced ADG use.
- Declared distances (if applicable).
- Required hazard marking, lighting, and signing.
- Work zone lighting for nighttime construction (if applicable).
- Lead times for required notifications.

2.6.2 Construction Safety Drawings.

Drawings specifically indicating operational safety procedures and methods in affected areas (i.e., construction safety drawings) should be developed for each construction phase. Such drawings should be included in the CSPP as referenced attachments and should also be included in the contract drawing package.

2.7 **Areas and Operations Affected by Construction Activity.**

Runways and taxiways should remain in use by aircraft to the maximum extent possible without compromising safety. Pre-meetings with the FAA ATO will support operational simulations. See Appendix E for an example of a table showing temporary operations versus current operations. The tables in Appendix E can be useful for coordination among all interested parties, including FAA Lines of Business.

2.7.1 Identification of Affected Areas.

Identifying areas and operations affected by the construction helps to determine possible safety problems. The affected areas should be identified in the construction safety drawings for each construction phase. (See paragraph 2.6.2.) Of particular concern are:

2.7.1.1 **Closing, or Partial Closing, of Runways, Taxiways and Aprons, and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing, landing, or takeoff in either direction on that pavement is prohibited. A displaced threshold, by contrast, is established to ensure obstacle clearance and adequate safety area for landing aircraft. The pavement prior to the displaced threshold is normally available for take-off in the direction of the displacement and for landing and takeoff in the opposite direction. Misunderstanding this difference, may result in issuance of an inaccurate NOTAM, and can lead to a hazardous condition.

2.7.1.1.1 Partially Closed Runways.

The temporarily closed portion of a partially closed runway will generally extend from the threshold to a taxiway that may be used for entering and exiting the runway. If the closed portion extends to a point between taxiways, pilots will have to back-taxi on the runway, which is an undesirable operation. See Figure 2-1 for a desirable configuration.

2.7.1.1.2 Displaced Thresholds.

Since the portion of the runway pavement between the permanent threshold and a standard displaced threshold is available for takeoff and for landing in the opposite direction, the temporary displaced threshold need not be located at an entrance/exit taxiway. See Figure 2-2.

2.7.1.2 Closing of aircraft rescue and fire fighting access routes.

2.7.1.3 Closing of access routes used by airport and airline support vehicles.

2.7.1.4 Interruption of utilities, including water supplies for fire fighting.

2.7.1.5 Approach/departure surfaces affected by heights of objects.

2.7.1.6 Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads.

Figure 2-1. Temporary Partially Closed Runway

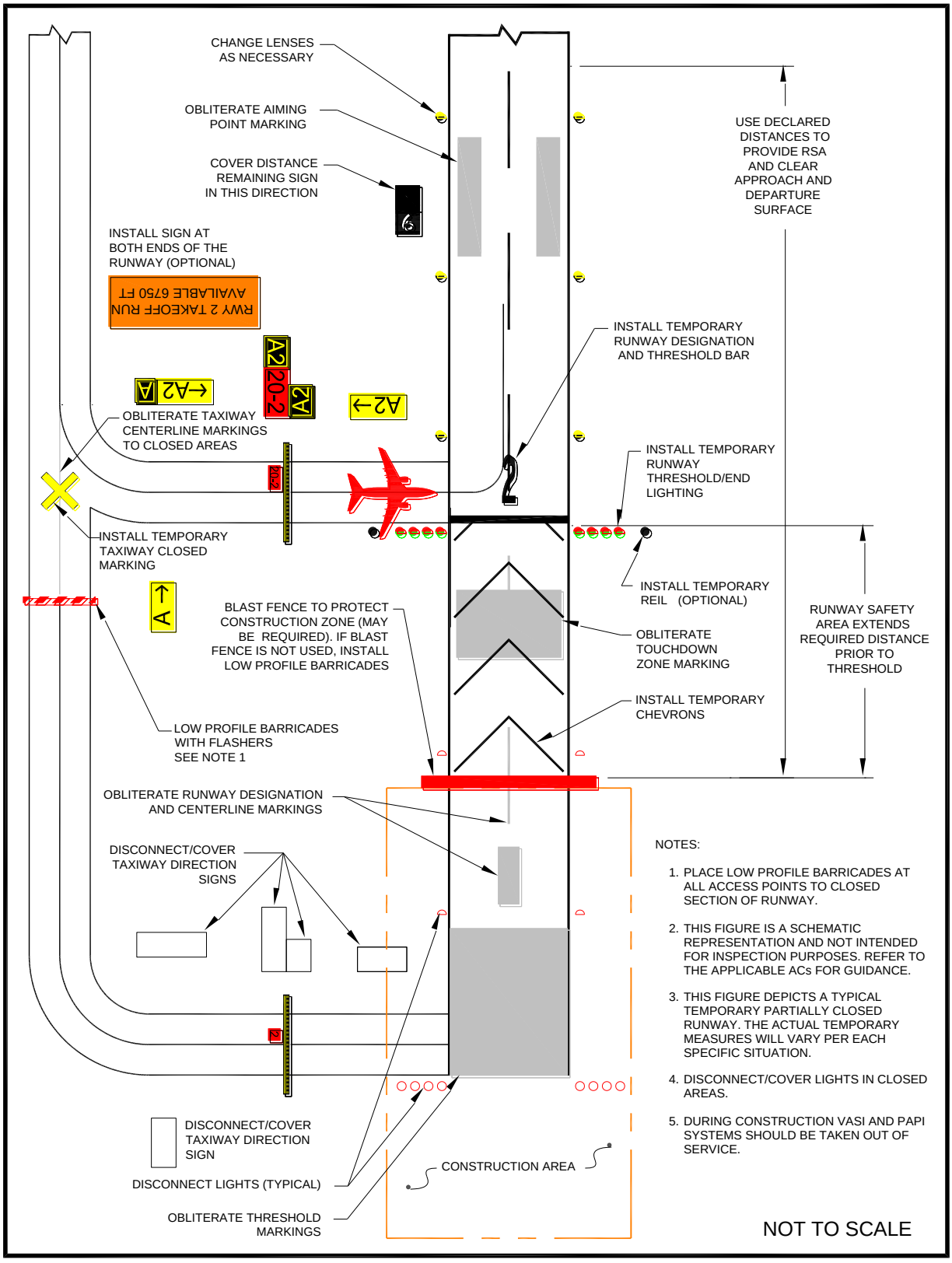
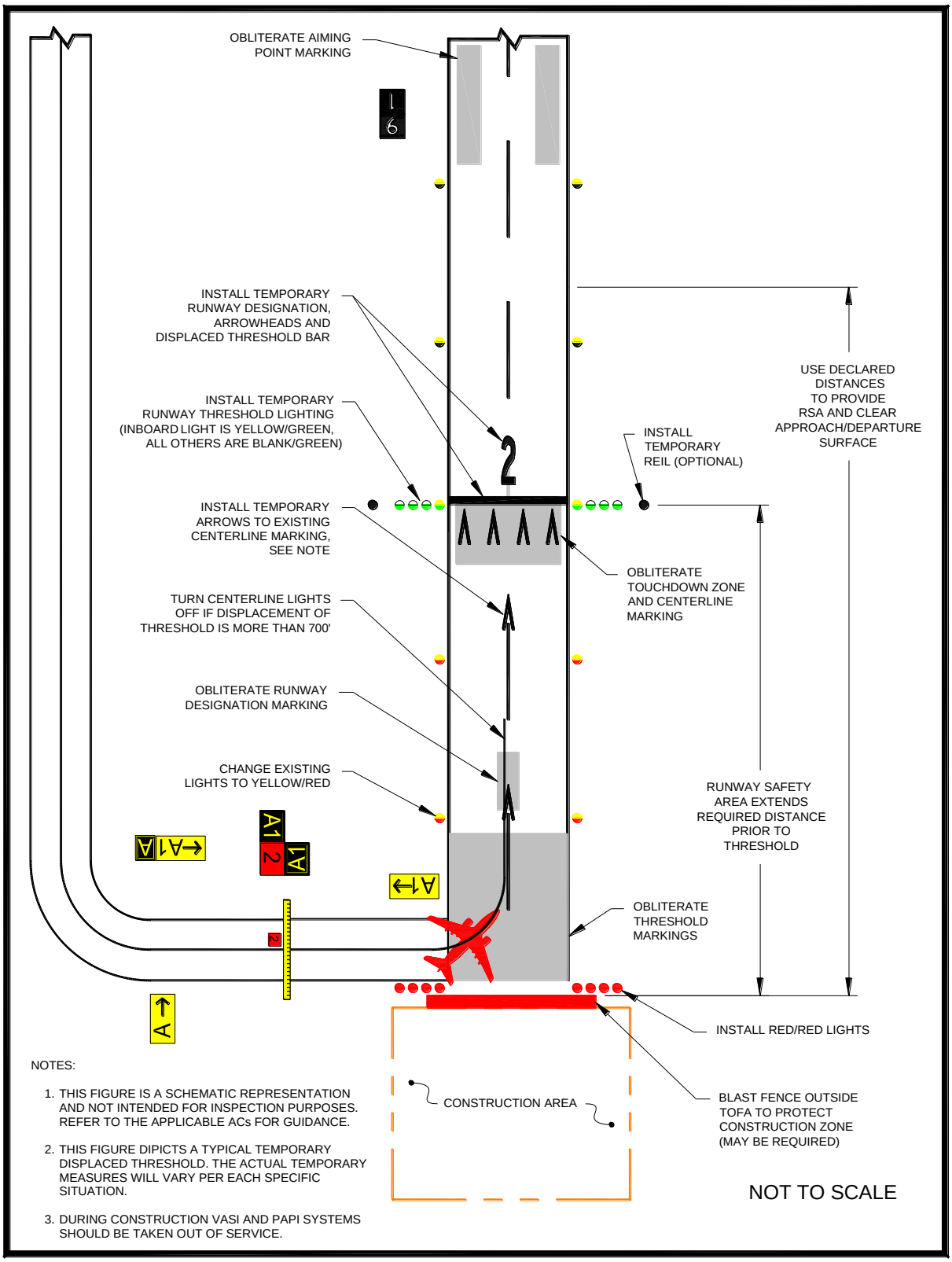


Figure 2-2. Temporary Displaced Threshold



Note: See paragraph 2.18.2.5.

2.7.2 Mitigation of Effects.

Establishment of specific procedures is necessary to maintain the safety and efficiency of airport operations. The CSPP must address:

2.7.2.1 Temporary changes to runway and/or taxi operations.

2.7.2.2 Detours for ARFF and other airport vehicles.

2.7.2.3 Maintenance of essential utilities.

2.7.2.4 Temporary changes to air traffic control procedures. Such changes must be coordinated with the ATO.

2.8 Navigation Aid (NAVAID) Protection.

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. (See paragraph 2.13.5.3.) Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. If any NAVAID may be affected, the CSPP and SPCD must show an understanding of the "critical area" associated with each NAVAID and describe how it will be protected. Where applicable, the operational critical areas of NAVAIDs should be graphically delineated on the project drawings. Pay particular attention to stockpiling material, as well as to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction equipment and activities may require NAVAID shutdown or adjustment of instrument approach minimums for low visibility operations. This condition requires that a NOTAM be filed (see paragraph 2.13.2). Construction activities and materials/equipment storage near a NAVAID must not obstruct access to the equipment and instruments for maintenance. Submittal of a 7460-1 form is required for construction vehicles operating near FAA NAVAIDs. (See paragraph 2.13.5.3.)

2.9 Contractor Access.

The CSPP must detail the areas to which the contractor must have access, and explain how contractor personnel will access those areas. Specifically address:

2.9.1 Location of Stockpiled Construction Materials.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ, and if possible should not be permitted within the Object Free Area (OFA) of an operational runway. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. (See paragraph 2.18.2.) This includes determining and

verifying that materials are stabilized and stored at an approved location so as not to be a hazard to aircraft operations and to prevent attraction of wildlife and foreign object damage from blowing or tracked material. See paragraphs 2.10 and 2.11.

2.9.2 Vehicle and Pedestrian Operations.

The CSPP should include specific vehicle and pedestrian requirements. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. The airport operator should coordinate requirements for vehicle operations with airport tenants, contractors, and the FAA air traffic manager. In regard to vehicle and pedestrian operations, the CSPP should include the following, with associated training requirements:

2.9.2.1 **Construction Site Parking.**

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the AOA. These areas should provide reasonable contractor employee access to the job site.

2.9.2.2 **Construction Equipment Parking.**

Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids. The FAA must also study those areas to determine effects on airport design criteria, surfaces established by 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), and on NAVAIDs and Instrument Approach Procedures (IAP). See paragraph 2.13.1 for further information.

2.9.2.3 **Access and Haul Roads.**

Determine the construction contractor’s access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Access routes used by contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Pay special attention to ensure that if construction traffic is to share or cross any ARFF routes that ARFF right of way is not impeded at any time, and that construction traffic on haul

roads does not interfere with NAVAIDs or approach surfaces of operational runways. Address whether access gates will be blocked or inoperative or if a rally point will be blocked or inaccessible.

2.9.2.4 Marking and lighting of vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport.*

2.9.2.5 Description of proper vehicle operations on various areas under normal, lost communications, and emergency conditions.

2.9.2.6 Required escorts.

2.9.2.7 **Training Requirements for Vehicle Drivers to Ensure Compliance with the Airport Operator's Vehicle Rules and Regulations.**

Specific training should be provided to vehicle operators, including those providing escorts. See AC 150/5210-20, *Ground Vehicle Operations on Airports*, for information on training and records maintenance requirements.

2.9.2.8 **Situational Awareness.**

Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time. At non-towered airports, all aircraft movements and flight operations rely on aircraft operators to self-report their positions and intentions. However, there is no requirement for an aircraft to have radio communications. Because aircraft do not always broadcast their positions or intentions, visual checking, radio monitoring, and situational awareness of the surroundings is critical to safety.

2.9.2.9 **Two-Way Radio Communication Procedures.**

2.9.2.9.1 General.

The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCT. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact, as directed by the airport operator, with:

1. Airport operations
2. ATCT

3. Common Traffic Advisory Frequency (CTAF), which may include UNICOM, MULTICOM.
4. Automatic Terminal Information Service (ATIS). This frequency is useful for monitoring conditions on the airport. Local air traffic will broadcast information regarding construction related runway closures and "shortened" runways on the ATIS frequency.

2.9.2.9.2 Areas Requiring Two-Way Radio Communication with the ATCT.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport.

2.9.2.9.3 Frequencies to be Used.

The airport operator will specify the frequencies to be used by the contractor, which may include the CTAF for monitoring of aircraft operations. Frequencies may also be assigned by the airport operator for other communications, including any radio frequency in compliance with Federal Communications Commission requirements. At airports with an ATCT, the airport operator will specify the frequency assigned by the ATCT to be used between contractor vehicles and the ATCT.

2.9.2.9.4 Proper radio usage, including read back requirements.

2.9.2.9.5 Proper phraseology, including the International Phonetic Alphabet.

2.9.2.9.6 Light Gun Signals.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard "Ground Vehicle Guide to Airport Signs and Markings." This safety placard may be downloaded through the Runway Safety Program Web site at http://www.faa.gov/airports/runway_safety/publications/ (see "Signs & Markings Vehicle Dashboard Sticker") or obtained from the FAA Airports Regional Office.

2.9.2.10 **Maintenance of the secured area of the airport, including:**

2.9.2.10.1 Fencing and Gates.

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit "piggybacking" behind another person or vehicle. The Department of Transportation (DOT) document DOT/FAA/AR-

00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

2.9.2.10.2 Badging Requirements.

Airports subject to 49 CFR Part 1542, *Airport Security*, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

2.10 Wildlife Management.

The CSPP and SPCD must be in accordance with the airport operator's wildlife hazard management plan, if applicable. See AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports,* and CertAlert 98-05, *Grasses Attractive to Hazardous Wildlife.* Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports, such as:

2.10.1 Trash.

Food scraps must be collected from construction personnel activity.

2.10.2 Standing Water.

2.10.3 Tall Grass and Seeds.

Requirements for turf establishment can be at odds with requirements for wildlife control. Grass seed is attractive to birds. Lower quality seed mixtures can contain seeds of plants (such as clover) that attract larger wildlife. Seeding should comply with the guidance in AC 150/5370-10, *Standards for Specifying Construction of Airports,* Item T-901, Seeding. Contact the local office of the United Sates Department of Agriculture Soil Conservation Service or the State University Agricultural Extension Service (County Agent or equivalent) for assistance and recommendations. These agencies can also provide liming and fertilizer recommendations.

2.10.4 Poorly Maintained Fencing and Gates.

See paragraph 2.9.2.10.1.

2.10.5 Disruption of Existing Wildlife Habitat.

While this will frequently be unavoidable due to the nature of the project, the CSPP should specify under what circumstances (location, wildlife type) contractor personnel should immediately notify the airport operator of wildlife sightings.

2.11 Foreign Object Debris (FOD) Management.

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) or covers may be necessary to contain material that can be carried by wind into areas where aircraft operate. See AC 150/5210-24, *Foreign Object Debris (FOD) Management.*

2.12 Hazardous Materials (HAZMAT) Management.

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel or hydraulic fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. See AC 150/5320-15, *Management of Airport Industrial Waste.*

2.13 Notification of Construction Activities.

The CSPP and SPCD must detail procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport. It must address the notification actions described below, as applicable.

2.13.1 List of Responsible Representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours.

2.13.2 NOTAMs.

Only the airport operator may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must either enter the NOTAM into NOTAM Manager, or provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport operator must file and maintain a list of authorized representatives with the FSS. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMs) for Airport Operators,* for a sample NOTAM form. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator. See paragraph 2.7.1.1 about issuing NOTAMs for partially closed runways versus runways with displaced thresholds.

2.13.3 Emergency notification procedures for medical, fire fighting, and police response.

2.13.4 Coordination with ARFF.

The CSPP must detail procedures for coordinating through the airport sponsor with ARFF personnel, mutual aid providers, and other emergency services if construction requires:

1. The deactivation and subsequent reactivation of water lines or fire hydrants, or
2. The rerouting, blocking and restoration of emergency access routes, or
3. The use of hazardous materials on the airfield.

2.13.5 Notification to the FAA.

2.13.5.1 **Part 77.**

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. See Appendix A to download the form. Further guidance is available on the FAA web site at oeaaa.faa.gov.

2.13.5.2 **Part 157.**

With some exceptions, Title 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, *Notice of Landing Area Proposal*, to the nearest FAA Airports Regional or District Office. See Appendix A to download the form.

2.13.5.3 **NAVAIDs.**

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

2.13.5.3.1 Airport Owned/FAA Maintained.

If construction operations require a shutdown of 24 hours or greater in duration, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown, using Strategic Event Coordination (SEC) Form 6000.26 contained within FAA Order 6000.15, *General Maintenance Handbook for National Airspace System (NAS) Facilities*.

2.13.5.3.2 FAA Owned.

1. The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs, using SEC Form 6000.26.
2. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. Refer to active Service Level Agreement with ATO for specifics.

2.14 **Inspection Requirements.**

2.14.1 Daily Inspections.

Inspections should be conducted at least daily, but more frequently if necessary to ensure conformance with the CSPP. A sample checklist is provided in Appendix D, Construction Project Daily Safety Inspection Checklist. See also AC 150/5200-18, *Airport Safety Self-Inspection.* Airport operators holding a Part 139 certificate are required to conduct self-inspections during unusual conditions, such as construction activities, that may affect safe air carrier operations.

2.14.2 Interim Inspections.

Inspections should be conducted of all areas to be (re)opened to aircraft traffic to ensure the proper operation of lights and signs, for correct markings, and absence of FOD. The contractor should conduct an inspection of the work area with airport operations personnel. The contractor should ensure that all construction materials have been secured, all pavement surfaces have been swept clean, all transition ramps have been properly constructed, and that surfaces have been appropriately marked for aircraft to operate safely. Only if all items on the list meet with the airport operator's approval should the air traffic control tower be notified to open the area to aircraft operations. The contractor should be required to retain a suitable workforce and the necessary equipment at the work area for any last minute cleanup that may be requested by the airport operator prior to opening the area.

2.14.3 Final Inspections.

New runways and extended runway closures may require safety inspections at certificated airports prior to allowing air carrier service. Coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

2.15 **Underground Utilities.**

The CSPP and/or SPCD must include procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas. This may involve coordinating with public utilities and FAA ATO/Technical Operations. Note that "One Call" or "Miss Utility" services do not include FAA ATO/Technical Operations.

2.16 **Penalties.**

The CSPP should detail penalty provisions for noncompliance with airport rules and regulations and the safety plans (for example, if a vehicle is involved in a runway incursion). Such penalties typically include rescission of driving privileges or access to the AOA.

2.17 **Special Conditions.**

The CSPP must detail any special conditions that affect the operation of the airport and will require the activation of any special procedures (for example, low-visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, Vehicle / Pedestrian Deviation (VPD) and other activities requiring construction suspension/resumption).

2.18 **Runway and Taxiway Visual Aids.**

This includes marking, lighting, signs, and visual NAVAIDs. The CSPP must ensure that areas where aircraft will be operating are clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual NAVAIDs that are to continue to perform their functions during construction remain in place and operational. Visual NAVAIDs that are not serving their intended function during construction must be temporarily disabled, covered, or modified as necessary. The CSPP must address the following, as appropriate:

2.18.1 General.

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, and other wind currents and constructed of materials that will minimize damage to an aircraft in the event of inadvertent contact. Items used to secure such markings must be of a color similar to the marking.

2.18.2 Markings.

During the course of construction projects, temporary pavement markings are often required to allow for aircraft operations during or between work periods. During the design phase of the project, the designer should coordinate with the project manager,

airport operations, airport users, the FAA Airports project manager, and Airport Certification Safety Inspector for Part 139 airports to determine minimum temporary markings. The FAA Airports project manager will, wherever a runway is closed, coordinate with the appropriate FAA Flight Standards Office and disseminate findings to all parties. Where possible, the temporary markings on finish grade pavements should be placed to mirror the dimensions of the final markings. Markings must be in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings*, except as noted herein. Runways and runway exit taxiways closed to aircraft operations are marked with a yellow X. The preferred visual aid to depict temporary runway closure is the lighted X signal placed on or near the runway designation numbers. (See paragraph 2.18.2.1.2.)

2.18.2.1 **Closed Runways and Taxiways.**

2.18.2.1.1 Permanently Closed Runways.

For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place an X at each end and at 1,000-foot (300 m) intervals. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X.

2.18.2.1.2 Temporarily Closed Runways.

For runways that have been temporarily closed, place an X at each end of the runway directly on or as near as practicable to the runway designation numbers. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X. See Figure 2-3. See also paragraph 2.18.3.3.

2.18.2.1.3 Partially Closed Runways and Displaced Thresholds.

When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings must comply with AC 150/5340-1. An X is not used on a partially closed runway or a runway with a displaced threshold. See paragraph 2.7.1.1 for the difference between partially closed runways and runways with displaced thresholds. Because of the temporary nature of threshold displacement due to construction, it is not necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach. Some of the requirements below may be waived in the cases of low-activity airports and/or short duration changes that are measured in days rather than weeks. Consider whether the presence of an airport traffic

control tower allows for the development of special procedures. Contact the appropriate FAA Airports Regional or District Office for assistance.

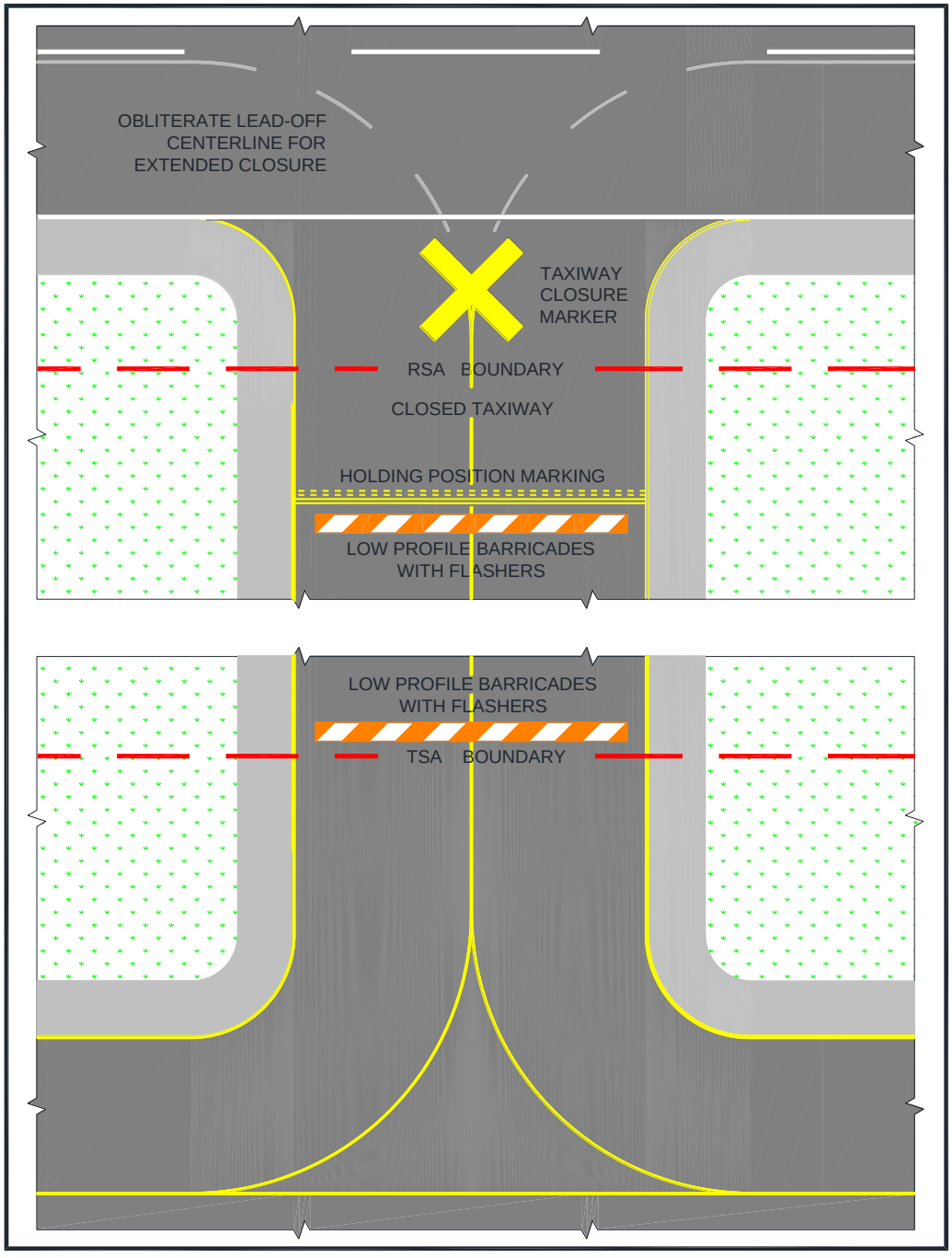
Figure 2-3. Markings for a Temporarily Closed Runway

1. **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see AC 150/5340-1). Obliterate or cover markings prior to the moved threshold. Existing touchdown zone markings beyond the moved threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-4.
2. **Displaced Thresholds.** Pavement markings for a displaced threshold consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. See AC 150/5340-1. Obliterate markings prior to the displaced threshold. Existing touchdown zone markings beyond the displaced threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See Figure 2-2.

2.18.2.1.4 Taxiways.

1. **Permanently Closed Taxiways.** AC 150/5300-13 *Airport Design*, notes that it is preferable to remove the pavement, but for pavement that is to remain, place an X at the entrance to both ends of the closed section. Obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway. See Figure 2-4.

Figure 2-4. Temporary Taxiway Closure



2. **Temporarily Closed Taxiways.** Place barricades outside the safety area of intersecting taxiways. For runway/taxiway intersections, place an X at the entrance to the closed taxiway from the runway. If the taxiway will be closed for an extended period, obliterate taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section. Always obliterate runway lead-off lines for high speed exits, regardless of the duration of the closure. If the centerline markings will be reused upon reopening the taxiway, it is preferable to paint over the marking. This will result in less damage to the pavement when the upper layer of paint is ultimately removed. See Figure 2-4.

2.18.2.1.5 Temporarily Closed Airport.

When the airport is closed temporarily, mark all the runways as closed.

2.18.2.2 If unable to paint temporary markings on the pavement, construct them from any of the following materials: fabric, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents. Items used to secure such markings must be of a color similar to the marking.

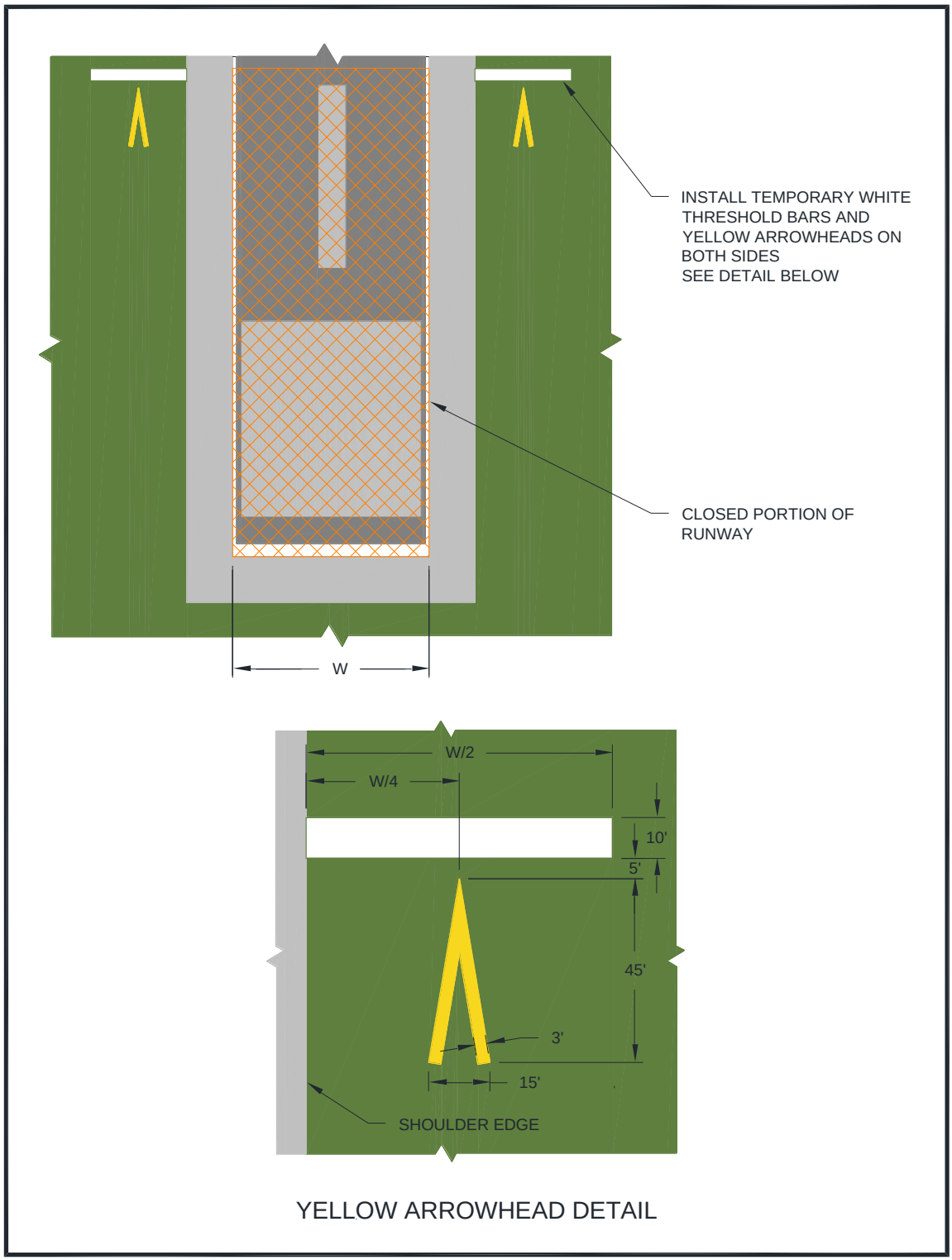
2.18.2.3 It may be necessary to remove or cover runway markings, including but not limited to, runway designation markings, threshold markings, centerline markings, edge stripes, touchdown zone markings and aiming point markings, depending on the length of construction and type of activity at the airport. When removing runway markings, apply the same treatment to areas between stripes or numbers, as the cleaned area will appear to pilots as a marking in the shape of the treated area.

2.18.2.4 If it is not possible to install threshold bars, chevrons, and arrows on the pavement, "temporary outboard white threshold bars and yellow arrowheads", see Figure 2-5, may be used. Locate them outside of the runway pavement surface on both sides of the runway. The dimensions must be as shown in Figure 2-5. If the markings are not discernible on grass or snow, apply a black background with appropriate material over the ground to ensure they are clearly visible.

2.18.2.5 The application rate of paint to mark a short-term temporary runway and taxiway markings may deviate from the standard (see Item P-620, "Runway and Taxiway Painting," in AC 150/5370-10), but the dimensions must meet the existing standards. When applying temporary markings at night, it is recommended that the fast curing, Type II paint be used to help offset the higher humidity and cooler temperatures often experienced at night. Diluting the paint will substantially increase cure time and is not recommended. Glass beads are not recommended for temporary markings. Striated markings may also be used for certain temporary markings. AC

150/5340-1, *Standards for Airport Markings*, has additional guidance on temporary markings.

Figure 2-5. Temporary Outboard White Threshold Bars and Yellow Arrowheads



2.18.3 Lighting and Visual NAVAIDs.

This paragraph refers to standard runway and taxiway lighting systems. See below for hazard lighting. Lighting installation must be in conformance with AC 150/5340-30, *Design and Installation Details for Airport Visual Aids,* and fixture design in conformance with AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights.* When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. See AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities*, for disconnect procedures and safety precautions. Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value. Secure, identify, and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources. Maintain mandatory hold signs to operate normally in any situation where pilots or vehicle drivers could mistakenly be in that location. At towered airports certificated under Part 139, holding position signs are required to be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is installed on the runway circuit for the closed runway, install a jumper to the taxiway circuit to provide power to the holding position sign for nighttime operations. Where it is not possible to maintain power to signs that would normally be operational, install barricades to exclude aircraft. Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4 illustrate temporary changes to lighting and visual NAVAIDs.

2.18.3.1 **Permanently Closed Runways and Taxiways.**

For runways and taxiways that have been permanently closed, disconnect the lighting circuits.

2.18.3.2 **Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic.**

If available, use a lighted X, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note that the lighted X must be illuminated at all times that it is on a runway.) The use of a lighted X is required if night work requires runway lighting to be on. See AC 150/5345-55, *Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure.* For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, disconnect the lighting circuits or secure switches to prevent inadvertent activation. For runways that will be opened periodically, coordinate procedures with the FAA air traffic manager or, at airports without an ATCT, the airport operator. Activate stop bars if available. Figure 2-6 shows a lighted X by day. Figure 2-7 shows a lighted X at night.

Figure 2-6. Lighted X in Daytime

Figure 2-7. Lighted X at Night

2.18.3.3 **Partially Closed Runways and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a subsequently inaccurate NOTAM can result in a hazardous situation. For both partially

closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.

2.18.3.3.1 Partially Closed Runways.

Disconnect edge and threshold lights on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed). Alternately, cover the light fixtures in such a way as to prevent light leakage. See Figure 2-1.

2.18.3.3.2 Temporary Displaced Thresholds.

Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, blank out centerline lights in the direction of approach or place the centerline lights out of service. If the displacement is over 700 feet, place the centerline lights out of service. See AC 150/5340-30 for details on lighting displaced thresholds. See Figure 2-2.

2.18.3.3.3 Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.

2.18.3.3.4 A temporary threshold on an unlighted runway may be marked by retroreflective, elevated markers in addition to markings noted in paragraph 2.18.2.1.3. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39, *Specification for L-853, Runway and Taxiway Retroreflective Markers.*

2.18.3.3.5 Temporary threshold lights and runway end lights and related visual NAVAIDs are installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage. See AC 150/5370-10.

2.18.3.3.6 Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operations but may

be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

2.18.3.3.7 When runway thresholds are temporarily displaced, reconfigure yellow lenses (caution zone), as necessary, and place the centerline lights out of service.

2.18.3.3.8 Relocate the Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI, coordinate its installation or disabling with the local ATO/Technical Operations Office. Relocation of such visual aids will depend on the duration of the project and the benefits gained from the relocation, as this can result in great expense. See FAA JO 6850.2, *Visual Guidance Lighting Systems,* for installation criteria for FAA owned and operated NAVAIDs.

2.18.3.3.9 Issue a NOTAM to inform pilots of temporary lighting conditions.

2.18.3.4 **Temporarily Closed Taxiways.**

If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), cover the light fixture in a way as to prevent light leakage.

2.18.4 Signs.

To the extent possible, signs must be in conformance with AC 150/5345-44, *Specification for Runway and Taxiway Signs*, and AC 150/5340-18, *Standard for Airport Sign Systems.*

2.18.4.1 **Existing Signs.**

Runway exit signs are to be covered for closed runway exits. Outbound destination signs are to be covered for closed runways. Any time a sign does not serve its normal function or would provide conflicting information, it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

2.18.4.2 **Temporary Signs.**

Orange construction signs comprise a message in black on an orange background. Orange construction signs may help pilots be aware of changed conditions. The airport operator may choose to introduce these signs as part of a movement area construction project to increase situational awareness when needed. Locate signs outside the taxiway safety limits and ahead of construction areas so pilots can take timely action. Use temporary signs judiciously, striking a balance between the need for information and the increase in pilot workload. When there is a concern of pilot "information overload," the applicability of mandatory hold signs must take precedence over orange construction signs recommended during construction. Temporary signs must meet the standards for such signs in Engineering Brief 93, *Guidance for the Assembly and Installation of Temporary Orange Construction Signs.* Many criteria in AC 150/5345-44, *Specification for Runway and Taxiway Signs,* are referenced in the Engineering Brief. Permissible sign legends are:

1. CONSTRUCTION AHEAD,
2. CONSTRUCTION ON RAMP, and
3. RWY XX TAKEOFF RUN AVAILABLE XXX FT.

Phasing, supported by drawings and sign schedule, for the installation of orange construction signs must be included in the CSPP or SPCD.

2.18.4.2.1 Takeoff Run Available (TORA) signs.

Recommended: Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position. See EB 93 for sign size and location.

2.18.4.2.2 Sign legends are shown in Figure F-1.

Note: See Figure E-1, Figure E-2, Figure E-3, Figure F-2, and Figure F-3 for examples of orange construction sign locations.

2.19 **Marking and Signs for Access Routes.**

The CSPP should indicate that pavement markings and signs for construction personnel will conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, *Frangible Connections,* which may require modification to size and height guidance in the MUTCD.

2.20 **Hazard Marking, Lighting and Signing.**

2.20.1 Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft, and prevent construction personnel from entering areas open to aircraft. The CSPP must specify prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting must also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

2.20.2 Equipment.

2.20.2.1 **Barricades.**

Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. For example, if barricades are intended to exclude aircraft, gaps between barricades must be smaller than the wingspan of the smallest aircraft to be excluded; if barricades are intended to exclude vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished through the use of ropes, securely attached to prevent FOD.

2.20.2.2 **Lights.**

Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

2.20.2.3 **Supplement Barricades with Signs (for example) As Necessary.**

Examples are “No Entry” and “No Vehicles.” Be aware of the increased effects of wind and jet blast on barricades with attached signs.

2.20.2.4 **Air Operations Area – General.**

Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway / taxilane safety area, or apron must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground. Figure 2-8 and Figure 2-9 show sample barricades with proper coloring and flags.

Figure 2-8. Interlocking Barricades

Figure 2-9. Low Profile Barricades

2.20.2.5 **Air Operations Area – Runway/Taxiway Intersections.**

Use highly reflective barricades with lights to close taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, even for closures of relatively short duration, close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

2.20.2.6 **Air Operations Area – Other.**

Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

2.20.2.7 **Maintenance.**

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

2.21 Work Zone Lighting for Nighttime Construction.

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. Refer to AC 150/5370-10 for minimum illumination levels for nighttime paving projects. Additionally, it is recommended that all support equipment, except haul trucks, be equipped with artificial illumination to safely

illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways.

2.22 **Protection of Runway and Taxiway Safety Areas.**

Runway and taxiway safety areas, OFZs, OFAs, and approach surfaces are described in AC 150/5300-13. Protection of these areas includes limitations on the location and height of equipment and stockpiled material. An FAA airspace study may be required. Coordinate with the appropriate FAA Airports Regional or District Office if there is any doubt as to requirements or dimensions (see paragraph 2.13.5) as soon as the location and height of materials or equipment are known. The CSPP should include drawings showing all safety areas, object free areas, obstacle free zones and approach departure surfaces affected by construction.

2.22.1 Runway Safety Area (RSA).

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13). Construction activities within the existing RSA are subject to the following conditions:

2.22.1.1 No construction may occur within the existing RSA while the runway is open for aircraft operations. The RSA dimensions may be temporarily adjusted if the runway is restricted to aircraft operations requiring an RSA that is equal to the RSA width and length beyond the runway ends available during construction. (See AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may provide the necessary RSA under certain circumstances. Coordinate with the appropriate FAA Airports Regional or District Office to have declared distances information published, and appropriate NOTAMs issued. See AC 150/5300-13 for guidance on the use of declared distances.

2.22.1.2 The airport operator must coordinate the adjustment of RSA dimensions as permitted above with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.

2.22.1.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations.

2.22.1.4 **Excavations.**

2.22.1.4.1 Open trenches or excavations are not permitted within the RSA while the runway is open. Backfill trenches before the runway is opened. If backfilling excavations before the runway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

2.22.1.4.2 Construction contractors must prominently mark open trenches and 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.

2.22.1.5 **Erosion Control.**

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and fire fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.2 Runway Object Free Area (ROFA).

Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

2.22.3 Taxiway Safety Area (TSA).

2.22.3.1 A taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. (See AC 150/5300-13.) Since the width of the TSA is equal to the wingspan of the design aircraft, no construction may occur within the TSA while the taxiway is open for aircraft operations. The TSA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TSA that is equal to the TSA width available during construction. Give special consideration to TSA dimensions at taxiway turns and intersections. (see AC 150/5300-13).

2.22.3.2 The airport operator must coordinate the adjustment of the TSA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

2.22.3.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations.

2.22.3.4 **Excavations.**

1. Curves. Open trenches or excavations are not permitted within the TSA while the taxiway is open. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.
2. Straight Sections. Open trenches or excavations are not permitted within the TSA while the taxiway is open for unrestricted aircraft operations. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations to allow the safe passage of ARFF equipment and of the heaviest aircraft operating on the taxiway across the trench without causing damage to the equipment or aircraft. In rare circumstances where the section of taxiway is indispensable for aircraft movement, open trenches or excavations may be permitted in the TSA while the taxiway is open to aircraft operations, subject to the following restrictions:
    a. Taxiing speed is limited to 10 mph.
    b. Appropriate NOTAMs are issued.
    c. Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
    d. Low mass, low-profile lighted barricades are installed.
    e. Appropriate temporary orange construction signs are installed.
3. Construction contractors must prominently mark open trenches and 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.

2.22.3.5 **Erosion control.**

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

2.22.4 Taxiway Object Free Area (TOFA).

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus, the restrictions are more stringent. Except as provided below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

2.22.4.1 The taxiway object free area dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a taxiway object free area that is equal to the taxiway object free area width available. Give special consideration to TOFA dimensions at taxiway turns and intersections.

2.22.4.2 Offset taxiway centerline and edge pavement markings (do not use glass beads) may be used as a temporary measure to provide the required taxiway object free area. Where offset taxiway pavement markings are provided, centerline lighting, centerline reflectors, or taxiway edge reflectors are required. Existing lighting that does not coincide with the temporary markings must be taken out of service.

2.22.4.3 Construction activity, including open excavations, may be accomplished without adjusting the width of the taxiway object free area, subject to the following restrictions:

2.22.4.3.1 Taxiing speed is limited to 10 mph.

2.22.4.3.2 NOTAMs issued advising taxiing pilots of hazard and recommending reduced taxiing speeds on the taxiway.

2.22.4.3.3 Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.

2.22.4.3.4 If desired, appropriate orange construction signs are installed. See paragraph 2.18.4.2 and Appendix F.

2.22.4.3.5 Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the usable pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.

2.22.4.3.6 Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel. Flaggers must also be used to direct taxiing aircraft. Due to liability issues, the airport operator should require airlines to provide flaggers for directing taxiing aircraft.

2.22.5 Obstacle Free Zone (OFZ).

In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6 Runway Approach/Departure Areas and Clearways.

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in AC 150/5300-13. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6.1 Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the airport operator with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

2.22.6.2 **Caution About Partial Runway Closures.**

When filing a NOTAM for a partial runway closure, clearly state that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold). There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition).

2.22.6.3 **Caution About Displaced Thresholds.**

Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA), such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, or other work within the existing RSA of any usable runway end, do not implement a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

2.23 **Other Limitations on Construction.**

The CSPP must specify any other limitations on construction, including but not limited to:

2.23.1 Prohibitions.

2.23.1.1 No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.

2.23.1.2 No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.

2.23.1.3 No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property. See AC 150/5370-10.

2.23.2 Restrictions.

2.23.2.1 Construction suspension required during specific airport operations.

2.23.2.2 Areas that cannot be worked on simultaneously.

2.23.2.3 Day or night construction restrictions.

2.23.2.4 Seasonal construction restrictions.

2.23.2.5 Temporary signs not approved by the airport operator.

2.23.2.6 Grades changes that could result in unplanned effects on NAVAIDs.

CHAPTER 3. GUIDELINES FOR WRITING A CSPP

3.1 General Requirements.

The CSPP is a standalone document written to correspond with the subjects outlined in paragraph 2.4. The CSPP is organized by numbered sections corresponding to each subject listed in paragraph 2.4, and described in detail in paragraphs 2.5 - 2.23. Each section number and title in the CSPP matches the corresponding subject outlined in paragraph 2.4 (for example, 1. Coordination, 2. Phasing, 3. Areas and Operations Affected by the Construction Activity, and so on). With the exception of the project scope of work outlined in Section 2. Phasing, only subjects specific to operational safety during construction should be addressed.

3.2 Applicability of Subjects.

Each section should, to the extent practical, focus on the specific subject. Where an overlapping requirement spans several sections, the requirement should be explained in detail in the most applicable section. A reference to that section should be included in all other sections where the requirement may apply. For example, the requirement to protect existing underground FAA ILS cables during trenching operations could be considered FAA ATO coordination (Coordination, paragraph 2.5.3), an area and operation affected by the construction activity (Areas and Operations Affected by the Construction Activity, paragraph 2.7.1.4), a protection of a NAVAID (Protection of Navigational Aids (NAVAIDs), paragraph 2.8), or a notification to the FAA of construction activities (Notification of Construction Activities, paragraph 2.13.5.3.2). However, it is more specifically an underground utility requirement (Underground Utilities, paragraph 2.15). The procedure for protecting underground ILS cables during trenching operations should therefore be described in 2.4.2.11: "The contractor must coordinate with the local FAA System Support Center (SSC) to mark existing ILS cable routes along Runway 17-35. The ILS cables will be located by hand digging whenever the trenching operation moves within 10 feet of the cable markings." All other applicable sections should include a reference to 2.4.2.11: "ILS cables shall be identified and protected as described in 2.4.2.11" or "See 2.4.2.11 for ILS cable identification and protection requirements." Thus, the CSPP should be considered as a whole, with no need to duplicate responses to related issues.

3.3 Graphical Representations.

Construction safety drawings should be included in the CSPP as attachments. When other graphical representations will aid in supporting written statements, the drawings, diagrams, and/or photographs should also be attached to the CSPP. References should be made in the CSPP to each graphical attachment and may be made in multiple sections.

3.4 **Reference Documents.**

The CSPP must not incorporate a document by reference unless reproduction of the material in that document is prohibited. In that case, either copies of or a source for the referenced document must be provided to the contractor. Where this AC recommends references (e.g. as in paragraph 3.9) the intent is to include a reference to the corresponding section in the CSPP, not to this Advisory Circular.

3.5 **Restrictions.**

The CSPP should not be considered as a project design review document. The CSPP should also avoid mention of permanent ("as-built") features such as pavements, markings, signs, and lighting, except when such features are intended to aid in maintaining operational safety during the construction.

3.6 **Coordination.**

Include in this section a detailed description of conferences and meetings to be held both before and during the project. Include appropriate information from AC 150/5370-12. Discuss coordination procedures and schedules for each required FAA ATO Technical Operations shutdown and restart and all required flight inspections.

3.7 **Phasing.**

Include in this section a detailed scope of work description for the project as a whole and each phase of work covered by the CSPP. This includes all locations and durations of the work proposed. Attach drawings to graphically support the written scope of work. Detail in this section the sequenced phases of the proposed construction. Include a reference to paragraph 3.8, as appropriate.

3.8 **Areas and Operations Affected by Construction.**

Focus in this section on identifying the areas and operations affected by the construction. Describe corresponding mitigation that is not covered in detail elsewhere in the CSPP. Include references to paragraphs below as appropriate. Attach drawings as necessary to graphically describe affected areas and mechanisms proposed. See Appendix F for sample operational effects tables and figures.

3.9 **NAVAID Protection.**

List in this section all NAVAID facilities that will be affected by the construction. Identify NAVAID facilities that will be placed out of service at any time prior to or during construction activities. Identify individuals responsible for coordinating each shutdown and when each facility will be out of service. Include a reference to paragraph 3.6 for FAA ATO NAVAID shutdown, restart, and flight inspection coordination. Outline in detail procedures to protect each NAVAID facility remaining in service from interference by construction activities. Include a reference to paragraph 3.14 for the

issuance of NOTAMs as required. Include a reference to paragraph 3.16 for the protection of underground cables and piping serving NAVAIDs. If temporary visual aids are proposed to replace or supplement existing facilities, include a reference to paragraph 3.19. Attach drawings to graphically indicate the affected NAVAIDS and the corresponding critical areas.

3.10 **Contractor Access.**

This will necessarily be the most extensive section of the CSPP. Provide sufficient detail so that a contractor not experienced in working on airports will understand the unique restrictions such work will require. Due to this extent, it should be broken down into subsections as described below:

3.10.1 Location of Stockpiled Construction Materials.

Describe in this section specific locations for stockpiling material. Note any height restrictions on stockpiles. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify stockpiles. Include a reference to paragraph 3.11 for provisions to prevent stockpile material from becoming wildlife attractants. Include a reference to paragraph 3.12 for provisions to prevent stockpile material from becoming FOD. Attach drawings to graphically indicate the stockpile locations.

3.10.2 Vehicle and Pedestrian Operations.

While there are many items to be addressed in this major subsection of the CSPP, all are concerned with one main issue: keeping people and vehicles from areas of the airport where they don't belong. This includes preventing unauthorized entry to the AOA and preventing the improper movement of pedestrians or vehicles on the airport. In this section, focus on mechanisms to prevent construction vehicles and workers traveling to and from the worksite from unauthorized entry into movement areas. Specify locations of parking for both employee vehicles and construction equipment, and routes for access and haul roads. In most cases, this will best be accomplished by attaching a drawing. Quote from AC 150/5210-5 specific requirements for contractor vehicles rather than referring to the AC as a whole, and include special requirements for identifying HAZMAT vehicles. Quote from, rather than incorporate by reference, AC 150/5210-20 as appropriate to address the airport's rules for ground vehicle operations, including its training program. Discuss the airport's recordkeeping system listing authorized vehicle operators.

3.10.3 Two-Way Radio Communications.

Include a special section to identify all individuals who are required to maintain communications with Air Traffic (AT) at airports with active towers, or monitor CTAF at airports without or with closed ATCT. Include training requirements for all individuals required to communicate with AT. Individuals required to monitor AT frequencies should also be identified. If construction employees are also required to communicate by radio with Airport Operations, this procedure should be described in detail. Usage of vehicle mounted radios and/or portable radios should be addressed. Communication procedures for the event of disabled radio communication (that is, light

signals, telephone numbers, others) must be included. All radio frequencies should by identified (Tower, Ground Control, CTAF, UNICOM, ATIS, and so on).

3.10.4 Airport Security.

Address security as it applies to vehicle and pedestrian operations. Discuss TSA requirements, security badging requirements, perimeter fence integrity, gate security, and other needs. Attach drawings to graphically indicate secured and/or Security Identification Display Areas (SIDA), perimeter fencing, and available access points.

3.11 Wildlife Management.

Discuss in this section wildlife management procedures. Describe the maintenance of existing wildlife mitigation devices, such as perimeter fences, and procedures to limit wildlife attractants. Include procedures to notify Airport Operations of wildlife encounters. Include a reference to paragraph 3.10 for security (wildlife) fence integrity maintenance as required.

3.12 FOD Management.

In this section, discuss methods to control and monitor FOD: worksite housekeeping, ground vehicle tire inspections, runway sweeps, and so on. Include a reference to paragraph 3.15 for inspection requirements as required.

3.13 HAZMAT Management.

Describe in this section HAZMAT management procedures: fuel deliveries, spill recovery procedures, Safety Data Sheet (SDS), Material Safety Data Sheet (MSDS) or Product Safety Data Sheet (PSDS) availability, and other considerations. Any specific airport HAZMAT restrictions should also be identified. Include a reference to paragraph 3.10 for HAZMAT vehicle identification requirements. Quote from, rather than incorporate by reference, AC 150/5320-15.

3.14 Notification of Construction Activities.

List in this section the names and telephone numbers of points of contact for all parties affected by the construction project. We recommend a single list that includes all telephone numbers required under this section. Include emergency notification procedures for all representatives of all parties potentially impacted by the construction. Identify individual representatives – and at least one alternate – for each party. List both on-duty and off-duty contact information for each individual, including individuals responsible for emergency maintenance of airport construction hazard lighting and barricades. Describe procedures to coordinate immediate response to events that might adversely affect the operational safety of the airport (such as interrupted NAVAID service). Explain requirements for and the procedures for the issuance of Notices to Airmen (NOTAMs), notification to FAA required by 14 CFR Part 77 and Part 157 and in the event of affected NAVAIDs. For NOTAMs, identify an individual, and at least one alternate, responsible for issuing and cancelling each specific type of Notice to

Airmen (NOTAM) required. Detail notification methods for police, fire fighting, and medical emergencies. This may include 911, but should also include direct phone numbers of local police departments and nearby hospitals. Identify the E911 address of the airport and the emergency access route via haul roads to the construction site. Require the contractor to have this information available to all workers. The local Poison Control number should be listed. Procedures regarding notification of Airport Operations and/or the ARFF Department of such emergencies should be identified, as applicable. If airport radio communications are identified as a means of emergency notification, include a reference to paragraph 3.10. Differentiate between emergency and nonemergency notification of ARFF personnel, the latter including activities that affect ARFF water supplies and access roads. Identify the primary ARFF contact person and at least one alternate. If notification is to be made through Airport Operations, then detail this procedure. Include a method of confirmation from the ARFF department.

3.15 **Inspection Requirements.**

Describe in this section inspection requirements to ensure airfield safety compliance. Include a requirement for routine inspections by the resident engineer (RE) or other airport operator's representative and the construction contractors. If the engineering consultants and/or contractors have a Safety Officer who will conduct such inspections, identify this individual. Describe procedures for special inspections, such as those required to reopen areas for aircraft operations. Part 139 requires daily airfield inspections at certificated airports, but these may need to be more frequent when construction is in progress. Discuss the role of such inspections on areas under construction. Include a requirement to immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

3.16 **Underground Utilities.**

Explain how existing underground utilities will be located and protected. Identify each utility owner and include contact information for each company/agency in the master list. Address emergency response procedures for damaged or disrupted utilities. Include a reference to paragraph 3.14 for notification of utility owners of accidental utility disruption as required.

3.17 **Penalties.**

Describe in this section specific penalties imposed for noncompliance with airport rules and regulations, including the CSPP: SIDA violations, VPD, and others.

3.18 **Special Conditions.**

Identify any special conditions that may trigger specific safety mitigation actions outlined in this CSPP: low visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, VPD, and other activities requiring construction suspension/resumption. Include a reference to paragraph 3.10 for compliance with airport safety and security measures and for radio communications as required. Include

a reference to paragraph 3.14 for emergency notification of all involved parties, including police/security, ARFF, and medical services.

3.19 **Runway and Taxiway Visual Aids.**

Include marking, lighting, signs, and visual NAVAIDS. Detail temporary runway and taxiway marking, lighting, signs, and visual NAVAIDs required for the construction. Discuss existing marking, lighting, signs, and visual NAVAIDs that are temporarily, altered, obliterated, or shut down. Consider non-federal facilities and address requirements for reimbursable agreements necessary for alteration of FAA facilities and for necessary flight checks. Identify temporary TORA signs or runway distance remaining signs if appropriate. Identify required temporary visual NAVAIDs such as REIL or PAPI. Quote from, rather than incorporate by reference, AC 150/5340-1, *Standards for Airport Markings;* AC 150/5340-18, *Standards for Airport Sign Systems;* and AC 150/5340-30, as required. Attach drawings to graphically indicate proposed marking, lighting, signs, and visual NAVAIDs.

3.20 **Marking and Signs for Access Routes.**

Detail plans for marking and signs for vehicle access routes. To the extent possible, signs should be in conformance with the Federal Highway Administration MUTCD and/or State highway specifications, not hand lettered. Detail any modifications to the guidance in the MUTCD necessary to meet frangibility/height requirements.

3.21 **Hazard Marking and Lighting.**

Specify all marking and lighting equipment, including when and where each type of device is to be used. Specify maximum gaps between barricades and the maximum spacing of hazard lighting. Identify one individual and at least one alternate responsible for maintenance of hazard marking and lighting equipment in the master telephone list. Include a reference to paragraph 3.14. Attach drawings to graphically indicate the placement of hazard marking and lighting equipment.

3.22 **Work Zone Lighting for Nighttime Construction.**

If work is to be conducted at night, specify all lighting equipment, including when and where each type of device is to be used. Indicate the direction lights are to be aimed and any directions that aiming of lights is prohibited. Specify any shielding necessary in instances where aiming is not sufficient to prevent interference with air traffic control and aircraft operations. Attach drawings to graphically indicate the placement and aiming of lighting equipment. Where the plan only indicates directions that aiming of lights is prohibited, the placement and positioning of portable lights must be proposed by the Contractor and approved by the airport operator’s representative each time lights are relocated or repositioned.

3.23 **Protection of Runway and Taxiway Safety Areas.**

This section should focus exclusively on procedures for protecting all safety areas, including those altered by the construction: methods of demarcation, limit of access, movement within safety areas, stockpiling and trenching restrictions, and so on. Reference AC 150/5300-13, as required. Include a reference to paragraph 3.10 for procedures regarding vehicle and personnel movement within safety areas. Include a reference to paragraph 3.10 for material stockpile restrictions as required. Detail requirements for trenching, excavations, and backfill. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify open excavations as required. If runway and taxiway closures are proposed to protect safety areas, or if temporary displaced thresholds and/or revised declared distances are used to provide the required Runway Safety Area, include a reference to paragraphs 3.14 and 3.19. Detail procedures for protecting the runway OFZ, runway OFA, taxiway OFA and runway approach surfaces including those altered by the construction: methods of demarcation, limit of cranes, storage of equipment, and so on. Quote from, rather than incorporate by reference, AC 150/5300-13, as required. Include a reference to paragraph 3.24 for height (i.e., crane) restrictions as required. One way to address the height of equipment that will move during the project is to establish a three-dimensional "box" within which equipment will be confined that can be studied as a single object. Attach drawings to graphically indicate the safety area, OFZ, and OFA boundaries.

3.24 **Other Limitations on Construction.**

This section should describe what limitations must be applied to each area of work and when each limitation will be applied: limitations due to airport operations, height (i.e., crane) restrictions, areas which cannot be worked at simultaneously, day/night work restrictions, winter construction, and other limitations. Include a reference to paragraph 3.7 for project phasing requirements based on construction limitations as required.

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APPENDIX A. RELATED READING MATERIAL

Obtain the latest version of the following free publications from the FAA on its Web site at http://www.faa.gov/airports/.

Table A-1. FAA Publications

Number	Title and Description
AC 150/5200-28	*Notices to Airmen (NOTAMs) for Airport Operators* Guidance for using the NOTAM System in airport reporting.
AC 150/5200-30	*Airport Field Condition Assessments and Winter Operations Safety* Guidance for airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures.
AC 150/5200-33	*Hazardous Wildlife Attractants On or Near Airports* Guidance on locating certain land uses that might attract hazardous wildlife to public-use airports.
AC 150/5210-5	*Painting, Marking, and Lighting of Vehicles Used on an Airport* Guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.
AC 150/5210-20	*Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports* Guidance to airport operators on developing ground vehicle operation training programs.
AC 150/5300-13	*Airport Design* FAA standards and recommendations for airport design. Establishes approach visibility minimums as an airport design parameter, and contains the Object Free area and the obstacle free-zone criteria.
AC 150/5210-24	*Airport Foreign Object Debris (FOD) Management* Guidance for developing and managing an airport foreign object debris (FOD) program

Number	Title and Description
AC 150/5320-15	*Management of Airport Industrial Waste* Basic information on the characteristics, management, and regulations of industrial wastes generated at airports. Guidance for developing a Storm Water Pollution Prevention Plan (SWPPP) that applies best management practices to eliminate, prevent, or reduce pollutants in storm water runoff with particular airport industrial activities.
AC 150/5340-1	*Standards for Airport Markings* FAA standards for the siting and installation of signs on airport runways and taxiways.
AC 150/5340-18	*Standards for Airport Sign Systems* FAA standards for the siting and installation of signs on airport runways and taxiways.
AC 150/5345-28	*Precision Approach Path Indicator (PAPI) Systems* FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.
AC 150/5340-30	*Design and Installation Details for Airport Visual Aids* Guidance and recommendations on the installation of airport visual aids.
AC 150/5345-39	*Specification for L-853, Runway and Taxiway Retroreflective Markers*
AC 150/5345-44	*Specification for Runway and Taxiway Signs* FAA specifications for unlighted and lighted signs for taxiways and runways.
AC 150/5345-53	*Airport Lighting Equipment Certification Program* Details on the Airport Lighting Equipment Certification Program (ALECP).
AC 150/5345-50	*Specification for Portable Runway and Taxiway Lights* FAA standards for portable runway and taxiway lights and runway end identifier lights for temporary use to permit continued aircraft operations while all or part of a runway lighting system is inoperative.
AC 150/5345-55	*Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure*

Number	Title and Description
AC 150/5370-10	*Standards for Specifying Construction of Airports* Standards for construction of airports, including earthwork, drainage, paving, turfing, lighting, and incidental construction.
AC 150/5370-12	*Quality Management for Federally Funded Airport Construction Projects*
EB 93	*Guidance for the Assembly and Installation of Temporary Orange Construction Signs*
FAA Order 5200.11	FAA Airports (ARP) Safety Management System (SMS) Basics for implementing SMS within ARP. Includes roles and responsibilities of ARP management and staff as well as other FAA lines of business that contribute to the ARP SMS.
FAA Certalert 98-05	*Grasses Attractive to Hazardous Wildlife* Guidance on grass management and seed selection.
FAA Form 7460-1	Notice of Proposed Construction or Alteration
FAA Form 7480-1	Notice of Landing Area Proposal
FAA Form 6000.26	National NAS Strategic Interruption Service Level Agreement, Strategic Events Coordination, Airport Sponsor Form

Obtain the latest version of the following free publications from the Electronic Code of Federal Regulations at http://www.ecfr.gov/.

Table A-2. Code of Federal Regulation

Number	Title
Title 14 CFR Part 77	Safe, Efficient Use and Preservation of the Navigable Airspace
Title 14 CFR Part 139	Certification of Airports
Title 49 CFR Part 1542	Airport Security

Obtain the latest version of the Manual on Uniform Traffic Control Devices from the Federal Highway Administration at http://mutcd.fhwa.dot.gov/.

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APPENDIX B. TERMS AND ACRONYMS

Table B-1. Terms and Acronyms

Term	Definition
Form 7460-1	Notice of Proposed Construction or Alteration. For on-airport projects, the form submitted to the FAA regional or airports division office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*. (See guidance available on the FAA web site at https://oeaaa.faa.gov.) The form may be downloaded at http://www.faa.gov/airports/resources/forms/, or filed electronically at: https://oeaaa.faa.gov.
Form 7480-1	Notice of Landing Area Proposal. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport The form may be downloaded at http://www.faa.gov/airports/resources/forms/.
Form 6000-26	Airport Sponsor Strategic Event Submission Form
AC	Advisory Circular
ACSI	Airport Certification Safety Inspector
ADG	Airplane Design Group
AIP	Airport Improvement Program
ALECP	Airport Lighting Equipment Certification Program
ANG	Air National Guard
AOA	Air Operations Area, as defined in 14 CFR Part 107. Means a portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the secured area of the airport terminal building.
ARFF	Aircraft Rescue and Fire Fighting
ARP	FAA Office of Airports
ASDA	Accelerate-Stop Distance Available
AT	Air Traffic
ATCT	Airport Traffic Control Tower
ATIS	Automatic Terminal Information Service
ATO	Air Traffic Organization
Certificated Airport	An airport that has been issued an Airport Operating Certificate by the FAA under

Term	Definition
	the authority of 14 CFR Part 139, *Certification of Airports*.
CFR	Code of Federal Regulations
Construction	The presence of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.
CSPP	Construction Safety and Phasing Plan. The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.
CTAF	Common Traffic Advisory Frequency
Displaced Threshold	A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold is available for takeoffs in either direction or landing from the opposite direction.
DOT	Department of Transportation
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FOD	Foreign Object Debris/Damage
FSS	Flight Service Station
GA	General Aviation
HAZMAT	Hazardous Materials
HMA	Hot Mix Asphalt
IAP	Instrument Approach Procedures
IFR	Instrument Flight Rules
ILS	Instrument Landing System
LDA	Landing Distance Available
LOC	Localizer antenna array
Movement Area	The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading aprons and aircraft parking areas (reference 14 CFR Part 139).
MSDS	Material Safety Data Sheet
MUTCD	Manual on Uniform Traffic Control Devices
NAVAID	Navigation Aid
NAVAID Critical Area	An area of defined shape and size associated with a NAVAID that must remain clear and graded to avoid interference with the electronic signal.
Non-Movement Area	The area inside the airport security fence exclusive of the Movement Area. It is important to note that the non-movement area includes pavement traversed by aircraft.

Term	Definition
NOTAM	Notices to Airmen
Obstruction	Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C.
OCC	Operations Control Center
OE / AAA	Obstruction Evaluation / Airport Airspace Analysis
OFA	Object Free Area. An area on the ground centered on the runway, taxiway, or taxi lane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (See AC 150/5300-13 for additional guidance on OFA standards and wingtip clearance criteria.)
OFZ	Obstacle Free Zone. The airspace below 150 ft (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches. The OFZ is subdivided as follows: Runway OFZ, Inner Approach OFZ, Inner Transitional OFZ, and Precision OFZ. Refer to AC 150/5300-13 for guidance on OFZ.
OSHA	Occupational Safety and Health Administration
OTS	Out of Service
P&R	Planning and Requirements Group
NPI	NAS Planning & Integration
PAPI	Precision Approach Path Indicator
PFC	Passenger Facility Charge
PLASI	Pulse Light Approach Slope Indicator
Project Proposal Summary	A clear and concise description of the proposed project or change that is the object of Safety Risk Management.
RA	Reimbursable Agreement
RE	Resident Engineer
REIL	Runway End Identifier Lights
RNAV	Area Navigation
ROFA	Runway Object Free Area
RSA	Runway Safety Area. A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with AC 150/5300-13.
SDS	Safety Data Sheet
SIDA	Security Identification Display Area
SMS	Safety Management System

Term	Definition
SPCD	Safety Plan Compliance Document. Details developed and submitted by a contractor to the airport operator for approval providing details on how the performance of a construction project will comply with the CSPP.
SRM	Safety Risk Management
SSC	System Support Center
Taxiway Safety Area	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with AC 150/5300-13.
TDG	Taxiway Design Group
Temporary	Any condition that is not intended to be permanent.
Temporary Runway End	The beginning of that portion of the runway available for landing and taking off in one direction, and for landing in the other direction. Note the difference from a displaced threshold.
Threshold	The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.
TODA	Takeoff Distance Available
TOFA	Taxiway Object Free Area
TORA	Takeoff Run Available. The length of the runway less any length of runway unavailable and/or unsuitable for takeoff run computations. See AC 150/5300-13 for guidance on declared distances.
TSA	Taxiway Safety Area, or Transportation Security Administration
UNICOM	A radio communications system of a type used at small airports.
VASI	Visual Approach Slope Indicator
VGSI	Visual Glide Slope Indicator. A device that provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicator (PAPI), visual approach slope indicator (VASI), and pulse light approach slope indicator (PLASI).
VFR	Visual Flight Rules
VOR	Very High Frequency Omnidirectional Radio Range
VPD	Vehicle / Pedestrian Deviation

APPENDIX C. SAFETY AND PHASING PLAN CHECKLIST

This appendix is keyed to Chapter 2. In the electronic version of this AC, clicking on the paragraph designation in the Reference column will access the applicable paragraph. There may be instances where the CSPP requires provisions that are not covered by the list in this appendix.

This checklist is intended as an aid, not a required submittal.

Table C-1. CSPP Checklist

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
General Considerations					
Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified.	2.5				
Operational safety is a standing agenda item for construction progress meetings.	2.5				
Scheduling of the construction phases is properly addressed.	2.6				
Any formal agreements are established.	2.5.3				
Areas and Operations Affected by Construction Activity					
Drawings showing affected areas are included.	2.7.1				
Closed or partially closed runways, taxiways, and aprons are depicted on drawings.	2.7.1.1				
Access routes used by ARFF vehicles affected by the project are addressed.	2.7.1.2				
Access routes used by airport and airline support vehicles affected by the project are addressed.	2.7.1.3				
Underground utilities, including water supplies for firefighting and drainage.	2.7.1.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Approach/departure surfaces affected by heights of temporary objects are addressed.	2.7.1.5				
Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings.	2.7.1				
Temporary changes to taxi operations are addressed.	2.7.2.1				
Detours for ARFF and other airport vehicles are identified.	2.7.2.2				
Maintenance of essential utilities and underground infrastructure is addressed.	2.7.2.3				
Temporary changes to air traffic control procedures are addressed.	2.7.2.4				
NAVAIDs					
Critical areas for NAVAIDs are depicted on drawings.	2.8				
Effects of construction activity on the performance of NAVAIDS, including unanticipated power outages, are addressed.	2.8				
Protection of NAVAID facilities is addressed.	2.8				
The required distance and direction from each NAVAID to any construction activity is depicted on drawings.	2.8				
Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included.	2.8, 2.13.1, 2.13.5.3.1, 2.18.1				
Contractor Access					
The CSPP addresses areas to which contractor will have access and how	2.9				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
the areas will be accessed.					
The application of 49 CFR Part 1542 Airport Security, where appropriate, is addressed.	2.9				
The location of stockpiled construction materials is depicted on drawings.	2.9.1				
The requirement for stockpiles in the ROFA to be approved by FAA is included.	2.9.1				
Requirements for proper stockpiling of materials are included.	2.9.1				
Construction site parking is addressed.	2.9.2.1				
Construction equipment parking is addressed.	2.9.2.2				
Access and haul roads are addressed.	2.9.2.3				
A requirement for marking and lighting of vehicles to comply with AC 150/5210-5, *Painting, Marking and Lighting of Vehicles Used on an Airport,* is included.	2.9.2.4				
Proper vehicle operations, including requirements for escorts, are described.	2.9.2.5, 2.9.2.6				
Training requirements for vehicle drivers are addressed.	2.9.2.7				
Two-way radio communications procedures are described.	2.9.2.9				
Maintenance of the secured area of the airport is addressed.	2.9.2.10				
Wildlife Management					
The airport operator’s wildlife management procedures are addressed.	2.10				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Foreign Object Debris Management					
The airport operator's FOD management procedures are addressed.	2.11				
Hazardous Materials Management					
The airport operator's hazardous materials management procedures are addressed.	2.12				
Notification of Construction Activities					
Procedures for the immediate notification of airport user and local FAA of any conditions adversely affecting the operational safety of the airport are detailed.	2.13				
Maintenance of a list by the airport operator of the responsible representatives/points of contact for all involved parties and procedures for contacting them 24 hours a day, seven days a week is specified.	2.13.1				
A list of local ATO/Technical Operations personnel is included.	2.13.1				
A list of ATCT managers on duty is included.	2.13.1				
A list of authorized representatives to the OCC is included.	2.13.2				
Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included.	2.8, 2.13.2, 2.18.3.3.9				
Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified.	2.13.2				
Emergency notification procedures for medical, fire fighting, and police	2.13.3				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
response are addressed.					
Coordination with ARFF personnel for non-emergency issues is addressed.	2.13.4				
Notification to the FAA under 14 CFR parts 77 and 157 is addressed.	2.13.5				
Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed.	2.13.5.3.2				
Inspection Requirements					
Daily and interim inspections by both the airport operator and contractor are specified.	2.14.1, 2.14.2				
Final inspections at certificated airports are specified when required.	2.14.3				
Underground Utilities					
Procedures for protecting existing underground facilities in excavation areas are described.	2.15				
Penalties					
Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed.	2.16				
Special Conditions					
Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed.	2.17				
Runway and Taxiway Visual Aids - Marking, Lighting, Signs, and Visual NAVAIDs					
The proper securing of temporary airport markings, lighting, signs, and visual NAVAIDs is addressed.	2.18.1				
Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified.	2.18.1, 2.18.3, 2.18.4.2, 2.20.2.4				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
The requirement for markings to be in compliance with AC 150/5340-1, *Standards for Airport Markings*, is specified.	2.18.2				
Detailed specifications for materials and methods for temporary markings are provided.	2.18.2				
The requirement for lighting to conform to AC 150/5340-30, *Design and Installation Details for Airport Visual Aids;* AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.3				
The use of a lighted X is specified where appropriate.	2.18.2.1.2, 2.18.3.2				
The requirement for signs to conform to AC 150/5345-44, *Specification for Runway and Taxiway Signs;* AC 50/5340-18, *Standards for Airport Sign Systems;* and AC 150/5345-53, *Airport Lighting Certification Program*, is specified.	2.18.4				
Marking and Signs For Access Routes					
The CSPP specifies that pavement markings and signs intended for construction personnel should conform to AC 150/5340-18 and, to the extent practicable, with the MUTCD and/or State highway specifications.	2.18.4.2				
Hazard Marking and Lighting					
Prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles are specified.	2.20.1				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas.	2.20.1				
The CSPP considers less obvious construction-related hazards.	2.20.1				
Equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast is specified.	2.20.2.1				
The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act.	2.20.2.1				
Red lights meeting the luminance requirements of the State Highway Department are specified.	2.20.2.2				
Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxi lane, or apron are specified to be as low as possible to the ground, and no more than 18 inch high.	2.20.2.3				
Barricades are specified to indicate construction locations in which no part of an aircraft may enter.	2.20.2.3				
Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways.	2.20.2.5				
Markings for temporary closures are specified.	2.20.2.5				
The provision of a contractor's representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified.	2.20.2.7				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
Work Zone Lighting for Nighttime Construction					
If work is to be conducted at night, the CSPP identifies construction lighting units and their general locations and aiming in relationship to the ATCT and active runways and taxiways.	2.21				
Protection of Runway and Taxiway Safety Areas					
The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations.	2.22.1.1, 2.22.3.1				
The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the appropriate FAA Airports Regional or District Office and issues a local NOTAM.	2.22.1.2, 2.22.3.2				
Procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations, are detailed.	2.22.3.3				
The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open, subject to approved exceptions.	2.22.1.4				
Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed.	2.22.1.4				
The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site.	2.22.1.4				
Grading and soil erosion control to maintain RSA/TSA standards are	2.22.3.5				

Coordination	Reference	Addressed?			Remarks
		Yes	No	NA	
addressed.					
The CSPP specifies that equipment is to be removed from the ROFA when not in use.	2.22.2				
The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations.	2.22.3				
Appropriate details are specified for any construction work to be accomplished in a taxiway object free area.	2.22.4				
Measures to ensure that personnel, material, and/or equipment do not penetrate the OFZ or threshold siting surfaces while the runway is open for aircraft operations are included.	2.22.4.3.6				
Provisions for protection of runway approach/departure areas and clearways are included.	2.22.6				
Other Limitations on Construction					
The CSPP prohibits the use of open flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use.	2.23.1.2				
The CSPP prohibits the use of electrical blasting caps on or within 1,000 ft (300 m) of the airport property.	2.23.1.3				

APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

Table D-1. Potentially Hazardous Conditions

Item	Action Required (Describe)	No Action Required (Check)
Excavation adjacent to runways, taxiways, and aprons improperly backfilled.		
Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.		
Runway resurfacing projects resulting in lips exceeding 3 inch (7.6 cm) from pavement edges and ends.		
Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.		
Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown.		
Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and		

Item	Action Required (Describe)	No Action Required (Check)
approach zones.		
Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.		
Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.		
Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.		
Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards.		
Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.		
Obliterated or faded temporary markings on active operational areas.		
Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.		

Item	Action Required (Describe)	No Action Required (Check)
Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.		
Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications.		
Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.		
Lack of radio communications with construction vehicles in airport movement areas.		
Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.		
Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.		
Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.		
Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).		

Item	Action Required (Describe)	No Action Required (Check)
Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits.		
Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.		
Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.		
Site burning, which can cause possible obscuration.		
Construction work taking place outside of designated work areas and out of phase.		

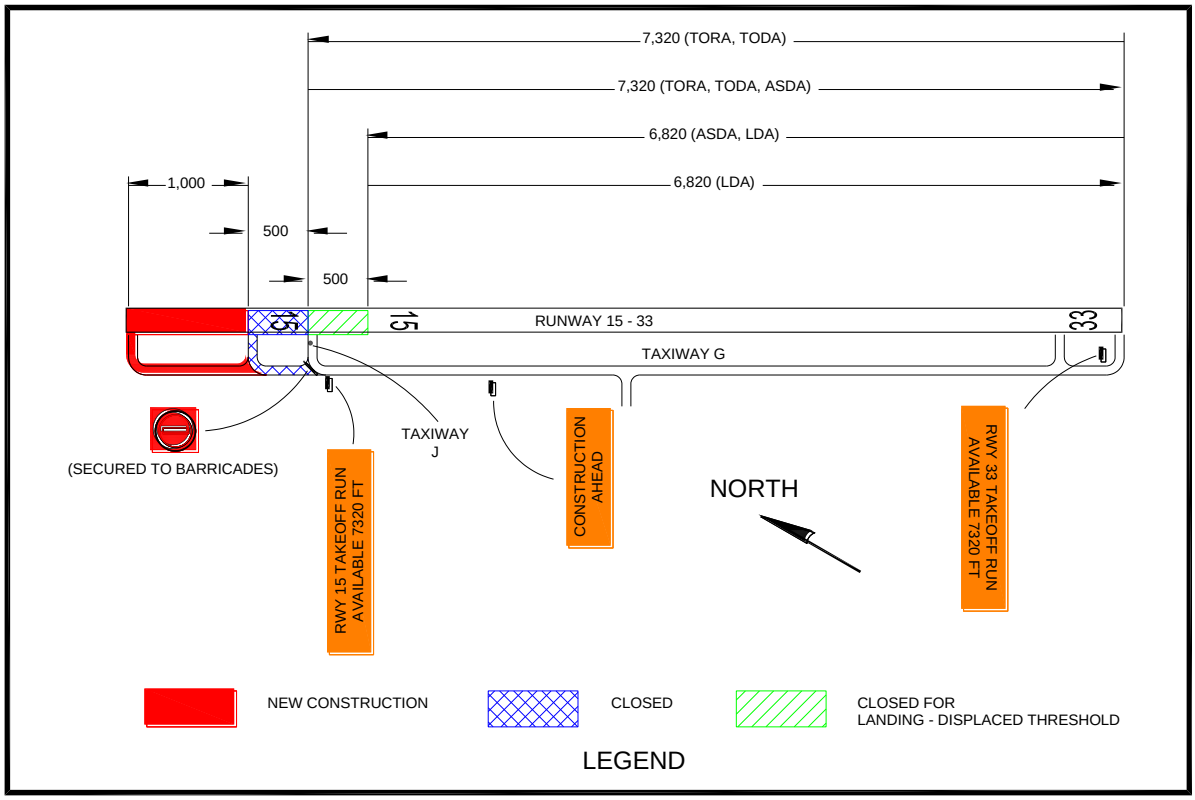
APPENDIX E. SAMPLE OPERATIONAL EFFECTS TABLE

E.1 **Project Description.**

Runway 15-33 is currently 7820 feet long, with a 500 foot stopway on the north end. This project will remove the stopway and extend the runway 1000 feet to the north and 500 feet to the south. Finally, the existing portion of the runway will be repaved. The runway 33 glide slope will be relocated. The new runway 33 localizer has already been installed by FAA Technical Operations and only needs to be switched on. Runway 15 is currently served only by a localizer, which will remain in operation as it will be beyond the future RSA. Appropriate NOTAMS will be issued throughout the project.

E.1.1 During Phase I, the runway 15 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 15 takeoff and the departure end of runway 33 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 33 will be adjusted to provide the required RSA and applicable departure surface. Excavation near Taxiway G will require its ADG to be reduced from IV to III. See Figure E-1.

Figure E-1. Phase I Example

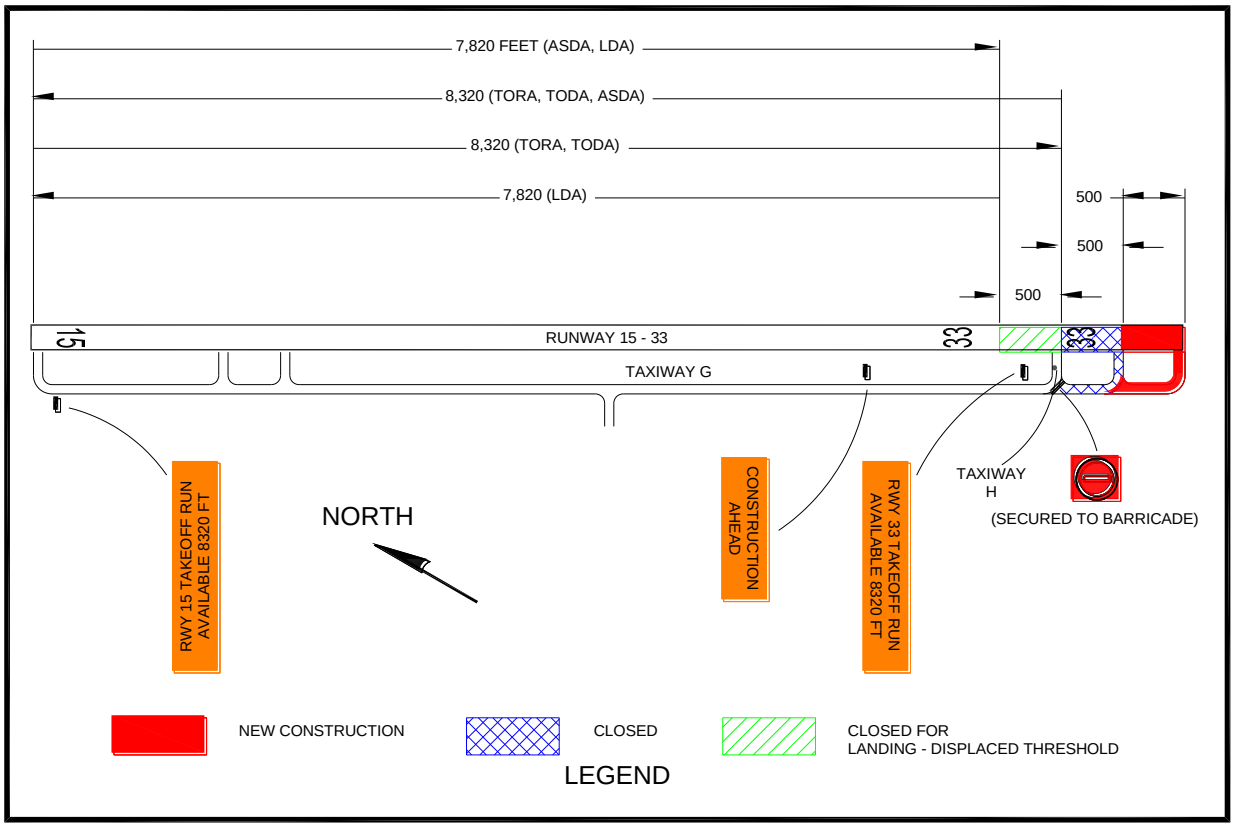


Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 33 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.2 During Phase II, the runway 33 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 33 takeoff and the departure end of runway 15 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 15 will be adjusted to provide the required RSA and applicable departure surface. See Figure E-2.

Figure E-2. Phase II Example



Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

Note 2: Based on the declared distances for Runway 15 departures, the maximum equipment height in the construction area is 12.5 feet (500/40 = 12.5).

E.3 During Phase III, the existing portion of the runway will be repaved with Hot Mix Asphalt (HMA) and the runway 33 glide slope will be relocated. Construction will be accomplished between the hours of 8:00 pm and 5:00 am, during which the runway will be closed to operations.

Figure E-3. Phase III Example

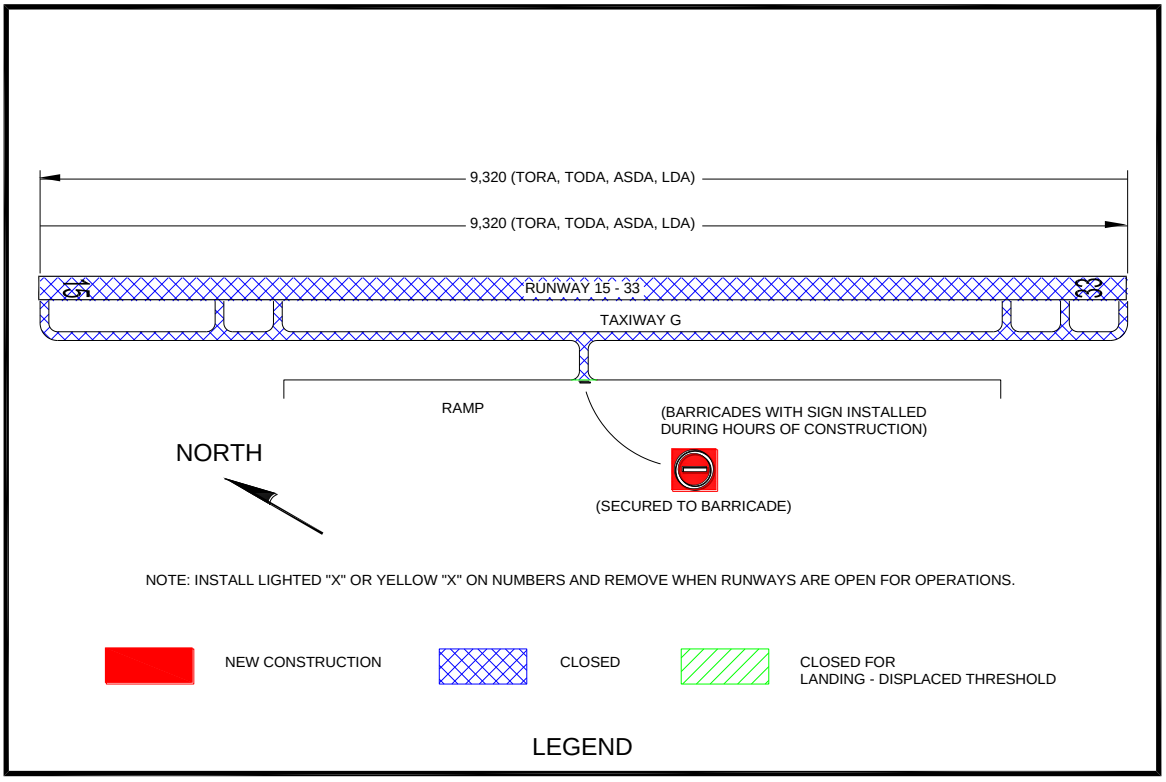


Table E-1. Operational Effects Table

Project	**Runway 15-33 Extension and Repaving**			
Phase	**Normal (Existing)**	**Phase I: Extend Runway 15 End**	**Phase II: Extend Runway 33 End**	**Phase III: Repave Runway**
Scope of Work	N/A	Extend Runway 15-33 1,000 ft on north end with Hot Mix Asphaltic Concrete (HMA).	Extend Runway 15-33 500 ft on south end with Hot Mix Asphaltic Concrete (HMA).	Repave existing runway with HMA Relocate Runway 33 Glide Slope
Effects of Construction Operations	N/A	Existing North 500 ft closed	Existing South 500 ft closed	Runway closed between 8:00 pm and 5:00 am Edge lighting out of service
Construction Phase	N/A	Phase I (Anticipated)	Phase II (Anticipated)	Phase III (Anticipated)
Runway 15 Average Aircraft Operations	Carrier: 52 /day GA: 26 /day Military: 11 /day	Carrier: 40 /day GA: 26 /day Military: 0 /day	Carrier: 45 /day GA: 26 /day Military: 5 /day	Carrier: 45 / day GA: 20 / day Military: 0 /day
Runway 33 Average Aircraft Operations	Carrier: 40 /day GA: 18 /day Military: 10 /day	Carrier: 30 /day GA: 18 /day Military: 0 /day	Carrier: 25 /day GA: 18 /day Military: 5 /day	Carrier: 20 /day GA: 5 /day Military: 0 /day
Runway 15-33 Aircraft Category	C-IV	C-IV	C-IV	C-IV
Runway 15 Approach Visibility Minimums	1 mile	1 mile	1 mile	1 mile
Runway 33 Approach Visibility Minimums	¾ mile	¾ mile	¾ mile	1 mile

Note: Proper coordination with Flight Procedures group is necessary to maintain instrument approach procedures during construction.

Project		Runway 15-33 Extension and Repaving			
Phase		Normal (Existing)	Phase I: Extend Runway 15 End	Phase II: Extend Runway 33 End	Phase III: Repave Runway
Runway 15 Declared Distances	TORA	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	7,820	7,320	7,820	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 33 Declared Distances	TORA	7,820	7,320	8,320	9,320
	TODA	7,820	7,320	8,320	9,320
	ASDA	8,320	6,820	8,320	9,320
	LDA	7,820	6,820	7,820	9,320
Runway 15 Approach Procedures		LOC only	LOC only	LOC only	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 33 Approach Procedures		ILS	ILS	ILS	LOC only
		RNAV	RNAV	RNAV	RNAV
		VOR	VOR	VOR	VOR
Runway 15 NAVAIDs		LOC	LOC	LOC	LOC
Runway 33 NAVAIDs		ILS, MALSR	ILS, MALSR	ILS, MALSR	LOC, MALSR
Taxiway G ADG		IV	III	IV	IV
Taxiway G TDG		4	4	4	4
ATCT (hours open)		24 hours	24 hours	24 hours	0500 - 2000
ARFF Index		D	D	D	D

Project	Runway 15-33 Extension and Repaving			
Phase	**Normal (Existing)**	**Phase I: Extend Runway 15 End**	**Phase II: Extend Runway 33 End**	**Phase III: Repave Runway**
Special Conditions	Air National Guard (ANG) military operations	All military aircraft relocated to alternate ANG Base	Some large military aircraft relocated to alternate ANG Base	All military aircraft relocated to alternate ANG Base
Information for NOTAMs		Refer above for applicable declared distances. Taxiway G limited to 118 ft wingspan	Refer above for applicable declared distances.	Refer above for applicable declared distances. Airport closed 2000 – 0500. Runway 15 glide slope OTS.

Note: This table is one example. It may be advantageous to develop a separate table for each project phase and/or to address the operational status of the associated NAVAIDs per construction phase.

Complete the following chart for each phase to determine the area that must be protected along the runway and taxiway edges:

Table E-2. Runway and Taxiway Edge Protection

Runway/Taxiway	Aircraft Approach Category* A, B, C, or D	Airplane Design Group* I, II, III, or IV	Safety Area Width in Feet Divided by 2*

*See AC 150/5300-13 to complete the chart for a specific runway/taxiway.

Complete the following chart for each phase to determine the area that must be protected before the runway threshold:

Table E-3. Protection Prior to Runway Threshold

Runway End Number	Airplane Design Group* I, II, III, or IV	Aircraft Approach Category* A, B, C, or D	Minimum Safety Area Prior to the Threshold*	Minimum Distance to Threshold Based on Required Approach Slope*	
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1
			ft	ft	: 1

*See AC 150/5300-13 to complete the chart for a specific runway.

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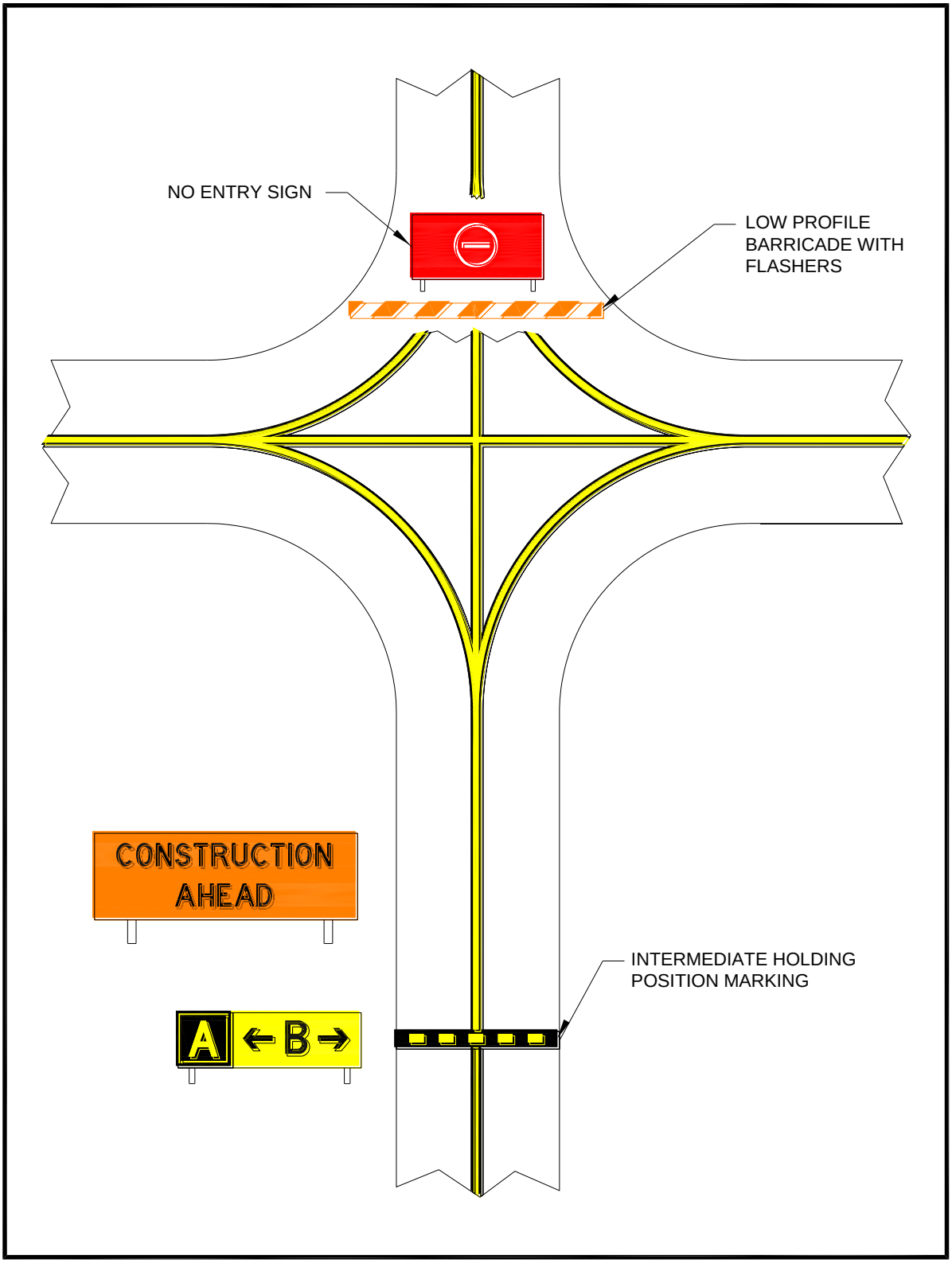
APPENDIX F. ORANGE CONSTRUCTION SIGNS

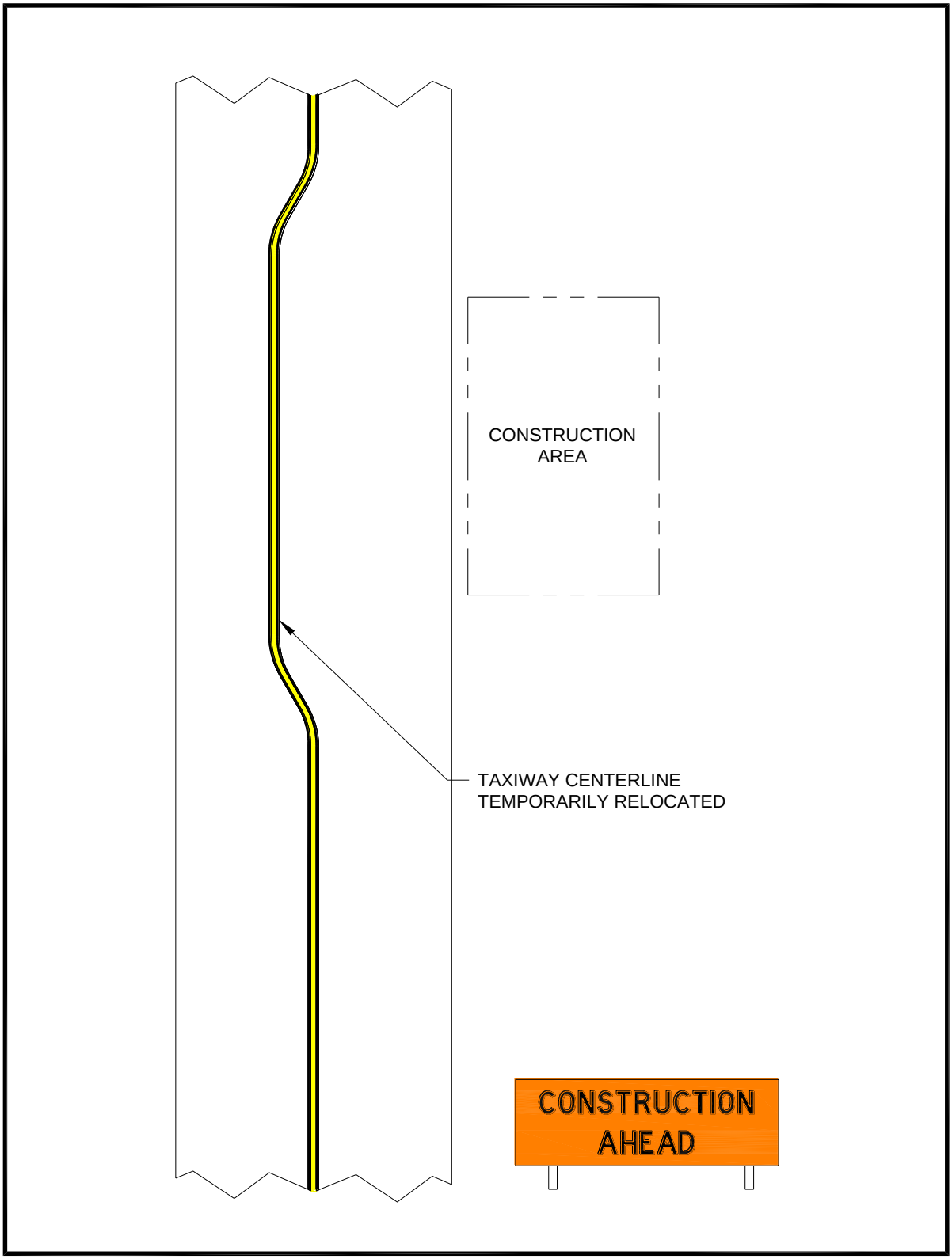
Figure F-1. Approved Sign Legends

Figure F-2. Orange Construction Sign Example 1



Note: For proper placement of signs, refer to EB 93.

Figure F-3. Orange Construction Sign Example 2



Note: For proper placement of signs, refer to EB 93.

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Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Engineering Division, Federal Aviation Administration ATTN: AAS-100, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5370-2G Date: _____

Please check all appropriate line items:

☐ An error (procedural or typographical) has been noted in paragraph _____ on page _____.

☐ Recommend paragraph _____ on page _____ be changed as follows:

_____
_____
_____

☐ In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

_____
_____
_____

☐ Other comments:

_____
_____
_____

☐ I would like to discuss the above. Please contact me at (phone number, email address).

_____

Submitted by: _____ Date: _____

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APPENDIX C

CONTRACTOR'S SAFETY PLAN

COMPLIANCE

DOCUMENTATION

APPENDIX C

CONTRACTOR'S SAFETY PLAN

COMPLIANCE

DOCUMENTATION

CONTRACTOR'S SAFETY PLAN COMPLIANCE DOCUMENT

I, _____, have read the "**South Terminal Expansion and In-Line Baggage System**" Construction Safety and Phasing Plan and all attached documents. I will abide by these safety requirements and project guidelines and adhere to all other safety requirements of the airport. Any modifications or additional contractor safety guidelines have been attached to this signed statement if applicable.

_____
Name

_____
Signature

_____
Title

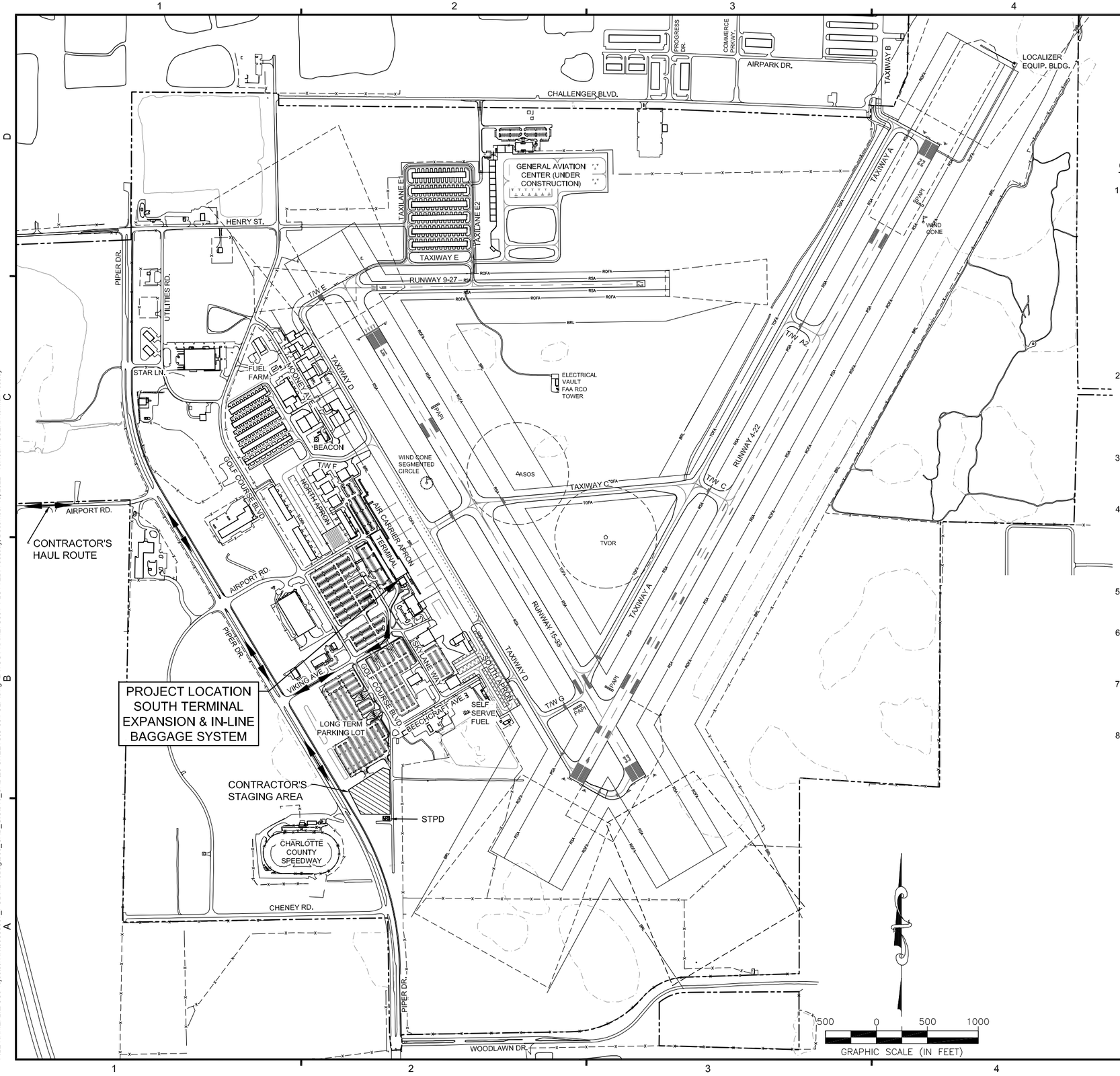
_____
Date

APPENDIX D

CONSTRUCTION SAFETY

AND

PHASING DRAWINGS



LEGEND

- CONTRACTOR'S HAUL ROUTE
- CONTRACTOR'S STAGING AREA
- PROJECT AREA
- STPD

GENERAL CONTRACT NOTES

1. HAUL ROUTES - LOCATION OF HAUL ROUTES ON THE AIRPORT SITE SHALL BE AS SPECIFIED ON THIS SHEET. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE OFF-SITE HAUL ROUTES (STATE HIGHWAYS, COUNTY ROADS OR CITY STREETS) WITH THE APPROPRIATE OWNER WHO HAS JURISDICTION OVER THE AFFECTED ROUTE. ON-SITE HAUL ROUTES SHALL BE MAINTAINED BY THE CONTRACTOR AND SHALL BE RESTORED TO THEIR ORIGINAL CONDITION UPON COMPLETION OF BEING USED AS A HAUL ROUTE. THE BEFORE AND AFTER CONDITION OF ON-SITE HAUL ROUTES SHALL BE JOINTLY INSPECTED AND DETERMINED BY THE CONTRACTOR AND THE ENGINEER. FENCING, DRAINAGE, GRADING AND OTHER MISCELLANEOUS CONSTRUCTION REQUIRED TO CONSTRUCT TEMPORARY HAUL ROUTES OR ACCESS POINTS ON THE AIRPORT WILL BE THE CONTRACTOR'S TOTAL RESPONSIBILITY AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO THE WORK. THE COST OF HAUL ROUTES AND MAINTENANCE OF HAUL ROUTES SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
2. UNSUITABLE WASTE DISPOSAL - ALL DEBRIS AND UNSUITABLE MATERIALS (AS DETERMINED BY THE ENGINEER) EXCAVATED AND/OR REMOVED UNDER THIS PROJECT SHALL BE DISPOSED OF OFF AIRPORT PROPERTY. ALL PERMITS, LICENSES OR OTHER APPROVALS REQUIRED TO DISPOSE OF THE WASTE MATERIALS OFF AIRPORT PROPERTY SHALL BE OBTAINED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR UTILITIES - THE CONTRACTOR'S STAGING AREA IS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL MAKE PROVISIONS FOR THE USE OF UTILITIES AS SPECIFIED IN THE SPECIAL PROVISIONS.
4. EXISTING FACILITIES - EXISTING FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM SURVEYS AND THE BEST AVAILABLE INFORMATION. LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY, VERIFICATION OF THESE ITEMS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR PRIOR TO BEGINNING RELATED WORK. ANY DAMAGE TO EXISTING SERVICES SHALL BE REPAIRED IMMEDIATELY PRIOR TO PROCEEDING WITH ANY WORK.
5. EXISTING PARKING LOT LIGHTING SYSTEM - INTERRUPTION TO EXISTING LIGHTING SYSTEMS, IF NECESSARY, SHALL BE LIMITED TO DAYLIGHT HOURS.
6. CONTRACTOR'S STAGING AREA - UPON COMPLETION OF THE PROJECT, THE CONTRACTOR'S STAGING AREAS SHALL BE SEEDED AND MULCHED AND RESTORED TO A SMOOTH GRADED AND DRAINABLE CONDITION.
7. CONSTRUCTION TIME AND SEQUENCE OF WORK - THE PHASING OF WORK AND THE CONSTRUCTION TIME ALLOTTED FOR THIS PROJECT ARE CONTAINED IN THE SPECIAL PROVISIONS AND THE PHASING PLAN.
8. CONTRACTOR SHALL SUPPLY A FLAG MAN AT THE INTERSECTION OF ACTIVE INTERSECTIONS AND HIS HAUL ROUTES AT ALL TIMES WHEN TRUCKS AND/OR CONTRACTOR VEHICLES ARE OPERATING. THE CONTRACTOR SHALL ALSO PROVIDE A SWEEPER AT THESE LOCATIONS AT ALL TIMES WHEN TRUCKS AND/OR CONTRACTOR VEHICLES ARE OPERATING.

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Designed By:	Checked by:
APD	SGH
Drawn By:	AECOM ProjECT No.:
APD	60665507

STEVEN G. HENRIQUEZ
31974

Notes:

REVISIONS

No.	Description	Date	By

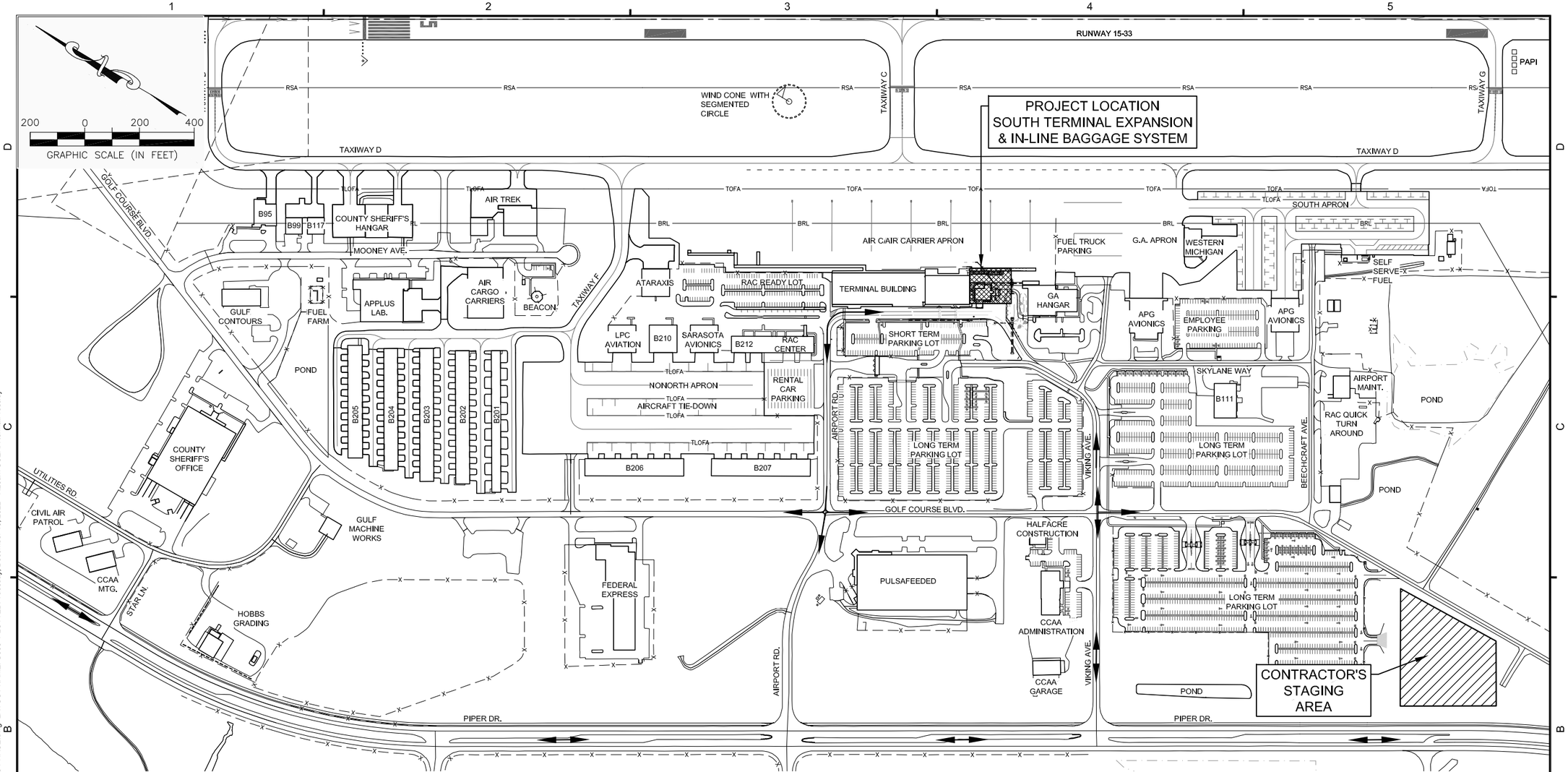
Project Name:
SOUTH TERMINAL EXPANSION AND IN-LINE BAGGAGE SYSTEM

Drawing Name:
CONTRACT LAYOUT PLAN

FDOT Project No.:	FAA A.I.P. Project No.:
Date: DECEMBER, 2022	Issue: 100% CONSTRUCTION DOCUMENTS
Scale: AS SHOWN	Drawing Number: G-004

DRAWING SIZE REDUCED IF LESS THAN 34"x22"

FILE NAME: L:\DCS\Projects\TRN\60665507_PGD\InLineBag\900_CAD_GIS\10_CAD\20>SHEETS\G-004 CLP.dwg LAYOUT NAME: G004 PLOTTED: Tuesday, December 13, 2022 - 10:40am USER: Norma.Pressley



CONSTRUCTION PHASING NOTES:

WORK ON THIS CONTRACT WILL BE CARRIED OUT IN MULTIPLE PHASES AS DEFINED ON THE PHASING PLANS. ALL PHASES SHALL BE CARRIED OUT IN ACCORDANCE WITH THE DEFINED RESTRICTIONS AND SHALL BE SCHEDULED IN ADVANCE WITH AIRPORT OPERATIONS. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ENGINEER A DETAILED SCHEDULE OF PROPOSED ACTIVITIES FOR REVIEW AND APPROVAL BY THE OWNER A MINIMUM 2-WEEKS IN ADVANCE OF THE CONTRACTOR BEGINNING ANY PHASE OF WORK. THE PROPOSED PHASING MAY BE MODIFIED BY THE CHARLOTTE COUNTY AIRPORT AUTHORITY DUE TO SCHEDULED OPERATIONS ON THE AIRFIELD. THE FOLLOWING RESTRICTIONS ARE APPLICABLE TO THIS PROJECT:

A. RUNWAY 9-27, RUNWAY 15-33, RUNWAY 4-22, AND ALL TAXIWAYS UNLESS NOTED WILL BE OPEN AND FULLY OPERATIONAL DURING ALL PHASES OF WORK.

B. LIGHTED STANDARD DOT TYPE I OR LOW-PROFILE BARRICADES MAY BE UTILIZED AT ALL LOCATIONS AT THE CONTRACTORS' OPTION, EXCEPT IN LOCATIONS WHERE TEMPORARY FENCING ARE SPECIFICALLY REQUIRED TO BE USED IN THE DRAWINGS.

C. THE CONTRACTOR SHALL INCORPORATE APPROPRIATE MEANS AND MEASURES IN HIS CONSTRUCTION QUALITY ASSURANCE PLAN TO PREVENT THE OCCURRENCE OF WIND-BLOWN DEBRIS FROM THE CONSTRUCTION SITE.

D. CONTRACTOR'S ACCESS GATE SHALL BE USED BY THE CONTRACTOR FOR ALL PHASES OF WORK. THE AIRPORT OPERATIONS AREAS SHALL BE SECURED AT ALL TIMES.

E. REFERENCE THE DRAWINGS FOR DETAILED INFORMATION ON REQUIRED WORK IN EACH CONSTRUCTION PHASE.

CONSTRUCTION PHASING

PHASE 1 - MOBILIZATION - 30 CALENDAR DAYS

MOBILIZATION SHALL CONSIST OF CONTRACTOR MOBILIZATION, ESTABLISHMENT OF HAUL ROUTES, SUBMITTAL OF ASPHALT AND CONCRETE MIX DESIGN, BUILDING SUBMITTALS AND SHOP DRAWINGS, STOCK PILING OF MATERIALS, SUBMITTING THE "CONSTRUCTION AREA LIGHTING PLAN", ETC.

BUILDING DEPARTMENT REVIEW: WORK DURING THIS TIME SHALL CONSIST OF SUBMITTAL FOR ALL PERMITS, INCLUDING BUILDING PERMITS, COORDINATION WITH THE BUILDING DEPARTMENT, ANSWERING QUESTIONS, RE-SUBMITTAL AS MAY BE REQUIRED, AND SECURING ALL PERMITS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT.

MOBILIZATION TIME MAY BE EXTENDED BY THE AUTHORITY SHOULD THERE BE BUILDING PERMITTING DELAYS.

PHASE 2 - 90 CALENDAR DAYS

WORK INCLUDED IN PHASE 2 INCLUDES:

- BUILDING AND SITE DEMOLITION
- RELOCATION OF TRASH COMPACTOR
- MODIFICATION/RELOCATION OF PASSENGER WALKWAY CANOPY AND FENCE
- INSTALLATION OF TEMPORARY FENCE
- COMPLETION OF STORM DRAINAGE IMPROVEMENTS

PHASE 3 - BUILDING EXPANSION - 270 CALENDAR DAYS

PHASE 3 WORK SHALL BEGIN AFTER SATISFACTORY CONCLUSION OF PHASE 2 WORK. PHASE 3 WORK INCLUDES:

- TERMINAL BUILDING EXPANSION
- INSTALLATION OF NEW ELECTRICAL SERVICE
- INSTALLATION OF ALL MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION AND COMMUNICATION SYSTEMS

PHASE 3A - INSTALLATION OF IN-LINE BAGGAGE SYSTEM AND CAROUSEL

PHASE 3A WORK SHALL BEGIN AT THE ONSET OF PHASE 3 AND SHALL BE CONCLUDED WITHIN 330 CALENDAR DAYS. ALL BAGGAGE SYSTEMS SHALL BE OPERATIONAL AT THE CONCLUSION OF PHASE 3A.

PHASE 3B - IN-LINE BAGGAGE SYSTEM TESTING AND TSA RELOCATION - 30 CALENDAR DAYS

PHASE 3B WORK SHALL INCLUDE COMPLETION OF ANY DEFICIENCY ITEMS NOTED DURING THE TSA TESTING OF THE BAGGAGE SYSTEM.

PHASE 4 - HOLDROOM MODIFICATION - 60 CALENDAR DAYS

WORK IN PHASE 4 INCLUDES:

- RECONFIGURATION OF OLD TSA SPACE INTO HOLDROOM SPACE
- RELOCATION OF THE PASSENGER WALKWAY CANOPY AND FENCE

SUBSTANTIAL COMPLETION - 14 CALENDAR DAYS

THE CONTRACTOR HAS 14 CALENDAR DAYS TO COMPLETE DEFICIENT PUNCH LIST ITEMS NOTED IN THE SUBSTANTIAL COMPLETION INSPECTION AND TO DEMOBILIZE FROM THE SITE.

TOTAL CONTRACT TIME FOR THE PROJECT IS 554 CALENDAR DAYS.

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Drawn By:	AECOM ProjECT No.:
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Notes:

REVISIONS

No.	Description	Date	By

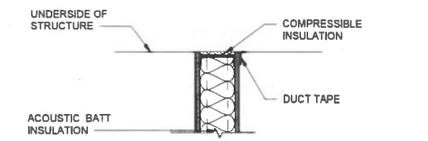
Project Name:
SOUTH TERMINAL EXPANSION AND IN-LINE BAGGAGE SYSTEM

Drawing Name:
OVERALL PHASING PLAN & N0TES

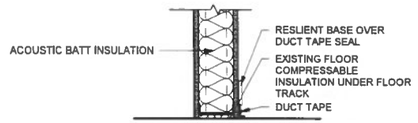
FDOT Project No.:	FAA A.I.P. Project No.:
Date: DECEMBER, 2022	Issue: 100% CONSTRUCTION DOCUMENTS
Scale: AS SHOWN	Drawing Number: G-005

DRAWING SIZE REDUCED IF LESS THAN 34"x22"

FILE NAME: L:\DCS\Projects\TRN\60665507_PGDInLineBag\900_CAD_GIS\910_CAD\20-SHEETS\G-005 PHASE.dwg LAYOUT NAME: G005 PLOTTED: Tuesday, December 13, 2022 - 7:28am USER: Norma.Pressley



4 G-006 **DETAIL**
Scale: 1 1/2" = 1'-0"



3 G-006 **DETAIL**
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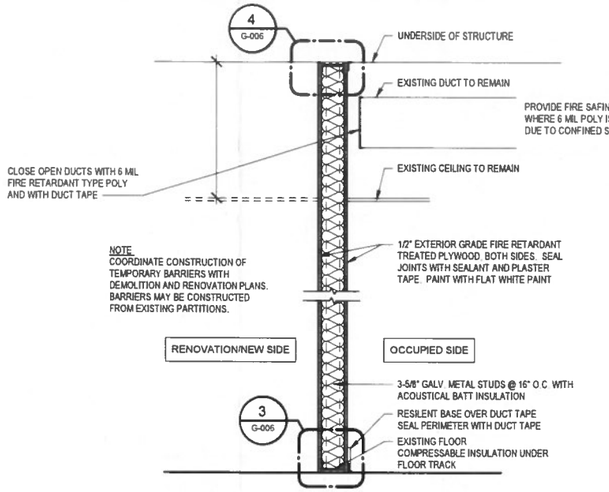
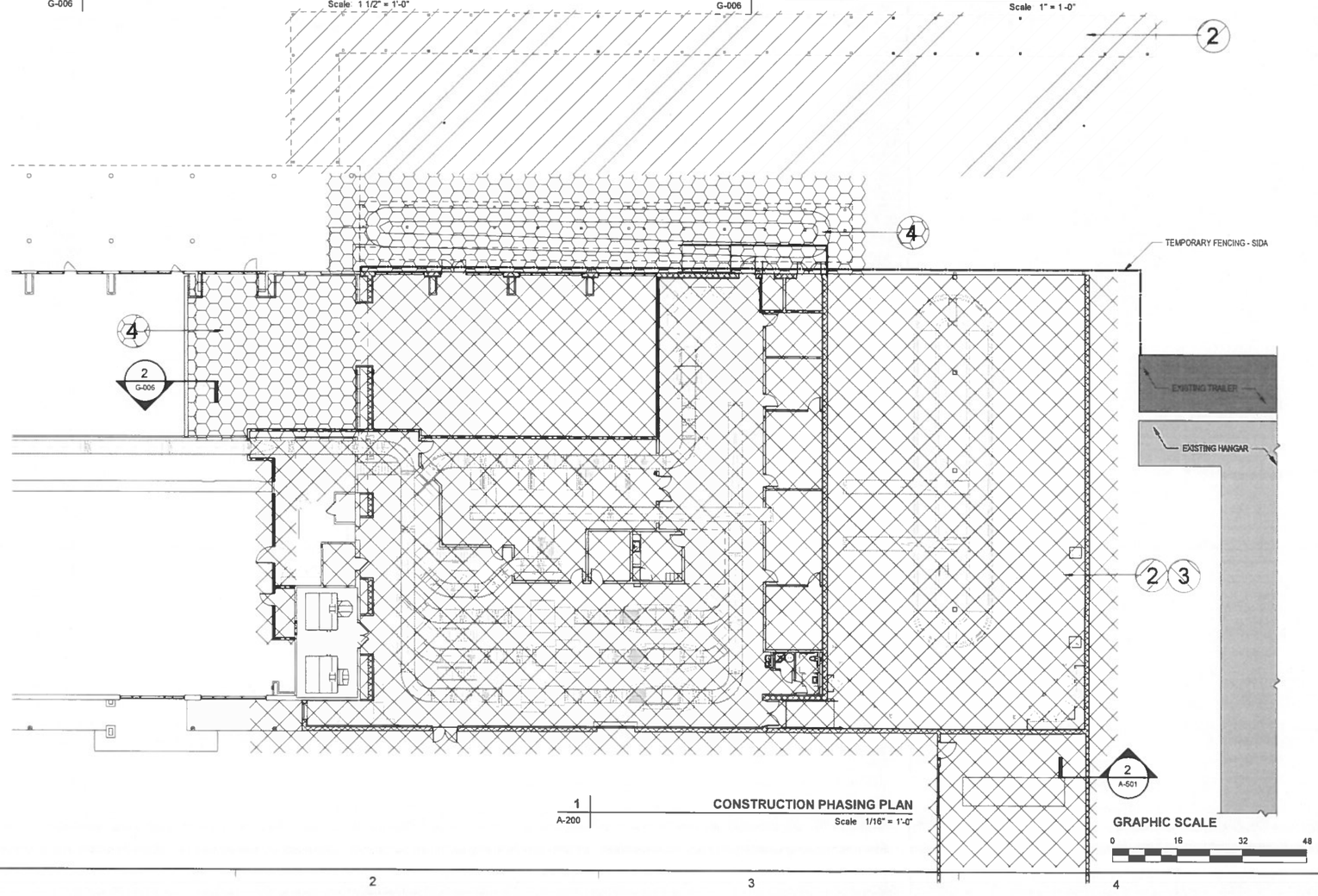


2 G-006 **SECTION OF TEMPORARY CONSTRUCTION BARRIER**
Scale: 1" = 1'-0"



1 A-200 **CONSTRUCTION PHASING PLAN**
Scale: 1/16" = 1'-0"

GRAPHIC SCALE
0 16 32 48

GENERAL NOTES - PHASING

A. PROJECT PHASING SHALL BE FOLLOWED AS PER SHEET G-005 OVERALL PHASING PLAN AND NOTES.

B. WORK SHIFTS AND TIME OF DAY FOR EACH TYPE OF WORK ARE TO BE IDENTIFIED WITH COORDINATION OF AIRPORT AUTHORITY. THE WORK RESTRICTIONS MUST BE OBSERVED AND ENFORCED AT ALL TIMES.

C. CONTRACTOR MAY BE REQUIRED TO TEMPORARILY RELOCATE AIRLINE BOARDING SERVICE OPERATIONS TO TEMPORARY LOCATIONS OUTSIDE OF ACTIVE CONSTRUCTION PHASE AREA TO ACCOMMODATE CONSTRUCTION ACTIVITY. THE LOGISTICS AND TIMING OF SUCH RELOCATIONS SHALL BE COORDINATED WITH AIRLINE REPRESENTATIVE(S) AND THE AIRPORT STAFF.

D. UNDER NO CIRCUMSTANCES SHALL ANY AIRPORT FACILITY (HOLDROOM, OR RAMP/APRON AREA) OUTSIDE OF THE ACTIVE CONSTRUCTION AREA BE CLOSED OR HAVE ITS USE ENCUMBERED BY CONSTRUCTION ACTIVITY.

E. LOCATION AND CONSTRUCTION OF TEMPORARY BARRIERS/CONSTRUCTION PARTITIONS WHICH SURROUND WORK AREAS SHALL BE ADJUSTED AROUND FEATURES OF EXISTING-TO-REMAIN CONDITIONS AND NEW DESIGN FEATURES (CEILING HEIGHT, FLOORING PATTERN, ETC.,) IN EACH PHASE.

G. TEMPORARY CONSTRUCTION BARRIERS SHALL REMAIN IN PLACE FOR ENTIRE DURATION OF DEMOLITION AND CONSTRUCTION WORK. REMOVE ONLY WHEN REQUIRED FOR CORRIDOR FINISH WORK AT END OF EACH PHASE.

H. ALL DOORS AND FRAMES SHALL BE SELF-CLOSING AND POSITIVE LATCHING, LOCKING CONFIGURATION AS APPROVED BY AIRPORT.

I. CONTRACTOR TO PROVIDE TEMPORARY WAYFINDING AND EGRESS ROUTES DURING PHASES WITH CONSTRUCTION BARRIERS

PHASE SEQUENCING

2 DEMOLISH STANDALONE BUILDING AND SITE. RELOCATE UTILITIES AND SERVICES AS REQUIRED IN PREPERATION FOR PHASE 3 WORK. CONSTRUCT NEW BOARDING CANOPY. DEMOLITION OF EXISTING PEDESTRIAN BOARDING CANOPY IN ITS ENTIRETY FOR TEMPORARY TUG CART PATH TO EXISTING BAGGAGE CARROUSEL VIA EAST SIDE. THIS PHASE TO ALSO INCLUDE DRAINAGE / STRUCTURE AND SITE WORK ALONG THIS AREA.

3 THIS PHASE CONSISTS OF THE NEW BAGGAGE BUILDING EXPANSION AND SITE WORK AS INDICATED ON DWGS

4 DEMOLISH EXISTING EXTERIOR BAGGAGE CARROUSEL/CANOPY IN ITS ENTIRETY. RENOVATE EXISTING SCREENING SPACE TO NEW HOLDROOM SPACE AND COMPLETE SITE WORK ALONG EAST END OF BUILDING EXPANSION.

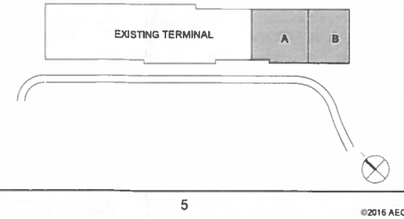
TEMPORARY CONSTRUCTION BARRIER

DOOR IN TEMPORARY CONSTRUCTION BARRIER. TO BE USED FOR CONSTRUCTION ACCESS AND TEMPORARY EMERGENCY CONSTRUCTION EGRESS ONLY.

THIS HATCH INDICATES PHASE 2 & PHASE 3 WORK THAT COINCIDES IN THE SAME LOCATION.

TEMPORARY SIDA FENCING LINE TYPE

KEY PLAN - NTS



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Designed By: MS	Checked By: MS
Drawn By: WH	AECOM Project No.: 60665507

Notes:

REVISIONS

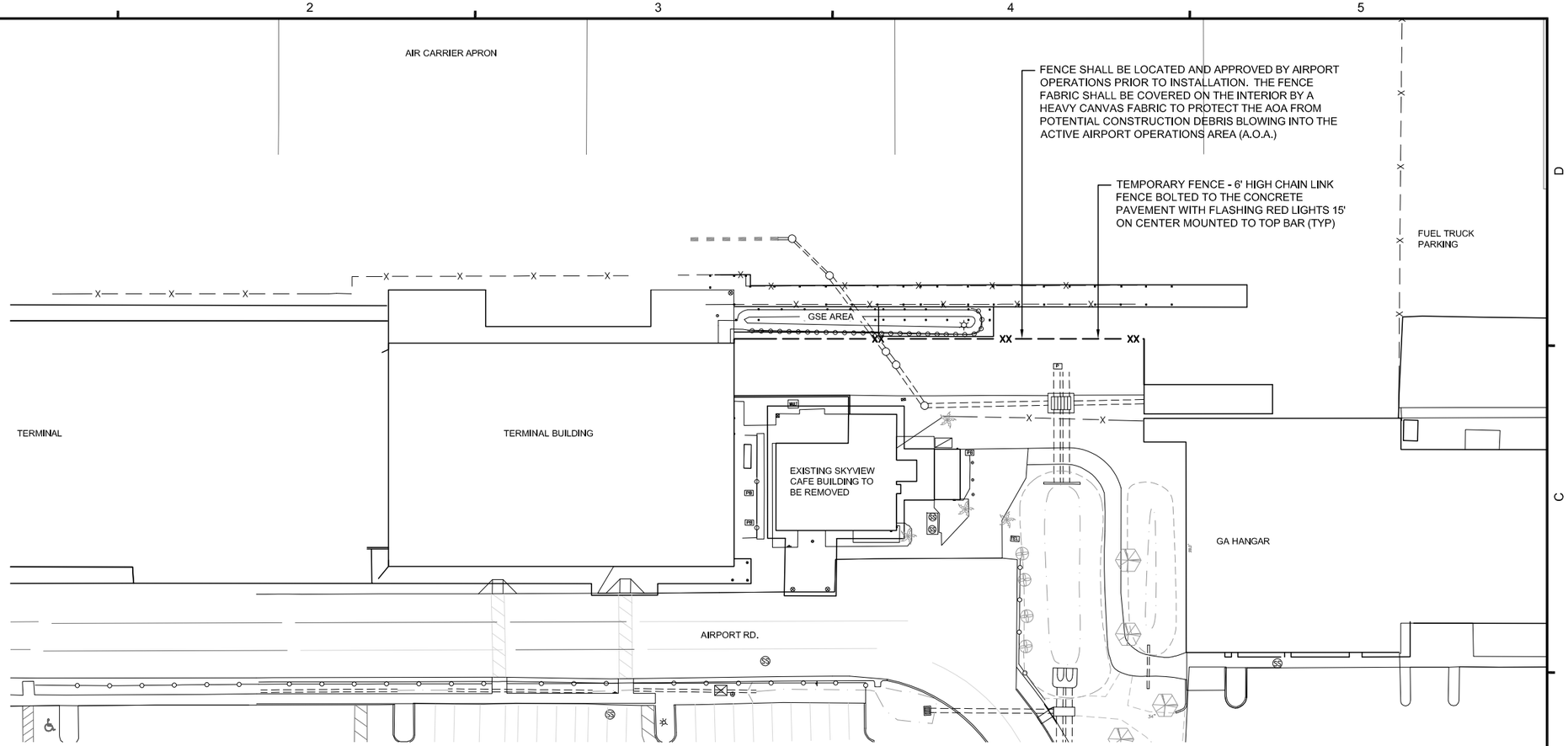
I/R	DATE	DESCRIPTION

Project Name
SOUTH TERMINAL EXPANSION AND IN-LINE BAGGAGE SYSTEM

Drawing Name:
ENLARGED PHASING PLAN

FDOT Project No.: XXXX-X-XX-XX	FAA A.I.P. Project No.: XXXX-X-XX-XX
Date: DECEMBER, 2022	Issue: 100% CONSTRUCTION DOCUMENTS
Scale: As indicated	Drawing Number: G-006

DRAWING SIZE REDUCED IF LESS THAN 34"x22"



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Drawn By:	AECOM ProjECT No.:
APD	60665507

STEVEN G. HENRIQUEZ
PLAN

Notes:

REVISIONS

No.	Description	Date	By

Project Name:
SOUTH TERMINAL EXPANSION AND IN-LINE BAGGAGE SYSTEM

Drawing Name:
TEMPORARY FENCING PLAN

FDOT Project No.:	FAA A.I.P. Project No.:
Date: DECEMBER, 2022	Issue: 100% CONSTRUCTION DOCUMENTS
Scale: AS SHOWN	Drawing Number: G-010

DRAWING SIZE REDUCED IF LESS THAN 34"x22"

APPENDIX E

DRAWINGS

(Under Separate Cover)